DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R5–ES–2021–0032; FF09E21000 FXES11110900000 212]

1018–BF87

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Rufa Red Knot (Calidris canutus rufa)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to designate critical habitat for the federally threatened rufa red knot (*Calidris canutus rufa*) under the Endangered Species Act of 1973, as amended (Act). In total, approximately 649,066 acres (ac) (262,667 hectares (ha)) are proposed in 120 units (18 of which are further subdivided into 46 subunits) in Massachusetts, New York, New Jersey, Delaware, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas. We also announce a public informational meeting and public hearing and the availability of a draft economic analysis of the proposed critical habitat designation.

DATES:

Comment submission: We will accept comments received or postmarked on or before September 13, 2021. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. Eastern Time on the closing date.

Public informational meeting and public hearing: On August 18, 2021, we will hold a public informational meeting from 6:00 to 7:30 p.m., Eastern Time, followed by a public hearing from 7:30 to 9:00 p.m., Eastern Time. See *Public Hearing,* in **SUPPLEMENTARY INFORMATION**, for more information.

ADDRESSES: You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal: *http://www.regulations.gov.* In the Search box, enter FWS–R5–ES–2021–0032, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the Search panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on ''Comment Now!''

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R5–ES–2021–0032, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on *http://www.regulations.gov.* This generally means that we will post any personal information you provide us (see *Public Comments,* below, for more information).

FOR FURTHER INFORMATION CONTACT: Eric Schrading, Field Supervisor, U.S. Fish and Wildlife Service, New Jersey Ecological Services Field Office, 4 East Jimmie Leeds Road, Suite 4, Galloway, NJ 08205; telephone 609–382–5272. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, when we determine that any species is an endangered or threatened species, we are required to designate critical habitat, to the maximum extent prudent and determinable. Designations of critical habitat can only be completed by issuing a rule.

What this document does. This document proposes a designation of critical habitat for the rufa red knot, a threatened species of bird, in portions of 61 counties (or parishes) in 13 States.

The basis for our action. Under the Act, if we determine that a species is an endangered or threatened species we must, to the maximum extent prudent and determinable, designate critical habitat. Section 4(b)(2) of the Act states that the Secretary shall designate critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area will result in the extinction of the species.

Peer Review. In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought the expert opinions of five appropriate specialists regarding the species status assessment report (Service 2020a, entire) that informed this proposed rule. The purpose of peer review is to ensure that the science behind our critical habitat designation is based on scientifically sound data, assumptions, and analyses. We received review of the Species Status Assessment (SSA) report from two experts outside the Service. We are also conducting a peer review of this proposed critical habitat designation (including the supplemental ''Methodology'' document available on the internet at *http://www.regulations.gov* under Docket No. FWS–R5–ES–2021–0032) to ensure that this proposal is based on scientifically sound data and analysis. We have invited peer reviewers to comment on our specific assumptions and conclusions in this proposed rule, and we will consider any comments received, as appropriate, before a final agency determination.

Uncommon Acronyms Used in This Proposed Rule

For the convenience of the reader, listed below are some of the acronyms used in this proposed rule:

Act = Endangered Species Act
ASMFC = Atlantic States Marine Fisheries Commission
CFR = Code of Federal Regulations
DDFW = Delaware Division of Fish and Wildlife
DEA = draft economic analysis
DHS = Department of Homeland Security
DMR = Department of Marine Resources
DoD = Department of Defense
DHS = Department of Homeland Security
EIS = environmental impact statement
FDEP = Florida Department of Environmental Protection
FGDC = Federal Geographic Data Committee
FR = Federal Register
GDNR = Georgia Department of Natural Resources
HCP = habitat conservation plan
IEc = Industrial Economics, Incorporated
IEM = incremental effects memorandum
INRMP = integrated natural resources management plan
IPCC = Intergovernmental Panel on Climate Change
LDWF = Louisiana Department of Wildlife and Fisheries
MLLW = mean lower low water
NASA = National Aeronautics and Space Administration
NCWRC = North Carolina Wildlife Resources Commission
NERR = National Estuarine Research Reserve
NPS = National Park Service
NWR = National Wildlife Refuge
ORV = off-road vehicle
SCDNR = South Carolina Department of Natural Resources
SCDPRT = South Carolina Department of Parks, Recreation & Tourism

Service = U.S. Fish and Wildlife Service
SSA = Species Status Assessment
TNC = The Nature Conservancy
USCCSP = U.S. Climate Change Science Program

Information Requested

Public Comments

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other concerned governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning this proposed rule.

We particularly seek comments concerning:

(1) The reasons why we should or should not designate habitat as ''critical habitat'' under section 4 of the Act (16 U.S.C. 1531 *et seq.*), including information to inform the following factors that the regulations identify as reasons why designation of critical habitat may be not prudent:

(a) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(b) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(c) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States; or

(d) No areas meet the definition of critical habitat.

(2) Specific information on:

(a) The amount and distribution of rufa red knot habitat;

(b) What areas, that were occupied at the time of listing (specifically referring to January 12, 2015, which is the effective date for the December 11, 2014, final listing rule (79 FR 73705)) and that contain the physical or biological features essential to the conservation of the species, should be included in the designation and why;

(c) Special management considerations or protection that may be needed in critical habitat areas we are proposing, including managing for the potential effects of climate change; and

(d) What areas not occupied at the time of listing are essential for the conservation of the species. We particularly seek comments regarding:

(i) Whether occupied areas are adequate for the conservation of the species; and

(ii) Specific information regarding whether or not unoccupied areas would, with reasonable certainty, contribute to the conservation of the species and contain at least one physical or biological feature essential to the conservation of the species.

(3) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(4) Information on the projected and reasonably likely impacts of climate change on the rufa red knot's proposed critical habitat.

(5) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation, and the benefits of including or excluding specific areas.

(6) Information on the extent to which the description of probable economic impacts in the draft economic analysis is a reasonable estimate of the likely economic impacts.

(7) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act, in particular those based on a conservation program or plan, and why. These may include Federal, Tribal, State, county, local, or private lands with permitted conservation plans covering the species in the area such as habitat conservation plans, safe harbor agreements, or conservation easements, or non-permitted conservation agreements and partnerships that would be encouraged by designation of, or exclusion from, critical habitat. Detailed information regarding these plans, agreements, easements, and partnerships is also requested, including:

(a) The location and size of lands covered by the plan, agreement, easement, or partnership;

(b) The duration of the plan, agreement, easement, or partnership;

(c) Who holds or manages the land;

(d) What management activities are conducted;

(e) What land uses are allowable; and

(f) If management activities are beneficial to the rufa red knot and its habitat.

(8) Ongoing or proposed conservation efforts that could result in direct or indirect ecological benefits to the associated habitat for the rufa red knot; as such, those efforts would lend to the recovery of the species and therefore areas covered may be considered for exclusion from the final critical habitat designation.

(9) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include. Also, please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, will not be considered in making a determination.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via *http://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *http://www.regulations.gov.*

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov,* or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, New Jersey Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. At this time, we have preemptively scheduled a public informational meeting and public hearing on this proposed rule. We will hold the public informational meeting and public hearing on the date and at the times listed above under *Public informational meeting and public hearing* in **DATES**. We are holding the public informational meeting and public

hearing via the Zoom online video platform and via teleconference so that participants can attend remotely. For security purposes, registration is required. To listen and view the meeting and hearing via Zoom, listen to the meeting and hearing by telephone, or provide oral public comments at the public hearing by Zoom or telephone, you must register. For information on how to register, or if you encounter problems joining Zoom the day of the meeting, visit *https://fws.gov/northeast/red-knot/.* Registrants will receive the Zoom link and the telephone number for the public informational meeting and public hearing. If applicable, interested members of the public not familiar with the Zoom platform should view the Zoom video tutorials (*https://support.zoom.us/hc/en-us/articles/206618765-Zoom-video-tutorials*) prior to the public informational meeting and public hearing.

The public hearing will provide interested parties an opportunity to present verbal testimony (formal, oral comments) regarding this proposed rule to designate critical habitat for the rufa red knot. While the public informational meeting will be an opportunity for dialogue with the Service, the public hearing is not. Rather, the public hearing is a forum for accepting formal verbal testimony. In the event there is a large attendance, the time allotted for oral statements may be limited. Therefore, anyone wishing to make an oral statement at the public hearing for the record is encouraged to provide a prepared written copy of their statement to us through the Federal eRulemaking Portal, or U.S. mail (see **ADDRESSES**, above). There are no limits on the length of written comments submitted to us. Anyone wishing to make an oral statement at the public hearing must register before the hearing *https://fws.gov/northeast/red-knot/.* The use of a virtual public hearing is consistent with our regulations at 50 CFR 424.16(c)(3).

Reasonable Accommodation

The Service is committed to providing access to the public informational meeting and public hearing for all participants. Closed captioning will be available during the public informational meeting and public hearing. Further, a full audio and video recording and transcript of the public hearing will be posted online at *https://fws.gov/northeast/red-knot/* after the hearing. Participants will also have access to live audio during the public informational meeting and public hearing via their telephone or computer speakers. Persons with disabilities requiring reasonable accommodations to participate in the meeting and/or hearing should contact the person listed under **FOR FURTHER INFORMATION CONTACT** at least 5 business days prior to the date of the meeting and hearing to help ensure availability. An accessible version of the Service's public informational meeting presentation will also be posted online at *https://fws.gov/northeast/red-knot/* prior to the meeting and hearing (see **DATES**, above). See *https://fws.gov/northeast/red-knot/* for more information about reasonable accommodation.

Previous Federal Actions

It is our intent to discuss only those topics directly relevant to the designation of critical habitat for the rufa red knot in this document. For more information on the rufa red knot or its habitat, refer to:

(1) The final listing rule published in the **Federal Register** on December 11, 2014 (79 FR 73706), available online at *http://www.regulations.gov* (at Docket No. FWS–R5–ES–2013–0097).

(2) The November 2014 Rufa Red Knot Background Information and Threats Assessment (Supplemental Document; Service 2014, entire), available online at *https://fws.gov/northeast/red-knot/* and *http://www.regulations.gov* (at Docket No. FWS–R5–ES–2013–0097). And

(3) The Species Status Assessment Report for the Rufa Red Knot (*Calidris canutus rufa*), Version 1.1, available on the internet at *https://fws.gov/northeast/red-knot/* and *http://www.regulations.gov* (Docket No. FWS–R5–ES–2021–0032).

For more information on previous Federal actions associated with listing rufa red knot, please refer to the supplemental document (''Previous Federal Actions'') on the internet at *https://fws.gov/northeast/red-knot/* and *http://www.regulations.gov* (Docket No. FWS–R5–ES–2013–0097).

On June 22, 2018, Defenders of Wildlife filed a complaint (Case 1:18–cv–01474–APM) alleging that the Service violated the Act by missing the statutory deadline to designate critical habitat (*i.e.,* 12 months following publication of the final listing rule on December 11, 2014). On February 1, 2019, the Service and Defenders of Wildlife filed with the United States District Court for the District of Columbia a joint motion to stay proceedings until June 30, 2021, whereby the Service agreed to submit to the **Federal Register** a proposed critical habitat designation. The court granted the motion on February 7, 2019. This document constitutes the proposed critical habitat designation for rufa red knot, and complies with the court order issued February 7, 2019.

Supporting Documents

An SSA team prepared an SSA report (Service 2020a, entire) for the rufa red knot primarily to inform the development of a draft recovery plan for the species (Service 2021, entire). The timing and thoroughness of the peer-reviewed SSA report supported the analysis and development of this proposed critical habitat rule. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species. The Service sent the SSA report (which accompanied the draft Recovery Plan) to five independent peer reviewers; two peer reviewers provided a review of the document. The Service also sent the SSA report and draft Recovery Plan for review by more than 177 parties, which included both internal/Service biologists and managers, and external partners, including scientists with expertise in rufa red knot biology, habitat management, and threats. We received review from 24 partners, including Federal and State agencies. We are also conducting a peer review of this proposed critical habitat designation (including the supplemental ''Methodology'' document available on the internet at *http://www.regulations.gov* under Docket No. FWS–R5–ES–2021–0032) during the open comment period to ensure that this proposal is based on scientifically sound data and analysis.

Availability of Supporting Materials

The SSA report and other materials relating to this critical habitat proposal, including coordinates or plot points or both from which the maps are generated, are included in the administrative record and are available at *http://www.regulations.gov* under Docket No. FWS–R5–ES–2021–0032. Any additional tools or supporting information that we may develop for the critical habitat designation will also be available at *https://www.fws.gov/northeast/red-knot/,* and may also be included in the preamble of this proposal and/or at *http://www.regulations.gov.*

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (*i.e.,* range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (*e.g.,* migratory corridors, seasonal habitats, and habitats used periodically, but not solely, by vagrant individuals).

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the Federal agency would be required to consult with the Service under section 7(a)(2) of the Act. However, even if the Service were to conclude that the proposed activity would result in destruction or adverse modification of the critical habitat, the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore or recover the species; instead, they must implement ''reasonable and prudent alternatives'' to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features that occur in specific occupied areas, we focus on the specific features that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. When designating critical habitat, the Secretary will first evaluate areas occupied by the species. The Secretary will only consider unoccupied areas to be essential where a critical habitat designation limited to geographical areas occupied by the species would be inadequate to ensure the conservation of the species. In addition, for an unoccupied area to be considered essential, the Secretary must determine that there is a reasonable certainty both that the area will contribute to the conservation of the species and that the area contains one or more of those physical or biological features essential to the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information from the SSA report and information developed during the listing process for the species. Additional information sources may include any generalized conservation strategy, criteria, or outline that may have been developed for the species; the draft recovery plan for the species; articles in peer-reviewed journals; conservation plans developed by States and counties; scientific status surveys and studies; biological assessments; other unpublished materials; or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act; (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the

continued existence of any endangered or threatened species; and (3) the prohibitions found in section 9 of the Act. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

Prudency Determination

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the Secretary may, but is not required to, determine that a designation would not be prudent in the following circumstances:

(i) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(ii) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(iii) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States;

(iv) No areas meet the definition of critical habitat; or

(v) The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

There is currently no imminent threat of collection or vandalism identified under Factor B for the rufa red knot, and identification and mapping of critical habitat is not expected to initiate any such threat. In the proposed listing determination for rufa red knot (79 FR 73705, December 11, 2014) and our more recent SSA report (Service 2020a, entire), we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to rufa red knot and that those threats in some way can be addressed by section 7(a)(2) consultation measures. Additionally, although the species range occurs in other parts of North, Central, and South America outside of the United States, the areas within the jurisdiction of the United States serve a significant conservation value to the species during both its northbound and southbound migration to/from its breeding grounds and overwintering regions, using these migration areas as key staging and stopover areas to rest and feed. Some portions of the United States also provide significant conservation value for certain populations of overwintering rufa red knots. Our analysis of the best available scientific and commercial information indicates there are areas within the range of the species in the United States that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) have been met and because there are no other circumstances the Secretary has identified for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat for rufa red knot is prudent.

Critical Habitat Determinability

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the rufa red knot is determinable. Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

(i) Data sufficient to perform required analyses are lacking, or

(ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of ''critical habitat.''

When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

We reviewed the available information pertaining to the biological needs of the species and habitat characteristics where the species is located. This and other information represent the best scientific data available and led us to conclude that the designation of critical habitat is determinable for the rufa red knot.

Physical or Biological Features Essential to the Conservation of the Species

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas we will designate critical habitat from within the geographical area occupied by the species at the time of listing, we consider the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection. The regulations at 50 CFR 424.02 define ''physical or biological features essential to the conservation of the species'' as the features that occur in specific areas and that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity. For example, physical features essential to the conservation of the species might include gravel of a particular size required for spawning, alkali soil for seed germination, protective cover for migration, or susceptibility to flooding or fire that maintains necessary early-successional habitat characteristics. Biological features might include prey species, forage grasses, specific kinds or ages of trees for roosting or nesting, symbiotic fungi, or a particular level of nonnative species consistent with conservation needs of the listed species. The features may also be combinations of habitat characteristics and may encompass the relationship between characteristics or the necessary amount of a characteristic essential to support the life history of the species.

In considering whether features are essential to the conservation of the species, the Service may consider an appropriate quality, quantity, and spatial and temporal arrangement of habitat characteristics in the context of the life-history needs, condition, and status of the species. These characteristics include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction,

or rearing (or development) of offspring; and habitats that are protected from disturbance.

We derive the specific physical or biological features essential for the rufa red knot from studies of the species' habitat, ecology, and life history, which are described more fully in the final listing rule (79 FR 73706, December 11, 2014) and associated supplemental materials (Service 2014, entire). Additionally, these features were most recently described in the SSA report (Service 2020a, entire), in the context of the needs of individuals, populations, and the species.

With regard to ''space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; and cover or shelter,'' these characteristics are captured by the summary discussion in the following paragraphs. The characteristic of ''sites for breeding, reproduction, or rearing (or development) of offspring'' does not apply for this proposed critical habitat designation because the rufa red knot does not breed in the United States. Regarding ''habitats that are protected from disturbance,'' rufa red knots are particularly sensitive to disturbance from human activities, which are nearly ubiquitous along the U.S. coasts. Thus, management of habitats to ensure minimal human activity during those seasons when birds are present is essential to the conservation of this subspecies. Overall, rufa red knot requires both an abundance of suitable nonbreeding habitats, as well as a suitable distribution of those habitats across the landscape.

Habitat Features

Coastal habitats used by rufa red knots (*i.e.,* for foraging and roosting) are similar across both migration and wintering areas (Harrington 2001, p. 9), and can be generally characterized as sparsely vegetated coastal marine and estuarine habitats with large areas of exposed intertidal substrates. Migration and wintering habitats include high-energy ocean- or bay-front barrier island or mainland beaches, as well as shorelines and tidal flats in more sheltered estuaries (*e.g.,* bays, sounds, lagoons) (Harrington 2001, p. 9). Beaches used by rufa red knots may be backed by dune fields, tidal waters, salt marsh, mangroves, or human development. Unimproved tidal inlets (*e.g.,* the mouths of creeks or larger rivers) often provide an optimal mosaic of preferred habitat types. Along the U.S. Atlantic and Gulf coasts, dynamic and ephemeral features are important rufa red knot habitats, including sand spits, islets, shoals, and sandbars, features often associated with inlets (Harrington 2001, p. 8; Sitters 2005, entire; Winn and Harrington *in* Guilfoyle et al. 2006, pp. 8–10; Harrington *in* Guilfoyle et al. 2007, pp. 18–19; Harrington 2008, pp. 2, 4–5; Niles et al. 2008, p. 30; Lott et al. 2009, pp. 18–19; North Carolina Wildlife Resources Commission (NCWRC) 2013, entire).

In the United States, there has been considerable loss or degradation of dynamic and ephemeral coastal features, including the associated loss of rufa red knot habitat as a result of shoreline stabilization and other engineering practices that support coastal development (Nordstrom 2000, pp. 20, 98–107; Nordstrom and Mauriello 2001, entire; U.S. Climate Change Science Program (USCCSP) 2009, pp. 99–100; Defeo et al. 2009, p. 4; Kisiel 2009, p. 65; Titus et al. 2009, p. 5; Rice 2012, p. 6; Rice 2017, entire). In some cases, however, engineered or artificial features may be used as habitat, or may enhance habitat (Botton et al. 1994, p. 614; Niles et al. 2008, pp. 40, 46; Schwarzer 2013, pers. comm.; Breese 2013, pers. comm.; Niles et al. 2013, entire; Firmin 2020, pers. comm.). In some localized areas, rufa red knots will use artificial habitats that mimic natural conditions, such as nourished beaches, dredge spoil sites, elevated road causeways, rock structures (*e.g.,* jetties, breakwaters), or impoundments. In other areas, living shorelines or even traditional (''hard'') engineering structures may enhance rufa red knot habitat, for example by concentrating surf-cast prey items or by calming wave energies. Notwithstanding these localized examples, rufa red knots generally require areas where natural coastal processes (*e.g.,* erosion, accretion, overwashes, island migration, inlet migration) are allowed to operate in order to create and maintain optimal habitat, which is typically dynamic and ephemeral.

In all nonbreeding habitats, rufa red knots require sparse vegetation and open landscapes, affording the birds good visibility of the surrounding area in order to avoid predation (Piersma et al. 1993, pp. 338–339, 349; Niles et al. 2008, p. 44). Rufa red knots tend to migrate in large single-species flocks, and may also flock with other shorebirds, particularly when roosting or staging for spring and fall migration (Harrington 2001, p. 8). Thus, areas that provide foraging and resting habitat capable of supporting large concentrations of birds are especially important.

Foraging Habitat: In coastal areas, rufa red knot foraging habitats include intertidal portions of beaches, islands, and shoals; tidal flats; wind-exposed bay bottoms or oyster reefs; peat banks; brackish ponds or impoundments; and ephemeral tidal pools. Foraging substrates can include sand, mud, peat, and sand embedded with shell, gravel, or cobble (Niles *et al.* 2008, pp. 30, 47; Harrington 2001, pp. 8–9; Newstead 2014, pp. 13–14; Service 2014, pp. 63–67). Feeding birds may be concentrated at higher tides, pushed into a smaller area by rising waters and also attracted to higher food densities along the high water line, where food may be concentrated in wrack material and where horseshoe crabs (*Limulus polyphemus*) tend to nest. However, rufa red knots have also been shown to spread out and forage across the full tidal range (Service 2014, pp. 63–67; Service 2016a, pp. 76–82; Burger *et al.* 2018, entire).

Roosting Habitat: In many wintering and coastal stopover areas, quality high-tide roosting habitat (*i.e.,* close to feeding areas, protected from predators, with sufficient space during the highest tides, free from excessive human disturbance) is limited (Kalasz 2008, p. 9; Kalasz 2012, pers. comm.; Niles 2012, pers. comm.; Conseil Scientifique Régional du Patrimoine Naturel 2013, entire). Typical roosting areas are relatively open and flat beaches between the high water line and the primary dune line. In some locations, roosts can include shoals, sand bars, areas of upper beach between/among unstabilized dunes, overwashes, patches of mostly bare ground (*e.g.,* blowouts, depressions, salt pannes) within salt marshes, dredge spoil sites, rock structures (*e.g.,* jetties, breakwaters), or among wrack including atop mounds of seaweed deposited on the beach (Service 2014, pp. 63–67). Such areas may have microtopographic relief offering shelter from high winds, storms, and cold weather. Rufa red knots' selection of high-tide roosting areas on the coast appears to be strongly influenced by raptor predation (Niles et al. 2008, p. 28).

Inland Habitat: Rufa red knots use inland saline lakes as stopover habitat in the Northern Great Plains (Skagen et al. 1999, pp. 80–81; Newstead et al. 2013, p. 57). We have little information to indicate whether or not rufa red knots may also use inland freshwater habitats during migration, but certain freshwater areas (*e.g.,* wetlands, riverine sandbars) may warrant further study as potential stopover habitats (Dovichin 2014, pers. comm.; Russell 2014, entire). Small numbers of rufa red knots sometimes

use manmade freshwater habitats (*e.g.,* impoundments) along inland migration routes (Simnor 2012, pers. comm.; Russell 2014, entire; Service 2014, pp. 68–70).

Diet: The rufa red knot is a specialized molluscivore, eating primarily hard-shelled mollusks, though sometimes supplemented with softer invertebrate prey such as arthropods, marine worms, and horseshoe crab eggs (Harrington 2001, pp. 9–11; Piersma and van Gils 2011, p. 9). In most U.S. coastal habitats, rufa red knots feed primarily on bivalves such as small clams and mussels (including mussel spat) (Harrington 2001, pp. 10–11; Niles et al. 2008, p. 30; Service 2014, pp. 71–73). Prey size is approximately 0.16 to 0.79 inch (in) (4 to 20 millimeters (mm)) long, and up to 1.18 in (30 mm) in circumference. Foraging activity is largely dictated by tidal conditions, as rufa red knots rarely wade in water more than 0.8 to 1.2 in (2 to 3 centimeters (cm)) deep (Harrington 2001, p. 10). Due to bill morphology, rufa red knots forage on only shallow-buried prey, within the top 0.8 to 1.2 in (2 to 3 cm) of sediment (Zwarts and Blomert 1992, p. 113; Gerasimov 2009, p. 227). Long-distance migrant shorebirds, such as rufa red knots, must take advantage of seasonally abundant food resources at migration stopovers to build up fat reserves for the next nonstop, long-distance flight (Clark et al. 1993, p. 694). Although migrating rufa red knots can be found widely distributed in small numbers within suitable stopover habitats, birds tend to concentrate in those areas where abundant food resources are consistently available from year to year. The spatial distribution of rufa red knots in many different stopover areas has been correlated with the distribution of the primary prey species (Service 2014, p. 71).

A prominent departure from typical prey items occurs each spring when rufa red knots feed on the eggs of horseshoe crabs, particularly during the key migration stopover at Delaware Bay. Delaware Bay serves as the principal spring migration stopover area for the rufa red knot because of the abundance and availability of horseshoe crab eggs (Harrington 2001, pp. 2, 7; Niles et al. 2008, pp. 36–39; Clark et al. 2009, p. 85; Service 2014, pp. 73–76). Outside of Delaware Bay, horseshoe crab eggs are eaten opportunistically when available. In several areas along the Atlantic coast, horseshoe crab eggs are a preferred food resource and may be a locally important component of the diet, particularly in spring (Service 2014, pp. 71–76).

Sensitivity to Disturbance

We define ''disturbance'' as any human activity that is audible or visible to rufa red knots and that interrupts the normal behavior of the birds. The daily and seasonal selection of non-breeding habitats by individual rufa red knots represents an adaptive optimization of several factors and the fitness trade-offs among them. These factors include seasonal time pressures (particularly during migration) (Hedenström 2008, p. 287; Service 2014, pp. 249–250), food availability (Service 2014, p. 71), predator avoidance (Niles et al. 2008, p. 28), tides (Newstead 2014, pp. 13–14; Burger et al. 2018, entire), and weather. It is in this context that disturbance from human activities occurs, such that interruption of normal behaviors can result in reduced fitness of the affected birds (West et al. 2002, p. 319; Goss-Custard et al. 2006, p. 88). Typical rufa red knot behaviors include feeding in intertidal areas, and roosting, resting, or preening above the high water line. Rufa red knot reactions to human activity that indicate disturbance typically include stopping or slowing feeding, assuming an alert posture, calling, walking, running, or flying (Koch and Paton 2014, entire). Rufa red knots are exposed to disturbance from recreational and other human activities throughout their non-breeding range (Niles et al. 2008, pp. 105–107; Service 2014, pp. 266–272).

Among shorebird species, rufa red knots appear to be particularly reactive to the presence of humans (Burger and Niles 2013, p. 657; Koch and Paton 2014, p. 64; Hunt et al. 2018, pp. 18–19). Although population-level impacts cannot be concluded from species' differing behavioral responses to disturbance (Gill et al. 2001, p. 265; Stillman et al. 2007, p. 73), behavior-based models can be used to relate the number and magnitude of human disturbances to impacts on the fitness of individual birds (West et al. 2002, p. 319; Goss-Custard et al. 2006, p. 88). When the time and energy costs arising from disturbance were included, disturbance could be more damaging to shorebirds than permanent habitat loss (West et al. 2002, p. 319).

Excessive disturbance precludes rufa red knot use of otherwise preferred habitats (Service 2014, pp. 267–270; Watts 2017, p. 72; Hunt et al. 2018, p. 22). Disturbance can also impact shorebird energy budgets (Service 2014, pp. 270–272; Hunt et al. 2018, pp. 26–29). Both of these effects are likely to exacerbate other threats to the rufa red knot, such as habitat loss from erosion and development, reduced food availability, asynchronies in the annual cycle, and competition with gulls. Disturbance that displaces birds from preferred habitats and/or disrupts their behavioral patterns can impair the ability of rufa red knots to gain or maintain sufficient weight, which can in turn impact fitness. Studies have found a link between the weights of rufa red knots leaving Delaware Bay after their spring stopover and subsequent survival rates, and possibly also to reproductive success (Baker *et al.* 2004, p. 878; McGowan et al. 2011, p. 9; Duijins et al. 2017, entire).

Habitat Abundance and Distribution

Rufa red knots move among, and depend on, multiple foraging and roosting habitat areas on local, regional, and rangewide scales. As discussed above, habitat selection by rufa red knots represents trade-offs among factors including seasonal time pressures, food availability, predator avoidance, tides, weather, and human disturbance. This complex suite of factors results in shifting patterns of habitat use on daily, seasonal, and annual temporal scales. In addition, the dynamic and shifting nature of the shoreline also influences habitat selection over multiyear scales (*e.g.,* through natural cycles of erosion and accretion). Rufa red knots make regular movements within (though not between) wintering regions (Niles et al. 2012, pp. 198, 200, 202; Newstead 2014, pp. 3, 6–8; Service 2014, pp. 43–44) and to use clusters of habitats as regional stopover complexes during migration (Clark et al. 2009, pp. 87, 89; Watts 2009, entire; Service 2014, pp. 54–55).

We define ''staging areas'' as those stopover sites with abundant, predictable food resources where birds prepare for an energetic challenge (usually a long flight over a barrier such as an ocean) requiring substantial fuel stores and physiological changes without which significant fitness costs are incurred (Warnock 2010, p. 622). Staging areas are a subset of stopover habitats (Service 2020a, p. 31), and they serve as vital stepping stones between wintering and breeding areas. Shorebirds migrate along traditional routes characterized by a chain of key staging areas that are essential to successful migration; staging areas serve as vital stepping stones between wintering and breeding areas (Myers 1983, p. 23; International Wader Study Group 2003, p. 10; Service 2014, p. 49). However, even a robust network of staging areas is not sufficient to support recovery of this subspecies. Rufa red knots also require an ample supply of other coastal and inland stopover

habitats distributed across the range, allowing birds to shift among habitat patches across multiple temporal and geographic scales in response to a number of stochastic conditions. Because rufa red knots require this flexibility, even some highly suitable and important nonbreeding habitats may not be used every year, and, within a given season, usage of particular habitat patches is likely to fluctuate across days and months (Service 2014, pp. 53–60; Smith et al. 2017a, p. 3; Service 2020a, p. 32). One particular non-breeding habitat is that used by juvenile rufa red knots. Rufa red knots do not reach adulthood until 2 years of age, at which point they make their first full northern migration to their nesting grounds. Where they spend their first 2 years and their movement patterns are largely unknown. However, Florida and the Caribbean are likely important for this stage of their life (Kalasz 2021, pers. comm.).

Sea Level Rise

Due to background rates of sea level rise and the naturally dynamic nature of coastal habitats, we concluded at the time of listing that rufa red knots are adapted to moderate (although sometimes abrupt) rates of habitat change in their wintering and migration areas. However, we also concluded, based on overwhelming evidence, that rates of sea level rise have increased beyond those that have occurred over recent millennia and continue to accelerate (Service 2014, pp. 142–143; Intergovernmental Panel on Climate Change (IPCC) 2013, pp. 11, 25). These conclusions are further supported by newer information evaluated in the SSA report (Service 2020a, pp. 32–36). Over the period 1902 to 2015, global mean sea level rose by 0.5 feet (ft) (0.16 meters (m)) (likely range of 0.4 to 0.7 ft (0.12 to 0.21 m)) (IPCC 2019, p. 42). The rate of sea level rise since the mid-19th century has been larger than the mean rate during the previous two millennia (high confidence) (IPCC 2014a, p. 4). Extreme wave heights, which contribute to extreme sea level events and coastal erosion, have increased in the North Atlantic by around 0.3 in (0.8 cm) per year over the period 1985 to 2018 (medium confidence) (IPCC 2019, p. 42).

The rufa red knot is vulnerable to inundation of tidal flats and erosion of sandy beaches, which are typically caused or accelerated by climate-driven sea level rise (Service 2014, pp. 126–143; Vousdoukas et al. 2019, entire). In most of the rufa red knot's nonbreeding range, shorelines are expected to undergo dramatic reconfigurations over the next century as a result of accelerating sea level rise (USCCSP 2009, pp. 13, 44, 50). Extensive areas of marsh are likely to become inundated, which may reduce foraging and roosting habitats. Marshes may be able to establish farther inland, but the rate of new marsh formation (*e.g.,* intertidal sediment accumulation, development of hydric soils, colonization of marsh vegetation) may be slower than the rate of deterioration of existing marsh, particularly under the high sea level rise scenarios (Nikitina et al. 2013, p. 11; Glick et al. 2008, p. 6). The primary rufa red knot foraging habitats, intertidal flats, and sandy beaches will likely be locally or regionally inundated or eroded, but replacement habitats are likely to re-form along the shoreline in its new position (Scavia et al. 2002, p. 152; USCCSP 2009, p. 186). However, if shorelines experience a decades-long period of high instability and landward migration (*i.e.,* under higher rates of sea level rise), the formation rate of new beach habitats may be slower than the rate of loss of existing habitats (Iwamura et al. 2013, p. 6). Additionally, low-lying and narrow islands, such as those along the U.S. Gulf and Atlantic coasts, may disintegrate rather than migrate (Titus 1990, p. 67; IPCC 2014b, p. 15), representing a net loss of rufa red knot habitat. Galbraith et al. (2002, p. 178) examined several scenarios of future sea level rise and projected major losses of intertidal habitat in Delaware Bay.

Superimposed on these changes are widespread human attempts to stabilize the shoreline, which exacerbate losses of intertidal habitats by preventing their landward migration, and human infrastructure that blocks the landward migration of coastal habitats (Service 2014, pp. 143–159). The cumulative loss of habitat across the nonbreeding range could affect the ability of rufa red knots to complete their annual cycles, possibly affecting fitness and survival, and is thereby likely to negatively influence the long-term survival of the rufa red knot (Galbraith et al. 2014, p. 7 and Supplement 1).

Summary of Physical or Biological Features

We derive the specific physical or biological features essential to the conservation of rufa red knot from studies of the species' habitat, ecology, and life history as described below. Additional information can be found in the SSA report (Service 2020a, entire; available on *http://www.regulations.gov* under Docket No. FWS–R5–ES–2021–0032). We have determined that rufa red knots need areas where natural coastal processes will be able to continue well into the future to allow the formation of ephemeral features and the landward migration of coastlines in response to sea level rise. Therefore, based on the information above, we identify areas that support natural coastal processes, as well as localized areas where artificially created, maintained, or enhanced habitat supports important concentrations of red knots, as physical or biological features for the rufa red knot. These features are as follows:

(1) *Beaches and tidal flats used for foraging.* This feature includes high-energy ocean- or bay-front barrier island or mainland beaches, as well as shorelines and tidal flats in more sheltered estuaries (*e.g.,* bays, sounds, lagoons). Foraging substrates can include sand, mud, peat, and sand embedded with shell, gravel, or cobble. Foraging areas are between mean lower low water and mean higher high water. Suitable foraging habitats provide abundant quantities of accessible and appropriately sized prey items (*e.g.,* mussels and mussel spat, clams, other mollusks, horseshoe crab eggs, crustaceans, polychaete worms), timed to occur in high densities during those seasons when rufa red knots are present. ''Superabundant'' prey densities, typically bivalves or horseshoe crab eggs, are needed in migration staging areas to support rapid weight gain following long-distance flights. Large areas capable of supporting concentrations of shorebirds are especially important.

(2) *Upper beach areas used for roosting, preening, resting, or sheltering.* This feature includes unvegetated or sparsely vegetated sand between the high water line and the primary dune line. Generally these sites are open, with a large viewscape for predator avoidance. Many sites have micro-topographic relief offering refuge from high winds. Large areas capable of supporting concentrations of shorebirds—close to foraging areas, with limited predation pressure and protected from human disturbance—are especially important.

(3) *Ephemeral and/or dynamic coastal features used for foraging or roosting.* This includes dynamic and ephemeral features such as sand spits, islets, shoals, and sandbars, features often associated with inlets. Other ephemeral features used by rufa red knots include tidal pools; wind-exposed bay bottoms or oyster reefs; and unvegetated overwash areas (*e.g.,* among or behind dunes, as formed by storms or extreme wave action).

(4) *Ocean vegetation deposits or surf-cast wrack used for foraging and roosting.* This feature includes Sargassum (a species of macroalgae in

oceans that inhabits shallow water and coral reefs), seagrass, or seaweed deposits with mussel spat attached, or surf-cast wrack that accumulates along beaches and supports or captures food items, such as horseshoe crab eggs. In some areas, rufa red knots may also roost atop wrack mounds.

(5) *Intertidal peat banks used for foraging and roosting.* In some areas, exposed intertidal peat banks (*e.g.,* along bay front beaches and fronting tidal marshes) provide important foraging and roosting habitat.

(6) *Features landward of the beach that support foraging or roosting.* In some areas, rufa red knots use sparsely vegetated habitats landward of the beach berm, such as unstabilized dunes, mangrove edges, brackish ponds, and patches of mostly bare ground (*e.g.,* blowouts, depressions, pannes) within salt marshes.

(7) *Artificial habitat mimicking natural conditions or maintaining the physical or biological features 1 to 6 (above).* Coastal engineering that interferes with natural coastal processes is generally considered a threat to the rufa red knot. However, in some cases, artificial habitats mimic the natural conditions described in the other physical or biological features described above. Such artificial habitats can include nourished beaches, dredged spoil deposition sites, elevated road causeways, jetties, or impoundments. Additionally, some anthropogenic structures may promote or maintain the natural physical or biological features. For example, in parts of Delaware Bay, rufa red knot habitat features are enhanced by living shorelines (*e.g.,* shell bag reefs), and in one case by a rock breakwater.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features that are essential to the conservation of the species and which may require special management considerations or protection. The features essential to the conservation of the rufa red knot may require special management considerations or protection to reduce the threats to the species; these threats are described in the final listing rule (79 FR 73706, December 11, 2014; pp. 73707–73708), the Service's supplement to the proposed and final listing rule (Service 2014, pp. 124–314), and an updated summary in the recent SSA report (Service 2020a, pp. 15–18). For rufa red knot habitat, we grouped the primary threats that may require special management considerations or protection into seven threat categories:

(1) Disturbance of foraging and roosting red knots by humans, pets and domestic animals (*e.g.,* dogs (*Canis lupus familiaris*), cats (*Felis catus*), horses (*Equus ferus caballus*)), vehicles (*e.g.,* off-road vehicles (ORVs), golf carts, segways, all-terrain vehicles, automobiles, heavy equipment, beach rakes), ships/dredges, powered and unpowered (*e.g.,* kayaks) boats, personal watercraft (*e.g.,* jet skis), bicycles, surf kites, kite boards, dune surfers, surf fishing, paddle boards, para-sails, low-flying aircraft, drones, and research activities. Special management considerations or protection that could reduce or ameliorate this threat may include (but not be limited to): Managing access to rufa red knot foraging or roosting habitat during different seasonal windows; reducing disturbance (*e.g.,* managing sources of disturbance that could include humans, pets, vehicles, construction equipment, watercraft, and aircraft), such as through restrictions on timing, locations, and types of activities; providing designated beach access points that reduce conflict with rufa red knots; enforcing or creating dog restrictions during key periods; or minimizing boat or aircraft activity during key periods.

(2) Predation, especially by peregrine falcons (*Falco peregrinus*), hawks (*Buteo* spp. or *Accipter* spp.), red fox (*Vulpes vulpes*), coyotes (Canis latrans), raccoons (*Procyon lotor*), gulls (*Larus* spp.), feral cats, and owls (*Bubo* spp. *or Tyto* spp.). Special management considerations or protection that could reduce or ameliorate this threat may include (but not be limited to): Conducting predator control, controlling trash that may attract predators, or relocating any unnatural perches that attract avian predators.

(3) Competition with gulls, especially laughing gulls (*Larus atricilla*). Special management considerations or protection that could reduce or ameliorate this threat may include (but not be limited to): Controlling trash and removing any unnatural perches, both of which attract gulls; and prohibiting the feeding of gulls.

(4) Modification or loss of habitat, or both, due to residential and commercial development, uncontrolled recreational activities, beach cleaning, hard and soft beach stabilization efforts (*e.g.,* beach nourishment, sediment backpassing, sand scraping, sand fencing, dredged material disposal, inlet channelization or relocation, construction of jetties, revetments, and other armoring structures), invasive species, sand mining and dredging, erosion, and sea level rise. Special management considerations or protection that could reduce or ameliorate this threat may include (but not be limited to): Implementing conservation measures (*e.g.,* beach profiles designed to mimic natural habitat, ensuring a close grain size match to the native beach, limiting the frequency of activities to allow recovery of the prey base, seasonal timing to allow habitat recovery before red knots return) that help reduce modification or loss of habitat; managing sediment to abate habitat impacts from coastal engineering projects and sea level rise, and to maintain habitat features such as wide beaches, tidal flats, overwash areas, and high prey densities; coordinating with landowners and local managers to improve beach management practices, such as beach cleaning and sand fencing; implementing best management practices when conducting habitat restoration activities (*e.g.,* creating living shorelines, raising marsh elevations, conducting facilitated shoreline migration, maintaining and managing water control structures to provide rufa red knot habitat); conducting public outreach and education (especially on private and possibly State lands); and addressing the impacts of potential oil spills or gas drilling activities through facility placement, spill response plans, and training.

(5) Threats to the rufa red knot's food supply that can be managed or mitigated at the local or regional level (*e.g.,* unsustainable levels of marine crab harvest, excessive driving, and certain coastal engineering practices). Special management considerations or protection that could reduce or ameliorate this threat may include (but not be limited to): Monitoring and managing beach invertebrates; limiting vehicle use; implementing conservation measures for coastal engineering projects (*e.g.,* sediment grain size; frequency, timing, and scope of sediment placement); and managing horseshoe crab fisheries, such as for bait and biomedical uses.

(6) Insufficient water quality or pollution control that may trigger or worsen harmful algal blooms. Special management considerations or protection that could reduce or ameliorate this threat may include (but not be limited to): Working with local pollution authorities to limit those point discharges or non-point sources that are substantially impairing water quality or contributing to the frequency or severity of red tides or other harmful blooms.

(7) Human-caused disasters and response to natural and human-caused disasters such as oil spills, oil spill response including beach cleaning and berm construction, and response to natural disasters (*e.g.,* hurricanes). Special management considerations or protection that could reduce or ameliorate this threat may include (but not be limited to): Considering oil facility placement alternatives, preparing spill response plans, conducting oil spill training, conducting debris cleanup after a natural disaster while concurrently minimizing disturbance to rufa red knots, and establishing protocols and agreements to allow storm-enhanced habitats to persist.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas within the geographical area occupied by the species at the time of listing and any specific areas outside the geographical area occupied by the species to be considered for designation as critical habitat. We are not currently proposing to designate any areas outside the geographical area occupied by the species because we have not identified any unoccupied areas that meet the definition of critical habitat. Within areas of the species' range under U.S. jurisdiction, we determined that occupied areas are sufficient for the conservation of the species, following our evaluation of all suitable habitat across the species range that has documented use by rufa red knots.

The recovery strategy detailed in the species' draft Recovery Plan (Service 2021, entire) is to prevent loss of the rufa red knot's adaptive capacity by maintaining representation within and among four Recovery Units: (1) Southern (Atlantic coasts of Argentina and Chile), (2) North Coast of South America, (3) Western Gulf of Mexico/Central America, and (4) Southeast United States/Caribbean, and improving their resiliency and redundancy. Recovery efforts in the United States and in other portions of the subspecies' range will focus on protecting, restoring, maintaining, and managing important nonbreeding habitats for adults and juveniles. Recovery actions are designed to directly abate threats to rufa red knots in their wintering and migration ranges (which includes those areas identified as proposed critical habitat in this rule), and will also increase resiliency of populations to withstand threats that stem from climate change on their Arctic breeding grounds and elsewhere. These actions include monitoring and safeguarding ample food supplies, preventing impacts from development and shoreline stabilization, managing human disturbance, and restoring key habitats. They may also include land acquisition, facilitated migration of certain beaches or tidal flats, and restoring natural coastal processes that create and maintain rufa red knot habitat. Consistent with the Act and implementing policies, as well as recovery needs throughout the species' annual cycles, the draft Recovery Plan includes necessary recovery actions across the range of the rufa red knot. Although many Service-led recovery actions will focus on the U.S. portions of the range, the Service will also coordinate with and support the recovery efforts of foreign governments and other partners in portions of the range outside the United States.

Sources of data for this proposed critical habitat designation include 2020 eBird data (eBird 2020, website), and multiple local and regional sources as available (*e.g.,* reports, databases, and geolocator/resighting data maintained by State Fish and Wildlife Departments, universities, local governments, and nonprofit organizations across the range of the species (see SSA report; Service 2020a, entire)). For some areas where multiple sources of information were available, we used either one or both sources, ensuring that records used were not duplicated and included the best available information. Our analysis included reviewing the best available information that pertains to the habitat requirements of this species, as presented in the ''Species Biology'' and ''Subspecies Needs'' sections of the SSA report (Service 2020a, pp. 4–14); sources of this information include studies conducted at occupied sites and published in peer-reviewed articles and agency reports, and data collected during monitoring efforts, such as aerial surveys and tracking or resighting data.

A detailed step-down methodology was developed for identifying proposed critical habitat areas (see the supplemental ''Methodology'' document available on the internet at *http://www.regulations.gov* under Docket No. FWS–R5–ES–2021–0032). In summary, for areas within the geographic area occupied by the species at the time of listing, we delineated critical habitat unit boundaries based on our evaluation and consideration of the following:

(1) Migration patterns/locations across the range of the subspecies within the United States, including migratory stopovers away from the coasts. This includes the migration premise that 100 percent of rufa red knots winter within or south of the United States and 100 percent of the subspecies breed north of the United States. Therefore, 100 percent of rufa red knots migrate through the United States. However, rufa red knots from the four different wintering regions (as described in Service 2020a, p. 9) are differentially reliant on the various regions of the U.S. coast for migration stopovers (Service 2020a, pp. 6–7).

(2) Landforms (*e.g.,* islands, inlet complexes) and breaks in suitable habitats (*e.g.,* sections of high-density development, open water), which are key factors in delineating units.

(3) Gaps between rufa red knot records (another key factor in delineating units).

(4) Temporal metrics to delineate seasonal occurrence windows (*i.e.,* spring migration, fall migration, wintering) and to minimize the potential for double-counting birds.

(5) Numerical metrics showing consistent habitat use by substantial numbers of rufa red knots, as an indicator that the physical and biological features of each area are essential to the conservation of the subspecies. Regarding bird numbers, we adapted the approach of the Western Hemisphere Shorebird Reserve Network, which designates as ''Sites of Regional Importance'' those areas that support at least one percent of a biogeographic population. We used one percent as a key indicator of a habitat's importance, and we applied the one percent metric to derived estimates of regional population sizes. Best available data from several sources were considered and used to estimate the wintering and/or migration population sizes for each of several U.S. regions. (The various regions were delineated based on resighting and tracking data.) Consistency of use was indicated for those areas that supported the minimum number of rufa red knots (*i.e.,* at least one percent of the estimated population for that region in that season) for at least 3 of the past 10 years. In some areas, 10-year data sets were unavailable; in those cases, we used 1 year in 3 as the minimum.

(6) Adjustments to account for differences between observational data (*e.g.,* ground and aerial surveys, eBird) versus population estimates derived from modeling.

(7) Food availability, including the rufa red knot's need to take advantage

of seasonally abundant food resources. This relates to the well-documented correlations (*e.g.,* Botton et al. 1994, p. 605; Karpanty et al. 2006, p. 1,706; Niles et al. 2008, pp. 17, 19; Smith et al. 2008, p. 15; Cohen et al. 2010a, pp. 659–661; Cohen et al. 2010b, p. 355; Fraser et al. 2010, p. 97; GDNR 2013; SCDNR 2013, p. 37; Thibault and Levisen 2013, p. 6) between the spatial distribution of rufa red knots and the distribution of their primary prey species.

(8) The subspecies' need for flexibility in the selection of wintering and migration habitats to respond to daily, seasonal, and annual changes in conditions such as weather, tides, coastal processes, predation pressure, competition, and disturbance from human activities (Service 2014, pp. 71, 195, 259; Smith et al. 2017a, p. 3).

(9) Once areas were identified to meet the criteria summarized above, the best available data was further evaluated to ensure that the area(s) were occupied at the time of listing. For example, if all data used to meet the numerical metrics were recorded after January 12, 2015 (*i.e.,* the effective date of the rufa red knot final listing rule), then a separate check was conducted to verify that the area was known to be occupied by at least some rufa red knots at the time of listing.

Once this methodology was applied and evaluated across the regions of the United States where concentrations of rufa red knots may occur, units and subunits were then drawn based on the most recent available aerial or satellite imagery. In deciding whether to draw a single large unit or multiple units/subunits, we aimed to facilitate consistent management of each unit and subunit through section 7 consultation by distinguishing concentration areas of the same ownership or jurisdiction. Additionally, we evaluated older imagery dating back as far as 2010 to estimate the range of landform movement (*e.g.,* landward island migration, landward shoreline migration, cyclic patterns of erosion/accretion, movement of shoals). Due to the dynamic nature of the coastline, units and subunits inevitably include some areas that do not currently, or may not in the future, contain the physical or biological features such as densely vegetated marsh or open water. In some instances, these areas are included to allow the dynamic physical or biological features to move across the landscape, noting that where they occur within a unit, they will be excluded by the unit descriptions.

We propose to designate as critical habitat lands that we have determined were occupied at the time of listing (*i.e.,* specifically referring to January 12, 2015, which is the effective date for the December 11, 2014, final listing rule (79 FR 73706)), that contain one or more of the physical or biological features that are essential to support life-history processes of the species, and that may require special management considerations or protection.

We propose to designate as critical habitat 120 units (18 of which are further subdivided into 46 subunits) based on one or more of the physical or biological features being present to support the rufa red knot's life-history processes. Some units contain all of the identified physical or biological features and support multiple life-history processes, while other units contain only some of the physical or biological features necessary to support the rufa red knot's particular use of that habitat.

For the rufa red knot, most of the units contain highly dynamic barrier beaches and intertidal seashore areas that are covered at high tide and uncovered at low tide. This area has the potential to vary year-to-year. In other words, the precise location of the physical or biological features may shift daily as a result of tides, but also may shift over time because of the intrinsically dynamic nature of shorelines, and due to sea level rise. In general, the physical or biological features we describe are the intertidal areas and sandy beaches up to the vegetated areas that do not contain the physical or biological features, noting that availability of different habitats based on the tide cycle may also cause rufa red knots to vary foraging or roosting locations throughout a day and/or forage at night.

The proposed critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document. We include more detailed information on the boundaries of the proposed critical habitat designation in the discussion of individual units, below. We will make the coordinates or plot points or both on which each map is based available to the public on *http://www.regulations.gov* under Docket No. FWS–R5–ES–2021–0032. When determining proposed critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by pavement, buildings, and other structures (*e.g.,* docks, maintained rights-of-way, work yards, and stormwater facilities) because such lands lack physical or biological features necessary for the rufa red knot. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation under the Act with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

Proposed Critical Habitat Designation

We are proposing 120 units (18 of which are further subdivided into 46 subunits) as critical habitat for rufa red knot, all of which were occupied at the time of listing, and totaling approximately 649,066 ac (262,667 ha). Table 1, below, shows the proposed unit or subunit names, land ownership, and approximate acreage. The land ownership values in many (but not all) proposed critical habitat units also include a category called ''uncategorized lands.'' For the purposes of this analysis and proposed critical habitat designation, this category refers to open water. Although open water is not rufa red knot habitat *per se,* it is an integral part of the habitat mosaic that these birds require. Rufa red knots use the edges of certain coastal ponds, marsh blow-outs, salt pannes, and sand or mud flats that may be classified by some States as open water if they are submerged during high tides. Additionally, open waters at inlets are regularly reshaped by natural coastal processes that create and maintain dynamic and ephemeral rufa red knot habitat features, such as shoals and spits.

The areas we propose as critical habitat for the rufa red knot are presented below and organized by State, north to south. Brief descriptions of all units and subunits are presented, including the reasons why they meet the definition of critical habitat for the rufa red knot. All units contain one or more of the physical and biological features essential to the conservation of the species and that may require special management considerations or protection. Also, many of the proposed units overlap in part or whole with existing critical habitat designated for other federally threatened species (*i.e.,* the piping plover (*Charadrius melodus*), the loggerhead sea turtle (*Caretta caretta*), the Gulf sturgeon (*Acipenser oxyrinchus desotoi*), and the West

Indian manatee (*Trichechus manatus*)), and one federally endangered species (*i.e.,* the aboriginal prickly-apple (*Harrisia aboriginum*)), as specified below (Table 2).

Additional considerations include:

(1) Most of the units contain highly dynamic barrier beaches and intertidal seashore areas that are covered at high tide and uncovered at low tide. This area has the potential to vary year-to-year. In other words, the precise location of the physical or biological features may shift daily as a result of tides, but also may shift over time somewhat because of the intrinsically dynamic nature of shorelines and due to sea level rise. In general, the physical or biological features we describe are the intertidal areas and sandy beaches up to the vegetated or developed areas that do not contain the physical or biological features.

(2) The availability of different habitats based on the tide cycle may also cause rufa red knots to vary foraging or roosting locations throughout a day and/or forage at night.

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
Massachusetts			
MA–1 Pleasant Bay	Federal	126	51
	State	0	0
	Private/Other	1,596	646
	Uncategorized	2,634	1,066
	Total	4,357	1,763
MA–2 Monomoy and South Beach Islands	Federal	4,047	1,638
	State	0	0
	Private/Other	1,045	423
	Uncategorized	0	0
	Total	5,093	2,061
New York			
NY–1 Moriches Inlet	Federal	78	32
	State	63	25
	Private/Other	163	66
	Uncategorized	697	282
	Total	1,001	405
NY–2 Jones Inlet	Federal	0	0
	State	710	287
	Private/Other	1,111	450
	Uncategorized	0	0
	Total	1,821	737
NY–3 Jamaica Bay	Federal	5,458	2,209
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	5,458	2,209
New Jersey			
NJ–1 Brigantine and Little Egg Inlets	Federal	1,560	632
	State	3,187	1,291
	Private/Other	10	4
	Uncategorized	4,961	2,006
	Total	9,719	3,933
NJ–2 Seven Mile Beach	Federal	0	0
	State	0	0
	Private/Other	536	217
	Uncategorized	0	0
	Total	536	217
NJ–3 Hereford Inlet	Federal	0	0
	State	175	71
	Private/Other	735	297
	Uncategorized	721	292
	Total	1,631	660
NJ–4 Two Mile Beach	Federal	128	52
	State	0	0
	Private/Other	0	0

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	Uncategorized	0	0
	Total	128	52
NJ–5 Cape May Bayshore	Federal	133	54
	State	44	18
	Private/Other	167	67
	Uncategorized	858	347
	Total	1,202	487
NJ–6 Dennis Creek	Federal	0	0
	State	279	113
	Private/Other	0	0
	Uncategorized	0	0
	Total	279	113
NJ–7 Heislerville	Federal	0	0
	State	524	211
	Private/Other	459	186
	Uncategorized	127	52
	Total	1,110	449
NJ–8 Egg Island	Federal	0	0
	State	1,908	773
	Private/Other	32	13
	Uncategorized	14	5
	Total	1,955	791
NJ–9 Newport Neck	Federal	0	0
	State	202	82
	Private/Other	176	71
	Uncategorized	93	38
	Total	472	191
	Delaware		
	Federal	0	0
DE–1A St. Jones North	State	37	15
	Private/Other	3	1
	Uncategorized	3	1
	Total	43	18
DE–1B St. Jones South	Federal	0	0
	State	1	0.5
	Private/Other	2	0.6
	Uncategorized	0	0
	Total	3	1
DE–2A North Brokonbridge Gut	Federal	0	0
	State	2	1
	Private/Other	91	37
	Uncategorized	0	0
	Total	93	37
DE–2B South Brokonbridge Gut	Federal	0	0
	State	0	0
	Private/Other	70	29
	Uncategorized	0	0
	Total	70	29
DE–3A Main Harbor	Federal	0	0
	State	32	13
	Private/Other	0	0
	Uncategorized	29	12
	Total	61	25
DE–3B Rawley Island Roost	Federal	0	0
	State	1,139	461
	Private/Other	153	62
	Uncategorized	6	2
	Total	1,298	525

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
DE–3C Slaughter Beach	Federal	1	0.25
	State	59	24
	Private/Other	2	1
	Uncategorized	528	213
	Total	590	239
DE–4 Prime Hook	Federal	480	195
	State	0	0
	Private/Other	6	2
	Uncategorized	63	25
	Total	549	222
Virginia			
VA–1 Assateague Island	Federal	2,817	1,140
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	2,817	1,140
VA–2A Wallops Island North	Federal	540	218
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	540	218
VA–2B Wallops Island South	Federal	31	13
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	31	13
VA–3 Assawoman Island	Federal	633	256
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	633	256
VA–4 Metompkin Island	Federal	64	26
	State	56	22
	Private/Other	1,239	502
	Uncategorized	110	44
	Total	1,468	594
VA–5 Cedar Island	Federal	203	82
	State	77	31
	Private/Other	920	372
	Uncategorized	1,074	434
	Total	2,274	920
VA–6 Parramore Island	Federal	0	0
	State	0	0
	Private/Other	5,631	2,280
	Uncategorized	1,171	473
	Total	6,802	2,753
VA–7 Chimney Pole Marsh	Federal	0	0
	State	1,224	496
	Private/Other	285	116
	Uncategorized	495	200
	Total	2,004	811
VA–8 Hog Island	Federal	0	0
	State	16	7
	Private/Other	2,966	1,201
	Uncategorized	253	101
	Total	3,235	1,309
VA–9 Cobb Island	Federal	0	0
	State	16	7
	Private/Other	1,778	720

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	Uncategorized	547	221
	Total	2,342	948
VA–10 Little Cobb Island	Federal	0	0
	State	0	0
	Private/Other	82	33
	Uncategorized	0	0
	Total	82	33
VA–11 Wreck Island	Federal	0	0
	State	1,270	514
	Private/Other	0	0
	Uncategorized	0	0
	Total	1,270	514
VA–12 Myrtle Island	Federal	0	0
	State	0	0
	Private/Other	1,028	417
	Uncategorized	388	156
	Total	1,416	573
VA–13 Smith Island	Federal	0	0
	State	0	0
	Private/Other	2,529	1,024
	Uncategorized	0	0
	Total	2,529	1,024
North Carolina			
NC–1A Hatteras Island and Shoals	Federal	4,940	1,999
	State	0	0
	Private/Other	0	0
	Uncategorized	814	329
	Total	5,754	2,329
NC–1B Ocracoke Island	Federal	1,427	577
	State	3,612	1,462
	Private/Other	0	0
	Uncategorized	575	233
	Total	5,613	2,271
NC–2A North Core Banks	Federal	6,534	2,644
	State	0	0
	Private/Other	0	0
	Uncategorized	1,654	669
	Total	8,187	3,313
NC–2B South Core Banks	Federal	3,094	1,252
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	3,094	1,252
NC–3 Shackleford Island	Federal	4,972	2,012
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	4,972	2,012
NC–4 Emerald Isle-Atlantic Beach	Federal	0	0
	State	1,908	772
	Private/Other	122	50
	Uncategorized	0	0
	Total	2,030	822
NC–5 New Topsail Inlet-Topsail Beach	Federal	0	0
	State	0	0
	Private/Other	1,612	652
	Uncategorized	0	0
	Total	1,612	652

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
NC–6 Cape Fear-Fort Fisher	Federal	0	0
	State	1,713	693
	Private/Other	274	111
	Uncategorized	0.00	0
	Total	1,986	804
NC–7 Ocean Isle Beach	Federal	0	0
	State	182	73
	Private/Other	116	47
	Uncategorized	0	0
	Total	298	120
NC–8 Sunset Beach-Bird Island	Federal	0	0
	State	345	139
	Private/Other	39	16
	Uncategorized	0	0
	Total	384	155
South Carolina			
SC–1 Garden City Beach	Federal	0	0
	State	267	108
	Private/Other	349	141
	Uncategorized	0	0
	Total	616	249
SC–2 Huntington Beach State Park/Litchfield Beach	Federal	0	0
	State	80	32
	Private/Other	1,554	629
	Uncategorized	0	0
	Total	1,634	661
SC–3 Sand and South Island Beaches	Federal	0	0
	State	7,843	3,174
	Private/Other	129	52
	Uncategorized	283	115
	Total	8,256	3,341
SC–4 Murphy Island Beach	Federal	0	0
	State	8,312	3,364
	Private/Other	0	0
	Uncategorized	0	0
	Total	8,312	3,364
SC–5 North Cape Island Beach	Federal	775	313
	State	495	200
	Private/Other	0	0
	Uncategorized	0	0
	Total	1,270	514
SC–6 South Cape and Lighthouse Island Beaches	Federal	1,552	628
	State	485	196
	Private/Other	0	0
	Uncategorized	0	0
	Total	2,037	824
SC–7 Raccoon Key Complex and White Banks Beaches	Federal	5,324	2,154
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	5,324	2,154
SC–8 Marsh Island	Federal	415	168
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	415	168
SC–9 Bulls Island Beach	Federal	5,200	2,104
	State	941	381
	Private/Other	0	0

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	Uncategorized	0	0
	Total	6,141	2,485
SC–10 Capers Island Beach	Federal	0	0
	State	2,534	1,026
	Private/Other	0	0
	Uncategorized	0	0
	Total	2,534	1,026
SC–11 Dewees Island Beach	Federal	0	0
	State	265	107
	Private/Other	1,547	626
	Uncategorized	0	0
	Total	1,812	733
SC–12 Isle of Palms Beach	Federal	0	0
	State	754	305
	Private/Other	3,363	1,361
	Uncategorized	0	0
	Total	4,117	1,666
SC–13 Sullivan's Island Beach	Federal	83	34
	State	694	281
	Private/Other	1,005	407
	Uncategorized	0	0
	Total	1,782	721
SC–14 Folly Beach	Federal	0	0
	State	0	0
	Private/Other	1,989	805
	Uncategorized	0	0
	Total	1,989	805
SC–15 Bird Key-Stono	Federal	0	0
	State	294	119
	Private/Other	0	0
	Uncategorized	0	0
	Total	294	119
SC–16 Kiawah and Seabrook Island Beaches	Federal	0	0
	State	1,399	566
	Private/Other	9,850	3,986
	Uncategorized	0	0
	Total	11,250	4,553
SC–17 Deveaux Bank	Federal	0	0
	State	1,328	538
	Private/Other	0	0
	Uncategorized	0	0
	Total	1,328	538
SC–18 Edisto Island Beaches	Federal	0	0
	State	650	263
	Private/Other	1,093	442
	Uncategorized	0	0
	Total	1,743	705
SC–19 Pine and Otter Island Beaches	Federal	0	0
	State	6,296	2,548
	Private/Other	6	2
	Uncategorized	0	0
	Total	6,302	2,550
SC–20 Harbor and Hunting Island Beaches	Federal	0	0
	State	3,246	1,313
	Private/Other	820	331
	Uncategorized	0	0
	Total	4,066	1,645
SC–21 Fripp Island Beach	Federal	0	0
	State	305	124
	Private/Other	429	174

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	Uncategorized	0	0
	Total	734	297
SC–22 Hilton Head Island Beach	Federal	0	0
	State	1,015	411
	Private/Other	667	270
	Uncategorized	0	0
	Total	1,682	681
SC–23 Daufuskie Island Beach	Federal	0	0
	State	0	0
	Private/Other	6,370	2,578
	Uncategorized	0	0
	Total	6,370	2,578
SC–24 Turtle Island Beach	Federal	0	0
	State	1,798	728
	Private/Other	0	0
	Uncategorized	0	0
	Total	1,798	728
SC–25 Jones Island Beach	Federal	785	318
	State	2,240	907
	Private/Other	0	0
	Uncategorized	0	0
	Total	3,025	1,225
Georgia			
GA–1 Tybee Island Beach	Federal	0	0
	State	6	2
	Private/Other	1,721	697
	Uncategorized	319	129
	Total	2,046	828
GA–2 Little Tybee Island Complex	Federal	0	0
	State	0	0
	Private/Other	8,265	3,345
	Uncategorized	0	0
	Total	8,265	3,345
GA–3 Wassaw Island Beach	Federal	3,001	1,215
	State	0	0
	Private/Other	274	111
	Uncategorized	1,020	412
	Total	4,296	1,738
GA–4 Raccoon Key	Federal	0	0
	State	1,599	647
	Private/Other	0	0
	Uncategorized	0	0
	Total	1,599	647
GA–5 Ossabaw Island Beach	Federal	0	0
	State	28,621	11,591
	Private/Other	0	0
	Uncategorized	3,736	1,503
	Total	32,357	13,094
GA–6 St. Catherine's Island Beach	Federal	0	0
	State	2,106	853
	Private/Other	11,810	4,783
	Uncategorized	2,046	824
	Total	15,962	6,460
GA–7 Blackbeard Island Beach	Federal	4,954	2,006
	State	80	32
	Private/Other	0	0
	Uncategorized	1,287	519
	Total	6,321	2,557

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
GA–8 Sapelo Island Beach	Federal	0	0
	State	2,481	845
	Private/Other	0	0
	Uncategorized	0	0
	Total	2,481	845
GA–9 Wolf Island, Egg Island, Little Egg Island, and Little Egg Island Bar.	Federal	2,975	1,204
	State	240	97
	Private/Other	0	0
	Uncategorized	2,093	847
	Total	5,308	2,148
GA–10 Little St. Simon's Island Beach	Federal	0	0
	State	113	46
	Private/Other	7,462	3,022
	Uncategorized	1,479	596
	Total	9,053	3,664
GA–11 Sea and St. Simon's Island Beaches	Federal	0	0
	State	4	1
	Private/Other	3,448	1,395
	Uncategorized	581	235
	Total	4,033	1,631
GA–12 Jekyll Island Beach	Federal	0	0
	State	5,944	2,406
	Private/Other	0	0
	Uncategorized	343	139
	Total	6,287	2,545
GA–13 Little Cumberland and Cumberland Island Beaches	Federal	23,367	9,464
	State	1,685	682
	Private/Other	0	0
	Uncategorized	3,085	1,241
	Total	28,137	11,387
Florida			
FL–1 Nassau Sound-Fort George Sound-Fort George Inlet Complex.	Federal	996	404
	State	522	211
	Private/Other	27	11
	Uncategorized	2,779	6,116
	Total	4,324	6,742
FL–2 Ponce Inlet Complex	Federal	16,660	6,742
	State	3,005	1,216
	Private/Other	0	0
	Uncategorized	18	7
	Total	19,683	7,965
FL–3 Merritt Island National Wildlife Refuge Impoundments	Federal	6,947	2,811
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	6,947	2,811
FL–4A Cape Romano Complex	Federal	13,138	5,321
	State	12,605	5,105
	Private/Other	0	0
	Uncategorized	470	182
	Total	26,213	10,608
FL–4B Marco Island	Federal	0	0
	State	408	165
	Private/Other	8	3
	Uncategorized	0	0
	Total	416	168
FL–5 Marco Bay Complex	Federal	0	0

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	State	3,531	1,429
	Private/Other	58	24
	Uncategorized	0	0
	Total	3,589	1,453
FL–6A Cocohatchee Inlet Complex	Federal	0	0
	State	9	4
	Private/Other	0	0
	Uncategorized	0	0
	Total	9	4
FL–6B Barefoot Beach	Federal	0	0
	State	18	7
	Private/Other	21	9
	Uncategorized	0	0
	Total	39	16
FL–7A Lovers Key	Federal	0	0
	State	4	1
	Private/Other	0	0
	Uncategorized	0	0
	Total	4	1
FL–7B Estero Island	Federal	0	0
	State	171	69
	Private/Other	0	0
	Uncategorized	0	0
	Total	171	69
FL–8 Bunche Beach	Federal	23	9
	State	264	107
	Private/Other	47	19
	Uncategorized	0	0
	Total	334	135
FL–9A J.N. ‘‘Ding’’ Darling National Wildlife Refuge	Federal	3,451	1,397
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	3,451	1,397
FL–9B Sanibel Island	Federal	307	124
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	307	124
FL–10A Don Pedro	Federal	0	0
	State	147	60
	Private/Other	0	0
	Uncategorized	0	0
	Total	147	60
FL–10B Stump Pass Beach State Park	Federal	0	0
	State	11	4
	Private/Other	0	0
	Uncategorized	0	0
	Total	11	4
FL–11 Siesta Key	Federal	0	0
	State	53	21
	Private/Other	0	0
	Uncategorized	0	0
	Total	53	21
FL–12A Lido Key	Federal	0	0
	State	81	33
	Private/Other	0	0
	Uncategorized	0	0
	Total	81	33
FL–12B Longboat Key	Federal	0	0

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	State	369	149
	Private/Other	0	0
	Uncategorized	0	0
	Total	369	149
FL–13 North Anna Maria Island	Federal	56	23
	State	889	360
	Private/Other	0	0
	Uncategorized	0	0
	Total	945	383
FL–14 Egmont Key	Federal	15	6
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	15	6
FL–15A Fort De Soto County Park	Federal	0	0
	State	0	0
	Private/Other	427	173
	Uncategorized	0	0
	Total	427	173
FL–15B Shell Key Preserve	Federal	0	0
	State	322	130
	Private/Other	0	0
	Uncategorized	0	0
	Total	322	130
FL–15C Saint Petersburg Beach	Federal	0	0
	State	107	43
	Private/Other	0	0
	Uncategorized	0	0
	Total	107	43
FL–16 Indian Shores/Redington Beach	Federal	0	0
	State	196	79
	Private/Other	0	0
	Uncategorized	0	0
	Total	196	79
FL–17 Belleair Beach	Federal	0	0
	State	123	50
	Private/Other	0	0
	Uncategorized	0	0
	Total	123	50
FL–18A Caladesi Island	Federal	0	0
	State	259	105
	Private/Other	0	0
	Uncategorized	0	0
	Total	259	105
FL–18B Honeymoon Island	Federal	0	0
	State	294	119
	Private/Other	0	0
	Uncategorized	0	0
	Total	294	119
FL–18C Three Rooker Bar	Federal	0	0
	State	335	136
	Private/Other	0	0
	Uncategorized	0	0
	Total	335	136
FL–19 Anclote Key	Federal	0	0
	State	1,547	626
	Private/Other	0	0
	Uncategorized	0	0
	Total	1,547	626
FL–20 Cedar Keys Complex	Federal	2,498	1,012

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	State	7,792	3,153
	Private/Other	5,928	2,293
	Uncategorized	19,407	7,959
	Total	35,626	14,417
FL–21 St. Marks National Wildlife Refuge	Federal	2,074	839
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	2,074	839
FL–22A Mashes Sands	Federal	0	0
	State	262	106
	Private/Other	0	0
	Uncategorized	0	0
	Total	262	106
FL–22B Bald Point State Park	Federal	0	0
	State	439	178
	Private/Other	6	2
	Uncategorized	0	0
	Total	445	180
FL–22C Alligator Point	Federal	0	0
	State	0	0
	Private/Other	722	292
	Uncategorized	0	0
	Total	722	292
FL–23A Turkey Point Shoal	Federal	0	0
	State	531	215
	Private/Other	0	0
	Uncategorized	0	0
	Total	531	215
FL–23B Lanark Reef	Federal	0	0
	State	805	326
	Private/Other	61	25
	Uncategorized	0	0
	Total	865	350
FL–23C East Dog Island	Federal	0	0
	State	0	0
	Private/Other	771	312
	Uncategorized	0	0
	Total	771	312
FL–23D West Dog Island	Federal	0	0
	State	0	0
	Private/Other	751	304
	Uncategorized	0	0
	Total	751	304
FL–23E McKissack Beach, Carrabelle	Federal	0	0
	State	114	46
	Private/Other	3	1
	Uncategorized	0	0
	Total	117	47
FL–23F East St. George Island State Park	Federal	0	0
	State	978	396
	Private/Other	0	0
	Uncategorized	0	0
	Total	978	396
FL–23G St. George Island State Park and Bayshore Shoals	Federal	0	0
	State	162	65
	Private/Other	0	0
	Uncategorized	0	0
	Total	162	65
FL–24A Little St. George Island State Park-West	Federal	0	0

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	State	953	386
	Private/Other	0	0
	Uncategorized	0	0
	Total	953	386
FL–24B St. Vincent National Wildlife Refuge	Federal	742	300
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	742	300
FL–24C Flagg Island Shoals	Federal	0	0
	State	517	209
	Private/Other	0	0
	Uncategorized	0	0
	Total	517	209
FL–25A Cape San Blas to Indian Pass	Federal	0	0
	State	133	54
	Private/Other	486	197
	Uncategorized	0	0
	Total	620	251
FL–25B St. Joseph Bay-Eastern Shore	Federal	0	0
	State	761	308
	Private/Other	66	27
	Uncategorized	0	0
	Total	827	335
Alabama			
AL–1 Dauphin Island	Federal	484	196
	State	848	343
	Private/Other	3,834	1,552
	Uncategorized	0	0
	Total	5,167	2,091
Mississippi			
MS–1 Ship Island	Federal	2,452	993
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	2,452	993
MS–2 Cat Island	Federal	686	278
	State	1,305	528
	Private/Other	129	52
	Uncategorized	0	0
	Total	2,121	858
Louisiana			
LA–1 Chandeleur Islands	Federal	7,632	3,088
	State	0	0
	Private/Other	0	0
	Uncategorized	0	0
	Total	7,632	3,088
LA–2 Barataria Barrier Islands and Headlands	Federal	0	0
	State	126	51
	Private/Other	7,669	3,104
	Uncategorized	0	0
	Total	7,795	3,155
LA–3 Terrebonne Barrier Islands	Federal	0	0
	State	2,900	1,173
	Private/Other	2,172	879

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
	Uncategorized	0	0
LA–4 Southwest Louisiana Beaches	Total	5,072	2,052
	Federal	0	0
	State	1,497	606
	Private/Other	4,633	1,875
	Uncategorized	0	0
	Total	6,130	2,481
Texas			
TX–1 Rollover Pass to Bolivar Flats	Federal	0	0
	State	268	108
	Private/Other	996	403
	Uncategorized	0	0
	Total	1,264	511
TX–2 West Galveston Island	Federal	0	0
	State	307	124
	Private/Other	282	114
	Uncategorized	0	0
	Total	590	239
TX–3 Cedar Lake to Colorado River	Federal	0	0
	State	1,075	438
	Private/Other	128	52
	Uncategorized	0	0
	Total	1,204	487
TX–4 Mustang Island	Federal	0	0
	State	395	160
	Private/Other	253	102
	Uncategorized	0	0
	Total	648	262
TX–5 Mollie Beattie Coastal Habitat	Federal	0	0
	State	505	205
	Private/Other	218	88
	Uncategorized	0	0
	Total	723	293
TX–6 North Padre Island	Federal	2,487	1,007
	State	68	27
	Private/Other	262	106
	Uncategorized	0	0
	Total	2,817	1,140
TX–7 Upper Laguna Madre/Nighthawk Bay	Federal	273	111
	State	816	330
	Private/Other	68	28
	Uncategorized	0	0
	Total	1,157	469
TX–8 Dagger Hill/Yarborough Pass/Nine Mile Hole	Federal	9,731	3,938
	State	23,042	9,332
	Private/Other	0	0
	Uncategorized	0	0
	Total	32,773	13,270
TX–9 Pintail Lake/Padre Island/La Punta Larga	Federal	25,881	10,482
	State	34,165	13,826
	Private/Other	34,125	13,802
	Uncategorized	0	0
	Total	94,171	38,110
TX–10 Peyton's Bay/Arroyo Colorado/Three Islands/Gabrielson Island.	Federal	8,145	3,296
	State	25,316	10,245
	Private/Other	2,190	886
	Uncategorized	0	0

TABLE 1—PROPOSED CRITICAL HABITAT LAND OWNERSHIP AND UNIT SIZE FOR THE RUFA RED KNOT—Continued

Critical habitat unit or subunit name (state)	Land ownership by type	Approximate acres	Approximate hectares
TX–11 South Bay/Boca Chica	Total	35,651	14,427
	Federal	5,536	2,242
	State	3,923	1,589
	Private/Other	5,784	2,342
	Uncategorized	0	0
	Total	15,243	6,173

Note: Numbers may not sum due to rounding.

TABLE 2—CO-OCCURRING CRITICAL HABITAT DESIGNATIONS THAT OVERLAP PROPOSED CRITICAL HABITAT FOR RUFA RED KNOT

State	Area of overlap with designated critical habitat in acres (ac)/hectares (ha) (# of proposed rufa red knot units or subunits overlapping)					Total overlap (combined) for each state in acres (ac)/ hectares (ha)
	Piping plover	Loggerhead sea turtle	West indian manatee	Gulf sturgeon	Aboriginal prickly-apple	
North Carolina	10,621 ac/4,298 ha (10).	3,523 ac/1,426 ha(3)	N/A	N/A	N/A	13,874 ac/5,614 ha.
South Carolina	4,955 ac/2,005 ha(13)	5,315 ac/2,151 ha(12)	N/A	N/A	N/A	9,302 ac/3,764 ha.
Georgia	15,369 ac/6,220 ha(12).	10,903 ac/4,412 ha(7)	N/A	N/A	N/A	21,698 ac/8,781 ha.
Florida	7,617 ac/3,082 ha (20).	7,114 ac/2,879 ha (17).	20,720 ac/8,385 ha (11).	8,970 ac/3,630 ha(11)	77 ac/31 ha (4)	37,801 ac/15,297 ha.
Alabama	2,381 ac/963 ha (1)	N/A	N/A	N/A	N/A	2,381 ac/963 ha.
Mississippi	4,538 ac/1,837 ha (2)	N/A	N/A	1,866 ac/755 ha (2)	N/A	4,488 ac/ 1,816 ha.
Louisiana	17,154 ac/6,942 ha (4).	N/A	N/A	N/A	N/A	17,154 ac/6,942 ha.
Texas	153,726 ac/62,211 ha (11).	N/A	N/A	N/A	N/A	153,726 ac/62,211 ha.
Total	216,361 ac/87,558 ha (73).	26,855 ac/10,868 ha (39).	20,720 ac/8,385 ha (11).	10,836 ac/4,385 ha (13).	77 ac/31 ha (4)	260,424 ac/105,388 ha.

*Totals may not sum due to rounding.

We present brief descriptions of all units and subunits, and reasons why they meet the definition of critical habitat for the rufa red knot, below.

Unit MA–1: Pleasant Bay

Unit MA–1 consists of approximately 4,357 ac (1,763 ha) of highly dynamic barrier beaches and intertidal (*i.e.,* seashore that is covered at high tide and uncovered at low tide) areas in the towns of Chatham and Orleans in Barnstable County, Massachusetts. The unit includes exposed intertidal flats, shoals, mudflats, and intertidal salt marsh pannes in Little Pleasant Bay and Pleasant Bay, and ephemeral tidal pools, primary sand dunes, and beaches associated with Nauset Beach South (Orleans), North Beach (Chatham), and North Beach Island (Chatham). The unit begins in the mid-section of Little Pleasant Bay going east to ''mean lower low water'' (MLLW; *i.e.,* the lowest of the low tides per day averaged over a 19-year period) on the east side of Nauset Beach South, continuing south along Nauset Beach South and North Beach to North Beach Island at MLLW and terminating at the natural channel between North Beach Island and South Beach Island (Chatham). The western side of the unit runs offshore of the mainland, west of small islands in Pleasant and Little Pleasant Bays (Little Sipson Island, Strong Island, and Tern Island), incorporating intertidal lands associated with the islands. Lands within this unit include approximately 126 ac (51 ha; 3 percent) in Federal ownership, 1,596 ac (646 ha; 37 percent) in private/other ownership, and 2,634 ac (1,066 ha; 60 percent) that are uncategorized. General land use within this unit is primarily recreational, including off-shore and surf fishing, shellfish digging, (both recreational and commercial), boating, over-sand vehicle use, sunbathing, swimming, and walking.

Unit MA–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. The unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site in the New England portion of the subspecies range. Additionally, this location consistently supports a few thousand migrating rufa red knots due to the large intertidal areas and beach habitat that provides multiple foraging and roosting habitat areas for the birds to build energy resources for migration.

Threats identified within Unit MA–1 include disturbance of foraging and roosting rufa red knots by humans and human activities including but not limited to, pets and domestic animals, ORVs, powered and unpowered boats, surf kites, and surf fishing, predation (especially by migrating raptors and owls), possible modification or loss of habitat (*e.g.,* dredging or mining of sand flats), and natural or human-caused disasters (*i.e.,* oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and addressing the impacts of potential oil spills through protective spill response plans and training (see Special Management Considerations or Protection, above). The National Park Service (NPS) manages Cape Cod National Seashore under a comprehensive shorebird management plan (NPS 2018, entire) (Shorebird

Plan). However, due to the small and isolated nature of NPS inholdings in this unit, these areas are not actively managed under the Shorebird Plan.

Unit MA–2: Monomoy and South Beach Islands

Unit MA–2 consists of 5,093 ac (2,061 ha) of highly dynamic barrier beaches and intertidal areas in the town of Chatham in Barnstable County, Massachusetts. The unit includes exposed intertidal sand and mud flats and shoals, ephemeral tidal pools, saltmarsh, primary sand dunes, and beaches associated with North and South Monomoy Islands, Minimoy Island, and the South Beach Island complex (multiple islands associated with South Beach as the island naturally grows and splits over time). The northeastern tip of the unit incorporates the South Beach Island complex and adjacent intertidal sand and mud flats and shoals, and runs south to include North and South Monomoy Islands, Minimoy Island (part of the Monomoy National Wildlife Refuge (NWR)), and the extensive intertidal sand flats adjacent to the islands and south of Morris Island (Chatham). Lands within this unit include approximately 4,047 ac (1,638 ha; 79 percent) in Federal ownership and 1,045 ac (423 ha; 21 percent) in private/other ownership. General land use within this unit is recreational, including off-shore and surf fishing, shellfish digging, boating, sunbathing, swimming, wildlife observation, and walking. Commercial shellfish harvesting and research also occur.

Unit MA–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site in the New England portion of the subspecies range. Additionally, this location consistently supports a few thousand migrating rufa red knots due to the large intertidal areas and beach habitat that provides multiple foraging and roosting habitat areas for the birds to build energy resources for migration.

With the exception of the designated wilderness area on Monomoy NWR that incorporates North and South Monomoy Islands and Minimoy Island, the threats identified within Unit MA–2 include disturbance of foraging and roosting rufa red knots by humans and human activities, including pets and domestic animals, powered and unpowered boats, surf kites, and surf fishing. Predation (especially by migrating raptors and owls) and human-caused or natural disasters may affect the entire unit. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and addressing the impacts of potential oil spills with protective spill response plans and training (see Special Management Considerations or Protection, above). Management that benefits rufa red knots or their habitat in this unit currently occurs primarily on Federal lands, which are managed under the 2016 Monomoy NWR Comprehensive Conservation Plan (Service 2016b, entire). Ongoing research occurs throughout this unit as funds and staffing allow.

Unit NY–1: Moriches Inlet

Unit NY–1 consists of 1,001 ac (405 ha) of highly dynamic beach, sand flats, bay islands, back bay shoreline, intertidal areas, and surface water within the towns of Brookhaven and Southampton, Suffolk County, New York. Lands within this unit include approximately 78 ac (32 ha; 8 percent) in Federal ownership; 63 ac (25 ha; 6 percent) in State ownership, 163 ac (66 ha; 16 percent) in private/other (including the towns of Brookhaven and Southampton) ownership, and 697 ac (282 ha; 70 percent) that are uncategorized. The unit is irregularly shaped and bounded to the south by the Atlantic Ocean, to the west by West Inlet Island (Brookhaven), and to the east by the sand spit north of the Village of West Hampton Dunes (Southampton). Its northern boundary lies approximately in the middle of Moriches Bay at the widest portion of the unit. Additionally, the northern and southern areas of the unit are not contiguous, as they are separated by a vegetated dune, parking lot, and roadway system. General land use within this unit is recreational activities (*e.g.,* fishing, bird watching, boating, open space use) and commercial shell fishing. Coastal engineering structures are generally limited to the inlet jetty and revetment along the north side of Cupsogue Beach (stretches from Riches Inlet to the border of the Village of West Hampton Dunes), but beach nourishment programs are implemented along the ocean beach by the Corps (via coordination and agreements with the State of New York and Suffolk County).

Unit NY–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. The area has a relatively undeveloped character that provides protection from intensive human uses. Episodic storm events have also contributed to habitat creation, and, in turn, optimal rufa red knot habitat conditions. The bay islands and associated wetlands are managed for wildlife, which provides some limits to the amount of disturbance that rufa red knots or their habitat may experience from recreation and other human activities (*e.g.,* commercial shell fishing, dredging, and shoreline dock/pier projects).

Threats identified within Unit NY–1 include: (1) Sea level rise; (2) coastal engineering activities (*e.g.,* beach nourishment; jetty maintenance; and dredging that could remove habitat, preclude the formation of habitat such as exposed shoals, and impact adjacent shoreline habitats by altering currents and sediment transport/deposition patterns); (3) predation in nonbreeding areas; and (4) human disturbance (*e.g.,* recreational fishing and driving, and motorized boat traffic or aircraft that create noise disturbance). Special management considerations or protection measures to reduce or alleviate the threats may include reducing disturbance (*e.g.,* humans, pets, vehicles, watercraft), conducting predator control, and implementing conservation measures that help reduce modification or loss of habitat from hard and soft beach stabilization efforts (*e.g.,* time-of-year restrictions for beach nourishment and dredging activities, establishing temporary sanctuaries and management during certain times of year to address erosion) (see Special Management Considerations or Protection, above). State lands (both marine and estuarine habitats within this unit) are managed in cooperation with the New York State Wildlife Action Plan (New York State Department of Environmental Conservation 2015, entire). Additionally, the designated South Shore Estuary Reserve implements a Comprehensive Management Plan (South Shore Estuary Reserve Council 2001, entire), which encompasses both Units NY–1 and NY–2, and serves as a guidance document for municipalities and private/public sectors to conserve or protect habitats and waters within the Reserve.

Unit NY–2: Jones Inlet

Unit NY–2 consists of 1,821 ac (737 ha) in two areas within the Town of Hempstead, Nassau County, New York. This unit is composed of ocean beach habitat, sand flats, bay islands, and small embayments. It is irregularly shaped and is bounded to the south by the Atlantic Ocean, to the west by Point Lookout, to the north by a line running in Hempstead Bay, and to the east at the eastern extent of Zachs Bay. The northern and southern areas of the unit are not contiguous, as they are separated by a vegetated dune, parking lot, and roadway system. Lands within NY–2 include approximately 710 ac (287 ha; 39 percent) in State ownership and 1,111 ac (450 ha; 61 percent) that are under private/other ownership. General land use includes recreational activities such as bird watching, surfcast fishing, sunbathing, nature walks, swimming, boat fishing, commercial and recreational fishing and shell fishing. Coastal engineering structures, as well as docks and piers, are generally limited to (or associated with) the Jones Inlet jetties and revetments, Loop Parkway bridge, and along the north side of Jones Island near the U.S. Coast Guard Station Jones Beach, and in Zach's Bay.

Unit NY–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This location has a relatively undeveloped character that provides protection from intensive human uses that occur throughout the majority of Long Island and surrounding area. Episodic storm events have also contributed to habitat creation, and, in turn, optimal rufa red knot habitat conditions. The bay islands and associated wetlands are managed for wildlife, which provides some limits to the amount of disturbance that rufa red knots or their habitat may experience from recreation, channel maintenance activities (*e.g.,* dredging and dredge material disposal), and vector control activities (*e.g.,* aerial mosquito spraying).

Threats identified within Unit NY–2 include: (1) Sea level rise; (2) coastal engineering activities (*e.g.,* jetty maintenance; dredging that could remove habitat, preclude the formation of habitat such as exposed shoals, and impact adjacent shoreline habitats by altering currents and sediment transport/deposition patterns); (3) predation in nonbreeding areas; and (4) human disturbance (*e.g.,* recreational fishing and driving, and motorized boat traffic or aircraft that create noise disturbance). Special management considerations or protection measures to reduce or alleviate the threats may include reducing disturbance (*e.g.,* humans, pets, vehicles, and watercraft), conducting predator control, and implementing conservation measures that help reduce modification or loss of habitat from hard and soft beach stabilization efforts (*e.g.,* time-of-year restrictions for beach nourishment and dredging activities, establishing temporary sanctuaries and management during certain times of year to address erosion) (see Special Management Considerations or Protection, above). State lands (both marine and estuarine habitats within this unit) are managed in cooperation with the New York State Wildlife Action Plan (New York State Department of Environmental Conservation 2015, entire). Additionally, the designated South Shore Estuary Reserve implements a Comprehensive Management Plan (South Shore Estuary Reserve Council 2001, entire), which encompasses both this unit and Unit NY–1, and serves as a guidance document for municipalities and private/public sectors to conserve or protect habitats and waters within the Reserve.

Unit NY–3: Jamaica Bay

Unit NY–3 consists of a total of 5,458 ac (2,209 ha) in Queens County, New York, and falls within a back bay that is primarily within the NPS' Jamaica Bay Wildlife Refuge, Gateway National Recreation Area. This unit is irregularly shaped and is bounded in the north by a line running roughly between the northernmost bay islands and the mainland of Long Island, in the west by a line running roughly between the westernmost bay islands and the mainland of Long Island, in the east by a line running offshore of East Pond, and in the south by a line running between the southernmost bay islands and the Rockaway Barrier Spit. Lands within NY–2 are all in Federal ownership. General land use within this unit includes recreational activities (*e.g.,* wildlife viewing, bird watching, recreational fishing, and use of open space) and development. Coastal engineering structures, as well as docks and piers, are generally limited to the residential and commercial development at Broad Channel and the railroad and bridge infrastructure.

Unit NY–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site, in part due to its expansive wetlands and associated flats that are protected from intensive human uses. Episodic storm events have contributed to habitat creation, and, in turn, optimal rufa red knot habitat conditions. The bay islands and associated wetlands are managed for wildlife, which provides some limits to the amount of disturbance that rufa red knots or their habitat may experience from recreation, dredging, and dredge spoil deposition activities.

Threats identified within Unit NY–3 include: (1) Sea level rise; (2) coastal engineering activities (*e.g.,* jetty maintenance; dredging that could remove habitat, preclude the formation of habitat such as exposed shoals, and impact adjacent shoreline habitats by altering currents and sediment transport/deposition patterns); (3) predation in nonbreeding areas; and (4) human disturbance (*e.g.,* recreational fishing and driving, and motorized boat traffic or aircraft that create noise disturbance). Special management considerations or protection measures to reduce or alleviate the threats may include reducing disturbance (*e.g.,* humans, pets, vehicles, and watercraft), conducting predator control, and implementing conservation measures that help reduce modification or loss of habitat from hard and soft beach stabilization efforts (*e.g.,* time-of-year restrictions for beach nourishment and dredging activities, establishing temporary sanctuaries and management during certain times of year to address erosion) (see Special Management Considerations or Protection, above). The Federal lands are managed by the NPS via the NPS Gateway National Recreation Area Final General Management Plan/Environmental Impact Statement (EIS) dated April 2014 (NPS 2014a, entire), which provides a management plan for Jamaica Bay Wildlife Refuge (included, in part, in the proposed critical habitat designation).

Unit NJ–1: Brigantine and Little Egg Inlets

Unit NJ–1 consists of 9,719 ac (3,933 ha) of beach, dune, shoals, open water, and tidal marsh associated with two inlets (*i.e.,* small arms of the ocean) in Ocean and Atlantic Counties, New Jersey, extending from the northern boundary of the Holgate Unit of Edwin B. Forsythe (Forsythe) NWR, west to the ''Seven Islands'' portion of Great Bay Boulevard Wildlife Management Area, and south nearly to 15th Street North in

Brigantine City. To the north, the unit encompasses the Holgate Unit of the Forsythe NWR and includes several areas within the Great Bay Boulevard Wildlife Management Area, owned by the State of New Jersey (*e.g.,* Seven Islands and other islands on either side of Great Bay Boulevard south of Big Sheepshead Creek). The unit also includes portions of Little Beach Island within the Forsythe NWR, and portions of the North Brigantine Natural Area owned by the State of New Jersey. This unit includes extensive areas of shoals and sand or mud flats, which are generally owned by the State. Lands within this unit include approximately 1,560 ac (632 ha; 16 percent) in Federal ownership, 3,187 ac (1,291 ha; 32 percent) in State ownership, 10 ac (4 ha; less than 1 percent) in private/other ownership, and 4,961 ac (2,006 ha; 51 percent) that are uncategorized. General land use within this unit is almost entirely undeveloped and managed for wildlife and other natural resource values, as well as recreation.

Unit NJ–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. This unit has an undeveloped character that provides protection from intensive human uses. The lack of hard structures and other coastal engineering practices in this unit allows optimal rufa red knot habitat conditions to be created and maintained by natural coastal processes, which is a condition that is rare in the mid-Atlantic. The Little Egg Inlet is the only unmodified inlet in New Jersey and one of only two unmodified inlets between Montauk, New York, and Chincoteague, Virginia, a shoreline distance of nearly 350 mi (563 km) (Rice 2016, pp. 24–25). Nearly all the lands in the unit are managed for wildlife, which limits disturbance of rufa red knots from recreation and other human activities.

Threats identified within Unit NJ–1 include: (1) Sea level rise that may accelerate faster than landforms can migrate through natural coastal processes; (2) coastal engineering activities (*e.g.,* ongoing updrift beach nourishment; proposed enlargement of a terminal groin immediately adjacent to the unit's northern limit; ongoing and proposed dredging that could remove habitat (*e.g.,* exposed shoals), preclude habitat formation, and/or impact adjacent shoreline habitats by altering sediment transport/deposition patterns); (3) aquaculture leases; (4) predation in nonbreeding areas; and (5) human disturbance (*e.g.,* recreational fishing and driving in the fall, motorized boat traffic and aircraft year round). Special management considerations or protection measures to reduce or alleviate the threats may include managing sources of disturbance (*e.g.,* humans, pets, vehicles, watercraft, and aircraft), managing predator populations, and implementing conservation measures to abate habitat impacts from coastal engineering projects and from sea level rise (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the Edwin B. Forsythe NWR Comprehensive Conservation Plan (Service 2004a, entire). State lands within the North Brigantine Natural Area are covered by a Beach Management Plan (Service and New Jersey Department of Environmental Protection 2019, entire).

Unit NJ–2: Seven Mile Beach

Unit NJ–2 consists of 536 ac (217 ha) of sandy ocean-front beach in Avalon and Stone Harbor Boroughs, Cape May County, New Jersey, from the jetty at 8th Street in Avalon near Townsends Inlet and extending south to 102nd Street in Stone Harbor. The western boundary of the unit is landward of the beach and primary dune along the vegetation line where the habitat changes from sandy beach or dune with little vegetation to dense herbaceous or shrub vegetation or along developed structures when present. The eastern boundary includes emergent sand shoals and sand flats exposed at low tide. All lands within this unit are in private/other ownership. General land use within this unit includes tourism and recreation; the beach abuts high-density residential and commercial development and features many private and public beach access points.

Unit NJ–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the fall migration period, serving as an important southbound stopover site.

Threats identified within Unit NJ–2 include: (1) Coastal engineering activities (*e.g.,* existing hard stabilization structures, ongoing beach nourishment and sediment backpassing, ongoing sand fencing and vegetation planting); (2) existing coastal development that may block beach migration as sea level rise accelerates; (3) beach cleaning; (4) predation in nonbreeding areas (*e.g.,* human-supported feral cat concentrations and other human-commensal predators such as gulls and domestic cats); and (5) human disturbance (*e.g.,* life-guarded bathing beaches in late spring and summer, recreational fishing and driving in fall, personal watercraft, aircraft including low and slow-flying ''banner'' (advertisement) planes). Special management considerations or protection measures to reduce or alleviate the threats may include sediment management to maintain habitat features such as wide beaches and high prey densities, managing predator populations, addressing beach management practices such as beach cleaning and sand fencing, and managing disturbance from recreation and other human activities (see Special Management Considerations or Protection, above). All beaches in this unit are covered by Beach Management Plans (Avalon Borough Department of Public Works and the Avalon Environmental Commission 2008, entire; Stone Harbor Borough 2009, entire).

Unit NJ–3: Hereford Inlet

Unit NJ–3 consists of 1,631 ac (660 ha) of sandy oceanfront beaches, unstabilized barrier peninsula, undeveloped marsh islands, and several areas of tidal flats and shoals in Cape May County, New Jersey, extending along the ocean from 111th Street in Stone Harbor Borough south to 22nd Avenue in North Wildwood City. The unit also includes areas behind the barrier island in Middle Township, Stone Harbor, and North Wildwood extending from Stone Harbor Boulevard south along Great Channel to Nummy Island and the southern shoreline of Grassy Sound Channel. Lands within this unit include approximately 175 ac (71 ha; 11 percent) in State ownership, 735 ac (297 ha; 45 percent) in private/other ownership, and 721 ac (292 ha; 44 percent) that are uncategorized. General land use within this unit varies from intensively developed recreational beaches along parts of the ocean front, to mixed management (*i.e.,* the Stone Harbor Point municipal conservation area managed for both wildlife and lower intensity, passive recreation), to conservation lands (*i.e.,* the Cape May Coastal Wetlands Wildlife Management Area owned by the State of New Jersey). The unit also includes privately and municipally owned undeveloped marshes, as well as tidal shoals and flats that are generally owned by the State.

Unit NJ–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of

rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the mid-Atlantic Coast portion of the subspecies range. This unit also has extensive areas of conservation lands that offer protection from disturbance, as well as the unstabilized Stone Harbor Point peninsula. The peninsula not only supports migrants moving primarily along the Atlantic Coast, but is also well documented as among the most important roosting areas for those spring migrants that forage primarily in Delaware Bay (Sitters 2005, pp. 1–12).

Threats identified within Unit NJ–3 include: (1) Sea level rise that may accelerate faster than landforms can migrate through natural coastal processes; (2) coastal engineering activities (*e.g.,* existing hard stabilization structures, ongoing beach nourishment, dredging for beach nourishment and navigation); (3) existing coastal development that may block habitat migration as sea level rise accelerates; (4) beach cleaning; (5) predation in nonbreeding areas (*e.g.,* peregrine falcons, human-commensal predators); and (6) human disturbance (*e.g.,* life-guarded bathing beaches, fishing, motorized boat traffic including personal watercraft, aircraft including low and slow-flying banner planes). Special management considerations or protection measures to reduce or alleviate the threats may include implementing sediment management to maintain habitat features such as tidal flats, overwash areas, and high prey densities; managing predator populations; addressing beach management practices such as beach cleaning; and managing disturbance from recreation and other human activities (see Special Management Considerations or Protection, above). Portions of the municipal beaches within Stone Harbor Borough, and all municipal beaches within North Wildwood City, are covered by Beach Management Plans (Terwilliger Consulting, Inc. 2008, entire; North Wildwood City 2018, entire).

Unit NJ–4: Two Mile Beach

Unit NJ–4 consists of 128 ac (52 ha) of sandy oceanfront beach in Cape May County, New Jersey, from the northeastern boundary of the Two Mile Beach Unit of Cape May NWR extending southwest to include all beach portions of the U.S. Coast Guard Loran Support Unit, ending at the eastern jetty of the Cape May Inlet. All lands within this unit are in Federal ownership (NWR and U.S. Coast Guard). General land use within this unit is primarily managed for wildlife, but also includes compatible recreation and public access on the NWR beach, and certain activities of the U.S. Coast Guard Loran Support Unit. Under an inter-agency agreement, Cape May NWR staff manage sensitive beach species on both the NWR and U.S. Coast Guard portions of the beach.

Unit NJ–4 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots along the mid-Atlantic Coast's portion of the subspecies range during the winter period, providing important wintering habitat for foraging and roosting. This area is significant as the northern-most winter concentration area documented to date. Birds using this unit during the late fall and early winter may be more vulnerable to disturbance due to molting of the flight feathers.

Threats identified within Unit NJ–4 include: (1) Sea level rise, (2) coastal engineering (*e.g.,* existing hard structures, an overly stabilized dune system), (3) predation in nonbreeding areas, and (4) human disturbance (*e.g.,* pedestrians, aircraft including low- and slow-flying banner planes). Special management considerations or protection measures to reduce or alleviate the threats may include management of dunes, vegetation, predator populations, and human activity, including foot and air traffic (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the Cape May NWR Comprehensive Conservation Plan (Service 2004b, entire).

Unit NJ–5: Cape May Bayshore

Unit NJ–5 consists of 1,202 ac (487 ha) of Delaware Bay beaches, flats, and shoals in Cape May County, New Jersey, from approximately Cloverdale Avenue in Lower Township to the jetty on the south shore of the mouth of Bidwell Creek in Middle Township. Lands within this unit include approximately 133 ac (54 ha; 11 percent) in Federal ownership, 44 ac (18 ha; 4 percent) in State ownership, 167 ac (67 ha; 14 percent) in private/other ownership, and 858 ac (347 ha; 71 percent) that are uncategorized. Areas with narrow beaches adjoining developed human communities (*e.g.,* Pierces Point, Reeds Beach) are not included in the unit. General land use within this unit includes residential development, recreation, wildlife conservation, aquaculture, and research.

Unit NJ–5 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This unit also has high concentrations of horseshoe crab eggs, and wide tidal flats that are important foraging habitat.

Threats identified within Unit NJ–5 include: (1) Sea level rise that may accelerate faster than landforms can migrate through natural coastal processes; (2) coastal engineering activities (*e.g.,* existing hard stabilization structures); (3) existing coastal development that may block habitat migration as sea level rise accelerates; (4) aquaculture; (5) predation in nonbreeding areas (*e.g.,* peregrine falcons); (6) vulnerable food resources (*e.g.,* past overharvest of horseshoe crabs), (7) timing asynchronies (*e.g.,* warming bay waters or erratic storms that change the peak timing of horseshoe crab spawning); (8) oil spills (*e.g.,* upstream petroleum port); and (9) human disturbance (*e.g.,* from personal watercraft and other motorized boats, aircraft including low- and slow-flying banner planes; pedestrian traffic is minimal due to a seasonal beach closure to public access). Special management considerations or protection measures to reduce or alleviate the threats may include habitat management or restoration (*e.g.,* living shorelines, facilitated shoreline migration); management of predator populations, aquaculture activities, and horseshoe crab fisheries; oil spill response planning; and management of human activities that disturb foraging rufa red knots (see Special Management Considerations or Protection, above). Management plans are in place and being actively implemented to address the horseshoe crab bait harvest (ASMFC 2012, entire) and structural aquaculture of oysters and other native bivalves (Service 2016a, entire). Federal lands in this unit are managed under the Cape May NWR Comprehensive Conservation Plan (Service 2004b, entire).

Unit NJ–6: Dennis Creek

Unit NJ–6 consists of 279 ac (113 ha) of Delaware Bay beaches, flats, and shoals in Cape May County, New Jersey, from the northern shore of Bidwell Creek north to about 0.5 mi (0.8 km) north of Dennis Creek. All lands within this unit are in State ownership, managed by the State of New Jersey as the Dennis Creek Wildlife Management Area. General land use within this unit

includes natural resource conservation and recreation.

Unit NJ–6 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This unit also has high concentrations of horseshoe crab eggs and an undeveloped character that allows the operation of natural coastal processes and limits disturbance of rufa red knots from human activity.

Threats identified within Unit NJ–6 include: (1) Sea level rise that may accelerate faster than landforms can migrate through natural coastal processes; (2) marsh loss and accelerated beach erosion from historical agriculture practices (*e.g.,* impoundments such as for salt hay farming) (Smith et al. 2017b, p. 36); (3) predation in nonbreeding areas (*e.g.,* peregrine falcons); (4) vulnerable food resources (*e.g.,* past overharvest of horseshoe crabs), (5) timing asynchronies (*e.g.,* warming bay waters or erratic storms that change the peak timing of horseshoe crab spawning); (6) oil spills (*e.g.,* upstream petroleum port); and (7) human disturbance. Special management considerations or protection measures to reduce or alleviate the threats may include habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration); management of predator populations and horseshoe crab fisheries; oil spill response planning; and management of human activities that disturb foraging rufa red knots (see Special Management Considerations or Protection, above). A management plan is in place and being actively implemented to address the horseshoe crab bait harvest (ASMFC 2012, entire).

Unit NJ–7: Heislerville

Unit NJ–7 consists of 1,110 ac (449 ha) of Delaware Bay beaches, flats, shoals, tidal marsh, and open waters in Cape May and Cumberland Counties, New Jersey, from approximately 2,000 feet (ft) (0.6 kilometers (km)) east of West Creek in Dennis Township, Cape May County and extending west to the eastern end of Bay Avenue in Maurice River Township, Cumberland County. The developed area along Bay Avenue is excluded from the unit. West of Bay Avenue, Unit NJ–7 continues north to the mouth of Andrews Ditch in Maurice River Township. This unit also includes a man-made impoundment within the Heislerville Wildlife Management Area, which is owned by the State. Lands within this unit include approximately 524 ac (211 ha; 47 percent) in State ownership, 459 ac (186 ha; 41.5 percent) in private/other ownership, and 127 ac (52 ha; 11.5 percent) that are uncategorized. All State-owned lands in this unit are managed by the State of New Jersey as the Heislerville Wildlife Management Area. General land use within this unit is undeveloped and includes natural resource conservation and recreation.

Unit NJ–7 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Specifically, the bayfront portions of this unit support high concentrations of horseshoe crab eggs, and its undeveloped character allows the operation of natural coastal processes and limits disturbance of rufa red knots from human activity. Additionally, the Heislerville impoundment portion of the unit serves as a critical alternative to bayside habitats, for roosting during high tides when bayfront beaches are narrow or submerged, or for foraging on invertebrates at lower tides during times when horseshoe crab egg availability on bayfront beaches is reduced.

Threats identified within Unit NJ–7 include: (1) Sea level rise that may accelerate faster than landforms can migrate through natural coastal processes; (2) marsh loss and accelerated beach erosion from historical agriculture practices (*e.g.,* impoundments such as for salt hay farming) (Smith et al. 2017b, p. 36); (3) predation in nonbreeding areas (*e.g.,* peregrine falcons) particularly at the Heislerville impoundment; (4) vulnerable food resources (*e.g.,* past overharvest of horseshoe crabs), (5) timing asynchronies (*e.g.,* warming bay waters or erratic storms that change the peak timing of horseshoe crab spawning); (6) oil spills (*e.g.,* upstream petroleum port); and (7) human disturbance (*e.g.,* from personal watercraft and other motorized boats, aircraft including low and slow-flying banner planes; pedestrian traffic is minimal due to a seasonal beach closure to public access). Special management considerations or protection measures to reduce or alleviate the threats may include habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration; maintenance of the berms and water control structures at the Heislerville impoundment); management of predator populations and horseshoe crab fisheries; oil spill response planning; and management of human activities that disturb foraging rufa red knots (see Special Management Considerations or Protection, above). A management plan is in place and being actively implemented to address the horseshoe crab bait harvest (ASMFC 2012, entire).

Unit NJ–8: Egg Island

Unit NJ–8 consists of 1,955 ac (791 ha) of Delaware Bay beaches, flats, shoals, tidal marsh, and open waters in Downe Township, Cumberland County, New Jersey, from the mouth of Oranoaken Creek extending south to Egg Island point, and then northwest to about 850 ft (259 meters (m)) past Budney Avenue in the community of Fortescue. Lands within this unit include approximately 1,908 ac (773 ha; 97 percent) in State ownership, 32 ac (13 ha; 2 percent) in private/other ownership, and 14 ac (5 ha; less than 1 percent) that are uncategorized. All State-owned lands in this unit are managed by the State of New Jersey as the Egg Island Wildlife Management Area. General land use within this unit is mostly undeveloped and includes natural resource conservation and recreation, but with some areas adjoining residential development.

Unit NJ–8 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit has a very high concentration of rufa red knot during spring migration, serving as an important northbound stopover site. This unit also has an undeveloped character that allows the operation of natural coastal processes and limits disturbance of rufa red knots from human activity, serving as one of two significant primary roosting areas (along with Hereford Inlet) used by those rufa red knots that forage in Delaware Bay each spring (Sitters 2005, pp. 1–12).

Threats identified within Unit NJ–8 include: (1) Sea level rise that may accelerate faster than landforms can migrate through natural coastal processes; (2) predation in nonbreeding areas (*e.g.,* peregrine falcons); (3) vulnerable food resources (*e.g.,* past overharvest of horseshoe crabs); (4) timing asynchronies (*e.g.,* warming bay waters or erratic storms that change the peak timing of horseshoe crab spawning); (5) oil spills (*e.g.,* upstream petroleum port); and (6) human disturbance (*e.g.,* from personal watercraft and other motorized boats, aircraft including low and slow-flying banner planes). Special management

considerations or protection measures to reduce or alleviate the threats may include habitat management or restoration (*e.g.,* living shorelines, facilitated shoreline migration), management of predator populations and horseshoe crab fisheries, oil spill response planning, and management of human activities that disturb foraging rufa red knots (see Special Management Considerations or Protection, above). A management plan is in place and being actively implemented to address the horseshoe crab bait harvest (ASMFC 2012, entire).

Unit NJ–9: Newport Neck

Unit NJ–9 consists of 472 ac (191 ha) of Delaware Bay beaches, flats, shoals, and tidal marsh in Downe and Lawrence Townships, Cumberland County, New Jersey, from the north bank of the mouth of Fortescue Creek extending northwest to include both sides of the mouth of Nantuxent Creek. Beaches adjacent to the developed community of Gandys Beach are not included in this unit. Lands within this unit include approximately 202 ac (82 ha; 43 percent) in State ownership, 176 ac (71 ha; 37 percent) in private/other ownership, and 93 ac (38 ha; 20 percent) that are uncategorized. General land use within this unit is undeveloped and includes natural resource conservation and recreation, with much of the unit managed by the State of New Jersey as the Fortescue Wildlife Management Area.

Unit NJ–9 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit has high concentrations of horseshoe crab eggs, and its undeveloped character allows the operation of natural coastal processes and limits disturbance of rufa red knots from human activity.

Threats identified within Unit NJ–9 include: (1) Sea level rise that may accelerate faster than landforms can migrate through natural coastal processes, (2) predation in nonbreeding areas (*e.g.,* peregrine falcons), (3) vulnerable food resources (*e.g.,* past overharvest of horseshoe crabs), (4) timing asynchronies (*e.g.,* warming bay waters or erratic storms that change the peak timing of horseshoe crab spawning), (5) oil spills (*e.g.,* upstream petroleum port), and (6) human disturbance (*e.g.,* from personal watercraft and other motorized boats, aircraft including low and slow-flying banner planes; pedestrian traffic is limited by a seasonal closure of certain beaches to public access). Special management considerations or protection measures to reduce or alleviate the threats may include habitat management or restoration (*e.g.,* living shorelines, facilitated shoreline migration), management of predator populations and horseshoe crab fisheries, oil spill response planning, and management of human activities that disturb foraging rufa red knots (see Special Management Considerations or Protection, above). A management plan is in place and being actively implemented to address the horseshoe crab bait harvest (ASMFC 2012, entire).

Unit DE–1: St. Jones River

Unit DE–1 consists of two subunits comprising 46 ac (19 ha) of the St. Jones River area in Kent County, Delaware. This unit consists of lands owned by the State of Delaware and private landowners.

Subunit DE–1A: St. Jones North

Subunit DE–1A consists of 43 ac (18 ha) of land in Kent County, Delaware. The subunit begins in the north along the shoreline at the end of South Bay Drive in South Kitts Hummock where there is a jetty into Delaware Bay, and continues to the south where it meets the St. Jones River inlet. The eastern boundary is the MLLW of the Delaware Bay (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) and the western boundary runs along the dune line where the habitat changes from lightly vegetated, sandy beach to densely vegetated dunes or marsh. Lands within this subunit are approximately 37 ac (15 ha; 86 percent) in State ownership (Ted Harvey Wildlife Area), 3 ac (1 ha; 7 percent) of undeveloped beach privately owned by Delaware Wildlands, a conservation organization, and 3 ac (1 ha; 7 percent) that are uncategorized. General land use within this subunit includes low-impact, noncommercial, recreational day uses (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for shorebirds).

Subunit DE–1A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site for foraging birds.

Threats identified within Subunit DE–1A include disturbance of foraging and roosting rufa red knots by humans and human activities (*i.e.,* beach nourishment and sediment disposal activities), and modification or loss of habitat from sea level rise and associated erosion of the beach. Special management considerations or protection measures to reduce or alleviate the threats may include management of beach nourishment projects to ensure work is done outside the time when rufa red knots are present to avoid disturbing birds and offset losses from sea level rise (see Special Management Considerations or Protection, above). State lands in this subunit are managed as part of the Ted Harvey Wildlife Area (Delaware Division of Fish and Wildlife (DDFW) 2020a; entire), which restricts off-leash dogs, and provides designated hunting and access points that do not include the beach area used by foraging birds. This area is also designated as a National Estuarine Research Reserve (NERR) (Delaware NERR 2012, entire), which provides for long-term research and monitoring of the site conditions.

Subunit DE–1B: St. Jones South

Subunit DE–1B consists of approximately 3 ac (1 ha) of shoreline at the south side of the inlet to the St. Jones River, Kent County, Delaware. The eastern boundary is the MLLW of the Delaware Bay (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide), and the western boundary is where the sandy beach turns to marshy habitat. Lands within this subunit include approximately 1 ac (0.5 ha; 47 percent) in State ownership and approximately 2 ac (0.6 ha; 53 percent) in private/other ownership. General land use within this subunit includes low-impact, noncommercial, recreational day uses (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for shorebirds).

Subunit DE–1B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site for foraging birds.

Threats identified within Subunit DE–1B include modification or loss of habitat from sea level rise and associated erosion of the beach. Special management considerations or protection measures to reduce or alleviate the threats may include management of beach nourishment and

sediment disposal on eroding beaches with the project design and timing of work designed to minimize bird disturbance, and offset losses from sea level rise (see Special Management Considerations or Protection, above).

Unit DE–2: Brokonbridge Gut

Unit DE–2 consists of two subunits comprising 163 ac (66 ha) in the area where Brokonbridge Gut enters the Delaware Bay in Kent County, Delaware. This unit consists of lands owned by the State of Delaware and private landowners.

Subunit DE–2A: North Brokonbridge Gut

Subunit DE–2A consists of approximately 93 ac (37 ha) of shoreline between the north side of the Brokonbridge Gut inlet to the south side of the Murderkill River inlet, Kent County, Delaware. The eastern boundary is the MLLW of the Delaware Bay (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide), and the western boundary is where the sandy beach turns to marshy habitat. Lands within this subunit are primarily in private/other ownership (91 ac (37 ha); 98 percent) with a small portion (2 ac; 1 ha; 2 percent) owned by the State. Approximately 15 percent of the shoreline is in front of private homes and includes South Bowers Beach; the remaining 85 percent is undeveloped beach that is privately owned. General land use within this unit includes low-impact, noncommercial, recreational day uses (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for shorebirds).

Subunit DE–2A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site for foraging birds.

Threats identified within Subunit DE–2A include disturbance of foraging and roosting rufa red knots by humans and human activities (*i.e.,* beach nourishment and sediment disposal activities), and modification or loss of habitat from sea level rise and associated erosion of the beach. Special management considerations and protection measures to reduce or alleviate the threats may include management of beach nourishment and sediment disposal on eroding beaches with the project design and timing of work designed to minimize bird disturbance, and offset losses from sea level rise (see Special Management Considerations or Protection, above).

Subunit DE–2B: South Brokonbridge Gut

Subunit DE–2B consists of approximately 70 ac (29 ha) of shoreline at the south side of the inlet to Brokonbridge Gut, Kent County, Delaware. The eastern boundary is the MLLW of the Delaware Bay (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide), and the western boundary is where the sandy beach turns to marshy habitat. All lands within this subunit are private/other ownership. This private land area is primarily owned and protected by a private conservation organization (Delaware Wildlands) 52 ac (21 ha; 74 percent), with the remaining approximately 18 ac (7 ha; 16 percent) as private, undeveloped land. This is a long stretch of undeveloped beach. General land use within this subunit includes low-impact, noncommercial, recreational day uses (*e.g.,* hiking, bird watching, and photography) and scientific research (*e.g.,* surveys and monitoring for shorebirds).

Subunit DE–2B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site for foraging birds.

Threats identified within Subunit DE–2B include modification or loss of habitat from sea level rise and associated erosion of the beach, and recreational activities. Special management considerations or protection measures to reduce or alleviate the threats may include: (1) Beach nourishment and sediment disposal on eroding beaches with the project design and timing of work designed to minimize bird disturbance, and offset losses from sea level rise; and (2) minimizing disturbance from recreational activities (see Special Management Considerations or Protection, above).

Unit DE–3: Mispillion Harbor

Unit DE–3 consists of three subunits comprising 1,949 ac (789 ha) in the Mispillion Harbor area where the Mispillion River and Cedar Creek enter the Delaware Bay in Kent and Sussex Counties, Delaware. This unit consists of lands owned primarily by the State of Delaware, with minor ownership by Federal and private/other.

Subunit DE–3A: Main Harbor

Subunit DE–3A consists of approximately 61 ac (25 ha) of shoreline within the main harbor area and includes the rock sill and back beach areas of Mispillion Harbor, Kent and Sussex Counties, Delaware. The eastern boundary is the MLLW of the Delaware Bay (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) and the east side of the rock sill, and the western boundary is where the sandy beach turns to marshy habitat and the west side of the rock sill. Lands within this subunit include approximately 32 ac (13 ha; 53 percent) in State ownership and 29 ac (12 ha; 47 percent) that are uncategorized. General land use within this subunit includes recreational boat traffic related to the harbor and birding and photography from the property of the Dupont Nature Center. No walking or fishing from harbor structures is allowed.

Subunit DE–3A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This location also provides high concentrations of horseshoe crabs during the rufa red knot's spring migration period, resulting in the Mispillion Harbor area supporting the highest number of foraging rufa red knots of any area along the Delaware coast.

Threats identified within Subunit DE–3A include modification or loss of habitat from sea level rise and associated erosion of the shoreline or harbor structures, and recreational activities. Special management considerations or protection measures to reduce or alleviate the threats include beach nourishment and repairs to harbor structures with the project design and timing of work designed to avoid bird disturbance, and minimizing recreational disturbance (see Special Management Considerations or Protection, above). State lands in this subunit are managed as part of the Mispillion Marine Reserve with restrictions that prevent fishing, crabbing, hunting, or walking on the harbor structures and beach area, preventing disturbance to rufa red knots (DDFW 2020b, entire).

Subunit DE–3B: Rawley Island Roost

Subunit DE–3B consists of approximately 1,298 ac (525 ha) of shoreline and marsh on the north side

of the Mispillion River, extending north to Graco's Canal, Kent County, Delaware. The western boundary is Crooked Gut, and the eastern boundary is the MLLW of the Delaware Bay (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide). Lands within this subunit include approximately 1,139 ac (461 ha; 88 percent) in State ownership, 153 ac (62 ha; 12 percent) in private/other ownership, and 6 ac (2 ha; less than 1 percent) that are uncategorized. Private lands are owned by a combination of a private conservation organization—The Nature Conservancy (TNC; 148 ac (60 ha))—with a small area of private, undeveloped land that has a conservation easement. General land use within this subunit includes low-impact, noncommercial, recreational day uses (*e.g.,* hiking, bird watching, and photography) and scientific research (*e.g.,* surveys and monitoring for shorebirds). Hunting occurs on the State land but hunters are not present in the spring when rufa red knots are present.

Subunit DE–3B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site, and includes expansive wetlands for roosting adjacent to the highest concentration of rufa red knots along the Delaware coast (Zimmerman 2010, entire). This subunit also has high concentrations of horseshoe crab eggs, and its undeveloped character allows the operation of natural coastal processes that limit disturbance of rufa red knots from human activity.

Threats identified within Subunit DE–3B include modification or loss of habitat from sea level rise and associated erosion of the beach, and recreational activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing recreational disturbance and beach nourishment and sediment disposal on eroding beaches, but as part of the Milford Neck Wildlife Area, beach nourishment projects would be designed to minimize bird disturbance (see Special Management Considerations or Protection, above). State lands in this subunit are managed by the Delaware Division of Wildlife as part of their Milford Neck Wildlife Area (DDFW 2020c, entire).

Subunit DE–3C: Slaughter Beach

Subunit DE–3C consists of approximately 590 ac (239 ha) of beach shoreline, marsh, and harbor structures in Sussex County, Delaware. The subunit extends from the eastern tip of the dike that outlines the outer tip of the Mispillion Harbor, south along the sandy beach of Slaughter Beach to the southern end of Isaacs Shore Drive. The western boundary is where the lightly vegetated beach becomes marsh in the northern portions of this subunit, or where property parcels end in the southern portion of this subunit. The eastern boundary is the MLLW of the Delaware Bay (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide). Lands within this subunit include approximately 1 ac (0.25 ha; less than 1 percent) in Federal ownership, 59 ac (24 ha; 10 percent) in State ownership, 2 ac (1 ha; less than 1 percent) in private/other ownership, and 528 ac (213 ha; 89 percent) that are uncategorized. General land use within this subunit includes low-impact, noncommercial, recreational day uses (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for shorebirds).

Subunit DE–3C is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site.

Threats identified within Subunit DE–3C include modification or loss of habitat from sea level rise and associated erosion of the beach, and recreational activities. Special management considerations or protection measures to reduce or alleviate the threats may include beach nourishment and sediment disposal on eroding beaches, and minimizing recreational disturbance (see Special Management Considerations or Protection, above). This area is a public beach owned by the State of Delaware and while it does not have a specific management plan, it has been designated a horseshoe crab sanctuary by the Ecological Research and Development Group, a non-profit conservation organization.

Unit DE–4: Prime Hook

Unit DE–4 consists of approximately 549 ac (222 ha) of beach shoreline and associated marsh in Sussex County, Delaware. The northern boundary is about 1 mi (1.6 km) north of Fowler Beach road, the southern boundary is the end of South Bayshore Drive, the eastern boundary is the MLLW of the Delaware Bay (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide), and the western boundary in the northern portion of the unit runs along the dune line where the habitat changes from lightly vegetated sandy beach to densely vegetated dunes or marsh. The western boundary of the central portion of this unit includes marsh and shallow open water areas where birds can roost overnight and forage. The western edge of the southern portion of the unit is where property parcels end at the beach. Lands within this unit include approximately 480 ac (195 ha; 87 percent) in Federal ownership (Prime Hook NWR), 6 ac (2 ha; 1 percent) in private/other ownership, and 63 ac (25 ha; 12 percent) that are uncategorized. General land use within this unit includes low-impact, noncommercial, recreational day uses (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for shorebirds).

Unit DE–4 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site.

Threats identified within Unit DE–4 include modification or loss of habitat from sea level rise and associated erosion of the beach, and recreational activities. Special management considerations or protection measures include a commitment to shorebird conservation and management (see Special Management Considerations or Protection, above), including implementation of the Prime Hook NWR Comprehensive Conservation Plan (Service 2013, entire). Any projects on the refuge would be designed and timed to avoid the time of year rufa red knots are present.

Unit VA–1: Assateague Island

Unit VA–1 consists of 2,817 ac (1,140 ha) of Assateague Island in Accomack County, Virginia, from the Virginia–Maryland State line south to the area known as ''The Hook,'' a wide peninsula that curves northwest. The western boundary is along the dune line where the habitat changes from sandy beach with little vegetation to densely vegetated dunes or marshland, as well as densely vegetated forested or herbaceous vegetation landward of the beach and primary dune. The eastern

boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. With the exception of a 27-ac (11-ha) tract owned by the NPS, the remainder of the unit is owned by the Service's Chincoteague NWR. The NPS also manages an overlay easement within the NWR as a public beach that is part of the Assateague Island National Seashore. All lands within this unit are federally owned. General land use within this unit includes low-impact recreational day use (*e.g.,* hiking, bird watching, photography, and shell collecting), and high-impact recreational beach use within designated areas (*e.g.,* swimming, sunbathing, fishing, and ORVs). In addition, scientific research (*e.g.,* survey and monitoring of natural resources, such as federally listed species) may occur year-round.

Unit VA–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, rufa red knots have been documented during the winter period at this location during the time of year that birds are seeking to build energy sources for migration; however, the number of birds observed during this period are not large enough to also meet the winter criteria.

Threats identified within Unit VA–1 include: (1) Disturbance of foraging and roosting rufa red knots by recreational beach use (*e.g.,* swimming, sunbathing, fishing, and ORVs), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion) (see Special Management Considerations or Protection, above). Currently, Chincoteague NWR addresses some of these threats in their Comprehensive Conservation Plan (Service 2015, entire) and the Memorandum of Understanding between the NWR and NPS (Service and NPS 2017, entire).

Unit VA–2: Wallops Island

Unit VA–2 comprises two subunits (totaling 571 ac (231 ha)) owned and managed by NASA as part of the Wallops Flight Facility located in Accomack County. This unit (including both subunits) are being considered for exclusion under section 4(b)(2) of the Act.

Subunit VA–2A: Wallops Island North

Subunit VA–2A consists of 540 ac (218 ha) of Wallops Island in Accomack County, Virginia. The north and east boundaries of the subunit are Chincoteague Inlet and seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. The western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat banks, or densely vegetated forested or herbaceous vegetation landward of the beach and primary dune. The southern boundary tapers to a point ending at the northern end of the facility's sea wall structure, extending past the MLLW line and including the areas that are slightly inundated with less than 3 in (7.5 cm) of water. All lands within this subunit are federally owned by NASA. General land use within this subunit includes rocket and drone launches, drone and aircraft flights, recreational beach uses (*e.g.,* swimming, sunbathing, ORVs), beach renourishment and seawall repair, protected species management, facility maintenance and construction, and educational use.

Subunit VA–2A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site.

Threats identified within Subunit VA–2A include: (1) Disturbance of foraging and roosting rufa red knots from recreational beach use (*e.g.,* swimming, sunbathing, ORVs), (2) natural disasters (*i.e.,* hurricanes), (3) predation, (4) noise disturbance from overflights of unmanned aerial vehicles and rocket launches, and (5) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting predator control, implementing conservation measures that help reduce modification or loss of habitat from hard and soft beach stabilization efforts (*e.g.,* time-of-year restrictions for beach nourishment and dredging activities, establishing temporary sanctuaries and management during certain times of year to address erosion) (see Special Management Considerations or Protection, above). This area is currently managed under the Wallops Island Protected Species Management Plan (NASA 2020a, entire).

Subunit VA–2B: Wallops Island South

Subunit VA–2B consists of 31 ac (13 ha) of Wallops Island in Accomack County, Virginia. The northern boundary is the end of the road south of the old runway, the southern boundary is Assawoman Creek, the western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat banks, or densely forested or herbaceous vegetation landward of the beach and primary dune, and the eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this subunit are federally owned by NASA. General land use within this subunit includes rocket and drone launches, drone and aircraft flights, beach renourishment and seawall repair, protected species management, facility maintenance and construction, ORV activity, and educational use.

Subunit VA–2B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Rufa red knots are observed in Subunit VA–2B, however, specific counts within the subunit were not available and given the high concentrations of rufa red knots on abutting Assawoman Island (Unit VA–3), this subunit was included.

Threats identified within Subunit VA–2B include: (1) Disturbance of foraging and roosting rufa red knots by ORVs, (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, (3) noise disturbance from overflights of unmanned aerial vehicles and rocket launches, and (4) accelerated loss of

shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting predator control, implementing conservation measures that help reduce modification or loss of habitat from hard and soft beach stabilization efforts (*e.g.,* time-of-year restrictions for beach nourishment and dredging activities, establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). This area is currently managed under the Wallops Island Protected Species Management Plan (NASA 2020a, entire).

Unit VA–3: Assawoman Island

Unit VA–3 consists of 633 ac (256 ha) of Assawoman Island in Accomack County, Virginia, from Assawoman Creek south to Kegotank Creek and Gargathy Inlet and extends east past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. The western boundary is formed by Houseboat Creek, a section of Egg Marsh, and Kegotank Bay. All lands within this unit are federally owned by Chincoteague NWR. General land use within this unit includes low-impact recreational day use (during those times of year when permitted) such as hiking, bird watching, photography, and surf fishing. Under current management, the island is closed to recreation March 15th to September 15th to provide undisturbed habitat for nesting birds. Scientific research (*e.g.,* survey and monitoring of natural resources, such as federally listed species) may occur year-round.

Unit VA–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Rufa red knots have also been documented at this location during the fall migration period, although not in large enough numbers to also meet the fall migration period criteria.

Threats identified within Unit VA–3 include: (1) Disturbance of foraging and roosting rufa red knots, including recreational beach use (*e.g.,* surf fishing), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) modification or loss of habitat including accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). This area is currently managed under the Chincoteague and Wallops Island NWR Comprehensive Conservation Plan (Service 2015, entire).

Unit VA–4: Metompkin Island

Unit VA–4 consists of 1,467 ac (594 ha) of Metompkin Island in Accomack County, Virginia, from Kegotank Creek and Gargathy Inlet south to the mouth of Folly Creek. The western boundary is formed by the Virginia Inside Passage of the Intercoastal Waterway and Metompkin Bay and includes extensive areas of overwash and low marsh areas along the western boundary. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 64 ac (26 ha; 5 percent) in Federal ownership (Chincoteague NWR), 56 ac (22 ha; 4 percent) in State ownership, and 1,239 ac (502 ha; 84 percent) in private/other (TNC) ownership, and 110 ac (44 ha; 7 percent) that are uncategorized. General land use within this unit includes low-impact, noncommercial, recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for nesting shorebirds).

Unit VA–4 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots (one of the highest in Virginia) during the spring migration period, serving as an important northbound stopover site. Rufa red knots also use this island during the fall migration period as a southbound stopover site, as well as during the winter period to build energy sources for migration, but not in large enough numbers to also meet the criteria for fall and winter periods. Additionally, this area harbors peat banks, which are heavily used by rufa red knots in Virginia.

Threats identified within Unit VA–4 include: (1) Disturbance of foraging and roosting rufa red knots by recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). The majority of the island is part of the Virginia Coast Reserve (*i.e.,* reserve lands owned and managed by TNC), management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.). During the shorebird breeding season (March 15 to August 31), the southern islands are managed in partnership with the Commonwealth of Virginia, TNC, and the Service to reduce disturbance, thereby increasing productivity (Service 2015, pp. 2–9). The State-owned portion of this unit is ungranted State land managed by the Virginia Marine Resources Commission under the Virginia Administrative Code (Va. Code § 4–1030).

Unit VA–5: Cedar Island

Unit VA–5 consists of 2,274 ac (920 ha) of Cedar Island in Accomack County, Virginia, from an inlet between Cedar Island and the southern end of Metompkin Island south to Wachapreague Inlet. The western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat banks, or densely vegetated forested or herbaceous vegetation landward of the beach and primary dune, or open water including Burtons Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well

as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 203 ac (82 ha; 9 percent) in Federal ownership, 77 ac (31 ha; 4 percent) in State ownership, 920 ac (372 ha; 40 percent) in private/other ownership, and 1,074 ac (434 ha; 47 percent) that are uncategorized. General land use within this unit includes low-impact, noncommercial, recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for nesting shorebirds).

Unit VA–5 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this location harbors peat banks, which are heavily used by rufa red knots in Virginia.

Threats identified within Unit VA–5 include: (1) Recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). The majority of the island is part of TNC's Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.). During the shorebird breeding season (March 15 to August 31), the southern islands are managed in partnership with the Commonwealth of Virginia, TNC, and the Service to reduce disturbance, thereby increasing productivity (Service 2015, pp. 2–9). The State-owned portion of this unit is ungranted State land managed by the Virginia Marine Resources Commission under the Virginia Administrative Code (Va. Code § 4–1030).

Unit VA–6: Parramore Island

Unit VA–6 consists of 6,802 ac (2,753 ha) of Parramore Island in Accomack County, Virginia, from Wachapreague Inlet south to Quinby Inlet. The western boundary is Horseshoe Lead, Drawing Channel, Swash Bay, and Revel Island Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 5,631 ac (2,280 ha; 83 percent) in private/other ownership and 1,171 ac (473 ha; 17 percent) that are uncategorized. General land use within this unit includes low-impact, noncommercial, recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), and scientific research (*e.g.,* surveys and monitoring for nesting shorebirds).

Unit VA–6 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this location harbors peat banks, which are heavily used by rufa red knots in Virginia.

Threats identified within Unit VA–6 include: (1) Disturbance of foraging and roosting rufa red knots by recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion) (see Special Management Considerations or Protection, above). The island is managed by TNC as part of TNC's Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.).

Unit VA–7: Chimney Pole Marsh

Unit VA–7 consists of 2,004 ac (811 ha) of Chimney Pole Marsh and the southern portion of Sandy Island in Accomack County, Virginia, within the area of Quinby Inlet and west of the gap between Parramore and Hog Islands. This unit is composed of mud flats, low marsh, sandy beaches, overwash areas, and tidal channels. The boundary of the unit on all sides extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 1,224 ac (496 ha; 61 percent) in State ownership, 285 ac (116 ha; 14 percent) in private/other ownership, and 495 ac (200 ha; 25 percent) that are uncategorized. General land use of ungranted State lands in this unit include recreational activities (*e.g.,* hunting, fishing, clamming, oystering, crabbing, picnicking, beachcombing, birdwatching).

Unit VA–7 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this location is a presumed night roost site (Cohen et al. 2010b *in* Heller 2020, p. 90).

Threats identified within Unit VA–7 include: (1) Recreational use (*e.g.,* hunting, trapping, camping), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). This unit is primarily ungranted State land managed by the Virginia Marine Resources Commission under the Virginia Administrative Code (Va. Code § 4–1030). Sandy Island is managed by TNC as part of TNC's Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.).

Unit VA–8: Hog Island

Unit VA–8 consists of 3,235 ac (1,309 ha) of Hog Island in Northampton County, Virginia, bounded by the Quinby Inlet to the north and Great Machipongo Inlet to the south. The

western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat banks, or densely vegetated forested or herbaceous vegetation landward of the beach and primary dune, or open water including Hog Island Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 16 ac (7 ha; less than 1 percent) in State ownership, 2,966 ac (1,201 ha; 92 percent) in private/other ownership, and 253 ac (101 ha; 7.8 percent) that is uncategorized. General land use within this unit includes low-impact, noncommercial, recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for nesting shorebirds).

Unit VA–8 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this location harbors peat banks, which are heavily used by rufa red knots in Virginia.

Threats identified within Unit VA–8 include: (1) Disturbance of foraging and roosting rufa red knots by recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). The island is managed by TNC as part of TNC's Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.). The State-owned portion of this unit is ungranted State land managed by the Virginia Marine Resources Commission under the Virginia Administrative Code (Va. Code § 4–1030).

Unit VA–9: Cobb Island

Unit VA–9 consists of 2,342 ac (948 ha) of Cobb Island in Northampton County, Virginia, bounded by Great Machipongo Inlet to the north and Sandy Shoal Inlet to the south. The western boundary is formed by Hog Island Bay, Spidercrab Bay, and Cobb Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 16 ac (7 ha; less than 1 percent) in State ownership, 1,778 ac (720 ha; 76 percent) in private/other ownership, and 547 ac (221 ha; 23 percent) that are uncategorized. General land use within this unit includes low-impact, noncommercial, recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for nesting shorebirds).

Unit VA–9 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site.

Threats identified within Unit VA–9 include: (1) Predation (especially from peregrine falcons), (2) disturbance of foraging and roosting rufa red knots by recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), (3) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (4) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). The island is primarily managed by TNC as part of TNC's Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.). The State-owned portion of this unit is ungranted State land managed by the Virginia Marine Resources Commission under the Virginia Administrative Code (Va. Code § 4–1030).

Unit VA–10: Little Cobb Island

Unit VA–10 consists of 82 ac (33 ha) of Little Cobb Island in Northampton County, Virginia, and lies just west of the southern end of Cobb Island and within the waters of Cobb Bay. The boundary of this small island in all directions is the waters of Cobb Bay and the extent of the boundary seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this unit are in private/other ownership. General land use within this unit is scientific research (*e.g.,* surveys and monitoring for nesting shorebirds); this area is closed to visitor use at all times for scientific research and safety reasons (TNC 2017, p. 1).

Unit VA–10 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site.

The threats identified within Unit VA–10 include: (1) Natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (2) erosional processes and accelerated loss of shoreline habitat in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing scientific research activity access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration, and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). The island is owned and managed by TNC as part of the Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.).

Unit VA–11: Wreck Island

Unit VA–11 consists of 1,270 ac (514 ha) of Wreck Island in Northampton County, Virginia, is bounded to the north by Sandy Shoal Inlet and Red Drum Drain and New Inlet to the south. The western boundary is South Bay. The eastern boundary extends seaward

past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this unit are State owned and managed as Wreck Island Natural Area Preserve. General land use within this unit includes recreational beach use (*e.g.,* fishing, hiking, wildlife viewing) and natural resource surveys and monitoring.

Unit VA–11 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this area is a presumed night roost site (Cohen et al. 2010 *in* Heller 2020).

Threats identified within Unit VA–11 include: (1) Disturbance of foraging and roosting rufa red knots by recreational beach use (*e.g.,* fishing, hiking, wildlife viewing), (2) invasive species, (3) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (4) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). Unit VA–11 is managed by the Virginia Department of Conservation and Recreation under the Wreck Island Natural Area Preserve Management Abstract (Field 2014, entire).

Unit VA–12: Myrtle Island

Unit VA–12 consists of 1,416 ac (573 ha) of Myrtle Island in Northampton County, Virginia, and is composed of extensive mud flats, low marsh, sandy beaches, overwash areas, and tidal channels. The north boundary is Ship Shoal Inlet, the south boundary is Little Inlet, the west boundary is Main Ship Shoal Channel and Big Creek Marsh, and the east boundary is the Atlantic Ocean. The boundary for the island and marsh complex extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include 1,028 ac (417 ha; 73 percent) that are in private/other ownership and 388 ac (156 ha; 27 percent) that are uncategorized. General land use within this unit includes low-impact, noncommercial, recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography) and scientific research (*e.g.,* surveys and monitoring for nesting shorebirds).

Unit VA–12 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit harbors peat banks, which are heavily used by rufa red knots in Virginia.

Threats identified within Unit VA–12 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities including recreational beach use (*e.g.,* hiking, bird watching, surf fishing, photography), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). The island is owned and managed by TNC as part of the Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.).

Unit VA–13: Smith Island

Unit VA–13 consists of 2,529 ac (1,024 ha) of Smith Island in Northampton County, Virginia. It is bounded to the north by Little Inlet, to the south by Smith Island Inlet, and to the west along the dune line where the habitat changes from sandy beach with little vegetation to densely vegetated dunes or marshland, as well as densely vegetated forested or herbaceous vegetation landward of the beach and primary dune, or open water including Magothy Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this unit are in private/other ownership. General land use within this unit includes low-impact, noncommercial, recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), and scientific research (*e.g.,* surveys and monitoring for nesting shorebirds).

Unit VA–13 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Rufa red knots also use this island during the fall migration period as a southbound stopover site, as well as during the winter season period to build energy sources for migration, but not in large enough numbers to also meet the criteria for fall and winter periods.

Threats identified within Unit VA–13 include: (1) Disturbance of foraging and roosting rufa red knots by recreational beach use (*e.g.,* hiking, bird watching, surf fishing, and photography), (2) natural (*e.g.,* hurricanes) or human-caused (*e.g.,* oil spills) disasters, and (3) accelerated loss of shoreline habitat from erosional processes in response to climate change and sea level rise. Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), and establishing temporary sanctuaries and management during certain times of year to address erosion (see Special Management Considerations or Protection, above). The island is owned and managed by TNC as part of the Virginia Coast Reserve, management of which is identified in a Conservation Action Plan that outlines priorities and strategies for conservation activities (Wilke 2020, pers. comm.).

Unit NC–1: Outer Banks

Unit NC–1 consists of two subunits comprising 11,367 ac (4,600 ha) in Dare and Hyde Counties, North Carolina. This unit consists of Federal lands owned by the NPS and Service, and lands owned by the State of North Carolina. This unit overlaps with occupied habitat and designated critical habitat for the federally threatened piping plover.

Subunit NC–1A: Hatteras Island and Shoals

Subunit NC–1A consists of 5,754 ac (2,329 ha) of Hatteras Island in Dare County, North Carolina, from the southeast side of Oregon Inlet, south along the ocean-facing side of the island (including Pea Island NWR) to Cape Point in Cape Hatteras National Seashore. From Cape Point, the subunit stretches along the ocean side of the island about 13.25 mi (21 km) west to the east side of Hatteras Inlet. This subunit includes from MLLW (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide, that are associated with the northeast side of Hatteras Inlet's navigable channel) to the toe of the dunes or where densely vegetated habitat, not used by the rufa red knot, begins. Lands within this subunit include approximately 4,940 ac (1,999 ha; 86 percent) in Federal ownership (Cape Hatteras National Seashore and Pea Island NWR), along with 814 ac (329 ha; 14 percent) that are uncategorized. Some portions of this subunit include ocean-facing beaches in front of the villages of Rodanthe, Waves, Salvo, Avon, Buxton, Frisco, and Hatteras. General land use within this subunit includes beach access for seasonal rental and residential communities, recreational day uses (*e.g.,* sunbathing, walking, bird watching, swimming, surfing, surf fishing, horseback riding and photography), commercial fishing, natural resource conservation, and open space.

Subunit NC–1A is occupied by the species and contains one or more of the physical or biological features essential to conservation of the species. This subunit contains a high concentration of rufa red knots during the winter period, providing an important wintering habitat location in the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 936 ac (379 ha) of this subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001; 73 FR 62816, October 21, 2008).

Threats identified within Subunit NC–1A include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Pamlico Sound (see Special Management Considerations or Protection, above). Federal lands within this subunit are managed under the 2006 Pea Island NWR Comprehensive Conservation Plan (Service 2006a, entire) and under the 2016 Cape Lookout National Seashore Off-Road Vehicle Management Plan/Environmental Impact Statement (National Park Service 2016, entire).

Subunit NC–1B: Ocracoke Island

Subunit NC–1B consists of 5,613 ac (2,271 ha) of Ocracoke Island in Hyde County, North Carolina, from the southwest side of Hatteras Inlet along the ocean-facing side of the island to the northeast side of Ocracoke Inlet. This subunit also encompasses shallow areas and mudflats within Pamlico Sound on the west side of Ocracoke Island near Ocracoke Village. This subunit includes from MLLW (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the rufa red knot, begins, including the flood-tidal and ebb-tidal deltas associated with the southwest side of Hatteras Inlet and the northeast side of Ocracoke Inlet, and the sand and mud islands identified in Pamlico Sound northeast of Ocracoke Village. Lands within this subunit include approximately 1,427 ac (577 ha; 25 percent) in Federal ownership (*i.e.,* the entire ocean-facing side of the Ocracoke Island, which is part of Cape Hatteras National Seashore), 3,612 ac (1,462 ha; 65 percent) in State ownership (*i.e.,* the shallow islands in Pamlico Sound on the north side of Ocracoke), and 575 ac (233 ha; 10 percent) that are uncategorized. General land use within this subunit includes recreational day uses (*e.g.,* sunbathing, walking, bird watching, swimming, surfing, surf fishing, horseback riding and photography), commercial fishing, natural resource conservation, and open space.

Subunit NC–1B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound migration stopover site. Approximately 471 ac (190 ha) of the subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001; and 73 FR 62816, October 21, 2008).

Threats identified within Subunit NC–1B include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Pamlico Sound (see Special Management Considerations or Protection, above). Federal lands within this subunit are managed under the 2010 Cape Hatteras National Seashore ORV Management Plan and EIS (NPS 2010, entire), and State lands are managed under the 2015 North Carolina Wildlife Action Plan (State of North Carolina 2015, entire).

Unit NC–2: Core Banks

Unit NC–2 consists of two subunits comprising 11,281 ac (4,565 ha) in Carteret County, North Carolina. This unit consists of Federal lands owned by the NPS (Cape Lookout National Seashore). This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened piping plover.

Subunit NC–2A: North Core Banks

Subunit NC–2A consists of 8,187 ac (3,313 ha) in Carteret County, North Carolina. The north boundary of the subunit is the North Core Banks side of the Ocracoke Inlet channel and the

south boundary is the North Core Banks side of the New Drum Inlet channel, the west boundary is the toe of the primary dune or dense vegetation line (where the physical or biological features do not occur), and the east boundary is MLLW on the Atlantic Ocean (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide). This subunit also includes MLLW on Core Sound to the MLLW on the Atlantic Ocean in washover areas associated with Old Drum Inlet, all emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the North Core Banks side of the Ocracoke Inlet channel, and the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the North Core Banks side of the New Drum Inlet channel. Lands within this unit include 6,534 ac (2,644 ha; 80 percent) that are Federal ownership (Cape Lookout National Seashore) and 1,654 ac (669 ha; 20 percent) that are uncategorized. General land use within this subunit includes camping, recreational day uses (*e.g.,* walking, bird watching, swimming, surfing, surf fishing, and photography), natural resource conservation, and open space.

Subunit NC–2A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 5,493 ac (2,223 ha) of this subunit overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Subunit NC–2A include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Core and Pamlico Sound (see Special Management Considerations or Protection, above). Federal lands within this subunit are managed under the 2016 Cape Lookout National Seashore ORV Management Plan/EIS (NPS 2016, entire).

Subunit NC–2B: South Core Banks

Subunit NC–2B consists of 3,094 ac (1,252 ha) in Carteret County, North Carolina. The north boundary of the subunit is the South Core Banks side of the New Drum Inlet Channel, the south boundary is at the Power Squadron Spit excluding the jetty, the west boundary is at the toe of the primary dune or dense vegetation line where the physical or biological features do not occur, and the east boundary is MLLW on the Atlantic Ocean (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide). This subunit also includes MLLW on Core Sound to the MLLW on the Atlantic Ocean in emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the South Core Banks side of the New Drum Inlet channel, and all emergent sand shoals associated with Cape Point. All of the lands within this subunit are under Federal ownership (Cape Lookout National Seashore). General land use within this subunit includes camping, recreational day uses (*e.g.,* walking, bird watching, swimming, surfing, surf fishing, and photography), natural resource conservation, and open space.

Subunit NC–2B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Approximately 873 ac (353 ha) of this subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001; and 73 FR 62816, October 21, 2008).

Threats identified within Subunit NC–2B include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration); managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Core Sound (see Special Management Considerations or Protection, above). Federal lands within this subunit are managed under the 2016 Cape Lookout National Seashore ORV Management Plan/EIS (NPS 2016, entire).

Unit NC–3: Shackleford Island

Unit NC–3 consists of 4,972 ac (2,012 ha) including all of Shackleford Island in Carteret County, North Carolina. The north boundary is MLLW along Back Sound, Bald Hill, Johnson and Lighthouse Bays south to dense vegetation where the physical or biological features do not occur. The east boundary is the Shackleford Island side of Barden Inlet channel, the south boundary is MLLW on the Atlantic Ocean, and the west boundary is the Shackleford Island side of Beaufort Inlet Channel. This unit includes emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the Shackleford Island side of the Barden Inlet channel, and the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Beaufort Inlet channel (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide). All lands within this unit are in Federal ownership (Cape Lookout National Seashore). General land use within this unit includes camping, recreational day uses (*e.g.,* walking, bird watching, swimming, surfing, surf fishing, and photography), natural resource conservation, and open space.

Unit NC–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This

unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Approximately 2,120 ac (858 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit NC–3 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Back Sound (see Special Management Considerations or Protection, above). Federal lands within this unit are managed under the 2016 Cape Lookout National Seashore ORV Management Plan/EIS (NPS 2016, entire).

Unit NC–4: Emerald Isle-Atlantic Beach

Unit NC–4 consists of 2,030 ac (822 ha) of barrier island in Carteret County, North Carolina, stretching about 23 mi (37 km) from the Beaufort Inlet channel and Fort Macon State Park west to the eastern side of the Bogue Inlet channel. Unit NC–4 includes from MLLW to the toe of the dunes or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. This unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Beaufort Inlet channel, not including the jetty, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the Bogue Inlet channel. Lands within this unit include approximately 1,908 ac (772 ha; 94 percent) in State ownership and 122 ac (50 ha; 6 percent) in private/other ownership (which includes 1 ac (0.5 ha) in local government ownership and 121 ac (49 ha) in private ownership). General land use within this unit includes beach access for seasonal rental and residential communities, recreational day uses (*e.g.,* sunbathing, walking, bird watching, swimming, surfing, surf fishing, and photography), commercial fishing, and natural resource conservation and open space.

Unit NC–4 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 258 ac (104 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 1,220 ac (494 ha) overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit NC–4 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Bogue Sound (see Special Management Considerations or Protection, above). State lands within this unit are managed under the 2015 North Carolina Wildlife Action Plan (NCWRC 2015, entire).

Unit NC–5: New Topsail Inlet-Topsail Beach

Unit NC–5 consists of 1,612 ac (652 ha) of barrier island in Onslow and Pender Counties, North Carolina, stretching about 23 mi (37 km) from the west side of the New River Inlet channel west to the east side of the New Topsail Inlet channel. This unit includes from MLLW to the toe of the dunes or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. This unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the New River Inlet channel, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the New Topsail Inlet channel. All lands within this unit are in private/other ownership. General land use within this unit includes beach access for seasonal rental and residential communities, recreational day uses (*e.g.,* sunbathing, walking, bird watching, swimming, surfing, surf fishing, and photography), commercial fishing, and natural resource conservation and open space.

Unit NC–5 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 121 ac (49 ha) of this unit overlap designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and approximately 972 ac (393 ha) overlap with designated habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit NC–5 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; (4) modification or loss of habitat or both due to residential and commercial development; and (5) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special

management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Topsail Sound (see Special Management Considerations or Protection, above).

Unit NC–6: Cape Fear-Fort Fisher

Unit NC–6 consists of 1,986 ac (804 ha) of coastal barrier island from Carolina Beach Inlet in New Hanover County, North Carolina to the mouth of the Cape Fear River in Brunswick County, North Carolina. The north boundary of this unit is the northeast tip of Pleasure Island south of Carolina Beach Inlet and the south boundary extends from the tip of Cape Fear west approximately 3.4 mi (5 km) to the mouth of the Cape Fear River. The west boundary is the toe of the primary dune or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. The east boundary is MLLW on the Atlantic Ocean excluding groins and jetties. This unit also includes all emergent sand shoals associated with the tip of Cape Fear, the Cape Fear River south of Military Ocean Terminal Sunny Point, and the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with southwest side of Carolina Beach Inlet channel and the southwest tip of Bald Head Island. Lands within this unit include approximately 1,713 ac (693 ha; 86 percent) in State ownership and 274 ac (111 ha; 14 percent) in private/other ownership. State lands in this unit contain parts of Fort Fisher State Recreation Area and Zeke's Island Estuarine Reserve. General land use within this unit includes beach access for seasonal rental and residential communities, recreational day uses (*e.g.,* sunbathing, walking, bird watching, swimming, surfing, surf fishing, and photography), commercial fishing, and natural resource conservation and open space.

Unit NC–6 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Approximately 480 ac (194 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and approximately 1,009 ac (408 ha) overlap with designated habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit NC–6 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources both within the unit and the adjacent Myrtle Sound/Cape Fear River (see Special Management Considerations or Protection, above). State lands within this unit are managed under the 2015 North Carolina Wildlife Action Plan (NCWRC 2015, entire).

Unit NC–7: Ocean Isle Beach

Unit NC–7 consists of 298 ac (120 ha) of barrier island in Brunswick County, North Carolina, stretching about 6 mi (10 km) from the west side of Shallotte Inlet to the east side of Tubbs Inlet. The east boundary of this unit is the west side of Shallotte Inlet. The south boundary is the MLLW on the Atlantic Ocean, the west boundary is the east side of Tubbs Inlet and the north boundary is the toe of the primary dune or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. This unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Shallotte Inlet channel, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the Tubbs Inlet channel. Lands within this unit include approximately 182 ac (73 ha; 61 percent) in State ownership and 116 ac (47 ha; 39 percent) in private/other (municipal) ownership. General land use within this unit includes beach access for seasonal rental and residential communities, recreational day uses (*e.g.,* sunbathing, walking, bird watching, swimming, surfing, surf fishing, and photography), commercial fishing, and natural resource conservation and open space.

Unit NC–7 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Approximately 29 ac (12 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit NC–7 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources within the unit (see Special Management Considerations or Protection, above). State lands within this unit are managed under the 2015 North Carolina Wildlife Action Plan (NCWRC 2015, entire).

Unit NC–8: Sunset Beach-Bird Island

Unit NC–8 consists of 384 ac (155 ha) of barrier island in Brunswick County, North Carolina, stretching about 4.1 mi (6.6 km) from the west side of Tubbs Inlet to the east side of Little River Inlet. The east boundary of this unit is the west side of Tubbs Inlet. The south boundary is the MLLW on the Atlantic Ocean, the west boundary is the east side of Little River Inlet and the north boundary is the toe of the primary dune or where densely vegetated habitat, not

used by the rufa red knot, begins and where the physical or biological features no longer occur. This unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Tubbs Inlet channel, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the Little River Inlet channel, excluding the jetty. Lands within this unit include approximately 345 ac (139 ha; 90 percent) in State ownership and 39 ac (16 ha; 10 percent) in private/other ownership. General land use within this unit includes beach access for seasonal rental and residential communities, recreational day uses (*e.g.,* sunbathing, walking, bird watching, swimming, surfing, surf fishing, and photography), commercial fishing, and natural resource conservation and open space.

Unit NC–8 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Approximately 61 ac (25 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit NC–8 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, powered boats, ORVs); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) response to natural and human-caused disasters (*i.e.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent saltmarsh and upland roosting habitat during migration (through restrictions on timing, locations, and types of activities), conducting habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration), managing predator populations, managing human activities that disturb foraging rufa red knots, and managing sediment sources within the unit (see Special Management Considerations or Protection, above). State lands within this unit are managed under the Management Plan for the Bird Island Component of the North Carolina Coastal Reserve (North Carolina Department of Environment and Natural Resources Division of Coastal Management 2003, entire) and the 2015 North Carolina Wildlife Action Plan (NCWRC 2015, entire).

Unit SC–1: Garden City Beach

Unit SC–1 consists of 616 ac (249 ha) of Garden City Beach in Georgetown and Horry Counties, South Carolina. The northern boundary of the unit begins at the Garden City pier in Horry County and extends southwest to the northern side of Murrells Inlet in Georgetown County. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the northeastern side of Murrells Inlet's navigable channel. Lands within this unit include approximately 267 ac (108 ha; 43 percent) in State ownership and 349 ac (141 ha; 57 percent) in private/other ownership. General land use within this unit includes residential development, tourism, and outdoor recreational use (*e.g.,* beachgoing, boating).

Unit SC–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots in South Carolina and on the Southeastern U.S. portion of the subspecies range during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 57 ac (23 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit SC–1 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, running/walking/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) disturbance associated with the response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing recreational access to key rufa red knot foraging and roosting habitat during migration (through restrictions on timing, locations, and types of activities) and limiting shoreline stabilization project construction windows (*e.g.,* outside of red knot migration windows) (see Special Management Considerations or Protection, above).

Unit SC–2: Huntington Beach State Park/Litchfield Beach

Unit SC–2 consists of 1,634 ac (661 ha) of Huntington Beach State Park and Litchfield Beach in Georgetown County, South Carolina. The unit boundary begins on the southern side of Murrells Inlet southwest and extends southwest to the northern side of Midway Inlet. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Murrells Inlet's navigable channel and the northeastern side of Midway Inlet's navigable channel. Lands within this unit include approximately 80 ac (32 ha; 5 percent) in State ownership, which includes Huntington Beach State Park, and 1,554 ac (629 ha; 95 percent) in private/other ownership. General land use within this unit includes residential development, tourism, and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, birdwatching, and hiking).

Unit SC–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots in South Carolina and on the Southeastern U.S. portion of the subspecies range during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 371 ac (150 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit SC–2 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, powered boats, running/walking/biking through or too close to flocks of rufa red knots); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to

uncontrolled recreational access, erosion, and sea level rise; and (4) disturbance associated with the response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing recreational access to key rufa red knot foraging and roosting habitat during migration (through restrictions on timing, locations, and types of activities) and limiting shoreline stabilization project construction windows (*e.g.,* outside of red knot migration windows) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the South Carolina Department of Parks, Recreation, and Tourism's (SCDPRT) 2019 South Carolina State Comprehensive Outdoor Recreation Plan (SCDPRT 2019, entire).

Unit SC–3: Sand and South Island Beaches

Unit SC–3 consists of 8,256 ac (3,341 ha) of Sand and South Islands, barrier islands off the coast in Georgetown County, South Carolina. The unit boundary begins on the northeastern edge of South Island in North Inlet behind North Island following the shoreline to include Sand Island and continuing southwest to the southern tip of South Island. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlet between Sand and South Islands and the northeastern side of North Santee River Inlet's navigable channel. Lands within this unit include approximately 7,843 ac (3,174 ha; 95 percent) in State ownership, 129 ac (52 ha; 2 percent) in private/other ownership, and 283 ac (115 ha; 3 percent) that are uncategorized. General land use within this unit includes wildlife management as part of South Carolina Department of Natural Resources' (SCDNR) Tom Yawkey Wildlife Center Heritage Preserve and outdoor recreational use (*e.g.,* boating, fishing, birdwatching, wildlife viewing).

Unit SC–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound migration stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 664 ac (269 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 475 ac (192 ha) of the unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–3 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, running/walking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion, and sea level rise; and (4) disturbance associated with the response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing access to red knot foraging and roosting habitat during migration, such as through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire).

Unit SC–4: Murphy Island Beach

Unit SC–4 consists of 8,312 ac (3,364 ha) and includes all of Murphy Island, a barrier island off the coast in Charleston County, South Carolina. The unit boundary begins on the South Santee River shoreline of Murphy's Island and extends to the Alligator Creek shoreline. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlets along the shoreline of Murphy Island. Lands within this unit are entirely in State ownership and SCDNR manages Murphy Island as part of the Santee Coastal Reserve Wildlife Management Area. General land use within this unit includes wildlife management and outdoor recreational use (*e.g.,* boating, hunting, fishing, birdwatching).

Unit SC–4 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 253 ac (102 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–4 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire).

Unit SC–5: North Cape Island Beach

Unit SC–5 consists of 1,270 ac (514 ha) of the entire northern portion of Cape Island, a barrier island off the coast in Charleston County, South Carolina. The unit boundary begins on the Cape Romain Harbor shoreline of Cape Island and extends south to the shoreline along the unnamed inlet between North Cape and South Cape Islands. The unit includes all emergent land from MLLW to the toe of the dunes

or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the northern side of the navigable channel of the unnamed inlet between North Cape Island and South Cape Island. Lands within this unit include approximately 775 ac (313 ha; 61 percent) in Federal ownership and 495 ac (200 ha; 39 percent) in State ownership. General land use within this unit includes wildlife management as part of the Service's Cape Romain NWR and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, hiking, and birdwatching). North Cape Island is also classified as a Class I Wilderness Area.

Unit SC–5 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 49 ac (20 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–5 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2010 Cape Romain NWR Comprehensive Conservation Plan (Service 2010a, entire).

Unit SC–6: South Cape and Lighthouse Island Beaches

Unit SC–6 consists of 2,037 ac (824 ha) of the entire southern portion Cape Island and all of Lighthouse Island, barrier islands off the coast in Charleston County, South Carolina. The unit boundary begins at the northern tip of South Cape Island in the unnamed inlet between North Cape and South Cape Islands and extends to the western tip of Lighthouse Island in Key Inlet. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southern side of the navigable channel of the unnamed inlet between North Cape Island and South Cape Island and the emergent sand shoals associated with Key Inlet. Lands within this unit include approximately 1,552 ac (628 ha; 76 percent) in Federal ownership and 485 ac (196 ha; 24 percent) in State ownership. General land use within this unit includes wildlife management as part of the Service's Cape Romain NWR and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, and birdwatching). South Cape Island is also classified as a Class I Wilderness Area.

Unit SC–6 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 745 ac (302 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 324 ac (131 ha) of this unit overlap with the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–6 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2010 Cape Romain NWR Comprehensive Conservation Plan (Service 2010a, entire).

Unit SC–7: Raccoon Key Complex and White Banks Beaches

Unit SC–7 consists of 5,324 ac (2,154 ha) of the entire Raccoon Key complex and White Banks, islands off the coast in Charleston County, South Carolina. The unit boundary begins at the intersection of the Romain River and Key Inlet side of Raccoon Key and extends to the western edge of White Banks in Bulls Bay. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlets in the Raccoon Key complex. Lands within this unit are all in Federal ownership. General land use within this unit includes wildlife management as part of the Service's Cape Romain NWR and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, and birdwatching).

Unit SC–7 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the Southeastern U.S. portion of the subspecies range. Additionally, this unit contains a high concentration of rufa red knots during

the winter period, providing important wintering habitat on the northern Gulf coast for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This unit is one of three units in South Carolina that supports rufa red knots throughout the entire nonbreeding season (fall, winter, and spring). The area also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 119 ac (48 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 41 ac (17 ha) of this unit overlap with the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–7 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2010 Cape Romain NWR Comprehensive Conservation Plan (Service 2010a, entire).

Unit SC–8: Marsh Island

Unit SC–8 consists of 415 ac (168 ha) of all of Marsh Island, an island in Bulls Bay in Charleston County, South Carolina. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Marsh Island. Lands within this unit include are all in Federal ownership. General land use within this unit includes wildlife management as part of the Service's Cape Romain NWR and seasonal outdoor recreational use (*e.g.,* boating, fishing, and birdwatching).

Unit SC–8 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of red knots during the spring migration period, particularly in the spring when horseshoe crabs are spawning, as well as a high concentration of rufa red knots during the fall migration period (*i.e.,* one of six units in South Carolina that supports high concentrations of rufa red knots during fall migration). The habitat in this unit serves as an important northbound and southbound stopover site, in addition to the area having remote boat-only access and an undeveloped character that provides protection from intensive human uses.

Threats identified within Unit SC–8 include: (1) Disturbance of foraging and roosting red knots by humans and human activities despite the island being seasonally closed (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2010 Cape Romain NWR Comprehensive Conservation Plan (Service 2010a, entire).

Unit SC–9: Bulls Island Beach

Unit SC–9 consists of 6,141 ac (2,485 ha) of all of Bulls Island, a barrier island of the coast in Charleston County, South Carolina. The unit boundary begins on the Bulls Bay shoreline of Bulls Island and extends southwest to the Price Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the northeastern side of Price Inlet's navigable channel. Lands within this unit include approximately 5,200 ac (2,104 ha; 85 percent) in Federal ownership and 941 ac (381 ha; 15 percent) in State ownership. General land use within this unit includes wildlife management as part of the Service's Cape Romain NWR and outdoor recreational use (*e.g.,* beachgoing, boating, hunting, fishing, hiking, and birdwatching).

Unit SC–9 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. This unit also contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Additionally, this unit has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 206 ac (83 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit SC–9 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of

spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2010 Cape Romain NWR Comprehensive Conservation Plan (Service 2010a, entire).

Unit SC–10: Capers Island Beach

Unit SC–10 consists of 2,534 ac (1,026 ha) of all of Capers Island, a barrier island off the coast in Charleston County, South Carolina. The unit boundary begins on the Price Inlet shoreline of Capers Island and extends southwest to the Capers Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Price's Inlet's navigable channel and the northeastern side of Capers Inlet's navigable channel. Lands within this unit are entirely in State ownership. General land use within this unit includes resource management as part of SCDNR's Capers Island Natural Heritage Preserve and outdoor recreational use (*e.g.,* beachgoing, boating, hunting, fishing, camping, and birdwatching).

Unit SC–10 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. This unit also contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Additionally, this unit has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 160 ac (65 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit SC–10 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire).

Unit SC–11: Dewees Island Beach

Unit SC–11 consists of 1,812 ac (733 ha) of all of Dewees Island, a barrier island off the coast in Charleston County, South Carolina. The unit boundary begins on the Capers Inlet shoreline of Dewees Island and extends to the Dewees Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Caper's Inlet's navigable channel and the northeastern side of Dewees Inlet's navigable channel. Lands within this unit include approximately 265 ac (107 ha; 15 percent) in State ownership and 1,547 ac (626 ha; 85 percent) in private/other ownership. General land use within this unit includes low-level residential development and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit SC–11 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots in South Carolina and the Southeastern U.S. portion of the subspecies range during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration.

Threats identified within Unit SC–11 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Private/other lands within this unit are managed under the 2015 Local Comprehensive Beach Management Plan for Unincorporated Charleston County (Charleston County 2015, entire).

Unit SC–12: Isle of Palms Beach

Unit SC–12 consists of 4,117 ac (1,666 ha) of all of the Isle of Palms, a barrier island off the coast in Charleston County, South Carolina. The unit boundary begins at the Dewees Inlet shoreline of the Isle of Palms and extends southwest to the Breach Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Dewees Inlet's navigable channel and the northeastern side of Breach Inlet's navigable channel. Lands within this unit include approximately 754 ac (305 ha; 18 percent) in State ownership and 3,363 ac (1,361 ha; 82 percent) in private/other ownership. General land use within this unit includes beach access for seasonal rental and residential communities, and recreational day uses (*e.g.,* beachgoing, boating, fishing,

birdwatching) within the municipality of the City of Isle of Palms.

Unit SC–12 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site.

Threats identified within Unit SC–12 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Private/other lands within this unit are managed under the 2017 Isle of Palms Local Comprehensive Beach Management Plan (City of Isle of Palms 2017, entire).

Unit SC–13: Sullivan's Island Beach

Unit SC–13 consists of 1,782 ac (721 ha) of all of Sullivan's Island, a barrier island off the coast in Charleston County, South Carolina. The unit boundary begins on the Breach Inlet shoreline of Sullivan's Island and extends southwest to the Charleston Harbor shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Breach Inlet's navigable channel. Lands within this unit include approximately 83 ac (34 ha; 5 percent) in Federal ownership as part of the NPS's Ft. Moultrie (which is part of the Ft. Sumter National Monument), 694 ac (281 ha; 39 percent) in State ownership, and 1,005 ac (407 ha; 56 percent) in private/other ownership. General land use within this unit includes beach access for seasonal rental and residential communities, and recreational day uses (*e.g.,* beachgoing, boating, fishing, birdwatching) within the municipality of the Town of Sullivan's Island.

Unit SC–13 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site on the Southeastern U.S. portion of the subspecies range. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration.

Threats identified within Unit SC–13 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Federal lands are managed under the Ft. Sumter National Monument General Management Plan (NPS 2003, entire). Private/other lands within this unit are managed under the 2019 Sullivan's Island Comprehensive Plan (Berkeley-Charleston-Dorchester Council of Governments 2019, entire).

Unit SC–14: Folly Beach

Unit SC–14 consists of 1,989 ac (805 ha) of the entire island of Folly Beach, a barrier island off the coast in Charleston County, South Carolina. The unit boundary begins on the Lighthouse Inlet shoreline of Folly Beach and extends southwest to the Folly River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Lighthouse Inlet's navigable channel and the Folly Beach side of the Folly River Inlet's navigable channel between Folly Beach and Bird Key. Lands within this unit are entirely in private/other land ownership within the city limits of municipality of the City of Folly Beach. General land use within this unit includes residential/commercial development, county parks, tourism, and outdoor recreational use (*e.g.,* beachgoing, surfing, fishing, and boating).

Unit SC–14 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound and southbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 254 ac (103 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–14 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot

foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Private/other lands within this unit are managed under the 2015 City of Folly Beach Local Comprehensive Beach Management Plan (City of Folly Beach 2015, entire).

Unit SC–15: Bird Key-Stono

Unit SC–15 consists of 294 ac (119 ha) of all of Bird Key-Stono, an island in the mouth of the Stono Inlet in Charleston County, South Carolina. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of the Folly River Inlet. Lands within this unit are entirely in State ownership. SCDNR manages Bird Key-Stono as a State Seabird Sanctuary. General land use within this unit includes wildlife management and outdoor recreational use (*e.g.,* boating, fishing).

Unit SC–15 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site, particularly when horseshoe crabs are spawning. This unit also has remote boat-only access, seasonal closure, and an undeveloped character that provides protection from intensive human uses. Approximately 70 ac (28 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 1.4 ac (0.6 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–15 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire).

Unit SC–16: Kiawah and Seabrook Island Beaches

Unit SC–16 consists of 11,250 ac (4,553 ha) of all of Kiawah Island and a portion of Seabrook Island, barrier islands off the coast in Charleston County, South Carolina. The unit boundary begins on the Stono Inlet shoreline of Kiawah Island and extends southwest to the tip of the Seabrook Island shoreline in the North Edisto River. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the western side of the Stono Inlet and all of Captain Sam's Inlet. Lands within this unit include approximately 1,399 ac (566 ha; 5 percent) in State ownership and 9,850 ac (3,986 ha; 95 percent) in private/other ownership within the Town limits of the Town of Kiawah Island and the Town of Seabrook Island. General land use within this unit includes residential development, tourism, golf resorts, and outdoor recreational use (*e.g.,* beachgoing, boating, kayaking, fishing, wildlife viewing).

Unit SC–16 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range (*i.e.,* the most important known spring migration staging area in the Southeast). Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 1,591 ac (644 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 2,067 ac (836 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–16 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Private/other lands within this unit are managed under the 2020 Town of Kiawah Island Local Comprehensive Beach Management Plan (Town of Kiawah Island 2020, entire) and 2019 Town of Seabrook Island Beach Management Plan (Town of Seabrook Island 2019, entire).

Unit SC–17: Deveaux Bank

Unit SC–17 consists of 1,328 ac (538 ha) of all of Deveaux Bank, an island in the mouth of the North Edisto River in Charleston County, South Carolina. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the rufa red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the mouth of the North Edisto River. Lands within this unit are entirely in State ownership. General land use within this unit

includes wildlife management as a SCDNR Seabird Sanctuary and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit SC–17 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site, particularly when horseshoe crabs are spawning. This unit also has remote boat-only access, partial seasonal closure, and an undeveloped character that provides protection from intensive human uses. Approximately 459 ac (186 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 664 ac (269 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–17 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire).

Unit SC–18: Edisto Island Beaches

Unit SC–18 consists of 1,743 ac (705 ha) of the beaches of Edisto Island, a barrier island off the coast, including all of Botany Bay Island, all of Botany Bay Plantation, all of Interlude Beach, all of Edingsville Beach, and a portion of Edisto Beach State Park in Charleston and Colleton Counties, South Carolina. The unit boundary begins on the North Edisto River shoreline of Botany Bay Island and extends southwest to the undeveloped eastern half of the beachfront portion of Edisto Beach State Park southwest of Jeremy Inlet. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Frampton and Jeremy Inlets and the unnamed inlet separating Interlude Beach and Botany Bay Plantation. Lands within this unit include approximately 650 ac (263 ha; 37 percent) in State ownership and 1,093 ac (442 ha; 63 percent) in private/other ownership. General land use within this unit includes residential development, tourism, Edisto Beach State Park, and wildlife management as part of SCDNR's Botany Bay Heritage Preserve/Wildlife Management Area, and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit SC–18 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This unit is one of three units in South Carolina that supports high concentrations of rufa red knots throughout the entire nonbreeding season (fall, winter, and spring). Approximately 201 ac (81 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–18 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Private/other lands within this unit are managed under the 2015 Local Comprehensive Beach Management Plan for Unincorporated Charleston County (Charleston County 2015, entire). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire).

Unit SC–19: Pine and Otter Island Beaches

Unit SC–19 consists of 6,302 ac (2,550 ha) of all of Pine and Otter Islands, sea islands in St. Helena Sound in Colleton County, South Carolina. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Fish Creek Inlet. Lands within this unit include approximately 6,296 ac (2,548 ha; 99 percent) in State ownership and 6 ac (2 ha; less than 1 percent) in private/other ownership. General land use within this unit includes natural areas and wildlife management as part of the Ashepoo-Combahee-Edisto Basin NERR and SCDNR's St. Helena Sound Heritage Preserve/Wildlife Management Area, and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit SC–19 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range, particularly when horseshoe crabs are spawning in the spring. This unit is one of six units in South Carolina that supports high concentrations of the subspecies during

the fall migration period. The location also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 247 ac (100 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 324 ac (131 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–19 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire) and the Ashepoo-Combahee-Edisto Basin NERR Management Plan (SCDNR 2011, entire).

Unit SC–20: Harbor and Hunting Island Beaches

Unit SC–20 consists of 4,066 ac (1,645 ha) of Harbor and Hunting Islands, barrier islands off the coast in Beaufort County, South Carolina. The unit boundary begins on the Harbor River shoreline of Harbor Island and extends southwest to the Fripp Inlet shoreline of Hunting Island. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Johnson Creek Inlet. Lands within this unit include approximately 3,246 ac (1,313 ha; 80 percent) in State ownership and 820 ac (331 ha; 20 percent) in private/other ownership. General land use within this unit includes residential development (Harbor Island), tourism (Hunting Island State Park), and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, birdwatching, camping).

Unit SC–20 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the Southeastern U.S. portion of the subspecies range, particularly in the spring when horseshoe crabs are spawning. Additionally, this unit is one of only six units in South Carolina that supports high concentrations of rufa red knots during the fall migration period. Approximately 194 ac (78 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 662 ac (268 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit SC–20 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under SCDPRT's 2019 South Carolina State Comprehensive Outdoor Recreation Plan (SCDPRT 2019, entire).

Unit SC–21: Fripp Island Beach

Unit SC–21 consists of 734 ac (297 ha) of Fripp Island, a barrier island off the coast in Beaufort County, South Carolina. The unit boundary begins on the Fripp Inlet shoreline of Fripp Inlet and extends southwest to the Skull Creek Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Fripp Inlet. Lands within this unit include approximately 305 ac (124 ha; 42 percent) in State ownership and 429 ac (174 ha; 58 percent) in private/other ownership. General land use within this unit includes residential development, tourism, and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit SC–21 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site.

Threats identified within Unit SC–21 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Private/other lands within this unit are managed under the 2020 Fripp Island Beach Management Plan (Beaufort County 2020, entire).

Unit SC–22: Hilton Head Island Beach

Unit SC–22 consists of 1,682 ac (681 ha) of the heel of Hilton Head Island, a barrier island off the coast in Beaufort County, South Carolina. The unit boundary begins on the Port Royal Sound shoreline beginning at Oyster Shell Lane, continues southeast then turns southwest along the Atlantic Ocean shoreline, and continues to the undeveloped portion of Singleton Beach southwest of Folly Beach. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the rufa red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Fish Haul Creek and unnamed inlets within the unit boundary. Lands within this unit include approximately 1,015 ac (411 ha; 60 percent) in State ownership and 667 ac (270 ha; 40 percent) in private/other ownership. General land use within this unit includes beach access for seasonal rental and residential communities, and recreational day uses (*e.g.,* beachgoing, boating, fishing, birdwatching) within the municipality of the Town of Hilton Head.

Unit SC–22 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site in South Carolina and on the Southeastern U.S. portion of the subspecies range. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This unit is one of three units in South Carolina that supports high concentrations of rufa red knots throughout the entire nonbreeding season (fall, winter, and spring). Approximately 73 ac (29 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit SC–22 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Private/other lands within this unit are managed under the 2017 Town of Hilton Head Island Local Comprehensive Beach Management Plan (Town of Hilton Head 2017, entire).

Unit SC–23: Daufuskie Island Beach

Unit SC–23 consists of 6,370 ac (2,578 ha) of all of Daufuskie Island, a sea island in Calibogue Sound in Beaufort County, South Carolina. The unit boundary begins on the Calibogue Sound shoreline of Daufuskie Island and extends southwest to the Mungen Creek shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the unit boundary. All lands within this unit are in private/other ownership. General land use within this unit includes residential development, tourism, and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit SC–23 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This unit also includes remote boat-only access and has a low-level of development, preventing the subspecies from experiencing intensive human uses.

Threats identified within Unit SC–23 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above).

Unit SC–24: Turtle Island Beach

Unit SC–24 consists of 1,798 ac (728 ha) of all of Turtle Island, a sea island in Calibogue Sound in Jasper County, South Carolina. The unit boundary begins on the New River shoreline of Turtle Island and extends southwest to the Wright River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlet in the center of the island shoreline. Lands within this unit are entirely in State ownership as SCDNR's Turtle Island Wildlife Management Area. General land use within this unit includes wildlife management and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit SC–24 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site, particularly when horseshoe crabs are spawning. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses.

Threats identified within Unit SC–24 include: (1) Disturbance of foraging and roosting red knots by humans and

human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). State lands and waters within this unit are managed under the SCDNR's State Wildlife Action Plan (SCDNR 2015, entire).

Unit SC–25: Jones Island Beach

Unit SC–25 consists of 3,025 ac (1,224 ha) of all of Jones Island, a sea island along the Savannah River and Calibogue Sound in Jasper County, South Carolina. The unit boundary begins on the Wright River shoreline of Jones Island to the Savannah River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Wright River Inlet. Lands within this unit include approximately 785 ac (318 ha; 26 percent) in Federal ownership, which includes the Service's Tybee Island NWR, and 2,240 ac (907 ha; 74 percent) in State ownership. General land use within this unit includes wildlife management and outdoor recreational use (*e.g.,* boating, fishing).

Unit SC–25 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site, particularly when horseshoe crabs are spawning. This location also includes restrictions on public access and has an undeveloped character that provides protection from intensive human uses.

Threats identified within Unit SC–25 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and managing the collection of spawning horseshoe crabs for biomedical use (*e.g.,* limiting location and timing of collection) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2011 Savannah Coastal NWR Complex Comprehensive Conservation Plan (Service 2011, entire).

Unit GA–1: Tybee Island Beach

Unit GA–1 consists of 2,046 ac (828 ha) of Tybee Island (including north, mid, and south beaches), a barrier island off the coast in Chatham County, Georgia. The northern boundary of the unit begins at the Savannah River shoreline of Tybee Island and extends south to Tybee Creek Inlet, which separates Tybee Island from Little Tybee Island, and includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the eastern side of Tybee Inlet's navigable channel. Lands within this unit include approximately 6 ac (2 ha; less than 1 percent) in State ownership, 1,721 ac (697 ha; 84 percent) in private/other ownership, and 319 ac (129 ha; 15 percent) that are uncategorized. General land use within this unit includes beach access for seasonal rental and residential communities, and recreational day uses (*e.g.,* beachgoing, boating, fishing, birdwatching) within the municipality of the City of Tybee Island.

Unit GA–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 179 ac (73 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit GA–1 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, running/walking/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) disturbance associated with the response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include managing recreational access to key rufa red knot foraging and roosting habitat during migration (through restrictions on timing, locations, and types of activities) and limiting shoreline stabilization project construction windows (*e.g.,* outside of red knot migration windows) (see Special Management Considerations or Protection, above). Private/other lands are managed by the City of Tybee Island's Best Management Practices (City of Tybee Island 2014, entire).

Unit GA–2: Little Tybee Island Complex

Unit GA–2 consists of 8,265 ac (3,345 ha) of the entire Little Tybee Island complex, a series of barrier islands off the coast in Chatham County, Georgia. The unit boundary begins on the western side of Tybee Creek Inlet and extends southwest to Wassaw Sound and includes Little Tybee Island, Williamson Island, and all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high

tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the western side of Tybee Inlet's navigable channel, Little Tybee Slough, and Little Tybee Creek. All lands within this unit are in State ownership and comprise the Little Tybee Island State Heritage Preserve. General land use within this unit includes outdoor recreational use (*e.g.,* beachgoing, boating, kayaking, camping, birdwatching, fishing, and shelling) and wildlife management (*e.g.,* biological monitoring/surveys).

Unit GA–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 2,138 ac (865 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 1,178 ac (479 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit GA–2 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). State lands in this unit are managed as a preserve by the TNC, which holds a permanent conservation easement, in cooperation with the Georgia Department of Natural Resources (GDNR) State Wildlife Action Plan (GDNR 2015, entire; TNC 2020, entire).

Unit GA–3: Wassaw Island Beach

Unit GA–3 consists of 4,296 ac (1,738 ha) of Wassaw Island, a barrier island off the coast in Chatham County, Georgia. The unit boundary begins on the southwestern side of Wassaw Sound off the northern tip of Wassaw Island and extends southwest to Ossabaw Sound shoreline. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Wassaw Sound off the northern tip of Wassaw Island. Lands within this unit include approximately 3,001 ac (1,215 ha; 70 percent) in Federal ownership, 274 ac (111 ha; 6 percent) in private/other ownership, and 1,020 ac (412 ha; 24 percent) that are uncategorized. General land use within this unit includes wildlife management as part of the Service's Wassaw Island NWR and outdoor recreational use (*e.g.,* beachgoing, fishing, boating, and birdwatching).

Unit GA–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 627 ac (254 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 667 ac (270 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit GA–3 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* running/walking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion, and sea level rise; and (4) disturbance associated with the response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing access to red knot foraging and roosting habitat during migration, such as through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2011 Savannah Coastal NWR Complex Comprehensive Conservation Plan (Service 2011, entire).

Unit GA–4: Raccoon Key

Unit GA–4 consists of 1,599 ac (647 ha) of all of Raccoon Key, an island in Ossabaw Sound in Chatham County, Georgia. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within Ossabaw Sound associated with Raccoon Key. All lands within this unit are in State ownership. General land use within this unit includes outdoor recreational use (*e.g.,* boating, fishing).

Unit GA–4 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses.

Threats identified within Unit GA–4 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* running/walking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion, and sea level rise; and (4) disturbance associated with the response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing access to red knot foraging and roosting habitat during migration, such as through restrictions on timing,

locations, and types of activities) (see Special Management Considerations or Protection, above). State lands within this unit are managed under the GDNR State Wildlife Action Plan (GDNR 2015, entire).

Unit GA–5: Ossabaw Island Beach

Unit GA–5 consists of 32,357 ac (13,095 ha) of Ossabaw Island, a barrier island off the coast in Chatham County, Georgia. The unit boundary begins at the Ogeechee River shoreline of Ossabaw Island and extends southwest to the St. Catherine's Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Ossabaw Sound off the northeastern tip of the island and St. Catherine's Sound off the southwestern tip of the island. Lands within this unit include approximately 28,621 ac (11,591 ha; 88 percent) in State ownership and 3,736 ac (1,503 ha; 12 percent) that are uncategorized. General land use within this unit includes wildlife management as part of the Ossabaw Island Wildlife Management Area and outdoor recreational use (*e.g.,* boating, hunting, fishing, and wildlife viewing).

Unit GA–5 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This unit also has remote boat-only access and an undeveloped character that provides protection from intensive human uses. Approximately 1,571 ac (636 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 2,224 ac (900 ha) overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit GA–5 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). State lands within this unit are managed under the GDNR State Wildlife Action Plan (GDNR 2015, entire).

Unit GA–6: St. Catherine's Island Beach

Unit GA–6 consists of 15,962 ac (6,460 ha) of St. Catherine's Island, a barrier island off the coast in Liberty County, Georgia. The unit boundary begins at the St. Catherine's Sound shoreline of St. Catherine's Island and extends southwest to the Sapelo Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with St. Catherine's Sound entrance off the northern tip of the island, McQueen Inlet, and Sapelo Sound entrance off the southern tip of the island. Lands within this unit include approximately 2,106 ac (853 ha; 13 percent) in State ownership, 11,810 ac (4,783 ha; 74 percent) in private/other ownership, and 2,046 ac (824 ha; 13 percent) that are uncategorized. General land use within this unit includes private research and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit GA–6 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location serves as one of five units in Georgia that supports high concentrations of rufa red knots throughout the entire nonbreeding season. Additionally, the location includes remote boat-only access and has an undeveloped character that provides protection from intensive human uses. Approximately 1,321 ac (535 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 3,148 ac (1,274 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit GA–6 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above).

Unit GA–7: Blackbeard Island Beach

Unit GA–7 consists of 6,321 ac (2,558 ha) of Blackbeard Island, a barrier island off the coast in McIntosh County, Georgia. The unit boundary begins at the Sapelo Sound shoreline of Blackbeard Island and extends southwest to the Cabretta Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the Sapelo Sound entrance off the northern tip of the island and the northeastern side of Cabretta Inlet's navigable channel. Lands within this unit include approximately 4,954 ac (2,006 ha; 78 percent) in Federal ownership, 80 ac (32 ha; 2 percent) in State ownership, and 1,287 ac (519 ha; 20 percent) that are uncategorized. General land use within this unit includes wildlife management as part of the Service's Blackbeard Island NWR and outdoor recreational

use (*e.g.,* beachgoing, boating, fishing, and birdwatching).

Unit GA–7 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This unit also includes remote boat-only access and has an undeveloped character that provides protection from intensive human uses. Approximately 517 ac (209 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 1,400 ac (567 ha) overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit GA–7 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2011 Savannah Coastal NWR Complex Comprehensive Conservation Plan (Service 2011, entire).

Unit GA–8: Sapelo Island Beach

Unit GA–8 consists of 2,482 ac (845 ha) of Sapelo Island, a barrier island off the coast in McIntosh County, Georgia. The unit boundary begins at the Cabretta Inlet shoreline of Sapelo Island and extends southwest to the Doboy Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Cabretta Inlet's navigable channel. The lands within this unit are State-owned and comprise the Sapelo Island WMA and Sapelo Island NERR. General land use within this unit includes wildlife and coastal resource management and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit GA–8 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location serves as one of five units in Georgia that supports high concentrations of rufa red knots throughout the entire nonbreeding season, and is also important due to its low-level development, remote boat-only access, and protection from intensive human uses. Approximately 167 ac (68 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 282 ac (114 ha) overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit GA–8 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). State lands in this unit are managed under the GDNR State Wildlife Action Plan and Sapelo Island NERR Management Plan (GDNR 2015, entire; Sapelo Island NERR 2008, entire).

Unit GA–9: Wolf Island, Egg Island, Little Egg Island, and Little Egg Island Bar

Unit GA–9 consists of 5,308 ac (2,148 ha) of Wolf, Egg, and Little Egg Islands and Little Egg Island Bar, islands at the mouth of the Altamaha River in McIntosh County, Georgia. The unit boundary begins at the South River shoreline of Wolf Island and extends south to the southern side of Altamaha Sound. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the entrance to Altamaha Sound and Beacon Creek. Lands within this unit include approximately 2,975 ac (1,204 ha; 56 percent) in Federal ownership, 240 ac (97 ha; 5 percent) in State ownership, and 2,093 ac (847 ha; 39 percent) that are uncategorized. General land use within this unit includes wildlife management and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, and birdwatching). Federal land use includes management of both Wolf and Egg Islands as part of Wolf Island NWR. Additionally, Wolf Island is a Class I designated wilderness area.

Unit GA–9 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location serves as one of five units in Georgia that supports high concentrations of rufa red knots throughout the entire nonbreeding season, and is also important due to its low-level development, remote boat-only access, and protection from intensive human uses. Approximately 893 ac (361 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit GA–9 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* walking/running through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the 2011 Savannah Coastal NWR Complex Comprehensive Conservation Plan (Service 2011, entire), and State lands are managed under the GDNR State Wildlife Action Plan (GDNR 2015, entire).

Unit GA–10: Little St. Simon's Island Beach

Unit GA–10 consists of 9,053 ac (3,664 ha) of Little St. Simon's Island, a barrier island off the coast in Glynn County, Georgia. The unit boundary begins at the Altamaha Sound shoreline of Little St. Simon's Island and extends south to the Hampton River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the Altamaha Sound off the northeastern tip of the island, Mosquito Creek, and the northern side of Hampton River Inlet's navigable channel. Lands within this unit include approximately 113 ac (46 ha; 1 percent) in State ownership, 7,462 ac (3,022 ha; 83 percent) in private/other ownership, and 1,479 ac (596 ha; 16 percent) that are uncategorized. General land use within this unit includes ecotourism and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, birdwatching).

Unit GA–10 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location serves as one of five units in Georgia that supports high concentrations of rufa red knots throughout the entire nonbreeding season (spring, fall, and winter), and is also important due to its low-level development, remote boat-only access, and protection from intensive human uses. Approximately 2,422 ac (980 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit GA–10 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). State lands in this unit are managed under the GDNR State Wildlife Action Plan (GDNR 2015, entire). Private lands in this unit are managed under the Little St. Simon's Island Ecological Management Program and TNC (Sterling 2020, pers. comm.).

Unit GA–11: Sea and St. Simon's Island Beaches

Unit GA–11 consists of 4,033 ac (1,632 ha) of all of Sea Island and a portion of St. Simon's Island, barrier islands off the coast in Glynn County, Georgia. The unit boundary begins at the Hampton River shoreline of Sea Island and extends southwest to the St. Simon's Sound shoreline of St. Simon's Island. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Gould's Inlet. Lands within this unit include approximately 4 ac (2 ha; less than 1 percent) in State ownership, 3,448 ac (1,395 ha; 85 percent) in private/other ownership, and 581 ac (235 ha; 14 percent) that are uncategorized. General land use within this unit includes residential development, tourism, and outdoor recreational use (*e.g.,* beachgoing, boating, and fishing).

Unit GA–11 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 627 ac (254 ha) unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit GA–11 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and limiting shoreline stabilization project construction windows (*e.g.,* outside of rufa red knot migration windows) (see Special Management Considerations or Protection, above).

Unit GA–12: Jekyll Island Beach

Unit GA–12 consists of 6,287 ac (2,544 ha) of Jekyll Island, a barrier island off the coast in Glynn County, Georgia. The unit boundary begins at the St. Simon's Sound shoreline of Jekyll Island and extends south to St. Andrew Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely

vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southern side of St. Simon's Sound off the northern tip of the island. Lands within this unit include approximately 5,944 ac (2,406 ha; 94 percent) in State ownership, which includes Jekyll Island State Park, and 343 ac (139 ha; 6 percent) that are uncategorized. General land use within this unit includes tourism and outdoor recreational use (*e.g.,* beachgoing, fishing, wildlife viewing).

Unit GA–12 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat in Georgia and the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 144 ac (58 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit GA–12 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* off leash dogs, walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to uncontrolled recreational access, erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) and limiting shoreline stabilization project construction windows (*e.g.,* outside of rufa red knot migration windows) (see Special Management Considerations or Protection, above). State lands within this unit are managed under the 2011 Jekyll Island Conservation Plan and GDNR State Wildlife Action Plan (Jekyll Island Authority 2011, entire; GDNR 2015, entire).

Unit GA–13: Little Cumberland and Cumberland Island Beaches

Unit GA–13 consists of 28,136 ac (11,386 ha) of Little Cumberland Island and Cumberland Island, a barrier island complex off the coast in Camden County, Georgia. The unit boundary begins at the St. Andrew Sound shoreline of Little Cumberland Island and extends west across the Cumberland River and marsh to the East River and continues south to the St. Mary's River shoreline of Cumberland Island. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with St. Andrew Sound off the northern tip of Little Cumberland Island and Christmas Creek Inlet between Little Cumberland and Cumberland Islands. Lands within this unit include approximately 23,367 ac (9,464 ha; 83 percent) in Federal ownership, 1,685 ac (682 ha; 6 percent) in State ownership, and 3,085 ac (1,241 ha; 11 percent) that are uncategorized. General land use within this unit includes tourism and outdoor recreational use (*e.g.,* beachgoing, boating, fishing, birdwatching). Federal land use includes management of the majority of Cumberland Island as the Cumberland Island National Seashore. Additionally, portions of Cumberland Island are designated wilderness area.

Unit GA–13 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the Southeastern U.S. portion of the subspecies range for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location serves as one of five units in Georgia that supports high concentrations of rufa red knots throughout the entire nonbreeding season, and is also important due to its low-level development, remote boat-only access, and protection from intensive human uses. Approximately 4,761 ac (1,927 ha) of this unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 2,004 ac (811 ha) of this unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit GA–13 include: (1) Disturbance of foraging and roosting red knots by humans and human activities (*e.g.,* walking/running/biking through or too close to flocks of red knots, powered boats); (2) depredation by native and nonnative predators; (3) modification or loss of habitat or both due to erosion and sea level rise; and (4) disturbance associated with response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating red knots (*e.g.,* managing recreational access to key rufa red knot foraging and roosting habitat during migration through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). Federal lands in this unit are managed under the NPS's Cumberland Island National Seashore Foundation Document (NPS 2014b, entire).

Unit FL–1: Nassau Sound-Fort George Sound-Fort George Inlet Complex

Unit FL–1 consists of 4,324 ac (6,742 ha) of beach, inlet, and intertidal sandflats in Nassau and Duval Counties, Florida, from the north shore of Nassau Sound in Nassau County south to the north shore of the St. Johns River at Huguenot Memorial Park in Duval County. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. The majority of this unit is within the Talbot Islands State Parks Complex and Huguenot Memorial Park, which is a Federal and State-owned parcel leased to the City of Jacksonville. Lands within this unit include approximately 996 ac (404 ha; 23 percent) in Federal ownership, 522 ac (211 ha; 12 percent) in State ownership, 27 ac (11 ha; less than 1 percent) in private/other ownership, and 2,779 ac (6,116 ha; 64 percent) that are uncategorized. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the winter and spring migration periods, serving as an

important northbound and southbound stopover site. Approximately 2,381 ac (963 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 0.9 ac (0.4 ha) of the unit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Unit FL–1 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, hiking, and wildlife viewing. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating rufa red knots, such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) (see Special Management Considerations or Protection, above). The City of Jacksonville at Huguenot Memorial Park has a shorebird management plan that includes mandatory and volunteer conservation measures intended to minimize impacts to wintering and migrating aggregations of rufa red knots and their habitat (England-Thims and Miller, Inc. 2008, pp. 44–45). The Talbot Islands State Parks complex implements conservation measures intended to minimize impacts to wintering and migrating aggregations of shorebirds and their habitat, including rufa red knots (Florida Department of Environmental Protection (FDEP) 2008a, pp. 48–56 and 64–66).

Unit FL–2: Ponce Inlet Complex

Unit FL–2 consists of 19,683 ac (7,965 ha) of beach, inlet, and intertidal sandflats in Volusia and Brevard Counties, Florida, from approximately Ocean Edge Drive in Ormond Beach south to the south end of Merritt Island NWR along the Atlantic Ocean. This unit includes Smyrna Dunes State Park and Merritt Island NWR. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 16,660 ac (6,742 ha; 85 percent) in Federal ownership, 3,005 ac (1,216 ha; 15 percent) in State ownership, and 18 ac (7 ha; less than 1 percent) that are uncategorized. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the Southeastern U.S. portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 298 ac (120 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), 1,626 ac (658 ha) of the unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014), and 210 ac (85 ha) of the unit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Unit FL–2 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, hiking, and wildlife viewing. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to wintering and migrating rufa red knots, such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and using best management practices during beach restoration activities to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). Merritt Island NWR lands in this unit are managed under the 2008 Merritt Island NWR Comprehensive Conservation Plan (Service 2008a, entire). Volusia County has an HCP for nesting sea turtles and wintering piping plovers, and implementation of this plan provides some protection to wintering and migrating rufa red knots and to beach habitat (Volusia County Environmental Management 2008, pp. 23, 109–110, 122, 125, 141, 156–157, 160–161, 163, 174–180).

Unit FL–3: Merritt Island National Wildlife Refuge Impoundments

Unit FL–3 consists of 6,947 ac (2,811 ha) of managed impoundment and intertidal mudflats in Brevard County, Florida, entirely within Merritt Island NWR (Federal ownership). The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. General land use within this unit includes recreational use including fishing, hunting, and wildlife viewing.

Unit FL–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the Southeastern U.S. portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 646 ac (261 ha) of the unit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Unit FL–3 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, hiking, and wildlife viewing. Special management considerations or protection measures to reduce or alleviate the threats may include maximizing rufa red knot habitat with impoundment management particularly during critical migratory periods (see Special Management Considerations or Protection, above). All lands within this unit are managed under the 2008 Merritt Island NWR Comprehensive Conservation Plan (Service 2008a, entire).

Unit FL–4: Cape Romano and Marco Island

Unit FL–4 consists of two subunits comprising 26,629 ac (10,776 ha) in Collier County, Florida. This unit consists of Federal (Ten Thousand Islands NWR), State, and private landowners. This unit partially overlaps

with occupied habitat and designated critical habitat for the federally threatened piping plover, loggerhead sea turtle, and West Indian manatee.

Subunit FL–4A: Cape Romano Complex

Subunit FL–4A consists of 26,213 ac (10,608 ha) of beach and intertidal sandflats in Collier County, Florida, in the wetland complex south of Marco Island and the community of Goodland. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit include approximately 13,138 ac (5,321 ha; 50 percent) in Federal ownership, 12,605 ac (5,105 ha; 48 percent) in State ownership, and 470 ac (182 ha; 2 percent) that are uncategorized. Federal ownership includes Ten Thousand Islands NWR, and State ownership includes Rookery Bay NERR. General land use within this subunit includes recreational use (*e.g.,* fishing, crabbing, and boating).

Subunit FL–4A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast U.S. portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. The subspecies also resides at this location year round, which indicates use by juveniles. Approximately 2,673 ac (1,082 ha) of the subunit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014), and 14,668 ac (5,936 ha) of the subunit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Subunit FL–4A include loss of habitat due to sea level rise, disturbance from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and identifying restoration measures to minimize beach loss (see Special Management Considerations or Protection, above). Federal lands within this subunit are managed under Ten Thousand Islands NWR (Service 2000, entire). State lands include Rookery Bay NERR, which has shorebirds including rufa red knots as a target for their research, monitoring, and management activities (Rookery Bay NERR 2014, entire).

Subunit FL–4B: Marco Island

Subunit FL–4B consists of 416 ac (168 ha) of beach, inlet, and intertidal sandflats in Collier County, Florida, from the south side of the inlet north of Marco Island south along the Gulf of Mexico approximately 4 mi (6.5 km). The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit include approximately 408 ac (165 ha; 98 percent) in State ownership and 8 ac (3 ha; 2 percent) in private/other ownership. The majority of lands within this subunit are the Rookery Bay NERR. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–4B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the fall migration period, serving as an important southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 384 ac (155 ha) of the subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2021), and 372 ac (151 ha) of the subunit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Subunit FL–4B include loss of habitat due to sea level rise, disturbance from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration measures to minimize beach loss (see Special Management Considerations or Protection, above). State lands within this subunit are managed under the Rookery Bay NERR, which has shorebirds including rufa red knots as a target for their research, monitoring, and management activities (Rookery Bay NERR 2014, entire).

Unit FL–5: Marco Bay Complex

Unit FL–5 consists of 3,589 ac (1,453 ha) of beach, inlet, and intertidal sandflats in Collier County, Florida, from the north side of the inlet north of Marco Island north along the Gulf of Mexico approximately 3.7 mi (6 km) and inclusive of the wetland complex inland to the east side of Rookery Bay. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 3,531 ac (1,429 ha; 98 percent) in State ownership and 58 ac (24 ha; 2 percent) in private/other ownership. The majority of lands within this unit are within the Rookery Bay NERR. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–5 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build

energy sources for migration. Approximately 77 ac (31 ha) of the unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014), and 1,956 ac (791 ha) of the unit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Unit FL–5 include loss of habitat due to sea level rise, disturbance of foraging and roosting rufa red knots from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss (see Special Management Considerations or Protection, above). State lands within this unit are managed under the Rookery Bay NERR, which has shorebirds including rufa red knots as a target for their research, monitoring, and management activities (Rookery Bay NERR 2014, entire).

Unit FL–6: Cocohatchee Inlet Complex and Barefoot Beach

Unit FL–6 consists of two subunits comprising 48 ac (20 ha) in Collier County, Florida. This unit consists of Delnor-Wiggins Pass State Park and private landowners. This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened loggerhead sea turtle.

Subunit FL–6A: Cocohatchee Inlet Complex

Subunit FL–6A consists of 9 ac (4 ha) of beach, inlet, and intertidal sandflats in Collier County, Florida, from the south side of the Cocohatchee Inlet south along the Gulf of Mexico approximately 3,281 ft (1 km). The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely under State ownership under Delnor-Wiggins Pass State Park. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–6A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 4 ac (1 ha) of the subunit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Subunit FL–6A include loss of habitat due to sea level rise, disturbance of foraging and roosting rufa red knots from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). State lands within this subunit are managed under the Delnor-Wiggins Pass State Park Unit Management Plan (FDEP 2009, entire).

Subunit FL–6B: Barefoot Beach

Subunit FL–6B consists of 39 ac (16 ha) of beach, inlet, and intertidal sandflats in Collier County, Florida, from the north side of the Cocohatchee Inlet north along the Gulf of Mexico approximately 3.1 mi (5 km). The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit include approximately 18 ac (7 ha; 46 percent) in State ownership and 21 ac (9 ha; 54 percent) in private/other ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–6B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 20 ac (8 ha) of the subunit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Subunit FL–6B include loss of habitat due to sea level rise, disturbance to foraging and roosting rufa red knots from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–7: Lovers Key and Estero Island

Unit FL–7 consists of two subunits comprising 175 ac (70 ha) in Lee County, Florida. This unit consists of portions of Lovers Key State Park and Estero Island. This unit partially overlaps with occupied habitat and designated critical habitat for the

federally threatened piping plover and West Indian manatee.

Subunit FL–7A: Lovers Key

Subunit FL–7A consist of 4 ac (1 ha) of beach, inlet, and intertidal sandflats in Lee County, Florida, at the north point of Lovers Key. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Land within this subunit is entirely in State ownership under management of Lovers Key State Park. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–7A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 2.5 ac (1 ha) of the subunit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Subunit FL–7A include loss of habitat due to sea level rise, disturbance of foraging and roosting rufa red knots from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). State lands within this subunit are managed under the Lovers Key State Park Unit Management Plan (FDEP 2005, entire).

Subunit FL–7B: Estero Island

Subunit FL–7B consist of 171 ac (69 ha) of beach, inlet, and intertidal sandflats in Lee County, Florida, from Key West Court on Fort Myers Beach south along the Gulf of Mexico to the southern point of the island. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–7B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 72 ac (29 ha) of the subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 140 ac (57 ha) of the subunit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977).

Threats identified within Subunit FL–7B include loss of habitat due to sea level rise, disturbance of foraging and roosting rufa red knots from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–8: Bunche Beach

Unit FL–8 consists of 334 ac (135 ha) of beach, inlet, and intertidal sandflats in Lee County, Florida, in San Carlos Bay south of the Sanibel Causeway in Fort Myers. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 23 ac (9 ha; 7 percent) in Federal ownership, 264 ac (107 ha; 79 percent) in State ownership, and 47 ac (19 ha; 14 percent) in private/other ownership. Federal ownership includes Matlacha Pass NWR and State ownership includes Bunche Beach Preserve. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–8 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 328 ac (133 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 278 ac (112 ha) of the unit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 27840, September 22, 1977).

Threats identified within Unit FL–8 include loss of habitat due to sea level rise, disturbance of foraging and roosting rufa red knots from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to

reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration measures to minimize beach loss (see Special Management Considerations or Protection, above). Federal and State lands within this unit are managed under the Pine Island, Matlacha Pass, Island Bay, and Caloosahatchee NWR's Comprehensive Conservation Plan (Service 2010b, entire). County lands are managed under the Lee County San Carlos Bay Bunche Beach Preserve Land Management Plan (Lee County 2013, entire).

Unit FL–9: Sanibel Island Complex

Unit FL–9 consists of two subunits comprising 3,759 ac (1,521 ha) in Lee County, Florida. This unit consists of Federal lands that are part of the J.N. ''Ding'' Darling NWR and State lands of Sanibel Island. This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened loggerhead sea turtle and West Indian manatee, and the federally endangered aboriginal prickly-apple.

Subunit FL–9A: J.N. ''Ding'' Darling National Wildlife Refuge

Subunit FL–9A consists of 3,451 ac (1,397 ha) of beach, inlet, intertidal sandflats, and managed impoundments in Lee County, on Sanibel Island, Florida. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in Federal ownership under J.N. ''Ding'' Darling NWR. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and wildlife viewing).

Subunit FL–9A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 11 ac (4 ha) of the subunit overlap with designated critical habitat for the federally endangered aboriginal prickly-apple (81 FR 3866, January 22, 2016), and 2,182 ac (883 ha) of the subunit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 27840, September 22, 1977).

Threats identified within Subunit FL–9A include loss of habitat due to sea level rise, disturbance of foraging and roosting rufa red knots from human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing and wildlife viewing. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by maximizing rufa red knot habitat with impoundment management particularly during winter and migratory periods (see Special Management Considerations or Protection, above). Federal lands within this subunit are managed under the J.N. ''Ding'' Darling NWR Comprehensive Conservation Plan (Service 2010c, entire).

Subunit FL–9B: Sanibel Island

Subunit FL–9B consists of 307 ac (124 ha) of beach, inlet, and intertidal sandflats in Lee County, Florida, on the Gulf of Mexico shoreline on Sanibel Island. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–9B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 90 ac (37 ha) of the subunit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756; July 10, 2014), 265 ac (107 ha) of the subunit overlap with designated critical habitat for the federally threatened West Indian manatee (42 FR 47840, September 22, 1977, and 49 ac (20 ha) of the subunit overlap with designated critical habitat for the federally endangered aboriginal prickly-apple (81 FR 3866, January 22, 2016).

Threats identified within Subunit FL–9B include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–10: Don Pedro Complex

Unit FL–10 consists of two subunits comprising 158 ac (64 ha) in Charlotte County, Florida. This unit consists of State lands, a portion of which are part of the Don Pedro Island State Park and Stump Pass Beach State Park. This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened loggerhead sea turtle and the federally endangered aboriginal prickly-apple.

Subunit FL–10A: Don Pedro

Subunit FL–10A consists of 147 ac (60 ha) of beach, inlet, and intertidal sandflats in Charlotte County, Florida, on the Gulf of Mexico shoreline on Don Pedro Island. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within

this subunit are entirely in State ownership, a portion of which includes Don Pedro Island State Park. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–10A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 89 ac (36 ha) of the subunit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Subunit FL–10A include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). State lands within this subunit are managed under the Don Pedro Island State Park Unit Management Plan (FDEP 2013a, entire).

Subunit FL–10B: Stump Pass Beach State Park

Subunit FL–10B consists of 11 ac (4 ha) of beach, inlet, and intertidal sandflats in Charlotte County, Florida, on the Gulf of Mexico at the southern point of Manasota Key. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership under Stump Pass Beach State Park. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–10B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 6 ac (2 ha) of the subunit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014), and 5 ac (2 ha) of the subunit overlap with designated critical habitat for the federally endangered aboriginal prickly-apple (81 FR 3866, January 22, 2016).

Threats identified within Subunit FL–10B include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). State lands within this subunit are managed under the Stump Pass Beach State Park Unit Management Plan (FDEP 2013b, entire).

Unit FL–11: Siesta Key

Unit FL–11 consists of 53 ac (21 ha) of beach, inlet, and intertidal sandflats in Sarasota County, Florida, on the Gulf of Mexico shoreline on Siesta Key, Florida, from Avenida Messina (road) south to Avenida del Mare. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–11 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 24 ac (10 ha) of the unit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014).

Threats identified within Unit FL–11 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–12: Lido-Longboat Keys Complex

Unit FL–12 consists of two subunits comprising 450 ac (182 ha) in Sarasota County, Florida. This unit consists of

State lands. This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened loggerhead sea turtle and the federally endangered aboriginal prickly-apple.

Subunit FL–12A: Lido Key

Subunit FL–12A consists of 81 ac (33 ha) of beach, inlet, and intertidal sandflats in Sarasota County, Florida, on the Gulf of Mexico shoreline on Lido Key, Florida. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–12A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration.

Threats identified within Subunit FL–12A include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Subunit FL–12B: Longboat Key

Subunit FL–12B consists of 369 ac (149 ha) of beach, inlet, and intertidal sandflats in Sarasota County, Florida, on the Gulf of Mexico shoreline on Longboat Key, Florida. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–12B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 233 ac (94 ha) of the subunit overlap with designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014), and 12 ac (5 ha) of the subunit overlap with designated critical habitat for the federally endangered aboriginal prickly-apple.

Threats identified within Subunit FL–12B include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–13: North Anna Maria Island

Unit FL–13 consists of 945 ac (383 ha) of beach, inlet, and intertidal sandflats in Manatee County, Florida, on the Gulf of Mexico shoreline from the north point of Anna Maria Island, Florida, south to Cortez Road West. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 56 ac (23 ha; 6 percent) in Federal ownership and 889 ac (360 ha; 94 percent) in State ownership. Federal ownership consists of Passage Key NWR. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–13 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration.

Threats identified within Unit FL–13 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). Federal lands within

this unit are managed by Passage Key NWR, which is part of the Tampa Bay Refuges Comprehensive Conservation Plan (Service 2010d, entire).

Unit FL–14: Egmont Key

Unit FL–14 consists of 15 ac (6 ha) of beach and intertidal sandflats in Manatee County, Florida, on the south end of Egmont Key at the mouth of Tampa Bay, Florida. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely under Federal ownership under management of Egmont Key NWR. General land use within this unit is classified as a wildlife sanctuary (and no pedestrian use).

Unit FL–14 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. The subspecies also resides at this location year round, which indicates use by juveniles. Approximately 14 ac (5.5 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit FL–14 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to unauthorized access to closed areas. Special management considerations or protection measures to reduce or alleviate the threats may include supporting and maximizing enforcement of closed areas and by identifying restoration and protection measures to minimize beach loss using best management practices during beach restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). Federal lands within this unit are managed by the Egmont Key NWR, which is part of the Tampa Bay Refuges Comprehensive Conservation Plan (Service 2010d, entire).

Unit FL–15: Fort De Soto Complex

Unit FL–15 consists of three subunits comprising 856 ac (346 ha) in Pinellas County, Florida. This unit consists of State lands and private/other ownership. This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened piping plover.

Subunit FL–15A: Fort De Soto County Park

Subunit FL–15A consists of 427 ac (173 ha) of beach, inlet, and intertidal sandflats in Pinellas County, Florida, in Fort De Soto County Park from North Beach south along the Gulf of Mexico to the Fort De Soto Fishing Pier at the mouth of Tampa Bay. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in county ownership (which is captured under the private/other ownership category). General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–15A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Finally, this is also an important location that supports juveniles year round. Approximately 244 ac (99 ha) of the subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Subunit FL–15A include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), shoreline hardening, harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment/restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Subunit FL–15B: Shell Key Preserve

Subunit FL–15B consists of 322 ac (130 ha) of beach, inlet, and intertidal sandflats in Pinellas County, Florida, on Shell Key Preserve. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State/county ownership and management. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–15B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Finally, this is also an important location that supports juveniles year round. Approximately 252 ac (102 ha) of the subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Subunit FL–15B include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-

related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach restoration to limit disturbance and impacts to rufa red knots and their food resources (see Special Management Considerations or Protection, above).

Subunit FL–15C: Saint Petersburg Beach

Subunit FL–15C consists of 107 ac (43 ha) of beach, inlet, and intertidal sandflats in Pinellas County, Florida, on Saint Petersburg Beach from 46th Avenue south to 1st Avenue inclusive of the inlet. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–15C is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site.

Threats identified within Subunit FL–15C include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment or restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–16: Indian Shores/Redington Beach

Unit FL–16 consists of 196 ac (79 ha) of beach, inlet, and intertidal sandflats in Pinellas County, Florida, from the Indian Shores Florida Coastal Range Monument R–086 at the north end of the unit to the Redington Beach Long Pier at the south end of the unit. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–16 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration.

Threats identified within Unit FL–16 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–17: Belleair Beach

Unit FL–17 consists of 123 ac (50 ha) of beach, inlet, and intertidal sandflats in Pinellas County, Florida, on Belleair Beach from the north point (Sand Key) south to 19th Street. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–17 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the fall migration period, serving as an important southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration.

Threats identified within Unit FL–17 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above).

Unit FL–18: Saint Joseph Sound Complex

Unit FL–18 consists of three subunits comprising 888 ac (360 ha) in Pinellas County, Florida. This unit consists of State lands. This unit partially overlaps with occupied habitat and designated

critical habitat for the federally threatened piping plover.

Subunit FL–18A: Caladesi Island

Subunit FL–18A consists of a total of 259 ac (105 ha) of beach and intertidal sandflats in Pinellas County, Florida. This subunit includes shoreline from the southern boundary of Caladesi Island State Park to Dunedin Pass. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands in this subunit are entirely State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–18A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. The entire subunit overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Subunit FL–18A include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment or restoration to limit disturbance and impacts to rufa red knots and their food resources) (see Special Management Considerations or Protection, above). The State lands within this subunit are managed under the Caladesi Island State Park Unit Management Plan (FDEP 2007a, entire).

Subunit FL–18B: Honeymoon Island

Subunit FL–18B consists of a total of 294 ac (119 ha) of beach and intertidal sandflats in Pinellas County, Florida. This subunit includes the Gulf of Mexico shoreline in Honeymoon Island State Park from Dunedin Pass to Hurricane Pass. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands in this subunit are entirely State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–18B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 127 ac (51 ha) of this subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Subunit FL–18B include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment or restoration to limit disturbance and impacts to rufa red knots and their food resources) (see Special Management Considerations or Protection, above). The State lands within this subunit are managed under the Honeymoon Island State Park Unit Management Plan (FDEP 2007b, entire).

Subunit FL–18C: Three Rooker Bar

Subunit FL–18C consists of a total of 335 ac (136 ha) of beach and intertidal sandflats in Pinellas County, Florida, on Three Rooker Island. Three Rooker Island includes shoreline from Hurricane Pass to the northern tip of Three Rooker Island and is part of the Three Rooker Bar Wildlife Management Area. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands in this subunit are entirely State ownership. General land use within this subunit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Subunit FL–18C is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 94 ac (38 ha) of this subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Subunit FL–18C include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment or restoration to limit disturbance and impacts to rufa red

knots and their food resources (see Special Management Considerations or Protection, above). The State lands within this subunit are managed under the Anclote Key Preserve State Park Unit Management Plan (FDEP 2014, entire).

Unit FL–19: Anclote Key

Unit FL–19 consists of 1,547 ac (626 ha) of beach and intertidal sandflats in Pasco County, Florida, on Anclote Key. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership under Anclote Key Preserve State Park. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–19 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Finally, this is also an important location that supports juveniles year round. Approximately 351 ac (142 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit FL–19 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). The State lands within this unit are managed under the Anclote Key Preserve State Park Unit Management Plan (FDEP 2014, entire).

Unit FL–20: Cedar Keys Complex

Unit FL–20 consists of 35,626 ac (14,417 ha) of beach and intertidal sandflats in Levy County, Florida, on Cedar Key and the complex of sandbars and flats seaward. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 2,498 ac (1,012 ha; 7 percent) in Federal ownership, 7,792 ac (3,153 ha; 22 percent) in State ownership, 5,928 ac (2,293 ha; 17 percent) in private/other ownership, and 19,407 ac (7,959 ha; 54 percent) that are uncategorized. Federal ownership consists of Cedar Keys NWR, and State ownership includes Waccasassa Preserve State Park. General land use within this unit includes recreational use (*e.g.,* walking/running, fishing, and surfing).

Unit FL–20 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Finally, this is also an important location that supports juveniles year round. Approximately 5,658 ac (2,290 ha) of thus unit overlap with designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Unit FL–20 include loss of habitat due to sea level rise, human-caused or natural disasters (*e.g.,* oil spills, hurricanes), harmful algal blooms including red tide, and disturbance of foraging and roosting rufa red knots by humans and human activities, including but not limited to fishing, walking, and other beach-related activities. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing disturbance to rufa red knots such as managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during winter and migratory periods (through restrictions on timing, locations, and types of activities) and by identifying restoration and protection measures to minimize beach loss using best management practices during beach replenishment or restoration to limit disturbance and impacts to rufa red knots and their food resources (*i.e.,* beach invertebrates) (see Special Management Considerations or Protection, above). Federal lands within this unit are managed under the Lower Suwannee and Cedar Keys NWR's Comprehensive Conservation Plan (Service 2001, entire), and State lands are managed under the Waccasassa Bay Preserve State Park Unit Management Plan (FDEP 2019, entire).

Unit FL–21: St. Marks National Wildlife Refuge

Unit FL–21 consists of 2,074 ac (839 ha) of beach, inlets, shoals, intertidal sand and mud flats and impoundments within the St. Marks NWR, Wakulla County, Florida. The unit extends from the eastern boundary of Big Cove inlet west to the inlet west of Lighthouse Pool and includes areas to the north up to 1.25 mi (2 km) into East River Pool. This unit includes from the base of the berm road to the lowest water level and areas up to 4 in (10 cm) of water depth within Lighthouse Pool, Picnic Pond, Tower Pond, Headquarters Pond, Mounds Pools 1 and 2, Stoney Bayou Pool 1, and within the open water and emergent marsh portion of East River Pool and all shoals and shoreline habitats within Sand Cove and Minnie Cove. Areas to the east of Lighthouse Road between Lighthouse Pool and Picnic Pond, and areas to the east of Picnic and Tower Ponds that have the physical or biological features, are also included. This unit includes lands from MLLW to the landward limit of the physical or biological features and any ephemeral pools, or natural brackish ponds and any emergent sand shoals in Apalachee Bay appearing near shore within 3 mi (4.8 km) of the critical habitat boundary found along the southernmost portion of Lighthouse Road and Lighthouse Levee Trail that parallels Apalachee Bay. Lands within this unit are entirely in Federal ownership. General land use within this unit includes management of impoundments for waterfowl and shorebirds and passive recreational uses (*e.g.,* birdwatching).

Unit FL–21 is occupied by the species and contains one or more of the

physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site (although the subspecies also resides at this location year round, which indicates use by juveniles). This unit is located adjacent (within 1,000 ft (305 m)) to critical habitat units for the federally threatened frosted flatwoods salamander (74 FR 6700, February 10, 2009), noting that projects within the area should consider impacts for both rufa red knot and flatwoods salamander due to close proximity. There is no overlap with designated critical habitat for any listed species.

Threats identified within Unit FL–21 include: (1) Loss of bay habitat due to sea level rise, (2) disturbances of foraging and roosting rufa red knots by humans and human activities (*e.g.,* vehicle movements along the impoundment roads, beach goers along the bay shorelines), and (3) mammalian and avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include water level management within impoundments to find a multi-species balance to maximize seasonal use by rufa red knots, reduction of human disturbances on a seasonal basis, and predator control and management such as removing perches used by avian predators in proximity to impoundments and the shoreline (see Special Management Considerations or Protection, above). Federal lands are managed under St. Marks NWR Comprehensive Conservation Plan (Service 2006b, entire).

Unit FL–22: Eastern Franklin County Complex

Unit FL–22 consists of three subunits comprising 1,429 ac (578 ha) in Wakulla and Franklin Counties, Florida. This unit consists of beaches within the areas of Apalachee Bay, Dickson Bay, Ochlockonee Bay, and Alligator Point. This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened piping plover. This unit consists of State lands and private/other ownership.

Subunit FL–22A: Mashes Sands

Subunit FL–22A consists of 262 ac (106 ha) of beach, inlet, shoals, and intertidal sandflats at Mashes Sands Park beach and the inlet and shoals of Apalachee Bay, Dickson Bay, and Ochlockonee Bay in Wakulla County, Florida, from near Ochlockonee Point in Ochlockonee Bay north towards Dickson Bay. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures. This area includes any ephemeral pools, lagoons, or natural brackish ponds and any adjacent or near-shore emergent sand shoals. Lands within this subunit are all in State ownership but leased and managed by Wakulla County. General land use within this subunit includes recreational activities (*e.g.,* walking, dog walking, and kayaking).

Subunit FL–22A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Rufa red knots also reside at this location at lower concentrations during the fall migration period and winter period.

Threats identified within Subunit FL–22A include: (1) Loss of habitat and prey resources associated with sea level rise and shoreline hardening, (2) avian and mammalian predation, and (3) disturbance of rufa red knots from both humans and pets (dogs). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing or restricting human use (keeping dogs leashed, including those walking dogs especially during spring migration), and managing placement of kayak, canoe, and boat launches as needed (see Special Management Considerations or Protection, above). The County is currently drafting a management plan for this unit (which is expected to include shorebird protective recommendations (*e.g.,* keeping dogs on leashes)).

Subunit FL–22B: Bald Point State Park

Subunit FL–22B consists of 445 ac (180 ha) of Bald Point beaches and shoals in Franklin County, Florida, from a dirt road 0.35 mi (0.56 km) north of Marlin Street to the north near Bald Point, and including shoals within Ochlockonee Bay approximately 0.9 mi (1.4 km) north of Bald Point. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures. It includes any ephemeral pools, lagoons, or natural brackish ponds and any adjacent or near-shore emergent sand shoals. Lands within this subunit include approximately 439 ac (178 ha; 99 percent) in State ownership and 6 ac (2 ha; 1 percent) in private/other ownership. General land use within this subunit includes recreational activities (*e.g.,* walking, dog walking, and kayaking).

Subunit FL–22B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This location also supports rufa red knots year round, which indicates it is important for juvenile survival.

Threats identified within Subunit FL–22B include: (1) Loss of habitat and prey resources associated with sea level rise, (2) avian and mammalian predation, and (3) disturbance of roosting and foraging rufa red knots from human activities (*e.g.,* walking, kayak/canoe launch, boaters, and pets (dogs)). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing or restricting human use (*e.g.,* keeping dogs leashed, especially during spring migration) (see Special Management Considerations or Protection, above). State land in this subunit is managed under FDEP's Division of Recreation and Parks, Unit Management Plan (FDEP 2006, entire).

Subunit FL–22C: Alligator Point

Subunit FL–22C consists of 722 ac (292 ha) of Alligator Point beaches and John S. Phipps Preserve beaches and shoals in Franklin County, Florida, from 0.07 mi (0.11 km) east of Florida Coastal Range Monument 210 west to the shoals associated with the northwestern end of the point. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures. It includes any ephemeral pools, lagoons, or natural brackish ponds and any adjacent or near-shore emergent sand shoals. Lands within this subunit are entirely in private/other ownership (TNC). General land use within this subunit includes recreational activities (*e.g.,* walking, dog walking, kayaking, canoeing, and fishing).

Subunit FL–22C is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring

migration period, serving as an important northbound stopover site. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. Approximately 361 ac (146 ha) of the subunit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Subunit FL–22C include: (1) Loss of habitat and prey resources associated with sea level rise, (2) shoreline hardening, (3) avian and mammalian predation, and (4) disturbance of roosting and foraging rufa red knots from human activities (*e.g.,* walking, kayak/canoe launch, boaters, and dogs). The Preserve portion of this subunit is closed to the public, but trespassing is persistent via the intertidal zone, waters access, and fence jumping. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing or restricting human use (*e.g.,* keeping dogs on leashes, including those walking dogs especially during spring migration), and potential enforcement of the no trespass rule within the Preserve (violators access via boats, walking via intertidal around a jetty structure, and crossing a fence (see Special Management Considerations or Protection, above). The Preserve lands are managed under the John S. Phipps Preserve Management Plan (Seamon 2013a, entire).

Unit FL–23: Central Franklin County Complex

Unit FL–23 consists of seven subunits comprising 4,175 ac (1,689 ha) in Franklin County, Florida. This unit consists of beaches and barrier island areas of St. George Sound shoreline, the Carrabelle River outlet, Boggy Jordan Bayou outlet, Dog Island, and St. George Island. Lands within each subunit are either completely State-owned (five subunits) or private/other owned (two subunits). This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened piping plover and loggerhead sea turtle, and the federally endangered Gulf sturgeon.

Subunit FL–23A: Turkey Point Shoal

Subunit FL–23A consists of approximately 531 ac (215 ha) of an emergent, isolated shoal within the Gulf of Mexico and St. George Sound, Franklin County, Florida. This subunit includes emergent shoals approximately 1 mi (1.5 km) south of Turkey Point. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including any ephemeral pools, lagoons, and emergent sand shoals adjacent to the island or reef. All lands within this subunit are in State ownership. General land use within this subunit includes occasional recreational fishing.

Subunit FL–23A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Habitat at this location also supports rufa red knots year round, indicating it is important for juvenile survival.

Threats identified within Subunit FL–23A include: (1) Loss of shoals and foraging habitat, including prey resources, from sea level rise; (2) disturbance to roosting and foraging rufa red knots from human activities (*i.e.,* recreational fishing, including with boats); and (3) avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing or restricting human use, especially during spring migration and winter months (see Special Management Considerations or Protection, above).

Subunit FL–23B: Lanark Reef

Subunit FL–23B consists of approximately 865 ac (350 ha) of Lanark Reef in the Gulf and St. George Sound, Franklin County, Florida. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including any ephemeral pools, lagoons, and emergent sand shoals within 3 mi (4.8 km) of the island or reef. Lands within this subunit include 805 ac (326 ha) in State ownership and 61 ac (25 ha) in private/other ownership. General land use activity in this subunit should be minimal given the area was purchased strictly for bird protection and is closed to the public; however, there are unauthorized recreational activities occurring (*i.e.,* fishing, kayaking/canoeing, boating, walkers, dog walkers).

Subunit FL–23B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site (although the habitat also supports rufa red knots during the fall migration period at lower numbers). Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. The entire subunit overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and approximately 364 ac (147 ha) of the western half of the island overlap designated critical habitat for the federally threatened Gulf sturgeon (*Acipenser oxyrhynchus desotoi*) (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–23B include: (1) Loss of the entire island reef, habitat, and prey resources associated with sea level rise; (2) disturbance to roosting and foraging rufa red knots from human activities (*e.g.,* boaters, walkers, dogs); and (3) avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include enforcement to minimize human disturbance especially during spring migration and winter months, and predator management (see Special Management Considerations or Protection, above). No specific resources management plan exists for Lanark Reef, although the Audubon does conduct predator management and debris cleanup when staffing and funding allow (Vandeventer 2020, pers. comm.; Korosy and Samuelsen 2020, pers. comm.).

Subunit FL–23C: East Dog Island

Subunit FL–23C consists of approximately 771 ac (312 ha) of East Dog Island in Franklin County, Florida, from midway between Florida Coastal Range Monuments 168 and 169 east to the tip of the island and extending around the tip to include St. George Sound shoreline and shoals approximately horizontal to Florida Coastal Range Monument 190. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and

uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, and also includes ephemeral pools, lagoons, natural brackish ponds, and any adjacent or near-shore emergent sand shoals. Lands within this subunit are entirely private/other ownership, which includes the Jeff Lewis Wilderness Preserve (owned by TNC). General land use within this subunit includes recreational use by local landowners and vacationers for beach use (*e.g.,* walking, dog walking, and shell collecting). The Preserve is closed to public access, although there is regular unauthorized use.

Subunit FL–23C is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. The Gulf of Mexico side of the subunit overlaps 140 ac (57 ha) of designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014), and 270 ac (109 ha) of the subunit overlap designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–23C include: (1) Loss of habitat and prey resources associated with sea level rise, (2) avian predation, and (3) disturbance to roosting and foraging rufa red knots from human disturbance (*e.g.,* boaters, walkers, and dogs). Most of the subunit is closed to the public, although unauthorized use still occurs. Special management considerations or protection measures to reduce or alleviate the threats may include enforcement efforts to minimize rufa red knot disturbance from human activities, especially during spring migration and winter months (see Special Management Considerations or Protection, above). A management plan is being implemented on the Jeff Lewis Wilderness Preserve (Seamon 2013b, entire), a subset of the subunit.

Subunit FL–23D: West Dog Island

Subunit FL–23D consists of approximately 751 ac (304 ha) of West Dog Island in Franklin County, Florida. This subunit includes the entirety of West Dog Island from the eastern boundary at the Gulf of Mexico shoreline midway between Florida Coastal Range Monuments 168 and 169 and west 3.1 mi (5 km) to East Pass. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, as well as ephemeral and emergent sand shoals appearing in the near shore. Lands within this subunit are entirely in private/other ownership, which includes the Jeff Lewis Wilderness Preserve, owned by the TNC. General land use within this subunit includes recreational uses by local landowners and vacationers for beach use (*e.g.,* walking, dog walking, and shell collecting). The Preserve is closed to public access although unauthorized use regularly occurs.

Subunit FL–23D is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. The Gulf of Mexico side of the subunit overlaps 141 ac (57 ha) of designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39756, July 10, 2014), and 347 ac (140 ha) of the subunit overlap designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–23D include: (1) Loss of habitat and prey resources associated with sea level rise, (2) disturbance of roosting and foraging rufa red knots as a result of unauthorized human activities (*e.g.,* boaters, walkers, dogs), and (3) avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include enforcement efforts to minimize rufa red knot disturbance from human activities, especially during spring migration and winter months (see Special Management Considerations or Protection, above). A management plan is being implemented on the Jeff Lewis Wilderness Preserve (Seamon 2013b, entire).

Subunit FL–23E: McKissack Beach, Carrabelle

Subunit FL–23E consists of approximately 117 ac (47 ha) of McKissack Beach in Carrabelle and associated shoals in Franklin County, Florida, from 0.18 mi (0.30 km) east of the intersection of U.S. Highway 98 and Cape Street east to the cove that forms the outlet of Boggy Jordan Bayou. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, as well as any ephemeral and emergent sand shoals appearing in the near shore. Lands within this subunit include 114 ac (46 ha) in State ownership via the Florida Trustees of the Internal Improvement Fund (although the City of Carrabelle retains a lease on McKissack Beach and Marsh), and 3 ac (1 ha) in private/other ownership. General land use within this subunit includes passive recreation (*e.g.,* beach walking, leashed dogs).

Subunit FL–23E is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. The subunit overlaps 104 ac (42 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 107 ac (43 ha) of the subunit overlap designated critical habitat for the threatened Gulf sturgeon within Apalachicola Bay (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–23E include: (1) Loss of habitat and prey resources associated with sea level rise, (2) disturbance to roosting and foraging rufa red knots from human activities (*e.g.,* walking, dogs), and (3) mammalian and avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include enforcement efforts to minimize human disturbance and enforce unleashed dogs, especially during spring migration and winter months, and efforts to control trash that may attract predators in the area (see Special Management Considerations or Protection, above). Management is conducted in accordance with the Florida Resilient Coastline Program's land management plan for McKissack Beach and Marsh (Apalachee Regional Planning Council 2021, entire), which includes a vulnerability assessment and an adaptation plan.

Subunit FL–23F: East St. George Island State Park

Subunit FL–23F consists of 978 ac (396 ha) of Dr. Julian G. Bruce St. George Island State Park Beach in Franklin County, Florida, from Florida Coastal Range Monument 105 to the eastern tip of the island at East Pass. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures. All lands within this subunit are in State ownership. General land use within this subunit includes passive recreational activities (*e.g.,* beach walking, shell collecting, sunbathing, and fishing from the shoreline).

Subunit FL–23F is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the north Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. The entire subunit overlaps designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), the Gulf of Mexico side of the subunit overlaps approximately 485 ac (196 ha) of designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39856, July 10, 2014), and 426 ac (172 ha) of the subunit overlap designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–23F include: (1) Loss of habitat and prey resources associated with sea level rise, (2) disturbance of roosting and foraging rufa red knots from human activities (*e.g.,* fishing, walkers, dogs), and (3) avian and mammalian predation. Special management considerations or protection measures to reduce or alleviate the threats may include posting concentrated areas used by the birds, conducting enforcement efforts to minimize human disturbance (especially during spring migration and winter months), and controlling trash that may attract predators (see Special Management Considerations or Protection, above). State lands are managed under the St. George Island State Park's 2016 Management Plan (FDEP 2016, entire).

Subunit FL–23G: St. George Island State Park and Bayshore Shoals

Subunit FL–23G consists of 162 ac (65 ha) of Goose Island and associated shoals within St. George Island State Park in Franklin County, Florida. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical and biological features, including ephemeral pools, lagoons, and any emergent sand shoals adjacent to the island. All lands within this subunit are in State ownership. General land use within this subunit includes recreational activities (*e.g.,* fishermen, oystermen, and kayakers/canoers).

Subunit FL–23G is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. This subunit overlaps 162 ac (65 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 119 ac (48 ha) of designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–23G include: (1) Loss of entire shoal, habitat, and prey resources associated with sea level rise; (2) disturbance to roosting and foraging rufa red knots as a result of human activities (*e.g.,* boaters); and (3) avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing or restricting human use, especially during spring migration and winter months (see Special Management Considerations or Protection, above). State park lands are managed under the St. George Island State Park Management Plan (FDEP 2016, entire).

Unit FL–24: St. Vincent National Wildlife Refuge Complex

Unit FL–24 consists of three subunits comprising 2,212 ac (895 ha) in Franklin and Gulf Counties, Florida. This unit consists of beaches of Apalachicola Bay, St. Vincent Sound, Indian Pass, St. Vincent Island, and Flagg Island. Lands within this unit are Federal (one subunit) and State (two subunits). This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened piping plover and loggerhead sea turtle, and the federally endangered Gulf sturgeon.

Subunit FL–24A: Little St. George Island State Park-West

Subunit FL–24A consists of 953 ac (386 ha) of Little St. George Island beach and shoals in Franklin County, Florida, from West Pass east to Florida Coastal Range Monument 25 and including bayside beach from West Pass east to the point at the Marshall Dock. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, and includes ephemeral pools, natural brackish ponds, and emergent sand shoals appearing in the near shore of the Gulf or Apalachicola Bay. All lands within this subunit are in State ownership. General land use within this subunit includes recreational activities (*e.g.,* fishermen, oystermen, and kayakers/canoers).

Subunit FL–24A is occupied by the species and contains one or more of the

physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. The western tip of the subunit overlaps 82 ac (33 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), the Gulf of Mexico side overlaps 279 ac (113 ha) of designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39856, July 10, 2014), and approximately 502 ac (203 ha) of the subunit overlap with designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–24A include: (1) Loss of entire inlet spit, habitat, and prey resources associated with sea level rise, (2) disturbance of roosting and foraging rufa red knots resulting from human activities (*e.g.,* boaters), and (3) avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include minimizing or restricting boat mooring on the inlet spit, especially during winter months, and removing any unnatural perches to reduce avian predation (see Special Management Considerations or Protection, above). State lands (Little St. George State Park) in this subunit are managed under the Apalachicola Bay Aquatic Preserve Management Plan (FDEP and Apalachicola NERR 2013, entire).

Subunit FL–24B: St. Vincent National Wildlife Refuge

Subunit FL–24B consists of 742 ac (300 ha) of St. Vincent NWR beach and shoals in Franklin and Gulf Counties, Florida, from the Refuge boat house at the confluence of St. Vincent Sound and Indian Pass east to 0.60 mi (0.96 km) north of Shell Road. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, including ephemeral pools, natural brackish ponds, and emergent sand shoals appearing in the near shore of the Gulf. Lands within this subunit are all in Federal ownership. General land use within this subunit includes recreational activities (*e.g.,* nearby use by fishermen, beach walkers, and kayakers/canoers).

Subunit FL–24B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important to juvenile survival. Both the eastern and western tip of the subunit overlap a total of 206 ac (83 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), the Gulf of Mexico side of the subunit overlaps 394 ac (159 ha) of designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39856, July 10, 2014), and approximately 374 ac (152 ha) of the subunit overlap with designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–24B include: (1) Loss of habitat and prey resources associated with sea level rise, (2) disturbance to roosting and foraging rufa red knots from human activities (*e.g.,* fishermen, walkers), and (3) avian and mammalian predation. Special management considerations or protection measures to reduce or alleviate the threats may include posting concentrated areas used by the birds and enforcement efforts to minimize human disturbance, especially during winter months (see Special Management Considerations or Protection, above). Federal lands in this subunit are managed under the St. Vincent NWR Comprehensive Conservation Plan (Service 2006c, entire).

Subunit FL–24C: Flagg Island Shoals

Subunit FL–24C consists of 517 ac (209 ha) of the entire ebb-tidal delta referred to as Flagg Island off the southernmost tip of St. Vincent Island (near Oyster Pond outfall) in Franklin County, Florida. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including ephemeral pools, natural brackish ponds, and emergent sand shoals. All lands within this subunit (which constantly change in size and shape due to the dynamic nature of the area) are in State ownership. General land use within this subunit includes passive recreational activities (*e.g.,* boat mooring, tour guide boats, beach walking, shell collecting, and fishing from the shoreline).

Subunit FL–24C is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. The majority of the subunit (487 ac (197 ha)) overlaps designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39856, July 10, 2014), and approximately 476 ac (193 ha) of the subunit overlap designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–24C include: (1) Loss of the shoals habitat and prey resources associated with sea level rise, (2) disturbance to roosting and foraging rufa red knots as a result of human activities (*e.g.,* fishermen, walkers), and (3) avian predation. Special management considerations or protection measures to reduce or alleviate the threats may include posting concentrated areas used by the birds and enforcement efforts to minimize human disturbance, especially during winter months (see Special Management Considerations or Protection, above).

Unit FL–25: Gulf County Complex

Unit FL–25 consists of two subunits comprising 1,520 ac (616 ha) in Gulf County, Florida. This unit consists of beaches of Cape San Blas, Money, and Indian Pass beaches, and the southeastern portion of St. Joseph Bay. Lands within this unit are State owned (one subunit) and private/other ownership (one subunit). This unit partially overlaps with occupied habitat and designated critical habitat for the federally threatened piping plover and federally threatened loggerhead sea turtle.

Subunit FL–25A: Cape San Blas to Indian Pass

Subunit FL–25A consists of 620 ac (251 ha) of Cape San Blas, Money Bayou, and Indian Pass beaches in Gulf County, Florida, from the southwestern point of Cape San Blas to 0.11 mi (0.18 km) northeast of the Indian Pass Beach Boat Ramp. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including ephemeral pools, natural brackish ponds, and emergent sand shoals in the near shore. Lands within this subunit include 133 ac (54 ha) in State ownership and 486 ac (197 ha) in private/other ownership. Adjacent Federal lands under Eglin Air Force base jurisdiction were considered and are exempt under section 4(a)(3) of the Act, but the shoal and any emergent shoal formations that appear are considered part of this subunit, starting from the MLLW south and up 0.5 mi (0.81 km) from Eglin Air Force Base lands on the southern-most side of Cape San Blas. General land use within this subunit includes recreational activities (*e.g.,* a boat ramp near Indian Pass, tour guide boats, beach walking, shell collecting, and fishing from the shoreline). Beach driving permits are also issued by Gulf County. Dogs are allowed on the beach, but enforcement of the leash law is a persistent need.

Subunit FL–25A is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival. The western-most tip of the island (Cape San Blas) overlaps with 130 ac (53 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), the Gulf of Mexico side of the subunit overlaps with 345 ac (140 ha) of designated critical habitat for the federally threatened loggerhead sea turtle (79 FR 39856, July 10, 2014), and approximately 326 ac (132 ha) of the subunit overlap designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Subunit FL–25A include: (1) Loss of the habitat and prey resources associated with sea level rise, (2) disturbance of roosting and foraging rufa red knots resulting from human activities (*e.g.,* golf carts, vehicles, fishermen, walkers, and dogs on and off leash), and (3) avian predation. Additionally, sand placement efforts are to occur soon via berms placement, but beach nourishment is possible in the future. Special management considerations or protection measures to reduce or alleviate the threats may include posting concentrated areas used by rufa red knots, reducing the number of beach driving permits issued, and continuing to enforce dog leash laws (see Special Management Considerations or Protection, above).

Subunit FL–25B: St. Joseph Bay-Eastern Shore

Subunit FL–25B consists of 827 ac (335 ha) of beaches and shoals within the southeastern portion of St. Joseph Bay in Gulf County, Florida, from 0.09 mi (0.14 km) east of the intersection of County Road 30A and Cape San Blas Road to the west 0.66 mi (1.1 km) and to the north 2.4 mi (3.8 km). This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including ephemeral pools, natural brackish ponds, lagoons, and emergent sand shoals in the near shore. Lands within this subunit include 761 ac (308 ha) in State ownership and 66 ac (27 ha) in private/other ownership. General land use within this subunit includes recreational activities (*e.g.,* nearby boat ramps, a canoe/kayak launch). Additionally, scalloping and fishing in St. Joseph Bay is popular during the fall season.

Subunit FL–25B is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This subunit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this subunit contains a high concentration of rufa red knots during the winter period on the northern Gulf coast portion of the subspecies range, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This location also contains habitat that supports rufa red knots year round, indicating it is important for juvenile survival.

Threats identified within Subunit FL–25B include: (1) Loss of the habitat and prey resources associated with sea level rise; (2) disturbance of roosting and foraging rufa red knots as a result of human activities during low tides, which is likely the time this area is most used by the rufa red knots; (3) disturbance of foraging rufa red knots from boating and canoeing/kayaking; and (4) avian predation. Special management considerations or protection measures may include reducing human disturbance via educational materials (*e.g.,* post at boat ramps to request that boaters avoid coming near large flocks of birds) (see Special Management Considerations or Protection, above). State lands are managed under the FDEP's oversight of St. Joseph Bay and some adjacent sand shoals and uplands area via the St. Joseph Bay State Buffer Preserve's management plan (FDEP 2008b, entire).

Unit AL–1: Dauphin Island

Unit AL–1 consists of 5,164 ac (2,091 ha) in Mobile County, Alabama, which is one of the Mississippi-Alabama barrier islands with the Gulf of Mexico to the south and Mobile Bay to the north. The unit includes all of Dauphin Island from the historic 19th Century Fort Gaines site on the eastern side of the island, continuing approximately 16 mi (26 km) west to the MLLW on the westernmost tip, and all of Little Dauphin Island (which is uninhabited) to MLLW. Lands within this unit include approximately 484 ac (196 ha; 9 percent) in Federal ownership, 848 ac (343 ha; 16 percent) in State ownership, and 3,834 ac (1,552 ha; 74 percent) in private/other ownership. General land use within this unit includes recreational activities (*e.g.,* off-shore and surf fishing, sunbathing, swimming, and walking), the incorporated community of Dauphin Island, the Audubon Bird Sanctuary (164 ac (66 ha)) of woodland, swamp, and beach), the State's recently acquired coastal habitat conservation area on the western end of Dauphin Island, and the Little Dauphin Island unit of Bon Secour NWR.

Unit AL–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods. This location serves as an important northbound and southbound stopover site, providing multiple foraging and roosting habitats

for energy-depleted rufa red knots seeking to replenish their resources during their migration to and from breeding grounds. Approximately 2,381 ac (963 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit AL–1 include: (1) Human disturbance of foraging and roosting rufa red knots from recreational activities (*e.g.,* pets and domestic animals, ORVs, golf carts, powered boats and kayaks, and surf fishing), (2) predation (especially by raptors, red fox, and feral cats), (3) modification or loss of habitat or both due to residential and commercial development, (4) hard and soft beach stabilization efforts (*e.g.,* beach nourishment, fences, dredged material disposal), (5) erosion, including from sea level rise; and (6) human-caused or natural disasters (*e.g.,* oil spills, hurricanes). Special management considerations or protection measures to reduce or alleviate the threats may include managing access to rufa red knot foraging habitat and adjacent upland roosting habitat during migration (through law enforcement presence and through restrictions on timing, locations, and types of activities), sediment management through periodic beach nourishment, and addressing the impacts of potential oil spills through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). Federal lands are currently managed by Bon Secour NWR via the Refuge's Comprehensive Conservation Plan (Service 2005, entire). State-owned lands known as Shell Mound Park or Indian Mound Park are managed by Marine Resources Division of the Alabama Department of Conservation and Natural Resources. The recently acquired habitat conservation area by the State on the west end of Dauphin Island will be managed by Mobile County and the Town of Dauphin Island.

Unit MS–1: Ship Island

Unit MS–1 consists of 2,452 ac (993 ha) in Harrison County, Mississippi, consisting of emergent lands and intertidal area to MLLW on Ship Island and its adjacent sand shoals (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). This unit is owned entirely by the Federal Government as part of the NPS's Gulf Islands National Seashore. Ship Island was breached by hurricane Camille in 1969, and the breach was significantly widened by hurricane Katrina in 2005; however, the unit is once again one island as a result of restoration work that occurred in 2019 and 2020. General land use within this unit includes limited recreation (*e.g.,* fishing, birding), management for nesting and wintering sea birds in addition to other wildlife species, and tourism associated with the historic Fort Massachusetts, which is frequently visited by people via a commercial ferry service. Portions of the island are closed by NPS to the public during various times of the year to prevent impacts to bird nesting. This island is also remotely located approximately 8 mi (13 km) off shore.

Unit MS–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the fall migration period, serving as an important southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the northern Gulf coast for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. The entire 2,452-ac (993-ha) unit overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 1,666 ac (674 ha) of the unit overlap with designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Unit MS–1 include: (1) Disturbance of foraging and roosting rufa red knots by humans and human activities, such as regional modification of the natural sediment transport processes via navigation channel dredging and disturbance by powered boats; (2) predation (native predators); (3) modification or loss of habitat due to erosion and sea level rise; and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent island roosting habitat during migration (through restrictions on timing, locations, and types of activities), and managing sediment sources both within the unit and the adjacent Mississippi Sound to offset erosion and sea level rise (see Special Management Considerations or Protection, above). These Federal lands are currently managed under the Gulf Islands National Seashore Management Plan (NPS 2014c, entire).

Unit MS–2: Cat Island

Unit MS–2 consists of 2,121 ac (858 ha) in Harrison County, Mississippi, consisting of emergent lands and intertidal area to MLLW on Cat Island and its adjacent sand shoals (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). Lands within this unit include approximately 686 ac (278 ha; 32 percent) in Federal ownership (Gulf Islands National Seashore), 1,305 ac (528 ha; 62 percent) in State ownership (managed by the Mississippi Department of Marine Resources), and 129 ac (52 ha; 6 percent) in private/other ownership. General land use within this unit includes recreational use (*e.g.,* fishing, birding, and rare visitation by humans via boats) by locals and island residents. This island is also remotely located approximately 8 mi (13 km) off shore.

Unit MS–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species for wintering and migration. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the northern Gulf coast. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat on the northern Gulf coast for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. Approximately 2,087 ac (845 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001), and 200 ac (81 ha) of the unit overlap with designated critical habitat for the federally threatened Gulf sturgeon (68 FR 13370, March 19, 2003).

Threats identified within Unit MS–2 include disturbance of foraging and roosting rufa red knots by humans and human activities such as regional modification of the natural sediment transport processes via navigation channel dredging and disturbance by powered boats; modification or loss of habitat due to erosion and sea level rise; and human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats may include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent

island roosting habitat during migration (through restrictions on timing, locations, and types of activities), and managing sediment sources both within the unit and the adjacent Mississippi Sound to offset erosion and sea level rise (see Special Management Considerations or Protection, above). Federal lands in this unit are currently managed under Gulf Islands National Seashore Management Plan (NPS 2014c, entire), and State lands in this unit are currently managed according to Rules and Regulations For The Use of State-Owned Coastal Preserve Areas (Mississippi Department of Marine Resources (DMR) 2009, entire) and the Coastal Preserves Bureau Management Plan (Mississippi DMR 2020, entire). These are not area-specific for lands in this unit, but the Mississippi DMR does implement these goals at this time (Davis 2020, pers. comm.).

Unit LA–1: Chandeleur Islands

Unit LA–1 consists of 7,632 ac (3,088 ha) in St. Bernard Parish, Louisiana. The unit includes all emergent lands to MLLW on the Chandeleur Islands and their adjacent sand shoals (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). All lands in this unit are federally owned as part of the Breton NWR and Wilderness Area, which was created as a refuge and breeding ground for resident and migratory birds. General land use within this unit includes recreational activities (*e.g.,* bird watching, fishing, and hiking) and occasionally biological research activities (which require a Special Use Permit).

Unit LA–1 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site on the northern Gulf coast. Additionally, this unit contains a high concentration of rufa red knots during the winter period (*i.e.,* the vast majority of the species' wintering population in Louisiana), providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. This unit also has an undeveloped character that provides protection from intensive human uses. Approximately 4,734 ac (1,916 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit LA–1 include human disturbance of foraging and roosting rufa red knots (*e.g.,* powered boats), natural predators, and loss of habitat, including from erosion, sea level rise, and response actions resulting from natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate threats may include habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, and facilitated shoreline migration), management of predator populations, oil spill response planning, and management of human activities that disturb foraging and roosting rufa red knots (see Special Management Considerations or Protection, above). Management within this unit occurs via the Comprehensive Conservation Plan for Breton NWR, which guides refuge management and resource conservation pertaining to managing such activities, and any restoration actions would be aimed at restoring habitat quality and quantity without permanently affecting the natural coastal processes that maintain the physical or biological features of critical habitat (Service 2008b, entire). The Refuge's management objectives are to provide sanctuary for nesting and wintering seabirds, protect and preserve the wilderness character of the islands, and provide sandy barrier beach habitat for a variety of wildlife species (Service 2008b, pp. 12, 25).

Unit LA–2: Barataria Barrier Islands and Headlands

Unit LA–2 consists of 7,795 ac (3,155 ha) within Plaquemines, Jefferson, and Lafourche Parishes, Louisiana, including emergent lands and/or sand shoals to MLLW (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). This unit includes: (1) Emergent lands of Lanaux and Shell Islands to MLLW in Plaquemines Parish; (2) emergent sand shoals of Grand Bayou Pass in Plaquemines Parish; (3) the Gulf of Mexico shoreline to MLLW between Grand Bayou Pass and Quatre Bayou Pass (known as the Chaland Headland and Chenier Ronquille); (4) emergent sand shoals of Bastian Bay, Bay Joe Wise, Chaland Pass, and Bayou Cheniere Ronquille in Plaquemines Parish; (5) all emergent lands of the Grand Terre Islands and adjacent unnamed island to MLLW between Quatre Bayou Pass and Barataria Pass in Plaquemines and Jefferson Parishes; (6) the Gulf of Mexico shoreline of Grand Isle from the toe of the Gulf-side hurricane protection levee to MLLW in Jefferson Parish; (7) the west side of the Caminada Pass shoreline and the Gulf of Mexico shoreline to MLLW beginning just north of Louisiana Highway 1 in Caminada Pass extending approximately 15 mi (24 km) westward to the east side of Belle Pass (known as the Caminada Headland, which includes the Louisiana Department of Wildlife and Fisheries' (LDWF) Elmer's Island Wildlife Refuge) in Jefferson and Lafourche Parishes; and (8) all emergent lands of the West Belle Pass peninsula to the MLLW. Lands within this unit include approximately 126 ac (51 ha; 2 percent) in State ownership, and 7,669 ac (3,104 ha; 98 percent) in private/other ownership. General land use within this unit includes oil and gas activities (*e.g.,* pipelines, wellheads, supply boats), public beaches (*i.e.,* Grand Isle, portions of the Caminada Headland), public boat launches, residential development on Grand Isle just north of the unit boundary line, Grand Isle State Park, Elmer's Island Wildlife Refuge, and barrier island/headland habitats.

Unit LA–2 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the northern Gulf coast. Additionally, this unit contains a high concentration of rufa red knots during the winter period on these barrier islands and headlands, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. The State's attention to restoring the barrier islands and headlands in this unit, which adds much-needed sediment to the system, in coordination with episodic storm events, have also contributed to habitat creation (*e.g.,* sand spits), and in turn, optimal rufa red knot habitat conditions. Approximately 2,946 ac (1,192 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit LA–2 include disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* pets, ORVs/all-terrain vehicles, powered boats, and jet skis (specifically for public beaches on Grand Isle and the Caminada Headland)); natural predators; nonnative predators (specifically for public beaches on Grand Isle and the Caminada Headland); modification or loss of habitat, or both, due to

uncontrolled recreational access, beach cleaning, and/or beach stabilization (specifically for public beaches on Grand Isle and the Caminada Headland); loss of habitat due to erosion and sea level rise; and response to natural and human-caused disasters. Special management considerations or protection measures to reduce or alleviate threats may include public outreach and education, educational signage, permits for ORV use on public beaches; habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, facilitated shoreline migration); management of predator populations; oil spill response planning; and management of human activities that disturb foraging and roosting rufa red knots (see Special Management Considerations or Protection, above).

Unit LA–3: Terrebonne Barrier Islands

Unit LA–3 consists of 5,072 ac (2,052 ha) in Lafourche and Terrebonne Parishes, Louisiana, including emergent lands and/or sand shoals to MLLW (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). This unit includes: (1) Emergent lands on East Timbalier Island in Lafourche Parish; (2) emergent sand shoals at Little Pass Timbalier in Jefferson Parish; (3) emergent lands of Timbalier Island (also known as Big or West Timbalier Island) in Terrebonne Parish; and (4) emergent lands and associated sand shoals on East, Trinity, Whiskey, and Raccoon Islands (known as the LDWF Isles Dernieres Barrier Islands Refuge) in Terrebonne Parish. Lands within this unit include approximately 2,890 ac (1,173 ha; 57 percent) in State ownership and 2,172 ac (879 ha; 43 percent) in private/other ownership. General land use in this unit includes recreational activities (*e.g.,* bird watching, fishing), biological research activities (which require a permit), and oil and gas activities (*i.e.,* East Timbalier Island).

Unit LA–3 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the northern Gulf coast. Additionally, this unit contains a high concentration of rufa red knot during the winter period, providing important wintering habitat for foraging and roosting on the northern Gulf coast during a time of the year when rufa red knots are seeking to build energy sources for migration. This unit also has an undeveloped character that provides protection from intensive human uses. The State's attention to restoring the barrier islands in this unit, which adds much-needed sediment to the system, in coordination with episodic storm events have also contributed to habitat creation (*e.g.,* sand spits), and in turn, optimal rufa red knot habitat conditions. Approximately 4,077 ac (1,650 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit LA–3 include disturbance of foraging and roosting rufa red knots by humans and human activities (*e.g.,* oil and gas activities (for East Timbalier Island only), powered boats); native predators; and modification of habitat, such as due to erosion, sea level rise, and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate threats may include habitat management or restoration (*e.g.,* living shorelines, raising marsh elevations, and facilitated shoreline migration), management of predator populations, oil spill response planning, and management of human activities that disturb foraging and roosting rufa red knots (see Special Management Considerations or Protection, above). The State lands of this unit are managed by the LDWF Isles Dernieres Barrier Islands Refuge. The State's management of the majority of this unit requires special permission and/or permits to access the State-owned islands (State of Louisiana 2021, website).

Unit LA–4: Southwest Louisiana Beaches

Unit LA–4 consists of 6,130 ac (2,481 ha) in Cameron and Vermillion Parishes, Louisiana. The unit includes land along the Gulf of Mexico shoreline to the MLLW (*i.e.,* highly dynamic intertidal seashore that is covered at high tide and uncovered at low tide) from the eastern Vermilion Parish line starting at the eastern boundary of the Audubon Society's Paul J. Rainey Wildlife Sanctuary, extending approximately 128 mi (206 km) westward and terminating at Louisiana Point, and also including its associated sand/mud shoals on the east side of Sabine Pass in Cameron Parish. Along its entire length, the unit includes the shoreline beach from the MLLW line landward to the edge of where dense vegetation begins. Lands within this unit include approximately 1,497 ac (606 ha; 24 percent) in State ownership and 4,633 ac (1,875 ha; 76 percent) in private/other ownership. General land use within this unit includes recreational activities (*e.g.,* bird watching, fishing), public beaches (*i.e.,* Rutherford Beach, Holly Beach), biological research activities (which require a permit on State-owned lands), cattle grazing (*i.e.,* on some private lands), and oil and gas activities (*e.g.,* pipelines).

Unit LA–4 is occupied by the species and contains one or more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the northern Gulf coast. Additionally, this unit contains a high concentration of rufa red knot during the winter period, providing an important wintering habitat location on the northern Gulf coast within the subspecies' northern wintering range. Approximately 2,499 ac (1,011 ha) of the unit overlap with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit LA–4 unit include disturbance of foraging and roosting rufa red knots by humans or human activities (*e.g.,* pets, vehicles on the beach, powerboats, and uncontrolled recreational access on public beaches (*e.g.,* Rutherford Beach, Holly Beach)); disturbance from cattle grazing; disturbance from oil and gas activities (*e.g.,* pipelines, pipeline repairs); native predators as well as nonnative predators (*e.g.,* associated with public beaches); and modification or loss of habitat, or both, due to installation of hard structures, jetty maintenance, erosion, sea level rise, and responses to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate threats may include public outreach/education, educational signage, restricting vehicle access on public beaches; habitat management or restoration (*e.g.,* living shorelines, facilitated shoreline migration); management of predator populations; oil spill response planning; and management of human activities that disturb foraging and roosting rufa red knots (see Special Management Considerations or Protection, above). The State portion is managed by the LDWF Rockefeller Wildlife Refuge (Coastal Nongame Resources Division) in Vermilion Parish. The LDWF allows trapping, fishing, boating, birding, wildlife viewing, education, and

research activities on the Refuge (Rockefeller Wildlife Refuge 2021, website).

Unit TX–1: Rollover Pass to Bolivar Flats

Unit TX–1 consists of 1,264 ac (511 ha) in Galveston County, Texas. This unit begins at the west side of Rollover Pass and extends southwest ending at the north jetty on the Bolivar Peninsula. It includes 17 mi (27 km) of Gulf shoreline. The landward boundary is the line indicating the beginning of dense vegetation, and the gulf-side boundary is the MLLW, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The west end of the unit includes lands known as wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal, seagrass flats that are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; estuarine (bayside) sandy shore (beach/sandbar) that is irregularly or regularly, depending upon the location, inundated by tides; and marine sandy coastline (beach) irregularly or regularly inundated by tides, depending upon the location (Federal Geographic Data Committee (FGDC) 2013, pp. 11–13, 37). Lands within this unit include approximately 268 ac (108 ha; 21 percent) in State ownership and 996 ac (403 ha; 79 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation including both pedestrian and vehicle activity, and ongoing beach maintenance/nourishment activities. The west end of the unit is a well-known birding site (Bolivar Flats) that is protected by the Houston Audubon Society.

Unit TX–1 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the winter period, providing an important wintering habitat location on the northern Gulf coast U.S. portion of the rufa red knot northern wintering range, especially for an area that also experiences a low level of disturbance during this time period. The intertidal zone and relatively undisturbed beach habitat provide multiple foraging and roosting habitat areas during the time of year when rufa red knots are seeking to build energy resources for migration. The west end portion of the unit overlaps with 801 ac (324 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–1 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities, domestic animals, and vehicle disturbance (*i.e.,* golf carts, cars, sport-utility vehicles (SUVs), motorcycles, etc.); (2) modification or loss of habitat due to residential and commercial development, beach maintenance and nourishment activities, and sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). The Texas General Land Office State lands are managed under The Open Beaches Act, Texas Natural Resource Code Chapter 61 and The Dune Protection Act, Texas Natural Resource Code Chapter 63. The Audubon lands are managed under the Bolivar Flats Bird Sanctuary Management Plan (Houston Audubon 2017, entire).

Unit TX–2: West Galveston Island

Unit TX–2 consists of 590 ac (238 ha) in Galveston County, Texas. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northeastern boundary is the end of the Seawall Boulevard (end of the seawall), and the southwestern boundary is San Luis Pass. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location (FGDC 2013, pp. 11–12, 37). Lands within this unit include approximately 307 ac (124 ha; 52 percent) in State ownership and 283 ac (114 ha; 48 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation including both pedestrian and vehicle disturbance, and ongoing beach maintenance/nourishment activities.

Unit TX–2 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important southbound stopover site. The west end portion of the unit overlaps with 106 ac (43 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–2 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities, domestic animals, and vehicle disturbance (*i.e.,* golf carts, cars, SUVs, motorcycles, etc.); (2) modification or loss of habitat due to residential and commercial development, beach maintenance and nourishment activities, and sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). The Texas General Land Office State lands are managed under The Open Beaches Act, Texas Natural Resource Code Chapter 61 and The Dune Protection Act, Texas Natural Resource Code Chapter 63.

Unit TX–3: Cedar Lake to Colorado River

Unit TX–3 consists of 1,203 ac (487 ha) in Matagorda County, Texas. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northeastern boundary is the south

side of Cedar Lake Cut, and the southwestern boundary is near the Colorado River. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location (FGDC 2013, pp. 11–12, 37). Lands within this unit include 1,075 ac (432 ha; 89 percent) in State ownership and 128 ac (52 ha; 11 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation including both pedestrian and vehicle disturbance, and ongoing beach maintenance/nourishment activities.

Unit TX–3 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the fall migration period, serving as an important southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing an important wintering habitat location on the northern Gulf coast U.S. portion of the rufa red knot northern wintering range. During the winter period, this area provides foraging and roosting habitat during a time of the year when rufa red knots are seeking to build energy sources for migration. Portions of the unit overlap with 843 ac (341 ha) of five designated critical habitat units for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–3 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities, domestic animals, and vehicle disturbance (*i.e.,* golf carts, cars, SUVs, motorcycles, etc.); (2) modification or loss of habitat due to residential and commercial development, beach maintenance and nourishment activities, and sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). The Texas General Land Office State lands are managed under The Open Beaches Act, Texas Natural Resource Code Chapter 61 and The Dune Protection Act, Texas Natural Resource Code Chapter 63.

Unit TX–4: Mustang Island

Unit TX–4 consists of 648 ac (262 ha) in Nueces County, Texas. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northern boundary is the south jetty at Port Aransas and the southern boundary is the north jetty of Packery Channel. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location (FGDC 2013, pp. 11–12, 37). Lands within this unit include approximately 395 ac (160 ha; 61 percent) in State ownership and 253 ac (102 ha; 39 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation including both pedestrian and vehicle disturbance, and ongoing beach maintenance/nourishment activities.

Unit TX–4 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the fall migration period, serving as an important southbound stopover site. Portions of the unit overlap with 589 ac (238 ha) of two designated critical habitat units for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–4 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities, domestic animals, and vehicle disturbance (*i.e.,* golf carts, cars, SUVs, motorcycles, etc.); (2) modification or loss of habitat due to residential and commercial development, beach maintenance and nourishment activities, and sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). The Texas General Land Office State lands are managed under The Open Beaches Act, Texas Natural Resource Code Chapter 61 and The Dune Protection Act, Texas Natural Resource Code Chapter 63.

Unit TX–5: Mollie Beattie Coastal Habitat

Unit TX–5 consists of a total of 723 ac (293 ha) in Nueces County, Texas. This unit is located north of Packery Channel and extends along the bayside west of Sylvan Beach Park west of Texas State Highway 361. The northern boundary is the Corpus Christi Pass with the southern boundary approximately 2 mi (3.2 km) south of Corpus Christi Pass. The eastern boundary is where the dense vegetation begins, and the western boundary is the MLLW (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide). This unit includes two hurricane washover passes known as Newport and Corpus Christi Passes in areas where wind tidal flats are infrequently inundated, and bayside flats that are exposed during low tide regimes and wind tidal flats that are infrequently inundated. The unit does not include densely vegetated habitat within these boundaries, but it includes all seagrass beds exposed at low tides. Specific habitat types within this unit include: Estuarine (bayside) sandy shore/beach/sandbar that is irregularly or regularly, depending upon the location, inundated by tides; and estuarine (bayside) sandy shore (beach/sandbar) and spoils irregularly inundated by tides (FGDC 2013 pp. 11–13, 37). Lands within this unit include approximately 505 ac (205 ha; 70 percent) in State ownership and 218 ac (88 ha; 30 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation (*e.g.,* fishing, boating).

Unit TX–5 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains high concentrations of rufa red knots during the fall migration period, serving as an important southbound

stopover site. This entire unit (723 ac (293 ha)) overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–5 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities (*e.g.,* fishing, boating), domestic animals, and ORV activities; (2) modification or loss of habitat due to residential and commercial development, and sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above).

Unit TX–6: North Padre Island

Unit TX–6 consists of 2,817 ac (1,140 ha) in Nueces, Kleberg, Kenedy, and Willacy Counties, Texas. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, to include emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northern boundary is the south side of Packery Channel extending along the Gulf shoreline to Port Mansfield East Cut. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location (FGDC 2013, pp. 11–12, 37). Lands within this unit include approximately 2,487 ac (1,007 ha; 88 percent) in Federal ownership, 68 ac (27 ha; 3 percent) in State ownership, and 262 ac (106 ha; 9 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation, including both pedestrian and vehicle activities. In addition, the Padre Island National Seashore protects the majority of the area.

Unit TX–6 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site. Additionally, this unit contains a high concentration of rufa red knots during the winter period, providing an important wintering habitat location on the northern Gulf coast U.S. portion of the rufa red knot northern wintering range. This location provides foraging and roosting habitat areas during a time of the year when rufa red knots are seeking to build energy sources for migration. This specific location harbors approximately 17 percent of the Texas fall migration population. A portion of the unit overlaps with 210 ac (86 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–6 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities, domestic animals, and vehicle disturbance (*i.e.,* golf carts, cars, SUVs, motorcycles, etc.); (2) modification or loss of habitat due to residential and commercial development, beach maintenance, nourishment activities, and sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). Management of Federal lands occurs under the Padre Island National Seashore Resources Management Plan (NPS 1996, entire). Texas General Land Office State lands are managed in accordance with The Open Beaches Act, Texas Natural Resource Code Chapter 61 and The Dune Protection Act, Texas Natural Resource Code Chapter 63.

Unit TX–7: Upper Laguna Madre/Nighthawk Bay

Unit TX–7 consists of a total of 1,157 ac (469 ha) in Kleberg County, Texas. The unit is along the bayside of Texas Park Road 22. The northeastern boundary is the northern edge of the Kleberg County line in Nighthawk Bay, and the southwestern boundary ends bayside of Bird Island Basin Road. This unit includes a series of small flats along the bayside of Padre Island in the Upper Laguna Madre. The unit includes bayside flats and seagrass beds that are exposed during low tide regimes and wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal, seagrass flats that are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; and estuarine (bayside) sandy shore (beach/sandbar) that is irregularly or regularly inundated by tide, depending upon the location (FGDC 2013, pp. 11–13, 37). Lands within this unit include approximately 273 ac (111 ha; 24 percent) in Federal ownership, 816 ac (330 ha; 70 percent) in State ownership, and 68 ac (28 ha; 6 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreation activities (*e.g.,* fishing, boating). The Padre Island National Seashore protects the southwestern half of the unit.

Unit TX–7 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the winter period, providing important wintering habitat for foraging and roosting during a time of the year when rufa red knots are seeking to build energy sources for migration. The northern half of the unit overlaps with 560 ac (227 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–7 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities (*e.g.,* fishing, boating); (2) habitat modification or erosion resulting from sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot

foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). Management of Federal lands occurs under the Padre Island National Seashore Resources Management Plan (NPS 1996, entire). There is no State resources management plan available for State lands in this area.

Unit TX–8: Dagger Hill/Yarborough Pass/Nine Mile Hole

Unit TX–8 consists of 32,773 ac (13,270 ha) in Kleberg and Kenedy Counties, Texas. The unit is located bayside along and within the Laguna Madre adjacent to the west side of the Padre Island National Seashore. The northern boundary of the unit is Dagger Hill, and the southern boundary is approximately 6 mi (9.7 km) south of the land cut at Nine Mile Hole. The eastern boundary of this unit is the dense vegetation line on the bayside of the Padre Island National Seashore. The western boundary extends toward the Gulf Intracoastal Waterway to the MLLW (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide). The southern portion of this unit extends across the Gulf Intracoastal Waterway dredge spoil islands. The unit includes bayside flats and all seagrass beds that are exposed during low tide regimes and wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal and are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) sandy shore (beach/sandbar) that is irregularly or regularly inundated by tides, depending upon the location; and estuarine (bayside) sandy shore (beach/sandbar) and spoils irregularly inundated by tides (FGDC 2013, pp. 11–13, 37). Lands within this unit include approximately 9,731 ac (3,938 ha; 30 percent) in Federal ownership and 23,042 ac (9,332 ha; 70 percent) in State ownership. General land use within this unit includes multiple human uses for recreational activities (*e.g.,* fishing, boating). The Padre Island National Seashore protects the eastern half of the unit.

Unit TX–8 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. Additionally, large sections of the area are remote and difficult to access by foot or vehicles, which has likely contributed to this area harboring a significant proportion of the Texas spring migration population. The southwest section near Nine Mile Hole overlaps with 4,827 ac (1,953 ha) of designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–8 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities (*e.g.,* fishing, waterfowl hunting, and boating); (2) wind energy development; (3) habitat modification or erosion from sea level rise; (4) predation (residential and migratory raptors); and (5) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). Management of Federal lands occurs under the Padre Island National Seashore Resources Management Plan (NPS 1996, entire).

Unit TX–9: Pintail Lake/Padre Island/La Punta Larga

Unit TX–9 consists of 94,171 ac (38,110 ha) in Kenedy, Willacy, and Cameron Counties, Texas. The northern boundary is Pintail Cut, extending south along the bay side of North Padre and South Padre Islands, with the southern boundary being Andy Bowie County Park. The center of the unit is approximately at Port Mansfield East Cut. North of the East Cut the western boundary is the MLLW (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide), and the eastern boundary is where dense vegetation begins. South of East Cut the western boundary is the MLLW, and the eastern boundary includes the beach side Gulf of Mexico out to the MLLW. The unit includes bayside flats and seagrass beds that are exposed during low tide regimes, and wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside) algal mud or sand flats irregularly inundated by tides; estuarine (bayside) sandy shore (beach/sandbar) regularly inundated by tides; and estuarine (bayside) sandy shore (beach/sandbar); and marine sandy coastline beach (irregularly or regularly inundated by tides, depending upon the location) (FGDC 2013, pp. 11–13, 37). Lands within this unit include approximately 25,881 ac (10,482 ha; 27 percent) in Federal ownership, 34,165 ac (13,826 ha; 36 percent) in State ownership, and 34,125 ac (13,802 ha; 36 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreational activities, including both pedestrian and ORV activities along the gulf beach front and recreational fishing and boating on the bayside. Large portions of the unit are managed for wildlife habitat by the Laguna Atascosa NWR.

Unit TX–9 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring migration period, serving as an important northbound stopover site. This entire unit (94,171 ac (38,110 ha)) overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–9 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities, vehicle disturbance, fishing, waterfowl hunting, and boating; (2) wind energy development; (3) habitat modification or erosion from sea level rise; (4) predation (residential and migratory raptors); and (5) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as

well as spill response plans and training (see Special Management Considerations or Protection, above). Federal lands in this unit are managed according to the Laguna Atascosa NWR Comprehensive Conservation Plan (Service 2010e, entire). Texas General Land Office State lands in this unit are managed according to The Open Beaches Act, Texas Natural Resource Code Chapter 61 and The Dune Protection Act, Texas Natural Resource Code Chapter.

Unit TX–10: Peyton's Bay/Arroyo Colorado/Three Islands/Gabrielson Island

Unit TX–10 consists of 35,651 ac (14,427 ha) in Willacy and Cameron Counties, Texas. The northern boundary of this unit is approximately 11 mi (18 km) north of the Arroyo Colorado Cutoff and encompasses Peyton's Bay (north being Chubby Island), and the southern boundary is approximately 9 mi (14 km) south of the Arroyo Colorado Cutoff encompassing Rattlesnake Bay (south edge near Gabrielson Island). The eastern boundary is the western side of the Gulf Intracoastal Waterway dredge spoil islands, and the western boundary is where dense vegetation begins. The unit includes bayside flats and seagrass beds that are exposed during low tide regimes and wind tidal flats that are infrequently inundated, and does not include densely vegetated habitat within these boundaries. Specific habitat types within this unit include: estuarine (bayside) seagrass mud or sand flats that are subtidal and are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) algal mud or sand flats regularly inundated by tides and are nearly flat areas with a layer of algae growing on a moist mud or sand substrate and are otherwise devoid of vegetation; estuarine (bayside) algal mud or sand flats irregularly inundated by tides; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; estuarine (bayside) sandy shore (beach/sandbar) that is irregularly or regularly inundated by tides, depending upon the location; and estuarine (bayside) sandy shore (beach/sandbar), to include spoils irregularly inundated by tides (FGDC 2013, pp. 11–13, 37). Lands within this unit include approximately 8,145 ac (3,296 ha; 23 percent) in Federal ownership, 25,316 ac (10,245 ha; 71 percent) in State ownership, and 2,190 ac (886 ha; 6 percent) in private/other ownership. General land use within this unit includes multiple human uses for recreational activities (*e.g.,* fishing, boating). The Federal portion of the unit is managed for wildlife habitat by the Laguna Atascosa NWR.

Unit TX–10 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the northern Gulf coast. This entire unit (35,651 ac (14,427 ha)) overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–10 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities (*e.g.,* fishing, waterfowl hunting, and boating); (2) disturbance and habitat modification/erosion resulting from wind energy development and sea level rise; (3) predation (residential and migratory raptors); and (4) human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). Management of Federal lands occurs under the Laguna Atascosa NWR Comprehensive Conservation Plan (Service 2010e, entire).

Unit TX–11: South Bay/Boca Chica

Unit TX–11 consists of 15,243 ac (6,173 ha) in Cameron County, Texas. The Boca Chica gulf shoreline portion of this unit begins south of the Brownsville Ship Channel and extends approximately 6.5 mi (10 km) to the south. Within the South Bay, the northern boundary is south of Brownsville Ship Channel dredge spoil placement areas, and the southern boundary is north of the Rio Grande River. The eastern boundary is the bayside of the Boca Chica Beach (Gulf of Mexico) up to where dense vegetation begins, and the western boundary is west of the Loma islands up to where dense vegetation begins along the wind tidal flats. The unit includes wind tidal flats and all seagrass beds that are infrequently inundated and/or exposed as low tides, and the tidal flats within the area known as South Bay. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal and are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) algal mud or sand flats regularly inundated by tides and are nearly flat areas with a layer of algae growing on a moist mud or sand substrate and are otherwise devoid of vegetation; estuarine (bayside) algal mud or sand flats irregularly inundated by tides; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; estuarine (bayside) sandy shore (beach/sandbar) irregularly or regularly inundated by tides, depending upon the location; estuarine (bayside) sandy shore (beach/sandbar), spoils irregularly inundated by tides; and marine sandy coastline (beach) irregularly or regularly inundated by tides, depending upon the location (FGDC 2013, pp. 11–13, 37). Lands within this unit include approximately 5,536 ac (2,242 ha; 36 percent) in Federal ownership, 3,923 ac (1,589 ha; 26 percent) in State ownership, and 5,784 ac (2,342 ha; 38 percent) in private/other ownership. General land use within this unit includes rocket and drone launches and associated Space X space exploration development, and multiple recreational/beachside activities by humans, to include both pedestrian and vehicle activities. This unit is also managed for migratory bird use by the Lower Rio Grande Valley NWR.

Unit TX–11 is occupied by the species and contains one of more of the physical or biological features essential to the conservation of the species. This unit contains a high concentration of rufa red knots during the spring and fall migration periods, serving as an important northbound and southbound stopover site on the northern Gulf coast. This entire unit (15,243 ac (6,169 ha)) overlaps with designated critical habitat for the federally threatened piping plover (66 FR 36038, July 10, 2001).

Threats identified within Unit TX–11 include: (1) Disturbance of foraging and roosting rufa red knots and their habitat modification as a result of humans, including recreational activities, vehicle disturbance (*i.e.,* golf carts, cars, SUVs, motorcycles, etc.), fishing, waterfowl hunting, and boating; (2) disturbance and habitat modification/erosion resulting from wind energy development and sea level rise; (3)

predation (residential and migratory raptors); (4) habitat modification resulting from space exploration development; (5) and human-caused disasters and response to natural and human-caused disasters (*e.g.,* hurricanes, oil spills). Special management considerations or protection measures to reduce or alleviate the threats include conducting public outreach and education, managing access to rufa red knot foraging habitat and adjacent roosting habitat during migration (through restrictions on timing, locations, and types of activities), managing sediment sources to offset erosion and sea level rise, and addressing the impacts of potential oil spills or gas drilling activities through facility placement, as well as spill response plans and training (see Special Management Considerations or Protection, above). Federal lands are managed in accordance with the 1999 (reprinted) Lower Rio Grande Valley NWR land protection plan (Service 1993, entire). The Texas General Land Office State lands are managed under The Open Beaches Act, Texas Natural Resource Code Chapter 61 and The Dune Protection Act, Texas Natural Resource Code Chapter 63.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

We published a final regulation with a revised definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized or carried out by a Federal agency—do not require section 7 consultation.

Compliance with the requirements of section 7(a)(2) is documented through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define ''reasonable and prudent alternatives'' (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Service Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 set forth requirements for Federal agencies to reinitiate formal consultation on previously reviewed actions. These requirements apply when the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law) and, subsequent to the previous consultation, we have listed a new species or designated critical habitat that may be affected by the Federal action, or the action has been modified in a manner that affects the species or critical habitat in a way not considered in the previous consultation. In such situations, Federal agencies sometimes may need to request reinitiation of consultation with us, but the regulations also specify some exceptions to the requirement to reinitiate consultation on specific land management plans after subsequently listing a new species or designating new critical habitat. See the regulations for a description of those exceptions.

Application of the ''Adverse Modification'' Standard

The key factor related to the destruction or adverse modification determination is whether implementation of the proposed Federal action directly or indirectly alters the designated critical habitat in a way that appreciably diminishes the value of the critical habitat as a whole for the conservation of the listed species. As discussed above, the role of critical habitat is to support physical or biological features essential to the conservation of a listed species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may violate section 7(a)(2) of the Act by destroying or adversely modifying such habitat, or that may be affected by such designation.

Activities that the Service may, during a consultation under section 7(a)(2) of the Act, find are likely to destroy or adversely modify rufa red knot critical habitat include, but are not limited to:

(1) Actions that would significantly alter the configuration, topography, or substrate of roosting (*i.e.,* sheltering) or foraging habitats. Such activities could include, but are not limited to, construction of developments and associated infrastructure, including roadways, commercial and residential development, hard stabilization structures, electrical transmission lines from offshore wind turbines, and oil and gas well pads; removal, placement, or redistribution of sediments such as beach nourishment, backpassing (*i.e.,*

mechanical reversal of natural sediment migration usually by trucks or hydraulic pipelines), dredging of shoals or sand bars, and dredged material disposition; planting or promoting dense, woody, or nonnative vegetation; and mechanical beach raking. These activities may destroy or degrade beach and intertidal habitats.

(2) Actions that would significantly alter the availability of prey items. Such activities could include, but are not limited to, deposition of sediment in intertidal areas; substantial levels of ORV traffic or use of heavy equipment in intertidal areas; commercial or illegal harvest of prey species; harvest of other marine or intertidal species that may impact prey species; covering of foraging habitats with permanent or temporary structures (*e.g.,* aquaculture gear); introductions of nonnative marine species; and removal, crushing, or burial of Sargassum or other types of wrack (*e.g.,* mechanical beach raking) at times when rufa red knots are present. Deposition of dredged material buries invertebrate prey species, altering their abundance, distribution, or composition. Off-road vehicles have been shown to decrease densities of invertebrates on intertidal flats. Harvest activities directly remove prey, or can indirectly impact prey populations by altering community composition. Sargassum and other wrack contain mussel spat and other invertebrates consumed by rufa red knots; thus, beach raking that removes wrack eliminates an important microhabitat for foraging. Foraging flats covered by structures are inaccessible to rufa red knots.

(3) Actions that would inhibit the natural ability of beaches and intertidal flats to adapt to sea level rise. Such activities could include, but are not limited to, construction of seawalls, bulkheads, revetments, jetties, groins, and artificial dunes with rock or clay cores or stabilized with sand/snow fencing or densely planted vegetation. Such structures prevent the natural migration of barrier beach and intertidal habitats, increasing the rate and aerial extent of inundation and corresponding loss of rufa red knot habitats.

Under section 7(a)(2) of the Act, project timing often plays an important role in the Service's jeopardy analysis, but typically plays little to no role in the Service's analysis of adverse modification of critical habitat. As part of the jeopardy analysis, the Service must consider likely effects both to the habitat and to the species directly (*e.g.,* risk of accidental death or injury of individuals, or incidental disturbance or displacement of individuals, from project activities). To avoid or minimize adverse effects to individuals, the Service often makes project timing recommendations in advance of the jeopardy analysis (*e.g.,* to avoid those times of year when the species is typically present in the action area). In contrast, direct effects to individuals (*e.g.,* death, injury, displacement, disturbance) are *not* part of the adverse modification analysis, which is focused on whether implementation of the proposed Federal action directly or indirectly alters the designated critical habitat in a way that appreciably diminishes the value of the critical habitat as a whole for the conservation of the listed species. As such, project timing is rarely an important consideration in the adverse modification analysis. In very general terms, we expect proposed Federal activities to fall into three broad categories with regard to considerations around project timing:

(a) Permanent or long-lived habitat modifications (such as the categories of actions listed in (1) through (3), above, and depending on type, extent, and severity) are likely to result in destruction or adverse modification of critical habitat, regardless of what time of year they are carried out (*i.e.,* regardless of whether rufa red knots are present during implementation). An example might be a series of new sea walls.

(b) Activities that may disturb, displace, or risk injuring rufa red knots, but that do not involve habitat modification, would not result in destruction or adverse modification of critical habitat, regardless of what time of year they are carried out. However, in advance of our jeopardy analysis, the Service would likely offer timing or other recommendations to reduce adverse effects to the species and the risk of incidental take of individuals. An example might be use of low-flying aircraft.

(c) A short-lived habitat modification may (depending on type, extent, and severity) be able to avoid adverse modification by being terminated and fully reversed/restored well before the expected arrival date of migrant or wintering rufa red knots. These are the only circumstances in which we expect project timing to be an important consideration in the adverse modification analysis. In such cases, any Service-recommended timing restrictions offered to protect the conservation value of the critical habitat would also be expected to reduce adverse effects and the risk of incidental take from disturbance or displacement, which are important considerations in our jeopardy analysis. An example might be large-scale deployment of moveable aquaculture gear that precludes use of rufa red knot foraging habitat, but only while the gear is present (*i.e.,* foraging habitat is fully restored upon removal of the gear).

Exemptions

Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that: ''The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.''

We consult with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the proposed critical habitat designation for the rufa

red knot to determine if they meet the criteria for exemption from critical habitat under section 4(a)(3) of the Act. The following areas are Department of Defense (DoD) lands with completed, Service-approved INRMPs within the proposed critical habitat designation.

Approved INRMPs

Eglin Air Force Base (Cape San Blas), Gulf County, FL, 79 ac (32 ha)

Eglin Air Force Base is the largest forested military reservation in the United States. It supports a multitude of military testing and training operations, as well as many diverse species and habitats. Eglin's missions include the 7th Special Forces Group (Airborne), Amphibious Ready Group/Marine Expeditionary Unit, Stand-off Precision Guided Missile, and Massive Ordnance Air Blast.

Eglin Air Force Base, also known as the Eglin Military Complex, is located in Santa Rosa, Okaloosa, Walton, and Gulf Counties in Northwest Florida and the Gulf, and occupies 464,000 ac (261,428 ha). The Eglin Military Complex includes the mainland Reservation located in Santa Rosa, Okaloosa, and Walton Counties, as well as a small parcel (962 ac (389 ha)) on Cape San Blas in Gulf County, Florida. This parcel consists of approximately 3 mi (5 km) of spit shoreline along the Gulf of Mexico. The spit is separated from the mainland by St. Joseph Bay. The boundaries of Eglin's Cape San Blas parcel are from 29.67680 N 85.36351 W to 29.67608 N 85.33394 W. Eglin's Cape San Blas parcel also contains U.S. Federal Reserve property, but the entire parcel is under Eglin's management. The Cape San Blas parcel has 79 ac (32 ha) of Gulf beach; ephemeral pools, natural brackish ponds, or lagoons; and emergent sand shoals in the near shore used by wintering red knots.

The 2017–22 Eglin Air Force Base INRMP guides the management and conservation of natural resources under the installation's control. It provides interdisciplinary strategic guidance for the management of natural resources in support of the military mission within the land and water ranges of the Eglin Military Complex. The Eglin Air Force Base INRMP integrates and prioritizes wildlife, fire, and forest management activities to protect and effectively manage the Complex's aquatic and terrestrial environments and ensure ''no net loss'' in the operational capability of these resources to support Eglin test and training missions.

The 2017–22 INRMP and the more detailed Threatened and Endangered Species Component Plan Update (DoD 2017) explains natural resources program management, including a specific section that details management for threatened and endangered species, including conservation actions for the rufa red knot and its habitat, which are similar to those for piping plover that is also present during similar time periods (Eglin Air Force Base 2017, Section 7.4). The INRMP identifies the need to develop and implement programs to protect and conserve federally listed endangered and threatened plants and wildlife and candidate species, including the red knot. The Update (DoD 2017, Section 8.1) identifies the following management and protective measures to achieve this goal:

(1) Maintain suitable habitat for the species via posting;

(2) Annually survey and maintain public access control measures on Cape San Blas to protect red knots and ensure the long-term sustainability of Eglin's barrier island ecosystem for mission use;

(3) Conduct predator control as necessary;

(4) Install daytime visual markers on guy wires associated with new towers being built at Cape San Blas to reduce collisions by birds;

(5) Minimize construction activities during the federally threatened piping plover season, which also overlaps the majority of rufa red knot seasons;

(6) In partnership with Gulf County, continue to address concerns associated with beach driving associated with recreational beach use at Cape San Blas;

(7) Conduct weekly shorebird surveys to track presence of shorebird species as well as population trends;

(8) Ensure that all beach and dune habitats impaired by mission activities are appropriately restored and maintained with concurrence from the Service;

(9) Ensure that Eglin personnel drive seaward of the wrack and debris line or just above it during high tide conditions; and

(10) Prohibit beach raking on Eglin property, so the wrack line remains intact as a foraging substrate.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the Eglin Air Force Base INRMP and that conservation efforts identified in the INRMP will provide a benefit to the rufa red knot. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3) of the Act. We are not including 79 ac (32 ha) of habitat in this proposed critical habitat designation because of this exemption.

Tyndall Air Force Base (Shell Island, Crooked Island West, Crooked Island East), Bay County, FL, 3,258 ac (1,318 ha)

Tyndall Air Force Base is located on 30,000 ac (12,141 ha) in southeastern Bay County, approximately 13 mi (20 km) east of Panama City, Florida. The installation includes forested areas and beaches that provide a sea-to-land transition area that is vital for military operations to include ground-training and airspace activities that are also shared with other Air Force bases and DoD branches. Tyndall's missions include the 325th Fighter Wing, 325th Operations Group, 325th Maintenance Group, 325th Mission Support Group, and other Major Associate Tenants to include the 53rd Weapons Evaluation Group, Air Force Civil Engineer Center, Airbase Technologies Division, and Detachment 1, 823rd Rapid Engineer Deployable Heavy Operational Repair Squadron Engineers.

Similar to the Eglin Air Force Base INRMP, the 2020 Tyndall Air Force Base INRMP guides the management and conservation of natural resources under the installation's control. It provides interdisciplinary strategic guidance for the management of natural resources in support of the military mission within the land and water ranges of the Installation. The Tyndall Air Force Base INRMP integrates and prioritizes wildlife, wildland fire, forest management, and coastal zone and marine resources management activities to protect and effectively manage the Air Force Base's aquatic and terrestrial environments and ensure ''no net loss'' in the operational capability of these resources to support the Air Force's training missions.

The 2020 INRMP has a chapter for natural resources program management, including a specific section (Threatened and Endangered Species Component Plan) that details management for threatened and endangered species and conservation actions for the rufa red knot and its habitat (DoD 2020, Section 15, Tab 3). The INRMP identifies the need to develop and implement programs to protect and conserve federally listed endangered and threatened plants and wildlife and candidate species, including the red knot.

Tyndall Air Force Base is a base combined of developed and natural areas located on a peninsula that is bisected by U.S. Highway 98. The base is approximately 18 mi (29 km) long and 3 mi (4.8 km) wide, and is surrounded by East Bay, St. Andrew Bay, and the Gulf of Mexico to the north, west, and

south, respectively. Crooked Island West, Crooked Island East, and a portion of Shell Island, which form St. Andrew Sound, are barrier spits on the Gulf and are occupied almost year around by rufa red knots. These barrier island spits include various stages of coastal dune formations, forests, overwash areas, ephemeral pools, natural brackish ponds, or lagoons; emergent sand shoals in the near shore are used by rufa red knots almost year round, but mostly during spring migrations.

We identified two areas on Tyndall Air Force Base that meet the criteria identified as essential to the conservation of the species:

(1) Crooked Island East is approximately 1,001 ac (405 ha) and includes approximately 6 mi (9.7 km) of shoreline beach.

(2) Crooked Island West and Shell Island include approximately 2,257 ac (913 ha) of shoreline beaches that are approximately 12 mi (19.3 km) in length on the base (from the western boundary with St. Andrews State Park east to the eastern end of the island).

The draft ''Threatened and Endangered Species Component Plan'' portion of the INRMP (a.k.a. T&E Plan) (Tyndall Air Force Base 2020, Section 15, Tab 3) identifies the following management and protective measures to achieve conservation goals for rufa red knot:

(1) Maintain suitable habitat for foraging, sheltering, and roosting;

(2) Support predator control efforts;

(3) Enforce beach driving restrictions;

(4) Construct and maintain boardwalks to guide recreation locations;

(5) Support the State of Florida designation of these three island locations as Critical Wildlife Areas. Areas within the Critical Wildlife Areas may be posted and closed to access for the protection of birds either seasonally or year around;

(6) Continue prohibiting pets on Tyndall Air Force Base beaches at all times; and

(7) Continue to support Audubon and Florida Fish and Wildlife Conservation Commission' efforts to collect regular survey data on the species.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the Tyndall Air Force Base INRMP and that conservation efforts identified in the INRMP will provide a benefit to the rufa red knot. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3) of the Act. We are not including 3,258 ac (1,318 ha) of habitat in this proposed critical habitat designation because of this exemption.

Consideration of Impacts Under Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making the determination to exclude a particular area, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

The first sentence in section 4(b)(2) of the Act requires that we take into consideration the economic, national security, or other relevant impacts of designating any particular area as critical habitat. We describe below the process that we undertook for taking into consideration each category of impacts and our analyses of the relevant impacts.

Consideration of Economic Impacts

Section 4(b)(2) of the Act and its implementing regulations require that we consider the economic impact that may result from a designation of critical habitat. To assess the probable economic impacts of a designation, we must first evaluate specific land uses or activities and projects that may occur in the area of the critical habitat. We then must evaluate the impacts that a specific critical habitat designation may have on restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the areas proposed. We then identify which conservation efforts may be the result of the species being listed under the Act versus those attributed solely to the designation of critical habitat for this particular species. The probable economic impact of a proposed critical habitat designation is analyzed by comparing scenarios both ''with critical habitat'' and ''without critical habitat.''

The ''without critical habitat'' scenario represents the baseline for the analysis, which includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (*e.g.,* under the Federal listing as well as other Federal, State, and local regulations). The baseline, therefore, represents the costs of all efforts attributable to the listing of the species under the Act (*i.e.,* conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The ''with critical habitat'' scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts would not be expected without the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat, above and beyond the baseline costs. These are the costs we use when evaluating the benefits of inclusion and exclusion of particular areas from the final designation of critical habitat should we choose to conduct a discretionary 4(b)(2) exclusion analysis.

For this particular designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from this proposed designation of critical habitat. The information contained in our IEM was then used to develop a screening analysis of the probable effects of the designation of critical habitat for the rufa red knot (Industrial Economics, Incorporated (IEc) 2021). We began by conducting a screening analysis of the proposed designation of critical habitat in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening analysis is to filter out particular geographic areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. In particular, the screening analysis considers baseline costs (*i.e.,* absent critical habitat designation) and includes probable economic impacts where land and water use may be subject to conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the species. Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. The screening analysis also assesses whether units are unoccupied by the species and thus may

require additional management or conservation efforts as a result of the critical habitat designation for the species; these additional efforts may incur incremental economic impacts. This screening analysis combined with the information contained in our IEM are what we consider our draft economic analysis (DEA) of the proposed critical habitat designation for the rufa red knot; our DEA is summarized in the narrative below.

Executive Orders (E.O.s) 12866 and 13563 direct Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess to the extent practicable the probable impacts to both directly and indirectly affected entities. As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat designation. In our evaluation of the probable incremental economic impacts that may result from the proposed designation of critical habitat for the rufa red knot, first we identified, in the IEM dated December 11, 2020, probable incremental economic impacts associated with the following categories of activities (*i.e.,* Federal agencies and projects that would likely go through the section 7 consultation process whether or not critical habitat is designated):

- *Animal and Plant Health Inspection Service:* Control and management of invasive, harmful, or overabundant species; predator control to benefit target ecosystems or species.
- *Department of Defense:* Operation, maintenance, and upgrades of military property and infrastructure, including training and testing.
- *Federal Emergency Management Agency:* Alternations to both habitats and developments to increase coastal resiliency and/or to facilitate recovery of human communities following disasters or emergencies (such as coastal storms). Emergency consultation may also be conducted during or shortly after a disaster, for example to stage emergency response equipment in rufa red knot habitat, to transit through habitat as part of the emergency response, or retrieve orphaned vessels, containers, or other items from habitat.
- *Federal Energy Regulatory Commission:* Non-Federal activities that require Federal authorization, such as liquefied natural gas facilities and associated pipeline infrastructure.
- *Federal Highway Administration:* Transportation infrastructure maintenance and upgrades.
- *Federal Aviation Administration:* Operation, management, and upgrades of airports and air traffic control systems.
- *National Aeronautics and Space Administration:* Rocket and drone launches, drone and aircraft flights, recreational beach uses (*e.g.,* swimming, sunbathing, ORVs), beach renourishment and seawall repair, protected species management, facility maintenance and construction, and educational use.
- *National Park Service:* Infrastructure maintenance or upgrades, habitat or species management, research, and changes to visitor use policies or regulations.
- *U.S. Army Corps of Engineers:* Federally funded coastal engineering, such as beach nourishment, dredging, shoreline stabilization, and habitat restoration; non-Federal activities that require Federal permits, such as coastal engineering, coastal development (*e.g.,* residential, commercial, recreational infrastructure), transportation infrastructure (*e.g.,* docks, piers, ports, roads, rail lines), utility and energy infrastructure, habitat restoration, habitat and species management (*e.g.,* mosquito control), and aquaculture.
- *U.S. Coast Guard:* Response actions associated with cleanup of hazardous substances in the coastal and marine environments, and authorization of fireworks displays.
- *U.S. Fish and Wildlife Service, National Wildlife Refuges:* Land acquisition, infrastructure maintenance or upgrades, habitat or species management, research, and changes to visitor use policies or regulations.

We considered each industry or category individually. Additionally, we considered whether their activities have any Federal involvement. Critical habitat designation generally will not affect activities that do not have any Federal involvement; under the Act, designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies. If we list the species, in areas where the rufa red knot is present, Federal agencies would be required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. If, when we list the species, we also finalize this proposed critical habitat designation, consultations to avoid the destruction or adverse modification of critical habitat would be incorporated into the existing consultation process.

In our IEM, we attempted to clarify the distinction between the effects that will result from the species being listed and those attributable to the critical habitat designation (*i.e.,* difference between the jeopardy and adverse modification standards) for the rufa red knot's critical habitat. The following specific circumstances help to inform our evaluation: (1) The essential physical or biological features identified for critical habitat are the same features essential for the life requisites of the species, and (2) any actions that would result in sufficient harm or harassment to constitute jeopardy to the rufa red knot would also likely adversely affect the essential physical or biological features of critical habitat. The IEM outlines our rationale concerning this limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. This evaluation of the incremental effects has been used as the basis to evaluate the probable incremental economic impacts of this proposed designation of critical habitat.

The proposed critical habitat designation for the rufa red knot includes 120 proposed critical habitat units (18 of which are further subdivided into 46 subunits), totaling approximately 649,066 ac (262,667 ha), all of which were occupied by the rufa red knot at the time of listing, and are currently occupied. The incremental costs of designating critical habitat for the rufa red knot are likely to be limited to additional administrative effort to consider adverse modification in consultations for the species, which is based on factors such as the same types of project modifications for avoiding adverse modification compared to avoiding jeopardy in occupied habitat, or the presence of additional listed species with similar habitat needs or designated critical habitat. The incremental administrative burden resulting from the designation of critical habitat for the rufa red knot is not anticipated to reach $100 million in any given year based on the anticipated annual number of consultations and associated consultation costs, which are not expected to exceed $480,000 per year (2021 dollars). Because the designation is not expected to result in additional project modifications recommendations for the species, ancillary economic benefits are not expected.

We are soliciting data and comments from the public on the DEA discussed above, as well as all aspects of this

proposed rule and our required determinations. During the development of a final designation, we will consider the information presented in the DEA and any additional information on economic impacts received during the public comment period to determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 424.19. In particular, we may exclude an area from critical habitat if we determine that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the extinction of this species.

Consideration of National Security Impacts or Homeland Security Impacts

Section 4(a)(3)(B)(i) of the Act may not cover all DoD lands or areas that pose potential national-security concerns (*e.g.,* a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), national-security or homeland-security concerns are not a factor in the process of determining what areas meet the definition of ''critical habitat.'' Nevertheless, when designating critical habitat under section 4(b)(2), the Service must consider impacts on national security, including homeland security, on lands or areas not covered by section 4(a)(3)(B)(i). Accordingly, we will always consider for exclusion from the designation areas for which DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns.

We cannot, however, automatically exclude requested areas. When DoD, DHS, or another Federal agency requests exclusion from critical habitat on the basis of national-security or homeland-security impacts, it must provide a reasonably specific justification of an incremental impact on national security that would result from the designation of that specific area as critical habitat. That justification could include demonstration of probable impacts, such as impacts to ongoing border-security patrols and surveillance activities, or a delay in training or facility construction, as a result of compliance with section 7(a)(2) of the Act. If the agency requesting the exclusion does not provide us with a reasonably specific justification, we will contact the agency to recommend that it provide a specific justification or clarification of its concerns relative to the probable incremental impact that could result from the designation. If the agency provides a reasonably specific justification, we will defer to the expert judgment of DoD, DHS, or another Federal agency as to: (1) Whether activities on its lands or waters, or its activities on other lands or waters, have national-security or homeland-security implications; (2) the importance of those implications; and (3) the degree to which the cited implications would be adversely affected in the absence of an exclusion. In that circumstance, in conducting a discretionary section 4(b)(2) exclusion analysis, we will give great weight to national-security and homeland-security concerns in analyzing the benefits of exclusion.

Under section 4(b)(2) of the Act, we consider whether there are lands where a national security impact might exist. In preparing this proposal, we have determined that some lands within the proposed designation of critical habitat for the rufa red knot are owned or managed by the DoD. We already discussed two areas (Eglin Air Force Base and Tyndall Air Force Base) with approved INRMPs under Application of Section 4(a)(3) of the Act, above. In addition, NASA has expressed concern that the designation of critical habitat on the Wallops Flight Facility would have implications for national security, as summarized below.

Goddard Space Flight Center's Wallops Flight Facility (Wallops Island), Accomack County, Virginia (571 ac (231 ha))

NASA owns and operates the Goddard Space Flight Center's Wallops Flight Facility, located on Wallops Island in Accomack County, Virginia. This area on Wallops Island includes both Subunits VA–2A and VA–2B (*i.e.,* 540 ac (218 ha) within Subunit VA–2A and 31 ac (13 ha) within Subunit VA–2B), totaling 571 ac (231 ha).

The Wallops Flight Facility is the oldest active launch range in the continental United States, and its mission currently includes support of scientific research and emerging technologies, and employing measures (consistent with the inherent right of self-defense) to deter others from interference and attack, defend our space systems, and contribute to the defense of allied space systems . . .'' (NASA 2020a, p. 2). Additionally the facility shares its government-owned infrastructure with other Federal agencies, mostly from DoD, to facilitate critical activities including target, missile, test article, and spacecraft launches; manned and unmanned aircraft development and pilot training; launch systems testing (*e.g.,* communications, telemetry, guidance); rocket launches ranging from small sounding and suborbital rockets to small- and medium-classed expendable launch vehicles; launching resupply missions to the International Space Station; and science payloads that could support disaster readiness or surveillance (NASA 2020a, pp. 2–3). A significant partner with facilities in Wallops Island is the U.S. Navy Surface Combat Systems Center, whose core mission is developing and certifying the Ship Self Defense System and Aegis Combat System. Additionally, the facility supports national security interests by providing essential launch services to the Virginia Commercial Space Flight Authority's launch facility, enabling NASA to achieve the national security requirements and the findings of Congress specified in Public Law 111–314 (NASA 2020a, pp. 2–4).

Wallops Island provides varied habitat types that support multiple protected species, including the federally threatened rufa red knot. Monitoring and management of protected areas during sensitive seasonal periods (*e.g.,* implementing predator control, ensuring sensitives species are not disturbed by pedestrians and vehicles) is an ongoing action by staff/employees (NASA 2020a, pp. 21–22). NASA also intends to abide by all Terms and Conditions, as well as Monitoring and Reporting Requirements, stipulated in the Service's June 7, 2019, Wallops Flight Facility Update and Consolidation of Existing Biological Opinions (Project # 2015–F–3317; Service 2019, entire).

NASA has requested exclusion from the rufa red knot final critical habitat designation based on national security impacts that would hamper the nation's ability to foster ongoing partnerships with other nations through International Space Station resupply, reduce the success of ensuring orbital launch successes, and potentially adversely impact Fleet deployment. Therefore, we are considering to exclude 571 ac (231 ha) of NASA-owned lands at Wallops Flight Facility from this critical habitat designation under section 4(b)(2) of the Act.

During the development of the final designation, we will consider any information currently available or received during the public comment period regarding the national security impacts of the proposed designation, and will determine whether any specific areas, including the Wallops Flight Facility, should be excluded from the final critical habitat designation under

authority of section 4(b)(2) and our implementing regulations at 50 CFR 424.19.

Consideration of Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security discussed above. We consider a number of factors including whether there are permitted conservation plans covering the species in the area such as HCPs, safe harbor agreements, or candidate conservation agreements with assurances, or whether there are non-permitted conservation agreements and partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at the existence of Tribal conservation plans and partnerships and consider the government-to-government relationship of the United States with Tribal entities. We also consider any social impacts that might occur because of the designation.

In preparing this proposal, we have determined that there are currently no HCPs or other management plans specifically for the rufa red knot or its habitat that would be encouraged by the exclusion from a critical habitat designation, and the proposed designation does not include any Tribal lands or trust resources. We anticipate no impact on Tribal lands, partnerships, or HCPs from this proposed critical habitat designation.

During the development of a final designation, we will consider any information currently available or received during the public comment period regarding the economic, national security, or other relevant impacts of the proposed designation and will determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 424.19.

Required Determinations

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

Regulatory Planning and Review (Executive Orders 12866 and 13563)

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget will review all significant rules. OIRA has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this proposed rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (*i.e.,* small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine whether potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

Under the RFA, as amended, and as understood in the light of recent court decisions, Federal agencies are required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself; in other words, the RFA does not require agencies to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies would be directly regulated if we adopt the proposed critical habitat designation. There is no requirement under the RFA to evaluate the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities would be directly regulated by this rulemaking, the Service certifies that, if made final as proposed, the proposed critical

habitat designation will not have a significant economic impact on a substantial number of small entities.

In summary, we have considered whether the proposed designation would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if made final, the proposed critical habitat designation will not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. In our draft economic analysis, we did not find that the designation of this proposed critical habitat would significantly affect energy supplies, distribution, or use. Oil/gas development and renewable energy/power generation activities have been known to occur within the range of the rufa red knot and its proposed critical habitat units/subunits (IEc 2021, Exhibit 5; Service 2020b, pp. 42–45); oil/gas development activities have primarily occurred in Georgia and Louisiana and to a lesser extent South Carolina and Texas, and renewable energy/power generation activities have occurred primarily in South Carolina, and to a lesser extent New Jersey, Louisiana, and Texas. These are activities that the Service consults on with Federal agencies or the U.S. Army Corps of Engineers under section 7 of the Act. As discussed in the DEA, the costs associated with consultations related to occupied critical habitat would be largely administrative in nature and are not anticipated to reach $100 million in any given year based on the anticipated annual number of consultations and associated consultation costs, which are not expected to exceed $480,000 per year (2021 dollars) (IEc, pp. 10, 18–19). Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following finding:

(1) This proposed rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or Tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and Tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or Tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because it is not anticipated to reach a Federal mandate of $100 million in any given year; that is, it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments. By definition, Federal agencies are not considered small entities, although the activities they fund or permit may be proposed or carried out by small entities. Consequently, we do not believe that the proposed critical habitat designation would significantly or uniquely affect small government entities. As such, a Small Government Agency Plan is not required.

Takings—Executive Order 12630

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the rufa red knot in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation. Designation of critical habitat does not affect land ownership, or establish any closures, or restrictions on use of or access to the designated areas. Furthermore, the designation of critical habitat does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed for the proposed designation of critical habitat for the rufa red knot, and it concludes that, if adopted, this designation of critical habitat does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with E.O. 13132 (Federalism), this proposed rule does not have significant federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we

requested information from, and coordinated development of this proposed critical habitat designation with, appropriate State resource agencies. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the proposed rule does not have substantial direct effects either on the States, or on the relationship between the national government and the States, or on the distribution of powers and responsibilities among the various levels of government. The proposed designation may have some benefit to these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical or biological features of the habitat necessary for the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist State and local governments in long-range planning because they no longer have to wait for case-by-case section 7 consultations to occur.

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) of the Act would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule would not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this proposed rule identifies the elements of physical or biological features essential to the conservation of the species. The proposed areas of designated critical habitat are presented on maps, and the proposed rule provides several options for the interested public to obtain more detailed location information, if desired.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain information collection requirements, and a submission to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*) is not required. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. We have determined that no Tribal lands fall within the boundaries of the proposed critical habitat for the rufa red knot (although we note that the Shinnecock Indian Nation likely has Tribal interests in natural and cultural resources within the Mississippi proposed units; we have and will continue to coordinate with them), so no Tribal lands would be affected by the proposed designation.

References Cited

A complete list of references cited in this proposed rule is available on the internet at *http://www.regulations.gov* and upon request from the New Jersey Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service's Species Assessment Team and the New Jersey Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

■ 2. In § 17.11(h), revise the entry for ''Knot, rufa red'' in the List of Endangered and Threatened Wildlife under BIRDS to read as set forth below:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
BIRDS				
*	*	*	*	*
Knot, rufa red	*Calidris canutus rufa*	Wherever found	T	79 FR 73705, 12/11/2014; 50 CFR 17.95(b) [CH].
*	*	*	*	*

■ 3. Amend § 17.95(b) by adding an entry for ''Rufa Red Knot (*Calidris canutus rufa*)'' in the same alphabetical order as the species appears in the table in § 17.11(h), to read as set forth below:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(b) *Birds.*

* * * * *

Rufa Red Knot (*Calidris Canutus Rufa*)

(1) Critical habitat units are depicted for Barnstable County, Massachusetts; Suffolk, Nassau, and Queens Counties, New York; Ocean, Atlantic, Cape May, and Cumberland Counties, New Jersey; Kent and Sussex Counties, Delaware; Accomack and Northampton Counties, Virginia; Dare, Hyde, Carteret, Onslow, Pender, New Hanover, and Brunswick Counties, North Carolina; Georgetown, Horry, Charleston, Colleton, Beaufort, and Jasper Counties, South Carolina; Chatham, Liberty, McIntosh, Glynn, and Camden Counties, Georgia; Nassau, Duval, Volusia, Brevard, Collier, Lee, Charlotte, Sarasota, Manatee, Pinellas, Pasco, Levy, Wakulla, Franklin, and Gulf Counties, Florida; Mobile County, Alabama; Harrison County, Mississippi; St. Bernard, Plaquemines, Jefferson, Lafourche, Terrebonne, Cameron, and Vermillion Parishes, Louisiana; and Galveston, Matagorda, Nueces, Kleberg, Kenedy, Willacy, and Cameron Counties, Texas, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of rufa red knot consist of the following components:

(i) *Beaches and tidal flats used for foraging.* This feature includes high-energy ocean- or bay-front barrier island or mainland beaches, as well as shorelines and tidal flats in more sheltered estuaries (*e.g.,* bays, sounds, lagoons). Foraging substrates can include sand, mud, peat, and sand embedded with shell, gravel, or cobble. Foraging areas are between mean lower low water (MLLW) and mean higher high water. Suitable foraging habitats provide abundant quantities of accessible and appropriately sized prey items (*e.g.,* mussels and mussel spat, clams, other mollusks, horseshoe crab eggs, crustaceans, polychaete worms), timed to occur in high densities during those seasons when rufa red knots are present. ''Superabundant'' prey densities, typically bivalves or horseshoe crab eggs, are needed in migration staging areas to support rapid weight gain following long-distance flights. Large areas capable of supporting concentrations of shorebirds are especially important.

(ii) *Upper beach areas used for roosting, preening, resting, or sheltering.* This feature includes unvegetated or sparsely vegetated sand between the high water line and the primary dune line. Generally these sites are open, with a large viewscape for predator avoidance. Many sites have micro-topographic relief offering refuge from high winds. Large areas capable of supporting concentrations of shorebirds—close to foraging areas, with limited predation pressure and protected from human disturbance—are especially important.

(iii) *Ephemeral and/or dynamic coastal features used for foraging or roosting.* This includes dynamic and ephemeral features such as sand spits, islets, shoals, and sandbars, features often associated with inlets. Other ephemeral features used by rufa red knots include tidal pools; wind-exposed bay bottoms or oyster reefs; and unvegetated overwash areas (*e.g.,* among or behind dunes, as formed by storms or extreme wave action).

(iv) *Ocean vegetation deposits or surf-cast wrack used for foraging and roosting.* This feature includes Sargassum (a species of macroalgae in oceans that inhabits shallow water and coral reefs), seagrass, or seaweed deposits with mussel spat attached, or surf-cast wrack that accumulates along beaches and supports or captures food items, such as horseshoe crab eggs. In some areas, rufa red knots may also roost atop wrack mounds.

(v) *Intertidal peat banks used for foraging and roosting.* In some areas, exposed intertidal peat banks (*e.g.,* along bay-front beaches and fronting tidal marshes) provide important foraging and roosting habitat.

(vi) *Features landward of the beach that support foraging or roosting.* In some areas, rufa red knots use sparsely vegetated habitats landward of the beach berm, such as unstabilized dunes, mangrove edges, brackish ponds, and patches of mostly bare ground (*e.g.,* blowouts, depressions, pannes) within salt marshes.

(vii) *Artificial habitat mimicking natural conditions or maintaining the physical or biological features set forth in paragraphs (2)(i) through (vi) of this entry.* Coastal engineering that interferes with natural coastal processes is generally considered a threat to the rufa red knot. However, in some cases, artificial habitats mimic the natural conditions described in the other physical or biological features described above. Such artificial habitats can include nourished beaches, dredged spoil deposition sites, elevated road causeways, jetties, or impoundments. Additionally, some anthropogenic structures may promote or maintain the natural physical or biological features. For example, in parts of Delaware Bay, rufa red knot habitat features are enhanced by living shorelines (*e.g.,* shell bag reefs), and in one case by a rock breakwater.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on [EFFECTIVE DATE OF RULE].

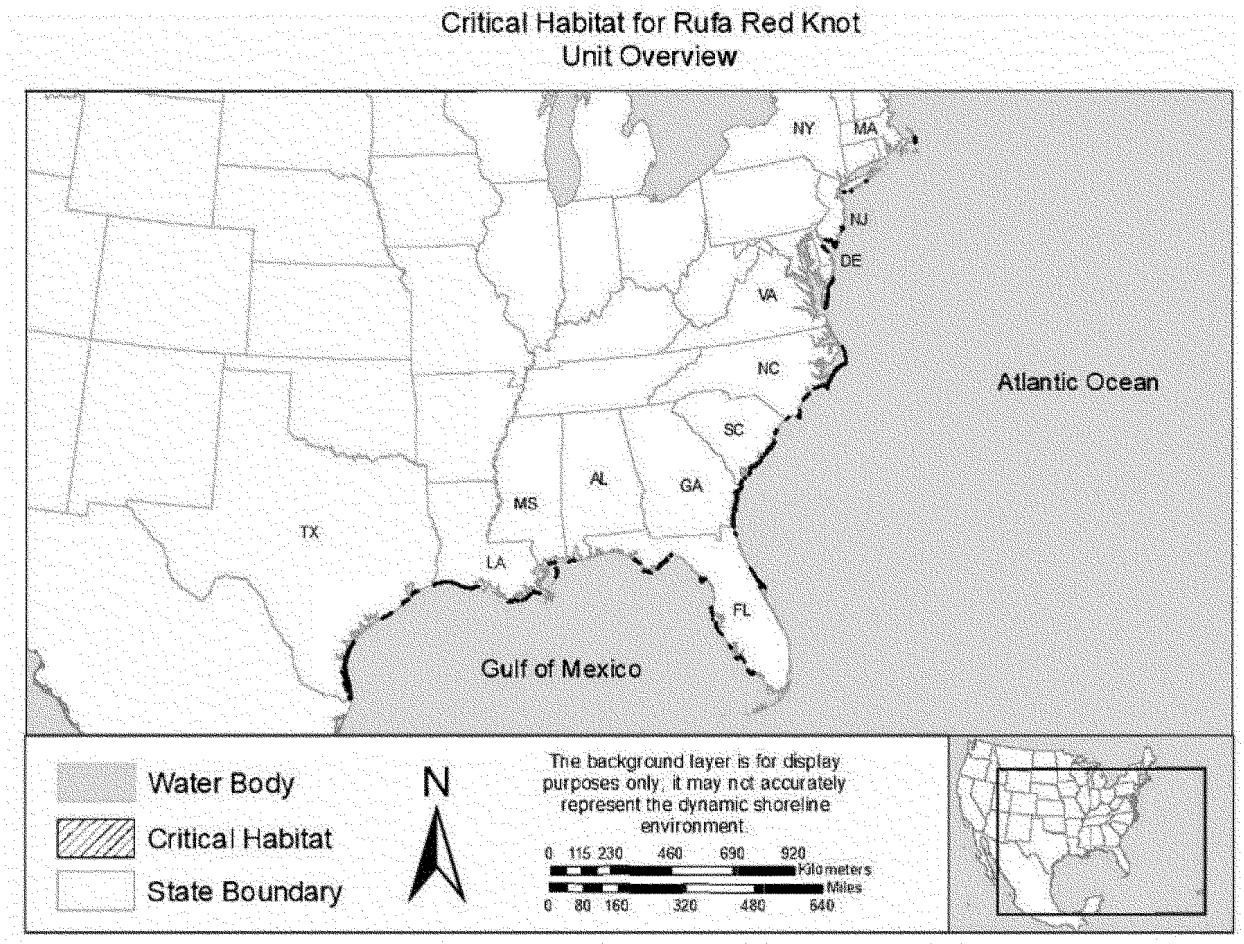
(4) Data layers defining map units were created using rufa red knot distribution data provided by eBird data and multiple local and regional sources as available (*e.g.,* reports, databases, and geolocator/resighting data maintained by State Fish and Wildlife Departments, universities, local governments, and nonprofit organizations across the range of the species). Landforms were primarily delineated based on the most current available aerial maps, but in some cases older maps dating as far back as 2010 were consulted to gauge patterns of coastal change over time.

The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's internet site at *https://fws.gov/northeast/red-knot/*, at *http://www.regulations.gov* under Docket No. FWS–R5–ES–2021–0032, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) *Note:* Index map follows:

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Figure 1 to Rufa Red Knot paragraph (5)

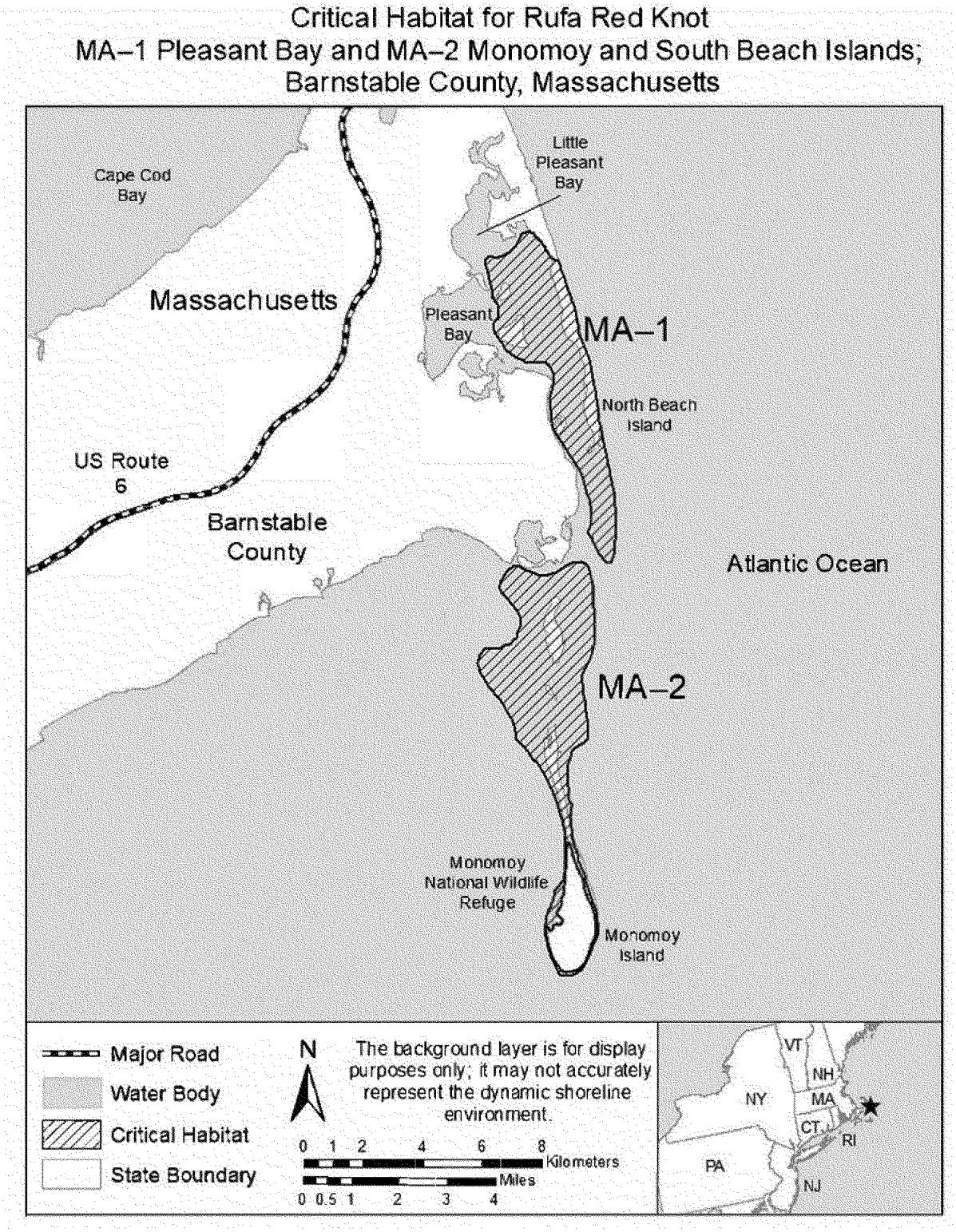


(6) Unit MA–1: Pleasant Bay, Massachusetts.

(i) Unit MA–1 consists of approximately 4,357 ac (1,763 ha) of occupied habitat in Barnstable County consisting of exposed intertidal flats, shoals, mud flats, and intertidal salt marsh pannes in Little Pleasant Bay and Pleasant Bay, and ephemeral tidal pools, primary sand dunes, and beaches associated with Nauset Beach South (Orleans), North Beach (Chatham), and North Beach Island (Chatham). Lands within this unit include approximately 126 ac (51 ha) in Federal ownership (including Cape Code National Seashore), 1,596 ac (646 ha) in private/other ownership, and 2,634 ac (1,066 ha) that are uncategorized.

(ii) Map of Unit MA–1 follows:

Figure 2 to Rufa Red Knot paragraph (6)(ii)



(7) Unit MA–2: Monomoy and South Beach Islands, Massachusetts.

(i) Unit MA–2 consists of approximately 5,093 ac (2,061 ha) of occupied habitat in Barnstable County consisting of exposed intertidal sand

and mud flats and shoals, ephemeral tidal pools, salt marsh, primary sand dunes, and beaches associated with North and South Monomoy Islands, Minomoy Island, and the South Beach Island complex. Lands within this unit include approximately 4,047 ac (1,638 ha) in Federal ownership (including Monomoy National Wildlife Refuge (NWR)) and 1,045 ac (423) in private/other ownership.

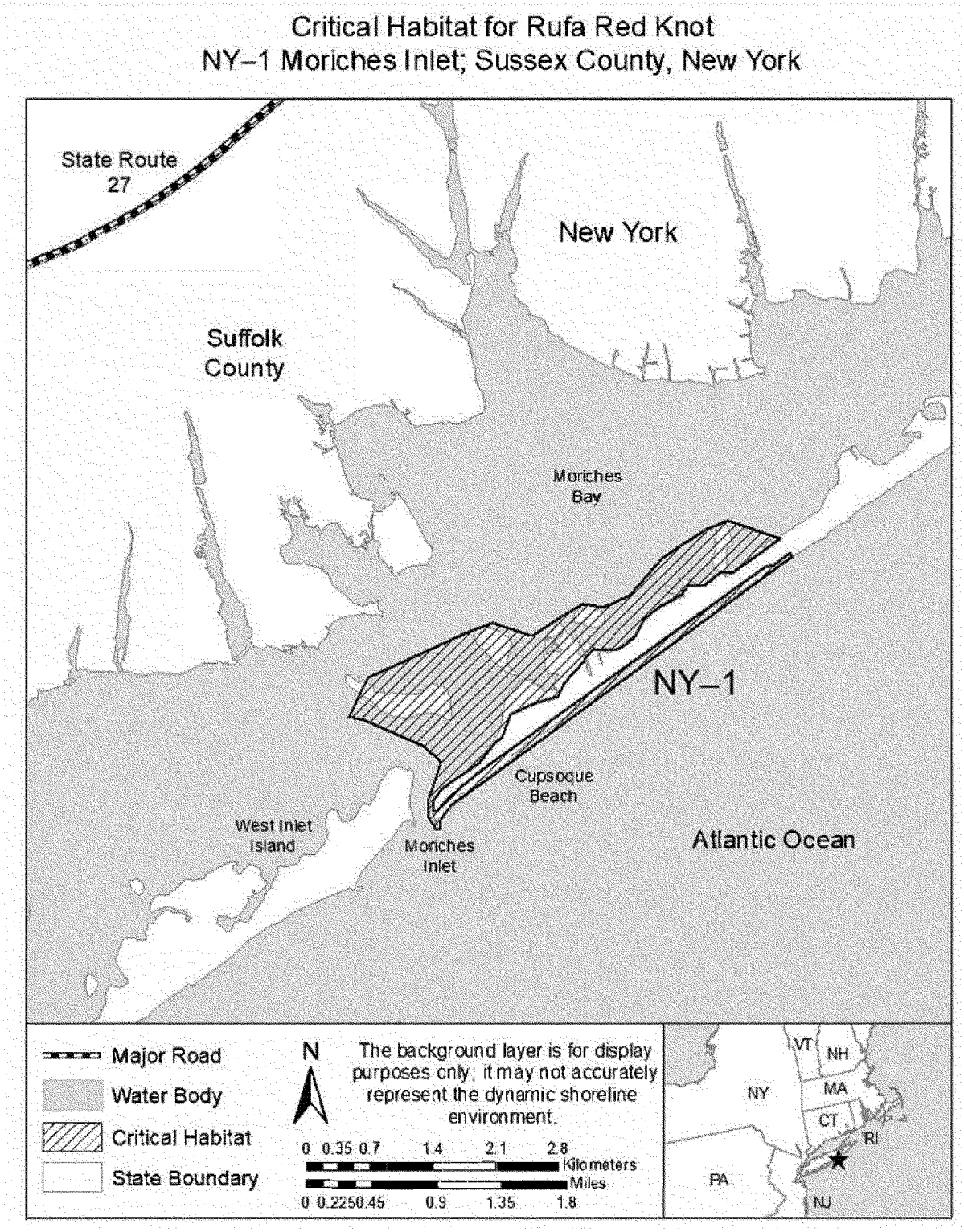
(ii) Map of Unit MA–2 is presented at paragraph (6)(ii) of this entry.

(8) Unit NY–1: Moriches Inlet, New York.

(i) Unit NY–1 consists of approximately 1,001 ac (405 ha) of occupied habitat in Suffolk County consisting of highly dynamic beach, sand flats, bay islands, back bay shoreline, intertidal areas, and surface water within the towns of Brookhaven and Southampton. Lands within this unit include approximately 78 ac (32 ha) in Federal ownership, 63 ac (25 ha) in State ownership, 163 ac (66 ha) in private/other (including the towns of Brookhaven and Southampton) ownership, and 697 ac (282 ha) that are uncategorized. This area includes the South Shore Estuary Reserve.

(ii) Map of Unit NY–1 follows:

Figure 3 to Rufa Red Knot paragraph (8)(ii)



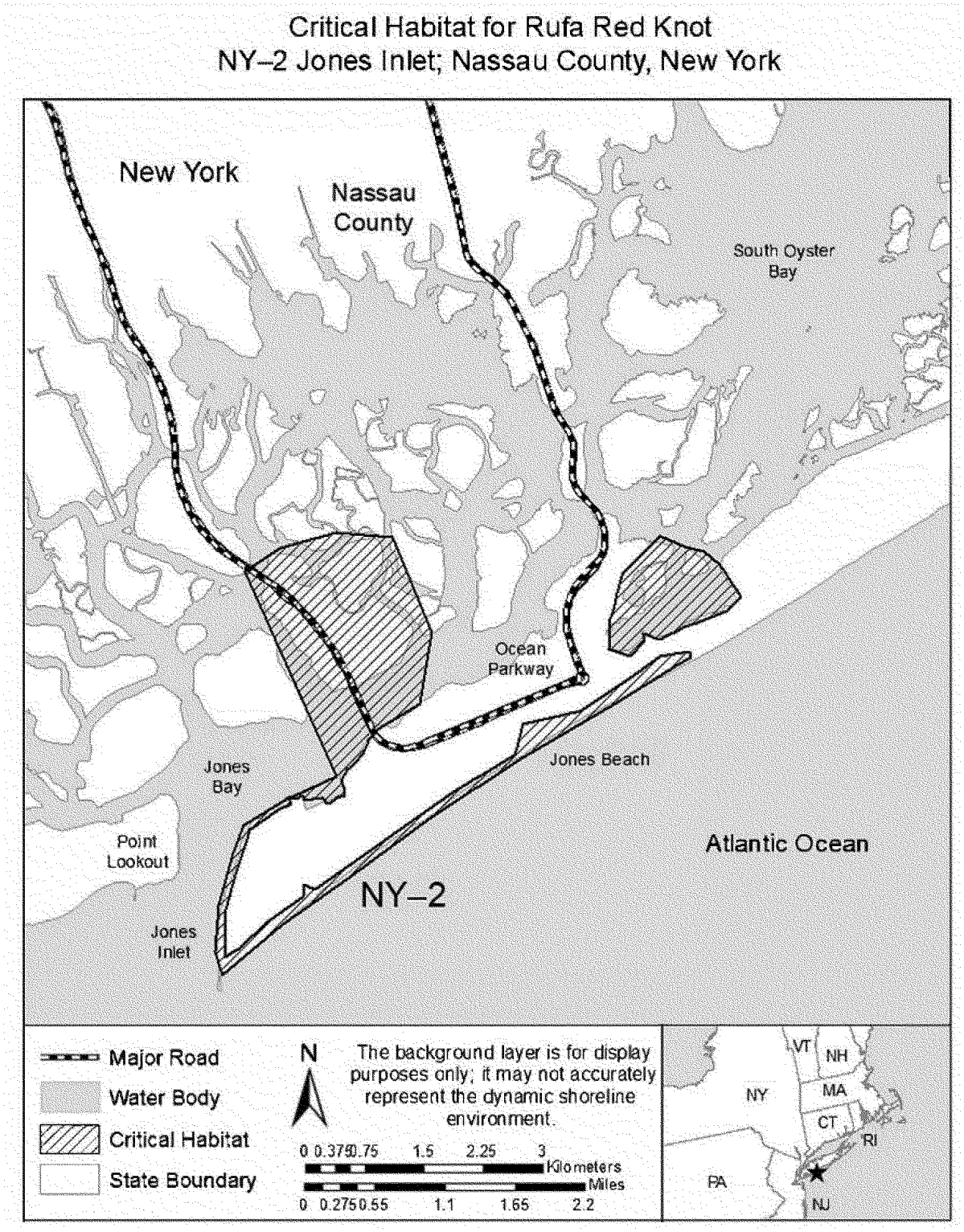
(9) Unit NY–2: Jones Inlet, New York.

(i) Unit NY–2 consists of approximately 1,821 ac (737 ha) of occupied habitat in Nassau County consisting of ocean beach habitat, sand

flats, bay islands, and small embayments. It is irregularly shaped and is bounded to the south by the Atlantic Ocean, to the west by Point Lookout, to the north by a line running in Hempstead Bay, and to the east at the eastern extent of Zachs Bay. Lands within this unit include approximately 710 ac (287 ha) in State ownership and 1,111 ac (450 ha) that are under private/other ownership. This area includes the South Shore Estuary Reserve.

(ii) Map of Unit NY–2 follows:

Figure 4 to Rufa Red Knot paragraph (9)(ii)



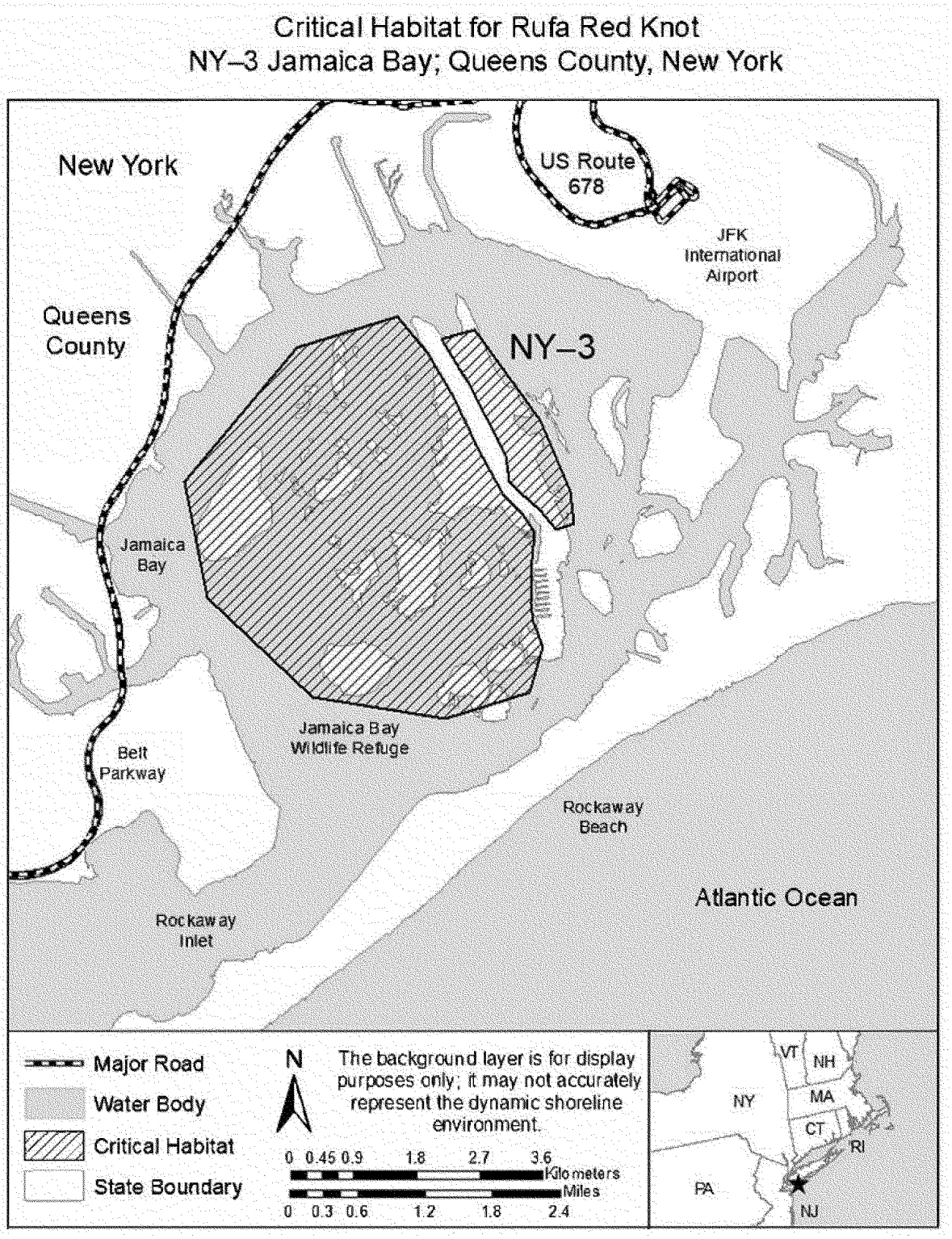
(10) Unit NY–3: Jamaica Bay, New York.

(i) Unit NY–3 consists of approximately 5,458 ac (2,209 ha) of occupied habitat in Queens County consisting of ocean beach habitat that is

primarily within the National Park Service's Jamaica Bay Wildlife Refuge, Gateway National Recreation Area, and all under Federal ownership.

(ii) Map of Unit NY–3 follows:

Figure 5 to Rufa Red Knot paragraph (10)(i)

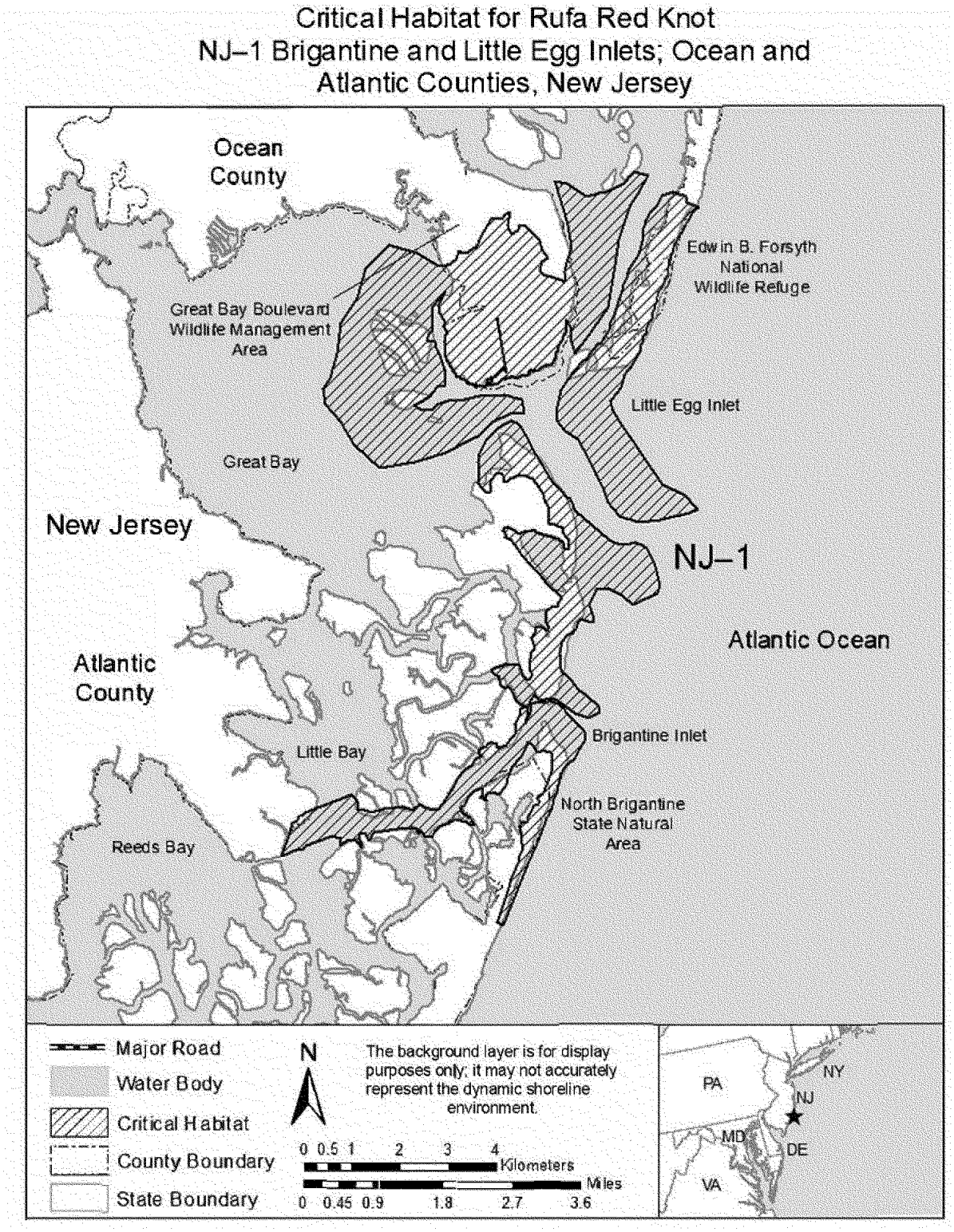


(11) Unit NJ–1: Brigantine and Little Egg Inlets, New Jersey.

(i) Unit NJ–1 consists of approximately 9,719 ac (3,933 ha) of occupied habitat in Ocean and Atlantic Counties consisting of beach, dune, shoals, open water, and tidal marsh associated with two inlets extending from the northern boundary of the Holgate Unit of Edwin B. Forsythe NWR, west to the ''Seven Islands'' portion of Great Bay Boulevard Wildlife Management Area, and south nearly to 15th Street North in Brigantine City. Lands within this unit include approximately 1,560 ac (632 ha) in Federal ownership (Forsythe NWR), 3,187 ac (1,291 ha) in State ownership (including the North Brigantine Natural Area), 10 ac (4 ha) in private/other ownership, and 4,961 ac (2,006 ha) that are uncategorized.

(ii) Map of Unit NJ–1 follows:

Figure 6 to Rufa Red Knot paragraph (11)(ii)



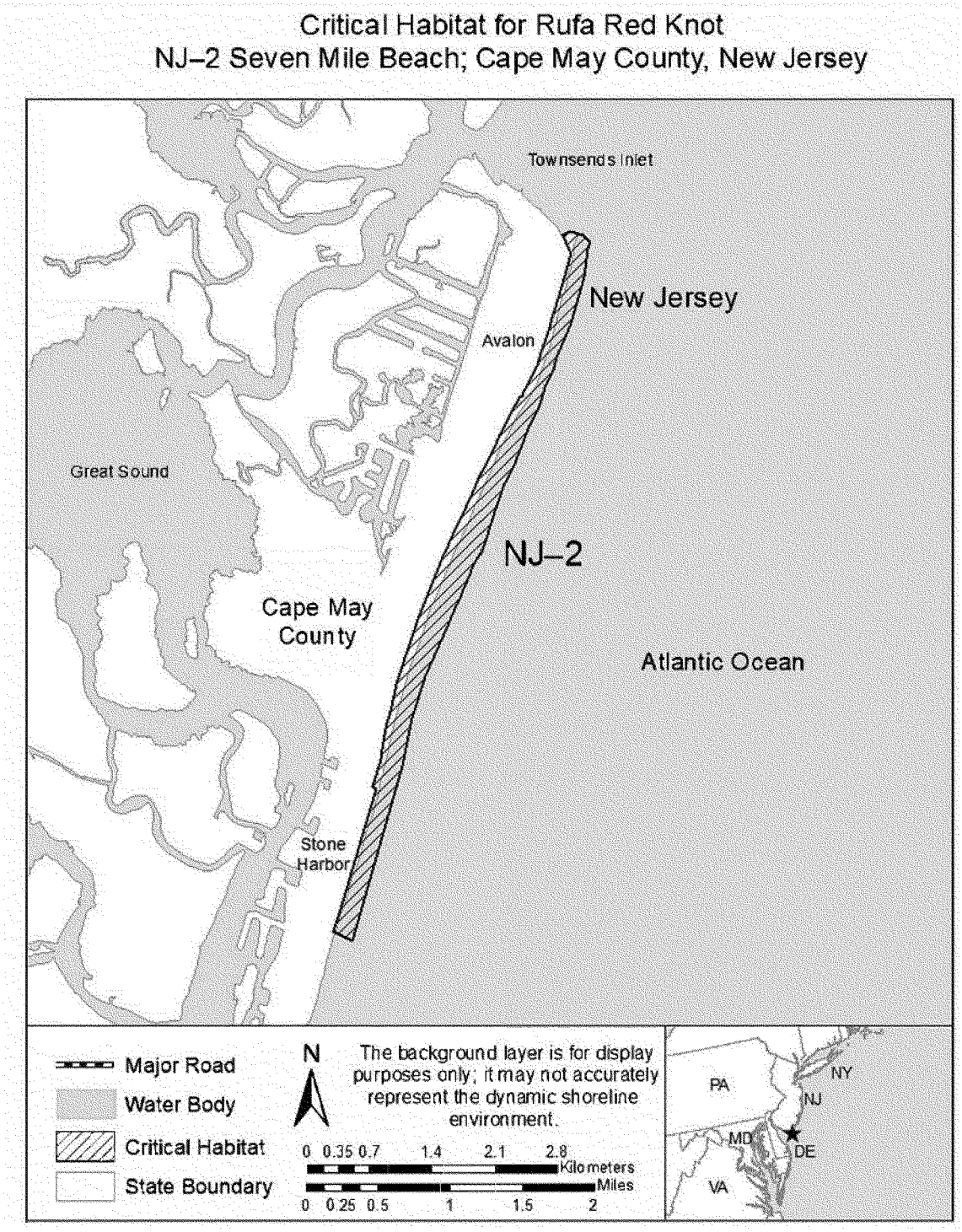
(12) Unit NJ–2: Seven Mile Beach, New Jersey.

(i) Unit NJ–2 consists of approximately 536 ac (217 ha) of occupied habitat in Cape May County consisting of sandy ocean-front beach in

Avalon and Stone Harbor Boroughs, from the jetty at 8th Street in Avalon near Townsends Inlet and extending south to 102nd Street in Stone Harbor. All lands within this unit are in private/other ownership.

(ii) Map of Unit NJ–2 follows:

Figure 7 to Rufa Red Knot paragraph (12)(ii)



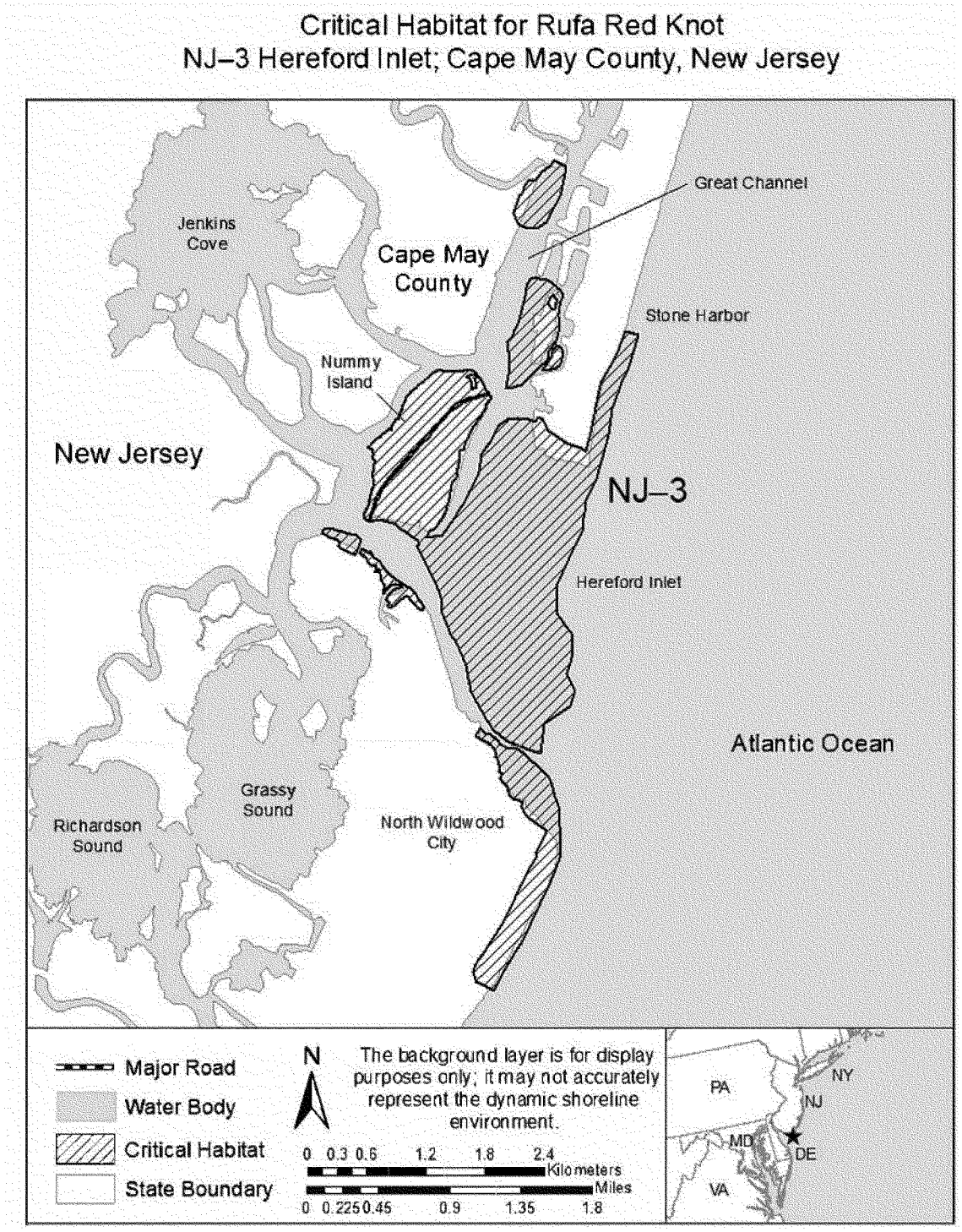
(13) Unit NJ–3: Hereford Inlet, New Jersey.

(i) Unit NJ–3 consists of approximately 1,631 ac (660 ha) of occupied habitat in Cape May County consisting of sandy oceanfront beaches, unstabilized barrier peninsula, undeveloped marsh islands, and several

areas of tidal flats and shoals extending along the ocean from 111th Street in Stone Harbor Borough south to 22nd Avenue in North Wildwood City. The unit also includes areas behind the barrier island in Middle Township, Stone Harbor, and North Wildwood extending from Stone Harbor Boulevard south along Great Channel to Nummy Island and the southern shoreline of Grassy Sound Channel. Lands within this unit include approximately 175 ac (71 ha) in State ownership (including the Cape May Coastal Wetlands Wildlife Management Area), 735 ac (297 ha) in private/other ownership, and 721 ac (292 ha) that are uncategorized.

(ii) Map of Unit NJ–3 follows:

Figure 8 to Rufa Red Knot paragraph (13)(ii)

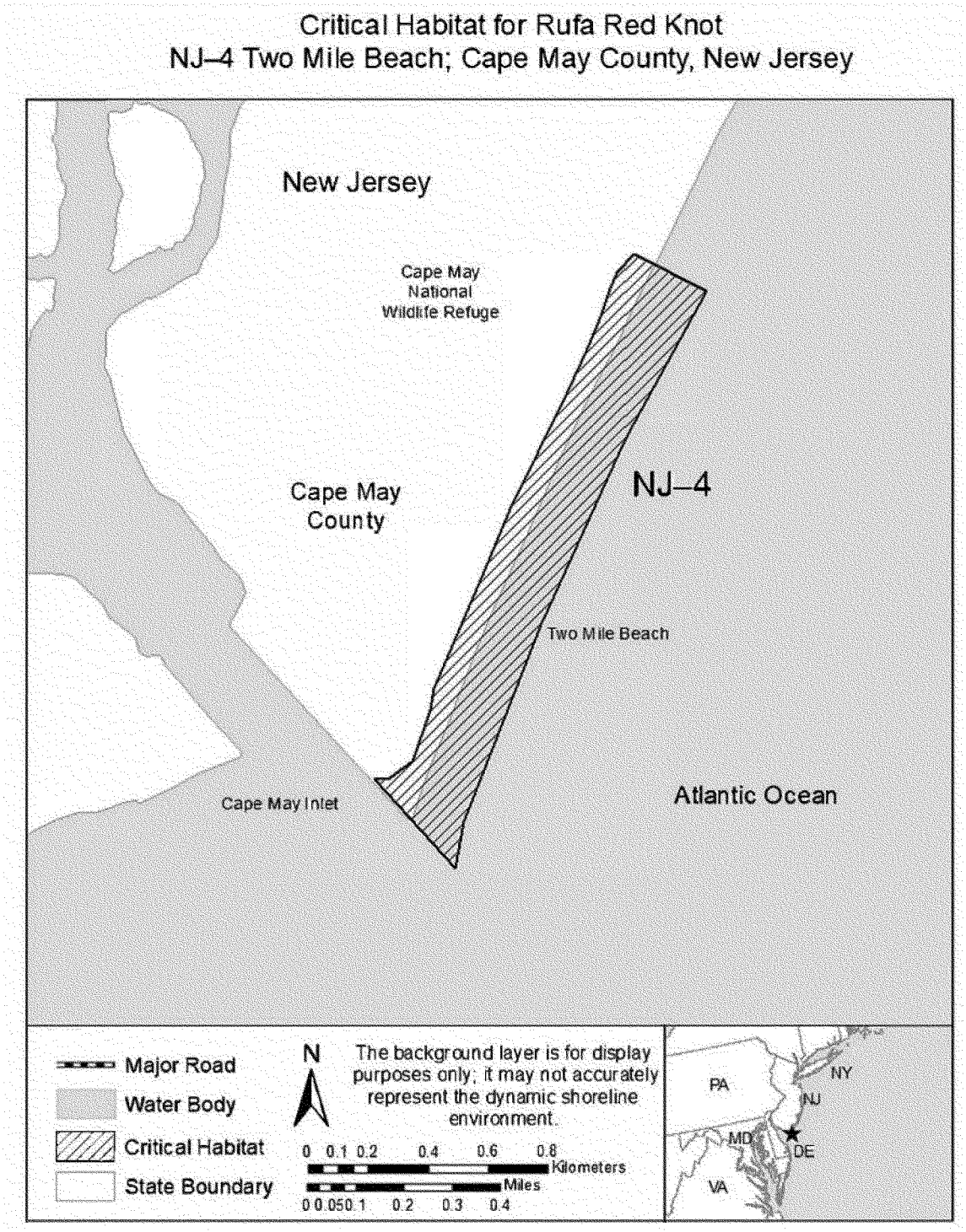


(14) Unit NJ–4: Two Mile Beach, New Jersey.

(i) Unit NJ–4 consists of approximately 128 ac (52 ha) of occupied habitat in Cape May County consisting of sandy oceanfront beach from the northeastern boundary of the Two Mile Beach Unit of Cape May NWR extending southwest to include all beach portions of the U.S. Coast Guard Loran Support Unit, ending at the eastern jetty of the Cape May Inlet. Lands within this unit are all under Federal ownership (Cape May NWR and U.S. Coast Guard).

(ii) Map of Unit NJ–4 follows:

Figure 9 to Rufa Red Knot paragraph (14)(ii)

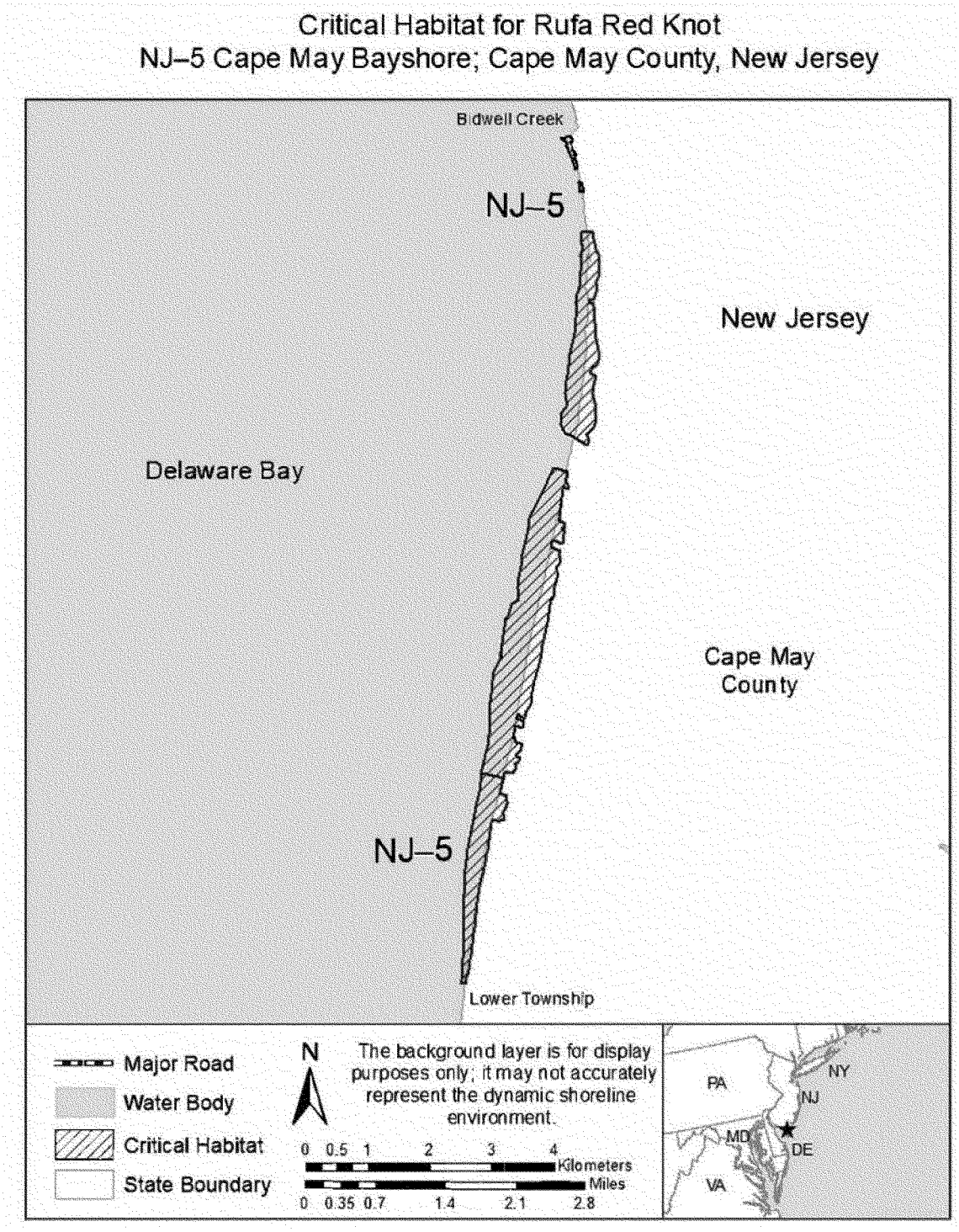


(15) Unit NJ–5: Cape May Bayshore, New Jersey.

(i) Unit NJ–5 consists of approximately 1,202 ac (487 ha) of occupied habitat in Cape May County consisting of Delaware Bay beaches, flats, and shoals from approximately Cloverdale Avenue in Lower Township to the jetty on the south shore of the mouth of Bidwell Creek in Middle Township. Lands within this unit include approximately 133 ac (54 ha) in Federal ownership (Cape May NWR), 44 ac (18 ha) in State ownership, 167 ac (67 ha) in private/other ownership, and 858 ac (347 ha) that are uncategorized.

(ii) Map of Unit NJ–5 follows:

Figure 10 to Rufa Red Knot paragraph (15)(ii)

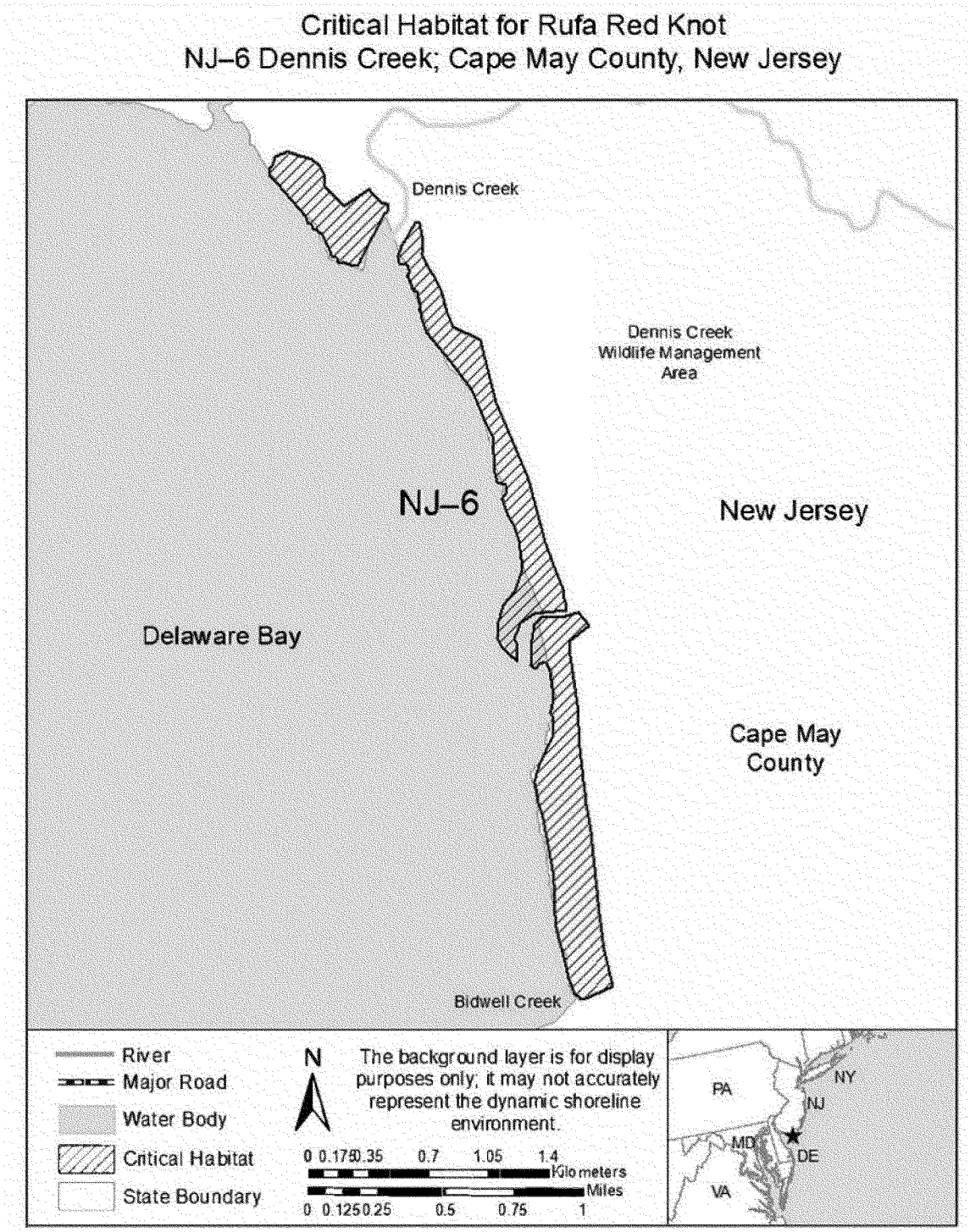


(16) Unit NJ–6: Dennis Creek, New Jersey.

(i) Unit NJ–6 consists of approximately 279 ac (113 ha) of occupied habitat in Cape May County consisting of Delaware Bay beaches, flats, and shoals from the northern shore of Bidwell Creek north to about 0.5 mi (0.8 km) north of Dennis Creek. Lands within this unit are all in State ownership (Dennis Creek Wildlife Management Area).

(ii) Map of Unit NJ–6 follows:

Figure 11 to Rufa Red Knot paragraph (16)(ii)

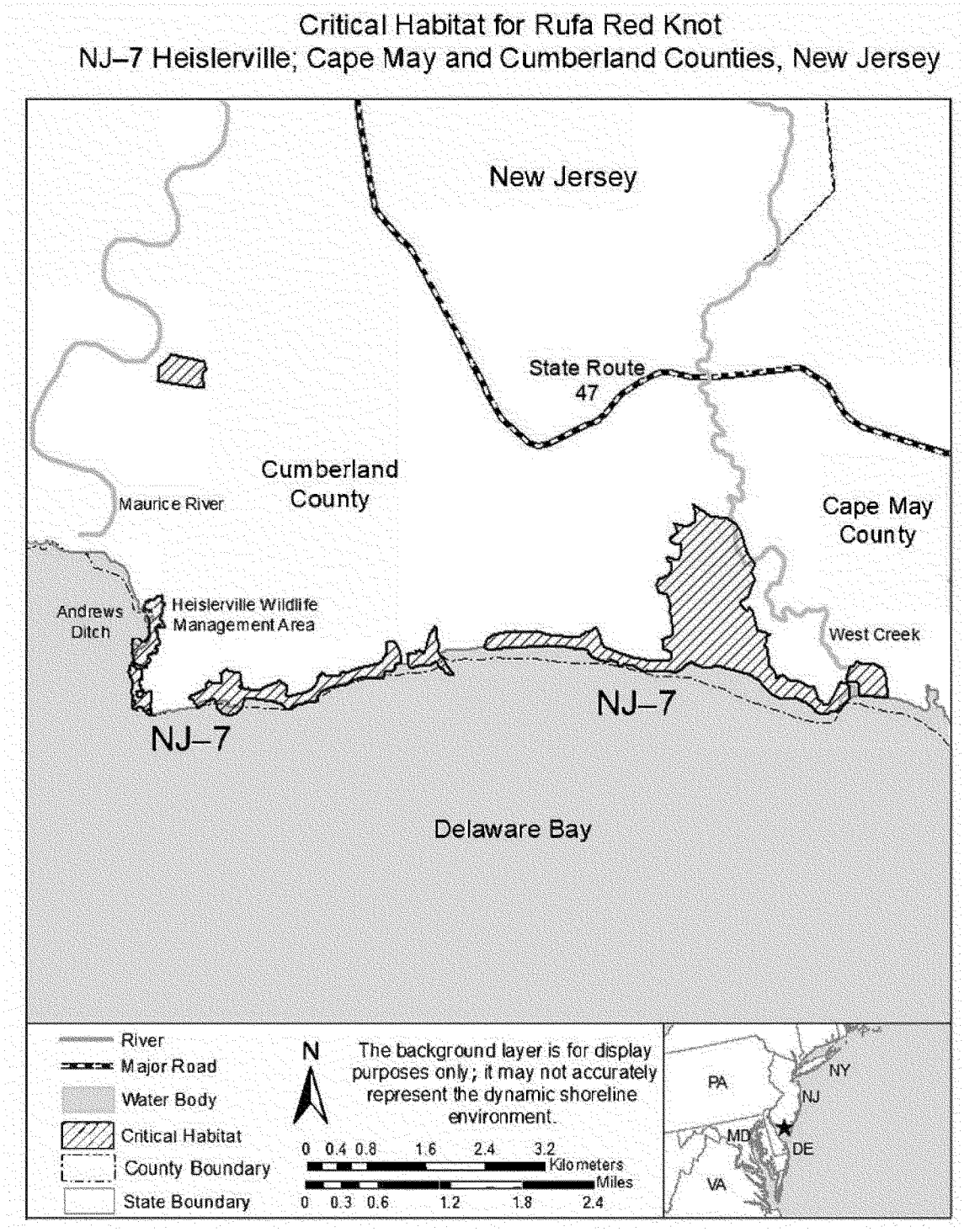


(17) Unit NJ–7: Heislerville, New Jersey.

(i) Unit NJ–7 consists of approximately 1,110 ac (449 ha) of occupied habitat in Cape May and Cumberland Counties consisting of Delaware Bay beaches, flats, shoals, tidal marsh, and open waters from approximately 2,000 ft (0.6 km) east of West Creek in Dennis Township, Cape May County, and extending west to the eastern end of Bay Avenue in Maurice River Township, Cumberland County. The developed area along Bay Avenue is excluded from the unit. West of Bay Avenue, Unit NJ–7 continues north to the mouth of Andrews Ditch in Maurice River Township. Lands within this unit include approximately 524 ac (211 ha) in State ownership (including the Heislerville Wildlife Management Area), 459 ac (186 ha) in private/other ownership, and 127 ac (52 ha) that are uncategorized.

(ii) Map of Unit NJ–7 follows:

Figure 12 to Rufa Red Knot paragraph (14)(ii)

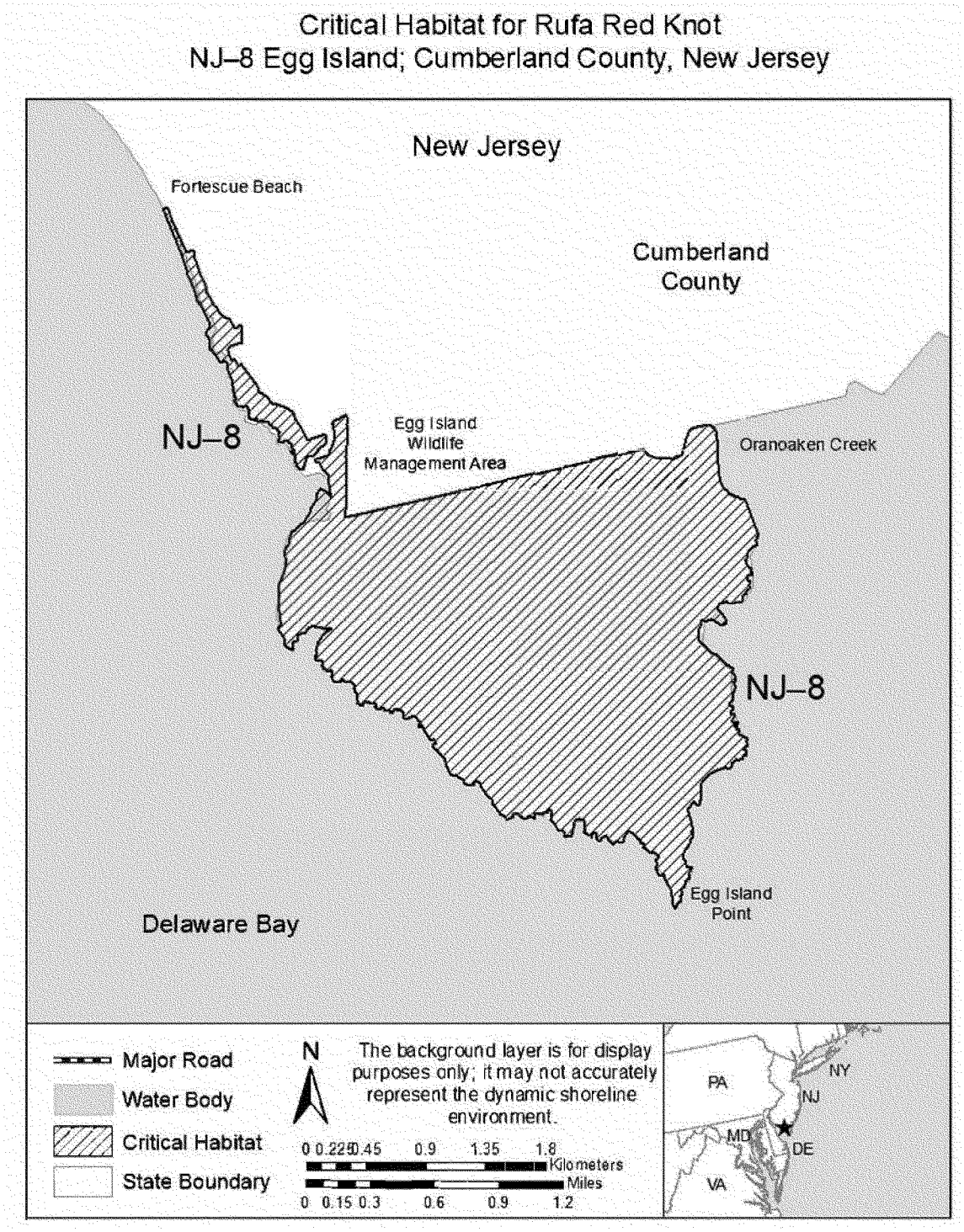


(18) Unit NJ–8: Egg Island, New Jersey.

(i) Unit NJ–8 consists of approximately 1,955 ac (791 ha) of occupied habitat in Cumberland County consisting of Delaware Bay beaches, flats, shoals, tidal marsh, and open waters from the mouth of Oranoaken Creek extending south to Egg Island point, and then northwest to about 850 ft (259 m) past Budney Avenue in the community of Fortescue. Lands within this unit include approximately 1,908 ac (773 ha) in State ownership, 32 ac (13 ha) in private/other ownership, and 14 ac (5 ha) that are uncategorized.

(ii) Map of Unit NJ–8 follows:

Figure 13 to Rufa Red Knot paragraph (18)(ii)

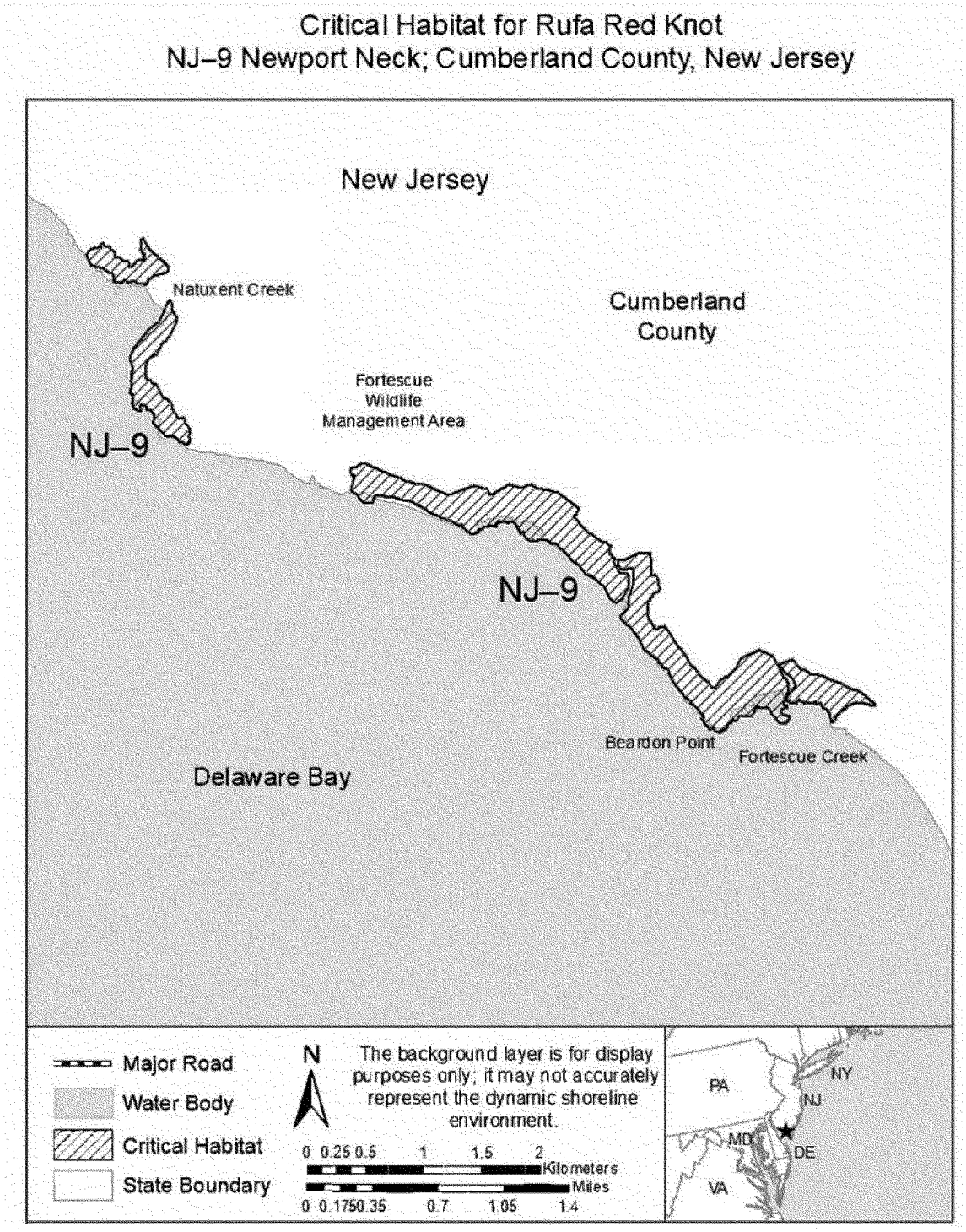


(19) Unit NJ–9: Newport Neck, New Jersey.

(i) Unit NJ–9 consists of approximately 472 ac (191 ha) of occupied habitat in Cumberland County consisting of Delaware Bay beaches, flats, shoals, and tidal marsh from the north bank of the mouth of Fortescue Creek extending northwest to include both sides of the mouth of Nantuxent Creek. Beaches adjacent to the developed community of Gandys Beach are not included in this unit. Lands within this unit include approximately 202 ac (82 ha) in State ownership (including the Fortescue Wildlife Management Area), 176 ac (71 ha) in private/other ownership, and 93 ac (38 ha) that are uncategorized.

(ii) Map of Unit NJ–9 follows:

Figure 14 to Rufa Red Knot paragraph (19)(ii)

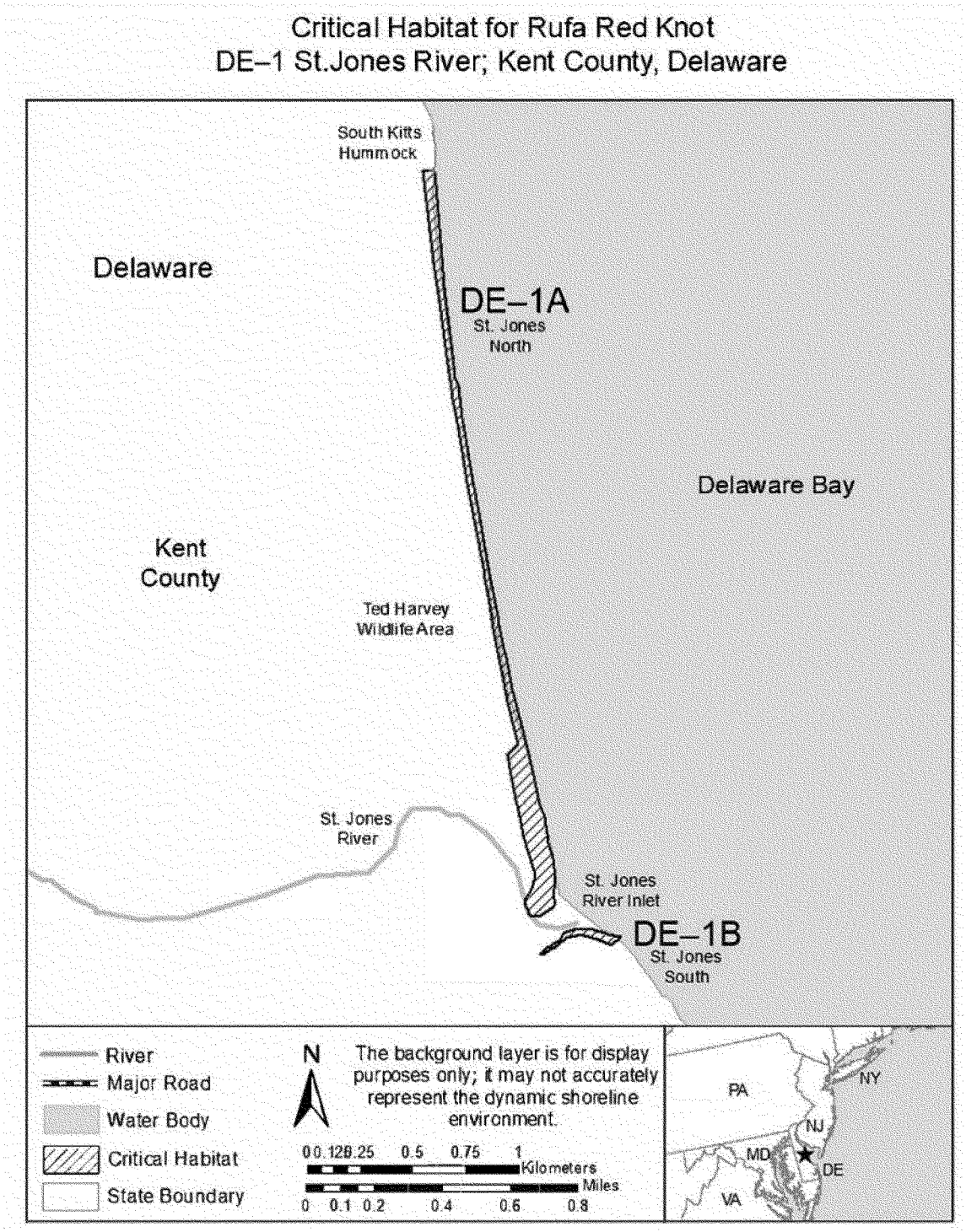


(20) Unit DE–1: St. Jones River, Delaware.

(i) Unit DE–1 consists of two subunits comprising 46 ac (19 ha) of occupied habitat in the St. Jones River area in Kent County. This unit consists of lands owned by the State of Delaware and private landowners.

(ii) Map of Unit DE–1 follows:

Figure 15 to Rufa Red Knot paragraph (20)(ii)



(iii) Subunit DE–1A (St. Jones North) consists of approximately 43 ac (18 ha) of occupied habitat in Kent County consisting of beach shoreline at the north end from South Bay Drive in South Kitts Hummock where there is a jetty into Delaware Bay, and continues to the south where it meets the St. Jones River inlet. The eastern boundary is the MLLW of the Delaware Bay, and the western boundary runs along the dune line where the habitat changes from lightly vegetated, sandy beach to densely vegetated dunes or marsh. Lands within this subunit are

approximately 37 ac (15 ha) in State ownership (including the Ted Harvey Wildlife Area), 3 ac (1 ha) of undeveloped beach privately owned by Delaware Wildlands, a conservation organization, and 3 ac (1 ha) that are uncategorized.

(iv) Map of Subunit DE–1A is presented at paragraph (20)(ii) of this entry.

(iv) Subunit DE–1B (St. Jones South) consists of approximately 3 ac (1 ha) of occupied habitat in Kent County consisting of beach shoreline at the south side of the inlet to the St. Jones River. The eastern boundary is the MLLW of the Delaware Bay, and the western boundary is where the sandy beach turns to marshy habitat. Lands within this subunit include approximately 1 ac (0.5 ha) in State ownership and approximately 2 ac (0.6 ha) in private/other ownership.

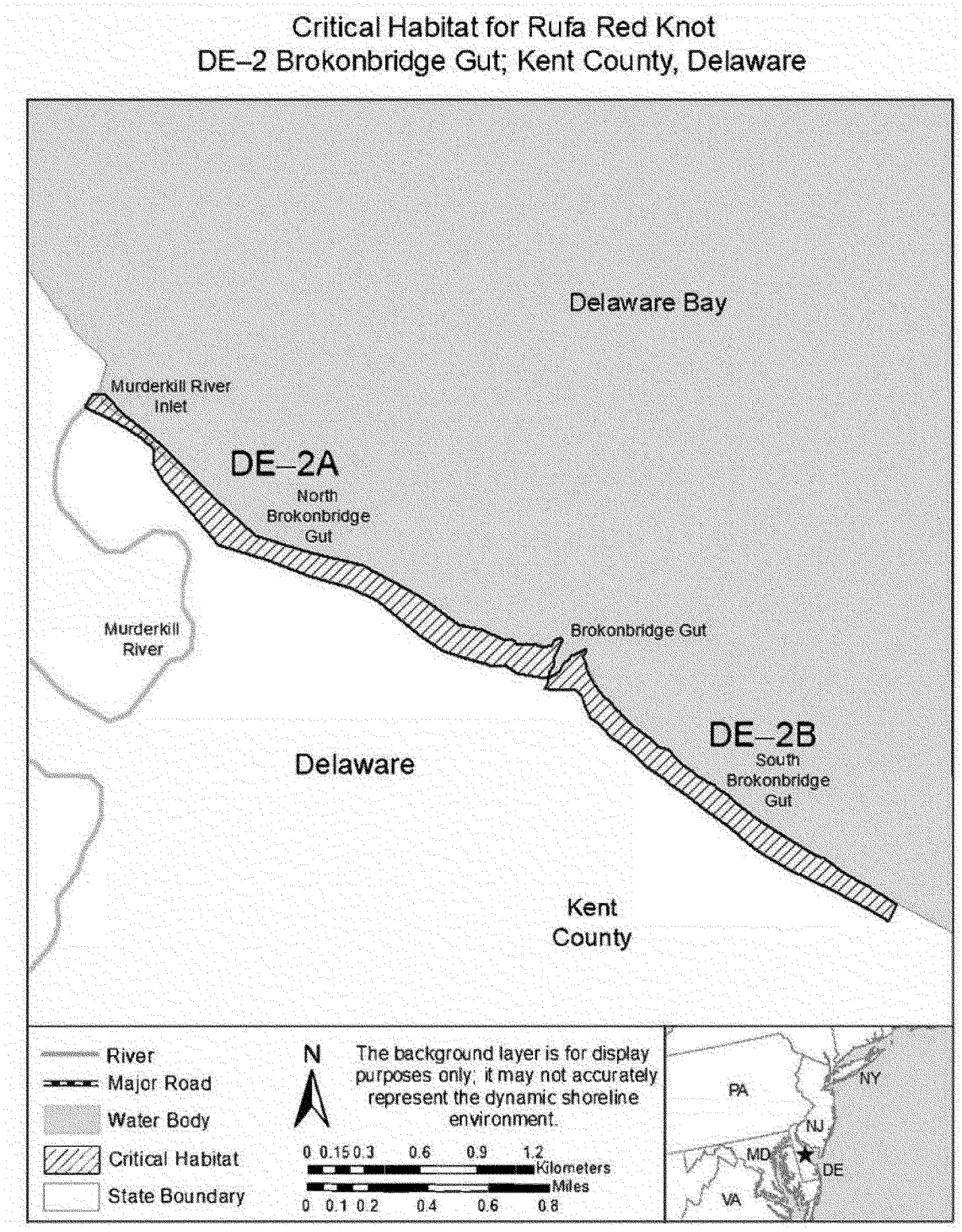
(v) Map of Subunit DE–1B is presented at paragraph (20)(ii) of this entry.

(21) Unit DE–2: Brokonbridge Gut, Delaware.

(i) Unit DE–2 consists of two subunits comprising 163 ac (66 ha) of occupied habitat in the area where Brokonbridge Gut enters the Delaware Bay in Kent County. This unit consists of lands owned by the State of Delaware and private landowners.

(ii) Map of Unit DE–2 follows:

Figure 16 to Rufa Red Knot paragraph (21)(ii)



(iii) Subunit DE–2A (North Brokonbridge Gut) consists of approximately 93 ac (37 ha) of occupied habitat in Kent County consisting of beach shoreline between the north side of the Brokonbridge Gut inlet to the south side of the Murderkill River inlet. The eastern boundary is the MLLW of the Delaware Bay, and the western boundary is where the sandy beach turns to marshy habitat. Lands within this subunit are primarily in private/other ownership (91 ac (37 ha) with a small portion (2 ac; 1 ha) owned by the State.

(iv) Map of Subunit DE–2A is presented at paragraph (21)(ii) of this entry.

(v) Subunit DE–2B (South Brokonbridge Gut) consists of approximately 70 ac (29 ha) of occupied habitat in Kent County consisting of beach shoreline at the south side of the

inlet to Brokonbridge Gut. The eastern boundary is the MLLW of the Delaware Bay, and the western boundary is where the sandy beach turns to marshy habitat. Lands within this subunit are all in private/other ownership, primarily owned and protected by a private conservation organization (Delaware Wildlands; 52 ac (21 ha)), with the remaining approximately 18 ac (7 ha) as private, undeveloped land.

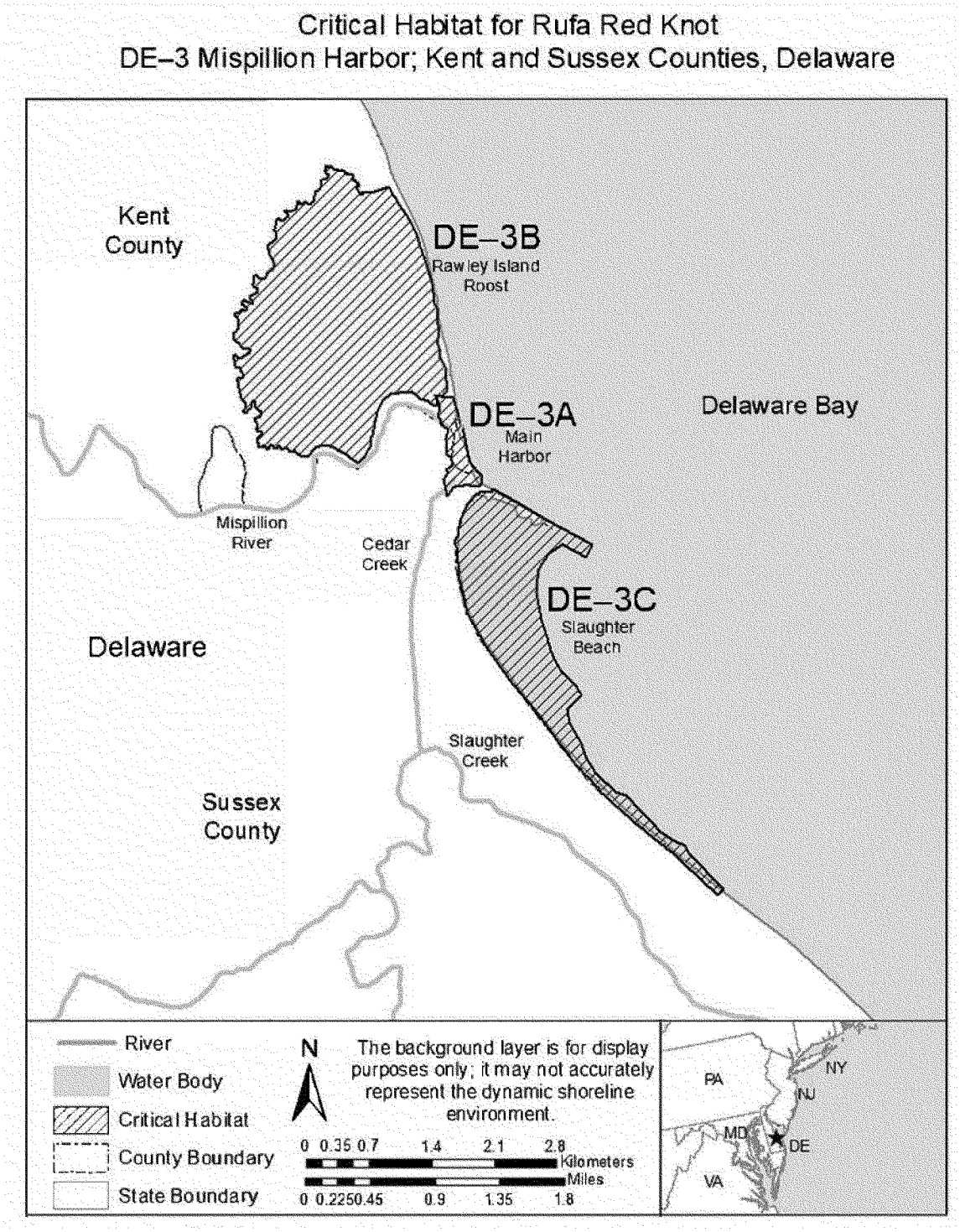
(vi) Map of Subunit DE–2B is presented at paragraph (21)(ii) of this entry.

(22) Unit DE–3: Mispillion Harbor, Delaware.

(i) Unit DE–3 consists of three subunits comprising 1,949 ac (789 ha) of occupied habitat in the Mispillion Harbor area where the Mispillion River and Cedar Creek enter the Delaware Bay in Kent and Sussex Counties. This unit consists of lands owned primarily by the State of Delaware, with minor ownership by Federal and private/other.

(ii) Map of Unit DE–3 follows:

Figure 17 to Rufa Red Knot paragraph (22)(i)



(iii) Subunit DE–3A (Main Harbor) consists of approximately 61 ac (25 ha) of occupied habitat in Kent and Sussex Counties consisting of beach shoreline at the south side of the inlet to Brokonbridge Gut. The eastern boundary is the MLLW of the Delaware Bay, and the western boundary is where the sandy beach turns to marshy habitat. Lands within this subunit include approximately 32 ac (13 ha; 53 percent) in State ownership and 29 ac (12 ha; 47 percent) that are uncategorized.

(iv) Map of Subunit DE–3A is presented at paragraph (22)(ii) of this entry.

(v) Subunit DE–3B (Rawley Island Roost) consists of approximately 1,298 ac (525 ha) of occupied habitat in Kent County consisting of beach shoreline

and marsh on the north side of the Mispillion River, extending north to Graco's Canal. The western boundary is Crooked Gut, and the eastern boundary is the MLLW of the Delaware Bay. Lands within this subunit include approximately 1,139 ac (461 ha) in State ownership (Milford Neck Wildlife Area), 153 ac (62 ha) in private/other ownership, and 6 ac (2 ha) that are uncategorized. Private lands are owned by a combination of a private conservation organization—The Nature Conservancy (TNC; 148 ac (60 ha))—with a small area of private, undeveloped land that has a conservation easement.

(vi) Map of Subunit DE–3B is presented at paragraph (22)(ii) of this entry.

(vii) Subunit DE–3C (Slaughter Beach) consists of approximately 590 ac (239 ha) of occupied habitat in Sussex County consisting of beach shoreline, marsh, and harbor structures extending from the eastern tip of the dike that outlines the outer tip of the Mispillion Harbor, south along the sandy beach of Slaughter Beach to the southern end of Isaacs Shore Drive. The western boundary is where the lightly vegetated beach becomes marsh in the northern portions of this subunit, or where property parcels end in the southern portion of this subunit. The eastern boundary is the MLLW of the Delaware Bay. Lands within this subunit include approximately 1 ac (0.25 ha) in Federal ownership, 59 ac (24 ha) in State ownership, 2 ac (1 ha) in private/other ownership, and 528 ac (213 ha) that are uncategorized.

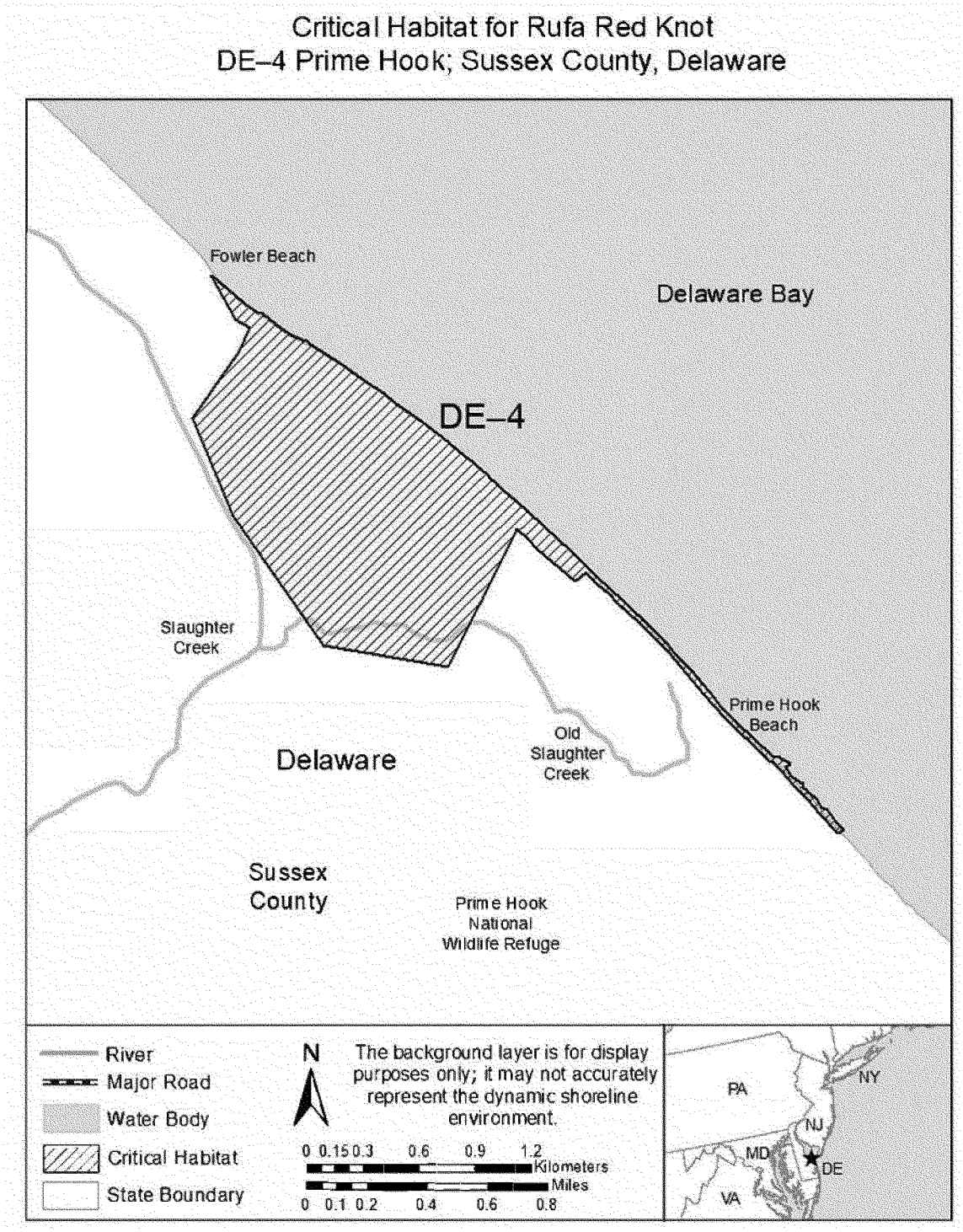
(viii) Map of Subunit DE–3C is presented at paragraph (22)(ii) of this entry.

(23) Unit DE–4: Prime Hook, Delaware.

(i) Unit DE–4 consists of approximately 549 ac (222 ha) of occupied habitat in Sussex County consisting of beach shoreline and marsh from about 1 mi (1.6 km) north of Fowler Beach Road south to the end of South Bayshore Drive. The eastern boundary is the MLLW of the Delaware Bay, and the western boundary in the northern portion of the unit runs along the dune line where the habitat changes from lightly vegetated sandy beach to densely vegetated dunes or marsh. The western boundary of the central portion of this unit includes marsh and shallow open water areas where birds can roost overnight and forage. The western edge of the southern portion of the unit is where property parcels end at the beach. Lands within this unit include approximately 480 ac (195 ha) in Federal ownership (Prime Hook NWR), 6 ac (2 ha) in private/other ownership, and 63 ac (25 ha) that are uncategorized.

(ii) Map of Unit DE–4 follows:

Figure 18 to Rufa Red Knot paragraph (23)(ii)



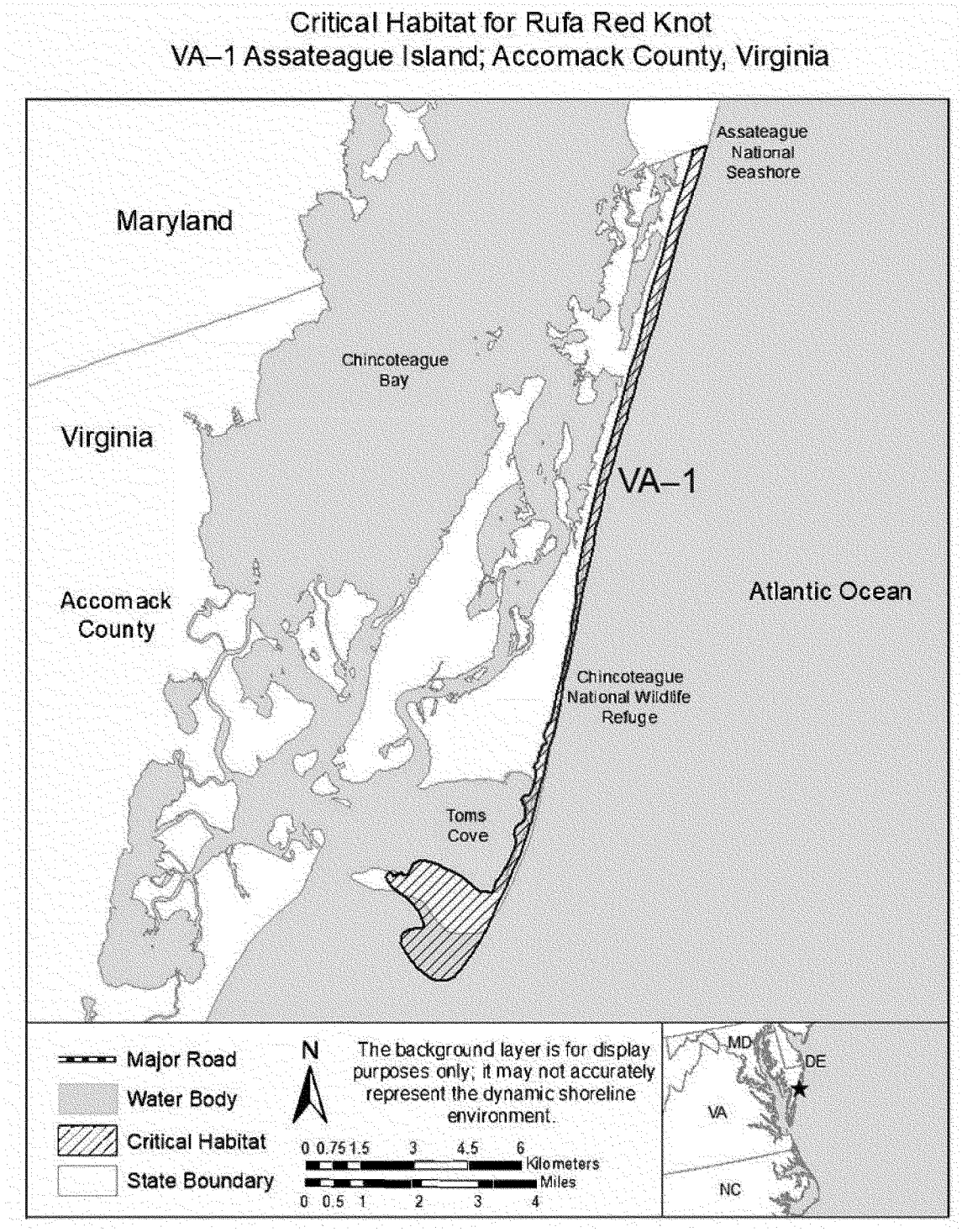
(24) Unit VA–1: Assateague Island, Virginia.

(i) Unit VA–1 consists of approximately 2,817 ac (1,140 ha) of occupied habitat in Accomack County consisting of beach shoreline from the Virginia–Maryland State line south to the area known as ''The Hook,'' a wide peninsula that curves northwest. The western boundary is along the dune line where the habitat changes from sandy beach with little vegetation to densely vegetated dunes or marshland, as well as densely vegetated forested or herbaceous vegetation landward of the beach and primary dune. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this unit are federally

owned (Assateague Island National Seashore and Chincoteague NWR).

(ii) Map of Unit VA–1 follows:

Figure 19 to Rufa Red Knot paragraph (24)(ii)

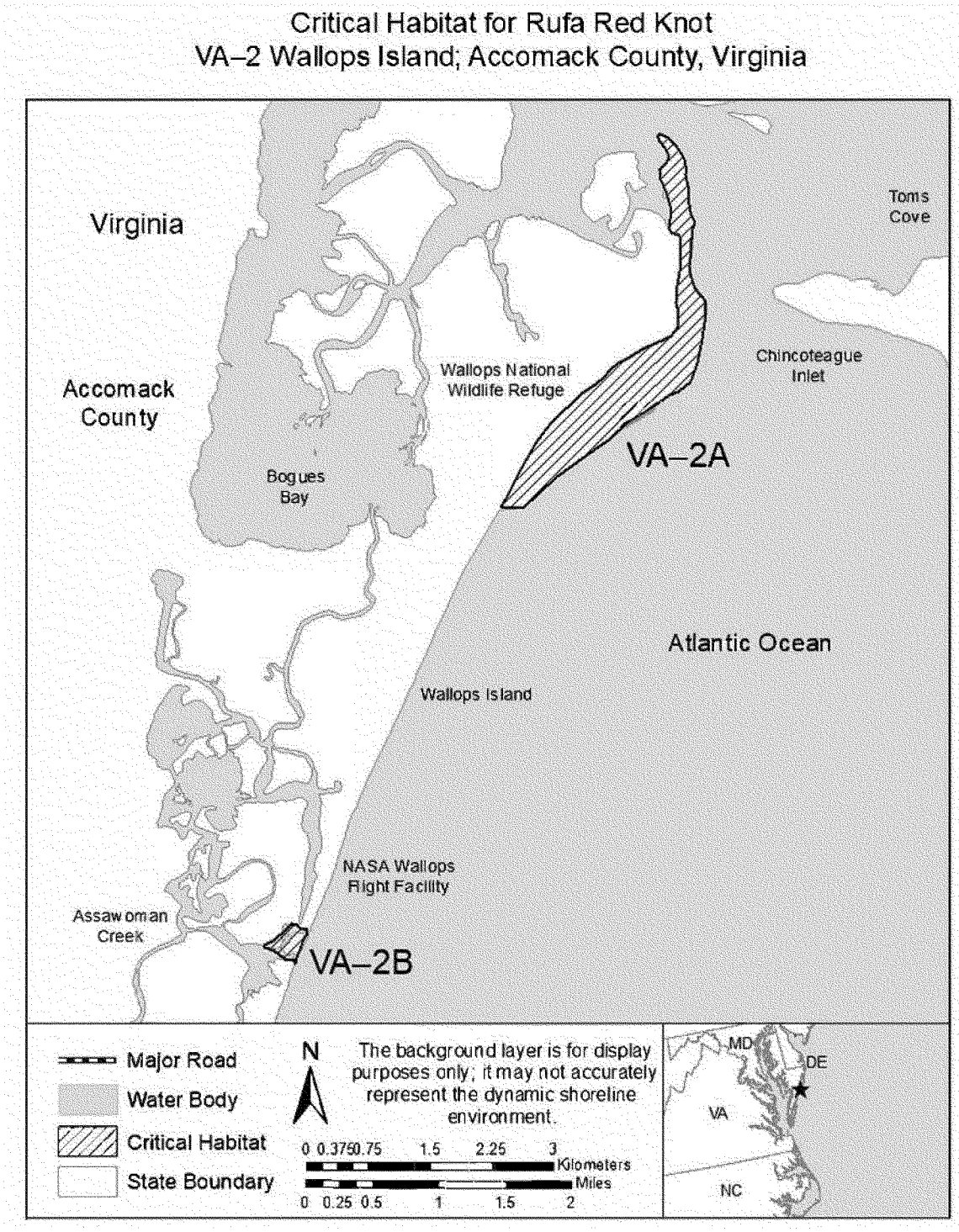


(25) Unit VA–2: Wallops Island, Virginia.

(i) Unit VA–2 comprises two subunits (totaling 571 ac (231 ha)) of occupied habitat owned and managed by the National Aeronautics and Space Administration (NASA) as part of the Wallops Flight Facility located in Accomack County.

(ii) Map of Unit VA–2 follows:

Figure 20 to Rufa Red Knot paragraph (25)(ii)



(iii) Subunit VA–2A (Wallops Island North) consists of approximately 540 ac (218 ha) of occupied habitat in Accomack County consisting of beach shoreline and dynamic intertidal areas. The north and east boundaries of the subunit are Chincoteague Inlet and seaward past the MLLW line and shoaling areas that are inundated with less than 3 in (7.6 cm) of water). The western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat

banks, or densely vegetated forested or herbaceous vegetation landward of the beach and primary dune. The southern boundary tapers to a point ending at the northern end of the facility's sea wall structure; it extends past the MLLW line and includes the areas that are slightly inundated with less than 3 in (7.5 cm) of water. All lands within this subunit are federally owned by NASA.

(iv) Map of Subunit VA–2A is presented at paragraph (25)(ii) of this entry.

(v) Subunit VA–2B (Wallops Island South) consists of approximately 31 ac (13 ha) of occupied habitat in Accomack County consisting of beach shoreline and dynamic intertidal areas. The northern boundary is the end of the road south of the old runway, the southern boundary is Assawoman Creek, the western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat banks, or densely forested or herbaceous vegetation landward of the beach and primary dune, and the eastern boundary extends seaward past the MLLW line including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this subunit are federally owned by NASA.

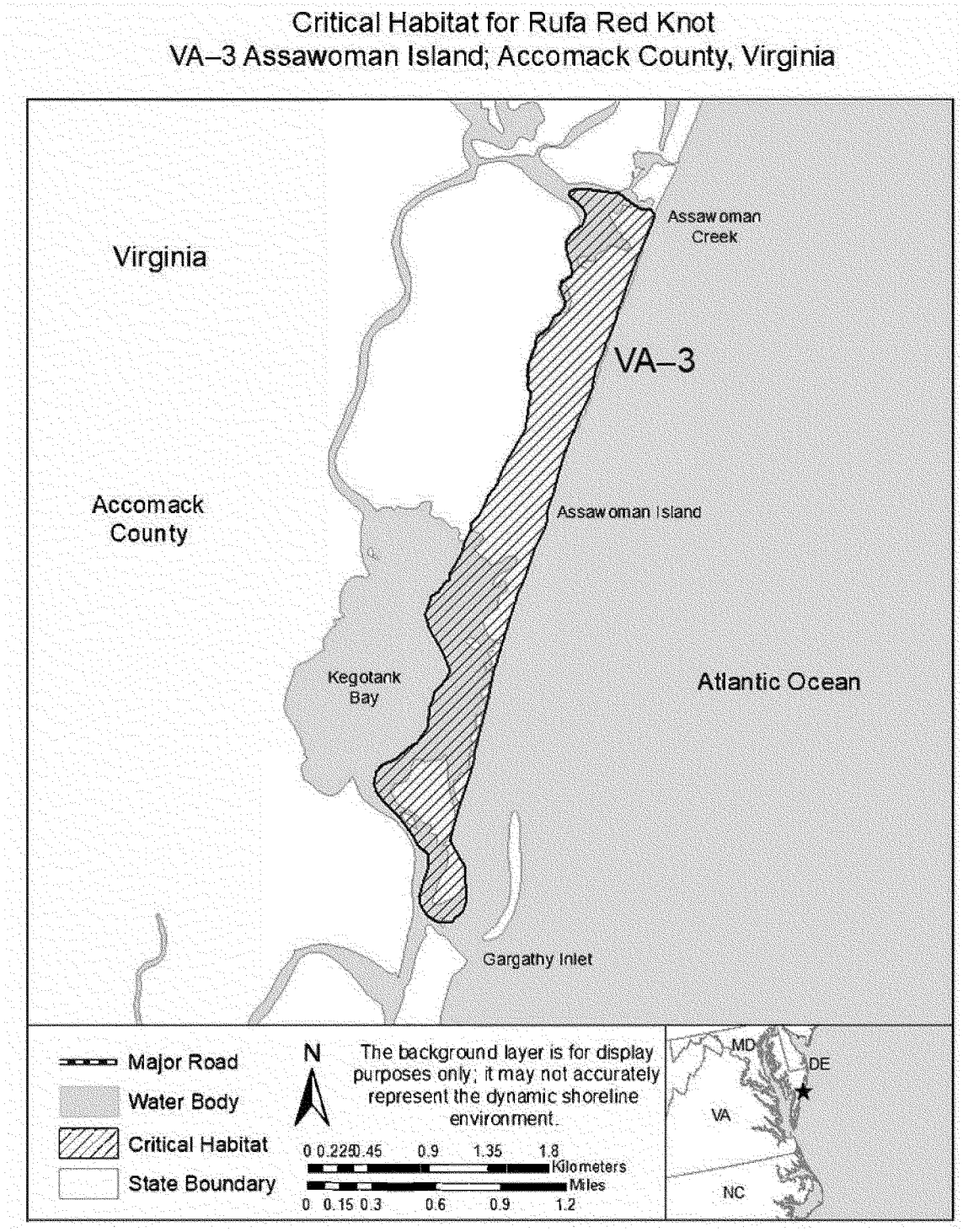
(vi) Map of Subunit VA–2B is presented at paragraph (25)(ii) of this entry.

(26) Unit VA–3: Assawoman Island, Virginia.

(i) Unit VA–3 consists of approximately 633 ac (256 ha) of occupied habitat in Accomack County consisting of beach shoreline and dynamic intertidal areas. The unit is from Assawoman Creek in the north to Kegotank Creek and Gargathy Inlet in the south, extending east past the MLLW line including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water). The western boundary is formed by Houseboat Creek, a section of Egg Marsh, and Kegotank Bay. All lands within this unit are federally owned by Chincoteague NWR.

(ii) Map of Unit VA–3 follows:

Figure 21 to Rufa Red Knot paragraph (26)(ii)



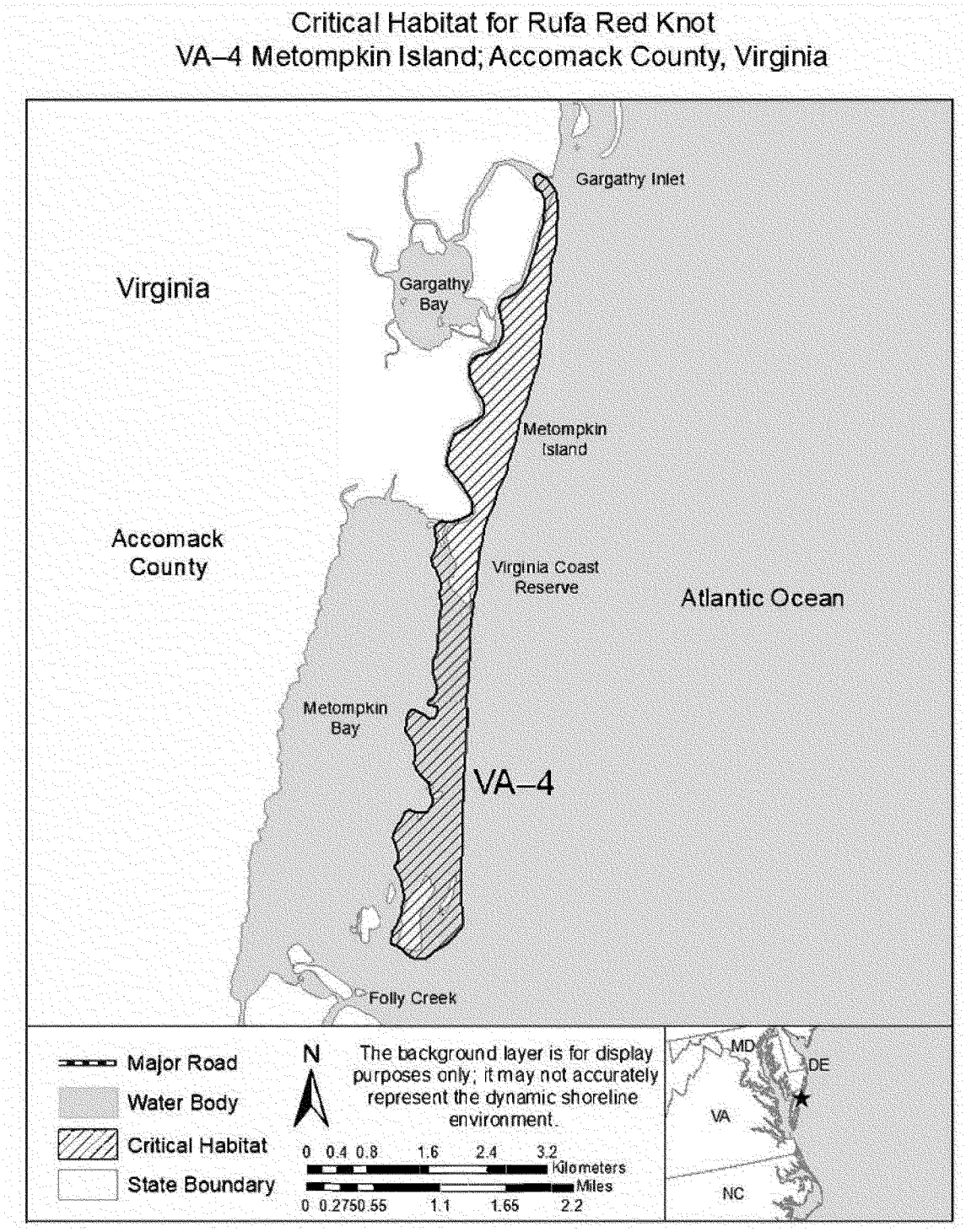
(27) Unit VA–4: Metompkin Island, Virginia.

(i) Unit VA–4 consists of approximately 1,467 ac (594 ha) of occupied habitat in Accomack County consisting of beach shoreline and dynamic intertidal areas. The unit extends from Kegotank Creek and Gargathy Inlet south to the mouth of Folly Creek. The western boundary is formed by the Virginia Inside Passage of the Intercoastal Waterway and Metompkin Bay and includes extensive areas of overwash and low marsh areas along the western boundary. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 64 ac (26 ha) in Federal ownership (Chincoteague NWR), 56 ac

(22 ha) in State ownership, and 1,239 ac (502 ha) in private/other ownership (TNC), and 110 ac (44 ha) that are uncategorized. This coastal area is part of the Virginia Coast Reserve.

(ii) Map of Unit VA–4 follows:

Figure 22 to Rufa Red Knot paragraph (27)(ii)



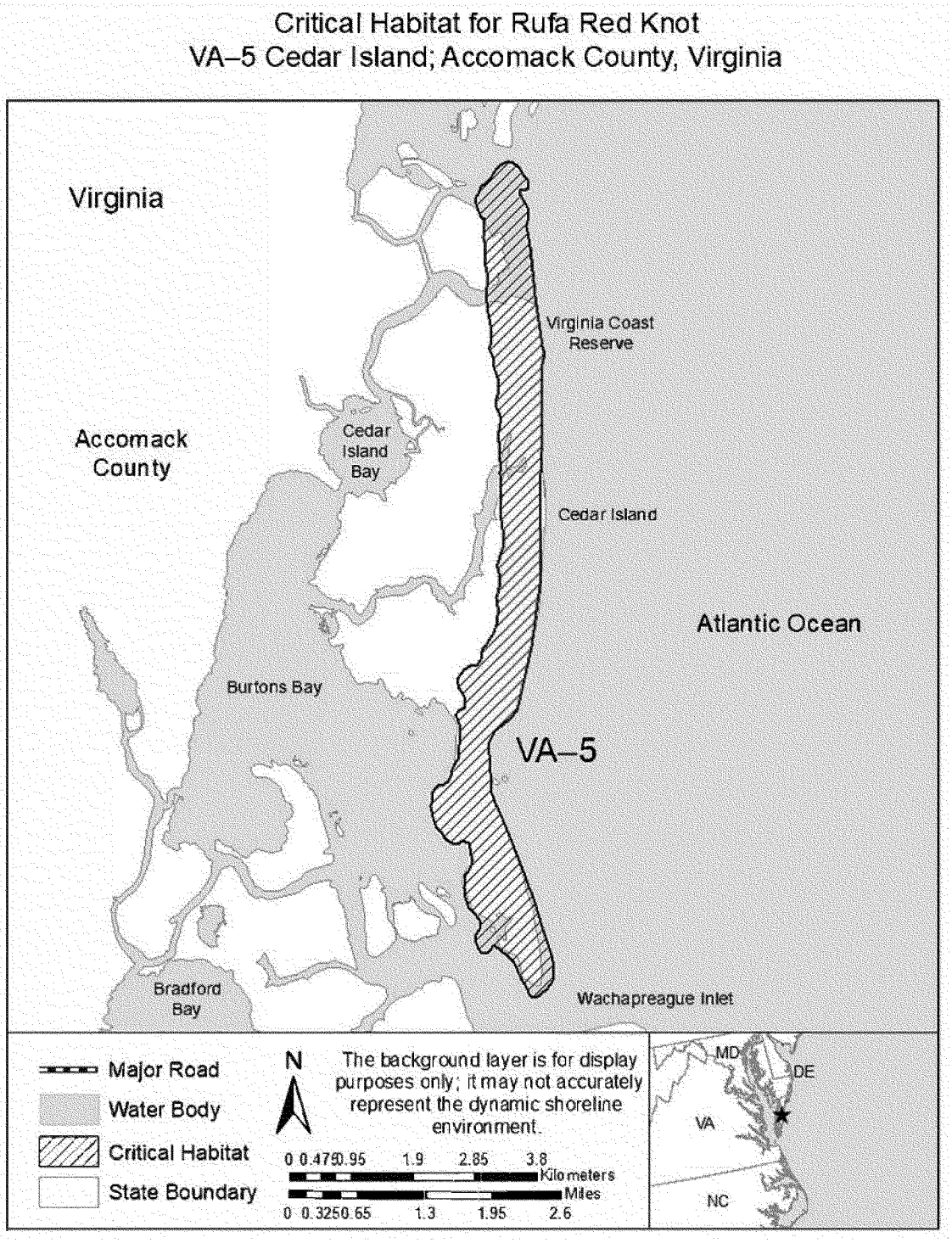
(28) Unit VA–5: Cedar Island, Virginia.

(i) Unit VA–5 consists of approximately 2,274 ac (920 ha) of occupied habitat in Accomack County consisting of beach shoreline and

dynamic intertidal areas. The unit extends from an inlet between Cedar Island and the southern end of Metompkin Island south to Wachapreague Inlet. The western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat banks, or densely vegetated forested or herbaceous vegetation landward of the beach and primary dune, or open water including Burtons Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 203 ac (82 ha) in Federal ownership, 77 ac (31 ha) in State ownership, 920 ac (372 ha) in private/other ownership, and 1,074 ac (434 ha) that are uncategorized. This coastal area is part of the Virginia Coast Reserve.

(ii) Map of Unit VA–5 follows:

Figure 23 to Rufa Red Knot paragraph (28)(ii)



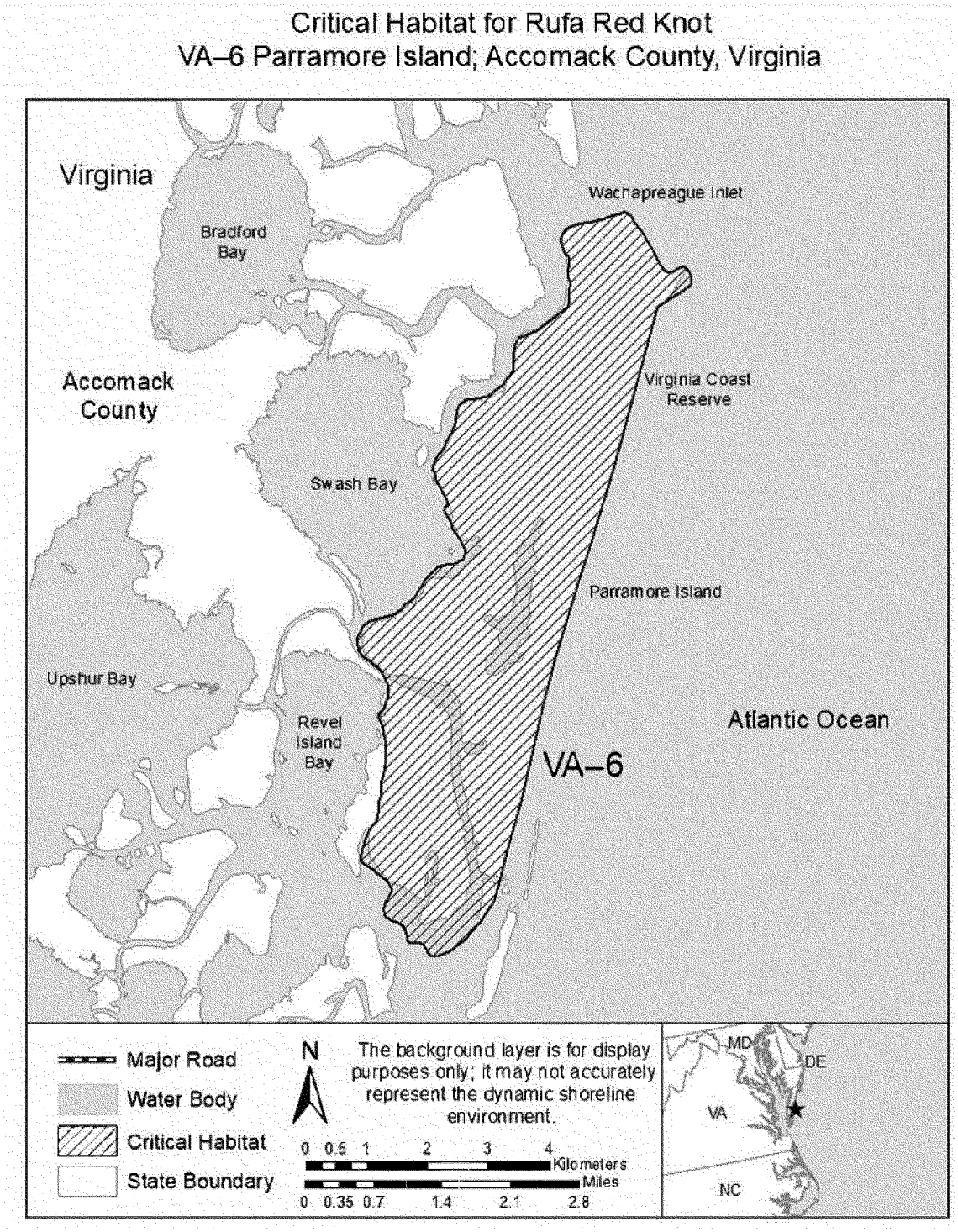
(29) Unit VA–6: Parramore Island, Virginia.

(i) Unit VA–6 consists of approximately 6,802 ac (2,753 ha) of occupied habitat in Accomack County consisting of beach shoreline and dynamic intertidal areas. The unit extends from Wachapreague Inlet south to Quinby Inlet. The western boundary is Horseshoe Lead, Drawing Channel, Swash Bay, and Revel Island Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well

as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 5,631 ac (2,280 ha) in private/other ownership (TNC) and 1,171 ac (473 ha) that are uncategorized. This coastal area is part of the Virginia Coast Reserve.

(ii) Map of Unit VA–6 follows:

Figure 24 to Rufa Red Knot paragraph (29)(ii)

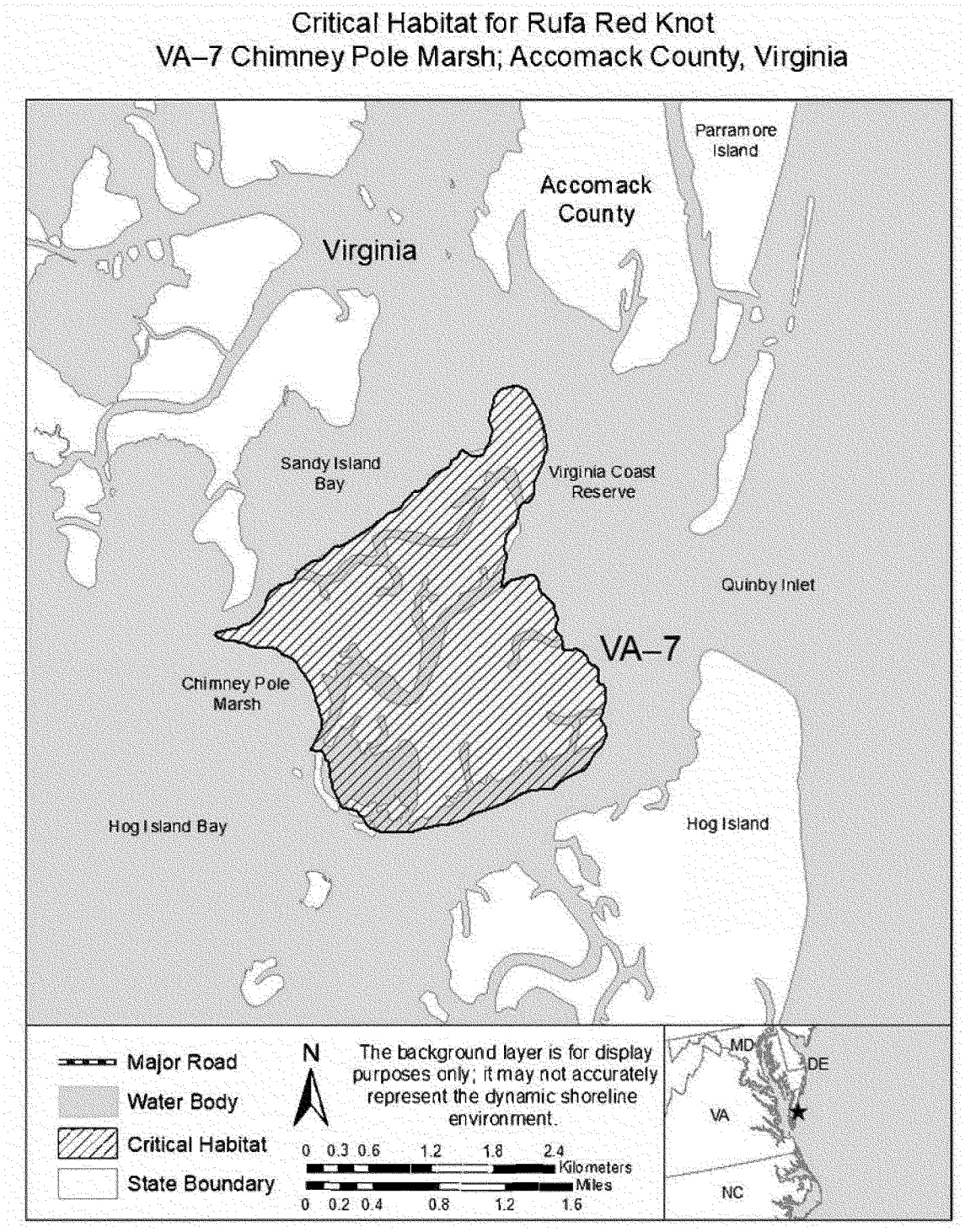


(30) Unit VA–7: Chimney Pole Marsh, Virginia.

(i) Unit VA–7 consists of approximately 2,004 ac (811 ha) of occupied habitat in Chimney Pole Marsh and the southern portion of Sandy Island in Accomack County consisting of mud flats, low marsh, sandy beaches, overwash areas, and tidal channels. The boundary of the marsh on all sides extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 1,224 ac (496 ha) in State ownership, 285 ac (116 ha) in private/other ownership (TNC), and 495 ac (200 ha) that are uncategorized.

(ii) Map of Unit VA–7 follows:

Figure 25 to Rufa Red Knot paragraph (30)(ii)



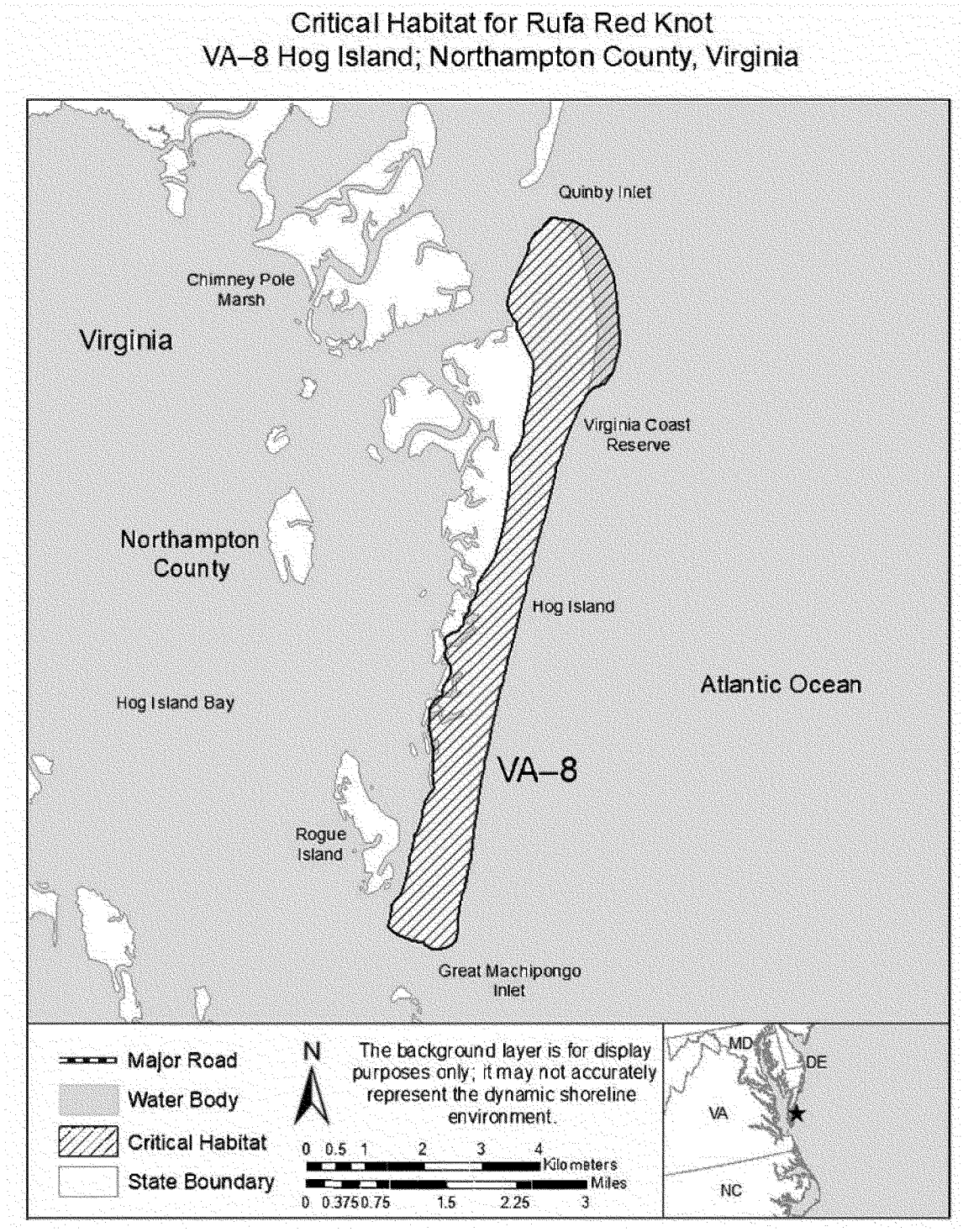
(31) Unit VA–8: Hog Island, Virginia.

(i) Unit VA–8 consists of approximately 3,235 ac (1,309 ha) of occupied habitat in Northampton County consisting of shoreline habitat. The unit is bounded by the Quinby Inlet to the north and Great Machipongo Inlet to the south. The western boundary is along the marsh line where the habitat changes from lightly vegetated sandy beach and exposed peat with little vegetation to densely vegetated marshland, peat banks, or densely vegetated forested or herbaceous vegetation landward of the beach and

primary dune, or open water including Hog Island Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 16 ac (7 ha) in State ownership, 2,966 ac (1,201 ha) in private/other ownership, and 253 ac (101 ha) that is uncategorized. This coastal area is part of the Virginia Coast Reserve.

(ii) Map of Unit VA–8 follows:

Figure 26 to Rufa Red Knot paragraph (31)(ii)

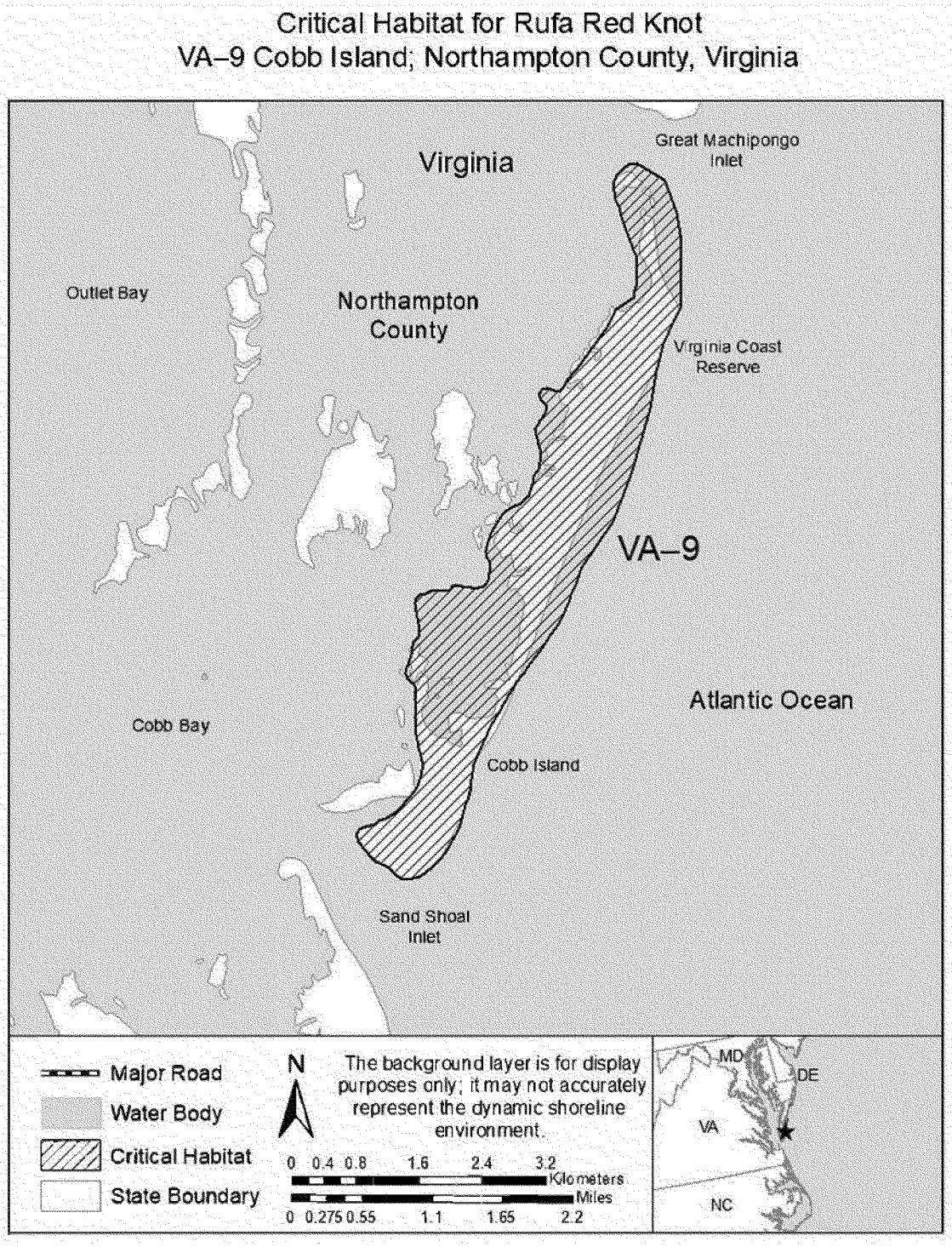


(32) Unit VA–9: Cobb Island, Virginia.

(i) Unit VA–9 consists of approximately 2,342 ac (948 ha) of occupied habitat in Northampton County consisting of shoreline habitat. The unit is bounded by Great Machipongo Inlet to the north and Sandy Shoal Inlet to the south. The western boundary is formed by Hog Island Bay, Spidercrab Bay, and Cobb Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include approximately 16 ac (7 ha) in State ownership, 1,778 ac (720 ha) in private/other ownership, and 547 ac (221 ha) that are uncategorized. This coastal area is part of the Virginia Coast Reserve.

(ii) Map of Unit VA–9 follows:

Figure 27 to Rufa Red Knot paragraph (32)(ii)



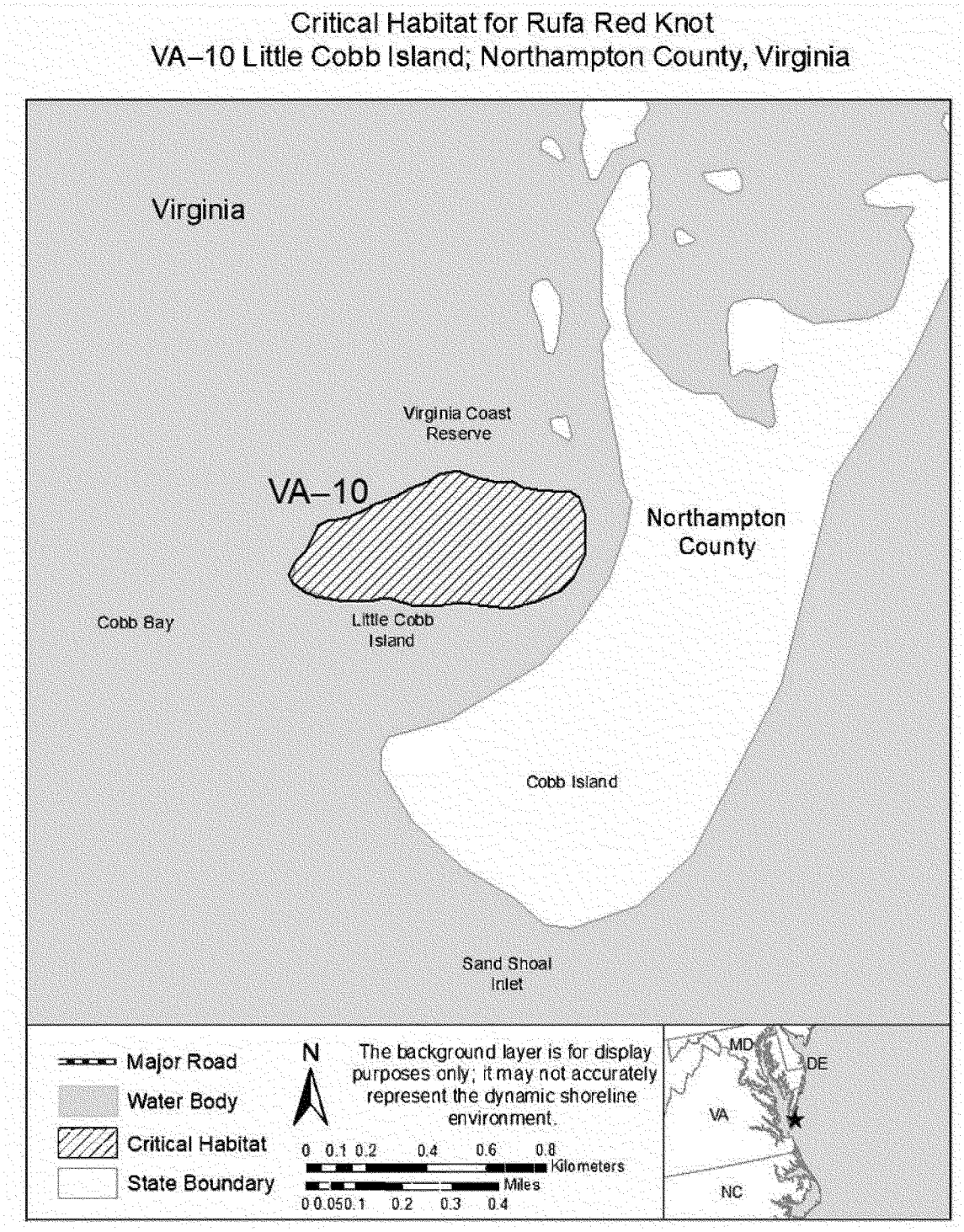
(33) Unit VA–10: Little Cobb Island, Virginia.

(i) Unit VA–10 consists of approximately 82 ac (33 ha) of occupied habitat in Northampton County consisting of shoreline habitat lying just west of the southern end of Cobb Island and within the waters of Cobb Bay. The boundary of this small island in all directions is the waters of Cobb Bay and the extent of the boundary seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated

with less than 3 in (7.6 cm) of water. All lands within this unit are in private/other ownership (TNC) and are part of the Virginia Coast Reserve.

(ii) Map of Unit VA–10 follows:

Figure 28 to Rufa Red Knot paragraph (3)(ii)

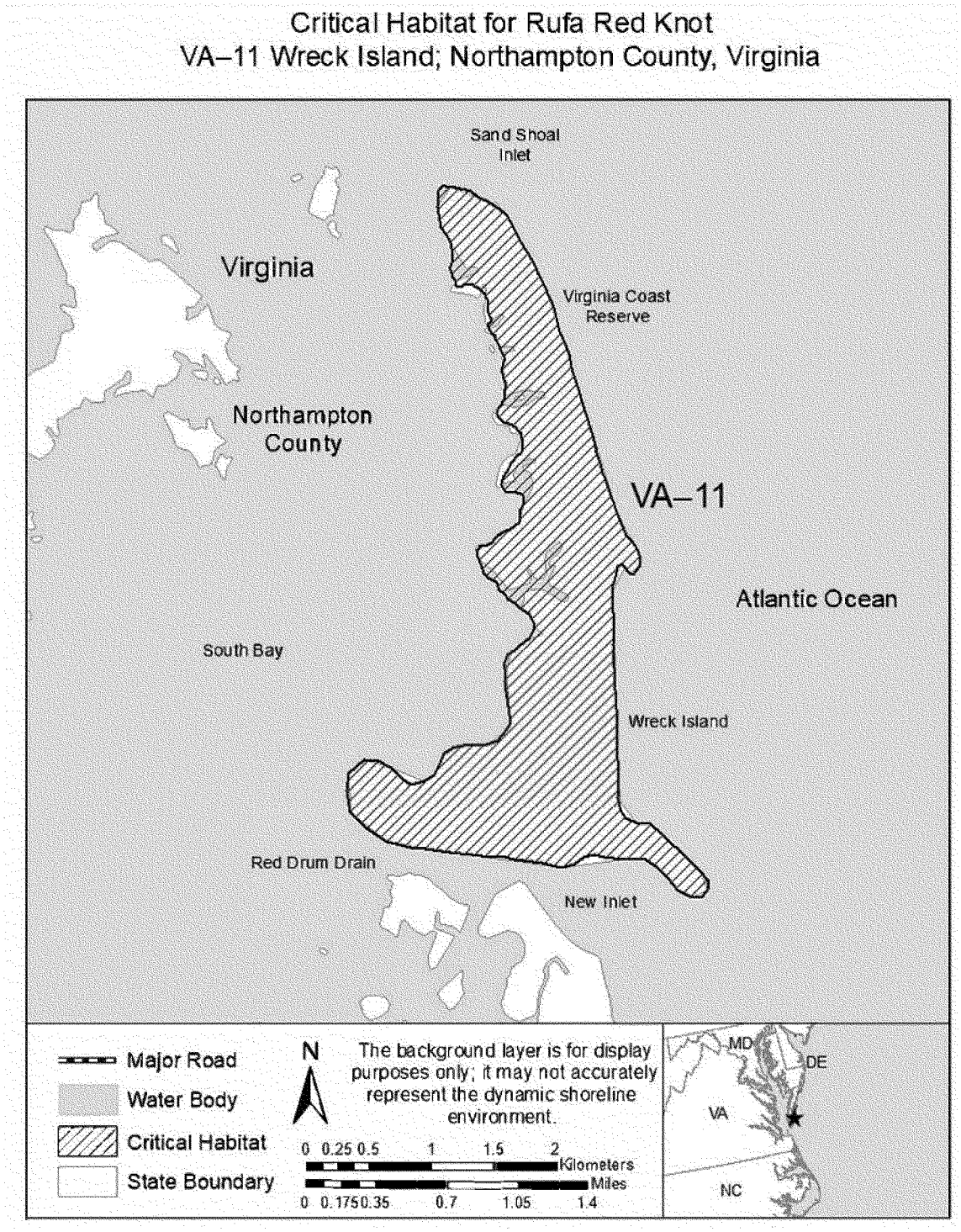


(34) Unit VA–11: Wreck Island, Virginia.

(i) Unit VA–11 consists of approximately 1,270 ac (514 ha) of occupied habitat in Northampton County consisting of shoreline habitat bounded to the north by Sandy Shoal Inlet and Red Drum Drain and New Inlet to the south. The western boundary is South Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this unit are State owned and managed as Wreck Island Natural Area Preserve.

(ii) Map of Unit VA–11 follows:

Figure 29 to Rufa Red Knot paragraph (34)(ii)



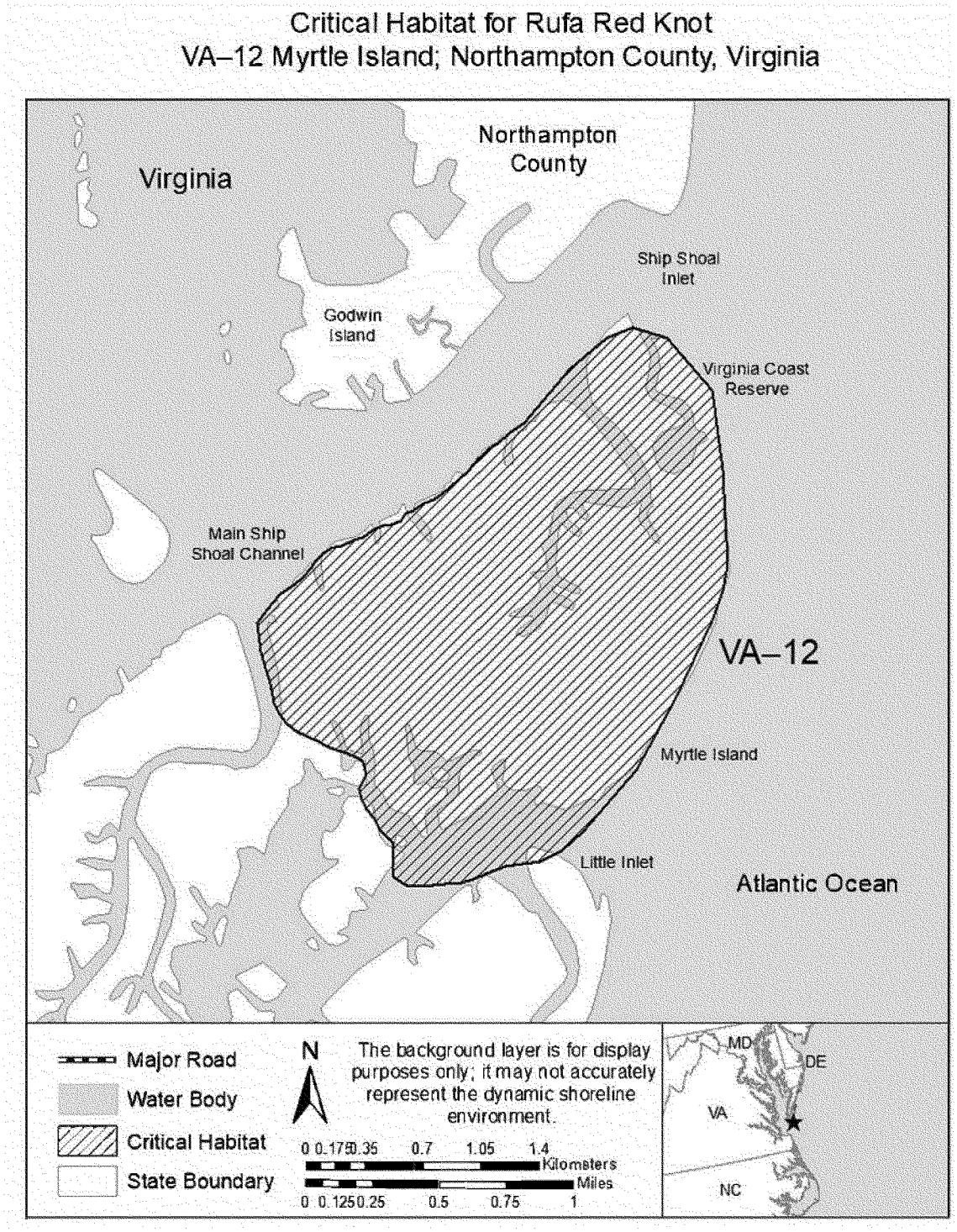
(35) Unit VA–12: Myrtle Island, Virginia.

(i) Unit VA–12 consists of approximately 1,416 ac (573 ha) of occupied habitat in Northampton County consisting of extensive mud flats, low marsh, sandy beaches, overwash areas, and tidal channels. The north boundary is Ship Shoal Inlet, the south boundary is Little Inlet, the west boundary is Main Ship Shoal Channel and Big Creek Marsh, and the east boundary is the Atlantic Ocean. The boundary for the island and marsh complex extends seaward past the

MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. Lands within this unit include 1,028 ac (417 ha) that are in private/other ownership and 388 ac (156 ha) that are uncategorized. The island is owned and managed by TNC as part of the Virginia Coast Reserve.

(ii) Map of Unit VA–12 follows:

Figure 30 to Rufa Red Knot paragraph (35)(ii)

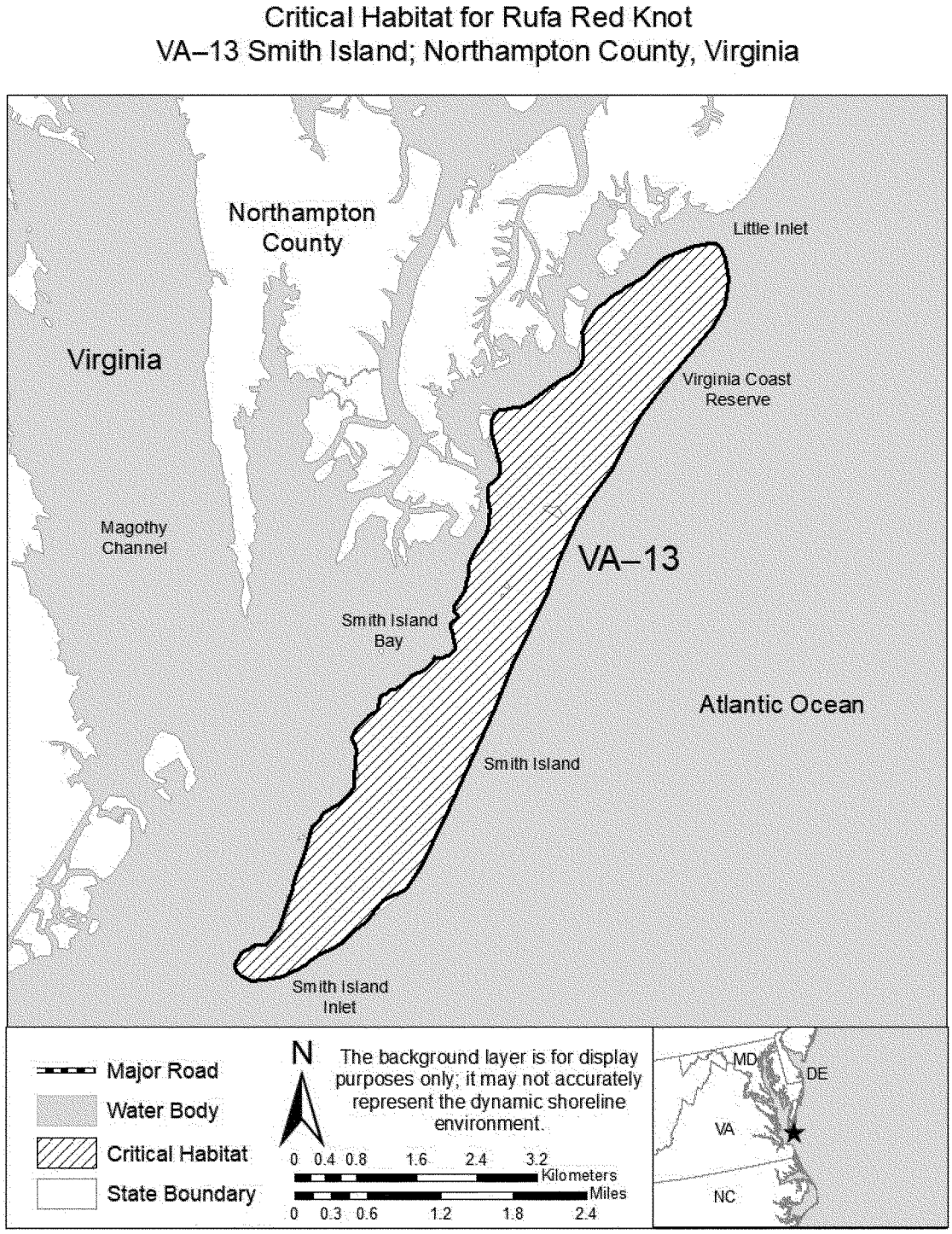


(36) Unit VA–13: Smith Island, Virginia.

(i) Unit VA–13 consists of approximately 2,529 ac (1,024 ha) of occupied habitat in Northampton County consisting of shoreline habitat bounded to the north by Little Inlet, to the south by Smith Island Inlet, and to the west along the dune line where the habitat changes from sandy beach with little vegetation to densely vegetated dunes or marshland, as well as densely vegetated forested or herbaceous vegetation landward of the beach and primary dune, or open water including Magothy Bay. The eastern boundary extends seaward past the MLLW line, including dynamic intertidal areas that are covered at high tide and uncovered at low tide, as well as shoaling areas that are inundated with less than 3 in (7.6 cm) of water. All lands within this unit are in private/other ownership (TNC). The island is owned and managed by TNC as part of the Virginia Coast Reserve.

(ii) Map of Unit VA–13 follows:

Figure 31 to Rufa Red Knot paragraph (36)(ii)



(37) Unit NC–1: Outer Banks, North Carolina.

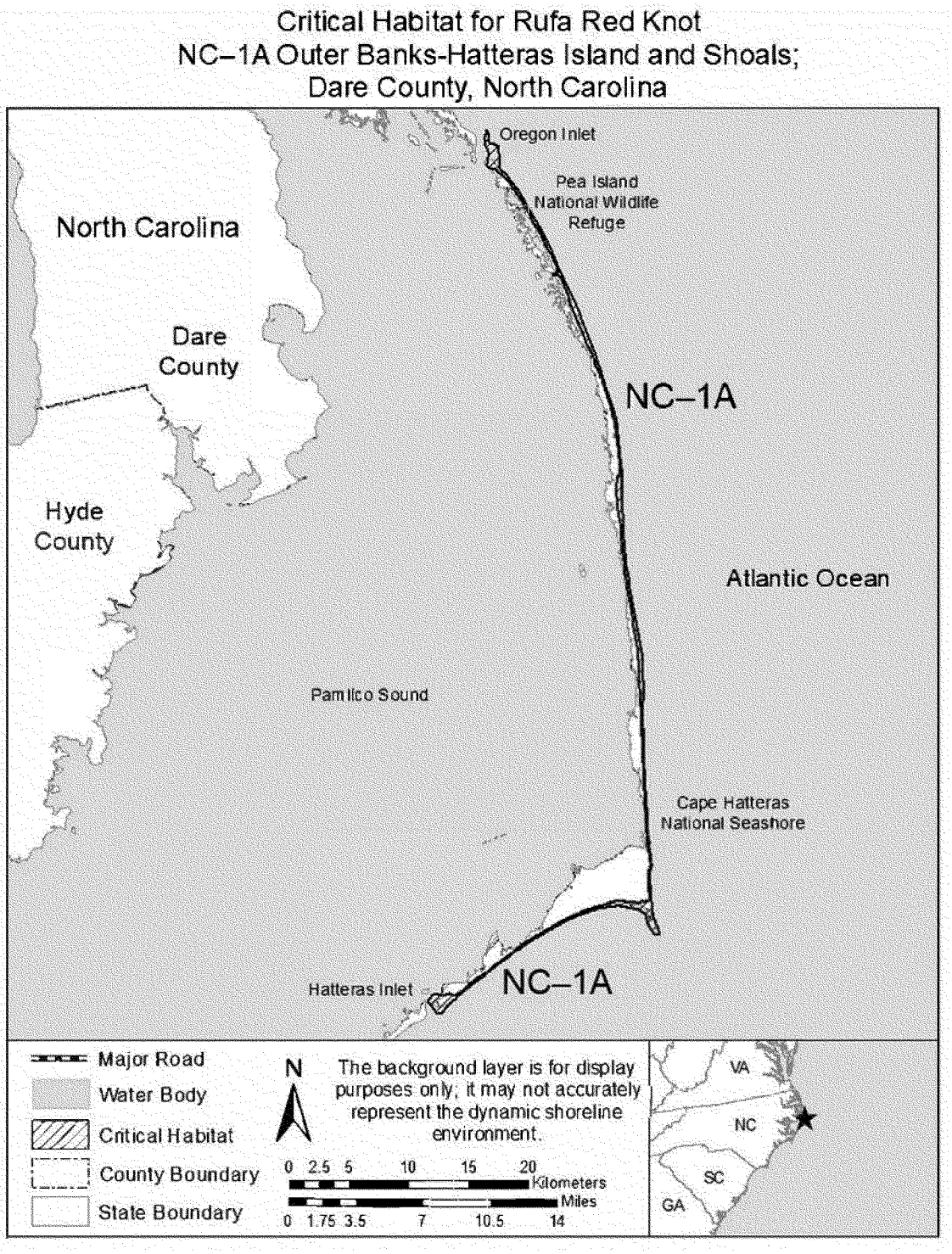
(i) Unit NC–1 consists of two subunits comprising 11,367 ac (4,600 ha) of occupied habitat in Dare and Hyde Counties. This unit consists of Federal lands owned by the NPS and Service, and lands owned by the State of North Carolina.

(ii) Subunit NC–1A (Hatteras Island and Shoals) consists of approximately 5,754 ac (2,329 ha) of occupied habitat in Dare County consisting of beach shoreline from the southeast side of

Oregon Inlet, south along the ocean-facing side of the island (including Pea Island NWR) to Cape Point in Cape Hatteras National Seashore. From Cape Point, the subunit stretches along the ocean side of the island about 13.25 mi (21 km) west to the east side of Hatteras Inlet. This subunit includes from MLLW (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide, that are associated with the northeast side of Hatteras Inlet's navigable channel) to the toe of the dunes or where densely vegetated habitat, not used by the rufa red knot, begins. Lands within this subunit include approximately 4,940 ac (1,999 ha) in Federal ownership (Cape Hatteras National Seashore) and 814 ac (329 ha) that are uncategorized.

(iii) Map of Subunit NC–1A follows:

Figure 32 to Rufa Red Knot paragraph (37)(iii)

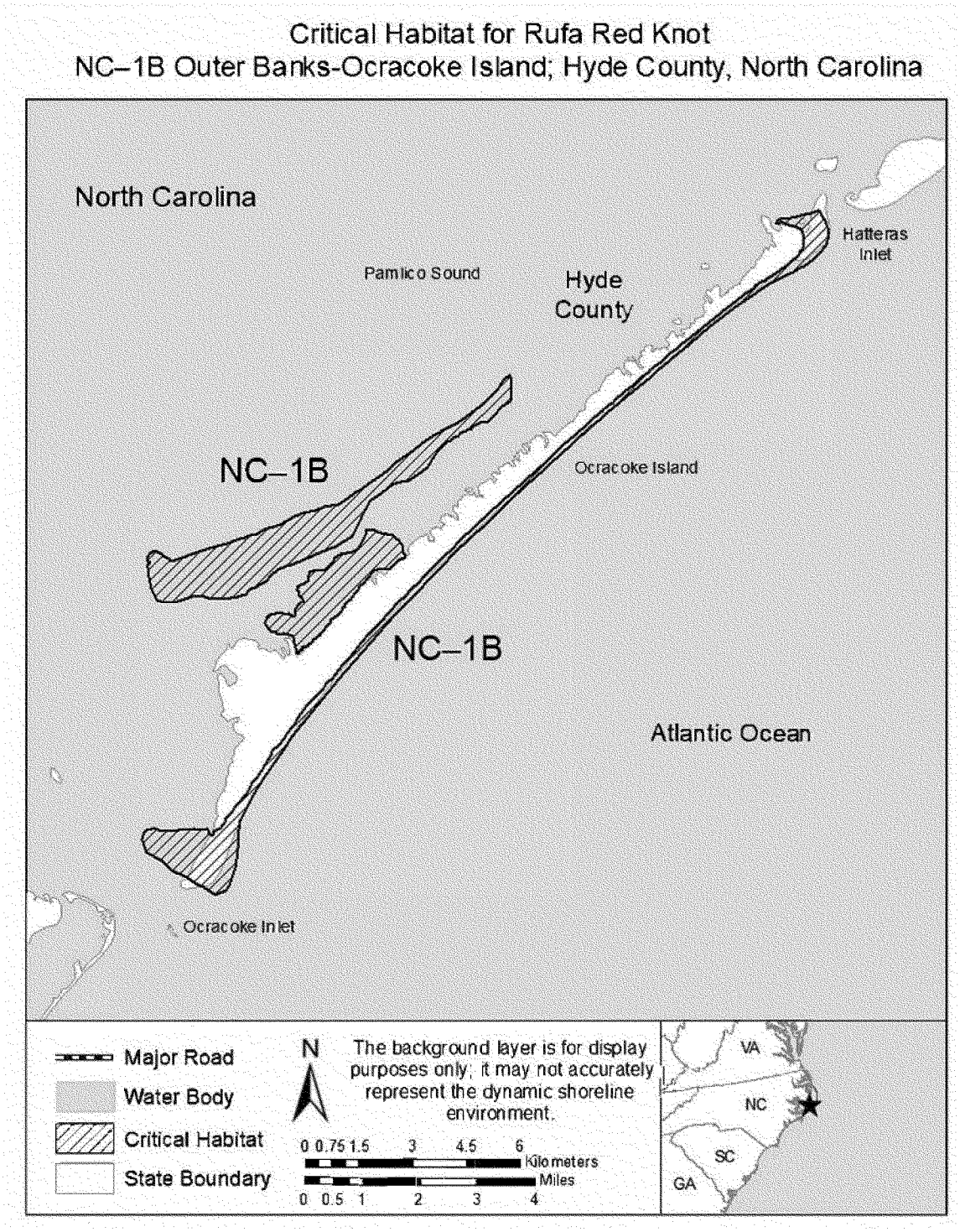


(iv) Subunit NC–1B (Ocracoke Island) consists of approximately 5,613 ac (2,271 ha) of occupied habitat in Hyde County consisting of beach shoreline from the southwest side of Hatteras Inlet along the ocean-facing side of the island to the northeast side of Ocracoke Inlet. This subunit also encompasses shallow areas and mudflats within Pamlico Sound on the west side of Ocracoke Island near Ocracoke Village. This subunit includes from MLLW (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide) to the toe of

the dunes or where densely vegetated habitat, not used by the rufa red knot, begins, including the flood-tidal and ebb-tidal deltas associated with the southwest side of Hatteras Inlet and the northeast side of Ocracoke Inlet, and the sand and mud islands identified in Pamlico Sound northeast of Ocracoke Village. Lands within this subunit include approximately 1,427 ac (577 ha) in Federal ownership (*i.e.,* the entire ocean-facing side of the Ocracoke Island, which is part of Cape Hatteras National Seashore), 3,612 ac (1,462 ha) in State ownership, and 575 ac (233 ha) that are uncategorized.

(v) Map of Subunit NC–1B follows:

Figure 33 to Rufa Red Knot paragraph (37)(v)



(38) Unit NC–2: Core Banks, North Carolina.

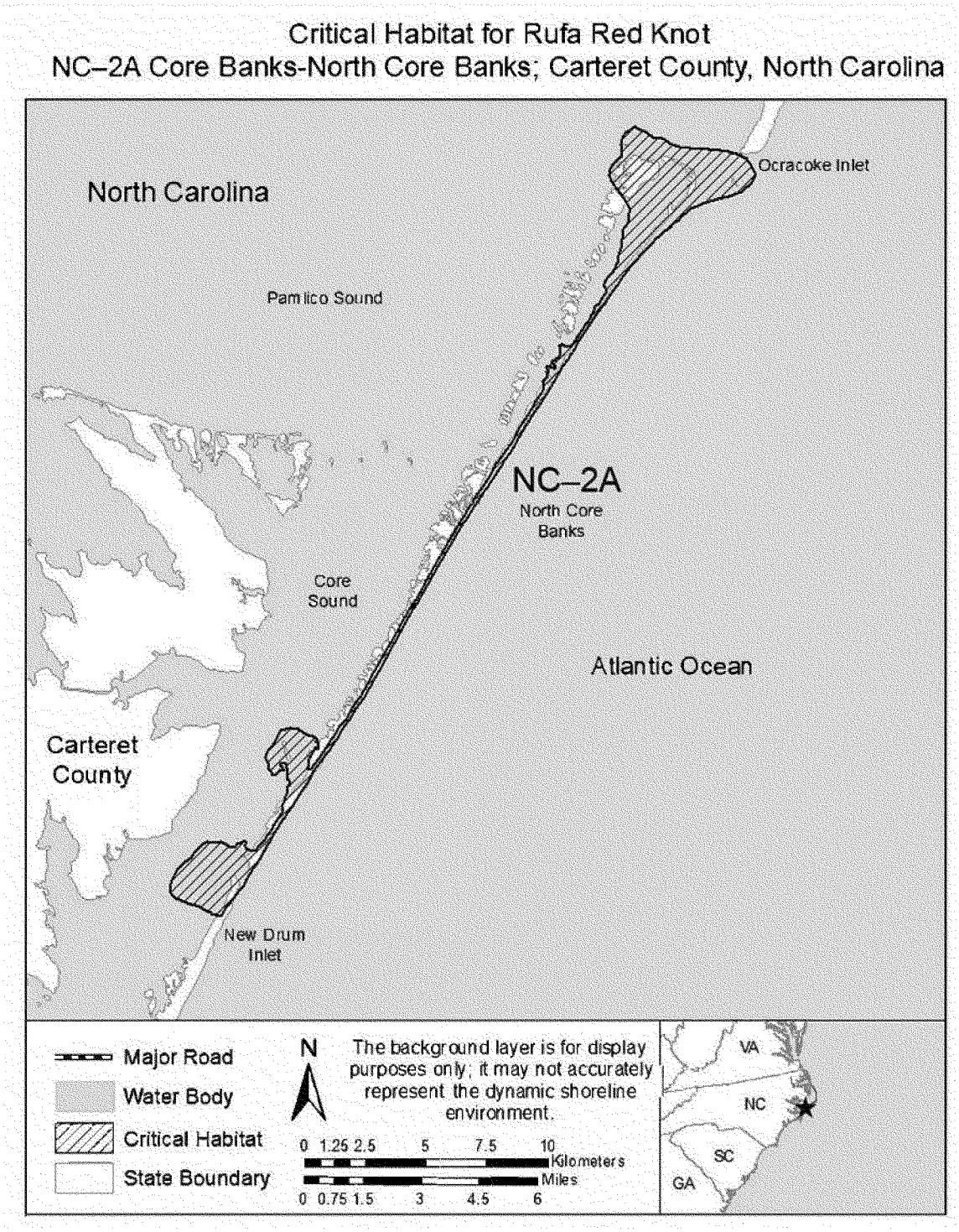
(i) Unit NC–2 consists of two subunits comprising 11,281 ac (4,565 ha) of occupied habitat in Carteret County. This unit consists of Federal lands owned by the NPS (Cape Lookout National Seashore).

(ii) Subunit NC–2A (North Core Banks) consists of approximately 8,187 ac (3,313 ha) of occupied habitat in Carteret County consisting of beach shoreline from the North Core Banks side of the Ocracoke Inlet channel south to the North Core Banks side of the New

Drum Inlet channel. The west boundary is the toe of the primary dune or dense vegetation line (where the physical or biological features do not occur), and the east boundary is MLLW on the Atlantic Ocean (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide). This subunit also includes MLLW on Core Sound to the MLLW on the Atlantic Ocean in washover areas associated with Old Drum Inlet, all emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the North Core Banks side of the Ocracoke Inlet channel, and the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the North Core Banks side of the New Drum Inlet channel. Lands within this subunit include 6,534 ac (2,644 ha) that are Federal ownership (Cape Lookout National Seashore) and 1,654 ac (669 ha) that are uncategorized.

(iii) Map of Subunit NC–2A follows:

Figure 34 to Rufa Red Knot paragraph (38)(iii)

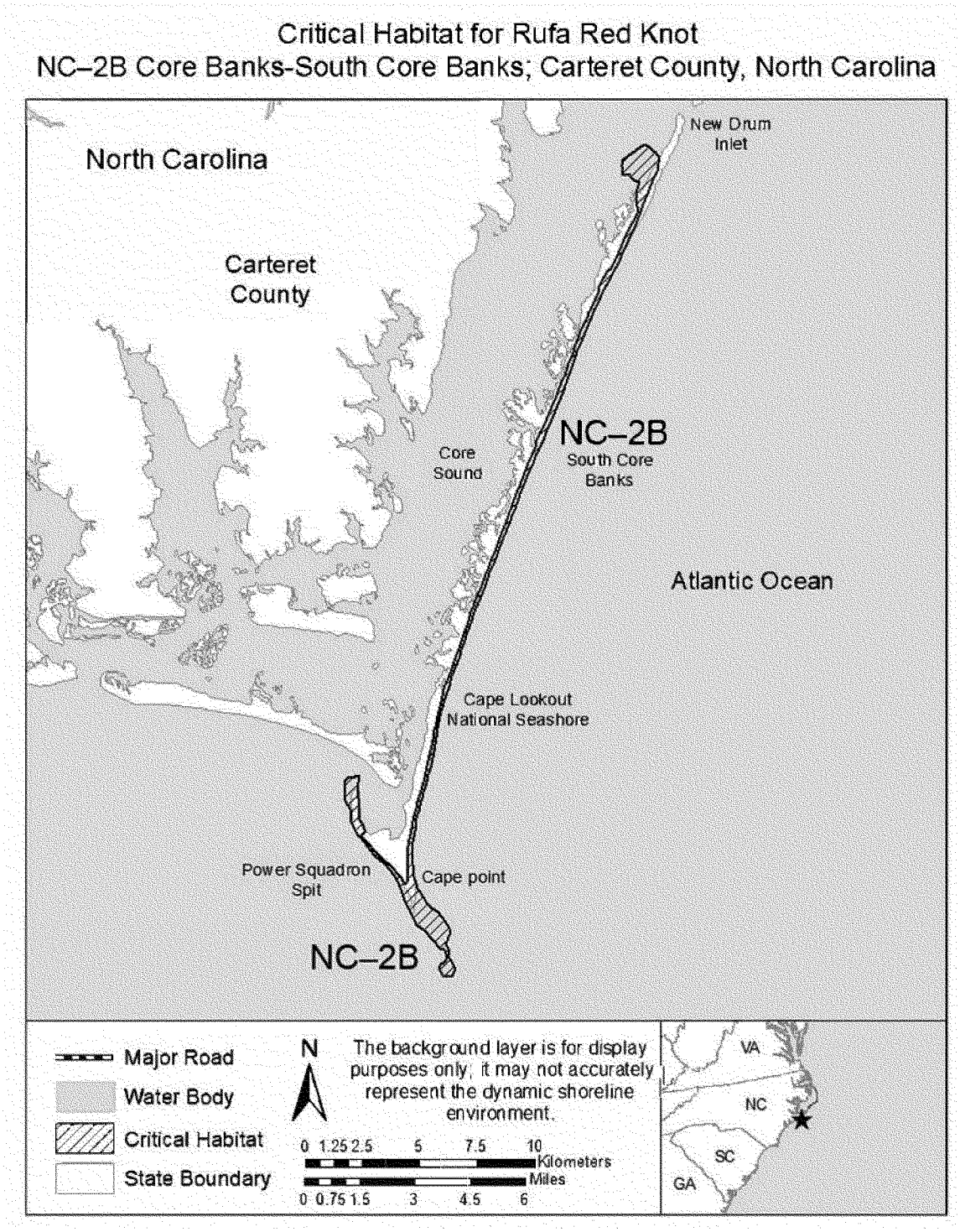


(iv) Subunit NC–2B (South Core Banks) consists of approximately 3,094 ac (1,252 ha) of occupied habitat in Carteret County consisting of beach shoreline from the South Core Banks side of the New Drum Inlet Channel south to the Power Squadron Spit excluding the jetty. The west boundary is at the toe of the primary dune or dense vegetation line where the physical or biological features do not occur, and the east boundary is MLLW on the Atlantic Ocean (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and

uncovered at low tide). This subunit also includes MLLW on Core Sound to the MLLW on the Atlantic Ocean in emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the South Core Banks side of the New Drum Inlet channel, and all emergent sand shoals associated with Cape Point. All of the lands within this subunit are under Federal ownership (Cape Lookout National Seashore).

(v) Map of Subunit NC–2B follows:

Figure 35 to Rufa Red Knot paragraph (38)(v)

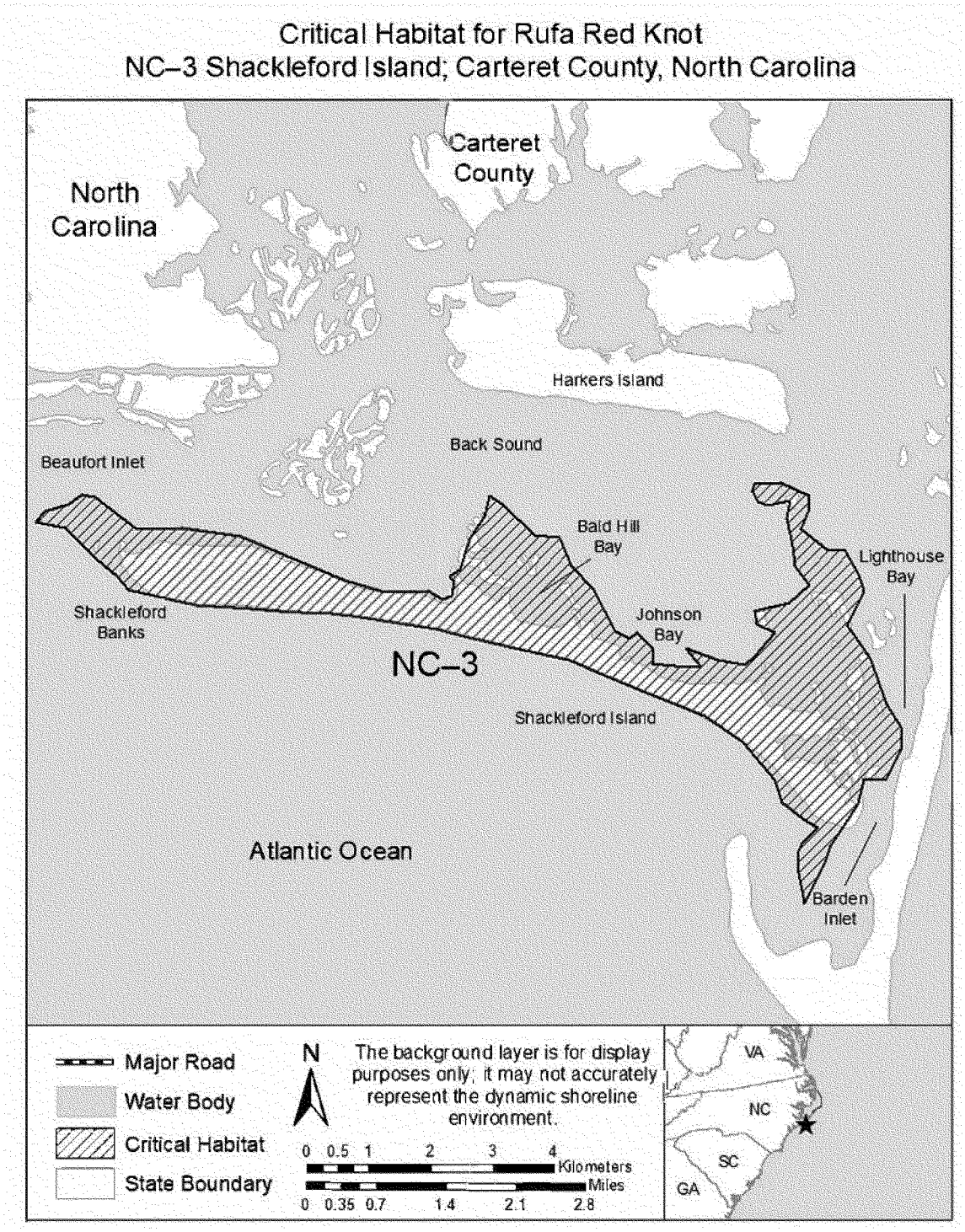


(39) Unit NC–3: Shackleford Island, North Carolina.

(i) Unit NC–3 consists of approximately 4,972 ac (2,012 ha) of occupied habitat in Carteret County consisting of shoreline habitat bounded to the north by the MLLW along Back Sound, Bald Hill, Johnson and Lighthouse Bays south to dense vegetation where the physical or biological features do not occur. The east boundary is the Shackleford Island side of Barden Inlet channel, the south boundary is MLLW on the Atlantic Ocean, and the west boundary is the Shackleford Island side of Beaufort Inlet Channel. This unit includes emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the Shackleford Island side of the Barden Inlet channel, and the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Beaufort Inlet channel (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide). All lands within this unit are in Federal ownership (Cape Lookout National Seashore).

(ii) Map of Unit NC–3 follows:

Figure 36 to Rufa Red Knot paragraph (39)(ii)



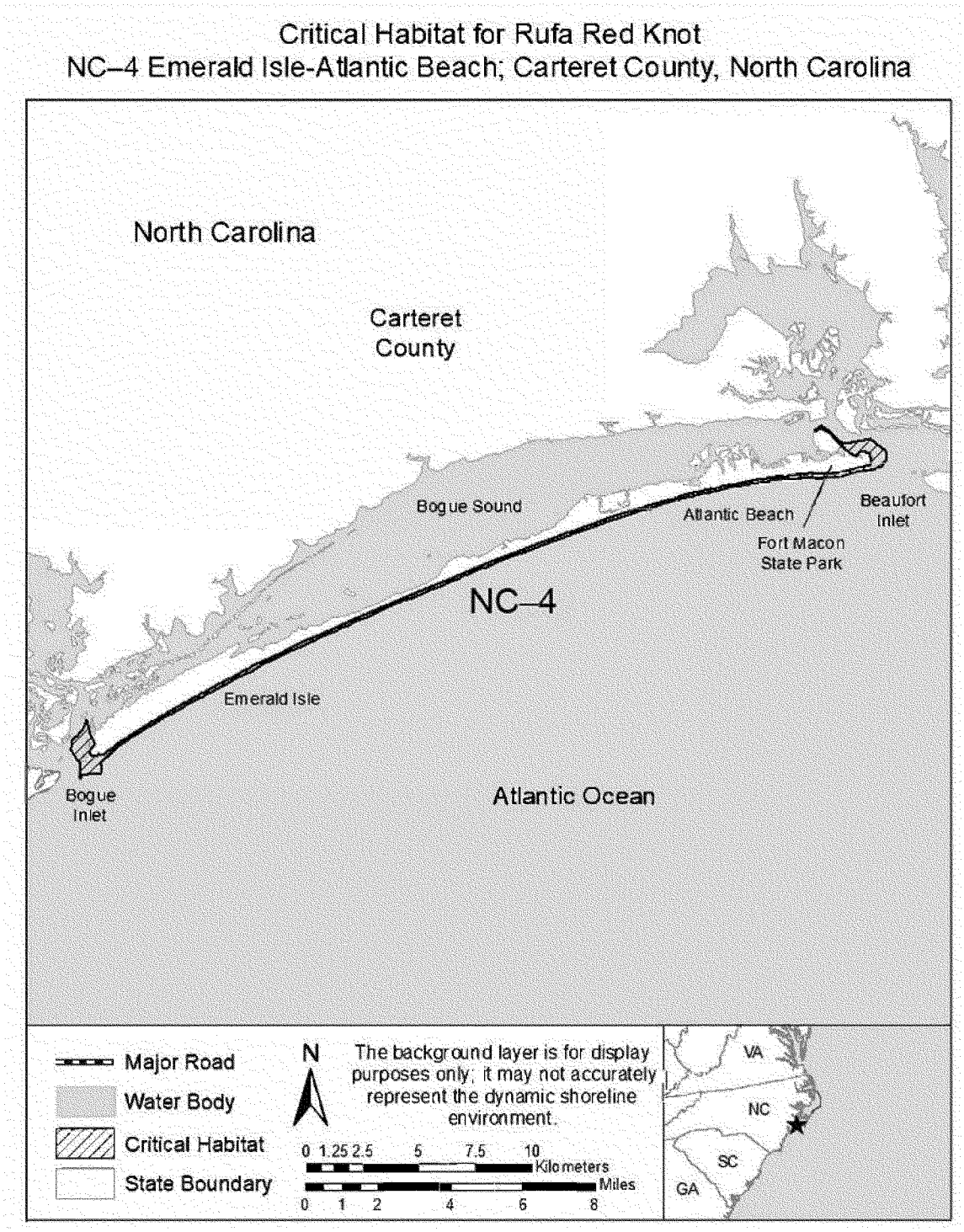
(40) Unit NC–4: Emerald Isle-Atlantic Beach, North Carolina.

(i) Unit NC–4 consists of approximately 2,030 ac (822 ha) of occupied habitat in Carteret County consisting of shoreline habitat that stretches about 23 mi (37 km) from the Beaufort Inlet channel and Fort Macon State Park west to the eastern side of the Bogue Inlet channel. Unit NC–4 includes from MLLW to the toe of the dunes or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. This

unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Beaufort Inlet channel, not including the jetty, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the Bogue Inlet channel. Lands within this unit include approximately 1,908 ac (772 ha) in State ownership and 122 ac (50 ha) in private/other ownership (which includes 1 ac (0.5 ha) in local government ownership and 121 ac (49 ha) in private ownership).

(ii) Map of Unit NC–4 follows:

Figure 37 to Rufa Red Knot paragraph (40)(ii)

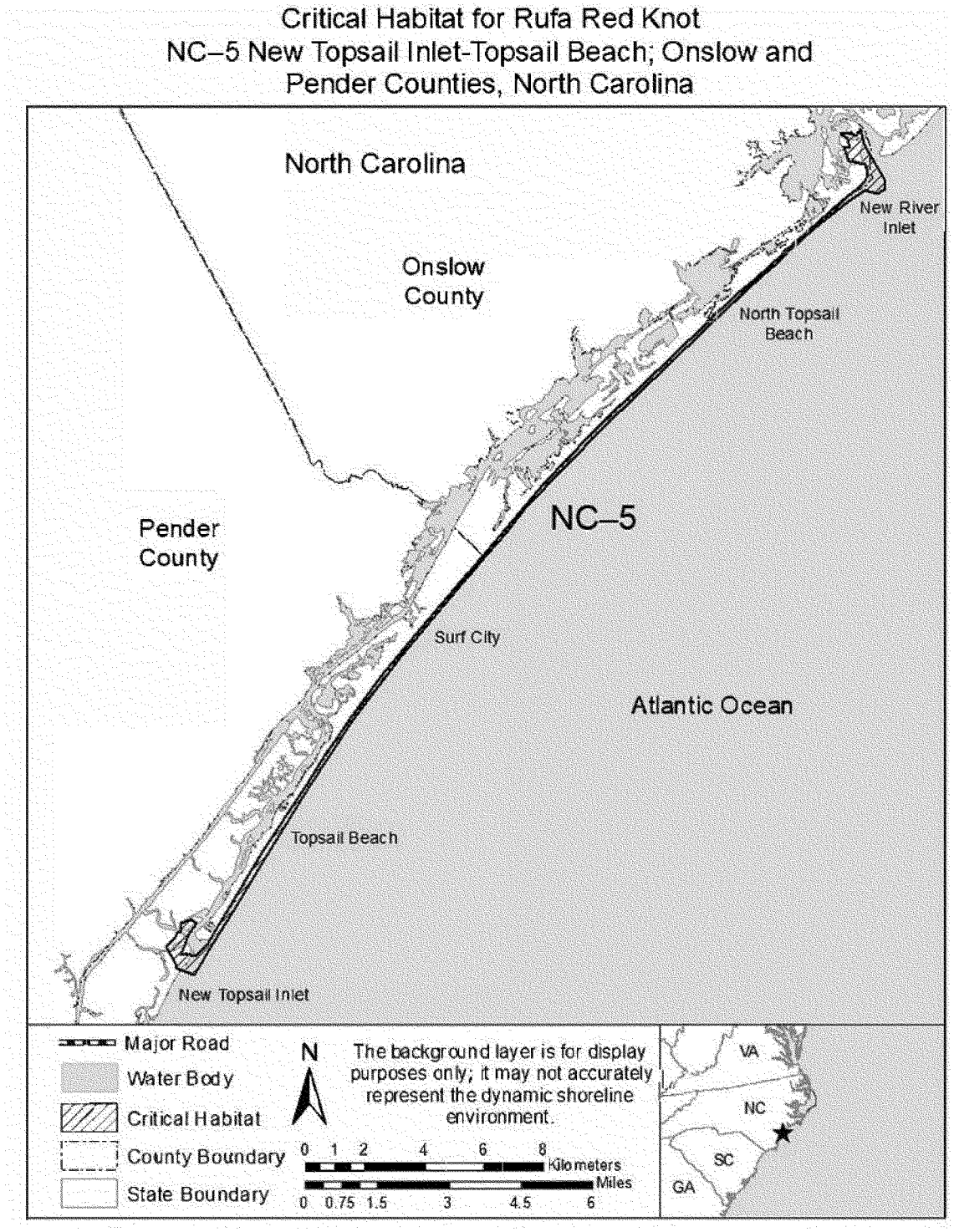


(41) Unit NC–5: New Topsail Inlet-Topsail Beach, North Carolina.

(i) Unit NC–5 consists of approximately 1,612 ac (652 ha) of occupied habitat in Onslow and Pender Counties consisting of shoreline habitat that stretches about 23 mi (37 km) from the west side of the New River Inlet channel west to the east side of the New Topsail Inlet channel. This unit includes from MLLW to the toe of the dunes or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. This unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the New River Inlet channel, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the New Topsail Inlet channel. All lands within this unit are in private/other ownership.

(ii) Map of Unit NC–5 follows:

Figure 38 to Rufa Red Knot paragraph (41)(ii)



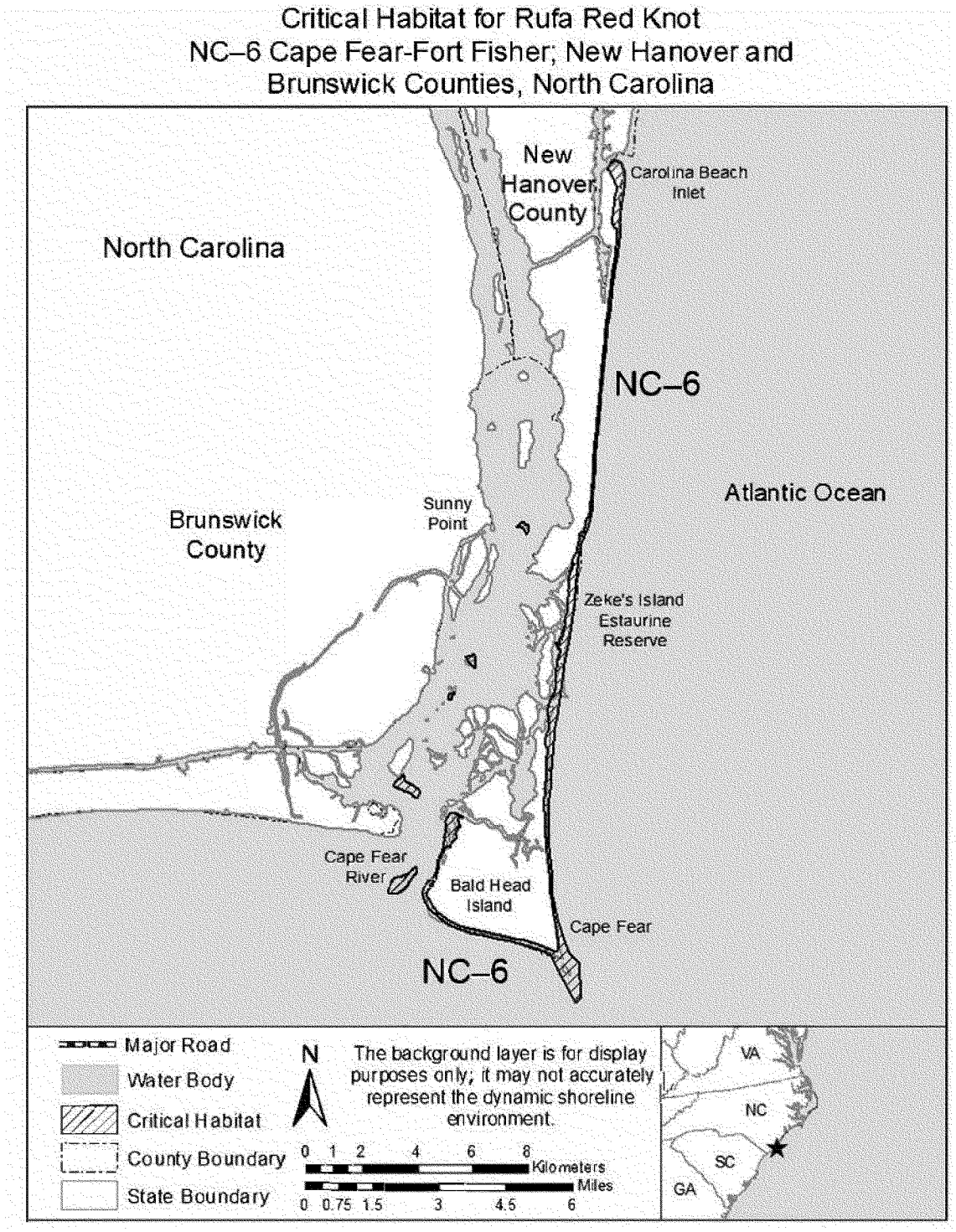
(42) Unit NC–6: Cape Fear-Fort Fisher, North Carolina.

(i) Unit NC–6 consists of approximately 1,986 ac (804 ha) of occupied coastal barrier island Carolina Beach Inlet in New Hanover County, North Carolina, to the mouth of the Cape Fear River in Brunswick County, North Carolina. The north boundary of this unit is the northeast tip of Pleasure Island south of Carolina Beach Inlet and the south boundary extends from the tip of Cape Fear west approximately 3.4 mi (5 km) to the mouth of the Cape Fear River. The west boundary is the toe of

the primary dune or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. The east boundary is MLLW on the Atlantic Ocean excluding groins and jetties. This unit also includes all emergent sand shoals associated with the tip of Cape Fear, the Cape Fear River south of Military Ocean Terminal Sunny Point, and the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the southwest side of Carolina Beach Inlet channel and the southwest tip of Bald Head Island. Lands within this unit include approximately 1,713 ac (693 ha) in State ownership and 274 ac (111 ha) in private/other ownership. State lands in this unit contain parts of Fort Fisher State Recreation Area and Zeke's Island Estuarine Reserve.

(ii) Map of Unit NC–6 follows:

Figure 39 to Rufa Red Knot paragraph (42)(ii)



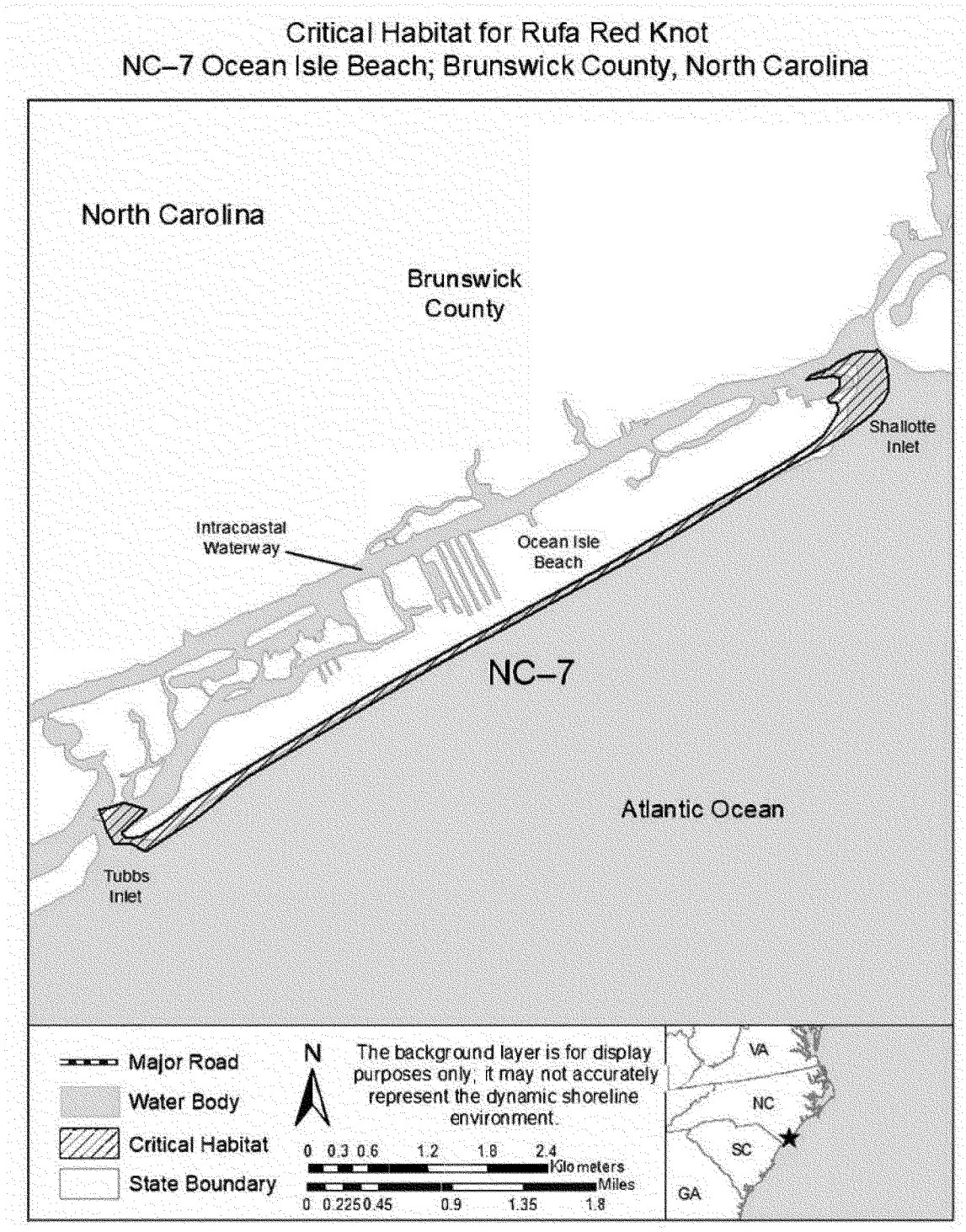
(43) Unit NC–7: Ocean Isle Beach, North Carolina.

(i) Unit NC–7 consists of approximately 298 ac (120 ha) of occupied coastal barrier island Carolina Beach Inlet in Brunswick County, stretching about 6 mi (10 km) from the west side of Shallotte Inlet to the east side of Tubbs Inlet. The east boundary of this unit is the west side of Shallotte Inlet. The south boundary is the MLLW on the Atlantic Ocean, the west boundary is the east side of Tubbs Inlet, and the north boundary is the toe of the primary dune or where densely

vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. This unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Shallotte Inlet channel, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the Tubbs Inlet channel. Lands within this unit include approximately 182 ac (73 ha) in State ownership and 116 ac (47 ha) in private/other (municipal) ownership.

(ii) Map of Unit NC–7 follows:

Figure 40 to Rufa Red Knot paragraph (43)(ii)

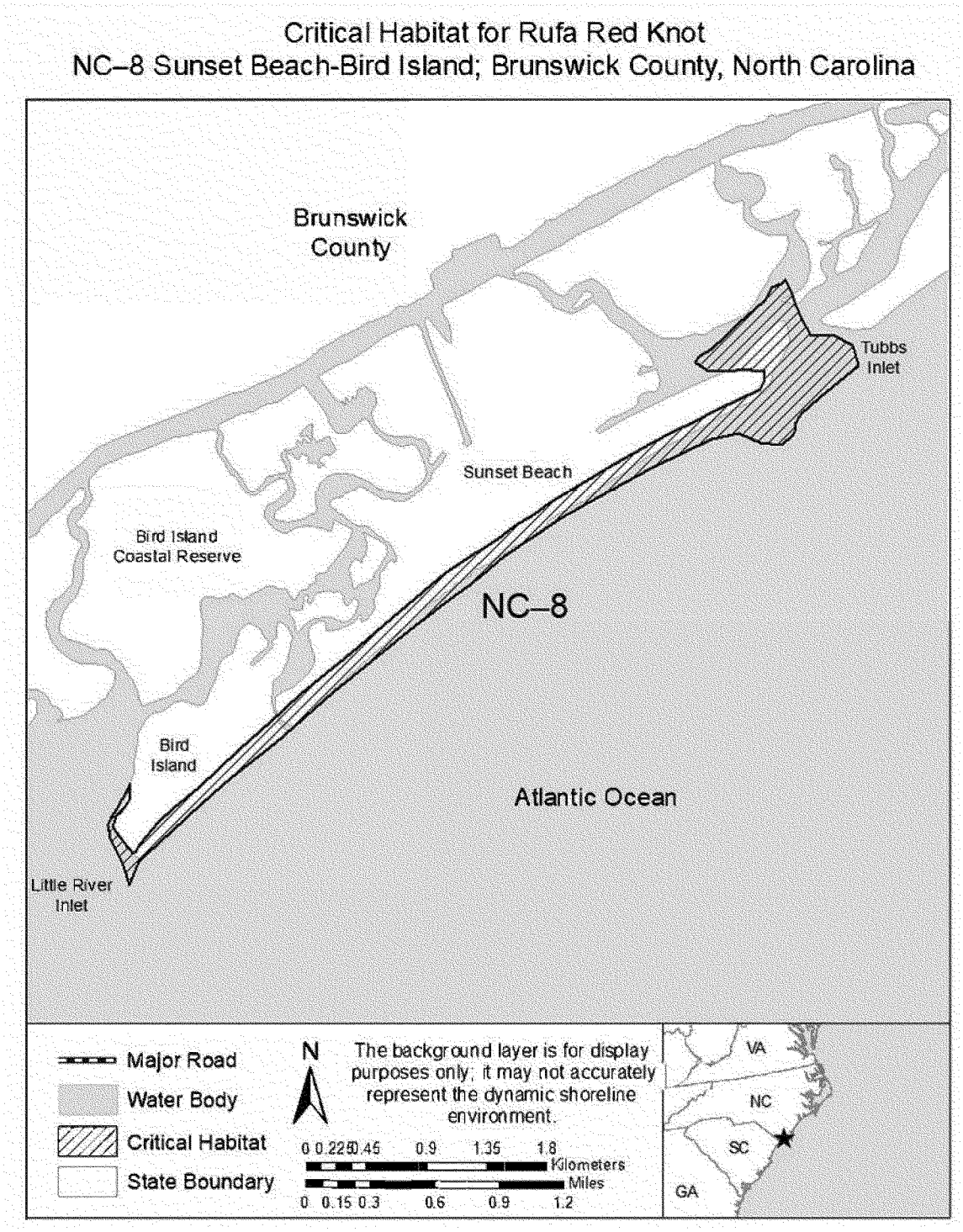


(44) Unit NC–8: Sunset Beach-Bird Island, North Carolina.

(i) Unit NC–8 consists of approximately 384 ac (155 ha) of occupied coastal barrier island in Brunswick County, stretching about 4.1 mi (6.6 km) from the west side of Tubbs Inlet to the east side of Little River Inlet. The east boundary of this unit is the west side of Tubbs Inlet. The south boundary is the MLLW on the Atlantic Ocean, the west boundary is the east side of Little River Inlet, and the north boundary is the toe of the primary dune or where densely vegetated habitat, not used by the rufa red knot, begins and where the physical or biological features no longer occur. This unit also includes the emergent sand shoals within the flood-tidal and ebb-tidal deltas associated with the west side of the Tubbs Inlet channel, as well as the emergent sand shoals within the flood-tidal and ebb-tidal deltas on the east side of the Little River Inlet channel, excluding the jetty. Lands within this unit include approximately 345 ac (139 ha) in State ownership (part of the North Carolina Coastal Reserve) and 39 ac (16 ha) in private/other ownership.

(ii) Map of Unit NC–8 follows:

Figure 41 to Rufa Red Knot paragraph (44)(ii)



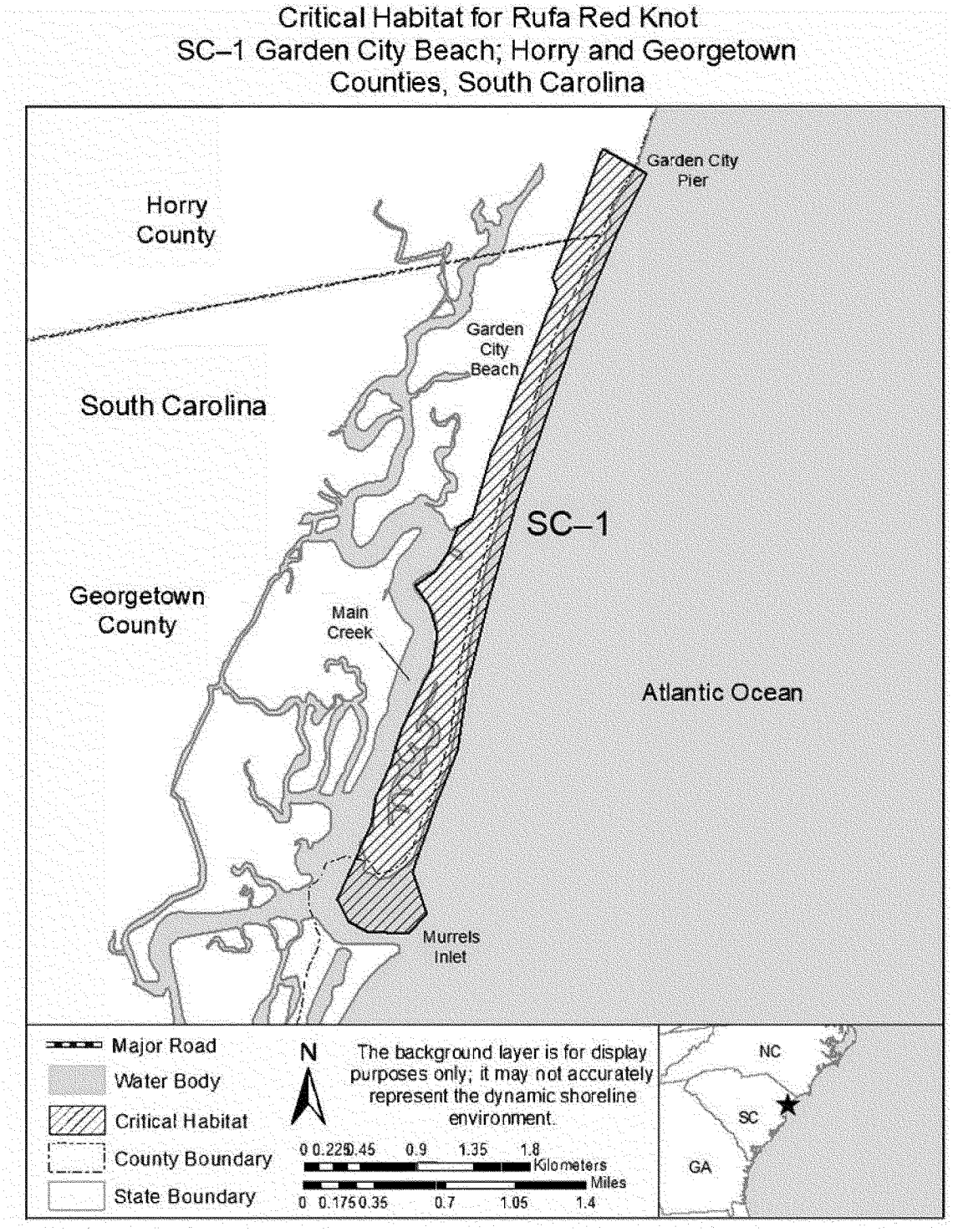
(45) Unit SC–1: Garden City Beach, South Carolina.

(i) Unit SC–1 consists of approximately 616 ac (249 ha) of occupied coastal shoreline habitat in Georgetown and Horry Counties. The northern boundary of the unit begins at the Garden City pier in Horry County and extends southwest to the northern side of Murrells Inlet in Georgetown County. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the

toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the northeastern side of Murrells Inlet's navigable channel. Lands within this unit include approximately 267 ac (108 ha) in State ownership and 349 ac (141 ha) in private/other ownership.

(ii) Map of Unit SC–1 follows:

Figure 42 to Rufa Red Knot paragraph (45)(ii)

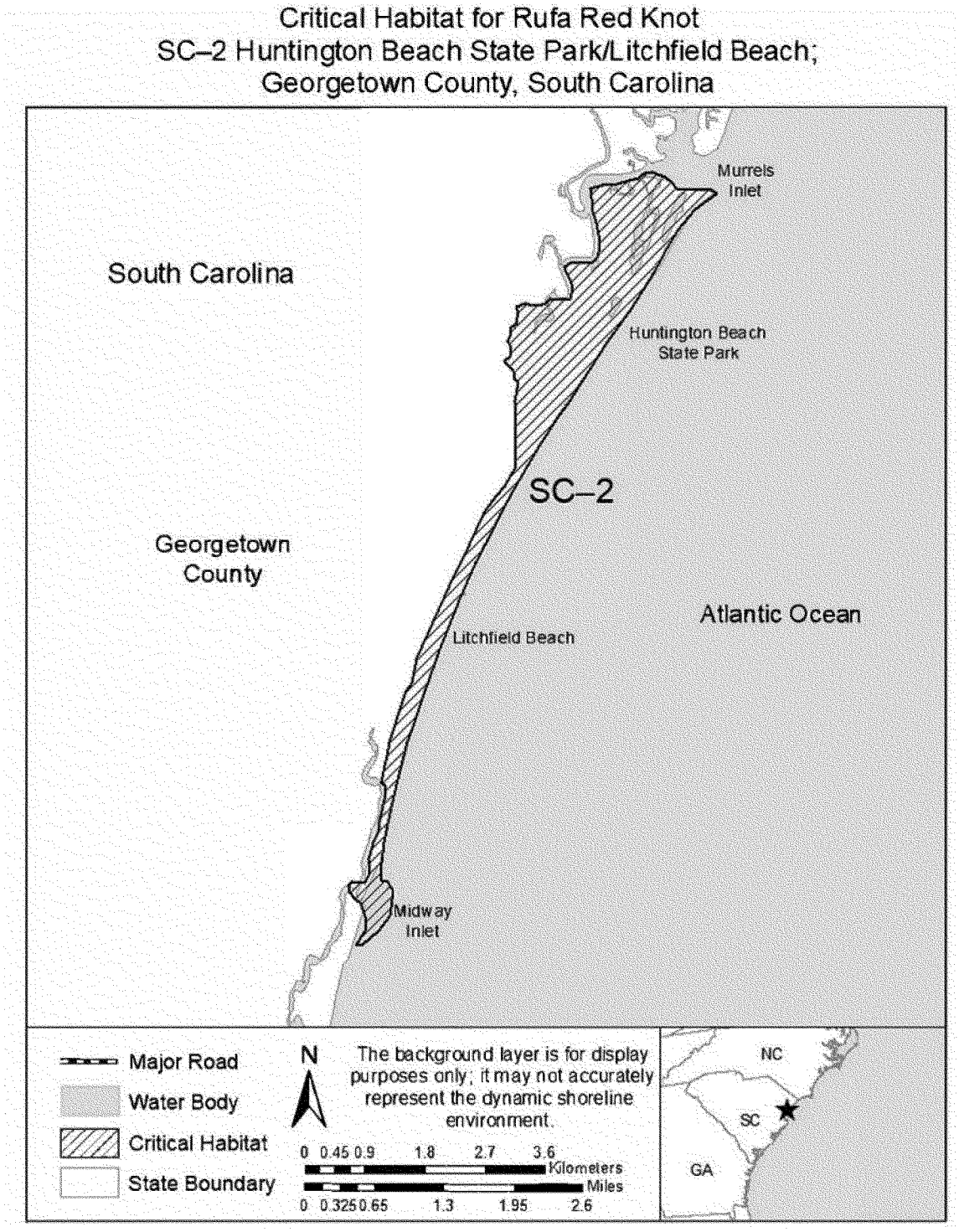


(46) Unit SC–2: Huntington Beach State Park/Litchfield Beach, South Carolina.

(i) Unit SC–2 consists of approximately 1,634 ac (661 ha) of occupied coastal shoreline habitat in Georgetown County. The unit boundary begins on the southern side of Murrells Inlet southwest and extends southwest to the northern side of Midway Inlet. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Murrells Inlet's navigable channel and the northeastern side of Midway Inlet's navigable channel. Lands within this unit include approximately 80 ac (32 ha) in State ownership, which includes Huntington Beach State Park, and 1,554 ac (629 ha) in private/other ownership.

(ii) Map of Unit SC–2 follows:

Figure 43 to Rufa Red Knot paragraph (46)(ii)



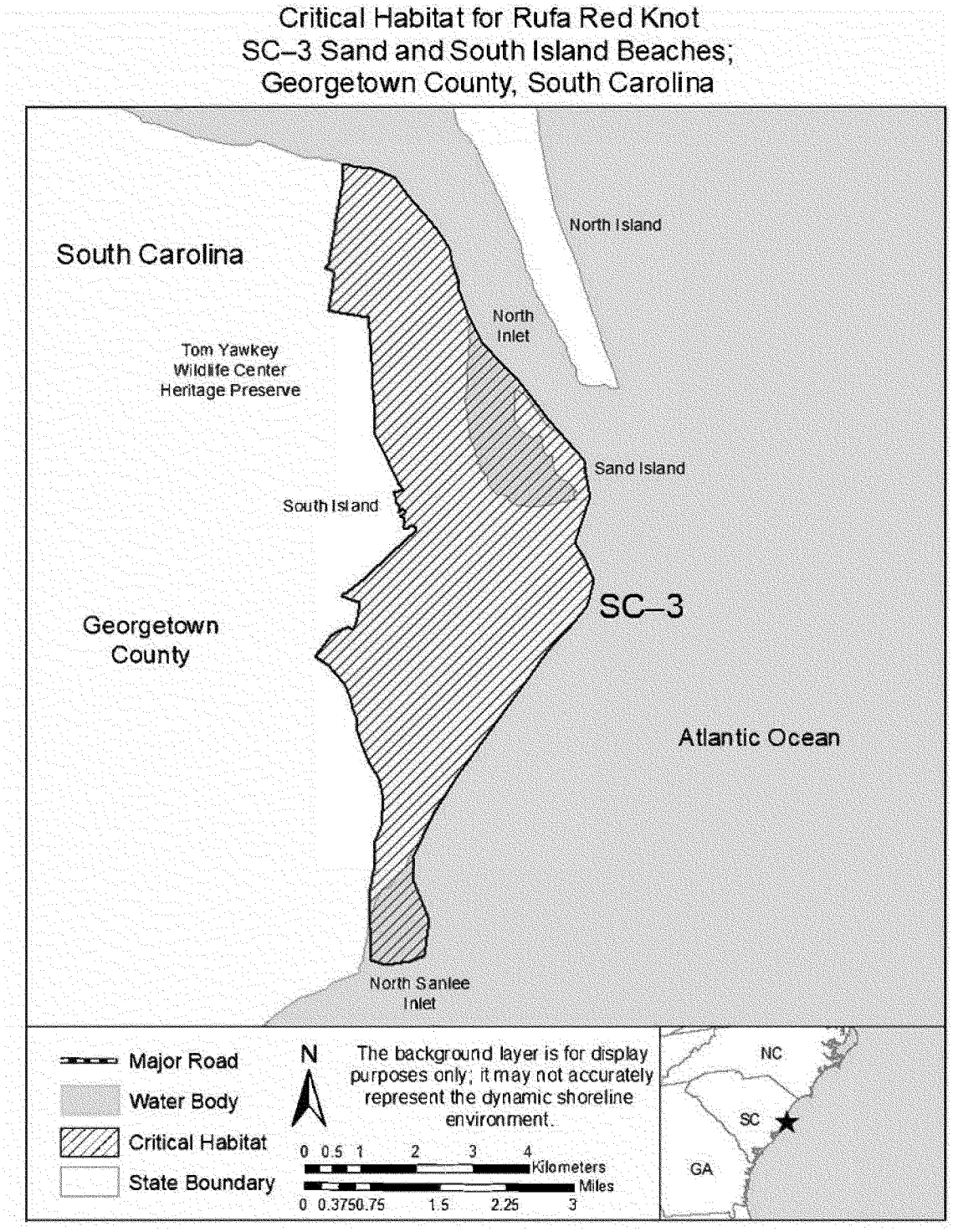
(47) Unit SC–3: Sand and South Island Beaches, South Carolina.

(i) Unit SC–3 consists of approximately 8,256 ac (3,341 ha) of occupied coastal shoreline habitat on Sand and South Islands, barrier islands off the coast of Georgetown County. The unit boundary begins on the northeastern edge of South Island in North Inlet behind North Island following the shoreline to include Sand Island and continuing southwest to the southern tip of South Island. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlet between Sand and South

Islands and the northeastern side of North Santee River Inlet's navigable channel. Lands within this unit include approximately 7,843 ac (3,174 ha) in State ownership (including the Tom Yawkey Wildlife Center Heritage Preserve), 129 ac (52 ha) in private/other ownership, and 283 ac (115 ha) that are uncategorized.

(ii) Map of Unit SC–3 follows:

Figure 44 to Rufa Red Knot paragraph (47)(ii)



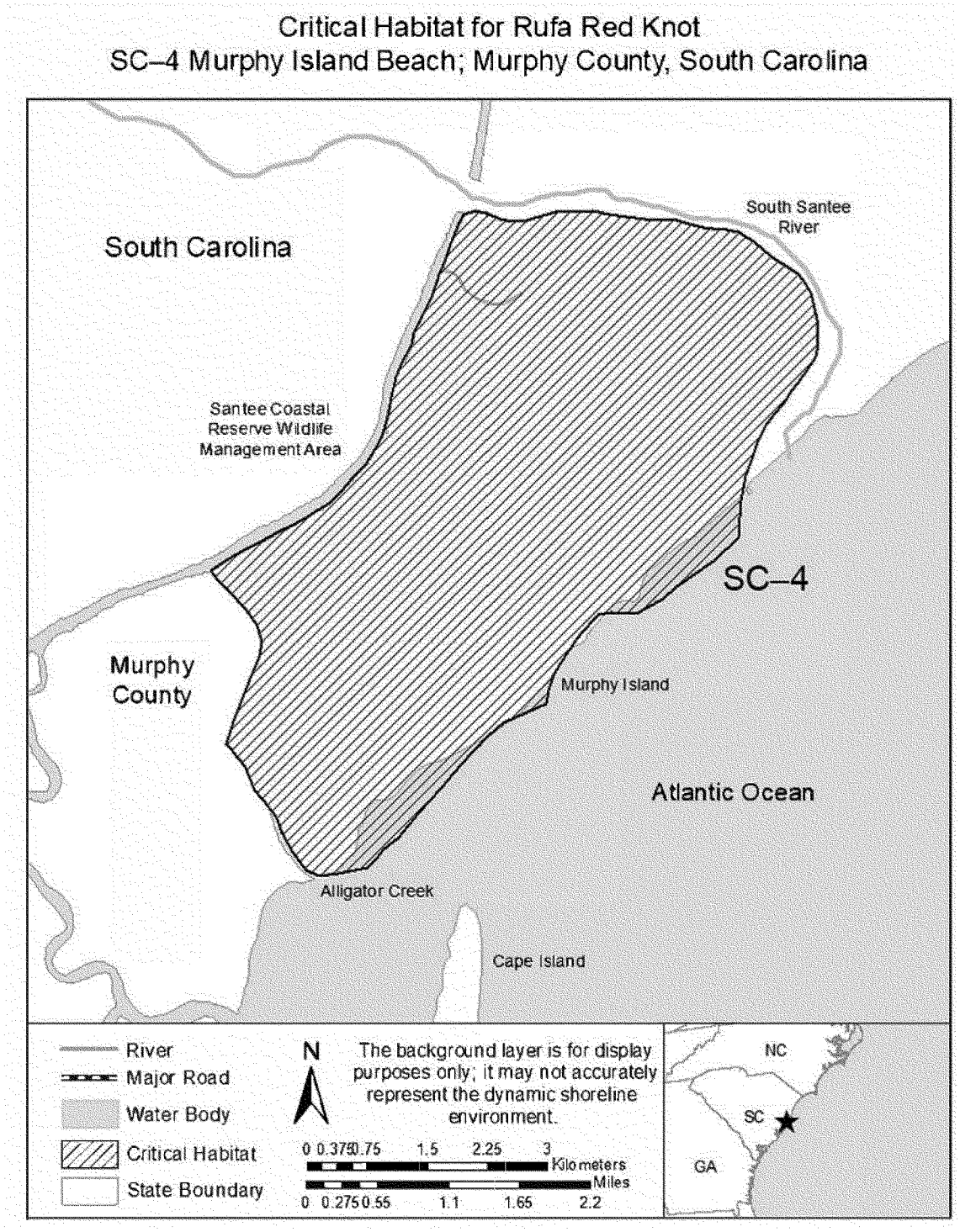
(48) Unit SC–4: Sand and South Island Beaches, South Carolina.

(i) Unit SC–4 consists of approximately 8,312 ac (3,364 ha) of occupied coastal shoreline habitat on all of Murphy Island, a barrier island off

the coast of Charleston County. The unit boundary begins on the South Santee River shoreline of Murphy's Island and extends to the Alligator Creek shoreline. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlets along the shoreline of Murphy Island. Lands within this unit are entirely in State ownership and the South Carolina Department of Natural Resources manages Murphy Island as part of the Santee Coastal Reserve Wildlife Management Area.

(ii) Map of Unit SC–4 follows:

Figure 45 to Rufa Red Knot paragraph (48)(ii)

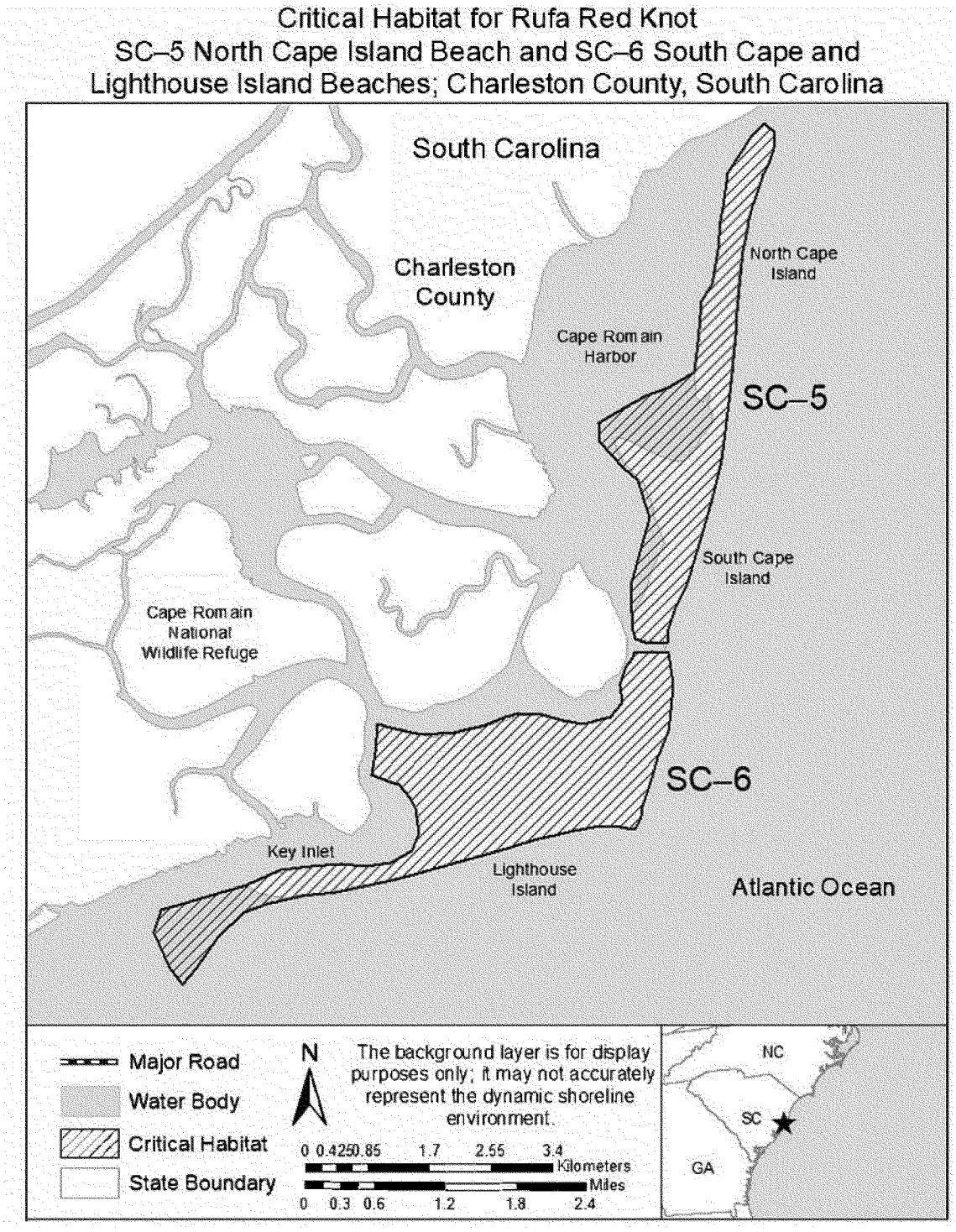


(49) Unit SC–5: North Cape Island Beach, South Carolina.

(i) Unit SC–5 consists of approximately 1,270 ac (514 ha) of occupied coastal shoreline habitat on the northern portion of Cape Island, a barrier island off the coast of Charleston County. The unit boundary begins on the Cape Romain Harbor shoreline of Cape Island and extends south to the shoreline along the unnamed inlet between North Cape and South Cape Islands. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the northern side of the navigable channel of the unnamed inlet between North Cape Island and South Cape Island. Lands within this unit include approximately 775 ac (313 ha) in Federal ownership (Cape Romain NWR) and 495 ac (200 ha) in State ownership.

(ii) Map of Unit SC–5 follows:

Figure 46 to Rufa Red Knot paragraph (49)(ii)



(50) Unit SC–6: South Cape and Lighthouse Island Beaches, South Carolina.

(i) Unit SC–6 consists of approximately 2,037 ac (824 ha) of occupied coastal shoreline habitat along the entire southern portion of Cape Island and all of Lighthouse Island, barrier islands off the coast, in Charleston County. The unit boundary begins at the northern tip of South Cape Island in the unnamed inlet between North Cape and South Cape Islands and extends to the western tip of Lighthouse Island in Key Inlet. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and

ebb-tidal deltas associated with the southern side of the navigable channel of the unnamed inlet between North Cape Island and South Cape Island and the emergent sand shoals associated with Key Inlet. Lands within this unit include approximately 1,552 ac (628 ha) in Federal ownership (Cape Romain NWR) and 485 ac (196 ha) in State ownership.

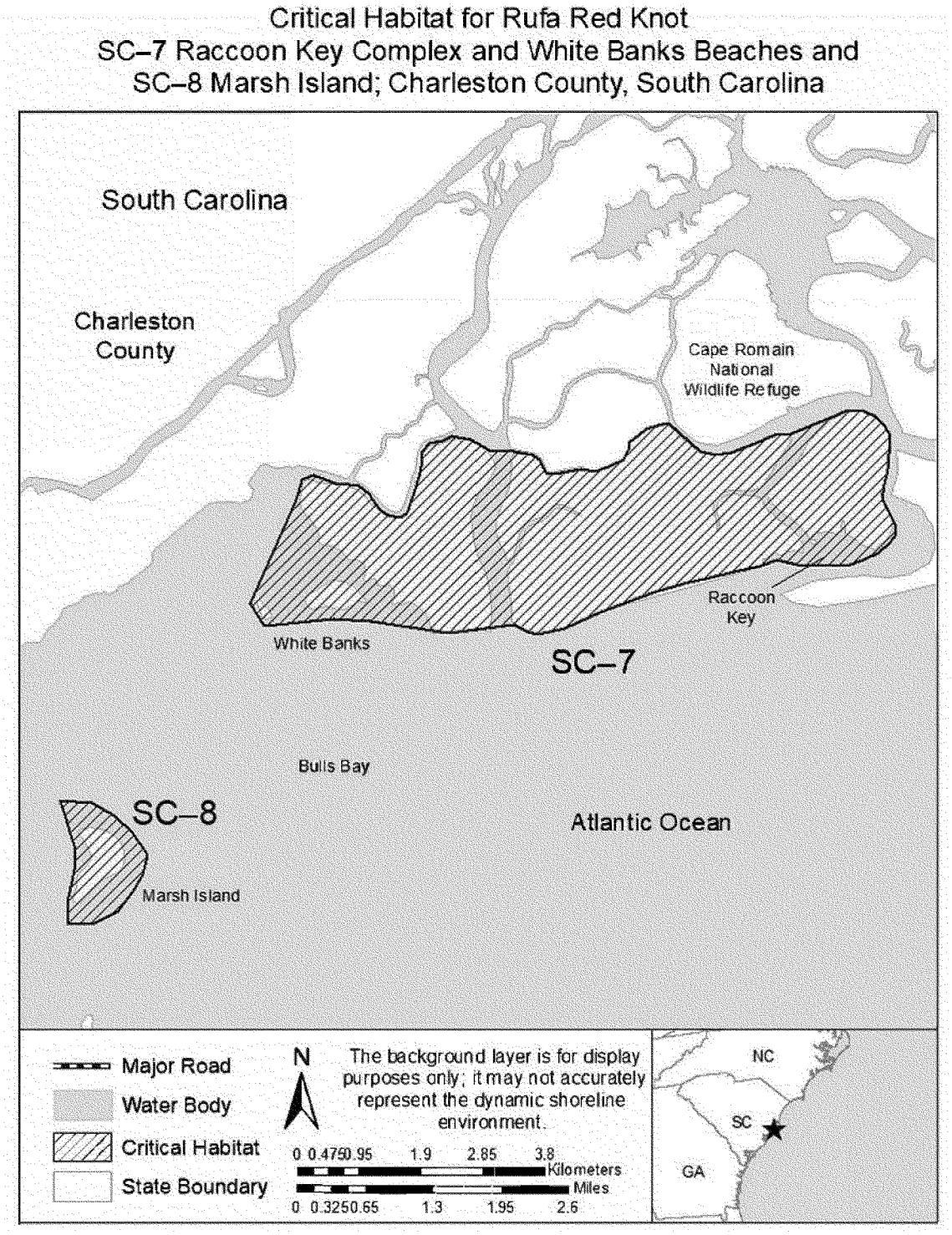
(ii) Map of Unit SC–6 is presented at paragraph (49)(ii) of this entry.

(51) Unit SC–7: Raccoon Key Complex and White Banks Beaches, South Carolina.

(i) Unit SC–7 consists of approximately 5,324 ac (2,154 ha) of occupied coastal shoreline habitat along the entire Raccoon Key complex and White Banks, islands off the coast, in Charleston County. The unit boundary begins at the intersection of the Romain River and Key Inlet side of Raccoon Key and extends to the western edge of White Banks in Bulls Bay. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlets in the Raccoon Key complex. Lands within this unit are all in Federal ownership (Cape Romain NWR).

(ii) Map of Unit SC–7 follows:

Figure 47 to Rufa Red Knot paragraph (51)(ii)



(52) Unit SC–8: Marsh Island, South Carolina.

(i) Unit SC–8 consists of approximately 415 ac (168 ha) of occupied habitat across the entirety of Marsh Island, which is an island in Bulls Bay, Charleston County. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Marsh Island. Lands within this unit include are all in Federal ownership (Cape Romain NWR).

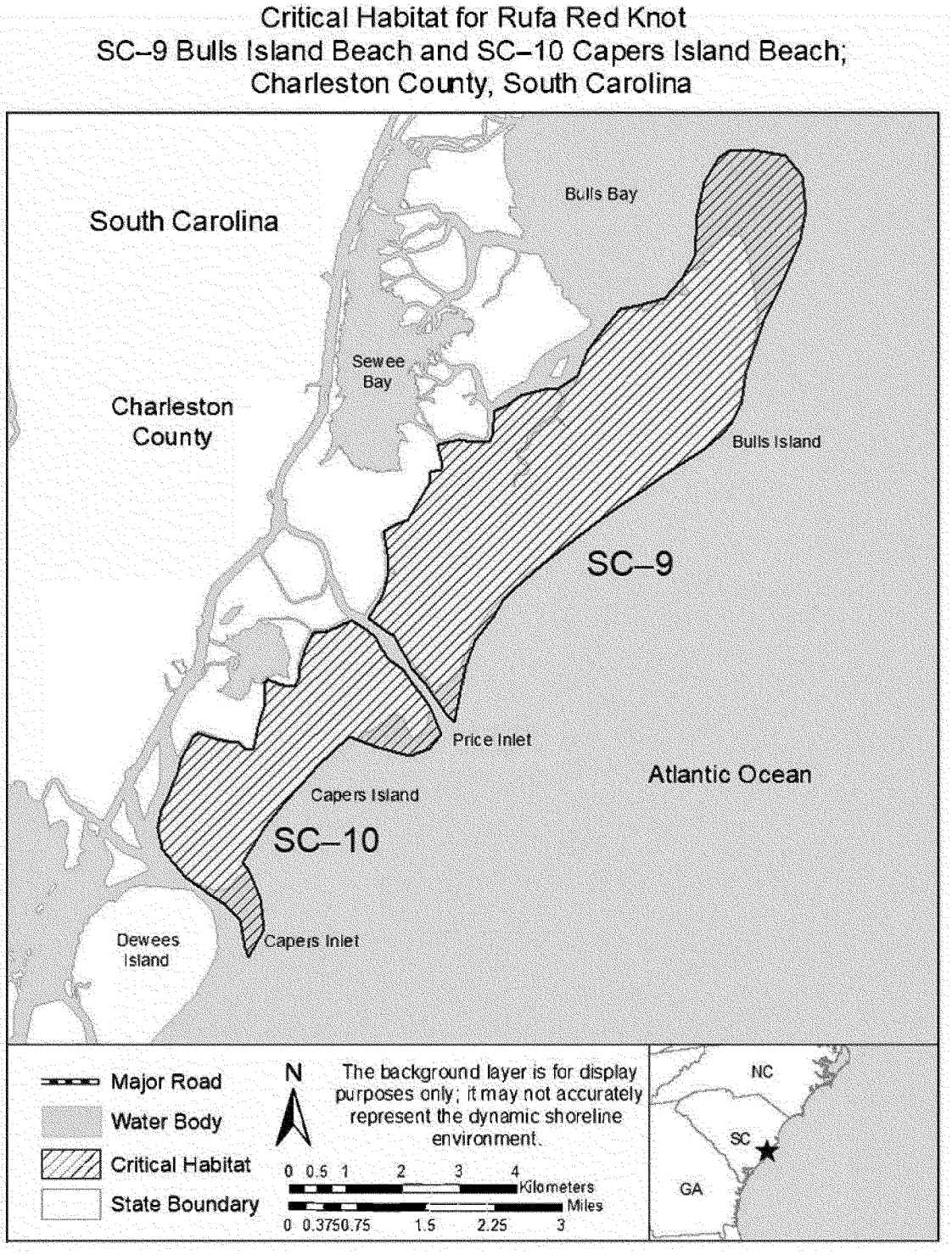
(ii) Map of Unit SC–8 is presented at paragraph (51)(ii) of this entry.

(53) Unit SC–9: Bulls Island Beach, South Carolina.

(i) Unit SC–9 consists of approximately 6,141 ac (2,485 ha) of occupied habitat across the entirety of Bulls Island, which is a barrier island along the coast of Charleston County. The unit boundary begins on the Bulls Bay shoreline of Bulls Island and extends southwest to the Price Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the northeastern side of Price Inlet's navigable channel. Lands within this unit include approximately 5,200 ac (2,104 ha) in Federal ownership (Cape Romain NWR) and 941 ac (381 ha) in State ownership.

(ii) Map of Unit SC–9 follows:

Figure 48 to Rufa Red Knot paragraph (53)(ii)



(54) Unit SC–10: Capers Island Beach, South Carolina.

(i) Unit SC–10 consists of approximately 2,534 ac (1,026 ha) of occupied habitat across the entirety of Capers Island, which is a barrier island off the coast of Charleston County. The unit boundary begins on the Price Inlet shoreline of Capers Island and extends southwest to the Capers Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Price's Inlet's navigable channel and the northeastern side of Capers Inlet's navigable channel. Lands within

this unit are entirely in State ownership (Capers Island Natural Heritage Preserve).

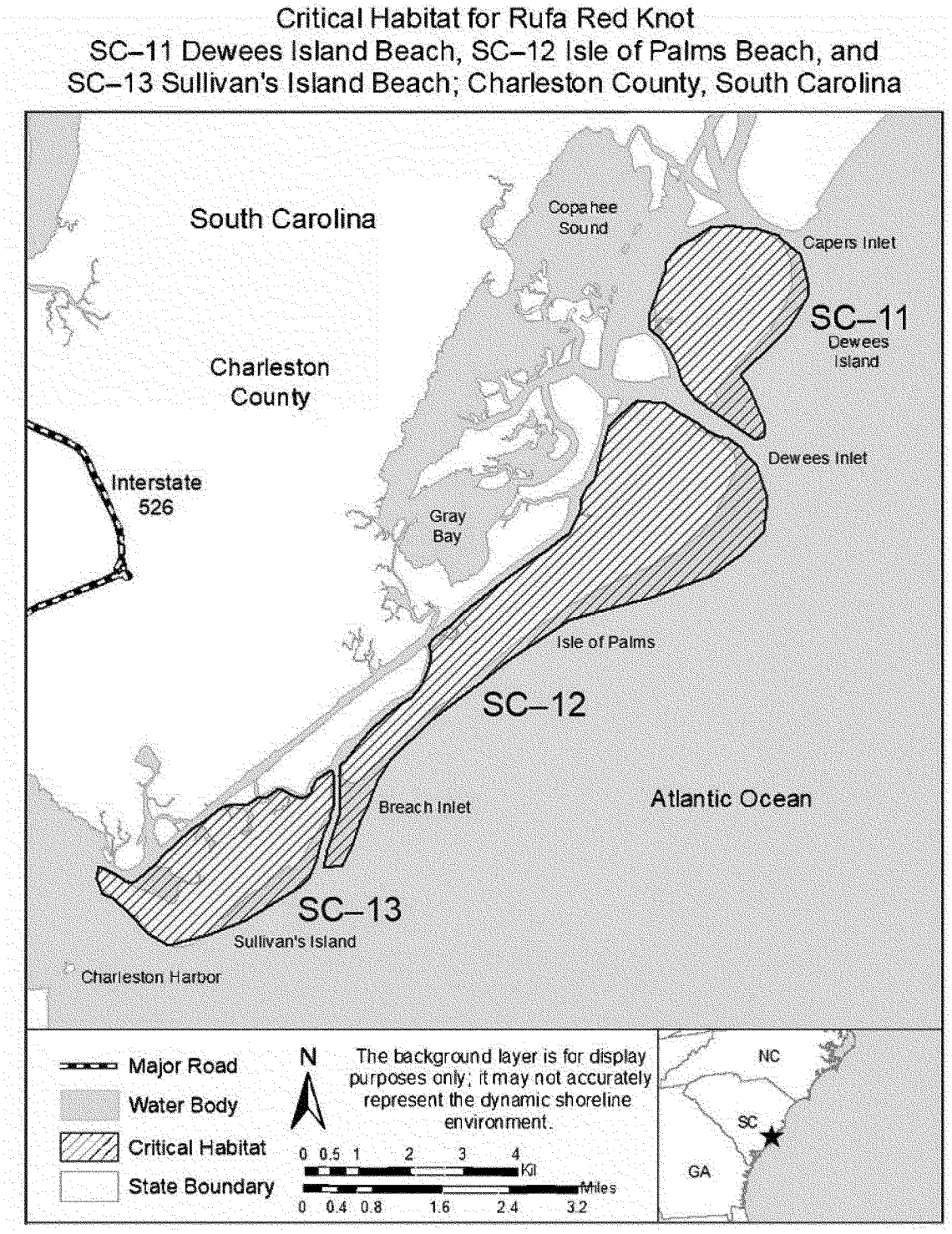
(ii) Map of Unit SC–10 is presented at paragraph (53)(ii) of this entry.

(55) Unit SC–11: Dewees Island Beach, South Carolina.

(i) Unit SC–11 consists of approximately 1,812 ac (733 ha) of occupied habitat across the entirety of Dewees Island, which is a barrier island off the coast of Charleston County. The unit boundary begins on the Capers Inlet shoreline of Dewees Island and extends to the Dewees Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Capers Inlet's navigable channel and the northeastern side of Dewees Inlet's navigable channel. Lands within this unit include approximately 265 ac (107 ha) in State ownership and 1,547 ac (626 ha) in private/other ownership.

(ii) Map of Unit SC–11 follows:

Figure 49 to Rufa Red Knot paragraph (55)(ii)



(56) Unit SC–12: Isle of Palms Beach, South Carolina.

(i) Unit SC–12 consists of approximately 4,117 ac (1,666 ha) of occupied habitat across the entirety of Isle of Palms, which is a barrier island off the coast of Charleston County. The unit boundary begins at the Dewees Inlet shoreline of the Isle of Palms and extends southwest to the Breach Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Dewees Inlet's navigable channel and the northeastern side of Breach Inlet's navigable channel.

Lands within this unit include approximately 754 ac (305 ha) in State ownership and 3,363 ac (1,361 ha) in private/other ownership.

(ii) Map of Unit SC–12 is presented at paragraph (55)(ii) of this entry.

(57) Unit SC–13: Sullivan's Island Beach, South Carolina.

(i) Unit SC–13 consists of approximately 1,782 ac (721 ha) of occupied habitat across the entirety of Sullivan's Island, which is a barrier island off the coast of Charleston County. The unit boundary begins on the Breach Inlet shoreline of Sullivan's Island and extends southwest to the Charleston Harbor shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Breach Inlet's navigable channel. Lands within this unit include approximately 83 ac (34 ha) in Federal ownership (Ft. Moultrie, which is part of Ft. Sumter National Monument), 694 ac (281 ha) in State ownership, and 1,005 ac (407 ha) in private/other ownership.

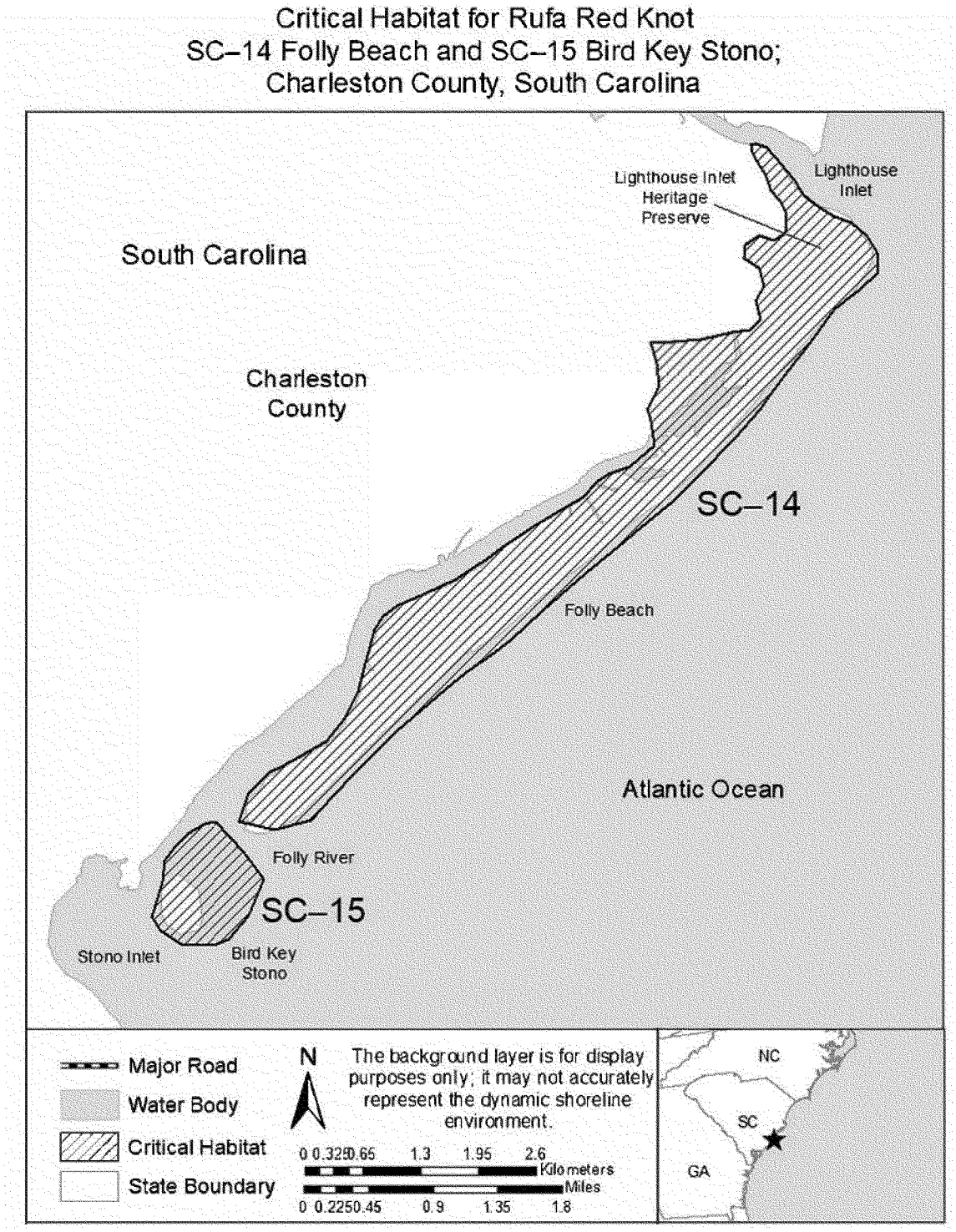
(ii) Map of Unit SC–13 is presented at paragraph (55)(ii) of this entry.

(58) Unit SC–14: Folly Beach, South Carolina.

(i) Unit SC–14 consists of approximately 1,989 ac (805 ha) of occupied habitat across the entirety of Folly Beach, which is a barrier island off the coast of Charleston County. The unit boundary begins on the Lighthouse Inlet shoreline of Folly Beach and extends southwest to the Folly River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Lighthouse Inlet's navigable channel and the Folly Beach side of the Folly River Inlet's navigable channel between Folly Beach and Bird Key. Lands within this unit are entirely in private/other land ownership within the city limits of the municipality of the City of Folly Beach.

(ii) Map of Unit SC–14 follows:

Figure 50 to Rufa Red Knot paragraph (58)(ii)



(59) Unit SC–15: Bird Key-Stono, South Carolina.

(i) Unit SC–15 consists of approximately 294 ac (119 ha) of occupied habitat across the entirety of Bird Key-Stono, an island in the mouth of the Stono Inlet in Charleston County. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of the Folly River Inlet. Lands within this unit are entirely in State ownership (managed as a State Seabird Sanctuary).

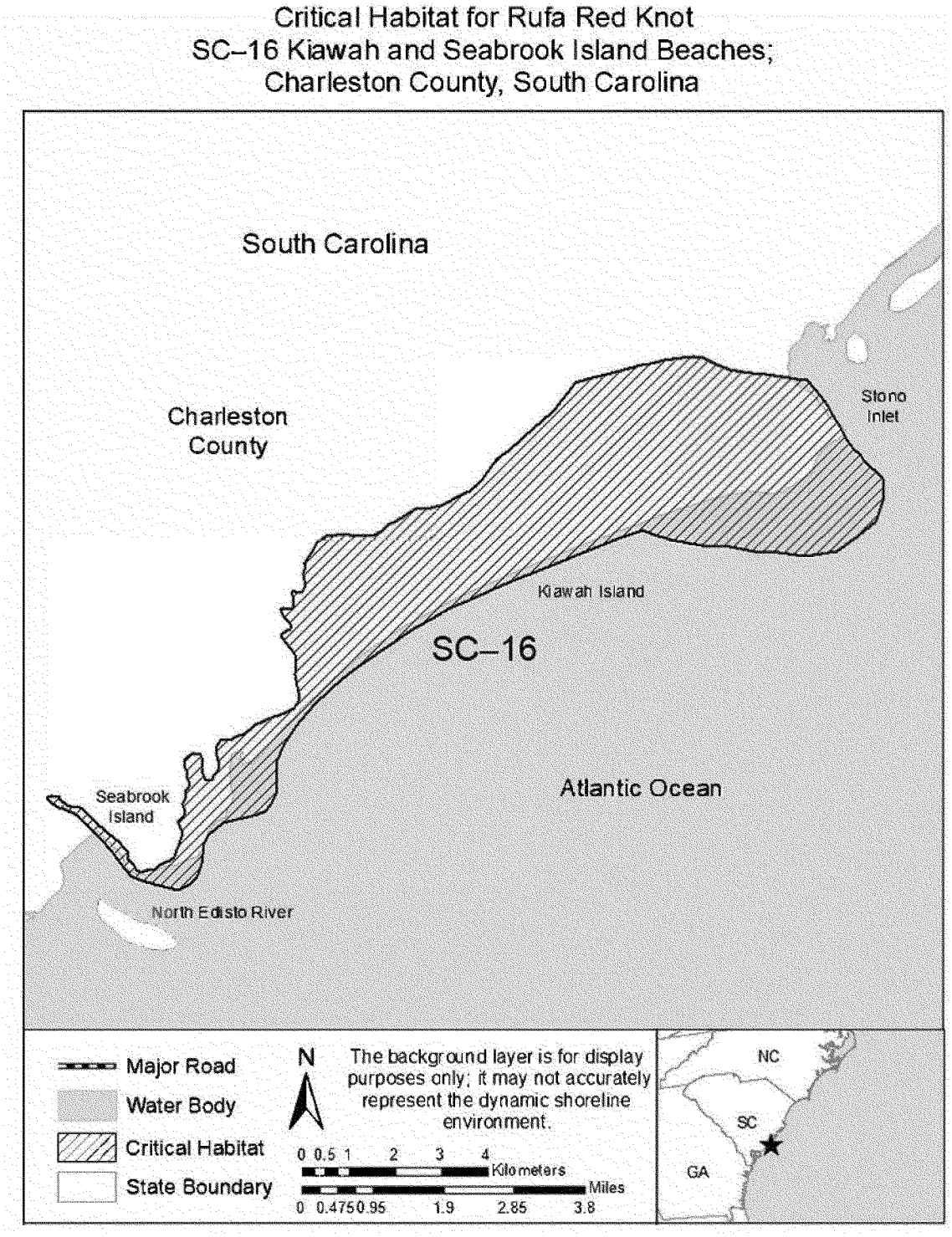
(ii) Map of Unit SC–15 is presented at paragraph (58)(ii) of this entry.

(60) Unit SC–16: Kiawah and Seabrook Island Beaches, South Carolina.

(i) Unit SC–16 consists of approximately 11,250 ac (4,553 ha) of occupied habitat across the entirety of Kiawah Island and a portion of Seabrook Island, which are barrier islands off the coast of Charleston County. The unit boundary begins on the Stono Inlet shoreline of Kiawah Island and extends southwest to the tip of the Seabrook Island shoreline in the North Edisto River. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the western side of the Stono Inlet and all of Captain Sam's Inlet. Lands within this unit include approximately 1,399 ac (566 ha) in State ownership and 9,850 ac (3,986 ha) in private/other ownership within the Town limits of the Town of Kiawah Island and the Town of Seabrook Island.

(ii) Map of Unit SC–16 follows:

Figure 51 to Rufa Red Knot paragraph (60)(ii)

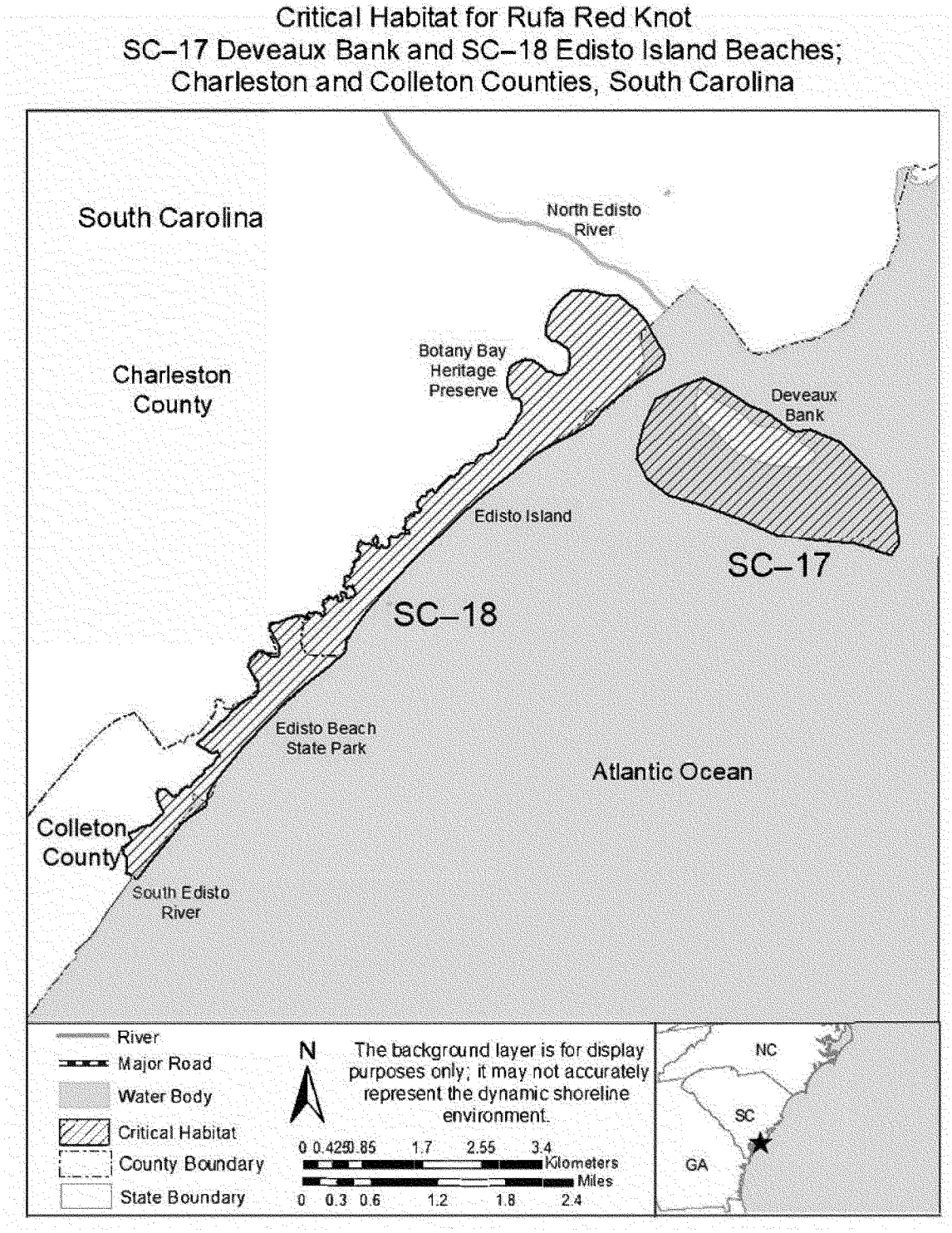


(61) Unit SC–17: Deveaux Bank, South Carolina.

(i) Unit SC–17 consists of approximately 1,328 ac (538 ha) of occupied habitat across the entirety of Deveaux Bank, an island in the mouth of the North Edisto River in Charleston County. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the mouth of the North Edisto River. Lands within this unit are entirely in State ownership (managed as a Seabird Sanctuary).

(ii) Map of Unit SC–17 follows:

Figure 52 to Rufa Red Knot paragraph (61)(ii)



(62) Unit SC–18: Edisto Island Beaches, South Carolina.

(i) Unit SC–18 consists of approximately 1,743 ac (705 ha) of occupied beach habitat on Edisto Island, a barrier island off the coast of Charleston and Colleton Counties. The unit includes all of Botany Bay Island, Botany Bay Plantation, Interlude Beach, and Edingsville Beach, and a portion of Edisto Beach State Park. The unit boundary begins on the North Edisto River shoreline of Botany Bay Island and extends southwest to the undeveloped eastern half of the beachfront portion of Edisto Beach State Park southwest of Jeremy Inlet. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic

shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Frampton and Jeremy Inlets and the unnamed inlet separating Interlude Beach and Botany Bay Plantation. Lands within this unit include approximately 650 ac (263 ha) in State ownership (including Edisto Beach State Park and Botany Bay Heritage Preserve/Wildlife Management Area) and 1,093 ac (442 ha) in private/other ownership.

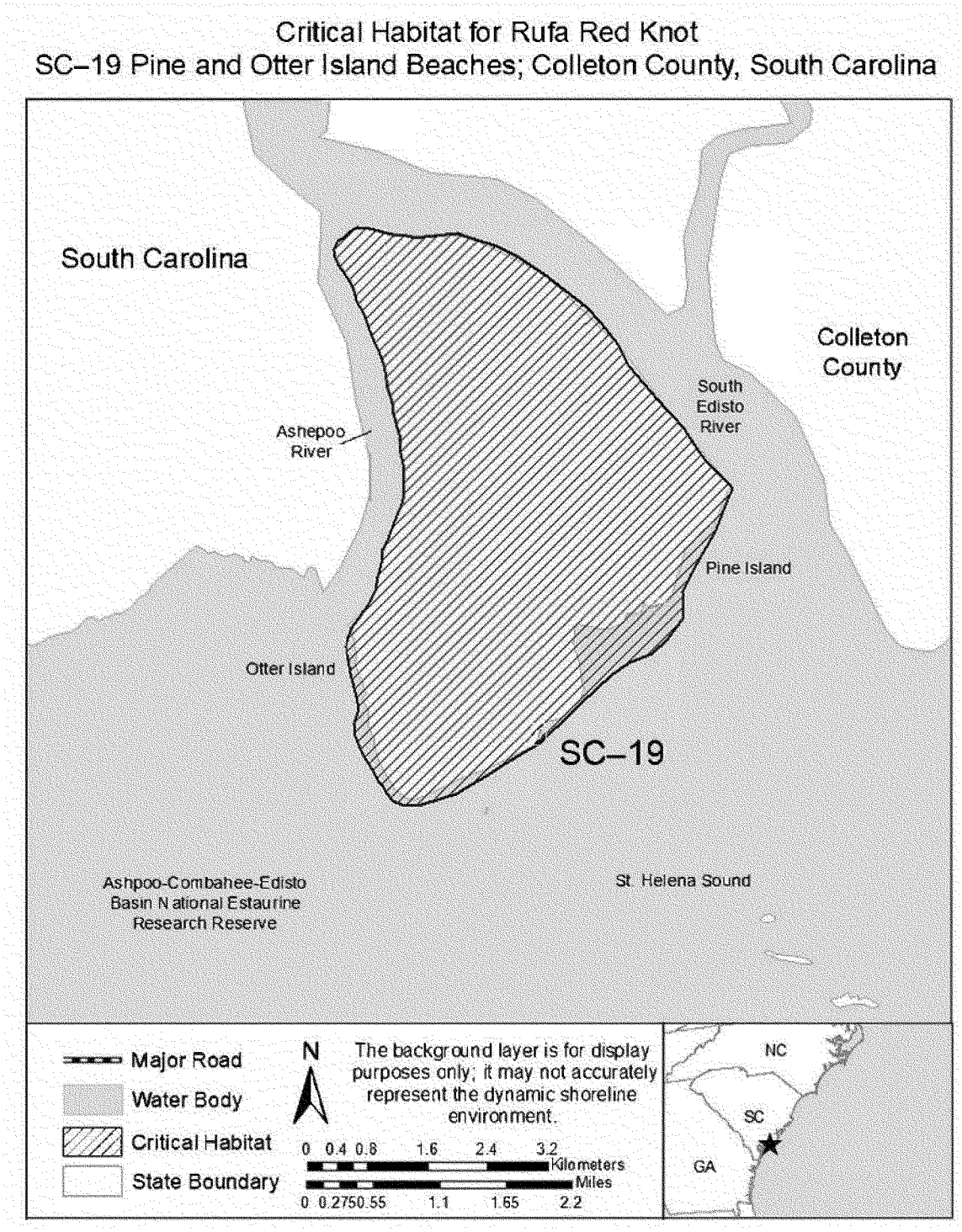
(ii) Map of Unit SC–18 is presented at paragraph (61)(ii) of this entry.

(63) Unit SC–19: Pine and Otter Island Beaches, South Carolina.

(i) Unit SC–19 consists of approximately 6,302 ac (2,550 ha) of occupied habitat across the entirety of Pine and Otter Islands, both of which are sea islands in St. Helena Sound in Colleton County. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Fish Creek Inlet. Lands within this unit include approximately 6,296 ac (2,548 ha) in State ownership (including the Ashepoo-Combahee-Edisto Basin Preserve/Wildlife Management Area and the St. Helena Sound Heritage Preserve/Wildlife Management Area) and 6 ac (2 ha) in private/other ownership.

(ii) Map of Unit SC–19 follows:

Figure 53 to Rufa Red Knot paragraph (63)(ii)



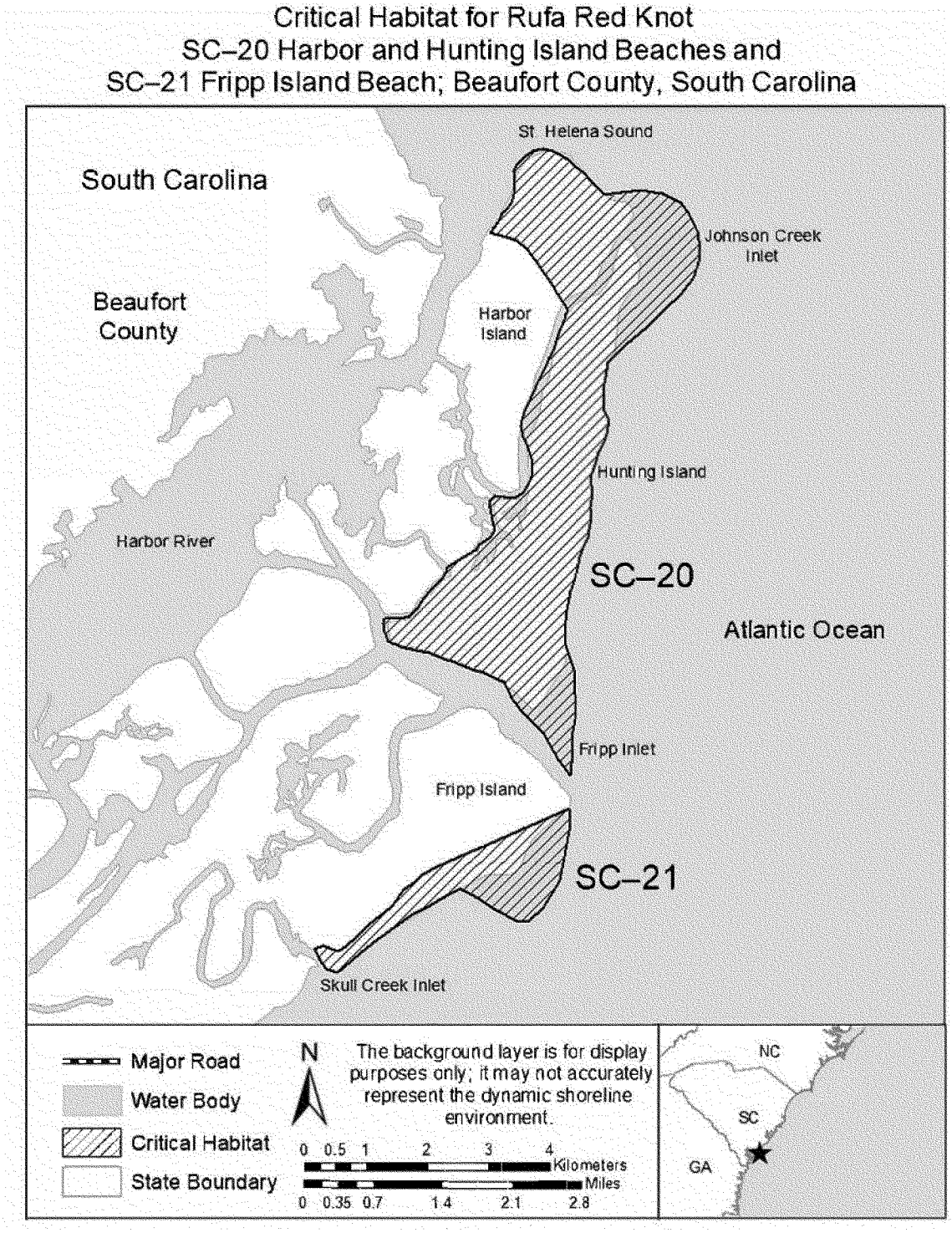
(64) Unit SC–20: Harbor and Hunting Island Beaches, South Carolina.

(i) Unit SC–20 consists of approximately 4,066 ac (1,645 ha) of occupied habitat on Harbor and Hunting Islands, both of which are barrier islands off the coast of Beaufort County. The unit boundary begins on the Harbor River shoreline of Harbor Island and extends southwest to the Fripp Inlet shoreline of Hunting Island. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Johnson Creek Inlet. Lands within this unit include approximately 3,246 ac (1,313 ha) in

State ownership (including Hunting Island State Park) and 820 ac (331 ha) in private/other ownership.

(ii) Map of Unit SC–20 follows:

Figure 54 to Rufa Red Knot paragraph (64)(ii)



(65) Unit SC–21: Fripp Island Beach, South Carolina.

(i) Unit SC–21 consists of approximately 734 ac (297 ha) of occupied habitat on Fripp Island, a barrier island off the coast of Beaufort County. The unit boundary begins on the Fripp Inlet shoreline of Fripp Inlet and extends southwest to the Skull Creek Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated

habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Fripp Inlet. Lands within this unit include approximately 305 ac (124 ha) in State ownership and 429 ac (174 ha) in private/other ownership.

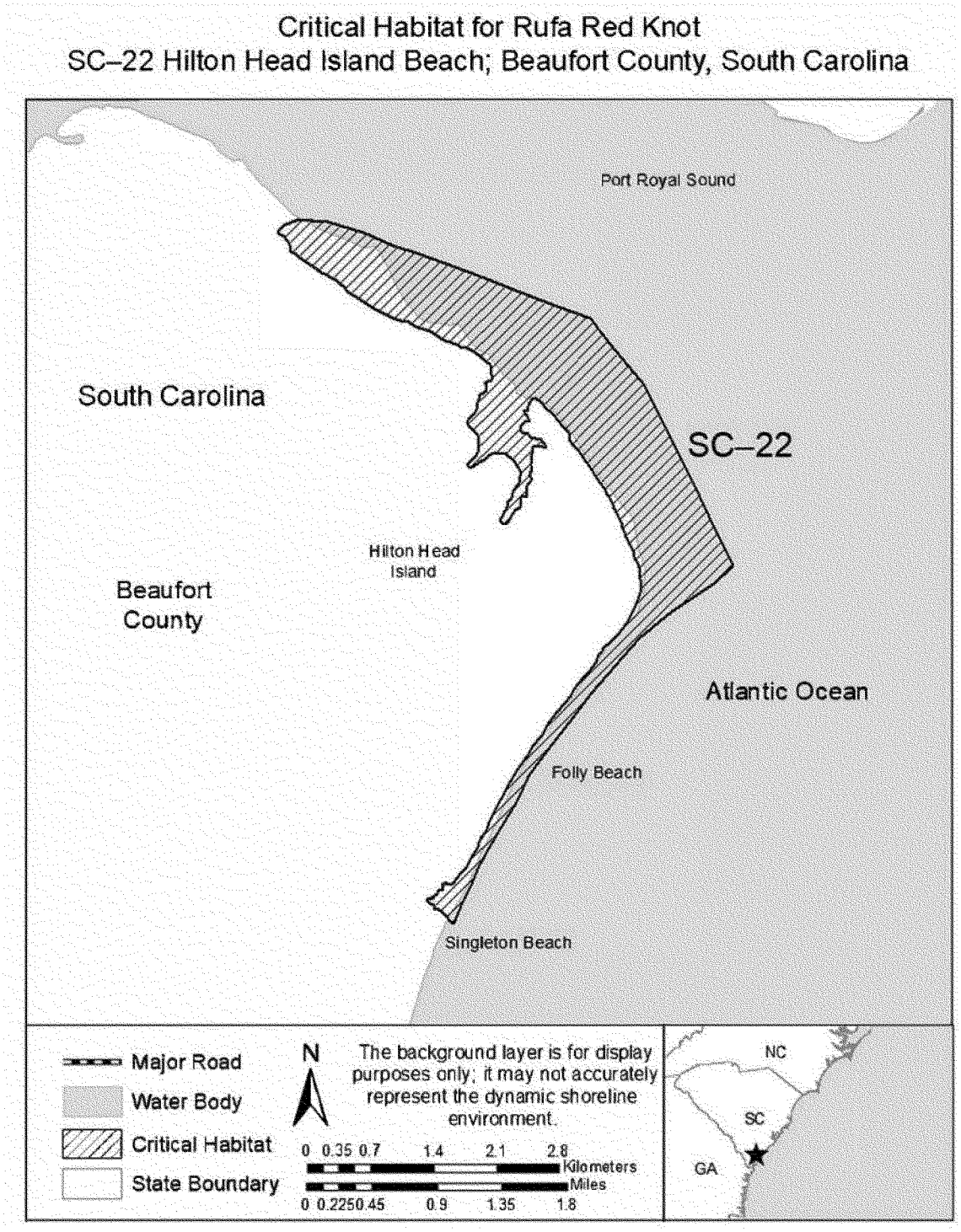
(ii) Map of Unit SC–21 is presented at paragraph (64)(ii) of this entry.

(66) Unit SC–22: Hilton Head Island Beach, South Carolina.

(i) Unit SC–22 consists of approximately 1,682 ac (681 ha) of occupied habitat on the heel of Hilton Head Island, a barrier island off the coast, in Beaufort County. The unit boundary begins on the Port Royal Sound shoreline beginning at Oyster Shell Lane, continues southeast then turns southwest along the Atlantic Ocean shoreline, and continues to the undeveloped portion of Singleton Beach southwest of the Folly Beach. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the rufa red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Fish Haul Creek and unnamed inlets within the unit boundary. Lands within this unit include approximately 1,015 ac (411 ha) in State ownership and 667 ac (270 ha) in private/other ownership.

(ii) Map of Unit SC–22 follows:

Figure 55 to Rufa Red Knot paragraph (66)(ii)

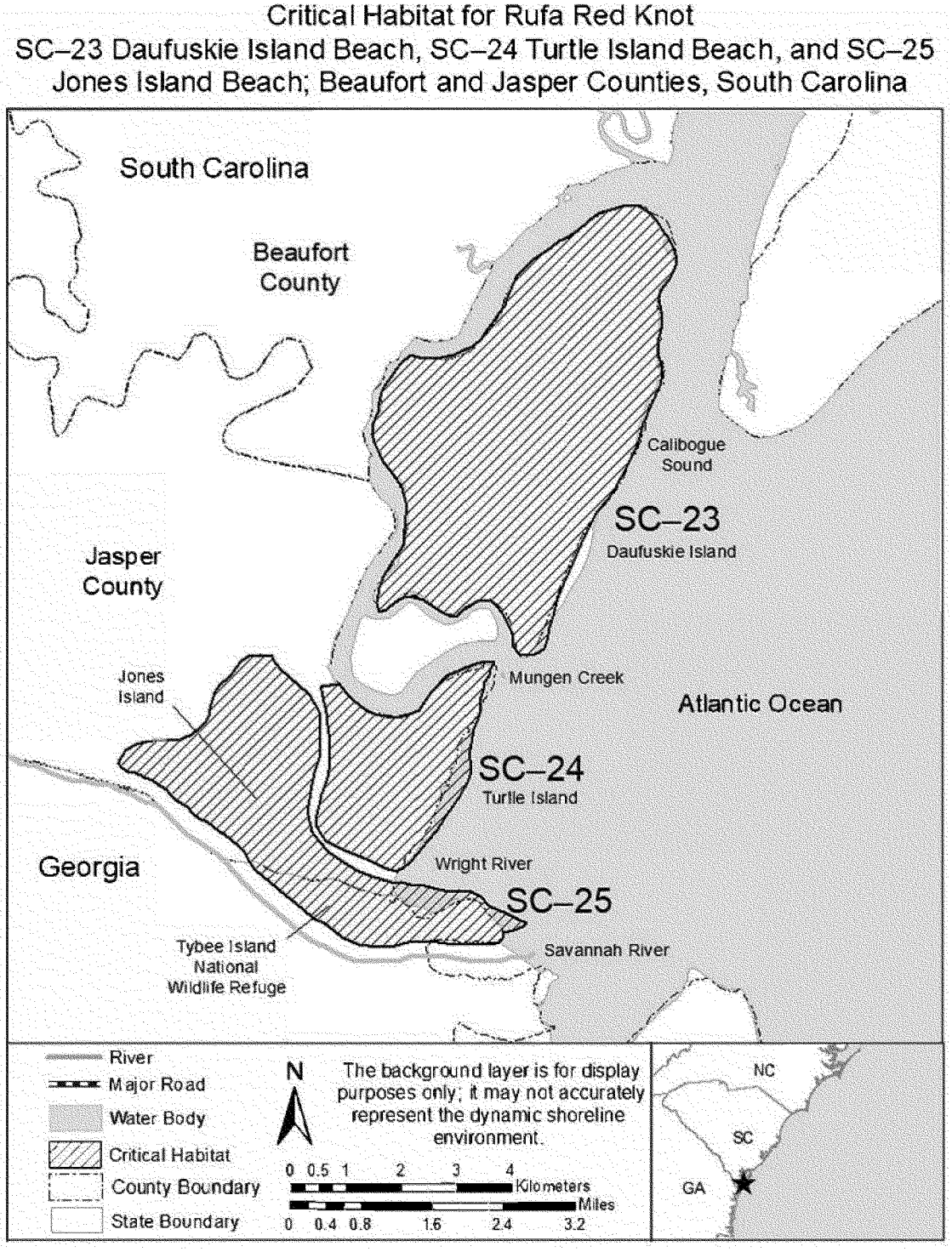


(67) Unit SC–23: Daufuskie Island Beach, South Carolina.

(i) Unit SC–23 consists of approximately 6,370 ac (2,578 ha) of occupied habitat across the entirety of Daufuskie Island, a sea island in Calibogue Sound, in Beaufort County. The unit boundary begins on the Calibogue Sound shoreline of Daufuskie Island and extends southwest to the Mungen Creek shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the unit boundary. All lands within this unit are in private/other ownership.

(ii) Map of Unit SC–23 follows:

Figure 56 to Rufa Red Knot paragraph (67)(ii)



(68) Unit SC–24: Turtle Island Beach, South Carolina.

(i) Unit SC–24 consists of approximately 1,798 ac (728 ha) of occupied habitat across the entirety of Turtle Island, a sea island in Calibogue Sound, in Jasper County. The unit boundary begins on the New River shoreline of Turtle Island and extends southwest to the Wright River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the unnamed inlet in the center of the island shoreline. Lands within this unit are

entirely in State ownership (Turtle Island Wildlife Management Area).

(ii) Map of Unit SC–24 is presented at paragraph (67)(ii) of this entry.

(69) Unit SC–25: Jones Island Beach, South Carolina.

(i) Unit SC–25 consists of approximately 3,025 ac (1,224 ha) of occupied habitat across the entirety of Jones Island, a sea island along the Savannah River and Calibogue Sound, in Jasper County. The unit boundary begins on the Wright River shoreline of Jones Island to the Savannah River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Wright River Inlet. Lands within this unit include approximately 785 ac (318 ha) in Federal ownership (Tybee Island NWR) and 2,240 ac (907 ha; 74 percent) in State ownership.

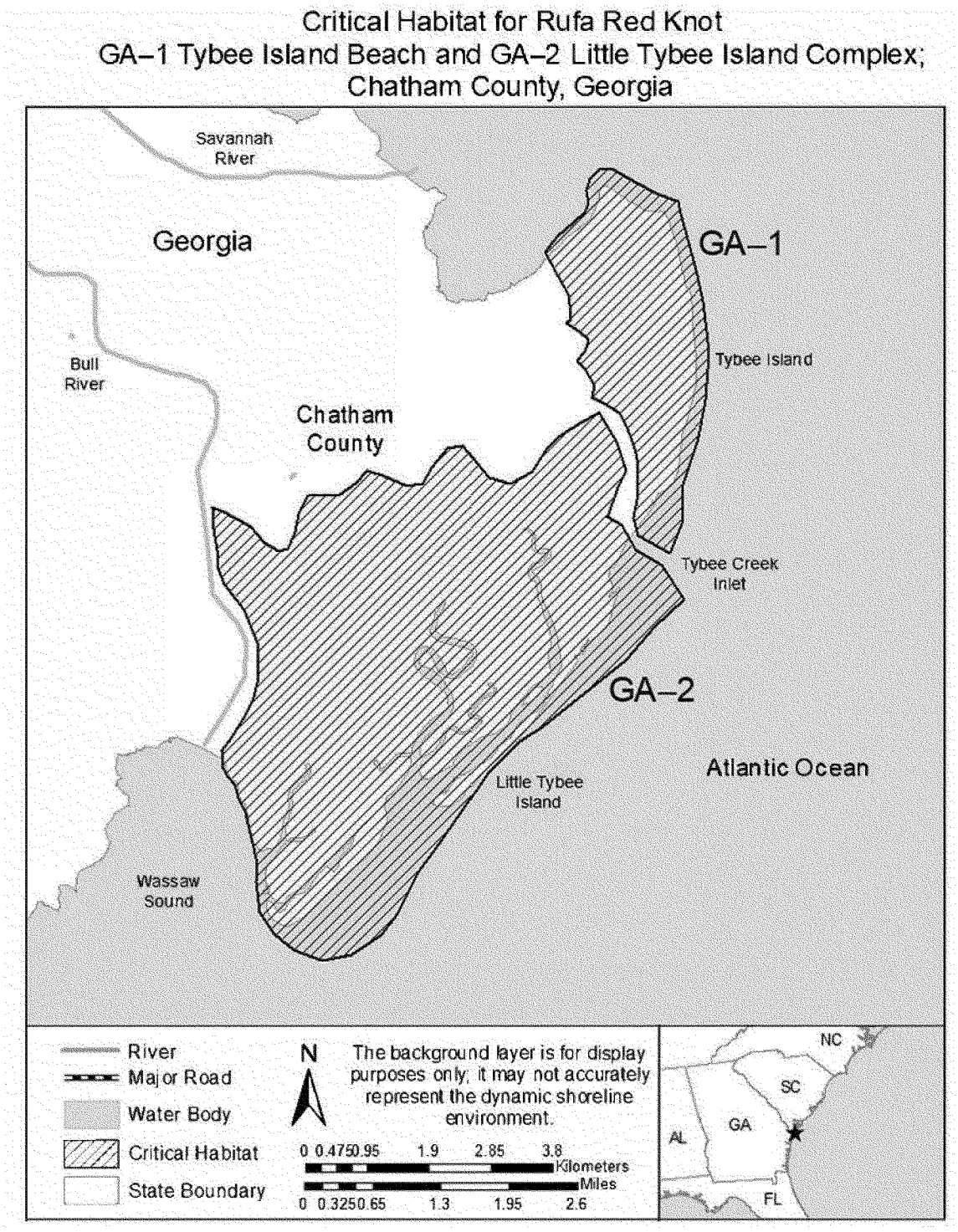
(ii) Map of Unit SC–24 is presented at paragraph (67)(ii) of this entry.

(70) Unit GA–1: Tybee Island Beach, Georgia.

(i) Unit GA–1 consists of approximately 2,046 ac (828 ha) of occupied habitat on Tybee Island (north, mid and south beaches), a barrier island off the coast in Chatham County. The northern boundary of the unit begins at the Savannah River shoreline of Tybee Island and extends south to Tybee Creek Inlet, which separates Tybee Island from Little Tybee Island, and includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the eastern side of Tybee Inlet's navigable channel. Lands within this unit include approximately 6 ac (2 ha) in State ownership, 1,721 ac (697 ha) in private/other ownership, and 319 ac (129 ha) that are uncategorized.

(ii) Map of Unit GA–1 follows:

Figure 57 to Rufa Red Knot paragraph (70)(ii)



(71) Unit GA–2: Little Tybee Island Complex, Georgia.

(i) Unit GA–2 consists of approximately 8,265 ac (3,345 ha) of occupied habitat across the entirety of Little Tybee Island complex, a series of barrier islands off the coast of Chatham County. The unit boundary begins on the western side of Tybee Creek Inlet and extends southwest to Wassaw Sound and includes Little Tybee Island, Williamson Island, and all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the western side of Tybee Inlet's navigable channel, Little Tybee Slough, and Little Tybee Creek.

All lands within this unit are in State ownership (Little Tybee Island State Heritage Preserve).

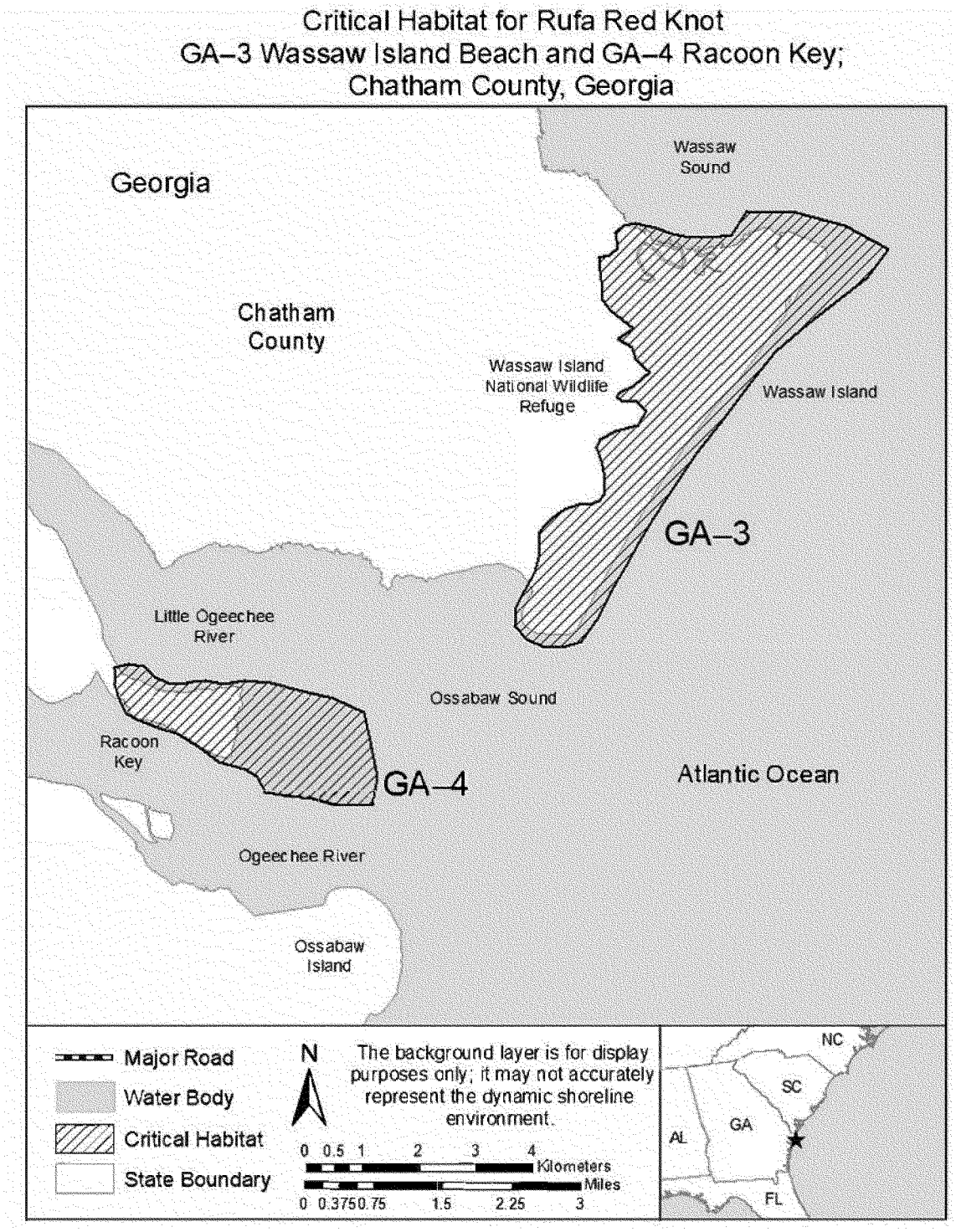
(ii) Map of Unit GA–2 is presented at paragraph (70)(ii) of this entry.

(72) Unit GA–3: Wassaw Island Beach, Georgia.

(i) Unit GA–3 consists of approximately 4,296 ac (1,738 ha) of occupied habitat on Wassaw Island, a barrier island off the coast in Chatham County. The unit boundary begins on the southwestern side of Wassaw Sound off the northern tip of Wassaw Island and extends southwest to Ossabaw Sound shoreline. The unit includes all emergent land from MLLW (which includes the highly dynamic shoreline and sandy intertidal zone that is covered at high tide and uncovered at low tide) to the toe of the dunes or where densely vegetated habitat, not used by the red knot, begins. This unit also includes the ephemeral, emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Wassaw Sound off the northern tip of Wassaw Island. Lands within this unit include approximately 3,001 ac (1,215 ha) in Federal ownership (Wassaw Island NWR), 274 ac (111 ha) in private/other ownership, and 1,020 ac (412 ha) that are uncategorized.

(ii) Map of Unit GA–3 follows:

Figure 58 to Rufa Red Knot paragraph (72)(ii)



(73) Unit GA–4: Raccoon Key, Georgia.

(i) Unit GA–4 consists of approximately 1,599 ac (647 ha) of occupied habitat across the entirety of Raccoon Key, an island in Ossabaw Sound in Chatham County. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within Ossabaw Sound associated with Raccoon Key. All lands within this unit are in State ownership.

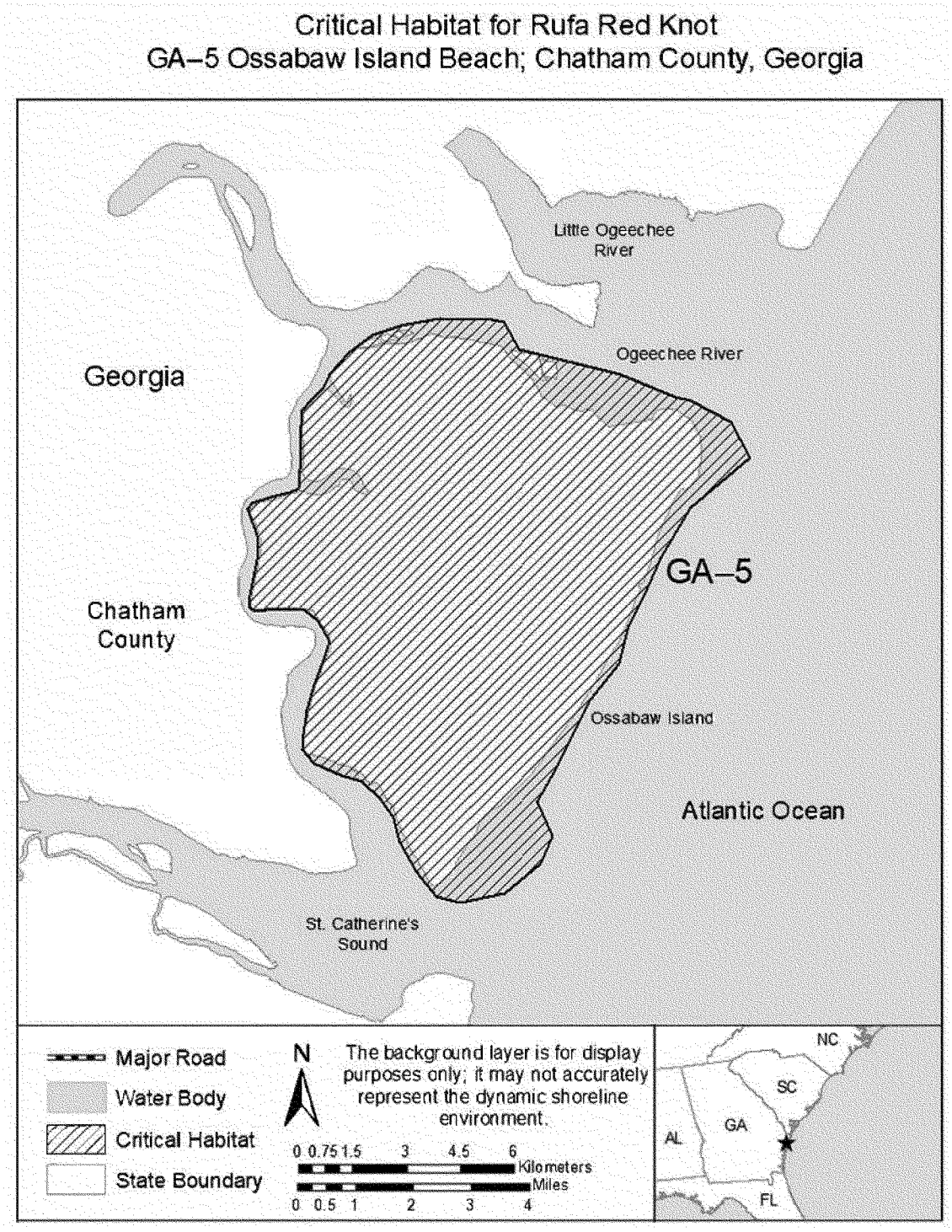
(ii) Map of Unit GA–4 is presented at paragraph (72)(ii) of this entry.

(74) Unit GA–5: Ossabaw Island Beach, Georgia.

(i) Unit GA–5 consists of approximately 32,357 ac (13,095 ha) of occupied habitat on Ossabaw Island, a barrier island off the coast in Chatham County. The unit boundary begins at the Ogeechee River shoreline of Ossabaw Island and extends southwest to the St. Catherine's Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Ossabaw Sound off the northeastern tip of the island and St. Catherine's Sound off the southwestern tip of the island. Lands within this unit include approximately 28,621 ac (11,591 ha) in State ownership and 3,736 ac (1,503 ha) that are uncategorized.

(ii) Map of Unit GA–5 follows:

Figure 59 to Rufa Red Knot paragraph (74)(ii)



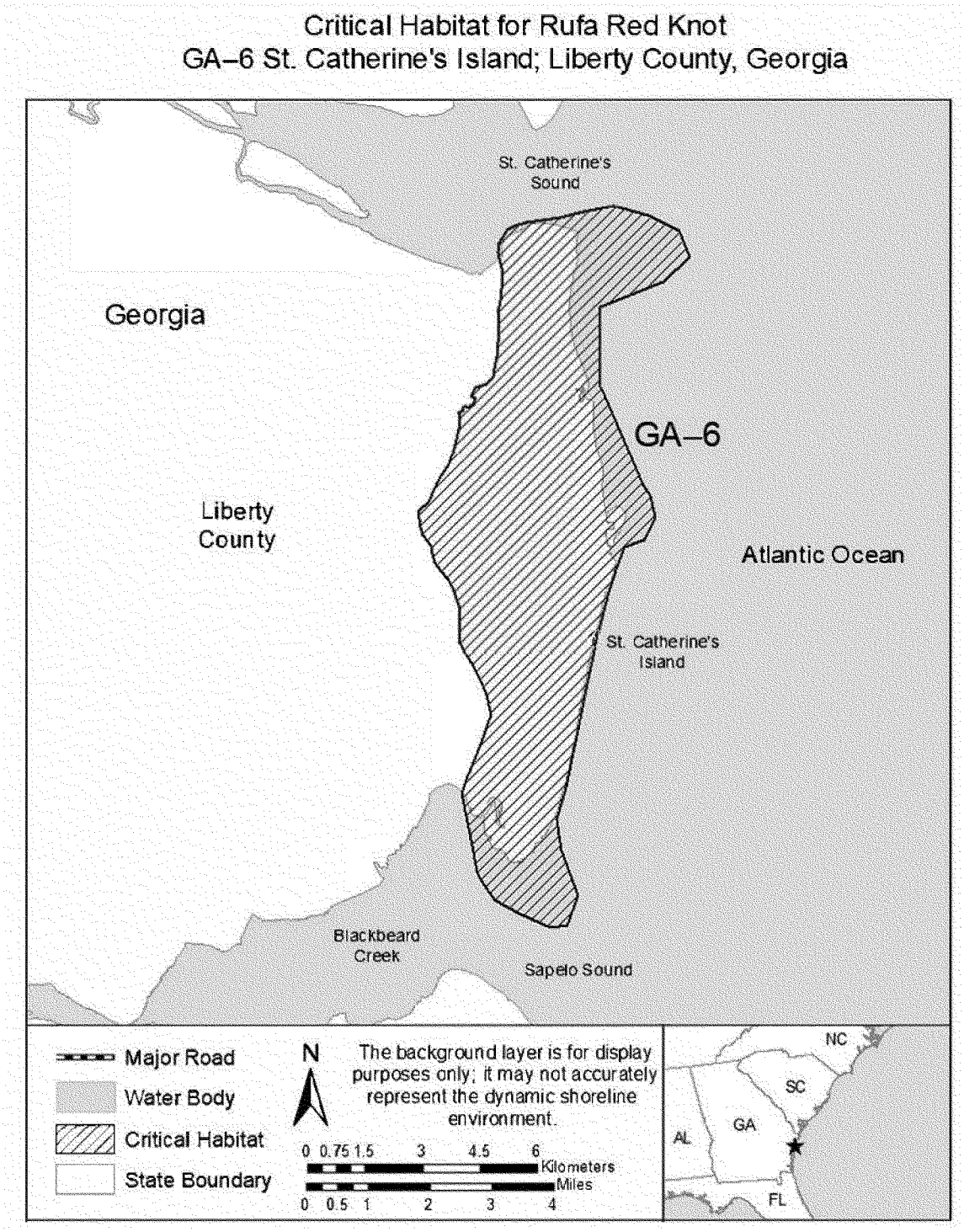
(75) Unit GA–6: St. Catherine's Island Beach, Georgia.

(i) Unit GA–6 consists of approximately 15,962 ac (6,460 ha) of occupied habitat on St. Catherine's Island, a barrier island off the coast in Liberty County. The unit boundary begins at the St. Catherine's Sound shoreline of St. Catherine's Island and extends southwest to the Sapelo Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with St. Catherine's Sound entrance off the northern tip of the island, McQueen Inlet, and Sapelo Sound entrance off the

southern tip of the island. Lands within this unit include approximately 2,106 ac (853 ha) in State ownership, 11,810 ac (4,783 ha) in private/other ownership, and 2,046 ac (824 ha) that are uncategorized.

(ii) Map of Unit GA–6 follows:

Figure 60 to Rufa Red Knot paragraph (75)(ii)

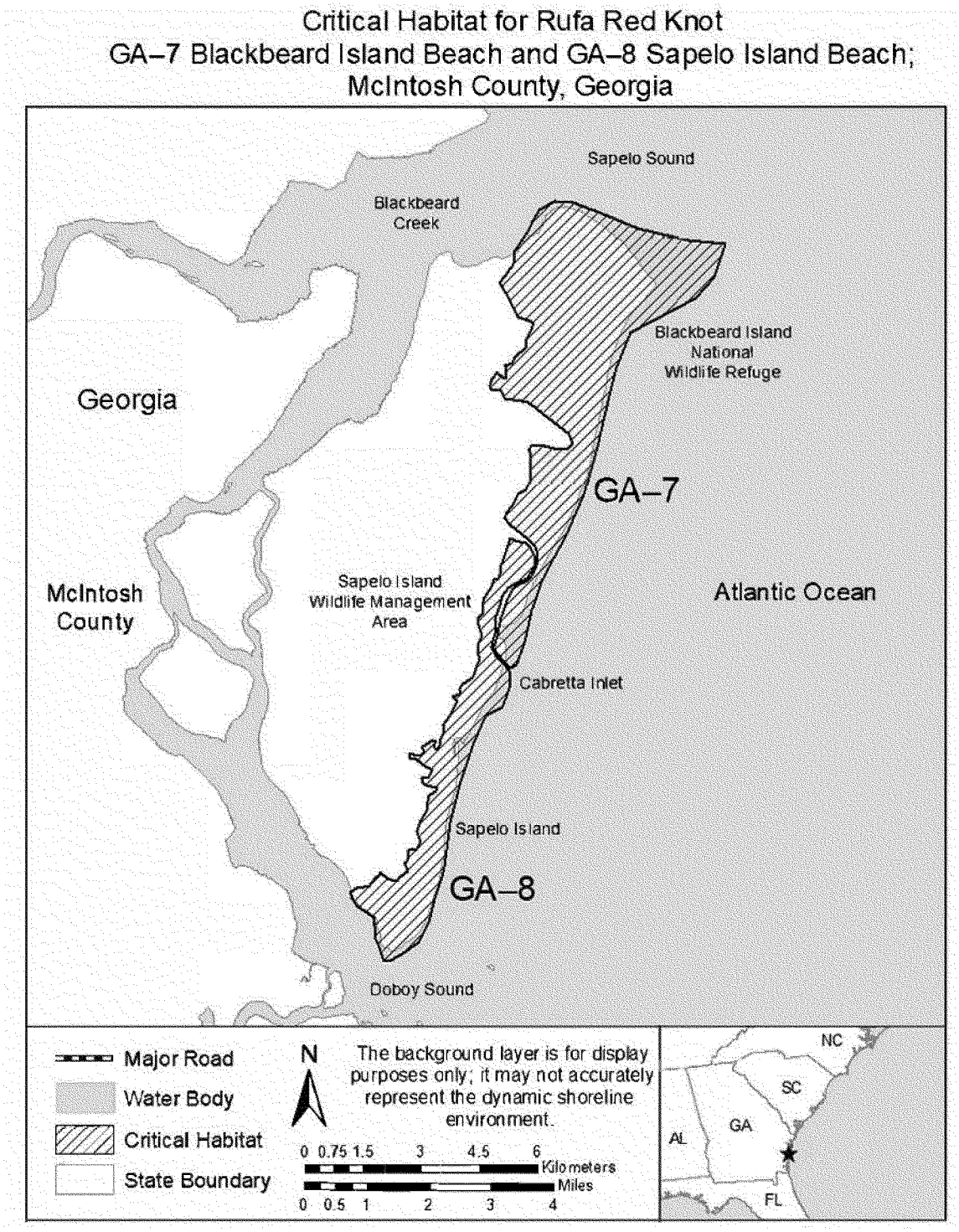


(76) Unit GA–7: Blackbeard Island Beach, Georgia.

(i) Unit GA–7 consists of approximately 6,321 ac (2,558 ha) of occupied habitat on Blackbeard Island, a barrier island off the coast in McIntosh County. The unit boundary begins at the Sapelo Sound shoreline of Blackbeard Island and extends southwest to the Cabretta Inlet shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the Sapelo Sound entrance off the northern tip of the island and the northeastern side of Cabretta Inlet's navigable channel. Lands within this unit include approximately 4,954 ac (2,006 ha) in Federal ownership (Blackbeard Island NWR), 80 ac (32 ha) in State ownership, and 1,287 ac (519 ha) that are uncategorized.

(ii) Map of Unit GA–7 follows:

Figure 61 to Rufa Red Knot paragraph (76)(ii)



(77) Unit GA–8: Sapelo Island Beach, Georgia.

(i) Unit GA–8 consists of approximately 2,482 ac (845 ha) of occupied habitat on Sapelo Island, a barrier island off the coast in McIntosh County. The unit boundary begins at the Cabretta Inlet shoreline of Sapelo Island and extends southwest to the Doboy Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are

covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southwestern side of Cabretta Inlet's navigable channel. The lands within this unit are State-owned and comprise the Sapelo Island Wildlife Management Area and Sapelo Island National Estuarine Research Reserve (NERR).

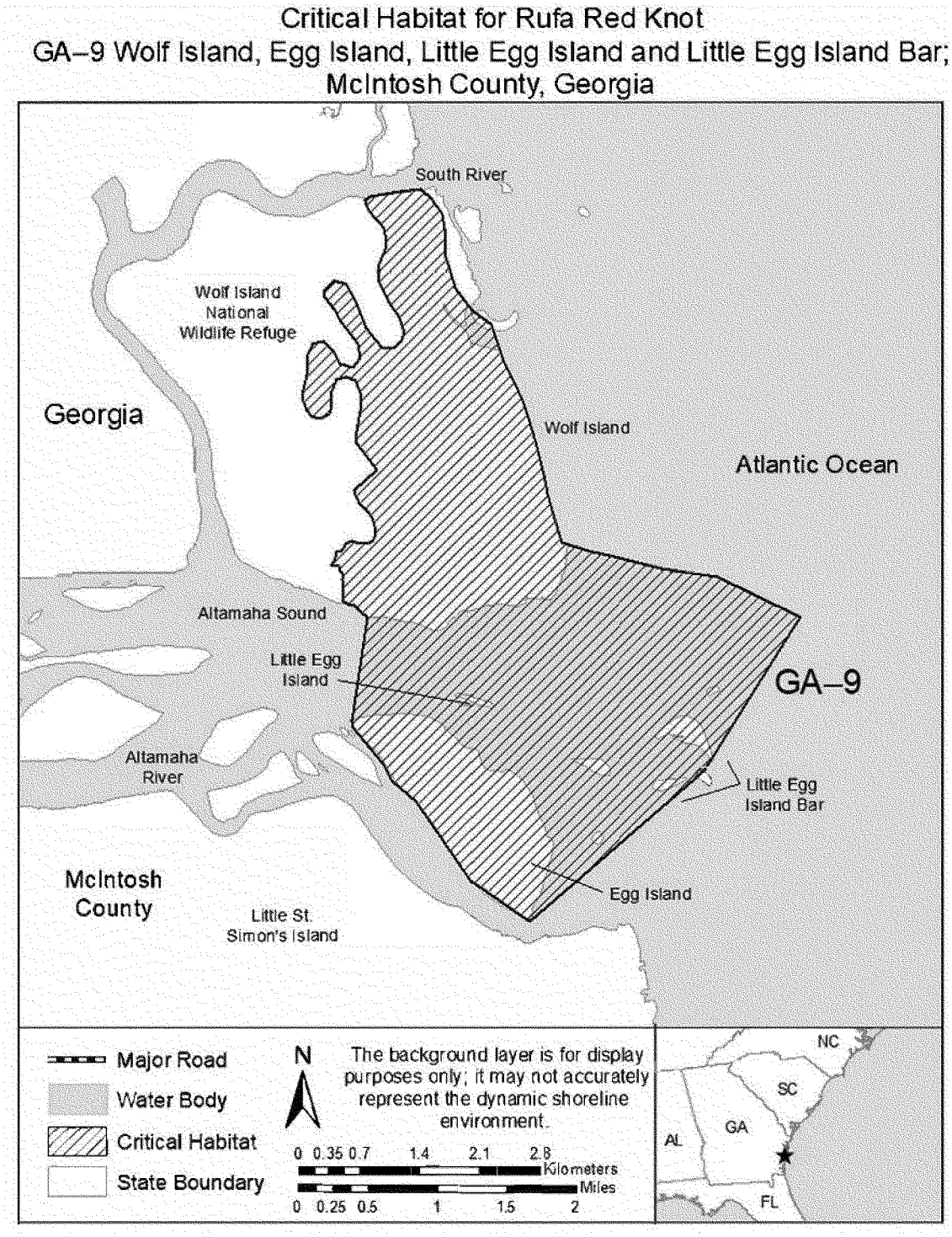
(ii) Map of Unit GA–8 is presented at paragraph (76)(ii) of this entry.

(78) Unit GA–9: Wolf Island, Egg Island, Little Egg Island, and Little Egg Island Bar, Georgia.

(i) Unit GA–9 consists of approximately 5,308 ac (2,148 ha) of occupied habitat on Wolf, Egg, and Little Egg Islands, and Little Egg Island Bar, which are islands at the mouth of the Altamaha River in McIntosh County. The unit boundary begins at the South River shoreline of Wolf Island and extends south to the southern side of Altamaha Sound. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the entrance to Altamaha Sound and Beacon Creek. Lands within this unit include approximately 2,975 ac (1,204 ha) in Federal ownership (Wolf Island NWR, which is also a designated wilderness area), 240 ac (97 ha) in State ownership, and 2,093 ac (847 ha) that are uncategorized.

(ii) Map of Unit GA–9 follows:

Figure 62 to Rufa Red Knot paragraph (78)(ii)



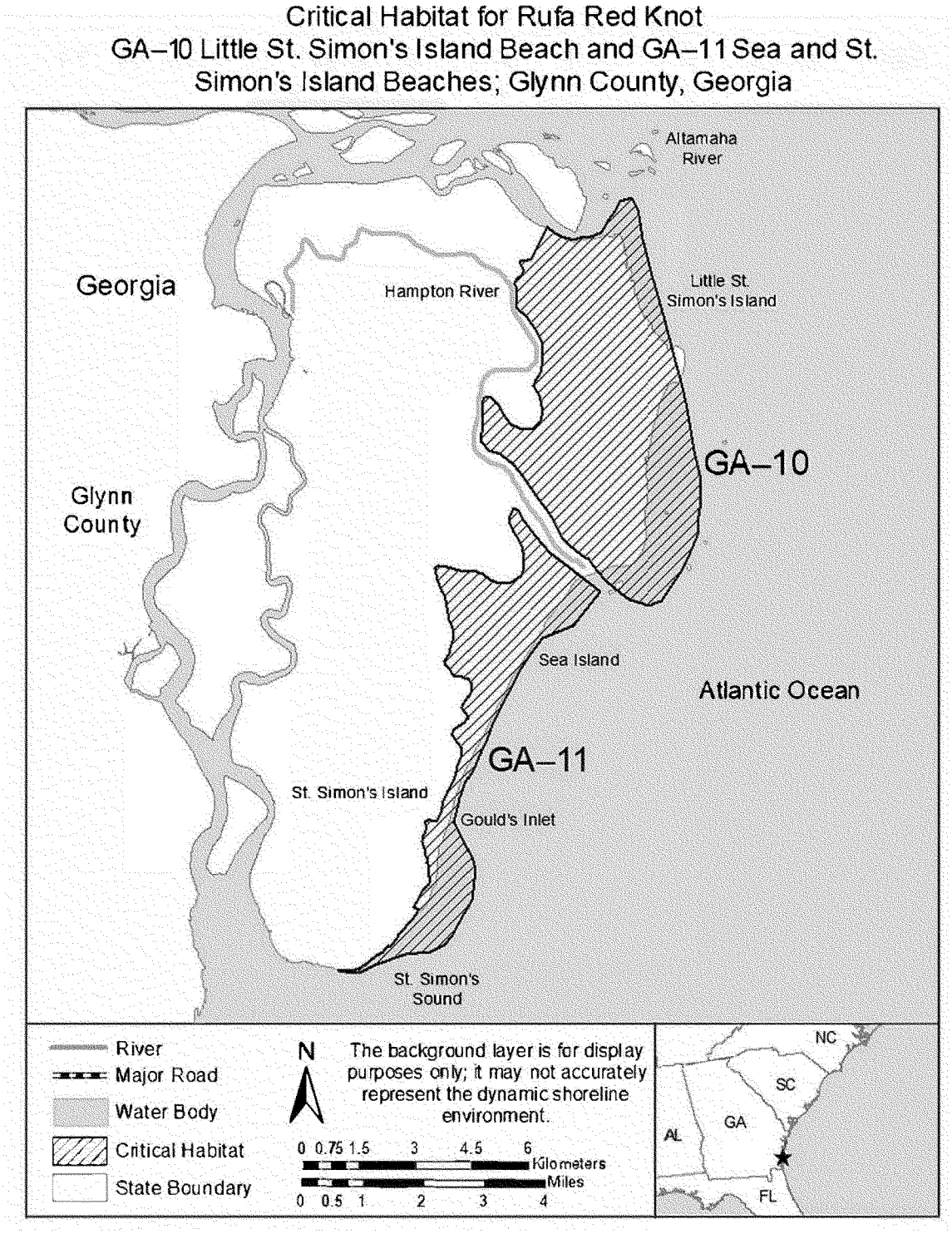
(79) Unit GA–10: Little St. Simon's Island Beach, Georgia.

(i) Unit GA–10 consists of approximately 9,053 ac (3,664 ha) of occupied habitat on Little St. Simon's Island off the coast of Glynn County. The unit boundary begins at the Altamaha Sound shoreline of Little St. Simon's Island and extends south to the Hampton River shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone

that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the Altamaha Sound off the northeastern tip of the island, Mosquito Creek, and the northern side of Hampton River Inlet's navigable channel. Lands within this unit include approximately 113 ac (46 ha) in State ownership, 7,462 ac (3,022 ha) in private/other ownership (TNC-owned preserve lands), and 1,479 ac (596 ha) that are uncategorized.

(ii) Map of Unit GA–10 follows:

Figure 63 to Rufa Red Knot paragraph (79)(ii)



(80) Unit GA–11: Sea and St. Simon's Island Beaches, Georgia.

(i) Unit GA–11 consists of approximately 4,033 ac (1,632 ha) of occupied habitat across the entirety of Sea Island and a portion of St. Simon's Island, both of which are barrier islands off the coast of Glynn County. The unit boundary begins at the Hampton River shoreline of Sea Island and extends southwest to the St. Simon's Sound shoreline of St. Simon's Island. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red

knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with Gould's Inlet. Lands within this unit include approximately 4 ac (2 ha) in State ownership, 3,448 ac (1,395 ha) in private/other ownership, and 581 ac (235 ha) that are uncategorized.

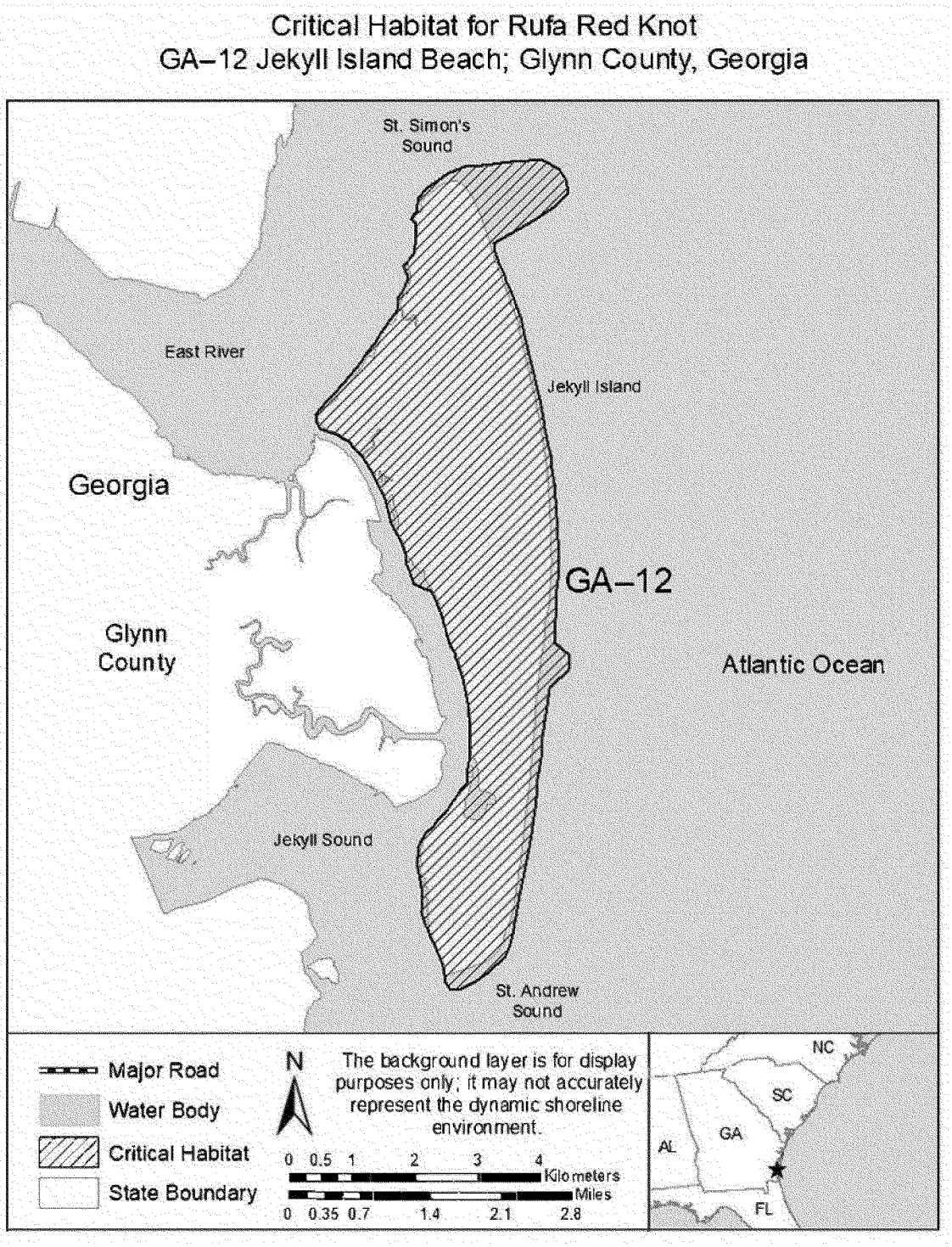
(ii) Map of Unit GA–11 is presented at paragraph (79)(ii) of this entry.

(81) Unit GA–12: Jekyll Island Beach, Georgia.

(i) Unit GA–12 consists of approximately 6,287 ac (2,544 ha) of occupied habitat on Jekyll Island, a barrier island off the coast of Glynn County. The unit boundary begins at the St. Simon's Sound shoreline of Jekyll Island and extends south to St. Andrew Sound shoreline. The unit includes all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with the southern side of St. Simon's Sound off the northern tip of the island. Lands within this unit include approximately 5,944 ac (2,406 ha) in State ownership (including Jekyll Island State Park) and 343 ac (139 ha) that are uncategorized.

(ii) Map of Unit GA–12 follows:

Figure 64 to Rufa Red Knot paragraph (81)(ii)



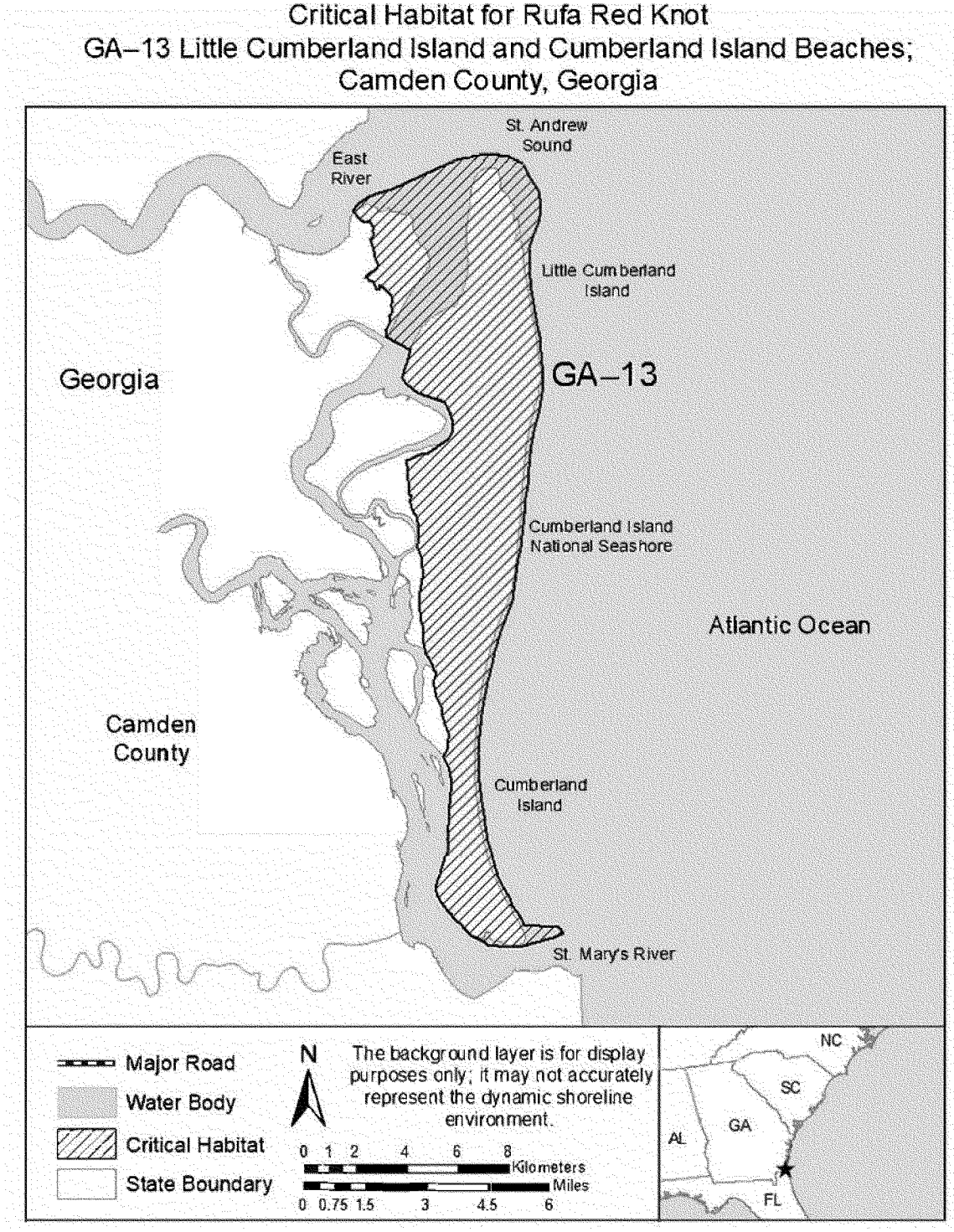
(82) Unit GA–13: Little Cumberland and Cumberland Island Beaches, Georgia.

(i) Unit GA–13 consists of approximately 28,136 ac (11,386 ha) of occupied habitat on Little Cumberland Island and Cumberland Island, a barrier island complex off the coast in Camden County. The unit boundary begins at the St. Andrew Sound shoreline of Little Cumberland Island and extends west across the Cumberland River and marsh to the East River and continues south to the St. Mary's River shoreline of Cumberland Island. The unit includes

all emergent land from MLLW to the toe of the dunes or where densely vegetated habitat (not used by the red knot) begins (*i.e.,* the highly dynamic shoreline and the sandy intertidal zone that are covered at high tide and uncovered at low tide). This dynamic habitat also includes the ephemeral emergent shoals (sand bars) within the flood-tidal and ebb-tidal deltas associated with St. Andrew Sound off the northern tip of Little Cumberland Island and Christmas Creek Inlet between Little Cumberland and Cumberland Islands. Lands within this unit include approximately 23,367 ac (9,464 ha) in Federal ownership (Cumberland Island National Seashore, which is also a designated wilderness area), 1,685 ac (682 ha) in State ownership, and 3,085 ac (1,241 ha) that are uncategorized.

(ii) Map of Unit GA–13 follows:

Figure 65 to Rufa Red Knot paragraph (82)(ii)



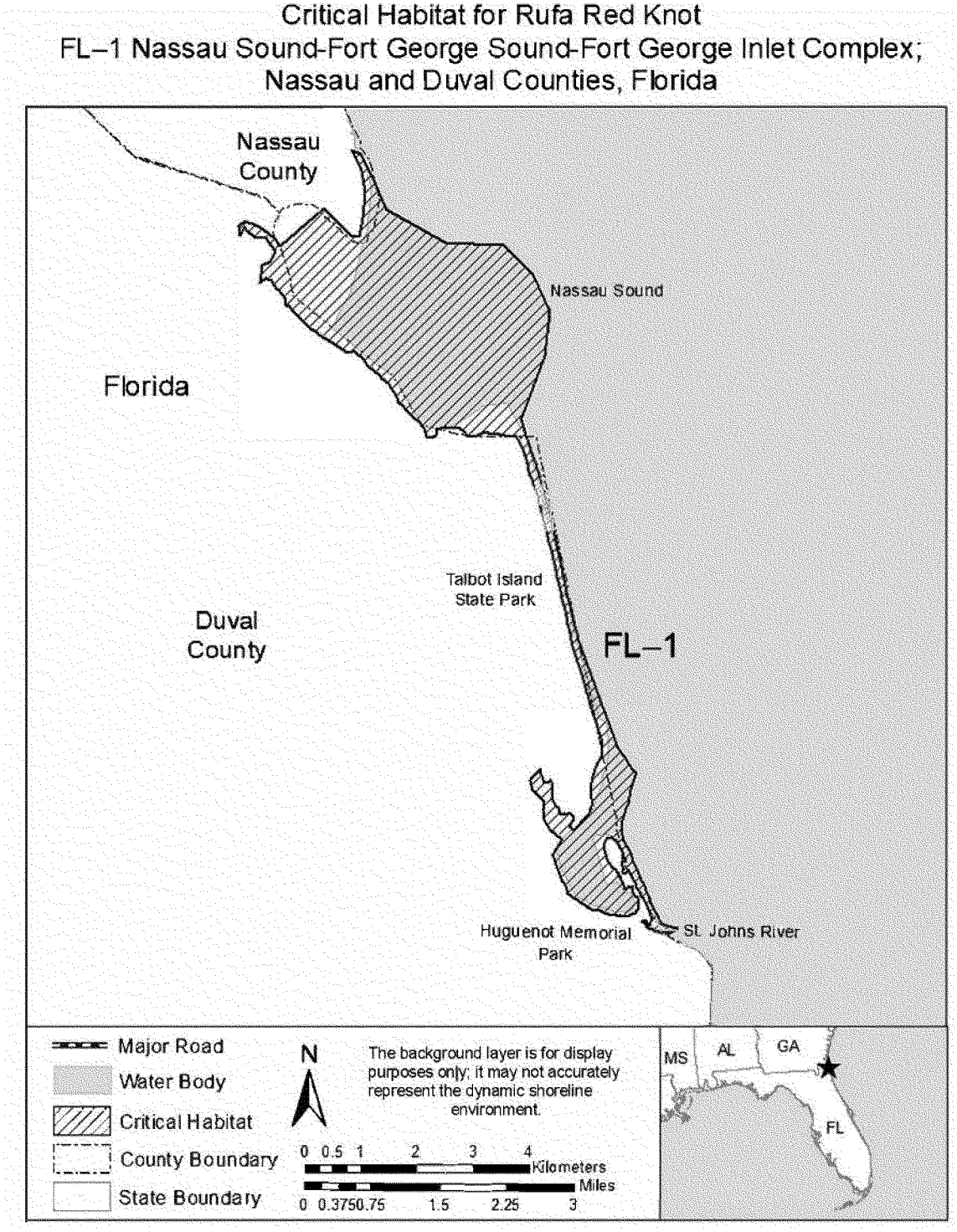
(83) Unit FL–1: Nassau Sound-Fort George Sound-Fort George Inlet Complex, Florida.

(i) Unit FL–1 consists of approximately 4,324 ac (6,742 ha) of occupied habitat consisting of beach, inlet, and intertidal sandflats in Nassau and Duval Counties. The unit extends from the north shore of Nassau Sound in Nassau County south to the north shore of the St. Johns River at Huguenot Memorial Park in Duval County. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures,

including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. The majority of this unit is within the Talbot Islands State Parks Complex and Huguenot Memorial Park, which is a Federal and State-owned parcel leased to the City of Jacksonville. Lands within this unit include approximately 996 ac (404 ha) in Federal ownership, 522 ac (211 ha) in State ownership, 27 ac (11 ha) in private/other ownership, and 2,779 ac (6,116 ha) that are uncategorized.

(ii) Map of Unit FL–1 follows:

Figure 66 to Rufa Red Knot paragraph (83)(ii)

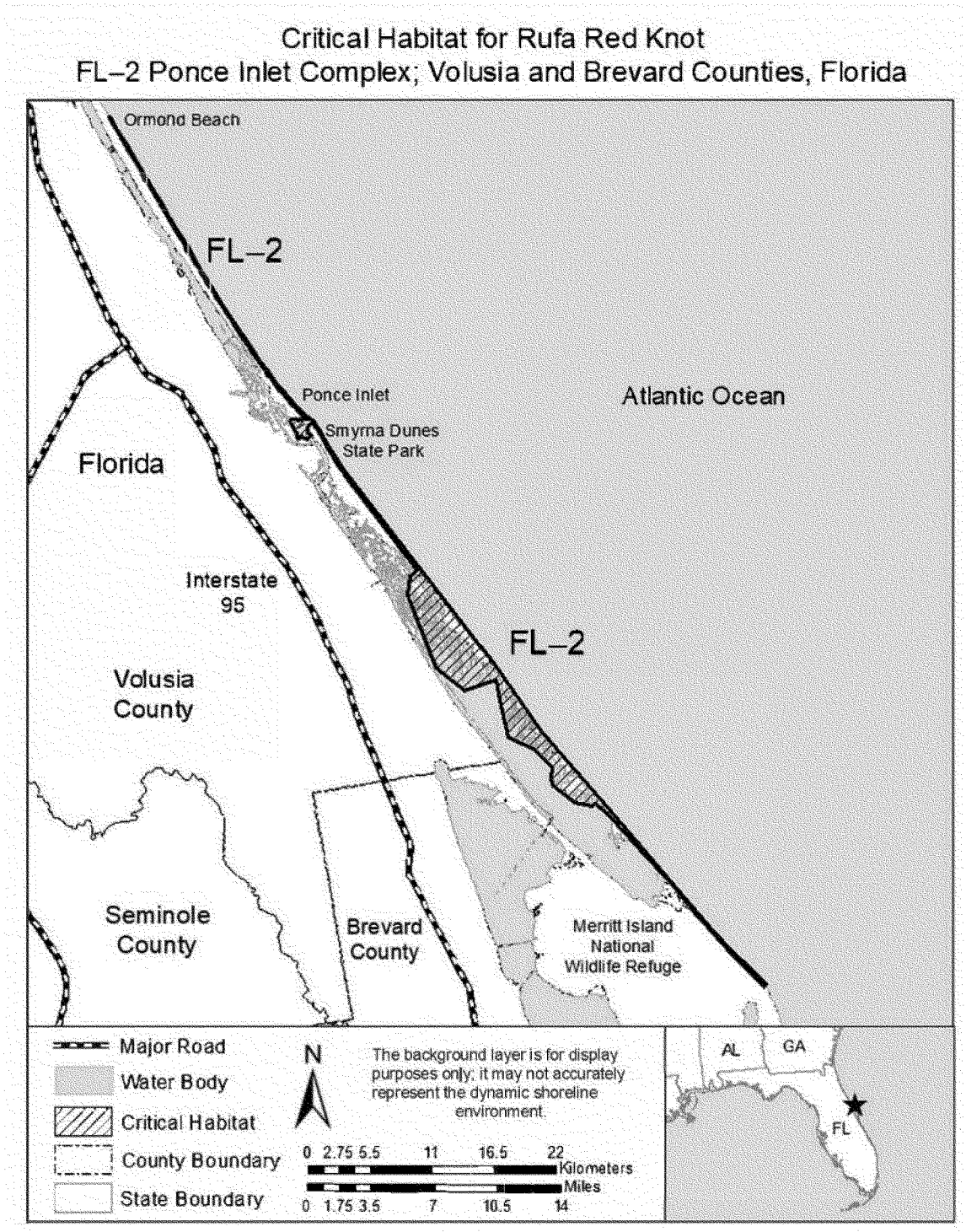


(84) Unit FL–2: Ponce Inlet Complex, Florida.

(i) Unit FL–2 consists of approximately 19,683 ac (7,965 ha) of occupied habitat consisting of beach, inlet, and intertidal sandflats in Volusia and Brevard Counties. The unit extends from approximately Ocean Edge Drive in Ormond Beach south to the south end of Merritt Island NWR along the Atlantic Ocean. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 16,660 ac (6,742 ha) in Federal ownership (Merritt Island NWR), 3,005 ac (1,216 ha) in State ownership (Smyrna Dunes State Park), and 18 ac (7 ha) that are uncategorized.

(ii) Map of Unit FL–2 follows:

Figure 67 to Rufa Red Knot paragraph (84)(ii)

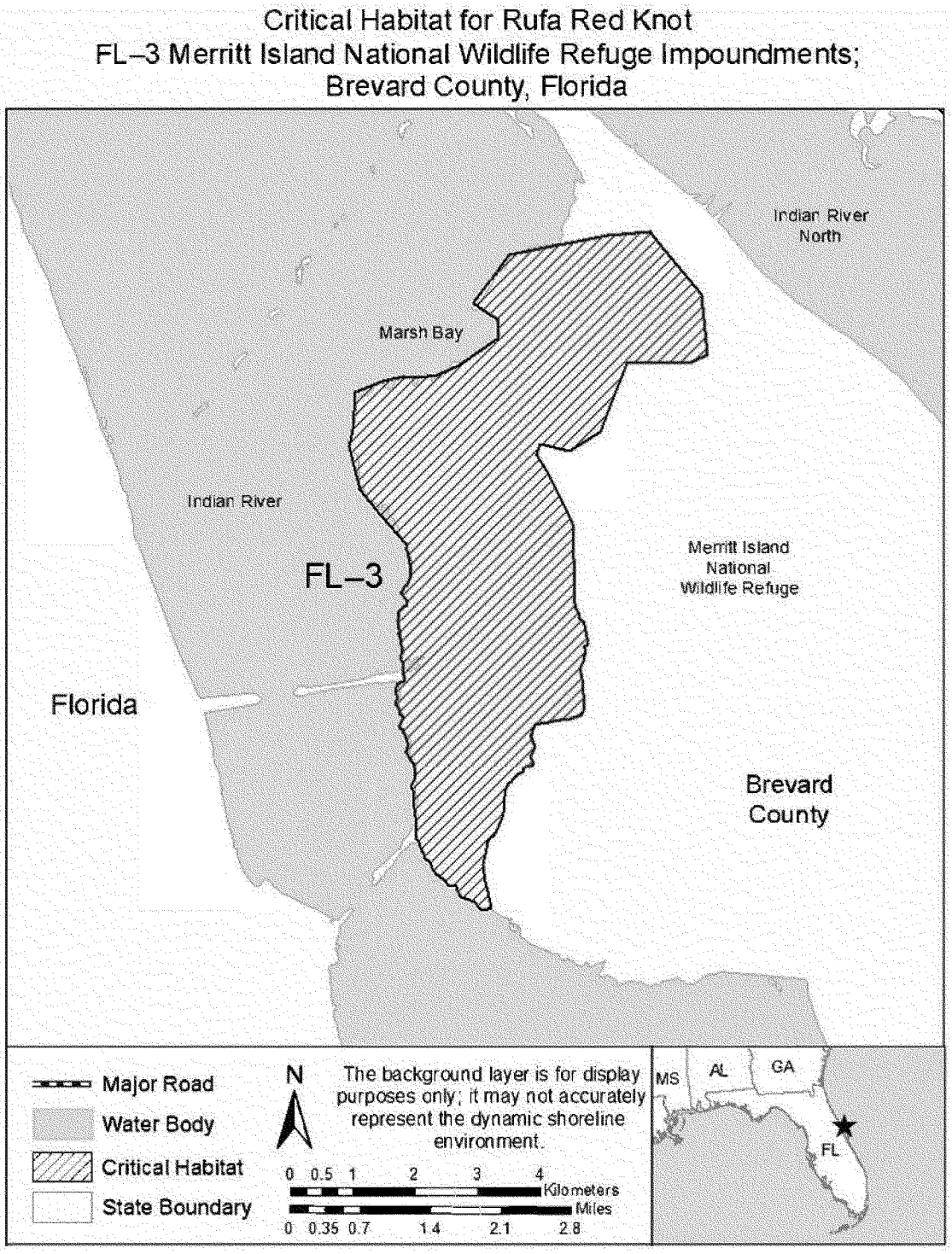


(85) Unit FL–3: Merritt Island National Wildlife Refuge Impoundments, Florida.

(i) Unit FL–3 consists of approximately 6,947 ac (2,811 ha) of occupied and managed impoundment and intertidal mudflats in Brevard County. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. This unit consists of Federal lands (Merritt Island NWR).

(ii) Map of Unit FL–3 follows:

Figure 68 to Rufa Red Knot paragraph (85)(ii)



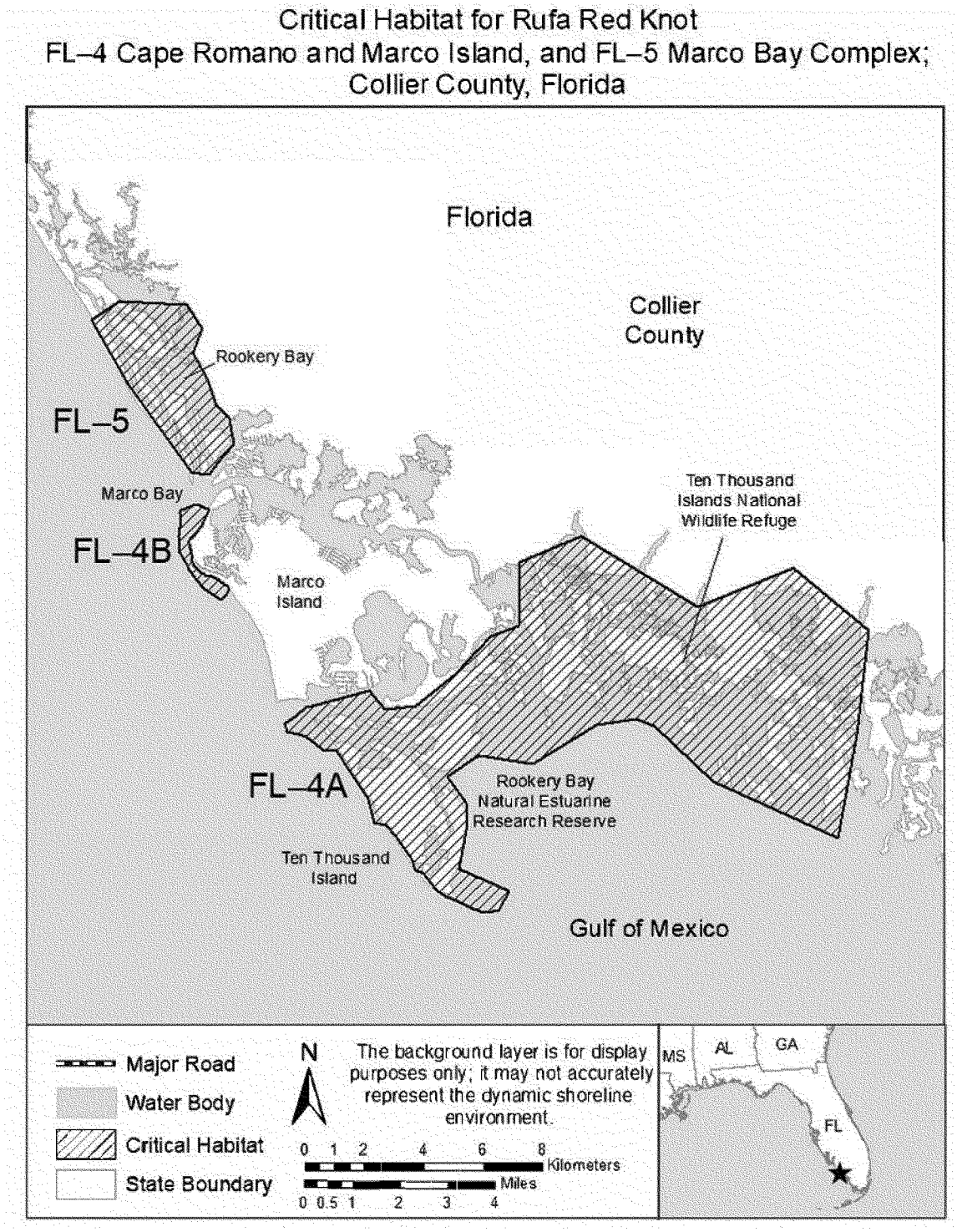
(86) Unit FL–4: Cape Romano and Marco Island, Florida.

(i) Unit FL–4 consists of two subunits comprising 26,629 ac (10,776 ha) of occupied habitat in Collier County. This unit consists of Federal (Ten Thousand

Islands NWR), State, and private landowners.

(ii) Map of Unit FL–4 follows:

Figure 69 to Rufa Red Knot paragraph (86)(ii)



(iii) Subunit FL–4A (Cape Romano Complex) consists of approximately 26,213 ac (10,608 ha) of occupied beach and intertidal sandflats habitat in Collier County, in the wetland complex south of Marco Island and the community of Goodland. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit include approximately 13,138 ac (5,321 ha) in Federal ownership (Ten Thousand Islands NWR), 12,605 ac (5,105 ha) in State ownership (Rookery Bay NERR), and 470 ac (182 ha) that are uncategorized.

(iv) Map of Subunit FL–4A is presented at paragraph (86)(ii) of this entry.

(v) Subunit FL–4B (Marco Island) consists of approximately 416 ac (168 ha) of occupied habitat beach, inlet, and intertidal sandflats in Collier County. The subunit extends from the south side of the inlet north of Marco Island south along the Gulf of Mexico approximately 4 mi (6.5 km). The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit include approximately 408 ac (165 ha) in State ownership (Rookery Bay NERR) and 8 ac (3 ha) in private/other ownership.

(vi) Map of Subunit FL–4B is presented at paragraph (86)(ii) of this entry.

(87) Unit FL–5: Marco Bay Complex, Florida.

(i) Unit FL–5 consists of approximately 3,589 ac (1,453 ha) of occupied beach, inlet, and intertidal sandflats habitat in Collier County, from the north side of the inlet north of Marco Island north along the Gulf of Mexico approximately 3.7 mi (6 km) and inclusive of the wetland complex inland to the east side of Rookery Bay. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 3,531 ac (1,429 ha) in State ownership (Rookery Bay NERR) and 58 ac (24 ha) in private/other ownership.

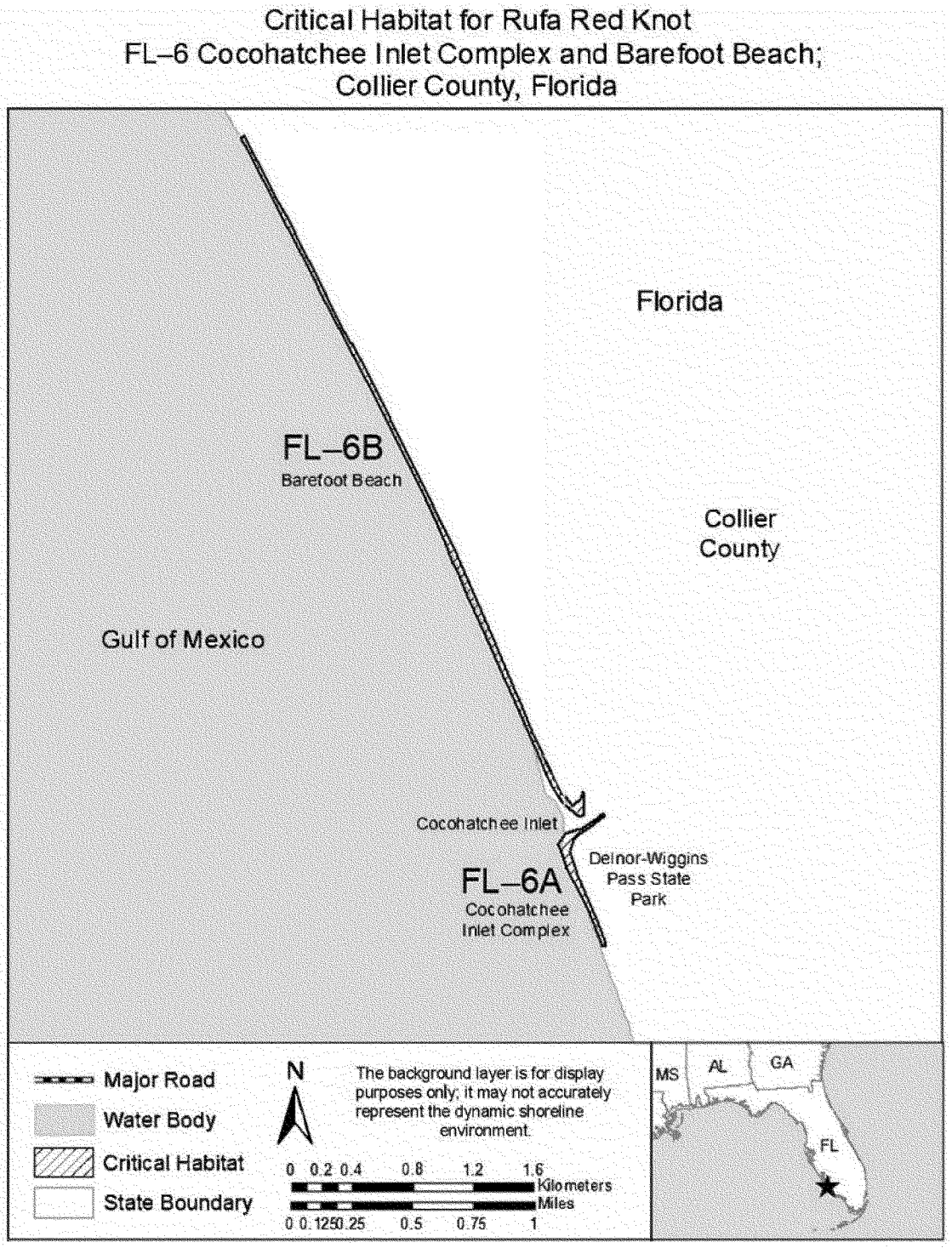
(ii) Map of Unit FL–5 is presented at paragraph (86)(ii) of this entry.

(88) Unit FL–6: Cocohatchee Inlet Complex and Barefoot Beach, Florida.

(i) Unit FL–6 consists of two subunits comprising 48 ac (20 ha) of occupied habitat in Collier County. This unit consists of Delnor-Wiggins Pass State Park and private landowners.

(ii) Map of Unit FL–6 follows:

Figure 70 to Rufa Red Knot paragraph (88)(ii)



(iii) Subunit FL–6A (Cocohatchee Inlet Complex) consists of approximately 9 ac (4 ha) of occupied beach, inlet, and intertidal sandflats habitat in Collier County, from the south side of the Cocohatchee Inlet south along the Gulf of Mexico approximately 3,281 ft (1 km). The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely under State ownership (Delnor-Wiggins Pass State Park).

(iv) Map of Subunit FL–6A is presented at paragraph (88)(ii) of this entry.

(v) Subunit FL–6B (Barefoot Beach) consists of approximately 39 ac (16 ha) of occupied beach, inlet, and intertidal sandflats habitat in Collier County, from the north side of the Cocohatchee Inlet north along the Gulf of Mexico approximately 3.1 mi (5 km). The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit include approximately 18 ac (7 ha) in State ownership and 21 ac (9 ha) in private/other ownership.

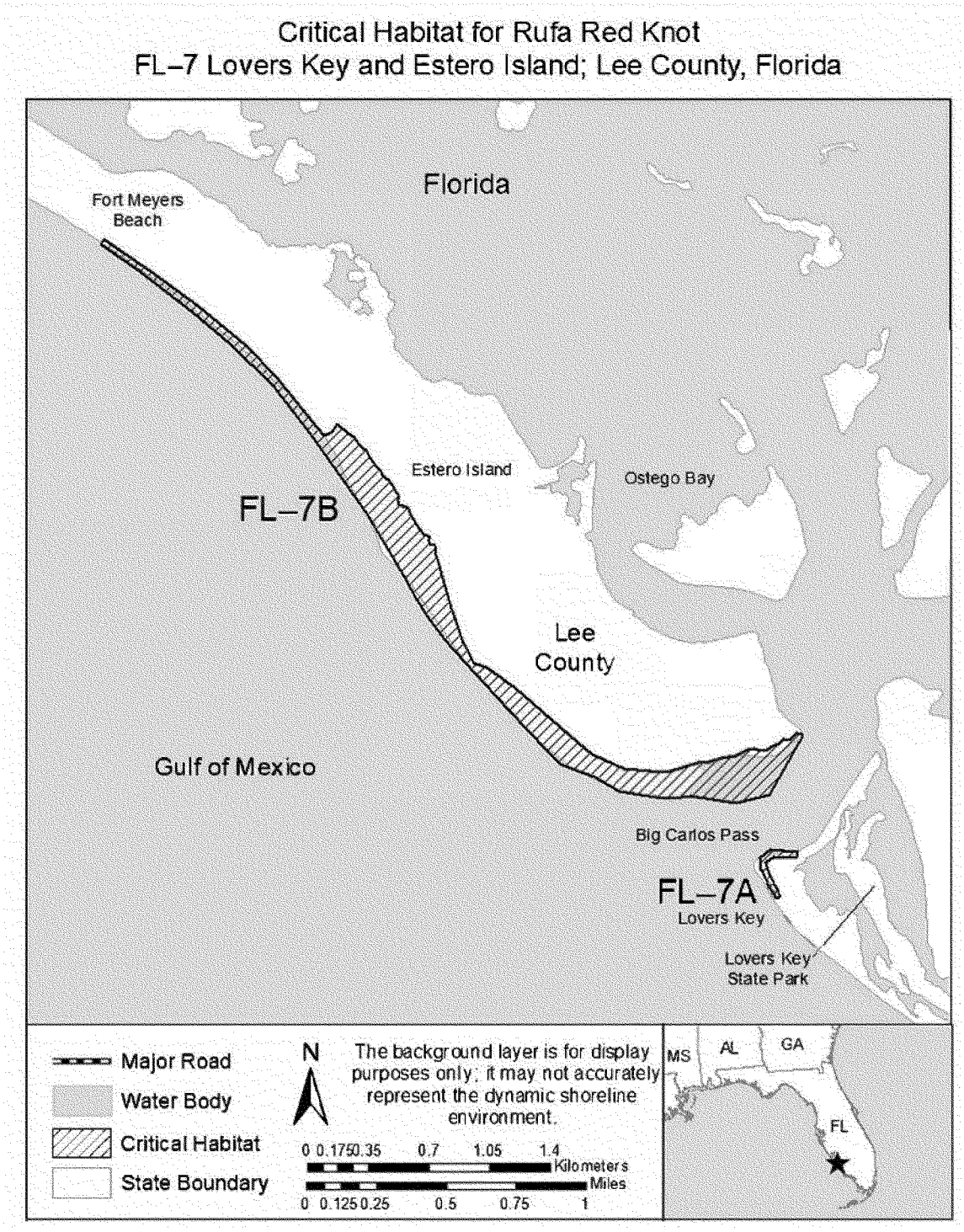
(vi) Map of Subunit FL–6B is presented at paragraph (88)(ii) of this entry.

(89) Unit FL–7: Lovers Key and Estero Island, Florida.

(i) Unit FL–7 consists of two subunits comprising 175 ac (70 ha) of occupied habitat in Lee County. This unit consists of portions of Lovers Key State Park and Estero Island.

(ii) Map of Unit FL–7 follows:

Figure 71 to Rufa Red Knot paragraph (89)(ii)



(iii) Subunit FL–7A (Lovers Key) consists of approximately 4 ac (1 ha) of occupied beach, inlet, and intertidal sandflats habitat in Lee County, at the north point of Lovers Key. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely State owned (Lovers Key State Park).

(iv) Map of Subunit FL–7A is presented at paragraph (89)(ii) of this entry.

(v) Subunit FL–7B (Estero Island) consists of approximately 171 ac (69 ha) of occupied beach, inlet, and intertidal sandflats habitat in Lee County, from Key West Court on Fort Myers Beach south along the Gulf of Mexico to the southern point of the island. The landward boundary is the line

indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership.

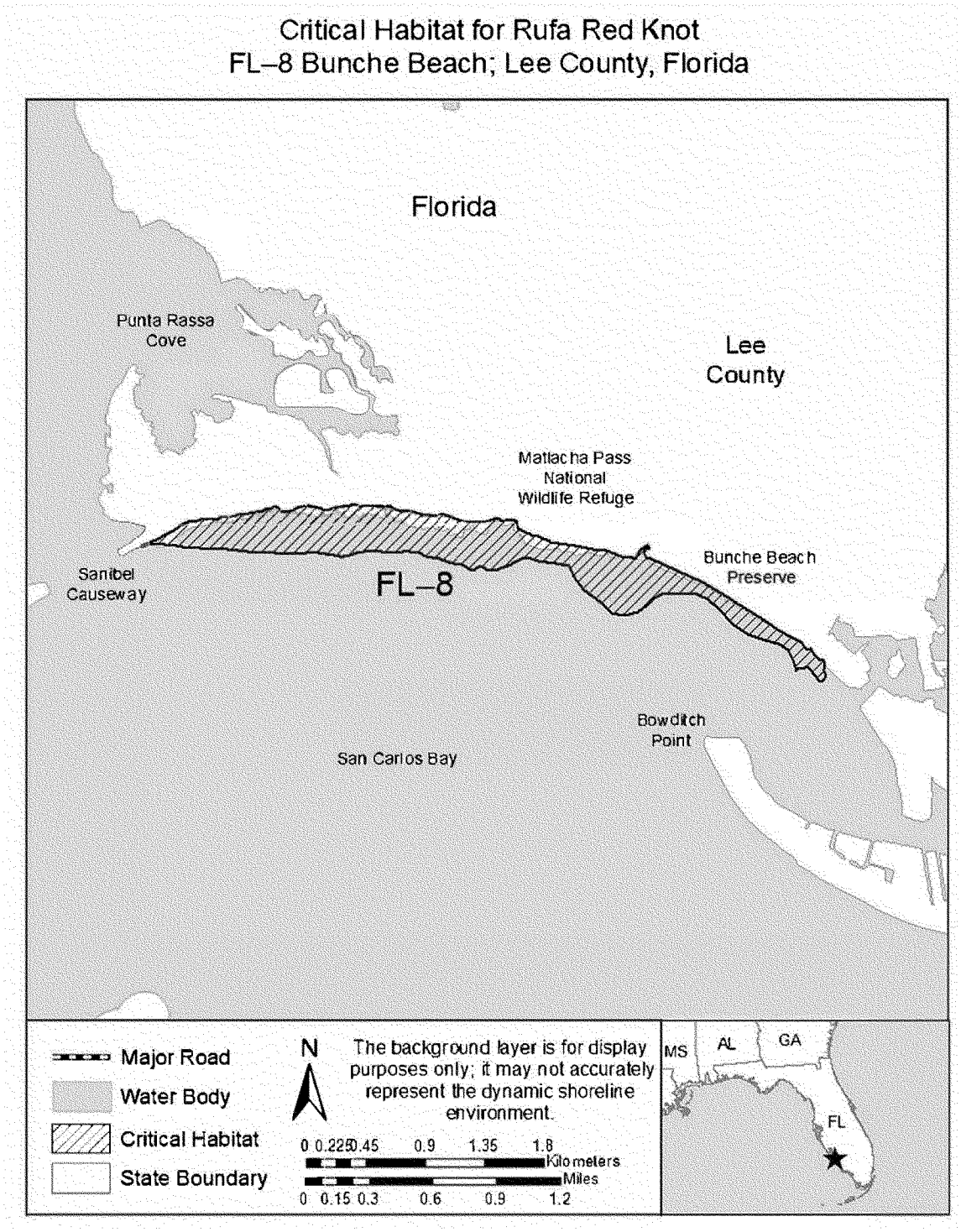
(vi) Map of Subunit FL–7B is presented at paragraph (89)(ii) of this entry.

(90) Unit FL–8: Bunche Beach, Florida.

(i) Unit FL–8 consists of approximately 334 ac (135 ha) of occupied beach, inlet, and intertidal sandflats habitat in Lee County, in San Carlos Bay south of the Sanibel Causeway in Fort Myers. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 23 ac (9 ha) in Federal ownership (Matlacha Pass NWR), 264 ac (107 ha) in State ownership (Bunche Beach Preserve), and 47 ac (19 ha) in private/other ownership.

(ii) Map of Unit FL–8 follows:

Figure 72 to Rufa Red Knot paragraph (90)(ii)

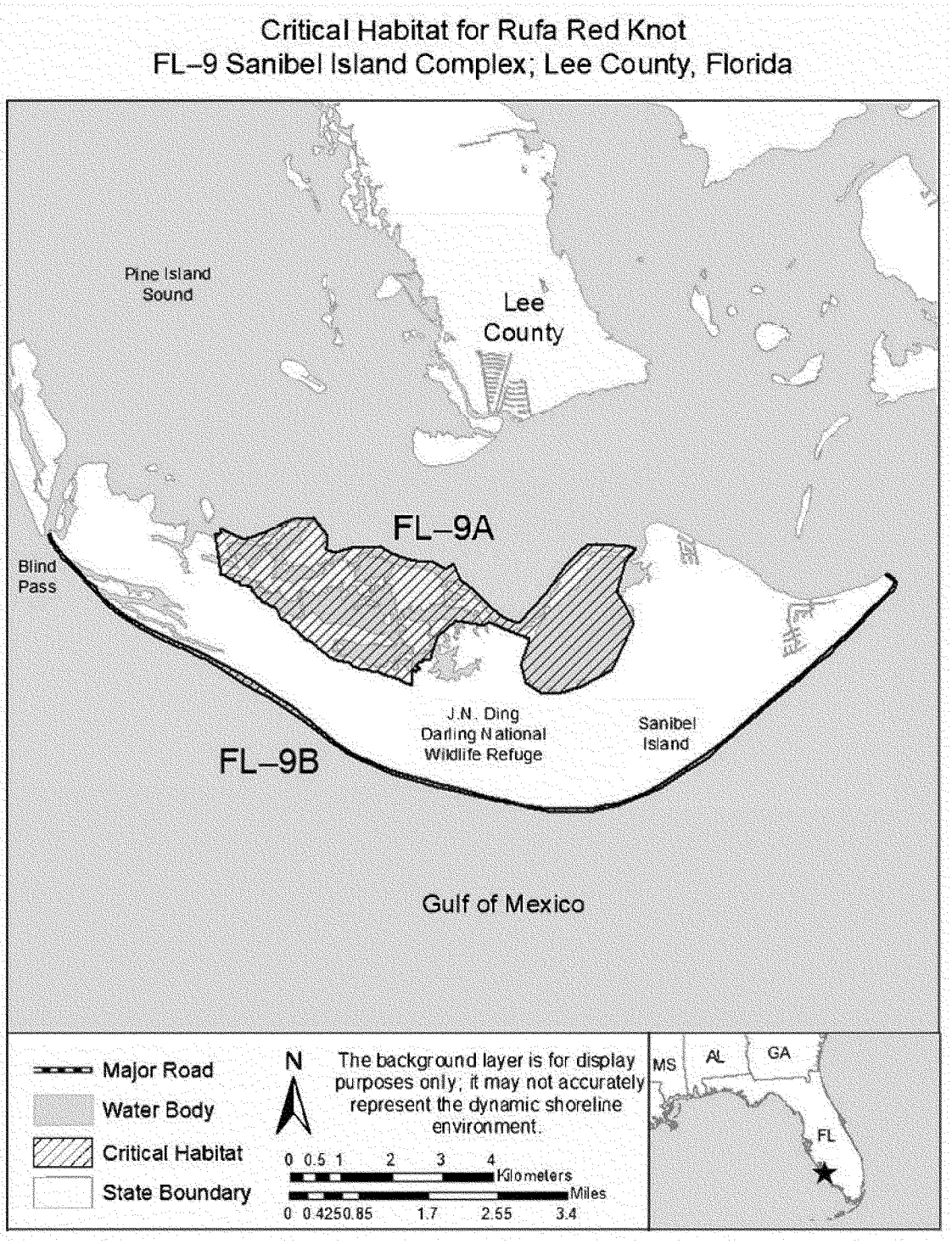


(91) Unit FL–9: Sanibel Island Complex, Florida.

(i) Unit FL–9 consists of two subunits comprising 3,759 ac (1,521 ha) of occupied habitat in Lee County. This unit consists of Federal lands that are part of the J.N. ''Ding'' Darling NWR and Sanibel Island.

(ii) Map of Unit FL–9 follows:

Figure 73 to Rufa Red Knot paragraph (91)(ii)



(iii) Subunit FL–9A (J.N. ''Ding'' Darling National Wildlife Refuge) consists of approximately 3,451 ac (1,397 ha) of occupied beach, inlet, and intertidal sandflats habitat, as well as managed impoundments in Lee County on Sanibel Island. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in Federal ownership (J.N. ''Ding'' Darling NWR).

(iv) Map of Subunit FL–9A is presented at paragraph (91)(ii) of this entry.

(v) Subunit FL–9B (Sanibel Island) consists of approximately 307 ac (124 ha) of occupied beach, inlet, and intertidal sandflats habitat in Lee County on Sanibel Island. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership.

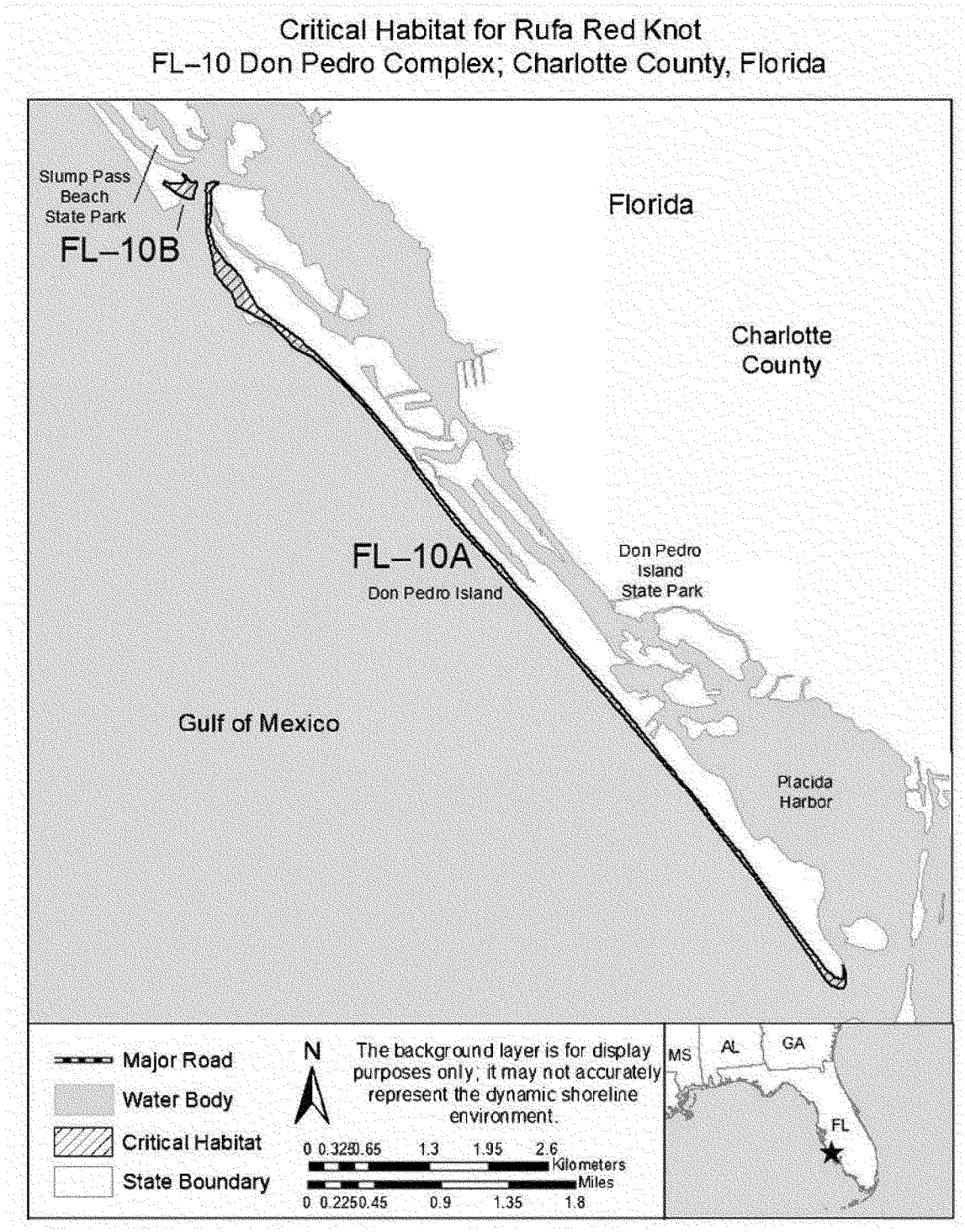
(vi) Map of Subunit FL–9B is presented at paragraph (91)(ii) of this entry.

(92) Unit FL–10: Don Pedro Complex, Florida.

(i) Unit FL–10 consists of two subunits comprising 158 ac (64 ha) of occupied habitat in Charlotte County. This unit consists of State lands, a portion of which are part of the Don Pedro Island State Park and Stump Pass Beach State Park.

(ii) Map of Unit FL–10 follows:

Figure 74 to Rufa Red Knot paragraph (92)(ii)



(iii) Subunit FL–10A (Don Pedro) consists of approximately 147 ac (60 ha) of occupied beach, inlet, and intertidal sandflats habitat in Charlotte County on Don Pedro Island. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership, a portion of which includes Don Pedro Island State Park.

(iv) Map of Subunit FL–10A is presented at paragraph (92)(ii) of this entry.

(v) Subunit FL–10B (Stump Pass Beach State Park) consists of approximately 11 ac (4 ha) of occupied beach, inlet, and intertidal sandflats habitat in Charlotte County at the southern point of Manasota Key. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership (Stump Pass Beach State Park).

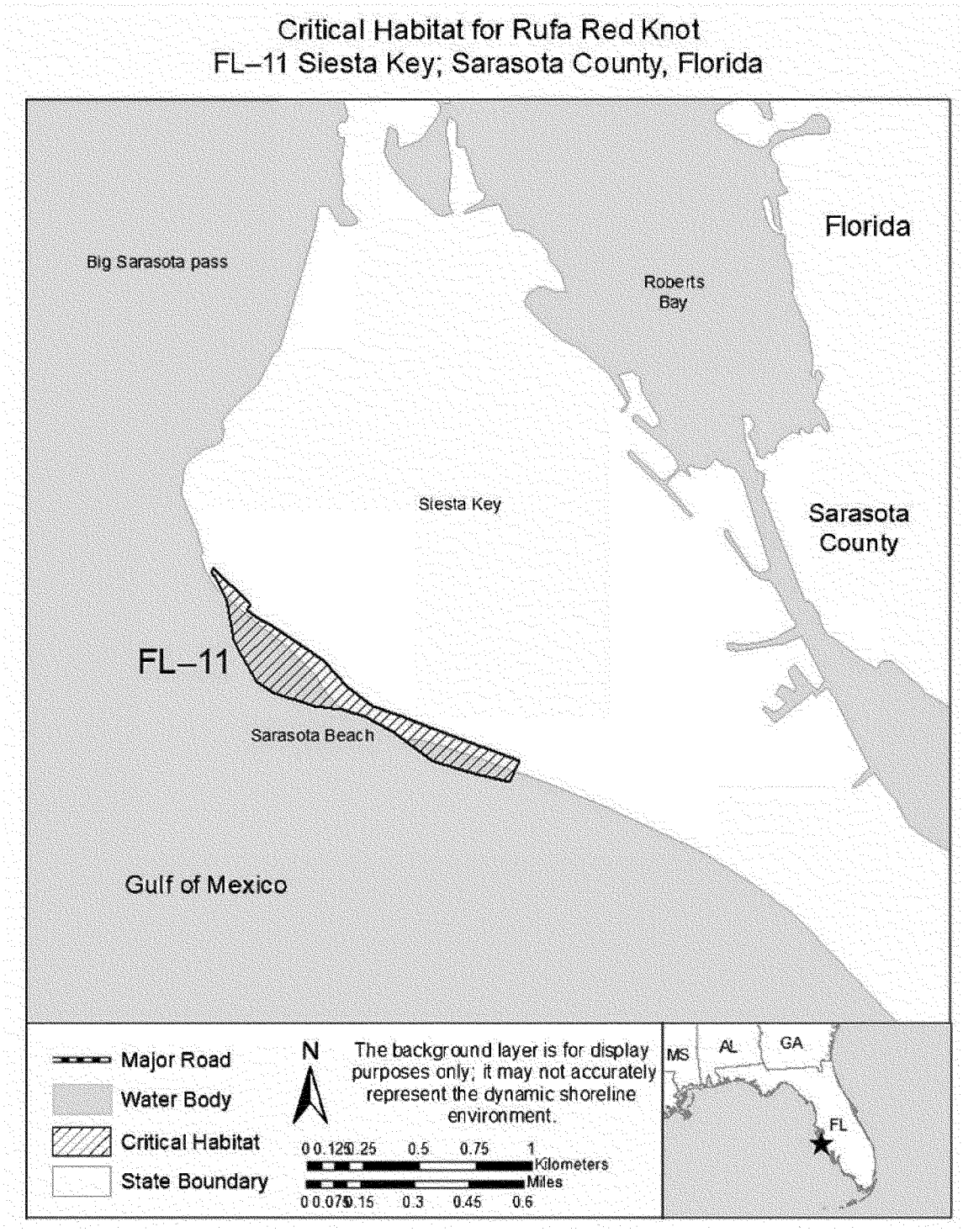
(vi) Map of Subunit FL–10B is presented at paragraph (92)(ii) of this entry.

(93) Unit FL–11: Siesta Key, Florida.

(i) Unit FL–11 consists of approximately 53 ac (21 ha) of occupied beach, inlet, and intertidal sandflats habitat in Sarasota County on Siesta Key, from Avenida Messina (road) south to Avenida del Mare. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership.

(ii) Map of Unit FL–11 follows:

Figure 75 to Rufa Red Knot paragraph (93)(ii)

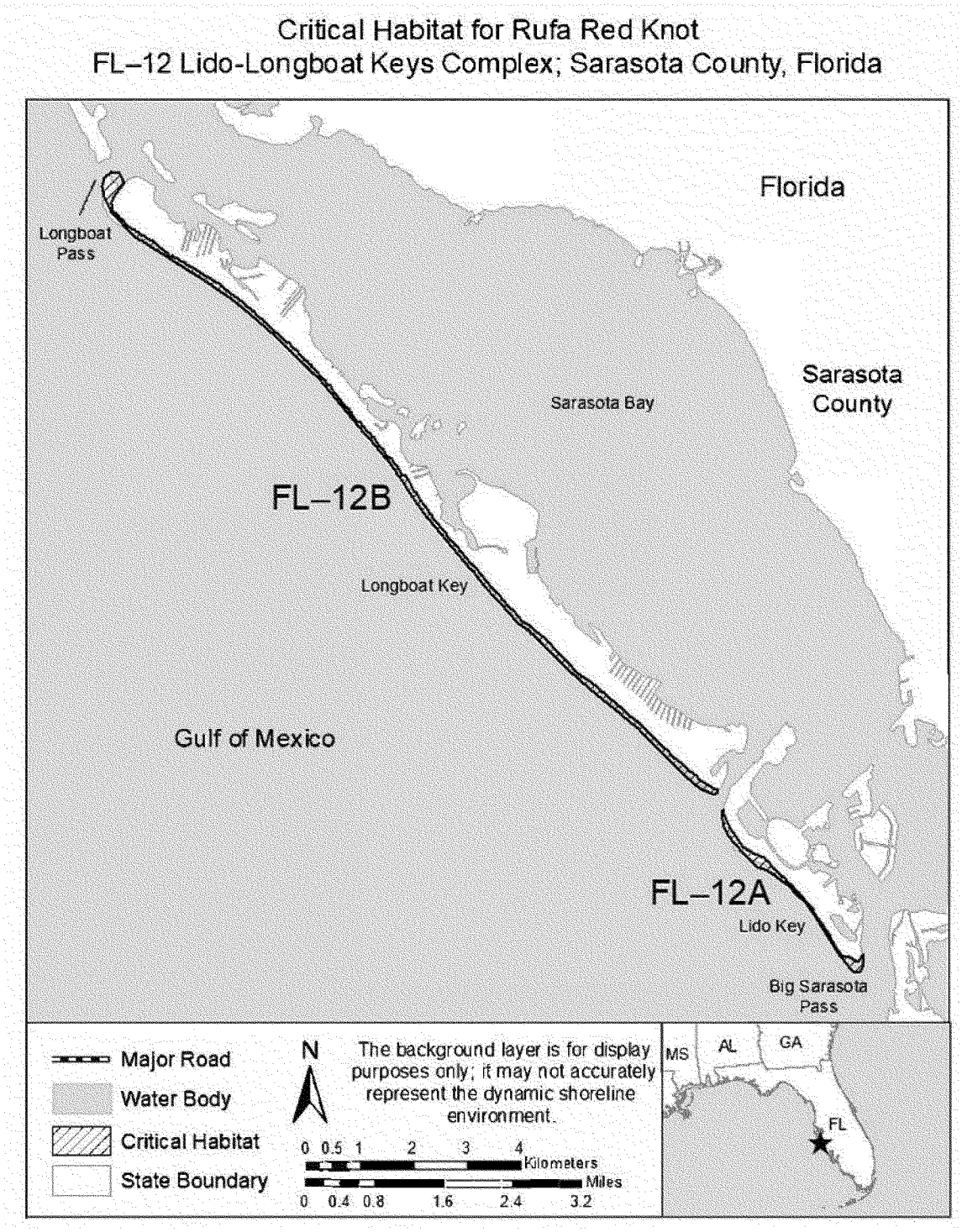


(94) Unit FL–12: Lido-Longboat Keys Complex, Florida.

(i) Unit FL–12 consists of two subunits comprising 450 ac (182 ha) of occupied habitat in Sarasota County. This unit consists of State lands.

(ii) Map of Unit FL–12 follows:

Figure 76 to Rufa Red Knot paragraph (94)(ii)



(iii) Subunit FL–12A (Lido Key) consists of approximately 81 ac (33 ha) of occupied beach, inlet, and intertidal sandflats habitat in Sarasota County on Lido Key. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership.

(iv) Map of Subunit FL–12A is presented at paragraph (94)(ii) of this entry.

(v) Subunit FL–12B (Longboat Key) consists of approximately 369 ac (149 ha) of occupied beach, inlet, and intertidal sandflats habitat in Sarasota County on Longboat Key. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership.

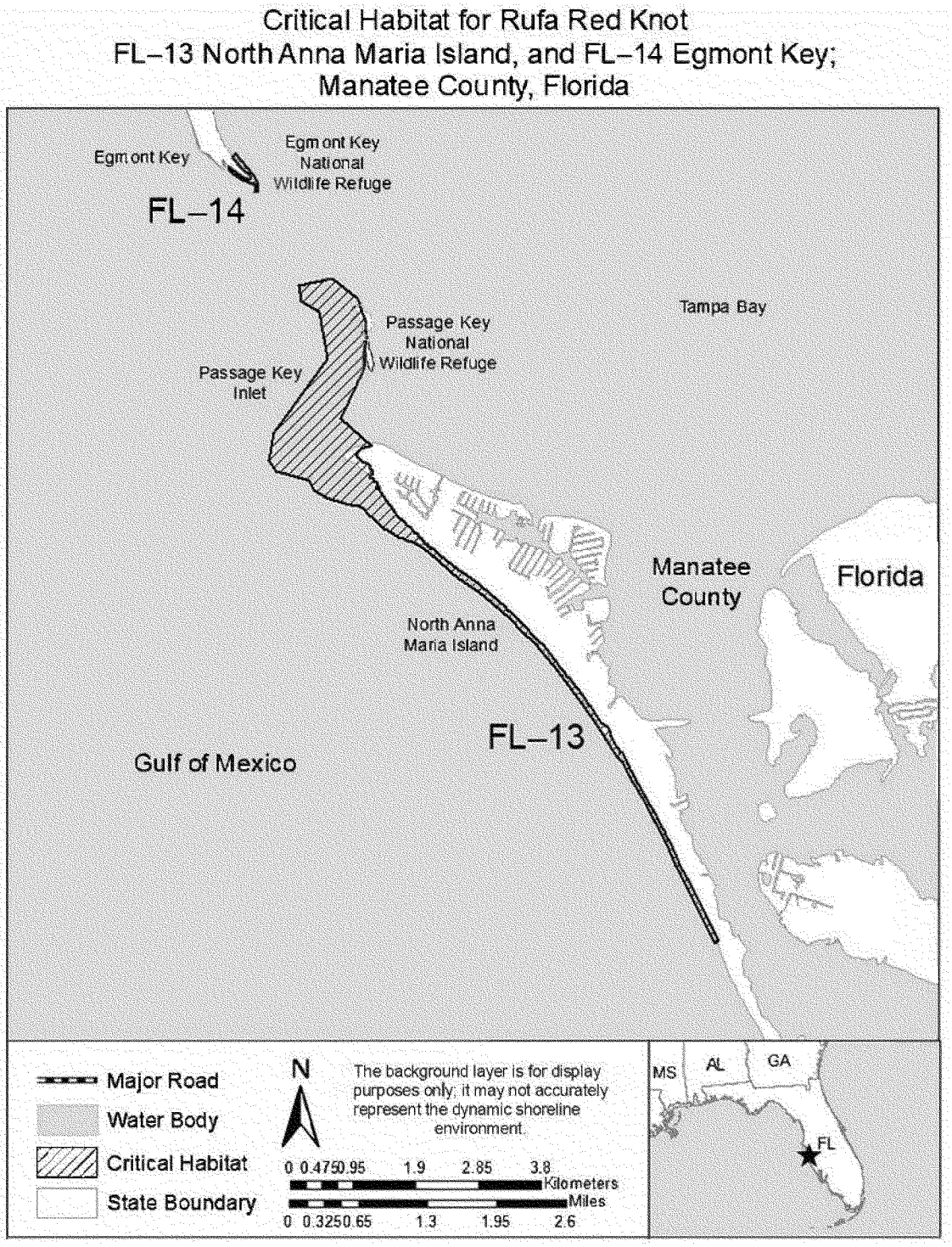
(vi) Map of Subunit FL–12B is presented at paragraph (94)(ii) of this entry.

(95) Unit FL–13: North Anna Maria Island, Florida.

(i) Unit FL–13 consists of approximately 945 ac (383 ha) of occupied beach, inlet, and intertidal sandflats habitat in Manatee County, from the north point of Anna Maria Island south to Cortez Road West. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 56 ac (23 ha) in Federal ownership (Passage Key NWR) and 889 ac (360 ha) in State ownership.

(ii) Map of Unit FL–13 follows:

Figure 77 to Rufa Red Knot paragraph (95)(ii)



(96) Unit FL–14: Egmont Key, Florida.

(i) Unit FL–14 consists of approximately 15 ac (6 ha) of occupied beach and intertidal sandflats habitat in Manatee County, on the south end of Egmont Key at the mouth of Tampa Bay. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely under Federal ownership (Egmont Key NWR).

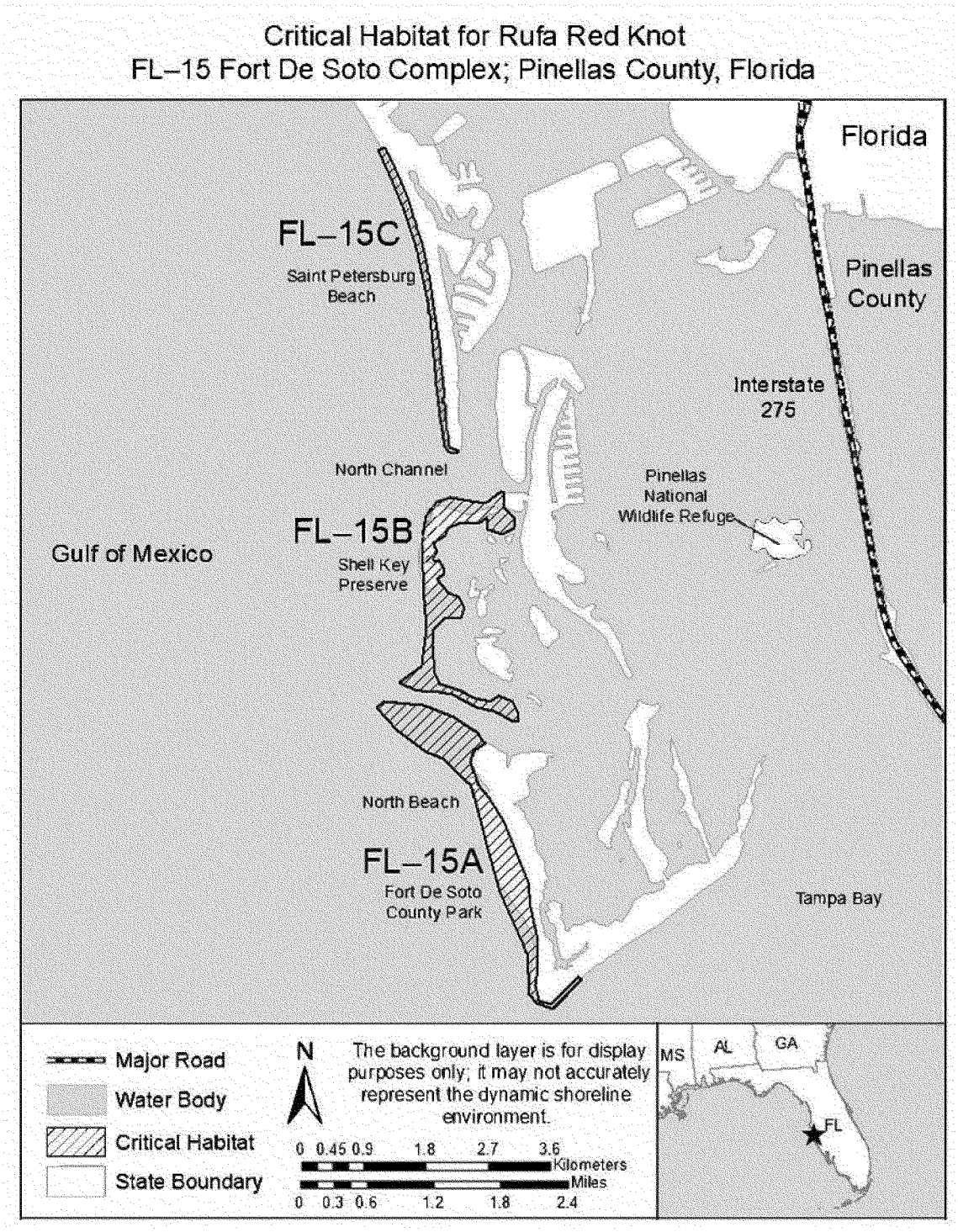
(ii) Map of Unit FL–14 is presented at paragraph (95)(ii) of this entry.

(97) Unit FL–15: Fort De Soto Complex, Florida.

(i) Unit FL–15 consists of three subunits comprising 856 ac (346 ha) of occupied habitat in Pinellas County. This unit consists of State lands and private/other ownership.

(ii) Map of Unit FL–15 follows:

Figure 78 to Rufa Red Knot paragraph (97)(ii)



(iii) Subunit FL–15A (Fort De Soto County Park) consists of approximately 427 ac (173 ha) of occupied beach, inlet, and intertidal sandflats habitat in Pinellas County, from North Beach south along the Gulf of Mexico to the Fort De Soto Fishing Pier at the mouth of Tampa Bay. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in county ownership (which is captured under the private/other category) within Fort De Soto County Park.

(iv) Map of Subunit FL–15A is presented at paragraph (97)(ii) of this entry.

(v) Subunit FL–15B (Shell Key Preserve) consists of approximately 322 ac (130 ha) of occupied beach, inlet, and intertidal sandflats habitat in Pinellas County on Shell Key. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State/county ownership (Shell Key Preserve).

(vi) Map of Subunit FL–15B is presented at paragraph (97)(ii) of this entry.

(vii) Subunit FL–15C (Saint Petersburg Beach) consists of approximately 107 ac (43 ha) of occupied beach, inlet, and intertidal sandflats habitat in Pinellas County on Saint Petersburg Beach from 46th Avenue south to 1st Avenue inclusive of the inlet. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this subunit are entirely in State ownership.

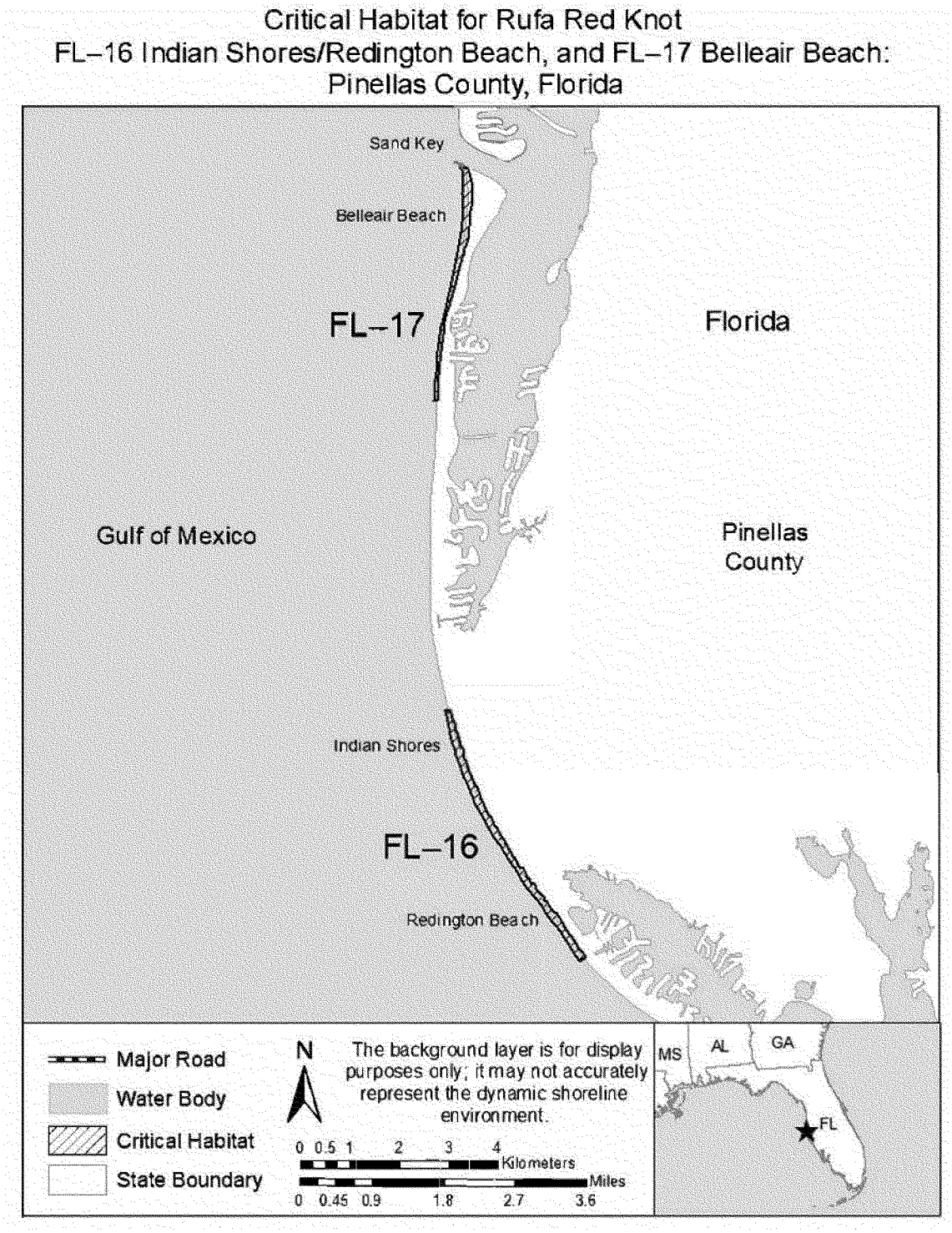
(viii) Map of Subunit FL–15C is presented at paragraph (97)(ii) of this entry.

(98) Unit FL–16: Indian Shores/Redington Beach, Florida.

(i) Unit FL–16 consists of approximately 196 ac (79 ha) of occupied beach, inlet, and intertidal sandflats habitat in Pinellas County, from the Indian Shores Florida Coastal Range Monument R–086 at the north end of the unit to the Redington Beach Long Pier at the south end of the unit. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership.

(ii) Map of Unit FL–16 follows:

Figure 79 to Rufa Red Knot paragraph (98)(ii)



(99) Unit FL–17: Belleair Beach, Florida.

(i) Unit FL–17 consists of approximately 123 ac (50 ha) of occupied beach, inlet, and intertidal sandflats habitat in Pinellas County, on Belleair Beach from the north point (Sand Key) south to 19th Street. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership.

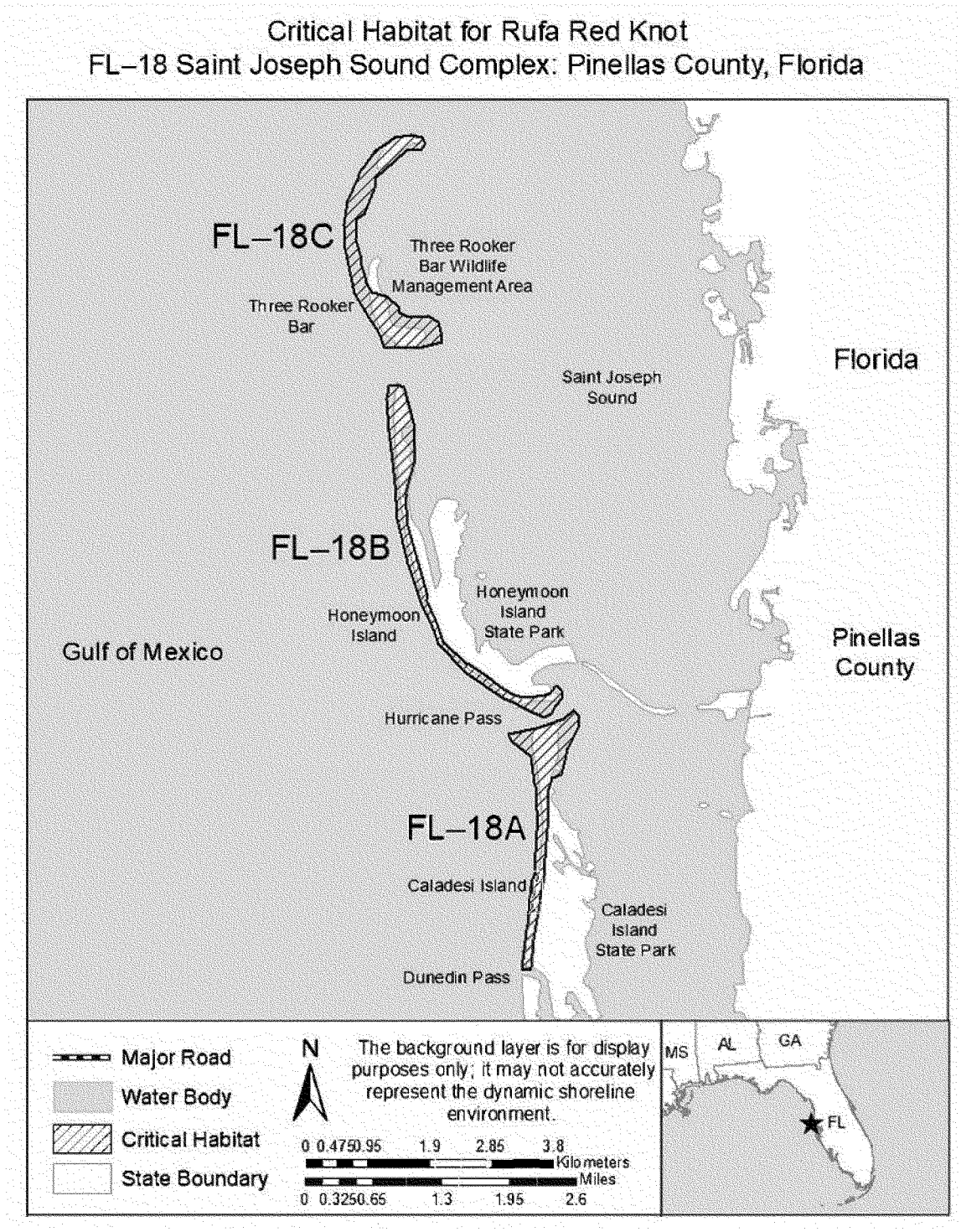
(ii) Map of Unit FL–17 is presented at paragraph (98)(ii) of this entry.

(100) Unit FL–18: Saint Joseph Sound Complex, Florida.

(i) Unit FL–18 consists of three subunits comprising 888 ac (360 ha) of occupied habitat in Pinellas County. This unit consists of State-owned lands.

(ii) Map of Unit FL–18 follows:

Figure 80 to Rufa Red Knot paragraph (100)(ii)



(iii) Subunit FL–18A (Caladesi Island) consists of approximately 259 ac (105 ha) of occupied beach and intertidal sandflats habitat in Pinellas County. This subunit includes shoreline from the southern boundary of Caladesi Island State Park to Dunedin Pass. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands in this subunit are entirely in State ownership (Caladesi Island State Park).

(iv) Map of Subunit FL–18A is presented at paragraph (100)(ii) of this entry.

(v) Subunit FL–18B (Honeymoon Island) consists of approximately 294 ac (119 ha) of occupied beach and intertidal sandflats habitat in Pinellas County. This subunit includes the Gulf of Mexico shoreline in Honeymoon Island State Park from Dunedin Pass to Hurricane Pass. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands in this subunit are entirely in State ownership (Honeymoon Island State Park).

(vi) Map of Subunit FL–18B is presented at paragraph (100)(ii) of this entry.

(vii) Subunit FL–18C (Three Rooker Bar) consists of approximately 335 ac (136 ha) of occupied beach and intertidal sandflats habitat on Three Rooker Island in Pinellas County. Three Rooker Island includes shoreline from Hurricane Pass to the northern tip of Three Rooker Island. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands in this subunit are entirely State ownership (Three Rooker Bar Wildlife Management Area).

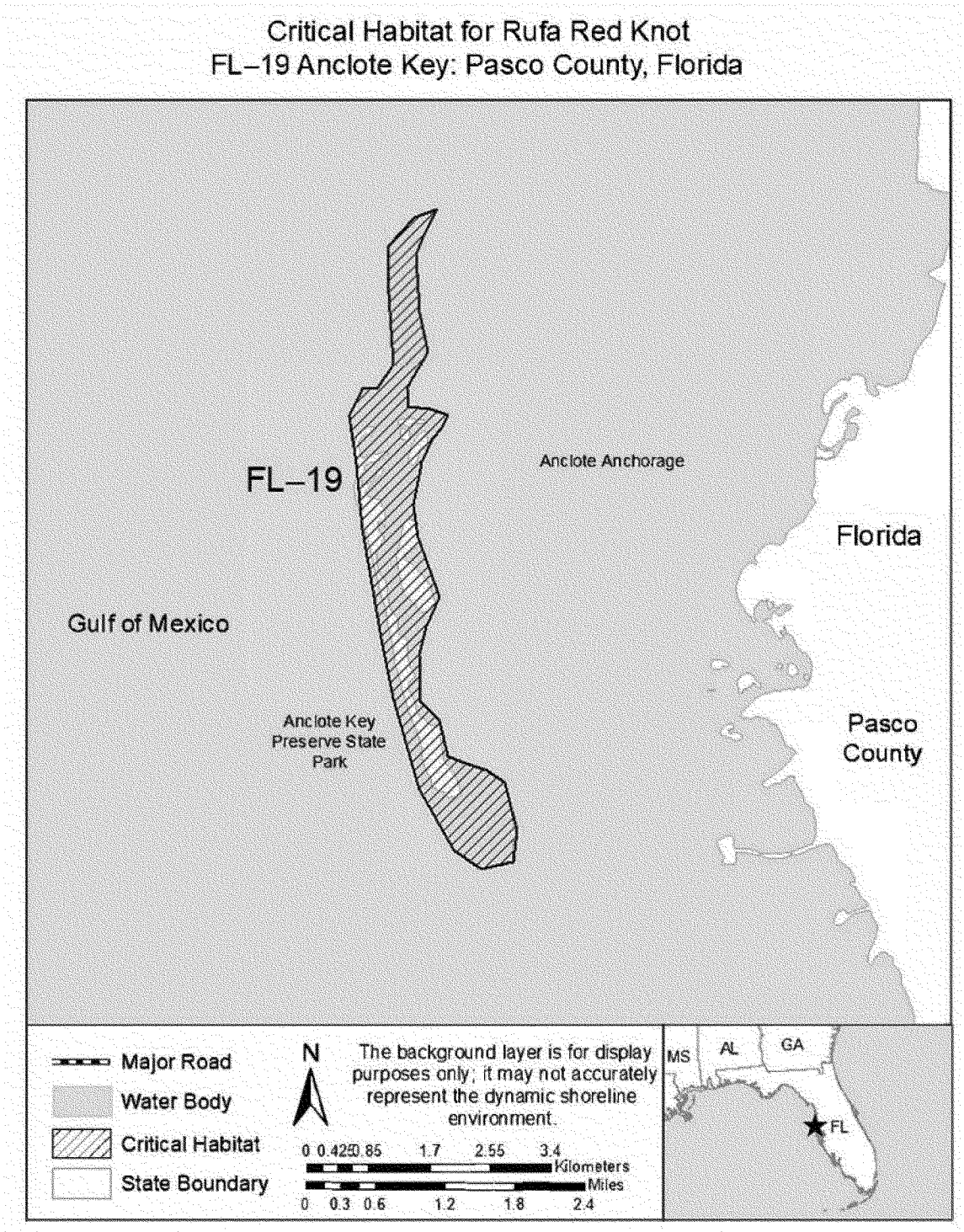
(viii) Map of Subunit FL–18C is presented at paragraph (100)(ii) of this entry.

(101) Unit FL–19: Anclote Key, Florida.

(i) Unit FL–19 consists of approximately 1,547 ac (626 ha) of occupied beach and intertidal sandflats habitat in Pasco County on Anclote Key. The landward boundary is the line indicating the beginning of dense vegetation, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit are entirely in State ownership (Anclote Key Preserve State Park).

(ii) Map of Unit FL–19 follows:

Figure 81 to Rufa Red Knot paragraph (101)(ii)



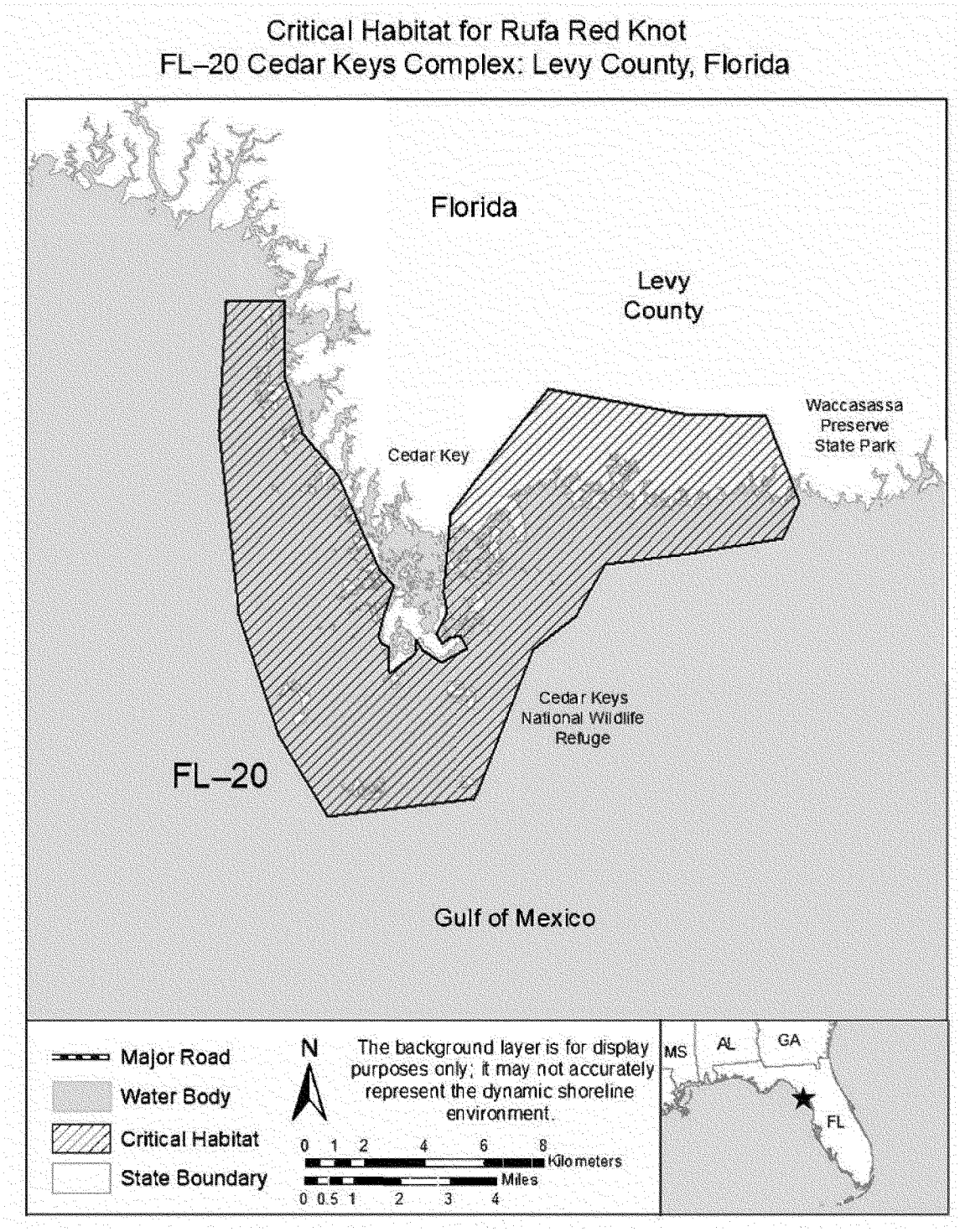
(102) Unit FL–20: Cedar Keys Complex, Florida.

(i) Unit FL–20 consists of approximately 35,626 ac (14,417 ha) of occupied beach and intertidal sandflats habitat in Levy County on Cedar Key, including the complex of sandbars and flats seaward. The landward boundary is the line indicating the beginning of dense vegetation or hardened structures, including emergent, dynamic shoreline to MLLW that is covered at high tide and uncovered at low tide. Lands within this unit include approximately 2,498 ac (1,012 ha) in Federal ownership (Cedar

Keys NWR), 7,792 ac (3,153 ha) in State ownership (Waccasassa Preserve State Park), 5,928 ac (2,293 ha) in private/other ownership, and 19,407 ac (7,959 ha) that are uncategorized.

(ii) Map of Unit FL–20 follows:

Figure 82 to Rufa Red Knot paragraph (102)(ii)



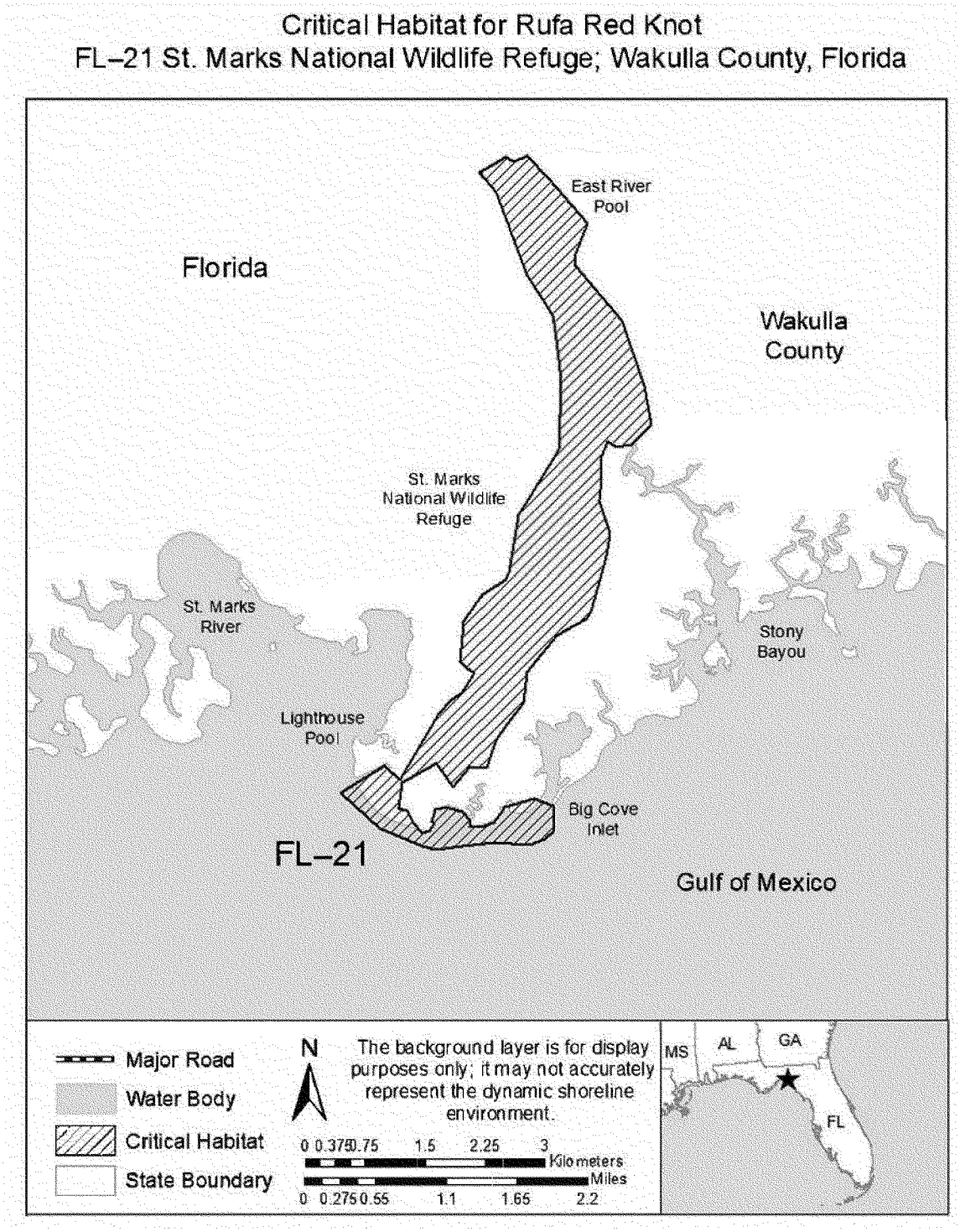
(103) Unit FL–21: St. Marks National Wildlife Refuge, Florida.

(i) Unit FL–21 consists of approximately 2,074 ac (839 ha) of occupied beach, inlets, shoals, intertidal mud, mud flats, and impoundments habitat in Wakulla County. The unit extends from the eastern boundary of

Big Cove inlet west to the inlet west of Lighthouse Pool and includes areas to the north up to 1.25 mi (2 km) into East River Pool. This unit includes from the base of the berm road to the lowest water level and areas up to 4 in (10 cm) of water depth within Lighthouse Pool, Picnic Pond, Tower Pond, Headquarters Pond, Mounds Pools 1 and 2, Stoney Bayou Pool 1, and within the open water and emergent marsh portion of East River Pool and all shoals and shoreline habitats within Sand Cove and Minnie Cove. Areas to the east of Lighthouse Road between Lighthouse Pool and Picnic Pond, and areas to the east of Picnic and Tower Ponds that have the physical or biological features, are also included. This unit includes lands from MLLW to the landward limit of the physical or biological features and any ephemeral pools, or natural brackish ponds and any emergent sand shoals in Apalachee Bay appearing near shore within 3 mi (4.8 km) of the critical habitat boundary found along the southernmost portion of Lighthouse Road and Lighthouse Levee Trail that parallels Apalachee Bay. Lands within this unit are entirely in Federal ownership (St. Marks NWR).

(ii) Map of Unit FL–21 follows:

Figure 83 to Rufa Red Knot paragraph (103)(ii)

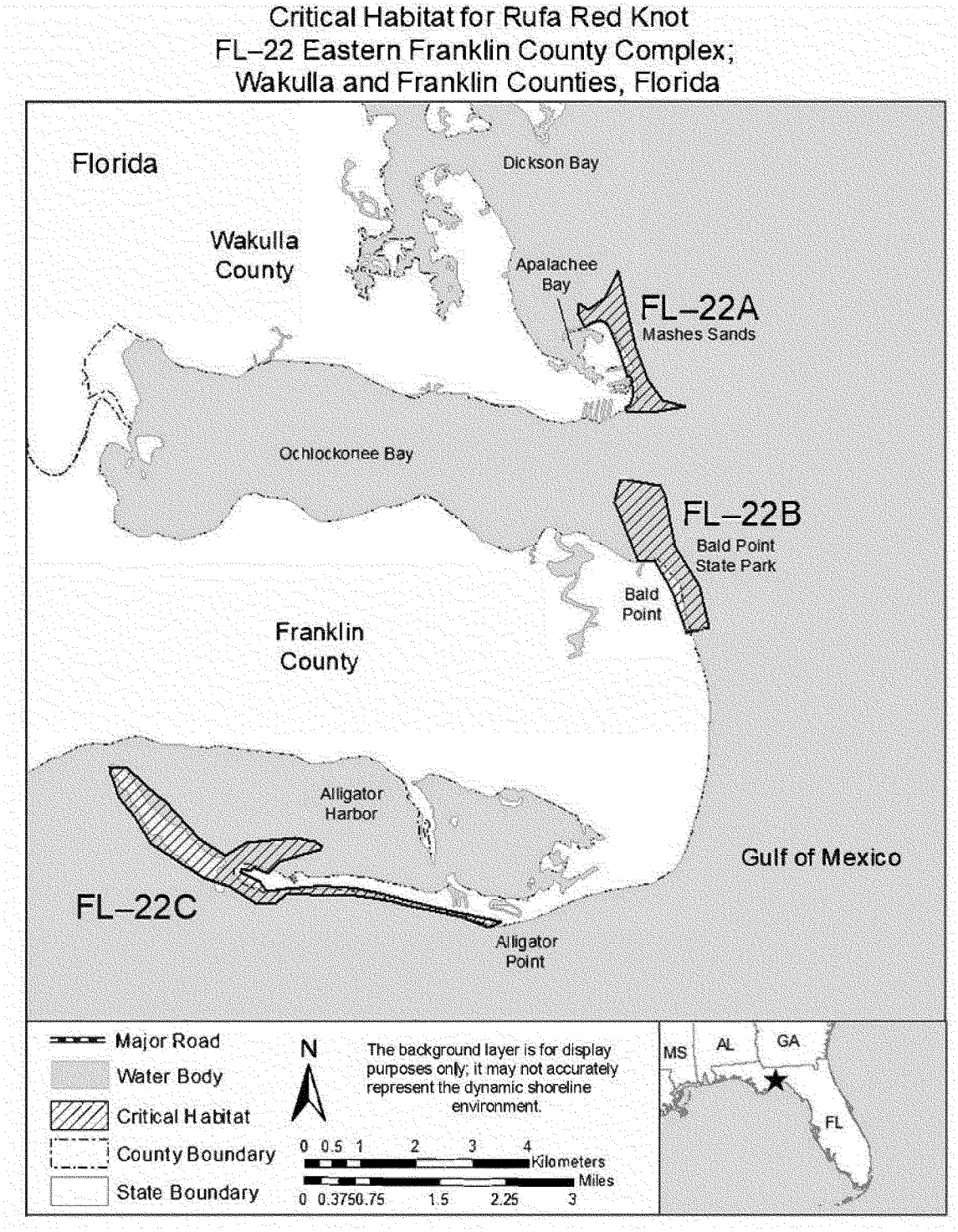


(104) Unit FL–22: Eastern Franklin County Complex, Florida.

(i) Unit FL–22 consists of three subunits comprising 1,429 ac (578 ha) of occupied habitat in Wakulla and Franklin Counties. This unit consists of beaches within the areas of Apalachee Bay, Dickson Bay, Ochlockonee Bay, and Alligator Point.

(ii) Map of Unit FL–22 follows:

Figure 84 to Rufa Red Knot paragraph (104)(ii)



(iii) Subunit FL–22A (Mashes Sands) consists of approximately 262 ac (106 ha) of occupied beach, inlet, shoals, and intertidal sandflats at Mashes Sands Park beach, and the inlet and shoals of Apalachee Bay, Dickson Bay, and Ochlockonee Bay in Wakulla County, from near Ochlockonee Point in Ochlockonee Bay north towards Dickson Bay. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense

vegetation or hardened structures. This area includes any ephemeral pools, lagoons, or natural brackish ponds and any adjacent or near-shore emergent sand shoals. Lands within this subunit are all in State ownership but leased and managed by Wakulla County.

(iv) Map of Subunit FL–22A is presented at paragraph (104)(ii) of this entry.

(v) Subunit FL–22B (Bald Point State Park) consists of approximately 445 ac (180 ha) of occupied beaches and shoals habitat in Franklin County, from a dirt road 0.35 mi (0.56 km) north of Marlin Street to the north near Bald Point, and including shoals within Ochlockonee Bay approximately 0.9 mi (1.4 km) north of Bald Point. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures. It includes any ephemeral pools, lagoons, or natural brackish ponds and any adjacent or near-shore emergent sand shoals. Lands within this subunit include approximately 439 ac (178 ha) in State ownership (Bald Point State Park) and 6 ac (2 ha) in private/other ownership.

(vi) Map of Subunit FL–22B is presented at paragraph (104)(ii) of this entry.

(vii) Subunit FL–22C (Alligator Point) consists of approximately 722 ac (292 ha) of occupied beaches at Alligator Point and John S. Phipps Preserve, and shoals in Franklin County, from 0.07 mi (0.11 km) east of Florida Coastal Range Monument 210 west to the shoals associated with the northwestern end of the point. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures. It includes any ephemeral pools, lagoons, or natural brackish ponds and any adjacent or near-shore emergent sand shoals. Lands within this subunit are entirely in private/other ownership (John S. Phipps Preserve, managed by the TNC).

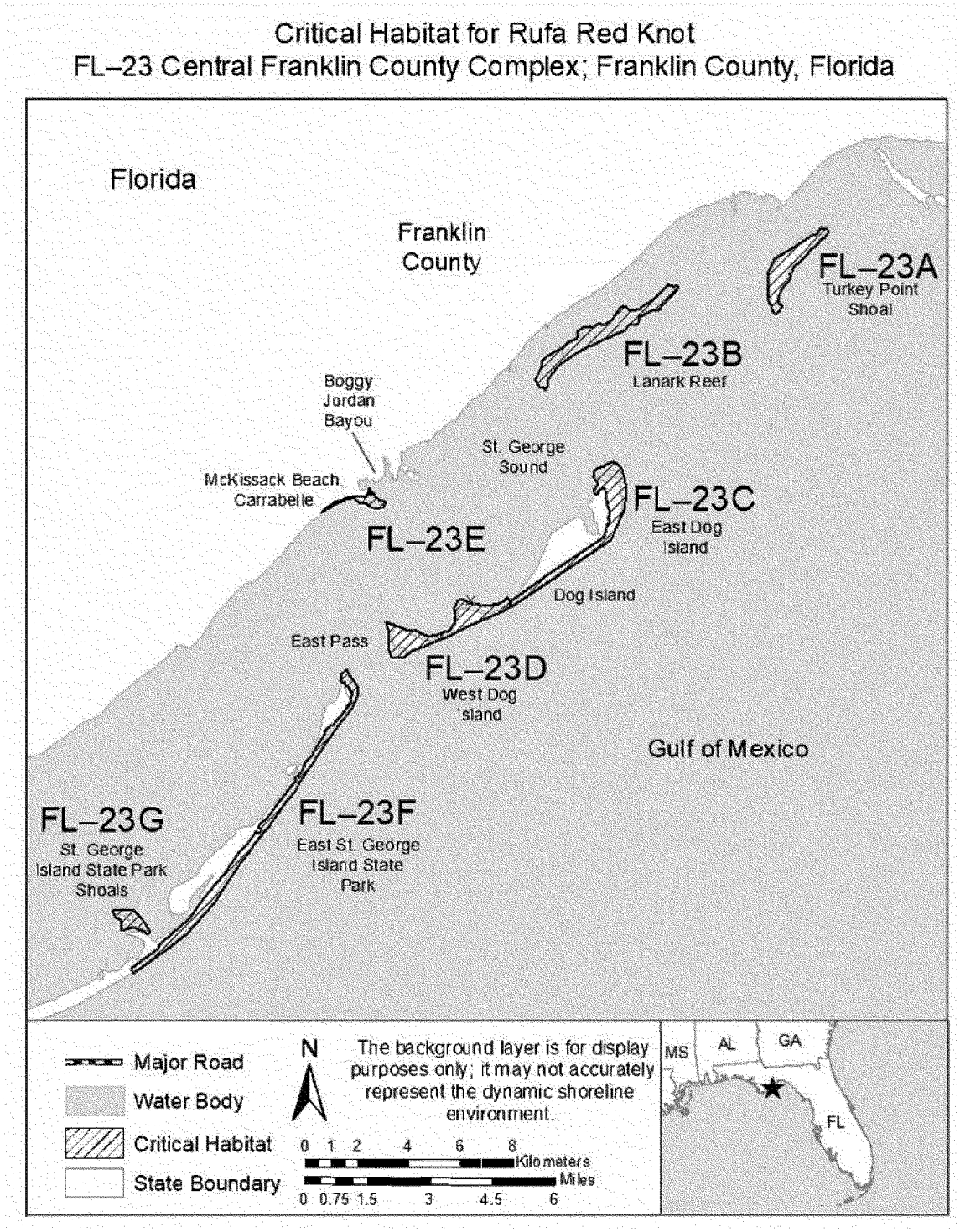
(viii) Map of Subunit FL–22C is presented at paragraph (104)(ii) of this entry.

(105) Unit FL–23: Central Franklin County Complex, Florida.

(i) Unit FL–23 consists of seven subunits comprising 4,175 ac (1,689 ha) of occupied habitat in Franklin County. This unit consists of beaches and barrier island areas of St. George Sound shoreline, the Carrabelle River outlet, Boggy Jordan Bayou outlet, Dog Island, and St. George Island.

(ii) Map of Unit FL–23 follows:

Figure 85 to Rufa Red Knot paragraph (105)(ii)



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(iii) Subunit FL–23A (Turkey Point Shoal) consists of approximately 531 ac (215 ha) of occupied habitat, including emergent, isolated shoal habitat within the Gulf of Mexico and St. George Sound, Franklin County. This subunit includes emergent shoals approximately 1 mi (1.5 km) south of Turkey Point. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including any ephemeral pools, lagoons, and emergent sand shoals adjacent to the island or reef. All lands within this subunit are in State ownership.

(iv) Map of Subunit FL–23A is presented at paragraph (105)(ii) of this entry.

(v) Subunit FL–23B (Lanark Reef) consists of approximately 865 ac (350 ha) of occupied beach and intertidal shoreline habitat of Lanark Reef in St. George Island Sound off the coast of Franklin County. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including any ephemeral pools, lagoons, and emergent sand shoals within 3 mi (4.8 km) of the island or reef. Lands within this subunit include 805 ac (326 ha) in State ownership and 61 ac (25 ha) in private/other ownership.

(vi) Map of Subunit FL–23B is presented at paragraph (105)(ii) of this entry.

(vii) Subunit FL–23C (East Dog Island) consists of approximately 771 ac (312 ha) of occupied beach shoreline and shoals on East Dog Island off the coast of Franklin County. The subunit is from midway between Florida Coastal Range Monuments 168 and 169 east to the tip of the island and extending around the tip to include St. George Sound shoreline and shoals approximately horizontal to Florida Coastal Range Monument 190. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, and also includes ephemeral pools, lagoons, natural brackish ponds, and any adjacent or near-shore emergent sand shoals. Lands within this subunit are entirely private/other ownership (including the Jeff Lewis Wilderness Preserve, which is owned/managed by the TNC).

(viii) Map of Subunit FL–23C is presented at paragraph (105)(ii) of this entry.

(ix) Subunit FL–23D (West Dog Island) consists of approximately 751 ac (304 ha) of occupied habitat on West Dog Island in Franklin County. This subunit includes the entirety of this island from the eastern boundary at the Gulf of Mexico shoreline midway between Florida Coastal Range Monuments 168 and 169 and west 3.1 mi (5 km) to East Pass. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, as well as ephemeral and emergent sand shoals appearing in the near shore. Lands within this subunit are entirely in private/other ownership, including the Jeff Lewis Wilderness Preserve that is owned/managed by the TNC.

(x) Map of Subunit FL–23D is presented at paragraph (105)(ii) of this entry.

(xi) Subunit FL–23E (McKissack Beach, Carrabelle) consists of approximately 117 ac (47 ha) of occupied habitat along McKissack Beach and Marsh in Carrabelle and associated shoals in Franklin County, from 0.18 mi (0.30 km) east of the intersection of U.S. Highway 98 and Cape Street east to the cove that forms the outlet of Boggy Jordan Bayou. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, as well as any ephemeral and emergent sand shoals appearing in the near shore. Lands within this subunit include 114 ac (46 ha) in State ownership (the Florida Trustees of the Internal Improvement Fund, although the City of Carrabelle retains a lease on McKissack Beach and Marsh), and 3 ac (1 ha) in private/other ownership.

(xii) Map of Subunit FL–23E is presented at paragraph (105)(ii) of this entry.

(xiii) Subunit FL–23F (East St. George Island State Park) consists of approximately 978 ac (396 ha) of occupied habitat within Dr. Julian G. Bruce St. George Island State Park Beach in Franklin County, from Florida Coastal Range Monument 105 to the eastern tip of the island at East Pass. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures. All lands within this subunit are in State ownership (East St. George Island State Park).

(xiv) Map of Subunit FL–23F is presented at paragraph (105)(ii) of this entry.

(xv) Subunit FL–23G (St. George Island State Park and Bayshore Shoals) consists of approximately 162 ac (65 ha) of occupied habitat on Goose Island and associated shoals in Franklin County. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical and biological features, including ephemeral pools, lagoons, and any emergent sand shoals adjacent to the island. All lands within this subunit are in State ownership (St. George Island State Park).

(xvi) Map of Subunit FL–23G is presented at paragraph (105)(ii) of this entry.

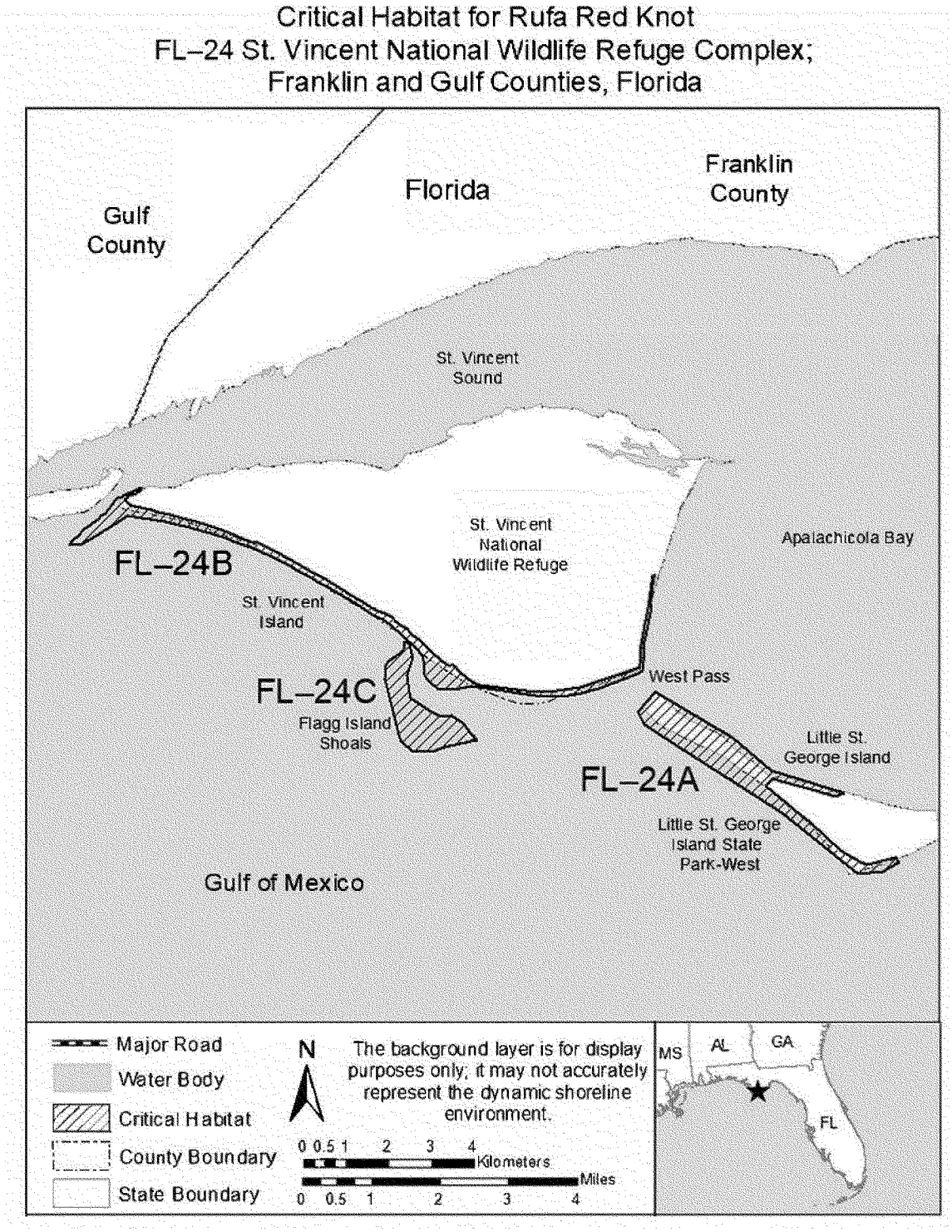
(106) Unit FL–24: St. Vincent National Wildlife Refuge Complex, Florida.

(i) Unit FL–24 consists of three subunits comprising 2,212 ac (895 ha) of occupied habitat in Franklin and Gulf Counties. This unit consists of beaches of Apalachicola Bay, St. Vincent Sound, Indian Pass, St. Vincent Island, and Flagg Island.

(ii) Map of Unit FL–24 follows:

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Figure 86 to Rufa Red Knot paragraph (106)(ii)



(iii) Subunit FL–24A (Little St. George Island State Park-West) consists of approximately 953 ac (386 ha) of occupied habitat on Little St. George Island beach and shoals in Franklin County, from West Pass east to Florida Coastal Range Monument 25 and including bayside beach from West Pass east to the point at the Marshall Dock. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, and includes ephemeral pools, natural brackish ponds, and emergent sand shoals appearing in the near shore of the Gulf or Apalachicola Bay. All lands within

this subunit are in State ownership (Little St. George Island State Park).

(iv) Map of Subunit FL–24A is presented at paragraph (106)(ii) of this entry.

(v) Subunit FL–24B (St. Vincent National Wildlife Refuge) consists of approximately 742 ac (300 ha) of occupied beach and shoals habitat on the St. Vincent NWR in Franklin and Gulf Counties, from the Refuge boat house at the confluence of St. Vincent Sound and Indian Pass east to 0.60 mi (0.96 km) north of Shell Road. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward boundary indicated by the beginning of dense vegetation or hardened structures, including ephemeral pools, natural brackish ponds, and emergent sand shoals appearing in the near shore of the Gulf. Lands within this subunit are all in Federal ownership (St. Vincent NWR).

(vi) Map of Subunit FL–24B is presented at paragraph (106)(ii) of this entry.

(vii) Subunit FL–24C (Flagg Island Shoals) consists of approximately 517 ac (209 ha) of occupied habitat that encompasses the entire ebb-tidal delta referred to as Flagg Island off the southernmost tip of St. Vincent Island (near Oyster Pond outfall) in Franklin County. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including ephemeral pools, natural brackish ponds, and emergent sand shoals. All lands within this subunit (which constantly change in size and shape due to the dynamic nature of the area) are in State ownership.

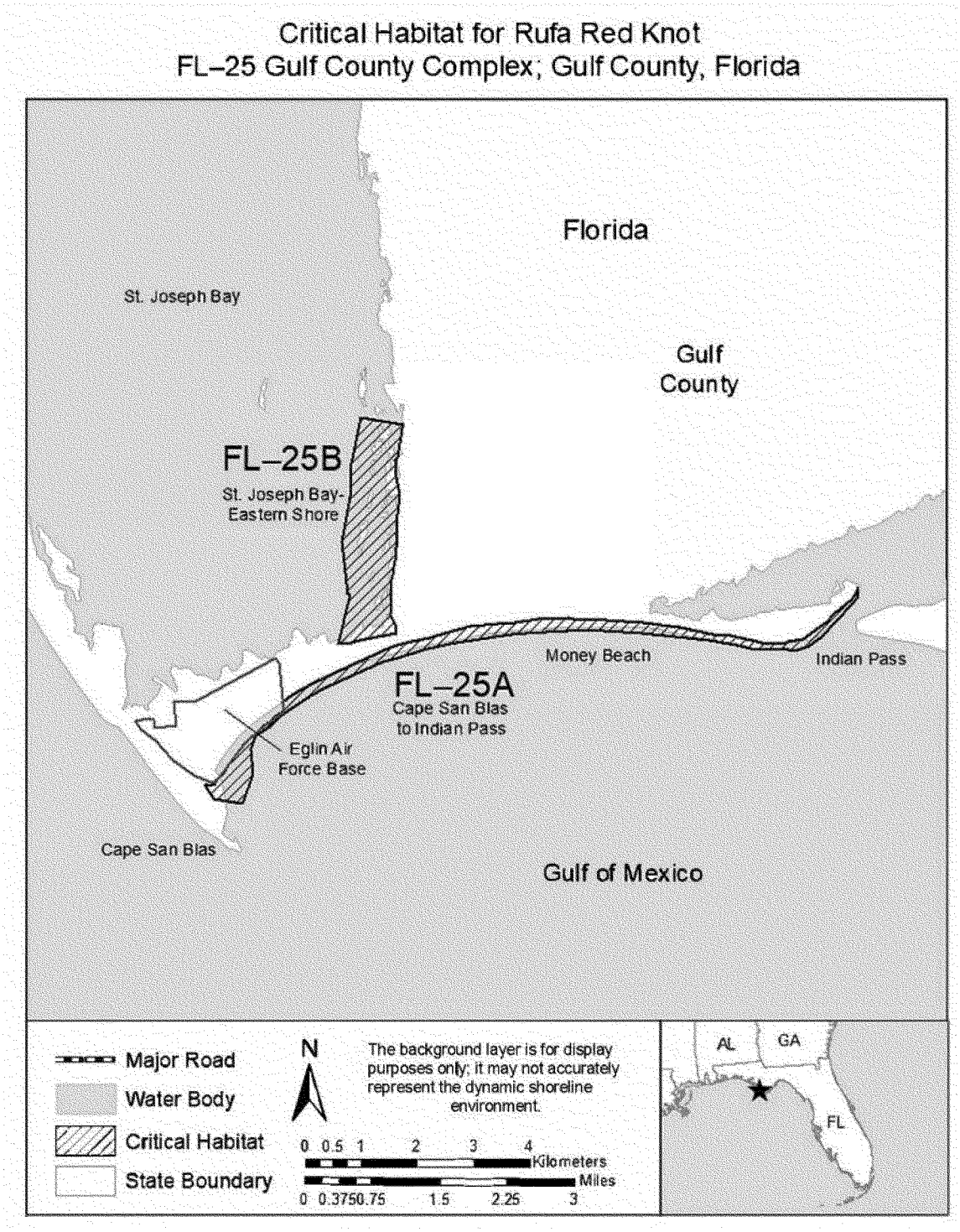
(viii) Map of Subunit FL–24C is presented at paragraph (106)(ii) of this entry.

(107) Unit FL–25: Gulf County Complex, Florida.

(i) Unit FL–25 consists of two subunits comprising 1,520 ac (616 ha) of occupied habitat in Gulf County. This unit consists of beaches of Cape San Blas, Money, and Indian Pass, and the southeastern portion of St. Joseph Bay.

(ii) Map of Unit FL–25 follows:

Figure 87 to Rufa Red Knot paragraph (107)(ii)



(iii) Subunit FL–25A (Cape San Blas to Indian Pass) consists of approximately 620 ac (251 ha) of occupied beach habitat at Cape San Blas, Money Bayou, and Indian Pass beaches in Gulf County, from the southwestern point of Cape San Blas to 0.11 mi (0.18 km) northeast of the Indian Pass Beach Boat Ramp. This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including ephemeral pools, natural brackish ponds, and emergent sand shoals in the near shore. Lands within this subunit include 133 ac (54 ha) in State ownership and 486 ac (197 ha) in private/other ownership. Adjacent Federal lands under Eglin Air

Force Base jurisdiction are exempt under section 4(a)(3) of the Act, but the shoal and any emergent shoal formations that appear along the shoreline are considered part of this unit, starting from the MLLW south and up 0.5 mi (0.81 km) from Eglin Air Force Base lands on the southern-most side of Cape San Blas.

(iv) Map of Subunit FL–25A is presented at paragraph (107)(ii) of this entry.

(v) Subunit FL–25B (St. Joseph Bay-Eastern Shore) consists of approximately 827 ac (335 ha) of occupied beaches and shoals within the southeastern portion of St. Joseph Bay in Gulf County, from 0.09 mi (0.14 km) east of the intersection of County Road 30A and Cape San Blas Road to the west 0.66 mi (1.1 km) and to the north 2.4 mi (3.8 km). This subunit includes lands from MLLW (*i.e.,* highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide) to the landward limit of the physical or biological features, including ephemeral pools, natural brackish ponds, lagoons, and emergent sand shoals in the near shore. Lands within this subunit include 761 ac (308 ha) in State ownership (St. Joseph Bay State Buffer Preserve) and 66 ac (27 ha) in private/other ownership.

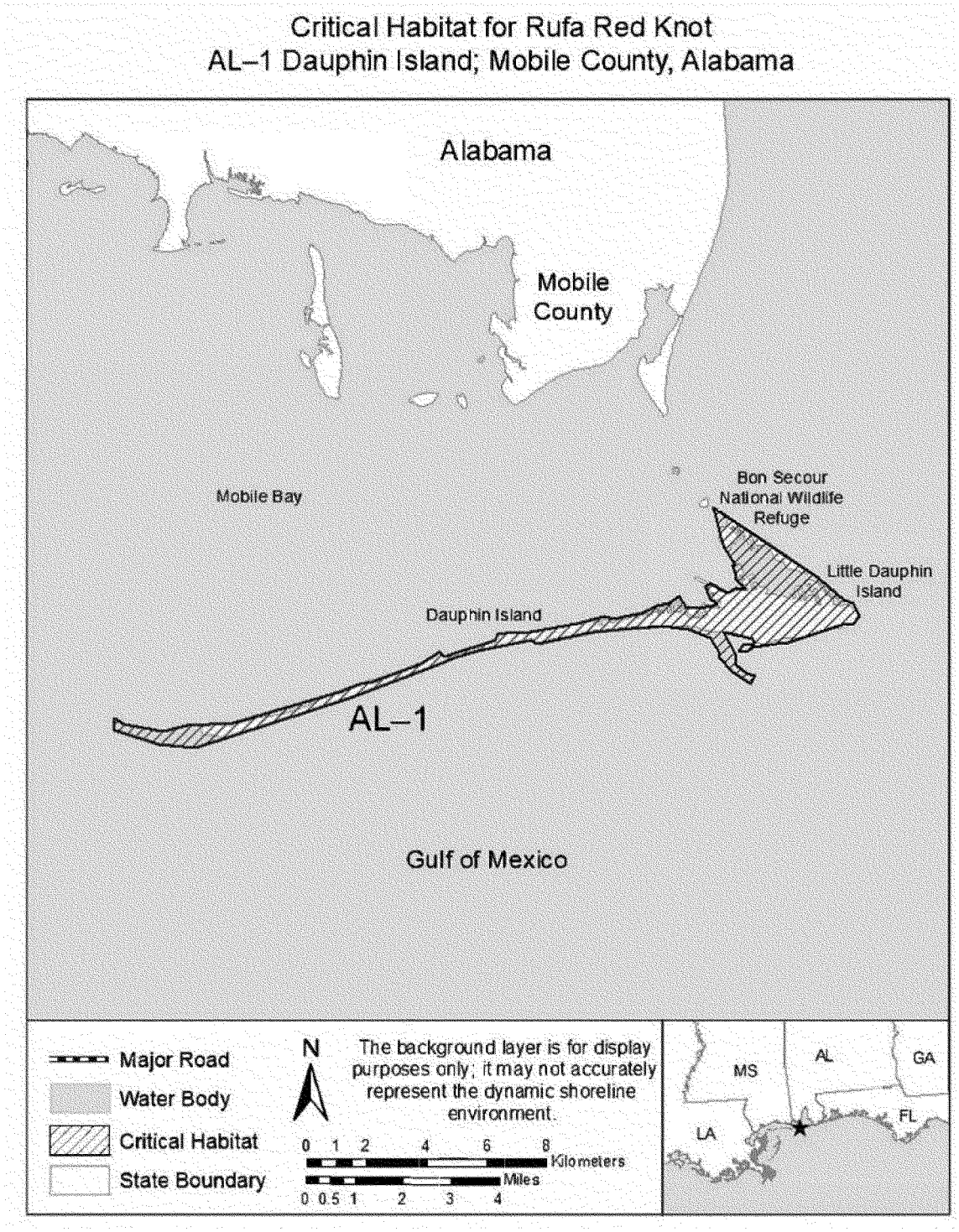
(vi) Map of Subunit FL–25B is presented at paragraph (107)(ii) of this entry.

(108) Unit AL–1: Dauphin Island, Alabama.

(i) Unit AL–1 consists of approximately 5,164 ac (2,091 ha) of occupied habitat on Dauphin Island, a barrier island south of Mobile Bay in Mobile County. The unit includes all of Dauphin Island from the historic 19th Century Fort Gaines site on the eastern side of the island, continuing approximately 16 mi (26 km) west to the MLLW on the western most tip, and all of Little Dauphin Island (which is uninhabited) to MLLW. Lands within this unit include approximately 484 ac (196 ha) in Federal ownership (Bon Secour NWR), 848 ac (343 ha) in State ownership (Shell Mound Park or Indian Mound Park, and a newly acquired habitat conservation area on the west end of the island), and 3,834 ac (1,552 ha) in private/other ownership.

(ii) Map of Unit AL–1 follows:

Figure 88 to Rufa Red Knot paragraph (108)(ii)

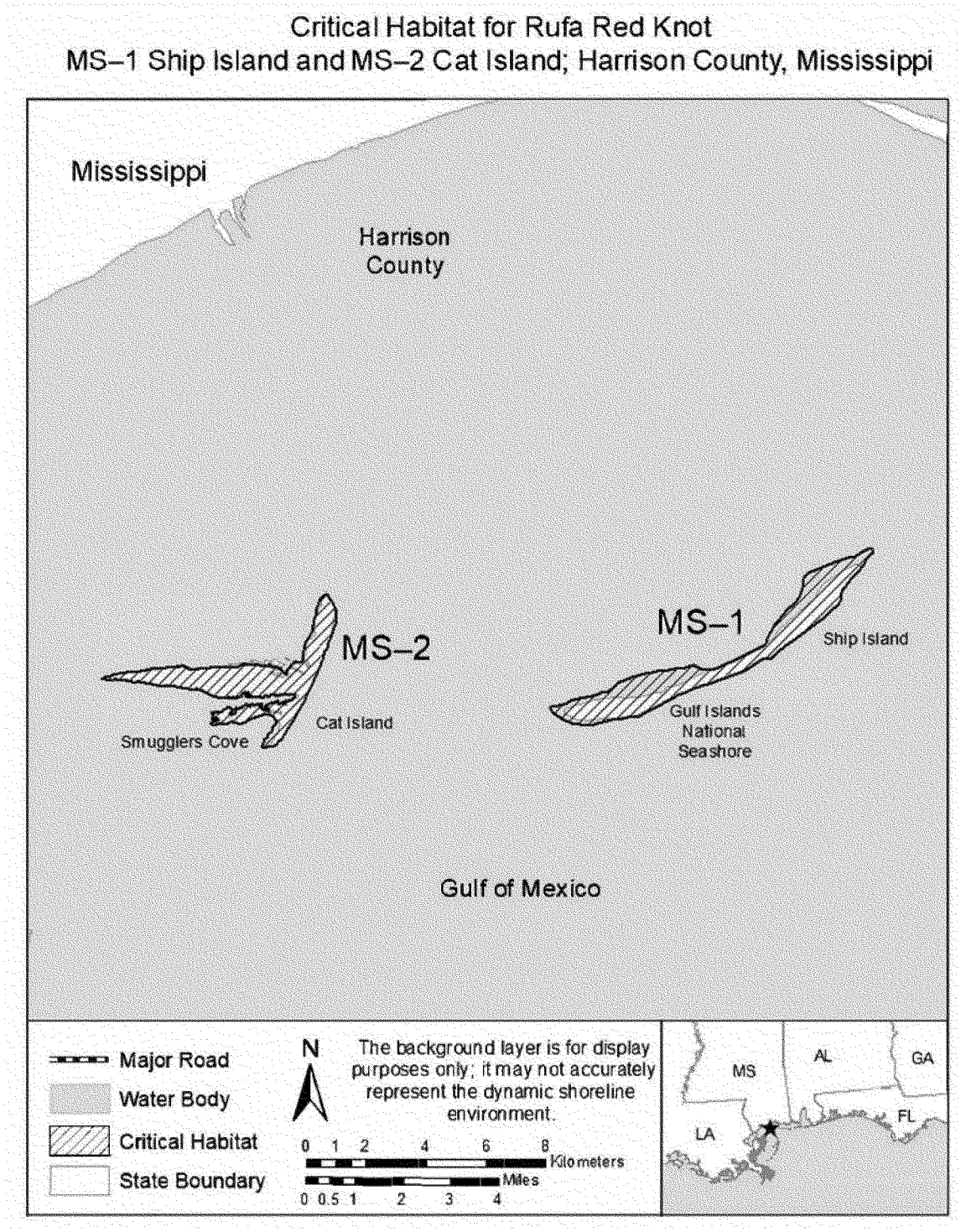


(109) Unit MS–1: Ship Island, Mississippi.

(i) Unit MS–1 consists of approximately 2,452 ac (993 ha) of occupied habitat on Ship Island in Harrison County. The unit consists of emergent lands and intertidal area to MLLW on the island and its adjacent sand shoals (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). This unit is all under Federal ownership (Gulf Islands National Seashore).

(ii) Map of Unit MS–1 follows:

Figure 89 to Rufa Red Knot paragraph (109)(ii)



(110) Unit MS–2: Cat Island, Mississippi.

(i) Unit MS–2 consists of approximately 2,121 ac (858 ha) of occupied habitat on Cat Island in Harrison County. This unit consists of emergent lands and intertidal area to MLLW on Cat Island and its adjacent sand shoals (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). Lands within this unit include approximately 686 ac (278 ha) in Federal ownership (Gulf Islands National Seashore), 1,305 ac (528 ha) in State ownership, and 129 ac (52 ha) in private/other ownership.

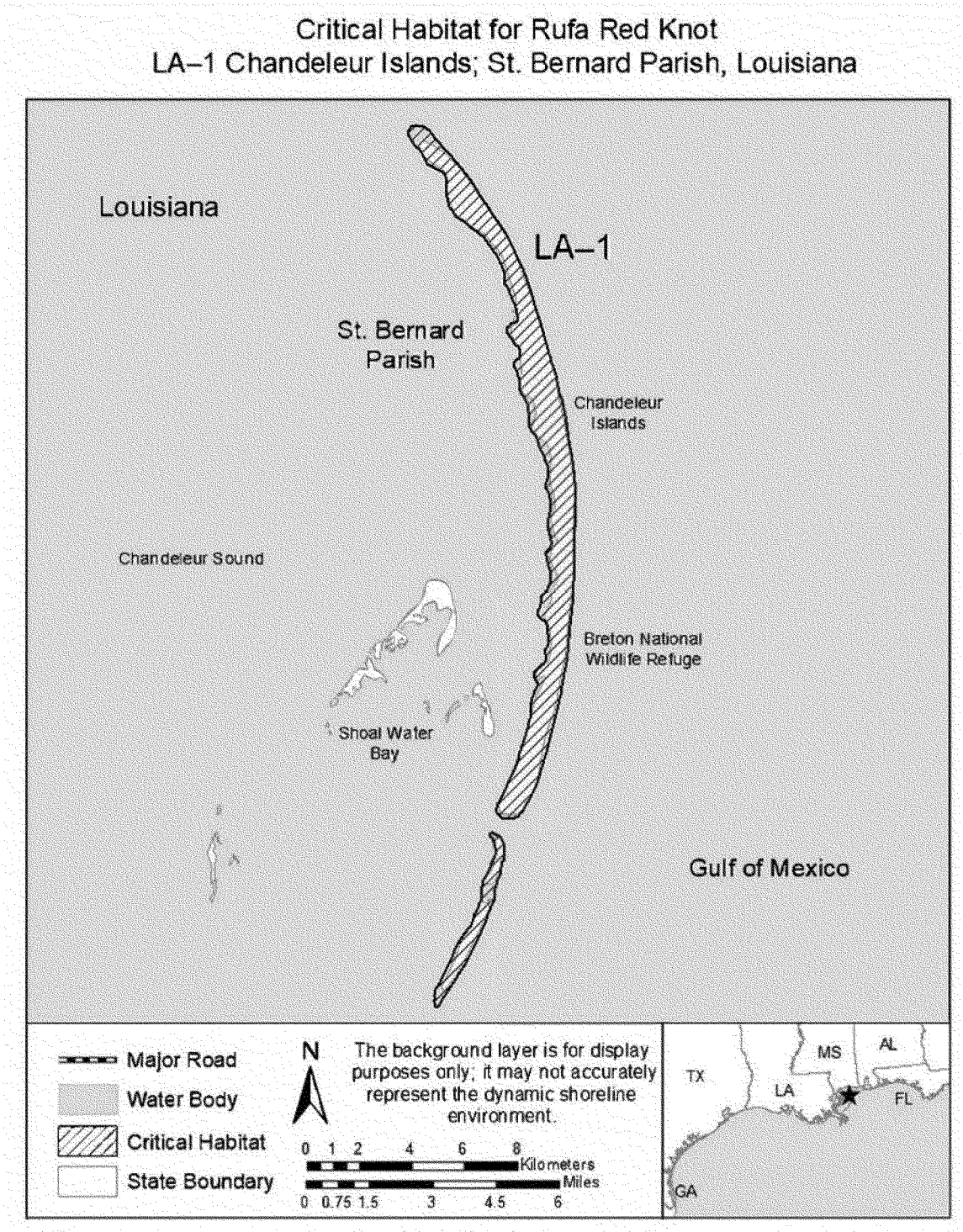
(ii) Map of Unit MS–2 is presented at paragraph (109)(ii) of this entry.

(111) Unit LA–1: Chandeleur Islands, Louisiana.

(i) Unit LA–1 consists of approximately 7,632 ac (3,088 ha) of occupied habitat in St. Bernard Parish. The unit includes all emergent lands to MLLW on the Chandeleur Islands and their adjacent sand shoals (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). All lands in this unit are federally owned (Breton NWR, and designated wilderness area created as a refuge and breeding ground for resident and migratory birds).

(ii) Map of Unit LA–1 follows:

Figure 90 to Rufa Red Knot paragraph (111)(ii)

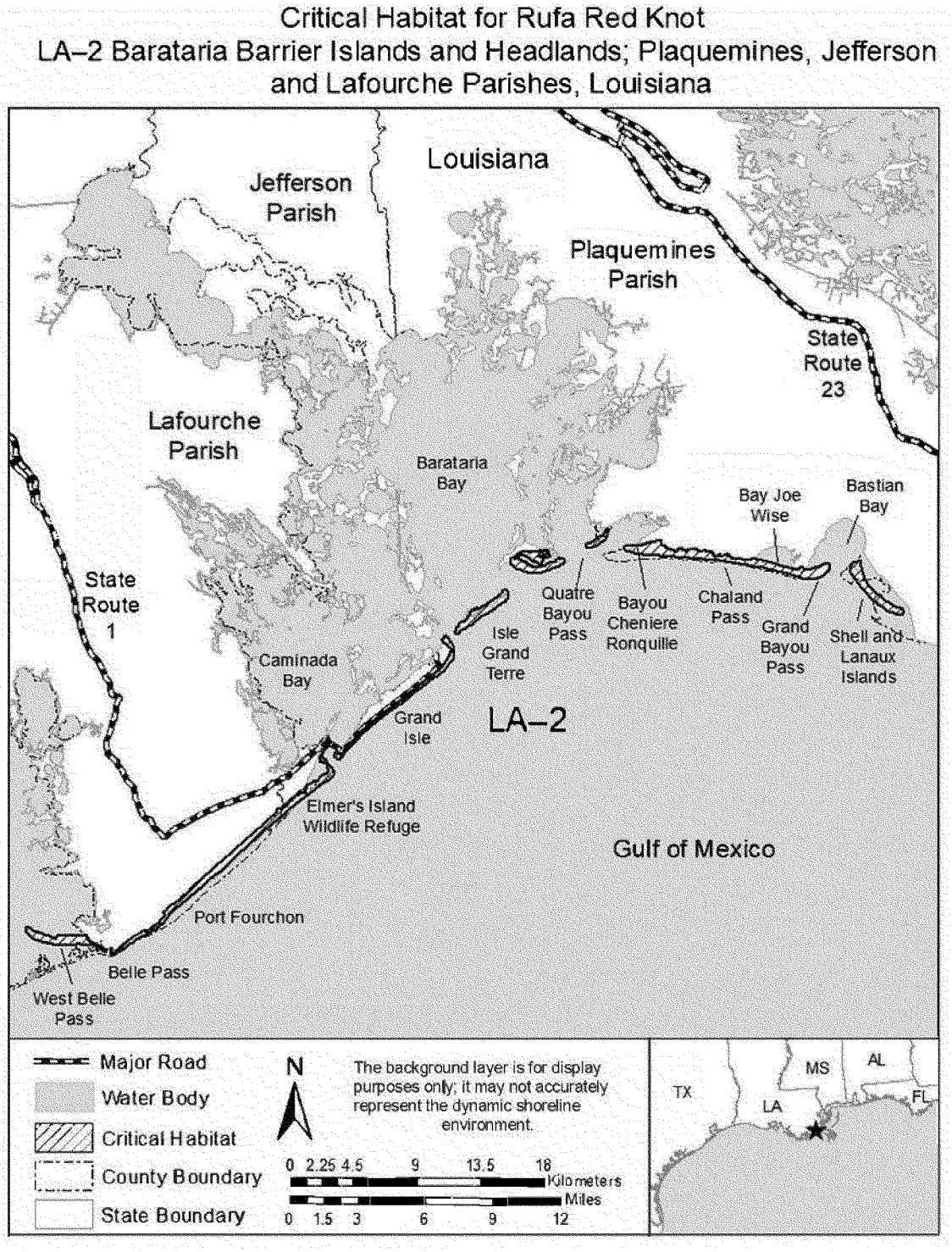


(112) Unit LA–2: Barataria Barrier Islands and Headlands, Louisiana.

(i) Unit LA–2 consists of approximately 7,795 ac (3,155 ha) of occupied habitat within Plaquemines, Jefferson, and Lafourche Parishes, including emergent lands and/or sand shoals to MLLW (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). This unit includes: Emergent lands of Lanaux and Shell Islands to MLLW in Plaquemines Parish; emergent sand shoals of Grand Bayou Pass in Plaquemines Parish; the Gulf of Mexico shoreline to MLLW between Grand Bayou Pass and Quatre Bayou Pass (known as the Chaland Headland and Chenier Ronquille); emergent sand shoals of Bastian Bay, Bay Joe Wise, Chaland Pass, and Bayou Cheniere Ronquille in Plaquemines Parish; all emergent lands of the Grand Terre Islands and adjacent unnamed island to MLLW between Quatre Bayou Pass and Barataria Pass in Plaquemines and Jefferson Parishes; the Gulf of Mexico shoreline of Grand Isle from the toe of the Gulf-side hurricane protection levee to MLLW in Jefferson Parish; the west side of the Caminada Pass shoreline and the Gulf of Mexico shoreline to MLLW beginning just north of Louisiana Highway 1 in Caminada Pass extending approximately 15 mi (24 km) westward to the east side of Belle Pass (known as the Caminada Headland, which includes the LDWF's Elmer's Island Wildlife Refuge) in Jefferson and Lafourche Parishes; and all emergent lands of the West Belle Pass peninsula to the MLLW. Lands within this unit include approximately 126 ac (51 ha) in State ownership (Grand Isle State Park) and 7,669 ac (3,104 ha) in private/other ownership (including Elmer's Island Wildlife Refuge).

(ii) Map of Unit LA–2 follows:

Figure 91 to Rufa Red Knot paragraph (112)(ii)



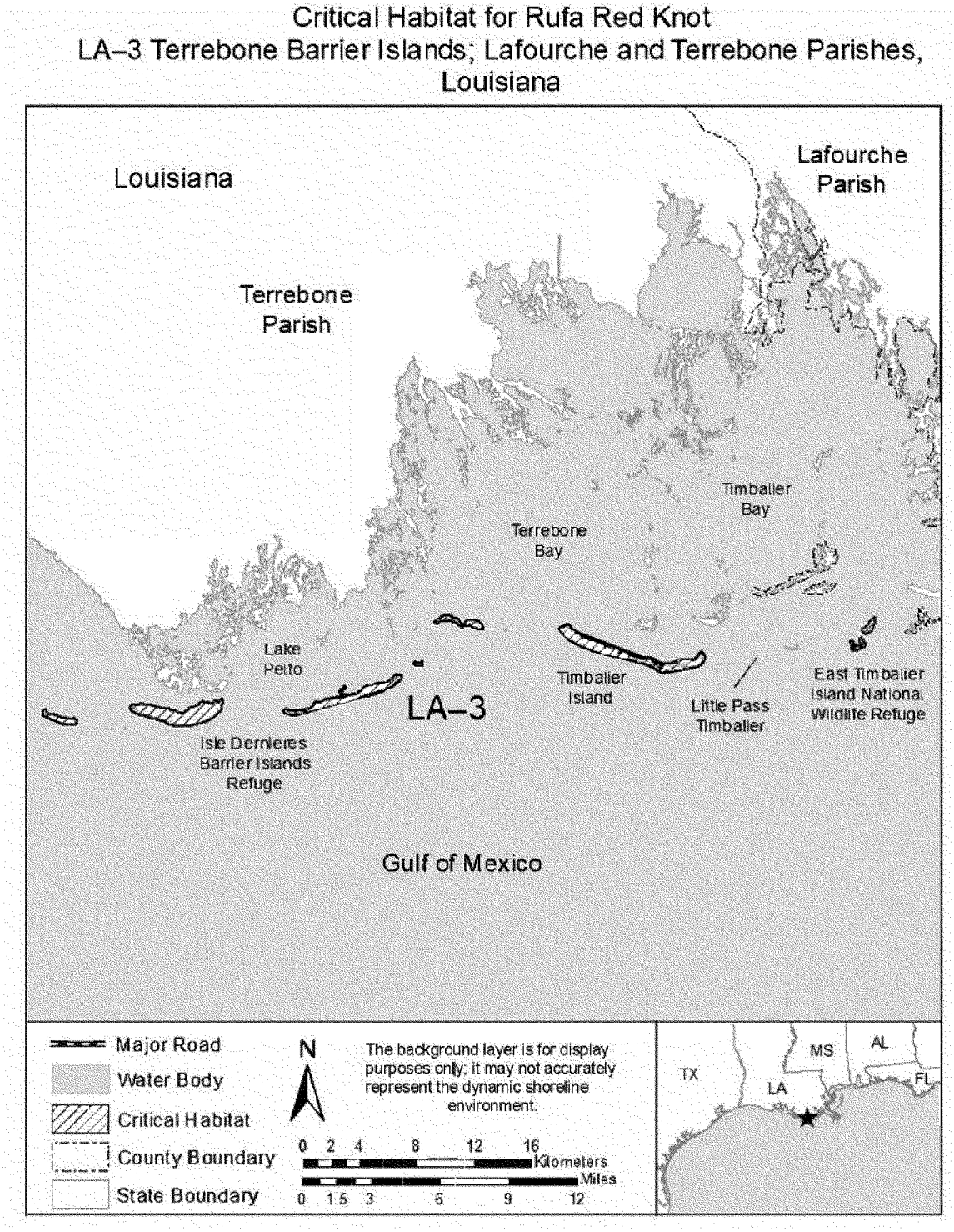
(113) Unit LA–3: Terrebonne Barrier Islands, Louisiana.

(i) Unit LA–3 consists of approximately 5,072 ac (2,052 ha) of occupied habitat within Lafourche and Terrebonne Parishes, including emergent lands and/or sand shoals to MLLW (*i.e.,* highly dynamic beaches and intertidal seashore that is covered at high tide and uncovered at low tide). This unit includes: Emergent lands on East Timbalier Island in Lafourche Parish; emergent sand shoals at Little Pass Timbalier in Jefferson Parish; emergent lands of Timbalier Island (also

known as Big or West Timbalier Island) in Terrebonne Parish; and emergent lands and associated sand shoals on East, Trinity, Whiskey, and Raccoon Islands (known as the Louisiana Department of Wildlife and Fisheries Isles Dernieres Barrier Islands Refuge) in Terrebonne Parish. Lands within this unit include approximately 2,890 ac (1,173 ha) in State ownership (Isles Dernieres Barrier Islands Refuge) and 2,172 ac (879 ha) in private/other ownership.

(ii) Map of Unit LA–3 follows:

Figure 92 to Rufa Red Knot paragraph (113)(ii)

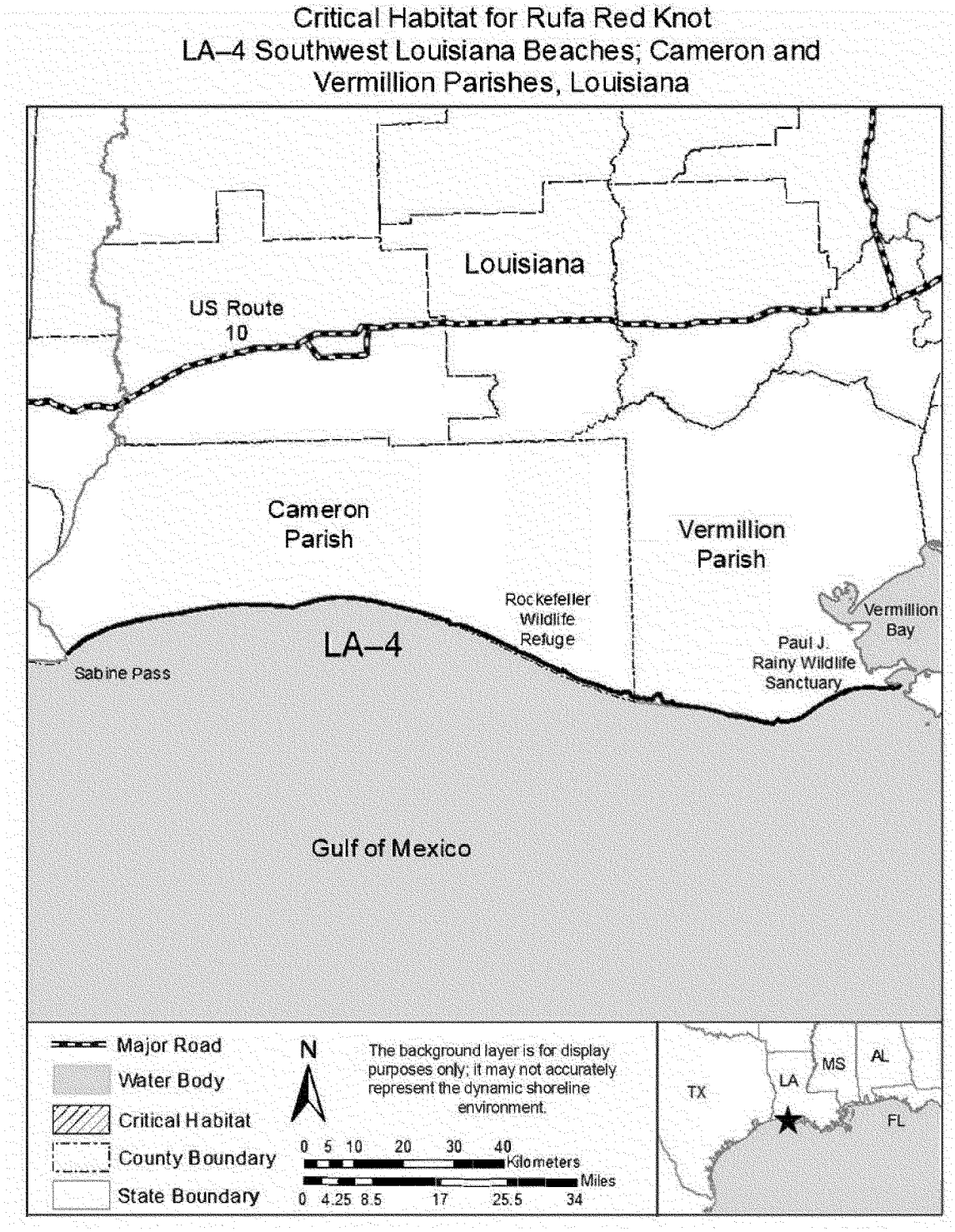


(114) Unit LA–4: Southwest Louisiana Beaches, Louisiana.

(i) Unit LA–4 consists of approximately 6,130 ac (2,481 ha) of occupied habitat within Cameron and Vermillion Parishes. The unit includes land along the Gulf of Mexico shoreline to the MLLW (*i.e.,* highly dynamic intertidal seashore that is covered at high tide and uncovered at low tide) from the eastern Vermilion Parish line starting at the eastern boundary of the Audubon Society's Paul J. Rainey Wildlife Sanctuary, extending approximately 128 mi (206 km) westward and terminating at Louisiana Point, and also including its associated sand/mud shoals on the east side of Sabine Pass in Cameron Parish. Along its entire length, the unit includes the shoreline beach from the MLLW line landward to the edge of where dense vegetation begins. Lands within this unit include approximately 1,497 ac (606 ha) in State ownership (Rockefeller Wildlife Refuge) and 4,633 ac (1,875 ha) in private/other ownership (including the Paul J. Rainey Wildlife Sanctuary, managed by the Audubon Society).

(ii) Map of Unit LA–4 follows:

Figure 93 to Rufa Red Knot paragraph (114)(ii)



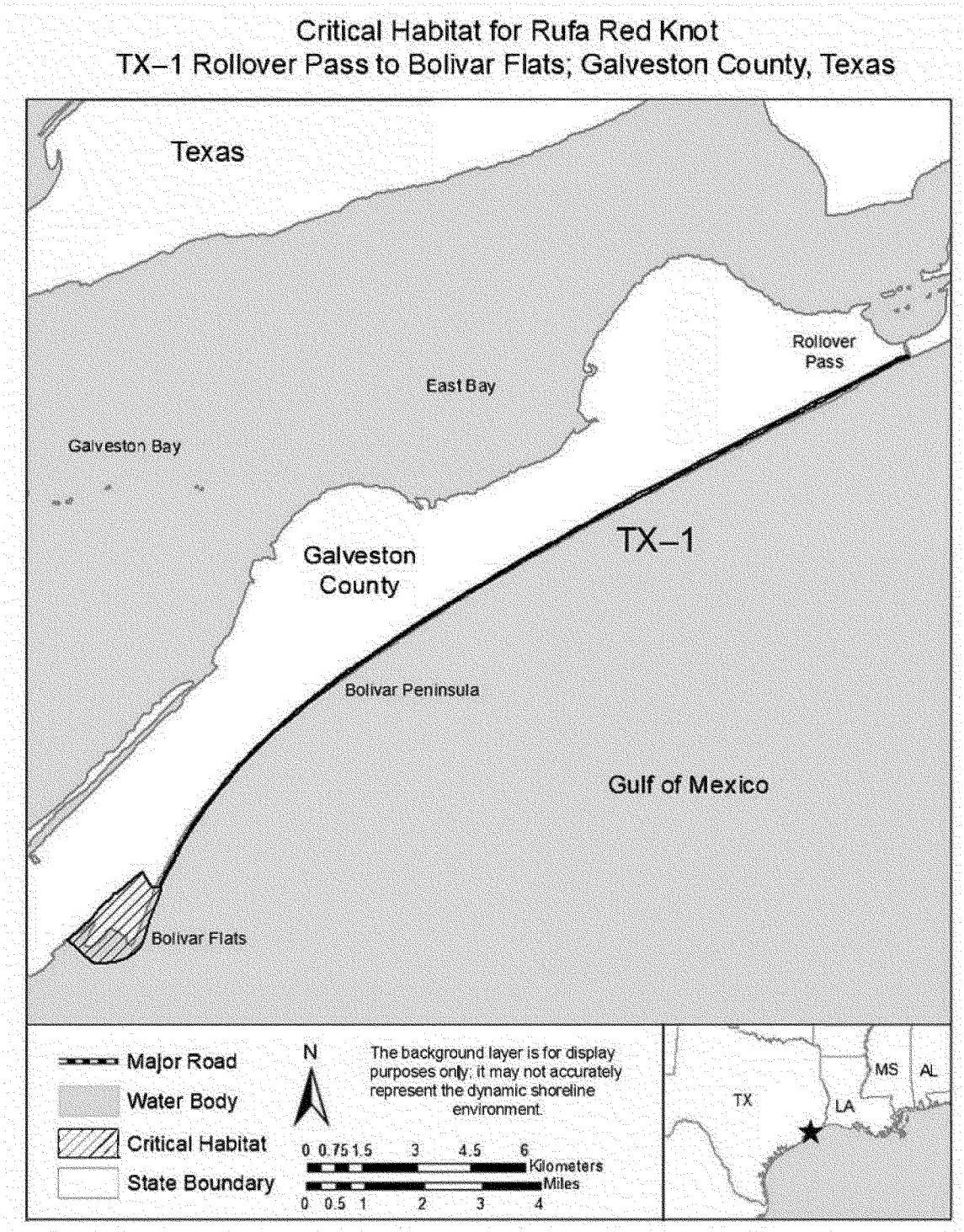
(115) Unit TX–1: Rollover Pass to Bolivar Flats, Texas.

(i) Unit TX–1 consists of approximately 1,264 ac (511 ha) of occupied habitat in Galveston County. This unit begins at the west side of Rollover Pass and extends southwest ending at the north jetty on the Bolivar Peninsula. It includes 17 mi (27 km) of Gulf shoreline. The landward boundary is the line indicating the beginning of dense vegetation, and the gulf-side boundary is the MLLW, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The west end of the unit includes lands known as wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside)

seagrass mud or sand flats that are subtidal, seagrass flats that are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; estuarine (bayside) sandy shore (beach/sandbar) that is irregularly or regularly, depending upon the location, inundated by tides; and marine sandy coastline (beach) irregularly or regularly inundated by tides, depending upon the location. Lands within this unit include approximately 268 ac (108 ha) in State ownership and 996 ac (403 ha) in private/other ownership (includes the Bolivar Flats Bird Sanctuary).

(ii) Map of Unit TX–1 follows:

Figure 94 to Rufa Red Knot paragraph (115)(ii)

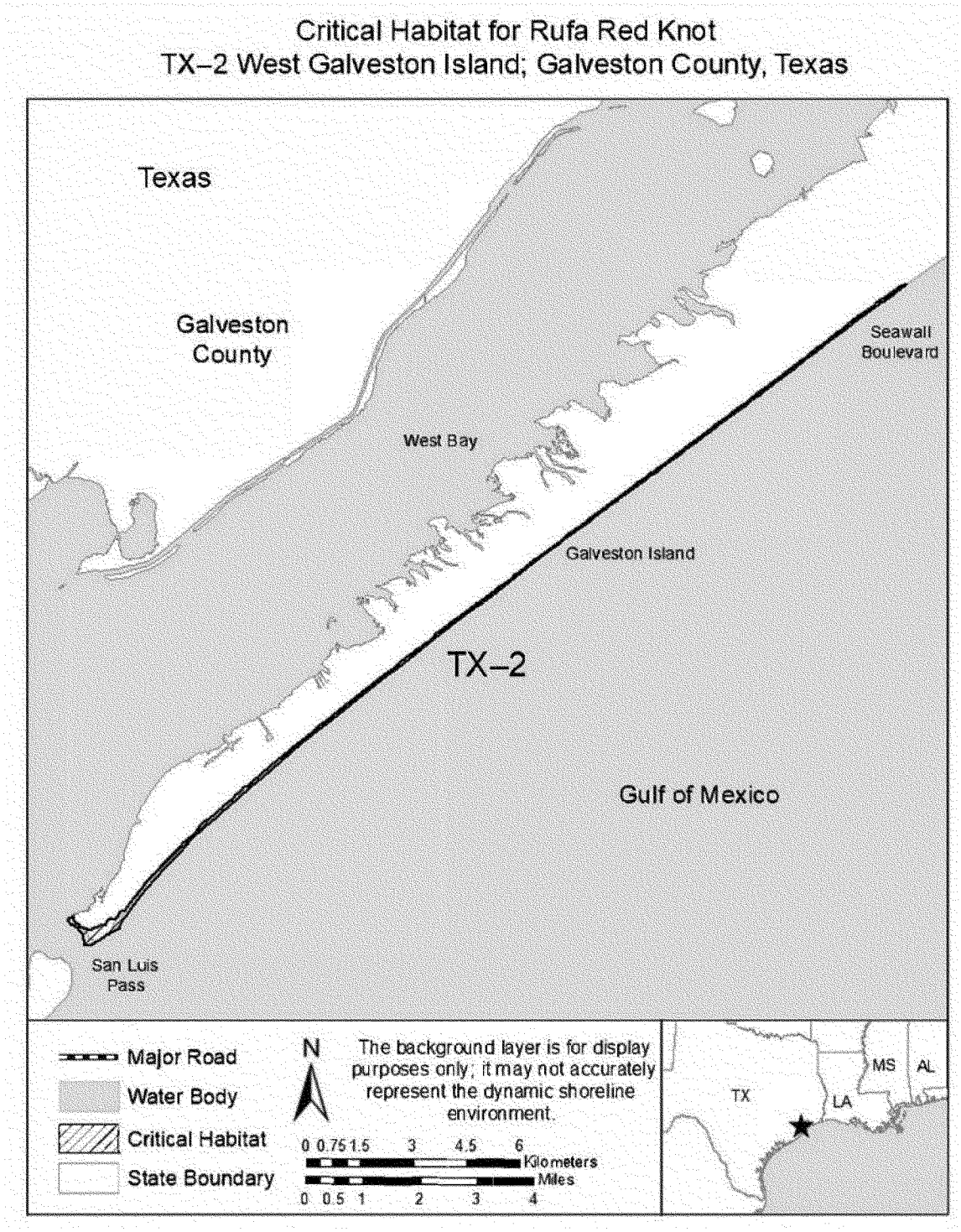


(116) Unit TX–2: West Galveston Island, Texas.

(i) Unit TX–2 consists of approximately 590 ac (238 ha) of occupied habitat in Galveston County. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northeastern boundary is the end of the Seawall Boulevard (end of the seawall), and the southwestern boundary is San Luis Pass. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location. Lands within this unit include approximately 307 ac (124 ha) in State ownership and 283 ac (114 ha) in private/other ownership.

(ii) Map of Unit TX–2 follows:

Figure 95 to Rufa Red Knot paragraph (116)(ii)



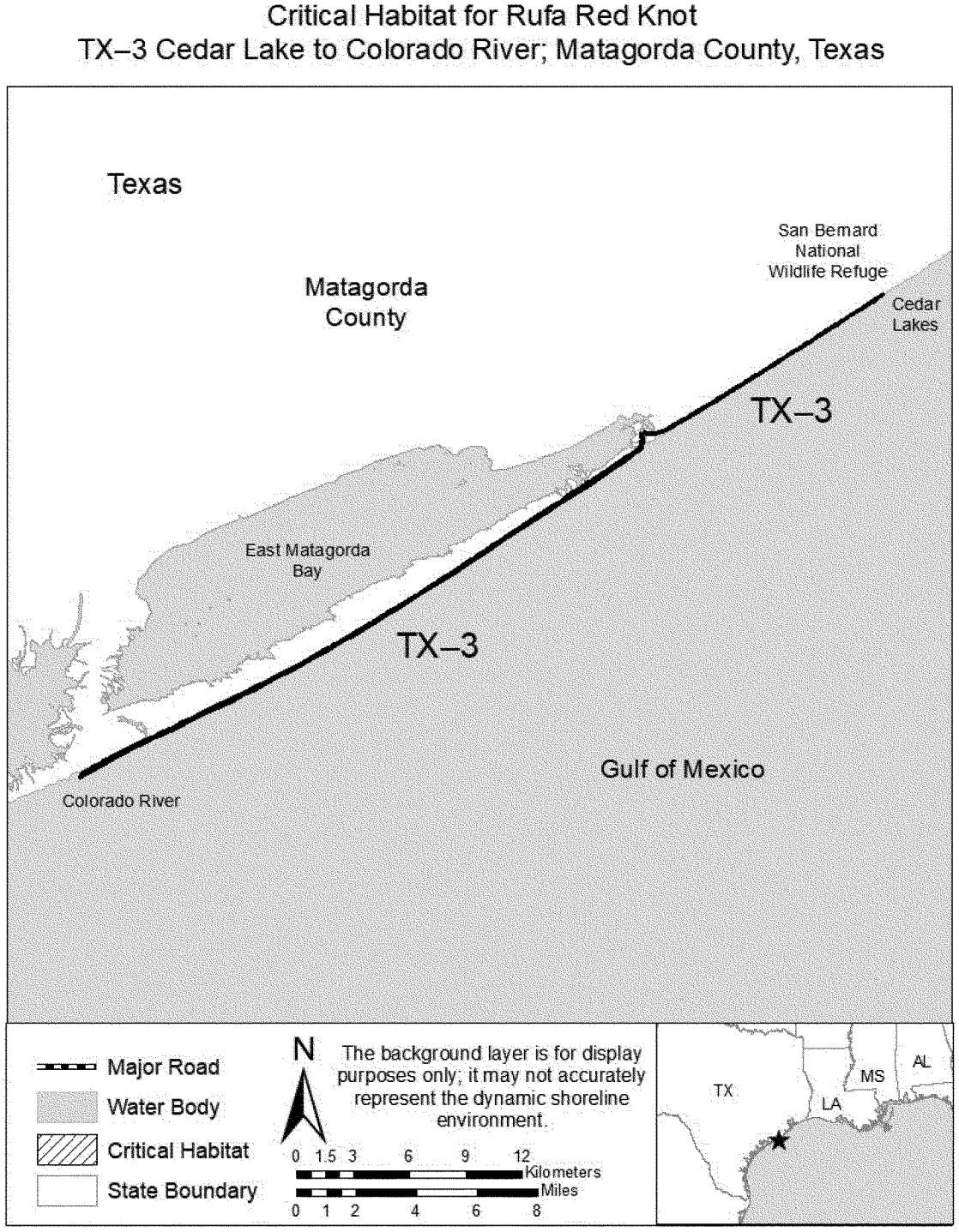
(117) Unit TX–3: Cedar Lake to Colorado River, Texas.

(i) Unit TX–3 consists of approximately 1,203 ac (487 ha) of occupied habitat in Matagorda County. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northeastern boundary is the south side of Cedar Lake Cut, and the southwestern boundary is near the Colorado River. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location. Lands within this unit include 1,075 ac (432 ha) in State

ownership and 128 ac (52 ha) in private/other ownership.

(ii) Map of Unit TX–3 follows:

Figure 96 to Rufa Red Knot paragraph (117)(ii)



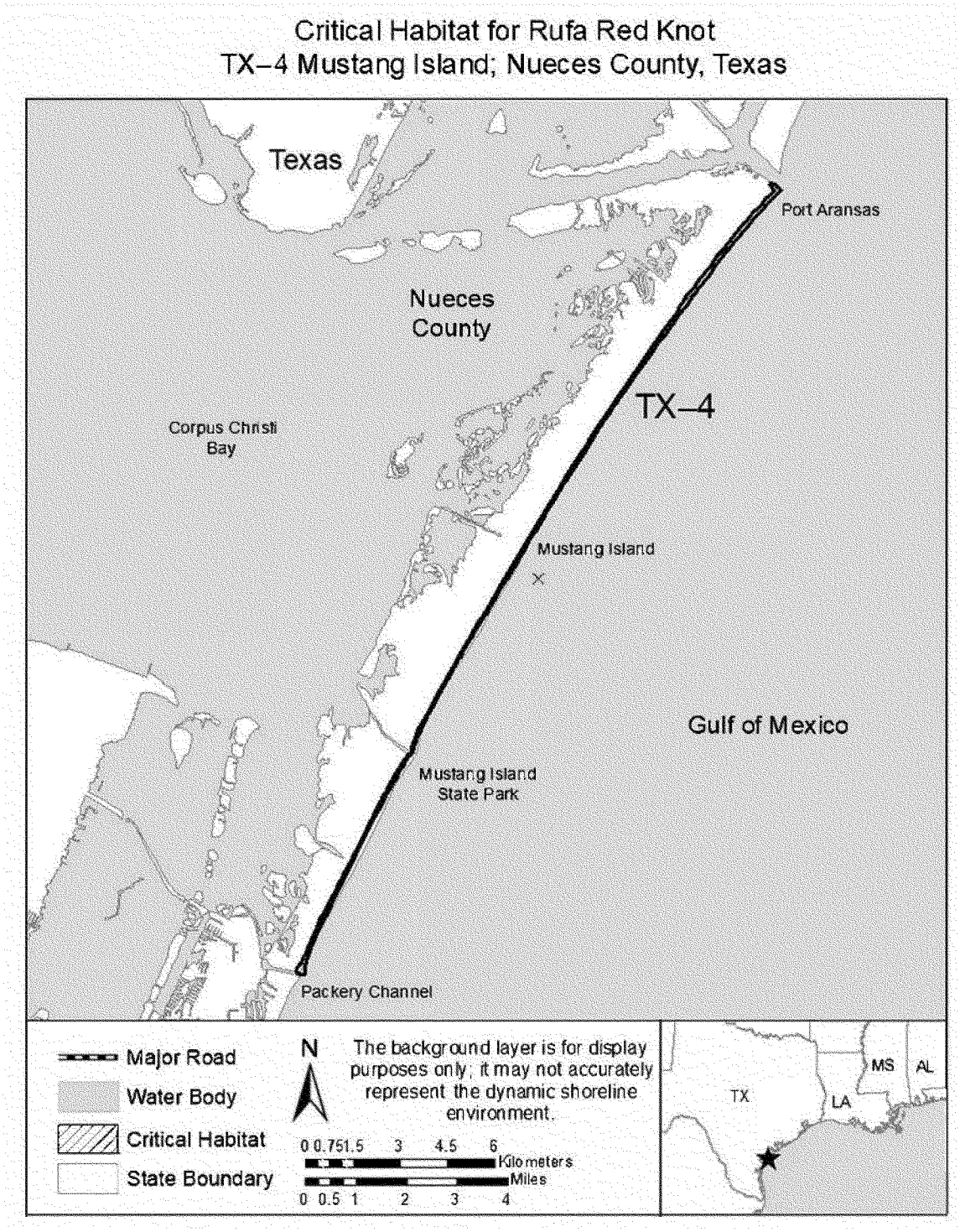
(118) Unit TX–4: Mustang Island, Texas.

(i) Unit TX–4 consists of approximately 648 ac (262 ha) of occupied habitat in Nueces County. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, including emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northern boundary is the south jetty

at Port Aransas, and the southern boundary is the north jetty of Packery Channel. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location. Lands within this unit include approximately 395 ac (160 ha) in State ownership and 253 ac (102 ha) in private/other ownership.

(ii) Map of Unit TX–4 follows:

Figure 97 to Rufa Red Knot paragraph (118)(ii)



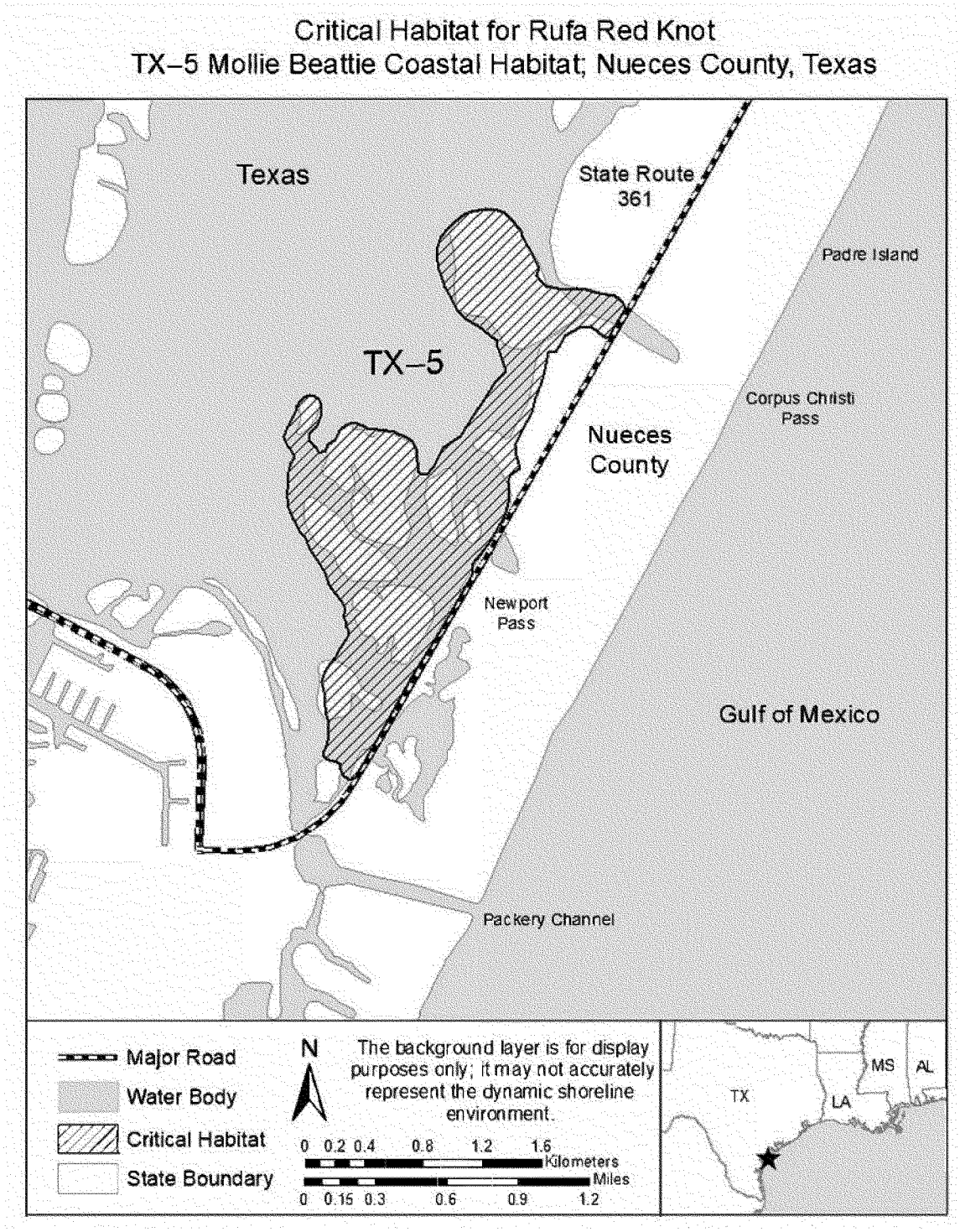
(119) Unit TX–5: Mollie Beattie Coastal Habitat, Texas.

(i) Unit TX–5 consists of approximately 723 ac (293 ha) of occupied habitat in Nueces County. This unit is located north of Packery

Channel and extends along the bayside west of Sylvan Beach Park west of Texas State Highway 361. The northern boundary is the Corpus Christi Pass with the southern boundary approximately 2 mi (3.2 km) south of Corpus Christi Pass. The eastern boundary is where the dense vegetation begins, and the western boundary is the MLLW (*i.e.,* the highly dynamic beach and intertidal seashore that is covered at high tide and uncovered at low tide). This unit includes two hurricane washover passes known as Newport and Corpus Christi Passes in areas where wind tidal flats are infrequently inundated, and bayside flats that are exposed during low tide regimes and wind tidal flats that are infrequently inundated. The unit does not include densely vegetated habitat within these boundaries, but it includes all seagrass beds exposed at low tides. Specific habitat types within this unit include: Estuarine (bayside) sandy shore/beach/sandbar that is irregularly or regularly, depending upon the location, inundated by tides; and estuarine (bayside) sandy shore (beach/sandbar) and spoils irregularly inundated by tides. Lands within this unit include approximately 505 ac (205 ha) in State ownership and 218 ac (88 ha) in private/other ownership.

(ii) Map of Unit TX–5 follows:

Figure 98 to Rufa Red Knot paragraph (119)(ii)



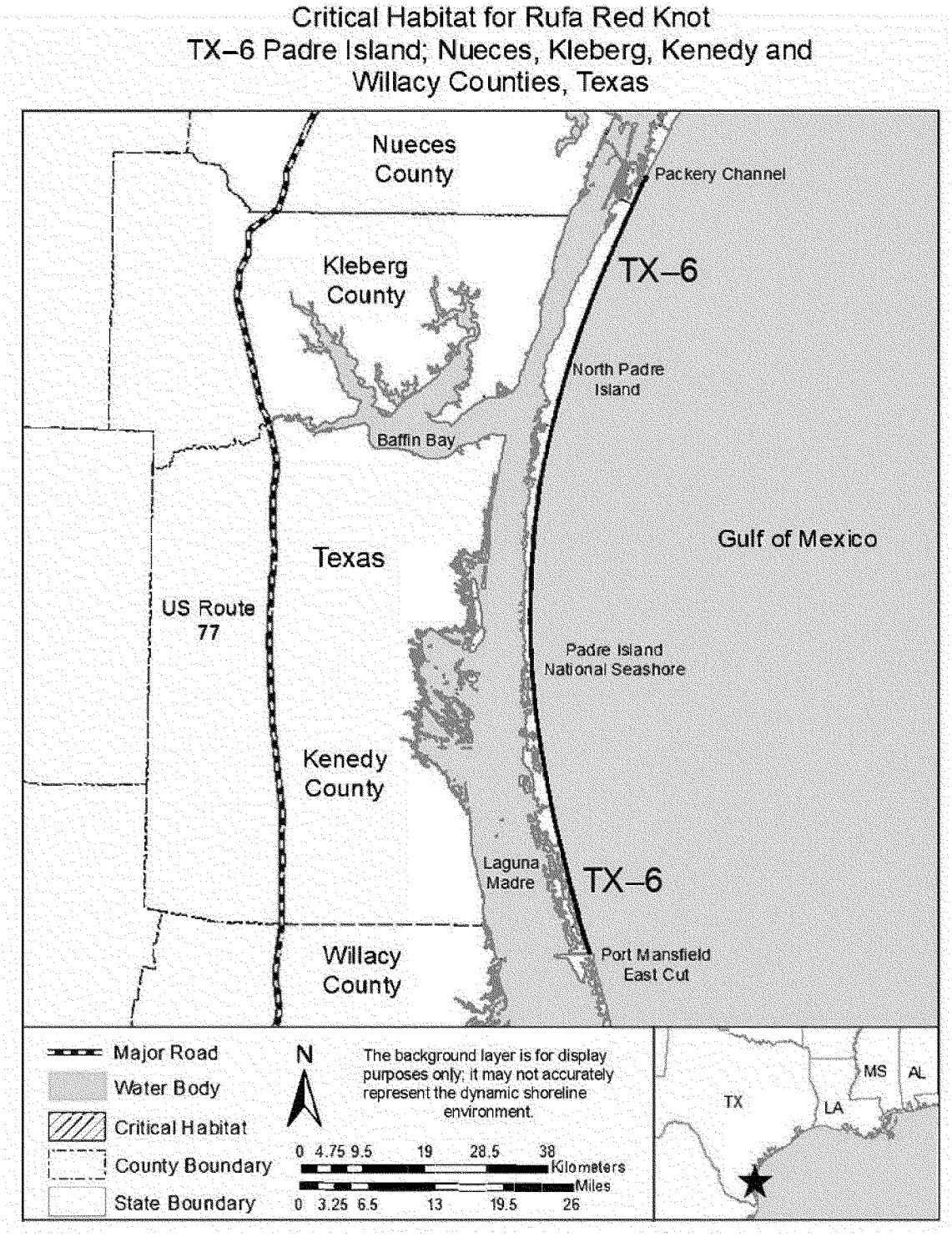
(120) Unit TX–6: North Padre Island, Texas.

(i) Unit TX–6 consists of approximately 2,817 ac (1,140 ha) of occupied habitat in Nueces, Kleberg, Kenedy, and Willacy Counties. The unit is along the gulf with boundaries from the MLLW up to the vegetation line, to include emergent lands and intertidal area characterized as highly dynamic beach/seashore that is covered at high tide and uncovered at low tide. The northern boundary is the south side of Packery Channel extending along the Gulf shoreline to Port Mansfield East Cut. Specific habitat types within this unit include marine sandy coastline beach that is irregularly or regularly inundated by tides, depending upon the location. Lands within this unit include approximately 2,487 ac (1,007 ha) in

Federal ownership (Padre Island National Seashore), 68 ac (27 ha) in State ownership, and 262 ac (106 ha) in private/other ownership.

(ii) Map of Unit TX–6 follows:

Figure 99 to Rufa Red Knot paragraph (120)(ii)



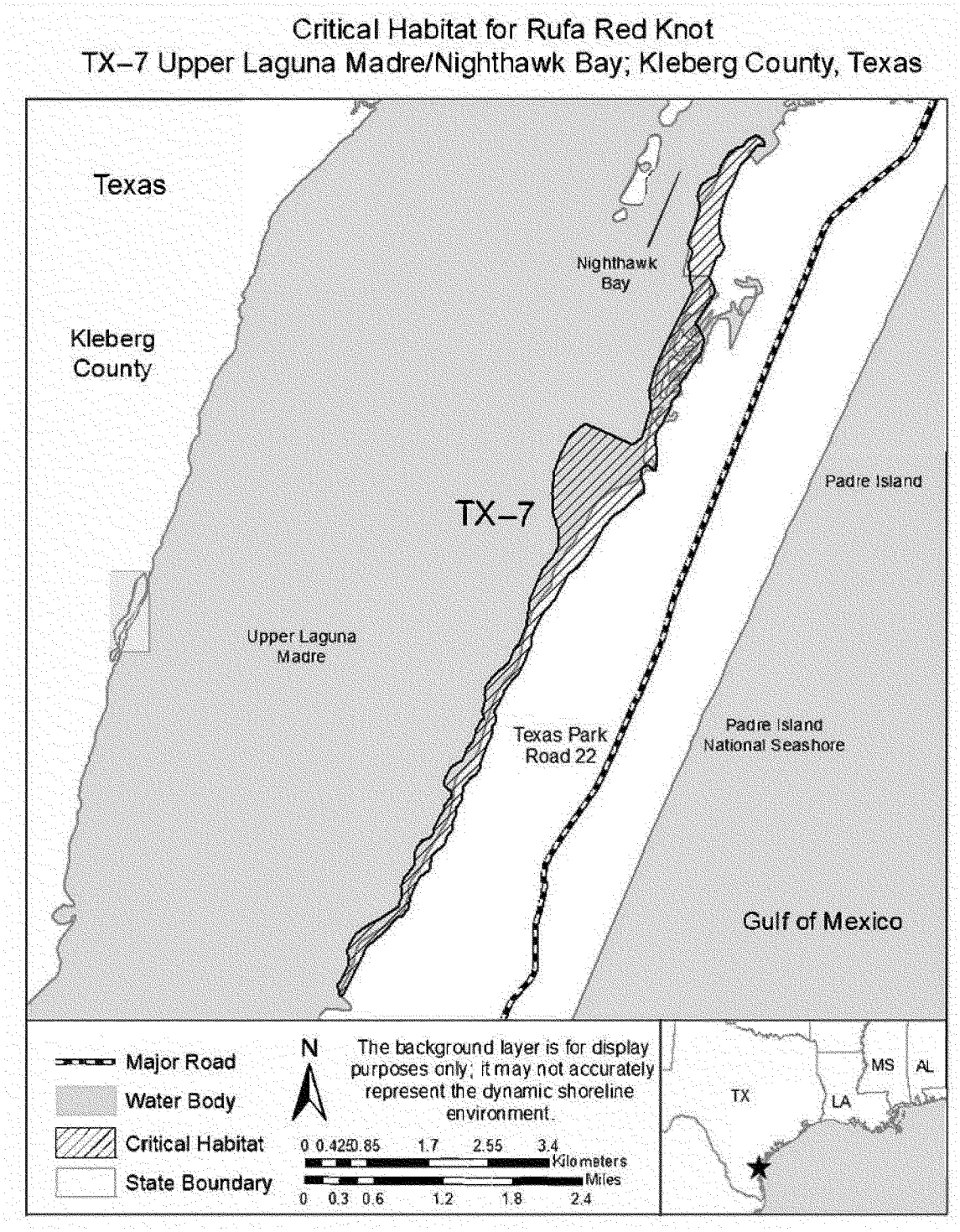
(121) Unit TX–7: Upper Laguna Madre/Nighthawk Bay, Texas.

(i) Unit TX–7 consists of approximately 1,157 ac (469 ha) of occupied habitat in Kleberg County. The unit is along the bayside of Texas Park Road 22. The northeastern boundary is the northern edge of the Kleberg County line in Nighthawk Bay, and the southwestern boundary ends bayside of Bird Island Basin Road. This unit includes a series of small flats along the

bayside of Padre Island in the Upper Laguna Madre. The unit includes bayside flats and seagrass beds that are exposed during low tide regimes and wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal, seagrass flats that are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; and estuarine (bayside) sandy shore (beach/sandbar) that is irregularly or regularly inundated by tide, depending upon the location. Lands within this unit include approximately 273 ac (111 ha) in Federal ownership (Padre Island National Seashore), 816 ac (330 ha) in State ownership, and 68 ac (28 ha) in private/other ownership.

(ii) Map of Unit TX–7 follows:

Figure 100 to Rufa Red Knot paragraph (121)(ii)



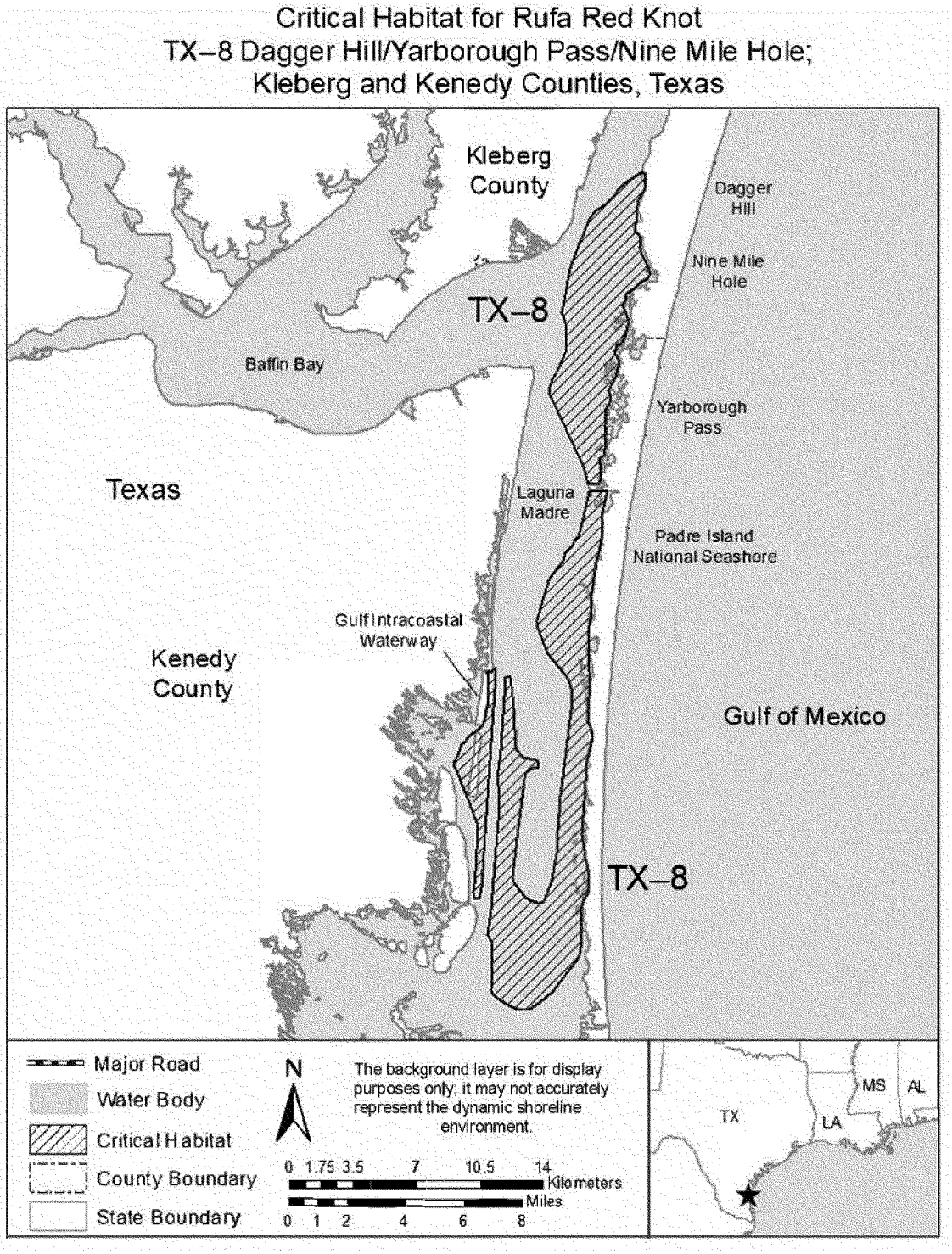
(122) Unit TX–8: Dagger Hill/Yarborough Pass/Nine Mile Hole, Texas.

(i) Unit TX–8 consists of approximately 32,773 ac (13,270 ha) of occupied habitat in Kleberg and Kenedy Counties. The unit is located bayside along and within the Laguna Madre adjacent to the west side of the Padre Island National Seashore. The northern boundary of the unit is Dagger Hill, and the southern boundary is approximately 6 mi (9.7 km) south of the land cut at Nine Mile Hole. The eastern boundary of this unit is the dense vegetation line on the bayside of the Padre Island National Seashore. The western boundary extends toward the Gulf Intracoastal Waterway to the MLLW (*i.e.,* the highly dynamic beach and emergent sand shoals that are covered at high tide and uncovered at low tide).

The southern portion of this unit extends across the Gulf Intracoastal Waterway dredge spoil islands. The unit includes bayside flats and all seagrass beds that are exposed during low tide regimes and wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal and are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) sandy shore (beach/sandbar) that is irregularly or regularly inundated by tides, depending upon the location; and estuarine (bayside) sandy shore (beach/sandbar) and spoils irregularly inundated by tides. Lands within this unit include approximately 9,731 ac (3,938 ha) in Federal ownership (Padre Island National Seashore) and 23,042 ac (9,332 ha) in State ownership.

(ii) Map of Unit TX–8 follows:

Figure 101 to Rufa Red Knot paragraph (122)(ii)



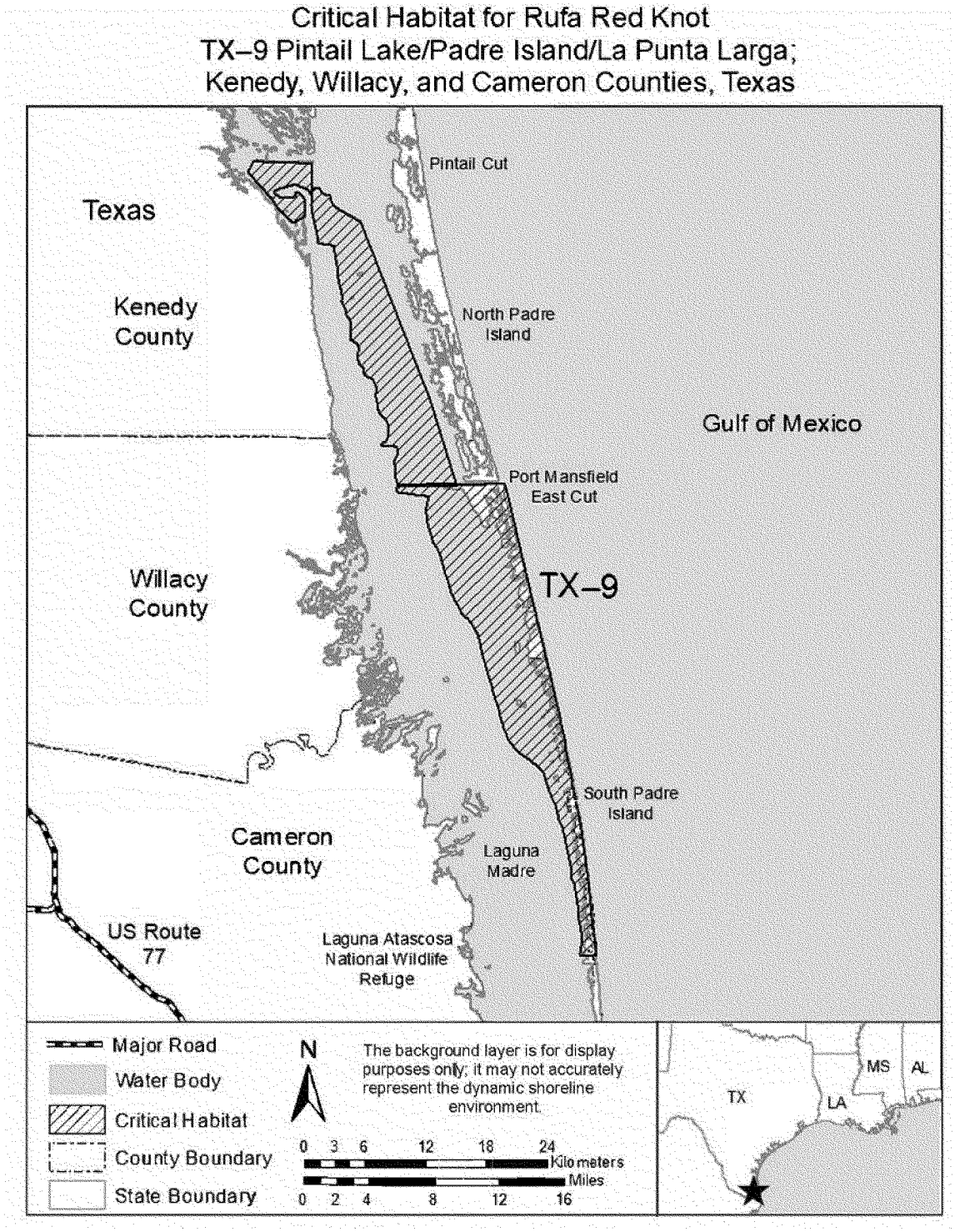
(123) Unit TX–9: Pintail Lake/Padre Island/La Punta Larga, Texas.

(i) Unit TX–9 consists of approximately 94,171 ac (38,110 ha) of occupied habitat in Kenedy, Willacy, and Cameron Counties. The northern boundary is Pintail Cut, extending south along the bay side of North Padre and South Padre Islands, with the southern boundary being Andy Bowie County Park. The center of the unit is approximately at Port Mansfield East Cut. North of the East Cut the western boundary is the MLLW (*i.e.,* the highly dynamic beach and emergent sand

shoals that are covered at high tide and uncovered at low tide), and the eastern boundary is where dense vegetation begins. South of East Cut the western boundary is the MLLW, and the eastern boundary includes the beach side Gulf of Mexico out to the MLLW. The unit includes bayside flats and seagrass beds that are exposed during low tide regimes, and wind tidal flats that are infrequently inundated. Specific habitat types within this unit include: Estuarine (bayside) algal mud or sand flats irregularly inundated by tides; estuarine (bayside) sandy shore (beach/sandbar) regularly inundated by tides; and estuarine (bayside) sandy shore (beach/sandbar); and marine sandy coastline beach (irregularly or regularly inundated by tides, depending upon the location). Lands within this unit include approximately 25,881 ac (10,482 ha) in Federal ownership (Laguna Atascosa NWR), 34,165 ac (13,826 ha) in State ownership, and 34,125 ac (13,802 ha; 36 percent) in private/other ownership.

(ii) Map of Unit TX–9 follows:

Figure 102 to Rufa Red Knot paragraph (123)(ii)



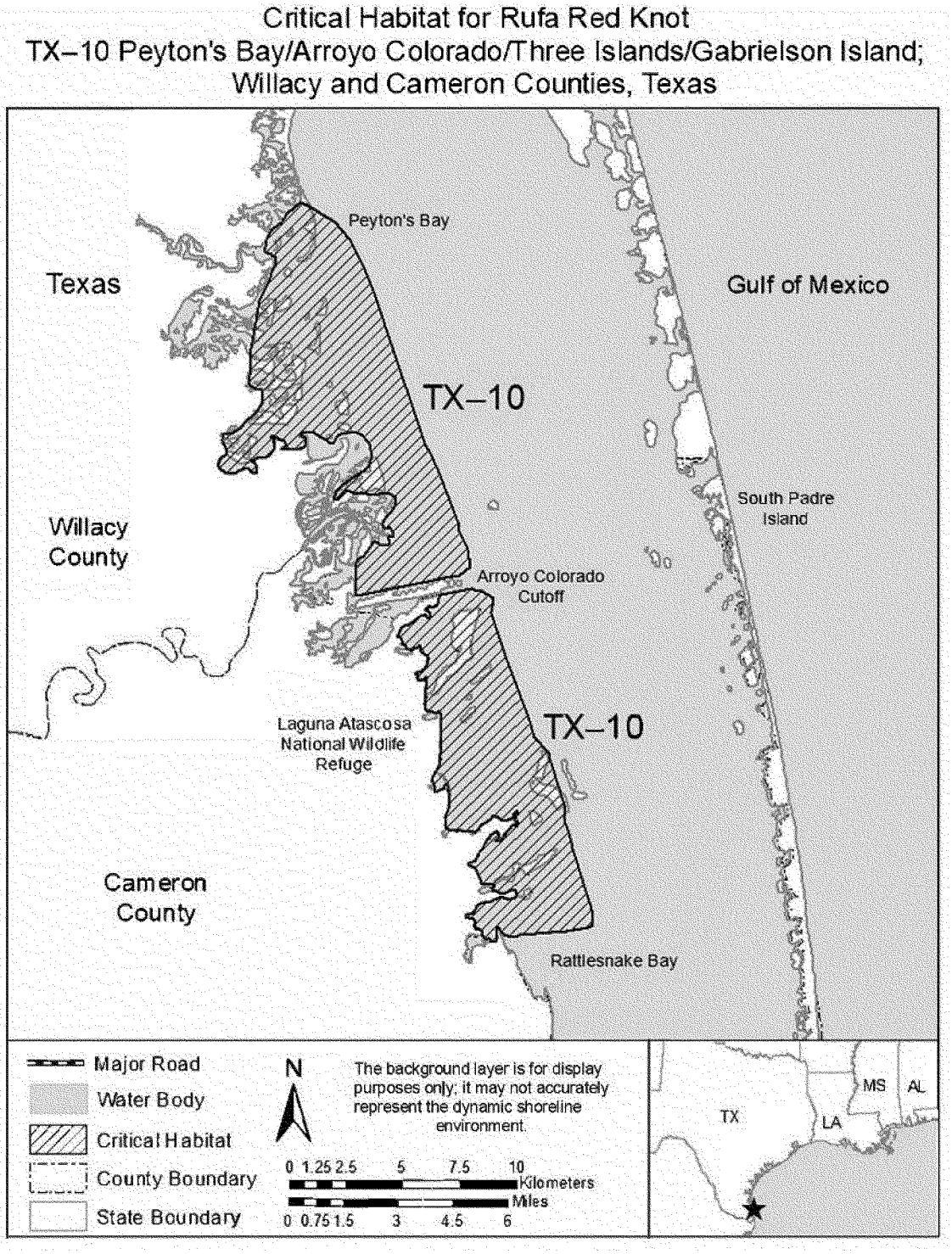
(124) Unit TX–10: Peyton's Bay/Arroyo Colorado/Three Islands/Gabrielson Island, Texas.

(i) Unit TX–10 consists of approximately 35,651 ac (14,427 ha) of occupied habitat in Willacy and Cameron Counties. The northern boundary of this unit is approximately 11 mi (18 km) north of the Arroyo Colorado Cutoff and encompasses Peyton's Bay (north being Chubby Island), and the southern boundary is approximately 9 mi (14 km) south of the Arroyo Colorado Cutoff encompassing Rattlesnake Bay (south edge near

Gabrielson Island). The eastern boundary is the western side of the Gulf Intracoastal Waterway dredge spoil islands, and the western boundary is where dense vegetation begins. The unit includes bayside flats and seagrass beds that are exposed during low tide regimes and wind tidal flats that are infrequently inundated, and does not include densely vegetated habitat within these boundaries. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal and are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) algal mud or sand flats regularly inundated by tides and that are nearly flat areas with a layer of algae growing on a moist mud or sand substrate and are otherwise devoid of vegetation; estuarine (bayside) algal mud or sand flats irregularly inundated by tides; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; estuarine (bayside) sandy shore (beach/sandbar) areas that are irregularly or regularly inundated by tides, depending upon the location; and estuarine (bayside) sandy shore (beach/sandbar), to include spoils irregularly inundated by tides. Lands within this unit include approximately 8,145 ac (3,296 ha) in Federal ownership (Laguna Atascosa NWR), 25,316 ac (10,245 ha) in State ownership, and 2,190 ac (886 ha) in private/other ownership.

(ii) Map of Unit TX–10 follows:

Figure 103 to Rufa Red Knot paragraph (124)(ii)



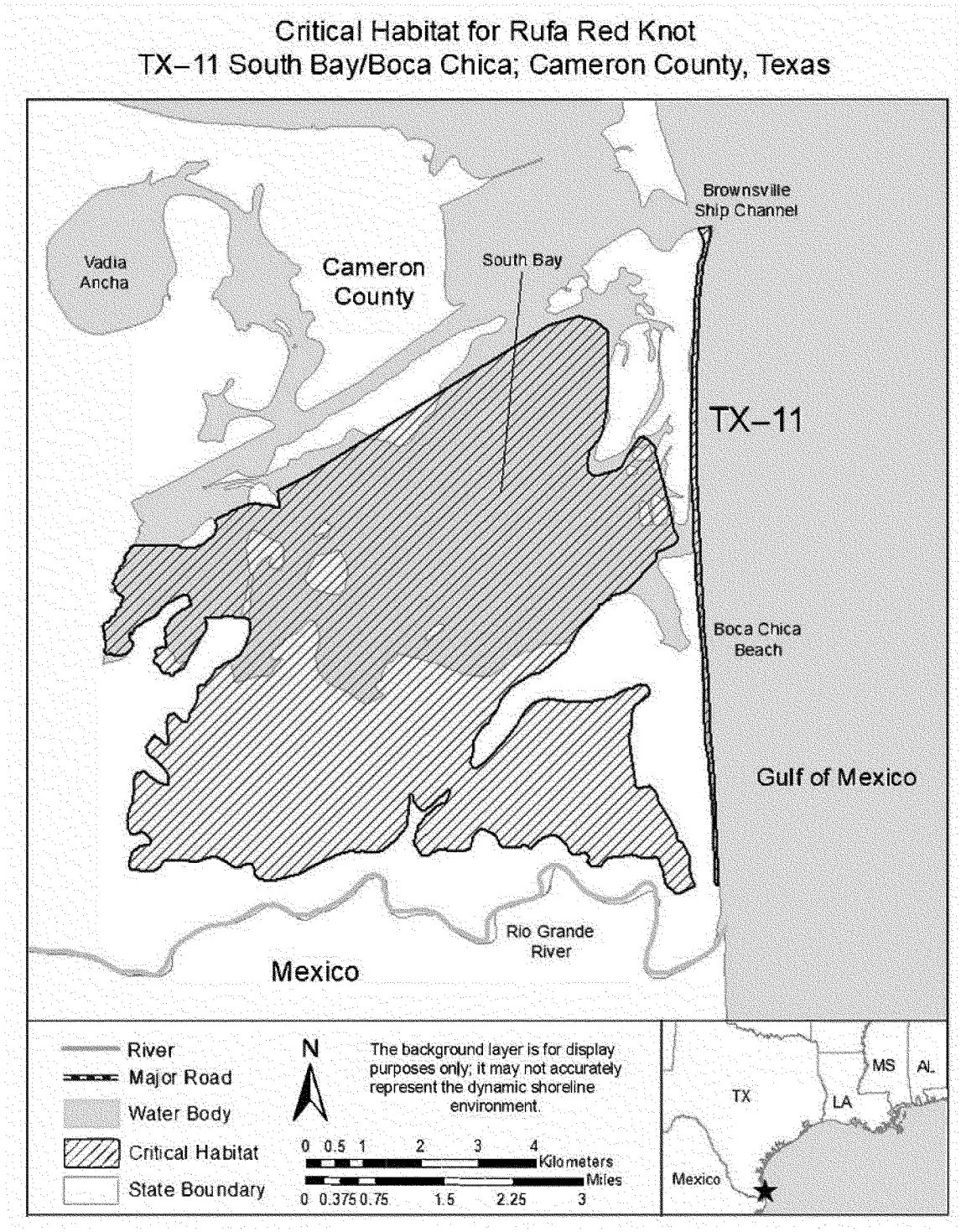
(125) Unit TX–11: South Bay/Boca Chica, Texas.

(i) Unit TX–11 consists of approximately 15,243 ac (6,173 ha) of occupied habitat in Cameron County. The Boca Chica gulf shoreline portion of this unit begins south of the Brownsville Ship Channel and extends approximately 6.5 mi (10 km) to the south. Within the South Bay, the northern boundary is south of Brownsville Ship Channel dredge spoil placement areas, and the southern boundary is north of the Rio Grande River. The eastern boundary is the

bayside of the Boca Chica Beach (Gulf of Mexico) up to where dense vegetation begins, and the western boundary is west of the Loma islands up to where dense vegetation begins along the wind tidal flats. The unit includes wind tidal flats and all seagrass beds that are infrequently inundated and/or exposed as low tides, and the tidal flats within the area known as South Bay. Specific habitat types within this unit include: Estuarine (bayside) seagrass mud or sand flats that are subtidal and are nearly flat areas with rooted vascular plants (seagrass) growing below the water surface in subtidal mud or sand substrate; estuarine (bayside) algal mud or sand flats regularly inundated by tides and that are nearly flat areas with a layer of algae growing on a moist mud or sand substrate and are otherwise devoid of vegetation; estuarine (bayside) algal mud or sand flats irregularly inundated by tides; estuarine (bayside) sandy shore (beach/sandbar) rarely exposed due to tidal fluctuation; estuarine (bayside) sandy shore (beach/sandbar) irregularly or regularly inundated by tides, depending upon the location; estuarine (bayside) sandy shore (beach/sandbar) spoils irregularly inundated by tides; and marine sandy coastline (beach) irregularly or regularly inundated by tides, depending upon the location. Lands within this unit include approximately 5,536 ac (2,242 ha) in Federal ownership (Lower Rio Grande Valley NWR), 3,923 ac (1,589 ha) in State ownership, and 5,784 ac (2,342 ha) in private/other ownership.

(ii) Map of Unit TX–11 follows:

Figure 104 to Rufa Red Knot paragraph (125)(ii)



* * * * *

Signing Authority

The Director, U.S. Fish and Wildlife Service, approved this document and authorized the undersigned to sign and submit the document to the Office of the Federal Register for publication electronically as an official document of the U.S. Fish and Wildlife Service. Martha Williams, Principal Deputy Director, Exercising the Delegated Authority of the Director, U.S. Fish and Wildlife Service, approved this

document on June 30, 2021, for publication.

Madonna Baucum,

Regulations and Policy Chief, Division of Policy, Economics, Risk Management, and Analytics, Joint Administrative Operations, U.S. Fish and Wildlife Service.

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