situations, such as general permits for specific source categories, to facilitate minor source emissions management in Indian country. Existing sources in Indian country may have PTE limits that preceded the EPA's FIP for minor sources and, for that reason, were issued in a 40 CFR part 71 permit or FIP permitting provision applicable to Indian country.

Consistent with EPA policy, the EPA will offer to consult with the potentially impacted tribes and other tribes upon their request.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of ''covered regulatory action'' in section 2–202 of the Executive Order. This action is not subject to Executive Order 13045 because it does not directly regulate any emission source and will not have any direct impact on children's health. The emissions reductions achieved by individual NESHAP are properly accounted for in those individual NESHAP rather than the General Provisions. This action will not change the level of emissions reductions achieved by those NESHAP. While we do not expect this action to have any direct impact on children's health, preventing emissions increases will ensure protections achieved via any NESHAP that a source was subject to at the time of reclassification will provide continued protection achieved by any NESHAP that source was formerly subject to.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a ''significant energy action'' because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. We have concluded that this action is not likely to have any adverse energy effects.

I. National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 14096: Revitalizing Our Nation's Commitment to Environmental Justice for All

The EPA believes that this action does not have disproportionate and adverse human health or environmental effects on communities with environmental justice concerns because it does not establish an environmental health or safety standard. The proposed amendments to the General Provisions are procedural changes and do not impact the technology performance nor level of control of the NESHAP governed by the General Provisions.

While the EPA does not expect this action to directly impact the level of control of any particular NESHAP standards, this proposal is expected to enhance transparency, promote national consistency in EPA and citizen enforcement, and improve compliance assurance through clearer criteria for NESHAP reclassifications. The processes by which state programs and permits are approved under 40 CFR subpart E, includes requirements for public notice and comment as well as creating programs and permits that are federally enforceable by the EPA and citizens. These additional layers of oversight increase the likelihood that sources will continue to effectively operate air pollution control equipment and create a framework for the EPA and citizens to pursue enforcement actions if they do not. Additionally, the EPA finds that the safeguards proposed in this action will ensure that HAP emissions reductions are achieved, and the corresponding public health and environmental benefits from decreased HAP emissions, are maintained at sources that reclassify from major sources of HAP to area sources of HAP.

List of Subjects in 40 CFR Part 63

Environmental protection, Area sources, General provisions, Hazardous air pollutants, Major sources, Potential to emit.

Michael S. Regan,

Administrator.

[FR Doc. 2023–21041 Filed 9–26–23; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2019–0069; FF09E21000 FXES11110900000 234]

RIN 1018–BE14

Endangered and Threatened Wildlife and Plants; Reclassifying the Virgin Islands Tree Boa From Endangered to Threatened With a Section 4(d) Rule

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; withdrawal.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), withdraw the proposed rule to reclassify the Virgin Islands tree boa (listed as *Epicrates monensis granti*) from endangered to threatened under the Endangered Species Act of 1973 (Act), as amended. This withdrawal is based on new information we received during the proposed rule's public comment periods, specifically new survey results that indicate that the Virgin Islands tree boa is likely extirpated from Cayo Ratones. We also realized an error in calculations that reduced the resiliency of the Cayo Diablo population. After evaluating the status of the species following these changes, we find that the species still meets the Act's definition of an endangered species. We have, therefore, determined that reclassification of this species is not appropriate at this time. Accordingly, we also withdraw the proposed 4(d) rule for the Virgin Islands tree boa.

DATES: The proposed rule that published on September 30, 2020 (85 FR 61700), to reclassify the Virgin Islands tree boa as threatened with a rule issued under section 4(d) of the Act is withdrawn on September 27, 2023.

ADDRESSES: This withdrawal, comments on our September 30, 2020, proposed rule, and supplementary documents are available for public inspection on the internet at *https://www.regulations.gov at* Docket No. FWS–R4–ES–2019–0069 and on the Service's website at *https://www.fws.gov/office/caribbean-ecological-services/library.*

FOR FURTHER INFORMATION CONTACT: Edwin E. Muñiz, Field Supervisor, U.S. Fish and Wildlife Service, Caribbean Ecological Services Field Office, P.O. Box 491, Boquerón, PR 00622; telephone 787–405–3641; email: *Caribbean_es@fws.gov.* Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY,

TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Previous Federal Actions

Please refer to the September 30, 2020, proposed rule (85 FR 61700) to reclassify the Virgin Islands tree boa (which we refer to below as ''Virgin Islands boa'') for a detailed description of previous Federal actions concerning this species. The September 30, 2020, proposed rule opened a 60-day public comment period, ending November 30, 2020. We then reopened the public comment period for an additional 30 days, from April 26 to May 26, 2021, and held a public hearing on May 12, 2021 (see 86 FR 22005; April 26, 2021). During both comment periods and at the public hearing, we accepted submission of new information and comments on the proposed reclassification.

Summary of Justification for Withdrawal

Based on the comments we received during both of the September 30, 2020, proposed rule's public comment periods and at the May 12, 2021, public hearing, we made several changes and corrections throughout the species status assessment (SSA) report for the Virgin Islands boa (Service 2022, entire). We received substantive comments regarding the probable extirpation of Virgin Islands boas due to colonization of rats on Cayo Ratones, and we have included that information in all descriptions of that population and addressed it in our analysis. Results from a survey effort in September 2021 by Puerto Rico Department of Natural and Environmental Resources (DNER) and other boa experts were provided to the Service; no boas or indirect evidence of boas were observed (Puente-Rolón et al. 2021, p. 1) and the DNER affirms that the Cayo Ratones population is most likely extirpated (DNER 2019, p. 3). We also received comments on the characterization of the resiliency of the Cayo Diablo population, and upon reexamination of the current resiliency score, we realized we made an error in our calculations and subsequently have changed the resiliency of that population from moderately high resiliency to moderate resiliency. Upon incorporating these changes, we have determined that there are not sufficient data to support reclassifying the Virgin Islands boa from an endangered species to a threatened species. Accordingly, we are withdrawing our proposed rule to reclassify the Virgin Islands boa as a threatened species with a rule issued under section 4(d) of the Act (16 U.S.C. 1531 *et seq.*).

Proposal to Update the Scientific Name of the Virgin Islands Tree Boa

In the September 30, 2020, proposed rule (85 FR 61700), we proposed to correct the Federal List of Endangered and Threatened Wildlife (List) to change the scientific name of the Virgin Islands tree boa from *Epicrates monensis granti* to *Chilabothrus granti* to reflect the currently accepted taxonomy. Virgin Islands boa is a distinct species, not a subspecies, and *Epicrates* is no longer the scientifically accepted genus for this species. However, because we are withdrawing the September 30, 2020, proposed rule (85 FR 61700), the Virgin Islands boa's scientific name will remain *Epicrates monensis granti* in the List until we, in the future, publish a final rule recognizing the new taxonomy.

Background

A thorough review of the taxonomy, life history, ecology, and overall viability of the Virgin Islands boa is presented in the SSA report (Service 2022, entire; available at *https://www.regulations.gov* under Docket No. FWS–R4–ES–2019–0069). A summary of this information follows.

The Virgin Islands boa is endemic to Puerto Rico and the Virgin Islands (U.S. and British). The Virgin Islands boa is a medium-length, slender, nonvenomous snake. The largest snout-vent lengths (SVL) recorded for the species were 1,066 millimeters (mm; 42 inches (in)) for females and 1,112 mm (44 in) for males (total body lengths 1,203 mm (47 in) and 1,349 mm (53 in), respectively; Tolson 2005, entire), although most specimens range between 600 and 800 mm (24 and 31 in) SVL, with an average mass of 165 grams (6 ounces) (USVI Division of Wildlife, unpublished data). Adults are gray-brown with dark-brown blotches that are partially edged with black, and feature a blue-purple iridescence on their dorsal surface; the ventral surface is creamy white or yellowish white. Newborns, on the other hand, have an almost grayish-white body color with black blotches and weigh 2.0–7.2 grams (0.07–0.25 ounces) with SVLs of 200–350 mm (approx. 8–14 in) (Tolson 1992, entire; Tolson 2018, pers. comm.).

The Virgin Islands boa occurs in subtropical dry forest and subtropical moist forest (Service 2009, p. 11). Subtropical dry forest covers approximately 14 percent (128,420 hectares (ha); 317,332 acres (ac)) of Puerto Rico and the U.S. Virgin Islands (USVI), typically receives less than 750 mm (29 in) rainfall annually (Ewel and Whitmore 1973, pp. 9–20), and is characterized by small (less than 5 meter (m; 16 feet (ft)) deciduous trees with high densities of interlocking branches and vines connecting adjacent tree canopies (Ewel and Whitmore 1973, p. 10). Subtropical moist forest covers approximately 58 percent (538,130 ha; 1,329,750 ac) of Puerto Rico and USVI and typically receives more than 1,100 mm (43 in) of annual rainfall. It is dominated by semi-evergreen and evergreen deciduous trees up to 20 m (66 ft) tall with rounded crowns. The Virgin Islands boa has also been reported to occur in mangrove forest, thicket/scrub, disturbed lower vegetation, and artificial structures (Harvey and Platenberg 2009, p. 114; Tolson 2003, entire).

Habitat needs for Virgin Islands boa can be divided into those for foraging and those for resting. Factors contributing to foraging habitat quality are tree density and connectivity, presence of arboreal and ground-level refugia, prey density, and rat presence/density (Tolson 1988, pp. 234–235). Tree density is more important than tree species or diversity; Virgin Islands boas do not appear to prefer a particular tree species after accounting for availability and structure (Platenberg 2006, pers. comm.). The highest densities of Virgin Islands boas are found where there are few or no exotic predators and high densities of lizard prey (Tolson 1988, p. 233). Resting habitat includes refugia for inactive boas to use during the day. Refugia can be the axils (angles between trunk and branches) of *Cocos* or *Sabal* species, tree holes, termite nests, or under rocks and debris (Tolson 1988, p. 233).

The Virgin Islands boa forages at night by gliding slowly along small branches in search of sleeping lizards (Service 1986, p. 6). The primary prey for the Virgin Islands boa is the Puerto Rican crested anole (*Anolis cristatellus*), and the greatest concentrations of Virgin Islands boa are found where *Anolis* densities exceed 60 individuals/100 m^2 (1,076 ft^2; Tolson 1988, p. 233). Other prey species include ground lizard (*Ameiva exsul*), house mouse (*Mus musculus*), small birds, iguana (*Iguana iguana*) hatchlings, and likely other small animals encountered (MacLean 1982, pp. 30–31, 37; Tolson 1989, p. 165; Tolson 2005, p. 9; Platenberg 2011, p. 3). The Virgin Islands boa may also compete for prey and other niche components with the green iguana (*Iguana iguana*) and the Puerto Rican

racer (*Borikenophis portoricensis*), a snake native to Puerto Rico, USVI, the British Virgin Islands, and surrounding cays (small, low islands).

Much of what is known about the Virgin Islands boa's life history comes from studies in captivity. Lifespans in captivity often exceed 20 years, and sometimes exceed 30 years (7 percent of captive Virgin Islands boas exceeded 30 years of age; Smith 2018c, pers. comm.), but typical lifespans in the wild are not known. Sexual maturity is reached at 2 to 3 years of age (Tolson 1989, pp. 165–166; Tolson and Piñero 1985, pp. 5–6), and boas are still reproductive at up to 20 years of age (Tolson 2018, pers. comm.). Females breed biennially, but studies have suggested that annual breeding may occur in some conditions (Tolson and Piñero 1985, pp. 6–7). Courtship behaviors and copulation occur from February through May, and interaction with conspecifics of the opposite sex appears to be necessary for reproductive cycling (Tolson 1989, p. 165). The gestation period, observed from a single known copulation between two individuals, is about 132 days (Tolson 1989, p. 165). Virgin Islands boas give birth to live young from late August through October to litters of 2 to 10 young, and litter size increases with female body size (Tolson 2018, pers. comm.).

The exact historical distribution of the Virgin Islands boa is unknown, but its present disjointed distribution suggests that it was once more widely distributed across small islands within its range. In the 1970s, when the Virgin Islands boa was listed under the Endangered Species Conservation Act of 1969, its range was identified as three islands: Puerto Rico (no specific site); St. Thomas, USVI (from a single record); and Tortola in the British Virgin Islands (BVI) (from one report) (44 FR 70677; December 7, 1979). When the recovery plan was written (1986), 71 individuals were reported in two populations: one on the eastern side of St. Thomas in the USVI, and one at Cayo Diablo, an offshore islet in Puerto Rico (Service 2009, p. 6).

Currently, the Virgin Islands boa occurs on six islands between Puerto Rico, USVI, and BVI: the eastern Puerto Rican islands of Cayo Diablo and Culebra; Río Grande on the Puerto Rican main island; eastern St. Thomas and an offshore cay in USVI (USVI Cay; an introduced population); and Tortola. The occurrence of a seventh population (also an introduced population) on the Puerto Rican cay of Cayo Ratones is considered uncertain after the reestablishment of rats on this island possibly sometime after 2004 (Service 2022, p. 24). Surveys in April 2018 and September 2021 did not find Virgin Islands boas on Cayo Ratones (Island Conservation 2018, pp. 5, 17; DNER 2021, unpublished data; Puente-Rolón et al. 2021, entire), indicating this population is likely extirpated. Lastly, there is also one report from 2004 that the species occurs on Greater St. James Island in St. Thomas, but nothing is known about that potential population (Dempsey 2019, pers. comm.). In 2009, based on all known populations in Puerto Rico and the USVI, an estimated 1,300–1,500 Virgin Islands boas were thought to occur (Service 2009, p. 8). However, some population numbers used for that estimate are speculative. The current overall estimate of the species is unknown, particularly with the likely extirpation of the Cayo Ratones population. Based on the 2022 SSA report (Service 2022, entire), current population trend estimates for Puerto Rico and USVI are either declining, potentially declining, considered rare, or unknown, and most populations are small or considered rare (Service 2022, p. 30).

The population on Tortola Island, BVI, was confirmed in 2018, but there are no specific data regarding the status of that population (McGowan 2018, pers. comm.). In addition, according to anecdotal reports, the species is thought to occur on Jost Van Dyke, Guana Island, Necker Cay, Great Camanoe, and Virgin Gorda of the BVI (Mayer and Lazell 1988, entire), but data and confirmed observations are limited. There is not enough information to reliably assess the status of Virgin Islands boa populations on those islands, and they are not included in our analysis.

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for endangered and threatened species. In 2019, jointly with the National Marine Fisheries Service, the Service issued a final rule that revised the regulations in 50 CFR part 424 regarding how we add, remove, and reclassify endangered and threatened species and the criteria for designating listed species' critical habitat (84 FR 45020; August 27, 2019). On the same day, the Service also issued final regulations that, for species listed as threatened species after September 26, 2019, eliminated the Service's general protective regulations automatically applying to threatened species the prohibitions that section 9 of the Act applies to endangered species (84 FR 44753; August 27, 2019).

The Act defines an ''endangered species'' as a species that is in danger of extinction throughout all or a significant portion of its range, and a ''threatened species'' as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an ''endangered species'' or a ''threatened species'' because of any of the following factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term ''threat'' to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term ''threat'' includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term ''threat'' may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an ''endangered species'' or a ''threatened species.'' In determining whether a species meets either definition, we must evaluate all identified threats by considering the species' expected response and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its

expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species—such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the Act's definition of an ''endangered species'' or a ''threatened species'' only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term ''foreseeable future,'' which appears in the statutory definition of ''threatened species.'' Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term ''foreseeable future'' extends only so far into the future as we can reasonably determine that both the future threats and the species' responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. ''Reliable'' does not mean ''certain''; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species' likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

Analytical Framework

The SSA report (Service 2022, entire) documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent a decision by the Service on whether the species should be listed as an endangered or threatened species under the Act. It does, however, provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies. The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket FWS–R4–ES–2019–0069 on *https://www.regulations.gov.*

To assess Virgin Islands boa's viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation is the ability of the species to adapt to both near-term and long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, species viability will increase with increases in resiliency, redundancy, and representation (Smith et al. 2018, p. 306). Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species' life-history needs. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species' responses to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision. Our SSA was revised to reflect the comments and new information we received during both of the September 30, 2020, proposed rule's public comment periods and at the May 12, 2021, public hearing.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the species and its resources, and the threats that influence the species' current and future condition, in order to assess the species' overall viability and the risks to that viability. In the SSA report (Service 2022, pp. 12–18), we reviewed all factors (*i.e.,* threats, stressors) that could be affecting the Virgin Islands boa now or in the future. However, in this document, we will focus our discussion only on those factors that could meaningfully impact the status of the species. The risk factors affecting the status of the Virgin Islands boa vary from location to location, but generally include habitat loss and degradation from development, introduced predators, sea level rise (SLR) and a changing climate, and public attitudes towards snakes. Where habitat is available but the species is not present (*i.e.,* most of the small islands in the eastern Puerto Rico bank and USVI), it is believed that absences are due to local extirpation resulting from habitat degradation and colonization of exotic species (Service 2009, p. 11). We discuss each of the risk factors below.

Habitat Loss and Degradation—Development

Virgin Islands boas occur on both privately and publicly owned land. Virgin Islands boas have been observed living in developed areas around residences and can persist within developed areas if habitat patches are available, but only if no cats or rats are around (Platenberg and Harvey 2010, p. 552; Platenberg 2011, p. 11). Development continues to impact populations via habitat destruction, especially in St. Thomas, Río Grande (Puerto Rico), and Culebra Island where habitat has declined over decades. In St. Thomas, available habitat has declined due to development for resorts, condos, and related infrastructure, and habitat has become more constricted and isolated (Platenberg and Harvey 2010, p. 552). In Puerto Rico, human populations are decreasing, but residential development continues to increase island-wide, including around protected areas (Castro-Prieto et al. 2017, entire). Consequences of human development on the boa and its habitat not only include habitat loss and fragmentation due to deforestation, but also mortality from vehicular strikes, an increase in predators such as cats and rats, and an increase in human–boa conflicts that results in snakes being killed because of fear of snakes (Service 2022, pp. 13–14).

Predation and Competition

One of the primary threats to Virgin Islands boa populations is predation by exotic mammalian predators, mainly cats and rats, and possibly, to a lesser degree, mongoose. Mongoose are not likely a major predator of Virgin Islands boa because mongoose are terrestrial and active during the day, while Virgin

Islands boas are arboreal and active primarily at night, although not exclusively (Service 2022, p. 14). Feral cats are known to prey upon boas (Tolson 1996b, p. 409), and cat populations around human development are further bolstered by cat feeding stations set up by residents. There has not been direct evidence of rats preying upon Virgin Islands boas, but boas are not present on islands with high densities of rats (Tolson 1986ab, unpaginated; Tolson 1988, p. 235). Rats likely negatively impact Virgin Islands boas by competing for prey, or by inducing behavioral changes in *Anolis* prey that make them less likely to be encountered by boas (Tolson 1988, p. 235). However, rats may also predate on neonate boas (Service 1986, p. 12). Complete predator removal on large, developed islands is challenging, but is feasible on smaller cays. Prior to reintroduction of the boas, rats were eliminated from Cayo Ratones and the USVI Cay using anticoagulant poison (Tolson 1996b, p. 410), although Cayo Ratones was recolonized by rats sometime after August 2004, highlighting the importance of ongoing monitoring for rat presence after a removal project. Cayo Ratones was thought to harbor one of the most robust Virgin Islands boa populations, but during the April 2018 survey (Island Conservation 2018, p. 20) and more recent September 2021 survey (DNER 2021, unpublished data; Puente-Rolón et al. 2021, entire), no boas were found.

Effects of Climate Change, Including Sea Level Rise

Climate change will continue to influence the Virgin Islands boa's viability into the future. Species such as the Virgin Islands boa, that are dependent on specialized habitat types or limited in distribution, are the most susceptible to the impacts of climate change (Byers and Norris 2011, p. 22).

The climate in the southeastern United States and Caribbean has warmed about 2 degrees Fahrenheit (°F) from a cool period in the 1960s and 1970s, and temperatures are expected to continue to rise (Carter et al. 2014, pp. 398–399). Projections for future precipitation trends in this area are less certain than those for temperature, but they suggest that overall annual precipitation will decrease and tropical storms will occur less frequently but with more force (*i.e.,* more category 4 and 5 hurricanes) than historical averages (Carter et al. 2014, pp. 398–399; Knutson et al. 2010, pp. 161–162). With increasing temperatures and decreasing precipitation, drought could negatively influence Virgin Islands boa populations. After a severe drought in eastern Puerto Rico, *Anolis* populations crashed on Cayo Diablo, and body condition indices of the boas plummeted (Tolson 2018, pers. comm.).

Sea levels are expected to rise globally, ranging from 0.2 m (7.9 in) to over 1 m (3 ft) of SLR by the end of the century (Reynolds et al. 2012, p. 3; Service 2022, p. 38). Local SLR impacts in the Caribbean will depend on how much the ocean level itself rises, and on land subsidence or changes in offshore currents, but are predicted to range from 0.17 m (6.7 in) to 0.38 m (15.0 in) by 2065 (Carter et al. 2014, p. 400; Service 2022, p. 38). Impacts on terrestrial ecosystems can be temporary, via submergence of habitat during storm surges, or permanent, via saltwater intrusion into the water table, inundation of habitat, and erosion. SLR and hurricane storm surges in the Caribbean are predicted to inundate low-lying islands and parts of larger islands (Bellard et al. 2014, pp. 203–204). The low-lying islands of Cayo Diablo and the USVI Cay, which support Virgin Islands boa populations, and the island of Cayo Ratones, where we are uncertain if the island still supports a population, are all vulnerable to SLR and storm surges in the future. Boa populations on Río Grande, Culebra, and St. Thomas are not considered at risk from SLR; however, the three cays (Cayo Diablo, Cayo Ratones, and USVI Cay) could see 10–23 percent loss of low-lying habitat due to SLR over the next 30 years (Service 2022, pp. 38–46). Past and current observations suggest that the species can survive major hurricane events, although lasting impacts to habitat, particularly die-off of vegetation inundated by storm surges, have been observed (Platenberg 2018, pers. comm.; Smith 2018c, pers. comm.; Tolson 1991, pp. 12, 16; Yrigoyen 2018, pers. comm.). Loss of habitat due to storm surge impacts is similar to loss of habitat due to development; loss of low-lying forest habitat could result in decreased habitat availability for the Virgin Islands boas and their prey.

Persecution by Residents

Intentional killing of the more common and larger sized Puerto Rican boa (*Chilabothrus inornatus*) due to fear or superstitious beliefs has been well documented (Bird-Picó 1994, p. 35; Puente-Rolón and Bird-Picó 2004, p. 343; Joglar 2005, p. 146). Thus, Virgin Islands boas in proximity to developed areas where people fear snakes are susceptible to intentional killings. Public encounters with Virgin Islands boas in the more populated Río Grande and Culebra locations are considered questionable because of the rarity of boas in those populations, and there are only a couple of anecdotal records of intentional killings in those areas (Service 2009, pp. 15–16). In the highly developed east side of St. Thomas, about 10 percent of the Virgin Islands boa records in St. Thomas are from boas killed by humans on private property (Platenberg 2006, unpublished data). We have no further information to assess the magnitude of this threat, but it is likely that intentional killings of Virgin Islands boas still occur, are not being documented, and would be particularly detrimental to rare populations such as in Río Grande. The Service is not aware of a law enforcement case related to the boa in Puerto Rico or the USVI. Populations that occur within protected areas are not expected to be exposed to this threat.

Conservation Measures and Regulatory Mechanisms That Affect the Species

Positive influences on the Virgin Islands boa's viability have been habitat protection, predator control, and captive breeding and reintroduction. Two populations of Virgin Islands boa were reintroduced to protected cays after predators had been removed, one on Cayo Ratones (Puerto Rico) in 1993, and another on USVI Cay in 2002. Founders for these reintroductions came largely from a cooperative captive-breeding program initiated in 1985 between the Service, Puerto Rico DNER, U.S. Virgin Islands Department of Planning and Natural Resources (VIDPNR), and Toledo Zoological Garden. Cayo Diablo provided the founding individuals for the captive population that was reintroduced to Cayo Ratones (6 kilometers (3.5 miles) away from Cayo Diablo), and St. Thomas provided the founding individuals for the captive population that was reintroduced to the USVI Cay (4 kilometers (2.5 miles) away from St. Thomas).

The Cayo Ratones population originated from 41 captive-born boas (offspring of Cayo Diablo boas) released between 1993 and 1995. Post-release survival was high: 82.6 percent of individuals and 89 percent of neonates survived at least 1 year (Tolson 1996a, unpaginated). By 2004, the population had grown to an estimated 500 boas (Tolson et al. 2008, p. 68). Unfortunately, since 2004, Cayo Ratones has been recolonized by rats, and no boas were found during surveys in April 2018 (Island Conservation 2018, pp. 5, 20) and September 2021 (DNER 2021, unpublished data; Puente-Rolón et al. 2021, entire). However, because Virgin Islands boas are difficult to find,

additional surveys are needed to confirm whether a few individuals still persist or to conclude that the population is extirpated.

The USVI Cay reintroduction was initiated with the release of 42 Virgin Islands boas in 2002 and 2003, 11 from captivity and 31 from St. Thomas. Follow-up surveys in 2003–2004 provided an estimate of 168 boas (202 boas per hectare), which researchers suspected was near carrying capacity for the island (Tolson 2005, p. 9). More recent surveys in March 2018 detected 20 boas over 2 nights and 44 boas over 3 nights in November and December 2018 (Smith 2018ab, entire). These recent surveys revealed a potential decline in abundance and the loss of two prey species (Smith 2018ab, entire), possibly as a result of density dependence as the population approached carrying capacity after reintroduction. Differences in survey and analysis methodologies complicate direct comparisons of population size between the surveys. Recent surveys also indicate that there are no rats on the island. Additional surveys are being conducted by the VIDPNR that will help continue to monitor this population and refine current estimates. Factors for consideration for future reintroduction sites include the presence and amount of suitable habitat (*e.g.,* appropriate forest structure, adequate prey base, available refugia), protection status or threat of development, the presence/absence/eradication of exotic predators, and geomorphology that provides protection from SLR and hurricane storm surges that are likely to affect the persistence of low-lying habitat. Potential sites for new introductions have been suggested (Reynolds et al. 2015, p. 499) and need to be further assessed, with one offshore island in St. Thomas as one of the primary sites. Some areas may require that predators be removed before boas are reintroduced and future monitoring is ensured to prevent recolonization by predators. In addition to reintroductions to new sites, augmentation of existing populations may prove beneficial or necessary for the persistence of existing populations, particularly on developed islands and cays where predators have become reestablished.

Both Puerto Rico and the USVI have regulatory mechanisms established to protect the species and its habitat through consultation processes for the authorization of development projects. Presently, the Virgin Islands boa is legally protected under Puerto Rico's Commonwealth Law No. 241–1999 (see title 12 of the Laws of Puerto Rico at section 107 *et seq.* (12 L.P.R.A. sec. 107 *et seq.*)), known as Nueva Ley de Vida Silvestre de Puerto Rico (New Wildlife Law of Puerto Rico). This law has provisions to protect habitat for all wildlife species, including plants and animals. In addition, the species is protected by Puerto Rico DNER's Regulation 6766 (Reglamento para Regir el Manejo de las Especies Vulnerables y en Peligro de Extincio´n en el Estado Libre Asociado de Puerto Rico (Regulation 6766: To govern the management of threatened and endangered species in the Commonwealth of Puerto Rico)). Article 2.06 of Regulation 6766 prohibits collecting, cutting, and removing, among other activities, listed plant and animal individuals within the jurisdiction of Puerto Rico (DRNA 2004, entire). In the USVI, Act No. 5665, known as the Virgin Islands' Indigenous and Endangered Species Act, which is enforced by the VIDPNR, protects the species.

Despite these regulations being in place, including the requirement for developers to conduct environmental assessments and mitigate damage to the species and habitat, the regulations have proved difficult to enforce, they are often ignored by developers, and they do not cover all development activities in all Virgin Islands boa habitat (Platenberg 2011, pp. 11–13). For example, in St. Thomas, major permit applications submitted for projects in the coastal zone require an environmental impact assessment that addresses endangered species and protected habitat, but these requirements do not apply to smaller projects or those outside of the coastal zone. Furthermore, as noted in one study, even though a protocol was developed and applied to delineate habitat on protected sites and identify mitigation strategies, the absence of a legal mechanism to enforce mitigation has led to varying success as developers are slow to accept, and often ignore, the mitigation process (Platenberg and Harvey 2010, pp. 551–552).

Most offshore cays within the species' range are part of the Territorial Government or protected as wildlife refuges, thus formally protecting Virgin Islands boa habitat for three of the six populations (*i.e.,* Cayo Diablo, Cayo Ratones, and USVI Cay). Cayo Ratones and Cayo Diablo are included in La Cordillera Natural Reserve managed by the Puerto Rico DNER, and the offshore cay in USVI is managed and protected by the VIDPNR. Furthermore, even though Virgin Islands boa habitat on privately owned land on Culebra Island is currently under pressure from urban and tourism development and deforestation, more than 1,000 acres of suitable habitat on the island are protected within the Service's Culebra National Wildlife Refuge.

In conclusion, the Virgin Islands boa still faces the threat of development on St. Thomas, Río Grande, and Culebra Island, and regulatory mechanisms addressing this threat are difficult to enforce or do not cover all development actions affecting the species. Human development results in habitat loss from deforestation and fragmentation, mortality from vehicular strikes, and increased predation by cats and rats. In addition, impacts from changes in climate could affect habitat. Drought could negatively influence Virgin Islands boa populations through loss of prey. SLR and storm surges are expected to inundate low-lying islands, such as Cayo Diablo, Cayo Ratones, and the USVI Cay, which currently support Virgin Islands boa populations. Finally, persecution of boas by citizens, due to fear or superstition, can affect individual boas, although there has never been a systematic study of the impact of these events on the overall population.

When considering conservation actions and how they influence the viability of Virgin Islands boa, about half of known localities where Virgin Islands boas occur are on small offshore islets managed for conservation. In addition, predator removal has been successful at smaller cays, such as USVI Cay, although the reestablishment of rats on Cayo Ratones illustrates the need for continued monitoring and removal efforts. Lastly, successful reintroductions of Virgin Islands boas occurred on these islands after the eradication of predators.

Current Condition

For the Virgin Islands boa to maintain viability, its populations, or some portion thereof, must be resilient. For the SSA report (Service 2022, entire), our classification of resiliency relied heavily on habitat characteristics in the absence of a certain population size for most populations or trend estimates. The habitat characteristics we assessed were degree of habitat protection (or, conversely, development risk), presence of introduced predators, and vulnerability to storm surges (Service 2022, p. 31).

Representation can be measured by the breadth of genetic or environmental diversity within and among populations and gauges the probability that a species is capable of adapting to environmental changes. A rangewide genetic analysis of the Virgin Islands boa showed there was little genetic variation; however, the

same study found that each sampled locality had unique mtDNA haplotypes, indicating a lack of gene flow between islands (Rodríguez-Robles et al. 2015, entire). Therefore, in the SSA report we used genetics to delineate representative units.

The species also needs to exhibit some degree of redundancy in order to maintain viability. Catastrophic events that could affect both single and multiple populations of the Virgin Islands boa include drought, hurricanes, and colonization or recolonization of exotic predators. This species occurs in geographically isolated groups and does not disperse from island to island to interact and interbreed; therefore, for purposes of analyzing redundancy, all boas within each island were considered to be individual populations.

Resiliency

Because resiliency is a population-level attribute, the key to assessing it is the ability to delineate populations. As discussed above, we considered all boas within each island to be single populations. On small offshore cays, what we define as a population might consist of a single interbreeding deme (or subdivision) of Virgin Islands boas. On larger islands, what we define as a population functions more as a metapopulation, with multiple interbreeding groups in isolated habitat patches that may interact weakly via dispersal and recolonization of extirpated patches. Alternately, multiple occupied patches on large islands may be completely isolated from one another (Service 2022, p. 20).

Six island populations were considered: Cayo Diablo, Cayo Ratones, Culebra Island, Río Grande (Puerto Rico), St. Thomas, and USVI Cay (USVI). Further, one or more populations exist in the BVI (*e.g.,* Tortola), but data are severely limited, and for the SSA report, we lacked sufficient data from these islands to incorporate them into our viability analysis. In addition, other populations may occur on other offshore islands in Puerto Rico and USVI, but most have not been searched for Virgin Islands boas and we could not confirm any to be extant at the time we completed our analysis.

Resiliency scores for each population were generated by combining scores for three habitat metrics ((1) protection/development risk, (2) exotic mammals, and (3) storm surge risk) and one population metric (population size and/or trend, dependent on availability). Each metric was weighted equally, with the overall effect that habitat (three metrics) was weighted three times higher than population size/trend (one metric). For each metric, populations were assigned a score of −1, 0, or 1, as described below in table 1.

The scores were based on the best available information for each population, gathered from the literature and species experts. Monitoring data are scarce. The Virgin Islands boa recovery plan (Service 1986, pp. 16–19) called for periodic monitoring to estimate population sizes and trends, but surveys since then have been few and far between. Survey methodology and reporting have varied from population to population, with survey results given as estimated abundances, estimated densities, or encounter rates per person-hour of searching. The above-described factors in combination contribute to high levels of uncertainty in current and past population sizes, and how they have changed over time. Accordingly, resiliency classifications relied more heavily on habitat conditions than population size and trend estimates.

TABLE 1—DESCRIPTION OF HABITAT AND POPULATION FACTOR SCORES TO DETERMINE THE VIRGIN ISLANDS BOA'S POPULATION RESILIENCY

Score	Habitat metrics			Population metric
	Habitat protection/development risk	Exotic mammals	Storm surge risk	Population Size/Trend *
−1	Habitat not protected, at risk of being developed.	Exotic mammals present	Topography and elevation leaves population vulnerable to storm surges.	Relatively low population size and/or declining trend.
0	Some habitat protected, some at risk of being developed.	Not applicable (not present).	Not applicable (not an issue)	• Relatively moderate population size and stable trend, or • High degree of uncertainty in population size/trends.
1	Habitat protected in identified protected area.	Exotic mammals absent	Protected by topography and elevation.	Relatively high population size and/or growth.

* Population size/trend scores are relative and were based on the best available information for each population, gathered from the literature and species experts.

The scores for each population across all metrics were summed, and final population resiliency categories were assigned as follows:

Low Resiliency: −4 to −2
Moderately Low Resiliency: −1
Moderate Resiliency: 0
Moderately High Resiliency: 1
High Resiliency: 2 to 4

Applying these resiliency categories to the six populations of Virgin Islands boa, we determined that two populations have moderate resiliency (Cayo Diablo and USVI Cay), one has moderately low resiliency (Culebra), two have low resiliency (Río Grande and St. Thomas), and one has no resiliency because it is presumed to be extirpated (Cayo Ratones).

One of the populations classified as having moderate resiliency (Cayo Diablo) occurs on a small offshore island that is free of exotic rats and cats and is protected for conservation. Boas have been consistently found on Cayo Diablo, with an April 2018 survey detecting 10 boas (Island Conservation 2018, entire), one in November 2018 that detected 14 boas (DNER 2018, unpublished data), and one in April 2022 that detected 2 boas (Smith 2022, unpublished data). Using the April 2018 data, extrapolating the density within the transect area (2.9 boas per hectare) to the entire island, the model provides an estimate of 20 boas on the island (95 percent confidence interval 13–39). This number is lower than earlier unpublished survey results; however, direct comparisons cannot be made with past surveys because of different survey and analytical methodologies (Service 2022, p. 23). The previous efforts in 1993 had marked over 250 snakes in Cayo Diablo (Tolson 1996b, p. 411),

with an estimate of approximately 500 boas in the cay. Because of the protected and exotic-mammal-free state of the habitat, but with potentially declining numbers, this Cayo Diablo population is considered to have moderate resiliency to demographic and environmental stochastic events and disturbances (*e.g.,* fluctuations in demographic rates, variation in climatic conditions, illegal human activities).

The USVI Cay population, also on a protected offshore island with no exotic mammals, was also determined to have moderate resiliency. Previous survey efforts from 2004 resulted in a population estimate of 168 snakes (Tolson 2005, p. 9). Recent surveys have revealed a potential decline in abundance and the loss of two prey species (Smith 2018ab, entire), possibly as a result of density dependence as the population approached carrying capacity after reintroduction. Over two separate survey efforts in 2018, researchers found a total of 64 boas, including 10 recaptures (Smith 2018ab, entire). Additional surveys are being conducted by the VIDPNR, and although we do not have the results, additional boas have been detected (VIDPNR 2022, unpublished data).

The Culebra population, with some portions of habitat protected as part of Culebra National Wildlife Refuge, was determined to have moderately low resiliency. Surveys in 2018 found no boas (Island Conservation 2018, p. 20); however, two individuals were documented in February 2019 within the Culebra National Wildlife Refuge (Puente-Rolón and Vega-Castillo 2019, p. 18). In October 2019, another individual was confirmed in an area outside of the refuge (Román 2019, pers. comm.).

Three of the populations (Río Grande, Culebra, and St. Thomas) with moderately low or low resiliency occur on larger and higher elevation islands, which provide more protection from storm surges, but have more human–boa interactions, habitat loss and fragmentation from development, and exotic cats and rats. Recent surveys in 2018 on Río Grande found three boas (three survey nights) (Island Conservation 2018, p. 20). For St. Thomas, there have been no recent systematic surveys for the species as much of eastern St. Thomas is inaccessible due to private ownership or impenetrable habitat. Previous uncertain conservative estimates for this population ranged from 300 to 400 individuals (Tolson 1991, p. 12) to fewer than 100 individuals based on effective population size estimates (Reynolds et al. 2015, p. 498).

The remaining Cayo Ratones population is classified as not having resiliency because of the recolonization of rats on the island and subsequent declining trend of boas, which we presume to be extirpated, as no boas were detected during recent survey efforts conducted in April 2018 and September 2021.

Representation

A rangewide genetic analysis of Virgin Islands boa showed that there was little genetic variation within the species (Rodríguez-Robles et al. 2015, p. 150), supporting the idea that there is only one representative unit of Virgin Islands boa. However, each sampled island, and each sampled locality within the same island, had unique mtDNA haplotypes, indicating a lack of gene flow between islands/populations (Rodríguez-Robles et al. 2015, p. 150). These results suggest that each population has a different genetic signature, perhaps as a result of genetic adaptations to their local environment, or genetic drift with increasing isolation of small populations. The reintroduction program took this view, and managed captive populations sourced from Cayo Diablo and St. Thomas separately (Tolson 1996b, p. 412). To minimize the chances of introducing individuals poorly suited to their new environment, the captive population sourced from Cayo Diablo founded the reintroduced population on nearby Cayo Ratones, and the captive St. Thomas population founded the reintroduced population on the nearby USVI Cay (Tolson 1996b, p. 412).

In addition to genetic differences, the six populations also have noticeable phenotypic differences. These are not just limited to coloration differences between USVI and Puerto Rican populations (Tolson 1996b, p. 412); Cayo Diablo reportedly has lighter coloration than the Río Grande and Culebra populations (Tolson 2018, pers. comm.). The Río Grande population also occurs in a different habitat type (subtropical moist forest) than the others (subtropical dry or littoral forest; Tolson 1996b, p. 410).

In light of this information, we considered each of the four natural populations in Puerto Rico and USVI as a representative unit (see table 2, below). The Cayo Diablo population is considered to have moderate resiliency. As this was the source for the now presumed extirpated Cayo Ratones population, there is only one population representing the Cayo Diablo genetic signature. The USVI Cay population was sourced from St. Thomas, so there are two populations with St. Thomas representation, with neither considered to have high resiliency. The other two natural populations, Culebra and Río Grande, both characterized as having moderately low or low resiliency, have not been used for captive breeding and reintroduction, and so have no additional populations on other islands with the same genetic characteristics. Overall, two of four representative units have at least one moderately resilient population.

TABLE 2—REPRESENTATION: NUMBER OF VIRGIN ISLANDS BOA POPULATIONS OF EACH RESILIENCY CLASS IN EACH REPRESENTATIVE UNIT, CORRESPONDING TO NATURAL (NOT INTRODUCED) POPULATIONS, WHICH THEMSELVES CORRESPOND TO UNIQUE GENETIC SIGNATURES

Natural population (genetic signature)	High or moderately high resilience populations	Moderate resilience populations	Low or moderately low resilience populations or extirpated
Cayo Diablo	0	1	1
Culebra	0	0	1
Río Grande	0	0	1
St. Thomas	0	1	1

While currently we could consider the USVI Cay reintroduced population (currently with moderate resiliency) to be a redundant population sharing the same genetic signature and adaptive potential as its source population, all

islands occupied by Virgin Islands boa are isolated from each other. Without human-mediated movement of boas between islands, reintroduced populations are expected to diverge genetically from their source populations over time, and may at some point in the future (decades to centuries; Reynolds et al. 2015, entire) be different enough to be considered their own unique representative unit.

Redundancy

Redundancy describes the ability of a species to withstand catastrophic events. Measured by the number of populations, their resiliency (ability of a species to withstand environmental and demographic stochasticity (*e.g.,* wet or dry years)) and their distribution (and connectivity), redundancy gauges the probability that the species has a margin of safety to withstand or return from catastrophic events (such as a rare destructive natural event or episode involving many populations).

The exact historical distribution of the Virgin Islands boa is unknown, but its present disjointed distribution suggests that it was once more widely distributed across small islands within its range, which have been subject to local extirpations from habitat degradation, invasive species, and historical climate and sea level changes. However, for current redundancy, we identified the five populations in Puerto Rico and USVI. As discussed above, two of these populations are considered to have a moderate level of resiliency, which provides some ability to withstand the effects of catastrophic events. However, these populations are considered small and potentially declining or trend unknown. Therefore, overall redundancy for the species is low.

Current Condition Summary

Of the six assessed populations, the Cayo Diablo population and the USVI Cay population have moderate resiliency and the Culebra population has moderately low resiliency. The other three assessed populations currently have low resiliency or are likely extirpated (Cayo Ratones). Redundancy for the species includes populations on five islands in Puerto Rico and USVI, and possibly more in the BVI, although islands in the BVI are not part of this assessment. Representation consists of four representative units, one of which has two populations representing its genetic signature, and two of the four units have populations with moderate levels of resiliency.

The Virgin Islands boa has demonstrated some ability to adapt to changing environmental conditions over time from both anthropogenic threats (*e.g.,* habitat disturbance due to development) and natural disturbances (*e.g.,* predation and hurricanes). Compared to the species' distribution at the time of listing (see 35 FR 16047; October 13, 1970), which included three locations (Puerto Rico, St. Thomas, and Tortola), the species currently has five populations (potentially more if others are eventually confirmed). Two of the five current populations exhibit moderate levels of resiliency, whereas three exhibit moderately low to low resiliency. One other assessed population is presumed extirpated (Cayo Ratones).

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. Our assessment of the current and future conditions encompasses and incorporates the threats individually and cumulatively. Our current and future condition assessment is iterative because it accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

Future Conditions

Because we determined that the current condition of the Virgin Islands boa is consistent with an endangered species (see *Determination of Status,* below), we are not presenting the results of the future scenarios in this withdrawal. For more information on the future condition, future threats, and future scenarios for the Virgin Islands boa, see the SSA report (Service 2022, pp. 36–60).

Determination of Virgin Islands Boa's Status

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of ''endangered species'' or ''threatened species.'' The Act defines an ''endangered species'' as a species that is in danger of extinction throughout all or a significant portion of its range, and a ''threatened species'' as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of ''endangered species'' or ''threatened species'' because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

Status Throughout All of Its Range

Compared to the species' distribution at the time of listing (see 35 FR 16047; October 13, 1970), which included three locations (Puerto Rico, St. Thomas, and Tortola), Virgin Islands boa currently has five extant populations (potentially more if others are eventually confirmed), and one presumed extirpated population. None of the populations exhibit high resiliency; only two of the six current populations exhibit moderate level of resiliency (Cayo Diablo and USVI Cay), one has moderately low resiliency (Culebra), two exhibit low resiliency (Rio Grande and St. Thomas), and one is considered presumed extirpated (Cayo Ratones). Recent surveys indicate that current population trend estimates are either declining, potentially declining, considered rare, or unknown and most populations are small or considered rare (Service 2022, p. 30). Three of the populations are currently impacted by habitat loss and degradation by development, three populations are at high risk from storm surges, and three of five populations are under imminent threat by exotic mammal predation. The species does not have enough current redundancy, lacking highly resilient populations and having only two moderately resilient populations; thus, the species is at risk from catastrophic events. In addition, as the species lacks multiple resilient populations that contribute to the genetic diversity of the species, thus limiting species representation or overall future adaptive capacity.

In summary, due to the new information we received during both of the September 30, 2020, proposed rule's public comment periods and at the May 12, 2021, public hearing, we find that there is no longer sufficient evidence to justify reclassifying the Virgin Islands boa as a threatened species, and the

species still meets the Act's definition of an endangered species. The new information included the probable extirpation of Virgin Islands boas due to colonization of rats on Cayo Ratones, and an error in calculations affecting the current resiliency score for the Cayo Diablo population. Based on our revised SSA report (Service 2022, entire) incorporating this new information, estimates of current resiliency for the Virgin Islands boa are low, as are estimates for representation and redundancy. The Virgin Islands boa faces a variety of ongoing threats from habitat loss and degradation from development, introduced predators, SLR and a changing climate, and public attitudes towards snakes. Given current rates of resiliency, populations are vulnerable to extirpation from stochastic events, in turn, resulting in concurrent losses in representation and redundancy. For these reasons, the Virgin Islands boa is in danger of extinction throughout its range.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. We have determined that the Virgin Islands boa is in danger of extinction throughout all of its range and accordingly did not undertake an analysis of any significant portion of its range. Because the Virgin Islands boa warrants listing as endangered throughout all of its range, our determination does not conflict with the decision in *Center for Biological Diversity* v. *Everson,* 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), which vacated the provision of the Final Policy on Interpretation of the Phrase ''Significant Portion of Its Range'' in the Endangered Species Act's Definitions of ''Endangered Species'' and ''Threatened Species'' (79 FR 37578; July 1, 2014) providing that if the Service determines that a species is threatened throughout all of its range, the Service will not analyze whether the species is endangered in a significant portion of its range.

Determination of Status

Our review of the best available scientific and commercial information indicates that the Virgin Islands boa continues to meet the Act's definition of an endangered species. Therefore, in accordance with section 4(b)(6)(A)(i)(IV) of the Act, we withdraw our proposed rule to reclassify the Virgin Islands boa as a threatened species with a rule issued under section 4(d) of the Act.

References Cited

A complete list of references cited in this document is available on the internet at *https://www.regulations.gov* and upon request from the Caribbean Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this document are the staff members of the Fish and Wildlife Service's Species Assessment Team and the Caribbean Ecological Services Field Office.

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Martha Williams,

Director, U.S. Fish and Wildlife Service.

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