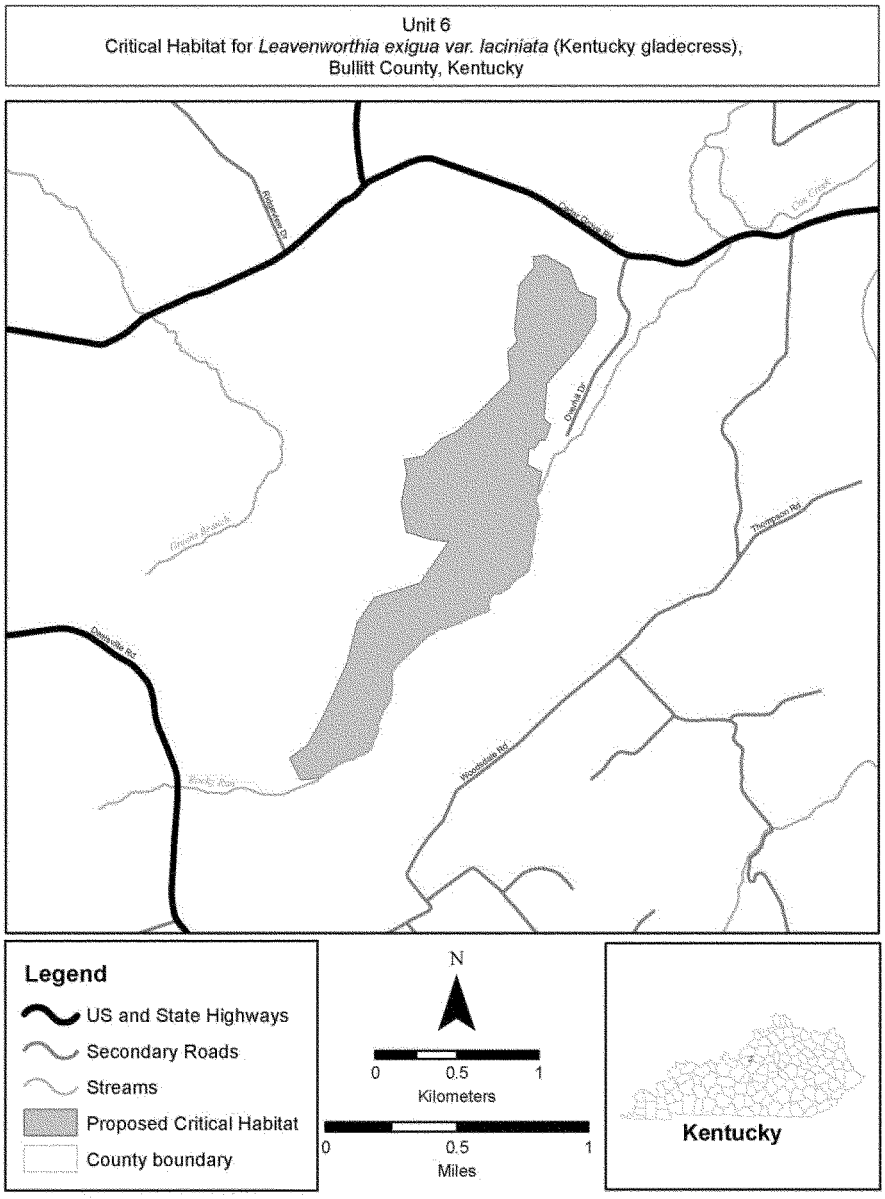

Dated: May 14, 2013.

Rachel Jacobson,

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 2013–12102 Filed 5–23–13; 8:45 am]

BILLING CODE 4310–55–C

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS–R4–ES–2013–0069; 4500030113]

RIN 1018–AY73

Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for Leavenworthia exigua var. laciniata (Kentucky Glade Cress)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, propose to list *Leavenworthia exigua* var. *laciniata* (Kentucky glade cress), as threatened under the Endangered Species Act of 1973, as amended (Act). The effect of this regulation, if finalized, would be to conserve *Leavenworthia exigua* var. *laciniata* under the Act.

DATES: We will accept comments received or postmarked on or before July 23, 2013. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES** section, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in the **ADDRESSES** section by July 8, 2013.

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 Docket No. FWS–R4–ES–2013–0069, which is the docket number for this rulemaking. You may submit a comment by clicking on ''Comment Now!''

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R4–ES–2013–0069; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We request that you send comments only by the methods described above. We will not accept email or faxes. We will post all comments on *http://www.regulations.gov.* This generally means that we will post any personal information you provide us (see the Public Comments section below for more information).

FOR FURTHER INFORMATION CONTACT: Lee Andrews, Field Supervisor, U.S. Fish and Wildlife Service, Kentucky Ecological Services Field Office, J.C. Watts Federal Building, 330 W. Broadway Rm. 265, Frankfort, KY 40601, by telephone 502–695–0468 or by facsimile 502–695–1024. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if we intend to list a species as endangered or threatened throughout all or a significant portion of its range, we are required to promptly publish a proposal in the **Federal Register** and make a determination on our proposal within 1 year. Critical habitat shall be designated, to the maximum extent prudent and determinable, for any species determined to be an endangered or threatened species under the Act. Listing a species as an endangered or threatened species and designations and revisions of critical habitat can only be completed by issuing a rule. Elsewhere in today's **Federal Register**, we propose to designate critical habitat for *Leavenworthia exigua* var. *laciniata* under the Act.

This rule consists of: A proposed rule to list *Leavenworthia exigua* var. *laciniata* (Kentucky glade cress) as threatened. *Leavenworthia exigua* var. *laciniata* is a candidate species for which we have on file sufficient information on biological vulnerability and threats to support preparation of a listing proposal, but for which development of a listing regulation has been precluded by other higher priority listing activities. This rule reassesses all available information regarding status of and threats to *Leavenworthia exigua* var. *laciniata.*

The basis for our action. Under the Act, we can determine that a species is an endangered or threatened species based on any of five 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.

We have determined that the species is threatened by Factors A and E:

- The loss and degradation of glade habitats supporting *L. exigua* var. *laciniata.* Activities or factors negatively impacting *L. exigua* var. *laciniata* include: development, roads, utilities, conversion to lawns, horseback riding, off-road vehicle use, and changes in grazing practices and forest encroachment.
- Other natural or manmade factors, including narrow range, low genetic diversity, and small population size.

We will seek peer review. We are seeking comments from knowledgeable individuals with scientific expertise to review our analysis of the best available science and application of that science and to provide any additional scientific information to improve this proposed rule. Because we will consider all comments and information received during the comment period, our final determinations may differ from this proposal.

Information Requested

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 the public, 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) *Leavenworthia exigua* var. *laciniata*'s biology, range, and population trends, including:

(a) Habitat requirements for feeding, breeding, and sheltering;

(b) Genetics and taxonomy;

(c) Historical and current range including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat or both.

(2) The factors that are the basis for making a listing determination for a species under section 4(a) of the Act (16 U.S.C. 1531 *et seq.*), which are:

(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.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and existing regulations that may be addressing those threats.

(4) Additional information concerning the historical and current status, range, distribution, and population size of this species, including the locations of any additional populations of this species.

(5) Any information on the biological or ecological requirements of the species and ongoing conservation measures for the species and its habitat.

(6) Information on the projected and reasonably likely impacts of climate change on *L. exigua* var. *laciniata.*

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.

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, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made ''solely on the basis of the best scientific and commercial data available.''

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

If you submit information via *http://www.regulations.gov,* your entire submission—including any personal identifying information—will be posted on the Web site. 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.* Please include sufficient information with your comments to allow us to verify any scientific or commercial information you include.

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, Kentucky Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Previous Federal Actions

We identified *L. exigua* var. *laciniata* as a Category 1 species in a notice of review published in the **Federal Register** on July 1, 1975 (40 FR 27824). It remained a Category 1 species in subsequent notices including December 15, 1980 (45 FR 82480–82569), November 28, 1983 (48 FR 53640–53670), September 27, 1985 (50 FR 39526–39584), February 21, 1990 (55 FR 6184–6229) and September 30, 1993 (58 FR 51144–511920). Category 1 species were those taxa for which the Service had substantial information on file on the biological vulnerability and threats to support the appropriateness of proposing to list the taxa as threatened or endangered. However, the large number of category 1 species created a backlog for the development and publication of the proposed rules. Assigning categories to species was discontinued in 1996, and subsequently only species for which the Service had sufficient information on biological vulnerability and threats to support issuance of a proposed rule were regarded as candidate species (61 FR 7596). These candidate species were also assigned listing priority numbers (LPNs) based on immediacy and the magnitude of threat, as well as their taxonomic status. *Leavenworthia exigua* var. *laciniata* was first identified as a candidate species in the **Federal Register** on November 9, 2009 (74 FR 57804–57878) with an LPN of 3. It retained that LPN in 2010 (75 FR 69222–69294; November 10, 2010) and 2011 (76 FR 66370–66439; October 26, 2011) **Federal Register** notices of candidate review.

Elsewhere in today's **Federal Register**, we propose to designate critical habitat for *L. exigua* var. *laciniata* under the Act.

Status Assessment for *L. exigua* var. *laciniata*

Background

In this section of the proposed rule, we discuss only those topics directly relevant to the listing of *L. exigua* var. *laciniata* as threatened.

Species Information

L. exigua var. *laciniata* is an annual member of the mustard family (*Brassicaceae*) known only from two counties in Kentucky. Plants are about 5 to 10 cm (1.97 to 3.94 in) in height with early leaves that are simple with a slender petiole (central stalk of the leaf) and mature leaves that are sharply lobed (appear as disconnected pieces along the main leaf vein), somewhat squarish at the ends and arranged as a rosette (circular cluster of leaves) (Evans and Hannan 1990, p. 5). The flowers are small (3 to 6 mm (0.12 to 0.24 in)), white to lilac in color with four petals, green rather than lavender sepals (the outer of two floral leaves that make up the flower), and leafless stems. Leaves typically disappear by the time the plant is in fruit (Evans and Hannan 1990, p. 6). The fruit is flat and pod-shaped.

Taxonomy and Species Description

R. C. Rollins (1963, p. 75) described *L. exigua* var. *laciniata* as a new taxon in his monograph of the genus *Leavenworthia.* Rollins (1963, pp. 51, 75) stated that the rather extensive populations of *L. exigua* located in Bullitt County, Kentucky, exhibited certain distinguishing characteristics compared to populations in Tennessee, northern Alabama, and northern Georgia. The Kentucky plants, which he described as *L. exigua* var. *laciniata,* had longer styles (usually slender and elongate extension of the ovary), green instead of lavender sepals, and more sharply divided leaves than the typical *L. exigua* var. *exigua.* Kral (1983, pp. 10–18) supported Rollins' recognition of the taxon as a distinct variety. Kartesz (1991, p. 449) recognized the taxon by including it in his vascular flora checklist for the United States.

Habitat

L. exigua var. *laciniata* appears to be adapted to environments with shallow soils interspersed with flat-bedded, Silurian dolomite and dolomitic limestones, which is an uncommon geological formation in Kentucky (Rollins 1963, p. 5; Evans and Hannan 1990, pp. 8–9). The soil on these horizontally bedded limestone areas is often only a few inches in depth or may be completely lacking in some areas (Rollins 1963, p. 5). Because of the thin soils and underlying limestones, these habitats, called cedar or limestone glades, are extremely wet from late winter to early spring and quickly become dry in May and June. The natural habitat for *L. exigua* var. *laciniata* is these cedar glades (Baskin and Baskin 1981, p. 243), but the taxon is also known from overgrazed pastures, eroded shallow soil areas with exposed bedrock, and areas where the soil has been scraped off the underlying bedrock (Evans and Hannan 1990, p. 8). *L. exigua* var. *laciniata* does not appear to compete well with other vegetation and is shade intolerant (Evans and Hannan 1990, p. 14).

Baskin and Baskin noted in 1985 (p. 378) that there were few, if any, undisturbed glades remaining in the southeastern United States and that most of these glades had been used for pasture at some point. This is true for the range of *L. exigua* var. *laciniata* (D. White, pers. obs., 2012). Like other *Leavenworthia* spp. (Baskin and Baskin 1985, p. 378), *L. exigua* var. *laciniata* occurs in highly disturbed glades as well as lightly disturbed glades (KSNPC 2012, pp. 1–108). Many of these highly degraded glades are part of larger pasture areas. As the disturbance to the glade increases, so does the number of species of winter annuals (Baskin and Baskin 1985, p. 378). Within the range of *L. exigua* var. *laciniata* some of these highly degraded glades are now part of residential and commercial lawns (KSNPC 2012, pp. 1–108; pers. obs.).

The taxon is not restricted to any specific soil type (Evans and Hannan 1990, p. 8). It appears to be more dependent upon lack of soil (and plant competition) and proximity of rock near or at the surface. It occurs primarily in open gravelly soils around rock outcrops in an area of the Caneyville-Crider soil association (Whitaker and Waters 1986, p. 16). Within this soil association, *L. exigua* var. *laciniata* occurs on the following mapped soil types: Caneyville-rock outcrop complex, 6 to 40 percent slope; Caneyville silt loam, 6 to 12 percent slope, eroded; Caneyville-Beasley-rock outcrop complex, 12 to 30 percent slope; Faywood-Beasley-rock outcrop complex, 25 to 60 percent slope; and Beasley silty clay loam, 6 to 12 percent slopes, severely eroded (Whitaker and Waters 1986, pp. 26–27, 29–31, 40–41; Evans and Hannan 1990, p. 8). Where *L. exigua* var. *laciniata* occurs on soils without bedrock near the surface, the soil is usually eroded to severely eroded with 25 to 100 percent of the original surface gone (Evans and Hannan 1990, p. 8).

Biology

The life cycle is nearly identical for all members of the genus *Leavenworthia* (Baskin and Baskin 1981, p. 246; Solbrig 1971, p. 155). All are winter annuals, endemic to cedar glades or glade-like habitats (Baskin and Baskin 1985, p. 377). For *L. exigua* var. *laciniata,* seed germination occurs in September and October (Baskin and Baskin 1981, p. 246). Baskin and Baskin (1971, p. 33; 1972, p. 1716) found that freshly harvested *Leavenworthia* spp. seeds were dormant at any temperature and that, once dormancy was broken, germination was prevented by high temperatures, regardless of moisture levels. This characteristic seems to protect *Leavenworthia* spp. from germination following short summer showers that temporarily moisten the glade habitats (Baskin and Baskin 1985, p. 381) and allows it to avoid the hot, dry summer (Baskin and Baskin 1972, p. 1720). All seeds may not germinate each fall, allowing seed reserves to accumulate (Baskin and Baskin 1981, p. 246). A study by Baskin and Baskin (1981, p. 247) found collected *L. exigua* var. *laciniata* seeds germinated in a greenhouse over four autumns, although at drastically reduced numbers after the first year (4,907 in 1976, 190 in 1977, 156 in 1978, and 71 in 1979).

L. exigua var. *laciniata* persist through the winter as rosettes, and flowering begins in late February to early March (Baskin and Baskin 1981, p. 246; Evans and Hannan 1990, p. 11). Seeds are set and plants die in April and May as the glade habitats dry out (Baskin and Baskin 1985, pp. 378–379; Solbrig 1971, p. 155). At maturity, most of these seeds are dormant and will not germinate following dispersal, even if the soils are moist (Baskin and Baskin 1985, p. 379). During the summer these seeds undergo physical changes known as after-ripening and move from dormancy to conditional dormancy and, finally, become nondormant for fall germination (Baskin and Baskin 1985, p. 379).

The cyclical moisture availability on the thin soils of glades and other habitats acts to limit the number of plant species that can tolerate these extremes. Consequently, very few other plants occur on undisturbed glades (Evans and Hannan 1990, pp. 9–10). Common associates of *L. exigua* var. *laciniata* include *Northoscordum bivalve* (false garlic), *Scutellaria parvula* (little skullcap), *Sporobolus vaginiflorus* (poverty dropseed), *Viola septemloba* var. *egglestonii* (cedar glade violet), and *Houstonia canadensis* (Canadian bluets) (Baskin and Baskin 1981, p. 245; Evans and Hannan 1990, p. 10). In areas where the glades have been disturbed, native and introduced weedy species (annual and perennial) have invaded glades from nearby roads, fields, and waste areas (Baskin and Baskin 1985, p. 375).

Areas surrounding glade openings tend to have deeper soils that support plants with prairie/barren affinities like *Schizochyrium scoparium* (little bluestem), *Lithospermum canescens* (hoary pocoon), *Viola pedata* (birdfoot violet), *Echinacea pallida* (pale purple coneflower), and *Liatris aspera* (tall gayfeather) (White 2004, p. 1).

Historical Range/Distribution

L. exigua var. *laciniata* is a Kentucky endemic and is known from only northeastern Bullitt County and extreme southeastern Jefferson County (Evans and Hannah 1990, p. 6; Jones 2005, p. 294; White 2004, p. 1). Populations of *L. exigua* var. *laciniata* are disjunct (separated) from populations of the other two varieties of *L. exigua* that occur in Alabama, Georgia, and Tennessee (Rollins 1963, p. 5, NatureServe Explorer 2012, p. 1).

Information regarding the historical (prior to 1990) range and distribution of *L. exigua* var. *laciniata* is largely lacking. The original description by Rollins (1963, p. 75) notes a single specimen collected in a cedar glade in Bullitt County and references an earlier specimen collected in 1954 by H. A. Korfhage from an open field in Bullitt County. No other historical information regarding this taxon is available. The species is known from 84 occurrences including historical and current locations.

Long-term, quantitative monitoring data are unavailable for this taxon, but the Kentucky State Nature Preserves Commission (KSNPC) has recorded qualitative estimates of occurrence size and quality at 3- to 5-year intervals. These evaluations are used to rank each occurrence with respect to size and viability, condition of the habitat, and degree of threat. As an annual species, plant numbers of *L. exigua* var. *laciniata* can naturally fluctuate greatly from year to year based on a variety of factors such as seed production in past years, germination rates, and environmental conditions (temperature, rainfall) (Bush and Lancaster 2005, p. 1). As such, habitat conditions often had a greater influence on the evaluation of habitat viability than population numbers (Deb White, pers. comm., 2012). Element occurrences have been ranked into the following categories: A (excellent estimated viability), B (good estimated viability), C (fair estimated viability), D (poor estimated viability), O or F (field surveys failed to relocate the plants at the site), or X (occurrence is considered extirpated). An element occurrence (EO) is the basic conservation unit used by KSNPC in assessing species for the Natural Heritage Program. Nature Serve defines an EO as ''an area of land and/or water where a species or ecological community is or was present'' (NatureServe 2004, p. 1). The terms element occurrence and occurrence are used interchangeably throughout this document.

Evans and Hannan (1990, pp. 9, 19–20) conducted the first rangewide survey for the taxon and documented a total of 71 historical and extant occurrences in Bullitt and Jefferson Counties. At that time, approximately 70 percent (42/60) of the extant occurrences were ranked as A, B, or C in quality (Evans and Hannan 1990, pp. 24–94). White (1994, pp. 2–7) reevaluated the status of the taxon in April 1994 by visiting the occurrences documented by Evans and Hannan (1990, pp. 19–20) and providing updated ranks and descriptions of habitat conditions. White (1994, p. 4) recorded a decline in rank quality at 41 percent of the occurrences, with some of the occurrences decreasing by two levels of rank quality. Sixty-eight percent of these sites were degraded directly by human-related activities (*e.g.,* house construction, lawn development, changes in grazing practices). Over 60 percent of the occurrences had quality ranks of ''D'' or were considered extirpated (White 1994, p. 4).

The last rangewide survey was completed by KSNPC at 50 known occurrences, in April and early May of 2004 (White 2004, pp. 1–3). The number of plants and their condition (including flowering and fruiting) and general site conditions were recorded at the known occurrences. The results of these surveys were compared to results of previous surveys conducted in 1990 (Evans and Hannan 1990, pp. 19–20) and 1994 (White 1994, pp. 2–7) for the subset of occurrences (49) that were visited in all 3 years.

Of the 49 occurrences surveyed in all 3 years, 37 (76 percent) had decreased in quality between 1990 and 2004. This decrease in quality was commonly due to a reduction in the number of plants and an accompanying decline in habitat quality as the character of the area changed from rural to residential. Of those 37 occurrences that declined, more than 30 percent (16 of 37) were extirpated or unable to be relocated. Table 1 below illustrates the decline in these 49 occurrences and their viability over this 14-year period. In 1990, 69

percent of these occurrences were considered to have a viability of fair or better. In 1994, this amount had dropped to 49 percent; and in 2004 it was down to only 14 percent. These evaluated 49 occurrences represent approximately 60 percent (49 of 81) of the total population known in 2004. Since that time three additional occurrences have been identified, bringing the total known occurrences (historical and extant) to 84.

TABLE 1—COMPARISON OF STATUS RANKS FOR 49 OCCURRENCES OF *Leavenworthia exigua* var. *lacianata*

Rank	Viability	1990	1994	2004
A	Excellent.	4	3	0
B	Good	8	3	3
C	Fair	22	18	4
D	Poor	13	22	26
F	Not Located	0	0	7
X	Extirpated.	2	3	9
Total ..	.....	49	49	49

Current Range/Distribution

Based on our data, the species is currently limited to 61 extant occurrences. A total of 23 historical occurrences are considered extirpated or were not located by KSNPC during the most recent surveys (KSNPC 2012, pp. 1–108). Of the 61 extant occurrences, 43 are of poor quality (D-rank; 70 percent). Approximately half of these poor-quality occurrences are located on residential lawns, with few, if any, native plants. These lawn occurrences are not believed to be sustainable, due to competition from lawn grasses and lawn maintenance and improvement activities. Threats associated with lawns are further discussed under Factor A. A summary of current occurrence ranks for all known sites is listed in Table 2 below.

Over the last 20 years, KSNPC has systematically used aerial photography to identify potential *L. exigua* var. *laciniata* glade habitat in areas of Laurel and other suitable types of limestone bedrock with the intent of identifying new populations within the known range and exploring potential areas to expand the known habitat. Very little potential habitat fitting these parameters has not been surveyed. Also, this part of the State is heavily explored because it is so populated and accessible; therefore, discovering any additional limestone glades, the only habitat known for this species, in another part of the region is very unlikely (D. White, pers. comm., 2012).

TABLE 2—2012 STATUS RANKS FOR *L. exigua* var. *laciniata*

Rank	Viability	Number Occurrences
A	Excellent	1
B	Good	4
C	Fair	13
D	Poor	43
F	Not Located	7
X	Extirpated	16
Total ..	.....	84

Land Ownership

The majority of land on which *L. exigua* var. *laciniata* occurs is privately owned, although some significant occurrences are located on public land. The taxon does occur within two protected areas in eastern Bullitt County: Pine Creek Barrens Preserve, a 110 acre (44.5 ha) property owned and managed by the Kentucky Chapter of The Nature Conservancy (TNC), and Apple Valley Glades Conservation Area, with 46 acres (18.6 ha) owned by KSNPC and another 45 acres (18.2 ha) protected under a permanent conservation easement held by KSNPC.

Additionally, significant private landownerships within the range of *L. exigua* var. *laciniata* should be noted. Rocky Run Glade Registered Natural Area is a 25-acre (10.1 ha) privately owned tract of land in eastern Bullitt County. Also, the Future Fund Land Trust and its associated endowment were established to create an extensive ''[Fredrick Law] Olmsted-like'' greenway and park system along Floyds Fork in Jefferson County. The Future Fund Land Trust and its associated endowment own nearly 500 acres (202.3 ha) within the known range of *L. exigua* var. *laciniata,* including parcels with all or portions of three known occurrences.

Another private, nonprofit group, 21st Century Parks, is also working along the Floyds Fork corridor and owns several parcels with the taxon's range totaling almost 600 acres (242.8 ha) and containing part or all of two occurrences.

Finally, a publicly owned occurrence is located within McNeely Lake Park, a site in southern Jefferson County owned by Louisville Metro Parks.

TABLE 3—SIGNIFICANT LANDOWNERSHIP INFORMATION FOR OCCURRENCES OF *L. exigua* var. *laciniata*

[From Kentucky State Nature Preserves Commission 2012]

Site	Landowner	Current viability rank	Most recent population assessment (year)
Pine Creek Barrens	The Nature Conservancy	A	6,023 plants (2011).
Apple Valley Glade	KSNPC; Private w/conservation easement	B	3,192 plants (2011).
McNeely Lake Park	Louisville Metro Parks	D	no estimate (2007).
Rocky Run	Private	B	no estimate (2008).
Floyds Fork area (two occurrences)	Future Fund Land	B	over 20,000 plants (2011).
		D	thousands of plants (2011).
Floyds Fork area	21st Century Parks	C	325 plants (2011).

Summary of Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on any of the following five 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; and (E) other natural or manmade factors affecting its continued existence. Listing may be warranted based on any of the above threat factors, singly or in combination. Each of these factors is discussed below.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Habitat destruction and modification have been the primary cause of population declines and extirpations of the *L. exigua* var. *laciniata* (KSPNC 2012, pp. 1–108) occurrences. Filling and/or grading of glade habitat for residential and commercial construction has resulted in or contributed to the loss of at least seven known populations (KSPNC 2012, pp. 1–108). Conversion of glade areas to landscaped settings such as golf courses and residential lawns by filling, grading, and seeding of lawn grasses has impacted an additional five occurrences. Nearly a third of the extant occurrences are of low quality and occur in managed (e.g., residential, commercial, and agricultural) landscapes. Many of the extant occurrences are threatened by encroaching lawn grasses and nonnative plants that compete with *L. exigua* var. *laciniata* for space and nutrients (D. White, pers. comm., 2012). Winter annuals, such as *Leavenworthia* spp., are documented to be poor competitors (Rollins 1963, p. 17, Kral 1983, p. 2; Baskin and Baskin 1988, p. 835). Shading from shrubs and trees makes habitats unsuitable for *L. exigua* var. *laciniata,* which is shade-intolerant (Baskin and Baskin 1988, p. 837). Recreational activities such as horseback riding and off-road vehicle (ORV) use can change water flow patterns and damage fragile glade habitats. Construction and maintenance of linear infrastructure such as roads and utility lines can also destroy or degrade glade cress habitat. These factors will be discussed in more detail below.

Development

Development was recognized by Kral (1983, p. 10) as a primary threat to *Leavenworthia* spp., and this is true for *L. exigua* var. *laciniata.* The entire range of *L. exigua* var. *laciniata* has recently undergone rapid residential and commercial development as the greater Louisville metropolitan area expanded southward into southern Jefferson and northeastern Bullitt Counties. Census data available from 1960 to 2010 show that the population growth in Bullitt County greatly exceeds that of the state and of neighboring Jefferson County (SSDAN 2012, pp. 1–3) (see Table 4 below).

TABLE 4—POPULATION TRENDS OF KENTUCKY, BULLITT COUNTY, KY, AND JEFFERSON COUNTY, KY

	Percent population growth				
	1960–1970 (percent)	1970–1980 (percent)	1980–1990 (percent)	1990–2000 (percent)	2000–2010 (percent)
Kentucky	5.94	13.73	0.67	9.67	7.36
Bullitt County	65.90	66.14	9.74	28.74	21.36
Jefferson County	13.77	−1.45	−2.93	4.31	6.85

Residential

New residential developments have been and are expected to continue to be constructed throughout the taxon's range, along with associated roads and utilities construction. As shown in Table 4, from 2000 to 2010, Bullitt County's population increased by 21.4 percent, a significant increase compared to Kentucky's overall average growth rate of 7.4 percent (SSDAN 2012, pp. 1–3). The population growth of Jefferson County seems to have stabilized over the last 20 years SSDAN 2012, pp. 1–3), but much of the land in southern Jefferson County that contained suitable glade cress habitat has already been converted to residential, agricultural, and commercial land uses, as seen by viewing the 2006 National Land Cover Dataset (Fry *et al.* 2011).

The burst of the housing bubble in 2007 seems to have slowed the residential expansion within Bullitt County. Residential building permits (single and multifamily) averaged only 253 between 2008 and 2011, while that average during the peak of the housing bubble (2004–2006) was 698 building permits per year (U.S. Census Bureau 2012, pp. 1–12). However, although residential development has slowed, we expect it will continue as the population continues to grow.

Commercial

The recent residential development in Bullitt County, specifically the Shepherdsville area south of Louisville, has been spurred by similar growth in the manufacturing and support service industries, which support 45 percent of the industrial employment in Bullitt County (KY Cabinet for Economic Development 2012, p. 1). The close proximity to the Louisville International Airport and United Postal Service (UPS) all-point international hub has made Bullitt County a prime location for manufacturing and support service firms. Since 2000, the number of these firms within Shepherdsville grew from 5 to 18 and includes large distribution centers for companies such as Alliance Entertainment, Gordon Food Services, Zappos, and others (KY Cabinet for Economic Development 2012, pp. 1–2). Four of these 13 new firms established in Bullitt County in 2008 or later, after the burst of the housing bubble.

Residential and commercial development activities can impact *L. exigua* var. *laciniata* during construction by destroying or modifying suitable habitat. At least 5 of the 16 extirpated *L. exigua* var. *laciniata* occurrences were eliminated during construction of homes or facilities. Even if the structure is not constructed on top of *L. exigua* var. *laciniata* or its habitat, grading and filling to level the site and soil compaction from the construction equipment can destroy or modify its habitat. Activities ancillary to residential and commercial construction such as roads, utilities, and lawn creation can also result in the destruction and modification of habitat for *L. exigua* var. *laciniata.* These other activities will be discussed in more detail below.

Roads

Many of the 61 extant *L. exigua* var. *laciniata* occurrences are found in close proximity to roads (KSPNC 2012, pp. 1–108). In the northern part of the range, most of the roads are small, local, and lead to residential areas. However, in the southwestern part of the range, near the community of Cedar Grove, many occurrences are located near larger state roads such as KY 1442 and KY 480.

A review of the Six-Year Highway Plan for Kentucky (KYTC 2006, pp. 19, 20, 69–92) and the associated web-based mapping tool (available at *http://maps.kytc.ky.gov/SYP/*) found 12 active projects within the range of *L. exigua* var. *laciniata,* ranging from new construction to bridge replacements. Four of these projects are for work on existing road sections where there are extant (1) or historic (3) *L. exigua* var. *laciniata* records near the road. There is

one new section of road planned through McNeely Lake Park where the alignment has not been finalized but the study area contains an extant population.

The majority of known roadside *L. exigua* var. *laciniata* occurrences are of poor quality with few individual plants and competition from nonnative species such as fescue (KSPNC 2012, pp. 1–108). While the obvious threat to *L. exigua* var. *laciniata* from road construction is destruction of habitat, impacts associated with habitat degradation when a road is constructed or maintained adjacent *to L. exigua* var. *laciniata* are less clear. Road rights-of-way are often planted with dense-growing, nonnative species such as fescue (KYTC 2012, p. 212–2)), that can outcompete *L. exigua* var. *laciniata.* Additionally, the soil erosion and changes in water runoff patterns associated with construction can alter soil and moisture conditions, making habitat unsuitable. Mowing in early spring as *L. exigua* var. *laciniata* is fruiting or before seed has reached maturity could crush plants before the seeds mature or cause seeds to fall prematurely, negatively impacting reproduction and next year's population. As a winter annual, *L. exigua* var. *laciniata* may also be susceptible to impacts associated with winter road maintenance activities such as snow plowing and application of salt or brine.

Utility Lines

Consultation with the Service on proposed utility work offers the opportunity to avoid or minimize utility impacts on the *L. exigua* var. *laciniata.* Construction and maintenance of utility lines (e.g., water, gas, electric, and sewer) can destroy or modify *L. exigua* var. *laciniata* habitat. Construction of new utility lines or maintenance of underground lines will most likely destroy habitat through excavation and backfilling of the glade area. Similarly, construction of substations or well pads can destroy habitat through the facility construction process. Additionally, herbaceous replanting of the ground disturbed during construction is commonly done with nonnative species such as fescue (J. Garland, pers. obs., 2012), which may compete with *L. exigua* var. *laciniata* for resources. Threats associated with fescue will be discussed under the subsection of ''Lawns'' below.

Vegetation management activities such as mowing and herbicide application for management of the utility right-of-way can also modify and degrade habitat for *L. exigua* var. *laciniata.* However, most of these vegetation management activities occur in the late spring and summer when *L. exigua* var. *laciniata* is dormant. Right-of-way management could benefit *L. exigua* var. *laciniata* by maintaining open habitat and reducing competition from plants that would be impacted by summer mowing and herbicide applications. Four known occurrences of *L. exigua* var. *laciniata* occur within utility rights-of-way, including one C-ranked, two D-ranked, and one F-ranked occurrences as identified above in Tables 1 and 2.

In 2010, the Service became aware of a sewer line project in southeastern Jefferson County (Louisville Metropolitan Sewer District (MSD) Broad Run interceptor). The proposed project corridor was adjacent to at least one known occurrence of *L. exigua* var. *laciniata,* and the project corridor appeared to contain other suitable habitat for the species. A field review of the project corridor by the Service, KSNPC, Palmer Engineering, and Louisville MSD was completed in April 2010 to determine if the species occupied the corridor or if suitable habitat was present. During the field review, the Service and KSNPC confirmed the presence of the species within the proposed sewer line corridor. Habitats for *L. exigua* var. *laciniata* were delineated in the field and mapped by Palmer Engineering. Louisville MSD agreed to relocate a portion of the sewer line to avoid adverse effects to these areas. In March 2011, the U.S. Army Corps of Engineers (USACE), Louisville District contacted the Service's Kentucky Field Office regarding potential adverse effects on the species within the project corridor. Silt fencing designed to protect *L. exigua* var. *laciniata* habitats had failed in at least two areas during construction, allowing sediment to leave the construction site and impact the species habitats. The USACE directed Louisville MSD to correct the failed silt fence within 48 hours, and corrective measures were taken. The site was visited by the Service in early April 2011; the silt fence had been repaired, and it appeared that *L. exigua* var. *laciniata* had not been harmed by the silt fence failure. No followup surveys have been completed to assess the long-term impacts to this population. Although direct effects were avoided in this example, it demonstrates how indirect impacts could occur due to proximity of the action to the *L. exigua* var. *laciniata* plants.

Lawns

Conversion of natural habitat to lawns is likely the single greatest threat to *L. exigua* var. *laciniata* and its habitat. For every structure (residential, commercial, or other) that is built, an area much larger than the structure's footprint is modified to provide a lawn area for that property. These areas are maintained with activities such as mowing or herbicide application that alters the habitat and could damage *L. exigua* var. *laciniata* plants. Most areas converted to lawns, that have extant or historic *L. exigua* var. *laciniata* records, have been seeded to tall fescue, a common yard grass in Kentucky. Areas of bare ground where *L. exigua* var. *laciniata* occurs are known to be filled with topsoil or other materials to allow for a uniform landscape (D. White, pers. comm., 2012). Lawn maintenance activities such as mowing and herbicide application encourage dense mats or fescue roots and eliminate competing species (USDA NRCS 2001, p. 1).

Tall fescue is considered the most widely adapted turf grass used in Kentucky. It competes well with weeds and develops a dense sod (Powell, Jr. 2000, p. 2). While these features make tall fescue desirable to landowners, it can become weedy or invasive, displacing native vegetation such as *L. exigua* var. *laciniata* (USDA NRCS 2001, p. 3). In places where they occur together, tall fescue competes with *L. exigua* var. *laciniata* for water and nutrients and reduces the amount of stable, suitable habitat available for plant growth and seed dispersal (Kral 1963, p. 2; Baskin and Baskin 1988, p. 836; D. White, pers. comm., 2012).

Another threat to *L. exigua var. laciniata* is *Poa annua* (annual bluegrass), a weedy species common in lawns. Rollins (1963; p.17) found that invading weeds (primarily *Poa annua*) killed 30 well-established *L. crassa* var. *crass* and *L. alabamica* var. *alabamica* plants in less than 2 months in the portion of the test plot that was left alone, without any weeding. More than 300 *Leavenworthia* individuals were documented to grow normally over the rest of the plot where weeding occurred.

Twenty-two of the 61 extant *L. exigua* var. *laciniata* occurrences are in lawns or other landscaped habitats. All of these 22 lawn occurrences are assessed as a D-rank based on habitat quality and/or population numbers. The lack of native plant associates and the presence of nonnative lawn species, against which *L. exigua* var. *laciniata* is a poor competitor (Rollins 1963, p. 17; Baskin and Baskin 1985, p. 387), contribute heavily to the poor viability assessed

these populations. Additionally, 17 of the 22 lawn occurrences have a low number of individuals assessed (100 or few plants) with 15 of these occurrences having fewer than 50 plants during their most recent assessments (KSNPC 2012, pp. 1–108). Of the 16 extirpated occurrences, the loss of four of these occurrences is attributed to habitat conversion to lawns or other landscaped habitats (KSNPC 2012, pp. 1–108).

Agriculture/Grazing

Analysis of the known range of *L. exigua* var. *laciniata* found that approximately 22 percent of the total land area is in hay or pasture (USFWS 2012, p. 1). In addition to being a popular lawn species, tall fescue is also a popular hay/pasture grass in Kentucky (NRCS USDA 2001, p. 1). Impacts to *L. exigua* var. *laciniata* associated with the conversion of natural glade or gladelike habitat to fescue or other forage species is very similar to those discussed in the section on lawns. Grazing or haying of the pasture may help maintain the glade habitat, if it persists, by stunting the growth or invasion of woody species and maintaining the open herbaceous nature of the habitat.

However, grazing or haying may have negative impacts on *L. exigua* var. *laciniata* occurrences, if it occurs prior to seed set. Disturbance to the plants could cause mortality, and compaction of the soil from overgrazing could cause erosion or change soil moisture (USFWS 2009, p. 2). High-intensity grazing can also have negative impacts on both plants and the glade habitat by increasing soil compaction and erosion rates or excessive trampling (USFWS 2009, p. 2). Removing cattle from a habitat where grazing activities have helped to maintain the open habitat may result in an increase in forage grasses that may outcompete *L. exigua* var. *laciniata* and alter suitable habitat. We are not aware of any studies that have looked at the timing and intensity of agricultural activities and their effects on *L. exigua* var. *laciniata.* However, changes in grazing activities (both more and less) are considered threats to at least two known occurrences (KSNPC 2012, pp. 1–108).

Forest Encroachment

The dolomitic limestone glade habitat, with which *L. exigua* var. *laciniata* is associated, has a natural community of herbaceous, or nonwoody, plants. These open areas are maintained by their shallow soils (Baskin and Baskin 1978, p. 184; Barnes and Evan 2007, p. 12). Glades are often associated with barrens, which are believed to have been created and maintained by fire (Baskins, *et al.* 1994, p. 238). Suppression of fire around the glade results in the accumulation of organic matter in and around the glade. The buildup results in increased soils depth and allows for the growth of trees and other plants that require deeper soils than typically found in and around the glades. Forest encroachment, whether due to lack of fire or other sources, threatens *L. exigua* var. *laciniata* by increasing shade, to which *L. exigua* var. *laciniata* is intolerant, and potentially changing the soil structure by adding organic materials.

KSNPC has recommended cedar removal and/or prescribed fire as a management activity to promote *L. exigua* var. *laciniata* at more than 10 extant occurrences. Evans and Hannan (1990, p. 15) also recommended tree removal and prescribed fire as an important habitat management technique for *L. exigua* var. *laciniata.* Based on our knowledge of known L. *exigua* var. *laciniata* occurrences, only four sites (Pine Creek Barrens, Rocky Run, Apple Valley, and McNeely Lake) have been or are being managed to control forest encroachment around glades containing *L. exigua* var. *laciniata.*

Off-Road Vehicle Use and Horseback Riding

Although there are no established trails or designated areas specifically for riding horses or off-road vehicles within the range of the species, evidence of these activities is apparent at several extant and historic *L. exigua* var. *laciniata* sites (KSNPC 2012, pp. 1–108). A site visit to Pine Creek Barrens in April 2012 found evidence of unauthorized horse access. Glade habitat where *L. exigua* var. *laciniata* is known to occur at this site had fewer plants than in previous years (Garland, pers. obs., 2012). At least four *L. exigua* var. *laciniata* sites appear to have been impacted by ORV usage (KSNPC 2012, pp. 1–108).

The habitat requirements of *L. exigua* var. *laciniata* are very specific with shallow soils and high moisture content in the winter and earlier spring, drying out by early summer. Frequent use by ORVs can result in soil compaction, increased weed invasion (both native and nonnative), wind and water erosion, altered water flow patterns, and decreased soil moisture (Stokowski & LaPointe 2000, pp. 14–15). Changes to the habitat from ORV use can result in a loss of suitability. Soil and wind erosion can remove soils needed for plant growth and seed dispersal. If the glade habitat is the recipient of the eroded material, the increase in soil depth can alter the habitat such that it is more suitable for species previously excluded from the habitat that will compete with *L. exigua* var. *laciniata* for water and nutrients, or sunlight.

Climate Change

Our analyses under the Endangered Species Act include consideration of ongoing and projected changes in climate. The terms ''climate'' and ''climate change'' are defined by the Intergovernmental Panel on Climate Change (IPCC). ''Climate'' refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007, p. 78). The term ''climate change'' thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007, p. 78). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007, pp. 8–14, 18–19). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

As is the case with all stressors that we assess, even if we conclude that a species is currently affected or is likely to be affected in a negative way by one or more climate-related impacts, it does not necessarily follow that the species meets the definition of an ''endangered species'' or a ''threatened species'' under the Act. If a species is listed as endangered or threatened, knowledge regarding the vulnerability of the species to, and known or anticipated impacts from, climate-associated changes in environmental conditions can be used to help devise appropriate strategies for its recovery.

We lack firm predictions for future patterns of precipitation and temperature that are specific to Kentucky. While it appears reasonable to assume that climate change will occur within the range of *L. exigua* var. *laciniata,* at this time we do not have information to indicate specifically how climate change may affect the species or its habitat. However, since the species is a habitat specialist, it seems unlikely

that this species will be flexible in terms of shifting to new habitats if the glades become unsuitable. Also, if conditions shift in favor of nonnatives, the species will likely be negatively affected.

Conservation Efforts To Reduce the Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

In 1986, the owner of Rocky Run Glade entered into a written agreement with KSNPC not to alter the registered area and to allow KSNPC agents to enter the area for scientific observation, research or education, in exchange for the Registered Natural Area designation. The agreement will remain in effect until terminated by either the landowner or KSNPC with 30-days' notice. While the agreement recognizes the conservation mindset of the property owner, it offers no long-term protection to the species due to its nonbinding nature. However, the agreement has been in place for more than 20 years, and we have no reason to believe it will be terminated.

Habitat management activities can also reduce threats to the species associated with habitat modification from invasive species and forest encroachment. Some habitat management occurs on the previously mentioned conservation areas (Apple Valley Glade, Pine Creek Barrens and Rocky Run); however, we are unaware of any monitoring efforts that would indicate whether or not these efforts are successful. Additionally, we are not aware of any agreements or assurances that would ensure that these measures would be continued into the future. We have requested additional information on this subject in the ''Information Requested'' portion of this rule.

Jefferson Metro Parks, which manages McNeely Lake Park for the Jefferson County Metro Government, has received flexible funding from the Service to develop a management plan for the *L. exigua* var. *laciniata* occurrence within the park and to implement habitat improvement measures such as invasive species and woody plant removal in the areas surrounding *L. exigua* var. *laciniata.* This work has not yet been initiated.

Summary of Factor A

Comprehensively, the loss and degradation of habitat represents the greatest threat to *L. exigua* var. *laciniata.* Destruction and degradation of glades through development, roads, utilities, and conversion to lawns has resulted in fewer occurrences of *L. exigua* var. *laciniata* and reduced the quality of many of the remaining occurrences. Additional impacts of this nature are expected to continue far into the future as the human population within the range of *L. exigua* var. *laciniata* continues to grow. While the rate of development and associated activities will probably not reach the highs seen during the housing market bubble of the mid-2000s, it is expected to continue at a rate above the state average. As the Louisville metropolitan area continues to expand, undeveloped portions of southern Jefferson and northeastern Bullitt Counties will continue to be attractive to developers and, consequently, residential and commercial development and its ancillary activities will continue. Documented impacts from horseback riding, ORV use, and changes in grazing practices have resulted in the loss or degradation of several *L. exigua* var. *laciniata* occurrences. These activities are expected to continue in the future but to an unknown extent. Forest encroachment is expected to continue in areas without active management. A few voluntary conservation measures are in place on private, state and local government owned properties that reduce threats to specific *L. exigua* var. *laciniata* occurrences, but to date, none have resulted in any measurements of success or assurances that these activities will continue into the future. Climate change has the potential to impact this species, but to what extent we cannot predict.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Due to the small size and limited distribution of the few remaining populations, *L. exigua* var. *laciniata* is potentially vulnerable to overutilization. A study by Baskins and Baskins (1981, pp. 246–247) involved the collection of seeds, plants and three soil blocks containing *L. exigua* var. *laciniata* seeds from two sites in Bullitt County in 1976. However, this study did not assess the impacts of these collections on the populations of *L. exigua* var. *laciniata* at the collection sites. We are unaware of any scientific studies in recent years that involved any collection of *L. exigua* var. *laciniata.*

The KSNPC has recently been collecting seed from *L. exigua* var. *laciniata* sites in order to preserve genetic materials from sites that are considered to have poor viability and also for sites where habitat is sufficient to expand or supplement the existing populations. In 2012, seed was collected and planted at a nature preserve to expand the population into adjacent suitable habitat and supplement the seed source available for establishment. Seed was collected at two other sites; both areas where the suitable habitat is marginal. One of these sites is a roadside and another is in an area increasingly dominated by fescue. About 50 seeds were collected from each site at the end of the period for seed dispersal for this species. This constitutes a very small portion of the seed produced at these sites. This seed is being stored at the KSNPC until a suitable recovery site is identified or arrangement with a long-term storage facility is made.

These few current and historic collections are not believed to have a significant impact on *L. exigua* var. *laciniata.* The Service will coordinate with any agency or university studying *L. exigua* var. *laciniata* to ensure that future collections will not significantly contribute to the decline of the species. We have no information to suggest that *L. exigua* var. *laciniata* is collected for commercial, recreational, or educational purposes, and we have no reason to believe that this factor will become a threat to the species in the future.

Factor C. Disease or Predation

We have identified no available information regarding disease in *L. exigua* var. *laciniata.* Furthermore, we have identified no information regarding animal (wild or domestic) predation on *L. exigua* var. *laciniata.* Field observations by the KSNPC during extensive surveys of this species indicate that neither disease nor predation is a factor contributing to the decline of the species at this time (Evans and Hannan 1990, p. 12; White, pers. comm., 2012).

Factor D. The Inadequacy of Existing Regulatory Mechanisms

Section 4(b)(1)(A) of the Act requires the Service to take into account ''those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species. . . .'' In relation to Factor D, we interpret this language to require the Service to consider relevant Federal, State, and tribal laws, regulations, and other such mechanisms that may minimize any of the threats we describe in threat analyses under the other four factors, or otherwise enhance conservation of the species. We give the strongest weight to statutes and their implementing regulations and to management direction that stems from those laws and regulations, such as State governmental actions enforced under a State statute or constitution or Federal action under statute.

Having evaluated the significance of the threats as mitigated by any such conservation efforts, we review existing State and Federal regulatory mechanisms to determine whether or not they effectively reduce or remove threats to *L. exigua* var. *laciniata.*

The Kentucky Rare Plants Recognition Act, Kentucky Revised Statutes (KRS) Chapter 146 Section 600–619, directs the KSNPC to identify plants native to Kentucky that are in danger of extirpation within Kentucky and report every 4 years to the Governor and General Assembly on the conditions and needs of these threatened or endangered plants. This list of endangered or threatened plants in Kentucky is found in the Kentucky Administrative Regulations Title 400 Chapter 3:040. The statute (KRS 146:600–619) recognizes the need to develop and maintain information regarding distribution, population, habitat needs, limiting factors, other biological data, and requirements for the survival of plants native to Kentucky. This statute does not include any regulatory prohibitions of activities or direct protections for any species included in the list. It is expressly stated in KRS 146.615 that this list of threatened or endangered plants shall not obstruct or hinder any development or use of public or private land. Furthermore, the intent of this statute is not to ameliorate the threats identified for the species but it does provide information on the species.

We are not aware of any other State or Federal statutes or regulations that would provide protections to *L. exigua* var. *laciniata.*

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

Narrow Range

L. exigua var. *laciniata* is a narrow endemic known to occur only in northeastern Bullitt County and extreme southeastern Jefferson County (Evans and Hannah 1990, p. 6; Jones 2005, p. 294; White 2004, p. 1). A mapping of known occurrences shows this taxon to be restricted to an area less than 100 square miles. Within this area, *L. exigua* var. *laciniata* is restricted to the small patches of suitable habitat associated with shallow soils that are interspersed with flat-bedded Silurian dolomite and dolomitic limestones. This narrow range places *L. exigua* var. *laciniata* at a higher risk for extinction from habitat loss or degradation associated with localized events (manmade or natural), change in land use, or industry than a species that occurs across a broader landscape.

Small Population Size

Annual plants often have widely fluctuating populations and may or may not have abundant seed banks (Bush and Lancaster 2004, p. 1). However, a given year's plant population strongly influences the seed bank for that site. A review of recent population estimates for the extant populations found that 33 of 61 sites had 100 or fewer individuals at the time of their last survey. Additionally, the majority of these populations have shown a decline throughout the period in which KSNPC has been conducting status surveys (roughly 1990 to 2012) (KSNPC 2012, pp. 1–108).

Small populations can be prone to extirpation, especially if a series of drought years greatly reduces seed production and depletes the soil seed bank. Small populations can also be prone to extirpation from single adverse natural or manmade events. Low numbers of plants, confined to very small areas, can be totally eradicated by actions such as installation of utility lines, road construction, or development. The majority of the extant occurrences of *L. exigua* var. *laciniata* are small, covering only a few square meters (KSNPC 2012, pp. 1–108).

Small population size also increases the risk of total loss of populations due to contact with herbicides or shading and leaf litter accumulation from forest encroachment, because these threats are likely to affect the entirety of any given occurrence. Sustained drought may reduce the reproductive effort of a population. Reduced reproductive effort affects the seed bank, which represents the reproductive capacity of each glade cress population. Although no studies have examined the long-term viability of *L. exigua* var. *laciniata* seed, Baskin and Baskin (1981, p. 247) found that more than 90 percent of the total germination took place in the first growing season.

In addition to increasing vulnerability to direct threats, small population size can result in a decrease in genetic diversity due to genetic drift (the random change in genetic variation in each generation), and inbreeding (mating of related individuals) (Antonovics 1976, p. 238; Ellstram and Elam 1993, pp. 218–219).

Low Genetic Diversity

L. exigua var. *laciniata* has the ability to self or cross pollinate (Rollins 1963, p. 17). The degree to which either form of pollination is used over the other is not known. However, we believe that *L. exigua* var. *laciniata* primarily self-pollinates due to the biological changes associated with self-compatibility in *Leavenworthia* species. Such changes include, but are not limited to, reduction in flower size, a shift from odiferous to nonodiferous flowers and flowering during a period when insect activity is minimal (Rollins 1963, pp. 41–43).

Research by Liu *et al.* (1998, p. 298) on other *Leavenworthia* species (*L. uniflora, L. crassa and L. stylosa*) found that self-compatible species (species that self or cross pollinate) had lower genetic diversity than the species that were not self-compatible. An earlier laboratory study on *L. uniflora* and *L. crassa* by Charlesworth *et al.* (1994, p. 211) found that the offspring from self-pollination had lower survival and fertility than those offspring produced by cross-pollination.

Summary of Factor E

L. exigua var. *laciniata* is subject to several ongoing natural and manmade factors, which could affect its continued existence. The species has a narrow range, occurring in only small portions of two counties. Within this range, *L. exigua* var. *laciniata* is restricted to cedar glades and similar shallow-soiled areas that occur sporadically across the range. More than half of the remaining occurrences had low (fewer than 100 individuals) population counts at the time of the most recent survey. Additionally, the presumed low genetic diversity within individual occurrences of *L. exigua* var. *laciniata* could place those occurrences at a high risk of extirpation as their capacity for adaptation to change is reduced.

Determination

The most significant threats to the species are described under Factors A (the present or threatened destruction, modification, or curtailment of its habitat or range) and E (other natural or manmade factors affecting its continued existence). Based on the Factor A analysis, we conclude that the loss and degradation of habitat represents the greatest threat to *L. exigua* var. *laciniata.* Destruction and degradation of glades through development, roads, utilities, and conversion to lawns has resulted in fewer occurrences of *L. exigua* var. *laciniata* and reduced the quality of many of the remaining occurrences. Additional impacts of this nature are expected to continue for the foreseeable future as the human population within the range of *L. exigua* var. *laciniata* continues to grow. While the rate of development and associated activities will probably not reach the highs seen during the housing market bubble of the

mid-2000s, it is expected to continue at a rate above the State average. As the Louisville metropolitan area continues to expand, undeveloped portions of southern Jefferson and northeastern Bullitt counties will continue to be attractive to developers and, consequently, residential and commercial development and its ancillary activities will continue. Expansion of lawn grasses will continue to threaten *L. exigua* var. *laciniata* regardless of development rates as they encroach on glades and gladelike areas lacking in habitat management activities that would exclude them. As a poor competitor, inhabiting areas of shallow soil and droughty conditions during the growing season, this species is particularly vulnerable to habitat degradation from nonnative and woody species.

Documented impacts from horseback riding and ORV use have resulted in the loss or degradation of several *L. exigua* var. *laciniata* occurrences. These activities in close proximity to *L. exigua* var. *laciniata* populations are expected to continue in the future and can result in a significant threat to the species. Based on our review of the best available information, we conclude that agricultural activities such as habitat conversion to pasture and changes in grazing intensity constitute a significant threat to *L. exigua* var. *laciniata.* Additionally, the lack of prescribed fire on the open ground surrounding most of the glades containing *L. exigua* var. *laciniata,* and the documented threat associated with forest encroachment, leads us to conclude that forest encroachment is a significant threat to *L. exigua* var. *laciniata.*

The Factor E analysis demonstrated that *L. exigua* var. *laciniata* is subject to several ongoing natural and manmade threats. The species has a narrow range, occurring in only small portions of two counties. Within this range, *L. exigua* var. *laciniata* is restricted to cedar glades and similar shallow-soiled areas which occur sporadically across the range. More than half of the remaining occurrences had low (fewer than 100 individuals) population counts at the time of the most recent survey. Additionally, the presumed low genetic diversity within individual occurrences of *L. exigua* var. *laciniata* could place those occurrences at a high risk as their capacity for adaptation to change is reduced. These threats occur across the taxon's range and are ongoing and, therefore, imminent. The reduced ability to adapt to changing conditions combined with the habitat modification and destruction described in Factor A leads us to conclude that the severity of these threats is high.

Therefore, based on our review of the best available scientific and commercial information, we conclude that the narrow range, low genetic diversity, and small population size, as described in the Factor E analysis, both alone and in conjunction with the threats described under Factor A, constitutes a significant threat to *L. exigua* var. *laciniata.* We were unable to identify any factors, including (but not limited to) management actions, regulatory mechanisms, or protective agreements, that appear to mitigate or reduce these threats.

We propose to list the species as threatened, rather than endangered, due to the relatively high current number of extant populations (61). Although threats to the taxon are ongoing, often severe, and occurring across the range, the possibility that all occurrences would be equally impacted in the foreseeable future so as to cause extinction is unlikely. Therefore, on the basis of the best available scientific and commercial information, we propose listing *L. exigua* var. *laciniata* as threatened in accordance with sections 3(6) and 4(a)(1) of the Act.

Significant Portion of the Range

The Act defines an endangered species as any species that is ''in danger of extinction throughout all or a significant portion of its range'' and a threatened species as any species ''that is likely to become endangered throughout all or a significant portion of its range within the foreseeable future.'' A major part of the analysis of ''significant portion of the range'' requires considering whether the threats to the species are geographically concentrated in any way. If the threats are essentially uniform throughout the species' range, then no portion is likely to warrant further consideration.

We have carefully considered all scientific and commercial information available regarding the past, present, and future threats to *L. exigua* var. *laciniata. L. exigua* var. *laciniata,* proposed for listing in this rule, occurs only in portions of two Kentucky counties and the threats to the survival of the taxon are not restricted to any particular significant portion of that range. Accordingly, our assessment and determination applies to the taxon throughout its entire range. We find that *L. exigua* var. *laciniata* is likely, within the foreseeable future, to become an endangered species throughout its entire range, based on the immediacy, severity, and scope of the threats described above. We propose listing *L. exigua* var. *laciniata* as threatened in accordance with sections 3(6) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition, through listing, results in public awareness and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The recovery planning process involves the identification of actions that are necessary to halt or reverse the species' decline by addressing the threats to its survival and recovery. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning includes the development of a recovery outline shortly after a species is listed, preparation of a draft and final recovery plan, and revisions to the plan as significant new information becomes available. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (comprising species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the

final recovery plan will be available on our Web site (*http://www.fws.gov/endangered*), or from our Kentucky Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their ranges may occur primarily or solely on non-Federal lands, as is the situation with *L. exigua* var. *laciniata.* To achieve recovery of these species requires cooperative conservation efforts on private, local government, State, and Tribal lands.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the Commonwealth of Kentucky would be eligible for Federal funds to implement management actions that promote the protection and recovery of *L. exigua* var. *laciniata.* Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants.*

Although *L. exigua* var. *laciniata* is only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for this species. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

For *L. exigua* var. *laciniata,* Federal agency actions within the species' habitat that may require conference or consultation or both as described in the preceding paragraph include, but may not be limited to: Issuance of section 404 Clean Water Act permits by the USACE; construction and management of gas pipeline and power line rights-of-way by the Federal Energy Regulatory Commission; and construction and maintenance of roads or highways by the Federal Highway Administration.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale in interstate or foreign commerce, or remove and reduce the species to possession from areas under Federal jurisdiction. In addition, for plants listed as endangered, the Act prohibits the malicious damage or destruction on areas under Federal jurisdiction and the removal, cutting, digging up, or damaging or destroying of such plants in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies. Although the KSNPC has designated *L. exigua* var. *laciniata* as endangered within Kentucky, this designation conveys no legal protection. The Act will, therefore, offer the only protections to this taxon.

We may issue permits to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 for endangered species, and at 17.32 for threatened species. With regard to endangered wildlife, a permit must be issued for the following purposes: For scientific purposes, to enhance the propagation or survival of the species and for incidental take in connection with otherwise lawful activities.

Our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), is to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of species proposed for listing. We believe, based on the best available information, that the public can take the following actions without resulting in a violation of section 9, only if these activities are carried out in accordance with existing regulations and permit requirements:

(1) Activities authorized, funded, or carried out by Federal agencies (e.g. utility line construction, maintenance, and improvement; highway construction, maintenance, and improvement) when such activity is conducted in accordance with any reasonable and prudent measures provided by us according to section 7 of the Act.

(2) Normal agricultural and silvicultural practices, including herbicide and pesticide use, which are carried out in accordance with any existing regulations, permit and label requirements, and best management practices.

(3) Normal landscape activities around your own personal residence.

The following activities could potentially result in a violation of section 9 of the Act; however, this list is not comprehensive:

Unauthorized collecting, handling, possessing, selling, delivering, carrying, or transporting of the species, including import or export across State lines and international boundaries, except for properly documented antique specimens of these taxa at least 100 years old, as defined by section 10(h)(1) of the Act.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Kentucky Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**). Requests for copies of the regulations concerning listed plants and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Ecological Services Division, 1875 Century Boulevard, Atlanta, GA 30345 (Phone 404/679–7313; Fax 404/679–7081).

Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270),

we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule. The purpose of peer review is to ensure that listing the species is based on scientifically sound data, assumptions, and analyses. We have invited these peer reviewers to comment during this public comment period on our specific assumptions and conclusions in this proposed rule.

We will consider all comments and information received during this comment period on this proposed rule during our preparation of a final determination. Accordingly, the final decision may differ from this proposal.

Public Hearings

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in the **ADDRESSES** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

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 the **ADDRESSES** section. 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.

National Environmental Policy Act (NEPA)

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with listing a species as endangered or threatened under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of all references cited in this rulemaking is available on the Internet at *http://www.regulations.gov* or upon request from the Field Supervisor, Kentucky Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this document are the staff members of the Kentucky Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245; unless otherwise noted.

■ 2. In § 17.12(h), add an entry for ''*Leavenworthia exigua* var. *laciniata*'' in alphabetical order under ''Flowering Plants'' in the List of Endangered and Threatened Plants to read as follows:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
FLOWERING PLANTS							
*	*	*	*	*	*	*	
Leavenworthia exigua var. *laciniata*.	Kentucky glade cress.	U.S.A. (KY)	Brassicaceae	T	.....	NA	NA
*	*	*	*	*	*	*	

* * * * *

Dated: May 6, 2013.

Rowan W Gould,

Deputy Director, U.S. Fish and Wildlife Service.

[FR Doc. 2013–12103 Filed 5–23–13; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 120924488–3473–01]

RIN 0648–BC60

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Snapper-Grouper Fishery Off the Southern Atlantic States; Regulatory Amendment 15

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes regulations to implement Regulatory Amendment 15 to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region (FMP), as prepared by the South Atlantic Fishery Management Council (Council). Regulatory Amendment 15 would revise the optimum yield (OY) and the annual catch limit (ACL) for yellowtail snapper. If implemented, this rule would increase the commercial and recreational ACLs and recreational annual catch target (ACT) for yellowtail snapper harvested in or from the South Atlantic exclusive economic zone (EEZ). This rule would also modify the commercial ACL and the accountability measure (AM) for gag that requires a closure of all other South Atlantic shallow-water grouper (SASWG) when the gag commercial ACL is met or projected to be met. This rule also proposes several administrative changes to regulatory text, which are unrelated to the measures contained in Regulatory Amendment 15. The intent of this rule is to provide socio-economic benefits to snapper-grouper fishermen and communities that utilize the snapper-grouper resource, while maintaining fishing mortality at sustainable levels according to the best scientific information available.

DATES: Written comments must be received on or before June 24, 2013.

ADDRESSES: You may submit comments on the amendment identified by ''NOAA–NMFS–2013–0088'' by any of the following methods:

• *Electronic submissions:* Submit electronic comments via the Federal e-Rulemaking Portal: *http://www.regulations.gov.* Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2013-0088,* click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.

• *Mail:* Submit written comments to Rick DeVictor, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on *www.regulations.gov* without change. All personal identifying information (*e.g.,* name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter ''N/A'' in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word, Excel, or Adobe PDF file formats only.

Electronic copies of Regulatory Amendment 15, which includes an environmental assessment, an initial regulatory flexibility analysis (IRFA), and a regulatory impact review, may be obtained from the Southeast Regional Office Web site at *http://sero.nmfs.noaa.gov/sf/pdfs/SGRegAmend15.pdf.*

FOR FURTHER INFORMATION CONTACT: Rick DeVictor, Southeast Regional Office, telephone: 727–824–5305, or email: *rick.devictor@noaa.gov.*

SUPPLEMENTARY INFORMATION: The snapper-grouper fishery of the South Atlantic, which includes yellowtail snapper and SASWG species (*i.e.,* gag, black grouper, red grouper, scamp, red hind, rock hind, yellowmouth grouper, yellowfin grouper, graysby, and coney), is managed under the FMP. The FMP was prepared by the Council and is implemented through regulations at 50 CFR part 622 under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Background

Yellowtail Snapper

The state of Florida completed a stock assessment for yellowtail snapper in May 2012. The yellowtail snapper stock is neither overfished nor currently undergoing overfishing. The assessment results suggest the yellowtail snapper catch levels could be increased without jeopardizing the health of the population. Both the Gulf of Mexico and South Atlantic Fishery Management Councils' Scientific and Statistical Committees (SSCs) reviewed the assessment in October 2012 and determined the assessment to be based upon the best scientific information available and provided a new acceptable biological catch (ABC) recommendation that is greater than the previous recommendation.

While the Council and NMFS were developing Regulatory Amendment 15, the Council requested an emergency rule under the Magnuson-Stevens Act to temporarily increase the yellowtail snapper commercial ACL. On November 7, 2012, NMFS implemented a temporary rule to increase the commercial ACL in the South Atlantic to prevent unnecessary adverse socioeconomic impacts on snapper-grouper fishermen (77 FR 66744). The temporary rule was effective through May 6, 2013, and was extended through November 28, 2013 (78 FR 25213, April 30, 2013), unless superseded by other rulemaking.

Gag and Other South Atlantic Shallow-Water Grouper

The final rule to implement Amendment 16 to the FMP established a suite of management measures to end the overfishing of gag (74 FR 30964, June 29, 2009). These measures included reducing the aggregate bag limit for groupers and tilefishes, reducing the bag limit for gag and black grouper combined, establishing a commercial quota for gag, and establishing a 4-month seasonal closure for SASWG species. The final rule also implemented a management measure that closes the commercial sector for gag and all other SASWG for the remainder of the fishing year when the gag quota (now called an ACL) is met. This measure was implemented to reduce bycatch of gag. However, new information suggests the closure of gag and all other SASWG is not as effective as previously thought at reducing bycatch of gag. Recent studies suggest that, with the exception of red grouper and scamp, gag are not as closely associated in landings with the other SASWG species.