DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R2–ES–2021–0013; FF09E21000 FXES1111090FEDR 223]

RIN 1018–BE44

Endangered and Threatened Wildlife and Plants; Threatened Species Status With a Section 4(d) Rule for Bracted Twistflower and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list the bracted twistflower (*Streptanthus bracteatus*), a plant species from Texas, as a threatened species and designate critical habitat under the Endangered Species Act of 1973, as amended (Act). After a review of the best available scientific and commercial information, we find that listing the species is warranted. Accordingly, we propose to list bracted twistflower as a threatened species with a rule issued under section 4(d) of the Act (a ''4(d) rule''). We also propose to designate critical habitat for the bracted twistflower under the Act. In total, approximately 1,606 acres (650 hectares) in Uvalde, Medina, Bexar, and Travis Counties in Texas fall within the boundaries of the proposed critical habitat designation. In addition, we announce the availability of a draft economic analysis (DEA) of the proposed designation of critical habitat for the bracted twistflower. If we finalize this rule as proposed, it would extend the Act's protections to this species and its critical habitat.

DATES: We will accept comments received or postmarked on or before January 10, 2022. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for a public hearing, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by December 27, 2021.

ADDRESSES:

Written comments: 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 the docket number or RIN for this rulemaking (presented above in the document headings). For best results, do not copy and paste either number; instead, type the docket number or RIN into the Search box using hyphens. Then, click on the Search button. On the resulting page, in the Search panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on ''Comment.''

(2) *By hard copy:* Submit by U.S. mail to: Public Comments Processing, Attn: FWS–R2–ES–2021–0013, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

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

Availability of supporting materials: For the critical habitat designation, the coordinates or plot points or both from which the maps are generated are included in the decision file and are available at *http://www.regulations.gov* under Docket No. FWS–R2–ES–2021–0013, and at the Austin Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we may develop for the critical habitat designation will also be available at the Service website and Field Office set out above, and may also be included in the preamble and/or at *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Adam Zerrenner, Field Supervisor, U.S. Fish and Wildlife Service, Austin Ecological Services Field Office, 10711 Burnet Road, Suite 200, Austin, TX 78758; telephone 512–490–0057. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, if we determine that a species is an endangered or threatened species 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. To the maximum extent prudent and determinable, we must designate critical habitat for any species that we determine to be an endangered or threatened species under the Act. Listing a species as an endangered or threatened species and designation of critical habitat can only be completed by issuing a rule.

What this document does. We propose to list the bracted twistflower as a threatened species with a species-specific 4(d) rule under the Act. We also propose to designate critical habitat for the species.

The basis for our action. Under section 4(a) of the Act, we may determine that a species is an endangered or threatened species because of 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; or (E) other natural or manmade factors affecting its continued existence. We have determined that the primary threats to the bracted twistflower are loss of habitat due to urban and residential development, changes in structure and composition of vegetation and wildfire frequency, and herbivory by dense populations of white-tailed deer (*Odocoileus virginianus*) and introduced ungulates.

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary) to designate critical habitat concurrent with listing to the maximum extent prudent and determinable. Section 3(5)(A) of the Act defines critical habitat as (i) the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protections; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species. Section 4(b)(2) of the Act states that the Secretary must make the designation on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impacts of specifying any particular area as critical habitat.

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 other concerned governmental agencies, Native

American tribes, the scientific community, industry, or any other interested parties concerning this proposed rule.

We particularly seek comments concerning:

(1) The species' biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including 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) Factors that may affect the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.

(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) Information on regulations that are necessary and advisable to provide for the conservation of the bracted twistflower and that the Service can consider in developing a 4(d) rule for the species. In particular, information concerning the extent to which we should include any of the section 9 prohibitions in the 4(d) rule or whether we should consider any additional exceptions from the prohibitions in the 4(d) rule.

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

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

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

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

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

(7) Specific information on:

(a) The amount and distribution of bracted twistflower habitat;

(b) What areas, that were occupied at the time of listing and that contain the physical or biological features essential to the conservation of the species, should be included in the designation and why;

(c) Any additional areas occurring within the range of the species [*i.e.,* Travis, Medina, Uvalde, Bexar, Hays Counties] that should be included in the designation because they (1) are occupied at the time of listing and contain the physical or biological features that are essential to the conservation of the species and that may require special management considerations, or (2) are unoccupied at the time of listing and are essential for the conservation of the species;

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

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

(i) Regarding whether occupied areas are adequate for the conservation of the species;

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

(iii) Explaining whether or not unoccupied areas fall within the definition of ''habitat'' at 50 CFR 424.02 and why.

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

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

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

(11) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act. If you think we should exclude any additional areas, please provide credible information regarding the existence of a meaningful economic or other relevant impact supporting a benefit of exclusion.

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

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

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 a 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 **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

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

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *http://www.regulations.gov.*

Because we will consider all comments and information we receive during the comment period, our final determinations may differ from this proposal. Based on the new information

we receive (and any comments on that new information), we may conclude that the species is endangered instead of threatened, or we may conclude that the species does not warrant listing as either an endangered species or a threatened species. For critical habitat, our final designation may not include all areas proposed, may include some additional areas that meet the definition of critical habitat, and may exclude some areas if we find the benefits of exclusion outweigh the benefits of inclusion. In addition, we may change the parameters of the prohibitions or the exceptions to those prohibitions in the 4(d) rule if we conclude it is appropriate in light of comments and new information received. For example, we may expand the prohibitions to include prohibiting additional activities if we conclude that those additional activities are not compatible with conservation of the species. Conversely, we may establish additional exceptions to the prohibitions in the final rule if we conclude that the activities would facilitate or are compatible with the conservation and recovery of the species.

Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. Requests must be received by the date specified in **DATES**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule a public hearing on this proposal, if requested, and announce the date, time, and place of the hearing, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing. For the immediate future, we will provide these public hearings using webinars that will be announced on the Service's website, in addition to the **Federal Register**. The use of these virtual public hearings is consistent with our regulations at 50 CFR 424.16(c)(3).

Previous Federal Actions

In 1975, the Smithsonian Institution presented a report to Congress describing over 3,000 vascular plants considered endangered, threatened, or extinct in the United States, including the bracted twistflower. The Service published a notice on July 1, 1975 (40 FR 27824), in which we announced that this report had been accepted as a petition under the terms of the Act, and that the taxa named in the report and notice were being reviewed for possible inclusion in the List of Endangered and Threatened Plants.

On December 15, 1980, we classified the bracted twistflower as a Category 2 candidate for listing (45 FR 82480). We defined Category 2 candidates as taxa for which information in the Service's possession indicated the probable appropriateness of listing as endangered or threatened, but for which sufficient information was not available to biologically support a proposed rule at the time. The species remained so designated in subsequent candidate notices of review (CNORs) (50 FR 39526, September 27, 1985; 55 FR 6184, February 21, 1990; 58 FR 51144, September 30, 1993). In the February 28, 1996, CNOR (61 FR 7596), we discontinued the designation of Category 2 species as candidates; therefore, the bracted twistflower was no longer a candidate species.

On October 26, 2011, we added bracted twistflower to the candidate list (76 FR 66370). Candidates are those fish, wildlife, and plants for which we have on file sufficient information on biological vulnerability and threats to support preparation of a listing proposal, but for which preparation and publication of a proposal is precluded by higher priority listing actions. Bracted twistflower was included in all subsequent annual CNORs with a listing priority number of 8, which reflects a species with threats that are ongoing and imminent (77 FR 69994, November 21, 2012; 78 FR 70104, November 22, 2013; 79 FR 72450, December 5, 2014; 80 FR 80584, December 24, 2015; 81 FR 87246, December 2, 2016; 84 FR 54732, October 10, 2019; 85 FR 73164, November 16, 2020).

On August 5, 2014, we received a petition to list the bracted twistflower. Because the species was already on our candidate list, we took no additional action on the petition.

Supporting Documents

A species status assessment (SSA) team prepared an SSA report for the bracted twistflower. The SSA team was composed of Service biologists in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species. In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (59 FR 34270), and our August 20, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought the expert opinions of six appropriate specialists regarding the SSA. We received one response. We also sent the SSA report to four partners, including scientists with expertise in local plant species, for review. We received review from four partners (Texas Parks and Wildlife Department, the City of Austin, the City of San Antonio, and Joint Base San Antonio).

I. Proposed Listing Determination

Background

Bracted twistflower is an annual herbaceous plant in the mustard family (Brassicaceae) that occurs only along the southeastern edge of the Edwards Plateau of central Texas. There are currently 35 described species of *Streptanthus.* Bracted twistflower can be distinguished from most other members of this genus because the leaves borne on the flower stalk lack stems and all flower stems have a small modified leaf, called a bract, at their bases.

Bracted twistflower habitats occur near the boundary between the Edwards or Devils River limestone formations and the Glen Rose limestone formation. Individual plants commonly occur near or under a canopy of Ashe juniper (*Juniperus ashei*), Texas live oak (*Quercus fusiformis*), Texas mountain laurel (*Sophora secundiflora*), Texas red oak (*Quercus buckleyi*), or other trees.

The seeds germinate in response to fall and winter rainfall, forming basal rosettes, and the flower stalks emerge the following spring bearing showy, lavender-purple flowers. The seed capsules remain attached to the stalks during the summer as they mature and dehisce, releasing the seeds to be dispersed by gravity. The foliage withers as the fruits mature, and the plants die during the heat of summer. This species is primarily an outcrossing species; the leafcutter bee *Megachile comata* (family: Megachilidae) is known to be an effective pollinator. Because the seeds of bracted twistflower do not disperse far, gene flow for this species occurs mainly through pollination.

Since 1989, populations of the bracted twistflower have been documented at 17 naturally occurring element occurrences (EOs) in five counties, as well as one experimental trial in Travis County (see Table 1, below). We have adopted the EO standard to maintain consistency with the Texas Parks and Wildlife Department's Natural Diversity Database (TXNDD) and because the EOs used in the TXNDD are practical approximations of populations, based on the best available scientific information. Each EO may consist of one to many Source Features, which are specific locations where one or more

individuals have been observed one or more times.

Bracted twistflower is an annual plant, and the numbers of individuals that germinate at the Source Features of each EO vary widely from year to year in response to weather patterns or other stimuli. Thus, the numbers observed in any single year are not useful measures of population size because they do not reveal the numbers of live, dormant seeds that persist in the soil seed reserve. The SSA report (Service 2021, appendix A) describes the method we used to estimate the potential population sizes of EOs, which we define as the largest numbers of individuals that have been observed at each Source Feature of each EO. We then used aerial imagery to determine whether the habitat of any Source Features had been destroyed by construction of roads, buildings, or other disturbance, and we calculated the estimated remaining potential population at each EO. For a complete descriptions of the analysis used, see the SSA report. Table 1 lists the total potential populations of each EO and the proportions of each that were reported from Source Features that were destroyed, partially destroyed, or are still intact. In summary, within the naturally-occurring EOs, we determined that habitats and potential populations are completely intact at 11 EOs, partially destroyed at four EOs, and completely destroyed at two EOs. However, even where habitats are intact, populations may decline due to ungulate herbivory, juniper competition, or other factors. A thorough review of the taxonomy, life history, and ecology of the bracted twistflower is presented in the SSA report (Service 2021, entire).

TABLE 1—BRACTED TWISTFLOWER ELEMENT OCCURRENCES (EOS), POTENTIAL POPULATION SIZES (NUMBERS OF INDIVIDUALS), AND HABITAT STATUSES OF SOURCE FEATURES

EO—site name; owner; representation area [1]	Total potential population of all source features	Potential population by habitat status			Percent remaining intact
		Intact	Destroyed	Partially destroyed	
2—Cat Mountain (Far West); Private; NE	866	123	112	631	14.2
7—Ullrich Water Treatment Plant (Bee Creek Preserve); City of Austin; NE	493	493	0	0	100.0
9—Mt. Bonnell/Mt. Bonnell City Park; Private/City of Austin; NE	919	237	433	249	25.8
17—Barton Creek Wilderness Park; City of Austin (Balcones Canyonlands Preserve (BCP)); NE	1,677	1,677	0	0	100.0
21—Mesa-FM 2222; Private; NE	330	0	70	260	0.0
26—Bright Leaf State Natural Area (SNA); Austin Community Foundation; NE	10	10	0	0	100.0
32—Rough Hollow Ranch; Private; NE	40	0	40	0	0.0
33 [2]—Vireo Preserve (experimental reintroduction); City of Austin (BCP); NE	120	.....	.....	.....	.....
35—Valburn Drive/Bull Creek District Park; Private/City of Austin; NE	1,041	343	644	54	32.9
36—Gus Fruh/Barton Creek Greenbelt; City of Austin; NE	29	29	0	0	100.0
xx [3]—Falls Ranch; Private; NE	6	6	0	0	100.0
8—E Medina Lake; Texas Department of Transportation, Medina County, and private rights-of-way; C	2,260	477	481	1,302	21.1
18—Medina Lake; Private; C	1,254	1,254	0	0	100.0
23—Eisenhower City Park/Camp Bullis Military Training Reservation; City of San Antonio/Dept. of Defense; C	190	190	0	0	100.0
25—Laurel Canyon (Bear Bluff); Private Limited Partnership with City of San Antonio conservation easement; C	2,000	2,000	0	0	100.0
31—Rancho Diana (undeveloped natural area); City of San Antonio; C	958	958	0	0	100.0
10—Garner State Park; Texas Parks and Wildlife Department; W	686	686	0	0	100.0
24—Upper Long Canyon; Private; W	5	5	0	0	100.0

[1] Described under Species Needs, below. NE = northeast; C = central; W = west.
[2] This experimental reintroduction is not one of the 17 naturally-occurring EOs.
[3] This newly-discovered site does not yet have in EO ID or EO number in the TXNDD.

Regulatory and Analytical Framework

Regulatory Framework

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 is an endangered species or a 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 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 expected response by the species, 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 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 the Service 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, and other demographic factors.

Analytical Framework

The SSA report (Service 2021, 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 proposed for listing as an endangered or threatened species under the Act. However, it does 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 No. FWS–R2–ES–2021–0013 on *http://www.regulations.gov.*

To assess bracted twistflower 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 supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes). In general, the more resilient and redundant a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. 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.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the species and its resources, and the factors that influence the species' current and future condition, in order to assess the species' overall viability and the risks to that viability. We analyze these factors both individually and cumulatively to determine the current condition of the species and project the future condition of the species under several plausible future scenarios.

Species Needs

Habitat Availability and Protection From Herbivory

Bracted twistflower habitat occurs on karstic, porous limestones near the boundary of the Devils River or Edwards formations and Glen Rose formations in central Texas. These juniper-oak woodlands and shrublands experience hot, often dry summers and mild winters with bimodal (spring and fall) precipitation patterns. Optimal microsites for the bracted twistflower have less than 50 percent cover of woody plant canopy with the most robust plants growing in full sun (Fowler 2010, pp. 10–12; Leonard 2010, pp. 30–32; Ramsey 2010, pp. 10–13, 20; Leonard and Van Auken 2013, pp. 276–285). However, in areas with dense populations of white-tailed deer and other herbivores, few individuals survive except where they are protected from herbivory by a cover of dense, spiny understory vegetation (McNeal 1989, p. 17; Damude and Poole 1990, pp. 29 –30; Poole *et al.* 2007, p. 470; Leonard 2010, p. 63).

Reproduction

Bracted twistflower is an annual species sustained through its reserve of

seeds in the soil. Thus, resilient populations must produce more viable seeds than they lose through germination, herbivory, and loss of viability. Individuals that have begun flowering are vulnerable to herbivory by white-tailed deer, squirrels, and other herbivores, including introduced ungulates; although robust plants may generate a new flower stalk after the first stalk is removed, the loss of resources likely reduces reproductive output and a decrease in resiliency.

Bracted twistflower reproduces primarily by outcrossing between individuals that are not closely related; self-pollination produces only small amounts of seeds. Fertilization requires that two or more sexually compatible individuals are located within the forage range of native bee pollinators. The longevity of seed viability has not been determined, although at least some seeds remain viable in the soil for at least 7 years (Service 2021, p. 12). The known pollinators of bracted twistflower are leafcutter bees (*Megachile* spp.) (Dieringer (1991, pp. 341–343), which have an estimated forage range of 600 meters to 3 kilometers (0.37 to 1.86 miles) (Mitchell 1936, pp. 124–125; Gathmann and Tscharntke 2002, pp. 760–761; Greenleaf *et al.* 2007, p. 593; Discover Life 2019); sweat bees (family *Halictidae*) may also be effective pollinators (Service 2021, p. 5), but due to their smaller size have correspondingly smaller forage ranges. Sexual reproduction also increases genetic diversity, and thus representation, which allows populations to be more likely to adapt and survive when confronted with new pathogens, competitors, and changing environmental conditions. For these reasons, successful reproduction likely requires clustering of genetically diverse individuals within habitats that also support leafcutter bees, sweat bees, and other native bee species.

Fall and winter rainfall stimulate bracted twistflower seed germination; successive rainfall events that allow soil moisture to persist may have greater effect than one or two heavy rains. In addition to rain, other factors appear to stimulate germination, such as the removal of competing vegetation, and possibly fire during a previous season.

Minimum Viable Population Size

Populations of bracted twistflower must be large enough to have a high probability of surviving a prescribed period of time. For example, Mace and Lande (1991, p. 151) propose that species or populations be classified as vulnerable when the probability of persisting 100 years is less than 90 percent. This metric of population resilience is called minimum viable population (MVP). We adapted the method published in Pavlik (1996, p. 137) to estimate an MVP for bracted twistflower of about 1,800 individuals. This estimate of MVP is based only on numbers of mature, flowering individuals because juveniles that die before they reproduce do not contribute to the effective population size or future genetic diversity.

Current Condition

Our assessment of the current species viability of bracted twistflower is based on its resiliency, redundancy, and representation. We ranked the current conditions of bracted twistflower EOs as high, medium, low, or extirpated based on the following characteristics: The proportion of potential populations where habitat is intact (described above); the population sizes and trends (if known) in remaining intact habitats; genetic diversity and inbreeding coefficients (if known); and the current levels of monitoring, vegetation management, and protection from development, herbivores, and recreational impacts on the remaining intact habitats. The current condition of each EO is based upon the cumulative effects of these factors.

Resiliency

Our review of the TXNDD EO records (TXNDD 2018) indicates that relatively large pulses of bracted twistflower plants emerge in specific areas (Source Features) during relatively few years, while during most years few or no plants emerge. This wide annual variation in germination makes it very difficult to determine the species' population sizes and demographic trends (Service 2021, pp. 22–23, appendix A). However, one indicator of the status of bracted twistflower populations is the condition of their habitats. We define potential population size as the maximum numbers observed in specific areas during ''pulse'' years, when optimal conditions stimulate the greatest amounts of seed germination, establishment, and survival to successful reproduction. Thus, our estimate of the species' status is based in part on the potential populations remaining in intact habitats. The potential total number of individuals at the 17 naturally occurring EOs observed since 1989 is 12,764 (not including 120 planted at the experimental population at EO 33). Since 1989, 14 percent of bracted twistflower habitat (a potential population of 1,780 plants) has been completely destroyed in portions of six EOs; 19 percent of bracted twistflower habitat (a potential population of 2,496 plants) has been partially destroyed in portions of five EOs; and 67 percent (a potential population of 8,488 plants) remains intact in portions of 15 naturally occurring EOs (note that each EO can have intact, partially destroyed, and destroyed portions, so the total is greater than the number of EOs). Nevertheless, this estimate reflects only the losses due to habitat development, and does not account for populations that may have declined due to excessive herbivory or juniper competition.

Only four of the remaining EOs have potential populations of at least 50 percent of the estimated MVP value of 1,800 individuals. These medium resilient populations are Barton Creek Greenbelt and Wilderness Park (EO 17) and Rancho Diana (EO 31), which are protected natural areas managed by the City of Austin and City of San Antonio, respectively; Laurel Canyon (EO 25) is protected from development and land use change through a City of San Antonio conservation easement; and landowners voluntarily conserve a portion of Medina Lake (EO 18). The City of Austin also protects Ullrich (EO 7) from development and land use change (Texas Parks and Wildlife Department 2018, p. 1), although the potential maximum population is about 27 percent of the estimated MVP level. Gus Fruh (EO 36) is small, but due to its proximity to EO 17 along Barton Creek, might be considered part of a Barton Creek metapopulation. Mt. Bonnell City Park (EO 9), Garner SP (EO 10), Eisenhower City Park (EO 23), Valburn/Bull Creek District Park (EO 35), and Falls Ranch (no EO number) are all currently far below the MVP level. Four EOs have been mostly lost to development: Cat Mountain (EO 2), East Medina (EO 8), Mt. Bonnell City Park, and Valburn/Bull Creek. Two EOs have been completely lost to development: Mesa (EO 21) and Rough Hollow (EO 32). No individuals have been seen in recent years at two additional EOs, Bright Leaf (EO 26) and Upper Long Canyon (EO 24), nor at the experimental population at Vireo Preserve (EO 33). In summary, none of the EOs of bracted twistflower have reached the MVP level in the last decade, most have low resiliency, many have gradually declined over the years that they have been monitored, and six EOs have been extirpated or very nearly extirpated.

Redundancy and Representation

Bracted twistflower currently possesses significant genetic diversity at the species level, but populations are genetically distinct and there is no gene

flow between most populations (Pepper 2010, p. 11). However, of the 10 EOs assessed by Pepper, low levels of genetic diversity occurred in all or parts of four EOs (40 percent), and all or parts of five EOs (50 percent) had high levels of inbreeding; low genetic diversity and inbreeding were more prevalent in smaller, more isolated populations (Pepper 2010, pp. 13, 15). Therefore, although the species still possesses adequate genetic and ecological representation, many of its populations are at risk, due to small population sizes, low levels of genetic diversity, lack of gene flow, and inbreeding.

Representation areas are sectors of a species' geographic range where important constituents of its genetic and ecological diversity occur. The known EOs of bracted twistflower are clustered in three geographic areas separated from each other by 50 km (30 mi) or more. Slight differences in day length, solar elevation, temperature, and precipitation occur over the species' range from northeast to southwest. Austin has more moderate summer and winter temperatures, 40 percent fewer days of freezing weather, and 40 percent greater annual rainfall, compared to Uvalde County. These climate differences also create variation in the structure and composition of associated vegetation. Pepper (2010, pp. 4, 15) identified major, distinct clusters of genetic diversity in Medina County and in the Austin area . Based on this genetic data and the geographic clustering of populations, we identified three representation areas in the northeastern, central, and western portions of the species' range (Service 2021, Figure 9).

Two EOs are extirpated (EO 21 and EO 32), and five EOs have low condition ranks and negligible contributions to redundancy. The northeast representation area has six EOs with high or medium condition ranks, conferring an intermediate degree of population redundancy within this area. The central representation area also has intermediate redundancy, because it has four EOs with high- or medium-condition ranks. In the west representation area, only EO 10 has a medium condition rank, and no population pulses have been observed there in recent years. This representation area appears to have very low redundancy; however, few surveys have been conducted in that area, so undiscovered populations might still exist.

In summary, bracted twistflower has four EOs with medium resiliency and no highly resilient EOs. Two representation areas have intermediate redundancy. Genetic representation at the species level is adequate, but 40 to 50 percent of EOs had low genetic diversity and high inbreeding, and inbreeding also occurred in three larger populations. The species has lost all or parts of six EOs and one-third of its potential population size over the last 30 years.

Risk Factors

A primary driver of the bracted twistflower's status is habitat loss due to urban and residential land development (McNeal 1989, p. 17; Damude and Poole 1990, p. 51; Zippin 1997, p. 229; Fowler 2010, p. 2; Pepper 2010, p. 5). A number of cities, including Austin, San Marcos, New Braunfels, and San Antonio, were established along the Balcones Escarpment due to the prevalence of springs. This area, known as the Interstate 35 corridor, is one of the fastest-growing urban complexes in the United States. Urban development reduces the redundancy and representation of the bracted twistflower and has consumed all or most of the habitat at six EOs of the bracted twistflower.

Habitat changes leading to lower sunlight intensity in the existing habitat are another threat to the bracted twistflower as growth and reproduction of the species, and thus resilience, increases with higher light intensity and duration (Fowler 2010, pp. 1–18; Leonard 2010, pp. 1–86; Ramsey 2010, pp. 1–35; Leonard and Van Auken 2013, pp. 276–285). Bracted twistflower habitats have likely experienced a decline in the frequency of wildfire, which has allowed Ashe juniper and other woody plant cover to increase within most bracted twistflower populations (Bray 1904, pp. 14–15, 22–23; Fonteyn *et al.* 1988, p. 79; Fowler *et al.* 2012, pp. 1518–1521). These increases in woody plant cover reduce the growth and reproduction of bracted twistflowers.

Severe herbivory by white-tailed deer and introduced ungulates is a significant factor affecting the status of bracted twistflower throughout the species' range, except where populations are protected from deer by fencing or through intensive herd management (McNeal 1989, p. 17; Damude and Poole 1990, pp. 52–53; Dieringer 1991, p. 341; Zippin 1997, pp. 39–197, 227; Leonard 2010, pp. 36–43; Fowler 2014, pp. 17, 19). Herbivory is exacerbated by the extremely high deer densities in the Edwards Plateau of Texas (Zippin 1997, p. 227).

Both permitted and unauthorized recreation affects the species' survival at several protected natural areas, as well as on private lands. Hiking and mountain bike trails have impacted the populations at Mt. Bonnell City Park, Barton Creek Preserve, Garner State Park, and Bull Creek Park through trampling of the herbaceous vegetation and severe soil erosion where trails cut directly through occupied habitat (McNeal 1989, p. 19; Fowler 2010, p. 2; Bracted Twistflower Working Group 2010, p. 3; Pepper 2010, pp. 5, 15, 17).

Small, isolated populations are less resilient and more vulnerable to catastrophic losses caused by random fluctuations in recruitment or variations in rainfall or other environmental factors (Service 2016, p. 20). Small populations are also less able to overwhelm herbivores to ensure replenishment of the soil seed reserve (Service 2021, p. 33). In addition to population size, it is likely that population density also influences population viability, because reproduction requires genetically compatible individuals to be clustered within the forage range of the native bee pollinators (Service 2021, p. 33). Small, reproductively isolated populations are also more susceptible to the loss of genetic diversity, genetic drift, and inbreeding (Barrett and Kohn 1991, pp. 3–30). This may reduce the ability of the species or population to resist pathogens and parasites, adapt to changing environmental conditions, or colonize new habitats. More than half of the EOs observed since 1989 are at risk due to the demographic consequences of small population sizes (significantly below the estimated MVP level of 1,800 individuals), and many of the remaining populations have very little genetic diversity and relatively high levels of inbreeding (Pepper 2010, pp. 13, 15). The species as a whole still possesses significant genetic diversity (Pepper 2010, pp. 4, 11, 15), but several of the core reservoirs of the species' genetic diversity occur on private lands and may be lost to development.

Projections of the Species Future Viability

The SSA projects viability during two future periods, from 2030 to 2040 and from 2050 to 2074. We chose these time frames because they represent the likely minimum and maximum lengths of time that seeds could remain viable in the soil, and therefore the potential of declining EOs to recover from viable seeds in the soil seed reserve. Although we do not know the maximum length of time that bracted twistflower seeds can remain viable in the soil seed reserve, observations of the experimental population at Vireo Preserve reveal that at least some seeds are viable after seven

years. Beale's seed viability experiment, begun in 1879, found that 60 percent of annual and biennial plant species still germinated after 15 years in the soil; but by 35 and 50 years, viable seeds persisted for only 30 percent and 25 percent of the species, respectively (Telewski and Zeevart 2002, p. 1286). Based on the Vireo Preserve observations and the Beale experiment, it is likely that bracted twistflower EOs could be restored after 10 or even 20 years without replenishment. Conversely, it is also likely that the soil seed reserve would be completely depleted after 50 years.

The projections of future viability also considered three different scenarios representing an improvement over current conditions, continuation of current trends, or deterioration beyond current conditions. These scenarios were based on seven components that influence this species' status and their cumulative effects on the species: The extent of conservation support, effects of regional development, survey results, documentation of the geographic range, effectiveness of habitat management, effectiveness of population management, and effects of climate changes. Table 2 summarizes the projected species viability during each of the two time frames and under each of the three scenarios. Under the ''improvement'' scenario, the number of EOs in high condition, currently 5, would increase to 10 by 2030–2040 and to 13 by 2050–2074 leading to an increase in species' resiliency. In this scenario species' redundancy and representation remain stable. Under the ''continue'' scenario, the number of extirpated EOs would increase to four by 2030–2040 and to 10 by 2050–2074 leading to a loss of redundancy. Both EOs in the West Representation Area would be extirpated by 2050–2074 leading to a reduction in species' representation. Conditions within 15 EOs would deteriorate under this scenario, leading to a reduction in species' resiliency. The ''deterioration'' scenario projects extirpation of 11 and 15 EOs during these periods, respectively, leading to a significant reduction in species redundancy and representation. By 2050–2074 all EOs in the West Representation area would be extirpated with only two remaining in the Northeast Representation Area and one in the Central Representation Area. Under this scenario, species resiliency declines across all sites. For more information, see the bracted twistflower SSA report (Service 2021, pp. 51–66). These scenarios should not be interpreted as mutually exclusive. The components of the scenarios will interact independently; future viability will likely result from a combination of conditions analyzed in these scenarios. For example, conservation support and habitat management could be better than expected by 2050, but climate changes and regional growth could have more severe impacts than expected.

TABLE 2—PROJECTED VIABILITIES OF BRACTED TWISTFLOWER DURING TWO FUTURE TIME FRAMES AND UNDER THREE SCENARIOS

EO No.	Current condition rank	Future scenarios		
		Improvement	Current trends continue	Deterioration
		Period/rank	Period/rank	Period/rank
Northeast Representation Area				
2	Low	2030–2040: Low 2050–2074: Medium	2030–2040: Low 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
7	High	2030–2040: High 2050–2074: High	2030–2040: High 2050–2074: High	2030–2040: Low. 2050–2074: Low.
9	Medium	2030–2040: High 2050–2074: High	2030–2040: Low 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
17	High	2030–2040: High 2050–2074: High	2030–2040: High 2050–2074: Medium	2030–2040: Low. 2050–2074: Low.
21	Extirpated	2030–2040: Extirpated 2050–2074: Extirpated	2030–2040: Extirpated 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
26	Low	2030–2040: Medium 2050–2074: Medium	2030–2040: Extirpated 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
32	Extirpated	2030–2040: Medium 2050–2074: Medium	2030–2040: Extirpated 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
33	Low	2030–2040: Medium 2050–2074: High	2030–2040: Extirpated 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
35	Medium	2030–2040: High 2050–2074: High	2030–2040: Low 2050–2074: Low	2030–2040: Low. 2050–2074: Extirpated.
36	High	2030–2040: High 2050–2074: High	2030–2040: Medium 2050–2074: Low	2030–2040: Low. 2050–2074: Extirpated.
xx [1]	Medium	2030–2040: Medium 2050–2074: High	2030–2040: Low 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
Central Representation Area				
8	Low	2030–2040: Medium	2030–2040: Low 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
18	Medium	2030–2040: High 2050–2074: High	2030–2040: Medium 2050–2074: Low	2030–2040: Low. 2050–2074: Extirpated.
23	Medium	2030–2040: High 2050–2074: High	2030–2040: Low 2050–2074: Low	2030–2040: Extirpated. 2050–2074: Extirpated.
25	High	2030–2040: High 2050–2074: High	2030–2040: Medium 2050–2074: Low	2030–2040: Low. 2050–2074: Extirpated.
31	High	2030–2040: High 2050–2074: High	2030–2040: High 2050–2074: High	2030–2040: Medium. 2050–2074: Low.

TABLE 2—PROJECTED VIABILITIES OF BRACTED TWISTFLOWER DURING TWO FUTURE TIME FRAMES AND UNDER THREE SCENARIOS—Continued

EO No.	Current condition rank	Future scenarios		
		Improvement	Current trends continue	Deterioration
		Period/rank	Period/rank	Period/rank
West Representation Area				
10	Medium	2030–2040: High 2050–2074: High	2030–2040: Low 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.
24	Low	2030–2040: Medium 2050–2074: High	2030–2040: Low 2050–2074: Extirpated	2030–2040: Extirpated. 2050–2074: Extirpated.

[1] This newly-discovered site does not yet have in EO ID or EO number in the TXNDD.

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. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then 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.

Conservation Efforts

Ten scientific investigations have been completed that contribute to our knowledge of the phenology, reproduction, habitats, ecology, population biology, and population genetics of bracted twistflower. The Bracted Twistflower Working Group, a consortium of federal, state, and local agencies, researchers, and conservation organizations, has met informally at least annually since 2000 and has worked actively to promote the conservation and recovery of this species. The Service, Texas Parks and Wildlife Department (TPWD), the City of Austin, Travis County, the Lower Colorado River Authority, and the Lady Bird Johnson Wildflower Center established a voluntary Memorandum of Agreement to protect, monitor, and restore bracted twistflower and its habitats on Balcones Canyonlands Preserve (BCP) tracts. Five extant EOs and one experimental population are protected through the agreement, including three of the five populations in a high current condition (Table 2). The City of San Antonio has actively protected and managed EOs at Eisenhower Park and Rancho Diana; the latter continues to be one of the largest remaining populations. The City of San Antonio and The Nature Conservancy own a conservation easement to protect 222 ha (549 ac) in Medina County for watershed conservation; this includes EO 25, which has one of the largest extant bracted twistflower populations. All or parts of 11 EOs are located on state or local conservation land.

Determination of the Bracted Twistflower'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 an ''endangered species'' or a ''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

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats and the cumulative effect of the threats under the section 4(a)(1) factors to the bracted twistflower.

Bracted twistflower occurs in three geographically separate representation areas, which experience differing regional climate and biotic factors. Although threats are currently acting on the bracted twistflower throughout its range, 11 EOs were found to have high or medium resiliency for their current condition, and 11 EOs (including one experimental population) occur on protected, state- or locally-owned conservation lands. Thus, after assessing the best available information, we conclude that the bracted twistflower is not currently in danger of extinction throughout all of its range. We therefore proceed with determining whether the bracted twistflower is likely to become endangered within the foreseeable future throughout all of its range.

For the purpose of this determination, the foreseeable future is 50 years, which corresponds to the climate projections used in the analysis. Under the ''current trends continue'' scenario, the number of extirpated EOs increases from two to 10. Under the ''declining'' scenario, 15 EOs will become extirpated, and the condition rank of the remaining three EOs will be low. Development, which results in the permanent loss of habitat, is the most significant threat to bracted twistflower, and this threat is expected to continue into the future. Habitats throughout the species' range have been degraded due to habitat modification and increased browsing pressure from white-tailed deer and introduced ungulates. Threats from habitat loss, habitat modification, increased herbivory, and loss of genetic diversity are cumulative and will likely result in further degradation without management intervention. There is no appreciable gene flow between populations (Pepper 2010, p. 11). Populations of bracted twistflower have declined and are expected to continue to decline into the future. Our analysis

of the species' current and future conditions show that the population and habitat factors used to determine the resiliency, representation, and redundancy of bracted twistflower are likely to continue to decline to the degree that the species is likely to become in danger of extinction within the foreseeable future throughout all of 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. The court in *Center for Biological Diversity* v. *Everson,* 2020 WL 437289 (D.D.C. Jan. 28, 2020) (*Center for Biological Diversity*), vacated the aspect 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) that provided the Service does not undertake an analysis of significant portions of a species' range if the species warrants listing as threatened throughout all of its range. Therefore, we proceed to evaluating whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species' range for which both (1) the portion is significant, and (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the ''significance'' question or the ''status'' question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

Following the court's holding in *Center for Biological Diversity,* we now consider whether there are any significant portions of the species' range where the species is in danger of extinction now (*i.e.,* endangered). In undertaking this analysis for the bracted twistflower, we choose to address the status question first—we consider information pertaining to the geographic distribution of the species and the threats that the species faces to identify any portions of the range where the species is endangered.

The statutory difference between an endangered species and a threatened species is the time frame in which the species becomes in danger of extinction; an endangered species is in danger of extinction now while a threatened species is not in danger of extinction now but is likely to become so in the foreseeable future. Thus, we reviewed the best scientific and commercial data available regarding the time horizon for the threats that are driving the bracted twistflower to warrant listing as a threatened species throughout all of its range. We considered whether the threats are geographically concentrated in any portion of the species' range in a way that would accelerate the time horizon for the species' exposure or response to the threats. We examined the following threats: Habitat loss to development (Factor A); changes in fire frequency and the composition and structure of vegetation (Factor A); excessive herbivory by white-tailed deer and other ungulates (Factor C); and demographic and genetic consequences of small, isolated populations (Factor E), including cumulative effects.

All of the known threats are present throughout the bracted twistflower's range, but to different degrees in different areas. We identified the western portion of the species' range, consisting of two EOs in Uvalde County, and determined that there is a concentration of threats from browsing of white-tailed deer and other ungulates. These threats are not unique to this area, but are acting at greater intensity here (*e.g.,* larger populations of white-tailed deer and other ungulates). One EO is fairly large in size and is in medium condition with a moderate level of genetic diversity. The other EO within Uvalde County only has data from one observation in 1997, which documented five plants, and is in low condition. Since the larger population in this portion is in medium condition, this portion is not currently in danger of extinction.

Although some threats to the bracted twistflower are concentrated in Uvalde County, the best scientific and commercial data available does not indicate that the concentration of threats, or the species' responses to the concentration of threats, are likely to accelerate the time horizon in which the species becomes in danger of extinction in that portion of its range. As a result, the bracted twistflower is not in danger of extinction now within Uvalde County. Therefore, we determine, that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This is consistent with the courts' holdings in Desert Survivors v. Department of the Interior, No. 16-cv-01165–JCS, 2018 WL 4053447 (N.D. Cal. Aug. 24, 2018), and Center for Biological Diversity v. Jewell, 248 F. Supp. 3d, 946, 959 (D. Ariz. 2017).

Determination of Status

Our review of the best scientific and commercial data available indicates that bracted twistflower meets the Act's definition of a threatened species. Therefore, we propose to list the bracted twistflower as a threatened species in accordance with sections 3(20) 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 other countries and calls for recovery actions to be carried out for 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. Section 4(f) of the Act calls for 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 consists of preparing draft and final recovery plans, beginning with the development of a recovery outline and making it available to the public within 30 days of a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan also identifies recovery criteria for review of when a species may be ready for reclassification from endangered to

threatened (''downlisting'') or removal from protected status (''delisting''), 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 (composed of 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 website (*http://www.fws.gov/endangered*), or from our Austin 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 range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, 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 State of Texas would be eligible for Federal funds to implement management actions that promote the protection or recovery of the bracted twistflower. Information on our grant programs that are available to aid species recovery can be found at: *http://www.fws.gov/grants.*

Although the bracted twistflower 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 an endangered or threatened species 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 consultation with the Service.

Federal agency actions within the species' habitat that may require conference or consultation or both as described in the preceding paragraph include management and any other landscape-altering activities on Federal lands administered by the Federal Highways Administration, U.S.D.A. Natural Resources Conservation Service, U.S. Army Corps of Engineers, Department of Defense-Joint Base San Antonio, and Federal Emergency Management Agency.

It is our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), 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 the species proposed for listing. The discussion below regarding protecting regulations under section 4(d) complies with our policy.

II. Proposed Rule Issued Under Section 4(d) of the Act

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of species listed as threatened. The U.S. Supreme Court has noted that statutory language like ''necessary and advisable'' demonstrates a large degree of deference to the agency (see *Webster* v. *Doe,* 486 U.S. 592 (1988)). Conservation is defined in the Act to mean the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Additionally, the second sentence of section 4(d) of the Act states that the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants. Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting the prohibitions under section 9.

The courts have recognized the extent of the Secretary's discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld rules developed under section 4(d) as a valid exercise of agency authority where they prohibited take of threatened wildlife, or include a limited taking prohibition (see *Alsea Valley Alliance* v. *Lautenbacher,* 2007 U.S. Dist. Lexis 60203 (D. Or. 2007); *Washington Environmental Council* v. *National Marine Fisheries Service,* 2002 U.S. Dist. Lexis 5432 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (see *State of Louisiana* v. *Verity,* 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history when the Act was initially enacted, ''once an animal is on the threatened list, the Secretary has an almost infinite number of options available to him with regard to the permitted activities for those species. He may, for example, permit taking, but not importation of such species, or he may choose to forbid both taking and importation but allow the transportation of such species'' (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

Exercising this authority under section 4(d), we have developed a proposed rule that is designed to address the bracted twistflower's specific threats and conservation needs. Although the statute does not require us to make a ''necessary and advisable'' finding with respect to the adoption of specific prohibitions under section 9, we find that this rule as a whole satisfies the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the bracted twistflower. As discussed above under Summary of Biological Status and Threats, the Service has concluded that the bracted twistflower is likely to

become in danger of extinction within the foreseeable future primarily due to habitat loss due to urban and residential land development, increases in woody plant cover, severe herbivory, and small, isolated populations. The provisions of this proposed 4(d) rule would promote conservation of the bracted twistflower by encouraging management of the landscape in ways that meet both land management considerations and the conservation needs of the bracted twistflower. This proposed 4(d) rule would apply only if and when we make final the listing of the bracted twistflower as a threatened species.

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

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

This obligation does not change in any way for a threatened species with a species-specific 4(d) rule. Actions that result in a determination by a Federal agency of ''not likely to adversely affect'' continue to require the Service's written concurrence and actions that are ''likely to adversely affect'' a species require formal consultation and the formulation of a biological opinion.

Provisions of the Proposed 4(d) Rule

This proposed 4(d) rule would provide for the conservation of the bracted twistflower by prohibiting the following activities, except as otherwise authorized or permitted: Importing or exporting; certain acts related to removing, damaging, and destroying; delivering, receiving, transporting, or shipping in interstate or foreign commerce in the course of commercial activity; and selling or offering for sale in interstate or foreign commerce.

As discussed above under Summary of Biological Status and Threats, habitat loss due to urban and residential land development (Factor A), increases in woody plant cover (Factor A), severe herbivory (Factor E), and small, isolated populations (Factor E) affect the status of the bracted twistflower. To protect the species from these threats, in addition to the protections that apply to Federal lands, the 4(d) rule would prohibit a person from removing, cutting, digging up, or damaging or destroying the species on non-Federal lands in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law. As most populations of the bracted twistflower occur off Federal land, these protections in the 4(d) rule are key to its effectiveness. For example, any damage to the species on non-Federal land in violation of a Texas off-highway vehicle law would be prohibited by the 4(d) rule. Additionally, any damage incurred by the species due to criminal trespass on non-Federal lands would similarly violate the proposed 4(d) rule. As a whole, the proposed 4(d) rule would help in the efforts to recover the bracted twistflower by limiting specific actions that damage individual populations.

We may issue permits to carry out otherwise prohibited activities, including those described above, involving threatened plants under certain circumstances. Regulations governing permits for threatened plants are codified at 50 CFR 17.72, which states that ''the Director may issue a permit authorizing any activity otherwise prohibited with regard to threatened species.'' That regulation also states, ''The permit shall be governed by the provisions of this section unless a special rule applicable to the plant is provided in sections 17.73 to 17.78.'' We interpret that second sentence to mean that permits for threatened species are governed by the provisions of section 17.72 unless a special rule, which we have defined to mean a species-specific 4(d) rule, provides otherwise. We recently promulgated revisions to section 17.71 providing that section 17.71 will no longer apply to plants listed as threatened in the future. We did not intend for those revisions to limit or alter the applicability of the permitting provisions in section 17.72, or to require that every species-specific 4(d) rule spell out any permitting provisions that apply to that species and species-specific 4(d) rule. To the contrary, we anticipate that permitting provisions would generally be similar or identical for most species, so applying the provisions of section 17.72 unless a species-specific 4(d) rule provides otherwise would likely avoid substantial duplication. Moreover, this interpretation brings section 17.72 in line with the comparable provision for wildlife at 50 CFR 17.32, in which the second sentence states, ''Such permit shall be governed by the provisions of this section unless a special rule applicable to the wildlife, appearing in sections 17.40 to 17.48, of this part provides otherwise.'' Under 50 CFR 17.12 with regard to threatened plants, a permit may be issued for the following purposes: For scientific purposes, to enhance propagation or survival, for economic hardship, for botanical or horticultural exhibition, for educational purposes, or for other purposes consistent with the purposes and policy of the Act. Additional statutory exemptions from the prohibitions are found in sections 9 and 10 of the Act.

We recognize the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, and candidate species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist the Services in implementing all aspects of the Act. In this regard, section 6 of the Act provides that the Services shall cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, would be able to conduct activities designed to conserve the bracted twistflower that may result in otherwise prohibited activities without additional authorization.

The Service recognizes the proposed 4(d) rule would allow beneficial and educational aspect of activities with seeds of cultivated plants, which generally enhance the propagation of the species, and therefore would satisfy permit requirements under the Act. The Service intends to monitor the interstate and foreign commerce and import and export of these specimens in a manner that will not inhibit such activities, providing the activities do not represent a threat to the survival of the species in the wild. In this regard, seeds of cultivated specimens would not be subject to the prohibitions above, provided that a statement that the seeds are of ''cultivated origin'' accompanies the seeds or their container.

Propagation is currently taking place for the bracted twistflower and will continue to be an important recovery tool. This will include collecting seeds from wild populations, following Center for Plant Conservation guidelines and the USFWS–NMFS 2000 Policy Regarding Controlled Propagation of Species Listed Under the Endangered Species Act (65 FR 56916), and propagating them for seed increase, population augmentation, introduction, and research related to the species' recovery.

Nothing in this proposed 4(d) rule would change in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or the ability of the Service to enter into partnerships for the management and protection of the bracted twistflower. However, interagency cooperation may be further streamlined through planned programmatic consultations for the species between Federal agencies and the Service, where appropriate. We ask the public, particularly State agencies and other interested stakeholders that may be affected by the proposed 4(d) rule, to provide comments and suggestions regarding additional guidance and methods that the Service could provide or use, respectively, to streamline the implementation of this proposed 4(d) rule (see Information Requested, above).

III. Critical Habitat

Background

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

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

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

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

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

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (*i.e.,* range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (*e.g.,* migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals). Additionally, our regulations at 50 CFR 424.02 define the word ''habitat'' as follows: ''For the purposes of designating critical habitat only, habitat is the abiotic and biotic setting that currently or periodically contains the resources and conditions necessary to support one or more life processes of a species.''

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

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

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

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. The implementing regulations at 50 CFR 424.12(b)(2) further delineate unoccupied critical habitat by setting out three specific parameters: (1) When designating critical habitat, the Secretary will first evaluate areas occupied by the species; (2) the Secretary will only consider unoccupied areas to be essential where a critical

habitat designation limited to geographical areas occupied by the species would be inadequate to ensure the conservation of the species; and (3) for an unoccupied area to be considered essential, the Secretary must determine that there is a reasonable certainty both that the area will contribute to the conservation of the species and that the area contains one or more of those physical or biological features essential to the conservation of the species.

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

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

As the regulatory definition of ''habitat'' reflects (50 CFR 424.02), habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) the prohibitions found in section 9 of the Act. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of the species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of those planning efforts calls for a different outcome.

Prudency Determination

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

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

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

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

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

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

As discussed earlier in this document, there is currently no imminent threat of collection or vandalism identified under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our SSA report (Service 2021, entire) and proposed listing determination for the bracted twistflower, we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to the bracted twistflower and that those threats in some way can be addressed by section 7(a)(2) consultation measures. The species occurs wholly in the jurisdiction of the United States, and we are able to identify areas that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) have been met and because the Secretary has not identified other circumstances for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for the bracted twistflower.

Critical Habitat Determinability

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

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

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

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

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

Physical or Biological Features Essential to the Conservation of the Species

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas we will designate as critical habitat from within the geographical area occupied

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

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

Summary of Essential Physical or Biological Features

We derive the specific physical or biological features essential to the conservation of the bracted twistflower from studies of the species' habitat, ecology, and life history as described below. Additional information can be found in the SSA report available on *http://www.regulations.gov* and *https://ecos.fws.gov/ecp/species/2856.* We have determined that the following physical or biological features are essential to the conservation of the bracted twistflower:

Geological Substrate and Soils.

The prevalent Cretaceous geological formations in the Edwards Plateau of central Texas include the Edwards group of formations and its equivalent, the Devils River formation, which replaces the Edwards to the west and south; both of these formations overlie the Glen Rose formation (Maclay and Small 1986, pp. 17–24). Karstic, porous limestones are abundant in the Edwards and Devils River formations, and conversely, the Glen Rose limestones have relatively little porosity. The Edwards Aquifer occupies the porous upper strata, and many seeps and springs occur along the Balcones Escarpment, where the boundary of these upper formations with the Glen Rose is exposed at the surface. Some units of the Edwards, Devils River, and Glen Rose formations are dolomitic, meaning that, in addition to calcium, they also contain significant amounts of magnesium. Bracted twistflower populations occur in close proximity to the exposed boundary of the Edwards or Devils River and Glen Rose formations (McNeal 1989, p. 15; Zippin 1997, p. 223; Carr 2001, p. 1; Pepper 2010, p. 5). Most populations are less than 2 kilometers (km) (1.2 miles (mi)) from this boundary, as seen in less detailed, small-scale geological maps (Fowler 2014, pp. 11–12). A detailed, large-scale geological map of northern Bexar County (Clark *et al.* 2009) reveals that two bracted twistflower populations (Eisenhower City Park and Rancho Diana) occur in a narrow stratum identified as a basal nodular hydrostratigraphic member of the Kainer Formation, Edwards Group. This stratum is immediately below a dolomitic hydrostratigraphic member of the Kainer Formation, and immediately above a cavernous hydrostratigraphic member of the Glen Rose limestone (Service 2021, pp. 8–9, figures 6–8). Populations often occur in horizontal bands where these strata are exposed along slopes. Soils in the immediate vicinity of individual plants are very shallow clays with abundant rock fragments.

Although we do not know why the species is associated with the Edwards-Glen Rose boundary, Fowler (2014, p. 12) proposed two hypotheses: (1) The species depends on increased seepage between these formations; and (2) the species requires higher levels of magnesium ions that leach from dolomitic limestone in the lower strata of the Edwards formation. These hypotheses are not mutually exclusive.

Ecological Community.

Bracted twistflower occurs in native, old-growth juniper-oak woodlands and shrublands along the Balcones Escarpment. Individual plants frequently occur near or under a canopy of Ashe juniper, Texas live oak, Texas persimmon (*Diospyros texana*), Texas mountain laurel, Texas red oak or other trees. In many sites bracted twistflower inhabits dense thickets of evergreen sumac (*Rhus virens*), agarita (*Mahonia trifoliolata*), Roemer acacia (*Acacia roemeriana*), Lindheimer silk-tassel (*Garrya ovata* ssp. *lindheimeri*), thoroughwort (*Ageratina havanensis*), oreja de ratón (*Bernardia myricifolia*), or other shrubs.

Bracted twistflower is a winter annual plant that persists only where individuals produce enough seeds to sustain a reserve of viable seeds in the soil. White-tailed deer and introduced ungulates heavily browse the flower stalks of individual plants before they can set seed, thus contributing to the decline of populations. Herbivory threatens the species throughout its range, except where it is protected from deer by fencing or intensive herd management (hunting) (McNeal 1989, p. 17; Damude and Poole 1990, pp. 52–53; Dieringer 1991, p. 341; Zippin 1997, pp. 39–197, 227; Leonard 2010, pp. 36–43; Fowler 2014, pp. 17, 19). The extremely high deer densities in the Edwards Plateau of Texas exacerbate the species' vulnerability to herbivory (Zippin 1997, p. 227).

In sites that are protected from white-tailed deer, the most robust bracted twistflower plants occur where woody plant cover is less dense (Damude and Poole 1990, pp. 29–30; Poole *et al.* 2007, p. 470). The two largest populations, Laurel Canyon and Rancho Diana, occur in relatively open vegetation of low shrubs and sotol (*Dasylirion texanum*), where there is little or no juniper cover. Laboratory and field experiments demonstrated that growth and reproduction of bracted twistflower benefits from higher light intensity and duration than it receives in many of the extant populations (Fowler 2010, pp. 10–11; Leonard 2010, p. 63; Ramsey 2010, p. 20); its persistence in dense thickets may be due to increased herbivory of the plants growing in more open vegetation (Leonard 2010, p. 63; Ramsey 2010, p. 22). Deer-exclusion cages significantly increased the

probability of survival, reproduction, above-ground biomass, and seed set, compared to un-caged plants, at a bracted twistflower population near Mesa Drive in Austin where the deer population was very high (Zippin 1997, p. 60). In 2012, the City of San Antonio Parks and Recreation Department (SAPRD) protected the Rancho Diana population with a deer-fenced exclosure. In August and September 2017, SAPRD personnel cut to ground level all woody vegetation in a 760-m2 (8,180-ft2) plot within the exclosure. In May 2018, the number of bracted twistflower plants within the cleared plot was 16 times greater, and seed production within the plot was 15 times greater, than in any of 4 previous years (Cozort 2019). In synthesis, shaded juniper thickets may serve as refugia from herbivory, but are not the species' optimal habitat. Bracted twistflower is best adapted to microsites at canopy gaps and edges within the juniper-oak woodland where it receives direct sunlight at least part of the day. It is likely that wildfires occurred more frequently in bracted twistflower habitats prior to European settlement, and that the more recent reduction in fire frequency has allowed Ashe juniper to increase in cover and density (Bray 1904, pp. 14–15, 23–24; Fonteyn *et al.* 1988, p. 79; Service 2021, pp. 12, 29–30).

Bracted twistflower produces seeds primarily through outcrossing (fertilization between different individuals), and therefore depends heavily on pollinators, including a native leafcutter bee, *Megachile comata,* for reproduction (Dieringer 1991, pp. 341–343). Halictid bees (sweat bees) and other native bee species may also be effective pollinators (Service 2021, p. 5). Therefore, bracted twistflower habitats must also support populations of leafcutter bees and other native bee species that effectively pollinate the species. Native bees in turn require, as sources of pollen and nectar, a diverse, abundant understory of native forb and shrub species that in the past was periodically renewed by wildfires.

In summary, the essential physical and biological features of bracted twistflower are:

(1) Karstic, dolomitic limestones underlain by less permeable limestone strata, where perched aquifers seep to the surface along slopes. These are often found within 2 kilometers of the exposed boundary of the Edwards or Devils River and Glen Rose geological formations;

(2) Native, old-growth juniper-oak woodlands and shrublands along the Balcones Escarpment;

(3) Herbivory from white-tailed deer and introduced ungulates of such low intensity that it does not severely deplete populations prior to seed dispersal;

(4) Tree and shrub canopy gaps that allow direct sunlight to reach the herbaceous plant layer at least 6 hours per day; and

(5) Viable populations of native bee species and the abundant, diverse forb and shrub understory that support them.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. The features essential to the conservation of this species may require special management considerations or protections to reduce the following threats: Habitat loss due to urban and residential development, increased woody plant cover, severe herbivory by native and introduced ungulates, and trampling and erosion from recreational use. Management activities that could ameliorate these threats include (but are not limited to) juniper thinning, prescribed fire, fencing to exclude deer and other herbivores, herd management of local ungulate populations, and protection from foot and bicycle traffic. These management activities will protect the physical and biological features essential for the conservation of the species by reducing herbivory, maintaining open canopies, protecting the habitat from trampling and erosion, and conserving diverse shrub and forb understory vegetation that supports the species' native bee pollinators.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas within the geographical area occupied by the species at the time of listing and any specific areas outside the geographical area occupied by the species to be considered for designation as critical habitat.

Areas Occupied at the Time of Listing

We considered the geographic areas occupied by the species at the time of listing to consist of EOs with survey data within the past 7 years or areas in which we confirmed that habitat remained intact using aerial imagery. We know that seeds can remain dormant and viable in the soil of intact sites for at least 7 years. Due to the large proportion of private lands within the range of the species, the majority of known locations occur on publicly-owned conservation lands that can be accessed for surveys. Most of the critical habitat units have been surveyed annually, and the habitats are protected by the cities of Austin and San Antonio. We do not have recent surveys for two sites, EOs 10 and 18 (Garner State Park and Medina Lake). However, we have precise geographic coordinates for these populations collected with Global Positioning System (GPS) instruments. In a Geographic Information System (GIS), we have overlaid the geographic coordinates of these sites on recent orthographically corrected aerial photographs and have determined that the habitats remain intact.

We designated critical habitat units only at extant EOs that still possess one or more of the physical and biological features that are essential to its conservation. We delineated each critical habitat unit around areas where karstic, dolomitic limestones of the Edwards or Devils River formations overlay the less permeable Glen Rose formation. The elevation ranges and degree of slope of these geological strata vary among EOs. However, because the exposed strata that support bracted twistflower populations are nearly horizontal, we used the elevation range where individuals have been observed at each EO to delineate this essential geological feature over the short distances spanned by that EO Similarly, since seepage from overlying karst aquifers occurs on slopes, we also used the range of slopes where individuals have been observed at each EO to delineate this essential feature at that EO. Thus, we combined the parameters of the observed elevation range and slope range of the species at each EO to delimit each critical habitat unit. However, we excluded any areas that lack natural vegetation, such as roads and buildings, as determined through examination of recent aerial photographs. We also did not designate critical habitat units at EOs that are no longer occupied, or that no longer possess the essential physical and biological features due to development or significant disturbance. Finally, we did not extend critical habitat units beyond areas that have been surveyed, because we cannot determine if they

contain the essential physical or biological features.

Areas Outside the Geographic Area Occupied at the Time of Listing

We are not proposing to designate any areas outside the geographic area currently occupied by bracted twistflower because we did not find any unoccupied areas that contained the necessary PBFs and were essential for the conservation of the species. We are designating critical habitat within occupied habitat in all three representation areas, including areas that preserve the populations with the highest resiliency. Therefore, unoccupied areas are not necessary for the recovery of the species.

General Information on the Maps of the Proposed Critical Habitat Designation

When determining proposed critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features necessary for bracted twistflower. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

We propose to designate as critical habitat lands that we have determined are occupied at the time of listing (*i.e.,* currently occupied) and that contain one or more of the physical or biological features that are essential to support life-history processes of the species.

Some units contain all of the identified physical or biological features and support multiple life-history processes. Some units contain only some of the physical or biological features necessary to support the bracted twistflower's particular use of that habitat.

The proposed critical habitat designation is defined by the maps, as modified by any accompanying regulatory text, presented at the end of this document under Proposed Regulation Promulgation. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on *http://www.regulations.gov* at Docket No. FWS–R2–ES–2021–0013 and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT**).

Proposed Critical Habitat Designation

We are proposing approximately 1,607 acres (ac) (650 hectares (ha)) in three units as critical habitat for the bracted twistflower. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for the bracted twistflower. The three areas we propose as critical habitat are: (1) Northeast Unit; (2) Central Unit; and (3) Southwest Unit. Table 2 shows the proposed critical habitat units, the land ownership, and the approximate area of each unit. All units proposed for designation are occupied.

TABLE 2—PROPOSED CRITICAL HABITAT UNITS FOR THE BRACTED TWISTFLOWER

[Area estimates reflect all land within critical habitat unit boundaries.]

Unit	Subunit (conservation area or property name)	Property owner	Occupied?	Critical habitat size	
				Ac	Ha
1. Northeast	1a. Barton Creek Park/ Wilderness Area (EOs 17, 36).	City of Austin	Yes	690.50	279.44
	1b. Bull Creek Park (EO 35).	City of Austin	Yes	2.32	0.94
	1c. Mount Bonnell Park (EO 9).	City of Austin	Yes	2.00	0.81
	1d. Ullrich Water Treatment Plant (Bee Creek Park) (EO 7).	City of Austin	Yes	29.92	12.11
2. Central	2a. Eisenhower Park (EO 23).	City of San Antonio	Yes	78.16	31.63
	2b. Rancho Diana (EO 31).	City of San Antonio	Yes	395.73	160.15
	2c. Laurel Canyon Ranch Conservation Easement (EO 25).	Laurel C. Canyon Ranch LP; City of San Antonio holds conservation easement.	Yes	39.59	16.02
	2d. Medina River (EO 18)	Private	Yes	23.28	9.42
3. Southwest	Garner State Park (EO 10).	Texas Parks and Wildlife Department.	Yes	345.22	139.71
Totals				1,606.72	650.23

Note: Area sizes may not sum exactly due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the bracted twistflower, below.

Unit 1: Northeast

Unit 1 consists of 725 ac (293 ha) of occupied habitat within Travis County, Texas, and is composed of four subunits, which are described below.

Subunit 1a

Barton Creek Greenbelt and Barton Creek Wilderness Park consist of 838.76 ac (339.44 ha) and 1,120.26 ac (453.36 ha) of protected areas, respectively, along Barton Creek within the City of

Austin. These contiguous conservation areas are owned and managed by the City of Austin Parks and Recreation Department as units of the BCP system. We are proposing to designate 690.50 ac (279.44 ha) of the Barton Creek BCP units as occupied critical habitat for the bracted twistflower (EOs 17 and 36). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, and viable native bee populations; the subunit has small canopy gaps, and small areas are protected from deer. Specific threats include juniper encroachment into canopy gaps, white-tailed deer herbivory, infrequent wildfire, and off-trail recreational uses. Special management needed for bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning. The primary management goal of these BCP units is to conserve the golden-cheeked warbler (*Dendroica chrysoparia*), bracted twistflower, and protected cave invertebrates, while providing appropriate, safe, public recreational access; over 100,000 people visit the Barton Creek units annually for outdoor recreational uses (City of Austin 2007a, pp. 1–11). The specific management objectives relevant to the bracted twistflower include posting educational signs, developing memoranda of cooperation with user groups, conducting outreach to user groups, blocking unauthorized trails, enforcing trail closures, thinning junipers, and controlling exotic species. The City of Austin Wildland Conservation Division monitors the Barton Creek bracted twistflower populations annually (City of Austin 2018); we estimate that this is the second largest known population of this species.

Subunit 1b

Bull Creek District Park, acquired in 1971, is a 47.30-ac (19.14-ha) conservation area owned and managed by the City of Austin Parks and Recreation Department as a unit of the BCP system. We are proposing to designate 2.32 ac (0.94 ha) of this BCP unit as occupied critical habitat for the bracted twistflower (EO 35). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, and viable native bee populations. Specific threats include juniper encroachment into canopy gaps, white-tailed deer herbivory, infrequent wildfire, off-trail recreational uses, and small population size. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning. The primary management goals of this BCP unit are to maintain and improve habitat for golden-cheeked warblers; to protect karst species and other species of concern, including canyon mock-orange (*Philadelphus ernestii*), a rare endemic shrub; and to protect the watershed, water quantity, and water quality (City of Austin 2007b, pp. 1–5). A secondary management goal is to provide safe public access for outdoor recreation. Although the bracted twistflower is not specifically included in the BCP management plan for Bull Creek District Park, a small population was discovered there after the plan was developed and is now monitored annually by the City of Austin Wildland Conservation Division (City of Austin 2018).

Subunit 1c

Mount Bonnell Park (Covert Park at Mount Bonnell) is a 6.07-ac (2.45-ha) conservation area owned and managed by the City of Austin Parks and Recreation Department as a unit of the BCP system. We are proposing to designate 2.00 ac (0.81 ha) of this BCP unit as occupied critical habitat for the bracted twistflower (EO 9). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, and viable native bee populations. Specific threats include juniper encroachment into canopy gaps, white-tailed deer herbivory, infrequent wildfire, off-trail recreational uses, and small population size. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning. The primary management goal for the BCP acreage of Mt. Bonnell is to protect and manage habitat for the bracted twistflower (City of Austin 2007c, pp. 1–4). Management objectives include stopping unauthorized foot traffic into the species' habitat; conducting annual monitoring of the population; increasing the population size; working with adjacent private landowners to protect and manage the species; and removing nonnative, invasive vegetation. The City of Austin Wildland Conservation Division monitors the Mount Bonnell bracted twistflower population annually (City of Austin 2018). This small population is a remnant of a much larger population that extended onto adjacent private land and was subsequently lost to residential development.

Subunit 1d

Ullrich Water Treatment Plant (Bee Creek Park) is a 95.42-ac (38.61-ha) property owned and managed by the City of Austin Water Utility. The Balcones Canyonlands Conservation Plan designated 17.7 ac (7.16 ha) of this property as BCP Habitat Management Areas. We are proposing to designate 29.92 ac (12.11 ha) of this BCP unit as occupied critical habitat for the bracted twistflower (EO 7); the proposed critical habitat area includes some undeveloped portions of the property that were not included in the BCP Habitat Management Area designation. This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, protection from deer herbivory, and viable native bee populations. Specific threats include juniper encroachment into canopy gaps, infrequent wildfire, and small population size. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning. The primary management goals are to protect and maintain habitat for the golden-cheeked warbler, protect karst features and monitor the Bee Creek Cave harvestman (*Texella reddelli*) and other karst invertebrates, protect the population of bracted twistflower at this site, and protect the Little Bee Creek watershed quality (City of Austin 2007d, pp. 1–4). Austin Water Utility constructed a game fence to protect the bracted twistflower population from deer browsing and unauthorized public access. The City of Austin Wildland Conservation Division monitors the Ullrich bracted twistflower population annually (City of Austin 2018).

Unit 2: Central

Unit 2 consists of 537 ac (217 ha) of occupied habitat within Bexar and Medina Counties in Texas. This unit is composed of four subunits, which are described below.

Subunit 2a

Eisenhower Park is a 324-ac (131-ha) designated natural area in Bexar County owned by the City of San Antonio and managed by San Antonio Parks and Recreation Department (SAPRD). It is bounded on the north by Camp Bullis Military Reservation. We are proposing

to designate 78.16 ac (31.63 ha) as occupied critical habitat for the bracted twistflower at Eisenhower Park (EO 23). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, protection from deer herbivory, tree and shrub canopy gaps, and viable native bee populations. Specific threats include herbivory from white-tailed deer, juniper encroachment into canopy gaps, infrequent wildfire, off-trail recreational uses, and small population size. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning. One population of bracted twistflower occurred on both sides of the Eisenhower Park-Camp Bullis boundary; however, no individuals have been observed on the Camp Bullis side for about 10 years. SAPRD monitors the population at Eisenhower Park annually; additionally, SAPRD has installed deer-fenced exclosures to prevent herbivory and has selectively thinned the woody overstory to increase sunlight exposure (Austin 2018, p. 10; Cozort 2019, p. 2). SAPRD currently proposes to augment the population size and genetic diversity through propagation and reintroduction (Cozort 2019).

Subunit 2b

Rancho Diana is a 1,148-ac (465-ha) natural area in Bexar County acquired by the City of San Antonio through the City's 2005 Edwards Aquifer Protection program. We are proposing to designate 395.73 ac (160.15 ha) as occupied critical habitat for the bracted twistflower at Rancho Diana (EO 31). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, protection from deer herbivory, tree and shrub canopy gaps, and viable native bee populations. Specific threats include herbivory from white-tailed deer, juniper encroachment into canopy gaps, and infrequent wildfire. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning. This property is managed by SAPRD, but currently is not open to the public. SAPRD discovered a large population of bracted twistflower at Rancho Diana in 2010, and subsequently protected the population with a deer-fenced exclosure; however, portions of the population extend beyond this exclosure and are vulnerable to herbivory. SAPRD cleared the overstory brush from small portions of the enclosed population in 2017 and 2019, resulting in a large increase in the emergence and seed production of bracted twistflowers within the cleared areas.

Subunit 2c

Laurel Canyon Ranch Conservation Easement is a private property in Medina County owned by Laurel C. Canyon Ranch Limited Partnership, of Houston, Texas. The City of San Antonio Edwards Aquifer Protection Program holds a conservation easement on 549 ac (222 ha) of Laurel Canyon Ranch (City of San Antonio and The Nature Conservancy 2016). About 87 percent of the easement is within the Edwards Aquifer Recharge Zone, and the conservation easement protects water quantity and quality for the City of San Antonio. This subunit is not open to the public. The largest known population of the bracted twistflower was documented at this site in 2001 (Carr 2001; TXNDD 2018), and has been monitored annually by SAPRD since 2018. We are proposing to designate 39.59 ac (16.02 ha) as occupied critical habitat for the bracted twistflower at the Laurel Canyon Ranch Conservation Easement (EO 25). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, tree and shrub canopy gaps, and viable native bee populations. Specific threats include herbivory from white-tailed deer, juniper encroachment into canopy gaps, and infrequent wildfire. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning.

Subunit 2d

Medina River is a 722.81-ac (292.52-ha) tract of private property in Medina County owned by Medina Ranch Inc. of San Antonio, Texas. A population of about 1,000 bracted twistflowers was documented there in April 2007 (TXNDD 2018). We are proposing to designate 23.28 ac (9.42 ha), located along bluffs overlooking the Medina River Diversion Lake, as occupied critical habitat for the bracted twistflower (EO 18). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, tree and shrub canopy gaps, and viable native bee populations. Specific threats include herbivory from white-tailed deer, juniper encroachment into canopy gaps, and infrequent wildfire. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning. This subunit is not open to the public.

Unit 3: Southwest

Unit 3 consists of occupied habitat within Uvalde County, Texas. Garner State Park was donated by local landowners to the State of Texas in 1941, and is managed by TPWD. One population of bracted twistflower persists at this very heavily visited, 1,786-ac (723-ha) State park. We are proposing to designate 345.23 ac (139.71 ha) as occupied critical habitat for the bracted twistflower at Garner State Park (EO 10). This subunit contains the essential physical and biological features of proximity to the geological boundary, old-growth juniper-oak woodlands, tree and shrub canopy gaps, and viable native bee populations. Specific threats include herbivory from white-tailed deer and introduced ungulates, juniper encroachment into canopy gaps, off-trail recreational uses of habitats, and infrequent wildfire. Special management needed for the bracted twistflower within this subunit includes white-tailed deer herd management and thinning of juniper trees; if it can be conducted safely, management could include prescribed burning.

Effects of Critical Habitat Designation

Section 7 Consultation

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

We published a final rule revising the definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse

modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

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

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

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

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

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

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

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

(3) Are economically and technologically feasible, and

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

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

Regulations at 50 CFR 402.16 set forth requirements for Federal agencies to reinitiate formal consultation on previously reviewed actions. These requirements apply when the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law) and, if subsequent to the previous consultation: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

Application of the ''Destruction or Adverse Modification'' Standard

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

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

Activities that the Service may, during a consultation under section 7(a)(2) of the Act, consider likely to destroy or adversely modify critical habitat include, but are not limited to, actions that would disturb the soil or underlying rock strata, reduce the diversity and abundance of native bees and bee-pollinated plant species, or diminish the perched aquifers that supply seep moisture to bracted twistflower habitats. Such activities could include, but are not limited to, excavation of soil or underlying rock strata with bulldozers, graders, back-hoes, or excavators within habitats; application of insecticides that kill or impair native bees; application of herbicides that kill or damage native bee-pollinated plants; and displacement of native juniper-oak woodlands with surface cover, such as pavement and buildings, that impede infiltration of rainwater into the soil. These activities could deplete or destroy the soil seed reserve of viable seeds of the bracted twistflower, diminish the abundance of the species' pollinators and thereby reduce seed production and gene flow, or alter the soil and hydrology so that it no longer supports the germination, establishment, and reproduction of the bracted twistflower.

Exemptions

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

Section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that the Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan (INRMP) prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation. There are no Department of Defense lands with a completed INRMP within the proposed critical habitat designation.

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

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

discretion regarding which factor(s) to use and how much weight to give to any factor.

Under section 4(b)(2) of the Act, we may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise discretion to exclude the area only if such exclusion would not result in the extinction of the species. We describe below the process that we undertook for taking into consideration each category of impacts and our analyses of the relevant impacts.

Consideration of Economic Impacts

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

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

For this particular designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from this proposed designation of critical habitat. The information contained in our IEM was then used to develop a screening analysis of the probable effects of the designation of critical habitat for the bracted twistflower (IEc. 2020, entire). We began by conducting a screening analysis of the proposed designation of critical habitat in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening analysis is to filter out particular geographic areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. In particular, the screening analysis considers baseline costs (*i.e.,* absent critical habitat designation) and includes any probable incremental economic impacts where land and water use may already be subject to conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the species. Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. If the proposed critical habitat designation contains any unoccupied units, the screening analysis assesses whether those units are unoccupied because they require additional management or conservation efforts that may incur incremental economic impacts. This screening analysis combined with the information contained in our IEM constitute what we consider to be our draft economic analysis (DEA) of the proposed critical habitat designation for the bracted twistflower; our DEA is summarized in the narrative below.

Executive Orders (EOs) 12866 and 13563 direct Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the EO regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess to the extent practicable the probable impacts to both directly and indirectly affected entities. As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat designation. In our evaluation of the probable incremental economic impacts that may result from the proposed designation of critical habitat for the bracted twistflower, first we identified, in the IEM dated October 8, 2020, probable incremental economic impacts associated with potential activities based upon our knowledge of future projects and past consultations. Critical habitat designation generally will not affect activities that do not have any Federal involvement; under the Act, a designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies. If we list the species, in areas where the bracted twistflower is present, Federal agencies would be required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. If, when we list the species, we also finalize this proposed critical habitat designation, our consultation would include an evaluation of measures to avoid the destruction or adverse modification of critical habitat.

In our IEM, we attempted to clarify the distinction between the effects that would result from the species being listed and those attributable to the critical habitat designation (*i.e.,* difference between the jeopardy and adverse modification standards) for the bracted twistflower's critical habitat. Because the designation of critical habitat for the bracted twistflower was proposed concurrently with the listing, it has been our experience that it is more difficult to discern which conservation efforts are attributable to the species being listed and those which will result solely from the designation of critical habitat. However, the following specific circumstances in this case help to inform our evaluation: (1) The essential physical or biological features identified for critical habitat are the

same features essential for the life requisites of the species, and (2) any actions that would result in sufficient harm or harassment to constitute jeopardy to the bracted twistflower would also likely adversely affect the essential physical or biological features of critical habitat. The IEM outlines our rationale concerning this limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. This evaluation of the incremental effects has been used as the basis to evaluate the probable incremental economic impacts of this proposed designation of critical habitat.

The proposed critical habitat designation for the bracted twistflower consists of approximately 1,607 ac (650 ha) of occupied habitat within three units. Unit 1 (Northeast) contains four subunits totaling 724.74 ac (293.30 ha), all owned by the City of Austin. Unit 2 (Central) contains four subunits totaling 536.79 ac (217.22 ha); two subunits are owned by the City of San Antonio, and two are privately owned. Unit 3 (Southwest) contains 345.23 ac (139.71 ha) that are within Garner State Park and managed by Texas Parks and Wildlife Department.

All proposed critical habitat units are occupied by the species; therefore, any activities with a Federal nexus in the proposed critical habitat area that may affect the species would be subject to section 7 consultation regardless of whether critical habitat is designated. It is unlikely that any additional conservation efforts would be recommended to address the adverse modification standard over and above those recommended as necessary to avoid jeopardizing the continued existence of the bracted twistflower. As a result, critical habitat is not expected to result in additional consultations beyond those required due to the presence of the species. Therefore, only administrative costs are expected within the proposed critical habitat designation. While this additional analysis will require time and resources by both the Federal action agency and the Service, it is believed that these costs would predominantly be administrative in nature and would not be significant. The entities most likely to incur incremental costs are parties to section 7 consultations, including Federal action agencies, State agencies or municipalities, and, in some cases, third parties.

Overall, future consultation activity within the proposed critical habitat area is likely to be very limited, but may include the following categories: (1) Land restoration of enhancement; (2) agriculture; (3) development; (4) transmission line construction; (5) oil or gas pipelines; (6) transportation; and (7) stream modification. The majority (99 percent) of the proposed critical habitat area is within protected areas and conservation lands. The consultation history indicates that few projects and activities have occurred within critical habitat and within the broader range of the species over the past 9 years. Future consultations within the proposed critical habitat units are anticipated to range from zero to 0.1 formal consultations per year, 0.1 to 0.4 informal consultations per year, and zero to 0.9 technical assistance efforts per year. Based on the average annual rate of consultations, the incremental administrative costs of consultation for the proposed critical habitat units may range from $280 to $2,100 in an average year (IEc 2020, p. 15).

We are soliciting data and comments from the public on the DEA discussed above, as well as on all aspects of this proposed rule and our required determinations.

During the development of a final designation, we will consider the information presented in the DEA and any additional information on economic impacts we receive during the public comment period to determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90. If we receive credible information regarding the existence of a meaningful economic or other relevant impact supporting a benefit of exclusion, we will conduct an exclusion analysis for the relevant area or areas. We may also exercise the discretion to evaluate any other particular areas for possible exclusion. Furthermore, when we conduct an exclusion analysis based on impacts identified by experts in, or sources with firsthand knowledge about, impacts that are outside the scope of the Service's expertise, we will give weight to those impacts consistent with the expert or firsthand information unless we have rebutting information. We may exclude an area from critical habitat if we determine that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the extinction of this species. We may exclude an area from critical habitat if we determine that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the extinction of this species.

Consideration of National Security Impacts

Section 4(a)(3)(B)(i) of the Act may not cover all DoD lands or areas that pose potential national-security concerns (*e.g.,* a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), then national-security or homeland-security concerns are not a factor in the process of determining what areas meet the definition of ''critical habitat.'' However, the Service must still consider impacts on national security, including homeland security, on those lands or areas not covered by section 4(a)(3)(B)(i), because section 4(b)(2) requires the Service to consider those impacts whenever it designates critical habitat. Accordingly, if DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns, or we have otherwise identified national-security or homeland-security impacts from designating particular areas as critical habitat, we generally have reason to consider excluding those areas.

However, we cannot automatically exclude requested areas. When DoD, DHS, or another Federal agency requests exclusion from critical habitat on the basis of national-security or homeland-security impacts, we must conduct an exclusion analysis if the Federal requester provides credible information, including a reasonably specific justification of an incremental impact on national security that would result from the designation of that specific area as critical habitat. That justification could include demonstration of probable impacts, such as impacts to ongoing border-security patrols and surveillance activities, or a delay in training or facility construction, as a result of compliance with section 7(a)(2) of the Act. If the agency requesting the exclusion does not provide us with a reasonably specific justification, we will contact the agency to recommend that it provide a specific justification or clarification of its concerns relative to the probable incremental impact that could result from the designation. If we conduct an exclusion analysis because the agency provides a reasonably specific justification or because we decide to exercise the discretion to conduct an exclusion analysis, we will defer to the expert judgment of DoD, DHS, or another Federal agency as to: (1) Whether activities on its lands or waters, or its activities on other lands or

waters, have national-security or homeland-security implications; (2) the importance of those implications; and (3) the degree to which the cited implications would be adversely affected in the absence of an exclusion. In that circumstance, in conducting a discretionary section 4(b)(2) exclusion analysis, we will give great weight to national-security and homeland-security concerns in analyzing the benefits of exclusion.

Under section 4(b)(2) of the Act, we also consider whether where a national-security or homeland-security impact might exist on lands not owned or managed by DoD or DHS. In preparing this proposal, we have determined that, other than the land exempted under section 4(a)(3)(B)(i) of the Act based upon the existence of an approved INRMP (see Exemptions, above), the lands within the proposed designation of critical habitat for the bracted twistflower are not owned or managed by DoD or DHS. Therefore, we anticipate no impact on national security. However, if through the public comment period we receive credible information regarding impacts on national security or homeland security from designating particular areas as critical habitat, then as part of developing the final designation of critical habitat, we will conduct a discretionary exclusion analysis to determine whether to exclude those areas under authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90.

Consideration of Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security discussed above. We consider a number of factors including whether there are permitted conservation plans covering the species in the area such as HCPs, safe harbor agreements (SHAs), or candidate conservation agreements with assurances (CCAAs), or whether there are non-permitted conservation agreements and partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at the existence of Tribal conservation plans and partnerships and consider the government-to-government relationship of the United States with Tribal entities. We also consider any social impacts that might occur because of the designation. No Tribal lands are included in the critical habitat designation for the bracted twistflower.

We are not considering any exclusions at this time from the proposed designation under section 4(b)(2) of the Act based on partnerships, management, or protection afforded by cooperative management efforts. When analyzing the benefits of including or excluding particular areas covered by conservation plans, agreements, or partnerships permitted under section 10 of the Act, we consider whether the species for which critical habitat is being designated is a covered species in the conservation plan or agreement and whether the conservation plan or agreement specifically addressed the habitat of the species (50 CFR 17.90(3)). Within the proposed critical habitat units, there is currently one HCP being implemented, the Balcones Canyonlands Preserve HCP; however, this HCP does not include the bracted twistflower. Rather, the HCP explicitly states that the bracted twistflower will not be adequately protected by the plan (BCP 1996, pp. 7, 9). Here, the bracted twistflower does have similar habitat requirements to those species covered by the Balcones Canyonlands Preserve HCP, but the HCP specifically states that several of those habitats will be destroyed by the actions taken in the HCP's planning area. Accordingly, the HCP does not adequately address the habitat of the bracted twistflower or meet its conservation needs in its planning area, and, therefore, the HCP's covered area should not be considered for exclusion here.

We also analyze the benefits of including or excluding particular areas covered by conservation plans, agreements, or partnerships that have not been authorized by a permit under section 10 of the Act (50 CFR 17.90(4)). A non-binding, non-obligatory memorandum of agreement (MOA) to work cooperatively at efforts to conserve the bracted twistflower between the Service, Texas Parks and Wildlife Department, City of Austin, Travis County, Lower Colorado River Authority, and the Ladybird Johnson Wildflower Center was entered into in 2004. When analyzing the benefits of including or excluding these areas, we analyze the degree to which the plan or agreement provides for the conservation of the physical or biological features that are essential to the conservation of the species (50 CFR 17.90(4)(vi)). The MOA has benefited conservation of the bracted twistflower, but does not address all of the species' essential physical and biological features; specifically, it does not address encroachment and competition from Ashe juniper. Scientific studies that revealed the species' requirement for exposure to direct sunlight were not published until after the MOA was finalized in 2004 (Fowler 2010, pp. 1–18; Leonard 2010, pp. 1–86; Ramsey 2010, pp. 1–35; Leonard and Van Auken 2013, pp. 276–285). Consequently, the critical habitat designation would enhance ongoing conservation efforts, and the potential benefit of exclusion does not outweigh the benefit of inclusion.

We have not identified any areas to consider for exclusion from critical habitat based on other relevant impacts. However, during the development of a final designation, we will consider all information currently available or received during the public comment period. If we receive credible information regarding the existence of a meaningful impact supporting a benefit of excluding any areas, we will undertake an exclusion analysis and determine whether those areas should be excluded from the final critical habitat designation under the authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90. We may also exercise the discretion to undertake exclusion analyses for other areas as well, and we will describe all of our exclusion analyses as part of a final critical habitat determination.

Summary of Exclusions Considered Under 4(b)(2) of the Act

At this time we are not considering any exclusions from the proposed designation based on economic impacts, national security impacts, or other relevant impacts—such as partnerships, management, or protection afforded by cooperative management efforts—under section 4(b)(2) of the Act. Some areas within the proposed designation are included in Balcones Canyonlands Preserve HCP and within a memorandum of agreement (MOA) between the Service, Texas Parks and Wildlife Department, City of Austin, Travis County, Lower Colorado River Authority, and the Ladybird Johnson Wildflower Center. In this proposed rule, we are seeking credible information from the public regarding the existence of a meaningful impact supporting a benefit of excluding any areas that would be used in an exclusion analysis that may result in the exclusion of areas from the final critical habitat designation. (Please see **ADDRESSES** for instructions on how to submit comments).

Required Determinations

Clarity of the Rule

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

(1) Be logically organized;

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

(3) Use clear language rather than jargon;

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

(5) Use lists and tables wherever possible.

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

Regulatory Planning and Review (Executive Orders 12866 and 13563)

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

Executive Order 13563 reaffirms the principles of EO 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. EO 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this proposed rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (*i.e.,* small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine whether potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

Under the RFA, as amended, and as understood in light of recent court decisions, Federal agencies are required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself; in other words, the RFA does not require agencies to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies would be directly regulated if we adopt the proposed critical habitat designation. The RFA does not require evaluation of the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities would be directly regulated by this rulemaking, the Service certifies that, if made final as proposed, the proposed critical habitat designation will not have a significant economic impact on a substantial number of small entities.

In summary, we have considered whether the proposed designation would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if made final, the proposed critical habitat designation would not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. In our economic analysis, we did not find that this proposed critical habitat designation would significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following finding:

(1) This proposed rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or Tribal governments'' with two exceptions. It excludes ''a condition of Federal

assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and Tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or Tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because the lands being proposed for critical habitat designations are primarily owned by the cities of Austin and San Antonio or the State of Texas and none of these government entities fits the definition of ''small governmental jurisdiction.'' Therefore, a Small Government Agency Plan is not required.

Takings—Executive Order 12630

In accordance with EO 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the bracted twistflower in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation. Designation of critical habitat does not affect land ownership, or establish any closures, or restrictions on use of or access to the designated areas. Furthermore, the designation of critical habitat does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed for the proposed designation of critical habitat for the bracted twistflower, and it concludes that, if adopted, this designation of critical habitat does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with EO 13132 (Federalism), this proposed rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of this proposed critical habitat designation with, appropriate State resource agencies. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the proposed rule does not have substantial direct effects either on the States, or on the relationship between the national government and the States, or on the distribution of powers and responsibilities among the various levels of government. The proposed designation may have some benefit to these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical or biological features of the habitat necessary for the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist State and local governments in long-range planning because they no longer have to wait for case-by-case section 7 consultations to occur.

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) of the Act would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule would not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this proposed rule identifies the physical or biological features essential to the conservation of the species. The proposed areas of critical habitat are presented on maps, and the proposed rule provides several options for the interested public to obtain more detailed location information, if desired.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain information collection requirements, and a submission to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*) is not required. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses

pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. We have determined that no Tribal lands fall within the boundaries of the proposed critical habitat for the bracted twistflower, so no Tribal lands would be affected by the proposed designation.

References Cited

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

Authors

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

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

Accordingly, we propose to amend 50 CFR part 17 as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

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

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

■ 2. Amend § 17.12(h) by adding an entry for ''*Streptanthus bracteatus*'' to the List of Endangered and Threatened Plants in alphabetical order under FLOWERING PLANTS to read as follows:

§ 17. 12 Endangered and threatened plants.

* * * * *

(h) * * *

Scientific name	Common name	Where listed	Status	Listing citations and applicable rules
FLOWERING PLANTS				
*	*	*	*	*
Streptanthus bracteatus	bracted twistflower	Wherever found	T	[**Federal Register** citation when published as a final rule]; 50 CFR 17.73(i); [4d] 50 CFR 17.96(a).[CH]
*	*	*	*	*

■ 3. Amend § 17.73, as proposed to be amended at 85 FR 58224 (September 17, 2020), 85 FR 61684 (September 30, 2020), 85 FR 66906 (October 21, 2020), 86 FR 3976 (January 15, 2021), 86 FR 33159 (June 24, 2021), and 86 FR 37091 (July 14, 2021), by adding paragraphs (h) and (i) to read as follows:

§ 17.73 Special rules—flowering plants.

* * * * *

(h) [Reserved]

(i) *Streptanthus bracteatus* (bracted twistflower). (1) *Prohibitions.* The following prohibitions that apply to endangered plants also apply to the bracted twistflower. Except as provided under paragraph (i)(2) of this section, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

(i) Import or export, as set forth at § 17.61(b) for endangered plants.

(ii) Remove and reduce to possession from areas under Federal jurisdiction; maliciously damage or destroy the species on any such area; or remove, cut, dig up, or damage or destroy the species on any other area in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law.

(iii) Interstate or foreign commerce in the course of commercial activity, as set forth at § 17.61(d) for endangered plants.

(iv) Sale or offer for sale, as set forth at § 17.61(e) for endangered plants.

(2) *Exceptions from prohibitions.* In regard to this species, you may:

(i) Conduct activities as authorized by a permit under § 17.72.

(ii) Any employee or agent of the Service or of a State conservation agency that is operating a conservation program pursuant to the terms of a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by that agency for such purposes, may, when acting in the course of official duties, remove and reduce to possession from areas under Federal jurisdiction members of bracted twistflower that are covered by an approved cooperative agreement to carry out conservation programs.

(iii) Engage in any act prohibited under paragraph (i)(1) of this section with seeds of cultivated specimens, provided that a statement that the seeds are of ''cultivated origin'' accompanies the seeds or their container.

* * * * *

■ 4. Amend § 17.96(a) by adding an entry for ''Family Brassicaceae: *Streptanthus bracteatus* (bracted twistflower)'' in alphabetical order to read as follows:

§ 17.96 Critical habitat—plants.

(a) * * *

Family Brassicaceae: *Streptanthus bracteatus* (bracted twistflower)

(1) Critical habitat units are depicted for Bexar, Medina, Travis, and Uvalde Counties, Texas, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of the bracted twistflower consist of the following components:

(i) Karstic, dolomitic limestones underlain by less permeable limestone strata, where perched aquifers seep to the surface along slopes. These are often found within 2 kilometers of the exposed boundary of the Edwards or Devils River and Glen Rose geological formations;

(ii) Native, old-growth juniper-oak woodlands and shrublands along the Balcones Escarpment;

(iii) Herbivory from white-tailed deer and introduced ungulates of such low intensity that it does not severely deplete populations prior to seed dispersal;

(iv) Tree and shrub canopy gaps that allow direct sunlight to reach the herbaceous plant layer at least 6 hours per day; and

(v) Viable populations of native bee species and the abundant, diverse forb and shrub understory that support them.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) Data layers defining map units were created using U.S. Geological Survey digital elevation models. For each unit/subunit, we determined the range of occupied elevations and the range of occupied slopes; critical habitat polygons consisted of the intersection of the occupied elevations and occupied slopes. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at *http://www.regulations.gov* at Docket No. FWS–R2–ES–2021–0013, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) **Note:** Index map follows:

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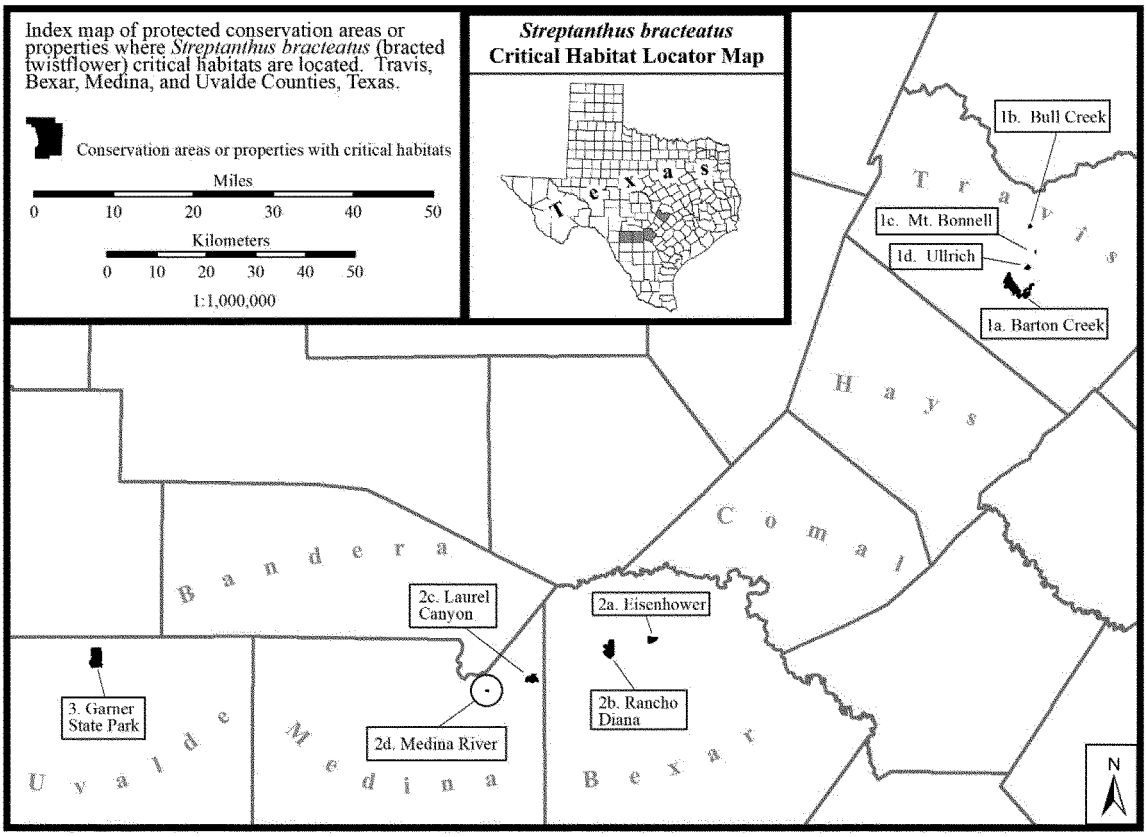
Figure 1 to *Streptanthus bracteatus* (bracted twistflower) paragraph (5)



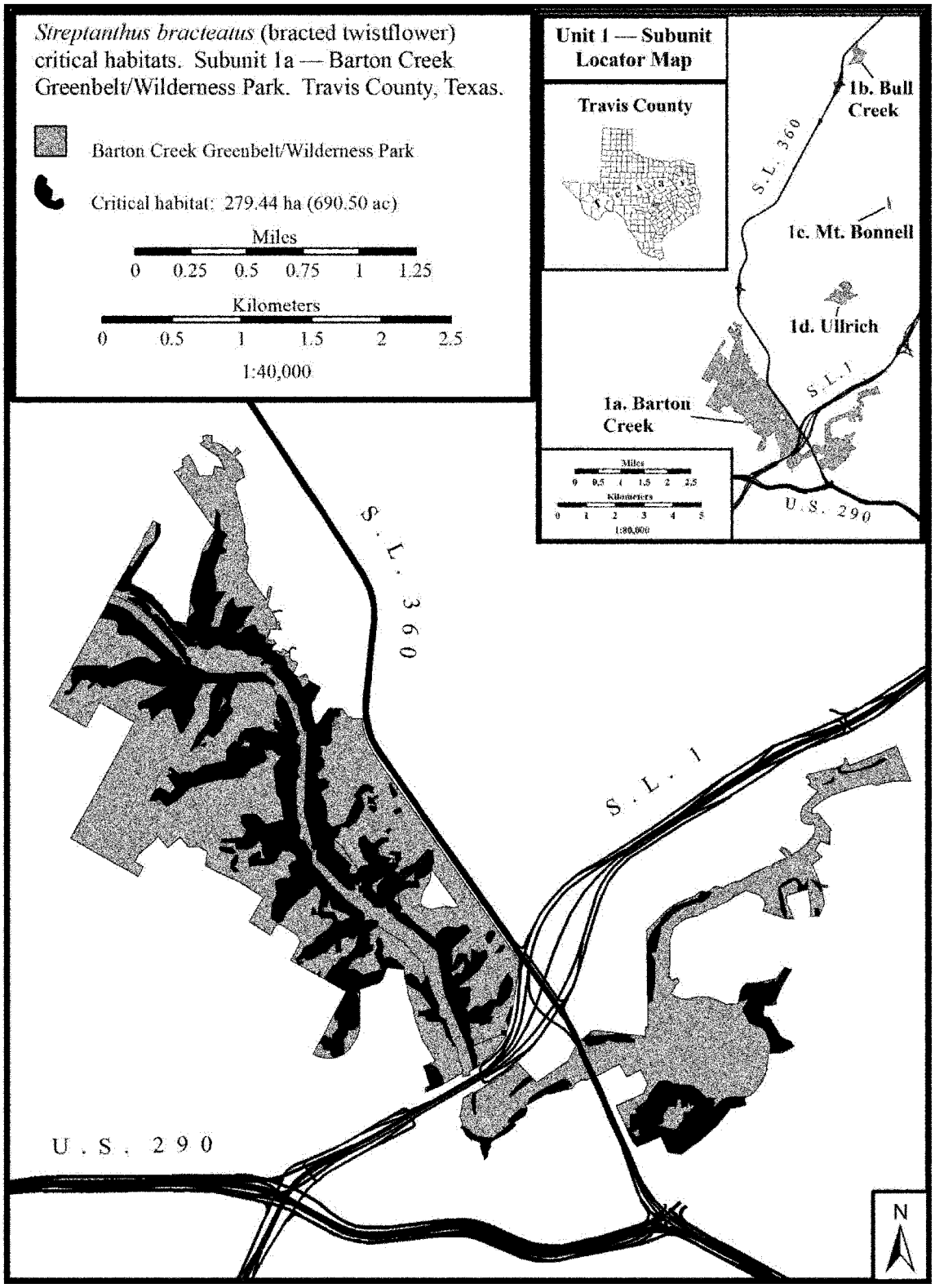
(6) Unit 1: Northeast, Travis County, Texas.

(i) Subunit 1a: Barton Creek Park/Wilderness Area.

(A) Subunit 1a consists of 690.5 acres (ac) (279.44 hectares (ha)) in Travis County and is composed of lands along Barton Creek owned by the City of Austin Parks and Recreation Department and managed as a unit of the Balcones Canyonlands Preserve (BCP) system.

(B) Map of Subunit 1a follows:

Figure 2 to *Streptanthus bracteatus* (bracted twistflower) paragraph (6)(i)(B)



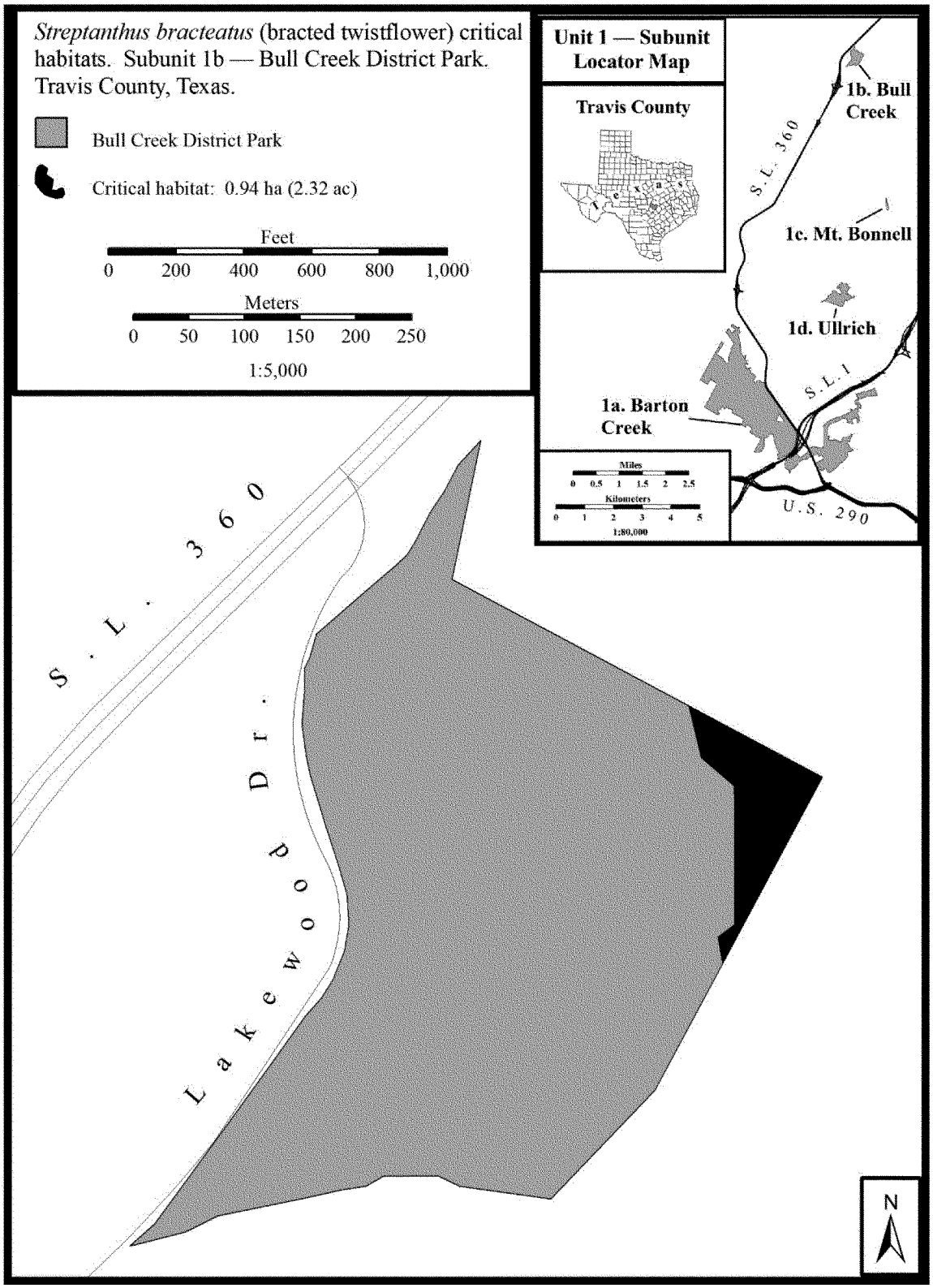
(ii) Subunit 1b: Bull Creek Park.

(A) Subunit 1b consists of 2.32 ac (0.94 ha) in Travis County and is composed of lands owned by the City of Austin Parks and Recreation

Department and managed as a unit of the BCP system.

(B) Map of Subunit 1b follows:

Figure 3 to *Streptanthus bracteatus* (bracted twistflower) paragraph (6)(ii)(B)

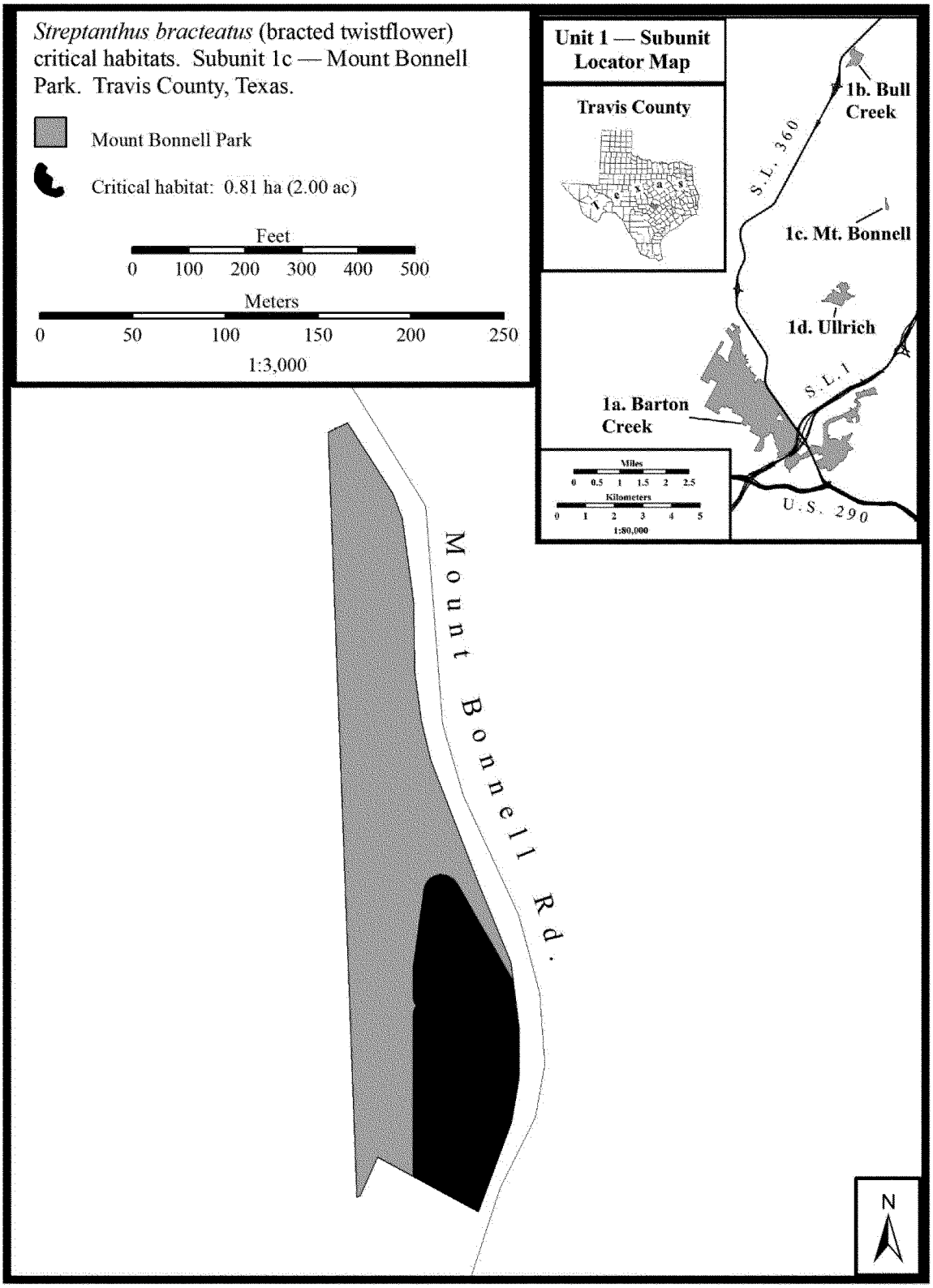


(iii) Subunit 1c: Mount Bonnell Park.

(A) Subunit 1c consists of 2 ac (0.81 ha) in Travis County and is composed of lands owned by the City of Austin Parks and Recreation Department and managed as a unit of the BCP system.

(B) Map of Subunit 1c follows:

Figure 4 to *Streptanthus bracteatus* (bracted twistflower) paragraph (6)(iii)(B)

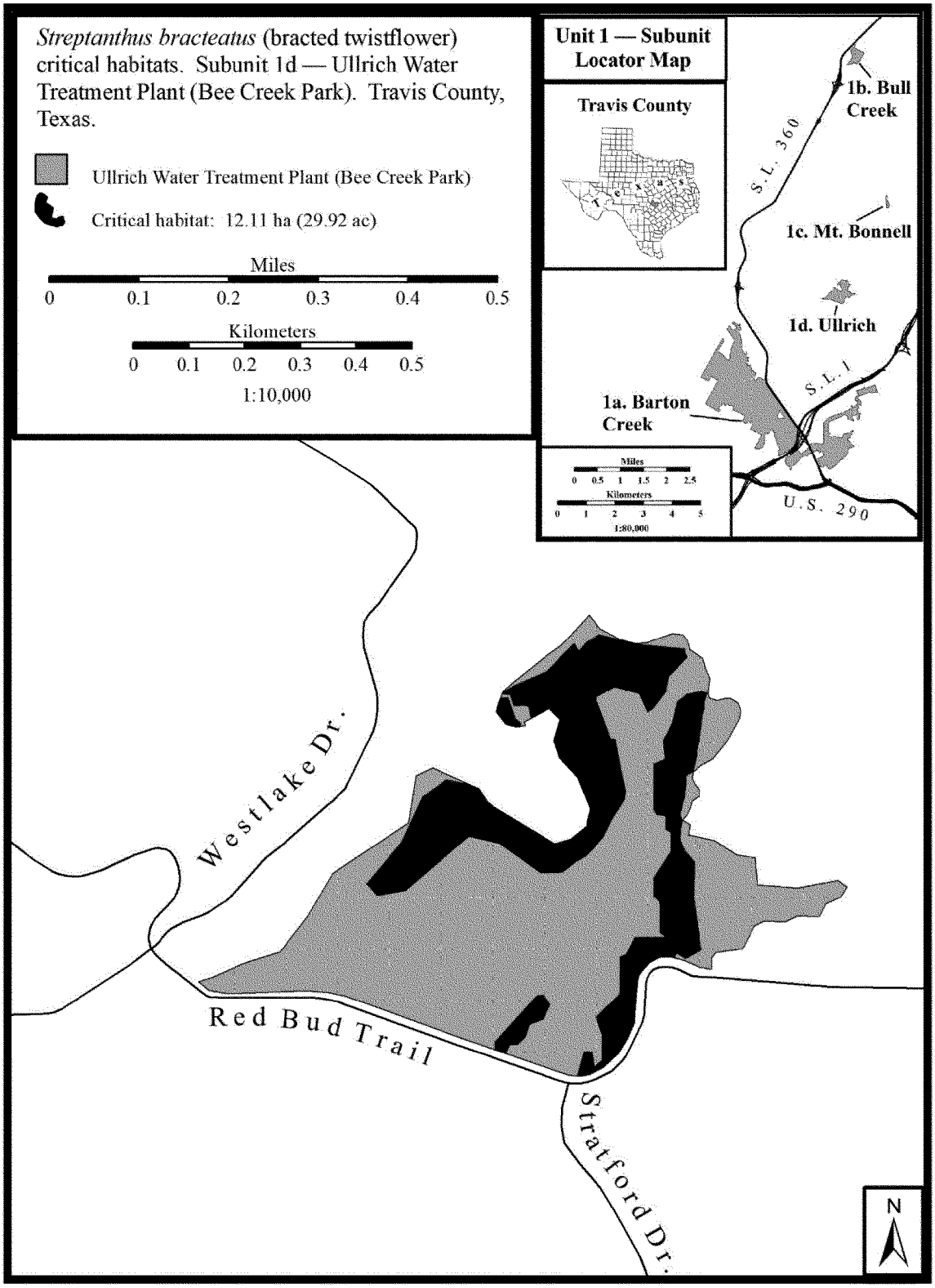


(iv) Subunit 1d: Ullrich Water Treatment Plant/Bee Creek Park.

(A) Subunit 1d consists of 29.92 ac (12.11 ha) in Travis County and is composed of lands owned by the City of Austin Water Utility, a portion of which is managed as a BCP Habitat Management Area.

(B) Map of Subunit 1d follows:

Figure 5 to *Streptanthus bracteatus* (bracted twistflower) paragraph (6)(iv)(B)



(7) Unit 2: Central, Bexar, and Medina Counties, Texas.

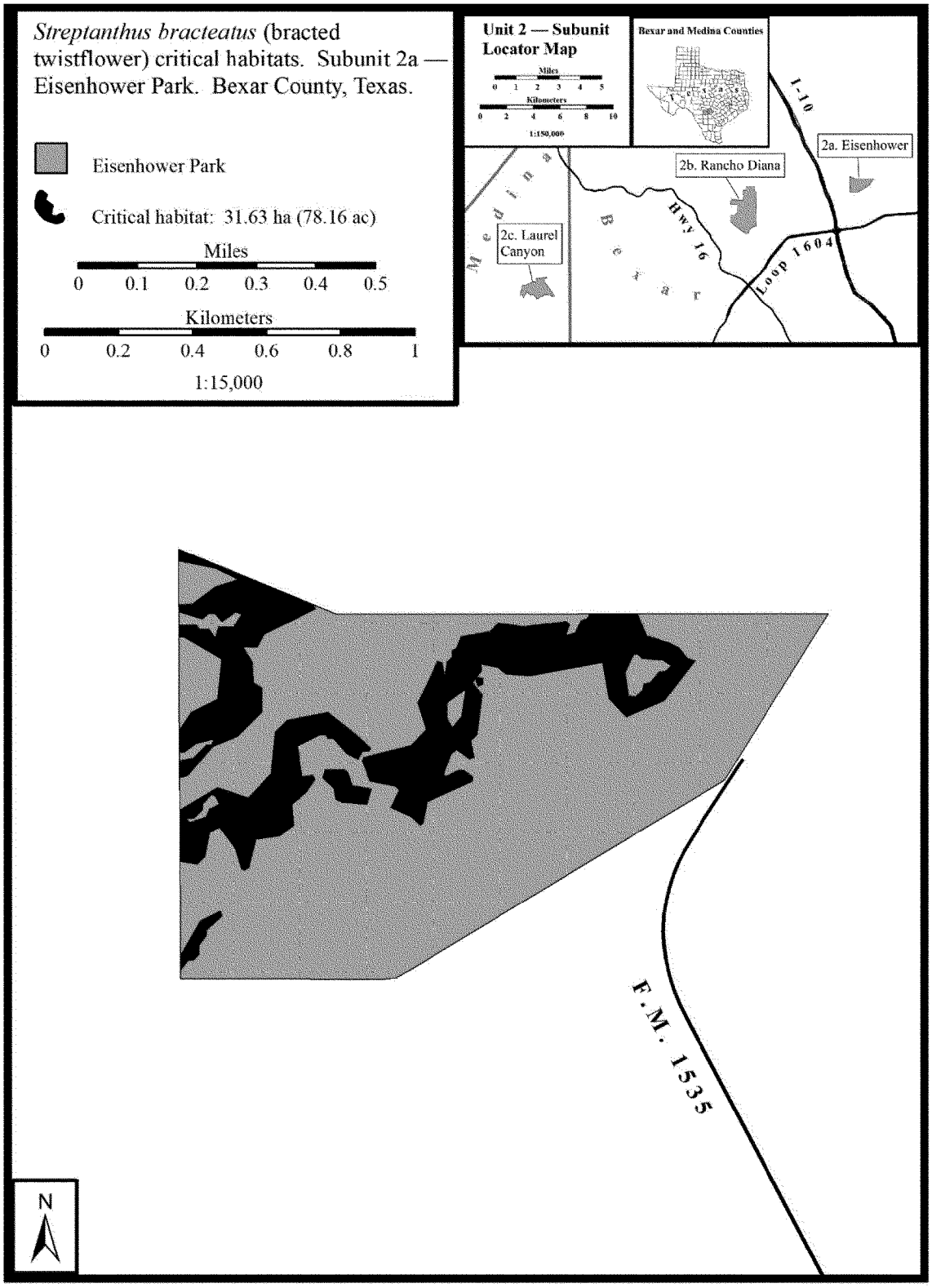
(i) Subunit 2a: Eisenhower Park.

(A) Subunit 2a consists of 78.16 ac (31.63 ha) in Bexar County and is

composed of lands owned by the City of San Antonio and managed by San Antonio Parks and Recreation Department (SAPRD).

(B) Map of Subunit 2a follows:

Figure 6 to *Streptanthus bracteatus* (bracted twistflower) paragraph (7)(i)(B)

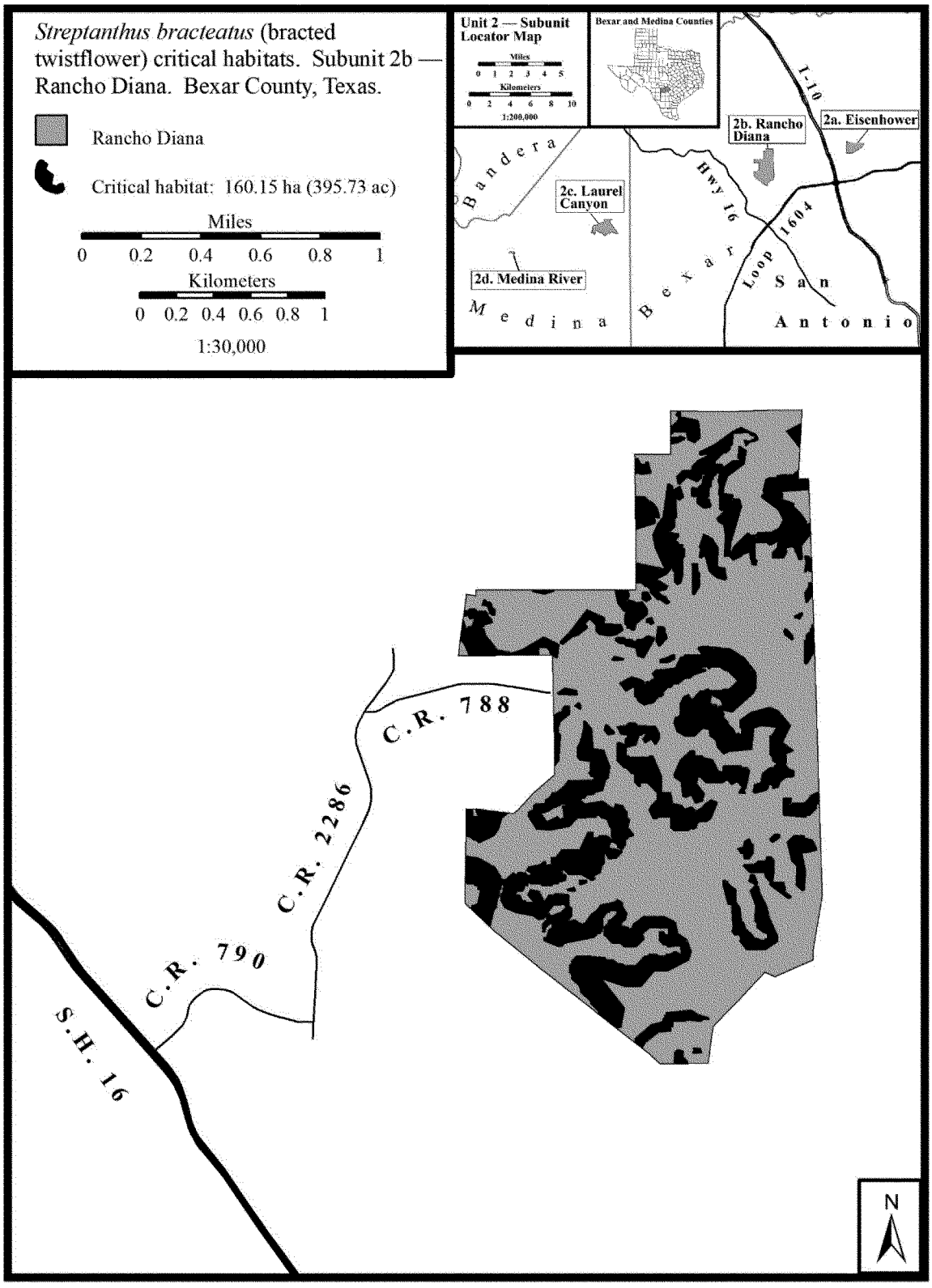


(ii) Subunit 2b: Rancho Diana.

(A) Subunit 2b consists of 395.73 ac (160.15 ha) in Bexar County and is composed of lands owned and managed by the City of San Antonio.

(B) Map of Subunit 2b follows:

Figure 7 to *Streptanthus bracteatus* (bracted twistflower) paragraph (7)(ii)(B)

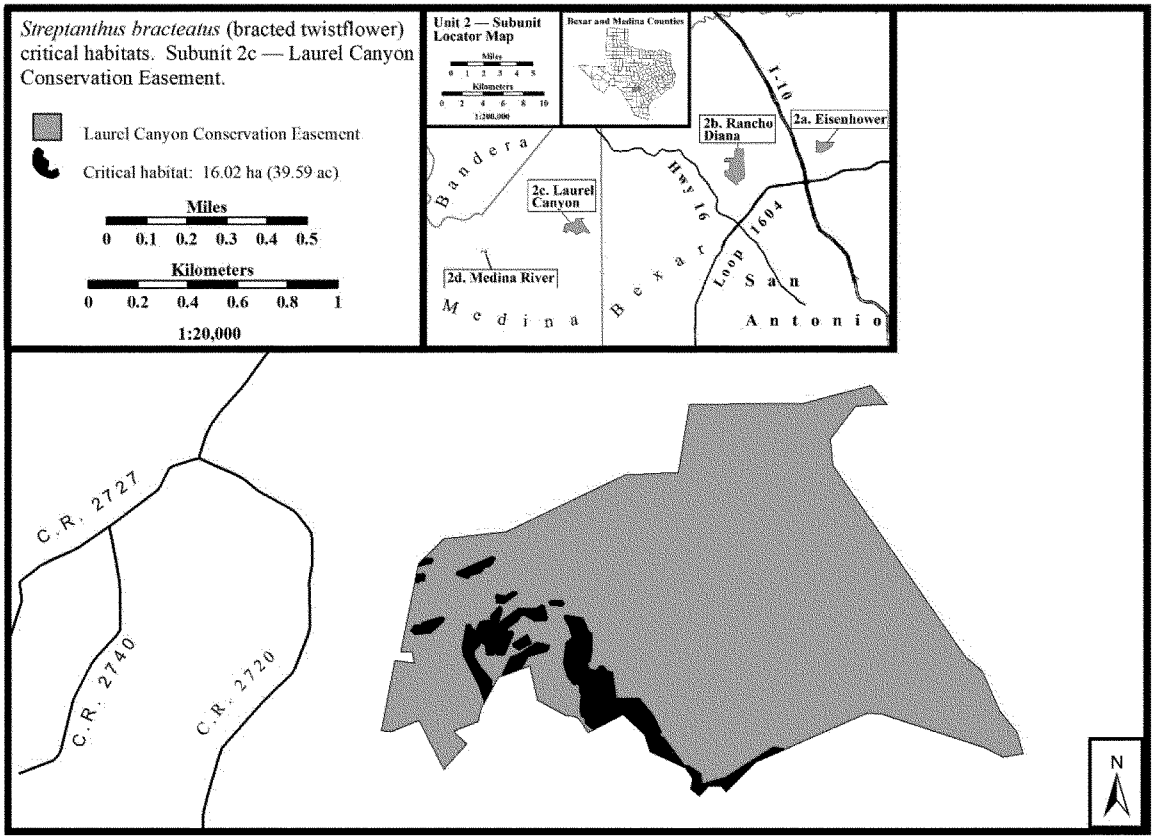


(iii) Subunit 2c: Laurel Canyon Ranch Conservation Easement.

(A) Subunit 2c consists of 39.59 ac (16.02 ha) in Medina County and is composed of private property owned by Laurel C. Canyon Ranch, LP. The City of San Antonio Edwards Aquifer Protection Program holds a conservation easement on 222 ha (549 ac) of Laurel Canyon Ranch.

(B) Map of Subunit 2c follows:

Figure 8 to *Streptanthus bracteatus* (bracted twistflower) paragraph (7)(iii)(B)

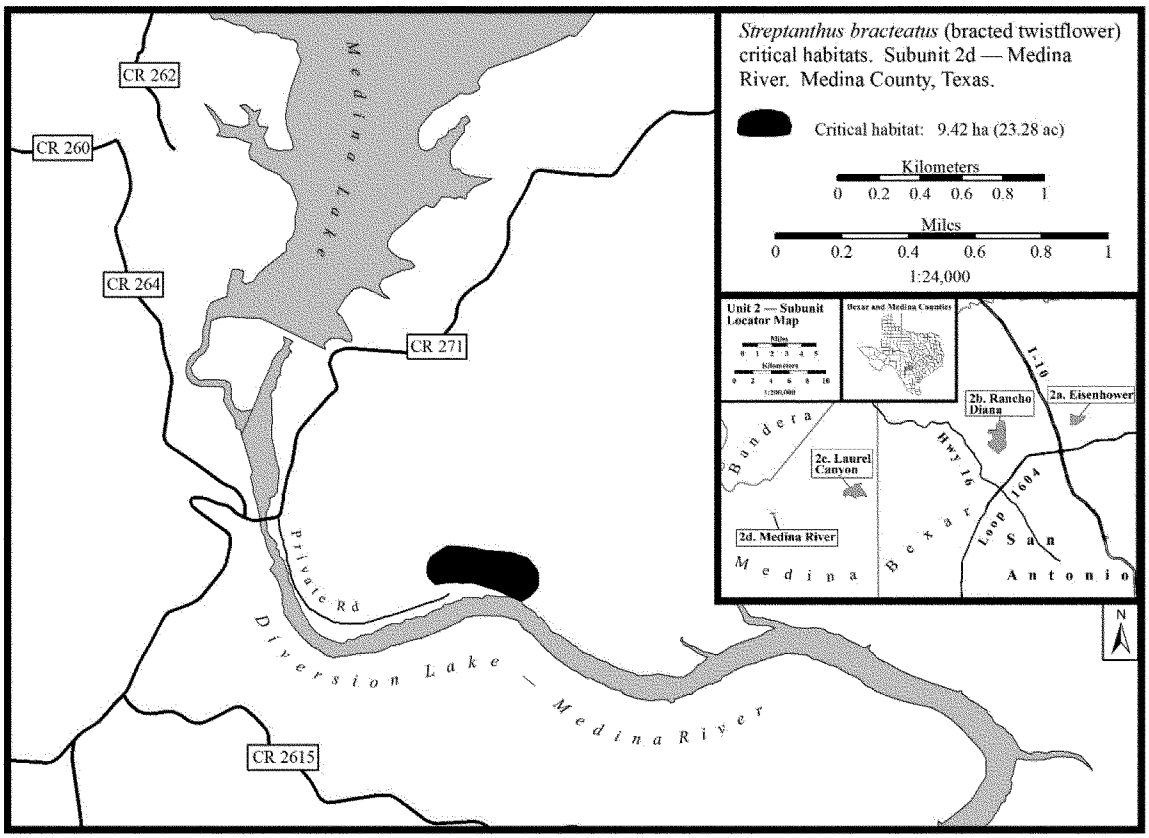


(iv) Subunit 2d: Medina River.

(A) Subunit 2d consists of 23.28 ac (9.42 ha) in Medina County and is composed of private property owned by Medina Ranch Inc.

(B) Map of Subunit 2d follows:

Figure 9 to *Streptanthus bracteatus* (bracted twistflower) paragraph (7)(iv)(B)

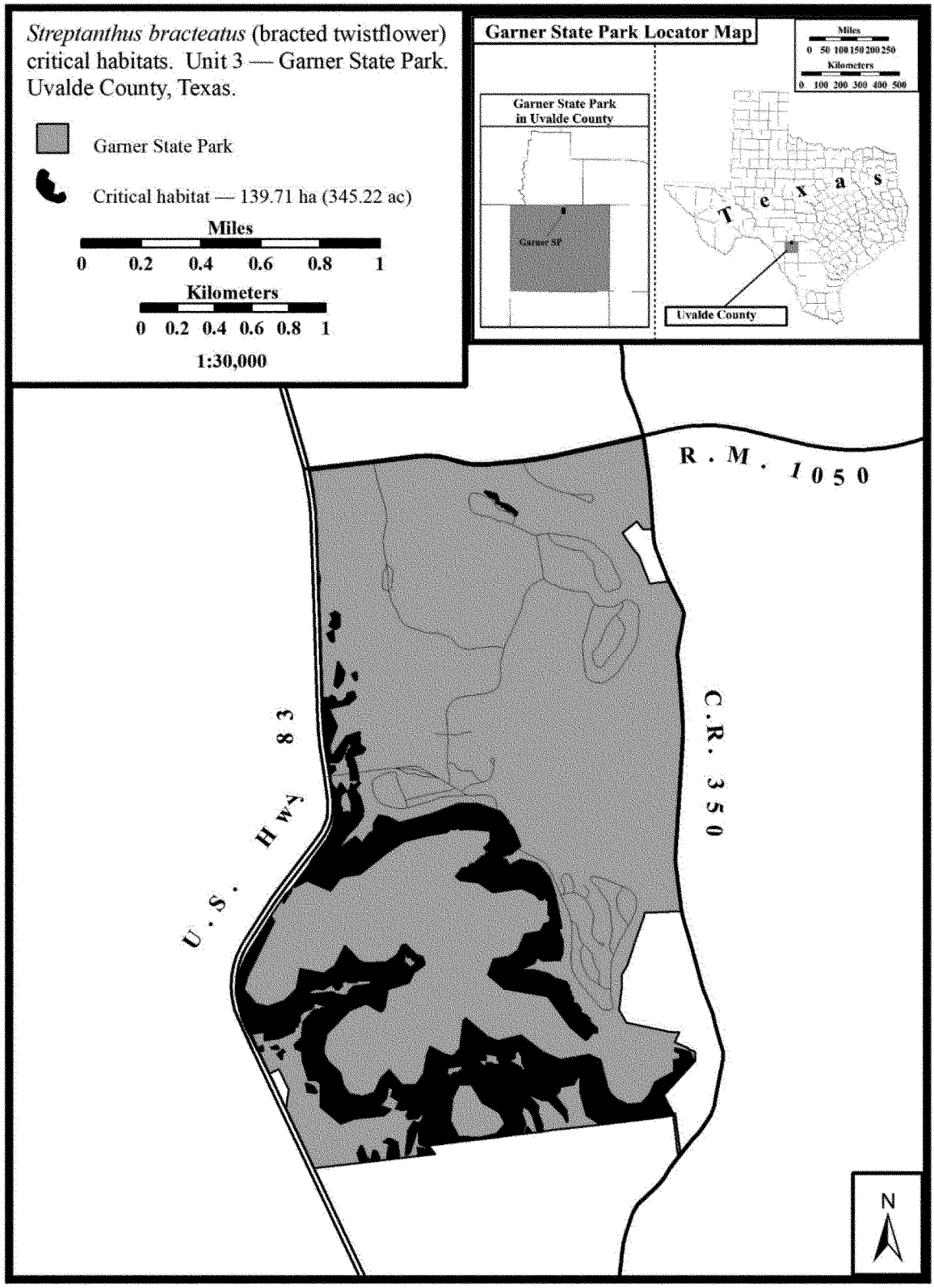


(8) Unit 3: Southwest; Garner State Park, Uvalde County, Texas.

(i) Unit 3 consists of 345.22 ac (139.71 ha) in Uvalde County and is composed of lands within Garner State Park, which is managed by Texas Parks and Wildlife Department.

(ii) Map of Unit 3 follows:

Figure 10 to *Streptanthus bracteatus* (bracted twistflower) paragraph (8)(ii)



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Martha Williams,

Principal Deputy Director, Exercising the Delegated Authority of the Director, U.S. Fish and Wildlife Service.

[FR Doc. 2021–24343 Filed 11–9–21; 8:45 am]

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