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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R4-ES-2019-0050; FF09E21000 FXES11110900000 201]

RIN 1018-BE15

Endangered and Threatened Wildlife and Plants; Endangered Species Status for Marron Bacora and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), are proposing to list the marron bacora (*Solanum conocarpum*), a plant species from the U.S. and British Virgin Islands, as an endangered 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 the marron bacora as an endangered species under the Act. If we finalize this rule as proposed, it would add this species to the Federal List of Endangered and Threatened Plants and extend the Act's protections to the species. We also propose to designate critical habitat for the marron bacora under the Act. In total, approximately 2,549 acres (1,032 hectares) on St. John, U.S. Virgin Islands, fall within the boundaries of the proposed critical habitat designation. Finally, we announce the availability of a draft economic analysis (DEA) of the proposed designation of critical habitat for marron

bacora.

DATES: We will accept comments received or postmarked on or before [INSERT
DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

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 public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

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

(1) *Electronically*: Go to the Federal eRulemaking Portal:

<http://www.regulations.gov>. In the Search box, enter FWS-R4-ES-2019-0050, which is the docket number for this rulemaking. Then, click on the Search button. On the resulting page, in the Search panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on “Comment Now!”

(2) *By hard copy*: Submit by U.S. mail to: Public Comments Processing, Attn: FWS-R4-ES-2019-0050, 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 administrative record and are available at <https://www.fws.gov/southeast/caribbean>, at <http://www.regulations.gov> under Docket No. FWS-R4-ES-2019-0050, and can be requested from the Caribbean 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: Edwin Muñiz, Field Supervisor, U.S. Fish and Wildlife Service, Caribbean Ecological Services Field Office, P.O. Box 491, Road 301 Km 5.1, Boquerón, PR 00622; telephone 787-851-7297. 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 warranted for listing as 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 one 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 rule does. This rule proposes to list the marron bacora (*Solanum conocarpum*) as an endangered species under the Act, and proposes to designate critical habitat for the species. Marron bacora is a species for which we have on file sufficient information on biological vulnerability and threats to support preparation of a listing proposal, but for which development of a listing rule was previously precluded by other higher priority listing activities (also known as a candidate species). This proposed rule makes a new 12-month finding using the best available information regarding threats facing the marron bacora and its status.

The basis for our action. Under the Act, we may determine that a species is an endangered or threatened species because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that the primary threats acting on marron bacora are habitat destruction or modification by exotic mammal species (e.g., white-tailed deer, goats, pigs, and donkeys) (Factor A), herbivory by nonnative, feral ungulates and insect pests (Factor C), the lack of natural recruitment (Factor E), absence of dispersers (Factor E), fragmented distribution and small population size (Factor E), lack of genetic diversity (Factor E), climate change (Factor E), and exotic, invasive plants (e.g., guinea grass) (Factor E).

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.

Peer review. We prepared a species status assessment report (SSA report) for the marron bacora that represents a compilation and assessment of the best scientific and commercial information available concerning the status of the marron bacora, including past, present, and future factors influencing the species (Service 2019, entire). In accordance with our joint policy on peer review published in the *Federal Register* on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought the expert opinions of six appropriate specialists regarding the SSA report, which informed this proposed rule. The purpose of peer review is to ensure that our listing determinations, critical habitat designations, and 4(d) rules are based on scientifically sound data, assumptions, and analyses. The peer reviewers have expertise in the biology, habitat, and threats to the species.

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 threatened instead of endangered, or we may conclude that the species does not warrant listing as either an endangered species or a threatened species and withdraw our proposal. Such final decisions would be a logical outgrowth of this proposal, as long as we: (a) Base the decisions on the best scientific and commercial data available after considering all of the relevant factors; (2) do not rely on factors Congress has not intended us to consider; and (3) articulate a rational connection between the facts found and the conclusions made, including why we changed our conclusion.

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 marron bacora's reproductive biology, range, and population trends, including:
 - (a) Biological or ecological requirements of the species, including microhabitat requirements for establishment and availability of pollinators;
 - (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 (insect pest or pathogens), 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) 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.

(6) Specific information on:

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

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

(i) Whether occupied areas are inadequate for the conservation of the species, and

(ii) Specific information that supports the determination that unoccupied areas will, 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.

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

(8) 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.

(9) 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.

(10) 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.

(11) 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>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Caribbean Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Public Hearing

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. 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 public hearings using webinars that will be announced on the Service's website, in addition to the *Federal Register* and local newspapers. The use of these virtual public hearings is consistent with our regulation at 50 CFR 424.16(c)(3).

Previous Federal Actions

On November 21, 1996, we received a petition from the U.S. Virgin Islands (USVI) Department of Planning and Natural Resources requesting that we list Eggers'

century plant and marron bacora as endangered. On November 16, 1998, we published in the *Federal Register* (63 FR 63659) our finding that the petition to list both species presented substantial information indicating that the requested action may be warranted; that document also initiated a status review of these two plants.

On September 1, 2004, the Center for Biological Diversity (CBD) filed a lawsuit alleging that the Service failed to publish a 12-month finding for Eggers' century plant and marron bacora (*CBD v. Norton*, Civil Action No. 1:04-CV-2553 CAP). In a stipulated settlement agreement entered into on April 27, 2005, we agreed to submit a 12-month finding for Eggers' century plant and marron bacora to the *Federal Register* by February 28, 2006. On March 7, 2006, we published a 12-month finding (71 FR 11367) that listing of Eggers' century plant and marron bacora was not warranted, because we did not have sufficient information to determine the status of either species.

On September 9, 2008, CBD filed a complaint challenging our determination that Eggers' century plant and marron bacora did not warrant listing (*CBD v. Hamilton*, Case No. 1:08-CV-02830-CAP). In a settlement agreement entered into on August 21, 2009, the Service agreed to submit to the *Federal Register* a new 12-month finding for marron bacora by February 15, 2011; as part of that settlement agreement, we also agreed to submit a new 12-month finding for the Eggers' century plant, which we listed as an endangered species on September 9, 2014 (79 FR 53303).

We published a request for additional information to inform the status review of marron bacora on January 20, 2010 (75 FR 3190). The subsequent 12-month finding for marron bacora, published on February 22, 2011 (76 FR 9722), determined the species was warranted for listing, but precluded by higher priority listing actions. The threats to

the species included the lack of natural recruitment, absence of dispersers, fragmented distribution, lack of genetic variation, climate change, and habitat destruction or modification by exotic mammal species. The species received a listing priority number (LPN) of 2 based on the high magnitude and imminency of the threats. The listing of this species was determined to be warranted but precluded in subsequent annual candidate notices of review (CNORs) (76 FR 66370, October 26, 2011; 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). This document constitutes a new 12-month finding for the marron bacora.

Supporting Documents

A species status assessment (SSA) team, composed of Service biologists in consultation with other species experts, prepared an SSA report for marron bacora. The SSA report provides 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 to determine the viability of the species. The Service sent the SSA report to six independent peer reviewers and received one response from colleagues at the Fairchild Tropical Botanic Gardens. The Service also sent the SSA report to two partners for review – the National Park Service (NPS) and Virgin Islands Department of Planning and Natural Resources (DPNR) – and received a response from DPNR. The comments we received provided support for the conclusions in the SSA report and provided additional information to improve that document.

I. Proposed Listing Determination

Background

A thorough review of the taxonomy, life history, and ecology of marron bacora is presented in the SSA report version 1.0 and evaluates the species' overall viability (Service 2019, entire). Below, we summarize the key results and conclusions of the SSA report, which can be viewed under Docket No. FWS-R4-ES-2019-0050 at <http://www.regulations.gov>.

Marron bacora is a dry-forest, perennial shrub of the Solanaceae (or nightshade) family that is endemic to the Virgin Islands. It has small purple flowers and can grow to the height of around 9.8 feet (ft) (3 meters (m)). The plants produce a green fruit with white striations and golden yellow when ripe (Acevedo-Rodriguez 1996, p. 415). The species typically requires pollinators for reproductive success, but may self-pollinate under certain conditions.

The historical range of the species includes St. John and possibly St. Thomas, USVI; however, recent surveys found the species on the neighboring island, Tortola, British Virgin Islands (BVI). There is an additional, unconfirmed record from plant material collected in 1969 at Gordon Peak on Virgin Gorda, BVI (Acevedo-Rodríguez 1996, p. 415). There is suitable habitat for the species on Virgin Gorda; however, that is the only record of the species on another island and there have been no other records since the single plant was found in 1969. At least three populations on St. John have been extirpated.

The species is currently found on St. John, USVI, and Tortola, BVI, with a fragmented distribution of seven populations on St. John and a single population on

Tortola. St. John has a history of land-use changes that resulted in habitat loss and degradation further isolating suitable habitats in patches that were not readily connected. The species is a dioecious (separate male and female plants) obligate out-crosser and typically self-incompatible, so the larger the population, the better for ensuring successful reproduction and maintaining genetic diversity within populations.

The sex ratio of marron bacora is 1:1, and a much longer time is needed for female plants to flower for the first time (from the seedling stage) compared with the males (Anderson et al. 2015, p. 475). This may explain the rarity of the species in the landscape as only half of the wild individuals (based on the 1:1 ratio) have the potential to produce fruits and viable seeds, and thus highlights the importance of introducing an adequate number of plants into the wild (Anderson et al. 2015, p. 482). Nonetheless, there is no available information regarding the seed dormancy or long-term storage potential for marron bacora.

As plant populations become reduced and spatially segregated, important life-history needs provided by pollinators and seed dispersers may be compromised (Kearns and Inouye 1997, p. 305). The fragmented distribution of marron bacora on St. John can be attributed to historical habitat degradation. Based on the hermaphroditic and dioecious biology of marron bacora, the species requires cross-pollination. Pollinators including carpenter bees (*Xylocopa mordax*), honey bees (*Apis mellifera*), and bananaquits (*Coereba flaveola*) have been documented at the Nanny Point population. (USFWS 2017aa, p. 7). In fact, about 92 percent of the 75 marron bacora natural individuals in this area were observed in flower (USFWS 2017aa, p. 7).

The natural dispersal mechanism of marron bacora remains unknown, but fruit

predation is suspected as the explanation of lack of natural recruitment in the wild (USFWS 2011, p. 9726). Although predators may also disperse the species, it is likely that the seeds have not adapted to passing through the gastrointestinal tracts of the exotic mammals currently occurring in the island of St. John (e.g., white-tailed deer, feral hogs, donkeys). The native hermit crab (*Coenobita clypeatus*) has also been documented depredating marron bacora fruit (Ray and Stanford 2005, p. 18; Vilella and Polumbo 2010, p. 1), and, although there are several species of fruit-eating bats on St. John (*Artibeus jamaicensis*, *Brachyphylla cavernarum*, and *Stenoderma rufum*), there have been no studies to document their possible role in the life history of marron bacora, if any. Also, it is possible that natural fruit dispersers of marron bacora had targeted other food sources as the populations of this shrub became increasingly patchy, as a result of deforestation and introduction of exotic plant species. The patchy distribution of this species may suggest that its natural disperser is extinct or that the populations of the plant are too small to attract the disperser (Roman 2006, p. 82).

Little is known of the life history of this plant. Marron bacora is a perennial shrub that may live more than two decades. For example, the Nanny Point population was discovered in 2002 (Carper 2005, pers. comm.), and at that time, the population was already composed mainly of adult individuals and little natural recruitment was recorded. Thus, the current known natural individuals at Nanny Point should be approximately 20 years old. Marron bacora material was under cultivation from an individual rediscovered in early 1990s (USFWS 2017aa, p. 4). Therefore, these plants would also be more than 20 years old. Nonetheless, the species may reach reproductive maturity 16 months from germination under greenhouse conditions (Anderson et al. 2015, p. 475). However, this

period is expected to be greater in the wild, as seedlings may require longer periods to grow and individuals may remain suppressed under closed canopy and possible drought conditions.

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 Services can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

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

Analytical Framework

The SSA report 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. It does, however, provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies. The following is a

summary of the key results and conclusions from the SSA report; the full SSA report can be found under Docket No. FWS-R4-ES-2019-0050 on <http://www.regulations.gov>.

To assess marron bacora's viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation 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 needs, and the threats that influence the species' current and future condition, in order to assess the species' overall viability and the risks to that viability. Requirements for individuals to survive include having appropriate habitat, with both male and female plants present in a balanced sex ratio, and seasonal rainy periods. The habitat is described as dry deciduous and coastal scrub forests with dry soils at lower elevations (less than 85 m (278.9 ft)) restricted to the U.S. and British Virgin Islands; however, marron bacora shows little fidelity to any particular suite of community associations. Plants may reach a reproductive size in less than 2 years under greenhouse conditions; however, it may take decades for wild plants to effectively reproduce.

Due to the nature of marron bacora's narrow endemic distribution, the species is confined to the available habitat on St. John, USVI, and Tortola, BVI. Most of the species' habitat and the largest population on St. John occur within the Virgin Islands National Park (VINP), an area managed by NPS. Across St. John, NPS manages about 60 percent of the island's area, with VINP consisting of about 14,737 acres (ac) (5,963.9 hectares (ha)).

Species Needs

Resilient populations require a population size and density that provides a balanced sex ratio (proportion of male and female plants). The demographics and population structure should reflect evidence of successful recruitment within each population. In order to maintain resilient populations, marron bacora needs continuous

suitable habitat that allows for room for growth and dispersal, as well as connectivity between populations and availability of pollinators.

The species is typically found in dry deciduous forests at lower elevations (less than 85 m (278.9 ft)) with low annual rainfall with seasonal runoff conditions. Many plants have been found in open, eroded areas. The plant's growth and reproductive phenology are synchronized with the rainy seasons associated with the Virgin Islands. Maintaining conditions that facilitate the reproductive biology of marron bacora, along with maintaining forest connectivity and habitat corridors among known populations, is critical for the long-term conservation of the species and will contribute to the ecological interactions with native pollinators and dispersers to ensure these systems remain functional.

Factors Affecting the Viability of the Species

The stressors acting on the species as described in the SSA report include invasive species (plants and animals), predation, demographic and genetic consequences of small population size and density, human-induced fires, habitat loss/degradation, insect pests and pathogens, changes in phenology and breeding systems, recreation, and climate change and hurricanes. The primary stressors acting on the species are impacts from nonnative, invasive species that preclude natural recruitment.

Nonnative/Invasive Species

Marron bacora is directly affected by nonnative, invasive plants and animals. White-tailed deer (*Odocoileus virginianus*) are naturalized and very abundant on the islands. They directly affect the species by browsing on the plants (seedlings and saplings) and fruits. Other nonnative species used as livestock, including hogs (*Sus*

scrofa), goats (*Capra aegagrus hircus*), and donkeys (*Equus africanus asinus*), have also naturalized and have been recorded within the VINP. These species also forage freely on the island both on native vegetation and on invasive guinea grasses such as *Megathyrsus maximus* (USVI Dept. of Planning and Natural Resources, p. 8). Cattle also range freely on St. John and Tortola. In addition, the habitat of marron bacora at Nanny Point is affected by encroachment of exotic grasses and vines following Hurricanes Irma and Maria in 2017 (Island Conservation 2018, pp. 3, 12).

Herbivory by Feral Ungulates

Another major threat acting on marron bacora is the lack of natural recruitment most likely due to depredation of its fruits and seedlings by feral ungulates. There is ongoing research studying the impact by feral browsers on the viability of marron bacora. The effects of foraging on marron bacora plants during a post-hurricane study on St. John in 2018 showed 35.5 percent of the known population at Nanny Point exhibited signs of herbivory from mammals, such as white-tailed deer. During the same study, 61 percent (11 plants) of the John's Folly population exhibited a combination of impacts by herbivorous insects and browsing by invasive mammals (IC Report 2018, p. 5). White-tailed deer were introduced to St. John in the 1920s in order to provide hunting opportunities. Since then, the deer range freely across the island, foraging on the native vegetation, and according to local experts, populations of deer are increasing on the island (Gibney 2017, pers comm.). There are currently no estimates on the deer abundance on St. John, and there are no native predators to control the deer population.

Small Population Size and Density

Marron bacora currently shows overall low numbers of individuals, low numbers of populations, and low numbers of individuals at each population site, which is reflected with low resiliency, redundancy, and representation. There is a lack of knowledge regarding the abundance and roles of dispersers and pollinators at the population and species levels. Current knowledge of the ecology and genetic diversity of Virgin Islands rare flora is sparse (Stanford et al. 2013, p. 173). While the genetic diversity at the species level of marron bacora is relatively high, the majority of its diversity is confined to the largest population at Nanny Point (Stanford 2013, p. 178). The current fragmented population distribution may result in Allee effects due to small population sizes, a lack of genetic exchange among populations, and eventual genetic drift.

Human-induced Fires

In the Caribbean, native plant species, particularly endemics with limited distribution, may be vulnerable to manmade events such as human-induced fires. Fire is not a natural component of subtropical dry forests in the Virgin Islands; thus, most species found in this type of forest are not fire-adapted and are not likely to withstand frequent fire events (Monsegur, cited in USFWS 2011, p. 9726). Marron bacora is associated with lower elevation dry forests. This habitat may be susceptible to forest fires, particularly on private lands, where fire could be accidentally ignited. Furthermore, regenerating forests, such as the ones prevalent on St. John, are prone to wildfires that perpetuate the succession of persistent shrub land dominated by introduced tree species and grasses; this inhibits native species' growth and subsequently contributes to more intense and more severe fires (Wiley and Vilella 1998, p. 340). Given the growth pattern of marron bacora, it is unlikely that individuals would survive a fire even of moderate

intensity (Vilella and Palumbo 2010, p. 15). Intrusion by exotic plants may also occur in areas where fire changes the structure of the native vegetation. A site visit to St. John to evaluate the threats to the species' known natural populations found no substantial evidence indicating fires posed an imminent threat to the species (Monsegur, pers. obs.). The site on St. John that is most vulnerable to fires is Johns Folly, due to its proximity to a road and the accumulation of debris associated with a former house (Monsegur, pers. obs.). In addition, following Hurricanes Irma and Maria, the habitat at the Nanny Point population has been encroached by exotic grasses, making this population vulnerable to a fire event (Monsegur, pers. obs.).

Insect Pests and Pathogens

Although known marron bacora populations are relatively protected, the small size of populations coupled with the effects of insect pests or pathogens could contribute to local extirpation. For example, although the Reef Bay Valley population consisted of 6 wild individuals and 60 introduced individuals in 2011, the population was considered extirpated by 2017 most likely due to a low survival rate for the introduced marron bacora. However, an unknown pathogen was documented in that population (Stanford et al. 2013, p. 178), which also may have contributed to its loss. More recently, in 2018, 63.2 percent of the marron bacora individuals at Nanny Point showed some sort of stem dieback; however, it is not clear if this is due to some pest or disease (IC Report 2018, p. 5). Nonetheless, recent observations indicate that dieback is clustered mainly to the eastern corner of the Nanny Point population and associated to edge vegetation (vines and shrub land vegetation exposed to salt spray).

In addition, the assessment by Service staff in 2017 recorded the presence of the Jacaranda bug (*Insignorthezia insignis*) at the Nanny Point population, and the scale insects *Praelongorthezia praelonga* (Douglas) and *Insignorthezia insignis* on plants at the gardens of the NPS facilities (USFWS 2017a, p. 14). The Jacaranda bug is a sap-feeding insect in the *Orthezidae* family. The scale insect (*Praelongorthezia praelonga*) can also damage plants directly by sucking their sap, or indirectly by injecting toxic salivary secretions that may attract ants, transmit pathogens, and encourage growth of sooty molds (Ramos et al. 2018, p. 273). Our conclusions on the effects of these insects and pathogens on marron bacora are based on the available information about their effects on other species of plants that occur on St. John (e.g., Ramos et al. 2018, p. 273), and on our observations in the field during marron bacora assessments (Monsegur and Yrigoyen 2018, pers. comm.). No studies have been carried out to ascertain the extent of potential impacts by these pests specifically on marron bacora.

Phenology and Breeding System

The hermaphroditic and dioecious biology of marron bacora was confirmed by lack of pollination in crossings of pollen to the stigma of other male flowers or transferred to the stigma of the same flower (Anderson et al. 2015, p. 479). A 1:1 sex ratio and a much longer time for marron bacora female plants to flower for the first time (from the seedling stage) compared with the males has been documented (Anderson et al. 2015, p. 475). At this point, the natural disperser of marron bacora remains unknown, and fruit predation is suspected as the explanation of lack of natural recruitment in the wild (76 FR 9722, February 22, 2011, p. 76 FR 9725). It is possible that natural fruit dispersers of marron bacora have targeted other food sources as the populations of this

shrub became increasingly patchy, as a result of historical land-use changes and introduction of exotic plant species. The absence of a fruit disperser may also indicate that the disperser of the species is extinct or that the populations are too small to attract the disperser (Roman 2006, p. 82). The above information highlights the vulnerability of extirpation of relatively small populations of marron bacora as they may become functionally extinct and cannot support recovery or rescue of neighboring populations, limiting their value for redundancy and species resiliency.

Recreation

Some evidence of damage consistent with trail maintenance was recorded along Brown Bay trail, and additional habitat disturbance was observed at the John Folly site (park boundary) (USFWS 2011, p. 9724). Also, site disturbance (vegetation clearing) was recorded in 2017 at the John Folly population, where, for example, one seedling in the middle of the trail was susceptible to being trampled by hikers (USFWS 2017a, p. 9). However, considering the remoteness of the marron bacora habitat and given that the majority of the populations are within NPS land, recreational uses have a low likelihood of affecting the survival of the species.

Climate Change and Hurricanes

Hurricanes and tropical storms frequently affect the islands of the Caribbean; thus, native plants should be adapted to such disturbance. In fact, successional responses to hurricanes can influence the structure and composition of plant communities in the Caribbean islands (Van Bloem et al. 2005, p. 576). However, climate change is predicted to increase tropical storm frequency and intensity, but also cause severe droughts (Hopkinson et al. 2008, p. 255). Climate model simulations indicate an increase in global

tropical cyclone intensity in a warmer world, as well as an increase in the number of very intense tropical cyclones, consistent with current scientific understanding of the physics of the climate system (USGCRP 2018, p. 2). The vulnerability of species to climate change is a function of sensitivity to changes and exposure to those changes, and the adaptive capacity of the species (Glick et al. 2011, p. 1). Within natural conditions, it is likely that marron bacora is well-adapted to these atmospheric events. However, the cumulative effects of severe tropical storms and associated increased sediment runoff (erosion), along with the species' small population size and reduced natural recruitment, may jeopardize the future establishment of seedlings along drainage areas usually associated with suitable habitat for marron bacora (Ray and Stanford 2005, p. 2). There is evidence of direct impacts to the Nanny Point population due to a flash flood event associated with Hurricane Irma that hit St. John on September 6, 2017 (USFWS 2017b, p. 3).

Additive climate change stressors projected for the future include: (a) increased number and intensity of strong storms, (b) increased temperatures, and (c) shifts in the timing and amounts of seasonal precipitation patterns. Despite projected increased storm intensity and frequency related to future hurricane seasons, recent works on climate change models for tropical islands predict that, for example, by the mid-21st century, Puerto Rico will be subject to a decrease in overall rainfall, along with increase annual drought intensity (Khalyani et al. 2016). Thus, due to the proximity of Puerto Rico to St. John, and that these islands belong to the same biogeographical unit (Puerto Rican Bank), these model predictions could also extend to the USVI (including St. John). Given the low number of known populations and individuals, and the lack of natural recruitment of

marron bacora, the species may not have the genetic breath to adapt to these predicted conditions. In addition, there is little knowledge of marron bacora's life history (e.g., fruit/seed dispersers and germination requirements in the wild); the species has a restricted known range (e.g., mainly St. John); and its habitat is degraded due to free-ranging populations of feral animals (e.g., deer and goats), which precludes recruitment of new individuals. Moreover, in 2017, the island of St. John was affected by two catastrophic hurricanes (Irma and Maria), resulting in direct adverse impacts to individuals of marron bacora and its habitat. Marron bacora habitat remains encroached by weedy plants that persist more than 2 years after these atmospheric events and continue to affect the species.

Habitat Loss/Degradation

By 1717, the forested landscape of St. John was parceled into more than 100 estates for agriculture (i.e., sugarcane and cotton) and the majority of this landscape was deforested. Under this land-use regime, marron bacora populations were decimated, as the species had no economic importance or use. The current fragmented distribution of marron bacora is most likely the result of that historical land clearing for agriculture and subsequent development that has occurred since the 1700s. Even though these land-use changes occurred centuries ago, there are long-lasting effects that continue to affect the condition of the habitat; the effects on the species are exacerbated by the species' reproductive biology, the absence of seed dispersal, suspected fruit predation, and further habitat modification by feral ungulates.

At present, the Friis Bay_(St. John, USVI) and Sabbath Hill (Tortola, BVI) populations are located on private lands vulnerable to habitat modification due to urban

development. In addition, the Nanny Point and Johns Folly populations are situated within VINP lands just at the park boundary, and there is potential for urban and tourism development in the future, resulting in possible direct impacts to the species and interrelated effects (lack of habitat connectivity and cross pollination, and further habitat encroachment by exotic plant species). While the land that harbors the Nanny Point population is located on VINP, the adjacent private land could be at risk of development which may directly affect the species' most resilient population.

Synergistic interactions are possible between the effects of climate change and other potential threats such as nonnative species, pests, and development. The extent of impacts to the species due to synergistic threats is not well understood, as there is uncertainty in how nonnative species (plants and animals) may respond to climate variables such as increased drought and changes in hurricane frequency and intensity. We expect the synergistic effects of the current and future threats acting on the species will exacerbate the decline in the species' viability by continued declines in reproductive success. Projecting the extent of synergistic effects of climate change on marron bacora is too speculative due to the complexity and uncertainty of the species' response to the combination of dynamic factors that influence its viability.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. Our assessment of the current and future conditions encompasses and incorporates the threats individually and cumulatively. Our

current and future condition assessment is iterative because it accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

Conservation Measures

Efforts to conserve the species have included a captive propagation and planting program. Marron bacora has successfully been propagated by a St. John horticulturist with cuttings and manually assisting pollination by dusting the flowers (Kojis and Boulon 1996, pers comm.). Marron bacora specimens were then distributed to various places with suitable habitat in the Virgin Islands (Ray and Stanford 2005, p. 3). An implementation plan was developed to conduct shade-house propagation of marron bacora using both seedlings and cuttings for reintroduction within VINP (Ray and Stanford 2003, p. 3). A Nanny Point landowner funded and implemented a propagation program of marron bacora through germination and cloning of adult individuals to enhance natural populations of the species at Nanny Point, Brown Bay Trail, and Johns Folly (Ray and Carper 2009, p. 6). While the species has been successfully propagated, the reintroductions have yielded unsuccessful results with a very low survival rate for propagated and reintroduced plants, and even lower for relocated adult plants.

The NPS has its own regulatory mechanisms to protect the species within VINP on St. John. The NPS is responsible under the Organic Act (54 U.S.C. 100101(a) *et seq.*; NPS 2006) for managing the national parks to conserve the scenery, natural and historic

objects, and wildlife. The National Park Omnibus Management Act of 1998 (Pub. L. 105–391; NPS 2006), Title II, “National Park System Resource Inventory and Management,” mandates research in order to enhance management and protection of national park resources by providing clear authority and direction for the conduct of scientific study in the National Park System and to use the information gathered for management purposes. This law affects not only the NPS, but other Federal agencies, universities, and other entities that conduct research in the National Park system. Currently, the NPS has implemented its resource management responsibilities through its management policies, section 4.4.1, which state that NPS “will maintain as parts of the natural ecosystems of parks all plants and animals native to park ecosystems” (NPS 2006, p. 42). The Territory of the U.S. Virgin Islands currently considers marron bacora to be endangered under the Virgin Islands Indigenous and Endangered Species Act (V.I. Code, title 12, chapter 2), and an existing regulation provides for protection of endangered and threatened wildlife and plants by prohibiting the take, injury, or possession of indigenous plants.

In 2017, funding was provided to Island Conservation through the Service’s Coastal Program to: (1) Propagate at least 100 marron bacora individuals to enhance the largest known population at Nanny Point, (2) introduce propagated materials to the Nanny Point population, (3) assess the extent of impacts of invasive mammal species to marron bacora and its habitat, (4) assess the extent of impacts by invasive mammal species to additional sites identified for marron bacora introduction, and (5) provide management recommendations for invasive mammals in order to significantly advance

the recovery of marron bacora (IC Report 2018, p. 1). This project has been temporarily delayed in order to allow archaeological surveys to be completed prior to any outplanting.

Current Conditions

To determine the current condition of the species, we evaluated the resiliency, redundancy, and representation of populations across the landscape considering past and current stressors acting on the species and its habitat. The description of the species' current condition is described in more detail in the species status assessment (SSA) report (Service 2019, pp. 22–30).

Resiliency

In order to determine population resiliency, we generated resiliency scores for marron bacora by combining scores using habitat and population metrics. The best available information for each population was gathered from the literature and species experts. Each of the four metrics were weighted equally, with the overall effect that habitat (i.e., protected vs. unprotected lands [development risk], feral ungulates, and pest depredation) was weighted three times higher than population size/trend (Service 2018, pp. 58–59) (see Table 1, below). The scores for each population across all metrics were summed, and final population resilience categories were assigned (see Table 2, below).

Table 1. Description of how habitat and population factors were scored to determine marron bacora resilience.

Score	Habitat Metrics			Population Metric
	Habitat Protection/ Development Risk	Feral Ungulates	Pest Presence/ Depredation	Population Size/Trend

-1	Habitat not protected, at risk of being developed	High number of exotic mammals	High number of pests present	Relatively low population size and/or declining trend
0	Some habitat protected, and some at risk of being developed	Unknown or moderate number of exotic mammals	Moderate number of pests present	Relatively moderate population size and stable trend, or high degree of uncertainty in population size/trends
1	Habitat protected	Exotic mammals absent	Pests absent	Relatively high population size and/or growth

Table 2. Resiliency scores for marron bacora using habitat and demographic metrics.

Resiliency Scores	
Low Resilience	-4 to -2
Moderately Low Resilience	-1
Moderate Resilience	0
Moderately High Resilience	1
High Resilience	2 to 4

The species is found on two islands with 11 known populations, of which 3 have become extirpated. The resiliency of the extant populations vary according to the abundance of individuals and habitat conditions at each location. The remaining eight extant populations vary between a single individual to 201 plants, and the habitat conditions vary according to the site location. The most recent abundance estimates of each population is described in the current condition and provided in Table 3, below.

Nanny Point (St. John, USVI)

The largest known population is on St. John at Nanny Point; in 2017, this population consisted of 75 mature adult individuals, 4 natural seedlings, and 44 planted individuals from past population enhancement efforts (USFWS 2017b, pers. obs.). During the 2017 survey, most plants were observed in flower, with some already

producing fruit; however, despite this evidence of reproduction, only three seedlings were observed. The low number of seedlings, despite the relatively high fruit production, is consistent with the information already available to the Service indicating that this population continues to show low recruitment (Ray and Stanford 2005, p. 18; USFWS 2011, p. 9726; USFWS 2017a, p. 7). Hurricane Maria resulted in flash floods that caused a loss of canopy (USFWS 2017b, p.3). Following Hurricane Maria, individual plants were covered with tree branches or sediment and several individuals were uprooted or lying on the ground (USFWS 2017b, p. 6-8). A 2018 assessment found 201 individual plants with an increase in natural seedlings and juveniles, suggesting the hurricane created favorable conditions for seedling establishment. A follow-up survey in 2019 found invasive grasses and vines were covering much of the area that was exposed from the canopy loss from the hurricanes.

This population is also affected by herbivory from invasive mammals and the Jacaranda beetle. The Nanny Point population has low resilience because the site is partially within VINP but also overlaps with unprotected, private lands; the population has a high presence of feral ungulates, high insect predation, and has a declining population size.

Friis Bay (St. John, USVI)

With the discovery of a new population in the British Virgin Islands, this is now the third largest natural population of marron bacora, with an estimated 33 individuals (Ray and Stanford 2005, p. 16). The site has not been visited since 2005; thus, no current information is available on the status of this population. Based on our data and knowledge, it is our assumption that this population is also impacted by ungulates as they

are free-roaming throughout the entire island of St. John. In addition, by being located on private land, the population is vulnerable to impacts from habitat modification as residents may not have knowledge of the species.

Johns Folly (St. John, USVI)

This site is located upslope in a ravine about 700 m (2,296.6 ft) northwest of the Nanny Point population. A 2017 population assessment identified only 4 natural individuals and 1 natural seedling, and 13 plants corresponding to planted material from a previous population enhancement with material from the Nanny Point population (USFWS 2017a, p. 7). Despite the evidence of flowering events, natural recruitment appears to be minimal, as only one natural seedling was observed. The distribution of the natural individuals is similar to Nanny Point with the majority of the plants at the bottom of the drainage. This site is located along the Park boundaries and the populations appear to be affected by human disturbance such as vegetation clearing for a hiking trail that begins nearby and former evidence of dumping (USFWS 2017a, p. 9).

In 2018, a post hurricane assessment of the population found 18 adult individuals with no seedlings or juveniles reported. All individuals documented in this population were mature plants; none of the plants presented flowers or fruit. All individuals in this population were described as standing (none lying) with three of the individuals (16.7 percent) exhibiting some form of dieback and 11 plants (61.1 percent) exhibiting a combination of impacts by herbivorous insects and browsing by potential invasive mammals (IC Report 2018, p. 7). The Johns Folly population has low resilience due to habitat loss and fragmentation by development, low density of pollinators, high presence of feral ungulates, and a declining population.

Brown Bay Trail (St. John, USVI)

The Brown Bay Trail site is located along the Brown's Bay hiking trail within the VINP, an area of mature secondary dry forest located on the northeastern shore of St. John. The site is located on a slope approximately 60 m (196.85 ft) from shore and the population is composed of a remnant natural individual and planted individuals that were part of a 2009 population enhancement using material propagated from the Nanny Point population. The wild individual occurs on the edge of an NPS-maintained hiking trail and showed signs of direct impacts from trail maintenance activity (i.e., clearing of vegetation) (Palumbo et al. 2016, pp. 6–7).

In 2018, a post-hurricane assessment reported that the population was composed of 18 individuals -- 17 adults and 1 juvenile. The population here was described as an aged structure, with 94.4 percent of the individuals being classified as adults with no signs of flowers or fruit on any plants in this population. This population showed evidence of dieback on their leaves, impacts by herbivorous insects, and browsing by potential invasive mammals, and all of the plants at this location were described as suffering from severe dry conditions (IC Report 2018, p. 8). The Brown Bay Trail population has low resilience due to high presence of feral ungulates, high insect predation, and a declining population trend.

Reef Bay Trail (St. John, USVI)

The Reef Bay Trail locality is a new population located during a 2017 population assessment (USFWS 2017a, p. 11). The site lies within VINP along the NPS hiking trail from Europa Bay to Reef Bay. A population assessment in 2017 discovered 7 wild individuals, 85 percent in flower and some individuals producing fruits. Additional

habitat surveys may be required for a more thorough assessment of this area. No post hurricane assessments were carried out for this population. The Reef Bay Trail population has moderately low resilience due to high presence of feral ungulates that are causing an overall decline across all populations (Roberts 2017, entire).

Base Hill (St. John, USVI)

The population at Base Hill consists of 1 natural individual (Ray and Stanford 2005, p. 16). There have been no subsequent visits to this population since 2005; thus, no further data on the status of this individual are known. The current condition of this population is unknown.

Brown Bay Ridge (St. John, USVI)

In 2017, one wild individual was discovered on top of a ridge approximately 0.25 miles from the Brown Bay Trail population (Cecilia Rogers 2017, pers. comm.). Additional habitat surveys may be required for a more thorough assessment of this area, and no post hurricane assessments were carried out in this area. The Brown Bay Ridge population has moderately low resilience because, while there is a high presence of feral ungulates in the area, the area harbors suitable habitat and in addition, the single documented wild individual was a juvenile plant suggesting possible evidence of recruitment.

Sabbat Point (St. John, USVI)

This population was reported as a single natural individual in 2005 (Ray and Stanford 2005, p. 16; 76 FR 9722, February 22, 2011, p. 76 FR 9724). The individual was never relocated in a subsequent site visit, and the site showed evidence of

disturbance based on the abundance of *Leucaena leucocephala*, *Opuntia repens*, and *Bromelia pinguin* (USFWS 2017a, p. 4). This population is considered extirpated.

Reef Bay Valley (St. John, USVI)

This locality is on the southern coast of St. John, along the shore near White Cliffs. In 2005, 6 wild and 60 introduced individuals were reported at the Reef Bay site (Ray and Stanford 2005, p. 16). Further assessments of this area were unsuccessful in detecting any marron bacora (USFWS 2017a, p. 11). Thus, the best available information indicates this population is extirpated, and no individuals are known in its proximity.

Europa Ridge (St. John, USVI)

The Europa Ridge population was a single individual when documented in the early 1990s (Acevedo-Rodriguez, P. 1996, p. 415). In 2005, the site was composed of 1 natural individual and 60 planted individuals (population enhancement) (Ray and Stanford 2005, p. 16). However, based on the latest habitat assessments by the Service, this population is likely extirpated (USFWS 2017a, p. 11).

Sabbath Hill (Tortola, BVI)

In 2018, surveys on Tortola identified a plant morphologically consistent with marron bacora, near Sabbath Hill. On a follow-up trip to confirm marron bacora in the area, a population of approximately 46 to 48 individuals was identified with most plants described as small and only about 7 as large. Three of the large plants were described as fertile, with one having flowers with no fruit, another having flowers and immature fruit, and the last having fruit but no flowers. The habitat was described as having open vegetation compared with the surrounding forest and containing a lot of nonnative

annuals and *Acacia riparia* encroaching. Feral animal droppings and grazing of marron bacora were noted in the area (Heller et al. 2018, entire). The Sabbath Hill population has low resilience due to a high presence of feral ungulates and the location of the population not being associated with any protected lands. The population was only recently found; therefore, the population trends are unknown. However, due to the threats acting on this population, without management of free-ranging ungulates, the habitat will likely decline.

Table 3. Marron bacora most recent population estimates.

Population Location	Population Estimate
<i>St. John, USVI</i>	
Nanny Point	201 (2018)
Friis Bay	33 (2005)
Johns Folly	18 (2018)
Brown Bay Trail	18 (2018)
Reef Bay Trail	7 (2017)
Base Hill	1 (2005)
Brown Bay Ridge	1 (2017)
Sabbat Point	Extirpated
Reef Bay Valley	Extirpated
Europa Ridge	Extirpated
<i>Tortola, BVI</i>	
Sabbath Hill	46 (2018)

There is little evidence of natural recruitment in any of the known populations of marron bacora. The population structure at Nanny Point and Johns Folly is characterized by the absence of individuals smaller than 1 meter high, with little evidence of seedlings or juveniles (three for Nanny Point and one for Johns Folly) (USFWS 2017a, p. 7). These populations consist primarily of reproductive individuals, as 92 percent and 75 percent of the plants, respectively, were recorded in flower during a recent survey

(USFWS 2017a, p. 7). The Johns Folly population was composed of 4 natural adult individuals (reproductive size individuals naturally occurring at this site) or 36 percent of the total (11 plants) (USFWS 2017a, p. 9). The lack of natural recruitment does not seem to be attributed to low seed viability as germination under greenhouse conditions is high, with almost 100 percent germination (Ray and Stanford 2005, p. 6).

Efforts have been conducted to enhance existing natural populations by planting seedlings, including planting of 128 seedlings (different seed sources) at two localities in the south coast of St. John (Europa Ridge and Reef Bay Valley) (Stanford et al. 2013, p. 178). Overall survival of these seedlings over a 32-month period was approximately 81.3 percent in Europa Ridge, and 78.1 percent in Reef Bay Valley, and irrespective of seed source, survival rate was not significantly different between the two sites (Stanford et al. 2013, p. 177). However, growth rates for these sites were recorded as highly erratic, and plant material was affected by drought stress and insect herbivory (Stanford et al. 2013, p. 178). Further monitoring of these sites by NPS staff has not located living material of marron bacora, either natural or planted, and these populations are presumed extirpated (McKinley 2017, pers. comm.). In fact, the species was not detected in these areas in 2017 (USFWS 2017a, p. 11). Additional population enhancements from seedling and cuttings have been conducted at Nanny Point (50), Johns Folly (37), and Brown Bay (36) (76 FR 9722, February 22, 2011, p. 76 FR 9724). The current number of surviving individuals for these sites is 44 (88 percent), 13 (35 percent), and 10 (27 percent), respectively (USFWS 2017a, p. 13).

All eight extant populations are declining and have moderately low to low resiliency; many populations are on the brink of extirpation. The entire species consists of

324 known individuals, with 201 of those plants located within a single population (Nanny Point).

Redundancy and Representation

The species is showing very low to no natural recruitment across all populations. Only three populations have more than 18 individuals, two populations have 18 individuals, and the three remaining populations have fewer than 7 individuals. Most of the populations are small and isolated with little to no connectivity. Marron bacora currently shows overall low numbers of individuals, low numbers of populations, and low numbers of individuals at each population site. The overall resiliency, redundancy, and representation of this species are low.

Future Conditions

As part of the SSA, we also developed multiple future condition scenarios to capture the range of uncertainties regarding future threats and the projected responses by marron bacora. Our scenarios included a status quo scenario, which incorporated the current risk factors continuing on the same trajectory that they are on now. We also evaluated two additional future scenarios, one that considered increasing levels of risk factors resulting in elevated negative effects on marron bacora populations. The other scenario considered improved environmental and habitat conditions through conservation actions including land management and invasive plant and animal management. We determined that the current condition of marron bacora and the projections for all scenarios are consistent with an endangered species (see Determination of Species Status, below); we are not presenting the results of the future scenarios in this

proposed rule. Please refer to the SSA report (Service 2019) for the full analysis of future conditions and descriptions of the associated scenarios.

Determination of Status for Marron Bacora

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

We have determined that the major threats acting on marron bacora are the habitat destruction or modification by nonnative mammal species (e.g., white-tailed deer, goats, pigs, and donkeys) (Factor A); herbivory by nonnative, feral ungulates (Factor C); the lack of natural recruitment (Factor E); absence of dispersers (Factor E); fragmented distribution and small population size (Factor E); lack of genetic diversity (Factor E); effects of climate change (Factor E); and exotic, invasive plants (e.g., guinea grass) (Factor E).

Status Throughout All of Its Range

After evaluating threats to the species and assessing the cumulative effect of the threats under the section 4(a)(1) factors, we found that the lack of recruitment will cause a continued decline in the species' viability through loss of representation, redundancy, and resiliency.

Marron bacora is adapted for life in the dry forests of St. John, USVI, and Tortola, BVI. These islands have endured landscape changes over time and will continue to be affected by human visitation and development. The largest extant population on St. John is within the VINP boundaries and is protected from future development; however, neighboring areas are vulnerable to development as the human population increases. Depredation from ungulates is largely responsible for the low levels of seedling recruitment that have caused the lack of natural recruitment. The species is also affected by insect pests along with habitat degradation by nonnative plants and animals.

There are currently 11 known historical and current populations. Three of these populations are considered extirpated, two are represented by only a single individual (possibly functionally extirpated), and five are represented by very low numbers of individuals. Only the single population at Nanny Point has more than 100 individuals, and between 2010 and 2017, this population declined by over half. Seedlings were discovered at this site, likely assisted by release/reproduction due to opening of canopy/moist soil conditions from the hurricanes, but those seedlings were being affected by ungulate herbivory that was reducing survival. Despite having the greatest number of individuals, Nanny Point, alone, is in danger of extirpation due to little or no reproductive output, the continued presence of nonnative mammals, and habitat degradation from recent hurricanes and invasive plant species. Additionally, it has seen an almost 50

percent reduction in the number of individuals over the last 10 years. Across the entire range, the lack of evidence of reproduction/recruitment is resulting in the continued decline of all populations. Reintroductions to date have resulted in limited survival (28 percent) and have not yielded any increase in reproductive success (either have not achieved reproductive status, or have not successfully reproduced). Resiliency for all extant populations is low as is redundancy and representation. There is very little evidence of natural recruitment, with recent seedling evidence from only two populations. Due to the lack of recruitment across all populations, the species is at risk of becoming functionally extinct.

The threats acting on the species are likely to continue at the existing rate or increase without management of the marron bacora and the identified threats, such as nonnative, invasive species. The species is a narrow endemic and has suffered extirpation of populations across its limited range; most remaining populations have only a single or few individuals. The species has lost redundancy, and remaining populations have low resiliency. The impacts from herbivory by nonnative species have impaired the viability of marron bacora to the point of imminent decline across the species' entire range. Despite efforts to propagate the species and re-establish it in the wild, plants are not reproducing offspring sufficiently to support resilient populations. Thus, after assessing the best available information, we conclude that marron bacora is in danger of extinction 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. We have determined that marron bacora is in danger of extinction throughout all of its range, and accordingly, did not undertake an analysis of any significant portion of its range. Because we have determined that marron bacora warrants listing as endangered throughout all of its range, our determination is consistent with the decision in *Center for Biological Diversity v. Everson*, 2020 WL 437289 (D.D.C. Jan. 28, 2020), in which the court vacated the aspect of the 2014 Significant Portion of its Range Policy that provided the Services do not undertake an analysis of significant portions of a species' range if the species warrants listing as threatened throughout all of its range.

Determination of Status

Our review of the best scientific and commercial data information indicates that marron bacora meets the definition of an endangered species because the species is currently in danger of extinction throughout all of its range due to the low resiliency, redundancy, and representation of the species; threats acting on the species across its range; and the lack of recruitment to support resilient populations. Therefore, we propose to list the marron bacora as an endangered species in accordance with sections 3(6) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened species under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and 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. Subsection 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 downlisting or delisting, and methods for monitoring recovery progress. Recovery plans 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 Caribbean 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 Territory of the U.S. Virgin Islands would be eligible for Federal funds to implement management actions that promote the protection or recovery of the marron bacora. Information on our grant programs that are available to aid species recovery can be found at: <http://www.fws.gov/grants>.

Although marron bacora 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 NPS (Virgin Islands National Park).

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered plants. The prohibitions of section 9(a)(2) of the Act, codified at 50 CFR 17.61, make it illegal for any person subject to the jurisdiction of the United States to import or export; remove and reduce to possession from areas under Federal jurisdiction; maliciously damage or destroy on any such area; remove, cut, dig

up, or damage or destroy on any other area in knowing violation of any law or regulation of a State or in the course of an violation of a State criminal trespass law; deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever and in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce an endangered plant. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered plants under certain circumstances. Regulations governing permit issuance are codified at 50 CFR 17.62. With regard to endangered plants, a permit may be issued for scientific purposes or for enhancing the propagation or survival of the species. There are also certain statutory exemptions from the prohibitions, which are found in sections 6(g)(2) and 10 of the Act.

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.

Based on the best available information, the following activities may potentially result in a violation of section 9 of the Act if they are not authorized in accordance with applicable law (this list is not comprehensive):

- Modifying the habitat of the species on Federal lands without authorization (e.g., unauthorized opening of trails within NPS lands);

- Removing, cutting, digging up, or damaging or destroying of the species on any non-Federal lands in knowing violation of any law or regulation of the Territory of the U.S. Virgin Islands or in the course of any violation of the Territory of U.S. Virgin Islands' criminal trespass law.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Caribbean Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

II. 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).

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. Designation also does not allow the government or public to access private lands, nor does designation require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the Federal agency would be required to consult with the Service under section 7(a)(2) of the Act. However, even if the Service were to conclude that the proposed activity would result in destruction or adverse modification of the critical habitat, the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore

or recover the species; instead, they must implement “reasonable and prudent alternatives” to avoid destruction or adverse modification of critical habitat.

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

Under the second prong of the Act’s definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. When designating critical habitat, the Secretary will first evaluate areas occupied by the species. The Secretary will only consider unoccupied areas to be

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

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

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

surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

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

Prudency Determination

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary

shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the Secretary may, but is not required to, determine that a designation would not be prudent in the following circumstances:

- (i) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;
- (ii) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;
- (iii) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States;
- (iv) No areas meet the definition of critical habitat; or
- (v) The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

There is currently no imminent threat of collection or vandalism identified under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our SSA report for the marron bacora and this document, we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to marron bacora and that threat in some ways can be addressed by section 7(a)(2) consultation measures. The species occurs under the jurisdiction of the United States and the United Kingdom. We are able to identify areas

under U.S. jurisdiction that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) has been met and because there are no other circumstances we are aware of for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for marron bacora.

Critical Habitat Determinability

Having determined that designation is prudent, under section 4(a)(3) of the Act, we must find whether critical habitat for marron bacora 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 these 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 marron bacora.

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 a species might include gravel of a particular size required for spawning, alkali soil for seed germination, protective cover for migration, or susceptibility to flooding or fire that maintains necessary early-successional habitat characteristics. Biological features might include prey species, forage grasses, specific kinds or ages of trees for roosting or nesting, symbiotic fungi, or a particular level of nonnative species consistent with conservation needs of the listed species. The features may also be combinations of habitat characteristics and may encompass the relationship between characteristics or the necessary amount of a characteristic essential to support the life history of the species.

In considering whether features are essential to the conservation of the species, the Service may consider an appropriate quality, quantity, and spatial and temporal arrangement of habitat characteristics in the context of the life-history needs, condition, and status of the species. These characteristics include, but are not limited to, space for

individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing (or development) of offspring; and habitats that are protected from disturbance.

The specific physical or biological features required for marron bacora were derived from available observations and current information on the species' habitat, ecology, and life history as described below. To identify the physical and biological needs of the species, we have relied on current conditions at locations where marron bacora occurs. In addition, available literature on the species' genetics, reproductive biology, and habitat modeling were used (Stanford et al. 2013; Anderson et al. 2015; Palumbo et al. 2016).

Marron bacora is a shrub endemic to the islands of St. John (USVI) and Tortola (BVI), and its distribution is restricted to the subtropical dry forest life zone (Ewel and Whitmore 1973, p. 72). The vegetation in this life zone usually consists of a nearly continuous, single-layered canopy, with little groundcover. Tree heights usually do not exceed 49 ft (15 m) and crowns are typically broad, spreading, and flattened (Ewel and Whitmore 1973, p. 72). It is estimated that more than 80 percent of the overall land surface of St. John is covered by subtropical dry forest (Stanford et al. 2013, p. 173).

The climate within the subtropical dry forest life zone (*sensu* Holdridge 1967) where marron bacora occurs is seasonal with most of the runoff between September and October, and mean annual rainfall ranging from 24 to 40 inches (600 to 1,110 millimeters) (Lugo et al. 1978, p. 278). Moisture availability as a function of shallow soils plus low rainfall and its seasonality determine the forest productivity, growth

characteristics, water loss, and physiognomy in subtropical dry forest life zones where temperature tends to be constant throughout the year (Lugo et al. 1978, p. 278). The most recently discovered populations of marron bacora occur on dry and poor soils (Ray and Stanford 2005, p. 6). Historically, the species was locally abundant in exposed topography on sites disturbed by erosion (depositional zones at the toe of the slopes), areas that have received moderate grazing, and around ridgelines as an understory component in diverse woodland communities (Carper and Ray 2008, p. 1).

The specific microhabitat requirements of marron bacora remain unknown, but like other species within the genus *Solanum*, marron bacora may be adapted to poor soils and some sort of natural disturbance (e.g., hurricanes). The habitat has been fragmented and degraded due to the historic land-use changes.

Based on the hermaphroditic and dioecious biology of marron bacora, the species requires cross-pollination. Recent surveys by the Service (May 2017) recorded carpenter bees (*Xylocopa mordax*) and honey bees (*Apis mellifera*) visiting the flowers of marron bacora at Nanny Point (USFWS 2017, p. 7). Nanny Point is the largest known population and harbors the majority of the species' genetic diversity. It is the only population showing some evidence of natural recruitment (Stanford et al. 2013, p. 178). Further habitat modification and fragmentation at Nanny Point may adversely affect the genetic exchange (cross-pollination) with other natural populations (e.g., Johns Folly), and may further reduce suitable habitat needed for seedling recruitment, thus compromising the species' viability.

We cannot attribute the lack of natural recruitment to low seed viability, as germination under nursery conditions is almost 100 percent (Ray and Stanford 2005, p.

6). Fruit and seedling predation by feral ungulates (e.g., deer and goats) may be largely responsible for the low levels of seedlings recruitment and the predominant old population structure of the species. In addition, despite the ability of marron bacora to colonize disturbed areas, any seedling or juvenile may be outcompeted by exotic, invasive plant species such Guinea grass (*Megathyrsus maximus*) and tan-tan (*Leucaena leucocephala*) (IC 2018, p. 3). Therefore, in order to secure viable populations of marron bacora, the species needs extended forested habitat dominated by native plants that provides for connectivity between populations to promote cross-pollination and gene flow, and the habitat conditions for long-term recruitment in the absence of invasive plants and feral ungulates.

As indicated above, marron bacora is a shrub endemic to the dry forest of St. John (USVI) and Tortola (BVI). At approximately 53 square kilometers (20.5 square miles) in area, the island of St. John has the greatest amount of forest cover (91.6 percent) and mature secondary forest (20 percent) in relation to land area compared to the adjacent islands (USVI). NPS, under its Organic Act, is responsible for managing the National Parks to conserve their scenery, natural and historic objects, and wildlife. In addition, the National Parks Omnibus Management Act of 1998 requires NPS to inventory and monitor its natural resources. NPS has implemented its resource management responsibilities through its management policies, section 4.4.1, which state that NPS “will maintain as parts of the natural ecosystems of parks all plants and animals native to park ecosystems” (NPS 2006, p. 42).

Summary of Essential Physical or Biological Features

We derive the specific physical or biological features essential to the conservation

of the marron bacora from studies of the species' habitat, ecology, and life history as described below. Additional information can be found in the SSA report (Service 2018, entire; available on <http://www.regulations.gov> under Docket No. FWS-R4-ES-2019-0050. We have determined that the following physical or biological features are essential to the conservation of marron bacora:

- (i) Native forest within the subtropical dry forest life zone in St. John.
- (ii) Dry scrubland, deciduous forest, and semi-deciduous forest vegetation at elevations lower than 150 meters (492 feet).
- (iii) Continuous native forest cover with low abundance of exotic plant species (e.g., *Leucaena leucocephala* and *Megathyrsus maximus*), and that provides the availability of pollinators to secure cross-pollination between populations.
- (iv) Habitat quality evidenced by the presence of regional endemic plant species, including *Zanthoxylum thomasianum*, *Peperomia wheeleri*, *Eugenia earhartii*, *Eugenia sessiliflora*, *Cordia rickseckeri*, *Croton fishlockii*, *Malpighia woodburyana*, *Bastardiodipsis eggersii*, *Machaonia woodburyana*, and *Agave missionum*.
- (v) Open understory with appropriate microhabitat conditions, including shaded conditions and moisture availability, to support seed germination and seedling recruitment.

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. All the proposed units are occupied habitat by the species at

the time of proposed listing (i.e., are currently occupied) and have mixed ownership of predominantly Federal lands (97 percent) and private lands (3 percent) (see Table 4, below).

The features essential to the conservation of marron bacora may require special management considerations or protection to ameliorate the following stressors: habitat modification and fragmentation (development); erosion (from storm water runoff); feral ungulates (predation); and invasive, exotic plants (habitat intrusion). Special management considerations or protection may be required within critical habitat areas to ameliorate these stressors, and include, but are not limited to: (1) Protect and restore native forests to provide connectivity between known populations and secure availability of pollinators and dispersers; (2) reduce density of feral ungulates; (3) remove and control invasive plants; and (4) avoid physical alterations of habitat to secure microhabitat conditions.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas within the geographical area occupied by the species at the time of listing and any specific areas outside the geographical area occupied by the species to be considered for designation as critical habitat. We are not currently proposing to designate any areas outside the geographical area occupied by the species because we have not identified any unoccupied areas that meet the definition of critical habitat. The proposed critical habitat designation includes all currently occupied areas within the historical range that have retained the necessary

physical or biological features that will allow for the maintenance and expansion of these existing populations. The occupied areas are sufficient for the conservation of the species.

For areas within the geographic area occupied by the species at the time of listing (i.e., areas that are currently occupied), we delineated critical habitat unit boundaries as described below. The primary sources of data used to define marron bacora proposed critical habitat include a habitat suitability model (by selecting areas identified as containing moderate and high quality habitat for the species) developed by Palumbo et al. (2016), and validated by recent habitat assessments throughout the species' range. The habitat suitability model included elevation, slope, soil association, and vegetation types and identified approximately 694.94 hectares (ha) (1,717.23 acres (ac)) of high-quality habitat, 1,274.94 ha (3150.45 ac) of moderate-quality habitat, 1,568.53 ha (3,875.92 ac) of low-quality habitat, 1,343.16 ha (3,319.16 ac) of poor-quality habitat, and 186.88 ha (461.79 ac) of unsuitable habitat (Palumbo et al. 2016, p. 5) on St. John. When adding all hectares of high- and moderate-quality habitat, approximately 32 percent of the land area of VINP may be suitable habitat for marron bacora (Palumbo et al. 2016, p. 5). However, the latest discovered population of marron bacora on St. John at Reef Bay Trail (USFWS 2017, p. 11) occurs at elevations higher than what was provided by the model results, thus, the amount of suitable habitat for marron bacora at St. John may include areas higher in elevation indicating more suitable habitat than previously reported (Palumbo et al. 2016, p. 5). Therefore, to delineate the critical habitat unit boundaries the areas originally identified as moderate and high quality for the species identified by Palumbo et al. (2016, p. 5) were slightly expanded to include further habitat at higher elevations consistent with the recently discovered populations (Reef Bay Trail).

We analyzed recent satellite images to identify areas dominated by native forest vegetation associated to known localities for the species within St. John. Finally, we adjusted the elevation to 150 m (492 ft), as the latest discovered population of marron bacora was at an elevation higher than the records available to Palumbo et al. (2016). We further cropped the units using the contour of the coastline, excluding wetland areas (e.g., ponds) and developed areas. Critical habitat units were then mapped using ArcGIS Desktop version 10.6.1, a geographic information system (GIS) program. We identified two units, North and South, falling within these parameters.

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 marron bacora. 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), that contain one or more of the physical or biological features that are essential to support life-history processes of the

species, and that may require special management considerations or protections. The two units, South and North, each contain all of the identified physical or biological features and support multiple life-history processes for marron bacora.

The proposed critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document under **Proposed Regulation Promulgation**. We include more detailed information on the boundaries of the proposed 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-R4-ES-2019-0050, or on our Internet site, <https://www.fws.gov/southeast/caribbean>.

Proposed Critical Habitat Designation

We are proposing two units as critical habitat for marron bacora. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for marron bacora. The two units we propose as critical habitat are: (1) South and (2) North. Table 4 shows the proposed critical habitat units, the land ownership, and the approximate area of each unit. Both units are occupied at the time of listing.

Table 4. Proposed critical habitat units for marron bacora with ownership, area, and occupied status.

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

Critical Habitat Unit	Land Ownership by Type	Size of Unit in Acres (Hectares)*	Occupied?
1. South	Federal (NPS) Private	1,635 ac (664 ha) 71 ac (29 ha) <i>Unit total: 1,706 ac (690 ha)</i>	Yes
2. North	Federal (NPS)	844 ac (343 ha)	Yes
Total		2,549 ac (1,033 ha)	

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

We present brief descriptions of both units, and reasons why they meet the definition of critical habitat for marron bacora, below.

Unit 1: South

Unit 1 consists of a total of 1,706 ac (690 ha). Approximately 1,635 ac (664 ha) are managed by NPS within the Virgin Islands National Park (VINP), and approximately 71 ac (29 ha) are in private ownership adjacent to the east corner of VINP. This unit is within the geographical area occupied by marron bacora at the time of the proposed listing. This unit harbors the largest population and core of known individuals of marron bacora in St. John, USVI. It contains all of the identified physical or biological features essential to the conservation of marron bacora.

Ongoing and potential threats or activities that occur in this unit are urban and tourist development, trampling and predation by feral ungulates, and forest management actions (e.g., conservation/restoration, recreation, trail maintenance, roads, control of feral mammals, and fire management control). Special management considerations or protection measures to reduce or alleviate the threats may include minimizing or avoiding habitat modification or fragmentation from urban and recreational development, protecting and restoring native forests to provide connectivity between known populations and to secure availability of pollinators and dispersers, reducing the density of feral ungulates, and removing and controlling invasive plants.

Unit 2: North

Unit 2 consists of a total of 844 ac (343 ha) of federally owned land managed by NPS within the VINP. This unit is within the geographical area occupied by marron

bacora at the time of proposed listing and harbors the habitat structure that supports marron bacora's viability. This unit contains all of the identified physical or biological features essential to the conservation of marron bacora.

Ongoing and potential threats or activities that occur in this unit are roaming feral mammals and forest management actions (e.g., conservation/restoration, recreation, trails, roads, control of feral mammals, and fire management control). Special management considerations or protection measures to reduce or alleviate the threats may include protecting and restoring native forests to provide connectivity between known populations and to secure availability of pollinators and dispersers, reducing density of feral ungulates, removing and controlling invasive plants, and avoiding physical modification of habitat to secure microhabitat conditions.

Effects of Critical Habitat Designation

Section 7 Consultation

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

We published a final regulation with a revised definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse modification

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

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

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

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

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse

modification of critical habitat. We define “reasonable and prudent alternatives” (at 50 CFR 402.02) as alternative actions identified during consultation that:

- (1) Can be implemented in a manner consistent with the intended purpose of the action,
- (2) Can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction,
- (3) Are economically and technologically feasible, and
- (4) Would, in the Director’s opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

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

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

plans after subsequently listing a new species or designating new critical habitat. See the regulations for a description of those exceptions.

Application of the “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 7(a)(2) of the Act by destroying or adversely modifying such habitat, or that may be affected by such designation.

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

(1) Actions that would significantly alter the structure of the native forest. Such activities could include, but are not limited to, habitat fragmentation and development (e.g., from recreational facilities and activities like trails, hiking, bicycling, using all-terrain vehicles (ATVs); herbicide and pesticide use on private lands; and urban and tourist developments). In addition, habitat modification may promote habitat encroachment by invasive plant species, thus promoting favorable conditions for human-

induced fires. These activities could degrade the habitat necessary for marron bacora populations to expand.

(2) Actions that would increase habitat modification. Such activities could include, but are not limited to, predation and erosion cause by feral animals, and risk of human-induced fires. These activities could significantly reduce the species' recruitment and could exacerbate the vulnerability of the species to stochastic events (e.g., hurricanes).

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 geographic areas owned or controlled by the Department of Defense (DoD), 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 DoD 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 he determines that the benefits of such exclusion outweigh the

benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making the determination to exclude a particular area, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

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

Consideration of Economic Impacts

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

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

For this particular designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from this proposed designation of critical habitat. The information contained in our IEM was then used to develop a screening analysis of the probable effects of the designation of critical habitat for marron bacora (IEc 2019). 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 the geographic areas in which the critical habitat

designation is unlikely to result in probable incremental economic impacts. In particular, the screening analysis considers baseline costs (i.e., absent critical habitat designation) and includes probable economic impacts where land and water use may be subject to conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the species. The screening analysis filters out particular areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. The screening analysis also assesses whether units are unoccupied by the species and may require additional management or conservation efforts as a result of the critical habitat designation for the species that may incur incremental economic impacts. This screening analysis combined with the information contained in our IEM are what we consider our draft economic analysis (DEA) of the proposed critical habitat designation for the marron bacora; our DEA is summarized in the narrative below.

Executive Orders (E.O.s) 12866 and 13563 direct Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess to the extent practicable the probable impacts to both directly and indirectly affected entities.

As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely to be affected if we adopt the critical habitat designation as proposed. In our evaluation of the probable incremental economic impacts that may result from the proposed designation of critical habitat for the marron bacora, first we identified, in the IEM dated September 16, 2019 (Service 2019, entire), probable incremental economic impacts associated with the following categories of activities: (1) Federal lands management from recreational activities (e.g., hiking, bicycles, ATVs), trails, grazing, and erosion and fire management control; (2) transportation (road construction and maintenance); (3) feral mammal control; and (4) tourism or residential developments. We considered each industry or category individually.

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

In our IEM, we attempted to clarify the distinction between the effects that will result from the species being listed and those attributable to the critical habitat

designation (i.e., difference between the jeopardy and adverse modification standards) for marron bacora's critical habitat. Because the designation of critical habitat for marron bacora is 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 to constitute jeopardy to marron bacora 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 following describes the information provided in the DEA:

Section 7 Costs

The economic costs of implementing the rule associated with section 7 of the Act would most likely be limited to additional administrative effort to consider adverse modification during consultations. This finding is based on the following factors:

- (1) For the purposes of consultation, the Service considers both proposed critical habitat units to be occupied by the species. Thus, incremental consultations resulting solely from the designation of critical habitat are unlikely.
- (2) Project modifications likely to be recommended by the Service to avoid

adverse modification of critical habitat are anticipated to be the same as those needed to avoid jeopardizing the species.

Based on a review of available information, no more than two technical assistance projects and no more than one informal consultation are likely to occur in a given year. The additional administrative cost of addressing adverse modification in these projects is not expected to exceed \$3,300 in a given year.

Other Costs

The designation of critical habitat is not expected to trigger additional requirements under territorial or local regulations. We are unable to quantify the degree to which the public's perception of possible restrictions on the use of public land could reduce the value of private property. We recognize that a number of factors may already result in perception-related effects, including the presence of marron bacora and other federally listed species, which may temper any additional perception-related effects of critical habitat designation.

As we stated earlier, we are soliciting data and comments from the public on the DEA, as well as all aspects of the proposed rule and our required determinations. During the development of the final designation, we will consider the information presented in the DEA and any 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 424.19. We may revise the proposed rule or supporting documents to incorporate or address information we receive during the public comment period. In particular, in the final designation, 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

In preparing this proposal, we have determined that the lands within the proposed designation of critical habitat for marron bacora are not owned, managed, or used by the Department of Defense or the Department of Homeland Security, and, therefore, we anticipate no impact on national security. However, during the development of a final designation, we will consider any additional information we receive through the public comment period on the impacts of the proposed designation on national security or homeland security to determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 424.19.

Consideration of Other Relevant Impacts

We have not considered any areas for exclusion from critical habitat. However, the final decision on whether to exclude any areas will be based on the best scientific data available at the time of the final designation, including information obtained during the comment period and information about the economic impact of designation. Accordingly, we have prepared a draft economic analysis concerning the proposed critical habitat designation, which is available for review and comment (see **ADDRESSES**).

Exclusions

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 (CCAA), or whether there are non-permitted conservation agreements and partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at the existence of tribal conservation plans and partnerships and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

In preparing this proposal, we have determined that there are currently no HCPs or other management plans for marron bacora, and the proposed designation does not include any tribal lands or trust resources. We anticipate no impact on tribal lands, partnerships, or HCPs from this proposed critical habitat designation. Additionally, as described above, we are not proposing to exclude any particular areas on the basis of impacts to national security or economic impacts.

During the development of a final designation, we will consider any additional information we receive through the public comment period regarding other relevant impacts to determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 424.19.

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. The Office of Information and Regulatory Affairs has waived their review regarding their significance determination of this proposed rule.

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

an open exchange of ideas. We have developed this 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 if potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

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

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

Executive Order 13771

We do not believe this proposed rule is an E.O. 13771 (“Reducing Regulation and Controlling Regulatory Costs”) (82 FR 9339, February 3, 2017) regulatory action because we believe this rule is not significant under E.O. 12866; however, the Office of Information and Regulatory Affairs has waived their review regarding their E.O. 12866 significance determination of this proposed rule.

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 the designation of this proposed critical habitat will significantly affect energy supplies, distribution, or use due to the absence of any energy supply or distribution lines in the proposed critical habitat designation. 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 proposed for critical habitat designation are primarily Federal lands (97 percent), with a small amount of private land (3 percent). Small governments would be affected only to the extent that any programs involving Federal funds, permits, or other authorized activities must ensure that their actions would not adversely affect the designated critical habitat. Therefore, a Small Government Agency Plan is not required.

Takings—Executive Order 12630

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for marron bacora 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 marron bacora, and it concludes that, if adopted, this designation of critical habitat does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with E.O. 13132 (Federalism), this proposed rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of this proposed critical habitat designation with, appropriate State resource agencies. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the proposed rule does not have substantial direct effects either on the States, or on the relationship between the Federal 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 does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this proposed rule identifies the elements of physical or biological features essential to the conservation of the species. The proposed areas of designated critical habitat are presented on maps, and the proposed rule provides several options for the interested public to obtain more detailed location information, if desired.

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

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

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

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

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 Caribbean 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 Caribbean Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as 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 “*Solanum conocarpum*” in alphabetical order under FLOWERING PLANTS to the List of Endangered and Threatened Plants to read as set forth below:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Scientific name	Common name	Where listed	Status	Listing citations and applicable rules
FLOWERING PLANTS				
*	Marron bacora	Wherever found	E	[Federal Register citation when published as a final rule]; 50 CFR 17.96(a). ^{CH}
* * * * *				

3. Amend § 17.96 (a) by:
 - a. Adding Family Solanaceae in alphabetical order to the list of families; and
 - b. Adding an entry for “*Solanum conoocarpum*” in alphabetical order under Family Solanaceae.

The additions read as set forth below.

§ 17.96 Critical habitat—plants.

- (a) *Flowering plants.*

* * * * *

Family Solanaceae: *Solanum conoocarpum* (marron bacora)

(1) Critical habitat units are depicted for St. John, U.S. Virgin Islands, on the maps in this entry.

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

- (i) Native forest within the subtropical dry forest life zone in St. John.
- (ii) Dry scrubland, deciduous forest, and semi-deciduous forest vegetation at elevations lower than 150 meters (492 feet).
- (iii) Continuous native forest cover with low abundance of exotic plant species (e.g., *Leucaena leucocephala* and *Megathyrsus maximus*), and that provides the availability of pollinators to secure cross-pollination between populations.

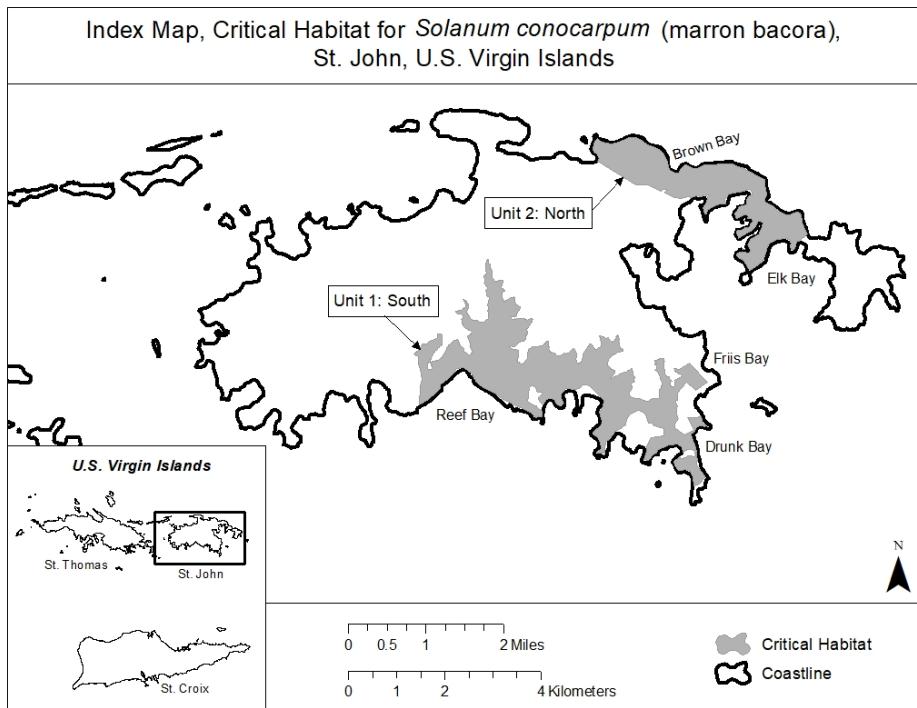
- (iv) Habitat quality evidenced by the presence of regional endemic plant species, including *Zanthoxylum thomasianum*, *Peperomia wheeleri*, *Eugenia earhartii*, *Eugenia sessiliflora*, *Cordia rickseckeri*, *Croton fishlockii*, *Malpighia woodburyana*, *Bastardiodipsis eggersii*, *Machaonia woodburyana*, and *Agave missionum*.

(v) Open understory with appropriate microhabitat conditions, including shaded conditions and moisture availability, to support seed germination and seedling recruitment.

(3) Critical habitat does not include human-made 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) *Critical habitat map units.* Data layers defining map units were created using ArcMap version 10.6.1 (Environmental Systems Research Institute, Inc.), a Geographic Information Systems program on a base of USA Topo Map and the program world imagery. Critical habitat units were then mapped using NAD 1983, State Plane Puerto Rico and Virgin Islands FIPS 5200 coordinates. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's Internet site, <https://www.fws.gov/southeast/caribbean>, or <http://www.regulations.gov> at Docket No. FWS-R4-ES-2019-0050, 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.

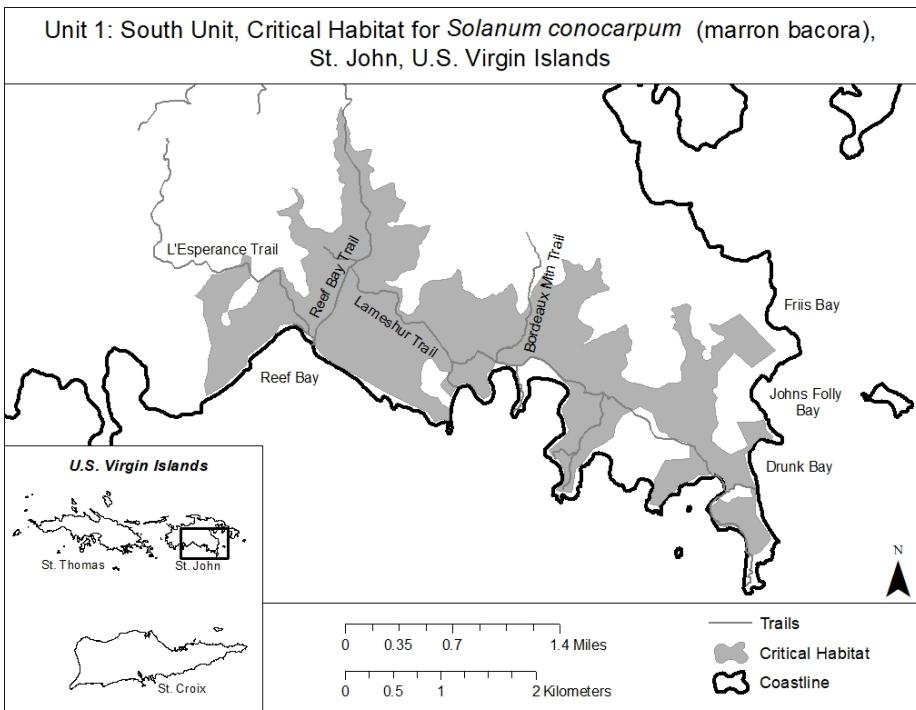
(5) *Note:* Index map follows:



(6) Unit 1: South Unit, St. John, U.S. Virgin Islands.

(i) *General description:* Unit 1 consists of 1,706 acres (690 hectares) in estates Rustenberg & Adventure, Sieben, Mollendal & Little Reef Bay, Hope, Reef Bay, Lameshur Complex, Mandal, Concordia A, Concordia B, St. Quaco & Zimmerman, Hard Labor, Johns Folly and Friis. Lands are composed of 1,635 ac (664 ha) of Federal lands managed by the U.S. National Park Service and 71 acres (29 hectares) of privately owned lands.

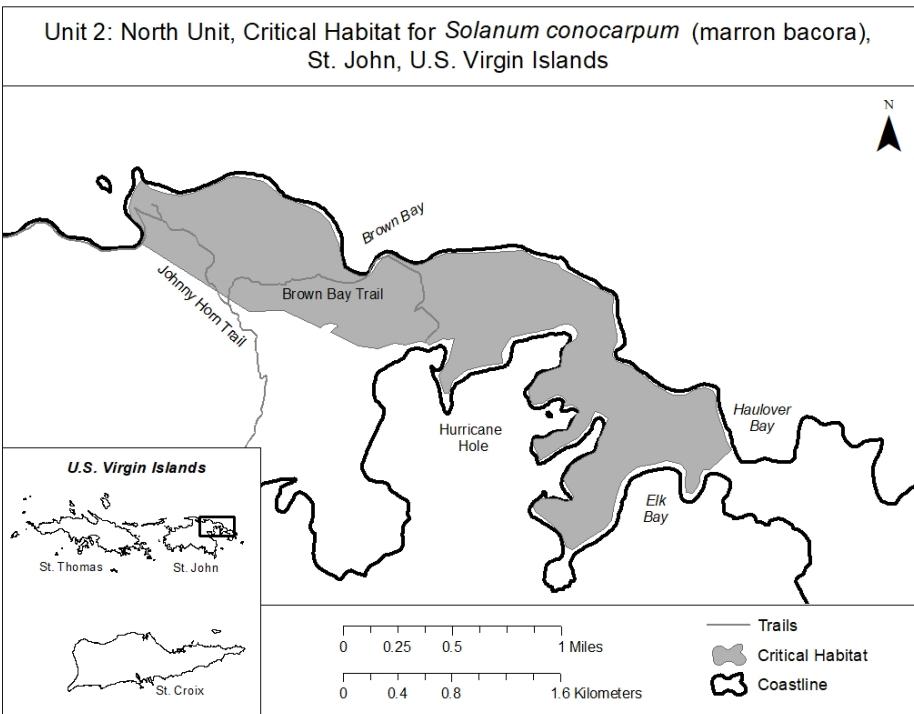
(ii) Map of Unit 1 follows:



(7) Unit 2: North Unit, St. John, U.S. Virgin Islands.

(i) *General description:* Unit 2 consists of 844 acres (343 hectares) in estates Leinster Bay, Browns Bay, Zootenvaal, Hermitage, Mt. Pleasant and Retreat, Haulover, and Turner Point. The unit is composed entirely of Federal lands managed by the U.S. National Park Service.

(ii) Map of Unit 2 follows:



* * * * *

Aurelia Skipwith
Director, U.S. Fish and Wildlife Service

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