DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2020–0083; FF09E21000 FXES1111090FEDR 234]

RIN 1018–BE16

Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Puerto Rican Harlequin Butterfly and Designation of Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), list the Puerto Rican harlequin butterfly (*Atlantea tulita*), a species from Puerto Rico, as a threatened species with a rule issued under section 4(d) of the Endangered Species Act of 1973 (Act), as amended. We also designate critical habitat for this species under the Act. In total, approximately 41,266 acres (16,699.8 hectares) in six units in the municipalities of Isabela, Quebradillas, Camuy, Arecibo, Utuado, Florida, Ciales, Maricao, San Germán, Sabana Grande, and Yauco are within the boundaries of the critical habitat designation. This rule extends the Act's protections to the species and its designated critical habitat.

DATES: This rule is effective January 3, 2023.

ADDRESSES: This final rule is available on the internet at *https://www.regulations.gov.* Comments and materials we received, as well as some supporting documentation we used in preparing this rule, are available for public inspection at *https://www.regulations.gov.*

The coordinates or plot points or both from which the maps are generated are included in the decision file for this critical habitat designation and are available at *https://www.regulations.gov* at Docket No. FWS–R4–ES–2020–0083, or from the Caribbean Ecological Services Field Office *https://www.fws.gov/office/caribbean-ecological-services*) (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information developed will also be available at the Fish and Wildlife Service website and Field Office identified below and at *https://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Edwin Muñiz, Field Supervisor, Caribbean Ecological Services Field Office, U.S. Fish and Wildlife Service, P.O. Box 491, Boqueron, PR 00622; email *caribbean_es@fws.gov;* telephone 787–405–3641. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become endangered in the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the Puerto Rican harlequin butterfly meets the definition of a threatened species; therefore, we are listing it as such and finalizing a designation of its critical habitat. Both listing a species and designating critical habitat can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process.

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 habitat modification and fragmentation (Factor A) caused by urban development and agriculture, human-induced fires, pesticides (insecticides and herbicides), small population size, and climate change (Factor E) are the primary threats affecting the current and future viability of the Puerto Rican harlequin butterfly.

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.

Economic analysis. In accordance with section 4(b)(2) of the Act, we prepared an economic analysis of the impacts of designating critical habitat for the Puerto Rican harlequin butterfly. On October 13, 2020, we made available, and solicited public comments on, the draft economic analysis in our proposed critical habitat rule (85 FR 64908). We received no comments or new information on the draft economic analysis, and we have adopted the draft economic analysis as final.

Peer review and public comments. During the proposed rule stage, we sought the expert opinions of six appropriate specialists regarding the species status assessment report. We received responses from one specialist, which helped inform our SSA report and are incorporated in the proposed rule and this final rule. We also considered all comments and information we received from the public during the comment period on the proposed rule (see 85 FR 64908; October 13, 2020).

Previous Federal Actions

Please refer to the October 13, 2020, proposed rule (85 FR 64908) for a detailed description of previous Federal actions concerning this species.

Supporting Documents

As part of the process of listing the Puerto Rican harlequin butterfly, a species status assessment (SSA) team prepared an SSA report for the species. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species. The SSA report underwent independent

peer review by a scientist with expertise in insect biology, habitat management, and stressors (factors negatively affecting the species) to the species. Along with other information submitted during the process of listing the species, the SSA report is the primary source of information for this final designation. The SSA report and other materials relating to this rule can be found on the Service's Southeast Region website at *https://www.fws.gov/about/region/southeast* and at *https://www.regulations.gov* under Docket No. FWS–R4–ES–2020–0083.

Summary of Changes From the Proposed Rule

After full consideration of the comments we received and that are summarized below under Summary of Comments and Recommendations, this final rule makes one substantive change to our October 13, 2020, proposed rule (85 FR 64908): We have revised the incidental take exception for normal agricultural practices. In this 4(d) rule, we clarify that the incidental take exception does not apply to take resulting from pesticide application in or contiguous to habitat known to be occupied by the Puerto Rican harlequin butterfly. For this exception, we replace the word ''adjacent'' from our proposed rule with the word ''contiguous'' in this final rule to clarify that we mean areas that share a common border, and to avoid the interpretation that ''adjacent'' may mean areas that are near each other but not touching.

Summary of Comments and Recommendations

On October 13, 2020, we proposed to list the Puerto Rican harlequin butterfly as a threatened species with a section 4(d) rule and designate critical habitat for the species (85 FR 64908), and made available the associated draft economic analysis (DEA). The public comment period for that proposed rule was open for 60 days, ending December 14, 2020. During the open comment period, we received 11 public comments on the proposed rule; the majority of comments supported the proposed rule, none opposed the proposed rule, and some included suggestions on how we could refine or improve the critical habitat designation and 4(d) rule. All substantive information provided to us during the comment period is addressed below.

(1) Comment: One commenter concurred with the Service that the Puerto Rican harlequin butterfly should be listed as a threatened species. However, they stated that, although certain land where a golf course is located has special value for wildlife in general, that area does not meet the definition of critical habitat under the Act. Thus, they requested that the Service amend the proposed critical habitat designation to remove the golf course from critical habitat for the Puerto Rican harlequin butterfly. Also, they recommended that the 89 acres of government land at Isabela that is protected habitat managed by a conservation trust be designated as critical habitat for the species.

Our Response: We proposed to designate critical habitat on adjacent public lands and on private lands within the golf course development. Within these privately held lands, only the areas that have the essential physical or biological features for the species were included in the proposed critical habitat, and those areas are included in this final designation. The proposed critical habitat did not, and this final designation does not, include the golf course proper (*e.g.,* fairways, greens, manmade structures) nor other private land that is part of the golf course development but lacks the physical or biological features essential for the species. The 89 acres managed by the conservation trust on land adjacent to the golf course was included in our proposed designation and is included in this final designation of critical habitat.

(2) Comment: A commenter contends that the proposed 4(d) rule is ineffective, fails to conserve the species because it does not adequately address pesticide use as a threat to the species, and fails to comply with section 7 of the Act (16 U.S.C. 1531 *et seq.*). The commenter states that the Service has recognized the severe threat of pesticide spraying to the Puerto Rican harlequin butterfly's survival since 2011, when the Service described this threat as significant and imminent in its finding that listing the species was warranted but precluded. For these reasons, they state that the 4(d) rule should prohibit any spraying of pesticides in or adjacent to Puerto Rican harlequin butterfly habitat and require adequate buffer setbacks.

Our Response: While the Service has characterized pesticide use as a current and ongoing threat, we have not characterized it as ''severe.'' Rather, it has been described as ''significant'' in connection with other threats to the species, including the destruction, modification, and curtailment of the species' habitat, as well as the species' limited distribution and specialized ecological requirements, which are the most significant threats to the species. Pesticide use was identified as one of several other threats acting cumulatively with other threats, particularly in regard to habitat destruction and fragmentation. Because we identified improper application of pesticides as one of the threats to the species, and in consideration of public comments we received, in this final 4(d) rule we are not providing an exception for incidental take associated with pesticide applications in or contiguous to habitat known to be occupied by the Puerto Rican harlequin butterfly (see Summary of Changes from the Proposed Rule, above). However, it is not our intent to preclude application of pesticides in all circumstances. Accordingly, we use the phrase ''known to be occupied'' to clarify that there is a geographical limit on the extent of the prohibitions. For example, the Puerto Rican harlequin butterfly would have to be exposed to particular actions for those actions to cause take, and the butterfly could only be exposed if it is known to occupy the project area. This prohibition does not apply in areas the butterfly does not occupy as there is no risk of take of butterflies in unoccupied areas. The Service can provide technical assistance to help determine whether the Puerto Rican harlequin butterfly occupies a specific area. If noxious weed control is needed where the Puerto Rican harlequin butterfly is present, the Service will work with landowners or land managers to identify techniques to control weeds that avoid take of or minimize effects to the Puerto Rican harlequin butterfly.

(3) Comment: A commenter stated that the proposed 4(d) rule unnecessarily places a substantial focus on preventing and controlling overcollection of the species, with four out of five prohibitions focused on possession and commerce of unlawfully taken specimens. The commenter explained that although collection could theoretically be a threat to this species, the Service's SSA report and other relevant research have shown no substantiated indications that collection is actually occurring, and that the proposed 4(d) rule provides little tangible protection to the Puerto Rican harlequin butterfly.

Our Response: The provisions in section 4(d) of the Act give us discretion to apply the prohibitions provided in section 9 of the Act for endangered species to threatened species. Accordingly, our 4(d) rule generally extends these same prohibitions to the Puerto Rican harlequin butterfly as a threatened species, which include a prohibition on selling or offering for sale in interstate or foreign commerce. We determined these prohibitions

concerning overcollection by private butterfly enthusiasts or collection for commercial purposes are necessary because, when listed, the Puerto Rican harlequin butterfly will likely be more appealing to private collectors. Although observations of trafficking the species are rare, it does not necessarily mean such collection is not occurring. Such collection would be incompatible with the species' recovery needs. However, the 4(d) rule allows for scientific collection, *e.g.,* for propagation, which may entail a low level of take to promote the conservation of the species. In addition to the prohibitions on take to avoid overcollection of the species and the provision for conservation via scientific collection and propagation, our 4(d) rule addresses the threats to the species and its conservation needs by providing for habitat conservation and restoration.

I. Final Listing Determination

Background

Please refer to the October 13, 2020, proposed rule (85 FR 64908) and the SSA report (Service 2019, entire) for a full summary of species information. These documents are available at *https://www.regulations.gov* under Docket No. FWS–R4–ES–2020–0083.

The Puerto Rican harlequin butterfly is endemic to Puerto Rico, occurring in the western portion of the island, in the Northern Karst region and in the West-central Volcanic-serpentine region. The life cycle of the Puerto Rican harlequin butterfly includes four distinct anatomical stages: egg, larva (caterpillar, with several size phases called instars), chrysalis (pupa), and imago (butterfly or adult). Completion of the species' life cycle, from egg to butterfly, likely averages 125 days, but can vary based on temperature and humidity. Relative to other butterfly species, the Puerto Rican harlequin butterfly is medium-sized. The male butterfly's abdomen is brownish-black on the dorsal side and has orange and brown bands on the ventral side, while the female's abdomen is brownish-black with white bands. Wings of both sexes are largely brownish-black with sub-marginal rows of deep orange spots and beige cells. The caterpillar is dark orange with a brownish-black to black thin line, over a thin intermittent white line along each side of the body from the head to hind end. Each body segment of the caterpillar has several evenly-spaced pairs of spines covered in hairs.

All life stages of the Puerto Rican harlequin butterfly are observed year-round, suggesting that mating and oviposition (egg-laying) may occur at any time during the year. The species has been observed to disperse up to approximately 1 kilometer (km) (0.6 mile (mi)) from one breeding site to another. Eggs and larvae are found only on *Oplonia spinosa* (prickly bush). First instars feed only on this plant. While prickly bush is essential to Puerto Rican harlequin butterfly viability, the plant occurs throughout the species' range and, unless removed for land clearing, is not a limited resource. Active during the daytime, the butterflies feed on the nectar of several tree species and also drink water. Puerto Rican harlequin butterflies have been found only within 1 km (0.6 mi) of a water source (*e.g.,* creek, river, pond, puddle).

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for threatened and endangered species. In 2019, jointly with the National Marine Fisheries Service, the Service issued final rules that revised the regulations in 50 CFR parts 17 and 424 regarding how we add, remove, and reclassify threatened and endangered species and the criteria for designating listed species' critical habitat (84 FR 45020 and 84 FR 44752; August 27, 2019). At the same time the Service also issued final regulations that, for species listed as threatened species after September 26, 2019, eliminated the Service's general protective regulations automatically applying to threatened species the prohibitions that section 9 of the Act applies to endangered species (collectively, the 2019 regulations).

As with the proposed rule, we are applying the 2019 regulations for this final rule because the 2019 regulations are the governing law just as they were when we completed the proposed rule. Although there was a period in the interim—between July 5, 2022, and September 21, 2022—when the 2019 regulations became vacated and the pre-2019 regulations therefore governed, the 2019 regulations are now in effect and govern listing and critical habitat decisions (*see Center for Biological Diversity* v. *Haaland,* No. 4:19–cv–05206–JST, Doc. 168 (N.D. Cal. July 5, 2022) (*CBD* v. *Haaland*) (vacating the 2019 regulations and thereby reinstating the pre-2019 regulations)); *In re: Cattlemen's Ass'n,* No. 22–70194 (9th Cir. Sept. 21, 2022) (staying the district court's order vacating the 2019 regulations until the district court resolved a pending motion to amend the order); *Center for Biological Diversity* v. *Haaland,* No. 4:19–cv–5206–JST, Doc. Nos. 197, 198 (N.D. Cal. Nov. 16, 2022) (granting plaintiffs' motion to amend July 5, 2022 order and granting government's motion for remand without vacatur).

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' likely responses to threats 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 Puerto Rican harlequin butterfly, 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 at *https://www.regulations.gov* under Docket No. FWS–R4–ES–2020–0083.

To assess Puerto Rican harlequin butterfly viability, we used the three conservation biology principles of resiliency, redundancy, and representation (the ''3Rs'') (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. In the final stage of the SSA, we made 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 also use this information to inform our regulatory decision.

Summary of Biological Status and Threats

In this discussion, we review the biological condition of the species and its resources, and the threats that influence the species' current and future condition, in order to assess the species' overall viability and the risks to that viability.

Species Needs

Puerto Rican harlequin butterflies need the tender new growth of the host plant, prickly bush, for egg laying by adults and feeding by caterpillars. Adults rely on particular types of woody plants for nectar feeding (at least 24 have been identified as plants upon which they feed), and a water source within 1 km (0.6 mi) for hydration. Suitable habitat consists of forests that may vary in stage of succession and age, with 50 to 85 percent canopy cover. The species occurs both in large blocks of undisturbed forest and in forest patches interspersed with agricultural lands, houses, and roads. In areas that are a mix of developed lands and forest, the species needs forested corridors (with prickly bush covering more than 30 percent) connecting breeding sites.

Current Condition of Puerto Rican Harlequin Butterfly

Currently, the Puerto Rican harlequin butterfly populations occur in six areas: (1) Isabela, Quebradillas, and Camuy (hereafter referred to as the IQC population); (2) Guajataca; (3) Río Abajo Commonwealth Forest; (4) Río Encantado; (5) Maricao Commonwealth Forest; and (6) Susúa Commonwealth Forest. The IQC, Guajataca, Río Abajo, and Río Encantado populations occur in the northwestern portion of Puerto Rico, in the Northern Karst physiographic region. The Maricao and Susúa populations occur in the west-central portion of the island, in the West-central Volcanic-serpentine physiographic region. A seventh population occurred in Tallaboa, in southwestern Puerto Rico, in the Sothern Karst physiographic region, but has not been observed since 1926 and is presumed extirpated.

We considered an area to have an extant population if at least two of the four life stages (egg, caterpillar, chrysalis, adult) were observed in the course of repeated surveys conducted in one year. All extant populations have been observed as recently as 2018. Each of the extant six populations likely functions as a metapopulation, a discrete population composed of local populations (subpopulations) with individuals that can move infrequently from one subpopulation to another.

Population size is an important component of resiliency. However, quantitative population size estimates (statistically derived) for the Puerto Rican harlequin butterfly are not available. There have been several surveys for the species since 2003, although survey methods and objectives

have varied. Most data consist of counts of the various life stages during single survey events. In some areas, there are valid reports of species occurrence (by species experts) but no count data. Thus, the estimated abundance of the species per population varies according to the methodology implemented during the survey and the source of information.

We did not assess resiliency of the Guajataca population, which was discovered on July 15, 2019, and thereafter verified by Service biologists, because we do not have the habitat metrics-as identified in Table 1 below-for this population at this time. After the initial discovery of three adults in July 2019, two more visits of the site were made that summer. During one of those visits, 43 caterpillars were observed, and during the other visit, 9 caterpillars and 3 chrysalides were observed. Habitat metrics that, in combination with relative population size estimates, enable estimates of resiliency have not yet been collected. Therefore, in the resiliency discussion below, where we refer to five populations instead of six, we are omitting the Guajataca population. To date, the area still has not been reviewed. This population was used to assess the redundancy and representation (see below).

Because quantitative population size estimates are lacking, we assessed the resiliency for five Puerto Rican harlequin butterfly populations using habitat quality and estimates of relative population size (see table 1, below) in our SSA report (Service 2019, entire). We weighted a single population metric (relative population size) such that it had equal influence on resiliency as four habitat metrics combined, to yield a numerical score to classify population condition as ''high,'' ''moderately high,'' ''moderate,'' ''moderately low,'' or ''low'' for five butterfly populations (see table 2, below). As such, a population with the highest level of resiliency would garner a score of 24 and a population with the lowest level of resiliency would garner a score of 8.

TABLE 1—HABITAT AND POPULATION METRICS TO SCORE PUERTO RICAN HARLEQUIN BUTTERFLY RESILIENCY

Habitat metrics				Habitat score	Population metric	Population score
Habitat protection	Connectivity	Vegetation clearing/ pesticide use	Other natural or manmade factors		Population size	
<34 percent protected.	Isolated subpopulations greater than 1 km apart; habitat between populations highly disturbed.	Areas subjected to vegetation clearing (including use of herbicides) and use of pesticides for mosquito control or agriculture.	Subpopulations located in areas more vulnerable to stochastic events (e.g., fire, severe drought, hurricanes).	1 point each; 4 points total.	0–5 adults and <100 larvae observed per hectare.	4
34–66 percent protected.	Subpopulations within 1 km of each other; habitat between subpopulations moderately disturbed.	Areas where vegetation clearing and use of herbicides and pesticides occur rarely.	Subpopulations in areas with moderate vulnerability to stochastic events.	2 points each; 8 points total.	6–20 adults and 100–500 larvae observed per hectare.	8
>66 percent protected.	Subpopulations within 1 km of each other; undisturbed habitat between subpopulations.	Areas where vegetation clearing and use of herbicides and pesticides are not expected.	Subpopulations located in areas with lower vulnerability to stochastic events.	3 points each; 12 points total.	>20 adults and >500 larvae per hectare.	12

TABLE 2—CURRENT POPULATION CONDITION AND RESILIENCY SCORES

Population condition	Resiliency score (habitat metrics + population metric)
Low: Tallaboa (presumed extirpated)	8.
Moderately Low: Susúa population	11.
Moderate: IQC; Río Abajo; Guajataca; Río Encantado populations.	18; 15; unknown; 14.
Moderately High: Maricao population	19.
High: None	>21.

Of the five Puerto Rican harlequin butterfly populations we assessed for resiliency, one is in moderately high condition, three are in moderate condition, and one is in moderately low condition. The population with moderately high resiliency (Maricao Commonwealth Forest) occurs in land managed for conservation, but in this forest the species occurs at edges of trails and roads where vegetation is frequently removed and herbicides applied. The population in IQC has moderate resiliency because, although it occurs in a region that is among the most heavily developed, it has the largest number of known subpopulations and population size. The populations in Río Abajo Commonwealth Forest and the Río Encantado area have moderate resiliency because they occur partly in habitats managed for conservation that are protected from development and other anthropogenic activities, although both populations are small in size. The Susúa population has moderately low resiliency. While the Susúa Commonwealth Forest is managed for conservation, the species occurs along, or at the edges of, trails where vegetation is frequently removed and herbicides applied, and the population size is very small. Averaging the resiliency of the five populations, we estimated that species resiliency (rangewide) of the Puerto Rican harlequin butterfly is currently moderate.

We assessed redundancy and representation based on the number and spatial arrangement of populations. Current redundancy of the Puerto Rican harlequin butterfly is low (and has likely always been). The species is narrow-ranging, with all six populations (each less than 50 individuals) likely to incur similar effects of a catastrophic event such as a hurricane or drought. In addition, with the exception of the IQC and Maricao populations, the populations range in size from small to very small (Service 2019, p. 73).

Puerto Rican harlequin butterfly representation is influenced by the breadth of adaptive diversity possessed by the species and by maintaining the evolutionary processes (for example, gene flow and natural selection) that drive adaptation. Representation improves with increased genetic and/or ecological diversity within and among populations. Presently there is substantial uncertainty regarding representation for this species, due to lack of knowledge on genetic diversity,

adaptive potential and differences among the Puerto Rican harlequin butterfly populations. Currently, representation appears to be moderate to high because the Puerto Rican harlequin butterfly occurs in two physiographic provinces and four life zones. Thus, the Puerto Rican harlequin butterfly appears to have the capacity to adapt to different landscapes as long as the fundamental needs for nesting (host plant) and foraging are met. (Service 2019, pp. 75–76).

Threats

Threats to the Puerto Rican harlequin butterfly include habitat loss and modification by development, mechanical clearing of vegetation, use of pesticides (insecticides and herbicides), human-induced fires, small population size, changing climate, and insufficient enforcement of existing regulatory mechanisms. There is evidence that the species has been collected for private entomology collections and unauthorized investigations, but there is no indication that private collecting is a widespread activity.

Habitat Modification and Fragmentation—Urban Development and Agricultural Practices

Habitat loss caused by urban development and agricultural practices is a primary factor influencing the decline of the Puerto Rican harlequin butterfly, and it poses a continuing threat to the species' viability (Service 2019, p.45). The species' small range may reflect a remnant population of a once more widely distributed forest-dwelling butterfly whose habitat was diminished as forest was converted for other land uses in Puerto Rico (Service 2019, pp. 23–38). More than 90 percent of native forest in Puerto Rico had been cleared at one point in time (Miller and Lugo 2009, p. 33). The loss or degradation of the species' habitat continues in the present time and results from conversion of native forest for agriculture or urbanization; increased construction and use of highways and roads (vehicle traffic); and land management regimes (vegetation clearance, grazing, and haying).

The IQC population faces significant threats from the existing and imminent destruction, modification, and curtailment of its habitat, especially loss of the host plant, prickly bush. Historically in the IQC area, forests were converted to farms, pastures, or cropland. Conversion of these forest areas to urban development, roads, recreational parks, and golf courses has been the most significant change in suitable habitat. Most of the suitable habitat for the species, particularly in the municipality of Quebradillas, is fragmented by residential and tourist development. In rural areas, forest clearing to increase grassland for cattle grazing is a threat to the IQC population (Service 2019, p. 45). Currently in the IQC, occupied habitat is within an area classified as a ''Zone of Tourist Interest'' (PRPB 2010, website data), which is an area identified as having the potential to be developed to promote tourism due to its natural features and historic value. In 2010, 11 residential development projects were under evaluation around the species' habitat, possibly affecting 72.6 ac (29.4 ha) in Quebradillas (PRPB 2010, website data). By 2019, three houses had been constructed, and another is under construction at Puente Blanco. While it is uncertain whether these single homes will be constructed in the near future, landowners have removed vegetation from the proposed project sites, affecting the suitability of the habitat for the butterfly (Service 2019, p. 46).

While 99.7 percent of the land where the IQC population occurs is privately owned, the other five populations occupy areas where substantial portions are managed for conservation (see table 4, below, under Final Critical Habitat Designation), ranging from 13 percent in Río Encantado to 77 percent in Río Abajo. Development adjacent to conservation lands in Puerto Rico is increasing, however. For example, from 2000 to 2010, 90 percent of protected areas showed increases in housing in surrounding lands (Service 2019, p. 47). Housing has increased in the Northern Karst region: in 1980, there were 762,485 housing units, and in 2010, the number of units had increased to 1,101,041 (PRPB 2013, p. 19). New housing and the development of rural communities requires construction of additional infrastructure (*e.g.,* access roads, power and energy service, water service, and communication, among others), compounding habitat loss and fragmentation. Communications infrastructure for cellular phone and related technologies has proliferated in Puerto Rico, including towers for cellular communication, radio, television, military, and governmental purposes. Construction and maintenance of tower facilities, which includes clearing vegetation along security fences, access roads, and under power lines, leads to habitat loss and direct plant mortality. As such, these towers are a threat to plant species, including the host plant prickly bush, that may occur on top of mogotes (limestone hills) or mountaintops where towers often are situated.

Human-Induced Fire

In addition to land development, human-induced fires are a threat to the Puerto Rican harlequin butterfly. Although fire is not a natural event in Puerto Rico's subtropical dry or moist forests (Service 2019, p. 49), which are the only forest types where the Puerto Rican harlequin butterfly occurs, wildfires resulting from natural or anthropogenic origin are growing in size and frequency across Puerto Rico. In the Maricao Commonwealth Forest on February 25, 2005, a human-induced fire (likely arson) burned more than 400 acres, with unknown effects on the Puerto Rican harlequin butterfly population. In Quebradillas, the species' habitat in the area where the largest subpopulation occurs (Puente Blanco) is affected by fires associated with illicit garbage dumps. In the Susúa Commonwealth Forest, a garbage dump fire recently burned approximately 25 square meters (82 square feet) of occupied butterfly habitat. This increase in fires destroys and further limits the availability of habitat for the butterfly. Depending on the scale of the fires and the size of the population where the fires happen, deaths of significant numbers of the butterfly population may occur. For example, if a fire damages a patch of forest such that less than 1.6 square kilometers (0.6 square miles) remains, that forest patch will no longer be large enough to sustain a viable subpopulation of the butterfly. In the Susúa fire, although only 25 square meters (269 square feet) of forest were destroyed, any killing of individuals would reduce the likelihood of sustained viability of the very small Susúa population. In other areas with a larger population, such as IQC, a similarly small fire would not have a significant impact on viability (Service 2019, p. 50).

Pesticides, Herbicides, and Other Mechanisms of Vegetation Control

Regardless of the method, efforts to clear vegetation or to eliminate pests are a significant threat to the Puerto Rican harlequin butterfly. Herbicides are used by conservation agencies, public agencies, and private organizations to control vegetation in an array of areas. The use of herbicides is a current threat to the Puerto Rican harlequin butterfly and prickly bush, which is found on the edges of roads and open areas. Herbicides are frequently used to control woody vegetation and weeds along access roads and on private properties. Mechanical removal of

vegetation also impacts the Puerto Rican harlequin butterfly. Even in areas used for recreation, prickly bush is trimmed or completely removed along trails and in picnic areas. Homeowners often clear vegetation to have unobstructed views of the landscape. In addition to eliminating host and nectar plants, vegetation removal and road construction can elevate local temperatures (see ''Recent and Current Climate'' below, for more information on the potential impacts of elevated temperatures).

Although prickly bush is a commonly occurring plant in Puerto Rico, cutting down the plant or killing the plant with herbicides will result in death of eggs or caterpillars that are on it. Additionally, clearing prickly bush reduces reproductive output because it reduces the number of viable sites for egg laying, and removing other plant species that are nectar sources likely increases stress on adult butterflies.

Pesticides, which include insecticides and herbicides, are commonly used throughout the range of the Puerto Rican harlequin butterfly, on crop fields, along public roads, and on private properties to control animal and plant pests (Service 2019, p. 52). Puerto Rico also has a long history of using pesticides, mostly insecticides, for mosquito control in and around urban areas. Fumigation programs are implemented by local government authorities to control mosquito-borne diseases, but pesticide use guidelines have not been developed for application in areas where the Puerto Rican harlequin butterfly occurs, and toxicity thresholds for the species are unknown (Service 2019, p. 51). The toxicological effects of pesticides to non-target butterfly species have been documented within the families Nymphalidae (which includes the Puerto Rican harlequin butterfly), Lycaenidae, Papilionidae, Hesperiidae, and Pieridae (Davis et al. 1991, entire; Eliazar and Emmel 1991, entire; Salvato 2001, entire; Bargar 2012, entire; Hoang et al. 2011, entire; Hoang and Rand 2015; and Mulé et al. 2017, entire).

Recent and Current Climate

The 2018 U.S. Global Change Research Program (USGCRP) reported that the impacts of climate change are already influencing the environment through more frequent and more intense extreme weather and climate-related events, as well as changes in average climate conditions. Globally, numerous long-term climate changes have been observed, including changes in arctic temperatures and ice, and widespread changes in precipitation amounts, ocean salinity, wind patterns, and aspects of extreme weather, including droughts, heavy precipitation, heat waves, and the intensity of tropical cyclones (Service 2019, p. 54).

Although we do not have information showing Puerto Rican harlequin butterflies have been harmed due to elevated high temperatures, species such as the Puerto Rican harlequin butterfly, which are dependent on specialized habitat types, are limited in distribution, or have become restricted in their range, are most susceptible to the impacts of climate change. As indicated by studies on other butterflies in the family Nymphalidae (*e.g.,* monarch butterfly (*Danaus plexippus*)), temperature likely has a significant influence on adult and larval metabolism, growth rate, and metamorphosis, and it may affect seasonal colonization and migrations (Service 2019, pp. 54–55). These same effects may occur to the Puerto Rican harlequin butterfly and the Puerto Rican monarch subspecies (*Danaus plexippus portoricensis*), which are members of this same family. Exposure to high temperature may cause dehydration, which is a threat to butterflies because of their large surface-to-volume ratio (Service 2019, p. 55). Day-fliers, such as the Puerto Rican harlequin butterfly, likely have a high need for water because they are active during the warmest time of the day, from 9 a.m. to 4 p.m. (Pacheco 2019, pers. obs.). Temperature data from the Puerto Rican harlequin butterfly's range suggest the species may be adapted to average daily maximum temperatures ranging from 28 to 32 degrees Celsius (°C) (82 to 90 degrees Fahrenheit (°F)), but maximum temperatures are predicted to increase to 89–98 degrees Fahrenheit by 2045 (Service 2019, p. 56).

Cumulative Effects

The Puerto Rican harlequin butterfly's rangewide population consists of six populations containing one or more subpopulations. Current and ongoing threats, including human-induced fires, application of pesticides (insecticides and herbicides), and land development, have acted together at the rangewide scale by diminishing habitat quality or causing habitat loss. In turn, these impacts on habitat reduce the size of populations and subpopulations as well as their connectivity, reducing population resilience because small populations are at risk of loss of genetic diversity (a measure adaptive capacity) and are more likely to become extirpated due to a single stochastic event in comparison to larger populations. All six populations are affected to varying degrees by the current threats, although those populations that have large portions managed for conservation (Río Abajo, Maricao, and Susúa) are less affected by land development threats. Future climate change is likely to combine with and exacerbate the negative effects of all ongoing threats rangewide.

Future Conditions

In our SSA, we used the same habitat and population metrics to project future resiliency of the five populations that were known at the time the SSA was completed (Service 2019, pp. 89–105). We chose 25 years as the time frame for the Puerto Rican harlequin butterfly future conditions analysis because this time frame includes at least 25 generations, thus allowing adequate time to forecast trends in threats, populations, and habitat conditions and we can reasonably determine that both the future threats and species' responses to those threats are likely. We projected the future changes in habitat based on climate projections and by extrapolating land development trends (*e.g.,* housing and urbanization) to 2045, and we estimated changes in population demographics based on the anticipated changes to the condition of the habitat. Unlike in our analysis of current condition, relative population size could not be directly assessed. The habitat metrics are the drivers that may promote changes in future population (unless the current population size is so small that extirpation risk of a single stochastic event is high). Therefore, because there was more certainty in projecting habitat changes than demographic changes, we weighted habitat to have twice as much influence as population on resiliency scores (Service 2019, pp. 89–105).

We projected population resiliency based on three plausible scenarios: worst case, best case, and most likely. We selected these scenarios to match the most recent climate change scenarios described for Puerto Rico, and we focused on temperature and precipitation projections, which are important environmental variables for Puerto Rican harlequin butterfly viability (Service 2019, pp. 76–86). The models for Puerto Rico used the mid-high (A2), mid-low (A1B), and low (B1) Intergovernmental Panel on Climate Change (IPCC) global emissions scenarios, which were precursors to the current IPCC scenarios and encompass ''representative concentration pathways'' (RCPs) 4.5 and 8.5. Based on our future climate projections, temperatures are expected to increase by 2.8 to 3.3 °C (5.04 to 5.94 °F) (best case scenario) to 4.6 to 5.5 °C (8.28 to 9.9 °F)

(worst case scenario). In the most likely scenario, temperatures would increase 3.9 to 4.6 °C (7.02 to 8.28 °F), resulting in temperatures ranging from approximately 31 °C (88 °F) to 36 °C (97 °F) for all known areas with Puerto Rican harlequin butterfly populations by 2045. This projected increase in maximum temperatures is significantly greater than the current 28 to 32 °C (82 to 90 °F) maximum temperatures to which the butterfly is adapted.

Together with temperature increases, the Caribbean is expected to get more frequent and more severe droughts from reduced precipitation and to have an increased evapotranspiration ratio. Although overall precipitation is expected to decrease, the amount of precipitation produced during hurricane events is expected to increase. Climate models consistently project that significant drying in the U.S. Caribbean region will occur by the middle of the century. The reductions in annual precipitation and increases in drying are expected to cause shifts in several life zones in Puerto Rico, with potential loss of subtropical rainforest, moist forest and wet forest, and the appearance of tropical dry forest and very dry forest during this century (Service 2019, pp. 82–86). Such shifts in life zones would likely further reduce the range of the Puerto Rican harlequin butterfly.

To forecast land development, we used the most recent trend data (2000–2010) for housing and human population growth (Castro-Prieto et al. 2017, pp. 477–479). For the region where each of the five butterfly populations occurs, we projected development trends at current rates, half of current rates, and no growth (representing the worst case, most likely, and best case scenarios, respectively).

Resiliency metric scoring for each scenario and population is presented in our SSA report (Service 2019, pp. 86–90). In summary, three populations (Río Abajo, Río Encantado, and Susúa) are projected to become extirpated in the foreseeable future under both the worst case and most likely scenarios (see table 3, below). Under the best case scenario, the condition of the Maricao population decreases slightly, from moderately high to moderate, while the condition of the other four populations is unchanged. In Susúa, declines in habitat and the small size of the population increase the likelihood of future extirpation. Given the currently very small populations in Río Abajo and Río Encantado, even small declines in habitat condition are likely to result in extirpation under the worst case and most likely scenarios.

TABLE 3—SUMMARY OF PUERTO RICAN HARLEQUIN BUTTERFLY RESILIENCY UNDER THREE FUTURE SCENARIOS

Population	Current	Worst case scenario	Most likely scenario	Best case scenario	Percentage of total population [1]
IQC	Moderate	Low	Low	Moderate	53
Río Abajo	Moderate	Extirpated	Extirpated	Moderate	< 5
Río Encantado	Moderate	Extirpated	Extirpated	Moderate	< 5
Maricao	Moderately High	Low	Moderately Low	Moderate	21
Susúa	Moderately Low	Extirpated	Extirpated	Moderately Low	16

[1] Current estimate, based on counts of adults (Barber 2019, entire).

According to our most likely and worst case scenarios, all areas and life zones that currently harbor Puerto Rican harlequin butterfly populations are expected to become drier and warmer, with some (*i.e.,* Río Abajo and Río Encantado) progressing from tropical moist forest to tropical dry forest. Under these scenarios, and with only two remaining populations, the species would suffer a substantial decline in representation (with or without survival of the recently discovered Guajataca population, for which there is insufficient information to forecast its resiliency). Given the predicted extirpation of most (three of five) populations under our most likely and worst case scenarios, population redundancy will most likely be reduced in the future. Moreover, the only remaining populations in IQC and Maricao, which are predicted to have low and moderately low resiliency at best under these two scenarios, will most likely become smaller, more fragmented, and subject to greater environmental stress.

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 is iterative and encompasses and incorporates the threats individually and cumulatively 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 Efforts and Regulatory Mechanisms

Puerto Rican harlequin butterfly conservation efforts have been directed towards land acquisition and conservation easements by government and nongovernment organizations (PRPB 2013, p. 19). In recent years, protection and management of the habitat that the Puerto Rican harlequin butterfly shares with other federally and Commonwealth listed species (*e.g.,* the endangered Puerto Rican parrot (*Amazona vittata*), threatened elfin-woods warbler (*Setophaga angelae*), and several plants, among others) has become a high priority. For example, the Maricao Commonwealth Forest comprises 3,996.2 hectares (ha) (9,874.8 acres (ac)) of public land managed for conservation (Caribbean LLC 2016, website data) that harbors habitat for the Puerto Rican harlequin butterfly. Moreover, in 2000, the Puerto Rico Department of Natural and Environmental Resources (DNER) acquired, through the U.S. Forest Service (USFS) Forest Legacy Program, a parcel of land of 107 ha (264.4 ac), locally known as ''Finca Busigó,'' adjacent to the Maricao Commonwealth Forest. This parcel is located approximately 1 km (0.6 mi) from currently occupied Puerto Rican harlequin butterfly habitat and is managed for conservation (Caribbean LLC 2016, website data). In addition, over 64,683.4 ha (159,836.4 ac) of native forest along the northern karst belt are

covered by Puerto Rico Law No. 292 of August 21, 1999 (known as Act for the Protection and Preservation of Puerto Rico's Karst Region), which provides protection of that habitat.

The DNER designated the Puerto Rican harlequin butterfly as critically endangered under the New Wildlife Act of Puerto Rico (Law No. 241 of August 15, 1999) and Regulation 6766 (February 11, 2004). Article 2 of Regulation 6766 includes all prohibitions and states that the designation as ''critically endangered'' prohibits any person from taking the species; to ''take'' includes to harm, possess, transport, destroy, import, or export individuals, eggs, or juveniles without previous authorization from the Secretary of the DNER. The DNER has not designated critical habitat for the species under Regulation 6766, but Law No. 241 prohibits modification of any natural habitat without a permit from the DNER Secretary. While these laws and regulations provide some protections, the species' habitat continues to be modified, destroyed, or fragmented by urban development and vegetation clearing. Because the host plant is considered a common species associated with edges of forested lands, it is not directly protected by Law No. 241 or Regulation 6766.

Determination of Puerto Rican Harlequin Butterfly's Status

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

Status Throughout All of Its Range

After evaluating threats to the species and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we determined that the species' distribution and abundance has been reduced across its range, as demonstrated by the extirpation of one of seven known populations (Tallaboa). In addition, the best scientific and commercial data available indicate that the species' range and abundance has been reduced because many areas that were once suitable habitat, and therefore likely to have harbored populations, have been developed and altered (deforested and host plant removed or reduced), such that they are no longer habitable by the species.

The condition of one population, discovered approximately one year ago, has not been assessed. Of the other five populations, one currently has moderately high resiliency, three have moderate resiliency, and one has moderately low resiliency. Although the species' range is naturally narrow, the six populations are distributed in two physiographic provinces and four life zones. Given the distance between the six populations and limited dispersal ability of the species, there is virtually no interpopulation connectivity. Three of the five populations are single populations, without multiple subpopulations. The other two populations have 3 subpopulations (Río Encantado) and 13 subpopulations (IQC) that are connected to their closest neighboring subpopulations.

Current and ongoing threats from habitat degradation or loss (Factor A), as well as application of pesticides (insecticides and herbicides), human-induced fires, and climate change (Factor E), contribute to the fragmentation and isolation of populations. Existing regulatory mechanisms (Factor D), provide some protections to the species, but the threats of habitat degradation or loss, the application of pesticides, and human-induced fires continue to negatively impact the viability of the Puerto Rican harlequin butterfly (Service 2019, pp. 59–60).

Neither Factor B (overutilization for commercial, recreational, scientific, or educational purposes) nor Factor C (disease or predation) appears to be a significant threat to the butterfly. Regarding Factor B, an undetermined number of Puerto Rican harlequin butterflies have been collected for scientific purposes and deposited in universities and private collections (Service 2019, p. 58). However, at present, few researchers are working with the species, and its collection is regulated by the DNER. There is also evidence that the species has been collected for private entomology collections and unauthorized investigations, but there is no indication that this is a widespread activity. Therefore, effects on the species due to collection for commercial, recreational, scientific, or educational purposes (Factor B) likely are minimal. Similarly, spiders, ants, lizards, and birds have been observed preying on the Puerto Rican harlequin butterfly, but there are no data indicating predation is a species-level threat affecting the overall viability of the butterfly (Service 2019, p. 59). Likewise, there is no information indicating impacts on the species from disease.

As noted previously, six populations occur in the presence of current threats and are dispersed across four life zones and two physiographic regions. Of the five populations assessed in the SSA report, three have moderate resiliency and one has moderately high resiliency. The resiliency, redundancy, and representation of the species are sufficient to sustain populations if stochastic or catastrophic events occur within its range. It is unlikely that all of the ''moderate'' and ''moderately high'' resiliency populations would simultaneously become extirpated under a single catastrophic event. Thus, after assessing the best available information, we conclude that the Puerto Rican harlequin butterfly is not currently in danger of extinction throughout its range. We, therefore, proceed with determining whether the Puerto Rican harlequin butterfly is a threatened species—likely to become endangered within the foreseeable future—throughout all of its range.

We determined foreseeable future for the Puerto Rican harlequin butterfly to be 25 years because this time frame includes at least 25 generations, thus allowing adequate time to forecast trends in threats, populations, and habitat conditions. We projected the future changes in habitat based on climate projections and by extrapolating land development trends (*e.g.,* housing and urbanization) to 2045, and we estimated changes in population demographics based on the anticipated changes to the condition of the habitat. Over this time frame, we find that our predictions for both the threats to this species and the species' response to these threats are sufficiently reliable.

The threats currently acting on the species include habitat loss and degradation, in addition to pesticide use and human-induced fires, all of which contribute to fragmentation and isolation of populations. The best available information indicates that current threats will continue, and the magnitude of the climate change threat will increase in the foreseeable future.

We anticipate that climate change will result in increased daily high temperatures, decreases in annual precipitation, and shifts to drier life zones, which, when coupled with the continuation of current threats, will reduce habitat, further fragment populations, and likely cause extirpations. Two of three of our plausible future scenarios project the extirpation of three of the five assessed populations and a decline in resiliency of the remaining two populations. Given the outcomes projected by these two scenarios, we expect the two remaining reduced populations would be at high risk of extirpation due to stochastic events. Thus, we conclude that the Puerto Rican harlequin butterfly is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Status Throughout a Significant Portion of Its Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. The court in *Center for Biological Diversity* v. *Everson,* 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), vacated the aspect of the Final Policy on Interpretation of the Phrase ''Significant Portion of Its Range'' in the Endangered Species Act's Definitions of ''Endangered Species'' and ''Threatened Species'' (Final Policy) (79 FR 37578; July 1, 2014) that provided that the Service does not undertake an analysis of significant portions of a species' range if the species warrants listing as threatened throughout all of its range. Therefore, we proceed to evaluating whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species' range for which both (1) the portion is significant; and (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the ''significance'' question or the ''status'' question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

Following the court's holding in *Everson,* we now consider whether there are any significant portions of the species' range where the species is in danger of extinction now (*i.e.,* endangered). In undertaking this analysis for the Puerto Rican harlequin butterfly, we choose to address the significance question first. After evaluating whether any portions of the species' range are significant, we address the status question, considering information pertaining to the geographic distribution of both the species and the threats that the species faces to determine whether the species is endangered in any of those significant portions of the range.

The Service's most recent definition of ''significant'' within agency policy guidance has been invalidated by court order (see *Desert Survivors* v. *U.S. Department of the Interior,* 321 F. Supp. 3d 1011, 1070–74 (N.D. Cal. 2018)). In undertaking this analysis for the Puerto Rican harlequin butterfly, we considered whether any portion of the species' range may be significant based on its biological importance to the overall viability of the Puerto Rican harlequin butterfly. Throughout the range of the Puerto Rican harlequin butterfly, there are two portions that may be significant: the Northern Karst Region and the West-central Volcanic-serpentine Region. The two regions may be significant because, within each one, the physiography and life zones are unique, and the populations contained in each region may harbor adaptations specific to their regional environment. We, therefore, consider information pertaining to the geographic distribution of the species and of the threats to the species in both of those potentially significant portions of its range to determine whether the species is endangered in either portion.

The statutory difference between an endangered species and a threatened species is the time horizon in which the species becomes in danger of extinction; an endangered species is in danger of extinction now while a threatened species is not in danger of extinction now but is likely to become so in the foreseeable future. The Puerto Rican harlequin butterfly is not in danger of extinction now in either of the potentially significant portions we identified. The threat of development and habitat degradation or loss is concentrated in the Northern Karst region, particularly in the areas of Isabela, Quebradillas, and Camuy (IQC) (see *Threats,* above). Although there is a concentration of threats in the IQC, it contains the greatest number of subpopulations and the largest population size among the six Puerto Rican harlequin butterfly populations, so it has moderate resiliency to environmental disturbance. The remainder of the Northern Karst region (portion of the range) includes the Río Abajo and Río Encantado areas, each with a moderately resilient population, and the Guajataca population, whose status is currently undetermined. Given the known current status (moderate resiliency) of the populations in three occupied areas in the Northern Karst portion of the range (IQC, Río Abajo, and Río Encantado), plus an additional area with a population of undetermined status (Guajataca), the species in this portion is not currently in danger of extinction. Current redundancy of the Puerto Rican harlequin butterfly is low because the species is narrow ranging. In addition, with the exception of the IQC and Maricao populations, the populations range in size from small to very small. Data to assess genetic diversity and the adaptive capacity it may confer are lacking. However, representation appears to be moderate to high because the butterfly occurs in two physiographic provinces and four life zones.

The species also is not currently in danger of extinction in the West-central Volcanic-serpentine region, because the condition of the population in this portion of the range is sufficient to maintain viability in the presence of ongoing threats. As a measure of redundancy, there are five subpopulations in this region, three in the Maricao population and two in the Susua population. Resiliency of the Maricao population is moderately high and is low in the Susua population. There are no genetic data to assess adaptive capacity or representation within the West-central Volcanic-serpentine region. However, based on its small size, genetic diversity in the Susua population is likely low, whereas in the large Maricao population (more than 500 larvae and 20 imagoes observed), genetic diversity is more likely sustained across generations. Additional factors reducing the current or near-term likelihood of extirpation in the West-central Volcanic-serpentine region are: (1) the occurrence of the species on lands with large portions managed for conservation, which are occupied by both populations, and (2) the absence of intense development (which would itself present a concentration of threats) like that occurring in the Northern Karst region.

Thus, there are no portions of the species' range where the species has a different status from its rangewide status, as these two portions constitute the entire range of the species. Therefore, no portion of the species' range provides a basis for determining that the species is in danger of extinction in a significant portion of its range. Therefore, we determine that the Puerto Rican harlequin butterfly is not in danger of extinction now in any

portion of its range, but that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This analysis is consistent with the courts' holdings in *Desert Survivors* v. *U.S. Department of the Interior,* 321 F. Supp. 3d 1011, 1070–74 (N.D. Cal. 2018) and *Center for Biological Diversity* v. *Jewell,* 248 F. Supp. 3d, 946, 959 (D. Ariz. 2017).

Determination of Status

Our review of the best available scientific and commercial information indicates that the Puerto Rican harlequin butterfly meets the Act's definition of a threatened species. Therefore, we are listing the Puerto Rican harlequin butterfly as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

Available Conservation Measures

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

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

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 subsequent to a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan also identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened (''downlisting'') or removal from protected status (''delisting''), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (*https://www.fws.gov/program/endangered-species*).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Commonwealths, 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.

Following publication of this rule, 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, Puerto Rico will be eligible for Federal funds to implement management actions that promote the protection or recovery of the Puerto Rican harlequin butterfly. Information on our grant programs that are available to aid species recovery can be found at: *https://www.fws.gov/service/financial-assistance.*

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 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 any endangered or threatened 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 may include, but are not limited to, management and any other landscape-altering activities funded or authorized by the U.S. Fish and Wildlife Service, Natural Resources Conservation Service, Animal and Plant Health Inspection Service, Federal Highway Administration, and Federal Communications Commission.

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 listing on proposed and ongoing activities within the range of a listed species. The discussion below regarding protective regulations under section 4(d) of the Act complies with our policy.

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

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of species listed as threatened. The U.S. Supreme Court has noted that statutory language like ''necessary and advisable'' demonstrates a large degree of deference to the agency (see *Webster* v. *Doe,* 486 U.S. 592 (1988)). Conservation is defined in the Act to mean the use of all methods and procedures which are necessary to bring

any endangered species or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Additionally, the second sentence of section 4(d) of the Act states that the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants. Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting the prohibitions under section 9.

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

Exercising this authority under section 4(d), we have developed a rule that is designed to address the Puerto Rican harlequin butterfly's specific threats and conservation needs. Although the statute does not require us to make a ''necessary and advisable'' finding with respect to the adoption of specific prohibitions under section 9, we find that this rule as a whole satisfies the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the Puerto Rican harlequin butterfly. As discussed above under Summary of Biological Status and Threats, we have concluded that the Puerto Rican harlequin butterfly is likely to become in danger of extinction within the foreseeable future primarily due to habitat modification and fragmentation caused by urban development and agriculture, human-induced fire, pesticide use (including insecticides and herbicides), and climate change. The provisions of this 4(d) rule will promote conservation of the Puerto Rican harlequin butterfly by encouraging management of the landscape in ways that meet both land management considerations and the species' conservation needs. The provisions of this rule are one of many tools that the Service will use to promote the conservation of the Puerto Rican harlequin butterfly.

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.

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

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

Provisions of the 4(d) Rule

This 4(d) rule will provide for the conservation of the Puerto Rican harlequin butterfly by prohibiting the following activities, except as otherwise authorized or permitted: importing or exporting; take; possession and other acts with unlawfully taken specimens; delivering, receiving, transporting, or shipping in interstate or foreign commerce in the course of commercial activity; or selling or offering for sale in interstate or foreign commerce.

Threats to the species are noted above and described in detail under Summary of Biological Status and Threats. These threats are expected to affect the species in the foreseeable future by fragmenting and reducing habitat, the critical component of which is prickly bush, the sole host plant species for egg laying and larval feeding.

A range of activities has the potential to affect the Puerto Rican harlequin butterfly. In particular, activities that remove the host plant or clear forested land can harm or kill Puerto Rican harlequin butterflies, reducing population size and viability. There is evidence that the butterfly has been taken for private collections (Service 2019, p. 45), although there is no indication that this is a widespread activity or is a major threat. Therefore, regulating take associated with activities that remove host plant or forested habitat—including construction or maintenance of roads or trails, buildings, utility corridors, or communications towers—will help preserve remaining populations by slowing the butterfly's rate of decline, and decrease synergistic, negative effects from other threats.

Under the Act, ''take'' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Some of these provisions have been further defined in regulations at 50 CFR 17.3. Take can result knowingly or otherwise, by direct and indirect impacts, intentionally or incidentally. Regulating incidental and intentional take will help the species maintain population size and resiliency.

We may issue permits to carry out otherwise prohibited activities, including those described above, involving threatened wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32. With regard to threatened wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance propagation or survival, for economic hardship, for zoological exhibition, for educational purposes, for incidental taking, or for special purposes consistent with the purposes of the Act.

There are also certain statutory exceptions from the prohibitions, which

are found in sections 9 and 10 of the Act, and other standard exceptions from the prohibitions, which are found in our regulations at 50 CFR part 17, subparts C and D. Below, we describe these exceptions to the prohibitions for the Puerto Rican harlequin butterfly.

Under this 4(d) rule, take of the Puerto Rican harlequin butterfly is not prohibited in the following instances:

- Take is authorized by a permit issued in accordance with 50 CFR 17.32;
- Take results from actions of an employee or agent of the Service or of a State conservation agency that is operating under a conservation program pursuant to the terms of a cooperative agreement with the Service;
- Take is in defense of human life; and
- Take results from actions taken by representatives of the Service or of a State conservation agency to aid a sick specimen or to dispose of, salvage, or remove a dead specimen that is reported to the Office of Law Enforcement.

We also allow Federal and State law enforcement officers to possess, deliver, carry, transport, or ship any Puerto Rican harlequin butterflies taken in violation of the Act as necessary in performing their official duties.

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

In addition to the statutory and regulatory exceptions to the prohibitions described above, certain species-specific exceptions to the prohibitions provide for the conservation of the Puerto Rican harlequin butterfly. Under this 4(d) rule, take of the Puerto Rican harlequin butterfly that is incidental to the following otherwise lawful activities is not prohibited:

(1) Normal agricultural practices, including pesticide use, which are carried out in accordance with any existing regulations, permit and label requirements, and best management practices, as long as the practices do not include: (a) clearing or disturbing forest or prickly bush to create or expand agricultural areas, or (b) applying pesticides in or contiguous to habitat known to be occupied by Puerto Rican harlequin butterfly.

(2) Normal residential and urban landscape and lawn maintenance activities, such as mowing, weeding, edging, and fertilizing.

(3) Maintenance of recreational trails in Commonwealth Forests by mechanically clearing vegetation, only when approved by or under the auspices of the DNER, or conducted on lands established by private organizations or individuals solely for conservation or recreation.

(4) Habitat management or restoration activities expected to provide a benefit to Puerto Rican harlequin butterfly or other sensitive species, including removal of nonnative, invasive plants. These activities must be coordinated with and reported to the Service in writing and approved the first time an individual or agency undertakes them.

(5) Projects requiring removal of the host plant to access and remove illicit garbage dumps that are potential sources of intentionally set fires, provided such projects are conducted in coordination with and reported to the Service.

(6) Fruit fly trapping by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, provided trapping activities do not disturb the host plant.

These activities, on rare occasion, may result in a limited amount of take. For example, a branch of prickly bush with butterfly eggs may be trimmed off the plant during lawn maintenance, or a plant with caterpillars on it might get trampled during habitat restoration. While such actions would affect individuals of the species, effects to populations would be minimal. Additionally, habitat restoration activities and garbage dump removal, which may cause limited take, would contribute to conservation of Puerto Rican harlequin butterfly populations by expanding habitat suitable for the species.

Nothing in this 4(d) rule will change in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or the ability of the Service to enter into partnerships for the management and protection of the Puerto Rican harlequin butterfly. However, interagency cooperation may be further streamlined through planned programmatic consultations for the species between Federal agencies and the Service, where appropriate.

III. Critical Habitat

Background

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, we designate a species' critical habitat concurrently with listing the species. None of the situations identified at 50 CFR 424.12(a) for when designation of critical habitat would be not prudent or not determinable is present. We therefore are designating critical habitat for the Puerto Rican harlequin butterfly concurrently with listing it.

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

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

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

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

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

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

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited

to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

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

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat).

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.

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 other 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 found in the 4(d) rule. 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.

Physical or Biological Features Essential to the Conservation of the Species

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas we will designate as critical habitat from within the geographical area occupied by the species at the time of listing, we consider the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection. The regulations at 50 CFR 424.02 define ''physical or biological features essential to the conservation of the species'' as the features that occur in specific areas and that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity. For example, physical features essential to the conservation of the species might include gravel of a particular size required for spawning, 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.

To identify the specific physical or biological needs of the Puerto Rican harlequin butterfly, we evaluated current conditions at locations where the species exists and best information available on the species' biology. We derive the physical features required for the species from the general description of the ecological regions where the species occurs, models for climatic boundaries that characterize the areas where the species occurs, and the forest types inhabited by the species (Service 2019, entire). A crucial biological feature for the Puerto Rican harlequin butterfly is the host plant (prickly bush), which is the only species upon which it lays its eggs and then feeds on as a caterpillar (Service 2019, pp. 17–20).

As described earlier in this document (see Summary of Biological Status and Threats), the Puerto Rican harlequin butterfly is known from four populations in the Northern Karst region and two populations in the West-central Volcanic-serpentine region of Puerto Rico. These two ecological regions are delineated by their geology. Soils in the Northern Karst region are derived from limestone, and soils in the West-central Volcanic serpentine region are derived from serpentine rock (Service 2019, p. 54). Physical properties specific to each substrate foster the development of unique natural areas that harbor distinctive forest types and wildlife habitat, which, in turn, promote high levels of biological diversity (Service 2019, pp. 25–31).

Across these two regions, the Puerto Rican harlequin butterfly inhabits four life zones: (1) Subtropical moist forest on limestone-derived soil; (2) subtropical wet forest on limestone-derived soil; (3) subtropical wet forest on serpentine-derived soil; and (4) subtropical moist forest on serpentine-derived soil. These life zones are distinguished by mean annual precipitation and mean annual temperature (Service 2019, pp. 86–87). Regardless of life zone and forest type, the patches of native forest that the Puerto Rican harlequin butterfly occupies are characterized by canopy cover ranging from 50 to 85 percent, an average canopy height of 6 meters (m) (20 feet (ft)), and the host plant covering more than 30 percent of the understory (Service 2019, p. 119).

Adults of the Puerto Rican harlequin butterfly have been observed feeding on flowers of several native trees (see Summary of Biological Status and Threats, above, and 76 FR 31282, May 31, 2011). All the sites where the Puerto Rican harlequin butterfly occurs have a close (within a 1-km (0.6-mi) radius) water source (*e.g.,* creek, river, pond, puddle, etc.). Suitable sites must contain the right temperature range that supports the biological needs of the Puerto Rican harlequin butterfly. Average daily maximum temperatures where the species occurs range from 28 to 32 °C (82 to 90 °F), suggesting that the species' ecological niche has evolved within this range of upper thermal tolerance (Service 2019, p. 80). Moreover, exposure to high temperature may cause dehydration in adults, which is a threat due to their large surface-to-volume ratio. As a day-flier, the Puerto Rican harlequin butterfly likely has a high need for water because the species is active during the warmest time of the day, from 9 a.m. to 4 p.m. (Service 2019, p. 55).

The capacity for Puerto Rican harlequin butterfly populations to grow and expand is limited by the quantity and quality of the habitat and the connectivity among habitat patches. Healthy Puerto Rican harlequin butterfly populations rely on discrete high-quality habitat patches as small as 0.4 ha (1 ac), separated by less than 1 km (0.6 mi) and embedded in a landscape with few barriers for dispersal of the species. Populations in patches this small likely rely on the existence of populations in nearby patches to ensure their long-term persistence (Service 2019, pp. 36–37).

Connectivity must be adequate not only for an individual's foraging needs, but to connect individual butterflies to a larger interbreeding population, enhancing subpopulation resilience through both the rescue effect and maintenance of genetic diversity. Moreover, forest connectivity among suitable patches and water sources is essential for dispersal. Three factors are likely essential to ensure a healthy interaction among populations: short distances between patches, high-quality habitat, and few or no dispersal barriers. The Puerto Rican harlequin butterfly may not typically move greater than 1 km (0.6 mi) between habitat patches separated by structurally similar natural habitats, or through a mosaic of disturbed habitat including houses, roads, and grass-dominated fields or pasture. Hence, habitat quality—indicated by factors including density of prickly bush, amount and quality of adult food sources, and water sources—plays an important role in Puerto Rican harlequin butterfly colonization success.

Summary of Essential Physical or Biological Features

We derive the specific physical or biological features essential to the conservation of the Puerto Rican harlequin butterfly from studies of the species' habitat, ecology, and life history as described in this document. Additional information can be found in the SSA report (Service 2019, entire; available on *https://www.regulations.gov* under Docket No. FWS–R4–ES–2020–0083). We have determined that the following physical or biological features are essential to the conservation of the Puerto Rican harlequin butterfly:

1. *Forest habitat types in the Northern Karst region in Puerto Rico:* Mature secondary moist limestone evergreen and semi-deciduous forest, or young secondary moist limestone evergreen and semi-deciduous forest, or both forest types, in subtropical moist forest or subtropical wet forest life zones.

2. *Forest habitat types in the West-central Volcanic-serpentine region in Puerto Rico:* Mature secondary dry and moist serpentine semi-deciduous forest, or young secondary dry and moist serpentine semi-deciduous forest, or both forest types, in subtropical moist forest or subtropical wet forest life zones.

3. *Components of the forest habitat types.* The forest habitat types described in 1. and 2., above, contain:

(i) Forest area greater than 0.4 ha (1 ac) that is within 1 km (0.6 mi) of a water source (stream, pond, puddle, etc.) and other forested area.

(ii) Canopy cover between 50 to 85 percent and canopy height ranging from 4 to 8 m (13.1 to 26.2 ft).

(iii) Prickly bush covering more than 30 percent of the understory.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the

conservation of the species and which may require special management considerations or protection.

The features essential to the conservation of the Puerto Rican harlequin butterfly may require special management considerations or protections to reduce or mitigate the following threats: Land conversion for urban and commercial use, road construction and maintenance, utility and communications structures and corridors, and agriculture; fires and garbage dumps (which are often the source of fires); and climate change and drought. In particular, habitat that has at any time supported a subpopulation may require protection from land use change that would permanently remove host plant patches and nectar sources, or that would destroy habitat containing adult nectar sources that connects such host plant patches through which adults are likely to move. Some examples of beneficial management activities would include the following: establishing a reforestation program incorporating the host plant and other native plants to provide sufficient nectar sources; installing fencing enclosures in areas containing hostplants in order to provide protection from maintenance activities; develop an effective educational outreach program to help protect identified Puerto Rican harlequin butterfly habitat. These management activities will protect from losses of habitat large enough to preclude conservation of the species.

Criteria Used To Identify Critical Habitat

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

Areas Occupied at the Time of Listing

As discussed above in Summary of Biological Status and Threats, an area is considered to be occupied by the species if it was detected in surveys no earlier than 2018. The areas designated as critical habitat provide sufficient habitat for breeding, nonbreeding, and dispersing adults of the Puerto Rican harlequin butterfly, as well as the habitat needs for all larval stages of this butterfly. These areas contain all the physical or biological features defined for the species. We are not designating any areas outside the geographical area occupied by the species because the occupied areas are sufficient to promote conservation of the species, and because we have not identified any unoccupied areas that meet the definition of critical habitat.

In summary, within the geographic area occupied by the species at the time of listing, we delineated critical habitat unit boundaries using the following criteria:

1. Forested habitat that is currently occupied and contains some or all of the physical or biological features.

2. Forested habitat that is located between the breeding sites, and within a 1 km (0.6 mi) radius around each subpopulation. These additional areas serve as an extension of the habitat within the geographic area of an occupied unit and promote connectivity among the breeding sites in an occupied unit, fostering genetic exchange between subpopulations.

We evaluated those occupied forested habitats in criterion 1 and refined the boundaries of the critical habitat area by evaluating the presence or absence of appropriate physical or biological features in criterion 2. We selected the forested habitat boundary cutoff points (the edges or endpoints of the habitat with the physical or biological features) to exclude areas that are highly degraded, already developed, or not likely restorable; for example, areas permanently deforested by urban development or frequently deforested for agricultural practices (*e.g.,* cattle rearing). Additionally, we used the forested habitat cutoff points at the 2-km (1.2-mi) buffer zone around the species' breeding sites to mark the boundary of a patch of land for designation because 1 km (0.6 mi) is the maximum distance the butterfly has been observed to disperse to a mating site (Monzón-Carmona 2007, p. 42).

Critical Habitat Maps

When determining 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 the Puerto Rican harlequin butterfly. 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. There are developed areas (single houses and access roads) within the designation, which could affect the suitability of habitat for the species. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this rule have been excluded by text in the rule and are not designated as critical habitat. Therefore, a Federal action involving these lands will not trigger section 7 consultation under the Act with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

We are designating critical habitat lands that we have determined are occupied at the time of listing (*i.e.,* currently occupied), and that contain all of the physical or biological features that are essential to support life-history processes of the species and that may require special management considerations.

We are designating six units as critical habitat based on the physical or biological features being present to support the Puerto Rican harlequin butterfly's life-history processes. All units contain the identified region-specific forest habitat types and components of the forest habitat types that are the physical or biological features essential to the conservation of the Puerto Rican harlequin butterfly and support multiple life-history processes.

The critical habitat designation is defined by the maps, as modified by any accompanying regulatory text, presented at the end of this document under Regulation Promulgation. We include more detailed information on the boundaries of the critical habitat designation in the discussion of individual units below. For the critical habitat designation, the coordinates or plot points or both from which the maps are generated are included in the decision file for the critical habitat designation and are available at the Caribbean Ecological Services Field Office's website. We will make the coordinates or plot points or both on which each map is based available to the public at *https://www.regulations.gov* at Docket No. FWS–R4–ES–2020–0083 and our internet site at *https://www.fws.gov/southeast/caribbean.*

Final Critical Habitat Designation

We are designating six units as critical habitat for the Puerto Rican harlequin butterfly. The critical habitat areas we describe below constitute our best assessment of areas that meet the definition of critical habitat for the Puerto Rican harlequin butterfly. The six areas we propose as critical habitat are: (1) Isabela, Quebradillas and Camuy (IQC), (2) Guajataca, (3) Río Abajo, (4) Río Encantado, (5) Maricao, and (6)

Susúa. Table 4 shows the critical habitat units and the approximate area of each unit. All six units of critical habitat are considered occupied by the species.

TABLE 4—CRITICAL HABITAT UNITS FOR THE PUERTO RICAN HARLEQUIN BUTTERFLY

[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. IQC	Public	5.0 (2.0)	Yes.
	Private	1,670.7 (676.1)	
	Total	1,675.7 (678.1)	
2. Guajataca	Public	583.5 (236.1)	Yes.
	Private	3,255.5 (1,317.5)	
	Total	3,839.0 (1,553.6)	
3. Río Abajo	Public	4,544.4 (1,839.1)	Yes.
	Private	1,394.8 (564.5)	
	Total	5,939.2 (2,403.6)	
4. Río Encantado	Public	204.8 (82.9)	Yes.
	Private *	12,570.8 (5,087.2)	
	Total	12,775.6 (5,170.1)	
5. Maricao	Public	7,883.1 (3,190.2)	Yes.
	Private	2,971.5 (1,202.5)	
	Total	10,854.6 (4,392.7)	
6. Susúa	Public	3,171.5 (1,283.5)	Yes.
	Private	3,010.4 (1,218.3)	
	Total	6,181.9 (2,501.8)	
Totals	Public	16,392.3 (6,633.8)	
	Private	24,873.7 (10,066.0)	
	Total	41,266.0 (16,699.8)	

* 1,442.6 private ac owned by Para La Naturaleza (PLN) and managed for conservation.
Note: Area sizes may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the Puerto Rican harlequin butterfly, below.

Unit 1: IQC

Unit 1 consists of 1,675.7 ac (678.1 ha) located along the northern coastal cliff among the municipalities of Isabela, Quebradillas, and Camuy (IQC), 23 km (15 mi) west of Arecibo. The critical habitat being designated is bound on the east by the community La Yeguada and Membrillo in Camuy, on the west by the community Villa Pesquera and Pueblo in Isabela, on the north by the Atlantic Ocean, and on the south by urban developments, State road PR–2, the Royal Isabela Golf Course, and some deforested areas used for agricultural practices such as cattle grazing. In this unit, all life stages of the species (*i.e.,* imago, egg, larva, chrysalis, and adults) and the species' host plant have been found in 115 sites.

Unit 1 is in the subtropical moist forest life zone. The forested habitat is composed of young secondary lowland moist limestone evergreen and semideciduous forest and mature secondary lowland moist limestone evergreen and semideciduous forest (Gould et al. 2008, p. 14). Plant species in this unit include prickly bush and several others that are sources of nectar for adult Puerto Rican harlequin butterflies. The presence of rare plant taxa in this unit suggests it contains relict and mature forest that survived the massive deforestation of the 19th century (Morales and Estremera 2018, p. 1) and has persisted as a refuge for the Puerto Rican harlequin butterfly. Unit 1 contains all the Northern Karst region forest habitat types and components of those habitat types that are the essential physical or biological features for the species.

A combination of habitat fragmentation and high road density is a current and future threat to the Puerto Rican harlequin butterfly in Unit 1. Habitat in Unit 1 has been lost to single land parcels segregated for houses, and large-scale residential and tourist projects, which are planned within and around northern Puerto Rico. Special management considerations or protections in Unit 1 may be required to address land conversion for urban and commercial use, road construction and maintenance, utility and communications structures and corridors, and agriculture; fires and garbage dumps (which are often the source of fires); and climate change and drought.

Unit 2: Guajataca

Unit 2 consists of 1,553.6 ha (3,839 ac) south of PR 2, between the municipalities Isabela and Quebradillas, 25 km (15.6 mi) southwest of Arecibo. The critical habitat being designated is bounded on the east by the San Antonio ward in Quebradillas, on the west by PR 446 at Galateo ward in Isabela, on the north by Llanadas ward in Isabela and Cacao ward in Quebradillas, and on the south by Montañas de Guarionex, between the Planas ward in Isabela and Charcas ward in Quebradillas.

The Puerto Rican harlequin butterfly was first found in Unit 2 in July 2019. All life stages of the species and its host plant have been found at six sites. Unit 2 is in the subtropical moist/wet-northern limestone forest life zone (Helmer et al. 2002, p. 169). Habitat in Unit 2 is composed of mature secondary moist limestone evergreen and semideciduous forest (Gould et al. 2008, p. 14). Fifteen percent of the critical habitat being designated in this unit overlaps Guajataca Commonwealth Forest, an area managed by the DNER for conservation. The other 85 percent is private land subjected to agriculture or rural development. Unit 2 contains all the Northern Karst region forest habitat types and components of those habitat types that are the essential physical or biological features for the species. Special management considerations or protections in Unit 2 may be required to address land conversion for rural development, road construction and maintenance, utility and

communications structures and corridors, and agriculture, as well as climate change and drought.

Unit 3: Río Abajo

Unit 3 consists of 5,939.2 ac (2,403.6 ha) located 14.5 km (9 mi) south of Arecibo. The critical habitat being designated is bound on the east by the Río Grande de Arecibo, on the west by Santa Rosa Ward in Utuado, on the north by Hato Viejo Ward in Arecibo, and on the south by Caguana and Sabana Grande Wards in Utuado. In this unit, all life stages of the species and the host plant have been found at four sites. Unit 3 is in the subtropical moist/wet-northern limestone forest life zone (Helmer et al. 2002, p. 169). The species' habitat in Unit 3 is composed of mature secondary moist limestone evergreen and semideciduous forest (Gould et al. 2008, p. 14). The Río Abajo Commonwealth Forest, managed for conservation, occupies 77 percent of the unit. The other 23 percent is a mosaic of highways, roads, and private lands subject to agriculture or rural development. Unit 3 contains all the Northern Karst region forest habitat types and components of those habitat types that are the essential physical or biological features for the species. Special management considerations or protections in Unit 3 may be required to address land conversion for rural development, road construction and maintenance, utility and communications structures and corridors, and agriculture, as well as climate change and drought.

Unit 4: Río Encantado

Unit 4 consists of 12,775.6 ac (5,170.1 ha) located among the municipalities of Arecibo, Florida, and Ciales, 17 km (10.5 mi) southeast of Arecibo. The critical habitat being designated is bound on the east by Hato Viejo Ward in Ciales, on the west by the Río Grande de Arecibo, on the north by Arrozales Ward in Arecibo and Pueblo Ward in Florida, and on the south by the PR 146 along of the Limón Ward in Utuado and Frontón Ward in Ciales. All life stages of the species and the host plant have been found in nine sites. The unit is in the subtropical moist/wet-northern limestone forest life zone (Helmer et al. 2002, p. 169). The species' habitat in Unit 4 is composed of mature secondary moist limestone evergreen and semideciduous forest (Gould et al. 2008, p. 14). Thirteen percent of the critical habitat being designated is in areas managed by Para La Naturaleza (PLN), a private organization, or by the DNER for conservation. The other 87 percent consists of private lands subject to agriculture or rural developments. Unit 4 contains all the Northern Karst region forest habitat types and components of those habitat types that are the essential physical or biological features for the species. Special management considerations or protections in Unit 4 may be required to address land conversion for rural developments, road construction and maintenance, utility and communications structures and corridors, and agriculture, as well as climate change and drought.

Unit 5: Maricao

Unit 5 consists of 10,854.6 ac (4,392.7 ha) on the west end of the Cordillerra Central, among the municipalities of Maricao, San Germán, and Sabana Grande, 16.1 km (10 mi) southeast of Mayagüez. The critical habitat being designated is bound on the east by Tabonuco Ward in Sabana Grande, on the west by Rosario Ward in San Germán, on the north by Pueblo Ward of Maricao, and on the south by the Guamá and Santana Ward of San Germán. All life stages of the species and its host plant have been found at seven sites in the unit. Unit 5 is in the subtropical wet forest life zone on serpentine-derived soil and contains three types of forest: (1) Mature secondary montane wet serpentine evergreen forest, (2) wet serpentine shrub and woodland forest, and (3) mature secondary montane wet non-calcareous evergreen forest (Gould et al. 2008, p. 14). The Maricao Commonwealth Forest, managed for conservation by DNER, occupies 72 percent of the unit. The other 28 percent is private land consisting of a mosaic of agriculture, rural developments, and forest. Unit 5 contains all the West-central Volcanic-serpentine region forest habitat types and components of those habitat types that are the essential physical or biological features for the species. Special management considerations or protections in Unit 5 may be required to address land conversion for rural developments, road construction and maintenance, utility and communications structures and corridors, and agriculture; fires and garbage dumps (which are often the source of fires); and climate change and drought.

Unit 6: Susúa

Unit 6 consists of 6,181.9 ac (2,501.8 ha) between the municipalities of Sabana Grande and Yauco, 33.6 km (21 mi) northwest of Ponce. The critical habitat being designated is bound on the east by the PR 371 in Almacigo Alto and Collores Wards in Yauco, on the west by Pueblo Ward in Sabana Grande, on the north by Frailes Ward in Yauco, and on the south by PR 368 in Susúa Ward in Sabana Grande. All life stages of the species and its host plant have been found at three sites in this unit. Unit 6 is in the subtropical moist and subtropical wet forest life zones and contains mature secondary dry and moist serpentine semi-deciduous forest and young secondary moist serpentine evergreen and semi-deciduous forest. The Susúa Commonwealth Forest, managed by DNER for conservation, occupies 51 percent of the critical habitat being designated in this unit. The other 49 percent is on private lands subjected to agriculture or rural developments. Unit 6 contains all the West-central Volcanic-serpentine region forest habitat types and components of those habitat types that are the essential physical or biological features for the species. Special management considerations or protections in Unit 6 may be required to address land conversion for rural developments, road construction and maintenance, utility and communications structures and corridors, and agriculture; fires and garbage dumps (which are often the source of fires); and climate change and drought.

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.

We published a final rule adopting 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 agency actions within the species' habitat that may require conference or consultation or both include management and any other landscape-altering activities on Federal lands administered by the Service, Army National Guard, U.S. Forest Service, and National Park Service; issuance of section 404 Clean Water Act permits by the U.S. Army Corps of Engineers; and construction and maintenance of roads or highways by the Federal Highway Administration. Federal actions not affecting listed species or critical habitat, and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency, do not require section 7 consultation.

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

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

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

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

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

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

(3) Are economically and technologically feasible, and

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

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

Regulations at 50 CFR 402.16 set forth requirements for Federal agencies to reinitiate formal consultation on previously reviewed actions. These requirements apply when the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law) and, subsequent to the previous consultation, we have listed a new species or designated critical habitat that may be affected by the Federal action, the action has been modified in a manner that affects the species or critical habitat in a way not considered in the previous consultation, new information reveals effects of the action that may affect the species or critical habitat in a manner not previously considered, or the amount of take in the incidental take statement is exceeded. 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 destroy or adversely modify such habitat, or that may be affected by such designation. Activities that the Service may, during a consultation under section 7(a)(2) of the Act, find are likely to destroy or adversely modify critical habitat include, but are not limited to:

(1) Removal of prickly bush host plants harboring eggs, caterpillars, or chrysalises;

(2) Removal of a significant amount of prickly bush or nectar source plants, such that the value of the critical habitat as a whole for the conservation of the Puerto Rican harlequin butterfly is appreciably diminished; or

(3) Removal of native forest resulting in fragmentation such that remaining forest patches are greater than 1 km (0.6 mi) apart or less than 1 ac (0.4 ha) in size.

Such activities could include, but are not limited to, residential and commercial development, and conversion to agricultural fields or pasture. Any of these activities could permanently eliminate or reduce the habitat necessary for the growth and reproduction of the Puerto Rican harlequin butterfly.

Exemptions

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

Section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that the Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (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 being designated. There are no DoD lands with a completed INRMP within this 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 she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making the determination to exclude a particular area, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

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 for designation. 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 critical habitat designation is analyzed by comparing scenarios both ''with critical habitat'' and ''without critical habitat.''

The ''without critical habitat'' scenario represents the baseline for the analysis, which includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (*e.g.,* under the Federal listing as well as other Federal, State, and local regulations). Therefore, the baseline represents the costs of all efforts attributable to the listing of the species under the Act (*i.e.,* conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The ''with critical habitat'' scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are not 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 designation of critical habitat. The information contained in our IEM was then used to develop a screening analysis of the probable effects of the designation of critical habitat for the Puerto Rican harlequin butterfly (IEc 2020, entire). We began by conducting a screening analysis of the critical habitat designation in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening analysis is to filter out particular geographic areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. In particular, the screening analysis considers baseline costs (*i.e.,* absent critical habitat designation) and includes any probable incremental economic impacts where land and water use may already be subject to conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the species. Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. If the critical habitat designation contains any unoccupied units, the screening analysis assesses whether those units are unoccupied because they require additional management or conservation efforts that may incur incremental economic impacts. This screening analysis combined with the information contained in our IEM constitute what we consider to be our economic analysis of the critical habitat designation for the Puerto Rican harlequin butterfly; our economic analysis is summarized in the narrative below.

Executive Orders (E.O.s) 12866 and 13563 direct Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess to the extent practicable the probable impacts to both directly and indirectly affected entities. As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat designation. In our evaluation of the probable incremental economic impacts that may result from the critical habitat designation for the Puerto Rican harlequin butterfly, first we identified, in the IEM dated April 7, 2020, probable incremental economic impacts associated with following categories of activities: (1) Highways and roads; (2) power lines; (3) communication towers; (4) commercial or residential development; (5) monitoring of agricultural pests by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service; and (6) and Federal agency conservation projects (Natural Resources Conservation Service and the U.S. Fish and Wildlife Service). We considered each industry or category individually. Additionally, we considered whether their activities have any Federal involvement. Critical habitat designation generally will not affect activities that do not have any Federal involvement; under the Act, designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies. In areas where the Puerto Rican harlequin butterfly is present, Federal agencies will 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. Our consultation will include an evaluation of measures to avoid the destruction or adverse modification of the species' designated critical habitat.

In our IEM, we attempted to clarify the distinction between the effects that will result from the species being listed and those attributable to the critical habitat designation (*i.e.,* difference between the jeopardy and adverse modification standards) for the Puerto Rican harlequin butterfly. Because critical habitat is being designated concurrently with the listing, it has been our experience that it is more difficult to discern which conservation efforts are attributable to the species being listed and those which will result solely from the designation of critical habitat. However, the following specific circumstances in this case help to inform our evaluation: (1) The essential physical or biological features identified for critical habitat are the same features essential for the life requisites of the species, and (2) any actions that would result in sufficient harm or harassment to constitute jeopardy to the Puerto Rican harlequin butterfly 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 designation of critical habitat.

The final critical habitat designation for Puerto Rican harlequin butterfly includes 41,266 ac (16,699.8 ha) in six units, all which are occupied by the species. All public ownership consists of Commonwealth Forests managed by the DNER for conservation, except 5 ac (2 ha) managed for recreation in Unit 1. Since all areas are occupied, it is unlikely that any additional conservation efforts would be recommended to address the adverse modification standard over and above those recommended as necessary to avoid jeopardizing the continued existence of the Puerto Rican harlequin butterfly. Therefore, while analysis of the impacts of the action of on critical habitat is necessary, and this additional analysis will require costs in time and resources by both the Federal action agency and the Service, it is believed that, in most circumstances, these costs will predominantly be administrative in nature and will not be significant.

The probable incremental economic impacts of this critical habitat designation for the Puerto Rican harlequin butterfly are expected to be limited to additional administrative effort, as well as minor costs of conservation efforts resulting from a small number of future section 7 consultations. From 2015 to 2019, there were 4 technical assistance efforts, 14 informal consultations, and 1 formal consultation for three listed species that overlap the range of the Puerto Rican harlequin butterfly (IEc 2020, p. 11). The cost for each of these three actions related to section 7 was approximately $420, $2,500, and $5,300, respectively. We do not expect this critical habitat designation to result in an increase in the number technical assistance requests, informal, and formal consultations under section 7 because all of the units are occupied and overlap with other listed species. However, the cost of each action under section 7 may increase because of the additional time and resources needed to consider the potential for adverse modification of critical habitat and not just the likelihood of jeopardy. We anticipate that the additional cost per year to consider impacts on critical habitat for the Puerto Rican harlequin butterfly (the incremental economic impact of designating critical habitat) will be $42,300 (IEc 2020, p. 12). Thus, the annual administrative burden will not reach $100 million, which is the threshold of ''significant'' under E.O. 12866.

Exclusions Based on Economic Impacts

As discussed above, we considered the economic impacts of the critical habitat designation, and the Secretary is not exercising her discretion to exclude any areas from this designation of critical habitat for the Puerto Rican harlequin butterfly based on economic impacts. A copy of the IEM and screening analysis with supporting documents may be obtained by contacting the Caribbean Ecological Services Field Office (see **ADDRESSES**) or by downloading from the internet at *https://www.regulations.gov.*

Exclusions Based on Impacts on National Security and Homeland Security

Section 4(a)(3)(B)(i) of the Act (see Exemptions, above) may not cover all Department of Defense (DoD) lands or areas that pose potential national-security concerns (*e.g.,* a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), national-security or homeland-security concerns are not a factor in the process of determining what areas meet the definition of ''critical habitat.'' Nevertheless, when designating critical habitat under section 4(b)(2), the Service must consider impacts on national security, including homeland security, on lands or areas not covered by section 4(a)(3)(B)(i). Accordingly, we will always consider for exclusion from the designation areas for which DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns. We have determined that the lands within the designation of critical habitat for Puerto Rican harlequin butterfly are not owned or managed by DoD or DHS, and, therefore, we anticipate no impact on national security. Consequently, we did not exclude any areas from the final designation based on impacts on national security.

Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors including whether there are permitted conservation plans covering the species in the area such as HCPs, safe harbor agreements, or candidate conservation agreements with assurances, or whether there are nonpermitted 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.

In preparing this final rule, we determined that there are currently no permitted conservation plans or other nonpermitted conservation agreements or partnerships for the Puerto Rican harlequin butterfly, and the final critical habitat designation does not include any Tribal lands or trust resources. We anticipate no impact on Tribal lands, partnerships, or permitted or nonpermitted plans or agreements from this critical habitat designation. Accordingly, we did not exclude any areas from the final designation based on other relevant impacts.

Required Determinations

Regulatory Planning and Review (Executive Orders 12866 and 13563)

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

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

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

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment

a regulatory flexibility analysis that describes the effects of the rule on small entities (*i.e.,* small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

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

Under the RFA, as amended, and as understood in the light of recent court decisions, Federal agencies are required to evaluate only 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 will be directly regulated by this 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 will be directly regulated by this rulemaking, the Service certifies that this critical habitat designation will not have a significant economic impact on a substantial number of small entities and a regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. In our economic analysis, we did not find that this critical habitat designation will significantly affect energy supplies, distribution, or use. There are currently no new planned power line or pipeline corridors in the critical habitat units. If there is a Federal nexus for maintenance of existing power supply structures and rights-of-way under section 7 of the Act, any section 7 consultation for potential effects to critical habitat will also be undertaken due to the presence of the Puerto Rican harlequin butterfly as a threatened species and several other federally listed species that occupy the critical habitat. Therefore, any activities to preclude destruction of adverse modification of critical habitat—such as larval host plant and adult nectar source plant surveys, avoidance of host plants that may have eggs or larvae of the Puerto Rican harlequin butterfly, and avoidance of insecticide and pesticide applications at project sites—would also be needed to avoid jeopardy. Thus, costs of considering critical habitat alone for a section 7 consultation will be entirely administrative and less than $10,000 (IEc 2020, entire), with the burden solely on the Service and Federal action agency. As such, energy supply, distribution, or use should not be affected significantly. 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 rule will 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 affected 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 will significantly or uniquely affect small governments because it will not produce a Federal mandate of $100 million or greater in any year; that is, it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act. 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 the Puerto Rican harlequin butterfly 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 designation of critical habitat for the Puerto Rican harlequin butterfly, and it concludes that 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 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 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 rule does not have substantial direct effects either on the States, or on the relationship between the national government and the States, or on the distribution of powers and responsibilities among the various levels of government. The 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 will 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 affected 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 this rule will not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this rule identifies the elements of physical or biological features essential to the conservation of the species. The designated areas of critical habitat are presented on maps, and the rule provides options for the interested public to obtain more detailed location information, if desired.

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

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

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

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

Government-to-Government Relationship With Tribes

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

References Cited

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

Authors

The primary authors of this 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, Plants, Reporting and recordkeeping requirements, Transportation, Wildlife.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

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

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

■ 2. In § 17.11, in paragraph (h), amend the table ''List of Endangered and Threatened Wildlife'' by adding an entry for ''Butterfly, Puerto Rican harlequin'' in alphabetical order under INSECTS to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
*	*	*	*	*
INSECTS				
*	*	*	*	*
Butterfly, Puerto Rican harlequin.	*Atlantea tulita*	Wherever found	T	87 FR [Insert **Federal Register** page where the document begins], 12/1/22; 50 CFR 17.47(g); [4d] 50 CFR 17.95(i).[CH]
*	*	*	*	*

■ 3. Amend § 17.47 by adding paragraphs (f) and (g) to read as follows:

§ 17.47 Special rules—insects.

* * * * *

(f) [Reserved]

(g) Puerto Rican harlequin butterfly (*Atlantea tulita*).

(1) *Prohibitions.* The following prohibitions that apply to endangered wildlife also apply to the Puerto Rican harlequin butterfly. Except as provided under paragraph (g)(2) of this section and § 17.4, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

(i) Import or export, as set forth at § 17.21(b).

(ii) Take, as set forth at § 17.21(c)(1).

(iii) Possession and other acts with unlawfully taken specimens, as set forth at § 17.21(d)(1).

(iv) Interstate or foreign commerce in the course of commercial activity, as set forth at § 17.21(e).

(v) Sale or offer for sale, as set forth at § 17.21(f).

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

(i) Conduct activities as authorized by a permit under § 17.32.

(ii) Take, as set forth at § 17.21(c)(2) through (c)(4) for endangered wildlife.

(iii) Take as set forth at § 17.31(b).

(iv) Take incidental to an otherwise lawful activity caused by:

(A) Normal agricultural practices, including pesticide use, which are carried out in accordance with any existing regulations, permit and label requirements, and best management practices, as long as the practices do not include:

(*1*) Clearing or disturbing forest or prickly bush (*Oplonia spinosa*) to create or expand agricultural areas; or

(*2*) Applying pesticides in or contiguous to habitat known to be occupied by the Puerto Rican harlequin butterfly.

(B) Normal residential and urban activities, such as mowing, weeding, edging, and fertilizing.

(C) Maintenance of recreational trails in Commonwealth Forests by mechanically clearing vegetation, only when approved by or under the auspices of the Puerto Rico Department of Natural and Environmental Resources, or conducted on lands established by private organizations or individuals solely for conservation or recreation.

(D) Habitat management or restoration activities expected to provide a benefit to Puerto Rican harlequin butterfly or other sensitive species, including removal of nonnative, invasive plants. These activities must be coordinated with and reported to the Service in writing and approved the first time an individual or agency undertakes them.

(E) Projects requiring removal of the host plant to access and remove illicit garbage dumps that are potential sources of intentionally set fires, provided such projects are conducted in coordination with and reported to the Service.

(F) Fruit fly trapping by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, provided trapping activities do not disturb the host plant.

(v) Possess and engage in other acts with unlawfully taken wildlife, as set forth at § 17.21(d)(2) for endangered wildlife.

■ 4. Amend § 17.95, in paragraph (i), by adding an entry for ''Puerto Rican Harlequin Butterfly (*Atlantea tulita*)'' immediately following the entry for ''Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*)'', to read as set forth below:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(i) *Insects.*

* * * * *

Puerto Rican Harlequin Butterfly (*Atlantea tulita*)

(1) Critical habitat units are depicted for Isabela, Quebradillas, Camuy, Arecibo, Florida, Ciales, Utuado, Maricao, Yauco, Sabana Grande, and San Germán municipalities, Puerto Rico, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of the Puerto Rican harlequin butterfly consist of the following components:

(i) *Forest habitat types in the Northern Karst region in Puerto Rico:* Mature secondary moist limestone evergreen and semi-deciduous forest, or young secondary moist limestone evergreen and semi-deciduous forest, or both

forest types, in subtropical moist forest or subtropical wet forest life zones.

(ii) *Forest habitat types in the West-central Volcanic-serpentine region in Puerto Rico:* Mature secondary dry and moist serpentine semi-deciduous forest, or young secondary dry and moist serpentine semi-deciduous forest, or both forest types, in subtropical moist forest or subtropical wet forest life zones.

(iii) *Components of forest habitat types:* The forest habitat types described in paragraphs (2)(i) and (ii) of this entry contain:

(A) Forest area greater than 1 acre that is within 1 kilometer of a water source (stream, pond, puddle, etc.) and other forested area;

(B) Canopy cover between 50 to 85 percent and average canopy height ranging from 4 to 8 meters (13.1 to 26.2 feet); and

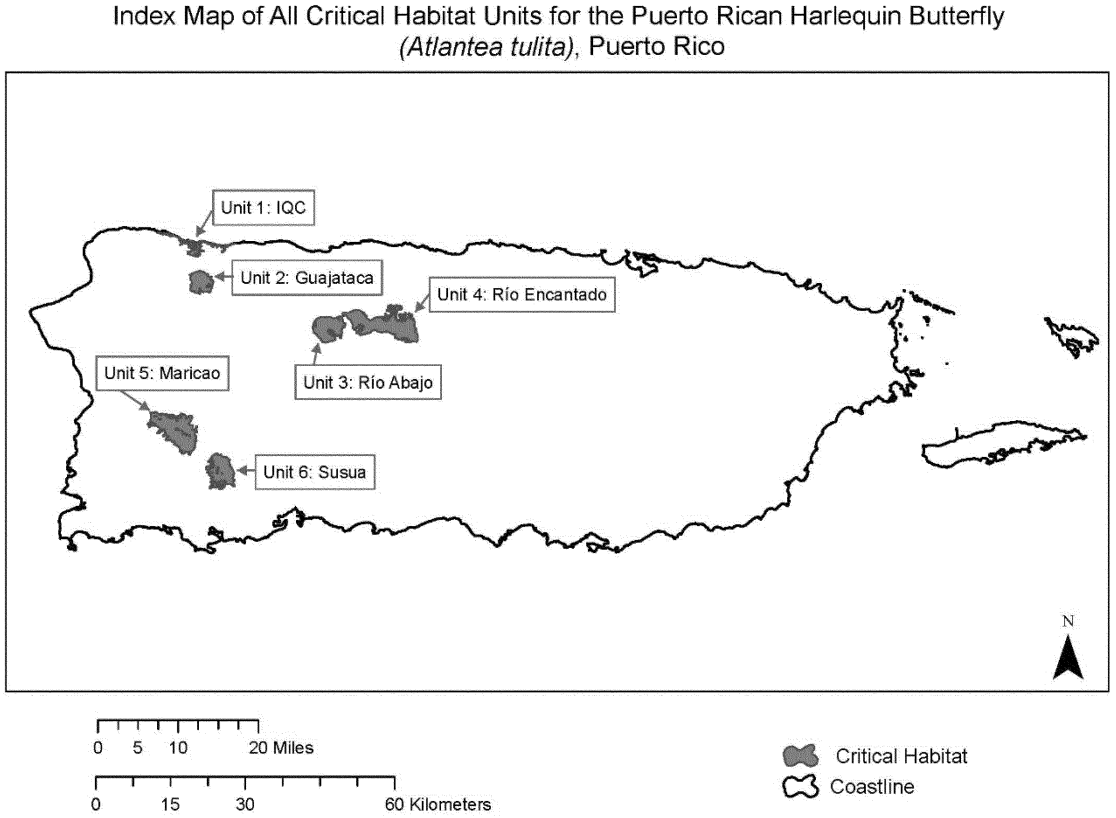
(C) Prickly bush (*Oplonia spinosa*) covering more than 30 percent of the understory.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on January 3, 2023.

(4) Data layers defining map units were created by delineating habitats that contain at least one or more of the physical or biological features defined in paragraph (2) of this entry. We used the digital landcover layer created by the Puerto Rico GAP Analysis Project over a U.S. Department of Agriculture 2007 digital orthophoto mosaic. The resulting critical habitat unit was then mapped using State Plane North American Datum 83 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 at *https://www.fws.gov/office/caribbean-ecological-services* at *https://www.regulations.gov* at Docket No. FWS–R4–ES–2020–0083, 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:

Figure 1 to Puerto Rican Harlequin Butterfly (*Atlantea tulita*) paragraph (5)



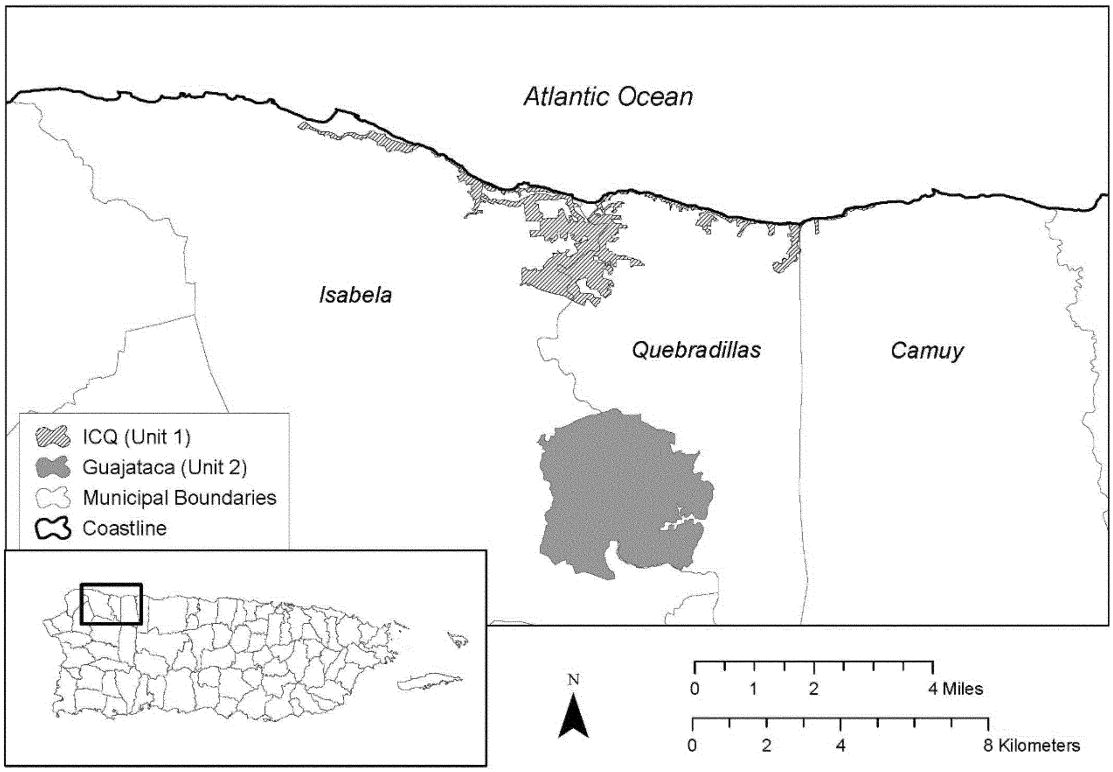
(6) Unit 1: IQC; Isabela, Quebradillas, and Camuy Municipalities, Puerto Rico.

(i) Unit 1 consists of 1,675.7 acres (678.1 hectares) located along the northern coastal cliff among the municipalities of Isabela, Quebradillas, and Camuy (IQC), 23 kilometers (15 miles) west of Arecibo. The critical habitat is bounded on the east by the community La Yeguada and Membrillo in Camuy, on the west by the community Villa Pesquera and Pueblo in Isabela, on the north by the Atlantic Ocean, and on the south by urban developments, State road PR–2, the Royal Isabela Golf Course, and some deforested areas utilized for agricultural practices such as cattle grazing. All but 5 acres (2 hectares) of Unit 1 are in private ownership.

(ii) Map of Units 1 and 2 follows:

Figure 2 to Puerto Rican Harlequin Butterfly (*Atlantea tulita*) paragraph (6)(ii)

Critical Habitat Map for Unit 1: IQC and Unit 2: Guajataca for the Puerto Rican Harlequin Butterfly *(Atlantea tulita)*, Puerto Rico



(7) Unit 2: Guajataca; Isabela and Quebradillas Municipalities, Puerto Rico.

(i) Unit 2 consists of 3,839 acres (1,553.6 hectares) south of PR 2, between the municipalities Isabela and Quebradillas, 25 kilometers (15.6 miles) southwest of Arecibo. The critical habitat is bounded on the east by the San Antonio ward in Quebradillas, on the west by PR 446 at Galateo Ward in Isabela, on the north by Llanadas Ward in Isabela and Cacao Ward in Quebradillas, and on the south by Montañas de Guarionex, between Planas Ward in Isabela and Charcas Ward in Quebradillas. In Unit 2, 583.5 acres (236.1 hectares) are public land, the Guajataca Commonwealth Forest, managed by the Puerto Rico Department of Natural and Environmental Resources for conservation. Private land in Unit 2 is 3,255.5 acres (1,317.5 hectares) that is a mosaic of agricultural land, roads, rural developments, and forest.

(ii) Map of Unit 2 is set forth at paragraph (6)(ii) of this entry.

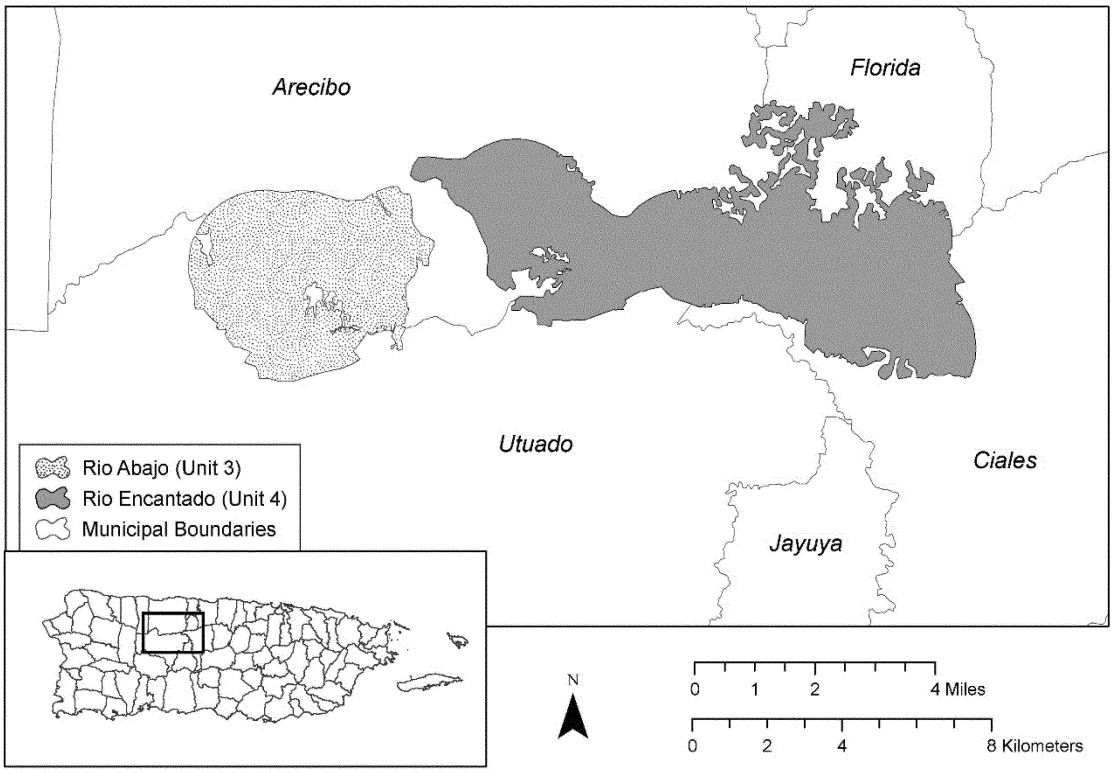
(8) Unit 3: Río Abajo; Arecibo and Utuado Municipalities, Puerto Rico.

(i) Unit 3 consists of 5,939.2 acres (2,403.6 hectares) located 14.5 kilometers (9 miles) south of Arecibo. The critical habitat is bound on the east by the Río Grande de Arecibo, on the west by Santa Rosa Ward in Utuado, on the north by Hato Viejo Ward in Arecibo, and on the south by Caguana and Sabana Grande Wards in Utuado. The Río Abajo Commonwealth Forest, managed for conservation by the Puerto Rico Department of Natural and Environmental Resources, occupies 77 percent (4,544.4 acres (1,839.1 hectares)) of the unit. The other 23 percent (1,394.8 acres (564.5 hectares)) is privately owned and is a mosaic of highways, roads, agriculture, and rural development.

(ii) Map of Units 3 and 4 follows:

Figure 3 to Puerto Rican Harlequin Butterfly (*Atlantea tulita*) paragraph (8)(ii)

Critical Habitat Map for Unit 3: Río Abajo and Unit 4: Río Encantado for the Puerto Rican Harlequin Butterfly *(Atlantea tulita)*, Puerto Rico



(9) Unit 4: Río Encantado; Arecibo, Florida, Ciales, and Utuado Municipalities, Puerto Rico.

(i) Unit 4 consists of 12,775.6 acres (5,170.1 hectares) located among the municipalities of Arecibo, Florida, Ciales, and Utuado, 17 kilometers (10.5 miles) southeast of Arecibo. The critical habitat is bound on the east by Hato Viejo Ward in Ciales, on the west by the Río Grande de Arecibo, on the north by Arrozales Ward in Arecibo and Pueblo Ward in Florida, and on the south by PR 146 along Limón Ward in Utuado and Frontón Ward in Ciales. Thirteen percent of the critical habitat (204.8 acres (82.9 hectares)) is managed by Para La Naturaleza or by the Puerto Rico Department of Natural and Environmental Resources for conservation. The other 87 percent (12,570.8 acres (5,087.2 hectares)) consists of private lands, some of which are agricultural fields, roads, and rural developments, but a majority of which is mature native forest.

(ii) Map of Unit 4 is set forth at paragraph (8)(ii) of this entry.

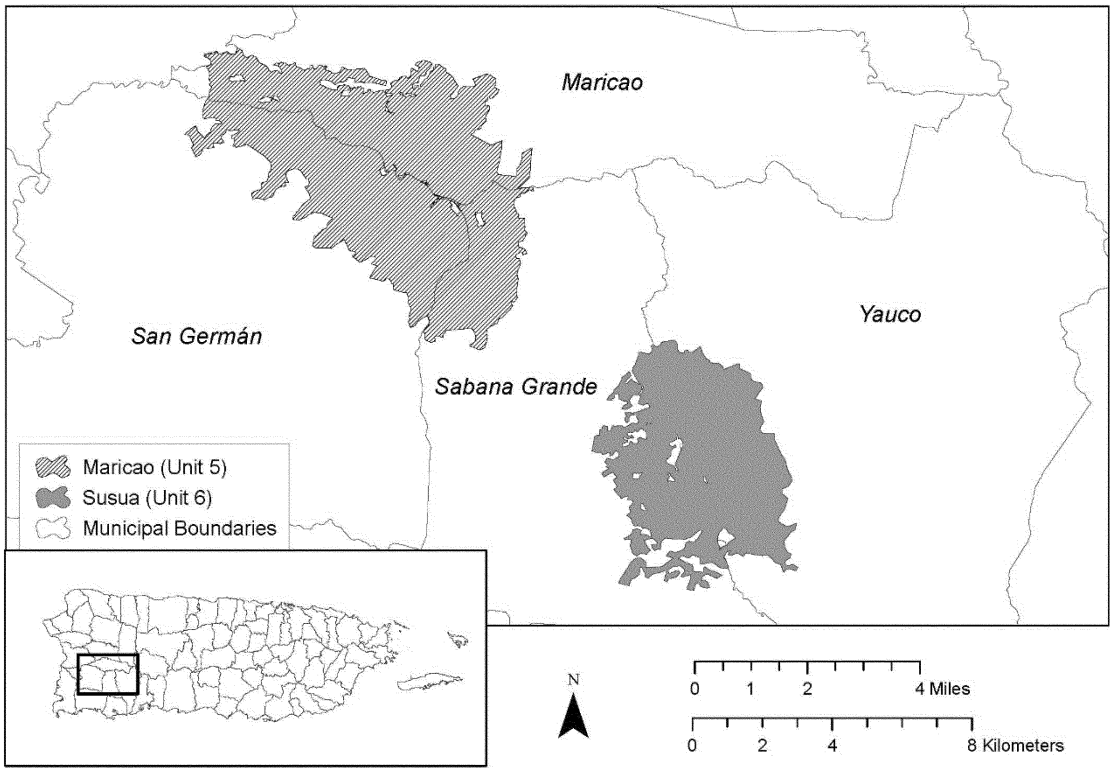
(10) Unit 5: Maricao; Maricao, Sabana Grande, and San Germán Municipalities, Puerto Rico.

(i) Unit 5 consists of 10,854.6 acres (4,392.7 hectares) on the west end of the Cordillerra Central, among the municipalities of Maricao, San Germán, and Sabana Grande, 16.1 kilometers (10 miles) southeast of Mayagüez. The critical habitat is bound on the east by Tabonuco Ward in Sabana Grande, on the west by Rosario Ward in San Germán, on the north by Pueblo Ward in Maricao, and on the south by Guamá and Santana Wards in San Germán. The Maricao Commonwealth Forest, managed for conservation by the Puerto Rico Department of Natural and Environmental Resources, occupies 72 percent (7,883.1 acres (3,190.2 hectares)) of the unit. The other 28 percent (2,971.5 acres (1,202.5 hectares)) is private land consisting of a mosaic of agriculture, rural developments, and forest.

(ii) Map of Units 5 and 6 follows:

Figure 4 to Puerto Rican Harlequin Butterfly (*Atlantea tulita*) paragraph (10)(ii)

Critical Habitat Map for Unit 5: Maricao and Unit 6: Susua for the Puerto Rican Harlequin Butterfly *(Atlantea tulita)*, Puerto Rico



(11) Unit 6: Susúa; Sabana Grande and Yauco Municipalities, Puerto Rico.

(i) Unit 6 consists of 6,181.9 acres (2,501.8 hectares) between the municipalities of Sabana Grande and Yauco, 33.6 kilometers (21 miles) northwest of Ponce. The critical habitat is bound on the east by the PR 371 in Almacigo Alto and Collores Wards in Yauco, on the west by Pueblo Ward in Sabana Grande, on the north by Frailes Ward in Yauco, and on the south by PR 368 in Susúa Ward in Sabana Grande. The Susúa Commonwealth Forest, managed by the Puerto Rico Department of Natural and Environmental Resources for conservation, occupies 51 percent (3,171.5 acres (1,283.5 hectares)) of the critical habitat in this unit. The other 49 percent (3,010.4 acres (1,218.3 hectares)) is on private lands that are a mosaic of agriculture, rural developments, and forest.

(ii) Map of Unit 6 is set forth at paragraph (10)(ii) of this entry.

* * * * *

Stephen Guertin,

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

[FR Doc. 2022–25805 Filed 11–30–22; 8:45 am]

BILLING CODE 4333–15–P