

rule that appeared in the **Federal Register** of December 10, 2004 (69 FR 72020). This document renamed the Instructional Television Fixed Service (ITFS) as the Educational Broadband Service (EBS) and renaming the Multichannel Multipoint Distribution Service (MMDS) and the Multipoint Distribution Service (MDS) as the Broadband Radio Service (BRS). The rules restructure the 2500–2690 MHz band, designate the 2495–2500 MHz band for use in connection with the 2500–2690 MHz band, establish a plan to transition licenses to the restructured 2500–2690 MHz band, adopt licensing, service, and technical rules to govern licensees in the EBS and BRS, permit spectrum leasing for BRS and EBS licensees under the Commission’s secondary markets leasing policies and procedures, and permit unlicensed operation in the 2655–2690 MHz band.

**DATES:** Effective January 10, 2005.

**FOR FURTHER INFORMATION CONTACT:** Genevieve Ross or Nancy Zaczek at 202–418–2487.

**SUPPLEMENTARY INFORMATION:** In FR 04–26830 appearing on page 72020 in the **Federal Register** of Friday, December 10, 2004, the following corrections are made:

**PART 27—[CORRECTED]**

**§ 27.50 [Corrected]**

■ 1. On page 72033, in the third column, section 27.50 is amended by adding paragraphs (h)(3) and (h)(4) as follows:

**§ 27.50 Power limits.**

\* \* \* \* \*

(h) \* \* \*

(3) For television transmission, the peak power of the accompanying aural signal must not exceed 10 percent of the peak visual power of the transmitter. The Commission may order a reduction in aural signal power to diminish the potential for harmful interference.

(4) For main, booster and response stations utilizing digital emissions with non-uniform power spectral density (e.g. unfiltered QPSK), the power measured within any 100 kHz resolution bandwidth within the 6 MHz channel occupied by the non-uniform emission cannot exceed the power permitted within any 100 kHz resolution bandwidth within the 6 MHz channel if it were occupied by an emission with uniform power spectral density, *i.e.*, if the maximum permissible power of a station utilizing a perfectly uniform power spectral density across a 6 MHz channel were 2000 watts EIRP, this would result in a maximum permissible power flux

density for the station of 2000/60 = 33.3 watts EIRP per 100 kHz bandwidth. If a non-uniform emission were substituted at the station, station power would still be limited to a maximum of 33.3 watts EIRP within any 100 kHz segment of the 6 MHz channel, irrespective of the fact that this would result in a total 6 MHz channel power of less than 2000 watts EIRP.”

\* \* \* \* \*

**§ 27.53 [Corrected]**

■ 2. On page 72034, in the second column, section 27.53 is amended by adding paragraphs (l)(6) and (l)(7) as follows:

**§ 27.53 Emission limits.**

\* \* \* \* \*

(l) \* \* \*

(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

(7) Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

\* \* \* \* \*

**§ 27.1221 [Corrected]**

■ 3. On page 72041, in the first column, section 27.1221 is amended by adding paragraphs (c), (d), and (e) as follows:

**§ 27.1221 Interference protection.**

\* \* \* \* \*

(c) *Protection for a Receiving-Antenna not Exceeding the Height Benchmark.* A base station receive-antenna with an HAAT less than or equal to the height benchmark relative to a neighbor’s transmitting base station will be protected if that station’s HAAT exceeds its height benchmark. That station is required to take such measures to limit the undesired signal at the receiving base station to –109dBm or less.

(d) *No Protection from a Transmitting-Antenna not Exceeding the Height Benchmark.* A base station transmitting-antenna with an HAAT less than or equal to the height benchmark relative to a neighbor’s receiving antenna is not required to protect that receiving station, regardless of the HAAT of that station.

(e) *No Protection for a Receiving-Antenna Exceeding the Height Benchmark.* A base station transmitting-antenna with an HAAT greater than the height benchmark relative to a neighbor’s receiving antenna is not required to protect that receiving antenna if its HAAT is greater than its height benchmark.

Federal Communications Commission.  
**Marlene H. Dortch,**  
*Secretary.*

[FR Doc. 05–258 Filed 1–5–05; 8:45 am]

**BILLING CODE 6712–01–P**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**RIN 1018–AH55**

**Endangered and Threatened Wildlife and Plants; Mariana Fruit Bat (*Pteropus mariannus mariannus*): Reclassification From Endangered to Threatened in the Territory of Guam and Listing as Threatened in the Commonwealth of the Northern Mariana Islands**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), reclassify from endangered to threatened status the Mariana fruit bat (*Pteropus mariannus mariannus*) from Guam,

under the authority of the Endangered Species Act of 1973, as amended (Act), and determine the Mariana fruit bat from the Commonwealth of the Northern Mariana Islands (CNMI) to be a threatened species under the authority of the Act. This rule lists the Mariana fruit bat as threatened throughout its range.

The Mariana fruit bat was listed previously as endangered on Guam. The bat populations on the southern islands of the CNMI (Aguiguan, Tinian, and Saipan) were candidates for listing. The best available scientific information indicates that Mariana fruit bats on Guam and throughout the CNMI comprise one subspecies. The protections of the Act, therefore, apply to this subspecies throughout its known range in the Mariana archipelago.

**DATES:** This final rule is effective February 7, 2005.

**ADDRESSES:** Comments and materials received, as well as supporting documentation used in the preparation

of this final rule, will be available for public inspection, by appointment, during normal business hours at the Pacific Islands Fish and Wildlife Office, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, Room 3-122, Box 50088, Honolulu, HI 96850.

**FOR FURTHER INFORMATION CONTACT:** Gina Shultz, Assistant Field Supervisor, Pacific Islands Fish and Wildlife Office (*see ADDRESSES* section) (telephone 808/792-9400; facsimile 808/792-9581).

**SUPPLEMENTARY INFORMATION:**

**Background**

The Mariana archipelago consists of the 15-island Commonwealth of the Northern Mariana Islands (CNMI) and the Territory of Guam, both within the jurisdiction of the United States. This archipelago extends 470 miles (mi) (750 kilometers (km)) from 13°14' N, 144°45' W to 20°3' N, 144°54' W and is approximately 900 mi (1,500 km) east of the Philippine Islands (Figure 1). Nine of the 10 northern islands (Anatahan,

Sarigan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, Maug, and Uracas) are volcanic in origin, and Farallon de Medinilla and the five southern islands (Guam, Rota, Aguiguan, Tinian, and Saipan) are uplifted limestone plateaus with volcanic outcrops. Mariana fruit bats have historically inhabited all of these islands except Uracas, the northernmost island (Wiles and Glass 1990). Of the largest southern islands (Guam, Rota, Tinian, and Saipan), Guam supports the majority of the human population. The northern islands (north of Saipan) are either unoccupied or support only a few families. The climate is tropical, with daily mean temperatures of 75 to 90° Fahrenheit (24 to 32° Celsius), high humidity, and average annual rainfall of 80 to 100 inches (in) (200 to 260 centimeters (cm)). Typhoons may strike the Mariana Islands during any month of the year, but are most frequent between July and October.

**BILLING CODE** 4310-55-P

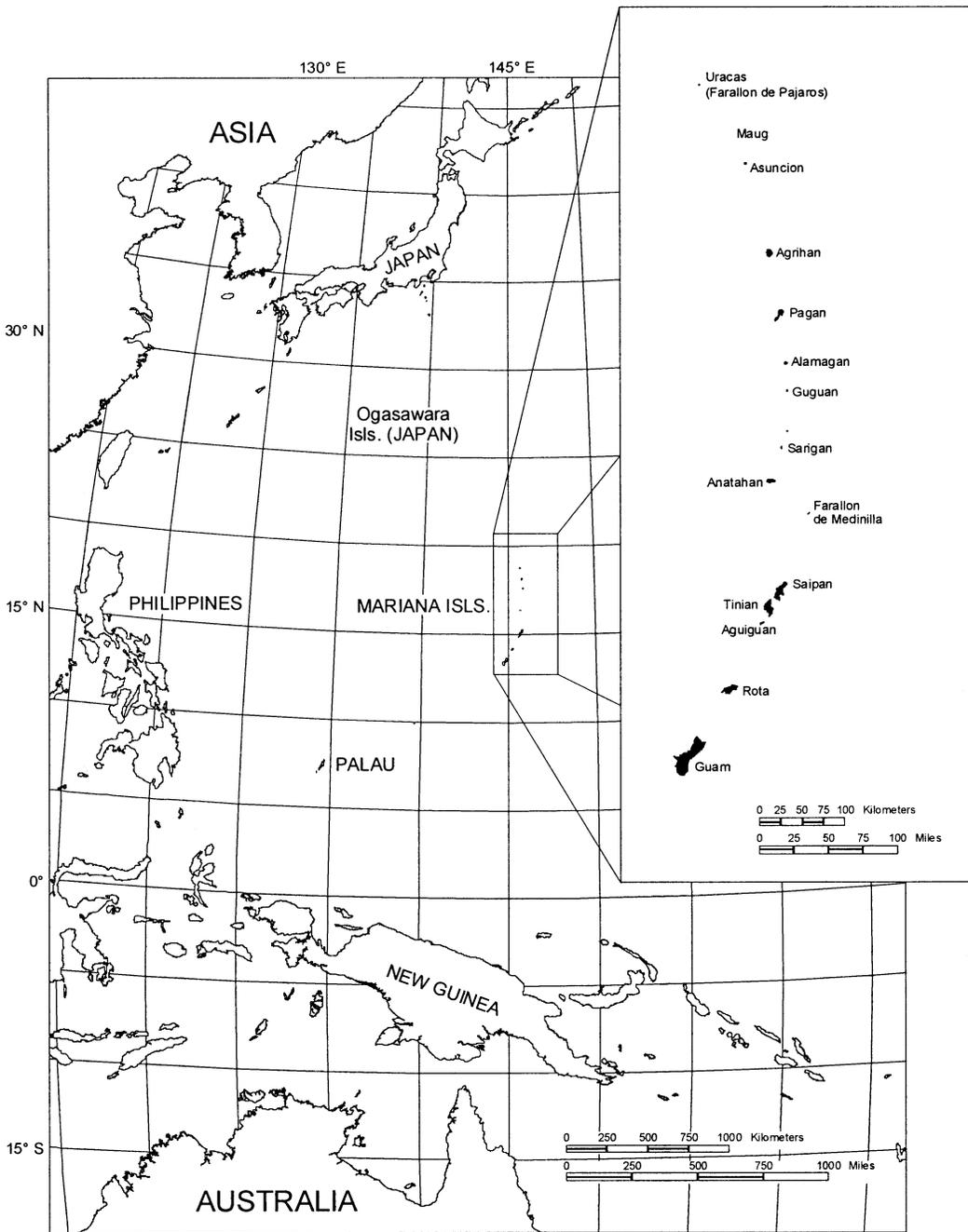


Figure 1. Map of Mariana archipelago.

### Species Description and Biology

The Mariana fruit bat is a medium-sized fruit bat in the family Pteropodidae that weighs 0.66 to 1.15 pounds (330 to 577 grams) and has a forearm length ranging from 5.3 to 6.1 in (13.4 to 15.6 cm); males are slightly larger than females. The underside (abdomen) is colored black to brown, with gray hair interspersed, creating a grizzled appearance. The shoulders (mantle) and sides of the neck are usually bright golden brown, but may be paler in some individuals. The head varies from brown to dark brown. The well-formed and rounded ears and large eyes give the face a canine appearance; members of the family Pteropodidae often are referred to as flying foxes.

The Mariana fruit bat is highly colonial, forming colonies of a few to over 800 animals (Wiles 1987a; Pierson and Rainey 1992; Worthington and Taisacan 1995). Bats group themselves into harems (1 male and 2 to 15 females) or bachelor groups (predominantly males), or reside as single males on the edge of the colony (Wiles 1987a). On Guam, the average estimated sex ratio in a single colony varied from 37.5 to 72.7 males per 100 females (Wiles 1982).

Reproduction is believed to occur throughout the year in *Pteropus mariannus yapensis* on Yap (Falanruw 1988). Mating and the presence of nursing *Pteropus mariannus mariannus* young have been observed year-round on Guam (Perez 1972; Wiles 1983) with no apparent peak in births (Wiles 1987a). Glass and Taisacan (1988) suggested a similar pattern on Rota, but also indicated that a peak birthing season may occur during May and June, as has been observed in other fruit bats (Pierson and Rainey 1992). Female bats of the family Pteropodidae have one offspring per year (Pierson and Rainey 1992), pups may be born in any month of the year. Observations on Guam between July 1982 and May 1985 found 262 female bats, each with a single young (Service 1990). This reproductive rate, very low for a mammal of this size, results in a low maximum population growth rate, and thus a slow rate of recovery when a population is diminished (Pierson and Rainey 1992). Length of gestation and age of sexual maturity are unknown for the Mariana fruit bat; other related bats have a gestation period of approximately 4.6 to 6.3 months (Pierson and Rainey 1992). Age of sexual maturity is not known for the Mariana fruit bat, but *Pteropus* species typically do not breed before 18 months of age (Pierson and Rainey 1992).

### Taxonomy and Interisland Movements

The fruit bats of the Mariana Islands consistently have been treated as one or more endemic subspecies or species; that is, they occur nowhere outside the archipelago (Andersen 1912; Kuroda 1938; Corbet and Hill 1980, 1986, 1991; Koopman 1982, 1993; Flannery 1995). Following the taxonomic treatments of Kuroda (1938) and Koopman (1993), which are known to be based on examination of numerous specimens, and the most recent treatment by Flannery (1995), *Pteropus mariannus* is a widely dispersed species occurring north of the equator in portions of Micronesia north to the Japanese Ryukyu Islands. Various authors have attributed different numbers of subspecies to *P. mariannus*. Kuroda (1938) and Koopman (1982, 1993) recognize seven subspecies; Flannery recognizes three.

*Pteropus* fruit bats are well known to be strong fliers and traverse long distances (Eby 1991; Palmer and Woinarski 1999; Nelson 2003). Evidence that Mariana fruit bats fly between islands in the archipelago supports consideration of these bats as a single subspecies made up of numerous island populations in the Marianas (Lemke 1986; Service 1990; Wiles and Glass 1990; Worthington and Taisacan 1996). The geography of the archipelago, as well as the flight capability of fruit bats, facilitates interisland exchange. Distances between islands in the Mariana archipelago range from 3 to 62 mi (5 to 100 km). Each island in the chain is visible from neighboring islands (Wiles and Glass 1990).

The August 27, 1984, Federal listing (49 FR 33881) of fruit bats resident on Guam was based on an assumption that these bats were a distinct subspecies isolated from other bat populations in the CNMI. However, current evidence exists that large numbers of bats from Rota have visited Guam for periods of months. Temporary spikes in the Guam fruit bat population were observed in 1992–1993 (from about 350 to 550 bats) and in 1998 (from about 150 to 760 bats) (Anne Brooke, Service, in litt. 2003). These temporary increases lasted for several months. More modest but equally sudden increases in the Guam population were noted 2 and 4 days following Typhoons Chataan and Pongsona, respectively, in 2002 (Dustin Janecke, University of Guam, in litt. 2003). The most likely explanation is a temporary relocation of bats from Rota, which lies 48 mi (77 km) from Guam, is visible from Guam's north shore, and harbors one of the largest fruit bat populations in the archipelago. For

example, the 2002 spike on Guam after Typhoon Pongsona was concurrent with an observed dip in fruit bat numbers on Rota (Jake Esselstyn, University of Kansas (formerly CNMI Department of Fish and Wildlife (DFW)), pers. comm. 2004b). Several other instances of apparent immigrations from Rota to Guam documented in the late 1970s and 1980s are described in detail by Wiles and Glass (1990). Although we cannot be certain that "visiting" bats interbreed with resident Guam bats during their months on the island, the fact that Mariana fruit bats breed throughout the year (Wiles 1983, 1987a) leaves this possibility open. The presence of fruit bats on the islands of Tinian and Aguiguan, which are close to one another and to Saipan, is ephemeral (Worthington and Taisacan 1996), indicating that interisland travel likely occurs among these three islands as well.

An example of likely interisland movement in the northern islands of the CNMI comes from Sarigan. Fruit bat surveys on Sarigan documented a roughly stable level of approximately 125–235 bats between 1983 and 2000 (Wiles *et al.* 1989; Fancy *et al.* 1999; Wiles and Johnson 2004). In 2001, surveys estimated 300–400 bats (Wiles and Johnson 2004). Recruitment of juvenile bats alone cannot account for this increase, and Wiles and Johnson (2004) posit Anatahan, 23 mi (37 km) to the south, as the likely source for immigrants. Wiles *et al.* (1989) twice observed individual fruit bats 0.8 mi (2 km) from Guguan, flying south in the direction of Sarigan, which lies 39 mi (63 km) away. Anecdotal observations of likely transits among other northern islands are described in Wiles and Glass (1990) and by other species experts (Worthington and Taisacan 1996; Wiles and Johnson 2004).

Like fruit bats, many other highly mobile vertebrates of Pacific Islands, especially birds, are treated as a single species or subspecies inhabiting multiple islands in an archipelago (Mayr 1945; Pratt *et al.* 1987; Watling 2001). Immigration rates of perhaps one individual per generation could be necessary for an island population to maintain genetic homogeneity with the populations on other islands (Mills and Allendorf 1996; Wang 2004; Gary McCracken, University of Tennessee, pers. comm. 2004). The chances of witnessing such a low rate of immigration are slight. The evidence described above for interisland movement suggests even greater rates of movement and probable gene flow among the fruit bat populations on various islands in the Mariana

archipelago than the minimum needed to maintain genetic homogeneity.

Preliminary results of a recent study of genetic variation in a similarly gregarious (Pierson and Rainey 1992) and mobile species of fruit bat elsewhere in the Pacific provide further, if circumstantial, support for the existence of a single subspecies of fruit bats in the Marianas. Genetic material collected from the white-collared fruit bat (*Pteropus tonganus*) in Samoa and Fiji shows a lack of genetic isolation within island groups (Utzurum *et al.* 2000; G. McCracken, pers. comm. 2004). Little anecdotal observation of interisland movements exists for *P. tonganus*, yet apparently it experiences immigration at sufficient intervals to prevent genetic isolation.

Currently, there are two recognized subspecies restricted to the Mariana Islands: the Mariana fruit bat (*Pteropus mariannus mariannus*) and the Pagan fruit bat (*Pteropus mariannus paganensis*). Other subspecies are endemic to other archipelagos and do not occur in the Marianas. The taxonomic status of the Pagan fruit bat is questionable. Yamashina (1932) collected three male fruit bats and one female from the islands of Pagan and Alamagan in 1931, and stated: “[t]his species, as compared to the *Pteropus mariannus mariannus* that inhabit Guam, is distinctly darker in coloration, having brownish wings.” He made no further comparisons, and thus the distinction of this taxon is based on a single, equivocal interpretation of the coloration of four specimens. Although future studies may confirm the existence of a distinct taxon of fruit bats in the northern islands, at this time, based on the best available science including peer reviewer comments, we do not consider *Pteropus mariannus paganensis* as distinct from *Pteropus mariannus mariannus* to represent a single taxon.

#### Habitat

Mariana fruit bats forage and roost primarily in native forest and forage occasionally in coconut (*Cocos nucifera*) groves and strand vegetation (Wiles 1987b; Worthington and Taisacan 1996). Wiles (1987b) described six bat roost sites on Guam, all within native limestone forest. Major roost trees included *Ficus* spp. and *Neisosperma oppositifolia*. On Rota, fruit bats used primary and secondary limestone forest for roosting and foraging (Glass and Taisacan 1988). At least nine tree species were used for roosting, including *Elaeocarpus sphaericus*, *Macaranga thompsonii*, *Guamia mariannae*, *Hernandia* spp., *Artocarpus*

*mariannensis*, *Ficus prolixia*, *Barringtonia asiatica*, *Randia cochinchinensis*, and the introduced *Theobroma cacao* (Glass and Taisacan 1988). A small bat colony also was observed roosting in *Casuarina equisetifolia* on Aguiguan (Worthington and Taisacan 1996). At least 22 plant species are used as food sources by the Mariana fruit bat. Food items include the fruits of 17 species of plants, especially the native *Artocarpus mariannensis*, *Cycas circinalis*, *Ficus* spp., *Pandanus tectorius*, *Terminalia catappa*, and the introduced *Artocarpus altilis* and *Carica papaya*; the flowers of seven plants, including the native *Ceiba pentandra* and *Erythrina variegata*, and the introduced *Cocos nucifera*; and leaf stems and twig tips of *Artocarpus* spp. (Wiles 1987a; Service 1990). Although Mariana fruit bats have been observed to feed on and roost in cultivated, introduced food plants, nonnative species make up only a small fraction of the plants they use (Wiles 1987b; Worthington and Taisacan 1996). Fruit bats are important components of tropical forest ecosystems because they disperse plant seeds and thereby help maintain forest diversity and contribute to plant regeneration following typhoons and other catastrophic events (Cox *et al.* 1992).

#### CNMI Southern Islands

The relatively large size and moderate topography of the southern islands led to their being, along with Guam, the most heavily populated and intensively cultivated islands in the archipelago. All of the southern Marianas are hypothesized to have been densely forested when first settled by humans some 3,500 years ago (Mueller-Dombois and Fosberg 1998). The loss and alteration of native habitats on these islands began with prehistoric cultivation, accelerated with the 17th century introduction of livestock and mechanized agriculture by Europeans, and likely peaked during the mid-20th century with landscape-scale habitat conversion by commercial agriculture, military infrastructure, and bombardment (Bowers 1950; Fosberg 1960; Stone 1970). This long continuous and intense human disturbance is reflected by the near absence of Mariana fruit bats from Saipan, Tinian, and Guam.

On Saipan and Tinian, agriculture and free-roaming livestock had converted much of the islands' forest to fields and pastures as early as the 18th century (Barrat 1988 in Stinson *et al.* 1992). Human populations on these islands increased steadily, and virtually all arable land was used to grow cash

crops or food (Bowers 1950). Sugar plantations dominated the landscapes of Saipan, Tinian, and Aguiguan prior to World War II (Fosberg 1960). Saipan and Tinian were invaded during World War II, and during and after the war, bombing and extensive military development resulted in the loss of additional fruit bat habitat (Bowers 1950; Fosberg 1960). After the war, Saipan and Tinian were estimated to retain 5 and 2 percent native forest cover, respectively (Bowers 1950), and these proportions apparently were not significantly different in 1982 (Engbring *et al.* 1986). The introduction of nonnative species such as tangantangan for erosion control has left these islands dominated by alien vegetation that inhibits the growth of native forest (Fosberg 1960; Craig 1993). Feral ungulates are present on both islands, resulting in further degradation and fragmentation. Finally, Saipan is the most heavily populated and industrialized island in the CNMI (CNMI Statistical Yearbook 2001). Aguiguan was not invaded during the war, and has retained a greater proportion of its native forest (20 percent; Bowers 1950).

Similar to Saipan and Tinian, large areas of Rota were converted to sugar plantations in the early part of the 20th century (Fosberg 1960). Rota has more rugged topography, however, and was not invaded during World War II. These two factors are thought to explain the greater amount of native forest cover (25 percent) remaining on Rota following the war (Baker 1946; Bowers 1950). Engbring *et al.* (1986) estimated that roughly 60 percent of Rota's land area supported native vegetation in 1982. It is not clear whether Engbring's estimate represents some level of native forest recovery since Bowers' (1950) post-war estimate, or is a different interpretation and measurement of forest cover.

Most of Guam's native vegetation has been replaced by land development and invasive species. Guam is the population and commercial center of the archipelago, and commercial and residential development are ongoing. Like the other southern islands, parts of Guam were seeded with tangantangan following World War II to control erosion (Fosberg 1960). Large areas of southern Guam are dominated by savannas; these landscapes are thought to have originated as a result of aboriginal burning (Fosberg 1960). In 1981, northern Guam, which supports the last extensive native forest remaining on the island, was thought to retain no more than 37 percent native forest cover (Engbring and Ramsey 1984). Feral ungulates are abundant and

widespread throughout the island and cause significant damage to all remaining native forest (Fosberg 1960; Stone 1970; A. Brooke, pers. comm. 2004). Lands owned by the U.S. Air Force (Air Force) at Andersen Air Force Base in northern Guam include the largest contiguous forested areas left in northern Guam; the Air Force permits hunting of feral ungulates on parts of the base (U.S. Air Force 2001).

#### CNMI Northern Islands

Compared with the history of habitat loss in the southern islands, degradation or loss of native forest in the northern islands of the CNMI is a recent phenomenon; therefore, these islands have retained more habitat to support Mariana fruit bats. Some of the northern islands have supported small human settlements, and most of these have been occupied only sporadically. Feral ungulates have been present in the northern islands only since the mid-20th century. For example, Anatahan has had feral goats and pigs for roughly 40 years (Kessler 1997), and forest degradation and erosion were observed to escalate sharply during the 1990s (Marshall *et al.* 1995; Kessler 2000a; Worthington *et al.* 2001), possibly because feral ungulate damage was exacerbated by El Niño-related drought in the late 1990s (Kessler 2000a).

Although changes in forest cover were not quantified, evidence from point photo monitoring and other land-based photography conducted on Anatahan in 1983, 1996, and 2000 documented widespread loss of forest, reduced canopy cover in remaining forest, and increased erosion resulting from feral ungulate damage (Marshall *et al.* 1995; Kessler 1997, 2000a; Worthington *et al.* 2001). An ungulate eradication project was begun in 2002, but was not completed when Anatahan volcano erupted in 2003. This eruption further compromised the island's forest habitat, and continuing volcanic activity has hindered completion of the ungulate eradication project. A large population of feral pigs still occurs on the island and some goats remain; aerial hunting for goats is ongoing (Curt Kessler, Service, pers. comm. 2004b). Some vegetation recovery has been observed as a result of goat control, but an invasive alien vine, *Mikania micrantha*, has spread rapidly and may inhibit the growth of native vegetation (C. Kessler, pers. comm. 2004b). This plant is known to smother and displace native vegetation on other Pacific islands (U.S. Department of Agriculture (USDA) 2004).

On Pagan, livestock was maintained in captivity by island residents until the

volcanic eruption in 1981, when the human population was evacuated. In the subsequent 23 years, large populations of feral goats, pigs, and cattle have become established on the island and have caused significant damage (Rice and Stinson 1992; Kessler 1997). The degradation and loss of native forest on Pagan is thought to be occurring more rapidly on there than on Anatahan because of the added impact of cattle, which are absent from Anatahan (Kessler 1997). The reductions in fruit bat numbers on Pagan are attributed to feral ungulates causing major damage to the native forest and preventing its regeneration following the 1981 eruption, large areas especially in the northern part of the island being converted to grassland or devegetated and eroded (Kessler 1997), and the spread of the invasive tree *Casuarina equisetifolia* in monotypic stands (Rice and Stinson 1992; Cruz *et al.* 2000e). In 1992, *Casuarina* coverage in the upland areas of the island was estimated at roughly 60 percent (Rice and Stinson 1992). Although this tree is used for roosting by Mariana fruit bats (C. Kessler, pers. comm. 2004b), it does not provide food resources, and it likely displaces native forest, as it has done elsewhere in the Pacific (Cruz *et al.* 2000e; USDA 2004).

Vegetation surveys in 2000 on Agrihan, the third-largest of the northern islands, documented damage from feral ungulates in the 30 to 40 percent of the island that supports forest habitat (Cruz *et al.* 2000f). The extremely steep and dissected topography of Agrihan is thought to restrict the distribution of feral ungulates as well as access by humans, and keep goats and pigs geographically separated (Rice *et al.* 1990; Rice and Stinson 1992), thereby protecting roost sites and sufficient forest habitat to support foraging fruit bats.

Feral goats, pigs, and cattle are present on Alamagan and the extent of native forest remaining on the island is limited to ravines on the south and west slopes and a small plateau in the center of the island (Wiles *et al.* 1989). Rice (1992) described Alamagan as having "one of the worst feral ungulate problems in the CNMI," and during vegetation surveys in 2000, Cruz *et al.* (2000b) found the remaining forests to be in decline.

Maug, Asuncion, Guguan, and (since 1998) Sarigan are free of feral ungulates, but the small size of these islands and the limited extent of their forest habitat ultimately limits the number of fruit bats they can support. Maug is only 10 to 14 percent forested (Wiles *et al.* 1989), and thus supports little habitat

for fruit bats. Forest on Asuncion and Guguan is limited to the lower western and southern areas; the northern and steep upper parts of these islands are bare volcanic ash or grassland (Wiles *et al.* 1989). Roughly 32 percent or 400 acres (ac) (162 hectares (ha)) of Sarigan is forested, but most of this is monotypic coconut forest that provides only minimal forage for fruit bats; only about 72 ac (29 ha) supports relatively diverse native forest that provides both roosting and foraging resources for fruit bats (Wiles and Johnson 2004). Although the eradication of ungulates from Sarigan and initial vegetation recovery may play a role in increased numbers of fruit bats on the island, invasive, alien plants such as tangantangan (*Leucaena leucocephala*) and *Operculina ventricosa* also are present on the island and may impede the recovery of native forest over the long term (Kessler 2000b). These plants are known to degrade native vegetation in the Mariana Islands and elsewhere in the Pacific (USDA 2004).

#### Landownership of Fruit Bat Habitat in the Mariana Islands

Most of the known fruit bat roost sites in the Mariana Islands are located on public lands. On Guam, the single remaining roost and most fruit bat foraging habitat is found on U.S. military lands; some foraging habitat occurs on private lands and lands belonging to the Government of Guam (Wiles 1998). The Air Force controls access to Andersen Air Force Base in northern Guam, and the high security and frequent patrols practiced on base effectively create a refugium for fruit bats (Morton 1996). The remote and relatively pristine area where the roost is located was set aside by the military in 1973 as a research natural area; access to and activities in this area are tightly restricted, but no brown treesnake control currently takes place specifically at the roost site (Air Force 2001). Service and Government of Guam wildlife biologists and authorized researchers are permitted access to the area and to the colony to monitor and conduct research on fruit bats. Similarly, the U.S. Navy (Navy) and the Service restrict access to their lands, which include native forest that provides foraging habitat for the fruit bat.

The remaining roost site is managed as part of the Guam National Wildlife Refuge (Refuge) overlay under a cooperative agreement with the Air Force. The Refuge was created on October 1, 1993, with additional lands (overlay portion) incorporated in 1994 by cooperative agreements between the

Service, the Air Force and the Navy. The establishment and management of the overlay portion of the Refuge on Navy and Air Force lands provides a commitment by the three agencies to develop coordinated programs centered on the protection of endangered and threatened species and other native flora and fauna. Active implementation of such programs by these agencies contributes to the continued survival of the Mariana fruit bat on Guam, as important foraging and roosting habitat is located within the Refuge boundaries. However, the lack of brown treesnake control in the immediate area where the fruit bats roost is a serious deficiency in existing programs to protect endangered species on the overlay refuge.

There is no U.S. Government-owned land in the CNMI, but the Navy leases Farallon de Medinilla and part of Tinian. All other public lands are administered by the CNMI government. Saipan has little public land that is not leased and developed, but a few areas still support native forest that is occasionally used by fruit bats. Tinian has large tracts of public land that contain small stands of native forest suitable for bats, and a large portion of public land on the northern end of the island is under lease to the Navy for military activities (Lusk *et al.* 1997). All of Aguiguan is owned by the CNMI government. Approximately 60 percent of the land on Rota is publicly owned,

although much of this has been leased to private individuals. The primary roosting areas on Rota are on Commonwealth lands, but some private lands still retain native limestone forest that may support fruit bats. The northern islands are mostly public lands, with some land developed as small homestead lots.

**Population Surveys and Status**

Obtaining accurate estimates of fruit bat populations in Pacific archipelagos depends on regular monitoring, standardized survey methods, and consideration of the unique ecology and physiographic environment of bat populations in various island groups (Utzurum *et al.* 2004). The difficult terrain of the Mariana Islands, remote location of the northern islands of the CNMI, and the high costs associated with transits of the island group by sea and aerial surveys of individual islands have hindered the establishment of a standard monitoring program for the archipelago.

No known historical records exist to document the status of the Mariana fruit bat prior to the 20th century. The history of fruit bat surveys and changes in numbers summarized below represent a variety of methods and analyses. Archipelago-wide surveys were conducted in 1983 (Wiles *et al.* 1989) and 2001 (Johnson 2001).

The relatively isolated northern islands support the majority of the fruit

bats in the archipelago, but because of their remote location, these islands have not been surveyed as frequently as the southern islands. Individual surveys have been conducted on several of the southern islands at relatively frequent intervals, and comprehensive surveys of the northern islands were conducted in 1983, 2000, and 2001 (Wiles *et al.* 1989; Cruz *et al.* 2000a-f; Johnson 2001). Opportunistic surveys have also occurred sporadically throughout the archipelago. The methods used in the northern islands in 2001 were significantly different from those used in 1983 and 2000; we therefore consider only Wiles *et al.* (1989) and Cruz *et al.* (2000a-f) for purposes of comparison (Table 1). A conservative interpretation of this comparison indicates a decline between 1983 and 2000, especially on the two islands that supported the largest numbers of fruit bats in the archipelago 20 years ago (Table 1).

Two of the northern islands are not included in this table: Uracas, the most northerly, where fruit bats are not known to occur; and Farallon de Medinilla, where fruit bats have been observed on only one occasion. See text and Table 2 for information about additional and more recent surveys and observations of fruit bats on the southern islands of the CNMI and Guam, and on Farallon de Medinilla, Anatahan, Sarigan, and Pagan.

TABLE 1.—SUMMARY OF MARIANA FRUIT BAT SURVEY RESULTS: MINIMUM ESTIMATES

Island	Area Sq. mi (Sq. km)	1983 <sup>1</sup>	2000 <sup>2</sup>
Maug .....	0.8 (2.0)	<25	( <sup>3</sup> )
Asuncion .....	2.9 (7.4)	400	( <sup>3</sup> )
Agrihan .....	18.3 (47.4)	1,000	1,000
Pagan .....	18.4 (47.7)	2,500	1,500
Alamagan .....	4.3 (11.0)	0	200
Guguan .....	1.5 (4.0)	400	350
Sarigan .....	1.9 (5.0)	125	200
Anatahan .....	12.5 (32.3)	3,000	1,000
Total (Northern Islands) .....	.....	7,450	.....
[Total six islands] .....	.....	[7,025]	4,250
Saipan .....	47.5 (122.9)	<50	( <sup>3</sup> )
Tinian .....	39.3 (101.8)	<25	( <sup>3</sup> )
Aguiguan .....	2.7 (7.0)	<10	150–200
Rota .....	37.0 (95.7)	800–1,000	( <sup>3</sup> )
Guam .....	212.0 (549.0)	425–500	( <sup>3</sup> )
Total (All Islands) .....	.....	8,760–9,035	N/A

<sup>1</sup>Wiles *et al.* 1989. Dates: August 17–September 10, 1983; 1–4 days/island. Count methods: Evening dispersal counts at colonies; evening station counts of solitary fruit bats.

<sup>2</sup>Cruz *et al.* 2000a–f. Dates: June 4–August 16, 2000; 7–9 days/island. Count methods: Evening dispersal counts at colonies, evening and morning station counts of solitary fruit bats.

<sup>3</sup>Not surveyed.

### Status of CNMI Southern Islands

Fruit bats on the southern islands of the CNMI, Tinian, Saipan, Aguiguan, and Rota were not surveyed prior to the 1970s, but historical accounts indicate that fruit bats once were much more common on these islands than they are now. Schnee (1911) reported that bats were commonly seen and heard on Saipan, where they were heavily hunted by local residents. The Navy restricted civilian access to the northern part of Saipan until the early 1970s, effectively providing fruit bats with protected roost sites. The fruit bat population on Saipan was observed to decline rapidly after the Navy turned over the control to the CNMI government and access to the whole island became unrestricted (Wiles *et al.* 1989). Observations during the 1980s and 1990s suggested that the Saipan population was small; typically fewer than 50 bats were observed (Lemke 1984; Wiles *et al.* 1989; Wiles 1996; Worthington and Taisacan 1996). Surveys on Saipan in 2001 estimated that roughly 50 bats were present (Johnson 2001).

Fritz (1901) reported a large number of bats on Tinian in 1900 and Fritz (1904) reported that bats were common on all the southern islands. Fruit bats are only occasionally seen on Tinian today (Marshall *et al.* 1995; Krueger and O'Daniel 1999; Johnson 2001). Observations during the 1990s suggested that the presence of bats on Tinian was intermittent and their numbers were low (Lemke 1984; Wiles 1996; Worthington and Taisacan 1996). Surveys on Tinian conducted in 2001 found no fruit bats (Johnson 2001). In 1995, between 100 and 125 bats were believed present on Aguiguan (Wiles 1996). During a 10-day visit in 2003, however, no fruit bat colonies were observed on Aguiguan despite extensive coverage, and only a few individual fruit bats were seen (J. Esselstyn, pers. comm. 2004a).

The fruit bats on Rota have been surveyed on a regular basis by a large number of workers since 1986, using methods described by Stinson *et al.* (1992): primarily evening dispersal counts (EDCs), with some station counts of solitary or extracolony bats and direct counts of colonial roosts (Glass and Taisacan 1988; Stinson *et al.* 1992; Worthington and Taisacan 1995, 1996; Johnson 2001; J. Esselstyn in litt. 2003, pers. comm. 2004a). This monitoring effort has yielded numbers that vary widely both intra- and interannually (e.g., Glass and Taisacan 1988; Worthington and Taisacan 1995, 1996). Analysis of the census data on Rota is

underway (Laura Williams, CNMI DFW, pers. comm. 2004).

Fruit bat numbers declined following Typhoon Roy in 1988 from an estimated 2,400 animals to just under 1,000 (Worthington and Taisacan 1996). Prior to Typhoon Pongsona in 2002, however, the Rota bat population had risen back to approximately 2,500 (J. Esselstyn, in litt. 2003). In the months following the storm, repeated surveys indicated that numbers had again declined sharply to about 600 (J. Esselstyn, pers. comm. 2004b). Continued surveys of Rota's fruit bats indicate that the population was once again rising in 2004; in April it was estimated at roughly 1,500 animals (J. Esselstyn, pers. comm. 2004a, 2004b). The Rota population fluctuates and may be resilient, but severe storms at short intervals could erode this resilience. The most recent available estimate of fruit bat numbers on Rota is 1,100 (C. Kessler, pers. comm. 2004b). This estimate was made in May 2004, prior to Typhoon Chaba. The bats from Rota are believed to move among the southern islands, and this population thus is considered to be important to the long-term stability of fruit bats in the southern islands of the Mariana archipelago (Wiles and Glass 1990), and to the existence of the colony on Guam (Catherine Leberer, Guam Division of Aquatic and Wildlife Resources (DAWR), in litt. 2004).

### Status of CNMI Northern Islands

The 1983 survey of the northern islands resulted in an estimate of 7,450 bats for Anatahan, Sarigan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, and Maug (Wiles *et al.* 1989, Tables 1 and 2). Because field observation of Mariana fruit bats indicate that this species is gregarious and typically roosts in large colonies during the day, this and subsequent surveys focused on locating colonies. Wiles *et al.* (1989) located colonies by circumnavigating islands by boat, traversing portions of each island on foot, and interviewing residents on islands with human inhabitants. EDCs were conducted at each colony beginning at 1 to 3 hours before nightfall and continuing until complete darkness. These surveys were carried out by observers placed so that fruit bats departing the colony were silhouetted against the sky or the ocean. Rates of fruit bat departure from colonies were observed to be greatest between 10 and 40 minutes after sunset, but because departures continued after darkness when they are difficult to see, EDCs represent minimum counts (Wiles *et al.* 1989). In addition, evening counts of solitary or extra-colony bats were made from vantage points determined to

overlap least with the apparent dispersal trajectory of colony bats. Islandwide estimates were based on the number of fruit bats recorded, island size, extent of forest cover and abundance and diversity of food-plant species (Wiles *et al.* 1989).

Surveys of the northern islands undertaken in 2000 (Cruz *et al.* 2000a–f) employed a combination of the same methods used by Wiles *et al.* (1989) in 1983 and, on Anatahan, by Worthington *et al.* (2001) in 1995: land- and sea-based colony searches, EDCs, station-counts of extra-colony bats, and direct day-time counts at roosts. On each island they visited, Cruz *et al.* (2000a–f) spent periods conducting fruit bat surveys equal to or greater than periods spent by Wiles *et al.* (1989) on the same six islands. The individual island-wide estimates of Cruz *et al.* (2000a–f) thus are comparable to those of Wiles *et al.* (1989), but owing to logistical and fiscal constraints, Cruz *et al.* (2000a–f) did not visit Asuncion and Maug. The 2000 surveys yielded an estimate of 4,450 fruit bats for the 6 northern islands they visited (Cruz *et al.* 2000a–f). The 1983 surveys yielded an estimate of 7,025 fruit bats for the same six islands (Wiles *et al.* 1989). A conservative interpretation of these data indicates a 37 percent decline in fruit bat numbers between 1983 and 2000 among these six northern islands.

The majority of this decline was recorded on two of the three largest northern islands, Anatahan (12.5 square mi (32.3 square km)) and Pagan (18.4 square mi (47.7 square km)), which together harbored roughly 70 percent of the archipelago's fruit bats in the 1980s (Wiles *et al.* 1989). These two islands, which were estimated to support a total of 5,500 fruit bats in 1983, were estimated to have only 2,500 fruit bats in 2000; approximately a 45 percent decline since 1983 (Cruz *et al.* 2000d, 2000e). These declines may be related to severe habitat damage caused by feral ungulates (Cruz *et al.* 2000d, 2000e; Kessler 2000a; see discussion in Background, Habitat section).

On Anatahan, surveys identified about 3,000 fruit bats in 1983 (Wiles *et al.* 1989), 1,902–2,136 individuals in 1995 (Marshall *et al.* 1995; Worthington *et al.* 2001), and roughly 1,000 in 2000 (Cruz *et al.* 2000d; Kessler 2000a). In conjunction with the ungulate eradication project, fruit bats on Anatahan have been surveyed frequently since 2002. Aerial (helicopter) surveys were conducted in May 2002; February, March, April, August, October, and December 2003; and January, February, March, July, and September 2004. These surveys are

performed over 2 days, with 4 hours spent over the island each day. Coverage of the island during each survey is complete. Fruit bat colonies are rapidly reconnoitered to verify known roost sites and identify new ones, colonies are counted and mapped, and individual bats in flight also are counted. After the volcanic eruption in May 2003, the island's state of revegetation facilitated accurate location of all colonies (C. Kessler, in litt. 2003, pers. comm. 2004c). In 2002 and early 2003, estimates of the island's bat population ranged from 950 to 1,250 (C. Kessler, in litt. 2003). Following Anatahan's volcanic eruption in May 2003, aerial surveys conducted in August, October, and December of 2003 yielded estimates of 350–700 bats, and in January and February of 2004, bat numbers were estimated at 500–600 and 550–650, respectively (C. Kessler, in litt. 2003, pers. comm. 2004c). Surveys in March, July, and September of 2004 yielded increased estimates of about 1,000–1,200 bats (C. Kessler, pers. comm. 2004c). This localized increase in fruit bat numbers over a short period of time (1 to 1.5 years) was concomitant with some vegetation recovery, and indicates that Anatahan's population may have reached its pre-eruption level, whether the source of the additional bats is immigration, recruitment of newly volant (flying) young, or both (see Summary of Factors Affecting the Species section).

On Pagan, fruit bat numbers were estimated at 2,500 in 1983 (Wiles *et al.* 1983), and at roughly 1,500 in 1999 and 2000 (Cruz *et al.* 2000e). On the third-largest northern island, Agrihan (18.3 square mi (mi<sup>2</sup>) (47.4 square km (km<sup>2</sup>)), results of surveys in 1983 and 2000 indicate that fruit bat numbers have been stable at about 1,000 individuals (Wiles *et al.* 1989; Cruz *et al.* 2000f).

The remaining northern islands with fruit bat populations, Maug, Asuncion, Alamagan, Guguan, and Sarigan, all are less than 5 square mi (13 square km) (Table 1), and harbor from 100 to 500 bats (Cruz *et al.* 2000a, b, c). Sarigan, the next island north of Anatahan, has been surveyed more frequently in recent years in conjunction with the ungulate eradication there. A 1997 survey of Sarigan estimated the population at 170 fruit bats, and a 1999 survey resulted in an estimate of 150–200 individuals (Wiles 1999). Surveys between 1983 and 2000 on Sarigan estimated populations of approximately 125–235 bats (Wiles *et al.* 1989; Fancy *et al.* 1999; Wiles and Johnson 2004). In 2001, surveys estimated 300–400 bats (Wiles and Johnson 2004). The observed increase on Sarigan may reflect a response to the

recovery of forest vegetation after the eradication of feral goats and pigs from the island in 1998 (Zoology Unlimited 1998). As described above in the discussion of interislands movements, the increase in 2001 may also reflect immigration to Sarigan from Anatahan, 23 mi (37 km) to the south, as well as recruitment of newly volant young (Wiles and Johnson 2004). The potential for increase in fruit bat numbers on Sarigan is thought to be limited, however, by the island's small size (1.9 mi<sup>2</sup> (4.9 km<sup>2</sup>)), the small extent of forest habitat (as described above, in the Habitat section), and the prevalence of monotypic stands of coconut, which provide only minimal forage habitat for fruit bats (Wiles and Johnson 2004; G. Wiles, Washington Department of Fish and Wildlife (formerly CNMI DFW), pers. comm. 2004).

### Guam

On Guam, the sighting of fruit bats was considered to be “not \* \* \* uncommon” in the 1920s (Crampton 1921). However, by 1931, bats were uncommon on Guam, possibly because of the introduction of firearms (Coultas 1931). Woodside (1958) reported that in 1958, the Guam population was estimated to number no more than 3,000, although the method used to make this estimate is not known (Utzurum *et al.* 2004). This estimate had dropped by an order of magnitude, to between 200 and 750 animals by 1995, in part because of predation by the introduced brown treesnake (Wiles *et al.* 1995; Wiles 1996). During 1998, bat populations on Guam varied from an estimated low of 210–245 to a high of 910–980 bats (Wiles 1998), and in 1999, bat numbers ranged from an estimated low of 199–235 to a high of 327–371 (Wiles 1999). The most recent surveys on Guam put the bat population at fewer than 100 individuals (D. Janecke, in litt. 2003; A. Brooke, in litt. 2003). Predation by brown treesnakes on non-volant young probably prevents recruitment of juvenile bats on Guam (Wiles *et al.* 1995; Wiles 1996; G. Wiles, in litt. 2003).

### Previous Federal Action

The Mariana fruit bat (*Pteropus mariannus mariannus*) was listed as endangered in 1984 on Guam (49 FR 33881). It was listed as a subspecies found only on Guam. More recent research over the years since this subspecies was listed indicates that *Pteropus mariannus mariannus* is not a subspecies endemic only to Guam but the Guam population is part of a subspecies including populations of bats on other islands that interact with

each other (movement between islands). We believe that it is appropriate to list these bat populations in Guam and CNMI as one subspecies (63 FR 14641).

All the bat populations on Guam and in the CNMI are facing a number of threats, with most populations declining. We published a proposed rule on March 26, 1998 to reclassify the Mariana fruit bat on Guam from endangered to threatened and list all the bat populations on Guam and other CNMI islands as one subspecies throughout its range as threatened (63 FR 14641, 69 FR 30277).

We proposed to list the subspecies as threatened because we wanted to: (1) Simplify actions and expenditures. We could affect a downlisting for the population on Guam with little or no additional time and expense in conjunction with proposing to list the subspecies throughout its range, instead of taking a separate action to downlist the population on Guam; and (2) acknowledge a change in taxonomy. When we originally listed the population on Guam, we believed it to be a separate subspecies endemic only to Guam with a declining population and significant threats to it which merited endangered status. However, by including the other populations in the listing, we are evaluating a larger number of bats with a wider distribution, although threats to each population remain. Hence, we proposed threatened status for the entire population, instead of having one population as endangered and the others as threatened.

In that proposed rule, we included a detailed history of Federal actions completed prior to the publication of the proposal. The public comment period closed on May 11, 1998 (63 FR 14641) and was reopened from May 29, 1998, through July 10, 1998 (63 FR 29367) to accommodate requests for public hearings. We designated critical habitat for the Mariana fruit bat on Guam in a final rule published in the **Federal Register** on October 28, 2004 (68 FR 62944). Pursuant to a settlement agreement approved by the U.S. District Court for the District of Hawaii on August 21, 2002, we must make a final listing decision on the Mariana fruit bat and submit the final rule to the **Federal Register** by December 31, 2004. See *Center for Biological Diversity v. Norton*, Civil No. 99–00603 (D. Haw.).

### Summary of Comments and Recommendations

In the proposed rule published on March 26, 1998 (63 FR 14641), we requested that all interested parties submit written comments on the

proposal. We also contacted appropriate Federal, Territorial, and Commonwealth agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices were published in the Marianas Variety (Saipan, CNMI) and Pacific Daily News (Guam), inviting general public comment and attendance at public hearings. We held public hearings on June 24, 1998, on Saipan and June 25, 1998, on Rota.

We reopened the public comment period on May 27, 2004 (69 FR 30277), to permit additional public review. In order to address any additional comments received during the reopened comment period, and meet the court order to submit to the **Federal Register** a final listing decision for the Mariana fruit bat no later than December 31, 2004, we reopened the comment period for 30 days, until June 28, 2004. The reopened comment period (and associated notifications in local media and via direct mailing) gave interested parties additional time to consider the information in the proposed rule and provide comments and new information.

During the first comment period in 1998, we received 13 written comments, including those submitted at the public hearings. During the reopened comment period in 2004, we received four additional written comments, including one from a Government of Guam agency, and one from a CNMI government agency. Several individuals or groups submitted comments in both the original and the reopened comment periods, or during hearings and later in writing. Of those comments received in 1998, eight opposed listing in the CNMI, one opposed listing in the CNMI and opposed downlisting on Guam, one opposed downlisting on Guam, one opposed downlisting on Guam but was in favor of listing in the CNMI, and one supported listing in the CNMI. In addition to several private citizens, the CNMI Governor, Director of the DFW, Rota DLNR Resident Director, Rota Mayor, and CNMI Senator Thomas P. Villagomez all opposed the proposal. The Air Force supported listing the fruit bat as threatened throughout the archipelago, but also stated that reclassification from endangered to threatened on Guam would be "misleading and confusing to the public," and cited an article in the local press that misrepresented a temporary influx of fruit bats from Rota as an increase in the Guam population (Thomas Churan, Air Force, in litt. 1998; also see Issue 15, below). The Air Force also expressed its belief that the

Mariana fruit bat is more susceptible to extirpation on Guam than in the CNMI because of the presence of the brown treesnake there, and recommended that the fruit bat retain its status as endangered on Guam (T. Churan, in litt. 1998). The Mariana Audubon Society supported listing all bats in the Mariana archipelago as endangered rather than threatened. Three of the four parties that submitted comments during the reopened comment period in 2004 supported the listing, including the DAWR. The CNMI DFW opposed the listing.

This final rule has been revised and updated to reflect the pertinent comments and information received during the comment periods. Comments of similar nature are grouped under a single issue. In addition, we considered and incorporated into the final rule all appropriate information obtained through the public comment period.

#### Peer Review

In 1998, in accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited opinions from four individuals who have expertise with the species and the geographic region where the species occurs, and are familiar with conservation biology principles. We received written comments from two experts and incorporated their information into the final rule. One peer reviewer described the threats posed to the bats on Guam by brown treesnake predation and habitat destruction by feral ungulates. This reviewer did not include any professional judgment about movement of bats between islands, but has published peer-reviewed literature containing information that supports interisland exchange. The other expert expressed agreement and knowledge that there is interisland exchange.

In 2004, we solicited additional scientific peer review of the proposed rule from eight specialists, including one of the two who provided peer review in 1998. Of these, five responded and provided additional factual information, including recent survey results, the impact of typhoons and illegal hunting on fruit bats in the southern islands, and recent genetic studies of other *Pteropus* species elsewhere in the Pacific. Reviewers also provided citations for literature, corrections on minor factual issues, and input on interpretation of the existing information.

One reviewer provided a synopsis of changes in fruit bat numbers over the past 10–20 years on individual islands in the archipelago and noted declines

on Guam, Anatahan, and Pagan. This synopsis was based partly on the reviewer's own research and partly on the work of others. Based on 19 years of fruit bat research, surveys, and personal observations in the Mariana Islands while employed as a Senior Biologist with the Guam Division of Aquatic and Wildlife Resources, this reviewer (who also authored the original recovery plan for the Mariana fruit bat on Guam, agency reports, and numerous peer-reviewed research papers on the Mariana fruit bat (e.g., Wiles and Payne 1986; Wiles 1987a, b; Wiles *et al.* 1989; Wiles and Glass 1990; Wiles 1992; Wiles *et al.* 1995; Wiles and Johnson 2004) emphasized three major threats to Mariana fruit bats: illegal hunting (described as "chronic" on Rota), habitat destruction by feral ungulates, and brown treesnake predation. Another reviewer, a biologist who spent two years monitoring fruit bats on Rota and elsewhere in the CNMI for the CNMI DFW, provided specific information about firsthand observations and evidence of illegal hunting of fruit bats on Rota after Typhoon Pongsona, described reports received of numerous other illegal hunting, and provided survey information documenting post-typhoon decline in fruit bats on Rota and subsequent increase in numbers. Three reviewers, two of whom hold doctorates based on research on the biology and ecology of island fruit bats, and one of whom is currently conducting a graduate research project on fruit bats on Guam, expressed their professional opinions that anthropogenic disturbances such as illegal hunting and habitat loss are likely to be significant threats to the Mariana fruit bat, and that these disturbances are periodically exacerbated by severe storms.

Two reviewers cited their own observations and those of other workers that indicated likely interisland movements between Sarigan and Anatahan and between Rota and Guam, and another reviewer cited information collected by others indicating likely interisland movement in the archipelago. Three of the five reviewers provided information and professional opinion that supported our treating all fruit bats occurring in the Mariana archipelago as a single subspecies, *Pteropus mariannus mariannus*, as described in the proposed rule; the other two expressed concern about the possible occurrence of genetically isolated populations within the range of fruit bats in the Mariana Islands. Two reviewers expressed reservations about treating all fruit bats in the archipelago

as one taxon without empirical data from genetic or radio-telemetry studies. However, one of these reviewers also described unpublished genetic research on fruit bats in Polynesia that indicates a lack of within-archipelago genetic structure in a widespread species that shares social and behavioral traits with the Mariana fruit bat.

*Issue 1:* The Service lacks adequate data to assess the population status of Mariana fruit bats. Comprehensive surveys are required to determine the status of Mariana fruit bats in the northern islands.

*Our Response:* In this case, we believe existing data are adequate to assess the overall status of the Mariana fruit bat. Subsequent to listing, two additional multi-island surveys of bats in the Mariana Islands have been conducted. One of these included six of the 10 northern islands (Cruz *et al.* 2000a–f) and yielded data comparable to those collected in 1983 by Wiles *et al.* (1989). The other conducted in 2001 (Johnson 2001) included all of the islands in the archipelago but employed methods that precluded direct comparison with other surveys. A conservative interpretation of these data indicate that bat numbers have declined on the two islands, which historically had large numbers of fruit bats in the archipelago.

*Issue 2:* The Service's evidence of bats moving between islands was inadequate or only anecdotal, and without empirical evidence of interisland movement, a determination that all fruit bats in the Mariana Islands belong to the same subspecies is premature. Fluctuations in bat numbers, particularly on Guam, may be caused by births.

*Our Response:* Evidence for the movement of bats between islands in the Mariana archipelago is discussed in the Background subsection above. The large fluctuations in the Guam bat population over a short period of time (Wiles 1998; A. Brooke, in litt. 2003) coupled with a low reproductive rate make it unlikely that changes in the Guam population reflect recruitment from births. Predation by brown treesnakes largely precludes the recruitment of young bats into the Guam population (Pierson and Rainey 1992; Wiles 1987a; G. Wiles in litt. 2003).

*Issue 3:* Long term survey data from Rota indicate natural fluctuations in fruit bat numbers on various timescales. Archipelago-wide surveys and the apparent decline they document may not account for these natural fluctuations.

*Our Response:* To date, we are aware of no analysis of survey data from Rota that: (1) Demonstrates a correlation

between variation in fruit bat numbers and some other natural cycle, or (2) controls for the hunting and other human disturbance.

*Issue 4:* CNMI government agencies feel the Service overstated the illegal hunting problem, and stated that the CNMI DFW is instituting law enforcement reforms, and the CNMI government is committed to the enforcement of wildlife regulations. In contrast, most peer reviewers identified illegal hunting and lack of enforcement as a significant threat to the Mariana fruit bat, especially in the CNMI, and an official from Guam DAWR expressed concern that recruitment of immigrant bats to Guam is threatened by illegal hunting on Rota.

*Our Response:* We appreciate the CNMI DFW's commitment to law enforcement. We acknowledge that data on illegal hunting is difficult to obtain and assess, and that most of the information regarding illegal hunting is anecdotal. We have numerous documented observations and reports of illegal hunting incidents in the CNMI (*e.g.*, Arnold Palacios, CNMI DFW, in litt. 1990; T. Eckhardt, Service, in litt. 1998; J. Esselstyn, pers. comm. 2004a; C. Kessler, pers. comm. 2004a). We address the threat to the Mariana fruit bats from illegal hunting in Factor B in the Summary of Factors Affecting the Species section.

*Issue 5:* The Service was selective in its presentation of the impacts of feral animals on Mariana fruit bats, presenting it in a poor light to justify listing. The Service did not consider the feral animal eradication project on Sarigan, and failed to note that the CNMI DFW has an existing federally funded program addressing feral animal damage (Feral Animal Monitoring and Management (Project No. W-1-R-1-11; Job number 2)).

*Our Response:* We have incorporated the results of the Sarigan Feral Animal Control Project (Zoology Unlimited 1998) into this final rule and discuss the threats posed to fruit bats by feral animals (see discussion in the Background section, and Factor A in the Summary of Factors Affecting the Species section). Although DFW's Feral Animal Monitoring and Management Program has included survey of feral animals on many of the northern islands and involvement in several other projects, current DFW projections indicate that sufficient funding will not be available to complete the eradication of feral ungulates from Anatahan, and lack of material support will prevent the implementation of plans for feral animal control in the CNMI (L. Williams, pers. comm. 2004).

*Issue 6:* Present CNMI Coastal Resources Management (CRM) and DLNR land use regulations adequately protect Mariana fruit bat habitat (limestone forest) from development, as exemplified by the modifications required for construction of the Rota Resort and Country Club. Habitat is also being protected through island-wide master planning and through implementation of habitat conservation plans (HCPs) on Saipan and Rota.

*Our Response:* We support the use of local land use regulations to promote the conservation of the Mariana fruit bat and its habitat. However, the best measure of their past effectiveness in protecting the Mariana fruit bat is the success of these regulations in maintaining the integrity of native limestone forest systems in the CNMI, particularly in the southern islands where development pressures are greatest. Direct and secondary effects of human activity continue to cause alteration of native forest areas despite these protections.

Through the Act's section 10 and HCP planning process, listed species may be lawfully taken and measures implemented to reduce activity impacts on the species and its habitat. Two HCPs are currently under development on CNMI and, if completed and implemented, should contribute to fruit bat conservation. The successful completion of these HCP projects in the CNMI is not sufficiently certain to consider them in making this listing decision. See our Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE policy) (68 FR 15100, March 28, 2003).

*Issue 7:* The Service did not account for actions by the CNMI government to control the brown treesnake, thereby decreasing the threat of this factor to the Mariana fruit bat.

*Our Response:* We recognize that ongoing actions on Guam, Saipan, Tinian, and Rota are important and reduce the threat of accidental introduction of the brown treesnake. The U.S. Department of the Interior (DOI) Office of Insular Affairs (OIA), U.S. Department of Defense (DOD), USDA Wildlife Services, Service, Government of Guam, CNMI, and State of Hawaii are working together regionally to control brown treesnakes, particularly around transport centers (OIA 1999). The OIA and DOD actively fund research into methods of controlling snakes on Guam, in part to reduce the threat of introduction to other Pacific islands (OIA 1999). Both the CNMI DFW and Guam DAWR conduct brown treesnake public awareness educational campaigns

consisting of school presentations, news releases, workshops, and poster/pamphlet distribution (Perry *et al.* 1996), and the CNMI maintains a snake reporting hotline (Nate Hawley, CNMI DFW, pers. comm. 2004a). In 1996, the CNMI became a signatory of the Memorandum of Agreement (MOA) between the governments of Hawaii, Guam, and the CNMI, and individual Federal government agencies concerned with brown treesnake eradication and control (DOI *et al.* 1993; DOI *et al.* 1996). This MOA commits the CNMI to a proactive brown treesnake program and allows the CNMI to apply for funding from the allotment of money appropriated by the U.S. Congress each year for brown treesnake control and eradication (OIA 1999).

Despite ongoing efforts, evidence exists that treesnakes are present on Saipan. A concrete barrier completed in 2004 at the commercial port on Saipan aids in the prevention of new introductions from Guam, but this barrier does not address the problem of the treesnakes already present on the island. The presence of brown treesnakes on Saipan poses a threat to the recovery of the fruit bat population there until the treesnakes are controlled throughout the island or are eradicated.

On Tinian, brown treesnakes, have been documented and are not thought to be established (Hawley 2002). The upcoming construction of a concrete snake barrier on Tinian will aid in the prevention of treesnake introductions to the island.

On Rota, two dead brown treesnakes were found in a cargo container in 1991, and in another, a live treesnake was sighted (N. Hawley, pers. comm. 2004a). The fence surrounding Rota's port was retrofitted with a snake barrier subsequent to the discovery of the two dead treesnakes, but damage and maintenance difficulties have resulted in deterioration of the barrier, and it was disassembled in 2002 (Gad Perry, U.S. Geological Survey-Biological Resource Division, in litt., 1998; N. Hawley, pers. comm. 2004b). CNMI DFW recommended replacing the fence with a concrete barrier around the cargo area; however, the barrier has not yet been constructed. These efforts were considered in the Summary of Factors Affecting the Species section below.

*Issue 8:* Existing regulations of the CNMI government are satisfactory for protecting the Mariana fruit bat so Federal listing is not necessary. The Mariana fruit bat is listed as threatened or endangered by the CNMI, and the Service was incorrect in stating that the CNMI lifted the moratorium on hunting of Mariana fruit bats. Therefore, the

threat of legalized hunting is non-existent.

*Our Response:* We acknowledge that the CNMI has regulations protecting the Mariana fruit bat, but we have concluded that these regulations either do not contain sufficient protections or have not been adequately enforced to protect bat populations (see Factor D below).

In the proposed rule, we stated that the moratorium on the taking of Mariana fruit bats on all islands (Public Law 5-21, September 1977) had been lifted. We based this on a memo from the CNMI Assistant Attorney General for DLNR to our Law Enforcement (LE) office on Guam which stated that the hunting moratorium was no longer in effect (Richard Folta, Office of the Governor, Guam, in litt. 1996). In a subsequent letter to the Service, the Assistant Attorney General stated that the previous communication had been in error, and that the moratorium was still in effect (R. Folta, in litt. 1996). This new information has been incorporated into this final rule.

*Issue 9:* Listing the bat will not improve law enforcement, due in part, to the resource limitations of the Service's Division of Law Enforcement. No Service LE personnel are stationed in the CNMI, so the Service will be unable to enforce Federal regulations associated with the listing.

*Our Response:* The Service does have a wildlife inspector stationed in the Marianas who provides some enforcement of regulations associated with the Act. Declines in illegal fruit bat imports to Guam and the CNMI have been associated with the presence of LE personnel stationed on Guam and efforts of LE personnel based in Honolulu (Sheeline 1991; George Phocas, Service, pers. comm. 2004). We work in cooperative partnerships with Territorial, Commonwealth, State, local, and Federal agencies to further our interdiction and enforcement efforts. In the Mariana Islands, Service personnel are presently assisted by local customs officers, conservation officers, and quarantine officials in the enforcement of the Act. It is important to note that the Act provides an additional set of enforcement tools for the protection of listed species than are currently available for the fruit bat in the CNMI.

*Issue 10:* The listing of the Mariana fruit bat in the CNMI may result in severe harassment to the species.

*Our Response:* There has been no evidence to suggest that harassment of fruit bats is likely to occur as a result of listing. We understand that hunting of fruit bats takes place on a regular basis in the CNMI despite their protection

under CNMI law, but all of the information we have received indicates that this hunting is motivated by local tradition, not by malicious intent in response to CNMI laws and regulations. Whatever the motivations for harassment or illegal hunting of Mariana fruit bats, their listing under the Act can provide additional protection through the enforcement of Federal law. In sum, we believe that the protections afforded to Mariana fruit bats by their being listed as threatened throughout their range will aid in their conservation and recovery.

*Issue 11:* Increased funding to the CNMI for endangered species recovery is unlikely. Listing the bat as threatened instead of endangered has the potential to restrict funding opportunities to conduct research and management because the Service's funding system places higher priority on species designated as endangered as compared to those listed as threatened.

*Our Response:* Under their cooperative agreement with us, DFW can apply for funding under section 6 of the Act for projects specifically related to Mariana fruit bat conservation. We do not categorically assign higher priority for funding or recovery actions to species that are listed as endangered over those that are listed as threatened.

*Issue 12:* Protection for the Mariana fruit bat on Farallon de Medinilla should come from the Service through the consultation process under section 7 of the Act. Listing the Mariana fruit bat in the CNMI will provide no additional protection with regard to military activities.

*Our Response:* Prior to the publication of this final rule, the Mariana fruit bat was not federally listed in the CNMI. Federal agencies, therefore, have not been required to consult on the effects of their actions in the CNMI on the fruit bat. Conversely, 30 days after the publication of this rule, the Mariana fruit bat becomes federally listed as threatened in the CNMI and throughout its range, and Federal agencies will be responsible for consulting with us when their activities may affect the fruit bat on Farallon de Medinilla or other islands in the CNMI.

*Issue 13:* The Service misinterpreted the data and conclusions of Morton (1996) in stating that military aircraft training activities on Guam cause or create the potential for abandonment of roosting areas.

*Our Response:* Current air traffic patterns and volume do not pose a threat. There is the potential for roost abandonment if air traffic patterns or volume increase significantly (Morton 1996). Significant changes could

include more frequent departures and arrivals, and larger or noisier aircraft.

*Issue 14:* The rule is politically motivated, biased, based on assumptions and broad, unsubstantiated statements, speculative observations, and anecdotal evidence.

*Our Response:* We used the best scientific information available in our determination to list the Mariana fruit bat as threatened in the CNMI and reclassify from endangered to threatened on Guam. Threats to the Mariana fruit bat are documented in the Summary of Factors Affecting the Species section of this final rule. We did not rely solely on anecdotal information in making a decision to list this species as threatened. The rule includes citation to more than 70 published references, more than 40 scientific reports prepared for government agencies and universities, and numerous personal communications from scientists and others knowledgeable about fruit bats and the Mariana Islands and/or closely involved in natural resources management in the archipelago. The anecdotal information we did use is consistent with the body of scientific reports.

*Issue 15:* Some commenters felt that listing the Mariana fruit bat in the CNMI is justified, but many thought that reclassifying the fruit bat from endangered to threatened on Guam, and listing the fruit bat as threatened rather than endangered in the CNMI, was incorrect. Some of these commenters believe that reclassifying the Mariana fruit bat on Guam has already sent the wrong message to the public because media reports have misinterpreted the proposal as evidence of recovery. Some also expressed concern that reclassification of the fruit bat on Guam could undermine conservation funding. They suggest that the Service either leave the Guam population listed as endangered, or list all bats in the Mariana Islands as endangered rather than threatened.

*Our Response:* We define an endangered species as one which is in danger of extinction throughout all or a significant portion of its range. Threatened species are defined as those which are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. Because we consider the fruit bats on all individual islands in the Mariana archipelago as part of a single, archipelago-wide subspecies, *Pteropus mariannus mariannus*, we now are evaluating a larger number of bats with a more widespread distribution than was evaluated for the original listing in 1984, which included only the fruit bat

population on Guam. Listing *Pteropus mariannus mariannus* as threatened throughout its range, including bats in both the CNMI and Guam, retains an appropriate level of protection for this bat on Guam while increasing overall protection to the Mariana fruit bat throughout the Mariana Islands, and it does not undermine potential funding for fruit bat conservation on Guam.

*Issue 16:* The Service did not properly take into account the cultural importance of the Mariana fruit bat in its listing decision. For example, some commenters suggested that information from the document "Cultural Significance of Pacific Fruit Bats (*Pteropus*) to the Chamorro People of Guam" (Sheeline 1991) should have been incorporated into the proposed rule.

*Our Response:* We incorporated information contained in Sheeline (1991) into this final rule in the section Summary of Factors Affecting the Species, subsection B.

*Issue 17:* If listing occurs, the people of the CNMI deserve the same consideration that the Federal government has given to Native Americans, such as Alaskan natives, through inclusion of a provision to provide for limited take of Mariana fruit bats for cultural use.

*Our Response:* We recognize the importance of traditional values to native cultures. This is reflected in our close collaboration with agencies in the CNMI to develop HCPs. However, the Act specifically exempts only Alaskan natives from the take prohibitions if such take is primarily for subsistence purposes and meets certain other conditions (16 U.S.C. § 1539 (e)), but subsistence take by other groups is not exempted by the Act.

*Issue 18:* One commenter stated that disease is the cause of decline of Mariana fruit bats on Rota.

*Our Response:* We are unaware of any evidence of disease affecting populations of Mariana fruit bats on Rota or elsewhere in the Mariana Islands.

*Issue 19:* The Service should clear up taxonomic questions surrounding the Mariana fruit bat and determine exactly how many taxa inhabit the Mariana Islands before listing is considered. Several peer reviewers expressed concern about the taxonomic uncertainties within western Pacific *Pteropus*, and that there may be more than one taxon endemic to the Marianas.

*Our Response:* Both the proposed and final rules address taxonomic questions in detail (see the Background subsection under **SUPPLEMENTARY INFORMATION**). If

new information such as results from genetic studies of fruit bats in the Mariana Islands indicate the presence of additional subspecies, we will take appropriate action.

*Issue 20:* One commenter disagreed with the Service's proposed determination that designation of critical habitat for the Mariana fruit bat would not be prudent because the identification of specific locations as critical habitat would lead to increased illegal hunting, and would thus increase the threats to the species.

*Our Response:* Since publication of the proposed rule in 1998, several key court decisions have given us new guidance on making our "not prudent" critical habitat determinations. Furthermore, we now have designated critical habitat for the Mariana fruit bat on Guam (69 FR 62944). We have reexamined the prudence of designating critical habitat for the Mariana fruit bat based on these considerations and now determine that such a designation would be prudent. Our reasoning is presented in the Critical Habitat section below.

*Issue 21:* Why is the Service concerning itself with a listing priority tier  $\frac{3}{4}$  activity when other species are in greater need of attention? The Service published the proposed rule based on fiscal and timing reasons rather than biological reasons.

*Our Response:* This final rule was prepared under the terms of a Federal court-approved settlement agreement that stipulated we submit a final listing determination for the Mariana fruit bat to the **Federal Register** no later than December 31, 2004 (*Center for Biological Diversity v. Norton*, Civil No. 99-00603 (D. Haw.)).

### Summary of Factors Affecting the Species

Section 4 of the Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors, and their application to the Mariana fruit bat (*Pteropus mariannus mariannus*) in the Mariana Islands are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Mariana fruit bats have been observed to feed on the fruits, flowers, and leaves of at least 22 plants, all but three of which are native to the Mariana Islands; fruit bats also have been documented to establish roosts primarily in mature

native trees within landscapes dominated by native forest (Wiles 1983, 1987a). The Mariana fruit bat depends on native forest trees for food and colonial roost sites where mating, parturition, and other important social and biological functions take place. Although Mariana fruit bats have been observed to feed on cultivated food plants such as *Artocarpus altilis* and *Carica papaya* (Wiles 1987a), and have been observed to roost in *Theobroma cacao* (Glass and Taisacan 1988), nonnative plants make up a very small fraction of the resources used by the subspecies (Wiles 1987b; Worthington and Taisacan 1996) (see Habitat section above). The degradation and loss of native forest, therefore, deprives fruit bats of essential resources for survival and reproduction. The southern islands in the Mariana archipelago have lost most of their original native forest, primarily over several centuries of large-scale agriculture, growing human populations, economic development, and military activities (Bowers 1950; Fosberg 1960; see discussion). Few Mariana fruit bats occur today on Saipan, Tinian, and Guam, the islands that have sustained the greatest human disturbance and habitat loss.

Mariana fruit bats have evolved with, and are dependent for food and shelter on, trees and other plants that occur in native forests in the Mariana Islands. The degradation or loss of these forests

is a key threat to the survival of this subspecies. The loss of native forests in the Marianas has various sources. The foraging of feral ungulates such as goats and pigs prevent forest regeneration because they eat ground-layer vegetation and seedlings of understory and canopy species; the rooting and stereotypical path-making of ungulates promote erosion and facilitate the invasion of native forests by alien plants (Marshall *et al.* 1995; Kessler 1997; Service 1998a,b). These invasive alien plants displace or smother native vegetation and prevent its regeneration (Kessler 2000b). In the southern islands of the CNMI and on Guam, where human influence has the longest continuous history, outright conversion of forests for agriculture or other development, as well as feral ungulates and alien plant species, historically has been a major source of loss of the Mariana fruit bat's forest habitat.

Throughout the archipelago, feral ungulates have caused severe damage to native forest vegetation by browsing directly on plants, causing erosion (Marshall *et al.* 1995; Kessler 1997; Service 1998a,b), and retarding forest growth and regeneration (Lemke 1992b). The remaining native forest habitat for fruit bats on many of these islands continues to be threatened by the fragmentation and degradation associated with feral ungulates. Mariana fruit bats are dependent on native plants

for food and native forest for roost sites. Soil erosion and chronically retarded forest regeneration, the concomitant loss of native forests caused by the browsing and rooting of feral ungulates, and subsequent invasion by nonnative plant species, collectively represent a significant threat to fruit bats. These vegetation and landscape changes deprive the fruit bats of the native plant species on which they depend for food, shelter, and places to conduct their social activities. The diminished quality and extent of native forest thus leads to an associated reduction in the number of fruit bats that the remaining habitat is able to support. The northern islands, for the most part, have escaped the effects of millennia of continuous human settlement, WWII, and post war activities that caused extensive habitat loss and fragmentation of native forest habitat (see Table 2). However, the introduction of feral ungulates to some of these islands as recently as 40 years ago has resulted in rapid degradation and loss of native forest cover, notably on Anatahan and Pagan, two of the largest islands that have supported relatively large numbers of fruit bats (Kessler 1997, 2000a).

**Island by Island Summary**

Table 2 provides a synopsis of the numbers and status of fruit bats on each island in the archipelago.

TABLE 2.—ISLAND SUMMARY OF FACTORS AFFECTING THE MARIANA FRUIT BAT.  
[See text for full discussion]

Island	Area Mj <sup>2</sup> (km <sup>2</sup> )	Historical factors	Key current factors	Estimated fruit bat numbers and status
Guam .....	212.0 (549.0)	Hunting, habitat loss (development, agriculture, feral ungulates), brown treesnakes.	Brown treesnakes, habitat loss .....	<100; declining. <sup>10</sup>
Rota .....	37.0 (95.7)	Hunting, habitat loss (development, agriculture, feral ungulates).	Hunting, habitat loss (development, feral ungulates).	1,100; fluctuating. <sup>9</sup>
Aguiguan .....	2.7 (7.0)	Small island, feral ungulates .....	Small island, feral ungulates .....	Few individuals; possibly declining. <sup>8</sup>
Tinian .....	39.3 (101.8)	Hunting, habitat loss (development, agriculture, feral ungulates).	Habitat loss .....	Low numbers; intermittent presence. <sup>7</sup>
Saipan .....	47.5 (122.9)	Hunting, habitat loss (development, agriculture, feral ungulates).	Habitat loss, possibly brown treesnakes.	No colonies, few individuals. <sup>6</sup>
Farallon de Medinilla.	0.8 (2.0)	Small size, limited habitat, vegetation loss, erosion, fires.	Small size, limited habitat, vegetation loss, erosion, fires.	2 fruit bats observed in 1996. <sup>5</sup>
Anatahan .....	12.5 (32.3)	Feral ungulates .....	Feral ungulates, invasive plants ...	1,000–1,200; decline since 1983; recovering from eruption. <sup>4</sup>
Sarigan .....	1.9 (5.0)	Feral ungulates; little habitat .....	Invasive plants; habitat limited to 72 ac (29 ha).	300–400; increasing since ungulate eradication. <sup>3</sup>
Guguan .....	1.5 (4.0)	Small island, little habitat .....	small island, little habitat .....	350; stable. <sup>2</sup>
Alamagan .....	4.3 (11.0)	Feral ungulates .....	Feral ungulates .....	200; possible increase since 1983. <sup>2</sup>
Pagan .....	18.4 (47.7)	Feral ungulates .....	Feral ungulates .....	1,500; decline since 1983. <sup>2</sup>
Agrihan .....	18.3 (47.4)	Feral ungulates .....	Feral ungulates (potential) .....	1,000; stable. <sup>2</sup>
Asuncion .....	2.9 (7.4)	Small island; little habitat .....	Small island; little habitat .....	400 <sup>1</sup> ; stable or increasing.

TABLE 2.—ISLAND SUMMARY OF FACTORS AFFECTING THE MARIANA FRUIT BAT.—Continued

[See text for full discussion]

Island	Area Mi <sup>2</sup> (km <sup>2</sup> )	Historical factors	Key current factors	Estimated fruit bat numbers and status
Maug .....	0.8 (2.0)	Small island; little habitat .....	Small island; little habitat .....	<25 <sup>1</sup> , unknown.

<sup>1</sup> Wiles *et al.* 1989.<sup>2</sup> Cruz *et al.* 2000f (Agrihan); 2000e (Pagan); 2000b (Alamagan), 2000a (Guguan).<sup>3</sup> Wiles and Johnson 2004.<sup>4</sup> C. Kessler, pers. comm. 2004b.<sup>5</sup> T. Sutterfield, in litt. 1997.<sup>6</sup> L. Williams, pers. comm. 2004.<sup>7</sup> Krueger and O'Daniel 1999; Johnson 2001.<sup>8</sup> G. Wiles, pers. comm. 2004.<sup>9</sup> C. Kessler, pers. comm. 2004b.<sup>10</sup> A. Brooke, in litt. 2003.

Habitat loss and degradation pose a significant threat to the Mariana fruit bat because it deprives them of foraging and sheltering resources that are necessary for survival and reproduction. The largest and most heavily populated southern islands in the archipelago have suffered the greatest habitat loss, primarily in the form of land conversion for agriculture, and military, commercial, and residential development and infrastructure. The most severely altered of these islands, Saipan, Tinian, and Guam, today support very few Mariana fruit bats. About half of the northern islands of the CNMI, including the three largest, harbor large populations of feral ungulates. These animals have caused severe damage to, and in parts, of some islands, a complete loss of native forest habitat.

Qualitative observations through time document increasing feral ungulate damage to native forest particularly on Pagan, Anatahan, and Alamagan (Wiles *et al.* 1989; Rice 1992; Kessler 1997, 2000a; Service 1998a, b; Zoology Unlimited 1998; Cruz *et al.* 2000b, d, e, f). Feral goats and pigs have been present on Anatahan for about 40 years, and observations indicate that, more recently, the severe ungulate damage on Anatahan apparently has been rapid. Thomas Lemke (Montana Department of Fish, Wildlife, and Parks, in litt. 1995) did not note significant erosion or large numbers of goats in the early 1980s. In 1992, Rice and Stinson (1992) did not see many feral animals but noted some areas where goat- and pig-caused damage was severe and warned that ungulate control was needed. In 1995, Marshall *et al.* (1995) observed many groups of goats, several pigs and widespread pig sign, and extensive loss of forest understory, devegetation, and erosion especially on the southern end of the island. Approximately 3,000 to 4,000 feral goats and 500 to 1,000 feral

pigs were rapidly destroying the island's forests, and forest decline was directly associated with this decline in fruit bat numbers (Marshall *et al.* 1995; Kessler 2000a; Worthington *et al.* 2001). Photographic documentation provides evidence of rapid habitat alteration and loss between 1996 and 2000 (Kessler 2000a). Cruz *et al.* (2000d) described the feral ungulate damage they saw on Anatahan in 2000 as "an ecological disaster in progress."

A program initiated in 2002 to eradicate goats from Anatahan has been resumed; however, not all goats have been removed and pigs are still present. Ground-based goat and pig eradication programs will have to wait until volcanic activity subsides (C. Kessler, pers. comm. 2004b). On Pagan, where domestic livestock was released from captivity in 1981, rapidly growing populations of feral goats, pigs, and cattle already have caused severe damage to native forest and conversion of forest to grassland (Kessler 1997; Cruz *et al.* 2000e). No projects are currently underway to remove ungulates or restore habitat on Pagan, Agrihan, or Alamagan. However, the eradication of feral goats from Sarigan (Zoology Unlimited LLC 1998) has been successful; it has resulted in some recovery of native vegetation and habitat for fruit bats on that island, although this habitat is limited in extent to roughly 72 acres (29 ha), and the island probably cannot support more than a few hundred fruit bats (Wiles and Johnson 2004).

The eradication of feral ungulates alone may not be sufficient to restore native habitat for fruit bats on the northern islands. The removal of grazing and browsing pressure apparently benefits invasive, alien plants, such as *tangantangan* and the vines *Operculina ventricosa* and *Mikania micrantha*, which are known to be significant threats to native vegetation on Pacific

Islands (USDA 2004). These plants already have been observed to be increasing in abundance and alien vines are smothering other vegetation on Sarigan (where ungulates have been eradicated) and Anatahan (where goat numbers have been significantly reduced) (Kessler 2000a,b; C. Kessler, pers. comm. 2004b). Tangantangan forms dense, monotypic stands that exclude other vegetation, and the two climbing vines form mats that smother shrub and forest vegetation and prevent its regeneration. Without an effective control program, invasive alien vegetation may become a significant threat to fruit bat habitat on islands where ungulates have been removed.

DFW's Feral Animal Monitoring and Management Program has included surveys of feral animals on many of the northern islands. More recently, DFW's feral animal control efforts have included close involvement in the Sarigan goat eradication and subsequent monitoring, a 2001 survey of feral goats on Aguiguan, and vegetation monitoring and aerial control of feral goats on Anatahan (volcanic activity has interfered with plans to conduct ground-based goat and pig hunting on Anatahan) (L. Williams, pers. comm. 2004). These activities have been conducted with significant material and logistical assistance from the Navy and Service, and DFW is working with the Tinian Lands and Resources agency to increase feral goat hunting on Aguiguan. Currently, however, DFW anticipates that funding will not be available to complete the eradication of feral ungulates from Anatahan, and lack of material support will hinder realization of other existing plans for feral animal control in the CNMI (L. Williams, pers. comm. 2004).

The use of Farallon de Medinilla in the CNMI by U.S. armed forces as a bombardment range has limited vegetation, increased erosion that

impedes regeneration of vegetation, and caused wildfires that destroyed habitat (Lusk *et al.* 1998). Together, these effects limit the habitat for fruit bats on this island.

The southern islands of the archipelago have historically been the most densely populated (Bowers 1950), and they have therefore sustained the greatest anthropogenic changes to the landscape and proportionally the greatest losses of Mariana fruit bats. Feral ungulates were well established by the 18th century. Tinian, for example, harbored as many as 10,000 cattle, and by mid-century the island's landscape included extensive pastureland and the remaining forest had no understory (Barrat 1988 in Stinson *et al.* 1992), and today the island has very few bats. Significant habitat conversion on these islands took place during the 20th century, and resulted from large-scale agriculture, human population growth, wholesale destruction from bombing (especially on Saipan and Tinian) during World War II, and the introduction of invasive alien plants (Bowers 1950; Fosberg 1960).

Between 1914 and 1944, extensive removal of native forests for development of sugar cane was greatly accelerated on the southern islands. Sugar cane fields covered almost all of Tinian and much of Aguiguan, Saipan, and Rota (Fosberg 1960). During and after World War II, military activities resulted in further dramatic reductions in fruit bat habitat on the southern islands. During this period, open agricultural fields and other areas prone to erosion on Saipan, Tinian, and Guam were seeded with *tangantangan* (Fosberg 1960). *Tangantangan*, which has a low to moderate stature and as described above grows in single-species stands with no substantial understory, provides no foraging resources or roost sites for fruit bats and is not suitable habitat for this species. Native forest cannot take root and grow where this alien tree has become established (Craig 1993), thus *tangantangan* effectively prevents regeneration of fruit bat habitat. After World War II, the extent of native forest remaining was estimated at 5 percent on Saipan, 2 percent on Tinian, 25 percent on Rota, and about 20 percent on Aguiguan (Bowers 1950). A report in 1986 estimated that Rota has 60 percent native forest cover (Engbring *et al.* 1986), but whether this indicates some forest recovery since World War II is not clear. Although there has been some regeneration of native forest on Rota, there has been little or none on Saipan or Tinian (Engbring *et al.* 1986). About 20 percent of the native forest persists

on Aguiguan (Engbring *et al.* 1986) and these areas are occupied by feral goats.

On Guam, land development and feral ungulates have altered most of the native vegetation on the island. The pre-settlement extent of forest habitat on the island is unknown, but Guam was likely to have been densely forested prior to human settlement (Mueller-Dombois and Fosberg 1998). People first settled on Guam at least 3,500 years ago, and beginning in the 16th century, hundreds of years of foreign colonization and trade brought additional livestock and agricultural technology to Guam (and to the other southern islands in the archipelago) that resulted in increased landscape-scale habitat alteration (Fosberg 1960; Stone 1970). A U.S. Forest Service survey in 2002 estimated that approximately 63,830 ac (25,851 ha) or 48 percent of Guam's land area is under some type of forest (Donnegan *et al.* 2004). A map of forest and non-forest cover types on Guam produced by the same study clearly shows that the largest contiguous forest tracts are in northern Guam (Donnegan *et al.* 2004), on lands that belong primarily to the U.S. Air Force (Air Force) but that also include 50 ac (20 ha) that belong to the Service. Generally describing this pattern of contiguous forest in the north and fragmentation in the south, Donnegan *et al.* (2004) notes that "limestone soils in the north are covered with forest in areas not cultivated or urbanized," and volcanic soils on the southern half of Guam are covered primarily by grassland, with some ravine forest occurring in sheltered and leeward sites." Feral ungulates are abundant and widespread on the island and cause significant damage to the remaining native forest (Fosberg 1960; Stone 1970; A. Brooke, Service, pers. comm. 2004).

Lands owned by the Air Force at Andersen Air Force Base include the largest contiguous forested areas in northern Guam. Restricted access to Andersen Air Force Base, and to the Service's Guam National Wildlife Refuge at Ritidian Point, provides protection from poaching and other human disturbance of the single remaining fruit bat roost on Guam and significant foraging habitat in the northern part of the island. Other Federal, Government of Guam, and some private lands also have forested areas that include adequate habitat for bats (Wiles *et al.* 1995; 68 FR 62944).

Currently, the Air Force is proposing to expand development and operations at Andersen Air Force Base, and has initiated review of its proposal under the National Environmental Policy Act (NEPA) (Jeff Newman, Service, pers.

comm. 2004). We do not have the details of the Air Force proposal at this time, nor do we know what effect this expansion may have on fruit bat habitat.

As on Guam, development and other human activities on Saipan and Tinian eliminated all but 5 percent of each island's native forest by 1982 (Engbring *et al.* 1986). On Saipan, the native forest has been replaced with mixed secondary growth forests, savanna grasslands, and dense thickets of *tangantangan* (Falanruw *et al.* 1989). Much of this habitat loss took place during World War II, when both islands were invaded (Baker 1946; Bowers 1950). The remaining forests on both islands continue to be threatened by planned development.

Rota experienced extensive agricultural development prior to World War II. The fact that Rota was not invaded and occupied during the war, combined with the island's rugged topography, resulted in Rota retaining a greater proportion of its native forest than Saipan or Tinian (Baker 1946). However, Rota's commercial and agricultural development poses a threat to the island's limestone forest. One 18-hole golf resort has been completed on Rota, another 1,025 ac (415 ha) are proposed to be developed into golf courses in the CNMI (CNMI Statistical yearbook 2001), and plans for additional large-scale development, together with smaller developments, continue to threaten the remaining limestone forest with destruction, fragmentation, and degradation.

In summary, loss of native forest habitat resulting from a variety of causes is a factor in the decline of the Mariana fruit bat. This loss restricts the availability of resources that fruit bats need to survive and reproduce, *i.e.*, the native plants fruit bats feed on and the mature native forest trees where they roost, and thus limits the capacity of any island to support fruit bats. Saipan, Tinian, and Guam, the most severely altered islands, today harbor very few fruit bats. The ongoing loss and degradation of forest habitat in the archipelago continues to be a threat to the species.

*B. Overutilization for commercial, recreational, scientific, or educational purposes.* Mariana fruit bats have been used as food since humans first arrived on the islands (Lemke 1992a), and consumption of bats represents a significant cultural tradition. Social events and cultural status in the Mariana Islands are often enhanced by a variety of foods, and the fruit bat is a highly prized delicacy. Because of their scarcity, bats are often reserved for the elderly and other respected guests, and

one bat may be shared among several people (Lemke 1992a). In a survey of Chamorros on Guam, 53 percent of the respondents indicated that they enjoyed eating fruit bat (Sheeline 1991). It is clear that the Marianas fruit bat is an important cultural symbol in the Mariana Islands, as 82 percent of the respondents to the same survey believed that fruit bats had cultural value. However, 85 percent of the respondents also believed people should stop hunting and eating fruit bats if such activity would lead to the species extinction (Sheeline 1991).

Traditionally, fruit bats were captured with limited success using nets, traps, thorny branches on poles, or stone projectiles (Lemke 1992a). Today, bats are mostly taken with shotguns fired at roosting and feeding sites or along flyways. It is important to note that gregarious fruit bats such as the Mariana fruit bat are particularly vulnerable to hunting at their roost sites. One shotgun blast may kill several bats or knock them to the ground, and a successful raid can glean up to 50 bats (Wiles 1987b; Lemke 1992a). Once fruit bats are on the ground, they are unable to take flight and are essentially helpless. Hunting at nursery colonies can also result in direct mortality and abandonment of infant and juvenile bats (Lemke 1992a). In Sheeline's (1991) survey, 45 percent of the respondents believed overhunting was the primary reason for the decline of fruit bats on Guam.

From 1975 to 1981, prior to listing of the Mariana fruit bats as endangered on Guam (49 FR 33881), approximately 15,800 fruit bats were shipped to Guam from Rota and Saipan for human consumption (Wiles and Payne 1986). This number could be twice the total number of Mariana fruit bats in existence today. During the last two decades, thousands of fruit bats have been shipped annually into the Mariana Islands from other Pacific islands for human consumption. Most of these shipments were the subspecies *Pteropus mariannus pelewensis* from the Republic of Palau. A single fruit bat can sell for U.S. \$50–\$75 in the CNMI (Worthington and Taisacan 1996; C. Kessler, in litt. 2003), where hunting of fruit bats has been illegal since 1977.

Overhunting, along with habitat loss, is cited as a causal factor in the initial fruit bat declines on Guam, Saipan, and Tinian (Perez 1972; Wheeler 1980; Wiles 1987b). Hunting-related declines on Guam, where hunting of fruit bats had been illegal since 1973, led to Federal listing as endangered on Guam in 1984 (49 FR 33881). Numerous documented reports indicate that

hunting continues to be a threat to the Mariana fruit bat (Glass and Taisacan 1988; Lemke 1992b; Marshall *et al.* 1995; Worthington and Taisacan 1996; Stan Taisacan, CNMI DFW, pers. comm. 1997a, b; Rainey 1998; Nathan Johnson, CNMI DFW, pers. comm. 2000; G. Wiles, in litt. 2003; J. Esselstyn, pers. comm. 2004a; C. Kessler, pers. comm. 2004a; Arlene Pangelinan, Service, pers. comm. 2004). This long history of observations by CNMI biologists on Rota indicates some level of illegal hunting is occurring.

Illegal hunting of fruit bats on the northern islands is occasionally reported. In 1996, it was reported to be an increasingly significant problem in the CNMI (Worthington and Taisacan 1996). On Anatahan, which lies only 94 mi (151 km) from heavily-populated Saipan, remains of recently cooked fruit bats were found in the main campsite area in 1995 (Marshall *et al.* 1995). Also in 1995, a team of DFW biologists on the island observed residents of Anatahan cooking and eating fruit bats (Ann Marshall, Service (formerly CNMI DFW), pers. comm. 2004).

In 1998, 14 poached Mariana fruit bats were confiscated from a CNMI vessel returning from the northern islands (T. Eckhardt, in litt. 1998), and illegal hunting of Mariana fruit bats was reported on the island of Sarigan (Zoology Unlimited LLC 1998). On Pagan, 7 recently expended .410 (very small bore) shotgun shells were found in 1999, 4 more were found in 2000, and a .410 shell and fresh remains of cooked fruit bat were found during a helicopter refueling stop in 2001 (Cruz *et al.* 2000e; Johnson 2001). This size of ammunition is too small for hunting goats, pigs, or other ungulates, but can be used for birds as well as fruit bats. That expended shells were found in conjunction with fruit bat remains points to this ammunition being used to hunt fruit bats. Although the frequency of illegal hunting in the Northern Islands is likely low and difficult to quantify, this evidence supports that it does occur.

In 1987, between three and eight bats were reported to be illegally hunted from a small colony on Saipan (Glass and Taisacan 1988). In 1997, there was a report of nearly 90 bats that were illegally hunted on Tinian from a colony that roosted on the island briefly (Tim Sutterfield, Navy, pers. comm. 1998). Following supertyphoon Roy in 1988, defoliation and other damage caused by the storm forced bats on Rota to forage during the day in areas close to human habitation (Lemke 1992b; see Factor E). As a result, extensive illegal hunting occurred, contributing to a reduction of

the total Rota population by more than half (A. Palacios, in litt. 1990). Although bat numbers on Rota had risen again to more than 2,000 before supertyphoon Pongsona in December 2002, the population again declined by more than half following this storm. With illegal hunting as a contributing factor, this decline was documented by monthly surveys conducted by the same individuals using the same techniques (evening colony departures, direct colony counts, and searches for solitary bats). These surveys yielded estimates of fewer than 750 animals for most of the 15 months following the supertyphoon (J. Esselstyn, in litt. 2003, pers. comm. 2004b). Similar sharp increases in hunting of fruit bats following severe storms has been documented in American Samoa as well as in the Mariana Islands (Craig *et al.* 1994; see Factor D).

Continued illegal hunting on Rota is reported to diminish the fruit bat population's rate of recovery to pre-storm abundance as observed by CNMI biologists (Worthington and Taisacan 1996). Hunter interviews indicated that hunting pressure on fruit bats has increased by roughly 31 percent in the year since Pongsona (J. Esselstyn, pers. comm. 2004a). As recently as July 2004, we received reports from members of the community on Rota that one or more illegal hunting incidents in June and July killed at least 40 fruit bats, resulting in the abandonment of the largest colony on the island, and another smaller colony had been abandoned as well (C. Kessler, pers. comm. 2004a). On August 22–23, 2004, 21 months after supertyphoon Pongsona, supertyphoon Chaba hit the Mariana Islands, and Rota sustained severe damage. Information that we received indicates that this storm may have defoliated as much as 60 to 75 percent of the island (A. Pangelinan, pers. comm. 2004). Fruit bats were seen foraging near and on the ground; frequent gun-shots and cooking of fruit bats were noted following the storm (A. Pangelinan, pers. comm. 2004). This level of illegal hunting, characteristic of the post-typhoon period, taking place again so soon after previous typhoons, is likely to compound the effects.

*C. Disease or predation.* The brown treesnake, which has caused the extinction of several bird species on Guam (Savidge 1987), is probably responsible for the lack of recruitment in the single remaining Mariana fruit bat colony on that island (Wiles 1987a; Pierson and Rainey 1992). Although only two cases of treesnake predation on Guam bats have been reported (Wiles 1983), the brown treesnake is

considered capable of preying on non-volant young bats at their roosts (Service 1990). Wiles (1987b) and Wiles *et al.* (1995) suggested that the nocturnal brown treesnake will prey on young bats that have become too large to be carried by their mothers and are left at the roosts at night. In 1982, 46.6 percent of all juvenile Mariana fruit bats counted in northern Guam were judged to be in this size class, but between 1984 and 1986, after brown treesnakes had spread into the area, no bats of this size class were observed (Service 1990).

The brown treesnake was accidentally introduced to Guam between 1945 and 1952, probably in ship cargo (Rodda *et al.* 1992). By 1986, the treesnake had reached the extreme northern end of the island (Savidge 1987), and was probably present throughout the island. Because of a variety of historical and ecological factors associated with the treesnake, along with Guam's location and role as a major transportation hub in the Pacific, the probability is high that human activities will disperse brown treesnakes from Guam to other Pacific islands (Fritts 1988).

Reports of treesnakes found in the CNMI, especially on the island of Saipan, have increased since 1982 (Brown Treesnake Control Plan 1996). As of July 2004, on Saipan there have been 62 credible brown tree snake sightings resulting in the capture of 11 live brown treesnakes (N. Hawley, pers. comm. 2004a). The frequency of treesnake sightings on Saipan reported from 1982 through 2004 indicates that brown treesnakes are present on the island (Brown Treesnake Control Plan 1996; N. Hawley, pers. comm. 2004a) leading to increased predation risks. No reports of brown treesnakes exist from other islands in the archipelago.

D. *The inadequacy of existing regulatory mechanisms.* Prompted by severe declines in fruit bat numbers, the CNMI legislature in 1977 passed a moratorium on the taking of fruit bats on all islands (Pub. L. 5-21, September 1977). However, no agency possessed authority to enforce the law until the CNMI DFW was created in 1981 (Lemke 1992a). The bat has since been listed as threatened or endangered (the CNMI makes no specific distinction between the threatened and endangered categories) by the CNMI government on Rota, Saipan, Tinian, and Aguiguan (CNMI 1991). The CNMI's designation of threatened or endangered species does not include prohibition on take (K. Garlick, Service, in litt. 1997) or any other protection (A. Palacios, in litt. 1990; Worthington and Taisacan 1996). However, current CNMI hunting regulations (Part 4, Section 10.7.i

(Commonwealth Register Vol. 23, August 16, 2001, p. 18266)) prohibit the hunting, killing, or possessing of threatened, endangered, and protected species. DFW has statutory authority to promulgate and enforce such regulations to protect fruit bats and impose fines for violations (L. Williams, pers. comm. 2004).

However, it has been reported that there is little enforcement of the hunting ban, and few investigations or convictions have taken place (Lemke 1992a; Tina de Cruz, CNMI DFW, pers. comm. 2003). In addition, following supertyphoon Pongsona, a CNMI biologist on Rota reported observing at least two individuals illegally hunting fruit bats from a colony, received a report from a conservation officer of five hunting parties in the vicinity of the same colony, and received anecdotal reports of illegal hunting at least two additional colonies, but no one was apprehended or cited for illegal hunting (J. Esselstyn, in litt. 2003). Also, although the Mariana fruit bat season is currently closed under DFW regulations (CNMI 1986), the DFW has, in the past, authorized special bat hunts on Rota and Anatahan. In light of this, there is the possibility that DFW will authorize special bat hunts on Rota in the future.

The Mariana fruit bat also is listed as an endangered species by the Government of Guam and take is prohibited under this designation (Wiles 1982). On Guam, the bat is legally protected from hunting by its endangered status under U.S. and Guam laws, and it is physically protected because the primary colony is in a remote location on Air Force lands where access is restricted.

On October 22, 1987, *Pteropus mariannus* was included in Appendix II of the Convention on International Trade in Endangered Species (CITES), a treaty established to prevent international trade that may threaten the survival of plant and animal species. Continuing declines in fruit bat populations resulted in the reclassification of *P. mariannus* to Appendix I of CITES on January 18, 1990, as well as the listing of all other species of *Pteropus* under Appendix II of CITES (except those species already listed under Appendix I), in an effort to control shipments and to encourage exporting countries to conserve their bat populations. All subspecies of *P. mariannus* are now protected under Appendix I of CITES (50 CFR part 23).

Generally, both import and export permits are required from countries before a CITES Appendix I species may be shipped, and Appendix I species may not be imported for primarily

commercial purposes. CITES permits may not be issued if the export will be detrimental to the survival of the species or if the specimens were not legally acquired. However, CITES does not itself regulate take or domestic trade of wildlife between islands in the Mariana archipelago, as they are not separate countries.

The Republic of Palau became subject to the CITES restrictions for trade with the Mariana Islands when it established its independence from the United States in October 1994. However, small numbers of fruit bats from Palau continue to be intercepted in the Mariana Islands (G. Phocas, pers. comm. 2004; J. Esselstyn, pers. comm. 2004c). Reports suggest that Appendix I fruit bat species continue to be smuggled into the Mariana Islands from points as diverse as Samoa, the Federated States of Micronesia, and the Philippines, although with far less frequency than in the 1980s. An integrated approach of regulation, enforcement, and outreach, began in the 1990s by the Service on Guam, sought out a variety of agencies and other parties. Importation records suggest that these efforts, along with an export inspection program in Palau, may have slowed a region-wide harvest of *Pteropus* fruit bats; importation into the Marianas has dropped from tens of thousands each year to small "personal" shipments (G. Phocas, pers. comm. 2004). Experts and Federal law enforcement personnel are concerned that the demand for fruit bats will remain high, and that the reduction of international smuggling may have increased illegal hunting pressure on Rota and the northern islands (Worthington and Taisacan 1995; Wiles 1996; G. Phocas, pers. comm. 2004). Despite existing regulatory mechanisms for the protection of the Mariana fruit bat, illegal hunting and international trafficking in fruit bats continues to occur leading to reductions in fruit bat populations.

E. *Other natural or manmade factors affecting its continued existence.* Military training activities in areas used by fruit bats could disrupt the behavior of these bats. In general, military training activities including live-fire exercises and aircraft overflights, in or near areas on any of the islands that support fruit bats, are likely to disrupt fruit bat behavior and may result in mortalities. A study of the effects of aircraft overflights on the Mariana fruit bat at Andersen Air Force Base, Guam, found that current levels of air traffic appear to be within levels that are tolerable to the colony at Pati Point. Higher levels of aircraft traffic, particularly low-level field carrier

landing practices (FCLPs), would have the potential to cause partial or complete abandonment of the Pati Point roost (Morton 1996). Nocturnal FLCs and other air traffic pose an even greater risk to fruit bats because animals are in the air, traveling between the roost and various foraging areas at night; under these circumstances it is possible that low-flying aircraft may even strike bats (Morton 1996). An increase in air traffic at Andersen Air Force Base has been proposed and is currently under NEPA review (J. Newman, pers. comm. 2004).

The small number of Mariana fruit bats remaining on some islands (e.g., Guam, Saipan, and Aguiuan) may place bats on these islands at risk of extirpation from natural disturbances, environmental changes, and other chance events to which small populations typically are vulnerable (Meffe and Carroll 1997). Typhoons, in particular, could eliminate bats on one or more of these islands, although with sufficient time and suitable remaining habitat, these islands could be recolonized by immigrants.

Typhoons can drastically reduce or alter forested areas that constitute fruit bat habitat; under natural or prehistoric conditions, the size of fruit bat populations and the extent of forest habitat were sufficient for the species to coexist with this natural disturbance. Today, however, such storms can exacerbate the anthropogenic pressures on the Mariana fruit bat. In 1988, supertyphoon Roy defoliated or altered almost all of the forested areas on Rota (Fancy and Snetsinger 1996). Another typhoon that hit the northern island of Maug in 1981 also had similar devastating effects on fruit bat habitat (Lemke 1992b). Rota was hit hard most recently by supertyphoons Pongsona (December 2002) and Chaba (August 2004), and the island's forest habitat was further damaged.

The impacts of severe storms on fruit bat habitat can change fruit bat foraging and roosting behavior by temporarily modifying forest structure, changing tree species composition (by facilitating encroachment of nonnative species), and decimating important food resources (Lemke 1992b). The latter condition is particularly important, because when typical food resources are not available, fruit bats may seek forage in places and at times that increase their vulnerability to illegal hunting (Craig *et al.* 1994; Pierson *et al.* 1996). There is no evidence that direct mortality of fruit bats caused by the supertyphoons Roy and Pongsona was significant (Lemke 1992b; J. Esselstyn, in litt. 2003). However, defoliation and other damage caused by storms forces bats to forage

during the day in areas close to human habitation (Lemke 1992b). Fruit bats were illegally hunted on Rota after both Roy and Pongsona, contributing to an observed reduction in numbers (A. Palacios, in litt. 1990; J. Esselstyn, in litt. 2003, in litt. 2004b).

The northern islands of the CNMI were formed by volcanic activity on the Mariana trench. This trench is a subduction zone, where one tectonic plate of the Earth's lithosphere is moving beneath another. The northern islands thus all have the potential for volcanic activity, and eruptions are another natural disturbance that may alter fruit bat habitat in the northern islands. Pagan last erupted in 1981 and a lava flow covered a part of the island. Anatahan erupted in May 2003, and much of the island was denuded. As described previously in "Status of CNMI Northern Islands," the fruit bat population on Anatahan declined from more than 1,000 prior to the eruption to 350–450 individuals in December of 2003 (C. Kessler, in litt. 2003), but the population appeared to be recovering by March 2004, when more than 1,000 bats were recorded (C. Kessler, pers. comm. 2004c). Few humans have visited the island since the May 2003 eruption, and illegal hunting there is thus unlikely to have confounded the response of Anatahan's bat population to this natural disturbance.

### Conclusions

The loss of native forest, predation (on Guam and possibly on Saipan) by the brown treesnake, and illegal hunting (especially on Rota) are the most significant threats to the survival of this species. Feral ungulates continue to severely degrade fruit bat forest habitat on some of the northern islands. Few bats occur on Guam, Saipan, Tinian, Aguiuan, and Maug, and such small numbers are highly vulnerable to severe storms and other climate events that can effect the vital rates of a population and to biotic changes within a population (such as sex ratio, age structure, and other demographic parameters) that can affect reproduction and survival of individual animals (Meffe and Carroll 1997). A significant number of fruit bats persist on Rota, and numbers there have shown some rebound following a documented decline after Typhoon Pongsona. Rota's fruit bats remain at risk from illegal hunting and loss of forest habitat. Fruit bats from Rota are believed to move among the southern islands, and this population is considered to be critical to the long-term stability of fruit bats in the Mariana Islands (Wiles and Glass 1990). The brown treesnake adversely impacts

recruitment of bats on Guam, and there have been a significant number of sightings of this predator on Saipan. Therefore, listing the Mariana fruit bat as threatened in the CNMI is warranted.

The evidence of interisland movement between the islands of the Mariana archipelago (Wiles and Glass 1990; Wiles and Johnson 2004) indicates that the Mariana fruit bats in the Mariana Islands be viewed and managed as one taxon. In developing this rule, we have assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Mariana fruit bat. Based on this information, we believe that it is biologically appropriate to consider fruit bats on each island on Guam and the CNMI as part of one population, and the appropriate action is to, reclassify the Mariana fruit bat from endangered to threatened on Guam, and list the Mariana fruit bat as threatened throughout its range in the CNMI.

### Critical Habitat

Critical habitat is defined in section 3 of the Act as: (i) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species, and (II) that may require special management considerations or protection, and (ii) specific areas outside the geographical area occupied by a species at the time it is listed in accordance with the provisions of section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the species. "Conservation" means the use of all methods and procedures needed to bring the species to the point at which protection under the Act is no longer necessary.

Section 4(a)(3) of the Act and implementing regulations (50 CFR 424 part 12) require that, to the maximum extent prudent and determinable, we designate critical habitat at the time the species is determined to be threatened or endangered. Our implementing regulations (50 CFR 424.12(a)) state that the designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species.

On October 15, 2002, we published a proposed rule designating critical

habitat for the Mariana fruit bat and two other species on Guam (67 FR 63738). The final rule was published on October 28, 2004 (68 FR 62944).

#### Available Conservation Measures

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

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

Recovery planning, the foundation for species recovery, includes the development of a recovery outline shortly after a species is listed, and later, preparation of draft and final recovery plans, and revision of the plan as significant new information becomes available. The recovery outline—the first step in recovery planning—guides the immediate implementation of urgent recovery actions, and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery teams, consisting of species experts, Federal and State agencies, non-government organizations, and stakeholders, are

often established to develop recovery plans. When completed, a copy of the recovery outline, draft recovery plan, or final recovery plan will be available from our Web site (<http://endangered.fws.gov>), or if unavailable or inaccessible, from our office (see **FOR FURTHER INFORMATION CONTACT** section). We issued a recovery plan for the fruit bat on Guam (Service 1990); this listing rule will trigger a new recovery planning process for the Mariana fruit bat.

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, states, non-governmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private lands as many occur primarily or solely on private lands.

The funding for recovery actions can come from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and non-governmental organizations. In addition, pursuant to section 6 of the Act, we would be able to grant funds to the CNMI and Government of Guam for management actions that promote the protection and recovery of the Mariana fruit bat. Information on our grant programs that are available to aid species recovery can be found at: <http://endangered.fws.gov/grants/index.html>. In the event that our internet connection is inaccessible, please check [www.grants.gov](http://www.grants.gov) or check with our grant programs contact at U.S. Fish and Wildlife Service, Ecological Services, 911 NE 11th Avenue, Portland, OR 97232-4181 (telephone 503/231-6241; facsimile 503/231-6243).

Please let us know if you are interested in participating in recovery efforts for the Mariana fruit bat. Additionally, we invite you to submit any further information on the species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT** section).

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat if any is being designated. Regulations implementing

this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies, including the Service, to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat if any has been designated. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us.

Federal agency actions that may require consultation for the Mariana fruit bat include, but are not limited to actions within the jurisdiction of the U.S. Army Corps of Engineers, Federal Emergency Management Agency, Federal Highways Administration, Federal Aviation Administration, U.S. Department of Housing and Urban Development, Natural Resources Conservation Service, and branches of the DOD. Parts of Guam, Tinian, and Farallon de Medinilla are used as, or are under consideration for use as, military bases or training areas by U.S. armed forces. Parts of Guam are federally owned by the DOD and Service, and three-fourths of Tinian and all of Farallon de Medinilla are leased by the Navy. Activities on these lands will trigger consultation under section 7 if they may affect the Mariana fruit bat. Federally supported activities that could affect the Mariana fruit bat or its habitat in the future include, but are not limited to, the following: Helicopter overflights, bombardment and live-fire exercises, troop movements, agricultural projects, and construction or improvement of roads, airports, firebreaks, radio towers, and housing and other buildings.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. The prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.21 and 17.31 for endangered and threatened species, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or attempt any of these), import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Further, it is illegal for any person to attempt to commit, to solicit another person to commit, or to cause to be committed, any of these acts.

Certain exceptions apply to our agents and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving threatened animal species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. For threatened species, permits are also available for zoological exhibition, educational purposes, or special purposes consistent with the purposes of the Act. Requests for copies of the regulations regarding listed wildlife and inquiries about permits and prohibitions may be addressed to U.S. Fish and Wildlife Service, Endangered Species Permits, 911 NE 11th Avenue, Portland, OR 97232-4181.

It is our policy, 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 this listing on proposed and ongoing activities within the range of the species. We believe that, based on the best available information, that most scientific or recreational activities (other than capturing or hunting fruit bats) that do not damage habitat within forested areas that support Mariana fruit bats would not likely result in violations of section 9.

We believe the following activities could potentially result in a violation of

section 9, but possible violations are not limited to these actions alone:

(1) Unauthorized collecting, handling, possessing, selling, delivering, carrying, or transporting of the species, including import or export across State lines and international boundaries;

(2) Intentional introduction of exotic species that compete with or prey on bats, such as the introduction of the predatory brown treesnake to islands that support bat colonies;

(3) Activities that disturb Mariana fruit bats at roost sites and feeding areas; and

(4) Unauthorized destruction or alteration of forested areas that are required by the bats for foraging, roosting, breeding, or rearing young.

We do not consider these lists to be exhaustive, and provide them as information to the public. You should direct questions regarding whether specific activities would constitute a violation of section 9 to the Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT** section). Requests for copies of the regulations concerning listed animals and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, 911 N.E. 11th Avenue, Portland, OR 97232-4181 (telephone 503/231-2063; facsimile 503/231-6243).

**National Environmental Policy Act**

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. We

published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

**References Cited**

A complete list of all references cited herein is available upon request from our Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT** section).

**Author**

The primary author of this document is Holly Freifeld, Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section).

**List of Subjects in 50 CFR Part 17**

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

**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—[AMENDED]**

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

**Authority:** 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

■ 2. In § 17.11(h), the table entry for “Bat, Mariana fruit” under MAMMALS is revised to read as follows:

**§ 17.11 Endangered and threatened wildlife.**

\* \* \* \* \*  
(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*		*
MAMMALS							
*	*	*	*	*	*		*
Fruit Bat, Mariana (=fanihi, Mariana flying fox).	<i>Pteropus mariannus mariannus.</i>	Western Pacific Ocean—U.S.A. (GU, MP).	Entire .....	T	156	Guam 17.95(a).	NA

Dated: December 30, 2004.

**Steve Williams,**

Director, Fish and Wildlife Service.

[FR Doc. 05-240 Filed 1-5-05; 8:45 am]

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## **APPENDIX B**

***FEDERAL REGISTER* MARIANA FRUIT BAT CRITICAL HABITAT DESIGNATION**





# Federal Register

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Thursday,  
October 28, 2004

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## Part II

# Department of the Interior

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Fish and Wildlife Service

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50 CFR Part 17

**Endangered and Threatened Wildlife and  
Plants; Designation of Critical Habitat for  
the Mariana Fruit Bat and Guam  
Micronesian Kingfisher on Guam and the  
Mariana Crow on Guam and in the  
Commonwealth of the Northern Mariana  
Islands; Final Rule**

**DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 17**

RIN 1019-AI25

**Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Mariana Fruit Bat and Guam Micronesian Kingfisher on Guam and the Mariana Crow on Guam and in the Commonwealth of the Northern Mariana Islands****AGENCY:** Fish and Wildlife Service, Interior**ACTION:** Final rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), are designating critical habitat for the Mariana fruit bat (*Pteropus mariannus mariannus*), Guam Micronesian kingfisher (*Halcyon cinnamomina cinnamomina*), and Mariana crow (*Corvus kubaryi*) pursuant to the Endangered Species Act, as amended (Act or ESA). We are designating approximately 376 acres (ac) (152 hectares (ha)) on the island of Guam for the Mariana fruit bat and the Guam Micronesian kingfisher. For the Mariana crow, we are designating approximately 376 ac (152 ha) on the island of Guam and approximately 6,033 ac (2,442 ha) on the island of Rota in the Commonwealth of the Northern Mariana Islands (CNMI). On Guam, the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher critical habitat unit boundaries are identical. On Rota, critical habitat is designated only for the Mariana crow. Counting identical or overlapping units only once for all three species, we are designating approximately 6,409 ac (2,594 ha) on Guam and Rota.

**DATES:** This rule becomes effective November 29, 2004.

**ADDRESSES:** Comments and materials received, as well as supporting documentation used in the preparation of this final rule, will be available for inspection, by appointment, during normal business hours at the Pacific Islands Fish and Wildlife Office, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, Room 3-122, Box 50088, Honolulu, HI 96850. Copies of the final rule, addendum to the economic analysis, and draft economic analysis are available by writing to the above address or by connecting to the Service Internet Web site at <http://pacificislands.fws.gov>.

**FOR FURTHER INFORMATION CONTACT:** Gina Shultz, Assistant Field Supervisor,

Pacific Islands Fish and Wildlife Office, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, Room 3-122, Box 50088, Honolulu, HI 96850 (telephone: 808/792-9400; facsimile: 808/792-9581).

**SUPPLEMENTARY INFORMATION:****Designation of Critical Habitat Provides Little Additional Protection to Species**

In 30 years of implementing the Act, the Service has found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of available conservation resources. The Service's present system for designating critical habitat has evolved since its original statutory prescription into a process that provides little real conservation benefit, is driven by litigation and the courts rather than biology, limits our ability to fully evaluate the science involved, consumes enormous agency resources, and imposes huge social and economic costs. The Service believes that additional agency discretion would allow our focus to return to those actions that provide the greatest benefit to the species most in need of protection.

**Role of Critical Habitat in Actual Practice of Administering and Implementing the Act**

While attention to and protection of habitat is paramount to successful conservation actions, we have consistently found that, in most circumstances, the designation of critical habitat is of little additional value for most listed species, yet it consumes large amounts of conservation resources. Sidle (1987) stated, "Because the ESA can protect species with and without critical habitat designation, critical habitat designation may be redundant to the other consultation requirements of section 7." Currently, only 445 species (36 percent) of the 1,244 listed species in the U.S. under the jurisdiction of the Service have designated critical habitat. We address the habitat needs of all 1,244 listed species through conservation mechanisms such as listing, section 7 consultations, the section 4 recovery planning process, the section 9 protective prohibitions of unauthorized take, section 6 funding to the States, and the section 10 incidental take permit process. The Service believes that it is these measures that may make the difference between extinction and survival for many species.

We note, however, that a recent 9th Circuit judicial opinion, *Gifford Pinchot*

*Task Force v. United States Fish and Wildlife Service*, has invalidated the Service's regulation defining destruction or adverse modification of critical habitat. We are currently reviewing the decision to determine what effect it may have on the outcome of consultations pursuant to Section 7 of the Act.

**Procedural and Resource Difficulties in Designating Critical Habitat**

We have been inundated with lawsuits for our failure to designate critical habitat, and we face a growing number of lawsuits challenging critical habitat determinations once they are made. These lawsuits have subjected the Service to an ever-increasing series of court orders and court-approved settlement agreements, compliance with which now consumes nearly the entire listing program budget. This leaves the Service with little ability to prioritize its activities to direct scarce listing resources to the listing program actions with the most biologically urgent species conservation needs.

The consequence of the critical habitat litigation activity is that limited listing funds are used to defend active lawsuits, to respond to Notices of Intent to sue relative to critical habitat, and to comply with the growing number of adverse court orders. As a result, listing petition responses, the Service's own proposals to list critically imperiled species, and final listing determinations on existing proposals are all significantly delayed. Litigation over critical habitat issues for species already listed and receiving the Act's full protection has precluded or delayed many listing actions nationwide.

The accelerated schedules of court-ordered designations have left the Service with almost no ability to provide for adequate public participation or to ensure a defect-free rulemaking process before making decisions on listing and critical habitat proposals due to the risks associated with noncompliance with judicially-imposed deadlines. This in turn fosters a second round of litigation in which those who fear adverse impacts from critical habitat designations challenge those designations. The cycle of litigation appears endless, is very expensive, and in the final analysis provides relatively little additional protection to listed species.

The costs resulting from the designation include legal costs, the cost of preparation and publication of the designation, the analysis of the economic effects and the cost of requesting and responding to public comment, and in some cases the costs of compliance with the National

Environmental Policy Act, are all part of the cost of critical habitat designation. None of these costs result in any benefit to the species that is not already afforded by the protections of the Act enumerated earlier, and they directly reduce the funds available for direct and tangible conservation actions.

### Background

The Territory of Guam (Guam) is the largest and southernmost of the 16 islands in the Mariana archipelago. Guam is located at 13°30' N and 145° E and is approximately 30 miles (mi) (49 kilometers (km)) long and 4 to 9 mi (7 to 15 km) wide. Rota is the fourth largest island in the Mariana archipelago and is located 30 mi (49 km) north of Guam at 14°10' N and 145° E. The island is approximately 11 mi (18 km) long and 2.5 to 4 mi (4 to 7 km) wide. We provided a detailed physical description for the islands of Guam and Rota in the proposed critical habitat designation (67 FR 63738).

#### *Taxonomy, Life History, Distribution, Habitat, and Threats*

##### Mariana Fruit Bat (or Fanihi)

This species is a medium-sized fruit bat that historically inhabited all of the major islands in the Mariana archipelago. At present, only the Guam population of Mariana fruit bat is listed as endangered. A proposed rule to reclassify the Guam population of the species as threatened and also list the population in the CNMI as threatened was published on March 26, 1998 (63 FR 14641). The Mariana fruit bat typically roosts in colonies in native forest during the day and forages widely at night on nectar, fruit, and leaves (Wiles 1983). On Guam, the Mariana fruit bat was historically found throughout native forests. However, by 1995, the island population had been reduced to between 300 and 500 and was restricted primarily to forest on the northern tip of the island (Wiles *et al.* 1995), although there are occasional reports of bats from southern Guam around Fena Reservoir (Morton and Wiles 2002). Illegal hunting is believed to be one of the major causes of decline in this species, but predation by the brown treesnake (*Boiga irregularis*) also may be an important limiting factor (Wiles 1987). For additional information on the Mariana fruit bat and threats to the species, the reader is referred to the critical habitat proposed rule (67 FR 63738, October 15, 2002).

##### Mariana Crow (or Aga)

The Mariana crow is a small, black crow endemic to the islands of Guam

and Rota. The Mariana crow is omnivorous and typically nests in native forest (USFWS in prep.). On Guam, the crow historically was widely distributed in forest habitats, but densities were highest in limestone forests and lowest in grasslands and areas with human settlement (Jenkins 1983; Michael 1987). Similar to other Guam forest birds, the crow disappeared from most of the island with the spread of the brown treesnake and was restricted to the northern cliff forests by the mid 1970s. The population on Guam now numbers 12 birds, 10 of which were translocated from Rota or mainland zoos (Aguon 2002). On Rota, Mariana crows were considered relatively common and widely distributed in 1976 (Pratt *et al.* 1979). The first island-wide survey of crows on Rota in 1982 estimated a population of 1,318 individuals (Engbring *et al.* 1986). Crows still are distributed widely on Rota (Morton *et al.* 1999), but results of several surveys indicate that the crow population has declined since the early 1980s. The primary factors in the decline of crows on Rota are uncertain; however, habitat loss and degradation, human persecution, and predation by introduced rats may be factors (USFWS in prep.). For additional information on the Mariana crow and threats to the species the reader is referred to the critical habitat proposed rule (67 FR 63738, October 15, 2002).

##### Guam Micronesian Kingfisher (or Sihek)

The Guam Micronesian kingfisher is a forest-dwelling kingfisher endemic to Guam. The Guam Micronesian kingfisher preys on insects and small vertebrates and nests in cavities excavated in soft, rotten wood (Jenkins 1983; Marshall 1989). The Guam subspecies was common throughout Guam as recently as 1945 (Marshall 1949), and was found throughout most forest types (Jenkins 1983). Up to 3,000 birds were recorded in 1981 (Engbring and Ramsey 1984), but the kingfisher declined rapidly and now is extinct in the wild. However, a captive population of 63 birds has been established and is maintained at 11 zoos in the mainland United States and by the Guam Division of Aquatic and Wildlife Resources (B. Bahner, National Zoological Association, *in litt.* 2003). The primary factor in the decline of the Guam Micronesian kingfisher was predation by the introduced brown treesnake (Savidge 1986, 1987). For additional information on the Guam Micronesian kingfisher and threats to the species the reader is referred to the critical habitat proposed rule (67 FR 63738, October 15, 2002).

### Previous Federal Action

On October 15, 2002, we published a proposed rule to designate critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher (67 FR 63738). In that proposed rule, we included a detailed summary of the previous Federal actions completed prior to the publication of the proposal. The proposed critical habitat consisted of approximately 24,803 ac (10,037 ha) in two units on the island of Guam for the Mariana fruit bat and Guam Micronesian kingfisher. For the Mariana crow, we proposed designating approximately 23,004 ac (9,309 ha) in two units on the island of Guam and approximately 6,084 ac (2,462 ha) in one unit on the island of Rota in the CNMI. We determined that designation of critical habitat would not be prudent for the little Mariana fruit bat (*Pteropus tokudae*), Guam broadbill (*Myiagra freycineti*), and Guam bridled white-eye (*Zosterops conspicillatus conspicillatus*) because all three species likely are extinct. Also, on February 23, 2004, we published a final rule delisting the Guam broadbill due to extinction (69 FR 8116). In the proposed rule, we included a detailed summary of the previous Federal actions completed prior to publication of the proposal. We now provide updated information on the actions we completed since the proposed critical habitat designation.

On October 18, 2002, we mailed the proposed rule and a fact sheet to all interested parties. The public comment period was open for 60 days until December 15, 2002. On October 23, 2002, we held a public meeting on Guam at the Tamuning Community Center to provide information and promote discussion about critical habitat designation. The meeting was attended by 53 people, not including Service staff. On October 24, 2002, we also held a public meeting on Rota at the Rota Resort and Country Club. The meeting was attended by 6 people, not including Service staff. On November 6, 2002, we held a public hearing on Rota at the Rota Resort and Country Club. The hearing was attended by 12 people, and 8 people gave oral testimony. On November 7, 2002, we held a public hearing on Guam in Tumon at the Outrigger Guam Resort. This hearing was attended by 50 people, and 20 people presented oral testimony. On December 5, 2002, we published a notice in the **Federal Register** and issued a press release announcing extension of the public comment period and availability of the draft economic analysis for the proposed designation of

critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher (67 FR 72407). The **Federal Register** notice was mailed to interested parties on December 6, 2002. The comment period was open for an additional 30 days until January 6, 2003. On January 14, 2003, the Service met with a delegation from the Mariana Public Lands Authority (CNMI) to discuss concerns about critical habitat. On January 28, 2003, we published a notice to reopen the comment period until February 18, 2003, due to hardships caused by Supertyphoon Pongsona on Guam and Rota (68 FR 4159). The **Federal Register** notice was mailed to all interested parties on the day of publication.

On May 30, 2003, the Government of Guam filed a motion to extend the deadline for publication of the final rule to allow time to develop an alternative to critical habitat designation on Guam. The Government of Guam stated that they did not have adequate time to develop these alternatives due to a recent change in administration and hardships encountered as a result of Typhoon Chataan and Supertyphoon Pongsona. On June 13, 2003, the Guam District Court extended the deadline for publication "indefinitely" and set a status conference for October 7, 2003. On June 23, 2003, the Plaintiffs appealed the district court's June 13, 2003, order to the 9th Circuit. On October 7, 2003, the Guam District Court held a status conference in which the Government of Guam requested a continuance of one month. On October 16, 2003, the Guam District Court denied the request for further continuance and ruled that it would take no further action while the case was on appeal. The Plaintiffs withdrew their appeal, and on January 7, 2004, the U.S. Court of Appeals for the Ninth Circuit dismissed the appeal and returned the case to the Guam District Court.

In March and April 2004, a joint stipulation and order to finalize the critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher were agreed to and approved by the Guam District Court. The Government of Guam submitted their proposed alternative to critical habitat to the Service on April 5, 2004. On June 2, 2004, we published a notice in the **Federal Register** reopening the comment period on the proposed rule until July 19, 2004, to allow interested parties additional time to consider and comment on the Government of Guam's proposal (69 FR 31073).

### Critical Habitat

Critical habitat is defined in section 3(5)(A) of the Act as—(i) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and, (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species (16 U.S.C. 1532(5)(A)). "Conservation," as defined by the Act, means the use of all methods and procedures that are necessary to bring an endangered or a threatened species to the point at which listing under the Act is no longer necessary (16 U.S.C. 1532 (3)).

Critical habitat receives protection under section 7 of the Act which requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. In our regulations at 50 CFR 402.2, we define destruction or adverse modification as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to: Alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical." As a result of Federal appeals court decisions ruling this regulation invalid, we are currently reviewing the regulatory definition of adverse modification in relation to the conservation of the species.

Section 7 also requires conferences on Federal actions that are likely to result in the destruction or adverse modification of proposed critical habitat. Aside from the added protection that may be provided under section 7, the Act does not provide other forms of regulatory protection to lands designated as critical habitat.

In order to qualify for a critical habitat designation, the area must be "essential to the conservation of the species." Critical habitat designations identify, to the extent known using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (*i.e.*, areas on which are found the primary constituent elements, as defined at 50 CFR 424.12(b)). Section 3(5)(C) of the Act states that not all areas that can be occupied by a species

should be designated as critical habitat unless the Secretary determines that all such areas are essential to the conservation of the species. Our regulations (50 CFR 424.12(e)) also state that, "[t]he Secretary shall designate as critical habitat areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species."

Section 4(b)(2) of the Act, as amended under the National Defense Authorization Act (Public Law No: 108-136), requires that we take into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat. We may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.

Our Policy on Information Standards Under the Endangered Species Act, published on July 1, 1994 (59 FR 34271), provides criteria, establishes procedures, and provides guidance to ensure that decisions made by the Service represent the best scientific and commercial data available. It requires that our biologists, to the extent consistent with the Act and with the use of the best scientific and commercial data available, use primary and original sources of information as the basis for recommendations to designate critical habitat. When determining which areas are critical habitat, a primary source of information could be the listing package for the species. Additional information may be obtained from a recovery plan, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, and biological assessments or other unpublished materials.

Critical habitat designations do not signal that habitat outside the designation is unimportant to the Mariana fruit bat, Guam Micronesian kingfisher, and Mariana crow. Areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1), and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard and the section 9 take prohibition, as determined on the basis of the best available information at the time of the action. We specifically anticipate that federally funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some

cases. 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, or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

### Methods

As required by the Act and regulations (section 4(b)(2) and 50 CFR 424.12), we used the best scientific information available to identify areas that contain the physical and biological features that are essential for the conservation of the Mariana fruit bat, Guam Micronesian kingfisher, and Mariana crow. This information included: Peer-reviewed scientific publications (e.g. Baker 1951; Jenkins 1983; Wiles *et al.* 1995; National Research Council (NRC) 1997); published and draft revised recovery plans (USFWS 1990a, 1990b, 2004a, in prep); the final listing rule (49 FR 33881); unpublished reports by the Guam Division of Aquatic and Wildlife Resources (GDAWR), CNMI Division of Fish and Wildlife (DFW), and the Service (e.g., Wiles 1982a; Engbring and Ramsey 1984; Morton 1996; Morton *et al.* 1999); aerial photographs and satellite imagery of Guam and Rota; personal communications with scientists and land managers familiar with the species and habitats; and comments received during public comment periods and in response to critical habitat outreach packages. Specific information we used from these sources includes estimates of historic and current distribution, abundance, and territory sizes for the three species, as well as data on resource and habitat requirements. From recovery plans, we considered the recovery objectives and the assessments of the habitat necessary to meet these objectives, as well as life history information.

### Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we are required to consider those physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. Such features are termed "primary constituent elements" and include, but are not limited to: Space for individual and population growth and for normal behavior; food, water, air, light, minerals and other nutritional or

physiological requirements; cover or shelter; sites for nesting and rearing of offspring; and habitats that are protected from disturbance and are representative of the historical, geographical and ecological distributions of the species.

The primary constituent elements for the bat and both of the birds can be found in limestone, secondary, ravine, swamp, agricultural, and coastal forests on Guam and Rota that exhibit the biotic and structural characteristics necessary for foraging, sheltering, roosting, nesting, and rearing of young of the Mariana fruit bat, Guam Micronesian kingfisher, and Mariana crow on Guam, and for these same life functions of the crow on Rota. Guam and Rota experience a high frequency of severe storms, and these regularly and significantly alter forest structure (NRC 1997). Therefore, sufficient habitat area is necessary to absorb the variable impacts of these natural disturbances and still maintain the integrity of the primary constituent elements to support fruit bat, kingfisher, and crow populations. Specific details of primary constituent elements for each species are described below.

*Mariana fruit bat:* This species feeds on a variety of plant material but is primarily frugivorous (Wiles and Fujita 1992). Specifically, Mariana fruit bats forage on the fruit of at least 28 plant species, the flowers of 15 species, and the leaves of 2 plant species (Wiles and Fujita 1992). Some of the plants used for foraging include *Artocarpus* spp. (breadfruit), *Carica papaya* (papaya), *Cycas circinalis* (fadang), *Ficus* spp. (figs), *Pandanus tectorius* (kafu), *Cocos nucifera* (coconut), and *Terminalia catappa* (talisai). Many of these plant species are found in a variety of forested habitats on Guam including limestone, ravine, coastal, and secondary forests (Stone 1970; Raulerson and Rhinehart 1991).

During the day, Mariana fruit bats roost in groups or colonies and occasionally alone (Wiles 1987; Pierson and Rainey 1992). These roost sites are an important aspect of their biology because they are used for sleeping, grooming, breeding, and intra-specific interactions (USFWS 1990a). Published reports of roost sites on Guam indicate these sites occur in mature limestone forest and are found within 328 ft (100 m) of cliffines that are 260 to 590 ft (80 to 180 m) tall (USFWS 1990a). On Guam, Mariana fruit bats prefer to roost in mature fig and *Mammea odorata* (chopak) trees but will also roost in other tree species such as *Casuarina equisetifolia* (gago), *Macaranga thompsonii* (pengua), *Guettarda speciosa* (panao), and *Neisosperma*

*oppositifolia* (fagot) (Wheeler and Aguon 1978; Wiles 1981, 1982b). On other islands in the Mariana archipelago, Mariana fruit bats have been observed in secondary forest and gago groves (Glass and Taisacan 1988; Worthington and Taisacan 1996; Worthington *et al.* 2001). Factors involved in roost site selection are not clear, but data from Guam indicate that some sites may be selected for their inaccessibility by humans and thus limited human disturbance. Fruit bats will abandon roost sites if disturbed and have been reported to move to new locations up to 6 mi (10 km) away (USFWS 1990a).

In summary, the primary constituent elements required by the Mariana fruit bat for the biological needs of foraging, sheltering, roosting, and rearing of young are found in areas supporting limestone, secondary, ravine, swamp, agricultural, and coastal forests composed of native and introduced plant species. These forest types provide the primary constituent elements of:

- (1) Plant species used for foraging, such as breadfruit, papaya, fadang, fig, kafu, coconut palm, and talisai; and
- (2) Remote locations, often within 328 ft (100 m) of cliffines that are 260 to 590 ft (80 to 180 m) tall, with limited exposure to human disturbance and that contain mature fig, chopak, gago, pengua, panao, fagot, and other tree species that are used for roosting and reproductive activity.

*Mariana crow:* Historically, the distribution of Mariana crows among habitats was similar on Guam and Rota. Crows were known to use secondary, coastal, ravine, and agricultural forests, including coconut plantations (Seale 1901; Stophlet 1946; Marshall 1949; Baker 1951; Jenkins 1983), but all evidence indicates they were most abundant in native limestone forests (Michael 1987; Morton *et al.* 1999). Mariana crow nests on Guam have been found in 11 tree genera, all but one of which are native, but most nests are located high in emergent fig or *Elaeocarpus joga* (yoga) trees (Morton 1996; C. Aguon, GDAWR, unpubl. data).

On Rota, crows use both mature and secondary limestone forests (Morton *et al.* 1999), but not exclusively (M. Lusk and E. Taisacan unpubl. data). Of 156 nest sites on Rota, 39 percent and 42 percent were in mature and secondary limestone forest, respectively (Morton *et al.* 1999). Between 1992 and 1994, 90 percent (n = 115) of observations of perching crows on Rota were in native trees, primarily in middle to low heights of the canopy (M. Lusk and E. Taisacan unpubl. data). Mariana crows nested in 20 tree genera on Rota (Morton *et al.*

1999). Of 161 nest trees found during 1996–99, 63 percent were of four species: fagot, *Eugenia reinwardtiana* (a abang), *Intsia bijuga* (ifit), and *Premna obtusifolia* (ahgao) (Morton *et al.* 1999). Individual nest trees averaged approximately 7 in (16.9 cm) diameter at breast height and 28.5 ft (8.7 m) high. Canopy cover over nest sites averaged 93 percent and was never less than 79 percent. Although 18 percent of the forested area of Rota is tangantangan or some other species of introduced tree (Falanruw *et al.* 1989), no crow nests have been found in any nonnative tree species. Nests were located at least 950 ft (290 m) from the nearest road and 203 ft (62 m) from the nearest forest edge. The distances from edges strongly suggest that nesting crows are sensitive to disturbance by humans (Morton *et al.* 1999). No detailed information is available on historical nest site selection by crows on Guam, but the remaining crows on Guam nest and forage only in primary or mature limestone forest.

On Rota, Morton *et al.* (1999) found that breeding crows in six study areas averaged one pair per 50 ac (22 ha) of forested habitat, and each territory was dominated by native forest. Pair densities ranged from one per 91 ac (37 ha) in relatively fragmented forest, to as high as one pair per 30 ac (12 ha) in mostly intact limestone forest along a coastal terrace. Established pairs occupy territories throughout the year but only aggressively defend them from July through January.

In addition to habitat for breeding territories, Mariana crows also require habitat for juvenile dispersal. When juvenile Mariana crows leave the nest, they are typically tended by their parents until the following breeding season, a period that ranges from 3 to 18 months (Morton *et al.* 1999). After this parental attendance period, these juveniles enter the non-breeding population of Mariana crows until they are recruited into the adult population at approximately three years of age (Morton *et al.* 1999). Little research has been done on the non-breeding population of crows and their habitat needs, but the territoriality of breeding adults and the time required before juveniles enter the breeding population indicate that foraging habitat outside established territories is needed to maintain juvenile Mariana crows.

Mariana crows may forage at any height in the forest or on the ground (Jenkins 1983; Tomback 1986). These crows forage in at least 18 tree genera, most of which are native (Jenkins 1983; Tomback 1986; C. Aguon unpubl. data). Mariana crows are omnivorous and have been observed feeding on a variety of

native and nonnative invertebrates, reptiles, young rats, and birds' eggs, as well as on the foliage, buds, fruits, and seeds of at least 26 plant species (Jenkins 1983; Tomback 1986; Michael 1987; C. Aguon unpubl. data).

In summary, the primary constituent elements required by the Mariana crow for the biological needs of foraging, sheltering, roosting, nesting, and rearing of young are found in areas that support limestone, secondary, ravine, swamp, agricultural, and coastal forests composed of native and introduced plant species. These forest types provide the primary constituent elements of:

(1) Emergent and subcanopy trees with dense cover for breeding such as fagot, pengua, ifit, ahgao, aabang, fig, yoga, and *Tristiropsis obtusangula* (faniok);

(2) Sufficient area of predominantly native limestone forest to allow nesting at least 950 ft (290 m) from the nearest road and 203 ft (62 m) from the nearest forest edge and to support Mariana crow breeding territories (approximately 30 to 91 ac (12 to 37 ha)) and foraging areas for nonbreeding juvenile crows; and

(3) Standing dead trees and plant species for foraging, such as *Aglaia mariannensis* (maypunayo), breadfruit, coconut palm, fagot, *Hibiscus tiliaceus* (pago), ifit, tangantangan, *Ochrosia mariannensis* (langiti), kafu, ahgao, fig, and yoga.

*Guam Micronesian kingfisher*: Jenkins (1983) recorded the Guam Micronesian kingfisher nesting and foraging in northern Guam in mature limestone forest, secondary forests, and coastal forests dominated by coconut trees. Kingfishers also were found historically in southern Guam in ravine and coastal forests (Jenkins 1983). Few data exist about specific kingfisher nest sites on Guam, but in one study, nest sites in northern Guam were found in native limestone forest, and the location of these sites within the forest was correlated with closed canopy cover and dense understory vegetation (Marshall 1989). Recent studies of the Pohnpei Micronesian kingfisher (*Halcyon cinnamomina reichenbachii*) have documented that this subspecies also occurs in a wide range of forest types; however, territories of all 14 breeding pairs studied on Pohnpei included at least several hectares of mature native rainforest (D. Kesler, pers. comm., 2002).

Micronesian kingfishers are obligate cavity nesters and require specific substrates for excavating nest cavities. On Guam, Marshall (1989) found that kingfishers excavated nest cavities in relatively soft, decaying wood in standing dead trees, including faniok,

*Pisonia grandis* (umumu), breadfruit, fig, and coconut palm, and in the mud nests of *Nasutitermes* spp. termites and the root masses of epiphytic ferns. All nest cavities found in trees were in large-diameter trees (average diameter at breast height (dbh)  $16.8 \pm 5.0$  in ( $42.7 \pm 12.7$  cm)), and these trees contained an average of 19 excavations, most of which were incomplete (Marshall 1989). Multiple excavations in suitable nest trees suggest both the importance of these trees as nest sites and the importance of excavation in the kingfishers' courtship and nesting behavior (Jenkins 1983). The links between courtship behavior, excavation activity, and nest substrate requirements have been well documented in the captive population of this species as well (Bahner *et al.* 1998; S. Derrickson, Conservation Research Center, *in litt.* 2002). Marshall (1989) concluded that the population density of kingfishers on Guam may be limited by the availability of nest sites.

Guam Micronesian kingfishers maintain year-round territories, which they aggressively defend (Jenkins 1983). Nothing is known about the territory size requirements of Micronesian kingfishers on Guam, but research on the Pohnpei subspecies indicates that territory sizes in upland forest are approximately 25 ac (10 ha) (D. Kesler, pers. comm., 2001).

Guam Micronesian kingfishers feed both on invertebrates and small vertebrates, including insects, segmented worms, hermit crabs, skinks, geckos, and possibly other small vertebrates (Marshall 1949; Baker 1951; Jenkins 1983). This species typically forages by perching motionless on exposed perches and swooping down to capture prey on the ground (Jenkins 1983). Guam kingfishers also will capture prey from foliage and have been observed gleaning insects from tree bark (Maben 1982). Marshall (1989) observed no kingfishers foraging in dead trees.

In summary, the primary constituent elements required for the Guam Micronesian kingfisher for the biological needs of foraging, sheltering, roosting, nesting, and rearing of young are found in areas that support limestone, secondary, ravine, swamp, agricultural, and coastal forests containing native and introduced plant species. These forest types include the primary constituent elements of:

(1) Closed canopy and well-developed understory vegetation; large (minimum of approximately 17 in (43 cm) dbh), standing dead trees (especially faniok, umumu, breadfruit, fig, and coconut palm); mud nests of *Nasutitermes* spp.

termites; and root masses of epiphytic ferns for breeding;

(2) Sufficiently diverse structure to provide exposed perches and ground surfaces, leaf litter, and other substrates that support a wide range of vertebrate and invertebrate prey species for foraging kingfishers; and

(3) Sufficient overall breeding and foraging area to support kingfisher territories of approximately 25 ac (10 ha) each.

#### Criteria Used To Identify Critical Habitat

We used several criteria to identify and select lands for designation as critical habitat. For the Mariana fruit bat (Guam only) and Mariana crow, we began with all areas that are currently occupied. The Guam subspecies of Micronesian kingfisher is currently extirpated in the wild, so no habitat currently is occupied. We then examined unoccupied forested lands on Guam containing the primary constituent elements that are needed for the conservation of each species (see explanation below). We identified which unoccupied areas on Guam were needed for the conservation of each species using recovery habitat identified in recovery plans and information on the historical distribution of each species. Within the area of historical distribution, we gave preference to lands that provide the largest tracts of native forest and were more recently occupied by each species. We determined the boundaries of critical habitat units by the extent of suitable forest containing the primary constituent elements. The location of these suitable forests in many areas coincided with the boundaries of military reservations, National Wildlife Refuges, and conservation areas on Guam. We also included some small non-forested areas interspersed with forested areas because of their potential for reforestation. We did not include urban lands and agricultural fields because they generally do not contain the primary constituent elements and restoration to native forest is extremely unlikely.

On Guam, we identified two units for each species using the guidelines provided by the Mariana fruit bat recovery plan (1990a), Guam forest bird recovery plan (1990b), and recommendations by our Mariana crow recovery team for the draft revised recovery plan (USFWS in prep). We also used the recommendation of the recovery team to identify one unit for the Mariana crow on Rota (USFWS in prep). For the conservation of the Mariana crow, current recovery

recommendations and the draft revised recovery plan (USFWS in prep) call for established populations in northern Guam, in southern Guam, and on Rota.

Establishing two geographically separated populations on Guam is important to decrease the risk of extirpation of the species as a result of localized, stochastic events, such as typhoons and disease outbreaks (Dobson and May 1986; NRC 1997). A long-accepted view developed from ecological research is that the existence of more than one population increases the long-term likelihood of species' persistence (Raup 1991; Meffe and Carroll 1997).

Within the designated critical habitat unit boundaries, only lands containing one or more of the primary constituent elements are designated as critical habitat. Existing features and structures within the boundaries of the mapped units, such as buildings, roads, aqueducts, antennas, water tanks, agricultural fields, paved areas, lawns, and other urban landscaped areas do not contain the primary constituent elements and therefore are not designated as critical habitat.

Section 3(5)(A)(ii) of the Act provides that areas outside the geographical area currently occupied by the species may meet the definition of critical habitat upon determination that they are essential for conservation of the species. We included unoccupied habitat in the designated critical habitat for the Guam Micronesian kingfisher and Mariana crow on Guam because, as explained below, the currently occupied habitat alone is not sufficient to provide for the conservation of the species.

*Mariana fruit bat:* Although the current population of Mariana fruit bats on Guam is small and most bats roost in a limited area, the foraging behavior and diverse diet of the fruit bats cause them to use most of the island for foraging, as documented by Wiles *et al.* (1995). Thus, all of the designated critical habitat for this species is used for foraging and/or roosting and is considered occupied.

*Mariana crow:* The critical habitat unit for the Mariana crow on Rota reflects the goal of establishing and maintaining a population of at least 75 territorial breeding pairs on Rota and our recovery team's estimation of areas necessary to meet this goal (USFWS in prep). The lands designated as critical habitat for the Mariana crow on Rota support at least 63 known breeding pairs and includes areas that are believed to support an additional 25 pairs (Morton *et al.* 1999). We included all areas identified by our recovery team as high priority, and incorporated lower

priority areas known or believed to harbor crows to provide additional habitat to support the non-breeding crow population and create greater connectivity between high-priority areas.

On Guam, the distribution and abundance of Mariana crows have declined precipitously over the last three decades (USFWS in prep.). Currently, the population consists of 10 birds occupying approximately 1,920 ac (777 ha) located in the munitions storage area of Andersen Air Force Base in northern Guam. This current distribution represents an 85 percent reduction in range from the estimated distribution in 1994 (12,633 ac; 5,112 ha) reported by Wiles *et al.* (1995).

Mariana crows are territorial; each pair defends an area of a size determined by forest type and structure (Morton *et al.* 1999). The maximum density or carrying capacity of crow pairs in a particular area depends on both habitat quality (for foraging and breeding) and the spatial arrangement of territories. On Rota, Mariana crow territories ranged from 30 to 91 ac (12 to 37 ha) in size with an average of one pair per 54 ac (22 ha) (Morton *et al.* 1999). The area currently occupied on Guam (1,920 ac; 777 ha) can support only about 35 pairs, which is fewer than the 75 pairs recommended by our recovery team and therefore is too small to support a Mariana crow population large enough to be considered safe from extinction.

Because of the territorial nature of the Mariana crow, its small total population size, limited range, vulnerability to environmental threats, and recovery goals drafted for the species, inclusion of certain currently unoccupied areas on Guam that contain the primary constituent elements is essential to the conservation of the species. Recovery to the point where listing is no longer necessary will require restoration of Mariana crows on Guam through natural dispersal, translocation, and/or release of captive birds in areas that were formerly inhabited but that are not currently occupied. Unoccupied areas adjacent to currently occupied areas are needed to allow expansion of the existing population and help alleviate threats associated with small population size. Specifically, the 10 crows currently found on Andersen Air Force Base in northern Guam do not constitute a viable population of this species. These animals are unlikely to increase their numbers to a self-sustaining level in the area they presently occupy, even with human intervention. For this population to persist over the long term, it must

expand onto adjacent lands that now are unoccupied.

*Guam Micronesian kingfisher*: The last wild kingfisher on Guam was seen in 1988, and this subspecies is believed extirpated from the wild (Wiles *et al.* 2003). The total population now consists of 63 birds in 11 captive breeding institutions in the mainland United States and by the Guam Division of Aquatic and Wildlife Resources (Bahner, *in litt.* 2003). Because the Guam Micronesian kingfisher does not exist in the wild and all suitable habitat presently is unoccupied, inclusion of unoccupied areas containing the primary constituent elements is essential to the conservation of this species. Recovery to the point where the

protection afforded by listing is no longer necessary will require restoration of the Guam Micronesian kingfisher through release of captive birds and subsequent natural dispersal into areas of Guam that formerly were inhabited.

**Critical Habitat Designation**

Lands designated as critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher all occur in one unit on Guam. Lands designated as critical habitat for the Mariana crow occur in one unit on Rota. The critical habitat units (and military, Government of Guam, and private lands on Guam excluded under sections 4(a)(3), and 4(b)(2) of the ESA, as amended by Section 318 of the fiscal year 2004 National Defense

Authorization Act) provide the full range of primary constituent elements needed by these three species, including a variety of undeveloped, forested areas that are used for foraging, roosting, shelter, nesting, and raising offspring. Designated critical habitat includes land under Federal, Commonwealth, and private ownership, with Federal lands being managed by the Department of the Interior. The approximate area and land ownership within each unit are shown in Table 1. Table 2 provides a summary of the total area identified as essential to the long-term conservation of the three species, the total area excluded from critical habitat designation, and the designated critical habitat on Guam and Rota.

TABLE 1.—APPROXIMATE AREA (ACRES, HECTARES) OF DESIGNATED CRITICAL HABITAT AREAS BY LAND OWNERSHIP

Species	Unit	Federal gov't. <sup>a</sup>	Local gov't. <sup>b</sup>	Private	Total
Mariana Fruit Bat	Mariana Fruit Bat Unit: <i>Guam</i>	376 ac (152 ha)	0 ac (0 ha)	0 ac (0 ha)	376 ac (152 ha)
	Total (Mariana fruit Bat)	376 ac (152 ha)	0 ac (0 ha)	0 ac (0 ha)	376 ac (152 ha)
Mariana Crow	Unit A: <i>Guam</i>	376 ac (152 ha)	0 ac (0 ha)	0 ac (0 ha)	376 ac (152 ha)
	Unit B: <i>Rota</i> —Subunit 1	0 ac (0 ha)	5,221 ac (2,113 ha)	447 ac (181 ha)	5,668 ac (2,294 ha)
	Unit B: <i>Rota</i> —Subunit 2	0 ac (0 ha)	349 ac (141 ha)	16 ac (7 ha)	365 ac (148 ha)
	Total (Mariana Crow)	376 ac (152 ha)	5,570 ac (2,254 ha)	463 ac (188 ha)	6,409 ac (2,594 ha)
Guam Micronesian Kingfisher	Guam Micronesian Kingfisher Unit: <i>Guam</i>	376 ac (152 ha)	0 ac (0 ha)	0 ac (0 ha)	376 ac (152 ha)
	Total (Guam Micronesian Kingfisher)	376 ac (152 ha)	0 ac (0 ha)	0 ac (0 ha)	376 ac (152 ha)
Total for all species (counting identical or overlapping units only once)		376 ac (152 ha)	5,570 ac (2,254 ha)	463 ac (188 ha)	6,409 ac (2,594 ha)

<sup>a</sup>Federal lands are under the ownership or jurisdiction of the U.S. Fish and Wildlife Service.

<sup>b</sup>Local lands are owned by and managed for the people of the Territory of Guam and the Commonwealth of the Northern Mariana Islands by the Chamorro Land Trust Commission and Marianas Public Land Authority, respectively.

TABLE 2.—APPROXIMATE AREAS IN ACRES (AC) AND HECTARES (HA) OF ESSENTIAL HABITAT, EXCLUDED AREAS, AND DESIGNATED CRITICAL HABITAT

	Guam	Rota
Area considered essential	24,121 ac (9,761 ha)	6,033 ac (2,442 ha).
Area excluded under sections 4(a)(3) and/or 4(b)(2) of the ESA, as amended by Section 318 of the fiscal year 2004 National Defense Authorization Act (Andersen Air Force Base; COMNAV MARIANAS Ordnance Annex and Communications Annex; Government of Guam lands; and private lands on Guam).	23,745 ac (9,609 ha)	0 ac (0 ha).
Final critical habitat	376 ac (152 ha)	6,033 ac (2,442 ha).

All of the designated critical habitat on Guam currently is occupied by the Mariana fruit bat. None of the critical habitat on Guam is currently occupied by the Mariana crow or Guam Micronesian kingfisher, but it was occupied historically. On Rota, the

designated critical habitat is occupied by the Mariana crow.

*Mariana Fruit Bat*

This unit consists of approximately 376 ac (152 ha) of land in the fee simple portion of the Guam National Wildlife

Refuge. The vegetation in this unit consists of coastal, limestone, and secondary forests composed of native and introduced plant species and contains the full range of primary constituent elements needed for the conservation of the Mariana fruit bat.

This area is important because it contains areas used for foraging by the only known Mariana fruit bat colony on Guam. This area also contains roosting and foraging sites used by bats since 1981 (see Wiles et al. 1995 for details). This unit also encompasses essential conservation areas identified in the Mariana fruit bat recovery plan (USFWS 1990a).

Excluded from designation (see "Exclusions from Critical Habitat") are 10,838 ac (4,386 ha) of Air Force lands, 7,977 ac (3,228 ha) of Navy lands, 2,989 ac (1,210 ha) of Government of Guam lands, and 1,941 ac (785 ha) of private lands in northern and southern Guam that were proposed as critical habitat in the October 15, 2002, proposed rule (67 FR 63738), leaving a final designation of 376 ac (816 ha). Although Air Force, Navy, Government of Guam, and private lands are excluded from final critical habitat designation, they still contribute to the conservation of the Mariana fruit bat.

#### *Mariana Crow*

##### Unit A: Guam

Unit A consists of approximately 376 ac (152 ha) of land in the fee simple portion of the Guam National Wildlife Refuge. Unit A includes limestone, secondary, and coastal forests composed of native and nonnative plants and contains the full range of primary constituent elements needed for long-term conservation of the Mariana crow on Guam. This area includes lands in the 1994 historical distribution of Mariana crows in northern Guam (Wiles et al. 1995) and areas that contained crows in northern Guam in 1981 (Engbring and Ramsey 1984). Unit A was also identified by our Mariana crow recovery team as important recovery habitat in the draft revised Mariana crow recovery plan (USFWS in prep.).

Excluded from designation (see "Exclusions from Critical Habitat") are 10,838 ac (4,386 ha) of Air Force lands, 7,977 ac (3,228 ha) of Navy lands, 2,768 ac (1,121 ha) of Government of Guam lands, and 1,941 ac (785 ha) of private lands in northern and southern Guam that were proposed as critical habitat in the October 15, 2002, proposed rule (67 FR 63738), leaving a final designation of 376 ac (152 ha). Although Air Force, Navy, Government of Guam, and private lands are excluded from final critical habitat designation, they still contribute to the conservation of the Mariana crow.

##### Unit B: Rota

Unit B consists of approximately 6,033 ac (2,442 ha) of forested land encompassing much of the undeveloped

areas on Rota. This area contains the Afatung Wildlife Management Area, I Chenchon Bird Sanctuary, and forested areas on public and private lands around the Sabana and Sinapalu plateaus. Unit B is composed of limestone, secondary, agricultural, coastal, and ravine forests consisting of native and nonnative plants and contains the full range of primary constituent elements needed for long-term conservation of the Mariana crow on Rota. This area includes the known breeding territories of at least 63 Mariana crow pairs and possibly those of an additional 25 pairs (Morton et al. 1999). This area also includes the areas on Rota identified by our Mariana crow recovery team as important conservation areas in the draft revised Mariana crow recovery plan (USFWS in prep.).

The critical habitat designated in Unit B consists of five sections. The first section includes the Afatung Wildlife Management Area in the Pali region and the forested areas in the Finata, Alaguan, and I Koridot regions. The second section includes the I Chenchon Bird Sanctuary and the forested areas in the I Chiugai and As Dudo regions of eastern Rota. The third section consists of much of the forested areas in the As Matmos, Mochong, Lalayak, Pekngasu, and I Batko regions, as well as the forested areas adjacent to the Rota Resort. The fourth section includes much of the forested areas in the Mananana, Uyulan Hulo, Sailgai Hulo, Gayauga, Lempanai, and Lupok regions. The fifth section includes much of the forested areas, as well as some of the grassland areas, in the Talakhaya and Gaonan regions of southern Rota. None of Unit B was excluded.

#### *Guam Micronesian Kingfisher*

Designated critical habitat for the Guam Micronesian kingfisher consists of approximately 376 ac (152 ha) of land in the fee simple portion of the Guam National Wildlife Refuge. The vegetation in this designated unit consists of coastal, limestone, and secondary forests composed of native and introduced species that contain the full range of primary constituent elements required for the long-term conservation of the Guam Micronesian kingfisher in northern Guam. This unit includes forested areas along the northwestern coasts of the island that were occupied by Guam Micronesian kingfishers in the 1970s and early 1980s (Drahos 1977; Maben and Aguon 1980, 1981; Engbring and Ramsey 1984). This unit also encompasses essential conservation areas identified in the forest bird recovery plan for northern Guam (USFWS 1990b).

Excluded from designation (see "Exclusions from Critical Habitat") are 10,838 ac (4,386 ha) of Air Force lands, 7,977 ac (3,228 ha) of Navy lands, 2,989 ac (1,210 ha) of Government of Guam lands, and 1,941 ac (785 ha) of private lands in northern and southern Guam that were proposed as critical habitat in the October 15, 2002, proposed rule (67 FR 63738), leaving a final designation of 376 ac (152 ha). Although Air Force, Navy, Government of Guam, and private lands are excluded from final critical habitat designation, they still contribute to the conservation of the Guam Micronesian kingfisher.

#### **Effects of Critical Habitat Designation**

##### *Section 7 Consultation*

Section 7 of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. In our regulations at 50 CFR 402.2, we define destruction or adverse modification as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to: Alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical." We are currently reviewing the regulatory definition of adverse modification in relation to the conservation of the species.

Section 7(a) of the Act requires Federal agencies, including the Service, to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is proposed or 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 us on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The conservation recommendations in a conference report are advisory. If a species is listed or critical habitat is designated, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed

species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Through this consultation, the action agency ensures that the permitted actions do not destroy or adversely modify critical habitat.

When we issue a biological opinion concluding that a project is likely to result in the destruction or adverse modification of critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. "Reasonable and prudent alternatives" are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid destruction or adverse modification of 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 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where critical habitat is subsequently designated and the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control is authorized by law. Consequently, some Federal agencies may request reinitiation of consultation or conference with us on actions for which formal consultation has been completed, if those actions may affect designated critical habitat or adversely modify or destroy proposed critical habitat.

We may issue a formal conference report if requested by a Federal agency. Formal conference reports on proposed critical habitat contain an opinion that is prepared according to 50 CFR 402.14, as if critical habitat were designated. We may adopt the formal conference report as the biological opinion when the critical habitat is designated, if no substantial new information or changes in the action alter the content of the opinion (*see* 50 CFR 402.10(d)).

Activities on Federal lands that may affect these species or their critical habitat will require section 7 consultation. Activities on private or State lands requiring a permit from a Federal agency, such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act, a

section 10(a)(1)(B) permit from the Service, or some other Federal action, including funding (*e.g.*, Federal Highway Administration or Federal Emergency Management Agency funding), will also continue to be subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat and actions on non-Federal and private lands that are not federally funded, authorized, or permitted do not require section 7 consultation.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation. Activities that may destroy or adversely modify critical habitat include those that appreciably reduce the value of critical habitat to the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher. We note that such activities may also jeopardize the continued existence of the species.

To properly portray the effects of critical habitat designation, we must first compare the section 7 requirements for actions that may affect critical habitat with the requirements for actions that may affect a listed species. Section 7 prohibits actions funded, authorized, or carried out by Federal agencies from jeopardizing the continued existence of a listed species or destroying or adversely modifying the listed species' critical habitat. Actions likely to "jeopardize the continued existence" of a species are those that would appreciably reduce the likelihood of the species' survival and recovery. Actions likely to "destroy or adversely modify" critical habitat are those that would appreciably reduce the value of critical habitat to the listed species.

Common to both definitions is an appreciable detrimental effect on both survival and recovery of a listed species. Given the similarity of these definitions, actions likely to destroy or adversely modify critical habitat would often result in jeopardy to the species concerned when the area of the proposed action is occupied by the species concerned.

Federal agencies already consult with us on activities in areas currently occupied by the species to ensure that their actions do not jeopardize the continued existence of the species. These actions include, but are not limited to:

(1) Actions that would result in removing, thinning, or destroying Mariana fruit bat, Guam Micronesian

kingfisher, or Mariana crow forest habitat by burning, mechanical, chemical, or other means (*e.g.*, woodcutting, grading, overgrazing, construction, road building, mining, herbicide application, *etc.*). These activities could eliminate habitat necessary for the growth and reproduction of these species.

(2) Actions that would result in appreciably decreasing habitat value or quality through introduction or promotion of potential nest predators, disease or disease vectors, vertebrate or invertebrate food competitors, invasive plant species, forest fragmentation, overgrazing, augmentation of feral ungulate populations, water diversion or impoundment, groundwater pumping or other activities that alter water quality or quantity to an extent that affects vegetation structure, or activities that increase the risk of fire. These actions could eliminate or reduce the habitat necessary for the growth and reproduction of these species.

We consider the Mariana fruit bat critical habitat unit to be occupied by the species because it is utilized by foraging and roosting Mariana fruit bats. We also consider the Mariana crow critical habitat Unit B on Rota to be occupied by the species because it is utilized by nesting and foraging Mariana crows. Federal agencies already consult with us on activities in areas currently occupied by the species or if the species may be affected by the action to ensure that their actions do not jeopardize the continued existence of the species.

If you have questions regarding whether specific activities will likely constitute destruction or adverse modification of critical habitat, contact the Field Supervisor, Pacific Islands Fish and Wildlife Office (*see* ADDRESSES section). Requests for copies of the regulations on listed plants and animals, and inquiries about prohibitions and permits, may be addressed to the U.S. Fish and Wildlife Service, Division of Endangered Species, 911 N.E. 11th Ave., Portland, OR 97232-4181 (telephone 503/231-2063; facsimile 503/231-6243).

#### Exclusions From Critical Habitat

##### *Guam Lands Under U.S. Air Force Jurisdiction*

Section 4(a)(3) of the Act, as amended by Section 318 of the fiscal year 2004 National Defense Authorization Act (Public Law No: 108-136), states that the Secretary of the Interior shall not designate critical habitat on Department of Defense lands that are subject to an INRMP prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines the plan provides

a benefit to the species. Department of Defense lands may be excluded from critical habitat under section 4(a)(3) if they are subject to an operative INRMP which provides a benefit by addressing the maintenance or improvement of primary constituent elements important to the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher.

As previously explained, the primary cause of the decline and disappearance of native bird and bat species on Guam has been predation by nonnative species, especially the brown treesnake (Savidge 1986, 1987; USFWS 1990a, 1990b, 2004a, in prep; Wiles *et al.* 1995). Habitat loss and degradation by a combination of development and suppression of forest growth by introduced ungulates also have contributed to the decline of native species in the Mariana archipelago. In addition to these other threats, hunting has had a significant impact on the Mariana fruit bat.

The management actions needed to address these threats and ensure the survival and long-term conservation of the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher are described in the recovery plans for these three species and other documents (USFWS 1990a, 1990b, 2004a, in prep; Wiles *et al.* 1995; NRC 1997). Some of these management actions include: (1) Control brown treesnakes and other nonnative predators, and conduct research to develop methods for control over large areas and eradication; (2) conduct management activities, *e.g.*, feral ungulate control and reforestation, which are necessary to protect and enhance existing essential habitat on Guam and Rota; (3) protect fruit bats from illegal hunting; and (4) reintroduce the Mariana crow and Guam Micronesian kingfisher to northern and southern Guam and establish self-sustaining populations.

The Air Force completed a final INRMP for Andersen Air Force Base in February 2002 which was updated in December 2003 (Air Force 2003). This updated plan covers all Air Force lands included in Andersen Air Force Base in northern Guam. The long-term natural resource management goal of Andersen Air Force Base is to: “[m]anage, conserve, protect, and enhance Andersen Air Force Base’s natural and cultural resources and environmental quality in the best national interest, compatible with military operations and in accordance with the principles of multiple use and sustained yield (for harvestable resources). All natural resources management programs will be undertaken with a special emphasis on the protection and recovery of

endangered and threatened species, and to perpetuate Guam’s native biodiversity.”

To achieve this goal, the INRMP for Air Force lands includes several projects that will maintain or benefit the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher. These projects include: development and implementation of a Mariana fruit bat colony protection plan, area-wide brown treesnake trapping, construction of a cat barrier around Area 50, removal of feral ungulates from the Munitions Storage Area and Area 50, construction of ungulate exclosures in areas of high ecological value and removal of ungulates from these exclosures, monitoring of habitat regeneration in these exclosures, base-wide “habitat biodiversity monitoring,” and public education on conservation issues. All of these actions have been developed through coordination with the Service.

In addition, the Air Force has authorized the Guam Division of Aquatic and Wildlife Resources to release and monitor captive-reared Guam rails (*Gallirallus owstoni*; formerly extirpated) and translocate captive-reared Mariana crows on Andersen Air Force Base (Vice *et al.* 2001; Radway 2003; USFWS in prep). In the past four years, 17 Mariana crows and 62 Guam rails have been released on Guam, all on Air Force lands (D. Vice, pers. comm.; USFWS in prep). In their INRMP, the Air Force also affirms its support for the eventual release of captive-bred Guam Micronesian kingfishers on their lands (Air Force 2003).

The activities described above result in the following benefits to the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher: (1) Significant reduction of treesnakes in the area currently occupied by Mariana crows on Guam, (2) progress toward more efficient methods for controlling brown treesnakes, (3) habitat enhancement for all three species, (4) potential increase in nest success for Mariana crows, (5) augmentation of the crow population on Guam, (6) increased knowledge of the crow’s biology through monitoring, and (7) physical protection of the Mariana fruit bat colony on Andersen Air Force Base. The comprehensive list of ongoing and proposed management activities detailed in the INRMP (Air Force 2003) address management actions (predator control, protection and enhancement of essential habitat, protection of fruit bats from illegal hunting, and reintroduction and establishment of self-sustaining populations of these three species) that provide a significant conservation benefit to the species. Without these

management actions on Andersen Air Force Base, the Mariana crow and Mariana fruit bat likely would be extirpated from Guam, and no suitable areas for reintroduction of the Guam Micronesian kingfisher would exist.

In view of the benefit to the bat and birds of the foregoing management and stewardship actions detailed in the updated Andersen Air Force Base INRMP, the area is not included as critical habitat under Section 4(a)(3) of the Act, as amended by Section 318 of the fiscal year 2004 National Defense Authorization Act. Although these areas are not included from the final critical habitat designation, they remain essential for the conservation of the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher, and management for the conservation of these species on Andersen Air Force Base is necessary to meet the overall recovery goals for these species.

#### **Analysis of Impacts Under ESA Section 4(b)(2)**

Section 4(b)(2) of the Act, as amended by subsection (b) of Section 318 of the fiscal year 2004 National Defense Authorization Act (Public Law No: 108–136), requires us to designate critical habitat on the basis of the best scientific and commercial information available, and to consider the economic, national security, and other relevant impacts of designating a particular area as critical habitat. We may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat. We cannot exclude such areas from critical habitat when such exclusion will result in the extinction of the species concerned.

#### *Economic Impacts*

Following the publication of the proposed critical habitat designation on October 15, 2002, a draft economic analysis was prepared to evaluate the direct and indirect economic impact associated with the proposed designation, in accordance with recent court decisions, such as *N.M. Cattlegrowers Ass’n v. U.S. Fish and Wildlife Serv.*, 248 F.3d 1277 (10th Cir. 2001). The draft analysis was made available for review on December 5, 2002 (67 FR 72407). We accepted comments on the draft analysis until the comment period closed on January 6, 2003. We reopened the comment period on January 28, 2003, and accepted additional comments on the draft analysis until February 18, 2003 (68 FR 4159).

Our draft economic analysis evaluated the direct and indirect economic

impacts associated with our proposed critical habitat designation for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher on the island of Guam and the Mariana crow on the island of Rota over the next ten years. Direct impacts are those related to consultations under section 7 of the Act. They include the cost of completing the section 7 consultation process and potential project modifications resulting from the consultation. Indirect impacts are secondary costs and benefits not directly related to compliance with the Act. Examples of indirect impacts include potential effects to property values and the cost of investigating the requirements resulting from a critical habitat designation.

The categories of direct and indirect costs considered in the analysis included the costs associated with: (1) Conducting section 7 consultations; (2) modifications to projects, activities, or land uses resulting from section 7 consultations; (3) uncertainty and public perceptions resulting from the designation of critical habitat, including potential effects on property values; and (4) the potential offsetting beneficial costs associated with critical habitat. The most likely economic effects of critical habitat designation are on activities funded, authorized, or carried out by a Federal agency (*i.e.*, direct costs).

Following the close of the comment period on the proposed rule and draft economic analysis, an addendum was completed that incorporated public comments on the draft analysis and made other changes as necessary. The draft economic analysis and addendum address the impact of the proposed and final critical habitat designation, respectively, that may be attributable coextensively to the listing of the species. Because of uncertainty about the benefits and economic costs resulting solely from critical habitat designations, it is reasonable to estimate the economic impacts of a designation utilizing this single baseline.

Together, the draft economic analysis and the addendum constitute our final economic analysis. The final economic analysis estimates that, over the next 10 years, the designation (coextensive with the listing) may result in direct economic impacts from implementation of section 7 of approximately \$1.227 million present value cost. This increase of approximately \$173,630 from the draft economic analysis' estimated potential direct economic effects from implementation of section 7 is due primarily to the evaluation of new projects identified during the public comment periods. This estimate also

includes Air Force, Navy, Government of Guam, and private lands that were proposed as critical habitat but have been excluded from the final designation. Therefore, the direct cost of designating critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher is likely lower than this estimate. We have excluded much of these lands so the direct economic impacts of the final designation is likely to be substantially lower than this estimate. With approximately 90 percent reduction in acreage and only refuge and Rota lands remaining, the cost may be closer to \$463,300.

While our final economic analysis includes an evaluation of potential indirect costs associated with the designation of critical habitat for Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher on Guam and the Mariana crow on Rota, there is considerable uncertainty whether any or all of these indirect impacts will occur, as they depend upon actions and decisions by entities other than the Service under circumstances for which there is limited or no history that can be used to determine the probability of different outcomes. The costs are of necessity speculative and may overestimate the impacts. However, without having more specific information, a conservative approach (maximum economic impact) was used.

The final economic analysis discusses economic benefits in qualitative terms rather than providing dollar estimates because of the lack of information available to quantify the economic benefits of endangered species preservation and ecosystem improvements. The economic analysis identifies existence value, use value, recreational benefits, overall ecosystem health, and ecosystem preservation values as potential benefits of critical habitat designation. However, as stated above, economic benefits could not be estimated quantitatively due to a lack of information.

A more detailed discussion of the economic impacts is contained in the draft economic analysis and the addendum. Both documents are available for inspection at the Pacific Islands Fish and Wildlife Office and are available by request (*see ADDRESSES* section).

No critical habitat units in the proposed rule were excluded or modified due to economic impacts because the expected cost of the designation is not expected to be significant. The likely direct cost of designating critical habitat on Guam for the Mariana fruit bat, Mariana crow, and

Guam Micronesian kingfisher is estimated to be \$162,582 per year over the next ten years. This estimate, however, includes areas that were proposed as critical habitat but have been excluded from the final designation on Guam. Therefore, the anticipated direct costs of designating critical habitat on Guam for these three species are likely lower. The likely direct cost of designating critical habitat on Rota for the Mariana crow is estimated to be \$12,142 per year over the next ten years.

#### *National Security and Other Impacts*

The following analysis describes the likely positive and negative impacts of a critical habitat designation on Navy lands, Government of Guam lands, and private lands on Guam compared to the likely positive and negative impacts of a critical habitat exclusion on those lands. The Service focused on the following issues: to what extent a critical habitat designation would confer conservation, regulatory, and educational benefits, and to what extent an exclusion of critical habitat would reduce or eliminate negative impacts to the Navy's military mission and stewardship program under their COMNAVMARIANAS INRMP and the Government of Guam's stewardship program under their proposed alternative to critical habitat designation.

#### *Lands Under U.S. Navy Jurisdiction*

##### (1) Benefits of Designating Navy Lands as Critical Habitat

Under section 7 of the Act, each Federal agency shall, in consultation with the Service, insure that any action authorized, funded, or carried out by the Federal agency is not likely to jeopardize the continued existence of a listed species or result in destruction or adverse modification of critical habitat. In the consultation process, a determination is made as to whether the proposed action is likely to result in jeopardy to the species or destruction or adverse modification of critical habitat. If jeopardy and/or adverse modification are likely, then the Service is required to provide reasonable and prudent alternatives to the proposed action to avoid jeopardy to the species and/or adverse modification of critical habitat. In addition, under section 7 of the Act, if the proposed action is not likely to jeopardize any listed species, but is anticipated to result in incidental take of a listed species then reasonable and prudent measures are required to minimize such incidental take. The primary regulatory benefit of critical

habitat designation on Navy lands would be to ensure that no actions authorized, funded, or carried out by the Navy would be likely to destroy or adversely modify critical habitat.

Critical habitat was proposed on 8,285 ac (3,353 ha) of Navy lands at the Communications Annex and the Ordnance Annex. These lands are considered occupied by foraging Mariana fruit bats, and unoccupied by the Mariana crow and Guam Micronesian kingfisher. In 1994 the Navy entered into a cooperative agreement with the Service to create the Guam National Wildlife Refuge Overlay on Navy lands in Guam (Navy and USFWS 1994). The primary goal of the overlay refuge is to address the conservation needs of listed species through “\* \* \* a long-term, comprehensive program [that] \* \* \* includes \* \* \* brown treesnake control and eradication, \* \* \* habitat and ecosystem protection, endangered and threatened species recovery and reintroduction.” (Navy and USFWS 1994). This agreement also provided that the Navy will coordinate with the Service for any Federal action which may affect Navy lands included within the Guam National Wildlife Refuge and identified in published recovery plans as providing essential habitat for these three species. Approximately 8,278 ac (3,350 ha) of proposed critical habitat were within the Guam NWR overlay lands on the two Navy facilities. Therefore, any Federal activities which may affect these areas, even if they are not currently occupied by the species, requires coordination between the Service and the Navy regarding impacts to this habitat.

Currently, the Service believes that the proposed critical habitat for the Mariana crow and Guam Micronesian kingfisher on Navy lands is unoccupied by these species. The recovery goals for these species are discussed under “Criteria Used to Designate Critical Habitat.” In order to reach the goals, unoccupied areas on Navy lands will need to be occupied by self-sustaining populations. Neither recovery of these species nor long-term conservation of the Mariana fruit bat are possible without active management of their habitat, including brown treesnake control, habitat restoration and enhancement, and control of poaching (USFWS 1990a).

As noted above, a critical habitat designation in these unoccupied areas would ensure that the Navy would consult with the Service for any actions it proposes that may affect this unoccupied habitat, and would require the Navy to avoid actions that would

destroy or adversely modify the habitat. However, avoiding habitat destruction or adverse modification may not result in a reintroduction of these species, nor other active conservation measures identified in the recovery plans and currently being undertaken by the Navy to increase the quality of this habitat for listed species (e.g. predator control, anti-poaching efforts, etc).

Another potential value of a critical habitat designation on Navy lands is the education of Navy personnel and the general public concerning the conservation value of these lands. Proposed and final critical habitat rules may serve an educational function by communicating to the public and military personnel that specific land areas are essential to the long-term conservation of listed species. However, most of these benefits have been effectively communicated through our publication of the proposed critical habitat rule, the many public and interagency meetings held to discuss the proposal, and the discussion of the excluded areas in the notice for this final rule. The inclusion of much of this land within the Guam National Wildlife Refuge overlay and the identification of essential habitat in the published recovery plans for these species (USFWS 1990a; 1990b) also confer important educational benefits.

#### (2) Benefits of Excluding Navy Lands From Critical Habitat Designation

The Navy is engaged in, or had committed to engage in, a wide variety of proactive conservation activities on their lands in Guam. These activities include brown treesnake control measures, protection and enhancement of degraded habitat, and controlling the illegal hunting of Mariana fruit bat.

The Navy has expressed concern that the overall economic burden of a critical habitat designation may reduce the funding available for these essential conservation activities. Given their strong statement of opposition, there is also concern a designation on Navy lands may reduce their incentive to maximize their conservation efforts on Guam (Moore, *in litt.*, 2002). The Service does believe that a critical habitat designation may negatively affect the Navy’s continued commitment to large-scale conservation and management efforts on Guam, as it would result in potential delays in completing section 7 consultation requirements that would be triggered by critical habitat designations.

While section 7(a)(1) of the Act requires Federal agencies to carry out programs for the conservation of listed species, it does not require any specific

actions or expenditures in any specific locations. The conservation actions noted above remain voluntary on the part of the Navy.

In addition, under the cooperative agreement which established the Guam National Wildlife Refuge, the Navy retains the right to withdraw its lands from the refuge if critical habitat is designated. While the Navy has not openly stated any intent to do so, this remains a possibility, and would be a considerable loss for the conservation of these species.

The Service also finds that a final critical habitat designation would negatively impact the Navy’s military mission, and thus national security. Overall, the Service has been able to work closely and in a positive, collaborative fashion with the Navy to minimize potential negative impacts to the Navy’s training and operational activities as a consequence of the Act’s regulations. However, consultations cannot avoid taking time, and in many cases conservation measures may result from consultation. Delays and additional costs to accomplish training or operational needs may have significant adverse consequences on military readiness essential to national security.

Navy lands on Guam are used for training by the Navy, Marines, Army, Air Force, National Guard and Reserves. Forces based in the continental United States, along with those that are forward-based and forward-deployed, train on these lands. The Ordnance Annex offers areas for company-level operations, helicopter landing zones, and combat swimmer training. The Communications Annex is suitable for ground maneuvers, patrols and raids, and has a small arms range.

The Deputy Chief of Naval Operations has commented on this proposal that:

“We are extremely concerned that a critical habitat designation may curtail or prevent continued use of these areas for military purposes, void taxpayer investments in infrastructure to support military activities at these locations, and require costly investments elsewhere to accomplish training requirements.”

Military experience in recent combat situations has demonstrated that about 70 percent of combat casualties are due to lack of or insufficient training (Draft Economic Analysis, page 6–43). Modifications to training necessitated by a critical habitat designation could reasonably result in less realistic training methods. The Service is not in a position to determine how many such restrictions, perhaps individually not having a significant impact, may be incurred before training for Navy and

other military personnel would be degraded, whether the military might feel required to switch its training elsewhere, at considerable cost to taxpayers, or whether alternative areas are in fact available.

In addition to possible restrictions on training and operations, the Navy has expressed concern over the delay inherent in having to undertake additional consultations. Critical habitat designations are likely to mean that certain Navy projects which currently receive categorical exclusions from National Environmental Policy Act (NEPA) requirements may be required to prepare NEPA documentation, in addition to the section 7 consultations. This can result in additional costs of between \$20,000 to \$100,000 and delays of six to nine months per project. If the project in question is military training, these delays could mean forces being deployed with inadequate training.

### (3) The Benefits of Excluding Navy Lands From Critical Habitat Outweigh the Benefits of Inclusion

Based on the above considerations, we have determined that the benefits of excluding Navy lands on Guam from this critical habitat designation, including benefits to national security, outweigh the benefits of including them.

#### *Exclusion of Navy Lands Will Not Cause Extinction of the Species*

We conclude that the Navy's management plans and conservation efforts will provide long-term conservation benefits greater than those which would be provided if these Navy lands were designated as critical habitat. The Refuge Overlay agreement and other conservation measures described above have provided, and will continue to provide, tangible, beneficial, proactive conservation measures that will reduce the likelihood of extinction of these three species and increase the likelihood of their long-term survival.

#### *Private and Territorial Lands on Guam*

We have excluded the approximately 4,930 acres (1,995 hectares) of private and territorial lands proposed by us as critical habitat on Guam under section 4(b)(2) of the Act. This is a discretionary authority Congress has provided to the Secretary with respect to critical habitat. The analysis which led us to the conclusion that the benefits of excluding these areas exceed the benefits of designating them as critical habitat, and will not result in the extinction of the species, follows.

In this section, we first discuss the background and history of critical habitat proposals on Guam, and

summarize the Natural Resource Management Plan that was developed by the Government of Guam and issued for public comment by us on June 2, 2004 (69 FR 31073). After this introduction, we analyze the benefits of including private and Government of Guam lands within the critical habitat designation and the benefits of excluding these areas.

*Background:* In 1991, the Service first issued a proposal for critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher (56 FR 27485). Although initially requested by the Governor of Guam, once the proposal was issued, both the Governor and legislature strongly opposed it. In 1993, the Guam National Wildlife Refuge was established by cooperative agreement with the Navy and Air Force. Based on establishment of this overlay refuge, the Service withdrew the critical habitat proposal in 1994. 59 FR 15696 (1994).

However, excess military land at Ritidian Point in Guam was then transferred to the Service under the Federal excess property regulations for inclusion in the refuge. Federal ownership and regulation of land on Guam has been a particularly sore point in the relationship between the Federal Government and the Government and people of Guam since extensive condemnations of land on Guam for military purposes occurred in the years following World War II.

In this case, there was some level of expectation on Guam that the Ritidian Point lands would be made available to the Government of Guam, or returned to the prior owners, and their transfer to the Service provoked an extensive and long-lasting public outcry and created a barrier to constructive working relations between the Government of Guam and the Service. For many years there were regular demonstrations, at times approaching riots, against the Refuge, accompanied by threats against refuge staff to the point that law enforcement personnel had to be assigned for their protection, and destruction of refuge property.

In addition, the Legislature of Guam enacted legislation in reaction to this transfer (21 GCA 68950), which provided in part that it was the policy of the Government of Guam to seek the termination of Federal ownership of the wildlife refuge, and transfer of the property to Guam; that Federal jurisdiction over "local fauna, flora and habitat" be opposed, that neither the Government of Guam or any of its agencies might express approval of the existence of the refuge or enter into any agreements which could be construed as

providing support for the continuation of the refuge, and that "the government of Guam hereby disestablishes all Federal designations of critical habitat or wildlife refuge as an act of sovereignty." Although the latter provision conflicts with Federal law and is therefore invalid, it is an express statement of local opinion regarding critical habitat designations on Guam.

*Natural Resource Management Plan for lands on Guam (Plan):* The Government of Guam developed a natural resource management plan as an alternative to critical habitat and submitted it to the Service on April 1, 2004. While Guam termed the plan an "Integrated Natural Resource Management Plan," we are labeling it a natural resource management plan, or Plan, here to avoid confusion with the Integrated Natural Resource Management Plans developed by the military pursuant to the Sikes Act, which have a variety of statutory requirements associated with them that are not applicable to Guam's plan, and which are also discussed in this notice. We issued the Plan for public review and comment as noted above.

The Guam Plan proposes making available 4,548 acres of Government of Guam land to the recovery of the listed species, and a large number of general and specific actions related to increasing public awareness of the needs of the species, and habitat management and enhancement, monitoring and training to assist in the recovery of the listed species for which critical habitat is being considered.

We agree with the Government of Guam that its implementation would be beneficial for the listed species. In general, recovery of these species will require active management that includes but is not limited to brown treesnake control, habitat protection and enhancement, and translocation or reintroduction of species to establish several self-sustaining populations. Failure to implement these management measures would preclude recovery of the Mariana crow and Guam Micronesian kingfisher and increase the risk of extinction for Mariana fruit bat. It is unlikely that these efforts can occur successfully without the support of the Government of Guam and without the use of Government of Guam and/or private lands. We must also note that the Plan is far less detailed and certain of implementation than the Integrated Natural Resource Management Plans (INRMPs) developed by the Navy and the Air Force for their lands on Guam, and if judged by the standards established for INRMPs, it would likely not be approved. However, we believe

that as a sign of the desire of the Government of Guam to increase cooperation with the Service on the conservation and recovery of these species, particularly when considered against past relations, it is a significant positive step.

It is clear from the record that the designation of critical habitat could be expected to adversely impact our working relationship with the Government of Guam. The record indicates and we agree that Federal regulation through critical habitat designation would be viewed as an unwarranted and unwanted intrusion into Guam's affairs, and likely be viewed by a sizeable segment of the population and of the legislature as "another Federal land grab."

Our working relationship with the Government of Guam has been improving in recent years in relation to natural resource programs of mutual interest, following the disruptions and antagonisms that arose over the previous critical habitat proposal, as discussed above. This relationship provides a benefit to all parties involved in the conservation of the listed species. Those benefits include Guam applying for and receiving a Safe Harbor grant from the Service for the control of brown treesnakes and reintroduction of the Guam rail, a considerable lessening of the protests against the refuge, and Guam undertaking several recovery actions for these species on its own and in cooperation with the Service and with the military.

#### *Analysis: The Benefits of Exclusion Outweigh the Benefits of Inclusion*

##### (1) Benefits of Inclusion

Few additional benefits would be derived from including the Guam lands in a critical habitat designation for the three species beyond what would be achieved through the implementation of Guam's Plan and continuation of their existing conservation efforts. The principal benefit of any designated critical habitat is that activities in and affecting such habitat with a Federal nexus require consultation under section 7 of the Act and insure that Federal agency actions are not likely to destroy or adversely modify such habitat. Such consultation would ensure that adequate protection is provided to avoid destruction or adverse modification of critical habitat. However, we conclude that few regulatory benefits to the species would be gained from a designation of critical habitat on these lands. This is because as shown in the Economic Analysis, there are likely to be few, if any,

development projects with the required Federal nexus which would impact the proposed critical habitat, and because the loss of essential habitat on Guam territorial and private lands is not the primary threat to these species. With respect to future conservation actions undertaken by the Government of Guam under its Plan, since the use of existing Federal funding is integrated into the projects proposed, the section 7 consultation process will still be utilized to review these projects for their consistency with the Recovery Plan and avoidance of jeopardy to the species. The consultation process after a designation of the Guam territorial and private lands as critical habitat is unlikely to result in significant additional protections for the three species.

Another possible benefit is that the designation of critical habitat can help to educate the public regarding potential conservation value of an area, and may focus efforts by clearly delineating areas of high conservation value for the three species. Any information about these species and their habitat that reaches a wide audience, including other parties engaged in conservation activities, would be considered valuable. The Government of Guam is currently working with the Service to address habitat and conservation needs for the species, and if nothing disrupts the relationship, we anticipate that they will greatly increase their efforts, as proposed in their Plan. The public educational benefits that might flow from the designation have almost certainly already been accomplished due to the intense controversy over the proposed designation.

For these reasons, then, we believe that designation of the Guam territorial and private lands as critical habitat would have few additional benefits for the three species.

##### (2) Benefits of Exclusion

The benefits of excluding the Guam lands from designated critical habitat are more significant. They include: (1) The maintenance of effective working relationships to promote the conservation of these species and their habitat; (2) the allowance for continued meaningful collaboration in projects contributing towards recovery of these species; and (3) the provision of conservation benefits to the Guam lands that might not otherwise occur.

The designation of critical habitat would be expected to adversely impact our working relationship with the Government of Guam, as noted above.

In testimony provided for a public hearing on the critical habitat proposal,

former Governor Carl Gutierrez stated (with reference to the prospect of military lands being exempted from the designation and Guam land not being exempted): "Such unequal standards are likely to increase the levels of non-cooperation between the Service and the Government of Guam."

In his official comment to the Service on the critical habitat proposal, Governor Felix Camacho stated "This action has the potential to unravel much of the recovery infrastructure we have built on Guam over the past twenty years including the GNWR [Guam National Wildlife Refuge]." This comment not only underscored the likely adverse impact that would arise from a designation, but raised for the first time the possibility of Guam accepting the existence of the refuge. Subsequently, the news media reports the Governor has publicly raised the issue of repealing the anti-refuge statute.

Similarly, in his letter transmitting the Plan to the Service, Governor Camacho stated in part: "As you are aware, this [the proposed critical habitat designation] has been a very sensitive issue and has impacted our programs for many years. I sincerely hope that this effort is the beginning of healing those wounds and strengthening the partnerships between us. \* \* \* I am looking forward to working through the necessary steps to make this plan come to fruition."

The Service's then-Field Supervisor for the Pacific Islands Fish and Wildlife Office relayed similar concerns over likely adverse reactions to a critical habitat designation to the Washington office following the initial decision to exclude Navy and Air Force lands from the critical habitat proposal, as discussed above. "The final CH will consist primarily of GovGuam/CNMI and private lands, with a little bit of fee-simple FWS refuge land. Many local Guamanians and Chamorro activists, who are very outspoken at our public meetings and who have rioted against the Federal government in the recent past, will likely use this issue to continue to agitate against the Federal government on Guam. They complain that they are treated differently than the Feds and the military, and they may use this decision to support and press their claim." (P. Henson, USFWS, *in litt.* 2003).

For these reasons, we believe that our working relationships with the people and Government of Guam could well be enhanced if the Guam lands are excluded from the designation of critical habitat for these species, and are likely to be effectively eliminated if they are included.

In addition, as noted above, recovery of these species will require active management that includes but is not limited to brown treesnake control, habitat protection and enhancement, and translocation or reintroduction of species to establish several self-sustaining populations. Not undertaking these measures would preclude recovery of the Mariana crow and Guam Micronesian kingfisher and increase the risk of extinction for Mariana fruit bat. It is unlikely that these efforts can be successfully accomplished without the support and cooperation of the Government and people of Guam, and the designation of critical habitat is, as shown above, likely to preclude that support and cooperation. Conversely, not designating it is likely to generate increased cooperation and support, as shown by the Government of Guam's development and submission of its Plan, and the comments of the Governor accompanying its transmittal.

(3) The Benefits of Exclusion Outweigh the Benefits of Inclusion

In summary, the benefits of including the Guam territorial and private lands in the critical habitat designation are limited to a potential benefit gained through the requirements to consult and avoid adverse modification under ESA section 7 where a Federal nexus exists, and potential educational benefits. However, as discussed above, for the Guam lands these benefits would be minimal or have already occurred. The benefits of excluding these areas from being designated as critical habitat for these species are more significant, and include continued and improved cooperation between the Service and Guam towards the conservation and recovery of the species, without which recovery is unlikely to occur, and encouraging the continued development and implementation of the conservation measures outlined in their Plan as specific steps in that direction.

They also include avoiding the likely termination of cooperation as a result of public and legislative hostility to a designation, avoiding a reinitiation of public hostility towards the refuge, the primary purpose of which is the conservation of the species for which the critical habitat was proposed, and avoiding the risk that this hostility towards the Service might spill over onto hostility towards the conservation and recovery of these species.

We view the preservation and enhancement of good working relations with Guam, and their continued and increased involvement in the recovery efforts for these species, as a substantial benefit to which we give considerable

weight, and without which reintroduction and recovery of these species is unlikely to occur. We accordingly find that the benefits of excluding these areas from critical habitat designation outweigh the benefits of including these areas.

(4) The Exclusions Will Not Result in Extinction of the Species

As noted above, the Service may exclude areas from the critical habitat designation only if it is determined, "based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned." Here, we have determined that exclusion of the Guam lands from the critical habitat designation will not result in the extinction of the three species.

First, the primary threat to the species is predation by the non-native brown tree snake, not destruction of habitat (Savidge 1986, 1987; USFWS 1990a, 1990b, 2004a, in prep; Wiles *et al.* 1995). Second, the Economic Analysis found few projects likely to adversely modify the species' habitat and having the required federal nexus for consultation under section 7 of the Act were likely to occur, so that section 7 benefits from a designation, and impacts to section 7 protections from a large exclusion, would be limited.

Thirdly, the Government of Guam has proposed a natural resource management plan with valuable conservation objectives for these species, and further proposes entering into an agreement with the Service and other interested parties to carry out the Plan. Guam has offered to undertake far greater conservation measures on these areas than would be available through the designation of critical habitat. Lastly, in the event Guam does not follow through on its proposals, we retain the ability to designate critical habitat on Guam.

Accordingly, we have determined that the Guam territorial and private lands should be excluded under subsection 4(b)(2) of the Act because the benefits of excluding these lands from critical habitat for these species outweigh the benefits of their inclusion and the exclusion of these lands from the designation will not result in the extinction of the species.

We recognize that between this exclusion and those provided to the military lands initially considered for inclusion, we have excluded most of the lands initially proposed for designation as critical habitat for these species. However, Congress expressly contemplated that exclusions of large

portions of proposed critical habitat might occur when it enacted the 4(b)(2) exclusion authority. The accompanying Committee Report, House Report 95-1625, stated on page 17:

"Economic and any other relevant impact shall be considered by the Secretary in setting the limits of critical habitat \* \* \* The consideration and weight given to any particular impact is completely within the Secretary's discretion. \* \* \* The Committee expects that in some situations, the resultant critical habitat will be different from that which would have been established using solely biological criteria. In some situations, no critical habitat would be specified. \* \* \*"

We accordingly believe that these exclusions, and the basis upon which they are made, are fully within the parameters for the use of section 4(b)(2) set out by Congress.

**Summary of Comments and Recommendations**

In the proposed rule published on October 15, 2002 (67 FR 63738), we requested all interested parties submit comments on the proposal by December 16, 2002. We also contacted all appropriate Territorial, Commonwealth, and Federal agencies; landowners; and other stakeholders and invited them to comment. In addition, we solicited comments from nine biologists, all with expertise in the fields of wildlife biology and conservation biology to provide peer review of the proposed critical habitat designation. On December 5, 2002, we published a notice in the **Federal Register** extending the comment period to January 6, 2003 (67 FR 72407). On January 28, 2003, we published a notice to reopen the public comment period to February 18, 2003, in recognition of the damage and hardship sustained by Guam and Rota from Super typhoon Pongsona (68 FR 4160). This period allowed more time for submission of comments on the proposed rule and draft economic analysis. In addition, on June 2, 2004, we published a notice to reopen the public comment period to July 19, 2004, to allow interested parties to consider and comment on the Government of Guam's proposed alternative to critical habitat designation (69 FR 31073).

Seventy-two individuals, organizations, or government entities provided written and/or oral comments during the comment periods. Comments were received from 2 Federal agencies, 9 Territory or commonwealth agencies or elected officials (including the current (Felix Camacho) and previous (Carl Gutierrez) Governors of Guam), 53 private organizations or individuals,

and 8 peer reviewers. We received oral testimony from 20 individuals on Guam and 8 individuals on Rota during public hearings. Ten of the individuals providing oral testimony also provided written comments or a copy of their testimony. The remaining 33 individuals or organizations provided only written comments. We reviewed all comments received for substantive, relevant issues and new data regarding critical habitat and the three species for which critical habitat was proposed. Peer reviewer comments are summarized separately in the next section. Public comments are grouped into four general issues relating to the proposed critical habitat determination and draft economic analysis and are addressed in the summary below.

#### Peer Review

We solicited independent opinions from a total of 33 knowledgeable individuals with expertise in one or several fields, including familiarity with the species, the geographic region, or the principles of conservation biology. During our development of the proposed rule, we sent draft maps of important habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher to 29 of those reviewers and received responses from 9. In accordance with our policy published on July 1, 1994 (59 FR 34270), we solicited peer review of the proposed rule from 10 individuals, 6 of whom had reviewed the habitat maps earlier. Of those 10, we received responses from 8. Peer reviewers included experts from the Air Force, Philadelphia Zoo, Guam Department of Agriculture, CNMI Division of Fish and Wildlife, Smithsonian National Zoo, BirdLife International—Fiji, U.S. Geological Survey (Forest and Range Ecosystem Science Center, Oregon; Fort Collins Science Center), Lincoln Park Zoo (Chicago, Illinois), Colorado State University, Virginia Polytechnic Institute and State University, and private biological consultants.

All eight peer reviewers thought our methods for designating critical habitat were sound, the best available scientific information was used, and the relevant scientific literature, reports, and recent research were summarized adequately. All eight also felt that inclusion of currently unoccupied areas and of degraded areas with restoration potential was justified and well supported, and that the definition of primary constituent elements and the criteria used to identify the proposed critical habitat were comprehensive, valid, and justified. All eight reviewers generally supported the draft

delineation of critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher on Guam and for the Mariana crow on Rota.

Five peer reviewers stated that we had identified in the proposed rule an ecologically appropriate configuration of habitats and geographic areas. Five stated that this configuration includes sufficient area overall to support the long-term conservation of these three species, though several also noted it would be difficult to justify changing the boundaries significantly. Two said the amount of critical habitat proposed was the minimum necessary to support the long-term conservation of the species. Four reviewers stated that the inclusion of certain Government of Guam and private lands is justified by the quality of the habitat in those areas. Two reviewers stated that the designation of critical habitat is necessary for the recovery of these three species despite the management challenges presented by the brown treesnake, and one reviewer emphasized that, in addition, brown treesnakes on Guam and rats and feral cats on Rota must be effectively controlled as part of the long-term conservation of the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher. One reviewer observed that designation of critical habitat is especially important for the crow and kingfisher on Guam because, other than the very small crow population on Andersen Air Force Base, these species are not present. One reviewer particularly supported our recognition that the Guam Micronesian kingfisher will need to have two populations on Guam, and hence habitat in the south as well as in the north, for the species to withstand chance occurrences that could extirpate a single population. Two reviewers commended our reference to studies conducted on related taxa in other locations and, at the same time, our caution in applying the results of such studies to the Mariana Islands. Responses to peer reviewer comments are included below with our responses to public comments.

#### Issue 1: Biological Justification and Methodology

(1) *Comment:* Three reviewers questioned whether we had identified sufficient critical habitat for the Mariana crow, given the large territory size of this species. These reviewers also stated their opinion that the population goals identified in the draft revised recovery plan for the crow seem to be too low.

*Our Response:* The Service used published and unpublished information about the habitat requirements of the Mariana crow to define the primary

constituent elements (PCEs) for this species, and we identified areas on Guam and Rota containing these habitat characteristics. We used recovery criteria drafted by our Mariana crow recovery team and information about territory size to calculate the amount of area needed to support viable populations to determine the boundaries of critical habitat for the Mariana crow on Guam and Rota. The recovery team drafted the population goals for recovery of the species based on population viability analyses that included the best data available on the demography and life history of the crow and on its habitat parameters.

(2) *Comment:* Two commenters stated that the existing conservation areas on Rota provide sufficient habitat for the Mariana crow and that the crow population on the island doesn't require more than 1,500 or 2,000 acres.

*Our Response:* Our calculation of the amount of habitat required to support a viable population of Mariana crows on Rota, which exceeds the area encompassed by existing conservation areas on the island, was based on the best available data on the crow's territory size and on the recommendations of our Mariana crow recovery team. Please see the section of this rule entitled "Criteria Used To Identify Critical Habitat" for more details.

(3) *Comment:* One reviewer questioned whether we had identified sufficient critical habitat for the fruit bat, given the data we present on the wide-ranging foraging habits of this species.

*Our Response:* Our delineation of critical habitat for the Mariana fruit bat was constrained by the extent of forest containing the primary constituent elements needed by bats, *i.e.*, food plants and areas sufficiently remote to provide adequate roost sites. Although bats do range widely when they forage, the presence of the PCEs, and hence the quality of the foraging range, is variable. For example, the large areas dominated by tangantangan do not provide foraging habitat for fruit bats. These therefore were not included in critical habitat.

(4) *Comment:* One peer reviewer and one commenter suggested that the Urunao and Jinapsan areas in northern Guam, and the cliff faces in these areas and at Ritidian Point, should be included in critical habitat because bats use these areas, they provide a buffer for the historical fruit bat colony sites along the north coast, and they contain the PCEs for the Mariana crow and Guam Micronesian kingfisher. A commenter asked why lands below the cliffline are

included in critical habitat in some areas and not in others.

*Our Response:* We agree that some of the Jinapsan and Urunao private lands do contain the PCEs for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher, but some of these lands were not included in the proposed critical habitat because these lands were degraded, and we determined that they were not essential to the long-term conservation of these species. For this same reason, we included in the proposed critical habitat some areas below the cliffline and not others (*i.e.*, not all lands below clifflines are essential to the long-term conservation of these species). We agree with the reviewer and commenter, and in this final rule, we have included all of the Guam National Wildlife Refuge lands at Ritidian Point in critical habitat, including the cliff faces. After reviewing those small areas at Urunao and Jinapsan that were included in the proposed critical habitat, in this final designation we have determined that those private lands also are not essential to the conservation of these species. Although they do contain the PCEs, these lands are not included in the critical habitat designation.

(5) *Comment:* One reviewer stated that the quality of the remaining forest on Guam has declined since the 1990 recovery plans (USFWS 1990a, 1990b) defined "essential habitat" for Guam's endangered birds and bats. This decline has resulted from increased populations of feral pigs, deer, and carabao and encroachment by invasive alien plants, both of which exacerbate the natural disturbance caused by typhoons. The reviewer suggests that the critical habitat for the Mariana crow be extended along the northwest and northeast of Guam to include the same areas proposed for the kingfisher and fruit bat.

*Our Response:* We acknowledge the likelihood that forest quality has declined on Guam since 1990, but without detailed documentation of this decline, we are unable to assess it in relation to the PCEs for the Mariana fruit bat, Mariana crow, or Guam Micronesian kingfisher. We thus cannot calculate how much this decline in habitat quality would, for example, influence territory size for the Mariana crow or Guam Micronesian kingfisher in order to justify a commensurate increase in the amount of habitat deemed essential for the long-term conservation of these species. However, if new information becomes available about the quality of this habitat and its adequacy for the conservation of these species, we

will consider amending this final critical habitat rule.

(6) *Comment:* One reviewer observed that we did not adequately articulate the justification for including coconut plantations in critical habitat.

*Our Response:* While a coconut plantation does not contain all of the primary constituent elements for all three species, coconut palms provide some resources for them, and we identified some unoccupied disturbed areas as essential to these species because they do contain some PCEs for the species, have high restoration potential, and/or provide connectivity between areas of high quality forest. Guam Micronesian kingfishers were documented to excavate nest cavities in coconut palms in coastal areas, and Mariana fruit bats and Mariana crows have been documented to forage in coconut-dominated forests.

(7) *Comment:* One reviewer asked why the Sabana on Rota was not identified as critical habitat for the crow.

*Our Response:* Surveys conducted on Rota in 1982, 1987, 1994, 1995, and 1998 indicate that crows do not use the upper elevations of the Sabana (Engbring *et al.* 1986; Engbring 1987; USFWS unpubl. data). We conclude that this area does not contain the PCEs for the crow, and we therefore do not include it in critical habitat for the Mariana crow. We have, however, included areas along the slopes of the Sabana that do contain the PCEs and are considered essential to the long-term conservation of the Mariana crow.

(8) *Comment:* Several commenters and one reviewer expressed concern that critical habitat designation could result in the deliberate harassment of the crow, which already is disliked locally and considered a pest. One reviewer stated that persecution of crows that may result from the designation of critical habitat for the Mariana crow on Rota is a serious concern because adult survivorship is the demographic variable with the greatest influence on the viability of the crow population.

*Our Response:* When we reviewed information about persecution (intentional harm or harassment) of crows on Rota for our prudence determination, we found we had insufficient evidence to determine that critical habitat for the crow on Rota was not prudent because of an increased risk of take. Because we do not have documentation of significant harassment of crows on Rota, we are again unable to use this concern as justification for excluding Rota from critical habitat.

(9) *Comment:* Numerous commenters, including the previous Governor of Guam, stated their opposition to critical habitat on the grounds that it does not address control or eradication of the introduced brown treesnake on Guam. Predation by the brown treesnake is commonly accepted as the primary cause of decline in the Mariana crow and Guam Micronesian kingfisher on Guam and is believed to have contributed to the decline of the Mariana fruit bat on Guam, and these commenters questioned the value of designating critical habitat for these species before this major threat is removed.

*Our Response:* The continued need to address threats to an endangered species does not obviate our statutory requirement to designate critical habitat. Controlling predators is a conservation issue separate from designating critical habitat on Guam. When a species is considered for listing under the Act, we assess the status of the species according to five factors specified in section 4(a)(1) of the Act. The three species for which we are designating critical habitat were listed as endangered in 1984, because of the effects of all five (49 FR 33881); therefore, all five must be addressed to recover these species. The loss of native habitat on Guam, predation by nonnative animals, and poaching (for the Mariana fruit bat) were particularly identified as the dominant factors leading to their decline.

Addressing each of these threats to the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher entails a variety of activities. While efforts to control the brown treesnake continue (including trapping, research on the treesnake's physiology and ecology, and the development of new toxicants and methods of delivery), it is vital that habitat for Guam's native wildlife be safeguarded for the future. Brown treesnakes may prey upon other animals, including native birds and bats, but they do not affect the structure of Guam's native forests, which harbor the primary constituent elements for the three listed species regardless of the presence of snakes.

(10) *Comment:* Two commenters observed that critical habitat will benefit brown treesnakes as well as the birds and fruit bat by protecting habitat.

*Our Response:* Efforts to control the brown treesnake on Guam will not be impeded by critical habitat designation. These efforts will take place within critical habitat when researchers and land managers determine control measures are appropriate, as they have taken place previously in areas that are

inhabited by listed species. Brown treesnake research or control experiments in critical habitat will include consultation with the Service when necessary under section 7 of the Act, as they do now when they are conducted in areas inhabited by the Mariana crow, Mariana fruit bat, or any other listed species.

(11) *Comment:* Two commenters asked why the Service does not designate critical habitat for these species on unoccupied islands, for example, the northern islands in the CNMI, instead of on Guam and Rota.

*Our Response:* This final rule implements the requirement of the Act to designate critical for these three listed species. Of these three species, the only one known to occur in the uninhabited northern islands in the Marianas is the Mariana fruit bat. Because the fruit bat currently is listed as endangered only on Guam and is not listed in the CNMI, we cannot designate critical habitat for the bat in the CNMI. To the best of our knowledge, Mariana crows and Micronesian kingfishers have never occurred on those islands, and we have no biological justification for identifying critical habitat for Mariana crows and Guam Micronesian kingfishers on those islands.

(12) *Comment:* Two commenters suggested that widespread use of pesticides by the military following World War II may have been a leading cause of the decline and extinction of Guam's birds, and the commenters asked whether this possibility has been studied.

*Our Response:* The effect on Guam's wildlife of widespread DDT use between the 1940s and 1960s has been investigated to some extent (Baker 1946; Drahos 2002), but the results have been equivocal (Diamond 1984; Grue 1985). Although predation and habitat loss are the accepted leading causes of the loss of Guam's native species, it is possible that DDT contributed somewhat to the early declines, particularly of insectivorous species such as the endangered Mariana swiftlet (*Aerodramus bartschi*). It is important to note that DDT would have affected populations of introduced predators as well, either through toxicity or reduction of the prey base. Because these effects were not measured at the time, it is difficult to sort out the relative impacts of the pesticide on Guam's native birds and on the nonnative mammals and reptiles that preyed upon them.

(13) *Comment:* Two commenters, including the acting Commissioner of the Marianas Public Land Authority, stated that because one of our major

sources of scientific information (the revised recovery plan for the Mariana crow) is in draft form, the Service has not used the best available scientific and commercial data, and furthermore the Service has used information that may be misleading or incorrect.

*Our Response:* The draft revised recovery plan for the Mariana crow contains the best and most recent data on various aspects of the life history and habitat requirements of the Mariana crow. The draft revised recovery plan has not yet been through the Service's peer review process or been approved by the Regional Director, but the information compiled in this document comes from a wide variety of published and unpublished sources that have been appraised by our Mariana crow recovery team. This team is comprised of independent, scientific experts who are well qualified to judge the value and accuracy of the data and other information in the draft revised recovery plan, including data generated by individual recovery team members.

(14) *Comment:* Two commenters asked how we know that the three species will stay within designated critical habitat.

*Our Response:* Critical habitat is not intended to create a preserve or protected area in which a particular listed species is somehow confined. Rather, the delineation of critical habitat is based fundamentally on our knowledge of which habitat components each species requires to carry out its life functions, and thus where the species have occurred naturally. Critical habitat, therefore, identifies those areas where the listed species are most likely to occur and to thrive, not to areas where they should be limited.

(15) *Comment:* Two commenters asked whether Service personnel had trespassed on private property in the process of determining map boundaries for critical habitat on Guam.

*Our Response:* Service biologists did not trespass on private property at any time. The development of the proposed critical habitat boundaries was based primarily on analysis of maps and aerial photographs from the U.S. Geological Survey and IKONOS satellite imagery, review of scientific literature, our own knowledge of the area, and discussions with other scientists familiar with these three species and with Guam and/or Rota. In addition to previous fieldwork, we visited Guam just prior to beginning development of the proposed rule, met with representatives of government agencies, and toured military bases and other lands where we obtained authorized access.

(16) *Comment:* There is no biological basis for designating critical habitat for the Mariana crow on Rota because the crow population on that island is not presently limited by the availability of habitat, and the size of the population currently exceeds the number of breeding pairs needed for recovery, as specified in the draft revised recovery plan.

*Our Response:* The purpose of critical habitat designation is to identify areas containing the primary constituent elements necessary for a listed species to carry out its life functions and to identify the quantity of those areas that are "essential to the conservation of the species," irrespective of whether those areas are occupied by the species or whether the species occupies a particular area at carrying capacity.

(17) *Comment:* The Service has not addressed the adverse impacts of jet noise on fruit bats and birds.

*Our Response:* The Service conducted a study in 1992–1995 to assess the effect of aircraft overflights on Mariana fruit bats and Mariana crows (Morton 1996). The results of this study did not indicate that aircraft overflights directly contributed to nest failure in Mariana crows, but the results did suggest that noise or visual disturbance in proximity to a crow nest or fruit bat colony may disturb the animals and cause them to leave nests or roost sites. Nevertheless, the presence of auditory or visual human disturbances does not affect the presence of the primary constituent elements used to define critical habitat.

(18) *Comment:* The inclusion of forest at Jinapsan in critical habitat is not appropriate because this habitat is on the windward side of the island and prone to high damage from typhoons.

*Our Response:* The forest at Jinapsan was excluded from final critical habitat designation. However, this forest is considered essential to the conservation of the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher because it contains the primary constituent elements for these species. The forest ecosystems of the Mariana Islands have evolved with typhoons, a typical if irregular natural disturbance in the archipelago. A particular windward forest area may be affected more than other areas by typhoons, and this may reduce its value for human activities, but it does not remove the value of the area as habitat for native species.

(19) *Comment:* Why did the Service include unoccupied habitat in the proposed critical habitat designation?

*Our Response:* Section 3(5)(A)(ii) of the Act provides a definition for unoccupied critical habitat: "specific

areas outside the geographical area occupied by the species \* \* \* upon a determination by the Secretary that such areas are essential for the conservation of the species." In many cases, the population of an endangered species is so small that the area currently occupied by the species is not enough to support a larger, self-sustaining population. On Guam, the small population of the Mariana crow and the absence of the Guam Micronesian kingfisher provide extreme examples of this situation.

Our recovery plans for these species identify the need to expand existing populations and reestablish wild populations within their historical range. Because of the very limited current range of the Mariana crow on Guam and the extirpation of the Guam Micronesian kingfisher from the wild, identifying only occupied areas as essential clearly would not meet the conservation requirements of the species. For example, the recovery goals for the Mariana crow call for a self-sustaining population of at least 75 pairs in northern Guam. The area occupied by the current population of 10–12 Mariana crows would be too small to sustain a population of 75 pairs of crows.

When designating unoccupied habitat for these species, we first evaluated lands that are suitable for each species. Of this suitable habitat, we determined what areas are essential for the conservation of each species using the guidelines outlined in the recovery plans (*i.e.*, areas that contain one or more of the primary constituent elements and that are either in good condition for conservation efforts or could be made good through appropriate management actions) and would provide space needed by the species to reach our recovery goals. These goals are as follows: At least two permanent, major colonies of Mariana fruit bats in northern Guam and one in southern Guam, each harboring at least 400 bats, and a minimum total bat population of 2,500 on the island (USFWS 1990a); 75 pairs of Mariana crows each in northern Guam, southern Guam, and on Rota (USFWS in prep); and 1,000 Guam Micronesian kingfishers in northern and southern Guam (USFWS 2004a).

Subsequent to the proposed rule, exclusions were made in northern and southern Guam (*see* "Exclusions from Critical Habitat" for details). The designated critical habitat on Guam is considered occupied by Mariana fruit bat and unoccupied by the Mariana crow and Guam Micronesian kingfisher. The designated critical habitat on Rota

is considered occupied by the Mariana crow.

(20) *Comment*: The Service should designate 6,000 acres of critical habitat for the Mariana crow on the mainland United States instead of on Rota.

*Our Response*: The Mariana crow is only found, and to the best of our knowledge has only ever been found, on the islands of Guam and Rota in the Mariana Islands. Therefore, these islands are the only appropriate locations for designating critical habitat for these species.

(21) *Comment*: What criteria were used to determine which lands would be included in critical habitat?

*Our Response*: We refer the commenter to the "Critical Habitat Designation" section of the proposed rule and of this final rule.

In summary, as required by the Act and regulations (section 4(b)(2) and 50 CFR 424.12), we used the best scientific information available to identify areas that contain the physical and biological features that are essential for the conservation of the Mariana fruit bat, Guam Micronesian kingfisher, and Mariana crow. This information included: Peer-reviewed scientific publications (*e.g.*, Baker 1951; Jenkins 1983; Wiles *et al.* 1995; NRC 1997); published and draft revised recovery plans (USFWS 1990a, 1990b, 2004a, in prep); the final listing rule (49 FR 33881); unpublished reports by the Guam Division of Aquatic and Wildlife Resources (GDAWR), CNMI Division of Fish and Wildlife (DFW), and the Service (*e.g.*, Wiles 1982a; Engbring and Ramsey 1984; Morton 1996; Morton *et al.* 1999); aerial photographs and satellite imagery of Guam and Rota; personal communications with scientists familiar with the species and habitats; and comments received during public comment periods and in response to critical habitat outreach packages. Specific information we used from these sources includes estimates of historic and current distribution, abundance, and territory sizes for the three species, as well as data on resource and habitat requirements. From recovery plans, we considered the recovery objectives and the assessments of the habitat necessary to meet these objectives, as well as life history information.

(22) *Comment*: Why was the cargo drop zone on Andersen Air Force Base not included in critical habitat?

*Our Response*: Degraded habitats that have high restoration potential may be included in critical habitat designations. In this case, the area that has been completely cleared of vegetation for the Air Force's cargo drop training is likely

to remain cleared for this purpose and therefore has little potential for restoration of the primary constituent elements for the three species.

(23) *Comment*: The previous Governor of Guam commented that the Service's criteria for including private lands in critical habitat was not applied evenly because lands with high economic value were deliberately left out to avoid a high estimate of economic impact.

*Our Response*: The development potential or economic value of lands was not considered in determining the boundaries of proposed critical habitat. These boundaries were based on biological criteria. Potential economic impacts were estimated subsequent to the delineation of proposed critical habitat.

(24) *Comment*: Why has the Service designated critical habitat for species that are extinct?

*Our Response*: We have not. In the proposed rule, the Service determined that designating critical habitat for the little Mariana fruit bat, Guam broadbill, and Guam subspecies of bridled white-eye is not prudent because these species likely are extinct. On February 23, 2004, the Service removed the Guam broadbill from Federal List of Threatened and Endangered Species due to extinction (69 FR 8116) and will consider delisting the remaining species in the future as staffing and funding resources allow. This final designation includes critical habitat for the Guam Micronesian kingfisher, a species that, while extirpated from the wild, is not extinct.

## Issue 2: Policy and Regulations

(25) *Comment*: One peer reviewer stated that to designate critical habitat primarily on Federal lands is appropriate because consultation under section 7 of the Act applies to Federal agencies. Several commenters, including the acting Commissioner of the Marianas Public Lands Authority, asked that the Service exclude all private lands from the critical habitat designation. Two of these commenters asked why we include private lands if there is no Federal nexus to trigger section 7 consultation and if critical habitat does not provide substantial protection for these endangered species. Several commenters requested that we exclude private lands, access corridors to these private lands through Federal lands, Federal excess lands, and/or a range of specific properties on Guam and Rota from critical habitat. The commenters claim that such exclusions legally can be made because they will not result in the extinction of these species.

*Our Response:* It is true that consultation under section 7 takes place between Federal agencies, but this consultation is triggered by actions that are carried out, authorized, or funded by Federal agencies on state, Territorial, or private lands, as well as by actions on Federal lands. Therefore, the section 7 consultation aspect of critical habitat is not solely relevant to Federal lands.

Critical habitat designation is one of a number of conservation tools established in the Act that can play an important role in the long-term conservation of a species. Designation of critical habitat is a way to guide Federal agencies in evaluating their actions, in consultation with the Service, such that their actions do not hamper conservation of listed species. If activities on private lands designated as critical habitat do not involve any Federal funding or authorization, then the landowner should not be affected by the designation. There are, however, educational or informational benefits to the designation of critical habitat. Educational benefits include the notification of landowners, land managers, and the general public about the importance of protecting the habitat of these species and dissemination of information regarding their essential habitat requirements.

We identify critical habitat based on biological and management criteria described in section 4(b)(2) of the Act, and we apply these criteria irrespective of land ownership and the potential for Federal involvement in development or other land use projects. We can also exclude lands from critical habitat under section 4(b)(2) of the Act. Although it is true that exclusions cannot be made if they will result in the extinction of the species, this is not the sole criterion that allows us to make an exclusion. We direct the commenters to the section of this rule entitled "Exclusions from Critical Habitat" for information about areas excluded from the final critical habitat designation.

(26) *Comment:* Several peer reviewers stated that future conservation projects may justify a reconsideration of the critical habitat boundaries, but existing conservation activities, including Integrated Natural Resource Management Plans (INRMPs) prepared by the U.S. Navy (Navy 2001) and U.S. Air Force (Air Force 2003), are insufficient to supplant the protections afforded by critical habitat designation. Furthermore, planned future conservation activities are either too far from implementation or do not address the recovery goals for these three species sufficiently to warrant exclusions from critical habitat of the

lands involved in such current or planned projects.

*Our Response:* The Service fully complies with the Act in assessing potential exclusions from critical habitat designations. Please see the section of this rule entitled "Exclusions from Critical Habitat" for a description of the exclusions leading to this critical habitat designation.

(27) *Comment:* The military lands on Guam have the conservation benefits of the overlay refuge and are physically protected by high security and restricted access. The designation of critical habitat thus will not be a significant imposition to further development.

*Our Response:* We have excluded Air Force and Navy lands from this final designation. See the section of this rule entitled "Exclusions from Critical Habitat" for detailed discussion of why these areas have been excluded from the final designation.

(28) *Comment:* Two reviewers and several commenters stated that a Habitat Conservation Plan (HCP) for the Mariana crow on Rota would be preferable to the designation of critical habitat because the HCP would be a multilateral effort and thus more acceptable to the local community and government than critical habitat, a regulatory action imposed unilaterally by the Service. Several commenters asked what the status would be of critical habitat on Rota if the HCP were completed, whether it will still be possible to complete the HCP once critical habitat is designated, and whether the designation of critical habitat is taking place because the HCP isn't finished.

*Our Response:* We agree that the protective measures and actions of an HCP can be very effective in conserving important habitat features (e.g., primary constituent elements). Completed HCPs have been excluded from critical habitat designations because of their management and protective measures or because there are greater conservation benefits in excluding HCPs from a designation. However, the lack of a completed HCP was not the reason for this critical habitat designation. The designation of critical habitat and the development of HCPs are independent regulatory processes that arise from different sets of circumstances and different sections of the Act. Under section 4(a)(3) of the Act, we are generally required to designate critical habitat for a species at the time it is federally listed as an endangered or threatened species, and in accordance with section 4(b)(2), on the basis of the best scientific data available and after taking into consideration the economic

impact, and any other relevant impact, of specifying an area as critical habitat. Under section 10 of the Act, habitat conservation plans are developed to permit and provide mitigation for take of listed species associated with development and other projects on non-Federal lands. HCPs are undertaken at the discretion of non-Federal landowners, and the development of an HCP on Rota has been an ongoing process for nearly a decade. In 2002, the Service awarded \$244,000 to the CNMI to support the completion of an HCP on Rota for the development of agricultural homesteads and the Mochong cultural center. In 2004, the Service awarded \$339,522 to the CNMI to support the completion of an island-wide HCP for Rota. In the future, the completion of HCPs on Rota and the establishment of the associated mitigation areas may provide a basis for review and revision of the critical habitat boundaries on Rota.

(29) *Comment:* Several commenters, including the previous Governor of Guam, felt that the Service did not adequately inform local governments and agencies and private landowners about the pending critical habitat proposal or involve them in the process. Several commenters expressed a desire for the Service to hold more public meetings and hearings and stated that the format for the hearings was inappropriate and questions raised should have been answered there.

*Our Response:* We have made a significant effort to contact and inform local stakeholders on Guam and Rota and include them in the critical habitat process. We mailed information and other materials to private landowners using land ownership information and addresses obtained from the Government of Guam and the CNMI. We also attempted to meet and obtain input from many of the resource management agencies on Guam and in the CNMI that could be affected by a designation, including the Guam Division of Aquatic and Wildlife Resources and CNMI Department of Land and Natural Resources. We also attempted to contact representatives of the Chamorro Land Trust Commission (CLTC) and CNMI Board of Public Land regarding the pending critical habitat proposal.

The Service has done its best to solicit input from the local communities on Guam and Rota and provide opportunities for individuals to communicate their concerns and comments. Our court-ordered deadline for publishing a final decision on critical habitat did not leave time for additional meetings or hearings. We realize that the public hearing format is

frustrating because it is primarily a forum for individuals to submit their comments and have them entered into the record, not for discussion of concerns. Such discussion likely would prevent some comments from being recorded in the record due to time constraints. For this reason, the Service held public meetings the month prior to the hearings, so that individual questions could be answered. Please see the chronology of our outreach efforts in the "Previous Federal Actions" section, above.

(30) *Comment:* Several commenters, including the current and previous Governors of Guam and the Governor of the CNMI, urged the Service to seek alternatives to critical habitat, and some requested that a group including representatives of all the landowners and other stakeholders in land use and conservation be convened to discuss such alternatives.

*Our Response:* We have considered alternatives within the context of our determination that designating critical habitat is prudent for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher. On June 13, 2003, the Guam District Court granted a deadline extension to allow the Government of Guam time to develop an alternative to critical habitat designation on Guam. On June 5, 2004, the Government of Guam provided the Service a proposed alternative to critical habitat designation. After reviewing the Government of Guam proposal, we determined that the benefits of designating Government of Guam lands and private lands on Guam as critical habitat did not outweigh the benefits of excluding them from designation. Please see the "Analysis of Impacts Under ESA 4(b)(2)" section for details.

After the extension was granted on June 13, 2003, we also notified the Mayor of Rota and Mariana Public Land Authority that there was additional time to discuss potential alternatives to designation of critical habitat on Rota. However, we received no response from the CNMI on developing alternatives.

In addition to excluding Government of Guam lands and private lands on Guam, we excluded Air Force and Navy lands from critical habitat designation under sections 4(a)(3) and/or 4(b)(2) of the ESA, as amended by Section 318 of the fiscal year 2004 National Defense Authorization Act. Please see the "Exclusions from Critical Habitat" section for details.

(31) *Comment:* Conservation on the Mariana Islands would be better addressed through public-private partnership projects than through the designation of critical habitat.

*Our Response:* We have a legal obligation to designate critical habitat for listed species to the extent prudent and determinable. Some areas may be excluded from critical habitat, for example, under section 4(b)(2) of the Act. As previously stated, however, we will continue to work with landowners, and the potential exists for reviewing and possibly revising critical habitat boundaries in the future. Partnerships among private landowners, the Service, and conservation organizations are a highly effective conservation tool, and we welcome initiatives from private landowners to explore the potential for partnerships on their land. We refer interested parties to the **ADDRESSES** section of this rule and encourage them to contact the Pacific Islands Fish and Wildlife Office to inquire about the Conservation Partnerships program, which may have funding to support projects on private lands. Projects and management plans for private lands that include commitments to activities that will contribute to the long-term conservation of these three endangered species may warrant our future review of the critical habitat boundaries.

(32) *Comment:* The current and previous Governors of Guam stated that the Guam Conservation Initiative proposed by the Government of Guam was a better approach to the conservation of these endangered species and their habitats than the designation of critical habitat.

*Our Response:* To the best of our knowledge, the Guam Conservation Initiative is in draft or proposal form and is not a program that has been funded or instituted on Guam. We therefore had no basis for evaluating the potential for excluding Government of Guam lands based on the "Guam Conservation Initiative." However, on June 5, 2004, the Service did receive a proposed alternative to critical habitat designation from the Government of Guam. We reviewed their proposal and excluded Government of Guam lands from critical habitat designation because the benefits of designation did not outweigh the benefits of exclusion. Please see the "Analysis of Impacts Under Section 4(b)(2)" section for a details.

(33) *Comment:* Several commenters, including the current and previous Governors of Guam, stated their belief that the designation of critical habitat will be detrimental to existing conservation activities because it will result in the loss of the overlay refuge on military lands on Guam and the associated cooperative agreements with the Air Force and Navy. It was also contended that critical habitat would

result in the loss of funds and other resources that presently are used for conservation projects on these lands because these resources will be needed to complete section 7 consultations triggered by proposed actions within critical habitat.

*Our Response:* The Air Force and Navy lands were excluded from the critical habitat designation under sections 4(a)(3) and/or 4(b)(2) of the Act, as amended by Section 318 of the fiscal year 2004 National Defense Authorization Act. See "Exclusions from Critical Habitat" for a more detailed discussion of the exclusions.

(34) *Comment:* Numerous commenters, including the current and previous Governors of Guam and the CNMI Senate, expressed their concern that the designation of critical habitat will place a disproportionate regulatory burden on local governments and private landowners and that private landowners will be subject to stringent Federal regulations. These commenters also expressed concern that the designation of critical habitat will restrict owners' activities on their private lands, will "lock up" or restrict access to those lands (e.g., the agricultural homestead lots on Rota), or result in the condemnation or confiscation of private lands and the transformation of public lands into nature preserves or zoos.

*Our Response:* Critical habitat designation does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other special conservation area. It does not allow government or public access to private lands and will not result in closure of the area to all access or use. A critical habitat designation does not constitute a land management plan. Rather, it triggers the requirement that Federal agencies must consult with the Service on activities they authorize, fund, or carry out that may affect critical habitat.

When local government or private landowners seek a Federal permit or Federal funding, the Federal permitting or funding agency must consult with the Service on actions that may affect listed species or designated critical habitat. The draft economic analysis and addendum identify the potential Federal actions that may result in consultations on the listed species and critical habitat on Guam and Rota over the next ten years. The regulatory burden of critical habitat designation, in the form of consultation under section 7(a)(2) of the Act, falls on Federal government agencies, not directly on local governments or private landowners. We anticipate that the majority of projects

on private or Commonwealth lands probably will go forward unimpeded because there will be no Federal nexus. In the rare case where a Federal project on private land is likely to result in destruction or adverse modification of critical habitat, the Service must provide, within a specified time period, reasonable and prudent alternatives that will allow the project to avoid adverse modification. Finally, we have never intervened in local land use proceedings in the CNMI and do not anticipate doing so in the future.

(35) *Comment:* The current and previous Governors of Guam commented that the military's INRMPs provide them with an alternative that can gain these agencies exclusion from critical habitat under the Act. Allegedly non-Federal landowners do not have that alternative.

*Our Response:* Air Force lands were excluded under section 4(a)(3) of the ESA, as amended by subsection (a) Section 318 of the fiscal year 2004 National Defense Authorization Act, because their INRMP provides a benefit to the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher (see "Exclusions from Critical Habitat"). This section of the Act only applies to military installations. However, any landowner can develop a management plan to conserve essential habitat that may provide a basis for excluding lands from a critical habitat designation under the Act. We refer interested parties to the **ADDRESSES** section of this rule and encourage them to contact our Pacific Islands Fish and Wildlife Office to obtain additional information about developing management plans for listed species.

(36) *Comment:* The previous Governor of Guam stated that Executive Order 13175 establishes conditions for designation of critical habitat on tribal lands in the United States that are different from conditions for designation of the lands in unincorporated territories.

*Our Response:* We agree. Executive Order (E.O.) 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249, November 9, 2000), pertains only to Indian or Alaska Native tribes as defined in the Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a, and this Act does not include the Chamorro people. E.O. 13175 provides general guidelines for Federal interaction with these tribes and makes no mention of unincorporated Territories; therefore, E.O. 13175 has no relevance to this designation of critical habitat.

(37) *Comment:* The previous Governor of Guam commented that the lands at

Ritidian Point not included in the designation must have low habitat value in the Service's view, and they therefore should be exchanged for lands at Falcona.

*Our Response:* Some of the Service-owned lands within the Guam National Wildlife Refuge were not included in the proposed designation because of a mapping error. All of Service-owned lands at Ritidian Point that are part of Guam National Wildlife Refuge are considered essential to the conservation of these species and are now included in this critical habitat designation.

(38) *Comment:* Two commenters stated that the amount of land designated on Guam as critical habitat for the Mariana crow amounts to as much as 100 times more land per crow than is currently used by each human resident of Guam.

*Our Response:* Critical habitat is designated based on the conservation needs of the species. This includes adequate area for foraging and breeding. The size and foraging characteristics of the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher necessitate sufficient area for adequate breeding sites and to obtain enough food to survive and reproduce. The designation of critical habitat does not preclude other uses of these lands.

(39) *Comment:* Several commenters stated that the Service cannot designate critical habitat on islands in the same way we do on continents; we must take into consideration the limited land base on islands and the proportion of the entire land base being designated.

*Our Response:* In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. These features 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 of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. Changing the size of a critical habitat designation to meet a specified percentage of a given larger land area elsewhere would result

in a designation that may be scientifically invalid.

(40) *Comment:* Andersen Air Force Base should be excluded from critical habitat because (a) the INRMP for the base provides substantial protections for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher and their habitat on Guam, (b) the Air Force has provided draft text to amend its INRMP to include more specific projects that will contribute to the long-term conservation of these species, and (c) the Air Force has agreed to conduct consultations under section 7 of the Act for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher and has agreed to maintain and improve the primary constituent elements for these species on its lands. Little additional benefit will accrue to these species with the designation of critical habitat other than the trigger for interagency consultation under section 7 of the Act. Furthermore, critical habitat designation may have a negative impact on the current conservation projects that benefit these species if resources are diverted to meet consultation requirements and/or if the Air Force removes its lands from the Guam National Wildlife Refuge.

*Our Response:* We have excluded Andersen Air Force Base from the final critical habitat designation pursuant to the provisions of Section 318 of the fiscal year 2004 National Defense Authorization Act.

(41) *Comment:* The INRMP for the Navy lands on Guam provides substantial protections for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher and their habitat on Guam, and these protections are superior to those that would be provided by critical habitat. This INRMP was prepared in cooperation with the Service, and the Service approved it. In the Cooperative Agreement establishing the Guam National Wildlife Refuge overlay on Navy lands, the Navy has agreed to conduct consultations under section 7 of the Act for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher and has agreed to maintain and improve the primary constituent elements for these species on its lands. Little additional benefit will accrue to these species with the designation of critical habitat other than the trigger for interagency consultation under section 7 of the Act. Furthermore, critical habitat designation may have a negative impact on the current conservation projects that benefit these species if resources are diverted to meet consultation requirements and/or if the

Navy removes its lands from the Guam National Wildlife Refuge.

*Our Response:* We have excluded the Navy lands from the final critical habitat designation under section 4(b)(2) of the Act. See "Exclusions from Critical Habitat" for a more detailed discussion of the exclusions.

(42) *Comment:* Two commenters, including the acting Commissioner of the Marianas Public Lands Authority, expressed a concern that the clearing of private land designated as critical habitat will constitute "take" and would therefore be a violation of section 9 of the Act.

*Our Response:* Clearing (*i.e.*, removal of vegetation) of any land designated as critical habitat does not automatically constitute violation of section 9 of the Act. Section 9 prohibits the taking of any wildlife species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (16 U.S.C. 1532 (19)).

(43) *Comment:* Several commenters, including the acting Commissioner of the Marianas Public Lands Authority, requested more time to review the proposed rule and draft economic analysis after Super typhoon Pongsona hit Guam and Rota on December 8, 2002. One commenter asked that we extend the final deadline for the rule.

*Our Response:* We reopened the comment period from January 28 to February 18, 2003, to allow the residents of Guam and Rota more time to provide their comments once basic services and infrastructure had been restored. An extension on the deadline for this final rule could be obtained only through a request submitted to the U.S. District Court for Guam. On May 30, 2003, the Government of Guam filed a motion to extend the deadline for publication of the final rule to allow time to develop an alternative to critical habitat designation on Guam. The deadline extension was granted by the Guam District Court on June 13, 2003. On April 5, 2004, the Government of Guam submitted their proposed alternative to critical habitat to the Service as ordered by the Guam District Court. The court ordered that this final rule be submitted for publication in the **Federal Register** no later than October 18, 2004.

(44) *Comment:* The Service should use the draft economic analysis in the determination of prudence for critical habitat.

*Our Response:* The first step in the critical habitat process, the proposed determination of whether or not a designation for any species is prudent, is a decision based on biological and

conservation considerations, not the potential economic impacts of the designation. Furthermore, the economic analysis cannot be made in a detailed, quantitative fashion until maps of the proposed critical habitat are completed. As defined by regulation, prudence examines whether critical habitat would harm or benefit the species (*see* 50 CFR 424.12(a)(1)). If critical habitat is prudent, we look at all of the impacts of designating specific areas as critical habitat to see if the benefits of designation outweigh the benefits of excluding an area from critical habitat. Should we determine that critical habitat is not prudent because it will not provide additional conservation benefit to the species or will result in increased threat to the species, we would not conduct an economic analysis. When we do propose critical habitat, we then use the economic analysis to assess possible exclusions under section 4(b)(2) of the Act.

(45) *Comment:* Current enforcement of the Act on Rota is sufficient to protect the Mariana crow and its habitat.

*Our Response:* The Service is required by law to designate as critical habitat those areas which are essential to the long-term conservation of listed species, unless the economic or other impacts of designation outweigh the conservation benefits. All critical habitat designated on Rota is currently occupied by crows. Activities that may result in the destruction or adverse modification of critical habitat include those that alter the primary constituent elements of the designated area to an extent that its value for both the survival and long-term conservation of the Mariana crow is appreciably diminished (*see* "Critical Habitat" section of the rule for further discussion).

(46) *Comment:* Several commenters expressed their belief that designation of critical habitat for the Mariana crow on Rota will cause significant resentment in the local community and government, provide a disincentive for participation in voluntary conservation projects, and create obstacles to future crow conservation efforts on the island.

*Our Response:* We acknowledge that, despite the Service's outreach activities, considerable misapprehension remains about the impacts of critical habitat designation on land use on Rota. Nevertheless, absent documentation that the designation of critical habitat would increase the threat to the Mariana crow, or be offset by adverse economic or other impacts, we have no basis either for changing our prudence determination or for excluding lands on Rota from critical habitat.

We also reiterate that a critical habitat designation does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other special conservation area. It does not allow government or public access to private lands and will not result in closure of the area to all access or use. A critical habitat designation does not constitute a land management plan. Rather, it triggers the requirement that Federal agencies must consult with the Service on activities they take or fund that might affect critical habitat, and on Rota this requirement is already triggered by the presence of Mariana crows throughout the area designated as critical habitat.

We recognize that critical habitat is only one of several tools provided in the Act to accomplish long-term conservation of listed species and that this goal is best achieved through cooperation between the Service and the community. We hope that members of the Rota community interested in initiating conservation projects for the Mariana crow will be guided by this critical habitat designation to areas where their efforts will be of greatest benefit. We welcome ideas and proposals for conservation projects and will seek funding to support such projects. We continue to work closely with the people of Rota and the CNMI government to develop HCPs, and we have awarded the CNMI a total of \$583,522 to facilitate this effort. We may reevaluate critical habitat boundaries after HCPs are completed.

(47) *Comment:* The sole basis for the Service's reversal of its 1991 determination (that designating critical habitat for these species was not prudent) appears to be losses that the Service has experienced in other, significantly different litigation.

*Our Response:* Our rationale for our determinations is presented in the proposed rule (67 FR 63738), under the section entitled "Prudence Determination." With respect to Guam and Rota, the Service is obligated to comply with the decisions of the Ninth Circuit Federal Court of Appeals.

(48) *Comment:* As long as the little Mariana fruit bat, Guam broadbill, and Guam bridled white-eye are listed, they are entitled to the full protection of the Act, and the Service should propose critical habitat for them. The determination that critical habitat is not prudent for these species is a "back door approach" to delisting them.

*Our Response:* The assumption that all species listed under the Act still survive confuses the likely reality of extinction with the regulatory process of delisting extinct species under the Act.

Our statements in the proposed rule that these three species likely are extinct are based on the well-documented last sightings, decades ago, and records of these species and repeated, thorough efforts by scientists to find them. The final rule delisting the Guam broadbill was published on February 23, 2004 (69 FR 8116). The delisting of the other two is not currently scheduled. Given the Service's large listing and critical habitat workload, we must make priority decisions that offer the greatest benefit to those species that survive.

(49) *Comment:* If designating critical habitat is not shown to harm the (likely extinct) species, the Service is bound to designate their critical habitat.

*Our Response:* There are two criteria for determining that a critical habitat designation is not prudent. One is that the designation would result in taking or vandalism of the species, and the other is that critical habitat is not beneficial to the species. Designation of critical habitat will not benefit likely extinct species.

(50) *Comment:* The Service cannot exclude unoccupied areas from critical habitat based on "special management" under section 3(5)(A) of the Act because this criterion only applies to lands occupied by the species at the time of their listing and because this management cannot replace the benefits of section 7 consultation.

*Our Response:* We have excluded the Navy lands from the final critical habitat designation under section 4(b)(2) of the Act. Please see the section of this rule entitled "Exclusions from Critical Habitat" for a more detailed discussion of the exclusions.

(51) *Comment:* Several commenters asked if their comments mattered or if decisions about the critical habitat designation had already been made.

*Our Response:* Public comments are an opportunity for the Service to obtain additional information about the species and areas involved in the critical habitat designation, as well as about the questions and concerns of landowners and other stakeholders. We do our best to incorporate all relevant information we receive and to address individual concerns and questions. The final designation of critical habitat reflects both the requirements of the law and the input from stakeholders insofar as it is possible to incorporate this input without compromising the biological basis for the designation.

(52) *Comment:* The proposed rule in the **Federal Register** is too technical and difficult to understand and should be translated to the Chamorro language.

*Our Response:* The Service strives to make its public documents as simple as

possible without compromising their scientific integrity and legal sufficiency. In all of our documents, we strive to use plain language in government writing. Although we did not make the rule available in other languages, we did produce extensive outreach materials to facilitate the public's understanding of the proposed designation. For example, we produced an illustrated fact sheet about the proposed rule entitled "Critical Habitat for Six Species of Mariana Island Birds and Bats," which was available at the public meetings and hearings and was mailed with the proposed rule to a total of 127 interested parties. Please refer to the "Previous Federal Action" section of this rule for a description of the Service other outreach efforts for this designation. We continue to work with the public to provide information and promote a better understanding about critical habitat. We will continue ongoing discussions to help the local communities better understand the critical habitat designations as well as to learn more about the Mariana Crow, Mariana fruit bat, and Guam Micronesian kingfisher.

(53) *Comment:* How will critical habitat affect harvesting of plants for cultural uses?

*Our Response:* Critical habitat will have no effect on such collecting if it takes place on non-Federal lands and involves no Federal money or authorization.

(54) *Comment:* The "essential habitat" for the Mariana crow outlined on Rota in the draft revised recovery plan provides a good basis for collaboration with the Rota community to conserve this habitat and improve its quality for crows. Such a cooperative, voluntary approach is liable to meet with greater conservation success than the imposition of critical habitat.

*Our Response:* We hope that these conservation activities will take place regardless of this critical habitat, which is only one of many potential tools for addressing long-term conservation of the crow on Rota. The Service recognizes that to improve the current condition of Mariana crow on Rota, it is insufficient to simply regulate harmful activities. Rather, it is necessary to carry out active management measures to confer a benefit on the species of concern, such as habitat manipulation, exotic species control, or simply allowing access for the purposes of reintroduction (Bean 2002).

(55) *Comment:* If military lands on Guam are excluded from critical habitat, the Government of Guam lands and private lands designated as critical

habitat may become commensurately more important.

*Our Response:* The Air Force and Navy lands identified as essential habitat but excluded under sections 4(a)(3) and/or 4(b)(2) of the Act, while not designated critical habitat, would remain part of the total acreage of habitat essential to the conservation of these species on Guam.

(56) *Comment:* Several commenters stated that the Government of Guam's proposed alternative to critical habitat designation does not provide an adequate management plan for its conservation lands and is not an acceptable alternative to critical habitat designation on Government of Guam lands.

*Our Response:* We agree that the Government of Guam's proposed alternative to critical habitat designation is not comparable to an INRM developed for military lands. However, we believe that as a sign of the desire of the Government of Guam to increase cooperation with the Service on the conservation and recovery of the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher, particularly when considered against past relations, it is a significant positive step. We also believe that implementation of this plan will benefit these species. Therefore, we have excluded Government of Guam lands from critical habitat designation. See "Analysis of Impacts Under Section 4(b)(2)" for additional information.

(57) *Comment:* Several commenters stated that very few of the projects in the Government of Guam's proposed alternative to critical habitat designation are new. Therefore, this proposal offers little additional benefit to the species. In addition, these commenters also stated that there is no guarantee that the projects outlined in the proposal will be implemented because Guam lacks the funding and staff to implement many of the actions.

*Our Response:* We agree that some of the projects outlined in the Government of Guam's proposed alternative to critical habitat are ongoing projects. However, we disagree that the Government of Guam's proposed alternative to critical habitat provides little additional benefit to the species. Therefore, we have excluded Government of Guam lands from critical habitat designation. See "Analysis of Impacts Under Section 4(b)(2)" for additional information.

(58) *Comment:* Two commenters stated that ungulate eradication is a high priority for Guam's conservation lands but is not addressed in their proposed

alternative to critical habitat designation.

*Our Response:* We agree that ungulate eradication is not specifically addressed in the Government of Guam's proposed alternative. However, their alternative does include ungulate control-related activities such as developing comprehensive management plans for Philippine sambar deer and feral pigs that could include eradication of ungulates on Government of Guam conservation lands.

(59) *Comment:* One commenter stated that Guam's proposal does not discuss how long Guam's conservation lands will be protected and how Guam will prevent and prosecute illegal encroachment on their conservation lands.

*Our Response:* We agree that the Government of Guam's proposed alternative to critical habitat designation does not specifically address the duration in which their conservation lands will be protected for endangered species conservation or how protection will be enforced. However, we still believe that that the benefits of excluding Government of Guam lands from critical habitat designation outweigh the benefits of inclusion. Therefore, Government of Guam lands were excluded under section 4(b)(2) of the Act. See "Analysis of Impacts Under Section 4(b)(2)" for additional information.

#### Issue 3: Other Relevant Issues

(60) *Comment:* Two reviewers observed that although the rule published by the Service proposing critical habitat on Guam and Rota contained clear and meticulous explanations of what critical habitat is, how it works, and how little threat it poses to landowners, this rule nevertheless has resulted in misunderstandings and significant resentment and frustration in the local communities. These reviewers suggest that the Service should engage in more public outreach efforts and present additional and more summarized and simplified materials explaining the designation to gain the understanding and support of the local people on Guam and in the CNMI.

*Our Response:* Significant outreach efforts were made regarding this critical habitat rule (see our response to Comment 33) in an effort to resolve misconceptions and allay public concerns. We produced an information sheet summarizing the proposed rule that was mailed to all interested parties and that was available at the public meetings and hearings. At public meetings, we were available to answer

questions and engage in discussion that is prohibited at hearings.

(61) *Comment:* One reviewer stated that if the proposed critical habitat delineation already reflects concessions by the Service to political or socioeconomic considerations, this should have been clearly articulated in the proposed rule.

*Our Response:* The proposed critical habitat was delineated based on biological and other conservation-related criteria, without considering potential economic or political impacts of a critical habitat designation. As required by the Act, economic and other relevant impacts have been considered in this final designation. The "Critical Habitat Designations" section of this rule describes in detail how we defined the primary constituent elements for each of the three species, how we identified areas that are essential to the conservation of these species, and how we applied criteria used to exclude some of the proposed lands from the proposed critical habitat.

(62) *Comment:* Several commenters, including the Governor of the CNMI, the Rota delegation to the CNMI Legislature, and the CNMI Senate, wrote that the CNMI government has policies and legislation in place that demonstrate a commitment to the conservation of Rota's natural environment and render critical habitat unnecessary.

*Our Response:* We lack substantial documentation of conservation activities or commitments to conservation activities on Rota that address the long-term conservation of the Mariana crow.

(63) *Comment:* Two commenters, including the acting Commissioner of the Marianas Public Lands Authority, wrote that lands on Rota described as "public" in the proposed rule actually belong collectively to people of Mariana descent and are managed for these people by the Mariana Public Lands Authority.

*Our Response:* In a meeting with the Service in Honolulu on January 14, 2003, representatives of the Mariana Public Lands Authority clarified the status of the lands they manage on behalf of the people of the Mariana Islands and discussed other concerns and questions they had about this critical habitat designation.

The references to "public lands" in sections 1.2.6, 4.1.2.3, 6.2.2, 6.2.2.1, and 6.3.2.3 and Figure 6-2 of the DEA are to those lands identified in Article XI, Section 1, of the Commonwealth Constitution as "public lands belonging collectively to the people of the Commonwealth who are of Northern Marianas descent." When referring to

Rota, the term "public lands" is intended to be used in the DEA as it is used in the Commonwealth Constitution.

We acknowledge the slightly inaccurate description of the term in section 1.2.6 of the DEA, which refers to "public lands owned by CNMI." This phrase was intended to identify "public lands" as described in the paragraph above. The identification of the CNMI government as "owner" of public lands on Rota is intended to describe the role of the Marianas Public Lands Authority as a government entity representing the people of the Commonwealth who are of Northern Marianas descent. The clarification of the term "public lands" does not alter the conclusions on economic impact, as presented in sections 6.2.2 and 6.3.2 of the DEA.

(64) *Comment:* Will critical habitat delay the airport expansion project on Rota?

*Our Response:* No, a small area proposed as critical habitat that overlapped the action areas for the proposed airport expansion has not been included in this final designation because we have determined that it is not essential to the long-term conservation of the Mariana crow. At the time of this writing, the Service is involved in section 7 consultation with the Federal Aviation Administration on the airport expansion. Independent of critical habitat, both Federal agencies agreed that the project may affect the Mariana crow, and thus entered into consultation to ensure the airport expansion project is in compliance with the Act.

#### Issue 4: Economic Issues

(65) *Comment:* One reviewer stated that the DEA does not consider the full range of activities that could be affected by critical habitat.

*Our Response:* A comprehensive and systematic approach was used to identify the activities likely to occur within the 10-year assessment period. Data collection methodology is presented in Chapter 5 of the DEA. For Guam, we identified potentially affected landowners and land managers with information from the Government of Guam's Division of Land Management and Department of Revenue and Taxation; we notified these owners and managers, in writing, of the proposed critical habitat designations and our desire to meet with them to obtain information for use in the DEA; and we conducted either telephone interviews or in-person meetings with potentially affected landowners and managers to identify reasonably foreseeable activities within the 10-year assessment period.

For Rota, meetings were requested and conducted with representatives from CNMI and Rota government offices because most of the island of Rota is comprised of publicly owned lands. Additional activities on Guam and Rota were identified by reviewing the documents listed in the references in the DEA addendum, conducting additional inquiries with local and Federal government agencies, and reviewing information received during the public comment period.

(66) *Comment:* One reviewer asked why the cost of section 7 is estimated to be so high for the Rota Airport extension when the proposed project area lies outside of the critical habitat boundary.

*Our Response:* Section 6.2.2.1.1 of the DEA and section 3.3 of the DEA addendum describe costs associated with the proposed extension of the Rota Airport. The estimated costs in the DEA were based on government costs associated with conducting section 7 consultations; a biological survey, presumed because of the belief that neighboring areas contained primary and secondary breeding habitats for the Mariana crow; and annual biological monitoring. These costs were estimated to total \$111,650 over a 10-year period.

Since the DEA was published, the Service was informed by the consultants preparing the National Environmental Policy Act (NEPA) environmental assessment (EA) that the western runway protection zones would indeed fall within proposed critical habitat and that the affected area (approximately 300 by 500 ft (91 by 152 m)) may need to be cleared to extend the grassed and fenced airport area. A larger area extending further west may be modified in such a way that the height of the forest does not exceed the elevation of the runway (585 ft (178 m) above sea level).

As described in section 3.3 of the DEA addendum, the consultants preparing the EA informed us that the document will provide more information for use in the section 7 consultation process. Without the benefit of details in an EA, the Service anticipates that a formal section 7 consultation with the Federal Aviation Administration may be necessary, suggesting section 7 costs in the medium range (from Table 6–1 in the DEA) with no annual biological monitoring. The cost of a biological survey considered in the DEA (\$7,800) remains as a cost of the section 7 consultation. The revised section 7 consultation cost is \$33,050 over a 10-year period. This cost is \$78,600 less than the \$111,650 estimated in the DEA.

(67) *Comment:* One reviewer noted that small economic entities will be largely unaffected by critical habitat.

*Our Response:* Based on the DEA and its addendum, a substantial number of small entities are not expected to be significantly impacted by the critical habitat designation. As indicated in section 6.4 of the DEA and section 5 of its addendum, entities affected by the intended designation are Urunao Resort Corporation (Guam), a Chamorro family (Guam), Marianas Agupa Inc. (Rota), and individual CNMI residents (Rota). Since the DEA was published, both the Municipality of Rota and Marianas Pro-Plan International were identified as small entities directly affected by critical habitat. These entities represent a very small fraction of the total number of the small entities on Guam and Rota, and they therefore are not considered a substantial number of small entities as suggested in the guidance on implementing the Regulatory Flexibility Act/Small Business Regulatory Enforcement Fairness Act guidance.

(68) *Comment:* Several commenters stated their belief that critical habitat will have major impacts on private landowners, such as project redesign, acquisition of easements (and associated paperwork), property devaluation associated with critical habitat, and the need for a typical landowner to hire a consultant to “overcome the multitude of regulatory hurdles he will encounter” once critical habitat is designated. One commenter stated that these costs will amount to 10 to 100 times the estimated figure, and another stated that the estimate of \$35,000 in the draft economic analysis for impacts of critical habitat to private landowners on Guam is a gross underestimate. Another commenter stated that the designation of critical habitat will prevent landowners from gaining \$2 million worth of income annually due to a perception that critical habitat will lead to the condemnation of land. The commenters believe that the Service has not adequately identified or assessed these impacts.

*Our Response:* As identified in section 6.1 of the DEA addendum, the Service comprehensively and systematically attempted to obtain input from potentially affected landowners and managers, including private landowners. Activities likely to occur within the 10-year assessment period were identified and incorporated in section 6.2.1.4 of the DEA. Sections 3 and 4 of the DEA addendum provide further evaluation of potential impacts to private landowners based on information received during the DEA public comment period. These include

impacts on Federal funding, loans, and insurance eligibility; impacts on property value; condemnation of land; and costs to investigate implications of critical habitat on private property.

Potential section 7 consultation costs associated with Federal funding, loans, and insurance are evaluated in section 3.1 of the DEA addendum. In general, Federal funding or loans for new construction require consultation, and because very few Federal mortgage insurances are provided for new construction, consultation is not likely for Federal mortgage insurance.

Property value losses associated with critical habitat, discussed in section 4.2 of the DEA addendum, may be based on facts and an accurate assessment of the implications of critical habitat or on perceptions that the designation will cause significant changes in market value and economic benefits. Based solely on direct compliance costs, a decrease in private property value due to critical habitat designation is expected to be small. The reason for this is that few projects and activities in these areas would be subject to consultations, and project modifications are not expected to be burdensome. Additional effects on property values (e.g., stigma effects) are described in Section 4.2.1 of the DEA addendum.

Section 4.3 of the DEA addendum states that critical habitat designation does not result in the condemnation of land or any other form of land acquisition by the Service. On occasion, the Service does purchase land, e.g., for a wildlife refuge, but this would be a separate action from critical habitat designation. As such, any land purchase should be evaluated at the time it is proposed and should be based on what is actually proposed. When the Service does purchase private property, e.g., to establish a National Wildlife Refuge, the normal practice is to do so only when (1) the landowner is willing to sell the land, and (2) the price and other terms are acceptable to the landowner. Finally, the Service currently has no plan to purchase land on Guam.

Regarding costs associated with investigating the implication of critical habitat on private property, landowners that can afford professional services may feel it necessary to retain counsel, land surveyors, biologists, and other experts to determine the implications of the designation on their property. Costs associated with these investigations are discussed in detail in section 4.4 of the DEA addendum. The total cost ranges from roughly \$216,630 to \$738,700 on Guam and \$75,690 to \$258,100 on Rota for all landowners whose property falls

within proposed critical habitat boundaries.

(69) *Comment:* The previous Governor of Guam stated that the analysis of economic impacts to private landowners must be based not on current conditions (limited access) but on the assumption that the unfettered access ordered by the Federal court were actually granted, which would increase the value of the property.

*Our Response:* Sections 6.2.1.4.1 and 6.2.1.4.2 of the DEA provide more detailed descriptions of existing conditions. Access to Uranao and Jinapsan properties along the northern coastlines of Guam requires travel through Andersen Air Force Base. Current travel restrictions on the base are solely a function of national security concerns implemented by the base. For this reason, we believe it appropriate to assume that unfettered access represents the current or baseline condition. It is possible that different current or baseline conditions could change the potential economic impacts from this designation. However, we selected what we believe to be the most accurate description of baseline conditions.

(70) *Comment:* Several commenters, including the Governor of the CNMI, the CNMI Senate, the Rota Delegation to the CNMI Legislature, and the acting Commissioner of the Mariana Public Lands Authority, observed that the section 7 consultation burden generated by critical habitat will impede projects on private lands that involve Federal permits for infrastructure development, Federal Highway Administration funds for primary village roads, Department of Veterans Affairs (VA) mortgage loans, or Federal mortgage insurance. These agencies will not pay to send survey teams to the Mariana Islands to conduct the necessary studies (to formulate biological assessments, etc.).

*Our Response:* Sections 6.2.1.4 and 6.2.2.2 of the DEA describe projects on private lands on Guam and Rota for which the potential impacts of proposed critical habitat were originally evaluated. The impact of the potential section 7 nexus of Federal funding for private construction on lands proposed for designation has been evaluated with additional information in section 3 of the DEA addendum. Potential impacts vary between agencies and are discussed individually below.

The Federal Highway Administration annually gives Guam \$13 million and CNMI \$3 million (of which approximately \$400,000 is allocated to Rota). Designation of critical habitat would not impede the funding but may have an impact on which projects the local government chooses to fund. The

costs of section 7 consultation and any other required environmental compliance would be withdrawn from the same grant.

Economic impacts of critical habitat associated with Federal Highway Administration funding are unlikely to be significant on Guam. As discussed in section 3.1.1 of the DEA addendum and based on the Guam 2010 Highway Master Plan (Wilbur Smith Associates 1992), new roadway projects and road improvements are more likely to be in demand in heavily traveled areas outside of proposed critical habitat. The cost of consultations estimated in section 3.1.1 of the DEA addendum would represent a relatively minor cost, approximately 0.1 percent, relative to the Federal Highway Administration \$13 million grant provided to Guam. Based on interviews with Rota government representatives, projects planned for the next 10 years were identified, including one roadway project. Consultation costs associated with Federal Highway Administration funding on Rota, estimated in section 6.2.2.1.2 of the DEA, represent two percent of the \$400,000 grant allocated to Rota.

The recent history of VA mortgage guarantees and home loans differs between Guam and Rota. On Guam, the VA provides mostly mortgage guarantees for existing structures, not new construction. For this reason, and because most lenders do not use the VA for new construction loans, VA mortgage guarantees on Guam are not likely to be affected by critical habitat as it was proposed. On Rota, home loans have been provided for new construction projects. Based on the VA home loans provided since 1994, it is reasonable to project that one to two VA home loans could occur in isolated areas in critical habitat in the next 10-year period. Direct impacts and costs associated with section 7 consultations were estimated in section 3.1.2 of the DEA addendum.

Section 3.1.3 of the DEA addendum addresses U.S. Department of Housing and Urban Development (HUD)/Federal Housing Administration programs that exist on Guam and Rota. These include HUD grants (Community Development Block Grants), HOME Investment Partnership Program, Emergency Shelter, and other competitive grants under Homeless Assistance) and Federal Housing Administration mortgage insurance. Based on the findings in section 3.1.3 of the DEA addendum, HUD grant projects are unlikely to occur in undeveloped areas that are likely to be subject to requirements associated with critical habitat. Another program

under HUD, the Federal Housing Administration mortgage insurance program, assists individuals with obtaining a loan. It has been used about twice in 2002 on Guam, used very little in the last 10 years on Guam, and had not been used at all in the last 10 years on Rota. Because HUD-supported projects are unlikely to occur in undeveloped areas and are infrequently used, together with the fact that HUD endorsements for single-family home mortgage insurance are listed in their environmental procedures as categorical exclusions that are not subject to the related Federal environmental laws and authorities, it is unlikely that section 7 consultation would occur.

(71) *Comment:* One commenter stated that critical habitat designation will prevent the development of real estate on CLTC lands because lending institutions will not take risks on loans for development of lands encumbered by special environmental/conservation status. This status creates too much risk of lawsuits. This commenter stated that they would choose not to be involved in projects within designated critical habitat.

*Our Response:* The economic costs associated with the loss of planned development on CLTC lands in critical habitat is addressed in section 4.1 of the DEA addendum. Primary lending institutions, including the HUD Direct Home Loan program, are likely to request that the prospective buyer consider other properties as it is in their interest, or it is their requirement (as in the case of HUD's programs), to avoid properties with site encumbrances. Lenders will generally look to unencumbered property for development (Hirokoshi in litt. 2003). If there is no option, it is likely that additional requirements would be needed to mitigate the risks of project development (Kuiokoa, in litt. 2003). Depending upon the situation, lenders may loan less money for projects with environmental encumbrances than for those without such encumbrances (Hirokoshi, in litt. 2003).

One lender indicated that the biggest concern for lenders is that critical habitat will decrease marketability and value of the property. In the absence of documented effect based on critical habitat, this concern is based on experience with properties associated with wetlands. Another concern identified was that environmental regulations may change due to evolving scientific information. Potential property value losses for land in critical habitat are discussed in section 4.2.2 of the DEA addendum.

While it is prudent for lenders to avoid risks on loans for development of lands encumbered by special environmental/conservation status, it is more likely that real estate development on CLTC lands will be impeded by CLTC lease requirements, which limit lessees to people of Chamorro descent. Because of this limitation, CLTC practices do not abide by the Fair Housing Law, which prohibits discrimination in housing because of race or color, national origin, religion, sex, familial status, or handicap. Lack of implementation of the Fair Housing Law prevents use of government-sponsored enterprises, such as the Government National Mortgage Association (Ginnie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). Federal Housing Administration mortgage insurance and VA loans are available only to lenders and borrowers whose projects abide by the Fair Housing Law, although attempts to obtain exceptions for native Chamorros may be underway. Such an exception could occur as exceptions have been made under the VA loan program for native Americans.

If Chamorros were to be exempted from the requirements of the Fair Housing Law, designation of critical habitat would represent an additional encumbrance that will need to be evaluated by prospective lenders. Because many of the lenders would look to secondary mortgage markets, approximately half of which are government-sponsored enterprises, lenders are required to consider requirements of these government-sponsored enterprises. However, as discussed in sections 3.2 and 4.1 of the DEA addendum, it is unlikely that critical habitat designation would result in additional costs or processing solely from attempts to obtain government-sponsored enterprises mortgages, Federal Housing Administration mortgage insurance, or VA loans.

(72) *Comment:* Several commenters stated their belief that the designation of critical habitat will severely impede economic development, improvement of basic infrastructure, and the provision of basic needs to the people of Guam and Rota.

*Our Response:* As discussed in sections 3.1 and 6.6 of the DEA addendum, Federal agencies, such as Federal Highway Administration and HUD, were contacted to obtain information about their past practices and requirements with respect to environmental regulations. In general, the local agencies responsible for allocating Federal funds to local projects consider environmental issues prior to

approving projects for funding. Most Federally funded projects have occurred in developed areas to meet community needs, as is the case with HUD Community Development Block Grants funds. Development projects occurring within the 10-year assessment period are described in Chapter 6 of the DEA and include: (1) Reuse of the former Federal Aviation Administration Housing parcel on Guam, (2) improvements at the Rota International Airport, (3) roadway improvements to Route 100 on Rota, (4) roadway improvements to Routes 5 and 12 on Guam, (5) development of the Marianas Agupa Golf Course, (6) development of a solid waste disposal landfill on Rota, and (7) implementation of the Homesteads program on Rota. Of the projects with a possible Federal nexus, all are expected to proceed even with critical habitat designation.

(73) *Comment:* Two commenters stated that the economic analysis makes an incorrect assumption that the CNMI government and/or the municipality of Rota are not "small entities."

*Our Response:* As discussed in section 5 of the DEA addendum, we have determined that the CNMI government is not a small entity under the Regulatory Flexibility Act (Title 5, U.S. Code sections 601–612), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996, because it governs a population of greater than 50,000 people. The Regulatory Flexibility Act/Small Business Regulatory Enforcement Fairness Act defines "small government jurisdictions" as the government of a city, county, town, school district, or special district with a population less than 50,000. However, based on population, the Municipality of Rota can be considered a small entity.

Using the U.S. Environmental Protection Agency guidance, "1999 Revised Regulatory Flexibility Act/Small Business Regulatory Enforcement Fairness Act Guidance for Environmental Protection Agency Rulewriters," the recommended quantitative method for evaluating the economic impact of a rule on small government entities is to evaluate the annualized compliance costs as a percentage of annual government revenue. The estimated annual cost of proposed critical habitat designation to the Municipality of Rota, based on the 10-year estimate of section 7 consultation and project modification costs, is \$13,860. The annual municipal operating budget for Rota is estimated at \$13.5 million. Using the Environmental Protection Agency methodology described above, the costs associated

with section 7 consultation and project modification would comprise 0.1 percent of Rota's annual municipal operating budget. A more detailed discussion of costs is provided in section 5 of the DEA addendum.

(74) *Comment:* One commenter recommended the addition of a synopsis at the beginning of the economic analysis.

*Our Response:* The commenter's suggestion that the Executive Summary of the DEA should include a brief synopsis of the evaluation addressing the efficacy and cost/benefit ratio of the proposed designation is appropriate for improving the readability and ease of understanding of the DEA. However, presentation of an accurate cost/benefit ratio is not possible because some of the costs and many of the benefits are not quantified. This reflects the uncertainty about the outcome of the designation of critical habitat and the fact that many of the benefits of critical habitat are best expressed in biological terms, for which an economic value has not been determined.

(75) *Comment:* One commenter observed that the economic analysis addresses only the impacts of section 7 consultation, only weakly characterizes the economy of Rota, and fails to consider the "backlash effect" of critical habitat designation on Rota and other indirect effects. This commenter asked that the comment period be reopened subsequent to a revision of the economic analysis.

*Our Response:* As stated in the Executive Summary, the DEA addresses only section 7-related economic impacts and that costs related to other sections of the Act are outside the scope of the analysis. Because the Act requires the Service to consider the "benefits of inclusion vs. the benefits of exclusion" of critical habitat within any particular parcel, it is appropriate to address section 7 impacts. Additional indirect impacts associated with the designation of critical habitat are addressed in section 6 of the DEA and in section 4 of the DEA addendum.

Information used to characterize the economy of Rota was obtained through a comprehensive literature search. Unfortunately, very little information specific to Rota was available. Since the publication of the DEA, additional information has been identified and incorporated into the sections of the DEA addendum relating to Rota. Such data include: the annual operating budget of Rota; visitor counts; numbers of families below the poverty level; and breakdown of personal income by age.

Further consideration of this additional economic data does not

substantially alter the findings in the DEA. In the case of reevaluating the regulatory flexibility analysis, considering Rota as a small entity, the analysis demonstrated that the proposed designation of critical habitat will not have a significant economic impact on Rota. As described in section 5 of the DEA addendum, the potential costs associated with the designation of critical habitat are estimated to be only 0.1 percent of Rota's annual municipal operating budget.

Indirect cost impacts associated with a potential "backlash effect" of critical habitat designations on Guam and Rota are presented in Sections 6.3.1.4 and 6.3.2.2 of the DEA. Section 6.3.1.4 introduces the basis for the strong negative sentiments associated with Federal restrictions on land on Guam. Economic impacts associated with this "backlash effect" may include those associated with drawn out negotiations and delays in Federal project schedules. As described in the DEA, the cost of negotiations and delays to the Federal government could be significant. The potential for residents of Rota to react negatively toward the Mariana crow is addressed in section 6.3.2.2 of the DEA. In the DEA, it is acknowledged that "should the scenario of impacts on the Mariana crow due to critical habitat rule-making be realized, the effects and costs would be great, essentially causing the intentions of critical habitat to backfire." Further discussion of "backlash" effects is constrained by the inability to anticipate or quantify what potential actions may occur.

(76) *Comment:* One commenter suggested that the economic analysis discussion of Rota's population should separate U.S. passport holders from alien guest workers.

*Our Response:* Data from the 2000 U.S. Census, a 1997 U.S. Department of Commerce Economic Census of Outlying Areas, and a 2001 Bank of Hawaii Commonwealth of the Northern Mariana Islands Economic Report were reviewed to determine the social and economic makeup of Rota. Although census data identified 1,017 non-citizen residents out of the population of 3,283 people, the available data do not characterize the employed workforce of 1,591 people by citizenship.

(77) *Comment:* One commenter advised that the economic analysis should more clearly characterize the economy of Rota and carefully distinguish between statistics for Rota and statistics for the CNMI as a whole.

*Our Response:* We agree that the economic character of Rota is different from that of CNMI as a whole and that the CNMI Gross Island Product is not a

relevant figure to use in describing Rota's economy. However, as the commenter acknowledged, tourist arrival and hotel occupancy data for Rota are limited. The accuracy of available tourism data is suspect based on the lack of distinction of airport arrivals between tourists and business travelers arriving at the airport and the non-participation of Rota's hotels in Hotel Association of the Northern Mariana Islands, the organization which provided occupancy rates for CNMI hotels. Information from the 2000 CNMI *Statistical Yearbook* states that there were 9,826 visitors to Rota in 2000, down from 12,437 in 1999. The data in the economic analysis for government and private sector employment are from the 2000 U.S. Census. According to the census data, when employment by government is compared to employment in the private sector as a whole, there is greater private sector employment (62.9 percent vs. 35.7 percent in government). However, when employment figures are evaluated by industry (*e.g.*, public administration, manufacturing, construction, wholesale, retail, service, *etc.*), public administration is the leading industry.

In addition to attempting to obtain information specific to Rota, the potential economic impact to small entities, including the Municipality of Rota, is reevaluated in section 5 of the DEA addendum. This analysis concluded that the economic impact of proposed critical habitat to Rota would be 0.1 percent of the annual municipal budget.

(78) *Comment:* One commenter stated that text in the economic analysis regarding Coastal Resource Management Office requirements and the potential for this agency to change their regulations as a result of the critical habitat designation is not valid and should be deleted.

*Our Response:* As discussed in section 4.5 of the DEA addendum, while the Coastal Resource Management Office did not provide specific comments on this DEA addendum, it is believed that the designation of critical habitat would not become an Area of Particular Concern, based on public comment and further review of the relevant regulation (Coastal Resource Management Regulations, as amended 1990). For this reason, the designation of critical habitat would not increase the number of Minor Permit actions under the Coastal Resource Management Office's jurisdiction.

(79) *Comment:* One commenter stated that if the critical habitat designation forces the Air Force to relocate its

mission, the impact to Guam's economy would be huge.

*Our Response:* Estimated costs to relocate Air Force mission requirements were provided by the Air Force in a letter during the DEA public comment period (Defoliart, *in litt.*, 2003). These costs are estimated to be \$2.6 billion and exclude the additional costs for "bedding down" new missions at the receiving installation. As demonstrated by the information provided by the commenter, relocation of mission requirements would be costly, would impact the mission of the Air Force and national security, and would impact Guam's economy. However, based on the information received to date, there is no reason to believe that proposed critical habitat would cause the Air Force to relocate or cause its mission to be impeded. Section 6.3.1.3 of the DEA identifies potential impacts of critical habitat designation (as proposed) on Air Force activities, however, Air Force lands have been excluded from this final critical habitat designation (*see* "Analysis of Air Force Lands Under Section 4(a)(3)" for more details).

(80) *Comment:* One commenter observed that the economic analysis does not consider or quantify the benefits of critical habitat and that the technology and expertise for quantifying these benefits and conducting this analysis exist.

*Our Response:* As mentioned in section 6.5.2 of the DEA, the development of quantitative estimates associated with the benefits of critical habitat is impeded by the lack of available studies and information relating to the size and value of beneficial changes that are likely to occur as a result of listing a species or designating critical habitat. However, several categories of benefits were identified and discussed in the DEA, including use value, existence value, recreation benefits, overall ecosystem health, ecosystem preservation values, and other benefits.

The commenter suggested that a 1999 analysis by University of Hawaii economists on the total value of environmental service provided by Oahu's Koolau Mountains be used as a model for estimating the value of the environmental benefits provided by critical habitat (Kaiser *et al.* 1999). This document was, in fact, used in the DEA as a resource for concepts and for identifying original research on certain subjects, but it has limited applicability for valuing the benefits of the critical habitat designation for several reasons. First, the University of Hawaii study had a different purpose, which was to estimate the total value of

environmental benefits provided by the entire Koolau Mountains on the island of Oahu. Many of the assumptions and much of the analysis in the University of Hawaii study are not transferable to the economic analysis for the critical habitat on Guam and Rota. For example, the Koolau Mountains were evaluated as a contiguous area, whereas the intended critical habitat designation is composed of several separate areas on two islands. The value of water recharge in the University of Hawaii study reflected projected water supply and demand conditions on Oahu, an island which is almost three times the size of Guam and 18 times the size of Rota, with a population almost six times that of the Guam and 47 times that of Rota. Also, the University of Hawaii benefit analysis of reducing soil runoff is unique to three valleys that drain through partially channelized streams in urban areas into the man-made Ala Wai Canal. Because this canal was designed with inadequate flushing from stream or ocean currents, it functions as an unintended settling basin and must be dredged periodically. Similar conditions are not present on either Guam or Rota.

(81) *Comment:* One commenter stated a belief that it is inappropriate to include existence and recreational values in the calculation of the economic impacts of the critical habitat designation on Rota because these values are imported from the U.S. mainland and have no relevance on Rota where the Mariana crow is considered to be a pest and has “no commercial or cultural significance.”

*Our Response:* As stated in section 6.5.2 of the DEA, existence values for endangered species are often calculated with willingness-to-pay studies. These studies estimate the public’s willingness to pay to preserve a species or enhance a species’ population above and beyond any expected direct use. As such, people who do not live on Guam or Rota and who have never seen the Mariana fruit bat, Guam Micronesian kingfisher, and Mariana crow may still value the existence of these species. The DEA identified several existing willingness-to-pay studies that are closely applicable to the values associated with protecting the Mariana fruit bat, Guam Micronesian kingfisher, and Mariana crow. However, these study cases are not sufficiently comparable to the policy cases to consider benefits transfer. Therefore, neither the DEA nor the DEA addendum provide quantitative estimates of the existence values of the species.

Recreation benefits are mentioned in the DEA because protecting critical habitat may result in preservation of

habitat suitable for other recreational uses, such as hiking, camping, and bird-watching. Although some people may consider the Mariana crow to be a pest, there may be recreational benefits associated with the protection of the habitat for the Mariana crow. However, as stated in the DEA, because data on the resultant increase in number or quality of trips are unavailable, such estimated recreational benefits cannot be quantified.

(82) *Comment:* One commenter stated that the cost analysis in the DEA of the designation on military lands is based on the assumption that if critical habitat is designated, the Department of Defense would pull out of the cooperative agreement that created the overlay National Wildlife Refuge and will cease to conduct conservation projects on their lands.

*Our Response:* As provided by the terms of the Cooperative Agreement, the Navy and Air Force have retained the option of unilaterally withdrawing any or all of their lands from the Guam National Wildlife Refuge in the event that any of these lands on Guam are designated critical habitat. The possibility of the Navy pulling out of the cooperative agreement was presented under the indirect effects section of the DEA based on input we received from Navy representatives at that time. The Air Force did not identify any potential indirect costs that would result from critical habitat designation, or state any intention to withdraw from the overlay refuge if critical habitat were designated on their lands. The indirect effects of the Navy’s potential withdrawal from the refuge were discussed, but not quantified, as stated in section 6.3.1.1 of the report. Therefore, the cost analysis of designation on Navy and Air Force lands was based on quantifiable impacts on specific military activities, not, as the commenter suggests, on the broad assumption that the military would pull out of the refuge overlay agreement and cease to conduct conservation projects. Furthermore, it is not clear how or whether the potential withdrawal of the military from the overlay refuge would affect the economic impact of critical habitat designation. Finally, Air Force and Navy lands were excluded from critical habitat designation pursuant to sections 4(a)(3) and/or 4(b)(2) of the Act (see the “Exclusions from Critical Habitat” section).

(83) *Comment:* One commenter stated that the cost analysis of the designation on military lands is based on unsubstantiated claims that critical habitat will impair military training and readiness. A recent General Accounting

Office (GAO) report has found that this is not likely the case.

*Our Response:* The referenced GAO report (GAO-02-614), which surveyed military bases within the continental United States, states that readiness data are insufficient to characterize the extent to which encroachment (including endangered species habitat on military installations) has affected training readiness. However, this report and an April 2002 GAO report, “Military Training: Limitations Exist Overseas but Are Not Reflected in Readiness Reporting” (GAO-02-525), both acknowledge that although readiness data do not comprehensively document the extent of training range capabilities or costs associated with encroachment, military officials report that they have lost training range capabilities because of encroachment. As stated in GAO-02-525, “For the most part, military officials \* \* \* and office of the secretary of defense officials told us that the unit readiness reporting is subjective and is not a vehicle to report training shortfalls and the associated limitations or restrictions.”

In the absence of sufficient quantitative data to support or refute the military officials’ claims that critical habitat would impair training and readiness, the DEA relied upon military base representatives for input. During the public review period, additional military input supported the importance of the bases for national security and described the cost implications of forcing missions to relocate. The Air Force’s Headquarters, Pacific Air Force, provided specific examples of the strategic significance of Guam’s proximity to areas of potential conflict, e.g., dramatic decreases in time and distance required to fly to Seoul and Taiwan from Guam (compared to Minot Air Force Base in North Dakota), and concluded that Andersen Air Force Base is “crucial” to the Air Force’s implementation of the new defense strategy. The Navy’s Deputy Chief of Naval Operations (Fleet Readiness and Logistics) stated that the Navy is “extremely concerned that a critical habitat designation may curtail or prevent continued use of those areas for military purposes, void taxpayer investments in infrastructure to support military activities at these locations, and require costly investment elsewhere to accomplish training requirements.” Based on a review of the GAO-02-614 and information obtained from military representatives, the information regarding military training and readiness in the DEA remains appropriate.

(84) *Comment:* One commenter claimed that the need for development of Rota's infrastructure, and the potential for critical habitat to impede that development, has been overstated. The population of the island is small. Other than a golf course and retirement housing, little land is needed for infrastructure improvements. Because of the need for local permits and Federal permits, infrastructure development projects take time to implement, with or without a critical habitat designation. Furthermore, critical habitat is sufficiently flexible to allow development to take place.

*Our Response:* A comprehensive and systematic approach was used to identify development activities likely to occur over the 10-year assessment period. The data collection methods are presented in Chapter 5 of the DEA. In addition, further analysis of potential private development activities within critical habitat was conducted to determine private land development activities that may have a Federal nexus because of a variety of Federal funding sources. The results of this analysis are provided in section 3 of the DEA addendum. Planned development projects that could be affected by proposed critical habitat on Rota within the 10-year assessment period, as identified in the DEA and DEA addendum, include: improvements at the Rota International Airport, roadway improvements to Route 100 on Rota, roadway improvements to Routes 5 and 12 on Guam, development of the Marianas Agupa Golf Course, development of a solid waste disposal landfill, development of an affordable housing project on CLTC lands, two new construction projects using VA home loans, and two new construction projects using U.S. Department of Agriculture Rural Development loans. We agree that development may still take place on both public and private lands within critical habitat, with the potential associated section 7 costs identified in the DEA and DEA addendum.

(85) *Comment:* One commenter stated that critical habitat will result in the loss of funds and other resources that presently are used for conservation because these resources will be needed to complete section 7 consultations triggered by actions proposed within critical habitat.

*Our Response:* The cooperative agreements between the Service and the military require that the military conduct consultation under Section 7 of the Act in areas identified as essential to the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher, even

if these species are extirpated from the affected area (but are not extinct). Therefore, the costs associated with consultation on critical habitat would be difficult to separate from those already borne by the military pursuant to the terms of their cooperative agreement with the Service.

#### **Summary of Changes From the Proposed Rule**

Based partly on a review of public comments received on the proposed determinations of critical habitat and partly on additional biological examination of several areas, we have reevaluated our proposed designations. We made revisions to the unit boundaries based on information that indicated that the primary constituent elements were not present in certain portions of the proposed units, that certain changes in land use had occurred on lands within the proposed critical habitat that would preclude those areas from supporting the primary constituent elements, or that the areas were not essential to the conservation of the species in question. We also revised the unit boundaries based on mapping errors that were made in the proposed rule. In addition, Andersen Air Force Base lands were excluded under Section 318 of the fiscal year 2004 National Defense Authorization Act. Navy lands, Government of Guam lands, and private lands on Guam were excluded under section 4(b)(2) of the Act, as amended by Section 318.

A brief summary of the modifications made to each unit for each species is given below.

#### *Mariana Fruit Bat*

##### Unit A: Northern Guam

A total of 14,041 ac (5,681 ha) was removed or excluded from critical habitat designation in this unit. On COMNAVMARIANAS Communications Annex, we removed 169 ac (68 ha) from along the boundary of this unit that are mowed areas and do not contain the primary constituent elements required by the Mariana fruit bat. We also removed 95 ac (38 ha) along the eastern coast of Guam because these areas were cleared for housing and do not contain the primary constituent elements required by the Mariana fruit bat. Along the northern and western boundary of the unit, we removed 237 ac (96 ha) of private land that contain some or all of the primary constituent

elements, but we believe these areas are not essential to the conservation of the Mariana fruit bat. We also modified the boundary around the Guam National Wildlife Refuge to include 83 ac (33 ha) of Service-owned land that had not been included in the proposed rule due to a mapping error.

Finally, Air Force, Navy, and Government of Guam lands were excluded from critical habitat designation in this unit under sections 4(a)(3) and/or 4(b)(2) of the Act, as amended, for the reasons described earlier in the sections entitled "Exclusions from Critical Habitat." Exclusion of Air Force lands resulted in the subtraction of 10,838 ac (4,386 ha) from designated critical habitat in northern Guam. Exclusion of Navy lands resulted in a subtraction of 962 ac (389 ha) from designated critical habitat in northern Guam. Exclusion of Government of Guam lands resulted in a subtraction of 1,640 ac (664 ha) from designated critical habitat in northern Guam.

These modifications resulted in the reduction of critical habitat in the unit from 14,338 ac (5,803 ha) to approximately 376 ac (152 ha). This unit is the only designated unit for the Mariana fruit bat on Guam and has been renamed the "Mariana Fruit Bat Unit" (see "Critical Habitat Designation" and "Unit B: Southern Guam" below for additional information).

##### Unit B: Southern Guam

A total of 10,464 ac (4,234 ha) was removed or excluded from critical habitat designation in this unit. On COMNAVMARIANAS Ordnance Annex, we removed 139 ac (57 ha) along the northern boundary of the unit because it contains buildings and mowed areas and does not contain the primary constituent elements for the Mariana fruit bat. We also removed 18 ac (7 ha) of private land from the eastern boundary of the unit that does contain the primary constituent elements but is not essential to the conservation of the Mariana fruit bat.

In addition, all Navy, Government of Guam, and private lands were excluded from critical habitat designation for the reasons described earlier in the sections entitled "Exclusions from Critical Habitat." Exclusion of Navy lands resulted in the subtraction of 7,015 ac (2,839 ha) from designated critical habitat in southern Guam. Exclusion of Government of Guam lands resulted in the subtraction of 1,349 ac (546 ha) from designated critical habitat in southern Guam. Exclusion of private lands resulted in the subtraction of 1,941 ac

(785 ha) from designated critical habitat in southern Guam.

These modifications resulted in the removal of this unit from critical habitat. Critical habitat for the Mariana fruit bat on Guam is now in one unit in northern Guam called the "Mariana Fruit Bat Unit" (see "Critical Habitat Designation" for additional information).

#### *Mariana Crow*

##### Unit A: Northern Guam

A total of 13,772 ac (5,587 ha) was removed or excluded from critical habitat designation in this unit. On COMNAVMARIANAS Communications Annex, we removed 169 ac (68 ha) from along the boundary of this unit that are mowed areas and do not contain the primary constituent elements required by the Mariana crow. On Andersen Air Force Base we removed 100 ac (40 ha) of beach along the northern coast because this area does not contain the primary constituent elements required by the Mariana crow. Along the western and northern boundaries of the unit, we removed 99 ac (40 ha) of private land that do contain some or all of the primary constituent elements, but are not essential to the conservation of the Mariana crow. We also modified the boundary around the Guam National Wildlife Refuge to include 53 ac (33 ha) that had not been included in the proposed rule due to a mapping error.

Finally, Air Force, Navy, and Government of Guam lands were excluded from critical habitat designation in this unit under sections 4(a)(3) and/or 4(b)(2) of the Act, as amended, for the reasons described earlier in the section entitled "Exclusions from Critical Habitat." Exclusion of Air Force lands resulted in the subtraction of 10,838 ac (4,386 ha) from designated critical habitat in northern Guam. Exclusion of Navy lands resulted in a subtraction of 926 ac (389 ha) from designated critical habitat in northern Guam. Exclusion of Government of Guam lands resulted in a subtraction of 1,419 ac (575 ha) from designated critical habitat in northern Guam.

These modifications resulted in the reduction of critical habitat in the unit from 12,540 ac (5,075 ha) to approximately 376 ac (152 ha). This unit is now the only designated critical habitat for the Mariana crow on Guam (see "Critical Habitat Designation" and "Unit B: Southern Guam" below for additional information).

##### Unit B: Southern Guam

A total of 10,464 ac (4,234 ha) was removed or excluded from critical habitat designation in this unit. On COMNAVMARIANAS Ordnance Annex, we removed 139 ac (57 ha) along the northern boundary of the unit because it contains buildings and mowed areas and does not contain the primary constituent elements for the Mariana crow. We also removed 18 ac (7 ha) of private land from the eastern boundary of the unit that does contain the primary constituent elements, but we believe this area is not essential to the conservation of the Mariana crow.

Finally, all Navy, Government of Guam, and private lands were excluded from critical habitat designation for the reasons described earlier in the sections entitled "Exclusions from Critical Habitat." Exclusion of Navy lands resulted in the subtraction of 7,015 ac (2,839 ha) from designated critical habitat in southern Guam. Exclusion of Government of Guam lands resulted in the subtraction of 1,349 ac (546 ha) from designated critical habitat in southern Guam. Exclusion of private lands resulted in the subtraction of 1,941 ac (785 ha) from designated critical habitat in southern Guam.

These modifications resulted in the removal of this unit from critical habitat designation. Critical habitat for the Mariana crow on Guam was only designated in northern Guam in Unit A (see "Critical Habitat Designation" for additional information).

##### Unit C: Rota

A total of 49 ac (20 ha) was removed for biological reasons from critical habitat designation in this unit. We removed 42 ac (17 ha) of private land from this unit because we found these areas are cleared and do not contain the primary constituent elements required by the Mariana crow. We also removed 7 ac (3 ha) of private land from the boundary of the unit because this area is not essential to the conservation of the Mariana crow. These modifications resulted in the reduction of critical habitat in the unit from 6,084 ac (2,462 ha) to 6,035 ac (2,442 ha). This unit is now divided into two separate subunits and has been renamed "Unit B" (see "Critical Habitat Designation" for additional information).

#### *Guam Micronesian Kingfisher*

##### Unit A: Northern Guam

A total of 14,041 ac (5,681 ha) was removed or excluded from critical habitat designation in this unit. On COMNAVMARIANAS Communications Annex, we removed 169 ac (68 ha) from

along the boundary of this unit that are mowed areas and do not contain the primary constituent elements required by the Guam Micronesian kingfisher. We also removed 95 ac (38 ha) of private land along the eastern coast of Guam because these are cleared for housing and do not contain the primary constituent elements required by the Guam Micronesian kingfisher. Along the northern coast, we removed 100 ac (40 ha) of beach belonging to Andersen Air Force Base because this area does not contain the primary constituent elements required by the Guam Micronesian kingfisher. Along the northern and western boundary of the unit, we removed 237 ac (96 ha) of private land that do contain some or all of the primary constituent elements, but are not essential to the conservation of the Guam Micronesian kingfisher. We also modified the boundary around the Guam National Wildlife Refuge to include 83 ac (33 ha) of Service-owned lands that had not been included in the proposed rule due to a mapping error.

Finally, all Air Force, Navy, and Government of Guam lands were excluded from critical habitat designation in this unit under sections 4(a)(3) and/or 4(b)(2) of the Act, as amended, for the reasons described earlier in the sections entitled "Exclusions from Critical Habitat." Exclusion of Air Force lands resulted in the subtraction of 10,838 ac (4,386 ha) from designated critical habitat in northern Guam. Exclusion of Navy lands resulted in a subtraction of 962 ac (389 ha) from designated critical habitat in northern Guam. Exclusion of Government of Guam lands resulted in a subtraction of 1,640 ac (664 ha) from critical habitat in northern Guam.

These modifications resulted in the reduction of critical habitat in the unit from 14,338 ac (5,803 ha) to approximately 376 ac (152 ha). This unit is now called the "Guam Micronesian Kingfisher Unit" and is the only designated critical habitat for the species on Guam (see "Critical Habitat Designation" and "Unit B: Southern Guam" below for additional information).

##### Unit B: Southern Guam

A total of 10,464 ac (4,234 ha) was removed or excluded from critical habitat designation in this unit. On COMNAVMARIANAS Ordnance Annex we removed 139 ac (57 ha) along the northern boundary of the unit because it contains buildings and mowed areas and does not contain the primary constituent elements, and is not essential to the conservation of the Guam Micronesian kingfisher. We also

removed 18 ac (7 ha) of private land from the eastern boundary of the unit that does contain the primary constituent elements, but is not essential to the conservation of the Guam Micronesian kingfisher.

Finally, all Navy, Government of Guam, and private lands were excluded from critical habitat designation for the reasons described earlier in the sections entitled "Exclusions from Critical Habitat." Exclusion of Navy lands resulted in the subtraction of 7,015 ac (2,839 ha) from designated critical habitat in southern Guam. Exclusion of Government of Guam lands resulted in the subtraction of 1,349 ac (546 ha) from designated critical habitat in southern Guam. Exclusion of private lands resulted in the subtraction of 1,941 ac (785 ha) from designated critical habitat in southern Guam.

These modifications resulted in the removal of this unit from critical habitat designation. Designated critical habitat for the Guam Micronesian kingfisher is found in northern Guam in the "Guam Micronesian Kingfisher Unit" (see "Critical Habitat Designation" for additional information).

#### Required Determinations

##### *Regulatory Planning and Review*

In accordance with Executive Order 12866, this document is found to be a significant regulatory action. Because of the Court Ordered deadline, formal Office of Management and Budget (OMB) review was not undertaken. We prepared an economic analysis of this action. The draft economic analysis was made available for public comment and we considered those comments during the preparation of this rule. The economic analysis indicates that this rule will not have an annual economic effect of \$100 million or more; based on our economic analysis, the annualized economic effects of this designation are estimated to be \$174,624. We have excluded much of these lands analyzed in the draft economic analysis and addendum so the direct economic impacts of the final designation is likely to be substantially lower than this estimate. With approximately 90 percent reduction in acreage and only refuge and Rota lands remaining, the cost may be closer to \$463,300 based on 10-year estimates.

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

The following discussion of the potential economic impacts of this final rule reflects only the views of the Service. This discussion is based upon the information regarding potential

economic impact that is available to the Service at this time. This analysis is for the purposes of compliance with the Regulatory Flexibility Act and does not reflect the position of the Service on the type of economic analysis required by the judicial decision in *New Mexico Cattle Growers Assn. v. U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001).

Under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act of 1996, 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 Small Business Regulatory Enforcement Fairness Act amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that the rule will not have a significant economic effect on a substantial number of small entities. The Small Business Regulatory Enforcement Fairness Act also amended the Regulatory Flexibility Act to require a certification statement. Based on current information, the Service certifies that this final rule will not have a significant effect on a substantial number of small entities.

The Small Business Regulatory Enforcement Fairness Act does not explicitly define either "substantial number" or "significant economic impact." Consequently, to assess whether a "substantial number" of small entities is affected by this designation, this analysis considers the relative number of small entities likely to sustain impacts in the area. Similarly, this analysis considers the relative cost of compliance on the revenues/profit margins of small entities in determining whether or not entities incur a "significant economic impact." Only small entities that are expected to be directly affected by the designation are considered in this portion of the analysis. This approach is consistent with several judicial opinions related to the scope of the Regulatory Flexibility Act (*Mid-Tex Electric Co-Op, Inc. v. FERC* and *American Trucking Associations, Inc. v. EPA*).

According to the Small Business Administration, small entities include small organizations, such as

independent nonprofit organizations, and small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents, as well as small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and agricultural businesses with annual sales less than \$750,000. To determine if potential economic impacts to these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule as well as the 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.

To determine if the rule would affect a substantial number of small entities, we consider the number of small entities affected within particular types of economic activities (*e.g.*, housing development, grazing, oil and gas production, timber harvesting, etc.). In estimating the numbers of small entities potentially affected, we also consider whether their activities have any Federal involvement; some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation.

Designation of critical habitat only affects activities carried out, authorized, or funded by Federal agencies; non-Federal activities are not affected by the designation. In areas where the species are present, Federal agencies are already required to consult with us under section 7 of the Act on activities that they carry out, authorize, or fund that may affect Mariana fruit bats, Mariana crows, and/or Guam Micronesian kingfishers. When these critical habitat designations are finalized, Federal agencies must also consult with us if their activities may affect designated critical habitat. However, in areas where the species are present, we do not believe this will result in appreciable additional regulatory burdens on Federal agencies or their applicants because consultation would already be required because of the presence of the listed species.

Even if the duty to avoid adverse modification does not trigger additional regulatory impacts in areas where the species is present, designation of critical

habitat could result in an additional economic burden on small entities due to the requirement to reinstate formal consultation for ongoing Federal activities. We have reviewed 209 informal consultations and 37 formal consultations conducted on the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher on Guam since these species were listed in 1984. In addition, we reviewed nine informal consultations conducted on the island of Rota, CNMI, since 1984. No formal consultations have been conducted on Rota since the Mariana crow was listed. Consultations on Federal grants to State wildlife programs, which do not affect small entities, were not reviewed for this final rule. Seventy-seven of the 209 informal consultations on Guam and 3 of the 5 informal consultations on Rota were conducted in response to requests for technical assistance or species lists for different locations on Guam and Rota. The majority of these requests were made by Federal agencies, some on their behalf by private consultants or contractors. Of the 246 total consultations on Guam, 57 informal and 20 formal consultations involved at least one of the species involved in this final rule. Of the nine consultations on Rota, six involved the Mariana crow.

Of the 20 formal consultations on Guam, two may have involved a small entity. Both of these concerned proposals by the Urunao Resort Corporation to have contractors conduct topographic survey work on private and Federal lands for a potential access road through Navy property to private lands. The Mariana fruit bat and Mariana crow were reported from the action areas. The biological opinions (Pacific Islands Fish and Wildlife Office log numbers 1-2-90-F-027 and 1-2-91-F-008) concluded that the proposed action would not result in jeopardy to either species. The reasonable and prudent measures required in the biological opinions to avoid or minimize incidental take of these species did not include major modifications to the proposed action and therefore did not place a significant economic burden on Urunao Resort Corporation. We do not believe this constitutes a substantial number of small entities (see earlier discussion on substantial number). Of the remaining 18 formal consultations on Guam involving the Mariana fruit bat, Mariana crow, and/or Guam Micronesian kingfisher, 10 were conducted on behalf of the Air Force and 8 were conducted on behalf of the Navy. In all of these consultations, the Service concluded that the proposed

actions would not result in jeopardy to these three listed species.

Of the 57 informal consultations on Guam, one may have concerned a small entity (private individuals, consulting firms, or nonprofit organizations). The proposed action in this case, the gathering of a large Chamorro family on the Guam National Wildlife Refuge, was determined not likely to adversely affect listed species and was subject only to minor restrictions under a special use permit for the refuge. We do not believe this instance constitutes a substantial number of small entities (see earlier discussion on substantial number). Four informal consultations were conducted on behalf of Government of Guam agencies. One action was determined not likely to adversely affect listed species, and the other was determined to have no effect on listed species. A third was determined not likely to adversely modify the critical habitat proposed in 1991. The fourth consultation on behalf of the Government of Guam concerned technical assistance from the Service and resulted in no regulatory action by the Service or economic burden on the Government of Guam. We conclude, however, that the Government of Guam is not a small entity under the Small Business Regulatory Enforcement Fairness Act.

Of the six informal consultations on Rota that concerned the Mariana crow, none concerned a small entity, and all consultations were conducted on behalf of the Government of the CNMI. Four of these consultations were requests for technical assistance or species lists and resulted in no regulatory action by the Service or economic burden on the Government of the CNMI. The remaining two actions were determined not likely to adversely affect the Mariana crow. We concluded, however, that the Government of the CNMI is not a small entity under the Small Business Regulatory Enforcement Fairness Act.

The remaining 52 informal consultations on Guam exclusively involved the following Federal agencies: U.S. Air Force (27 consultations), U.S. Department of the Navy (14 consultations), U.S. Department of Agriculture (4 consultations), U.S. Fish and Wildlife Service (3 consultations), U.S. Army Corps of Engineers (2 consultations), U.S. Department of the Army (one consultation), and Natural Resources Conservation Service (formally the Soil Conservation Service) (one consultation). None of these agencies is a small entity under the Small Business Regulatory Enforcement Fairness Act. Of these consultations, seven included critical habitat proposed

in 1991, and these proposed actions were determined not likely to adversely modify proposed critical habitat. Of the remaining 45 consultations, 38 concluded with our concurrence that the proposed action either would have no effect on, or was not likely to adversely affect, listed species; five consultations were responses to requests for either species lists or technical assistance and did not conclude with a regulatory determination; one concluded with a request by the Service for more information; and one concluded with a determination that the proposed action, Navy training maneuvers, was likely to adversely affect the Mariana crow.

In areas where the species clearly are not present, designation of critical habitat could trigger additional review of Federal activities under section 7 of the Act that otherwise would not be required. The majority of activities in the critical habitat areas for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher that have Federal involvement likely will concern the U.S. Navy or Air Force. As mentioned above, however, only 77 of 246 informal consultations on Guam completed under section 7 of the Act involved any of the species for which critical habitat is being designated. As a result, we cannot easily identify future consultations that may result from the listed status of the species or the increment of additional consultations that may be required by this critical habitat designation. Furthermore, a large proportion of the critical habitat designation on Guam is currently unoccupied by these species. Therefore, for the purposes of this review and certification under the Regulatory Flexibility Act, we are making the conservative assumption that any future consultations in the area designated as critical habitat on Guam likely will result from the critical habitat designations.

Of the total land area designated as critical habitat on Guam for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher, approximately 15 percent is private land, 21 percent is Government of Guam land, and 64 percent is Federal land. Of the total land area designated as critical habitat for the Mariana crow on Rota, approximately 8 percent is private land and 92 percent is CNMI Government land. Much of the land within the designated critical habitat units has limited potential for development because of the remote locations, lack of access, and rugged terrain of these lands. On non-Federal lands, activities that lack Federal involvement would not be affected by

the critical habitat designations. Activities of an economic nature that are likely to occur on non-Federal lands in the area encompassed by these designations consist of improvements to and construction of roads, communications and tracking facilities, and other infrastructure; residential and tourist-related development; ranching and farming; and recreational use, such as camping, picnicking, game hunting, and fishing. With the exception of communications and tracking facilities improvements by the Federal Aviation Administration or the Federal Communications Commission, road building or improvement by the Federal Highway Administration, and water or sewer system development by the Corps of Engineers these activities are unlikely to have Federal involvement. On lands that are or may be in agricultural production, the types of activities that might trigger a consultation include irrigation ditch system projects that may require section 404 authorizations from the Corps of Engineers, and watershed management and restoration projects sponsored by the Natural Resources Conservation Service. However, Natural Resources Conservation Service restoration projects typically are voluntary, and the irrigation ditch system projects within lands that are in agricultural production are rare and may affect only a small percentage of the small entities within these critical habitat designations. Therefore, analysis of currently available information indicates that the final rule would not affect a substantial number of small entities. We are not aware of any commercial activities on the Federal lands included in these critical habitat designations.

In general, two different mechanisms in section 7 consultations could lead to additional regulatory requirements. First, if we conclude, in a biological opinion, that a proposed action is likely to jeopardize the continued existence of a species or adversely modify its critical habitat, we can offer "reasonable and prudent alternatives." Reasonable and prudent alternatives are alternative actions that can be implemented in a manner consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that would avoid jeopardizing the continued existence of listed species or would result in adverse modification of critical habitat. A Federal agency and an applicant may elect to implement a reasonable and prudent alternative associated with a biological opinion that has found jeopardy or adverse

modification of critical habitat. An agency or applicant could alternatively choose to seek an exemption from the requirements of the Act or proceed without implementing the reasonable and prudent alternative. However, unless an exemption were obtained, the Federal agency or applicant would be at risk of violating section 7(a)(2) of the Act if it chose to proceed without implementing the reasonable and prudent alternative(s).

Secondly, if we find that a proposed action is not likely to jeopardize the continued existence of a listed animal species, we may identify reasonable and prudent measures designed to minimize the amount or extent of incidental take anticipated to result from the project and require the Federal agency or applicant to implement such measures through nondiscretionary terms and conditions. We may also identify discretionary conservation recommendations designed to minimize or avoid the adverse effects of a proposed action on listed species or critical habitat, help implement recovery plans, or gather information that could contribute to the long-term conservation of the species.

Based on our experience with section 7 consultations for all listed species, virtually all projects—including those that, in their initial proposed form, would result in jeopardy or adverse modification determinations in section 7 consultations—can be implemented successfully with, at most, the adoption of reasonable and prudent alternatives. Furthermore, these measures must be economically feasible, consistent with the intended purpose of the action, and within the scope of authority of the Federal agency involved in the consultation (*see* 50 CFR 404.2, definition of reasonable and prudent alternative). Based on our consultation history, we can describe the general kinds of actions that may be identified in future reasonable and prudent alternatives. These are based on our understanding of the needs of the species and the threats they face, especially as described in the final listing rule and in this critical habitat designation, as well as our experience with the listed species in Guam and Rota. The kinds of actions that may be included in future reasonable and prudent alternatives include, but are not limited to, management of competing nonnative species and predators, restoration of degraded habitat, construction of protective fencing, and regular monitoring. Therefore, such measures are not likely to result in a significant economic impact to a substantial number of small entities.

As required under section 4(b)(2) of the Act, we conducted an analysis of the potential economic and other impacts of this critical habitat designation, and we made this analysis available for public review and comment before finalizing these designations.

In summary, we have considered whether this final rule would result in a significant economic effect on a substantial number of small entities. Currently available information indicates it would not affect a substantial number of small entities. None of the lands designated as critical habitat on Guam are on Government of Guam lands. In addition, approximately 92 percent of the lands designated as critical habitat on Rota are on Government of the CNMI lands. The Territory of Guam and CNMI are not small entities under the Small Business Regulatory Enforcement Fairness Act. None of the lands designated as critical habitat on Guam and 8 percent of lands proposed as critical habitat on Rota are on private lands. As discussed earlier, many of the actions likely to occur on the private land parcels included in this proposal are not likely to require any Federal authorization. In the remaining areas, section 7 application, the only trigger for regulatory impact under this rule, largely would be limited to a subset of the area designated. The most likely future section 7 consultations resulting from this rule would be for informal consultations on actions proposed by the military, federally funded land and water conservation projects, species-specific surveys and research projects, and watershed management and restoration projects sponsored by the Natural Resources Conservation Service. These consultations likely would occur on only a subset of the total number of parcels and, therefore, are not likely to affect a substantial number of small entities. This rule would result in project modifications only when proposed Federal activities would destroy or adversely modify critical habitat. While this may occur, it is not expected frequently enough to affect a substantial number of small entities. Even if it did occur, we would not expect it to result in a significant economic impact, as the measures included in reasonable and prudent alternatives must be economically feasible and consistent with the proposed action. Thus, currently available information indicates that the designation of critical habitat for the Mariana fruit bat, Mariana crow, and Guam Micronesian kingfisher will not have a significant economic impact on

a substantial number of small entities, and an initial regulatory flexibility analysis is not required.

#### *Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 804(2))*

Under the Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 801 *et seq.*), this rule is not a major rule. Our detailed assessment of the economic effects of this designation are described in the draft economic analysis and the final addendum to the economic analysis. Based on the effects identified in these documents, we believe that this rule will not have an effect on the economy of \$100 million or more, will not cause a major increase in costs or prices for consumers, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. Please refer to the final addendum to the economic analysis for a discussion of the effects of this determination.

#### **Executive Order 13211**

On May 18, 2001, the President issued Executive Order 13211, on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. Though current information indicates this final rule would be a significant regulatory action under Executive Order 12866, it is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

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

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 August 25, 2000 *et seq.*):

(a) This rule will not “significantly or uniquely” affect small governments. A Small Government Agency Plan does not appear to be required. Small governments would be affected only to the extent that any programs having Federal funds, permits, or other authorized activities would have to ensure that their actions will not adversely affect the critical habitat. However, as discussed above, these actions are currently subject to similar restrictions through the listing protections of the species, and further restrictions are not anticipated to result from critical habitat designation of occupied areas. In our economic analysis, we evaluated the impact of designating unoccupied areas where

section 7 consultations would not have occurred but for the critical habitat designation.

(b) This rule will not produce on State, local, or Tribal governments or the private sector a Federal mandate of \$100 million or greater in any year, so it does not meet the criteria for a “significant regulatory action” under the Unfunded Mandates Reform Act.

#### **Takings**

In accordance with Executive Order 12630 (“Government Actions and Interference with Constitutionally Protected Private Property Rights”), we have preliminarily analyzed the potential takings implications of the designating critical habitat in a preliminary takings implication assessment, which indicates that this rule would not pose significant takings implications.

#### **Federalism**

In accordance with Executive Order 13132, the rule does not have significant Federalism effects. A Federalism assessment is not required. As discussed above, the designation of critical habitat in areas currently occupied by the Mariana fruit bat and Mariana crow and in areas unoccupied by these species and the Guam Micronesian kingfisher would have little incremental impact on the Government of Guam or the CNMI and their activities. The designations may have some benefit to the Government of Guam and the CNMI in that the areas essential to the conservation of these species are more clearly defined, and the primary constituent elements of the habitat necessary to the survival of these species are identified. While this definition and identification does not alter where and what Federally sponsored activities may occur, it may assist the Government of Guam and the CNMI in long-range planning rather than waiting for case-by-case section 7 consultation to occur.

#### **Civil Justice Reform**

In accordance with Executive Order 12988, the Department of the Interior’s Office of the Solicitor has determined that this rule does not unduly burden the judicial system and does meet 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. The rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the Mariana fruit bat,

Guam Micronesian kingfisher, and Mariana crow.

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

This rule does not contain any information collection requirements for which Office of Management and Budget approval under the Paperwork Reduction Act is required. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid Office of Management and Budget control number.

#### **National Environmental Policy Act**

We have determined that we do not have to prepare an Environmental Assessment and/or an Environmental Impact Statement as defined by the National Environmental Policy Act of 1969 in connection with regulations adopted pursuant to section 4(a) of the Act, as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

#### **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, and the Department of the Interior’s manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes on a government-to-government basis. The designated critical habitat on Guam and Rota for the Mariana fruit bat, Guam Micronesian kingfisher, and Mariana crow does not contain any Tribal lands or lands that we have identified as impacting Tribal trust resources.

#### **References Cited**

A complete list of all references cited in this final rule is available upon request from our Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section).

#### **Authors**

This document was drafted by the Pacific Islands Fish and Wildlife Office with assistance from the U.S. Department of the Interior (see **ADDRESSES** section).

#### **List of Subjects in 50 CFR Part 17**

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

**Regulation Promulgation**

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

**PART 17—[AMENDED]**

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

**Authority:** 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

■ 2. In § 17.11(h), the entries for “Bat, Mariana fruit” under “MAMMALS,”

“Kingfisher, Guam Micronesian” under “BIRDS,” and “Crow, Mariana” under “BIRDS” are revised to read as follows:

**§ 17.11 Endangered and threatened wildlife.**

\* \* \* \* \*  
(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
MAMMALS							
*	*	*	*	*	*		*
Bat, Mariana fruit (=Mariana flying fox).	<i>Pteropus mariannus mariannus.</i>	Western Pacific Ocean USA (Guam, Commonwealth of the Northern Mariana Islands).	Guam .....	E	156	17.95(a)	NA
*	*	*	*	*	*		*
BIRDS							
*	*	*	*	*	*		*
Crow, Mariana .....	<i>Corvus kubaryi</i> .....	Western Pacific Ocean USA (Guam, Rota).	Entire .....	E	156	17.95(b)	NA
*	*	*	*	*	*		*
Kingfisher, Guam Micronesian.	<i>Halcyon cinnamomina cinnamomina.</i>	Western Pacific Ocean USA (Guam).	Entire .....	E	156	17.95(b)	NA
*	*	*	*	*	*		*

■ 3. Amend § 17.95 by adding, in the same alphabetical order as these species occur in § 17.11(h):

■ a. In paragraph (a), critical habitat for the Mariana fruit bat (*Pteropus mariannus mariannus*) as set forth below; and

■ b. In paragraph (b), critical habitat for the Mariana crow (*Corvus kubaryi*) and Guam Micronesian kingfisher (*Halcyon cinnamomina cinnamomina*) as set forth below.

**§ 17.95 Critical habitat—fish and wildlife.**

(a) *Mammals.*

\* \* \* \* \*

Mariana Fruit Bat (*Pteropus mariannus mariannus*)

(1) The critical habitat unit for the Mariana fruit bat is depicted for the Territory of Guam on the maps below.

(2) Within this area, the primary constituent elements required by the

Mariana fruit bat for the biological needs of foraging, sheltering, roosting, and rearing of young are found in areas supporting limestone, secondary, ravine, swamp, agricultural, and coastal forests composed of native or introduced plant species. These forest types provide the primary constituent elements of:

(i) Plant species used for foraging, such as *Artocarpus* sp. (breadfruit), *Carica papaya* (papaya), *Cycas circinalis* (fadang), *Ficus* spp. (fig), *Pandanus tectorius* (kafu), *Cocos nucifera* (coconut palm), and *Terminalia catappa* (talisa); and

(ii) Remote locations, often within 328 ft (100 m) of clifflines that are 260 to 590 ft (80 to 100 m) tall, with limited exposure to human disturbance; land that contains mature fig, *Mammea odorata* (chopak), *Casuarina equisetifolia* (gago), *Macaranga thompsonii* (pengua), *Guettarda*

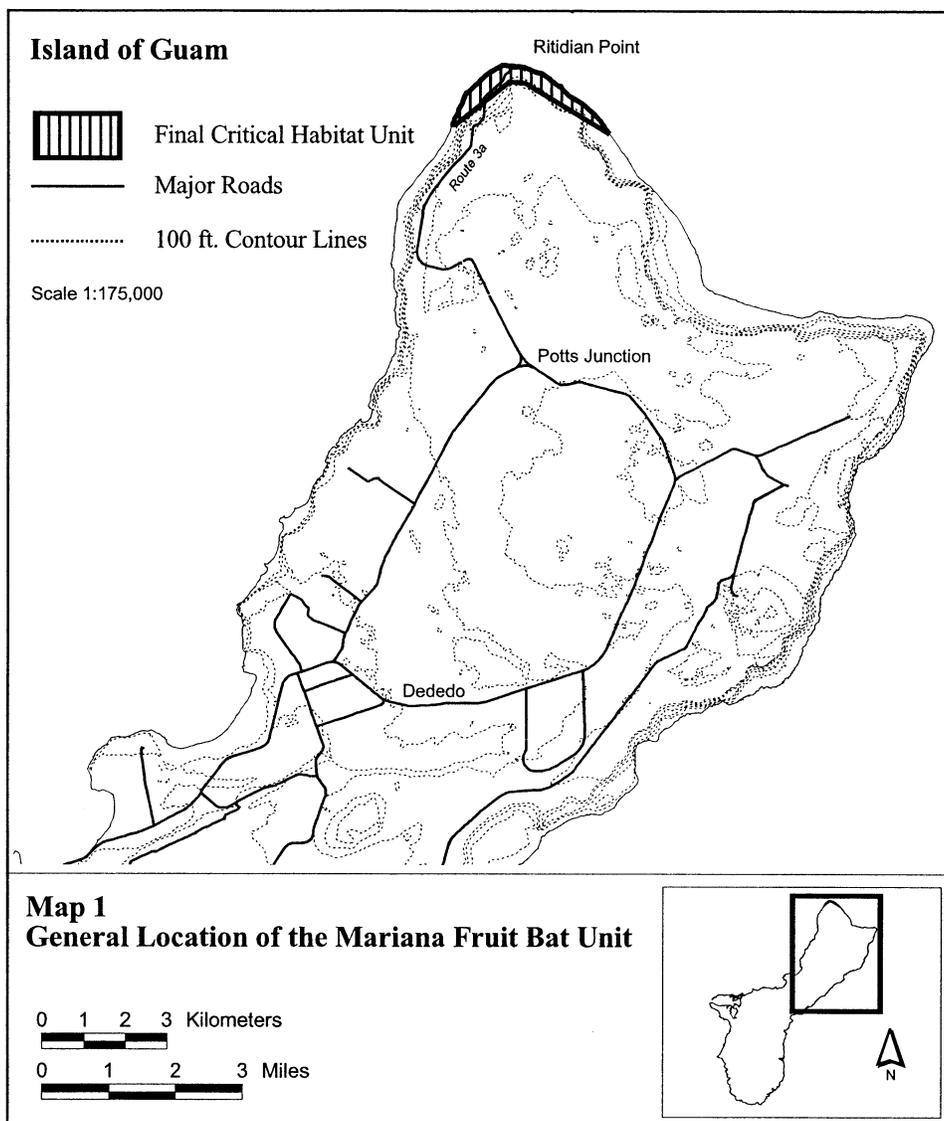
*speciosa* (panao), *Neisosperma oppositifolia* (fagot), and other tree species that are used for roosting and breeding.

(3) Critical habitat does not include existing features and structures within the boundaries of the mapped units, such as buildings, roads, aqueducts, antennas, water tanks, agricultural fields, paved areas, lawns, and other urban landscaped areas not containing one or more of the primary constituent elements.

(4) The critical habitat unit is described below. Coordinates are in UTM Zone 55 with units in meters using North American Datum of 1983 (NAD83)/World Geodetic System 1984 (WGS 84).

(i) **Note:** Map 1—General Location of the Mariana Fruit Bat Unit follows:

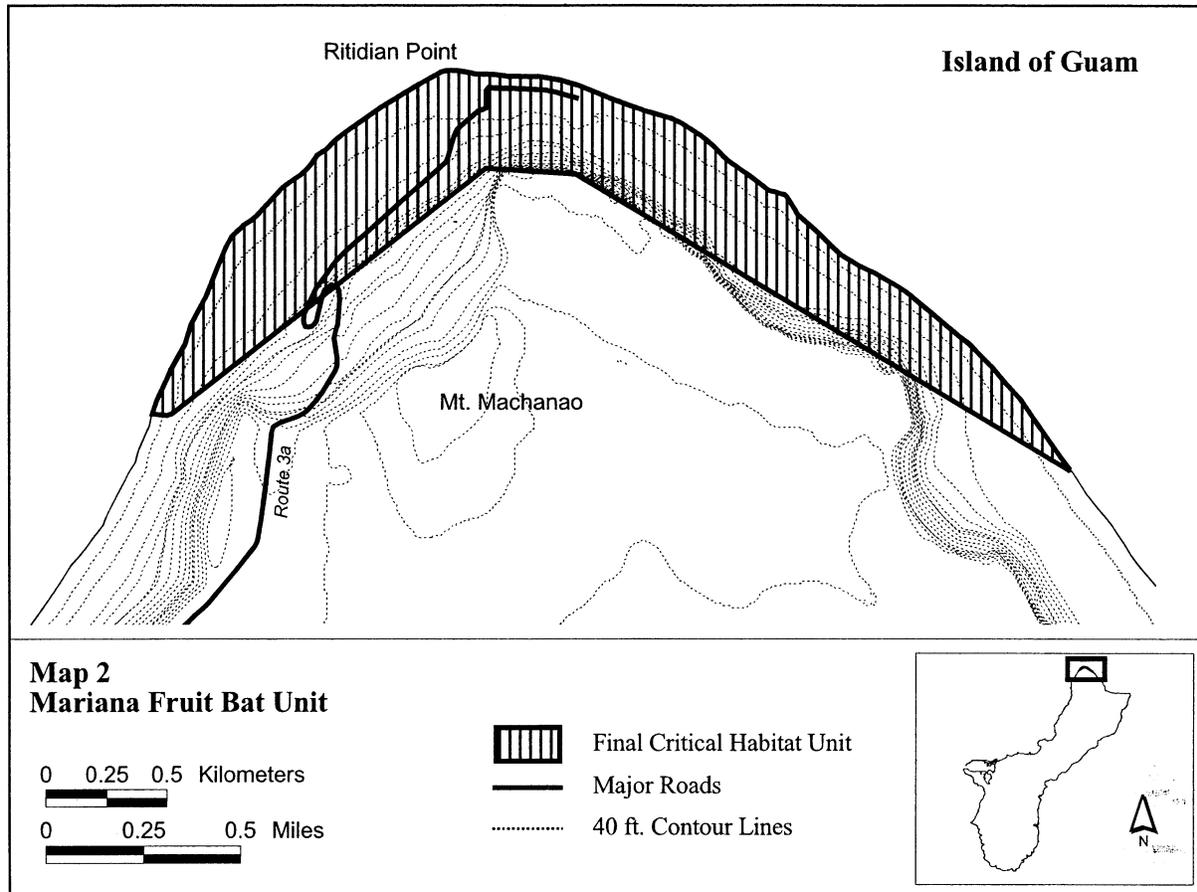
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(ii) Guam, Mariana fruit bat (376 ac; 152 ha).  
 267338, 1509107; 267277, 1509113;  
 271077, 1508881; 271071, 1508878;

(A) Unit consists of the following nine boundary points: 267358, 1509113; 270766, 1509058; 269030, 1510105; 268659, 1510129; 267697, 1509376.

(B) **Note:** Map 2 showing Mariana Fruit Bat Unit follows:



\* \* \* \* \*

(b) *Birds.*

\* \* \* \* \*

**Mariana Crow (*Corvus kubaryi*)**

(1) Critical habitat units for the Mariana crow are depicted for the Territory of Guam and the island of Rota, Commonwealth of the Northern Mariana Islands, on the maps below.

(2) The primary constituent elements required by the Mariana crow for the biological needs of foraging, sheltering, roosting, nesting, and rearing of young are found in areas that support limestone, secondary, ravine, swamp, agricultural, and coastal forests composed of native and introduced plant species. These forest types provide the primary constituent elements of:

(i) Emergent trees and subcanopy trees with dense cover for breeding,

such as *Neisosperma oppositifolia* (fagot), *Macaranga thompsonii* (pengua), *Intsia bijuga* (ifit), *Premna obtusifolia* (ahgao), *Eugenia reinwardtiana* (aabang), *Ficus* spp. (fig), *Elaeocarpus joga* (yoga), and *Tristiropsis obtusangula* (faniok);

(ii) Sufficient area of predominantly native forest to allow nesting at least 950 ft (290 m) from the nearest road and 203 ft (62 m) from the nearest forest edge and to support Mariana crow breeding territories (approximately 30 to 91 ac (12 to 37 ha)) and foraging areas for nonbreeding juvenile crows; and

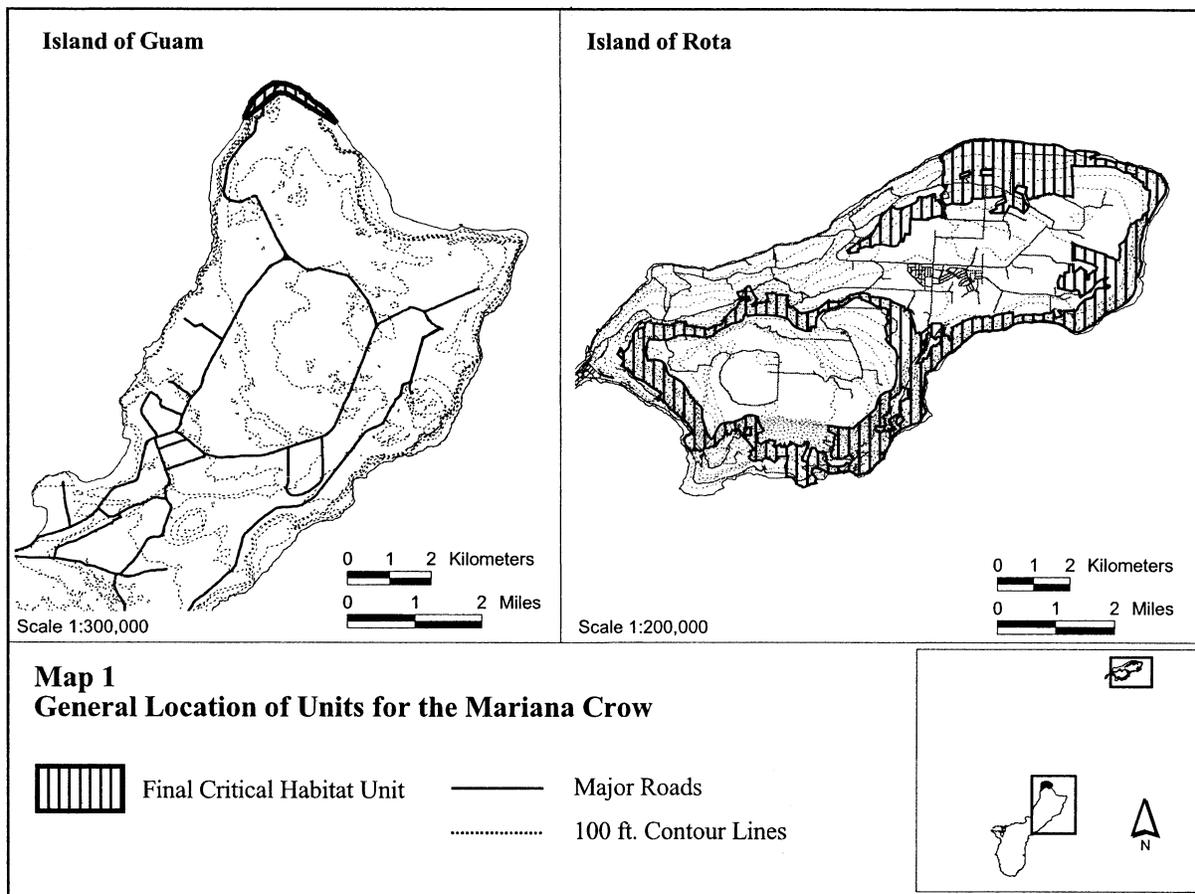
(iii) Standing dead trees and plant species for foraging such as *Aglaiia mariannensis* (maypunayo), *Artocarpus* spp. (breadfruit), *Cocos nucifera* (coconut palm), fagot, *Hibiscus tiliaceus* (pago), ifit, *Leucaena* spp.

(tangantangan), *Ochrosia mariannensis* (langiti), *Pandanus tectorius* (kafu), ahgao, fig, and joga.

(3) Critical habitat does not include existing features and structures within the boundaries of the mapped units, such as buildings, roads, aqueducts, antennas, water tanks, agricultural fields, paved areas, lawns, and other urban landscaped areas not containing one or more of the primary constituent elements.

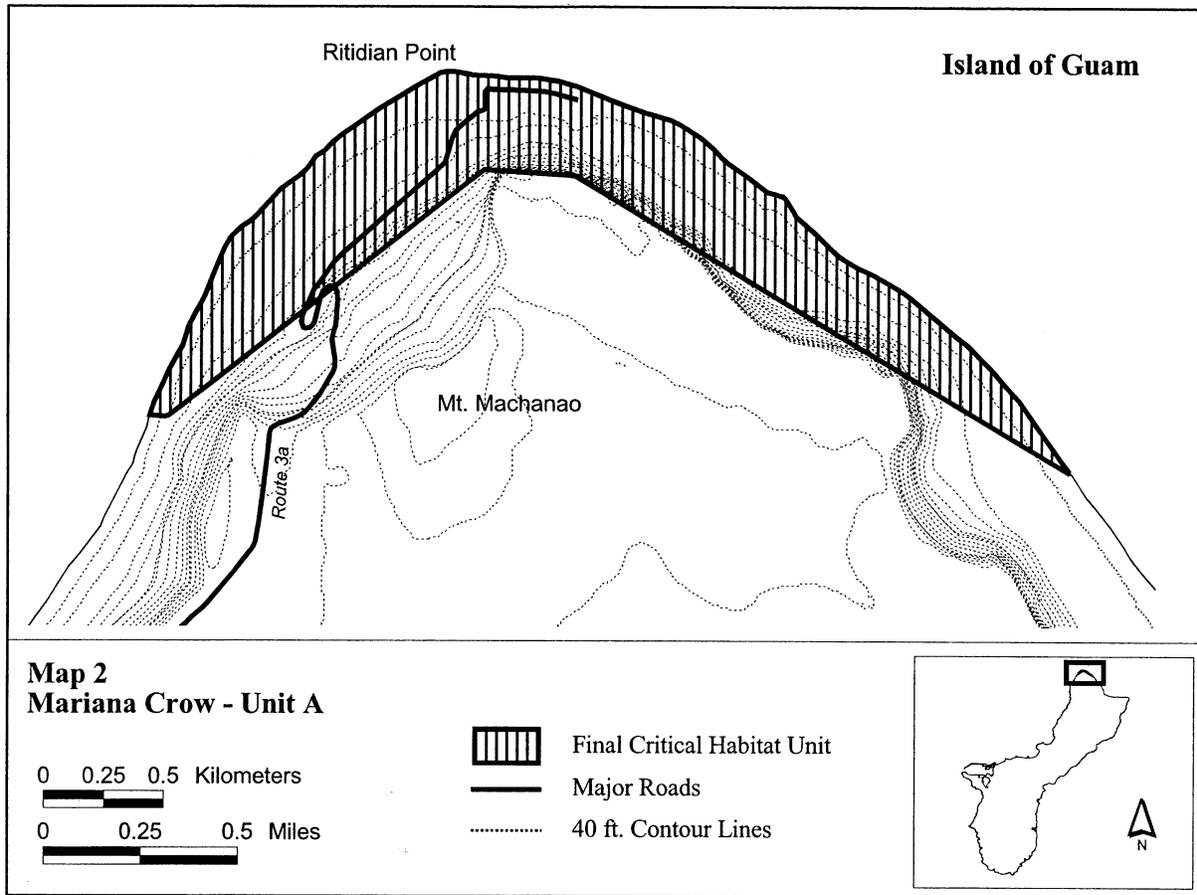
(4) Critical habitat units are described below. Coordinates are in UTM Zone 55 with units in meters using North American Datum of 1983 (NAD83)/World Geodetic System 1984 (WGS 84).

(i) **Note:** Map 1—General Locations of Units for the Mariana Crow follows:



(ii) Guam, Mariana crow—Unit A (376 ac; 152 ha):  
 (A) Unit A consists of the following nine boundary points: 267338, 1509107; 267277, 1509113; 271077, 1508881; 271071, 1508878; 270766, 1509058; 269030, 1510105; 268659, 1510129; 267697, 1509376.

(B) Note: Map 2 showing Unit A for Mariana crow follows:



**BILLING CODE 4310-55-C**

(iii) Rota, Mariana crow—Unit B  
(6,033 ac; 2,442 ha):

(A) Subunit B-1 (5,668 ac; 2,294 ha)  
consists of the following 659 boundary

points: 309251, 1569048; 309301,  
1569048; 309410, 1569197; 309423,  
1569292; 309304, 1569302; 309319,  
1569585; 309357, 1569581; 309355,  
1569603; 309339, 1569952; 309301,  
1569932; 309216, 1570065; 309393,  
1570214; 309698, 1570373; 309955,  
1570475; 310209, 1570549; 310304,  
1570532; 310484, 1570542; 310684,  
1570556; 310823, 1570522; 310988,  
1570530; 311235, 1570509; 311484,  
1570490; 311620, 1570458; 311690,  
1570436; 311807, 1570430; 312089,  
1570412; 312189, 1570420; 312276,  
1570402; 312346, 1570422; 312447,  
1570412; 312539, 1570386; 312631,  
1570349; 312734, 1570290; 312853,  
1570230; 312913, 1570240; 313008,  
1570257; 313130, 1570243; 313360,  
1570238; 313441, 1570212; 313526,  
1570211; 313598, 1570186; 313620,  
1570151; 313479, 1570121; 313387,  
1570081; 313382, 1570051; 313488,  
1570070; 313550, 1570037; 313621,  
1570022; 313704, 1570035; 313805,  
1570011; 313843, 1569989; 313932,

1569975; 313986, 1569956; 314024,  
1569934; 314116, 1569951; 314228,  
1569932; 314336, 1569901; 314417,  
1569879; 314482, 1569883; 314529,  
1569853; 314810, 1569769; 315250,  
1569625; 315296, 1569566; 315344,  
1569506; 315399, 1569417; 315448,  
1569341; 315469, 1569243; 315450,  
1569091; 315369, 1568959; 315274,  
1568839; 315222, 1568741; 315111,  
1568557; 314963, 1568264; 314881,  
1568159; 314832, 1568004; 314827,  
1567899; 314786, 1567817; 314751,  
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1567278; 314810, 1567191; 314816,  
1567112; 314767, 1567015; 314724,  
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1566508; 314564, 1566294; 314407,  
1566085; 314241, 1565987; 314051,  
1565865; 313943, 1565830; 313816,  
1565771; 313656, 1565613; 313463,  
1565456; 313333, 1565386; 313214,  
1565304; 313076, 1565261; 312973,  
1565250; 312916, 1565275; 312799,  
1565334; 312734, 1565396; 312593,  
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1561001; 305674, 1560993; 305643,  
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(B) Excluding seven areas:

(1) Bounded by the following five points (7 ac; 3 ha): 309786, 1569596; 309800, 1569484; 310060, 1569596; 310059, 1569695; 310055, 1569695.

(2) Bounded by the following four points (13 ac; 5 ha): 310365, 1569567; 310716, 1569564; 310716, 1569718; 310366, 1569717.

(3) Bounded by the following 53 points (46 ac; 19 ha): 308686, 1564398;

308762, 1564422; 308791, 1564444; 308793, 1564466; 308784, 1564497; 308797, 1564525; 308821, 1564528; 308848, 1564503; 308874, 1564514; 308905, 1564532; 308955, 1564666; 308979, 1564736; 308994, 1564814; 309056, 1564845; 309090, 1564889; 309126, 1564869; 309248, 1564976; 309277, 1565027; 309288, 1565060; 309280, 1565083; 309271, 1565117; 309213, 1565113; 309170, 1565106; 309132, 1565058; 309100, 1565068; 309047, 1565112; 308992, 1565145; 308979, 1565217; 308948, 1565228; 308887, 1565176; 308883, 1565150; 308900, 1565075; 308876, 1564990; 308839, 1564994; 308821, 1564996; 308791, 1564924; 308813, 1564898;

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(4) Bounded by the following 80 points (84 ac; 34 ha): 307624, 1562456;

307687, 1562504; 307700, 1562504; 307723, 1562493; 307768, 1562521; 307804, 1562511; 307827, 1562494; 307871, 1562552; 307897, 1562565; 307928, 1562565; 307943, 1562545; 307959, 1562519; 307976, 1562515; 308031, 1562572; 307996, 1562594; 307980, 1562618; 307978, 1562640; 307930, 1562655; 307908, 1562675; 307891, 1562697; 307891, 1562743; 307856, 1562771; 307851, 1562810; 307902, 1562852; 308068, 1562957; 308134, 1562964; 308164, 1562997; 308173, 1563049; 308204, 1563115; 308197, 1563150; 308171, 1563159; 308149, 1563172; 308158, 1563220; 308153, 1563290; 308153, 1563334; 308184, 1563347; 308234, 1563340; 308316, 1563418; 308398, 1563405; 308418, 1563437; 308367, 1563499; 308373, 1563676; 308215, 1563726; 308158, 1563576; 308126, 1563534; 308091, 1563547; 308052, 1563487; 308025, 1563486; 307965, 1563436; 307886, 1563373; 307872, 1563313; 307872, 1563199; 307896, 1563181; 307911, 1563141; 307871, 1563095; 307869, 1563073; 307904, 1563069; 307880, 1563003; 307862, 1563010; 307849, 1563025; 307803, 1563019; 307807, 1562964; 307792, 1562951; 307753, 1562946; 307713, 1562935; 307700, 1562911; 307704, 1562881; 307753, 1562828; 307768, 1562797; 307733, 1562745; 307731, 1562727; 307781, 1562683; 307729, 1562598; 307713, 1562633; 307689, 1562635; 307646, 1562613; 307495, 1562647; 307488, 1562556; 307488, 1562533; 307495, 1562490.

(5) Bounded by the following seven

points (9 ac; 3 ha): 308109, 1562663; 308114, 1562663; 308280, 1562825; 308197, 1562937; 308066, 1562859; 308074, 1562799; 308043, 1562743.

(6) Bounded by the following 225 points (4,517 ac; 1,828 ha): 304411,

1562555; 304424, 1562519; 304395, 1562481; 304302, 1562446; 304273, 1562406; 304249, 1562358; 304254, 1562282; 304261, 1562234; 304267, 1562190; 304322, 1562154; 304363, 1562125; 304393, 1562154; 304450, 1562187; 304496, 1562219; 304553, 1562195; 304591, 1562252; 304677, 1562222; 304751, 1562222; 304756, 1562184; 304707, 1562097; 304732, 1562065; 304778, 1562078; 304848, 1562116; 304883, 1562133; 304897,

1562100; 304919, 1562054; 304965, 1562055; 305014, 1562130; 305027, 1562070; 305087, 1562070; 305138, 1562106; 305178, 1562184; 305273, 1562139; 305332, 1562082; 305502, 1562089; 305578, 1562186; 305634, 1562202; 305663, 1562153; 305654, 1562055; 305625, 1562051; 305559, 1561906; 305499, 1561766; 305502, 1561677; 305536, 1561661; 305583, 1561645; 305628, 1561651; 305657, 1561733; 305750, 1562039; 305797, 1562046; 305851, 1562027; 305884, 1561946; 305962, 1561919; 306000, 1561908; 306049, 1561932; 306083, 1561909; 306124, 1561894; 306125, 1561840; 306152, 1561740; 306149, 1561664; 306171, 1561612; 306196, 1561564; 306331, 1561523; 306475, 1561523; 306637, 1561536; 306678, 1561599; 306697, 1561618; 306795, 1561601; 306862, 1561696; 306865, 1561764; 306854, 1561781; 306837, 1561785; 306821, 1561831; 306726, 1561820; 306597, 1561737; 306383, 1561737; 306312, 1561775; 306280, 1561824; 306280, 1561867; 306328, 1561986; 306326, 1562043; 306369, 1562146; 306348, 1562193; 306359, 1562248; 306396, 1562413; 306211, 1562495; 306212, 1562642; 306491, 1562590; 306893, 1562575; 307497, 1563122; 307570, 1563395; 307632, 1563500; 307765, 1563576; 307881, 1563606; 307963, 1563657; 308014, 1563772; 308065, 1564029; 308062, 1564310; 308088, 1564565; 308044, 1564754; 307833, 1564944; 307768, 1565047; 307819, 1565112; 307805, 1565168; 307749, 1565378; 307765, 1565443; 307822, 1565486; 307811, 1565570; 307779, 1565654; 307817, 1565697; 307825, 1565828; 307842, 1565852; 307741, 1565909; 307639, 1565920; 307442, 1565987; 307386, 1566039; 307223, 1566107; 307152, 1566137; 307112, 1566137; 307082, 1566183; 307047, 1566199; 306955, 1566199; 306887, 1566191; 306824, 1566142; 306643, 1566020; 306544, 1565957; 306401, 1565931; 306247, 1565886; 306225, 1565841; 306113, 1565820; 306065, 1565846; 305956, 1565740; 305864, 1565621; 305851, 1565381; 305732, 1565386; 305724, 1565275; 305583, 1565276; 305305, 1565376; 305244, 1565424; 305104, 1565593; 304938, 1565657; 304768, 1565694; 304538, 1565717; 304173, 1565710; 304059, 1565694; 303985, 1565704; 303930, 1565725; 303903, 1565726; 303881, 1565697; 303879, 1565686; 303866, 1565617; 303819, 1565548; 303760, 1565524; 303670, 1565498; 303545, 1565484; 303504, 1565453; 303445, 1565416; 303355, 1565352; 303191, 1565289; 303022, 1565141; 302927, 1565120; 302874,

1565088; 302601, 1565117; 302527, 1565140; 302218, 1565153; 302086, 1565142; 301948, 1565092; 301810, 1565044; 301728, 1565024; 301675, 1565037; 301588, 1565018; 301416, 1565032; 301326, 1565030; 301284, 1565055; 301215, 1564939; 301207, 1564880; 301178, 1564669; 301199, 1564611; 301215, 1564529; 301236, 1564468; 301284, 1564460; 301363, 1564476; 301459, 1564476; 301604, 1564444; 301705, 1564365; 301734, 1564277; 301781, 1564145; 301827, 1564059; 301898, 1564026; 301972, 1563986; 302078, 1563923; 302144, 1563891; 302215, 1563817; 302318, 1563661; 302371, 1563526; 302605, 1563264; 302705, 1563179; 302736, 1563065; 302743, 1562848; 302859, 1562481; 302916, 1562366; 302961, 1562293; 302983, 1562274; 303027, 1562300; 303093, 1562406; 303115, 1562459; 303159, 1562565; 303190, 1562612; 303214, 1562638; 303250, 1562687; 303323, 1562713; 303478, 1562733; 303626, 1562749; 303778,

1562811; 303847, 1562837; 303900, 1562902; 303986, 1562937; 304081, 1562943; 304196, 1562928; 304284, 1562884; 304280, 1562804; 304302, 1562749; 304315, 1562704; 304363, 1562636; 304368, 1562613; 304379, 1562567.

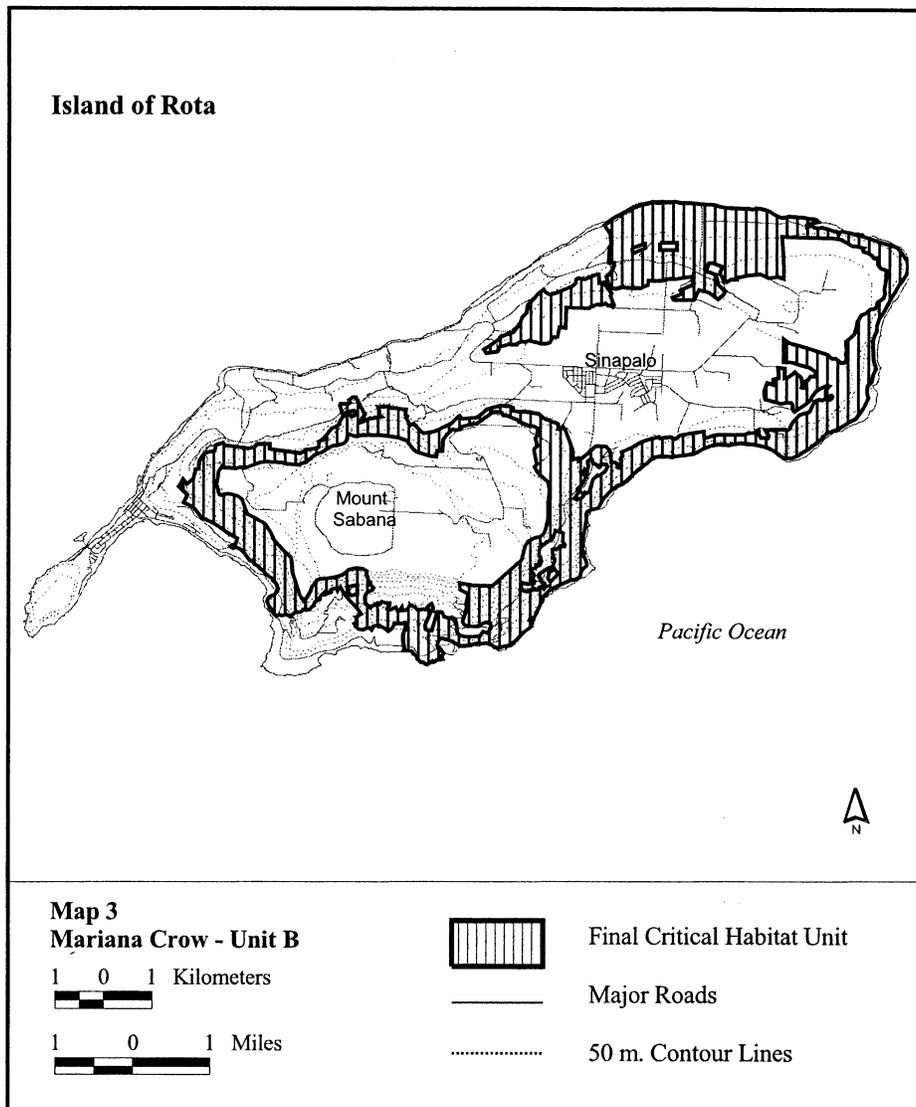
(7) Bounded by the following nine points (9 ac; 3 ha): 303885, 1562540; 303916, 1562411; 303966, 1562370; 304088, 1562398; 304081, 1562449; 304077, 1562587; 304072, 1562590; 303992, 1562579; 303895, 1562564.

(C) Subunit B-2 (365 ac; 148 ha) consists of the following 64 boundary points: 308173, 1567760; 308132, 1567750; 308105, 1567693; 308088, 1567642; 308013, 1567625; 307908, 1567625; 307634, 1567679; 307580, 1567659; 307475, 1567659; 307410, 1567632; 307391, 1567599; 307208, 1567603; 307154, 1567586; 306999, 1567537; 307000, 1567462; 306988, 1567448; 306749, 1567420; 306700, 1567489; 306815, 1567568; 307027, 1567721; 307024, 1567751; 307254,

1567843; 307310, 1567846; 307444, 1568042; 307502, 1568160; 307586, 1568258; 307614, 1568414; 307732, 1568533; 307837, 1568655; 307942, 1568733; 307986, 1568682; 308071, 1568641; 308190, 1568658; 308312, 1568709; 308444, 1568763; 308559, 1568814; 308634, 1568872; 308630, 1568950; 308684, 1568980; 308810, 1568956; 308942, 1569004; 309033, 1569041; 309095, 1569049; 309113, 1568883; 309233, 1568887; 309213, 1568855; 309372, 1568655; 309345, 1568604; 309386, 1568509; 309416, 1568424; 309399, 1568380; 309335, 1568424; 309288, 1568401; 309243, 1568452; 309196, 1568431; 309108, 1568428; 309054, 1568428; 308968, 1568389; 308922, 1568387; 308909, 1568356; 308422, 1568364; 308411, 1567945; 308285, 1567960; 308240, 1567738.

(D) Note: Map 3 showing Unit B for Mariana crow follows:

**BILLING CODE 4310-55-P**



\* \* \* \* \*

Guam Micronesian Kingfisher (*Halcyon cinnamomina cinnamomina*)

(1) The critical habitat unit for the Guam Micronesian kingfisher is depicted for the Territory of Guam on the maps below.

(2) The primary constituent elements required by the Guam Micronesian kingfisher for the biological needs of foraging, sheltering, roosting, nesting, and rearing of young are found in areas that support limestone, secondary, ravine, swamp, agricultural, and coastal forests composed of native and introduced plant species. These forest types include the primary constituent elements of:

(i) Closed canopy and well-developed understory vegetation; large (approximately 43 cm (17 in) diameter at breast height), standing dead trees (especially *Tristiropsis obtusangula* (faniok), *Pisonia grandis* (umumu), *Artocarpus* spp. (breadfruit), *Ficus* spp. (fig), and *Cocos nucifera* (coconut palm)); mud nests of *Nasutitermes* spp. termites; and root masses of epiphytic ferns for breeding;

(ii) Sufficiently diverse structure to provide exposed perches and ground surfaces, leaf litter, and other substrates that support a wide range of vertebrate and invertebrate prey species for foraging kingfishers; and

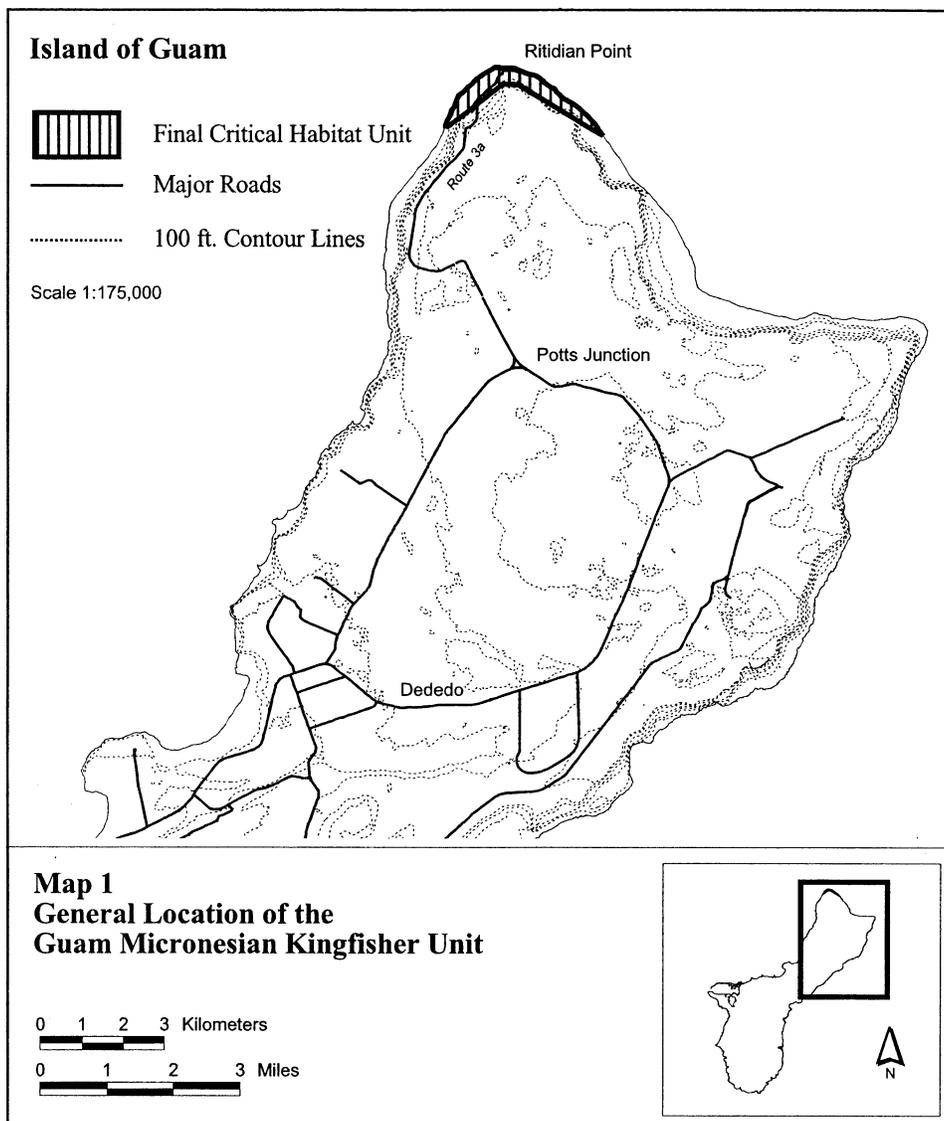
(iii) Sufficient overall breeding and foraging area to support kingfisher

territories of approximately 25 ac (10 ha) each.

(3) Critical habitat does not include existing features and structures within the boundaries of the mapped units, such as buildings, roads, aqueducts, antennas, water tanks, agricultural fields, paved areas, lawns, and other urban landscaped areas not containing one or more of the primary constituent elements.

(4) The critical habitat unit is described below. Coordinates are in UTM Zone 55 with units in meters using North American Datum of 1983 (NAD83) / World Geodetic System 1984 (WGS 84).

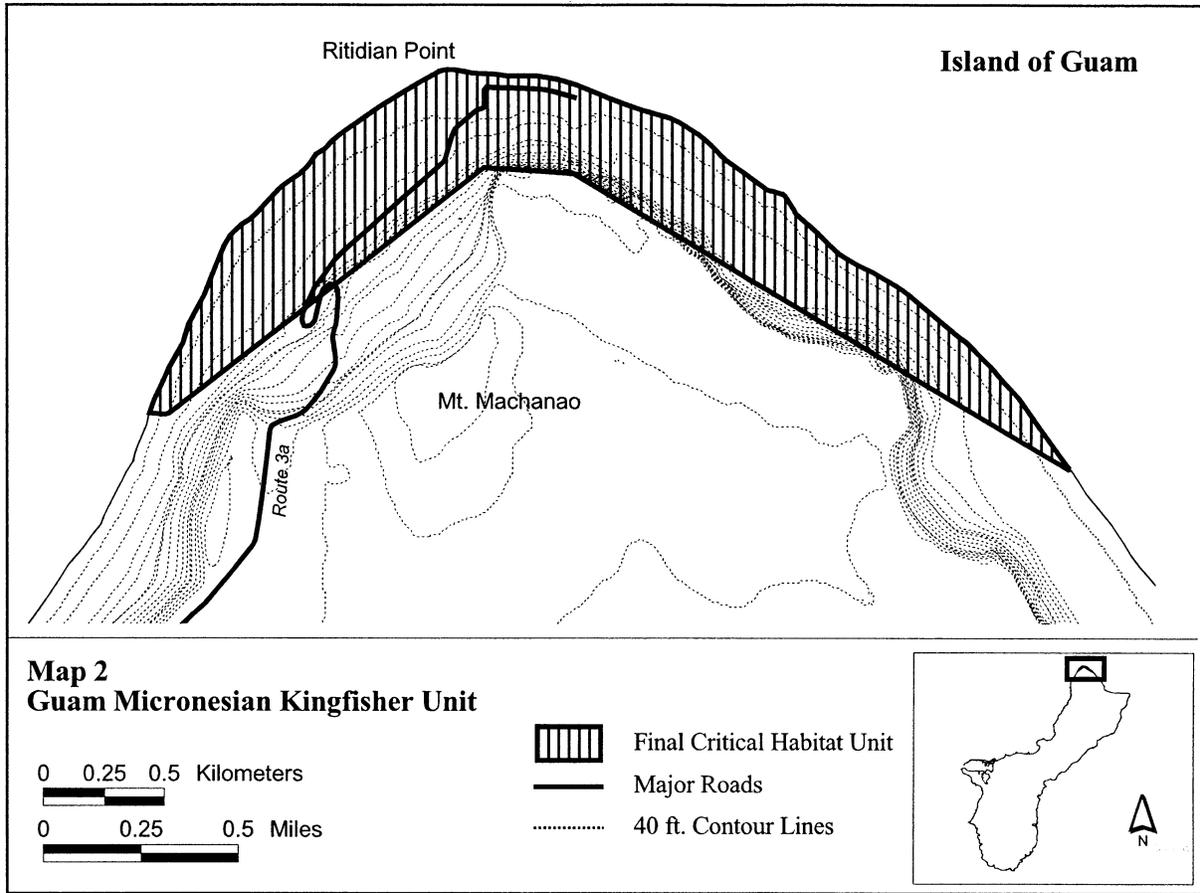
(i) **Note:** Map 1-General Location of the Guam Micronesian Kingfisher Unit—follows:



(ii) Guam, Guam Micronesian kingfisher (376 ac; 152 ha):  
 (A) Unit consists of the following nine boundary points: 267358, 1509113;

267338, 1509107; 267277, 1509113;  
 271077, 1508881; 271071, 1508878;  
 270766, 1509058; 269030, 1510105;  
 268659, 1510129; 267697, 1509376.

(B) **Note:** Map 2 showing Guam Micronesian Kingfisher Unit follows:



BILLING CODE 4310-55-C

\* \* \* \* \*

Dated: October 18, 2004.

**Craig Manson,**

*Assistant Secretary for Fish and Wildlife and Parks.*

[FR Doc. 04-23648 Filed 10-27-04; 8:45 am]

BILLING CODE 4310-55-P

## **APPENDIX C**

### **GUAM NWR ANDERSEN AFB OVERLAY MOU AND COOPERATIVE AGREEMENT**



COPY

MEMORANDUM OF UNDERSTANDING

among the

GOVERNMENT OF GUAM

and the

U.S. AIR FORCE

and the

U.S. NAVY

and the

U.S. FISH AND WILDLIFE SERVICE

for the

ESTABLISHMENT AND MANAGEMENT OF THE  
GUAM NATIONAL WILDLIFE REFUGE,  
GUAM

I. INTRODUCTION

WHEREAS, the Government of Guam, the Department of Defense through the U.S. Air Force (Air Force) and the U.S. Navy (Navy), and the Department of the Interior through the U.S. Fish and Wildlife Service (Service), desire to establish overlay units of the Guam National Wildlife Refuge;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service share common goals and responsibilities for the recovery of endangered and threatened species, the protection of native flora and fauna, the conservation of unique ecosystems, and the maintenance of native biological diversity of Guam;

WHEREAS, certain Government of Guam, Air Force, Navy, and Service lands may provide habitats essential to the survival and recovery of endangered and threatened species and support other native fish and wildlife resources of Guam;

WHEREAS, Air Force and Navy lands on Guam are essential for national defense and national security purposes;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service desire to continue cooperative and coordinated efforts to develop and implement programs for the recovery of endangered and threatened species and to protect key wildlife habitats;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service, in recognition that the alien brown tree snake is the major cause of the demise of native birds and a major cause of the demise of the bats, shall continue to support efforts to control and eradicate this pest species on Guam;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service desire that conservation actions to recover and conserve endangered and threatened species and their habitats within the Guam National Wildlife Refuge be undertaken to fully meet the spirit and intent of the Endangered Species Act of 1973, as amended;

WHEREAS, the establishment and management of the Guam National Wildlife Refuge would offer proactive measures for the recovery and preservation of endangered and threatened species and their essential habitats;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service desire to provide opportunities for the public to gain a better understanding of and appreciation for wildlife, natural landscapes, and the relationship between humans and the environment in a manner compatible with the purposes of the Guam National Wildlife Refuge and consistent with the national defense mission of the Air Force and the Navy; and,

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service are sensitive to landowner's rights and shall work together to resolve access across Federal lands to private lands adjacent to the Ritidian Point Unit of the Guam National Wildlife Refuge.

NOW, THEREFORE, the Government of Guam, the Air Force, the Navy, and the Service do hereby agree to establish the overlay units of the Guam National Wildlife Refuge as hereinafter defined and in accordance with the provisions of the separate Cooperative Agreements to be executed between the Service and the Government of Guam, the Air Force, and the Navy.

## II. AUTHORITIES

This Memorandum of Understanding is hereby made and entered into by and among the Government of Guam, the Air Force, the Navy, and the Service under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543); the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754); the Organic Act of Guam (48 U.S.C. 1421 *et seq.*); the Endangered Species Act of Guam (5 G.C.A. 63204 and 63205); and other laws, as applicable.

## III. GOALS

The Government of Guam, the Air Force, the Navy, and the Service deem it mutually advantageous and desirable to establish the Guam National Wildlife Refuge and agree to cooperate and coordinate toward achievement of the following goals:

- A. To develop Cooperative Agreements between the Government of Guam and the Service, between the Air Force and the Service, and between the Navy and the Service for the establishment and cooperative management of the Guam National Wildlife Refuge;
- B. To include certain lands containing important biological values owned by the Government of Guam, the Air Force, the Navy, and the Service within the Guam National Wildlife Refuge under the terms of the respective Cooperative Agreements;
- C. To provide funding for the cooperative management of the Guam National Wildlife Refuge within the limits of available resources;
- D. To prepare annual work plans for the management of the Guam National Wildlife Refuge including, but not limited to, brown tree snake control and eradication, endangered and threatened species recovery, endangered species reintroduction, research, environmental education, wildlife management, law enforcement, compatible recreation, and interagency coordination;
- E. To effect a long-term comprehensive program to conserve and recover endangered and threatened species, migratory birds, and other native flora and fauna of Guam;
- F. To complement the ongoing work of the Government of Guam, the Air Force, the Navy, and the Service in natural resources and wildlife management, habitat protection, conservation, protection of historic and cultural resources, law enforcement, research, and environmental education;
- G. To exchange technical information and expertise among the Government of Guam, the Air Force, the Navy, and the Service to implement applicable Federal and Government of Guam wildlife conservation and environmental protection mandates;

- H. To provide increased coordination on relevant law enforcement issues among the Government of Guam, the Air Force, the Navy, and the Service in the administration and management of the Guam National Wildlife Refuge; and
- I. To continue the development of research and environmental education programs and to promote public use and public access within the Guam National Wildlife Refuge in a manner compatible with the purposes of the Guam National Wildlife Refuge and, where applicable, consistent with the national defense mission of the Air Force and the Navy.

#### IV. SPECIAL PROVISIONS

- A. Nothing in this Memorandum of Understanding shall be construed as obligating the Government of Guam, the Air Force, the Navy, or the Service to the expenditure of funds. The Government of Guam, the Air Force, the Navy, and the Service shall continue to seek funding for the management of the Guam National Wildlife Refuge;
- B. This Memorandum of Understanding shall remain in effect until amended or cancelled. Any signatory party of this Memorandum of Understanding may propose amendments to this Memorandum of Understanding. The Memorandum of Understanding may be amended or cancelled at any time by written mutual agreement among the parties that are signatories of this Memorandum of Understanding;
- C. This Memorandum of Understanding is not intended to nullify or supersede any existing Memorandum of Understanding or Cooperative Agreement between or among the Government of Guam, the Air Force, the Navy, or the Service;
- D. The primary purpose of Air Force and Navy lands within the Guam National Wildlife Refuge is to support the national defense mission of the Air Force and the Navy. The primary purpose of the Government of Guam lands within the Guam National Wildlife Refuge is for the conservation of natural resources for the benefit of the people of Guam. The Air Force, the Navy, the Government of Guam, and the Service recognize that their lands included within the Guam National Wildlife Refuge may provide habitats essential to the survival and recovery of endangered and threatened species;

- E. In the interest of national defense and national security, the Secretary of the Air Force or the Secretary of Navy shall, by written notice to the signatories of this Memorandum of Understanding, be exempt from complying with any or all aspects of this Memorandum of Understanding;
- F. The Government of Guam, Air Force and Navy lands identified in the respective approved Cooperative Agreements to be included in the Guam National Wildlife Refuge will be administered as an overlay National Wildlife Refuge. Under this type of designation, the primary jurisdiction of the land is retained by the host agency and the refuge program is superimposed as a secondary interest in the property. The Cooperative Agreements will state the responsibilities and obligations of each party;
- G. The signatory parties to this Memorandum of Understanding may mutually reconsider the goals of the Guam National Wildlife Refuge upon a decision by the Secretary of the Interior, based upon the best available scientific and commercial data, that endangered and threatened species found within the Guam National Wildlife Refuge have become extinct, or have recovered to the point where protection under the Endangered Species Act is no longer required, or the scientific data for the classification of the endangered or threatened species were in error;
- H. The Government of Guam, the Air Force, and the Navy shall each retain the option of unilaterally withdrawing from this Memorandum of Understanding and from their respective Cooperative Agreements in the event any portion of their respective lands are designated critical habitat; and,
- I. The Government of Guam, the Air Force, the Navy, and the Service shall work together to expeditiously resolve access across Federal lands to private lands adjacent to the Ritidian Point Unit of the Guam National Wildlife Refuge. The Government of Guam, the Air Force, the Navy, and the Service shall work together to expeditiously initiate and complete the Federal environmental reviews necessary for the Service and the Air Force to make a decision on granting access to private landowners adjacent to the Ritidian Point Unit of the Guam National Wildlife Refuge.

COPY

Memorandum of Understanding

Guam National Wildlife Refuge

V. APPROVALS

IN WITNESS WHEREOF, each party hereto has caused this Memorandum of Understanding to be executed by an authorized official on the day and year set forth opposite their signature. This Memorandum of Understanding shall become effective for each party on the date of the authorized official's signature.

U.S. Air Force

Alan J. Dabbert  
Deputy Assistant Secretary

10DEC93  
Date

U.S. Navy

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Fish and Wildlife Service

\_\_\_\_\_  
Director

\_\_\_\_\_  
Date

Government of Guam

Approved as to form

\_\_\_\_\_  
Guam Attorney General

\_\_\_\_\_  
Date

Government of Guam

\_\_\_\_\_  
Governor of Guam

\_\_\_\_\_  
Date

COPY

Memorandum of Understanding

Guam National Wildlife Refuge

V. APPROVALS

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U.S. Air Force

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Navy

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Fish and Wildlife Service

*Richard M. Smith*  
\_\_\_\_\_  
Director

*12/10/93*  
\_\_\_\_\_  
Date

Government of Guam

Approved as to form

\_\_\_\_\_  
Guam Attorney General

\_\_\_\_\_  
Date

Government of Guam

\_\_\_\_\_  
Governor of Guam

\_\_\_\_\_  
Date

COPY

Memorandum of Understanding

Guam National Wildlife Refuge

V. APPROVALS

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U.S. Air Force

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Navy

  
\_\_\_\_\_  
Assistant Secretary

14 DEC 1993  
Date

U.S. Fish and Wildlife Service

\_\_\_\_\_  
Director

\_\_\_\_\_  
Date

Government of Guam

Approved as to form

\_\_\_\_\_  
Guam Attorney General

\_\_\_\_\_  
Date

Government of Guam

\_\_\_\_\_  
Governor of Guam

\_\_\_\_\_  
Date

ORIGINAL

COOPERATIVE AGREEMENT

between the

U.S. AIR FORCE

and the

U.S. FISH AND WILDLIFE SERVICE

for the

ESTABLISHMENT AND MANAGEMENT OF THE  
GUAM NATIONAL WILDLIFE REFUGE,  
GUAM

I. Introduction

The U.S. Air Force (Air Force), the U.S. Navy (Navy), the Government of Guam, and the U.S. Fish and Wildlife Service (Service) share common goals for the recovery of endangered and threatened species, the protection of native flora and fauna, the conservation of unique ecosystems, and the maintenance of the native biological diversity of Guam. These shared goals are expressed in the 1993 Memorandum of Understanding among the Government of Guam, the Navy, the Air Force, and the Service (Attachment 1).

To address the complex ecological and endangered species issues facing the island of Guam, the Government of Guam, the Navy, the Air Force, and the Service have mutually agreed to establish the Guam National Wildlife Refuge on certain lands owned and administered by the Navy, the Air Force, the Government of Guam, and the Service as described in the Final Environmental Assessment for the Guam National Wildlife Refuge. Within certain lands administered by the Air Force, the Guam National Wildlife Refuge encompasses lands identified in recovery plans as essential habitat for the recovery of the endangered Mariana common moorhen, the Mariana crow, the Guam rail, the Guam broadbill, the Guam bridled white-eye, the Guam Micronesian kingfisher, the Mariana fruit bat, the little Mariana fruit bat, and the Vanikoro swiftlet. The Guam National Wildlife Refuge also includes certain beaches and reefs used for nesting and foraging by endangered and threatened sea turtles.

The establishment and management of the Guam National Wildlife Refuge on Air Force lands provides a commitment by the Air Force and the Service for a coordinated program centered on the protection of endangered and threatened species and other native flora and fauna, maintenance of native ecosystems, and the conservation of native biological diversity in cooperation with the Guam Department of Agriculture-Division of Aquatic and Wildlife Resources, consistent with the national defense mission of the Air Force. The Air Force has provided \$105,000 for a Natural Resource Management Plan and \$120,000 for botanical surveys of endangered plants for Andersen Air Force Base to the Service and continues to contribute staff, resources, and in-kind services for the recovery of endangered and threatened species on Guam.

**Cooperative Agreement** **Guam National Wildlife Refuge**  
**U.S. Air Force and U.S. Fish and Wildlife Service**

**II. Authorities**

This Cooperative Agreement is hereby made and entered into by and between the Air Force and the Service under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), as amended; the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e), as amended; the Fish and Wildlife Act of 1956 (16 U.S.C. 742(a)-754), as amended; the Refuge Recreation Act (16 U.S.C. 460k-460k-4), as amended; the Economy Act of 1932 (31 U.S.C. 1535); the Sikes Act of 1960 (16 U.S.C. 670a-670o), as amended; and other laws, as applicable.

**III. Purposes of the Cooperative Agreement**

- A. This Cooperative Agreement establishes overlay units of the Guam National Wildlife Refuge on certain lands containing important biological values under Federal ownership and administered by the Air Force on Guam.
- B. This Cooperative Agreement also defines the management and administrative roles and responsibilities of the Air Force and the Service for the Guam National Wildlife Refuge.

**IV. Establishment of the Guam National Wildlife Refuge**

- A. The Service recognizes that the primary purpose of the Air Force lands within the Guam National Wildlife Refuge is to support the national defense mission of the Air Force. The Air Force recognizes that their lands included within the Guam National Wildlife Refuge provide habitats essential to the survival and recovery of endangered and threatened species.
- B. The boundaries of the Guam National Wildlife Refuge on Air Force lands may include lands identified in the July 1993 Final Environmental Assessment for the Guam National Wildlife Refuge and shall be based on mutual consultations between the Air Force and the Service. Those lands mutually approved by the Air Force and the Service shall be included within the Guam National Wildlife Refuge as overlay units and are identified on the attached map (Attachment 2). These lands shall be made available by the Air Force for the establishment of the Guam National Wildlife Refuge in conjunction with lands owned by the Government of Guam, the Navy, and the Service.
- C. The boundaries of Air Force lands included within the Guam National Wildlife Refuge may be amended by the following:

Cooperative Agreement Guam National Wildlife Refuge  
U.S. Air Force and U.S. Fish and Wildlife Service

1. Written mutual agreement between the Air Force and the Service; or
2. Unilateral written declaration by either the Air Force or the Service in accordance with the provisions of Section V of this Cooperative Agreement.

V. Tenure of the Guam National Wildlife Refuge

A. ~~The~~ Air Force lands identified under Section IV.B. and as amended under Section IV.C. of this Cooperative Agreement shall be made available for inclusion in the Guam National Wildlife Refuge under a license, lease, easement, use agreement, or other appropriate instrument until such time as any of the following conditions apply:

1. The Air Force may withdraw any or all land from the Guam National Wildlife Refuge boundaries when necessary for national emergency or national defense requirements, as determined by the Secretary of the Air Force, or higher authority;
2. The Air Force shall retain the option of unilaterally withdrawing any or all Air Force lands from the Guam National Wildlife Refuge in the event that any Air Force lands on Guam are designated critical habitat;
3. Inclusion of Air Force lands within the Guam National Wildlife Refuge shall not preclude the Air Force from determining that those areas are excess to the military mission of the Department of Defense and reporting them as excess to the General Services Administration for disposition in accordance with the Federal Property and Administrative Service Act of 1949, as amended (40 U.S.C. 471-535). As to such Air Force lands, this Cooperative Agreement shall have no further application upon title passing from the Air Force under that Act or any other Act of Congress or Executive Order; or
4. The Secretary of the Interior, using the best available scientific and commercial data, determines that all endangered and threatened species found within the Guam National Wildlife Refuge have become extinct, or have recovered to the point where protection under the Endangered Species Act is no longer required, or the scientific data for the classification of the endangered or threatened species were in error.

Cooperative Agreement Guam National Wildlife Refuge  
U.S. Air Force and U.S. Fish and Wildlife Service

VI. Purposes of the Guam National Wildlife Refuge

The purposes of the Guam National Wildlife Refuge are as follows:

- A. ". . . to conserve (A) fish or wildlife which are listed as endangered species or threatened species . . . or (B) plants . . . (C) the ecosystems upon which endangered species and threatened species depend . . ." (Endangered Species Act of 1973, 16 U.S.C. 1534);
- B. "~~It~~ shall be administered by him [Secretary of the Interior] directly or in accordance with cooperative agreements . . . and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon . . ." (Fish and Wildlife Coordination Act, 16 U.S.C. 664);
- C. ". . . for the development, advancement, management, conservation, and protection of fish and wildlife resources" (Fish and Wildlife Act of 1956, 16 U.S.C. 742f(a)(4));
- D. ". . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude, if such terms are deemed by the Secretary to be in accordance with law and comparable with the purposes for which acceptance is sought." (Fish and Wildlife Act of 1956, 16 U.S.C. 742f(b)(1);
- E. ". . . (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species and threatened species (Refuge Recreation Act, 16 U.S.C. 460k-1);
- F. ". . . the Secretary . . . may accept and use . . . donations of . . . real . . . property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by the donors . . ." (Refuge Recreation Act, 16 U.S.C. 460k-2); and
- G. To ensure that Air Force lands within the Guam National Wildlife Refuge remain available for the use of the Air Force to carry out its responsibilities to organize, supply, equip, train, service, mobilize, demobilize, administer, and maintain forces (10 U.S.C. 8013).

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U.S. Air Force and U.S. Fish and Wildlife Service

VII. Goals of the Guam National Wildlife Refuge

The Air Force and the Service mutually agree that the Air Force lands included within the Guam National Wildlife Refuge shall be managed and administered for the following goals, consistent with the accomplishment of the national defense mission of the Air Force:

- A. To develop and implement a long-term, comprehensive program to conserve and recover endangered and threatened species, candidate and proposed species, migratory birds, and other native flora and fauna. This conservation program includes, but is not limited to, brown tree snake control and eradication, wildlife habitat and ecosystem protection, endangered and threatened species recovery and reintroduction, research, environmental education, compatible public use, and law enforcement;
- B. To complement the ongoing efforts of the Air Force, the Government of Guam, the Navy, the Service, and other agencies in natural resources and wildlife management and conservation, protection of historic and cultural resources, law enforcement, research, and environmental education;
- C. To exchange technical information and expertise to implement appropriate wildlife conservation and environmental protection mandates;
- D. To provide increased coordination on applicable law enforcement issues in accordance with the 1990 Memorandum of Agreement for Cooperative Law Enforcement between the Service and the Department of Agriculture-Division of Aquatic and Wildlife Resources and the Cooperative Agreements between the Air Force, the Navy, the Service, and the Government of Guam under the Sikes Act;
- E. To develop research and environmental education programs and to consider public use and public access compatible with the Guam National Wildlife Refuge and consistent with the national defense mission;
- F. To ensure that Federal actions, including management plans, within the Guam National Wildlife Refuge comply with the National Environmental Policy Act of 1969; Endangered Species Act of 1973, as amended; the Migratory Bird Treaty Act of 1918; Coastal Zone Management Act of 1972; Federal Water Pollution Control Act, as amended; Rivers and Harbors Act of 1938; National Historic Preservation Act of 1966; and other laws, as applicable;

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- G. To provide for consultation with the Service for actions which are funded, authorized, or carried out by the Federal Government within the Guam National Wildlife Refuge that may impact habitat of endangered or threatened species even if those species are extirpated from the affected area, but are not extinct, and for contemplated projects that affect nesting beaches of endangered and threatened sea turtles;
- H. To develop and implement a Refuge Management Plan for the Guam National Wildlife Refuge and to provide periodic updates of the Refuge Management Plan;
  - 1. The Refuge Management Plan for the Guam National Wildlife Refuge shall be developed by the Service in consultation with and with the concurrence of the landowners;
  - 2. The Refuge Management Plan shall incorporate the relevant sections of each landowner's natural resources management plans.
- I. To consider wildlife and fishery concerns in the development of other management plans such as law enforcement, prescribed burning, public use, public hunting, public fishing, and integrated pest management; and
- J. To develop and implement an Annual Work Plan and an Annual Accountability Report for the Guam National Wildlife Refuge.
- K. To administer and manage the Guam National Wildlife Refuge consistent with the national defense mission.

VIII. Specific Obligations of the Parties

A. The U.S. Fish and Wildlife Service's Obligations

The Service shall:

- 1. Recommend the specific Air Force lands to be included within the boundaries of the Guam National Wildlife Refuge based on consultations with the Air Force. Provide information on habitat quality and sensitivity for listed species for the development of management plans and zoning maps for Air Force lands within the Guam National Wildlife Refuge;

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2. Locate and post the boundaries of Air Force lands included within the Guam National Wildlife Refuge with National Wildlife Refuge and Air Force signs. The wording, format, and placement of signs shall be coordinated with the Air Force;
3. Request annual funding for the management and administration of the Guam National Wildlife Refuge;
4. Undertake the staffing of the Guam National Wildlife Refuge, subject to adequate funding for a Refuge Manager, Biologist, and administrative, maintenance, and program support staff.
5. Participate directly in the development of the Annual Work Plan and shall:
  - a. Coordinate the input of the Navy, the Government of Guam, and the Air Force in the development of the Annual Work Plan;
  - b. Finalize the Annual Work Plan including mutually agreed-upon Annual Work Plan Tasks;
  - c. Administer and track the Service's budget for the Guam National Wildlife Refuge;
  - d. Distribute the Annual Work Plan to the Navy, the Government of Guam, the Air Force, and other participating agencies;
  - e. Implement the Service's Annual Work Plan Tasks as identified in the Annual Work Plan within the limits of funds and personnel;
  - f. Monitor the implementation and completion of the Annual Work Plan Tasks agreed upon by the Navy, the Government of Guam, and the Air Force;
  - g. Provide a written report of Service accomplishments of the Annual Work Plan Tasks in the Annual Accountability Report; and
  - h. Participate in the evaluation of the Annual Accountability Reports from the Government of Guam, the Navy, the Air Force, and other participating agencies.

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6. Provide law enforcement support as specified in Section IX of this Cooperative Agreement;
7. Conduct, assist, and/or support surveys, censuses, and population monitoring of endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Air Force and the Guam Division of Aquatic and Wildlife Resources;
8. Conduct, assist, and/or support surveys and censuses of the distribution and condition of the habitats for endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Air Force and the Guam Division of Aquatic and Wildlife Resources;
9. Conduct, assist, and/or support research on the natural history and limiting factors of endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Air Force and the Guam Division of Aquatic and Wildlife Resources;
10. Conduct, assist, and/or support control and research programs in understanding the natural history of the alien brown tree snake in coordination with the Air Force and the Guam Division of Aquatic and Wildlife Resources;
11. Participate in recovery plan actions as outlined in the implementation schedules for the various recovery plans (Guam Mariana Fruit Bat and Little Mariana Fruit Bat Recovery Plan. 1990. U.S. Fish and Wildlife Service. 63 pp.); (Native Forest Birds of Guam and Rota of the Commonwealth of the Northern Mariana Islands Recovery Plan. 1990. U.S. Fish and Wildlife Service. 86 pp.); (Recovery Plan for the Mariana Islands Population of the Vanikoro Swiftlet, *Aerodramus vanikorensis bartschi*. 1991. U.S. Fish and Wildlife Service. 49 pp.); (Recovery Plan for the Mariana Common Moorhen (= Gallinule), *Gallinula chloropus guami*. 1991. U.S. Fish and Wildlife Service. 55 pp.); and (Draft Recovery Plan for *Serianthes nelsonii*. 1993. U.S. Fish and Wildlife Service. 47 pp.);
12. Provide opportunities for public environmental education within the Guam National Wildlife Refuge;
13. Participate fully in the Endangered Species Act consultation process, including early advice on projects and ways to minimize the impacts of Federal actions to endangered species and their habitats;

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14. Coordinate and consult with all parties and with the concurrence of the appropriate landowner to identify opportunities for compatible public access and recreation on Federal and Government of Guam lands included within the Guam National Wildlife Refuge;
15. Obtain appropriate primary landowner approval prior to issuance of any permit, easement, license, grant, right-of-way, or concession contract affecting Air Force lands or the national defense mission; and,
16. Coordinate and consult with the Government of Guam and the Air Force in establishing compatible recreational access and uses at the Ritidian Point Unit of the Guam National Wildlife Refuge. The Service shall be responsible for issuing a Special Use Permit to the Government of Guam for the operation and management of the compatible recreational uses on certain lands at the Ritidian Point Unit upon compliance with the National Environmental Policy Act of 1969; the Endangered Species Act of 1973, as amended; the Coastal Zone Management Act of 1972; the National Historic Preservation Act of 1966; the National Wildlife Refuge System Administration Act of 1966; other applicable Federal laws and Executive Orders and to be compatible with the purposes for which the Guam National Wildlife Refuge was established.

B. U.S. Air Force's Obligations

The Air Force shall:

1. Consult with the Service and determine the specific areas to be included within the boundaries of the Guam National Wildlife Refuge;
2. Identify existing uses on Air Force lands within the boundaries of the Guam National Wildlife Refuge;
3. Request additional funding and in-kind services as justified and negotiated for the establishment and management of the Guam National Wildlife Refuge on Air Force lands and subject to the availability of funding and in-kind services;
4. The Service and the Air Force shall enter into inter-agency agreements for the transfer of funds related to the administration and management of the Guam National Wildlife Refuge in accordance with the Economy Act, 31 U.S.C. 1535 as implemented by the Federal Acquisition Regulations Section 17.501 and DFARS Section 217.502;

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5. Participate directly in the development of the Annual Work Plan as specified in Section X of this Cooperative Agreement;
6. Provide law enforcement support as specified in Section IX of this Cooperative Agreement;
7. Provide access to the employees of the Service and the Guam Division of Aquatic and Wildlife Resources who require access to Air Force lands on a regular basis for purposes related to this Cooperative Agreement. The Air Force may temporarily suspend access to certain areas for emergency or national defense purposes or for situations/purposes declared essential by the Wing Commander, 633rd Air Base Wing, Andersen Air Force Base;
8. Provide access to realty maps and survey information to Service personnel participating in the boundary surveys;
9. Provide access to the Service for the posting of the Guam National Wildlife Refuge boundaries;
10. Participate fully in the Endangered Species Act consultation process as required by statute;
11. Coordinate and consult with the Service and the Government of Guam in establishing compatible recreational access and uses at the Ritidian Point Unit of the Guam National Wildlife Refuge. The Air Force shall assist the Service in developing the Special Use Permit for public access at the Ritidian Point Unit in compliance with the National Environmental Policy Act of 1969; the Endangered Species Act of 1973, as amended; the Coastal Zone Management Act of 1972; the National Historic Preservation Act of 1966; the National Wildlife Refuge System Administration Act of 1966; other applicable Federal laws and Executive Orders and to be compatible with the purposes for which the Guam National Wildlife Refuge was established; and
12. Coordinate and consult with the Service to identify opportunities for compatible public access and recreation on Air Force lands included within the Guam National Wildlife Refuge.

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2. The Service shall coordinate the development of the meeting agendas, prepare and distribute background information and minutes, schedule meetings, and hold meetings on Guam or other locations.
- C. The Air Force and the Service may meet jointly as needed for any Federal action that may affect endangered and threatened species, proposed and candidate species, habitats for endangered and threatened species, and habitats for proposed and candidate species within Air Force lands included within the Guam National Wildlife Refuge;
1. These meetings may include the Guam Division of Aquatic and Wildlife Resources and other agencies as mutually agreed to by the Service and the Air Force; and,
  2. These meetings may constitute informal consultations between the Service and the Air Force. The Air Force and the Service shall work together to identify, propose, and implement project modifications consistent with the purposes of this Cooperative Agreement that minimize or mitigate adverse effects to endangered and threatened species, proposed and candidate species, habitats for endangered and threatened species, and habitats for proposed and candidate species within Air Force lands included within the Guam National Wildlife Refuge.
- D. The Air Force shall consult with the Service on any action authorized, funded, or carried out, in whole or in part, by the Air Force that may affect endangered and threatened species, as provided for in 50 C.F.R. 402, Interagency Cooperation under the Endangered Species Act of 1973, as amended. Since the Service is also a cooperator for land management actions on Air Force lands, the Service may initiate intra-Service Section 7 consultation under appropriate circumstances;
- E. Similarly, the Air Force shall coordinate with the Service for any Federal action that may affect Air Force lands included within the Guam National Wildlife Refuge and identified as providing essential habitat for the endangered Mariana fruit bat (Guam Mariana Fruit Bat and Little Mariana Fruit Bat Recovery Plan. 1990. U.S. Fish and Wildlife Service. 63 pp.); the endangered Guam rail, the Guam Micronesian kingfisher, and the Mariana crow (Native Forest Birds of Guam and Rota of the Commonwealth of the Northern Mariana Islands Recovery Plan. 1990. U.S. Fish and Wildlife Service. 86 pp.); habitats for the endangered Vanikoro swiftlet (Recovery Plan for the Mariana Islands Population of the

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Vanikoro Swiftlet, *Aerodramus vanikorensis bartschi*. 1991. U.S. Fish and Wildlife Service. 49 pp.); habitats for the endangered Mariana common moorhen (Recovery Plan for the Mariana Common Moorhen (= Gallinule), *Gallinula chloropus guami*. 1991. U.S. Fish and Wildlife Service. 55 pp.); habitats for the endangered hayun lagu tree (Draft Recovery Plan for *Serianthes nelsonii*. 1993. U.S. Fish and Wildlife Service. 47 pp.); habitats identified in other recovery plans; or beaches and reefs used for nesting and foraging by endangered and threatened sea turtle species;

- F. The Service shall provide the draft biological opinion for review and comment to the Air Force. The Air Force may provide the draft biological opinion to the Guam Division of Aquatic and Wildlife Resources. The Service shall fully consider the views of the Air Force and the Guam Division of Aquatic and Wildlife Resources, as appropriate, in carrying out the consultation process under Section 7 of the Endangered Species Act;
- G. The Service shall be the final authority on scientific matters relating to whether a Federal action may affect endangered and threatened species and proposed and candidate species on Air Force lands included within the Guam National Wildlife Refuge and shall provide recommendations on minimizing or mitigating any adverse impacts.
- H. Either party may elevate legal disputes to the Department of Justice for resolution in accordance with Executive Order 12146, Sections 1-4.
- I. Nothing in this Cooperative Agreement shall be interpreted to diminish the responsibilities of the Air Force or the Service to comply with 50 C.F.R. 402, Interagency Cooperation under the Endangered Species Act of 1973, as amended.

XI. Project Officers

- A. Project Officer for the Service shall be:
  - 1. Project Leader  
Hawaiian and Pacific Islands National Wildlife Refuge  
Complex  
300 Ala Moana Boulevard, Room 5302  
Honolulu, Hawaii 96850  
Telephone: (808) 541-1201  
Fax: (808) 541-1216

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2. The Project Leader shall be recognized as the official representative of the Service.
3. The Guam National Wildlife Refuge Manager shall be recognized as the on-island point-of-contact for routine affairs related to the management of the Guam National Wildlife Refuge. Telephone: (671) 355-5096.  
Fax: (671) 355-5098.

**B. Project Officer for the Air Force shall be:**

1. **Commander**  
633rd Civil Engineering Squadron  
Andersen Air Force Base, Guam  
APO, AP 96543-4007  
Telephone: (671) 366-7101 or 366-6205  
Fax: (671) 366-8010

2. The Commander shall be recognized as the official representative of the Air Force.
3. The point-of-contact for routine affairs shall be the Natural Resource Planner, 633 CES/CEV, APO AP 96543-4007.  
Telephone: (671) 366-2549 or 366-2101.

**XII. Special Provisions**

- A. This Cooperative Agreement does not nullify or supersede any existing Cooperative Agreements or Memorandum of Agreements including the following:
  1. 1993 Memorandum of Understanding between the Government of Guam, the U.S. Navy, the U.S. Air Force, and the U.S. Fish and Wildlife Service for the Establishment and Management of the Guam National Wildlife Refuge, Island of Guam;
  2. 1990 Memorandum of Agreement for Cooperative Law Enforcement between the U.S. Fish and Wildlife Service and the Department of Agriculture-Division of Aquatic and Wildlife Resources;
  3. 1988 Memorandum of Agreement Related to Concurrent Jurisdiction between the Government of Guam, the Commander, U.S. Naval Forces Marianas, and the Commander, 43D Combat Support Group, Andersen Air Force Base, Guam;

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4. 1988 Cooperative Agreement for the Protection, Development and Management of Fish and Wildlife Resources at U.S. Naval Communication Area Master Station, WESTPAC between the Navy, the Service, and the Government of Guam;
  5. 1988 Cooperative Agreement for the Protection, Development and Management of Fish and Wildlife Resources at U.S. Naval Supply Depot, Guam between the Navy, the Service, and the Government of Guam;
  6. 1988 Cooperative Agreement for the Protection, Development and Management of Fish and Wildlife Resources at U.S. Naval Magazine, Guam between the Navy, the Service, and the Government of Guam;
  7. 1988 Cooperative Agreement for the Protection, Development and Management of Fish and Wildlife Resources at U.S. Navy Public Works Center, Guam between the Navy, the Service, and the Government of Guam;
  8. 1988 Cooperative Agreement for the Protection, Development and Management of Fish and Wildlife Resources at U.S. Naval Station, Guam between the Navy, the Service, and the Government of Guam; and
  9. 1986 Cooperative Agreement for the Protection, Development, and Management of Fish and Wildlife Resources at Andersen Air Force Base, Territory of Guam, between the Air Force, the Service, and the Government of Guam.
- B. The Air Force lands identified in this Cooperative Agreement will be included within the Guam National Wildlife Refuge as an overlay national wildlife refuge. The primary administration of those lands will be retained by the Air Force and the Guam National Wildlife Refuge will be superimposed as a secondary interest in the property.
- C. The Government of Guam, the Navy, the Air Force, and the Service shall mutually reconsider the goals of the Guam National Wildlife Refuge upon the decision by the Secretary of the Interior, based upon the best available scientific and commercial data, that all endangered and threatened species found within the Guam National Wildlife Refuge have become extinct, or have recovered to the point where protection under the Endangered Species Act is no longer required, or the scientific data for the classification of the endangered or threatened species were in error.

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- D. Nothing in this Cooperative Agreement shall relieve, and no action may be taken under this Cooperative Agreement to relieve the Secretary of the Air Force or any responsible party from any obligation or other liability on Air Force lands under the Comprehensive Environmental Response, Compensation and Liability Act (26 U.S.C. 4611-4682; 94 Stat. 2797; P.L. 96-510, December 11, 1980; as amended); Toxic Substances Control Act (15 U.S.C. 2601-2671; 90 Stat. 2003; P.L. 94-469; as amended); Resource Conservation and Recovery Act (42 U.S.C. 6901-6992; 90 Stat. 2795; P.L. 94-580, October 21, 1976; as amended); Clean Air Act (42 U.S.C. 7401-7642; as amended) and the Clean Air Amendments (P.L. 95-95; 91 Stat. 685; as amended); National Emission Standards for Hazardous Air Pollutants (40 C.F.R. Part 61, Subpart M); and other laws and regulations, as applicable.
- E. Nothing in this Cooperative Agreement shall be construed to affect the degree of cleanup at any Air Force lands required to be carried out under the Comprehensive Environmental Response, Compensation and Liability Act, Toxic Substances Control Act, Resource Conservation and Recovery Act, Clean Air Act, Clean Air Amendments, the National Emission Standards for Hazardous Air Pollutants, and other laws and regulations, as applicable.
- F. If critical habitat is designated on any Air Force lands on Guam, the Air Force shall have the right to unilaterally declare this Cooperative Agreement null and void, and may, at its discretion, reinstate consultations and negotiations with the Service.

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U.S. Air Force and U.S. Fish and Wildlife Service

XIII. IN WITNESS WHEREOF, each party hereto has caused this Cooperative Agreement to be executed by an authorized official on the day and year set forth opposite their signature. This Cooperative Agreement shall become effective upon the date of the final signature.

U.S. Air Force

By:   
Dennis R. Larsen, Colonel, USAF  
U.S. Air Force  
Commander, 633rd Air Base Wing

Date: 10 Mar-94

U.S. Fish and Wildlife Service

By: \_\_\_\_\_  
Marvin Plenert  
Regional Director, Region 1  
U.S. Fish and Wildlife Service

Date: \_\_\_\_\_

Cooperative Agreement Guam National Wildlife Refuge  
U.S. Air Force and U.S. Fish and Wildlife Service

XIII. IN WITNESS WHEREOF, each party hereto has caused this Cooperative Agreement to be executed by an authorized official on the day and set forth opposite their signature. This Cooperative Agreement shall become effective upon the date of the final signature.

U.S. Air Force

By: \_\_\_\_\_  
Dennis R. Larsen, Colonel, USAF  
U.S. Air Force  
Commander, 633rd Air Base Wing

Date: \_\_\_\_\_

U.S. Fish and Wildlife Service

By: Marvin Plenert  
Marvin Plenert  
Regional Director, Region 1  
U.S. Fish and Wildlife Service

Date: 3-4-84

ATTACHMENT 1

**MEMORANDUM OF UNDERSTANDING**

among the

**GOVERNMENT OF GUAM**

and the

**U.S. AIR FORCE**

and the

**U.S. NAVY**

and the

**U.S. FISH AND WILDLIFE SERVICE**

for the

**ESTABLISHMENT AND MANAGEMENT OF THE  
GUAM NATIONAL WILDLIFE REFUGE,  
GUAM**

**I. INTRODUCTION**

WHEREAS, the Government of Guam, the Department of Defense through the U.S. Air Force (Air Force) and the U.S. Navy (Navy), and the Department of the Interior through the U.S. Fish and Wildlife Service (Service), desire to establish overlay units of the Guam National Wildlife Refuge;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service share common goals and responsibilities for the recovery of endangered and threatened species, the protection of native flora and fauna, the conservation of unique ecosystems, and the maintenance of native biological diversity of Guam;

WHEREAS, certain Government of Guam, Air Force, Navy, and Service lands may provide habitats essential to the survival and recovery of endangered and threatened species and support other native fish and wildlife resources of Guam;

WHEREAS, Air Force and Navy lands on Guam are essential for national defense and national security purposes;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service desire to continue cooperative and coordinated efforts to develop and implement programs for the recovery of endangered and threatened species and to protect key wildlife habitats;

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Guam National Wildlife Refuge

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service, in recognition that the alien brown tree snake is the major cause of the demise of native birds and a major cause of the demise of the bats, shall continue to support efforts to control and eradicate this pest species on Guam;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service desire that conservation actions to recover and conserve endangered and threatened species and their habitats within the Guam National Wildlife Refuge be undertaken to fully meet the spirit and intent of the Endangered Species Act of 1973, as amended;

WHEREAS, the establishment and management of the Guam National Wildlife Refuge would offer proactive measures for the recovery and preservation of endangered and threatened species and their essential habitats;

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service desire to provide opportunities for the public to gain a better understanding of and appreciation for wildlife, natural landscapes, and the relationship between humans and the environment in a manner compatible with the purposes of the Guam National Wildlife Refuge and consistent with the national defense mission of the Air Force and the Navy; and,

WHEREAS, the Government of Guam, the Air Force, the Navy, and the Service are sensitive to landowner's rights and shall work together to resolve access across Federal lands to private lands adjacent to the Ritidian Point Unit of the Guam National Wildlife Refuge.

NOW, THEREFORE, the Government of Guam, the Air Force, the Navy, and the Service do hereby agree to establish the overlay units of the Guam National Wildlife Refuge as hereinafter defined and in accordance with the provisions of the separate Cooperative Agreements to be executed between the Service and the Government of Guam, the Air Force, and the Navy.

II. AUTHORITIES

This Memorandum of Understanding is hereby made and entered into by and among the Government of Guam, the Air Force, the Navy, and the Service under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543); the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754); the Organic Act of Guam (48 U.S.C. 1421 et seq.); the Endangered Species Act of Guam (5 G.C.A. 63204 and 63205); and other laws, as applicable.

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Guam National Wildlife Refuge

III. GOALS

The Government of Guam, the Air Force, the Navy, and the Service deem it mutually advantageous and desirable to establish the Guam National Wildlife Refuge and agree to cooperate and coordinate toward achievement of the following goals:

- A. To develop Cooperative Agreements between the Government of Guam and the Service, between the Air Force and the Service, and between the Navy and the Service for the establishment and cooperative management of the Guam National Wildlife Refuge;
- B. To include certain lands containing important biological values owned by the Government of Guam, the Air Force, the Navy, and the Service within the Guam National Wildlife Refuge under the terms of the respective Cooperative Agreements;
- C. To provide funding for the cooperative management of the Guam National Wildlife Refuge within the limits of available resources;
- D. To prepare annual work plans for the management of the Guam National Wildlife Refuge including, but not limited to, brown tree snake control and eradication, endangered and threatened species recovery, endangered species reintroduction, research, environmental education, wildlife management, law enforcement, compatible recreation, and interagency coordination;
- E. To effect a long-term comprehensive program to conserve and recover endangered and threatened species, migratory birds, and other native flora and fauna of Guam;
- F. To complement the ongoing work of the Government of Guam, the Air Force, the Navy, and the Service in natural resources and wildlife management, habitat protection, conservation, protection of historic and cultural resources, law enforcement, research, and environmental education;
- G. To exchange technical information and expertise among the Government of Guam, the Air Force, the Navy, and the Service to implement applicable Federal and Government of Guam wildlife conservation and environmental protection mandates;

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Guam National Wildlife Refuge

- H. To provide increased coordination on relevant law enforcement issues among the Government of Guam, the Air Force, the Navy, and the Service in the administration and management of the Guam National Wildlife Refuge; and
- I. To continue the development of research and environmental education programs and to promote public use and public access within the Guam National Wildlife Refuge in a manner comparable with the purposes of the Guam National Wildlife Refuge and, where applicable, consistent with the national defense mission of the Air Force and the Navy.

IV. SPECIAL PROVISIONS

- A. Nothing in this Memorandum of Understanding shall be construed as obligating the Government of Guam, the Air Force, the Navy, or the Service to the expenditure of funds. The Government of Guam, the Air Force, the Navy, and the Service shall continue to seek funding for the management of the Guam National Wildlife Refuge;
- B. This Memorandum of Understanding shall remain in effect until amended or cancelled. Any signatory party of this Memorandum of Understanding may propose amendments to this Memorandum of Understanding. The Memorandum of Understanding may be amended or cancelled at any time by written mutual agreement among the parties that are signatories of this Memorandum of Understanding;
- C. This Memorandum of Understanding is not intended to nullify or supersede any existing Memorandum of Understanding or Cooperative Agreement between or among the Government of Guam, the Air Force, the Navy, or the Service;
- D. The primary purpose of Air Force and Navy lands within the Guam National Wildlife Refuge is to support the national defense mission of the Air Force and the Navy. The primary purpose of the Government of Guam lands within the Guam National Wildlife Refuge is for the conservation of natural resources for the benefit of the people of Guam. The Air Force, the Navy, the Government of Guam, and the Service recognize that their lands included within the Guam National Wildlife Refuge may provide habitats essential to the survival and recovery of endangered and threatened species;

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- E. In the interest of national defense and national security, the Secretary of the Air Force or the Secretary of Navy shall, by written notice to the signatories of this Memorandum of Understanding, be exempt from complying with any or all aspects of this Memorandum of Understanding;
- F. The Government of Guam, Air Force and Navy lands identified in the respective approved Cooperative Agreements to be included in the Guam National Wildlife Refuge will be administered as an overlay National Wildlife Refuge. Under this type of designation, the primary jurisdiction of the land is retained by the host agency and the refuge program is superimposed as a secondary interest in the property. The Cooperative Agreements will state the responsibilities and obligations of each party;
- G. The signatory parties to this Memorandum of Understanding may mutually reconsider the goals of the Guam National Wildlife Refuge upon a decision by the Secretary of the Interior, based upon the best available scientific and commercial data, that endangered and threatened species found within the Guam National Wildlife Refuge have become extinct, or have recovered to the point where protection under the Endangered Species Act is no longer required, or the scientific data for the classification of the endangered or threatened species were in error;
- H. The Government of Guam, the Air Force, and the Navy shall each retain the option of unilaterally withdrawing from this Memorandum of Understanding and from their respective Cooperative Agreements in the event any portion of their respective lands are designated critical habitat; and,
- I. The Government of Guam, the Air Force, the Navy, and the Service shall work together to expeditiously resolve access across Federal lands to private lands adjacent to the Ritidian Point Unit of the Guam National Wildlife Refuge. The Government of Guam, the Air Force, the Navy, and the Service shall work together to expeditiously initiate and complete the Federal environmental reviews necessary for the Service and the Air Force to make a decision on granting access to private landowners adjacent to the Ritidian Point Unit of the Guam National Wildlife Refuge.

Memorandum of Understanding

Guam National Wildlife Refuge

V. APPROVALS

IN WITNESS WHEREOF, each party hereto has caused this Memorandum of Understanding to be executed by an authorized official on the day and year set forth opposite their signature. This Memorandum of Understanding shall become effective for each party on the date of the authorized official's signature.

U.S. Air Force

John J. Habbitt  
Deputy Assistant Secretary

10ECL98  
Date

U.S. Navy

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Fish and Wildlife Service

\_\_\_\_\_  
Director

\_\_\_\_\_  
Date

Government of Guam

Approved as to form

\_\_\_\_\_  
Guam Attorney General

\_\_\_\_\_  
Date

Government of Guam

\_\_\_\_\_  
Governor of Guam

\_\_\_\_\_  
Date

Memorandum of Understanding

Guam National Wildlife Refuge

V. APPROVALS

IN WITNESS WHEREOF, each party hereto has caused this Memorandum of Understanding to be executed by an authorized official on the day and year set forth opposite their signature. This Memorandum of Understanding shall become effective for each party on the date of the authorized official's signature.

U.S. Air Force

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Navy

  
\_\_\_\_\_  
Assistant Secretary

14 DEC 1993

\_\_\_\_\_  
Date

U.S. Fish and Wildlife Service

\_\_\_\_\_  
Director

\_\_\_\_\_  
Date

Government of Guam

Approved as to form

\_\_\_\_\_  
Guam Attorney General

\_\_\_\_\_  
Date

Government of Guam

\_\_\_\_\_  
Governor of Guam

\_\_\_\_\_  
Date

Memorandum of Understanding

Guam National Wildlife Refuge

V. APPROVALS

IN WITNESS WHEREOF, each party hereto has caused this Memorandum of Understanding to be executed by an authorized official on the day and year set forth opposite their signature. This Memorandum of Understanding shall become effective for each party on the date of the authorized official's signature.

U.S. Air Force

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Navy

\_\_\_\_\_  
Assistant Secretary

\_\_\_\_\_  
Date

U.S. Fish and Wildlife Service

*Richard M. Smith*  
\_\_\_\_\_  
Director

*12/10/93*  
\_\_\_\_\_  
Date

Government of Guam

Approved as to form

\_\_\_\_\_  
Guam Attorney General

\_\_\_\_\_  
Date

Government of Guam

\_\_\_\_\_  
Governor of Guam

\_\_\_\_\_  
Date

Map showing Air Force lands included in the Guam National Wildlife Refuge.

