settlement agreement. The current rule will remain in effect during the rulemaking proceedings.

As described above, FMCSA is holding three public listening sessions across the country to solicit comments and information on potential revisions to the HOS rule. The Agency will provide further opportunity for public comment when the NPRM is published.

II. Meeting Participation

The listening sessions are open to the public. Speakers' remarks will be limited to 10 minutes each. The public may submit material to the FMCSA staff at each session for inclusion in the public docket, FMCSA–2004–19608.

III. Questions for Discussion During the Listening Sessions

In preparing their comments, meeting participants should consider the following questions about possible alternatives to the current HOS requirements. These scenarios are merely set forth for discussion; FMCSA will not necessarily include them in an NPRM but would request similar information and data in an NPRM. Answers to these questions should be based upon the experience of the participants and any data or information they can share with FMCSA.

A. Rest and On-Duty Time

1. Would mandatory short rest periods during the work day improve driver alertness in the operation of a CMV? How long should these rest periods be? At what point in the duty cycle or drive-time would short rest periods provide the greatest benefit? What are the unintended consequences if these short rest periods are mandatory? Should the on-duty period be extended to allow for mandatory rest periods?

2. If rest or other breaks from driving improve alertness, could a driver who chooses to take specified minimum breaks be given scheduling flexibility—the ability to borrow an hour from another driving day once a week, for example—if that flexibility would not increase safety risks or adversely impact driver health?

3. How many hours per day and per week would be safe and healthy for a truck driver to work?

4. Would an hours-of-service rule that allows drivers to drive an hour less when driving overnight improve driver alertness and improve safety? Are there any adverse consequences that could arise from the implementation of a separate night time hours of service regulation?

B. Restart to the 60- and 70-Hour Rule

1. Is a 34-consecutive-hour off-duty period long enough to provide restorative sleep regardless of the number of hours worked prior to the restart? Is the answer different for a driver working a night or irregular schedule?

2. What would be the impact of mandating two overnight off-duty periods, e.g., from midnight to 6 a.m., as a component of a restart period? Would such a rule present additional enforcement challenges?

3. How is the current restart provision being used by drivers? Do drivers restart their calculations after 34 consecutive hours or do drivers take longer periods of time for the restart?

C. Sleeper Berth Use

1. If sleeper-berth time were split into two periods, what is the minimum time in each period necessary to provide restorative sleep?

2. Could the 14-hour on-duty limitation be extended by the amount of some additional sleeper-berth time without detrimental effect on highway safety? What would be the appropriate length of such a limited sleeper-berth rest period?

D. Loading and Unloading Time

1. What effect has the fixed 14-hour driving ''window'' had on the time drivers spend waiting to load or unload? Have shippers and receivers changed their practices to reduce the amount of time drivers spend waiting to load or unload?

E. General

1. Are there aspects of the current rule that do not increase safety risks or adversely impact driver health and that should be preserved?

Issued on: December 29, 2009.

Larry W. Minor,

Associate Administrator for Policy and Program Development.

[FR Doc. E9–31194 Filed 1–4–10; 8:45 am]

BILLING CODE 4910–EX–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS-R9-ES-2009-0084]

[90100-1660-1FLA B6]

[RIN 1018-AW39]

Endangered and Threatened Wildlife and Plants; Listing Six Foreign Birds as Endangered Throughout Their Range

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, propose to list the following six foreign species found on islands in French Polynesia and in Europe, Southeast Asia, and Africa: Cantabrian capercaillie (*Tetrao urogallus cantabricus*); Marquesan Imperial Pigeon (*Ducula galeata*); the Eiao Polynesian warbler (*Acrocephalus percernis aquilonis*), previously referred to as (*Acrocephalus mendanae aquilonis*); greater adjutant (*Leptoptilos dubius*); Jerdon's courser (*Rhinoptilus bitorquatus*); and slender-billed curlew (*Numenius tenuirostris*) as endangered, pursuant to the Endangered Species Act of 1973, as amended. This proposal, if made final, would extend the Act's protection to these species. We seek data and comments from the public on this proposed rule.

DATES: To ensure that we are able to consider your comment on this proposed rulemaking action, we will accept comments received or postmarked on or before March 8, 2010. We must receive requests for public hearings, in writing, at the address shown in the **FOR FURTHER INFORMATION CONTACT** section by February 19, 2010.

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

* *Electronically:* Go to the *Federal eRulemaking Portal*: *http://www.regulations.gov*. In the Keyword box, enter Docket No. **FWS-R9-ES-2009-0084,** which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen under the **Document Type** heading, click on the **Proposed Rules** link to locate this document. You may submit a comment by clicking on ''**Send a Comment or Submission**.''

* *By hard copy*: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: **FWS-R9-ES-2009-0084**; Division of Policy and Directives Management; U.S. Fish and Wildlife

Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203.

We will post all comments on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the **Public Comment Procedures** section below under **SUPPLEMENTARY INFORMATION** for more information).

FOR FURTHER INFORMATION CONTACT: Douglas Krofta, Chief, Branch of Listing, Endangered Species Program, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 420, Arlington, VA 22203; telephone 703-358-2171; facsimile 703-358-1735. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Public Comments

We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, we request comments or suggestions on this proposed rule. We particularly seek comments concerning:

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

(2) Additional information concerning the taxonomy, range, distribution, and population size of these species, including the locations of any additional populations of these species.

(3) Any information on the biological or ecological requirements of these species.

(4) Current or planned activities in the areas occupied by these species and possible impacts of these activities on these species.

(5) Any information concerning the effects of climate change on these species or their habitats.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is a threatened or endangered species must be made ''solely on the basis of the best scientific and commercial data available.''

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We will not accept comments sent by e-mail or fax or to an address not listed in **ADDRESSES**. If you submit a comment via *http://www.regulations.gov*, your entire comment—including any personal identifying information—will be posted on the Web site. Please note that comments submitted to this Web site are not immediately viewable. When you submit a comment, the system receives it immediately. However, the comment will not be publicly viewable until we post it, which might not occur until several days after submission.

If you submit a hardcopy comment that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. To ensure that the electronic docket for this rulemaking is complete and all comments we receive are publicly available, we will post all hardcopy comments on *http://www.regulations.gov*.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection in two ways:

(1) You can view them on *http://www.regulations.gov*. In the Search Documents box, enter FWS-R9-ES-2009-0084, which is the docket number for this action. Then in the Search panel on the left side of the screen, select the type of documents you want to view under the Document Type heading.

(2) You can make an appointment, during normal business hours, to view the comments and materials in person at U.S. Fish and Wildlife Service, Endangered Species Program, 4401 N. Fairfax Drive, Room 420, Arlington, VA 22203; telephone 703-358-2171.

Background

Section 4(b)(3)(A) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), requires us to make a finding (known as a ''90–day finding'') on whether a petition to add a species to, remove a species from, or reclassify a species on the Federal Lists of Endangered and Threatened Wildlife and Plants has presented substantial information indicating that the requested action may be warranted. To the maximum extent practicable, we must make the finding within 90 days following receipt of the petition and must publish it promptly in the **Federal Register**. If we find that the petition has presented substantial information indicating that the requested action may be warranted (a positive finding), section 4(b)(3)(A) of the Act requires us to commence a status review of the species if we have not already initiated one under our internal candidate assessment process. In addition, section 4(b)(3)(B) of the Act requires us to make a finding within 12 months following receipt of the petition (''12–month finding'') on whether the requested action is warranted, not warranted, or warranted but precluded by higher priority actions. Section 4(b)(3)(C) of the Act requires that when we make a warranted but precluded finding on a petition, we are to treat such a petition as one that is resubmitted on the date of such finding. Thus, we are required to publish new 12–month findings on these ''resubmitted'' petitions on an annual basis. We publish an annual notice of resubmitted petition findings (annual notice) for all foreign species for which we previously found listings to be warranted but precluded.

In this proposed rule, we propose to list six foreign bird species as endangered, under the Act. These species are: Cantabrian capercaillie (*Tetrao urogallus cantabricus*); Marquesan Imperial Pigeon (*Ducula galeata*); Eiao Polynesian warbler (*Acrocephalus percernis aquilonis*), previously referred to as (*Acrocephalus mendanae aquilonis*); greater adjutant (*Leptoptilos dubius*); Jerdon's courser (*Rhinoptilus bitorquatus*); and slender-billed curlew (*Numenius tenuirostris*). These species range widely from islands in French Polynesia to Europe, Southeast Asia, and Africa, and all are considered terrestrial species, with one exception, the slender-billed curlew. The slender-billed curlew is a water bird that undertakes a long annual migration.

Previous Federal Actions

On November 28, 1980, we received a petition (1980 petition) from Dr. Warren B. King, Chairman, U.S. Section of the International Council for Bird Preservation (ICBP), to add 70 native and foreign bird species to the list of Threatened and Endangered Wildlife (50 CFR 17.11), including three species (Cantabrian capercaillie, Marquesan Imperial Pigeon, and Eiao Polynesian warbler) that are the subject of this proposed rule. Two of the foreign species identified in the petition were already listed under the Act. In response to the 1980 petition, we published a substantial 90–day finding on May 12, 1981 (46 FR 26464), for 58 foreign species and initiated a status review. On January 20, 1984 (49 FR 2485), we published a 12–month finding within an annual review on pending petitions and description of progress on all pending petition findings. In this notice, we found that listing all 58 foreign bird species in the 1980 petition was warranted but precluded by higher priority listing actions. On May 10, 1985, we published the first annual

notice (50 FR 19761) in which we continued to find that listing all 58 foreign bird species in the 1980 petition warranted but precluded by higher priority listing actions. We published additional annual notices on the 58 foreign bird species on January 9, 1986 (51 FR 996); July 7, 1988 (53 FR 25511); December 29, 1988 (53 FR 52746); April 25, 1990 (55 FR 17475); November 21, 1991 (56 FR 58664); and May 21, 2004 (69 FR 29354). These notices indicated that listing of the Cantabrian capercaillie, Marquesan imperial pigeon, and Eiao Polynesian warbler, along with the remaining species in the 1980 petition, continued to be warranted but precluded.

On May 6, 1991, we received a petition (1991 petition) from Alison Stattersfield, of ICBP, to list 53 additional foreign birds under the Act, including the three remaining bird species (greater adjutant, Jerdon's courser, and slender-billed curlew) that are the subject of this proposed rule. On December 16, 1991, we published a positive 90–day finding and announced the initiation of a status review of the 53 foreign birds listed in the 1991 petition (56 FR 65207). On March 28, 1994 (59 FR 14496), we published a proposed rule to list 30 African bird species from both the 1980 and 1991 petitions. In the same **Federal Register** document, we included a notice of findings in which we announced our determination that listing the 38 remaining species from the 1991 petition was warranted but precluded; this group included greater adjutant, Jerdon's courser, and slender-billed curlew. On July 29, 2008 (73 FR 44062), we published an annual notice of findings on resubmitted petitions for foreign species and annual description of progress on listing actions within which we ranked species for listing by assigning each a Listing Priority Number per our listing priority guidelines, published on September 21, 1983 (48 FR 43098). Based on this ranking and priorities, we determined that listing the six previously petitioned species that are the subject of this proposed rule—Cantabrian capercaillie, Marquesan imperial pigeon, Eiao Polynesian warbler, greater adjutant, Jerdon's courser, and slender-billed curlew—was warranted.

On September 8, 2008, we received a 60–day notice of intent to sue from the Center for Biological Diversity (CBD) over violations of section 4 of the Act for failure to promptly publish listing proposals for the 30 warranted species identified in our 2008 Annual Notice of Review. Under a settlement agreement approved by the U.S. District Court for the Northern District of California on June 15, 2009 (*CDB* v. *Salazar*, 09-cv-02578-CRB), we must submit to the **Federal Register** proposed listing rules for the Cantabrian capercaillie, Marquesan imperial pigeon, Eiao Polynesian warbler, greater adjutant, Jerdon's courser, and slender-billed curlew by December 29, 2009.

These six species were selected from the list of warranted-but-precluded species because of the significance and similarity of the threats to the species. We assigned all six of these species a listing priority ranking number of 2 or 3. Combining species that face similar threats into one proposed rule allows us to maximize our limited staff resources and thus increases our ability to complete the listing process for warranted-but-precluded species.

Species Information and Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, we may list a species based on any of the following five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination.

Despite the fact that global climate changes are occurring and affecting habitat, the climate change models that are currently available do not yet enable us to make meaningful predictions of climate change for specific, local areas (Parmesan and Matthews 2005, p. 354). In addition, we do not have models to predict how the climate in the range of these Eurasian and Asian bird species will change, and we do not know how any change that may occur would affect these species. Nor do we have information on past and future weather patterns within the specific range of these species. Therefore, based on the current lack of information, we did not evaluate climate change as a threat to these species. We are, however, seeking additional information on this subject (see **Public Comment Procedures** section) that can be used in preparing the final rule.

Below is a species-by-species description and analysis of the five factors. The species are considered in alphabetical order, beginning with the Cantabrian capercaillie, followed by the Eiao Polynesian warbler, greater adjutant, Jerdon's courser, Marquesan Imperial Pigeon, and the slender-billed curlew.

I. Cantabrian capercaillie (*Tetrao urogallus cantabricus*)

Species Description

The Cantabrian capercaillie (*Tetrao urogallus cantabricus*) is a subspecies of the western capercaillie (*T. urogallus*) in the family Tetraonidae. The species in general is a large grouse, of 80 to 115 centimeters (cm) in length (31 to 45 inches (in)), and the female is much smaller than the male. The species is characterized by having dark gray plumage with fine blackish vermiculation (wavelike pattern) around the head and neck. The breast is glossy greenish-black. This bird has a long, rounded tail, an ivory white bill, and a scarlet crest (World Association of Zoos and Aquaria 2009, unpaginated).

The Cantabrian capercaillie once existed along the whole of the Cantabrian mountain range from northern Portugal through Galicia, Astruias, and Leon, to Santander in northern Spain (IUCN Redbook 1979, p. 1). Currently its range is restricted to the Cantabrian mountains in northwest Spain. The subspecies inhabits an area of 1,700 square kilometers (km2) (656 square miles (mi2)), and its range is separated from its nearest neighboring subspecies of capercaillie (*T. u. aquitanus*) in the Pyrenees mountains by a distance of more than 300 km (186 mi) (Quevedo *et al.* 2006b, p. 268).

The Cantabrian capercaillie occurs in mature beech (*Fagus sylvatica*) forest and mixed forests of beech and oaks (*Quercus robur, Q. petraea*, and *Q. pyrenaica*) at elevations ranging from 800 to 1,800 m (2,600 to 5,900 ft). The Cantabrian capercaillie also uses other microhabitat types (broom (*Genista* spp.), meadow, and heath (*Erica* spp.)) selectively throughout the year (Quevedo *et al.* 2006b, p. 271).

The species feeds on beech buds, catkins of birch (*Betrula alba*), and holly leaves (*Ilex aquifolium*). It also feeds on bilberry (*Vaccinium myrtillus*), a commonly eaten component of its diet (Rodriguez and Obeso 2000 as reported in Pollo *et al.* 2005, p. 398).

Storch *et al.* estimates the population to be 627 birds, of which approximately 500 are adults, according to the most recent population data collected from 2000 through 2003 (2006, p. 654). Population estimates for species of grouse are commonly assessed by counting males that gather during the

breeding season to sing and display at leks (traditional places where males assemble during the mating season and engage in competitive displays that attract females). Pollo *et al.* (2005, p. 397) estimated a 60-to-70 percent decline in the number of male leks since 1981. This is equivalent to an average decline of 3 percent per year, or 22 percent over 8 years. There is also evidence of a 30-percent decline in lek occupancy in the northern watershed of the species' range between 2000 and 2005 (Banuelos and Quevedo, unpublished data, as reported in Storch *et al.* 2006, p. 654).

Based on data collected between 2000 and 2003 by Pollo *et al.* (2005, p. 401), the distribution of Cantabrian capercaillie on the southern slope of the Cantabrian Mountains is fragmented into 13 small subpopulations: four in the western area and 9 in the eastern. Six subpopulations (5 in the eastern and 1 in the western) contained only one singing male, which indicates a very small subpopulation, since presence of singing males is a direct correlate to population numbers.

The area occupied by Cantabrian capercaillie in 1981–1982 covered up to approximately 2,070 km2 (799 mi2) of the southern slope 972 km2 (375 mi2) in the west and 1,098 km2 (424 mi2) in the east). Between 2000 and 2003, the area of occupancy had declined to 693 km2 (268 mi2), specifically 413 km2 (159 mi2) in the west and 280 km2 (108 mi2) in the east. Thus, over a 22–year period, there was a 66-percent reduction in the areas occupied by this subspecies on the southern slope of the Cantabrian Mountains (Pollo *et al.* 2005, p. 401). Based on this data, the subpopulation in the eastern portion of the range appears to be declining at a faster rate than the subpopulation in the western portion of the range.

Conservation Status

Although Storch, *et al.* 2006 (p. 653) noted that the Cantabrian capercaillie meets the criteria to be listed as ''Endangered'' on the IUCN Redlist due to ''rapid population declines, small population size, and severely fragmented range,'' it is currently not classified as such by the IUCN. The species is classified as ''vulnerable'' in Spain under the National Catalog of Endangered Species. The species has not been formally considered for listing in the CITES Appendices (*http://www.cites.org*).

Summary of Factors Affecting the Cantabrian Capercaillie

A. Present or threatened destruction, modification, or curtailment of habitat or range

Numerous limiting factors influence the population dynamics of the capercaillie throughout its range, including habitat degradation, loss, and fragmentation (Storch 2000, p. 83; 2007, p. 96). Forest structure plays an important role in determining habitat suitability and occupancy. Quevedo *et al.* (2006b, p. 274) found that open forest structure with well-distributed bilberry shrubs were the preferred habitat type of Cantabrian capercaillie. Management of forest resources for timber production has caused and continues to cause significant changes in forest structure such as: species composition, density and height of tress, forest patch size, and understory vegetation (Pollo *et al.* 2005, p. 406).

The historic range occupied by this subspecies (3,500 km2 (1,350 mi2)) has declined by more than 50 percent (Quevedo *et al.* 2006b, p. 268). The current range is severely fragmented, with low forest habitat cover (22 percent of the landscape) and most of the suitable habitat remaining in small patches less than 10 hectares (ha) (25 acres (ac)) in size (Garcia *et al.* 2005, p. 34). Patches of good-quality habitat are scarce and discontinuous, particularly in the central parts of the range (Quevedo *et al.* 2006b, p. 269), and leks in the smaller forest patches have been abandoned during the last few decades. The leks that remain occupied are now located farther from forest edges than those occupied in the 1980s (Quevedo *et al.* 2006b, p. 271).

Based on population surveys, forest fragments containing occupied leks in 2000 were significantly larger than fragments containing leks in the 1980s that have since been abandoned (Quevedo *et al.* 2006b, p. 271). The forest fragments from which the Cantabrian capercaillie has disappeared since the 1980s are small in size, and are the most isolated from other forest patches. In addition, the Cantabrian capercaillie have disappeared from forest patches located closest to the edge of the range in both the eastern and western subpopulations of the south slope of the Cantabrian Mountains, suggesting that forest fragmentation is playing an important role in the population dynamics of this subspecies (Quevedo *et al.* 2006b, p. 271). Research conducted on other subspecies of capercaillie indicate that the size of forest patches is correlated to the number of males that gather in leks to display, and that below a certain forest patch size, leks are abandoned (Quevedo *et al.* 2006b, p. 273).

In highly fragmented landscapes, forest patches are embedded in a matrix of other habitats, and forest dwellers like capercaillies frequently encounter open areas within their home range. Quevedo *et al.* (2006a, p. 197) developed a habitat suitability model for the Cantarian capercaillie that assessed the relationship between forest patch size and occupancy. He determined that the subspecies still remains in habitat units that show habitat suitability indices below the cut-off values of the two best predictive models (decline and general), which may indicate a high risk of local extinction. Other researchers suggested that, should further habitat or connectivity loss occur, the Cantabrian capercaillie population may become so disaggregated that the few isolated subpopulations will be too small to ensure their own long-term persistence (Grimm and Storch 2000, p. 224).

A demographic model based on Bavarian alpine populations of capercaillie suggest a minimum viable population size of the order of 500 birds (Grimm and Storch 2000, p. 222). However, genetic data show clear signs of reduced variability in populations with numbers of individuals in the range of fewer than 1,000 birds, which indicates that a demographic minimum population of 500 birds may be too small to maintain high genetic variability (Segelbacher *et al.* 2003, p. 1779). Genetic consequences of habitat fragmentation exist for this species in the form of increased genetic differentiation due to increased isolation of populations (Segelbacher *et al.* 2003, p. 1779). Therefore, anthropogenic habitat deterioration and fragmentation not only leads to range contractions and extinctions, but may also have significant genetic, and thus, evolutionary consequences for the surviving populations (Segelbacher *et al.* 2003, p. 1779).

Summary of Factor A

Recent population surveys show this subspecies is continuing to decline throughout its current range, and subpopulations may be isolated from one another due to range contractions in the eastern and western portions of its range, leaving the central portion of the subspecies range abandoned (Pollo *et al.* 2005, p. 401). Some remaining populations may already have a high risk of local extinction (Quevedo *et al.* 2006a, p. 197). Management of forest resources for timber production continues to negatively affect forest structure, thereby affecting the quality,

quantity, and distribution of suitable habitat available for this subspecies. In addition, the structure of the matrix of habitats located between forest patches is likely affecting the ability of capercaillies to disperse between subpopulations. Therefore, we find that present or threatened destruction, modification, or curtailment of the habitat or range is a threat to the continued existence of the Cantabrian capercaillie throughout its range.

B. Overutilization for commercial, recreational, scientific, or educational purposes

Currently hunting of the Cantabrian capercaillie is illegal in Spain; however, illegal hunting still occurs (Storch 2000, p. 83; 2007, p. 96). Because this species congregates in leks, individuals are particularly easy targets, and poaching of protected grouse is considered common (Storch 2000, p. 15). It is unknown what the incidence of poaching is or what impact it is having on this subspecies; however, given the limited number of birds remaining and the reduced genetic variability already evident at current population levels, the further loss of breeding adults could have substantial impact on the subspecies. Therefore, we find that overutilization for recreational purposes is a threat to the continued existence of the Cantabrian capercaillie throughout its range.

C. Disease or predation

Diseases and parasites have been proposed as factors associated with the decline of populations of other species within the same family of birds as the capercaillie (Tetraonidae) (Obeso *et al.* 2000, p. 191). In an attempt to determine if parasites were contributing to the decline of the Cantabrian capercaillie, researchers collected and analyzed fecal samples in 1998 from various localities across the range of this subspecies. The prevalence of common parasites (*Eimeria* sp. and *Capillaria* sp.) was present in 58 percent and 25 percent of the samples collected, respectively. However, both the intensity and average intensity of these parasites were very low compared to other populations of species of birds in the Tetraonidae family. Other parasites were found infrequently. The researchers concluded that it was unlikely that intestinal parasites were causing the decline of the Cantebrian capercaillie.

Based on the information above, we do not believe that parasite infestations are a significant factor in the decline of this subspecies. We are not aware of any species-specific information currently available that indicates that predation poses a threat to the species. Therefore, we are not considering disease or predation to be contributing threats to the continued existence of the Cantabrian capercaillie throughout its range.

D. Inadequacy of existing regulatory mechanisms

Although it meets the qualifications, the Cantabrian capercaillie is currently not classified as endangered by the IUCN. Nor is the species listed under any Appendix of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

This subspecies is currently classified as ''vulnerable'' in Spain under the National Catalog of Endangered Species, which affords it special protection (e.g., additional regulation of activities in the forests of its range, regulation of trails and roads in the area, elimination of poaching, and protection of areas important to young). Although it is classified as vulnerable, as mentioned above (see Factor B), illegal hunting still occurs.

The European Union (EU) Habitat Directive 92/43/EEC addresses the protection of habitat and species listed as endangered at the European scale (European Union 2008). Several habitat types valuable to capercaillie have been included in this Directive, such as in Appendix I, Section 9, Forests. The EU Bird Directive (79/407/EEC) lists the capercaillie in Annex I as a ''species that shall be subject to special habitat conservation measures in order to ensure their survival.'' Under this Directive, a network of Special Protected Areas (SPAs) comprising suitable habitat for Annex I species is to be designated. This network of SPAs and other protected sites are collectively referred to as Natura 2000. Several countries in Europe, including Spain, are in the process of establishing the network of SPAs. The remaining Cantabrian capercaillie populations occur primarily in recently established Natural Reserves in Spain that are part of the Natura 2000 network (Muniellos Biosphere Reserve). Management of natural resources by local communities is still allowed in areas designated as an SPA; however, the development of management plans to meet the various objectives of the Reserve network is required.

This subspecies is also afforded special protection under the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats; European Treaty Series/104; Council of Europe 1979). The Cantabrian capercaillie is listed as ''strictly protected'' under Appendix II, which requires member states to ensure the conservation of the listed taxa and their habitats. Under this Convention, protections of Appendix-II species include the prohibition of: The deliberate capture, keeping and killing of the species; deliberate damage or destruction of breeding sites; deliberate disturbance during the breeding season; deliberate taking or destruction of eggs; and the possession or trade of any individual of the species. We were unable to find information on the effectiveness of this designation in preventing further loss of Cantabrian capercaillie or its habitat.

In November 2003, Spain enacted the ''Forest Law,'' which addresses the preservation and improvement of the forest and rangelands in Spain. This law requires development of plans for the management of forest resources, which are to include plans for fighting forest fires, establishment of danger zones based on fire risk, formulation of a defense plan in each established danger zone, the mandatory restoration of burned area, and the prohibition of changing forest use of a burned area into other uses for a period of 30 years. In addition, this law provides economic incentives for sustainable forest management by private landowners and local entities. We do not have information on the effectiveness of this law with regard to its ability to prevent negative impacts to Cantabrian capercaillie habitat.

Summary of Factor D

Despite recent advances in protection of this subspecies and its habitat through EU Directives and protection under Spanish law and regulation, illegal poaching still occurs (Storch 2000, p. 83; 2007, p. 96). Further, we were unable to find information on the effectiveness of many of these measures at reducing threats to the species. Therefore, we find that existing regulatory mechanisms are inadequate to ameliorate the current threats to the Cantabrian capercaillie throughout its range.

E. Other natural or manmade factors affecting the species' continued existence

Suarez-Seoane and Roves (2004, pp. 395, 401) assessed the potential impacts of human disturbances in core populations of Cantabrian capercaillie in Natural Reserves in Spain. They found that locations selected as leks were located at the core of larger patches of forest and were less subject to human disturbance. They also found

that Cantabrian capercaillie disappeared from leks situated in rolling hills at lower altitudes closer to houses, hunting sites, and repeatedly burned areas.

Recurring fires have also been implicated as a factor in the decline of the subspecies. An average of 85,652 ha (211,650 ac) of forested area per year over a 10–year period (1995–2005) has been consumed by fire in Spain (Lloyd 2007a, p. 1). On average, 80 percent of all fires in Spain are set intentionally by humans (Lloyd 2007a, p. 1). Suarez-Seoane and Garcia-Roves (2004, p. 405) found that the stability of Cantabrian capercaillie breeding areas throughout a 20–year period was mainly related to low fire recurrence in the surrounding area and few houses nearby. In addition, the species avoids areas that are recurrently burned because the areas lose their ability to regenerate and cannot produce the habitat the species requires (Suarez-Seoane and Garcia-Roves 2004, p. 406). We were unable to find information as to how many hectares of suitable Cantabrian capercaillie habitat is consumed by fire each year. However, since the species requires a low recurrence of fire, and both disturbance and fire frequency are likely to increase with human presence, this could be a potential threat to both habitat and individual birds where there is a high prevalence of disturbance and fire frequency.

In summary, disturbance from humans appears to impact the species; birds are typically found in areas of less anthropogenic disturbance and further from homes. Natural Protected Areas in Spain have seen an increase in human use for recreation and hunting. As human population centers expand and move closer to occupied habitat areas, increased disturbance to important breeding, feeding, and sheltering behaviors of this species is expected to occur. Additionally, as human presence increases, it is likely that both fires and disturbances will increase. Either or both of these factors have the potential to impact both individuals and their habitat. Therefore, we conclude that other natural or manmade factors affecting the continued existence of the species, in the form of forest fires and disturbance, are threats to the continued existence of the Cantabrian capercaillie throughout its range.

Status Determination for the Cantabrian Capercaillie

We have carefully assessed the best available scientific and commercial information regarding the past, present, and potential future threats faced by the Cantabrian capercaillie. The species is currently at risk throughout all of its range due to ongoing threats of habitat destruction and modification (Factor A), inadequacy of existing regulatory mechanisms (Factor D), and other natural or manmade factors affecting its continued existence in the form of forest fires and disturbance (Factor E).

Section 3 of the Act defines an ''endangered species'' as ''any species which is in danger of extinction throughout all or a significant portion of its range'' and a ''threatened species'' as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Based on the magnitude of the ongoing threats to the Cantabrian capercaillie throughout its entire range, as described above, we determine that this subspecies is in danger of extinction throughout all of its range. Therefore, on the basis of the best available scientific and commercial information, we propose to list the Cantabrian capercaillie as an endangered species throughout all of its range. Because we find that the Cantabrian capercaillie is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

II. Eiao Polynesian warbler (*Acrocephalus percernis aquilonis*), previously referred to as *Acrocephalus mendanae aquilonis* and Acrocephalus caffer aquilonis

Species Description

Due to the similarity of the reed-warblers of Polynesia, all of these warblers were once considered a single, widespread species known as the long-billed reed-warbler (*Acrocephalus caffer*). The 1980 petition from Dr. Warren B. King included the Eiao Polynesian warbler (*Acrocephalus caffer aquilonis*), a subspecies of reed-warbler. The subspecies *aquilonis* denoted those warblers found on Eiao Island. The species was later split into three separate species: those of the Society Islands (*Acrocephalus caffer*), Tuamotu (*A. atyphus*), and Marquesas (*A. mendanae*) (Cibois *et al.* 2007, p. 1151). This subspecies then became known as *A. mendanae aquilonis*. Recent genetic research on Marquesan reed-warblers found two independent lineages: warblers found in the northern islands of the Marquesas Archipelago (Nuku Hiva, Eiao, Hatuta'a, and Ua Huka) and those found on the southern islands (Hiva Oa, Tahuata, Ua Pou, and Fatu Iva). As a result, the Marquesas species was split into two separate species; those of the four most northern islands (*A. percernis*) and those in the southern islands (*A. mendanae*). The reed-warblers found on Eiao are now classified as a subspecies of Northern Marquesan reed-warblers (*A. percernis aquilonis*) (Cibois *et al.* 2007, pp. 1155, 1160).

The Eiao Polynesian warbler (Eiao warbler) is a large, insectivorous reed-warbler of the family Acrocephalidae. It is characterized by brown plumage with bright yellow underparts (Cibois *et al.* 2007, p. 1151). The Eiao warbler is endemic to the island of Eiao in the French Polynesian Marquesas Archipelago in the Pacific Ocean. The Marquesas Archipelago is a territory of France located approximately 1,600 km (994 mi) northeast of Tahiti. Eiao Island is one of the northernmost islands in the Archipelago and encompasses 40 km2 (15 mi).

Population densities of the Eiao warbler are thought to be high within the remaining suitable habitat; one singing bird was found nearly every 40–50 m (131–164 ft). The total population is estimated at more than 2,000 birds (Raust 2007, pers. comm.). This population estimate is much larger than the 100–200 individuals last reported in 1987 by Thibault (as reported in USFWS 2007). It is unknown if the population actually increased from 1987 to 2007, or if the differences in the population estimates are a result of using different survey methodologies. We have no reliable information on the population trend of this subspecies.

Reed-warblers of the Polynesian islands utilize various habitats, ranging from shrubby vegetation in dry, lowland areas to humid forest in wet montane areas (Cibois *et al.* 2007, pp. 1151, 1153). Reed-warblers in general display strong territorial behavior (Cibois *et al.* 2007, p. 1152). The Eiao warbler is a subspecies of Northern Marquesan reed-warblers, which at one time were all considered one species, the Marquesan reed-warbler. Like other reed-warblers, the female reed-warbler builds the nest with little or no help from the male. Vines, coconut fiber, and grasses are the most common nesting material (Mosher and Fancy 2002, p. 8). Warbler nests are found in the tops of trees and on vertical branches (Thibault *et al.* 2002, pp. 166, 169). Eggs of Pacific island reed-warblers range from blue to olive, containing black or brown spots, and the clutch size for Marquesan reed-warblers is up to five eggs (Mosher and Fancy 2002, p. 9).

Conservation Status

Marquesan reed-warblers (*A. mendanae*) are classified as ''of least concern'' by the IUCN (IUCN 2009a, unpaginated). However, it appears that the recent split of the Marquesan reed-

warblers into the Northern and Southern Marquesan reed-warblers is not yet reflected in the IUCN assessment. Northern Marquesan reed-warblers (*A. percernis*) are protected under Law Number 95-257 in French Polynesia. The species has not been formally considered for listing in the CITES Appendices (*http://www.cites.org*).

Summary of Factors Affecting the Species

A. Present or threatened destruction, modification, or curtailment of habitat or range

Eiao Island was declared a Nature Reserve in 1971 and is not currently inhabited by humans. However, the entire island has been heavily impacted by introduced domestic livestock that have become feral (Manu 2009, unpaginated). Feral sheep have been identified as the main threat to the forest on the island (Thibault *et al.* 2002, p. 167). Sheep and pigs have devastated much of the vegetation and soil on Eiao, and native plant species have been largely replaced by introduced species (Merlin and Juvik 1992, pp. 604–606). Sheep have overgrazed the island, leaving areas completely denuded of vegetation. The exposed soil erodes from rainfall, further preventing native plants from regenerating (WWF 2001, unpaginated). Currently, only 10–20 percent of the island contains suitable habitat for the Eiao warbler (Raust 2007, pers. comm.). These areas of suitable habitat are likely restricted to small refugia inaccessible to the feral livestock. We are not aware of any current efforts or future plans to reduce the number of feral domestic livestock on the island.

In summary, the ongoing habitat degradation from overgrazing livestock continues to have significant and ongoing impacts to the natural habitat for this subspecies. The current level of grazing on the island prevents recovery of native vegetation. Without active management of the feral livestock population on the island, the population of Eiao warblers will continue to be restricted to small portions of the island which are inaccessible to the feral livestock. Furthermore, although the current estimated population is 2,000 individuals, the subspecies will not be able to expand to the rest of the island and recover beyond this current population level due to habitat loss. Because the Eiao warbler is limited to one small island, the continuing loss of habitat makes this subspecies extremely vulnerable to extinction. Therefore, we find that present or threatened destruction, modification, or curtailment of the habitat or range are threats to the continued existence of the Eiao warbler throughout its range.

B. Overutilization for commercial, recreational, scientific, or educational purposes

We are unaware of any information currently available that indicates the use of this subspecies for any commercial, recreational, scientific, or educational purpose. As a result, we are not considering overutilization for commercial, recreational, scientific, or educational purposes to be a contributing factor to the continued existence of the Eiao warbler throughout its range.

C. Disease or predation

Avian diseases are a concern for species with restricted ranges and small populations, especially if the species is restricted to an island. Hawaii's avian malaria is a limiting factor for many species of native passerines and is dominant on other remote oceanic islands, including French Polynesia (Beadell *et al.* 2006, p. 2935). This strain was found in 9 out of 11 Marquesan reed-warblers collected on Nuku Hiva in 1987. However, because these birds were thought to be more robust (all Marquesan reed-warblers were considered *A. mendanae*), avian malaria was not thought to pose a threat to the species (Beadell *et al.* 2006, p. 2940). We have no data on whether Hawaii's avian malaria is present on Eiao or what effects it may have on the population of reed-warblers.

Black rats (*Rattus rattus*) were introduced to Eiao, Nuku Hiva, Ua Pou, Hiva Oa, Tahuata, and Fatu Iva of the Marquesas Archipelago in the early 20th century (Cibois *et al.* 2007, p. 1159); although Thibault *et al.* (2002, p. 169) state that the presence of black rats on Eiao is only suspected. A connection between the presence of rats and the decline and extirpation of birds has been well documented (Blanvillain *et al.* 2002, p. 146; Thibault *et al.* 2002, p 162; Meyer and Butaud 2009, pp. 1169–1170). Specifically, predation on eggs, nestlings, or adults by rats has been implicated as an important factor in the extinction of Pacific island birds (Thibault *et al.* 2002, p. 162). However, Thibault *et al.* (2002, pp. 165, 169) did not find a significant effect of rats on the abundance of Polynesian warblers. It is thought that the position of warbler nests on vertical branches close to the tops of trees makes them less accessible to rats (Thibault *et al.* 2002, p. 169), even though rats are known to be good climbers.

The common myna (*Acridotheres tristis*), an introduced bird species, may contribute to the spread of invasive plant species by consuming their fruit and may also prey on the eggs and nestlings of native birds species or outcompete native bird species for nesting sites. The myna is thought to have contributed to the decline of another reed-warbler endemic to the Marquesas (*A. caffer mendanae*) (Global Invasive Species Database 2009, unpaginated). Mynas do not currently occur on Eiao Island. Furthermore, Thibault *et al.* (2002, p. 165) found no significant effect of mynas on Polynesian warblers in Marquesas. If the myna expands its range and colonizes Eiao Island, it is unknown to what extent predation would affect the Eiao warbler.

In summary, although the presence of avian malaria has been documented on Eiao and the presence of introduced rats is suspected, there is no data indicating that either is affecting the warbler population on Eiao. Nest location appears to be high enough in the trees to avoid significant predation from the introduced rat. Mynas are not known to inhabit Eiao Island, and it is not clear that they would negatively impact the warbler population if they were to colonize Eiao. Therefore, we find that disease and predation are not a threat to the continued existence of the Eiao warbler throughout its range.

D. Inadequacy of existing regulatory mechanisms

The Eiao warbler is a protected species in French Polynesia. Northern Marquesan reed-warblers (*A. percernis*) are classified as a Category A species under Law Number 95-257. Article 16 of this law prohibits the collection and exportation of species listed under Category A. In addition, under part 23 of Law 95-257, the introduced myna bird species, which is commonly known to outcompete other bird species, is considered a danger to the local avifauna and is listed as ''threatening biodiversity.'' Part 23 also prohibits importation of all new specimens of species listed as ''threatening biodiversity,'' and translocation from one island to another is prohibited.

The French Environmental Code, Article L411-1, prohibits the destruction or poaching of eggs or nests; mutilation, destruction, capture or poaching, intentional disturbance, the practice of taxidermy, transport, peddling, use, possession, offer for sale, and the sale or the purchase of nondomestic species in need of conservation. It also prohibits the destruction, alteration, or degradation of habitat for these species.

Hunting and destruction of all species of birds in French Polynesia were prohibited by a 1967 decree (Villard *et al.* 2003, p. 193); however, destruction of birds which have been listed as ''threatening biodiversity'' is legal. Furthermore, restrictions on possession of firearms in Marquesas are in place (Thorsen *et al.* 2002, p. 10). Hunting is not known to be a threat to the survival of this subspecies.

In addition, the entire island Eiao Island was declared an officially protected area in 1971. It is classified as Category IV, an area managed for habitat or species. However, of the nine protected areas in French Polynesia, only one (Vaikivi on Ua Huka) is actively managed (Manu 2009, unpaginated).

In summary, regulations exist that protect the subspecies and its habitat. However, as described under Factor A, habitat destruction continues to threaten this subspecies. Although legal protections are in place, there are none effectively protecting the suitable habitat on the island from damage from overgrazing sheep as described in Factor A. Therefore, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the Eiao warbler throughout its range.

E. Other natural or manmade factors affecting the species' continued existence

Island populations have a higher risk of extinction than mainland populations. Ninety percent of bird species that have been driven to extinction were island species (as cited in Frankham 1997, p. 311). Based on genetics alone, endemic island species are predicted to have higher extinction rates than nonendemic island populations (Frankham 2007, p. 321). Small, isolated populations may experience decreased demographic viability (population birth and death rates, immigration and emigration rates, and sex ratios), increased susceptibility of extinction from stochastic environmental factors (e.g., weather events, disease), and an increased threat of extinction from genetic isolation and subsequent inbreeding depression and genetic drift.

Although the population of Eiao warblers appears to be stable, the subspecies is found on only one island and is vulnerable to stochastic events. Furthermore, the warblers are limited to the fraction of the island's area that contains suitable habitat. Eradication of feral livestock is needed to allow recovery of native vegetation and provide additional suitable habitat throughout the island. Expansion and recovery of native vegetation will permit the subspecies to recover beyond the current population of 2,000 individuals and buffer the subspecies against impacts from stochastic events.

In summary, the limited range of the Eiao warbler makes this subspecies extremely vulnerable to stochastic events and, therefore, extinction. Additional habitat is needed to expand the population and buffer the subspecies from the detrimental effects typical of small island populations. Therefore, we find that other natural or manmade factors threaten the continued existence of the Eiao warbler throughout its range.

Status Determination for the Eiao Polynesian Warbler

We have carefully assessed the best available scientific and commercial information regarding the past, present, and potential future threats faced by the Eiao Polynesian warbler. The subspecies is currently at risk on Eiao Island due to ongoing threats of habitat destruction and modification (Factor A) and stochastic events associated with the subspecies' restricted range (Factor E). Furthermore, we have determined that the existing regulatory mechanisms (Factor D) are not adequate to ameliorate the current threats to the subspecies.

Section 3 of the Act defines an ''endangered species'' as ''any species which is in danger of extinction throughout all or a significant portion of its range,'' and a ''threatened species'' as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Based on the magnitude of the ongoing threats to the Eiao Polynesian warbler throughout its entire range, as described above, we determine that this subspecies is in danger of extinction throughout all of its range. Therefore, on the basis of the best available scientific and commercial information, we propose to list the Eiao Polynesian warbler as an endangered subspecies throughout all of its range. Because we find that the Eiao Polynesian warbler is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

III. Greater Adjutant (*Leptoptilos dubiu*)

Species Description

The greater adjutant (*Leptoptilos dubius*) is a very large (145 to 150 cm long (4.7 to 4.9 ft)) species of stork in the family Ciconiidae. This species is characterized by a naked pink head and a low-hanging neck pouch. Its bill is very thick and yellow in color. The plumage ruff of the neck is white, and other than a pale grey leading edge on each wing, the rest of the greater adjutant's body is dark grey (Birdlife International (BLI) 2009a, unpaginated).

This species of bird once was common across much of Southeast Asia, occurring in India, Bangladesh, Burma, Thailand, Cambodia, Malaysia, Myanmar, Vietnam, Sumatra, Java, and Borneo. Large breeding colonies occurred in Myanmar; however, this colony collapsed in the mid-1900s (Singha and Rahmani 2006, p. 264).

The current distribution of this species consists of two breeding populations, one in India and the other in Cambodia. Recent sighting records of this species from the neighboring countries of Nepal, Bangladesh, Vietnam, and Thailand are presumed to be wandering birds from one of the two populations in India and Cambodia (BLI 2009a, unpaginated).

India: The most recent range-wide population estimate for this species in India (600 to 800 birds) comes from data collected in 1995 through 1996 (Singha *et al.* 2003, p. 146). Approximately 11 breeding sites are located in the Brahmaputra Valley in the State of Assam (Singha *et al.* 2003, p.147). Recent information indicates that populations of this species continue to decline in India. At two breeding sites near the city of Guwahati in the State of Assam, the most recent survey data show that the number of breeding birds has declined from 247 birds in 2005 to 118 birds in 2007 (Hindu 2007, unpaginated).

In India, much of the greater adjutant's native habitat has been lost. The greater adjutant uses habitat in three national parks in India; however, almost all nesting colonies in India are found outside of the national parks. The greater adjutant often occurs close to urban areas; the species feeds in and around wetlands in the breeding season, and disperses to scavenge at trash dumps, burial grounds, and slaughter houses at other times of the year. The natural diet of the greater adjutant consists primarily of fish, frogs, reptiles, small mammals and birds, crustaceans, and carrion (Singha and Rahmani 2006, p. 266).

This species breeds in colonies during the dry season (winter) in stands of tall trees near water sources. In India, the greater adjutant prefers to nest in large, widely branched trees in a tightly spaced colony with little foliage cover and food sources nearby (Singha *et al.* 2002, p. 214). The breeding sites are also commonly associated with bamboo forests which provide protection from

heavy rain during the pre-monsoon season (Singha *et al.* 2002, p. 218). Each adult female greater adjutant commonly lays two eggs each year (Singha and Rahmani 2006, p. 266).

Cambodia: Currently there are two known breeding populations in Cambodia. The larger of these two populations occurs in the Tonle Sap Biosphere Reserve (TSBR) near Tonle Sap Lake and has recently been estimated at 77 breeding pairs (Clements *et al.* 2007, p. 7). The Tonle Sap floodplain (and associated rivers) is considered one of the few remaining remnants of freshwater swamp forest in the region. Approximately 5,490 km2 (2,120 mi2) of the freshwater swamp forest ecoregion is protected in Cambodia. Of this amount, the Tonle Sap Great Lake Protected Area (which includes the Tonle Sap floodplain) makes up 5,420 km2 (2,092 mi2) of that protected habitat (WWF 2007, p. 3).

A smaller population of greater adjutants was recently discovered in the Kulen Promtep Wildlife Sanctuary in the Northern Plains of Cambodia. This population has been estimated at 40 birds (Clements 2008, pers. comm.; BLI 2009, unpaginated). Although other breeding sites have not yet been found in Cambodia, researchers expect that the greater adjutant may nest along the Mekong River in the eastern provinces of Mondulkiri, Ratanakiri, Stung Treng, and Kratie in Cambodia (Clement 2008, pers. comm.).

In Cambodia, the greater adjutant breeds in freshwater flooded forest, and disperses to seasonally inundated forest, tall wet grasslands, mangroves, and intertidal flats to forage. These forests are characterized by deciduous tropical hardwoods (Dipterocarpaceae family) and semi-evergreen forest (containing a mix of deciduous and evergreen trees) interspersed with meadows, ponds, and other wetlands (WWF 2006b, p. 1).

Conservation Status

The IUCN classifies the greater adjutant as critically endangered. In India, the greater adjutant is listed under Schedule I of the Indian Wildlife Protection Act of 1972. The species is not listed in the Appendices of CITES (*http://www.cites.org*).

Summary of Factors Affecting the Greater Adjutant

A. Present or threatened destruction, modification, or curtailment of habitat or range

India: The greater adjutant occurs in Kaziranga, Manas, and Diburu-Saikhowa National Parks. However, nearly all breeding sites for this species are located outside of protected areas (Singha *et al.* 2003, p. 148). The ongoing loss of habitat through habitat conversion for development and agriculture is a primary threat to the greater adjutant. The clearing of trees that are suitable for breeding sites is a serious threat to this species. The recent decline in the population at the breeding colonies near Guwahai, India, is believed to be caused by tree removal at the breeding site and filling of wetlands in an area near the city that had been used by the greater adjutant as feeding areas (Hindu 2007, unpaginated). These activities were undertaken for the purpose of expanding residential developments in the city. The species is also seasonally dependent on wetlands for forage. These sites are impacted in India by drainage, encroachment, and overfishing. For instance, some sites have reportedly experienced encroachment from rice cultivation (BLI 2001, p. 284).

Singha *et al.* 2002 (pp. 218–219) found that preferred nest trees were significantly larger and different in structure to non-nest trees near Nagaon in central Assam. The nest trees were large and widely branched with thin foliage cover (Singha *et al.* 2002, p. 214). Researchers believe that removal of preferred nesting trees at breeding may result in adjutants nesting in suboptimal trees at existing nest sites or relocating to other suboptimal nest sites. The trees and their limbs at suboptimal breeding sites are smaller in diameter, and the structure of the limbs does not always support the combined weight of the nest, adults, and chicks. As chicks grow older, nest limbs often break, sending the half grown chicks tumbling from the nest. Approximately 15 percent of chicks die after falling from their nests, for a variety of causes, including injuries and abandonment (Singha *et al.* 2006, p. 315). Some efforts have been made to reduce chick mortality, like those employed at two breeding sites near Nagaon from 2001 to 2003 (Singha *et al.* 2006, pp. 315–320). Safety nets are placed under the canopy of nest trees to catch falling chicks. Chicks are either replaced in their nest, if on-site monitors can determine which nest the chick came from, or raised in captivity and later released. Juvenile birds were monitored after their release, and the program is considered a success (Singha and Rahmani 2006, p. 268; Singha *et al.* 2006, pp. 315–320). Though some efforts have been undertaken to reduce chick mortality due to falls from nests, loss of chicks based on nesting in sub-optimal breeding sites is likely still occurring at other breeding sites.

Cambodia: The largest breeding colonies are located in the Tonle Sap Biosphere Reserve, which consists primarily of the Tonle Sap Lake and its floodplain. A second breeding population occurs in the Kulen Promtep Wildlife Sanctuary in the Northern Plains. Poole (2002, p. 35) reported that large nesting trees around Cambodia's Tonle Sap floodplain, particularly crucial to greater adjutants for nesting, are under increasing pressure by felling for firewood and building material. Poole (2002, p. 35) concluded that a lack of nesting trees, both at Tonle Sap and in the Northern Plains, may be the most serious threat in the future to large water bird colonies.

The Mekong River Basin flows through several countries in Southeast Asia, including Tibet, China, Myanmar, Vietnam, Thailand, Cambodia, and Laos, traveling over 4,800 km (2,980 mi) from start to finish. In Cambodia, the Mekong River flows into the Tonle Sap floodplain. Tonle Sap Lake expands and contracts throughout the year as a result of rainfall from monsoons and the flow of the Mekong River. The lake acts as a storage reservoir at different times of the year to regulate flooding in the Mekong Delta (Davidson 2005, p. 3). This flooding also results in flooded forests and shrublands, which provides seasonal habitat to several species. The Tonle Sap Biosphere Reserve is one of Southeast Asia's most important wetlands for biodiversity and is particularly crucial for birds, reptiles, and plant assemblages (Davidson 2005, p. 6).

Upstream developments in the Mekong have already led to significant trapping of sediments and nutrients in upstream reservoirs, which could lead to increased bed and bank erosion downstream, as well as decreased productivity (Kummu and Varis 2007, pp. 289, 291). According to the Asian Development Bank (ADB 2005, p. 2), 13 dams have been built, are being built, or are proposed to be built along the Mekong River. Proposed hydroelectric dams along the Mekong River in countries upstream from Cambodia have the potential to adversely affect the habitat of the greater adjutant by affecting the hydrology of the basin and reducing the overall foraging habitat and the abundance of prey species during the breeding season (Clements *et al.* 2007, p. 59). In addition, decline in productivity of the habitat, and thereby prey species abundance, may increase competition for food, and increased releases from upstream dams during the dry season could result in permanent flooding of these forests that will eventually kill the trees in these areas

(Clements *et al.* 2007, p. 59). Under some scenarios, up to half of the core area (21,342 ha (52,737 ac)) of the Prek Toal area in the Tonle Sap Biosphere Reserve could be affected.

Summary of Factor A

This species continues to face significant ongoing threats to its breeding and foraging habitat in both India and Cambodia. In India, activities such as the draining and filling of wetlands (Hindu 2007, unpaginated), removal of nest trees, and encroachment on habitat significantly impact this species (BLI 2001, p. 284). In Cambodia, threats include tree removal (Poole 2002, p. 35) and large-scale hydrologic changes due to existing dams and proposed dam construction (Clements *et al.* 2007, p. 59; Kummu and Varis, pp. 287-288). The latter threat could potentially eliminate habitat in protected areas such as the Tonle Sap Biosphere Reserve, and it could additionally reduce productivity of these areas, which would further impact the species by affecting the foraging base and potentially increasing competition with other species (Clements *et al.* 2007, p. 59). Therefore, we find that the present or threatened destruction, modification, or curtailment of the habitat or range is a threat to the continued existence of the greater adjutant throughout its range.

B. Overutilization for commercial, recreational, scientific, or educational purposes

Local communities collect bird eggs and chicks for consumption and for trade in both India and Cambodia. This is considered a primary threat to the birds in Cambodia, where fledglings are also taken (Clements 2008, pers. comm.). Due to their rarity, greater adjutants are believed to have a high market value, which increases the likelihood this type of activity will continue. The implementation of bird nest protection programs has been developed by the Wildlife Conservation Society, working with local villages such as the program at Kulen Promtep Wildlife Sanctuary (ACCB 2009, unpaginated). Although the impacts from large-scale collection of bird eggs and chicks has been reduced through these programs, collection still remains a threat to the species.

Accounts of poisoning, netting, trapping, and shooting of adult birds were also reported at various locations in both India and Cambodia during the 1990s (BLI 2001, pp. 285–286). In India, some birds were shot because of perceived impact on fish stocks, others in hunts (BLI 2001, p. 285). In Cambodia, some birds were captured to be sold as food and for use as pets, and some were also hunted (BLI 2001, p. 286). Birds are also likely inadvertently injured or killed as a result of destructive fishing techniques in Cambodia such as electro-fishing and the use of poisons (Clements 2008, pers. comm.). In a 1999 article, the *Phnom Penh Post* (as reported in Environmental Justice Foundation 2002, p. 25) reported that pesticides are used to kill both fish and wildlife species at Tonle Sap.

In summary, although we are unaware of any scientific or educational purpose for which the adjutant is used, local communities are known to collect bird eggs, chicks, and adults for consumption and other purposes (e.g., pet trade and perceived threat to fish stocks) in either or both India or Cambodia (BLI 2001, pp. 285–286). Further, even though nest protection programs are being implemented, these programs are insufficient to adequately protect the species. Therefore, we find that overutilization due to commercial and recreational purposes is a threat to the continued existence of the greater adjutant throughout its range.

C. Disease or predation

Highly pathogenic avian influenza (HPAI) H5N1 continues to be a serious problem for this species. This strain of avian influenza first appeared in Asia in 1996, and spread from country to country with rapid succession as found by Peterson *et al.* (2007, p. 1). By 2006, the virus was detected across most of Europe and in several African countries. Influenza A viruses, to which group strain H5N1 belongs, infects domestic animals and humans, but wildfowl and shorebirds are considered the primary source of this virus in nature (Olsen *et al.* 2006, p. 384). Though it is still unclear if the greater adjutant is a carrier, lack of an avian influenza wild bird surveillance program in Cambodia will make it difficult to resolve this question.

Until recently, there was no information on predation affecting the greater adjutant. However, recent research on other waterbirds suggests that predation may impact the greater adjutant in Cambodia. For example, nesting surveys for several waterbirds were conducted between 2004 and 2007 at the Prek Toal area in Tonle Sap Biosphere Reserve. These surveys included monitoring of nest sites. Human disturbances at nest sites due to illegal collection of chicks and eggs resulted in an increase of predation by crows (*Corvus* spp.) on spot-billed pelicans in the 2001-2002 breeding season, causing up to 100 percent loss of reproduction, and again in the 2002-2003 breeding season, resulting in up to 60 percent loss in reproduction due to a combination of collection and predation. In some locations, the spot-billed pelicans abandoned their nests for the remainder of the breeding season (Clements *et al.* 2007, p. 57). It is likely that other waterbirds, such as the greater adjutant at Prek Toal would be similarly affected due to illegal collection of eggs by humans, nest site disturbance, and subsequent increase in crow presence, thereby increasing the predation of their chicks and eggs.

In summary, although incidence of local residents collecting eggs and chicks for consumption has been reduced in some areas due to educational and enforcement programs, these impacts still occur. At the largest breeding sites for this species in India, reproductive success is low, less than one chick per nest per year. Because the total population of the greater adjutant is fewer than 1,000 birds, the loss of eggs and chicks in populations in India and Cambodia is a significant threat to the species. In addition, there may be secondary impacts due to predation by crows. Therefore, we find that predation is a threat to the continued existence of the greater adjutant throughout its range.

D. Inadequacy of existing regulatory mechanisms

The greater adjutant is classified as critically endangered by the IUCN. Although there is evidence of commercial trade across the Cambodia border into Laos and Thailand, this species is currently not listed under CITES.

India: The greater adjutant is listed under Schedule I of the Indian Wildlife Protection Act of 1972 (IWPA). Schedule I provides absolute protection, with the greatest penalties for offenses. This law prohibits hunting, possession, sale, and transport of listed species. The IWPA also provides for the designation and management of sanctuaries and national parks for the purposes of protecting, propagating, or developing wildlife or its environment. Protected areas in India allow for regulated levels of human use and disturbance and are managed to prevent widespread clearing and complete loss of suitable habitat. Although the greater adjutant uses habitat in three national parks in India, almost all nesting colonies of this species in India are found outside of protected areas (Singha *et al.* 2003, p. 148). Some of the species' foraging areas are also located outside of protected areas. As stated above in Factor A, the ongoing loss of habitat through habitat

conversion for development and agriculture is a primary threat to this species. The regulatory mechanisms currently in place in India do not provide protection of habitat for the greater adjutant outside of existing protected areas such as national parks, and therefore are not adequate.

Cambodia: Areas designated as natural areas by the Ministry of Environment, such as the Tonle Sap Biosphere Reserve, are to be managed for the protection of the natural resources contained within. Portions of the Biosphere Reserve have also been designated as areas of importance under the Convention of Wetlands of International Importance of 1971.

The Mekong River Commission (MRC) was formed between the governments of Cambodia, Lao PDR, Thailand, and Vietnam in 1995 as part of the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin. The signatories agreed to jointly manage their shared water resources and the economic development of the river (MRC 2007, p. 1–2). According to the Asian Development Bank, 13 dams have been built, are being built, or are proposed to be built along the Mekong River (ADB 2005, p. 2). The continued modification of greater adjutant habitat has been identified as a primary threat to this species (Factor A), and this regional regulatory mechanism is not effective at reducing that threat.

Several laws exist in Cambodia to protect the greater adjutant from two of the primary threats to the species: habitat destruction and hunting. However, they are ineffective at reducing those threats. In Cambodia, Declaration No. 359, issued by the Ministry of Agriculture, Forestry and Fisheries in 1994, prohibits the hunting of greater adjutant. However, reports of severe hunting pressure within the greater adjutant's habitat exist and illegal poaching of wildlife in Cambodia continues (Bird *et al.* 2006, p. 23; Poole 2002, pp. 34–35; UNEP-SEF 2005, pp. 23, 27).

The Creation and Designation of Protected Areas regulation (November 1993) established a national system of protected areas. In 1994, through Declaration No. 1033 on the Protection of Natural Areas, the following activities were banned in all protected areas:

(1) Construction of saw mills, charcoal ovens, brick kilns, tile kilns, limestone ovens, tobacco ovens;

(2) hunting or placement of traps for tusks, bones, feathers, horns, leather, or blood;

(3) deforestation;

(4) mining minerals or use of explosives;

(5) the use of domestic animals such as dogs;

(6) dumping of pollutants;

(7) the use of machines or heavy cars which may cause smoke pollution;

(8) noise pollution; and

(9) unpermitted research and experiments.

In addition, the Law on Environmental Protection and Natural Resource Management of 1996 sets forth general provisions for environmental protection. Under Article 8 of this law, Cambodia declares that its natural resources (including wildlife) shall be conserved, developed, and managed and used in a rational and sustainable manner.

Protected Areas have been established within the range of the greater adjutant, such as the Tonle Sap Lake Biosphere Reserve. The Tonle Sap Great Lake protected area was designated a multi-purpose protected area in 1993 (Matsui *et al.* 2006, p. 411). Under this decree, Multiple Use Management Areas are those areas which provide for the sustainable use of water resources, timber, wildlife, fish, pasture, and recreation; the conservation of nature is primarily oriented to support these economic activities. In 1997, the Tonle Sap region was nominated as a Biosphere Reserve under UNESCO's (United Nations Educational, Scientific and Cultural Organization) ''Man and the Biosphere Program.'' The Cambodian government developed a National Environmental Action Plan (NEAP) in 1997, supporting the UNESCO site goals. Among the priority areas of intervention are fisheries and floodplain agriculture at Tonle Sap Lake, biodiversity and protected areas, and environmental education. NEAP was followed by the adoption of the Strategy and Action Plan for the Protection of Tonle Sap (SAPPTS) in February 1998 (Matsui *et al.* 2006, p. 411), and the issuance of a Royal Decree officially creating Tonle Sap Lake a Biosphere Reserve (TSBR) on April 10, 2001. The royal decree was followed by a subdecree by the Prime Minister to establish a Secretariat, along with its roles and functions, for the TSBR with the understanding that its objectives could not be achieved without cooperation and coordination among relevant stakeholders (TSBR Secretariat 2007, p. 1).

Joint Declaration No. 1563, on the Suppression of Wildlife Destruction in the Kingdom of Cambodia, was issued by the Ministry of Agriculture, Forestry, and Fisheries in 1996. Although the Japan International Cooperation Agency (JICA 1999, p. 19) reported that this regulatory measure was ineffectively enforced, some strides have been made recently through the combined efforts of WCS, the Cambodian government, and local communities at Tonle Sap Lake. WCS Cambodia (2009, unpaginated) reports that the illegal wildlife trade in Cambodia is ''enormous'' and driven by demand for meat and traditional medicines in Thailand, Vietnam, and China. Substantial progress has been made in protecting seven species of waterbirds at Prek Toal Core Area in the TSBR, increasing populations of some species tenfold by working with the primary management agencies and working at the field level to improve community engagement, law enforcement, and long-term research and monitoring (WCS Cambodia 2009, unpaginated).

The Forestry Law of 2002 strictly prohibits hunting, harming, or harassing wildlife (Article 49) (Law on Forestry 2003). This law further prohibits the possession, trapping, transport, or trade in rare and endangered wildlife (Article 49). However, to our knowledge, Cambodia has not yet published a list of endangered or rare species. Thus, this law is not currently effective at protecting the greater adjutant from threats by hunting.

In 2006, the Cambodian government created Integrated Farming and Biodiversity Areas (IFBA), including over 161 km (100 mi) of grassland (over 30,000 ha (74,132 ac)) near Tonle Sap Lake to protect the Bengal florican, an endangered bird in that region (WWF 2006a, pp. 1–2). The above measures have focused attention on the conservation situation at TSBR and have begun to improve the conservation of the area and its wildlife there, but several management challenges remain. These challenges include overexploitation of flooded forests and fisheries; negative impacts from invasive species; lack of monitoring and enforcement; low level of public awareness of biodiversity values; and uncoordinated research, monitoring, and evaluation of species' populations (Matsui *et al.* 2006, pp. 409–418; TSBR Secretariat 2007, pp. 1–6).

Even though these wildlife laws exist, greater adjutant habitat within Cambodian protected areas faces several challenges. The legal framework governing wetlands management is institutionally complex. It rests upon legislation vested in government agencies responsible for land use planning (Land Law 2001), resource use (Fishery Law 1987), and environmental conservation (Environmental Law 1996, Royal Decree on the Designation and

Creation of National Protected Areas System 1993); however, there is no interministerial coordinating mechanism nationally for wetland planning and management (Bonheur *et al.* 2005, p. 9). As a result of this institutional complexity and lack of defined jurisdiction, natural resource use goes largely unregulated (Bonheur *et al.* 2005, p. 9). Thus, the protected areas system in Cambodia is ineffective in removing or reducing the threats of habitat modification and hunting faced by the greater adjutant.

Summary of Factor D

Existing regulatory mechanisms in both India and Cambodia are ineffective at reducing or removing threats to the species such as habitat modification and collection of eggs and chicks for consumption. Although progress has been made recently in the protection of nests and birds at specific locations, this has largely been driven by measures from the private sector. We believe that the inadequacy of regulatory mechanisms, especially with regard to lack of law enforcement and habitat protection, is a significant risk factor for the greater adjutant. Therefore we find that existing regulatory mechanisms are inadequate to ameliorate the current threats to the greater adjutant throughout its range.

E. Other natural or man-made factors affecting the species' continued existence

India: Due to a lack of natural foraging areas and availability of native wildlife carcasses to feed upon, the greater adjutant is known to commonly forage in refuge dumps and slaughterhouses during certain times of the year. Researchers believe that along with the refuse at these sites, these birds are inadvertently ingesting household contaminants and plastics that can adversely affect their health and reproductive capability (Singha *et al.* 2003, p. 148; BLI 2009a, unpaginated). In addition, pesticide has been used in winter to kill fish at a national park in India, and may be a widespread practice throughout the Brahmaputra lowlands (BLI 2001, p. 287). As the remaining natural foraging habitat for this species continues to shrink, the level of foraging at refuge dumps and slaughter houses is expected to increase, thereby increasing the incidence of greater adjutants ingesting contaminants at these sites. Also, the use of pesticides in and near water sources in the Brahmaputra lowlands may result in further contamination to the species.

Cambodia: Increasing use of agro-chemicals, especially pesticides, is a major concern in the TSBR and throughout Cambodia. A survey conducted in Cambodian agriculture practices in 2000 showed that 67 percent of farms used pesticides. Of these farms, 44 percent began using pesticides in the 1980s, and 23 percent began using them in the 1990s (Environmental Justice Foundation (EJF) 2002, p. 13). All of the pesticides used in Cambodia are produced outside of the country, and the labels, which include information on the appropriate use of these chemicals, are often not written in a language understandable to local villagers (EJF 2002, p. 18). A Food and Agriculture Organization of the United Nations (FAO) study found that only 1 percent of vegetable farmers received technical training in pesticide use (EJF 2002, p. 17). This problem often leads to overuse of these highly toxic compounds.

In Cambodia, organochlorine insecticides, such as dichloro-diphenyl-trichloroethane (DDT), and organophosphate insecticides such as methyl-parathion are commonly used. Organochlorine insecticides are known to accumulate in aquatic systems and concentrate in the organs of species of waterbirds such as the greater adjutant. The effects of persistent organic pesticides are variable depending on concentration and species, but can include direct mortality, feminization of embryos, reduced hormones for egg-laying, and egg-shell thinning (EJF 2002, p. 24).

In the 1970s and 1980s, agricultural use of DDT was banned in most developed countries; however, it is still used for agriculture in Cambodia. In recent years, mong bean farmers in Siem Reap province are estimated to have applied 10 tons of a pesticide mix of DDT, Thiodan (endosulfan), and methyl-parathion on fields that are submerged in the wet season and thus capable of polluting the Tonle Sap basin (EJF 2002, p. 25). In addition, methyl-parathion and endosulfan are used in illegal fishing (EJF 2002, p. 14). Methyl-parathion is considered highly toxic to birds and may take 2 weeks to degrade in lakes and rivers. The decline in the number of some bird species from around the Tonle Sap Lake may be partly due to pesticide poisoning (EJF 2002, p. 25). Further, because higher levels of persistent organochlorines have been recorded in freshwater fish and mussels than marine fish and mussels, the source of these compounds is likely inland watersheds (EJF 2002, p. 24). Although we could not locate any specific contaminant reports on the amount of these toxic chemicals found in greater adjutants based on the above data, it is likely that the persistent use of these compounds is contributing to the decline of this species.

Summary of Factor E

The use of pesticides occurs in both India and Cambodia for a variety of reasons, including agriculture, fishing, and insect control. As human interactions with the adjutant continue to increase, the chances of poisoning of the species, both directly and indirectly, also continue to rise. Therefore we find that other natural or manmade factors affecting the continued existence of the species in the form of pesticide use and ingesting other contaminants is a threat to the greater adjutant throughout its range.

Status Determination for the Greater Adjutant

We have carefully assessed the best available scientific and commercial information regarding the past, present, and potential future threats faced by the greater adjutant. The species is currently at risk throughout all of its range due to ongoing threats of habitat destruction and modification (Factor A); overutilization for commercial, recreational, scientific, or educational purposes in the form of hunting, egg and chick collection, and trapping (Factor B); predation (Factor C); inadequacy of existing regulatory mechanisms (Factor D); and other natural or manmade factors affecting its continued existence in the form of overuse of toxic compounds (Factor E).

Section 3 of the Act defines an ''endangered species'' as ''any species which is in danger of extinction throughout all or a significant portion of its range,'' and a ''threatened species'' as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Based on the magnitude of the ongoing threats to the greater adjutant throughout its entire range, as described above, we determine that this species is in danger of extinction throughout all of its range. Therefore, on the basis of the best available scientific and commercial information, we propose to list the greater adjutant as an endangered species throughout all of its range. Because we find that the greater adjutant is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

IV. Jerdon's courser (*Rhinoptilus bitorquatus*)

Species Description

The Jerdon's courser, also known as the double-banded courser (*Rhinoptilus bitorquatus*), is a small, nocturnal bird, which is specialized for running and belongs to the family Glareolidae (Bhushan 1986, pp. 1, 6; Jeganathan *et al.* 2004a, p. 225; Jeganathan *et al.* 2004b, p. 7). It was first described by T. C. Jerdon in 1848 (Bhushan 1986, p. 1; Jeganathan *et al.* 2004b, p. 1). This species averages 27 cm (11 in) in length, its plumage consists of two brown bands around its breast, a blackish colored crown, a broad buff-colored supercilium (eyebrow stripe), an orange patch that runs from its throat down to its chest, and it has a short yellow bill with a black tip (BLI 2009b, unpaginated).

The Jerdon's courser is a rare species of bird that is endemic to the Eastern Ghats of the states of Andhra Pradesh and extreme southern Madhya Pradesh in India (BLI 2009b, unpaginated). The size of the population is not known. Historically, this species was reported in the Khamman, Nellore, and Anantapur districts of Andhra Pradesh and the Gadchiroli District of Maharashtra (Jeganathan *et al.* 2005, p. 5). Until 1900, its presence was periodically recorded, including some records in the Pennar and Godavari river valleys and near Anantapur (Bhushan 1986, p. 2; Jeganathan *et al.* 2004a, p. 225; Jeganathan *et al.* 2004b, p. 7; Jeganathan *et al.* 2006, p. 227). Efforts by various ornithologists in the early 1930s and mid to late 1970s to record the presence of this species failed, leading to the belief that the species was extinct (Bhushan 1986, p. 2; Jeganathan *et al.* 2004b, p. 7). In 1986, the Jerdon's courser was rediscovered near Reddipalli village, Cuddapah District, Andhra Pradesh (Bhushan 1986, pp. 8–9; Jeganathan *et al.* 2004a, p. 225; Jeganathan *et al.* 2004b, p. 7; Jeganathan *et al.* 2005, p. 3; Jeganathan *et al.* 2006, p. 227; Senapathi *et al.* 2007, p. 1).

The area where the species was rediscovered was designated as the Sri Lankamaleswara Wildlife Sanctuary (SLWS) (Jeganathan *et al.* 2004b, p. 7; Jeganathan *et al.* 2005, p. 3). After its rediscovery, it was only observed regularly at a few sites in and around the SLWS (Jeganathan *et al.* 2004b, p. 7, 18; Jeganathan *et al.* 2005, p. 5; Jeganathan *et al.* 2006, p. 227; Senapathi *et al.* 2007, p. 1), including reports of its presence in Sri Penusula Narasimha Wildlife Sanctuary (SPNWS) in the Cuddapah and Nellore districts, Andhra Pradesh (Jeganathan *et al.* 2005, p. 3). It has since been found at three additional localities (Jeganathan *et al.* 2004a, p. 228; Jeganathan *et al.* 2004b, p. 20; BLI 2009b, unpaginated).

Due to the nocturnal nature of the species and the wooded nature of its habitat, individuals are rarely seen; therefore, very little information is available on the distribution, ecology, population size, and habitat requirements of the Jerdon's courser (Jeganathan *et al.* 2004a, p. 225; Jeganathan *et al.* 2004b, p. 7; Jeganathan *et al.* 2005, p. 3; Jeganathan *et al.* 2006, p. 227; Senapathi *et al.* 2007, p. 1). New survey techniques have allowed researchers to detect the presence and absence of Jerdon's courser using track strips and a tape playback of the species call. These methods can be useful in mapping the geographic range of the Jerdon's courser and in estimating the population size, and have contributed to a better understanding of habitat preferences. Surveys have not been conducted in all areas with suitable habitat characteristics; additional surveys are needed to confirm the current range and population size of this species. Although the size of the population is not known, it is believed to be a small, declining population (Jeganathan 2004b, p. 7; BLI 2009b, unpaginated; IUCN 2009c, unpaginated).

The Jerdon's courser inhabits open patches within scrub-forest interspersed with patches of bare ground, in gently undulating, rocky foothills (Jeganathan *et al.* 2005, p. 5; Senapathi *et al.* 2007, p. 1). Studies show that this species is most likely to occur where the density of large bushes (greater than 2 m (6 ft) tall) ranges from 300 to 700 per ha (121-283 large bushes per acre) and the density of smaller bushes (less than 2 m (6 ft) tall) is less than 1,000 per ha (404 per acre) (Jeganathan *et al.* 2004a, p. 228; Jeganathan *et al.* 2004b, p. 22; Jeganathan *et al.* 2005, p. 5; Senapathi *et al.* 2007, p. 1). The dominant woody vegetation includes species of shrub, particularly *Zizyphus rugosa, Carissa carandas*, and *Acacia horrida* (Jeganathan *et al.* 2004a, p. 228; Jeganathan *et al.* 2004b, p. 22).

The amount of suitable habitat that existed for this species in 2000 was estimated to be approximately 3,847 km2 (1,485 mi2) of scrub habitat in the Cuddapah and Nellore districts of the State of Andhra Pradesh (Senapathi *et al.* 2007, p. 6). Jeganathan (2008, pers. comm.) further stated that the amount of suitable habitat available in and around the SLWS is approximately 132 km2 (51 mi2). A comprehensive habitat assessment of all the shrub habitat areas within the historic range of this species has not yet been completed; therefore, suitable habitat may occur elsewhere for this species.

Little information is known about feeding habits or feeding areas of this species. The only information known comes from the analysis of two Jerdon's courser fecal samples, which consisted mainly of termites and ants. Jeganathan (2004a, p. 234) suggested that despite being nocturnal and affected by the shadowing effects of the canopy, coursers may be able to see invertebrate prey on the ground by selecting relatively well-illuminated open areas.

There is no information on the life history of the Jerdon's courser; no nests or young birds have ever been found, although the footprints of a young bird along with an adult Jerdon's courser suggests successful breeding is taking place (Jeganathan *et al.* 2004b, pp. 17, 29). The calling period is brief, starting approximately 45 to 50 minutes after sunset and continuing for a few minutes to approximately 20 minutes.

Conservation Status

Due to the single, small, and declining population of the Jerdon's courser, it is classified as ''critically endangered'' by the IUCN (Jeganathan *et al.* 2004b, p. 7; Senapathi *et al.* 2007, p. 1; Jeganathan *et al.* 2008, p. 73; IUCN 2009c, unpaginated), a category assigned to species facing an extremely high risk of extinction in the wild. It is also listed under Schedule I of the Indian Wildlife Protection Act of 1972. The species has not been formally considered for listing in the Appendices of CITES (*http://www.cites.org*).

Summary of Factors Affecting the Jerdon's Courser

A. Present or threatened destruction, modification, or curtailment of habitat or range

The primary threat to the persistence of the Jerdon's courser is habitat destruction and alteration due to conversion of suitable habitat to agriculture lands, grazing, and construction within and around the SLWS and SPNWS, and increasing settlements (Jeganathan 2005 *et al.* 2005, p. 6; Norris 2008, pers. comm.; Jeganathan 2009, pers. comm..). Agriculture is the main occupation of the people living in the area. The State of Andhra Pradesh has experienced growth of intensive agricultural practices in recent years (Senapathi *et al.* 2007, pg. 2), with paddy (*Oryza sativa*), sunflower (*Helianthus annuus*), cotton (*Gossypium* sp.), groundnut (*Arachis hypogaea*), finger millet (*Eleusince coracana*), turmeric

(*Curcuma longa*), and onion (*Allium cepa*) being the major crops of the area (Jeganathan *et al.* 2008, p. 77). From 1991 to 2000, scrub habitat in the Cuddapah District and parts of the Nellore District in Andhra Pradesh decreased by 11–15 percent, while the area occupied by agricultural land more than doubled (109 percent increase) during the same time period. Remaining scrub patches were also found to be smaller (38.4 percent decrease) and further from human settlements (Senapathi *et al.* 2007, pp. 1, 4; Jeganathan *et al.* 2008, p. 76).

The main causes for the loss of scrub habitat were human settlements and subsequent conversions of scrub habitat to agriculture and cleared areas (Senapathi *et al.* 2007, p. 6). From 2001 to 2004, an estimated 480 ha (1,186 ac) of scrub habitat were cleared within and around the SLWS, 275 ha (680 ac) of which were cleared to provide land for agriculture to the people of India who were displaced by floods and for farming of lemons and forestry plantations. These cleared areas fall within 1 km (0.6 mi) of previously known and newly discovered Jerdon's courser areas (Jeganathan *et al.* 2008, p. 76). From 2000 to 2005, Jeganathan *et al.* (2008, p. 77) noted that approximately 215 ha (531 ac) of scrub habitat outside of the SLWS were cleared and most likely will become lemon farms. The irrigation required to sustain agricultural activities will likely further fragment any remaining suitable habitat (Senapathi *et al.* 2007, p. 7).

The Jerdon's courser inhabits open patches within scrub-forest and prefers areas with moderate densities of trees and brush (Jeganathan *et al.* 2004a, p. 234). Researchers believe this open habitat is maintained by grazing animals and some woodcutting (Norris 2008, pers. comm.). Known Jerdon's courser sites are already being used for grazing livestock and woodcutting, but at moderate levels that maintain the appropriate vegetation structure (Jeganathan 2005, p. 15). Mechanical clearing of bushes to create pasture, orchards, and tilled land; high levels of woodcutting; and high level of use by domestic livestock are likely to cause deterioration in scrub habitat by creating a scrub forest that is too open for the Jerdon's courser. However, low levels of grazing by livestock or absence of woodcutting may also lead to habitat that is more closed and, therefore, unsuitable (Jeganathan *et al.* 2004a, p. 234; Jeganathan *et al.* 2004b, p. 23; Norris 2008, pers. comm.).

Land in SLWS and adjacent areas is used by the people from villages in Sagileru valley for grazing herds of domestic buffalo (*Bubalus bubalis*), sheep (*Ovis aries*), and goats (*Capra hircus*), and for woodcutting (Jeganathan *et al.* 2004b, p. 9). Jeganathan (2008, pers. comm.) states that most of the potentially suitable habitat for Jerdon's courser is located on the fringe of the forest and can be easily accessed by locals for grazing and woodcutting. Jeganathan *et al.* (2008, p. 77) notes three types of grazing within and around the SLWS and SPNWS. The first includes shepherds who bring goats, sheep, and buffalo into the scrub habitat in and around the sanctuaries every morning, grazing 2-3 km (1-2 mi) into the forest before returning to the villages in the evening. The second includes nomads with 200-300 cattle. Although they are invited by farmers to help fertilize the lemon farms, they stay 3 to 4 months and graze in the forested areas in and around the sanctuaries. The third includes sheep that graze inside the sanctuaries throughout the year; however, this type of grazing did not occur in scrub habitat. Furthermore, a common practice is to cut and bend the branches of scrub and tree species to facilitate better access for grazing (Jeganathan *et al.* 2008, p. 78). In addition, the people of the local villages also use the sanctuaries for timber and nontimber forest products; including fuel wood, illegal wood collecting, grass, and bamboo. From 2001 to 2003, Jeganathan *et al.* (2008, pp. 77–78) regularly observed wood loads being removed by either head loads, bullock cart, or tractor.

Development activities within the SLWS, including the construction of check dams, and percolation ponds, and digging of trenches, have been observed in known and newly recorded areas of the Jerdon's courser (Jeganathan *et al.* 2004a, pp. 26, 28; Jeganathan *et al.* 2008, p. 76). Approximately 0.5 to 1 ha (1-2 ac) of scrub forest was cleared for each of five percolation ponds dug near the main Jerdon's courser area and exotic plant species planted on the embankment. In addition, scrub habitat was thinned (removal of all scrub species except saplings), and pits for collecting rainwater were dug (Jeganathan *et al.* 2008, p. 76). Furthermore, various sizes of stones were collected from the scrub jungle within and around the SLWS for road construction every year. Collection included digging of stones with crowbars, collection of stones in heavy vehicles, and the excavation of 15 large pits (Jeganathan *et al.* 2008, p. 76).

Construction of dams and reservoirs and river floods in the area has resulted in the relocation of villages near the SLWS and SPNWS. Fifty-seven villages were relocated closer to SLWS after the construction of the Somasila dam. Fifteen were displaced due to the construction of the Sri Potuluri Veera Brahmendraswamy (SPVB) Reservoir. Currently, there are approximately 146 villages between the SLWS and SPNWS (Jeganathan *et al.* 2008, pp. 76–77). There are more villages in the area of Somasila and SPVB Reservoir that could be relocated near the sanctuaries in the future, and there are plans to increase the height of the Somasila dam, which will cause the displacement of more villages near the southeastern part of SLWS (Jeganathan *et al.* 2008, p. 77). With the relocation and expansion of human settlements, there is concern over additional land conversion for agriculture, increased pressure for grazing and woodcutting, and further development.

At the time of the Jerdon's courser rediscovery in 1986, the only known site where the species was found was under threat from a project to construct the Telugu-Ganga canal through its habitat. The Andhra Pradesh Forestry Department (APFD) and the State Government of Andhra Pradesh responded by designating the site as the SLWS to protect the species. The proposed route of the canal was adjusted to avoid the sanctuary (Jeganathan *et al.* 2005, p. 6; Jeganathan *et al.* 2008, p. 78). However, in 2005, construction of the Telugu-Ganga canal began, illegally, within the SLWS. Construction was stopped immediately once the APFD was notified (Jeganathan *et al.* 2005, p. 6; Kohli 2006, unpaginated). Illegal excavation was reported even after construction was stopped and the contracting company fined (Kohli 2006, unpaginated). A report by the Bombay National History Society (BNHS) found that 80 to 100 m (263 to 328 ft) were cleared for canals that were 16 to 20 m (53 to 66 ft) wide. It also found that approximately 22 ha (54 ac) of potentially suitable habitat were cleared and one of the three newly recorded sites for the Jerdon's courser was destroyed by the illegal construction within the SLWS (Jeganathan *et al.* 2005, p. 12; BNHS 2007, p. 1; Jeganathan *et al.* 2008, p. 73). The report also assessed the potential impacts of the proposed realignment and determined that the construction of the canal would still impact 650 ha (1,606 ac) of suitable habitat around the SLWS and would pass within 500 m (1640 ft) of recent records of the Jerdon's courser and pass very close to the only place where the species has been regularly sighted since 1986 (Jeganathan *et al.* 2005, p. 12; Jeganathan *et al.* 2008,

p. 80). Plans for the Telugu-Ganga canal included another canal project along the western boundary of the SPNWS. Unauthorized work near the Sanctuary boundary was stopped by the Cuddapah Forest Division in October 2005. In some locations along the canal route, forest had been cleared and roads developed inside of the Sanctuary boundary (Jeganathan *et al.* 2005, p. 9). Approximately 163 ha (403 ac) were cleared for the construction of the canal in and around the SPNWS (Jeganathan *et al.* 2005; Jeganathan *et al.* 2008, p. 80). It is unknown how much of this area is occupied by the Jerdon's courser.

Following the illegal construction of the canal within the SLWS and SPNWS, the issue was raised to the Central Empowered Committee (CEC), a monitoring body on forest matters set up by the Supreme Court (Kholi 2006, unpaginated). The CEC ruled in favor of a realignment route completely avoiding courser habitat. Also, the government of Andhra Pradesh has transferred approximately 1,000 ha (2,4711 ac) of land between the canal and the SLWS to the APFD (BLI 2009b, unpaginated; Jeganathan 2009, pers. comm.).

During the BNHS study on the construction of the Telugu-Ganga canal, additional threats were identified in association with the construction. Roads were built along the canal route and from the main roads to the canal, which subsequently provided easy access to the forest for unauthorized woodcutting. Furthermore, the SLWS is known to have red sanders (*Pterocarpus santalinus*), a highly valued species of trees sought after by illegal woodcutters. APDF records from 1984 to 2003 show that over 116,000 kilograms (255,736 pounds) of matured red sanders were seized from smugglers (Jeganathan *et al.* 2005, p. 13). Pressure from smugglers on mature red sanders, coupled with the increased access points into the SLWS due to canal construction activities, has caused extensive unauthorized woodcutting within the SLWS (Jeganathan *et al.* 2005, p. 13).

Summary of Factor A

In summary, the scrub habitat known to be occupied by the species and potentially suitable habitat on adjacent lands in and around the SLWS and SPNWS in the Cuddapah District of India have been destroyed and diminished due to conversion of land for agriculture purposes, grazing livestock, construction, and woodcutting. These actions are a result of human expansion and the subsequent increase in human activity in and around the SLWS and SPNWS. Additional relocation of villages around SLWS and SPNW is anticipated. Because the two most common livelihoods are agriculture and cattle rearing and because the establishment of additional villages will require more land to accommodate agriculture and livestock needs, the scrub habitat that is vital to the Jerdon's courser remains at risk of further curtailment. The population of the Jerdon's courser is extremely small and believed to be declining, so any further loss or degradation of remaining suitable habitat represents a significant threat to the species. Therefore, we find that present or threatened destruction, modification, or curtailment of the habitat or range are threats to the continued existence of the Jerdon's courser throughout its range.

B. Overutilization for commercial, recreational, scientific, or educational purposes

We are not aware of any information currently available that indicates the use of this species for any commercial, recreational, scientific, or educational purpose. As a result, we are not considering overutilization to be a contributing threat to the continued existence of the Jerdon's courser throughout its range.

C. Disease or predation

We are not aware of any information currently available that indicates disease or predation pose a threat for this species. As a result, we are not considering disease or predation to be contributing threats to the continued existence of the Jerdon's courser throughout its range.

D. Inadequacy of existing regulatory mechanisms

The Jerdon's courser is listed under Schedule I of the Indian Wildlife Protection Act of 1972. Schedule I provides absolute protection with the greatest penalties for offenses. This law prohibits hunting, possession, sale, and transport of listed species and allows the State Government to designate an area as a sanctuary or national park for the purpose of protecting, propagating, or developing wildlife or its environment. The SLWS and SPNWS were established for the purpose of protecting the habitat of the Jerdon's courser. The sanctuaries allow for regulated levels of human use and disturbance while preventing complete loss of scrub habitat (Senapathi *et al.* 2007, p. 8). In addition, the SLWS and SNPWS are designated as Important Bird Areas (IBA) in India (Jeganathan *et al.* 2005, p. 5). IBAs are sites of international importance for the conservation of birds, as well as other animals and plants, and are meant to be used to focus conservation efforts and reinforce the existing protected areas network. However, designation as an IBA provides no legal protection of these areas (BNHS 2009, unpaginated).

The Jerdon's courser is also listed as a priority species under the National Wildlife Action Plan (2002–2016) of India. This National Plan includes guidance to expand and strengthen the existing network of protected areas, develop management plans for protected areas in the country, restore and manage degraded habitats outside of protected areas, and control activities such as poaching and illegal trade, among others. We are unaware of any management plans for the protected areas in Andhra Pradesh where the Jerdon's courser occurs. Additionally, the SLWS and SPNWS are protected by the Forest Conservation Act of 1980. Section 2 of this law restricts the use of forest land for nonforest purposes, such as the fragmentation or clearing of any forest.

In summary, although protections for the species exist, the primary threat to this species is ongoing loss of habitat. Senapathi *et al.* (2007, pp. 7–8) found an extensive and rapid decline in scrub habitat, with most removal of scrub occurring up to sanctuary boundaries and little loss occurring within the wildlife sanctuaries. Due to the threat of an increasing number of settlements near the sanctuaries, and the subsequent further loss of scrub habitat to agriculture and livestock, protection of scrub habitat used by the Jerdon's courser will be important for the species' continued existence. Jeganathan *et al.* (2004, p. 28) classified many areas in the Cuddapah District as suitable habitat for the Jerdon's courser; however, with the exception of one sanctuary, the rest of the suitable habitats are not protected. Therefore, current regulatory mechanisms do not provide enough protection of suitable habitat for this species outside of existing protected areas. We are also unaware of any grazing standards within SLWS and SPNWS to ensure the maintenance of open scrub habitat and that prevent overgrazing by livestock. When combined with Factor A (the present or threatened destruction, modification, or curtailment of the habitat or range), we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the Jerdon's courser throughout its range.

E. Other natural or manmade factors affecting the species' continued existence

There are particular species characteristics which render a species vulnerable to extinction (Primack 2002, p. 193). For example, species with a narrow geographic range, small population size, declining population, and specialized habitat requirements are more susceptible to extinction than others without these characteristics (Primack 2002, pp. 193–200). Although exact population estimates and distribution of the Jerdon's courser are not available, the species has been reported as a small, declining population (Jeganathan 2004b, p. 7; BLI 2009b, unpaginated; IUCN 2009c, unpaginated) and only reported from a small patch of scrub habitat in and around the SLWS (Jeganathan *et al.* 2008, p. 73). Furthermore, certain species characteristics, such as those found in this species, predispose it to particular sources of extinction (Owens and Bennett 2000, p. 12147). Owens and Bennett (2000, p. 12147) found that extinction risks for birds with specialized habitat and small body size increased with habitat loss. The Jerdon's courser is a small bird dependent on scrub habitat of moderate density for survival. Habitat loss, as described under Factor A, is the primary threat to this species. Further loss of Jerdon's courser habitat may fragment remaining suitable habitat adjacent to the SLWS and increase the extinction risk for the species. In addition, small, isolated populations may experience decreased demographic viability and increased susceptibility of extinction from stochastic environmental factors (e.g., weather events, disease) and an increased threat of extinction from genetic isolation and subsequent inbreeding depression and genetic drift.

In conclusion, the single known population of Jerdon's courser may be vulnerable to threats associated with low population sizes. Because the known population is small in size, and restricted in range, and depends on a special habitat for survival, any factor (i.e., habitat change, a loss of demographic viability, etc.) that results in a decline in habitat or individuals may be problematic for the long-term recovery of this species. Therefore, we find that other natural or manmade factors pose a threat to the Jerdon's courser throughout its range.

Status Determination for the Jerdon's Courser

We have carefully assessed the best available scientific and commercial information regarding the past, present, and potential future threats faced by the Jerdon's courser. The species is currently at risk throughout all of its range due to ongoing threats of habitat destruction and modification (Factor A), and demographic, genetic, and environmental stochastic events and other complications associated with the species' low population and restricted range (Factor E). Furthermore, we have determined that the existing regulatory mechanisms (Factor D) are not adequate to ameliorate the current threats to the species.

Section 3 of the Act defines an ''endangered species'' as ''any species which is in danger of extinction throughout all or a significant portion of its range'' and a ''threatened species'' as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Based on the magnitude of the ongoing threats to the Jerdon's courser throughout its entire range, as described above, we determine that this species is in danger of extinction throughout all of its range. Therefore, on the basis of the best available scientific and commercial information, we propose to list the Jerdon's courser as an endangered species throughout all of its range. Because we find that the Jerdon's courser is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

V. Marquesan Imperial Pigeon (*Ducula galeata*)

Species Description

The Marquesan Imperial Pigeon (*Ducula galeata*), known locally as Upe, is a very large arboreal pigeon belonging to the family Columbidae. It was first described by Charles Lucien Bonaparte in 1855 (Villard *et al.* 2003, p. 198; BLI 2009, unpaginated). The species measures 55 cm (22 in) in length, is dark slate-grey with bronze-green reflections on the upperparts, rufous-chestnut undertail-coverts, white eyes, and a white and grey-black cere protruding almost to the tip of the bill (Blanvillain *et al.* 2007, unpaginated; BLI 2009c, unpaginated).

The pigeon is endemic to the French Polynesian Marquesas Archipelago in the Pacific Ocean. The Marquesas Archipelago is a territory of France located approximately 1,600 km (994 mi) northeast of Tahiti. Based on subfossil records, the pigeon was historically present on four islands in the Marquesas Archipelago, Hiva Oa, Ua Huka, Tahuata, and Nuku Hiva, as well as the Cook, the Pitcairn, and Society Island chains (Steadman 1997, p. 740; Thorsen *et al.* 2002, p. 6; Blanvillain and Thorsen 2003, p. 381; Blanvillain *et al.* 2007, unpaginated). At the time of its discovery, the pigeon was already restricted to Nuku Hiva, a 337 km2 (130 sq mi2) island. Researchers believe that hunting, degradation of local forest, invasive weeds and trees, and predation were the probable causes of its decline (Thorsen *et al.* 2002, pp. 8–9; Blanvillian *et al.* 2007, unpaginated). On Nuku Hiva, the pigeon is restricted to 7 sites which are difficult to access by hunters and livestock and appear to be resistant to colonization by rats (Villard *et al.* 2003, p. 191; BLI 2009c, unpaginated). In an effort to protect the remaining population from extinction due to catastrophic events, the pigeon was reintroduced to Ua Huka, an island 50 km (31 mi) east of Nuku Hiva in 2000 (Thorsen *et al.* 2002, p. 14; Blanvillain and Thorsen 2003, p. 385; BLI 2009c, unpaginated). Ua Huka was chosen as a reintroduction site primarily because the pigeon was historically found on the island, and due to availability of suitable habitat located in a protected area, a lack of black rats (*Rattus rattus*), and a smaller human population compared to other Marquesan islands (Thorsen *et al.* 2002, p. 13).

Population estimates on Nuku Hiva have ranged from 75 to 300 birds since 1975; however, the most recent survey, conducted in 2000, estimated the population to be approximately 80-150 birds (Villard *et al.* 2003, p. 194). In 2000, five birds were translocated to Ua Huka and an additional five translocated in 2003. As of 2006, approximately 32 birds were present. The population objective for the reintroduction project is to establish a population of 50 individuals on Ua Huka by 2010 (BLI 2009c, unpaginated).

The species is almost exclusively arboreal and prefers the intermediate and upper canopy forest layers consisting of *Guettarda speciosa, Cerbera manghas, Ficus* spp., *Terminalia cattapa*, and *Sapindus saponaria*; however, individuals have also been observed perched on shrubs (Blanvillain and Thorsen 2003, p. 382; Villard *et al.* 2003, p. 191). These pigeons heavily rely on this canopy forest for roosting and feeding. Based on observations of pigeons in 2000, this species appears to return to the same feeding and night roosting areas.

Species of *Ducula* are primarily frugivorous (fruit eaters). The diet of Marquesan imperial pigeons consists mainly of fruits, which are usually swallowed whole, from *Ficus* spp. and *Psidium guajava* (guava; an introduced

species); however, it has been reported that caterpillars from *S. saponaria* and the foliage and flowers of other tree and shrub species also make up a portion of the pigeon's diet. The species' consumption of an introduced shrub species, the guava, is likely due to the degradation of native habitat (Blanvillain and Thorsen 2003, p. 384) and the subsequent loss of native fruits, foliage, and flowers. Gleaning and browsing are the two main feeding methods (Blanvillain and Thorsen 2003, pp. 382–383).

Courtship behavior includes the male and female sitting next to one another and allopreening the breast and neck areas and mirroring each other's actions (Blanvillain and Thorsen 2003, p. 383). The breeding season is long, occurring from mid-May to December (Thorsen *et al.* 2002, p. 6). Nests are constructed of intermingled branches, approximately 60 cm (24 in) in diameter, 10 to 18 m (33 to 59 ft) above ground at the top of the canopy (Blanvillain and Thorsen 2003, p. 384); clutch size is only one egg (Villard *et al.* 2003, pp. 192, 195). Abundance of fruit is critical in determining the breeding success of frugivorous birds (Thorsen *et al.* 2002, p. 10). However, studies suggest that the pigeon is successfully breeding in different areas where it exists (Thorsen *et al.* 2002, p. 17; Villard *et al.* 2003, p. 195).

Conservation Status

The Marquesan imperial pigeon was originally classified as ''critically endangered'' by the IUCN. In 2008, however, this species was downlisted to ''endangered'' status due to the establishment of a second population through the translocation of birds to Ua Huka (IUCN 2009b, unpaginated). The Marquesan imperial pigeon is also protected under Law Number 95-257 in French Polynesia. The species has not been formally considered for listing in the Appendices of CITES (*http://www.cites.org*).

Summary of Factors Affecting the Marquesan Imperial Pigeon

A. Present or threatened destruction, modification, or curtailment of habitat or range

Destruction of habitat associated with human colonization is one of the main threats to the remaining populations of the Marquesan imperial pigeon. Since Polynesian occupation and discovery of the area by Europeans, substantial changes to the Nuku Hiva landscape have occurred (Thorsen *et al.* 2002, p. 8; Villard *et al.* 2003, p. 190) and are still occurring. These changes include clearing of land for agriculture and development, introduction of domestic livestock, introduction of exotic plants, and introduction of rats (*Rattus* spp.) and cats (*Felis catus*) (Thorsen *et al.* 2002, pp. 8–9).

Most of Nuku Hiva was originally covered by forest, with the exception of the drier northwestern plain where shrub savanna is predominant. Since colonization of Nuku Hiva, the native landscape has been cleared for agriculture and settlement. Fires have been used to clear land for agriculture and plantations (Manu 2009, unpaginated). In more recent times (between 1974 and 1989), all natural vegetation on a large area of the main plateau (de Toovii) on the island was cut down or burned to be converted into grassland for pasture, and 1,100 ha (2,718 ac) were planted with Caribbean pine (*Pinus caribaea*), an exotic tree species. By 2000, modern facilities, such as roads, an airport, and other buildings had been built (Villard *et al.* 2003, pp. 190, 195).

Suitable habitat for this species has also been modified and degraded by introduced domestic livestock and exotic plant species. Domestic livestock have become feral, and while cattle and horses are mostly controlled, feral goats (*Capra hircus*) and pigs (*Sus scrofa)* continue to be a major concern (Villard *et al.* 2003, p. 193). Goats are particularly destructive; they have caused devastation to natural habitats on several other islands (Sykes 1969, pp. 13–16; Parkes 1984, pp. 95–101; Thorsen *et al.* 2002, p. 9).

The Nuku Hiva goat population has been increasing since the 1970s, and both goats and pigs are found everywhere on the island (Villard *et al.* 2003, p. 195). Goats have the potential to damage and alter the vegetative composition of an area by overgrazing indigenous and endemic species to the point at which seedlings are consumed before they are able to mature to a height which is out of the reach of goats and, therefore, survive (Sykes 1969, p. 14; Parkes 1984, pp. 95, 96, 101; Villard *et al.* 2002, p. 189). Subsequently, exotic plant species are able to flourish and outcompete native species, which results in little or no regeneration of native trees (Sykes 1969, p. 15; Thorsen *et al.* 2002, p. 9). Large patches of natural forest have been destroyed by goats and pigs in areas where Marquesan imperial pigeons are found and there is poor natural forest regeneration (Villard *et al.* 2003, p. 193). Blanvillain and Thorsen (2003, pp. 382–383) found most of the ground covered by several introduced plant species, including guava, African basil (*Ocimum gratissimum)*, and soft elephants foot (*Elephantopus mollis*). Overgrazing, combined with the introduction of exotic species, prohibits the tall trees that comprise the canopy layer of the forest from regenerating and from providing feeding and roosting sites needed by pigeons.

In addition, introduced rats on the island of Nuka Hiva inhibit regeneration of native trees because they consume the flowers, fruits, seeds, seedlings, leaves, buds, roots, and rhizomes (Thorsen *et al.* 2002, p. 9; Meyer and Butaud 2009, p. 1570), thus further contributing to the alteration of the vegetation composition. Thorsen *et al.* (2002, p. 9) noted that seed caches containing many seeds that are part of the Marquesan imperial pigeon's food supply were common.

Marquesan imperial pigeons are frugivorous birds and act as seed dispersal agents for those trees from which they feed and roost. Habitat loss, predation, or any other factor resulting in the decline of pigeons indirectly contributes to a decrease in seed dispersal, possibly contributing to low recruitment of the vital native tree species. Therefore, hunting may also contribute to the destruction and modification of habitat (See also Factor B).

The habitat in the Vaiviki Valley on the island of Ua Huka, where the pigeon was reintroduced, was classified as a protected area in 1997 (Thorsen *et al.* 2002, p. 13). There are no indications that ongoing habitat degradation from livestock grazing is occurring in this area.

Summary of Factor A

In summary, the Marquesan imperial pigeon prefers to inhabit the canopy forest layer of mature forests and relies on the fruits of these trees as a food source. This habitat on Nuku Hiva has been destroyed, and continues to be destroyed by conversion of land for agriculture and development, overgrazing, and competition with exotic plant species. The species is currently restricted to seven small sites in the most remote areas of Nuku Hiva (Villard *et al.* 2003, p. 191). An intact canopy of native species is rare; in addition, the native understory and shrub layers are absent and composed mostly of browse-resistant species (Thorsen *et al.* 2002, p. 9). Poor natural forest regeneration is evident in areas where pigeons are found (Villard *et al.* 2003, p. 193). Overgrazing by goats and competition with exotic species remain a threat to the pigeon's habitat on Nuku Hiva; any additional loss of suitable habitat is likely to have a large impact

on the distribution of this species. Since the largest population of pigeons is located on Nuka Hiva and impacts to the suitable habitat on this island are ongoing, we find that present or threatened destruction, modification, or curtailment of the habitat or range is a threat to the continued existence of the Marquesan imperial pigeon on Nuku Hiva. Since Ua Huka is classified as a protected area and there is no indication of ongoing habitat degradation from livestock grazing in this area, we find that present or threatened destruction, modification, or curtailment of the habitat or range are not threats to the continued existence of the Marquesan imperial pigeon on Ua Huka.

B. Overutilization for commercial, recreational, scientific, or educational purposes

Two researchers found that hunting is the primary reason for the current restricted range of the species to remote areas of Nuku Hiva (Thorsen *et al.* 2002, p. 8; Villard *et al.* 2003, p. 193). By 1922, most of the modification of habitat by man had already occurred, yet Marquesan imperial pigeons were still abundant (Villard *et al.* 2003, p. 195). In 1922, 82 birds were killed during an expedition; Villard *et al.* (2003, p. 194) theorized that this represented a significant portion of the estimated several hundred birds present at that time. After these killings, the pigeon was reported as ''not so abundant.'' In 1944, many birds were reported on the northern coast of Nuku Hiva and hunters were known to bring back full bags of birds. In 1951, the population of pigeons appeared to be decreasing and, with the introduction of shotguns in the 1950s, the effect was amplified. During the construction of the airport from 1978 to 1979, workers were known to hunt for pigeons (Villard *et al.* 2003, pp. 193, 195). On Ua Huka, a local agreement now exists not to hunt pigeons (Thorsen *et al.* 2002, p. 13).

Bird hunting in the French Polynesia was banned in 1967; however, the law is rarely enforced and hunting still occurs (Thorsen *et al.* 2002, p. 10) on Nuku Hiva. Most Marquesan imperial pigeons that are killed are opportunistic kills by those hunting goats and pigs, but some intentionally target pigeons for sale to local inhabitants (Thorsen *et al.* 2002, p. 10). In an effort to reduce illegal hunting and engage the public in conservation of local endemic species, the Sociétéd'Ornithologie de Polynésie (Manu), a conservation organization in French Polynesia, developed a public outreach and educational program for local schools about the importance of this species. However, poaching remains a potential threat to the remaining small population (BLI 2009c, unpaginated). To protect the remaining populations from hunting, an agreement by the inhabitants of Nuku Hiva to stop hunting pigeons or the appointment of a ranger to enforce current laws (Thorsen *et al.* 2002, p. 11).

An adult Marquesan imperial pigeon lays only one egg per year, suggesting this species is long lived (Villard *et al.* 2003, pp. 192, 195). Populations of species that are long-lived with low fecundity rates tend to be more affected by loss of breeding adults than those species with shorter lifespans and high fecundity. Therefore, an increase in adult mortality due to illegal hunting would likely have a substantial impact on the survival of this species. Furthermore, because pigeons are frugivorous and act as seed dispersal agents for those trees from which they feed and roost, further declines in pigeons may indirectly contribute to low recruitment of the vital native tree species.

Summary of Factor B

In summary, hunting was likely a major contributing factor to the current restricted range and small population of Marquesan imperial pigeon. On the island of Ua Huka, because the species is in a protected area, there is a smaller human population compared to other Marquesan islands, and since there is no information indicating hunting is a threat to this species on the island of Ua Huka, we find that overutilization is not a threat to the continued existence of the pigeon. On the island of Nuku Hiva, although hunting of pigeons is illegal, the law is not enforced and poaching remains a potential threat. Because this species has a clutch size of one egg, poaching would have a substantial impact on the species' continued existence. Therefore, we find that overutilization is a threat to the continued existence of Marquesan imperial pigeon on the island of Nuku Hiva.

C. Disease or predation

Avian diseases are a concern for species with restricted ranges and small populations, especially if the species is restricted to an island. Extensive human activity in previously undisturbed or isolated areas can lead to the introduction and spread of exotic diseases, some of which (e.g., West Nile virus) can negatively impact endemic bird populations (Neotropical News 2003, p. 1; Naugle *et al.* 2004, p. 704). The introduction and transmittal of an avian disease could result in the extinction of the Marquesan imperial pigeon (Blanvillian *et al.* 2007, unpaginated). Beadell *et al.* (2006, p. 2940) found the presence of Hawaii's avian malaria in reed-warblers on Nuku Hiva; however, there is no data on the effects of this malaria on the population of pigeons on the island. Although large and stable populations of wildlife species have adapted to natural levels of disease and predation within their historic ranges, any additive mortality to the Marquesan imperial pigeon population or a decrease in its fitness due to an increase in the incidence of disease or predation could adversely impact the species' overall viability (see Factor E). However, while these potential influences remain a concern for future management of the species, we are not aware of any information currently available that specifically indicates the occurrence of disease in the Marquesan imperial pigeon. No other diseases are known to affect the pigeons. In addition, the reintroduction of the pigeons to the island of Ua Huka reduces the likelihood of diseases causing extinction of the species.

Black rats were introduced to Nuku Hiva in 1915 and are now found everywhere pigeons are located on Nuku Hiva (Villard *et al.* 2003, pp. 193, 195). Rats may prey upon the eggs and nestlings of Marquesan Imperial pigeons, even if the nests are located in the tops of trees (Thorsen *et al.* 2002, p. 10). However, due to the large size of this species, adult pigeons may be able to chase away rats from their nests (Villard *et al.* 2003, p. 195). Furthermore, Thorsen *et al.* (2002, p. 10) observed juveniles and Villard *et al.* (2003, p. 195) noted a significant proportion of young pigeons, suggesting that black rats are not affecting breeding success. Due to the potential threat of black rats, pigeons were introduced to Ua Huka where black rats were not present. As an additional measure, poison bait stations were established around the wharf area of Ua Huka to prevent introduction of black rats (Thorsen *et al.* 2002, p. 17).

Cats have also been introduced to both the islands of Nuku Hiva and Ua Huka. While predation of adult and juvenile birds by cats is possible when pigeons are forced to feed on low shrubs, such as guava, due to destruction and absence of native species (See Factor A) (Thorsen *et al.* 2002, p. 10), we are not aware of any information currently available that specifically indicates that predation by cats is a threat to the survival of this species.

Summary of Factor C

In summary, while avian diseases such as avian malaria in reed-warblers was found to be present on Nuku Hiva, no avian diseases are known to affect Marquesan imperial pigeons. Although predation has been indicated as a contributing factor to the decline of the species (Thorsen *et al.* 2002, pp. 9, 10; Blanvillain *et al.* 2007, unpaginated), we did not find information to suggest that predation is currently a threat to the survival of this species. Further, while black rats are found everywhere pigeons are found, the observation of a significant proportion of juveniles suggests that predation of pigeon's eggs and nestlings by black rats on Nuku Hiva is not a significant threat to pigeons. Cats are present on both islands, and there is potential for predation when pigeons are forced to feed on low shrubs, such as guava; however, there is no information to substantiate cat predation as a threat to the species' survival. Therefore, we find that disease and predation are not contributing threats to the continued existence of the pigeon throughout its range.

D. Inadequacy of existing regulatory mechanisms

The Marquesan imperial pigeon is a protected species in French Polynesia; it is classified as a Category A species under Law Number 95-257. Article 16 of this law prohibits the collection and exportation of species listed under Category A. Under Article L411-1 of the French Environmental Code, the destruction or poaching of eggs or nests, mutilation, destruction, capture or poaching, intentional disturbance, the practice of taxidermy, transport, peddling, use, possession, offer for sale, or the sale or the purchase of non-domestic species in need of conservation is prohibited. The French Environmental Code also prohibits the destruction, alteration, or degradation of habitat for these species.

Hunting of this species is believed to be one of the main reasons for the species' decline (Thorsen *et al.* 2002, p. 10; Villard *et al.* 2003, p. 195). Hunting and destruction of all species of birds in French Polynesia was prohibited by a decree enacted in 1967 (Villard *et al.* 2003, p. 193). Furthermore, although restrictions on possession of firearms in Marquesas are in place, firearms are made available through visiting boats (Thorsen *et al.* 2002, p. 10). On Ua Huka, there is an agreement in force not to hunt pigeons (Thorsen *et al.* 2002, p. 13). Although this species is fully protected, and hunting has been banned, illegal hunting of the Marquesan Imperial pigeon still occurs (see Factor B) and remains a threat on Nuku Hiva.

The Marquesas Archipelago is designated as an Endemic Bird Area (EBA) (Manu 2009, unpaginated, BLI 2009c). EBAs are territories less than 50,000 km2 (19,300 mi2) where at least two bird species with restricted ranges are found together, and represent priority areas for biodiversity. Nord-Ouest de Nuku Hiva is 9,000 ha area designated as an Important Bird Area (IBA) (Manu 2009, unpaginated). Designation as an IBA constitutes recognition of the area as a critical site for conservation of birds. In addition, Nuku Hiva is designated as an Alliance for Zero Extinction (AZE) (Manu 2009, unpaginated). AZEs are considered areas that are in the most urgent need of conservation. Although Nuku Hiva and Ua Huka are designated as areas of importance to the conservation of birds, these designations only serve to identify areas of biodiversity and focus conservation efforts; there is no legal protection of these areas. There is one officially protected area on Ua Huka (Vaikivi), established in 1997, which is actively managed.

In summary, regulations exist to protect the species and its habitat. The threats that affect the species on each island are different. On the island of Ua Huka, also described under Factors A and B, destruction and modification of habitat are not known to threaten this species and illegal hunting is not occurring. This is likely because the protected area on Ua Huka is actively managed, the human population is less substantial, and there is a local agreement preventing hunting on this island. Furthermore, pigeons were reintroduced to Ua Huka due to the absence of threats to the species. Therefore, we find that the inadequacy of existing regulatory mechanisms is not applicable to Ua Huka. However, as described in Factors A and B, habitat destruction continues to threaten this species and illegal hunting continues to occur on the island of Nuku Hiva. Therefore, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the Marquesan imperial pigeon on the island of Nuku Hiva.

E. Other natural or manmade factors affecting the species' continued existence

Introduced animal and plant species threaten the habitat and survival of the Marquesan imperial pigeon by inhibiting the growth of canopy tree species needed for nesting and roosting and creating competition for food sources.

As described under Factor A, the introduction of livestock, including cattle, horses, goats and pigs, has caused and continues to cause substantial changes in the forest composition, affecting the amount of suitable habitat available for pigeons. Horses are now under control and cattle were eradicated by hunters (Thorsen *et al.* 2002, p. 9; Villard *et al.* 2003, p. 193). However, goats, in particular, overgraze native species to a level at which seedlings are consumed before they mature to a height out of goats' reach (Sykes 1969, p. 14; Parkes 1984, pp 95, 96, 101; Villard *et al.* 2002, p. 189). Consequently, exotic plant species such as guava are able to proliferate, preventing regeneration of natural forest (Sykes 1969, p. 15; Thorsen *et al.* 2002, p. 9). To restore native forests, measures to control feral goats are needed. Local inhabitants hunt goats and pigs (Thorsen *et al.* 2002, p. 10); however, overgrazing continues to be a problem. Fenced enclosures would exclude any livestock and allow regeneration of native species (Thorsen *et al.* 2002, p. 11). In addition, introduced rats on the island of Nuka Hiva inhibit regeneration of native trees by consuming the flowers, fruits, seeds, seedlings, leaves, buds, roots, and rhizomes (Thorsen *et al.* 2002, p. 9; Meyer and Butaud 2009, p. 1570) of native tree species, further contributing to the alteration of forest composition. Introduced species are not known to threaten pigeons on Ua Huka.

Introduced rats on Nuku Hiva may also be a source of competition for food resources that would otherwise be available to pigeons. The diet for the Marquesan imperial pigeon consists of fruits from *Ficus* spp. and guava, foliage of *S. saponaria, T. cattapa*, and *Misceltum* spp., and the flowers of *H. tiliaceus, C. manghas*, and *G. speciosa* (Blanvillain and Thorsen 2003, p. 382). Rats are known to consume the flowers, fruits, and leaves of the same tree species, including guava, *T. cattapa, Ficus* spp., and *S. saponaria* (Thorsen *et al.* 2002, p. 9). The consumption of these fruits and foliage by rats may reduce the available food supply for this frugivorous bird. Furthermore, during periods of limited fruit availability, the pigeons may also compete with the white-capped fruit pigeon (*Ptilinopus dupetitbouarsii*), a wider ranging pigeon found in French Polynesia (including Nuku Hiva and Ua Huka), for food sources (Thorsen *et al.* 2002, p. 10). Abundance of fruit is critical to the breeding success of frugivorous birds. When food resources are limited, breeding output and fledgling and adult

survival may also be affected (Thorsen *et al.* 2002, p. 10). This may be especially critical to the Marquesan imperial pigeon since it is a long-lived species with low fecundity. An increase in adult mortality due to decreased food availability would likely have a substantial impact on the breeding success and, ultimately, on the survival of this species.

Island populations have a higher risk of extinction than mainland populations. Ninety percent of bird species driven to extinction were island species (as cited in Frankham 1997, p. 311). Based on genetics alone, endemic island species are predicted to have higher extinction rates than nonendemic island populations (Frankham 2007, p. 321). Small, isolated populations may experience decreased demographic viability (population birth and death rates, immigration and emigration rates, and sex ratios), increased susceptibility of extinction from stochastic environmental factors (e.g., weather events, disease), and an increased threat of extinction from genetic isolation and subsequent inbreeding depression and genetic drift. As discussed above, there are two small extant populations of Marquesan imperial pigeons, one on Nuku Hiva and a reintroduced population on Ua Huka. Because the species now present on Ua Huka originated from the Nuku Hiva population, there is no genetic variation between the two populations. Furthermore, we have no indication that there is natural dispersion between the populations and, thus, no genetic interchange. The lack of genetic variation may lead to inbreeding and associated complications, including reduced fitness. Species with low fecundity, like the pigeon, are particularly vulnerable to inbreeding depression because they can withstand less decrease in survival before population growth rates are affected and they recover more slowly (Lacy 2000, p. 47). In addition, genetic threats associated with small populations will exacerbate other threats to the species and likely increase the risk of extinction of island populations (Frankham 1997, p. 321).

Summary of Factor E

In summary, introduced livestock and rats are altering the native forests of Nuku Hiva on which the Marquesan imperial pigeon depends. Native tree species are unable to regenerate due to overgrazing by goats; allowing graze-resistant exotic plant species to proliferate. Through consumption of fruits, flowers, seeds, and foliage, rats contribute to the alteration of the native forest and also serve as a source of competition for food. On Nuku Hiva and Ua Huka, the white-capped fruit pigeon may also serve as a source of competition for food during periods of limited fruit availability. When food resources are limited, breeding output and fledgling and adult survival may also be affected, which may be particularly critical for a species with low fecundity.

Both pigeon populations are subject to detrimental effects typical of small island populations. Decreased demographic viability, environmental factors, and genetic isolation may lead to inbreeding depression and associated complications, including reduced fitness. Species with low fecundity are particularly vulnerable because they can withstand less decrease in survival and recover more slowly. These genetic threats will exacerbate other threats to the species and likely increase the risk of extinction. Therefore, we find that other natural or manmade factors are threats to the continued existence of the Marquesan imperial pigeon on both Nuku Hiva and Ua Huka.

Status Determination for the Marquesan Imperial Pigeon

We have carefully assessed the best available scientific and commercial information regarding the past, present, and potential future threats faced by the Marquesan Imperial Pigeon. The species is currently at risk on Nuku Hiva due to ongoing threats of habitat destruction and modification (Factor A); illegal hunting (Factor B); and demographic, genetic, and environmental stochastic events associated with the species' low population, restricted range, and low fecundity (Factor E). Furthermore, we have determined that the existing regulatory mechanisms (Factor D) are not adequate to ameliorate the current threats to the species. In addition, we have determined that Factors A, B, C, and D are not factors affecting the continued existence of the species on Ua Huka. However, we have determined that the Ua Huka population is at risk due to demographic, genetic, and environmental stochastic events associates with the species' low population, restricted range, and low fecundity (Factor E).

Section 3 of the Act defines an ''endangered species'' as ''any species which is in danger of extinction throughout all or a significant portion of its range'' and a ''threatened species'' as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Based on the magnitude of the ongoing threats to the Marquesan Imperial Pigeon throughout its entire range, as described above, we determine that this species is in danger of extinction throughout all of its range. Therefore, on the basis of the best available scientific and commercial information, we propose to list the Marquesan Imperial Pigeon as an endangered species throughout all of its range. Because we find that the Marquesan Imperial Pigeon is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

VI. Slender-billed Curlew (*Numenius tenuirostris*)

Species Description

The slender-billed curlew (*Numenius tenuirostris*) is a species of wading bird, one of the six curlews of the same genus within the family Scolopacidae. It is medium-sized and mottled brown-grey in color. It has white underparts marked with black heart-shaped spots on the flanks. It has a decurved bill that tapers to a distinctly fine tip. It has pale, barred inner primary feathers and its secondary feathers contrast markedly with its brown-black primary feathers. Its tail is virtually unmarked, with a few dark bars on a white background (BLI 2006, p. 1).

Though this species was regarded as common in the 19th century, it declined precipitously in the 20th century (Hirschfeld 2008, p. 139). The species is believed to breed in Northwest Siberia (though the only two confirmed cases of breeding were in 1914 and 1924). The species migrates 5,000 – 6,000 km (3,100 – 3,700 mi) towards the west-southwest, passing north of the Caspian and Black Seas through southeast and southern Europe to its overwintering grounds in southern Europe and northwest Africa (Gretton 1996, p. 6; Chandrinos 2000, p. 1; Hirschfeld 2008, p. 139). There are also records of wintering birds in the Middle East, but verification of a second wintering area has not been confirmed (Gretton 1996, p. 6).

The species has been sighted in Eastern Europe, including in Russia, Kazakhstan, Ukraine, Bulgaria, Hungary, Romania, and Yugoslavia; in Southern Europe, including Greece, Italy, and Turkey; and in North Africa, including Algeria, Morocco, and Tunisia (BLI 2006, p. 2). It has also been reported in Slovenia, Uzbekistan, and Turkmenistan (BLI 2006, p. 2).

During the second half of the 19th century and up until 1920, the slender-billed curlew was considered an abundant bird. Its population density frequently exceeded that of two relative

species: The Eurasian curlew (*Nemenius arquata*) and the whimbrel (*Numenius phaeopus*) (Chandrinos 2000, p. 1). Flocks of slender-billed curlew over 100 birds in size were recorded in Morocco as late as the 1960s and 1970 (Gretton 1996, p. 6). The population was estimated to be between 80 and 400 birds in 1990, but this estimate was later adjusted to 50 to 270 birds (Gretton 1996, p. 6). In recent years, records consist of sightings of 1 to 3 birds, with one exception in 1995, when a flock of 19 birds was sighted in Italy (BLI 2006, p. 3; Hirschfeld 2008, p. 139). The most recent population estimate is fewer than 50 birds (BLI 2006, p. 3; Hirschfeld 2008, p. 139). Surveys have been conducted in recent years (1987 through 2000) in various parts of the species' historic breeding range, which covered several thousand kilometers of habitat. No slender-billed curlews were found during these survey efforts (Gretton *et al.* 2002, p. 341; CMS update 2004, p. 2). This species has not been seen at its last regular wintering ground in Morocco since 1995 (Gretton 1996, p. 6; Chandrinos 2000, p. 2), and the last confirmed sighting anywhere in the world was in 1999 in Greece (Chandrinos 2000, p. 2).

There are only two confirmed accounts of slender-billed curlew nests. These accounts were both in the early 1900s and are described in four papers by V.E. Ushakav that were later translated. These nests were both located in a wet marsh at Krasnoperovaya, south of Tara, Siberia. The habitat was described as open marsh containing some birch (*Betula*) and marshy areas adjacent to pine (*Pinus*) forests. The nests were located in the middle of the marsh on grassy hillocks or on small dry islands. Based on these early accounts, complete clutch sizes were found to be four eggs per nest between May 11 and June 1, 1900. The young fledged in early July, and family groups of five to six birds were seen wandering around the marsh in early August. Overall, slender-billed curlews were seen in their nesting grounds in Siberia from mid-May until early August (Gretton *et al.* 2002, pp. 335–336).

During seasonal migrations and in the winter months, the species is known to use a variety of habitats, including steppe grassland, saltmarsh, fishponds, brackish lagoons, saltpans, tidal mudflats, semidesert, brackish wetlands, and sandy farmland near lagoons (Hirschfeld 2008, p. 139).

There is little information on the diet of this species. The birds at Merja Zerga (wintering grounds in Morocco) have been recorded eating earthworms and tipulid larvae. Elsewhere, the species has been recorded eating other insects (grasshoppers, earwigs, and beetles), mollusks, and crustaceans (Gretton 1996, p. 7).

Conservation Status

The slender-billed curlew is classified as critically endangered by the IUCN and is listed under CITES Appendix I. Live wild specimens, and parts and products of wild specimens of this species listed under Appendix I of CITES, are prohibited from being traded commercially internationally. The species is also listed on Annex I of the European Union (EU) Wild Bird Directive (Europa Environment 2009, unpaginated) and Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention), which encourages international cooperation for the conservation of species.

Summary of Factors Affecting the Slender-billed Curlew

A. Present or threatened destruction, modification, or curtailment of habitat or range

Krasnoperovaya, near Tara, where Ushakav made his observation in the early 1900s, is located towards the northern limits of the forest-steppe zone, with parts of the marsh having some characteristics of the taiga, such as the presence of conifers. Surveyors noted that in 1990 and 1994 there were still substantial areas of marsh at Krasnopervaya that were quite similar to that described by Ushakov, with possibly more trees being present than in the early 1900s. By 1997, the area had changed dramatically, with the higher grassland areas next to marsh under cultivation, and the marsh itself completely covered with young forest (Boere & Yurlov, as reported in Gretton *et al.* 2002, p. 342).

Threats on the breeding grounds are largely unknown due to the lack of information on this species' nesting localities. Within its potential breeding range, the habitat has been subject to some modification, the taiga is little modified, the forest-steppe has been partially cultivated, and much of the steppe has been modified by intensive agriculture. The impacts to the species from these types of modifications would vary depending on which of these habitat types are used for nesting (Gretton 1996, p. 8).

Habitat loss in the wintering grounds is of unknown importance; however this species has not been seen at the last regular wintering ground in Morocco since 1995 (BLI 2004, unpaginated). Threats to potential wintering habitat are summarized in the 1996 version of the International Action Plan for the Slender-billed Curlew (Gretton 1996, pp. 8–9). Parts of the wintering grounds (e.g., the Rharb plain of northwest Morocco) have undergone extensive drainage of wetlands. In Tunisia also, temporary freshwater marshes (e.g. Kairouan) have been seriously damaged by construction of dams for flood control and the provision of water supplies to these marshes. In other parts of North Africa, other types of wetland have been less affected, including coastal sites and inland sites, such as temporary brackish wetlands. In the Middle East, the permanent marshes in the central (Qurnah) area were reduced to 40 percent of their 1985 extent by 1992, from 1,133,000 ha to 457,000 ha (2,800,000 ac to 1,129,000 ac), with further loss expected (Gretton 1996, p. 8).

In conclusion, this species annually migrates 5,000 to 6,500 km (3,100 to 4,000 mi) between its presumed breeding grounds in Siberia to its wintering grounds in Morocco, passing though many European countries. Many of the areas along the migratory route, such as steppe areas in central and eastern Europe and the area around the Aral Sea, have experienced substantial anthropogenic impacts. There has also been a loss of wetlands in the Palearctic. However, since the species uses a wide variety of habitats along its migratory route and in its wintering grounds, it is unlikely that habitat loss in these areas has played a substantial part in the decline of this species, especially since many other wading birds using these areas have not shown such a decline (Gretton 1996, pp. 7–8). The situation is hard to assess, because Merja Zerga remains the only known regular wintering site for the species. Loss of breeding ground habitat would better explain such a drastic population decline, since the species is thought to use a more specialized habitat for breeding. Belik (1994, p. 37) argued that the species may nest primarily in steppe areas. If this is the case, then the species population decline would be better explained by the extensive loss of this habitat type, particularly in Kazakhstan (Gretton 1996, p. 7). Therefore, we find that present or threatened destruction, modification, or curtailment of the habitat or range threaten the continued existence of the slender-billed curlew throughout its range.

B. Overutilization for commercial, recreational, scientific, or educational purposes

Large-scale hunting of waders was known to occur across most of Europe during the early 20th century, with curlews being preferred (Gretton 1996, p. 8). This species has a reputation for being ''tame,'' meaning that it does not show fear of humans, and was an easy target during a hunt. A significant number of slender-billed curlew specimens, notably from Hungary and Italy, date from this time (Gretton 1991, pp. 37–38). Between 1962 and 1987, 17 slender-billed curlew were known to have been shot (13 of these in Italy and former Yugoslovia) (Gretton 1996, p. 9). Additionally, as late as 1980, one guide described the taking of ''a great number'' from a flock of about 500 in Morocco (Gretton 1991, p. 38).

In summary, hunting has been indicated as a factor in the range-wide decline of this species during the first half of the 20th century. Both legal and illegal hunting is likely to still occur throughout the range of this species. Based on the very small population size and the long-range migratory habits of this species, loss of individual birds is expected to have a significant impact on the remaining population. Therefore, we find that overutilization is a threat to the continued existence of the slender-billed curlew throughout its range.

C. Disease or predation

We are unaware of any threats due to disease or predation for this subspecies. As a result, we are not considering disease or predation to be contributing threats to the continued existence of the slender-billed curlew throughout its range.

D. Inadequacy of existing regulatory mechanisms

As stated above, the slender-billed curlew is listed on Annex I of the European Union (EU) Wild Bird Directive, which includes protection for habitat, bans for activities that directly threaten wild birds, and a network of protected areas for wild birds found within the EU (Europa Environment 2009, unpaginated), and Appendix I of the CMS or Bonn Convention, which includes strictly protected fauna species. This convention encourages international cooperation for the conservation of species.

Inclusion in Appendix I of CMS means that member states work toward strict protection, conserving and restoring the habitat of the species, controlling other reasons for endangerment, and mitigating obstacles to migration, whereas Appendix II encourages multistate and regional cooperation for conservation (CMS 2009, unpaginated). A Memorandum of Understanding (MOU) was developed under CMS auspices and became effective on September 10, 1994.

The MOU area covers 30 Range States in Southern and Eastern Europe, Northern Africa, and the Middle East. As of December 31, 2000, the MOU had been signed by 18 Range States and three cooperating organizations. In early 1996, a status report was produced and distributed by the CMS Secretariat. An International Action Plan for the Conservation of the Slender-billed Curlew was prepared by BLI in 1996, which was later approved by the European Commission and endorsed by the Fifth Meeting of the CMS. The Action Plan is the main tool for conservation activities for the species under the MOU. Conservation priorities include: effective legal protection for the slender-billed curlew and its look-alikes; locating its breeding grounds and key wintering and passage sites; appropriate protection and management of its habitat; and increasing the awareness of politicians in the affected countries (CMS 2009, unpaginated).

The Convention on Migratory Species website (CMS 2004) includes an update on the progress being made under the Slender-billed curlew MOU. It states that conservation activities have already been undertaken or are under way in Albania, Bulgaria, Greece, Italy, Morocco, the Russian Federation, Ukraine, and Iran (CMS 2009, unpaginated). However, no details of these activities are provided. The website also notes that population size may have stabilized at a low level (CMS 2009, unpaginated), although no data or references are provided to support this claim.

Based on the lack of information available on this species (location of breeding and wintering areas and its current population status), it is difficult to assess the adequacy of existing regulatory mechanisms in preventing the extinction of this species. Although progress is under way in various countries to better protect the habitat, prevent loss of individuals from hunting and misidentification, and educate the public about the precarious status of this species, not all 30 Range States of this species have signed the MOU (CMS 2009, unpaginated). Further, Gretton *et al.* 2002 (p. 344) reported that the combined efforts devoted to research and conservation of this species (from 1997–2002) had limited direct impact on this species' chance of survival. Therefore, we find that the inadequacy of existing regulatory mechanisms is a threat to the continued existence of the slender-billed curlew throughout its range.

E. Other natural or man-made factors affecting the species' continued existence

The status of the slender-billed curlew is extremely precarious. As stated above, the most recent population estimate for this species is fewer than 50 birds. The last confirmed sighting of a slender-billed curlew was of a single bird in 1999. Information on the nesting habits and locality of the breeding grounds for this species is extremely limited, and despite survey efforts over the last 20 years, slender-billed curlews have not been located on the only known historic nesting area of this species in the steppes of Siberia.

In smaller populations, additional threats to persistence and stability often surface, resulting from the stochastic nature of these events, which can lead to instability of population dynamics. Among these factors are rates of mate acquisition, breeding success, transmission of genetic material, dispersal, survival, and sex determination. Further, fluctuations in rates as described above can couple with reduction in growth rate to act synergistically (Lacy 2000, pp. 39–40).

Due to the distance of annual migration, the geographic spread of the range, and the limited numbers of birds, the slender-billed curlew is likely vulnerable to one or more threats associated with small population size. Early records of this species often referred to large flocks on migration and in winter. Based on what we know of other similar migratory bird species, it is likely that the experience of older birds was important in guiding such flocks along the migration route. As slender-billed curlew numbers declined, individuals would be more likely to join flocks of other species, notably the Eurasian curlew. The chances of slender-billed curlews meeting each other on the breeding grounds would become increasingly low (as was described for the Eskimo curlew by Bodsworth in 1954). The smaller the population, the less likely it is that this species would be able to locate another slender-billed curlew and successfully reproduce. Since this species has not been recorded on the only known historic breeding grounds for a number of years (Gretton 1996, p. 6), it is difficult to assess whether a breakdown of social behavior patterns has already occurred.

In summary, breakdown of social behavior patterns is increasingly likely

to occur in addition to the general threats posed by small population size such as increased susceptibility to demographic, environmental, and genetic stochasticity, as this species' population levels decline. Because so few individuals have been found in recent years, it is difficult to assess whether the breakdown of social behavior patterns has already occurred. However, given the species' low numbers, this and other threats of small population size could already be occurring. Therefore, we find that demographic, genetic, and environmental stochastic events are threats to the continued existence of the slender-billed curlew throughout its range.

Status Determination for the Slender-billed Curlew

We have carefully assessed the best available scientific and commercial information regarding the past, present, and potential future threats faced by the slender-billed curlew. The species is currently at risk throughout all of its range due to ongoing threats of habitat destruction and modification (Factor A); overutilization for commercial, recreational, scientific, or educational purposes in the form of hunting (Factor B); and threats associated with small population size (Factor E).

Section 3 of the Act defines an ''endangered species'' as ''any species which is in danger of extinction throughout all or a significant portion of its range'' and a ''threatened species'' as ''any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' Based on the magnitude of the ongoing threats to the slender-billed curlew throughout its entire range, as described above, we determine that this species is in danger of extinction throughout all of its range. Therefore, on the basis of the best available scientific and commercial information, we propose to list the slender-billed curlew as an endangered species throughout all of its range. Because we find that the slender-billed curlew is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and encourages and results in conservation actions by Federal and foreign governments, private agencies and interest groups, and individuals.

Section 7(a) of the Act, as amended, and as implemented by regulations at 50 CFR part 402, requires Federal agencies to evaluate their actions within the United States or on the high seas 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. However, given that the Cantabrian capercaillie, Marquesan Imperial Pigeon, Eiao Polynesian warbler, greater adjutant, Jerdon's courser, and slender-billed curlew are not native to the United States, we are not proposing critical habitat for these species under section 4 of the Act.

Section 8(a) of the Act authorizes the provision of limited financial assistance for the development and management of programs that the Secretary of the Interior determines to be necessary or useful for the conservation of endangered and threatened species in foreign countries. Sections 8(b) and 8(c) of the Act authorize the Secretary to encourage conservation programs for foreign endangered and threatened species and to provide assistance for such programs in the form of personnel and the training of personnel.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. As such, these prohibitions would be applicable to the Cantabrian capercaillie, Marquesan Imperial Pigeon, Eiao Polynesian warbler, greater adjutant, Jerdon's courser, and slender-billed curlew. These prohibitions, under 50 CFR 17.21 and 17.31, in part, make it illegal for any person subject to the jurisdiction of the United States to ''take'' (take includes: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct) any endangered wildlife species within the United States or upon the high seas; import or export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any endangered wildlife species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken in violation of the Act. Certain exceptions apply to agents of the Service and State conservation agencies.

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

Peer Review

In accordance with our joint policy with National Marine Fisheries Service, ''Notice of Interagency Cooperative Policy for Peer Review in Endangered Species Act Activities,'' published in the **Federal Register** on July 1, 1994 (59 FR 34270), we will seek the expert opinions of at least three appropriate independent specialists regarding this proposed rule. The purpose of peer review is to ensure listing decisions are based on scientifically sound data, assumptions, and analyses. We will send copies of this proposed rule to the peer reviewers immediately following publication in the **Federal Register**. We will invite these peer reviewers to comment during the public comment period on our specific assumptions and conclusions regarding the proposal to list the species listed in this proposed rule. We will consider all comments and information we receive during the comment period on this proposed rule during our preparation of a final determination. Accordingly, our final decision may differ from this proposal.

Public Hearings

The Act provides for one or more public hearings on this proposal, if we receive any requests for hearings. We must receive your request for a public hearing within 45 days after the date of this **Federal Register** publication (see **DATES**). Such requests must be made in writing and be addressed to the Chief of the Branch of Listing at the address shown in the **FOR FURTHER INFORMATION CONTACT** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** at least 15 days before the first hearing.

Required Determinations

Paperwork Reduction Act

This proposed rule does not contain any new collections of information that require approval by the Office of Management and Budget (OMB) under 44 U.S.C. 3501 *et seq*. The regulation will not impose new recordkeeping or reporting requirements on State or local

governments, individuals, businesses, or organizations. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (NEPA)

We have determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), need not be prepared in connection with regulations adopted under section 4(a) of the Act. A notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Clarity of the Rule

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

(a) Be logically organized;

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

(c) Use clear language rather than jargon;

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

(e) Use lists and tables wherever possible.

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

References Cited

A complete list of all references cited in this proposed rule is available upon request (see **FOR FURTHER INFORMATION CONTACT** section).

Author(s)

The primary authors of this proposed rule are staff members of the Branch of Listing, Endangered Species, U.S. Fish and Wildlife Service (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

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

PART 17—[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. Amend § 17.11(h) by adding new entries for ''Adjutant, Greater,'' ''Capercaillie, Cantabrian,'' ''Courser, Jerdon's,'' ''Curlew, Slender-billed,'' ''Pigeon, Marquesan Imperial,'' and ''Warbler, Eiao Polynesian'' in alphabetical order under BIRDS to the List of Endangered and Threatened Wildlife 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						
*	*	*	*	*	*	*	
Birds							
*	*	*	*	*	*	*	
Adjutant, greater	*Leptoptilos dubius*		Entire	E		NA	NA
*	*	*	*	*	*	*	
Capercaillie, Cantabrian	*Tetrao urogallus cantabricus*		Entire	E		NA	NA
*	*	*	*	*	*	*	
Courser, Jerdon's	*Rhinoptilus bitorquatus*	India	Entire	E		NA	NA
*	*	*	*	*	*	*	
Curlew, slender-billed	*Numenius tenuirostris*		Entire	E		NA	NA
*	*	*	*	*	*	*	
Pigeon, Marquesan Imperial	*Ducula galeata*	French Polynesia	Entire	E		NA	NA

SPECIES		Historic Range	Vertebrate population where endangered or threatened	Status	When Listed	Critical Habitat	Special Rules
Common name	Scientific name						
*	*	*	*	*		*	*
Warbler, Eiao Polynesian	*Acrocephalus percernis aquilonis*		Entire	E		NA	NA
*	*	*	*	*		*	*

Dated: December 16, 2009

Daniel M. Ashe,

Acting Director, Fish and Wildlife Service

[FR Doc. E9–31101 Filed 1–4–10; 8:45 am]

BILLING CODE 4310–55–S

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS-R9-ES-2009-0089]
[90100-1660-1FLA]

[RIN 1018-AW70]

Endangered and Threatened Wildlife and Plants; Withdrawal of Proposed Rule to List Cook's Petrel

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; withdrawal.

SUMMARY: We, the U.S. Fish and Wildlife Service, withdraw our December 17, 2007, proposal (72 FR 71298) to list the Cook's petrel (*Pterodroma cookii*) as a threatened species under the Endangered Species Act of 1973, as amended. Based on a thorough review of the best available scientific data, we do not believe this species is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

DATES: The December 17, 2007 (72 FR 71298), proposal to list the Cook's petrel as a threatened species is withdrawn as of January 5, 2010.

ADDRESSES: Comments and materials we receive, as well as supporting information used in the preparation of this document, are available for public inspection, by appointment, during normal business hours, Monday through Friday, at the U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Suite 110, Arlington, VA 22203.

FOR FURTHER INFORMATION CONTACT: Douglas Krofta, Chief, Branch of Listing, Endangered Species, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 420, Arlington, VA 22203; telephone 703-358-2105. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Background

The Cook's petrel (*Pterodroma cookii*) is a small, grey and white gadfly petrel that is endemic to the New Zealand archipelago (del Hoyo *et al.* 1992, p. 11; Rayner *et al.* 2007b, p. 59; Birdlife International (BLI) 2009, unpaginated). Its darker grey wings show an ''M'' in flight. It is distinguished from other petrels by a whiter underwing (BLI 2009, unpaginated). The species was first taxonomically described by Gray in 1843 (Sibley and Monroe 1990, p. 322).

The New Zealand archipelago comprises two main islands, the North and South islands, and numerous smaller islands. The total land area of the archipelago covers 103,363 square miles (mi^2) (267,710 square kilometers (km^2)) (CIA 2009, unpaginated). Birds migrate to the east Pacific Ocean, mainly between 34 degrees south (°S) and 30 degrees north (°N) (Heather and Robertson 1997, as cited in BLI 2009, unpaginated).

The species' diet consists primarily of cephalopods, fish, crustaceans, and bioluminescent tunicates that can be hunted at night (Imber 1996, p. 189). It breeds in burrows on forested ridges and steep slopes. Ideal breeding habitat is unmodified forests close to ridge tops with a low and open canopy and many large stems (Marchant and Higgins 1990, as cited in BLI 2009, unpaginated; Rayner *et al.* 2007b, p. 59; Rayner *et al.* 2007c, p. 243; Rayner *et al.* 2007, as cited in BLI 2009). Historically, Cook's petrels were harvested in large numbers as a food source by native Moriori (Oliver 1955, p. 10).

Although the Cook's petrel was once considered a dominant species on these New Zealand islands, the species' breeding and nesting activities are now restricted to islands at the northern and southern limits of its former breeding range, including Great Barrier (Aotea), Little Barrier (Hauturu), and Codfish (Whenua Hou) islands (del Hoyo *et al.* 1992, p. 15).

BLI (2009, unpaginated) estimates the range of the Cook's petrel to be 124 mi^2 (320 km^2). However, BLI (2000, pp. 22, 27) defines ''range'' as the ''Extent of Occurrence, the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species, excluding cases of vagrancy.'' Therefore, this reported range includes a large area of nonbreeding habitat (i.e., the sea).

The population of the Cook's petrel on Little Barrier Island was thought to be about 50,000 pairs (BLI 2007, unpaginated). Using GIS (Geographic Information System) technology, Rayner *et al.* (2007c, pp. 241–242) and Rayner (2008, in litt.) determined that the population is approximately 286,000 pairs. The population on Codfish Island is approximately 5,000 breeding pairs (Rayner 2008, in litt.). In 2006, the Great Barrier Island population was considered to be in danger of extirpation because only four nest burrows had been located in recent years, and it was estimated that fewer than 20 pairs continued to breed on the island. However, the populations on Little Barrier and Codfish islands are increasing following predator eradications (Rayner 2008, in litt.; BLI 2009, unpaginated). The minimum world population for Cook's petrel is estimated to be approximately 1,300,000 individuals, with an increasing population trend (Rayner *et al.* 2007c, p. 245; Rayner 2008, in litt.; BLI 2009, unpaginated).

Previous Federal Actions

On November 28, 1980, we received a petition (1980 petition) from Dr. Warren B. King, Chairman of the International Council for Bird Preservation (ICBP), to add 60 foreign bird species to the List of Endangered and Threatened Wildlife (50 CFR 17.11(h)), including Cook's petrel. Two of the foreign species identified in the