

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

[Docket No. FWS-R9-ES-2012-0044; 450 003 0115]

Endangered and Threatened Wildlife and Plants; Annual Notice of Findings on Resubmitted Petitions for Foreign Species; Annual Description of Progress on Listing Actions

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of review.

SUMMARY: In this Annual Notice of Review (ANOR) of foreign species, we present an updated list of plant and animal species foreign to the United States that we regard as candidates for addition to the Lists of Endangered and Threatened Wildlife and Plants under the Endangered Species Act of 1973, as amended. This review ensures that we focus conservation efforts on those species at greatest risk first. Overall, this ANOR recognizes one new candidate and removes one species from candidate status. The current number of foreign species that are candidates for listing is 20. Based on our current review, we find that 20 species continue to warrant listing, but their listing remains precluded by higher priority proposals to determine whether any species is an endangered species or a threatened species.

DATES: We will accept information on these resubmitted petition findings at any time.

ADDRESSES: This notice is available on the Internet at <http://www.regulations.gov>. Please submit any new information, materials, comments, or questions of a general nature on this notice to the Arlington, VA, address listed in the **FOR FURTHER INFORMATION CONTACT** section below.

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

SUPPLEMENTARY INFORMATION:

Executive Summary

In this Annual Notice of Review (ANOR) of foreign species, we present an updated list of plant and animal species foreign to the United States that we regard as candidates for addition to

the Lists of Endangered and Threatened Wildlife and Plants under the Endangered Species Act of 1973, as amended. When, in response to a petition, we find that listing a species is warranted but precluded by higher priority proposals to determine whether any species is an endangered species or a threatened species, we must review the status of the species each year until we publish a proposed rule or make a determination that listing is not warranted. These subsequent status reviews and the accompanying 12-month findings are referred to as "resubmitted" petition findings.

Since publication of the previous ANOR on May 3, 2011 (76 FR 25150), we reviewed the available information on candidate species to ensure that listing is warranted for each species and reevaluated the relative listing priority number (LPN) assigned to each species. We also evaluated the need to emergency list any of these species, particularly species with high listing priority numbers (i.e., species with LPNs of 1, 2, or 3). This review ensures that we focus conservation efforts on those species at greatest risk first. In addition to reviewing foreign candidate species since publication of the last ANOR, we have worked on numerous findings in response to petitions to list species and on proposed and final determinations for rules to list, delist, or downlist species under the Act. Some of these findings and determinations have been completed and published in the **Federal Register**, while work on others is still under way (see Preclusion and Expeditious Progress section, below, for details).

Overall, this ANOR recognizes one new candidate and removes one species from candidate status. The current number of foreign species that are candidates for listing is 20. Based on our current review, we find that 20 species continue to warrant listing, but their listing remains precluded by higher priority proposals to determine whether any species is an endangered species or a threatened species.

Request for Information

This ANOR summarizes the status and threats that we evaluated in order to determine that species qualify as candidates and to assign an LPN to each species or to determine that species should be removed from candidate status. This document also describes our progress in revising the Lists of Endangered and Threatened Wildlife and Plants (Lists) during the period May 3, 2011, through September 30, 2012.

With this ANOR, we request additional information for the 20 taxa

whose listings are warranted but precluded by higher priority proposals to determine whether any species is an endangered or threatened species. We will consider this information in preparing listing documents and future resubmitted petition findings for these 20 taxa. This information will also help us to monitor the status of the taxa and conserve them. We request the submission of any further information on the species in this notice as soon as possible, or whenever it becomes available. We especially seek information:

- (1) Indicating that we should remove a taxon from consideration for listing;
- (2) Documenting threats to any of the included taxa;
- (3) Describing the immediacy or magnitude of threats facing these taxa;
- (4) Identifying taxonomic or nomenclatural changes for any of the taxa; or
- (5) Noting any mistakes, such as errors in the indicated historic ranges.

You may submit your information concerning this notice in general or for any of the species included in this notice by one of the methods listed in the **ADDRESSES** section.

Background

The Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), provides two mechanisms for considering species for listing. First, we, upon our own initiative, can identify and propose for listing those species that are endangered or threatened based on the factors contained in section 4(a)(1) of the Act. We implement this mechanism through the candidate program. Candidate taxa are those taxa for which we have sufficient information on file relating to biological vulnerability and threats to support a proposal to list the taxa as endangered or threatened, but for which preparation and publication of a proposed rule is precluded by higher priority proposals to determine whether any species is an endangered species or a threatened species. The second mechanism for considering species for listing is when the public petitions us to add species to the Lists of Endangered and Threatened Wildlife and Plants (Lists). Nineteen of these species covered by this notice were assessed through the petition process.

Under section 4(b)(3)(A) of the Act, when we receive a listing petition we must determine within 90 days, to the maximum extent practicable, whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted (90-day finding). If

we make a positive 90-day finding, we are required to promptly commence a review of the status of the species. Using the information from the status review, in accordance with section 4(b)(3)(B) of the Act, we must make one of three findings within 12 months of the receipt of the petition (12-month finding). The first possible 12-month finding is that listing is not warranted, in which case we need not take any further action on the petition. The second possibility is that we may find that listing is warranted, in which case we must promptly publish a proposed rule to list the species. Once we publish a proposed rule for a species, sections 4(b)(5) and 4(b)(6) of the Act govern further procedures, regardless of whether or not we issued the proposal in response to the petition. The third possibility is that we may find that listing is warranted but precluded. A warranted-but-precluded finding on a petition to list means that listing is warranted, but that the immediate proposal and timely promulgation of a final regulation is precluded by higher priority listing actions. In making a warranted-but-precluded finding under the Act, the Service must demonstrate that expeditious progress is being made to add and remove species from the Lists (See *Preclusion and Expeditious Progress* section).

In accordance with section 4(b)(3)(C)(i) of the Act, when, in response to a petition, we find that listing a species is warranted but precluded, we must make a new 12-month finding annually until we publish a proposed rule or make a determination that listing is not warranted. These subsequent 12-month findings are referred to as “resubmitted” petition findings. This notice contains our resubmitted petition findings for foreign species previously described in the Notice of Review published May 3, 2011 (76 FR 25150).

We maintain this list of candidates for a variety of reasons: To notify the public that these species are facing threats to their survival; to provide advance knowledge of potential listings; to provide information that may stimulate and guide conservation efforts that will remove or reduce threats to these species and possibly make listing unnecessary; to request input from interested parties to help us identify those candidate species that may not require protection under the Act or additional species that may require the Act’s protections; and to request necessary information for setting priorities for preparing listing proposals. We strongly encourage collaborative conservation efforts for candidate

species, and offer technical and financial assistance to facilitate such efforts. For additional information regarding such assistance, see **FOR FURTHER INFORMATION CONTACT**.

On September 21, 1983, we published guidance for assigning a listing priority number (LPN) for each candidate species (48 FR 43098). Using this guidance, we assign each candidate an LPN of 1 to 12, depending on the magnitude of threats, immediacy of threats, and taxonomic status; the lower the LPN, the higher the listing priority (that is, a species with an LPN of 1 would have the highest listing priority). Guidelines for such a priority-ranking guidance system are required under section 4(h)(3) of the Act (15 U.S.C. 1533(h)(3)). As explained below, in using this system we first categorize based on the magnitude of the threat(s), then by the immediacy of the threat(s), and finally by taxonomic status.

Under this priority-ranking system, magnitude of threat can be either “high” or “moderate to low.” This criterion helps ensure that the species facing the greatest threats to their continued existence receive the highest listing priority. It is important to recognize that all candidate species face threats to their continued existence, so the magnitude of threats is in relative terms. When evaluating the magnitude of the threat(s) facing the species, we consider information such as: the number of populations and/or extent of range of the species affected by the threat(s); the biological significance of the affected population(s), the life-history characteristics of the species and its current abundance and distribution; and whether the threats affect the species in only a portion of its range.

As used in our priority ranking system, immediacy of threat is categorized as either “imminent” or “nonimminent.” It is not a measure of how quickly the species is likely to become extinct if the threats are not addressed; rather, immediacy is based on when the threats will begin. If a threat is currently occurring or likely to occur in the very near future, we classify the threat as imminent. Determining the immediacy of threats helps ensure that species facing actual, identifiable threats are given priority for listing proposals over those for which threats are only potential or species that are intrinsically vulnerable to certain types of threats, but are not known to be presently facing such threats.

Our priority-ranking system has three categories for taxonomic status: species that are the sole members of a genus; full species (in genera that have more than one species); and subspecies and

distinct population segments of vertebrate species (DPS). In summary, the LPN ranking system provides a basis for making decisions about the relative priority for preparing a proposed rule to list a given species. Each species included in this notice is one for which we have sufficient information to prepare a proposed rule to list, because it is in danger of extinction or likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

For more information on the process and standards used in assigning LPNs, a copy of the guidance is available on our Web site at: <http://www.fws.gov/endangered/esa-library/pdf/48fr43098-43105.pdf>. For more information on the LPN assigned to a particular species, the species assessment for each candidate contains the LPN and a rationale for the determination of the magnitude and imminence of threat(s) and assignment of the LPN; that information is presented in this ANOR.

Previous Notices

This revised notice supersedes all previous annual notices of review for foreign species. The species discussed in this notice are in part the result of three separate petitions submitted to the U.S. Fish and Wildlife Service (Service) to list a number of foreign bird and butterfly species as endangered or threatened under the Act. We received petitions to list foreign bird species on November 24, 1980, and May 6, 1991 (46 FR 26464, May 12, 1981; and 56 FR 65207, December 16, 1991, respectively). On January 10, 1994, we received a petition to list seven butterfly species as endangered or threatened (59 FR 24117; May 10, 1994).

We took several actions on these petitions. Our most recent review of petition findings was published on May 3, 2011 (76 FR 25150). Since our last review of petition findings in May 2011, we have issued a proposed rule to list one species previously included in the ANOR (see the *Preclusion and Expeditious Progress* section for additional listing actions that were not related to this notice). On January 10, 2013, we published a proposed rule to list the blue throated macaw under the Act (78 FR 2239).

Findings on Resubmitted Petitions

This notice describes our resubmitted petition findings for 19 foreign species for which we had previously found listing to be warranted but precluded. We have considered all of the new information that we have obtained since the previous finding, and we have reviewed in accordance with our Listing

Priority Guidance the LPN of each taxon for which proposed listing continues to be warranted but precluded. Based on our review of the best available scientific and commercial information, with this ANOR, we have changed the LPN for two candidate species.

New Candidate Species

Below we present a summary of one new species Colorado delta clam (*Mulinia coloradoensis*), which is an addition to this year's ANOR. Based upon our own initiative, we find that we have sufficient information on its biological vulnerability and threats to support a proposal to list it as

endangered or threatened, but preparation and publication of a proposal is precluded by higher priority listing actions (i.e., it met our definition of a candidate species).

As a result of our review, we find that warranted-but-precluded findings is appropriate for the below 20 species, including 1 new candidate species. We emphasize that we are not proposing these species for listing, but we do anticipate developing and publishing proposed listing rules for these species in the future, with an objective of making expeditious progress in addressing all 20 of these foreign species within a reasonable timeframe.

Table 1 provides a summary of all updated determinations of the 20 taxa in our review. All taxa in Table 1 of this notice are ones for which we find that listing is warranted but precluded and are referred to as “candidates” under the Act. The column labeled “Priority” indicates the LPN. Following the scientific name of each taxon (third column) is the family designation (fourth column) and the common name, if one exists (fifth column). The sixth column provides the known historic range for the taxon. The avian species in Table 1 are listed taxonomically.

TABLE 1—SPECIES IN 2012 ANNUAL NOTICE OF REVIEW

[C = listing is warranted but precluded]

Status		Scientific name	Family	Common name	Historic range
Category	Priority				
Birds					
C	2	<i>Pauxi unicornis</i>	<i>Craciidae</i>	southern helmeted curassow.	Bolivia, Peru.
C	2	<i>Rallus semiplumbeus</i>	<i>Rallidae</i>	Bogota rail	Colombia.
C	8	<i>Porphyrio hochstetteri</i>	<i>Rallidae</i>	takahe	New Zealand.
C	8	<i>Haematopus chathamensis</i>	<i>Haematopodidae</i>	Chatham oystercatcher ..	Chatham Islands, New Zealand.
C	8	<i>Cyanoramphus malherbi</i>	<i>Psittacidae</i>	orange-fronted parakeet	New Zealand.
C	8	<i>Eunymphicus uvaensis</i>	<i>Psittacidae</i>	Uvea parakeet	Uvea, New Caledonia.
C	8	<i>Dryocopus galeatus</i>	<i>Picidae</i>	helmeted woodpecker ...	Argentina, Brazil, Paraguay.
C	2	<i>Dendrocopos noguchii</i>	<i>Picidae</i>	Okinawa woodpecker	Okinawa Island, Japan.
C	2	<i>Aulacorhynchus huallagae</i>	<i>Ramphastidae</i>	yellow-browed toucanet ..	Peru.
C	11	<i>Scytalopus novacapitalis</i>	<i>Conopophagidae</i>	Brasilia tapaculo	Brazil.
C	12	<i>Bowdleria punctata wilsoni</i>	<i>Sylviidae</i>	Codfish Island fernbird ...	Codfish Island, New Zealand.
C	2	<i>Zosterops luteirostris</i>	<i>Zosteropidae</i>	Ghizo white-eye	Solomon Islands.
C	8	<i>Tangara peruviana</i>	<i>Thraupidae</i>	black-backed tanager	Brazil.
C	6	<i>Strepera graculina crissalis</i>	<i>Cracticidae</i>	Lord Howe pied currawong.	Lord Howe Islands, New South Wales.
Invertebrates (Butterflies)					
C	6	<i>Eurytides</i> (= <i>Graphium</i> or <i>Mimoides</i>) <i>lysithous harrisianus</i> .	<i>Papilionidae</i>	Harris' mimic swallowtail	Brazil.
C	2	<i>Eurytides</i> (= <i>Graphium</i> or <i>Neographium</i> or <i>Protographium</i> or <i>Protesilaus</i>) <i>marcellinus</i> .	<i>Papilionidae</i>	Jamaican kite swallowtail	Jamaica.
C	5	<i>Parides ascanius</i>	<i>Papilionidae</i>	Fluminense swallowtail ...	Brazil.
C	2	<i>Parides hahneli</i>	<i>Papilionidae</i>	Hahnel's Amazonian swallowtail.	Brazil.
C	8	<i>Teinopalpus imperialis</i>	<i>Papilionidae</i>	Kaiser-I-Hind swallowtail	Bhutan, China, India, Laos, Myanmar, Nepal, Thailand, Vietnam.
Mollusc					
C	2	<i>Mulinia coloradoensis</i>	<i>Mactridae</i>	Colorado delta clam	Mexico.

Findings on Species for Which Listing Is Warranted But Precluded

We have found that, for the 20 taxa discussed below, publication of

proposed listing rules is warranted but precluded due to the need to complete pending, higher priority proposals to determine whether any species is an endangered species or a threatened

species. We will continue to monitor the status of these species as new information becomes available (see Monitoring, below). Our review of new information will determine if a change

in status is warranted, including the need to emergency list any species or change the LPN of any of the species. In the following section, we describe the status of and threats to the individual species.

Birds

Southern Helmeted Curassow (*Pauxi unicornis*), LPN = 2

Taxonomy

The Bolivian population of the nominate (a subspecies with the same name as the species) species (*Pauxi unicornis unicornis*) remained unknown to science until 1937 (Cordier 1971). The Peruvian subspecies is *Pauxi unicornis koepckeae* (Gastañaga *et al.* 2011, p. 267). What is now recognized as the southern helmeted curassow may in fact be two separate species that are currently recognized as two subspecies (*Pauxi unicornis unicornis* and *Pauxi unicornis koepckeae*). It has been proposed that these subspecies of *Pauxi unicornis* may represent two different species because they are separated by more than 1,000 km (621 mi), and have distinct characteristics (Gastañaga *et al.* 2011, p. 267). Currently, both BirdLife International (BLI) and the International Union for Conservation of Nature (IUCN) recognize the southern helmeted curassow as *Pauxi unicornis* and do not specifically address either subspecies. The Integrated Taxonomic Information System (ITIS) recognizes *Pauxi unicornis* as a full species as well as both subspecies (ITIS 2012, accessed June 11, 2012).

In many cases, taxonomy of species can be unclear. There is substantial discussion in scientific literature that debates the classification of species and whether various entities deserve species status rather than subspecies status (Phillimore 2010, pp. 42–53; James 2010, pp. 1–5; Pratt 2010, pp. 79–89). This is sometimes significant with respect to conservation measures, particularly when considering the criteria used by organizations such as the IUCN. These two subspecies may in fact be species, but for the purpose of this review, these two subspecies essentially face the same threats, are generally in the same region of South America, and both have quite small populations. Absent peer-reviewed information to the contrary and based on the best available information, we recognize both subspecies as being valid. For the purpose of this review, we are reviewing the petitioned entity, *Pauxi unicornis*, which includes all subspecies. We welcome comments on the classification of the southern helmeted curassow.

Species Description

The southern helmeted curassow, also known as the helmeted or horned curassow or the unicorn bird, is one of the least frequently encountered South American bird species (Tobias and del Hoyo 2006, p. 61; Maillard 2006, p. 95; Cox *et al.* 1997, p. 199). This may be due to the inaccessibility of its preferred habitat and its apparent intolerance of human disturbance (MacLeod *et al.* 2009, pp. 15–16; Herzog and Kessler 1998).

This species of curassow inhabits dense, humid, lower montane forest and adjacent evergreen forest at altitudes of between 450 and 1,200 meters (m) (1,476 to 3,937 feet) (Cordier 1971; Herzog and Kessler 1998). It prefers eating nuts of the almendrillo tree (*Byrsonima wadsworthii* (Cordier 1971)), but also consumes other nuts, seeds, fruit, soft plants, larvae, and insects (BLI 2008). Clutch size of the southern helmeted curassow is probably two, as in other *Cracidae*. However, the only nest found contained only one egg (Banks 1998; Cox *et al.* 1997; Renjifo and Renjifo 1997 as cited in BLI 2010a).

Range

The southern helmeted curassow is only known to occur in central Bolivia and central Peru (BirdLife International (BLI) 2012). One of the locations where it has been found is Valle de la Luna, on the east side of the Río Leche, 0.5–1.0 km (0.3–0.6 miles) north of Parque Nacional Carrasco, in the Department of Cochabamba, Bolivia. The Valley is an extensive, flat, largely unvegetated area at 450 m (1,476 ft) above sea level, bounded by the Río Leche to the west and by steep cliffs and primary forest to the east. It has also been located in Ambaró (MacLeod *et al.* 2009, pp. 15–16).

Research indicates that the species once inhabited a contiguous area along the Peruvian-Bolivian Andean mountain cloud forest chain, and now has become two isolated populations or subspecies (see Appendix A in Docket FWS–R9–ES–2012–0044 for a map) that are at the peripheries of its former range (Gastañaga *et al.* 2011, p. 273). In Bolivia, the horned curassow is found only in the departments of Cochabamba and Santa Cruz (BLI 2012; Maillard 2006, p. 95). All current records are from in or near three protected areas—Ambaró, Carrasco, and Isiboro-Sécure (Asociación Armonía 2012; Maillard 2006, p. 95).

In Ambaró National Park (Yungas Inferiores de Ambaró), the southern helmeted curassow was regularly seen on the upper Saguay River (Saguay

Río) (Wege and Long 1995). More recently, it has been observed in the adjacent Ambaró and Carrasco National Parks (Maillard 2006, p. 95; Brooks 2006; Herzog and Kessler 1998). It was also found in Isiboro-Secure Indigenous Territory and National Park (TIPNIS), and along the western edge of the Cordillera Mosetenes, Cochabamba. A recent survey located a few southern helmeted curassows across the northern boundary of Carrasco National Park, where it was historically found (MacLeod 2007 as cited in BLI 2009a). Some surveys conducted between 2004 and 2005 found no evidence of the species anywhere north or east of Ambaró, Carrasco, and Isiboro-Secure National Parks in central Bolivia (MacLeod *et al.* 2009, p. 16). However, one survey in 2005 found it approximately 8 km (5 mi) northeast of Palmasola in the Integrated Management Natural Area, Ambaró, Santa Cruz Department (Maillard 2006, p. 95). It was found only in six locations during the surveys. Extensive surveys over the last several years have failed to locate the species in Madidi National Park, La Paz, on the eastern edge of the Mosetenes Mountains in Cochabamba, or in the Río Tambopata area near the Bolivia-Peru border (MacLeod *in litt.* 2003 as cited in BLI 2010a; Hennessey 2004a as cited in BLI 2009a; Maccormack *in litt.* 2004 as cited in BLI 2008).

In Peru, *Pauxi u. koepckeae* is known only from the Sira Mountains (known as the Reserva Comunal El Sira), in the Department of Huánuco (Gastañaga *et al.* 2011, pp. 267, 269; Tobias and del Hoyo 2006). Surveys suggest that the southern helmeted curassow is extremely rare here (Gastañaga *et al.* 2011, p. 267; MacLeod *in litt.* 2004 as cited in BLI 2008; Maccormack *in litt.* 2004 as cited in BLI 2009a; Gastañaga and Hennessey 2005; Mee *et al.* 2002). *Pauxi u. koepckeae* occurs in an area that is isolated from the Andes Mountains.

Population

The total population of southern helmeted curassow is estimated to be between 1,500 and 7,500 individuals (BLI 2012). Within its limited range, the southern helmeted curassow typically occurs at densities of up to 20 individuals per square kilometer (km²) (MacLeod 2007 as cited in BLI 2008). Within Peru, the population is estimated to have fewer than 400 individuals (Gastañaga *in litt.* 2007, as cited in BLI 2010a). In recent years, extensive field surveys of southern helmeted curassow habitat have resulted in little success in locating the

species (Hennessey 2004a; MacLeod *in litt.* 2004 as cited in BLI 2009a; Maccormack *in litt.* 2004 as cited in BLI 2010a; MacLeod *in litt.* 2003 as cited in BLI 2010a; Mee *et al.* 2002). As of 2009, the estimated decline in the overall population over 10 years was 50 to 79 percent (BLI 2009b).

Factors Affecting the Species

The southern helmeted curassow is dependent upon particular environmental conditions that have been altered over the past few centuries. Southern helmeted curassow populations are estimated to be declining very rapidly (Gastañaga *et al.* 2011, p. 277; Gastañaga 2006, p. 15). This species has a small range and is known only from a few locations, and continues to be subject to habitat loss and hunting pressure. The species was observed in a forested area approximately 5 km (3 mi) from the Valle de la Luna clay lick site where parrots forage for nutrients (Mee *et al.* 2005, p. 4), but it had apparently been exterminated by hunting within 5 years (McLeod *in litt.* in Mee *et al.* 2005, p. 4).

In Bolivia, large parts of southern helmeted curassow habitat are ostensibly protected by inclusion in the Amboró and Carrasco National Parks and in the Isiboro-Secure Indigenous Territory and National Park. However, pressures on the species' populations continue (BLI 2010a). Forests within the range of the southern helmeted curassow in Bolivia are being cleared for crop cultivation by colonists from the altiplano (Maillard 2006, pp. 95–98). Rural development including road

building inhibits its dispersal (Fjeldså *in litt.* 1999 as cited in BLI 2010; Herzog and Kessler 1998). Historically, the species was often hunted for meat due to its large size and for its unique blue casque, or horn, which the local people used to make cigarette lighters (Collar *et al.* 1992; Cordier 1971). In the Amboró region of Bolivia, the bird's head was purportedly used in folk dances (Hardy 1984 as cited in Collar 1992). It is unclear whether this practice still occurs.

In Peru, the main factor affecting *P. u. koepckeae* is hunting by local communities (Gastañaga *et al.* 2011, p. 277), but the species is also impacted by subsistence agriculture forest clearing by colonists, mining, oil exploration, and illegal logging (MacLeod *in litt.* 2000 as cited in BLI 2010a). The Río Leche area experienced a 100 percent population decline in less than 5 years likely due to hunting or other pressures (MacLeod *et al.* 2009, p. 16). In Carrasco National Park, the species had been abundant during surveys in 2001, but in 2004, there were no visual or auditory sightings (MacLeod *et al.* 2009, p. 16). The disappearance may be due to illegal human encroachment. Unless threats are mitigated, this trend will probably continue for the next several years (MacLeod *in litt.* 2005).

Peru and Bolivia have enacted various laws and regulatory mechanisms to protect and manage wildlife and their habitats. However, the remaining suitable habitat for this species is fragmented and degraded. Habitat throughout the species' range has been and continues to be altered as a result of human activities, particularly human

encroachment and concomitant increased pressure on natural resources. Despite the recent improvements in laws in Peru and Bolivia, destructive activities are ongoing within protected areas and in these species' habitat, indicating that the laws governing wildlife and habitat protection in both countries are either inadequate or inadequately enforced to protect the species or to mitigate ongoing habitat loss and population declines.

The FAO conducted a review of forest policies and laws in 2010, and a summary for Peru and Bolivia is in Table 2. The study found that, although Peru does not have a national forest policy, it does have both a national forest program and law in place. Bolivia has a national forest policy, national forest program, and law program in place. No forest laws at the subnational level (such as jurisdictions equivalent to states in the United States) exist in these countries. FAO reported that Peru and Bolivia reported a significant loss of primary forests; this loss peaked in the period 2000–2005 in Peru and increased in Bolivia in the last decade compared with the 1990s (p. 56). FAO also reported that, at a regional level, South America suffered the largest net loss of forests between 2000 and 2010; at a rate of approximately 4.0 million ha (9.9 million ac) per year (p. xvi). In Bolivia, habitat is protected either on the national or departmental level. Recently, Bolivia passed the “Law of Rights of Mother Earth” to add strength to its existing environmental protection laws. This law has the objective of recognizing the rights of the planet (Government of Bolivia, 2010).

TABLE 2—SUMMARY OF FOREST POLICIES AND LAWS IN BOLIVIA AND PERU (ADAPTED FROM FAO GLOBAL FOREST RESOURCE ASSESSMENT 2010, P. 303)

Country	National forest policy		National forest program			Forest law national		
	Exists	Year	Exists	Year	Status	National—type	Year	Subnational exists
Bolivia	Yes	2008	Yes	2008	In implementation	Specific forest law	1996	No
Peru	No	—	Yes	2004	In implementation	Specific forest law	2000	No

Conservation Status

The southern helmeted curassow is classified as endangered on the IUCN Red List (BLI 2012; BLI 2009a). It is not listed in any appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; www.cites.org), which regulates international trade in animals and plants of conservation concern.

It is legally protected in the El Sira Communal Reserve (most of the Sira

Mountains), but hunting still likely occurs in this area. The Armonía Association is carrying out an environmental awareness project to inform local people about the threats to the southern helmeted curassow (Asociación Armonía 2010) and is conducting training workshops with park guards to help improve chances for its survival. Armonía is also attempting to estimate southern helmeted curassow population numbers to identify its most important populations and is evaluating

human impact on the species' natural habitat.

In the previous ANOR, the southern helmeted curassow received an LPN of 2. After reevaluating the threats to the species, we have determined that no change in the LPN is warranted. The southern helmeted curassow does not represent a monotypic genus. It faces threats that are high in magnitude based on its small, limited range. The few locations where it is believed to exist continue to be subject to habitat

destruction and loss from agricultural development, road building, and hunting. Although the population is estimated to be between 1,500 and 7,500 individuals, this may be an overestimate because it has such a limited range and the population trend is believed to be rapidly declining (Jetz *et al.* 2007, p. 1). The best scientific information available suggests that the population decline will continue in the future. Because the species is experiencing such a significant population decline and is still experiencing significant pressures, this species has an LPN of 2 to reflect imminent threats of high magnitude.

Bogota Rail (*Rallus semiplumbeus*), LPN = 2

Species and Habitat Description

The Bogota rail is found in the East Andes of Colombia on the Ubaté-Bogotá Plateau in Cundinamarca and Boyacá. It occurs in the temperate zone at 2,500–4,000 m (8,202–13,123 ft and occasionally as low as 2,100 m) (6,890 ft) in savanna and páramo marshes (BLI 2010b). Bogota rails inhabit wetland habitats with vegetation-rich shallows that are surrounded by tall, dense reeds and bulrushes (Stiles *in litt.* 1999 as cited in BLI 2010b). The species inhabits the water's edge, in flooded pasture and along small overgrown dykes and ponds (Varty *et al.* 1986 as cited in BLI 2010b; Fjeldsá 1990 as cited in BLI 2010b; Salaman *in litt.* 1999 as cited in BLI 2010b). Nests have been recorded adjoining shallow water in beds of *Scirpus* (bulrush or sedge) and *Typha* (cat tail) species (Stiles *in litt.* 1999 as cited in BLI 2010b). The Bogota rail is omnivorous, consuming a diet that includes aquatic invertebrates, insect larvae, worms, mollusks, dead fish, frogs, tadpoles, and plant material (BLI 2012; Varty *et al.* 1986 as cited in BLI 2010b).

Population and Range

The current population is estimated to be between 1,000 and 2,499 individuals (BLI 2012). Although the Bogota rail has been observed in at least 21 locations in Cundinamarca, the Bogota rail population is thought to be declining. It is still described as being uncommon to fairly common, with a few notable populations, including nearly 400 birds at Laguna de Tota, approximately 50 bird territories at Laguna de la Herrera, approximately 100 birds at Parque La Florida, and populations at La Conejera marsh and Laguna de Fuquene (BLI 2010b).

Factors Affecting the Species

Its suitable habitat has become widely fragmented (BLI 2012; BLI 2010b). Wetland drainage, pollution, and siltation on the Ubaté-Bogotá plateau have resulted in major habitat loss and few suitably vegetated marshes remain. All major savanna wetlands are threatened, predominately due to draining, but also due to agricultural runoff, erosion, dyking, eutrophication caused by untreated sewage effluent, insecticides, tourism, hunting, burning, reed harvesting, fluctuating water levels, and increasing water demand. Additionally, road construction may result in colonization and human interference, including introduction of exotic species in previously stable wetland environments (Cortes *in litt.* 2007 as cited in BLI 2010b).

Conservation Status

The Bogota rail is listed as endangered by IUCN primarily because its range is very small and is contracting due to widespread habitat loss and degradation. It is not listed in any appendices of CITES. Some Bogota rails occur in protected areas such as Chingaza National Park and Carpanta Biological Reserve. However, most savanna wetlands are virtually unprotected (BLI 2012).

In the previous ANOR, the Bogota rail received an LPN of 2. After reevaluating the threats to this species, we have determined that no change in the listing priority number for the species is appropriate. The Bogota rail does not represent a monotypic genus. It faces threats that are high in magnitude due to the pressures on the species' habitat. Its range is very small and is rapidly contracting because of widespread habitat loss and degradation (agricultural encroachment, erosion, dyking, and eutrophication). The population is believed to be between 1,000 and 2,499 individuals, and the population trend is believed to be rapidly declining. The factors affecting the species are occurring now, are ongoing, and are therefore imminent. Thus, the LPN remains at 2 to reflect imminent threats of high magnitude.

Takahe (*Porphyrio hochstetteri*), LPN = 8

Species Description

The takahe, a flightless rail endemic to New Zealand, is the world's largest extant (living) member of the rail family (del Hoyo *et al.* 1996). *Porphyrio mantelli* was split into *P. mantelli* (extinct) and *P. hochstetteri* (extant) (Trewick 1996). Takahe territories are between several hectares to more than

100 ha (247 acres) depending on the availability of their preferred food sources (Lee and Jamieson 2001, p. 57). Takahe defend their territories aggressively against other takahe, which means that they will not form dense colonies even in optimal habitat. They are long-lived birds, probably living between 14 and 20 years (Heather and Robertson 1997) and have a low reproductive rate, with clutches consisting of one to three eggs. The species forms life-long pair bonds and generally occupy the same territory throughout life (Reid 1967). Generally, only a few pairs in the wild manage to consistently rear more than one chick each year.

Population and Range

Historically, takahe were common throughout most coastal and eastern parts of the South Island of New Zealand (Grueber and Jamieson 2011, p. 384; Grueber and Jamieson 2008, p. 384). Today, the species is present in the Murchison and Stuart Mountains and was introduced to five island reserves and one privately owned island (Wickes *et al.* 2009, p. 10; Collar *et al.* 1994). Small groups of takahe were introduced to Maud Island in the Marlborough Sounds, Mana and Kapiti Islands north of Wellington, Tiritiri Matangi Island in the Hauraki Gulf northeast of Auckland, and Maungatautari Ecological Island, Waikato. The population in the Murchison Mountains of Fiordland National Park, South Island, is the only mainland population and that has the potential for sustaining a large, viable population (New Zealand Department of Conservation (NZDOC) 2010; 2009b; 2007; Bunin and Jamieson 1996).

When rediscovered in 1948, it was estimated that the takahe population consisted of about 260 pairs (Heather and Robertson 1997; del Hoyo 1996). In 1981, the population reached a low of an estimated 120 birds. As of 2010, it was estimated that there were about 100 birds in the wild in the Murchison Mountains (NZDOC 2010), but there may be up to 300 in this area (<http://www.mitre10takaherescue.co.nz>, accessed July 17, 2012). Currently, there are approximately 350 individuals that are receiving conservation efforts (Grueber *et al.* 2012, p. 4; Wickes *et al.* 2009).

Factors Affecting the Species

Several factors have led to the decline in the species' population. Factors that had affected this species in the past included hunting, a competitor (the introduced brush-tailed possum (*Trichosurus vulpecula*)), and predators

such as stoats (*Mustela erminea*) and the threatened weka (*Gallirallus australis*), a flightless woodhen that is endemic to New Zealand (BLI 2010c). The NZDOC ran a trial stoat control program in a portion of the takahe Special Area to measure the effect on takahe survival and productivity. Initial assessment indicated that the control program had a positive influence (NZDOC 2009, pp. 35–36); however, occasionally, stoat eradication still occurs as needed.

Now the primary factors affecting the species are limited suitable habitat and a very small population size (Grueber *et al.* 2012, pp. 1–5); however, other factors that likely affect this species are discussed in this section. Although there are no known diseases that are currently a concern in the takahe, diseases in avian species are currently a concern in New Zealand and are being monitored (McLelland *et al.* 2011, pp. 163–164).

Studies suggest the level of inbreeding may be underestimated for this species because this species has persisted at a small population size for over 150 years (Grueber and Jamieson 2011, p. 392; Grueber *et al.* 2010, pp. 7–9). Relative to other species, the takahe has low genetic diversity (Grueber *et al.* 2010, pp. 7–9). There is growing evidence that inbreeding can negatively affect small, isolated populations. Inbreeding can result in reduced fitness potential and higher susceptibility to biotic and abiotic disturbances in the short term, and an inability to adapt to environmental change in the long term.

After substantially decreasing in numbers, the species experienced a loss of fitness as a result of recent inbreeding (Grueber *et al.* 2011; Grueber and Jamieson 2008, p. 649). Small populations generally recover slowly from catastrophic events (Crouchley 1994); this is a concern because this species has such a small population size (approximately 350 individuals). To increase the population, NZDOC has been removing some eggs from the wild, captive rearing them, and reintroducing them back into the wild (also refer to Conservation Status, below) (Grueber *et al.* 2012, p. 1; NZDOC 2009, p. 26).

Lead exposure may affect this species on some of the islands (Youl 2009, pp. 79–83). Lead levels in the island populations were found to be higher than those on the mainland. Older buildings on some of the island contain lead paint. One or more takahe breeding pairs were located near buildings containing lead-based paint. A family group on one island that was close to a building containing lead paint was found to have significantly higher lead levels than a family group located away

from buildings (Youl 2009, p. 80). Lead has been found to affect the learning capacity of avian species (Youl 2009, pp. 11–13). This exposure to lead may cause decreased fitness of takahe.

Severe weather may also be a limiting factor to the takahe (BLI 2010c; Bunin and Jamieson 1995). Weather patterns in the Murchison Mountains vary from year to year. High chick and adult mortality may occur during extraordinarily severe winters, and poor breeding may result from severe stormy weather during spring breeding season (Crouchley 1994). The severity of winter conditions adversely affects survivorship of takahe in the wild, particularly of young birds (Maxwell and Jamieson 1997).

Another factor of concern is that the mainland population and the populations on the island reserves may be at carrying capacity (Grueber *et al.* 2012, p. 1; Jamieson 2010, p. 122; Wickes *et al.* 2009, p. 29; Greaves 2007, p. 17). Rareness of a vital component of its diet, *C. conspicua*, may be a limiting factor affecting the lack of viability of the takahe population (Wickes *et al.* 2009, pp. 39–40). *C. conspicua* is less common in the forest understory in the Takahe Special Area than it was historically. NZDOC has conducted research and has attempted to reintroduce and increase the prevalence of this plant species in the Murchison Mountains Reserve (Wickes *et al.* 2009, pp. 39–40). The island populations now primarily consume introduced grasses (BLI 2010c). Some researchers have theorized that consumption of these nonnative species may contribute to inadequate nutrition and subsequent nest failure (Jamieson 2003, p. 708); however, this theory has not been confirmed.

Conservation Status

The takahe is listed as endangered on the IUCN Red List because it has an extremely small population (BLI 2012). It is not listed in any appendices of CITES; international trade is not a concern. New Zealand considers the takahe to be an endangered species, and it is classified as nationally critical under the New Zealand Threat Classification System. The NZDOC, through its 2007–2012 Takahe Recovery Plan, is managing the populations of the species through various conservation efforts such as captive breeding, population management, eradication of predators, and management of grasslands (Wickes *et al.* 2009, p. 9). The Takahe Recovery Group has explored strategies to increase the productivity of the island populations by establishing new island sites or relocating some

birds to the Fiordland population (Grueber *et al.* 2012, p. 4). The NZDOC has been involved in a captive-breeding and release program to improve takahe recovery since 1983 (NZDOC 2009, p. 29). Excess eggs from wild nests are managed to produce birds suitable for releasing back into the wild population in the Murchison Mountains.

Some of these captive-reared birds have been used to establish five predator-free, offshore island reserves. Overall, this species' population numbers fluctuate annually, but appear to be slowly increasing due to intensive management of the island reserve populations (Grueber *et al.* 2012, pp. 1–5; Wickes *et al.* 2009). Pest eradication on Motutapu Island (1,500 ha) (3,707 ac) may provide suitable habitat for this species (Grueber *et al.* 2012, p. 4). These captive-breeding efforts have increased the rate of survival of chicks reaching 1 year of age from 50 to 90 percent (Wickes *et al.* 2009). Although takahe that were translocated to the islands had higher rates of egg infertility and low hatching success when they breed (Jamieson & Ryan 2000), there has been recent breeding success. In 2010, NZDOC reported that at least 21 chicks hatched on predator-free islands, and, for the first time, the mainland population on Maungatautari Ecological Island, Waikato, produced a chick, indicating an improvement in conservation efforts.

In the previous ANOR, the takahe received an LPN of 8. After reevaluating the threats to the takahe, we have determined that no change in the classification of the magnitude and imminence of threats to the species is warranted at this time. The takahe does not represent a monotypic genus. The current population is small (approximately 350 individuals), and the species' distribution is extremely limited. Although it has a small population, limited suitable habitat, and may experience inbreeding depression, because the NZDOC is actively involved in measures to aid the recovery of the species (Grueber *et al.* 2012; Wickes *et al.* 2009, 58 pp.; NZDOC 2009e, 3 pp.), we find the threats that are moderate in magnitude. The NZDOC has implemented a captive breeding and release program to supplement the mainland population, and established several offshore island reserves. However, despite conservation efforts, the threats are ongoing and, therefore, imminent. Lack of suitable habitat and predation, combined with the takahe's small population size and naturally low reproductive rate, are threats to this species that are moderate in magnitude. Thus, the LPN remains at 8 to reflect

imminent threats of moderate magnitude.

Chatham Oystercatcher (*Haematopus chathamensis*), LPN = 8

Species and Habitat Description

The Chatham oystercatcher is the most rare oystercatcher species in the world (NZDOC 2001). It is endemic to the Chatham Island group (Schmechel and Paterson 2005; Marchant and Higgins 1993), which is 860 km (534 mi) east of mainland New Zealand. The Chatham Island group consists of two large, inhabited islands (Chatham and Pitt) and numerous smaller islands. Two of the smaller islands (Rangatira and Mangere) are nature reserves. The Chatham Island group has an ecosystem that consists of biota that is quite different from New Zealand's mainland. The remote marine setting, distinct climate, and physical makeup have led to a high degree of endemism (Aikman *et al.* 2001). The southern part of the Chatham oystercatcher range is dominated by rocky habitats with extensive rocky platforms. The northern part of the range is a mix of sandy beach and rock platforms (Aikman *et al.* 2001); however, the species exhibits preference for intertidal rock platforms and wide sandy beaches (Schmechel and Paterson 2005, p. 5).

Pairs of Chatham oystercatchers occupy their territory all year, while juveniles and subadults form small flocks or occur alone on vacant sections of the coast. Their scrape nests (shallow-rimmed depressions in soil or vegetation) are usually formed on sandy beaches just above spring-tide and storm-surge level or among rocks above the shoreline and are often under the cover of small bushes or rock overhangs (Heather and Robertson 1997).

Population and Range

Records of the Chatham Island oystercatcher indicate that, historically, this species has likely always existed as a sparse and small population (Moore 2008, p. 27). Although the population of this species has never likely been very large (Moore 2008, p. 27), the population has increased since the 1970s to approximately 300 birds due to predator control and habitat protection (NZ DOC 2012; Moore 2009b, p. 32; Moore 2005a). In the early 1970s, the Chatham oystercatcher population was approximately 50 birds (Moore 2008, p. 20; del Hoyo 1996).

The islands of Mangere and Rangatira were designated as Nature Reserves in the 1950s, and efforts began to save the native bird species including the removal of sheep in the 1960s. However,

the Chatham oystercatcher population has not done well on those islands (Moore 2008, p. 29). Over the last 20 years, the population on South East Island (Rangatira), an island free of mammalian predators, has gradually declined since the 1970s for unknown reasons (Moore 2009a, p. 9; Schmechel and O'Connor 1999). The decline is likely due to large waves during sea storms, which have destroyed the nests (Moore 2009a, p. 9). The distribution of oystercatchers in the Chatham Islands has changed from a southern to a northern dominance since 1970 (Moore 2008, p. 25). In the 1970s, 65 percent of the population was found on the southern three islands (Pitt, Mangere and Rangatira) and 35 percent on Chatham Island. As of 2006, 81 percent of the population was on Chatham Island (62 percent in northern core census areas) and 19 percent was on the southern islands (Moore 2008, p. 25).

Factors Affecting the Species

Historically, cattle and sheep grazing, which began in the 1840s–1850s, affected this species and its habitat (Moore 2008, p. 28). On Chatham Island, by 1901 there were 60,000 sheep, although they have since been removed. Much of the forest had been burned and cleared (Butler & Merton 1992 in Moore 2008, p. 28), particularly in coastal areas (Bell & Robertson 1994 in Moore 2008, p. 28).

Predation, nest disturbance, invasive plants, and spring tides and storm surges are factors that significantly impact the Chatham oystercatcher population (NZDOC 2012, p. 2; Moore 2009a, pp. 8–9; Moore 2005; NZDOC 2001). After three summers of video recording, 13 of the 19 nests recorded were predated by cats, but of the remaining six nest failures, weka were responsible for three; red-billed gull, one; sheep-trampling, one; and sea wash, one (Moore 2005b). When a cat was present, eggs usually lasted only 1 or 2 days. The weka, although endemic to New Zealand, is not endemic to the Chatham Islands, and was introduced in the early 1900s. Weka were observed preying upon this species three times through camera trapping between 1999 and 2001 (Moore 2009a, p. 8). Weka is not considered as severe a threat to the Chatham oystercatcher as feral cats because weka only prey on eggs when adult oystercatchers are not present.

Severe reduction in Chatham oystercatcher numbers is attributed primarily to heavy predation by cats (*Felis catus*) and weka (Moore 2009a, p. 8) (NZ 2012). Feral cats have become established on two of the Chatham Islands after being introduced as pets.

Video cameras placed to observe nests indicated that feral cats are a major nest predator. Other predators include the native red-billed gull (*Larus scopulinus*) and southern black-backed gull (*L. dominicanus*) (Moore 2005b).

Nest destruction and disturbance is caused by people fishing, walking, or driving on or near nests. When a nesting area is disturbed, adult Chatham oystercatchers often abandon their eggs for up to an hour or more, leaving the eggs vulnerable to opportunistic predators. Eggs are also trampled by livestock (Moore 2005a), and, in one case, a sheep was observed lying on a nest (Moore 2009b, p. 21).

Another obstacle to Chatham oystercatcher populations is habitat degradation. Marram grass (*Ammophila arenaria*) introduced to New Zealand from Europe to protect farmland from sand encroachment (Moore 2008, p. 28) has spread to the Chatham Islands where it binds beach sands forming tall dunes with steep fronts. In many marram-infested areas, the strip between the high-tide mark and the fore dunes narrows as the marram advances seaward. The dense marram grass is unsuitable for nesting (Moore 2008, p. 28; Moore and Davis 2005). Consequently, the Chatham oystercatcher is forced to nest closer to shore where nests are vulnerable to tides and storm surges. In a study done by Moore and Williams (2005), the authors found that, along the narrow shoreline, many eggs were washed away and the adults would not successfully breed without human intervention. Oystercatcher eggs were moved away from the shoreline by fieldworkers and placed in hand-dug scrapes surrounded by tidal debris and kelp.

Conservation Status

The Chatham oystercatcher is listed as critically endangered by the NZDOC (2010d), making it a high priority for conservation management (NZDOC 2007). It is classified as “Endangered” on the IUCN Red List because it has an extremely small population (BLI 2012). It is not listed in any appendices of CITES.

The birds of the Chatham Island group receive limited protection in part due to their remote location and subsequent inaccessibility (McBride 2011, p. 108). The NZDOC focused conservation efforts in the early 1990s on predator trapping and fencing to limit domestic stock access to nesting areas. In 2001, the NZDOC published the Chatham Island Oystercatcher Recovery Plan 2001–2011 (NZDOC 2001, 24 pp.), which prescribed actions such as translocation of nests away from

the high-tide mark and nest manipulation to further the conservation of this species. These actions may have helped to increase hatching success (NZDOC 2008b). Artificial incubation has been attempted but has not increased productivity. Additionally, livestock have been fenced and signs erected to reduce human and dog disturbance. Control of the invasive Marram grass has been successful in some areas. Intensive predator control combined with nest manipulation has resulted in a high number of fledglings (BLI 2009; NZDOC 2008).

In the previous ANOR, the Chatham oystercatcher received an LPN of 8. After reevaluating the threats to this species, we have determined that no change in the classification of the magnitude and imminence of threats to the species is warranted at this time. The Chatham oystercatcher does not represent a monotypic genus. The current population estimate is very small (approximately 350 individuals), and the species has a limited range. Although the NZDOC has taken measures to aid the recovery of the species (the species' population is slowly increasing on some islands), the species continues to face threats (predation, trampling, low population numbers, and potential loss due to storm surges) that are moderate in magnitude (McBride 2011, pp. 108, 110; Moore 2008, p. 30). However, the threats are still ongoing and, therefore, imminent. The LPN remains an 8 to reflect imminent threats of moderate magnitude.

Orange-Fronted Parakeet (*Cyanoramphus malherbi*), LPN = 8

Taxonomy

The orange-fronted parakeet, endemic to New Zealand, was treated as an individual species until it was proposed to be a color morph of the yellow-crowned parakeet, *C. auriceps*, in 1974 (Holyoak 1974). Further taxonomic analysis indicated that it is a distinct species (Kearvell *et al.* 2003). IUCN, BLI, and ITIS all recognize *Cyanoramphus malherbi* as a full species (ITIS 2010, accessed July 16, 2010). The common name "orange-fronted parakeet" is used by BirdLife International (2000, 2004) as the common name for *Aratinga canicularis*, which is native to Costa Rica. Because New Zealand continues to refer to this species as the orange-fronted parakeet, we will use this common name in this document. Absent peer-reviewed information to the contrary, we consider

Cyanoramphus malherbi to be a valid species.

Species Description

This species, also known as Malherbe's Parakeet or the kākāriki, is primarily green with yellow and orange coloring on its head above its bill with some blue wing feathers. The female lays between five and eight eggs and the eggs take 21–26 days to incubate. During mast years (a year in which vegetation produces a significant abundance of mast, or fruit), when there is a high abundance of seed production by *Nothofagus species* (beech trees), parakeet numbers can increase substantially; breeding has been linked with food availability.

On South Island, seeds of *Nothofagus* species were observed to be a major component of its diet (Kearvell *et al.* 2002, pp. 140–145). On the mainland, the species is reliant on old mature beech trees with natural cavities for nesting, but on the islands where it has been introduced, it is less selective in its nest sites (Ortiz-Catedral and Brunton 2009, p. 153). In other areas where it has been introduced, it feeds on a variety of other food sources. On Maud Island, a primary component of its diet was *Melicactus ramiflorus* (mahoe) (Ortiz-Catedral and Brunton 2009, p. 385). In addition to eating seeds, the orange-fronted parakeet feeds on fruits, leaves, flowers, buds, and small invertebrates (NZ DOC 2012, p. 1).

Population and Range

This species is described as never having been common (Mills and Williams 1979). The orange-fronted parakeet has an extremely small and fragmented population in addition to a limited range (BLI 2012). BLI estimates its population in the wild is between 50 and 249 individuals (BLI 2012). NZDOC's population estimate as of 2009 was between 100 and 200 individuals remaining in the wild. Between 2007 and 2009, researchers introduced 62 birds to Maud Island, which has been designated as a scientific reserve and consists of 296 hectares (731 ac). Seventy-one birds have been relocated to Tuhua Island, and these birds appear to be breeding successfully (Fauna Recovery NZ 2012, p. 1).

At one time, the orange-fronted parakeet was scattered throughout most of New Zealand (Harrison 1970). During the 19th century, the species' distribution included South Island, Stewart Island, and a few other offshore islands of New Zealand (NZDOC 2009a), but in the Southern Alps it is now only found in a few North Canterbury valleys ([http://www.teara.govt.nz/en/small-](http://www.teara.govt.nz/en/small-forest-birds/10)

forest-birds/10). This species historically inhabited southern beech forests, with a preference for areas bordering stands of *N. solandri* (mountain beech) (del Hoyo 1997; Snyder *et al.* 2000; Kearvell 2002).

The South Island populations are located within a 30-km (18.6-mi) radius in beech (*Nothofagus* spp.) forests of upland valleys (Hawdon and Poulter valleys). These valleys are within Arthur's Pass National Park and the Hurunui South Branch in Lake Sumner Forest Park in Canterbury, South Island (NZDOC 2009a). Orange-fronted parakeets have been relocated to predator-free Chalky Island in Fiordland, Maud Island, Tuhua Island off Tauranga, and in 2011, Blumine Island (Butterfield 2011; Elliott and Suggate 2007; Ortiz-Catedral and Brunton 2009, p. 385). It is unclear whether the population trend is declining or stable (Fauna Recovery NZ 2012; NZDOC 2009a).

Factors Affecting the Species

There are several reasons for the species' continuing decline; one of the most prominent factors affecting the species is believed to be predation by species that are not native to the island such as stoats (*Mustela erminea*) and rats (*Rattus* spp.) (NZ 2012, p. 1). Large numbers of stoats and rats in beech forests have caused large losses of parakeets (NZDOC 2009c). Both species of predators are excellent hunters on the ground and in trees. They predate parakeet nests in tree cavities, which impacts primarily females, chicks, and eggs (NZDOC 2009c).

Habitat loss and degradation are two other factors that have affected the orange-fronted parakeet's suitable habitat (NZDOC 2006, p. 2). Large areas of native forest have been felled or burned, decreasing the habitat available for parakeets (NZDOC 2009c). Silviculture of beech forests in the past had removed trees at an age when few would become mature enough to develop suitable cavities for species such as the orange-fronted parakeet (Kearvell *et al.* 2002, p. 261). The species' habitat is also degraded by brush-tailed possum (*Trichosurus vulpecula*), cattle, and deer, which all browse on plants, subsequently changing the forest structure (NZDOC 2009c). This is problematic for the orange-fronted parakeet, which feeds on seeds and insects on the ground and low-growing shrubs (Kearvell *et al.* 2002, p. 261).

Other impacts to this species' viability exist. These include: (1) Increased competition between the orange-fronted parakeet and the yellow-crowned

parakeet for nest sites and food in a habitat that has been significantly modified by humans; (2) competition with introduced finch species (species unknown); and (3) competition with introduced wasps (*Vespula vulgaris* and *V. germanica*), which compete with parakeets for invertebrates as a dietary source (Kearvell *et al.* 2002). Hybridization with other species was a concern—the orange-fronted parakeet was thought to hybridize with the yellow-crowned parakeets (*C. auriceps*) at Lake Sumner (Snyder *et al.* 2000). However, researchers have introduced orange-fronted parakeets to islands where they are not likely to overlap in range with other parakeet species (Ortiz-Catedral 2011, pp. 152–162).

Beak and Feather Disease Virus (BFDV) has been a concern for the NZDOC, and the disease was discovered in wild native birds on South Island for the first time in 2011 (Massaro *et al.* 2012, unpaginated). The disease affects both wild and captive birds, with chronic infections resulting in feather loss and deformities of beak and feathers. Birds usually become infected in the nest by ingesting or inhaling virus particles. Birds will either develop immunity, die within a couple of weeks, or become chronically infected. We know of no vaccine in existence to immunize populations. However, the NZDOC is aware of the potential effect on the species, and efforts are in place to protect the orange-fronted parakeet from this disease (Ortiz-Catedral *et al.* 2010, pp. 618–619).

Conservation Status

The NZDOC (2009b) considers the orange-fronted parakeet to be the most rare parakeet in New Zealand. Because it is classified as “Nationally Critical” with a high risk of extinction, the NZDOC has been working intensively to ensure its survival. The species is also listed as “critically endangered” on the IUCN Red List. It is listed in Appendix II of CITES; however, trade is not currently a concern (CITES 2010).

The NZDOC closely monitors all known populations of the orange-fronted parakeet. Nest searches are conducted, nest cavities are inspected, and surveys are conducted in other areas to look for evidence of other populations. Because the NZDOC determined that the species’ largest threat is predation, they initiated a program to remove predators in some parts of the species’ range. “Operation ARK” is an initiative to respond to predator problems in beech forests in order to prevent species’ extinctions, including orange-fronted parakeets. Predators are methodically controlled

with traps, bait stations, bait bags, and aerial spraying, when necessary (Wickes *et al.* 2009). The NZDOC also implemented a captive-breeding program for the orange-fronted parakeet. Using captive-bred birds from the program, NZDOC established several self-sustaining populations of the orange-fronted parakeet on predator-free islands. The NZDOC monitors wild nest sites and is actively managing the conservation of the species. Despite these controls, predation by introduced species is still a factor affecting the species because predators have not been completely eradicated from this species’ range.

In the previous ANOR, the orange-fronted parakeet received an LPN of 8. After reevaluating the factors affecting the orange-fronted parakeet, we have determined that no change in the classification of the magnitude of threats to the species is warranted because NZDOC is actively managing the species and the species’ population seems to have stabilized. The orange-fronted parakeet does not represent a monotypic genus. Although the species’ available suitable nesting habitat in beech forests is extremely limited, translocations have taken place and seem to be successful (Fauna Recovery NZ 2012).

Additionally, the current population is small (approximately 350 individuals), and the species’ distribution is extremely limited, but threats are being mitigated. The species faces threats (competition for food and suitable nesting habitat within highly altered habitat, predation, and habitat degradation) that are moderate in magnitude because the NZDOC has taken measures to aid the recovery of the species. However, because the overall population of this species is very small and it could be affected by BFDV, we find that the threats to this species are still imminent. Thus, the LPN remains at 8 to reflect imminent threats of moderate magnitude.

Uvea parakeet (*Eunymphicus uvaensis*), LPN = 8

Species and Habitat Description

The Uvea parakeet is endemic to a small island in New Caledonia, and is found primarily in old-growth forests, specifically those dominated by the pine tree *Agathis australis* (del Hoyo *et al.* 1997). The island is predominantly limestone and lacks deep soil layers (Boon *et al.* 2008, p. 257).

Uvea parakeets feed on fruit, berries, and flowers and seeds of native trees and shrubs (Robinet and Salas 2003, p. 71; del Hoyo *et al.* 1997). They also feed on a few types of crops in cultivated

land adjacent to their habitat. The greatest number of birds is seen close to gardens with papayas (BLI 2010f). A significant characteristic is that Uvea parakeets nest in cavities of native trees; so the absence of suitable trees and nesting cavities may be a limiting factor (Robinet and Salas 2003, p. 71). Their clutch size is generally two to three eggs; and they are known to have another clutch if the first set of eggs is destroyed (BLI 2010f).

Taxonomy

The Uvea parakeet, previously known as *Eunymphicus cornutus*, is now recognized as a full species (Barré *et al.* 2010, p. 695; Boon *et al.* 2008, p. 251). Research presented in 2008 indicates that the Uvea parakeet, based on genetic, ecological, behavioral, and biogeographical evidence, is so markedly distinct that it warrants status as a species (Boon *et al.* 2008, p. 259). ITIS considers the Uvea parakeet to be a subspecies, *Eunymphicus cornutus uvaensis* (ITIS 2012, accessed July 17, 2012). However, based on the best scientific and commercial data available, we consider the Uvea parakeet to be *E. uvaensis*.

Habitat and Range

The Uvea parakeet is found only on the island of Uvea (also known as both Ouvéa Island and Wallis Island) in the Loyalty Archipelago, New Caledonia (a territory of France) in the South Pacific Ocean. The island is approximately 1,500 km (932 mi) east of Australia. Uvea Island is 110 km² (42 mi²) in size (Juniper and Parr 1998). Most Uvea parakeets occur in a forested area consisting of about 20 km² (7.7 mi²) in the north of the island, although some individuals are found in strips of forest on the northwest isthmus and in the southern part of the island, with a total potential habitat of approximately 66 km² (25.5 mi²) (BLI 2010f).

Population

One survey of Uvea parakeet in the early 1990s estimated that the population was between 70 and 90 individuals (Hahn 1993). However, another survey in 1993 (Robinet *et al.* 1996) yielded an estimate of between 270 and 617 individuals. In 1999, it was believed that 742 individuals lived in northern Uvea, and 82 were in the south of the Island (Primot 1999 as cited in BLI 2010f). Six surveys conducted between 1993 and 2007 indicated a steady increase in population numbers in both areas (Verfaillie *in litt.* 2007 as cited in BLI 2010f). The current population estimate is between 1,280

and 3,413 individuals (IUCN 2012; Barré *et al.* 2010, p. 695).

Factors Affecting the Species

The primary factors that had affected this species have been the capture of juveniles for the pet trade (Barre *et al.* 2010, pp. 695, 699). Capture of juvenile parakeets for the pet trade involves cutting open nesting cavities to extract nestlings, which renders the holes unsuitable for future nesting. However, since restrictions have been put into place and the species has been monitored in association with its recovery plan (see *Conservation Status* section below), it appears that nest poaching is no longer occurring such that it significantly affects this species (Barre *et al.* 2010, p. 699). Since conservation awareness programs and protections such as guards were put into place, the population has increased. However, because the human population on the island is increasing, encroachment and other factors continue to be concerns.

This species' status is still tenuous due to its small population size. The primary factors affecting this species are now believed to be the lack of nesting sites, predation, and competition from bees for nesting sites (Barre *et al.* 2010, pp. 695, 699; Robinet *et al.* 2003, pp. 73, 78). Introductions of Uvea parakeets to the adjacent island of Lifou (to establish a second population) in 1925 and 1963 failed (Robinet *et al.* 1995 as cited in BLI 2009), possibly because of the presence of ship rats and Norway rats (Robinet *in litt.* 1997 as cited in Snyder *et al.* 2000).

Preventive measures have been taken at the main seaport of entry to the island and airport to prevent introduction of rats, but there is concern that rats may be accidentally introduced in the future (BLI 2010, p. 3). As of 2010, the island was rat-free (Barre *et al.* 2010, p. 696). Although current Uvea parakeet numbers are increasing, any relaxation of conservation efforts or introduction of nonnative rats, other predators (particularly cavity-nesting bees, the ship rat, and the Norway rat), or invasive species could lead to a rapid decline (BLI 2010f; Robinet *et al.* 1998). Artificial nests are being installed to increase available nesting sites, and BirdLife Suisse (ASPO) is continuing to destroy invasive bees' nests and is placing hives in forested areas to attract bees for removal (Verfaillie *in litt.* 2007 as cited in BLI 2010f).

Conservation Status

This species is listed as "Endangered" on the IUCN Red List (IUCN 2012). Protection for this species increased when it was uplisted to Appendix I of

CITES from Appendix II in July 2000. This action was due to its small population size, restricted area of distribution, loss of suitable habitat, and the illegal pet trade (CITES 2000b). Various conservation measures are in place for this species. A recovery plan for the Uvea parakeet was developed by the Association for the Protection of the Ouvéa Parakeet for the period 1997–2002, which included strong local participation in population and habitat monitoring (Robinet *in litt.* 1997 as cited in Snyder *et al.* 2000). A second recovery plan was initiated in 2003. The species increased in popularity and is now celebrated as an island emblem (Primot *in litt.* 1999 as cited in BLI 2009; Robinet and Salas 1997). *In-situ* management (habitat protection and restoration such as providing nest boxes and food) and public education about the Uvea parakeet and its habitat occur (Barre *et al.* 2010, p. 699; Robinet *et al.* 1996). Increased awareness of the plight of the Uvea parakeet and improvements in law enforcement capability are helping to address illegal trade of the species.

In the previous ANOR, the Uvea parakeet received an LPN of 2. We reevaluated the threats to the Uvea parakeet and determined that a change in the LPN for the species is warranted because the population has significantly increased and now its population is estimated to be between 1,280 and 3,413 individuals. The Uvea parakeet does not represent a monotypic genus and it is an island endemic with limited suitable habitat (Barre *et al.* 2010, p. 695). The Uvea parakeet continues to experience a tenuous situation primarily due to the lack of the old-growth forest on which the birds depend for nesting holes. Management of the species has resulted in an increase in the population; therefore, the threats are moderate in magnitude. Because the species has increased in size due to conservation education, a ban on commercial trade and a reduction in poaching, we have changed the LPN from 2 to 8 to reflect imminent threats of moderate magnitude.

Helmeted woodpecker (*Dryocopus galeatus*), LPN = 8

Species and Habitat Description

The helmeted woodpecker is sympatric (co-occurs) with two other woodpeckers that are similar in appearance: the lineated woodpecker (*Dryocopus lineatus*) and the robust woodpecker (*Campephilus robustus*). The helmeted woodpecker is a fairly small woodpecker (27–29 cm (10.6–11.4 in) in length). It has a cinnamon face,

containing no white markings, barred underparts, brown-black wings, a white rump, and a large, rounded red crest on its head (Lammertink *et al.* 2012, unpaginated). Common names for this species include Carpintero cara canela (Spanish) and pica-pau-de-cara-canela (Portuguese). It typically forages in the mid-story of the tree canopy and has been observed eating larvae, ants, berries, and small fruit (Bodrati, personal observation). It prefers to nest in tree cavities of dead or decaying trees, but has been observed in tree cavities of a live anchico tree (*Parapiptadenia rigida*) and a live grapia tree (*Apuleia leiocarpa*). Its habitat type consists of tropical and subtropical moist forests, tropical dry forests, and mangrove forests at mostly low-to-medium elevations less than 1,000 m (3,281 ft); however, altitude in the Atlantic Forest region can reach as high as 2,000 m (6,562 ft) above sea level.

This species exhibits an unusual behavior of sharing nest cavities with other bird species. It was observed sharing a nest cavity with white-eyed parakeets (*Aratinga leucophthalma*) in 2009 and with white-throated woodcreepers (*Xiphocolaptes albicollis*) in 2010. However, in one instance, there was conflict between two species, and the conflict may have resulted in clutch failure of the helmeted woodpecker (Lammertink *et al.* 2012, unpaginated).

Population

The helmeted woodpecker's population is believed to have declined sharply between 1945 and 2000 in conjunction with the clearing of mature forest habitat (Lammertink *et al.* 2012). Although forest clearing has recently slowed, the population of this species is still believed to be declining. Because the helmeted woodpecker is difficult to locate except when vocalizing and it is silent most of the year, its population size is difficult to determine. The most recent estimate of its population is between 400 and 8,900 individuals and decreasing, but experts believe its population is more likely closer to the smaller estimate (Lammertink *et al.* 2012, unpaginated; Bodrati 2010, unpaginated).

Range

This species is endemic to the southern Atlantic forest region of southeastern Brazil, eastern Paraguay, and northeastern Argentina (Lammertink *et al.* 2012, p. 1). Its estimated range is likely between 25,000 and 40,000 km² (9,653 and 15,444 mi²), which is reduced from a historical distribution of 661,330 km² (255,341 mi²). The Atlantic Forest extends along

the Atlantic coast of Brazil from Rio Grande do Norte in the north to Rio Grande do Sul in the south, and inland as far as Paraguay and Misiones Province of northeastern Argentina (Conservation International 2007a, p. 1; Höfling 2007, p. 1; Morellato and Haddad 2000, pp. 786–787). The Atlantic Forest extends up to 600 km (373 mi) west of the Atlantic Ocean.

The territory or home range requirements for this species are unclear, however, in 2010, two nests in Intervalles State Park, Brazil, were located 2.4 km (1.49 mi) apart from each other (Junior, pers. comm. in Lammertink *et al.* 2012, unpaginated). The species is not common anywhere it is known to exist (BLI 2010h). Lammertink *et al.* 2012 note that in old-growth sites this species may reach densities estimated at one territory per 3 to 5 km² (1.2 to 1.9 mi²) (Brooks *et al.* 1993, Esquivel pers. comm., Bodrati pers. obs.).

In Paraguay, the species is known from the eastern half of the country, in the departments of Amambay, San Pedro, Canindeyú, Caaguazú, Alto Paraná, Guairá, Cazaapá, Itapúa, and Paraguari (Lammertink *et al.* 2012, unpaginated; Collar *et al.* 1992, Hayes 1995). In Argentina, it is only known from Misiones province. In Brazil, it occurs in the states of São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul.

It is found generally in mature montane forest along the Atlantic coast from sea level up to elevations of 1,000 m (3,280 ft). The species has been recorded in degraded and small forest patches; however, it is usually found in or near large undisturbed forested tracts (Cockle 2010; Chebez 1995b as cited in BLI 2010h; Clay *in litt.* 2000 as cited in BLI 2010h). This species is often absent from large tracts of apparently suitable habitat (Collar *et al.* 1992). For example, local ornithologists indicate that large portions of Iguazú National Park (550 km² of mature forest), appear not to be or are rarely used by this species (Castelino and Somay *in litt.* in Lammertink 2010, unpaginated).

Factors Affecting the Species

There is little information available about this species, however, species experts indicate that the factors affecting the species include the reduction of nesting sites, loss of connectivity of suitable habitat, and widespread deforestation (Kohler *in litt.* 2010, unpaginated; Cockle 2008 as cited in BLI 2010h). Its range is believed to be reduced to 20 percent of its original habitat (Lammertink *et al.* 2012, unpaginated). Between 92 and 95

percent of the area historically covered by tropical forests within the Atlantic Forest biome has been converted or severely degraded as a result of various human activities (Butler 2007, p. 2; Conservation International 2007a, p. 1; Höfling 2007, p. 1; The Nature Conservancy (TNC) 2007, p. 1; World Wildlife Fund (WWF) 2007, pp. 2–41; Saatchi *et al.* 2001, p. 868; Morellato and Haddad 2000, p. 786; Myers *et al.* 2000, pp. 853–854). Of this, less than one percent of the remaining forest in the range of the helmeted woodpecker is original undisturbed habitat. Most of the forest clearance in the Atlantic Forest occurred between 1945 and 2000 (Galindo-Leal and de Gusmão Câmara 2003), and this was likely the period during which the helmeted woodpecker's population severely declined (Lammertink *et al.* 2012, unpaginated).

A significant portion of Atlantic Forest habitat has been, and continues to be, lost and degraded by various ongoing human activities, including logging, establishment and expansion of plantations and livestock pastures, urban and industrial developments (including new hydroelectric dams), slash-and-burn clearing, and both intentional and accidental ignition of fires (Critical Ecosystem Partnership Fund (CEPF) 2001, pp. 9–15). Even with the passage of a national forest policy and in light of many legal protections in Brazil, the rate of habitat loss throughout the Atlantic Forest biome has increased since the mid-1990s (Rocha *et al.* 2005, p. 270; CEPF 2001, p. 10; Hodge *et al.* 1997, p. 1). The remaining sites where the helmeted woodpecker currently exists may be lost over the next several years (Rocha *et al.* 2005, p. 263). Furthermore, the helmeted woodpecker's population is already highly fragmented, and its population is believed to be declining parallel with habitat loss (BLI 2010h).

Information suggests that this species does not do as well in secondary, although mature, forest than it does in primary, undisturbed forested areas. There may be an ecological component that is missing from the secondary forest; ecological interactions can be complex and relationships may not always be obvious. When habitat is degraded, there is often a lag time before the species losses are evident (Brooks *et al.* 1999, p. 1140), so the helmeted woodpecker may still be present, despite the low quality of its habitat. Further studies are needed to clarify this species' distribution and status.

This species may not be as competitive as other species whose range overlaps with the helmeted

woodpecker. Other species, particularly more aggressive woodpeckers, may compete for nest sites, or they may use fragmented and “edge” habitat more effectively (Lammertink *et al.* 2012, unpaginated; BLI 2010h). The lack of nesting cavities is often a limiting factor for bird species that depend on these cavities for nesting (Sandoval and Barrantes 2009, p. 75; Kyle 2006, p. 8).

In Paraguay, some viable, although fragmented, habitat for this species remains in San Rafael National Park (Esquivel *et al.* 2007, pp. 301–302). However, the park has undergone logging and clearance, and is extremely isolated from other mature forested areas that might be suitable for the helmeted woodpecker (Esquivel *et al.* 2007, p. 302). Fragmentation of populations can decrease the fitness and reproductive potential of the species, which exacerbates other threats.

Conservation Status

The helmeted woodpecker is listed as vulnerable by the IUCN (IUCN 2012). It is not listed in any appendices of CITES (CITES 2012). It is protected by Brazilian law, and populations occur in numerous protected areas throughout its range such as Intervalles State Park in Brazil and in San Rafael National Park in Paraguay (Esquivel *et al.* 2007, p. 301; Lowen *et al.* 1996 as cited in BLI 2009; Chebez *et al.* 1998 as cited in BLI 2009).

In the previous ANOR, the helmeted woodpecker received an LPN of 8. After reevaluating the available information, we find that no change in the LPN for the helmeted woodpecker is warranted. The helmeted woodpecker does not represent a monotypic genus. The magnitude of threat to the species is moderate because the species' range is fairly large. The threats are imminent because the forest habitat upon which the species depends is still being altered and degraded. We will continue to monitor the status of this species, however, an LPN of 8 remains valid for this species.

Okinawa woodpecker (*Dendrocopos noguchii* syn. *Sapheopipo noguchii*), LPN = 2

Taxonomy

Often there are differences in the taxonomic classification of species. ITIS recognizes the Okinawa woodpecker, (also known as Pryer's woodpecker) as belonging to the monotypic genus *Sapheopipo* (ITIS 2012, accessed August 17, 2012). IUCN and BLI both recognize this species as *Dendrocopos noguchii*. Japan references it as *Sapheopipo noguchii* (www.env.go.jp/en/nature/biodiv/reddata.html),

accessed September 30, 2010). Winkler *et al.* (2005, pp. 103–109) analyzed partial nucleotide sequences of mitochondrial genes and concluded that this woodpecker belongs in the genus *Dendrocopos* which consists of several species (not a monotypic genus). For the purpose of this finding and absent peer-reviewed information to the contrary, we recognize it as *D. noguchii* and will treat *S. noguchii* as a synonym.

Species and Habitat Description

This species of woodpecker prefers undisturbed, mature, subtropical evergreen broadleaf forests, with tall trees greater than 20 cm (7.9 in) in diameter (del Hoyo 2002; Short 1982). Trees of this size are generally more than 30 years old, and as of 1991 were confined to hilltops (Brazil 1991). The species' main breeding areas are thought to be located along the mountain ridges between Mt. Nishime-take and Mt. Iyutake, although it has been observed nesting in well-forested coastal areas in the northern part of the island (Research Center, Wild Bird Society of Japan 1993, as cited in BLI 2001). The majority of the broadleaf trees in the Yanbaru area are oak and chinquapin (*Distylium racemosum* and *Schefflera octophylla*) (Ito *et al.* 2000, p. 305). Areas with conifers (*Coniferae*, cone-bearing trees such as pines and firs) appear to be avoided (Winkler *et al.* 1995; Short 1973). The Okinawa woodpecker was also observed just south of the Mt. Tano-dake in an area of entirely secondary forest that was too immature for use by woodpeckers to excavate nest cavities, but these may have been birds displaced by the clearing of mature forests (Brazil 1991).

The Okinawa woodpecker feeds on large arthropods, notably beetle larvae, spiders, moths, and centipedes, as well as fruit, berries, seeds, acorns, and other nuts (Winkler *et al.* 2005; del Hoyo 2002; Short 1982). It forages in old-growth forests with large, often moribund trees, accumulated fallen trees, rotting stumps, debris, and undergrowth (Brazil 1991; Short 1973). This species has been observed nesting in holes excavated in large, old growth trees such as *Castanopsis cuspidate* (Japanese chinquapin) and *Machilus thunbergii* (Tabu-no-ki tree) (del Hoyo 2002; Short 1982; Ogasawara and Ikehara 1977). Both of these tree species grow to approximately 20 meters (66 ft) in height. It is thought that *Castanopsis* is the preferred tree species for nesting because it tends to be hollow with hard wood, so that the nesting cavities are more secure (Kiyosu 1965 in BLI 2001, p. 1,880). The number of fledglings per

season range between one and three birds (BLI 2001, p. 1,880).

Range

The Okinawa woodpecker is endemic to Okinawa Island, Japan. Okinawa is the largest of the Ryukyu Islands, a small island chain located between Japan and Taiwan (Winkler *et al.* 2005; Stattersfield *et al.* 1998; Brazil 1991). Okinawa is approximately 646 km (401 mi) from Taiwan and 1,539 km (956 mi) from Tokyo, Japan. The island is 108 km (67 miles) in length and its width varies between 3 and 27 km (2 to 17 mi). Okinawa's highest point is Mt. Yonaha at 455 m (1,494 ft). The Okinawa woodpecker is confined to forested areas in the northern part of the island, generally in the Yanbaru (also known as Yanbaru) area, particularly in the Yonaha-dake Prefecture Protection Area. Yanbaru refers to the mountainous areas of Kunigami County in northern Okinawa.

Population

This species is considered one of the world's most rare extant woodpecker species (Winkler *et al.* 2005). Many observations of this species have recently been made at the Jungle Warfare Training Center, part of the United States Marine Corps (USMC) installation on Okinawa Island (USMC *in litt.* 2012). During the 1930s, the Okinawa woodpecker was considered nearly extinct. In the early 1970s, it was observed to be scattered among small colonies and isolated pairs (Short 1973). By the early 1990s, the breeding population was estimated to be about 75 birds (BLI 2008a). In 2008, its projected 10-year decline was between 30 to 49 percent (BLI 2008b). The current population estimate is between 100 and 390 mature individuals (BLI 2012).

Factors Affecting the Species

Deforestation and the fragmented nature of its habitat due to logging, dam construction, road-building, agricultural development, and golf course construction have been cited to be the main causes of its reduced habitat and decreased population (BLI 2010i). Between 1979 and 1991, 2,443 ha (6,037 ac) of forest were destroyed in the Yanbaru area (Department of Agriculture, Okinawa Prefectural Government 1992, in Ito *et al.* 2000, p. 311). As of 2001, there was only 40 km² (15 mi²) of suitable habitat available for this species (BLI 2001, p. 1882). Most of the habitat loss appears to have ceased; however, it still suffers from limited suitable habitat and a small population size (BLI 2012).

The limited range and tiny population make this species vulnerable to extinction from disease and natural disasters such as typhoons (BLI 2012, p. 54). In addition, the species may be vulnerable to predators due to its tendencies to forage close to the ground. Feral dogs and cats, the introduced Javan mongoose (*Herpestes javanicus*), and weasel (*Mustela itatsi*) are likely predators of the woodpecker (BLI 2012).

Conservation Status

Various protections and conservation measures are in place for this species. The species is categorized on the IUCN Red List as critically endangered because it consists of a small, declining population estimated to be between 100 and 390 mature individuals (BLI 2012). The species is legally protected in Japan, and it occurs in small protected areas in Yanbaru (BLI 2012). The Yanbaru forested area in the Okinawa Prefecture, was designated as a national park in 1996 (BLI 2010i). The species is also listed in the USMC's 2009 Integrated Natural Resources Management Plan in compliance with the Japan Environmental Governing Standards, to be used by Department of Defense installations in Japan (USMC 2012). Additionally, conservation organizations have purchased sites where the woodpecker occurred in order to establish private wildlife preserves (del Hoyo *et al.* 2002; BLI 2008). It is not listed in any appendices of CITES.

In the previous ANOR, the Okinawa woodpecker received an LPN of 2. After reevaluating the available information, we find that no change in the LPN for the Okinawa woodpecker is warranted. The Okinawa woodpecker does not represent a monotypic genus. It is considered one of the world's most rare extant woodpecker species. The best available information indicates that this species is being actively monitored. However, the threats to the species are of high magnitude due to the scarcity of old-growth habitat (only 40 km² (15 mi²)) upon which the species is dependent. Its very small population is believed to still be declining, and species with fragmented habitat in combination with small population sizes may be at greater risk of extinction due to synergistic effects (Davies *et al.* 2004, pp. 265–271). Although it exists in areas with protected status, the best available information indicates that the threats to the species continue to be ongoing and imminent. Because the species faces threats that are high in magnitude due to its restricted population size, past habitat loss, endemism, and because the current

population estimate ranges between 100 and 390 mature individuals, the LPN for this species remains a 2 to reflect imminent threats of high magnitude.

Yellow-browed toucanet
(*Aulacorhynchus huallagae*),
LPN = 2

Species and Habitat Description

There is very little information available regarding the yellow-browed toucanet. This species is endemic to Peru and is known from only two locations in north-central Peru—La Libertad, where it is described as uncommon, and Rio Abiseo National Park, San Martin, where it is thought to be very rare (BLI 2012b; del Hoyo *et al.* 2002; Wege and Long 1995). There was also a report of yellow-browed toucanets observed in the Leymebamba area (Mark *in litt.* 2003, as cited in BLI 2010j) of Peru, although there are no available photos of this species to verify this information.

Distinguishing features of the yellow-browed toucanet include a bright yellow vent or cloaca, a blackish bill, and a generally green face, (Schulenberg and Parker 1997, p. 719). Its call has been described as a series of 20 to 30 frog-like “krik” notes, delivered at a rate of slightly more than one note per second (recordings housed in Cornell Laboratory of Ornithology, Schulenberg and Parker 1997, p. 717).

Population and Range

The current population size is believed to be 600–1,500 mature individuals, with a decreasing population trend (BLI 2012, p. 1).

The yellow-browed toucanet's estimated range is 450 km² (174 mi²) (BLI 2012). The species inhabits a narrow altitudinal range between 2,125 and 2,510 m (6,970 and 8,232 ft). It prefers a canopy of humid, epiphyte-laden montane cloud forests, particularly areas that support *Clusia* trees (known as autograph trees) (del Hoyo *et al.* 2002; Schulenberg and Parker 1997, pp. 717–718; Fjeldsø and Krabbe 1990). Within the *Clusia* genus, there are about 20 species.

The yellow-browed toucanet does not appear to occupy all potentially suitable forest available within its range (Schulenberg and Parker 1997). The narrow distributional band in which yellow-browed toucanets are found may be related to the occurrence of other avian species that may outcompete the yellow-browed toucanet. Both of the suggested competitors have wider altitudinal ranges that completely encompass the range of the yellow-browed toucanet (del Hoyo *et al.* 2002;

Clements and Shany 2001, as cited in BLI 2008; Hornbuckle *in litt.* 1999, as cited in BLI 2009; Collar *et al.* 1992). The larger grey-breasted mountain toucan (*Andigena hypoglaucha*) occurs above 2,300 m (7,544 ft), and the emerald toucanet (*Aulacorhynchus prasinus*) occurs below 2,100 m (6,888 ft) (Schulenberg and Parker 1997). The yellow-browed toucanet may occur to the north and south of its known range, but the area between the Cordillera de Colán, Amazonas, and the Carpiish region, Huánuco, is inaccessible for surveying, and its existence in other areas has not been confirmed.

Factors Affecting the Species

Deforestation, mining, and secondary impacts associated with those activities such as habitat degradation, erosion, and contamination from mining waste affect this species' habitat. Deforestation within its range has been widespread, but has largely occurred at lower elevations than habitat occupied by the yellow-browed toucanet (Barnes *et al.* 1995; BLI 2009). However, coca growers have taken over forests within its altitudinal range, probably resulting in some reductions in this species' range and population (BLI 2012; Plenge *in litt.* 1993, as cited in BLI 2009). Most of the area in 1997 was described as being only lightly settled by humans (Schulenberg and Parker 1997). However, the human population surrounding the Rio Abiseo Park was steadily increasing during the 15 years prior to 2002, primarily due to the advent of mining operations in the area (Obenson 2002). Pressures in and around the park exist due to mining and those secondary impacts associated with mining (Vehkamäki and Bäckman 2006, pp. 1–2).

Conservation Status

The yellow-browed toucanet is listed as endangered on the IUCN Red List due to its very small range and population records from only two locations (BLI 2012). It occurs in at least one protected area, the Rio Abiseo National Park, a World Heritage Site which was established to protect fauna (UNEP–WCMC 2008, p. 1). It is not listed in any appendices of CITES (CITES 2012). No other protections are known, but see *Pauxi unicornis* for a discussion of applicable laws in Peru.

In the previous ANOR, the yellow-browed toucanet received an LPN of 2. After reevaluating the available information, we find that no change in the LPN for the yellow-browed toucanet is warranted. The yellow-browed toucanet does not represent a monotypic genus. As of 2010, BLI reported that

coca-growers have taken over forest within its altitudinal range (BLI 2010j). The magnitude of threats to the species is high given that the species has a very small range and declining population and may be in competition for habitat with more competitive avian species. Additionally, the only records of this species are from two small locations, and they have not been verified in several years. Thus, the LPN for this species remains a 2 to reflect imminent threats of high magnitude.

Brasilia tapaculo (*Scytalopus novacapitalis*), LPN = 11

Taxonomy

Within the *Scytalopus* genus, there are several species (Raposo and Kirwan 2008, p. 80). The *Brasilia tapaculo* is a common name that could refer to several species within the *Scytalopus* genus (Raposo *et al.* 2006, p. 37). *S. novacapitalis* is described as occupying the northwestern part of the overall range (from Brasília south to western Minas Gerais—the central to southern-central region of the country); *S. pachecoii* is described as occupying Rio Grande do Sul, Santa Catarina, and northeastern Argentina; *S. diamantinensis* is described as occupying the northernmost part of Brazil; and two species: *S. speluncae* and *Scytalopus sp. nov.* (possibly *S. novacapitalis* but the taxonomy is unclear) occupy the central area of the overall range (Raposo and Kirwan 2008, p. 80; Raposo *et al.* 2006, p. 51). Both BLI and ITIS recognize the *Brasilia tapaculo* as *Scytalopus novacapitalis* (BLI 2012; ITIS 2012, Accessed August 10, 2012). For the purpose of this document, we will refer to *S. novacapitalis* as the *Brasilia tapaculo*.

Species and Habitat Description

The *Brasilia tapaculo* is a small bird endemic to Brazil. The *Brasilia tapaculo* occupies the central to southern-central region of the country (Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) 2012; BLI 2012). The *Brasilia tapaculo* is found in swampy “gallery” forests. These forests surround streams and rivers in regions otherwise devoid of trees, within disturbed areas of thick streamside vegetation and dense secondary growth of *Pteridium aquilinum* (bracken fern). The *Brasilia tapaculo* is strongly associated with two plant species: *Blechnum* ferns and *Euterpe* palms (del Hoyo *et al.* 2003, in BLI 2010k).

This species, *S. novacapitalis*, is notably different from its congeners in two ways. It is light grey with brown fringed feathers on the rump and flanks

and is morphologically almost identical to *S. speluncae* (Raposo *et al.* 2006, p. 52). Additionally, the song of *S. novacapitalis* consists on average of 1.1 notes per second, which is considerably fewer than either *S. notorius* or *S. speluncae*, whereas the duration of each note lasts an average 0.1 seconds, as opposed to either *S. speluncae* or *S. notorius*, which never exceeded 0.05 seconds in any sample analyzed (Raposo *et al.* 2006, p. 52).

Range

The species has been documented in the state of Goiás and in the state of Minas Gerais, specifically in Serra da Canastra National Park (BLI 2012; Honkala and Niiranen 2010, p. 124; BLI 2008; Scaramuzza *et al.* 2005, p. 49; Silveira 1998, p. 55; Negret and Cavalcanti 1985, as cited in Collar *et al.* 1992). The species occupies forested areas within a range of approximately 109,000 km² (42,085 mi²) but is still likely losing habitat (BLI 2010; Scaramuzza *et al.* 2005, p. 49). Its distribution now may be larger than believed when we were initially petitioned to list this species in the 1980s. In Serra do Cipó and Caraça, which are in the hills and plateaus of central Brazil, this species was located at low densities (Collar *et al.* 1992). In and around the Serra da Canastra National Park, this species has in the past been reported to be very common (Honkala and Niiranen 2010, p. 124; Silveira 1998, p. 3). In the Minas Gerais area, the species was located at low densities at Serra Negra (on the upper Dourados River) and the headwaters of the São Francisco river in the early 1990s (Collar *et al.* 1992).

Population

There is no current population estimate other than that the population is decreasing in connection with habitat loss and degradation (BLI 2012).

Factors Affecting the Species

The swampy forests where it is found are not as conducive to forest clearing as other areas, leaving the species' habitat less vulnerable to habitat loss and degradation than previously thought. The majority of locations where this species is found are likely within established protected nature reserves such as Serra da Canastra. Both fire risk and drainage impacts are reduced in these areas (Antas *in litt.* 2007). However, dam building for irrigation on rivers that normally flood gallery forests may still impact this species (Antas *in litt.* 2007; Teixeira *in litt.* 1987, as cited in Collar *et al.* 1992).

Its population has likely decreased in connection with habitat loss.

Conservation Status

The IUCN categorizes the Brasília tapaculo as "Near Threatened" (BLI 2012). It is not listed in any appendices of CITES (CITES 2010). This species was listed in Brazil's Official List of Species of Brazilian Fauna Threatened with Extinction in 1989 under Ordinance No. 1522 of 19 December 1989, Law No. 7.735 of 1989 (IBAMA 1989, p. 6). However, the Brasília tapaculo is no longer listed on Brazil's List of Species of Brazilian Fauna Threatened with Extinction (IBAMA 2003). In 2005, a team reviewed priority areas for biodiversity conservation in Goiás State, and the Brasília tapaculo was considered to have a lower level of vulnerability than many other species in the state (Scaramuzza *et al.* 2005, pp. 48–49).

Some of the areas where this species occurs are protected. Three Important Bird Areas (IBAs) have been identified as important for this species: Parque Nacional de Brasília, Cerrados ao Sul de Brasília, and the Serra da Canastra National Park. IBAs are a way to identify conservation priorities (BLI 2012). A site is recognized as an IBA when it meets criteria " * * * based on the occurrence of key bird species that are vulnerable to global extinction or whose populations are otherwise irreplaceable." Criteria for sites for conservation are those that are small enough to be conserved in their entirety, but large enough to support self-sustaining populations of the key bird species.

In the previous ANOR, the Brasília tapaculo received an LPN of 8. After reevaluating the available information, we find that a change in the LPN for the Brasília tapaculo is warranted. The Brasília tapaculo does not represent a monotypic genus. The magnitude of threat to the species is moderate to low because at least two of the populations are in protected habitat which ameliorate some factors affecting the species; and its preferred habitat is swampy and difficult to clear. Threats are nonimminent, because it is found in a number of habitats and is reported as being common in some protected areas. Because the species has such a wide range and its distribution is likely larger than believed when we were initially petitioned to list this species in the 1980s, we find that, an LPN of 11 is appropriate for this species, and we will continue to monitor its status.

Codfish Island fernbird (*Bowdleria punctata wilsoni*), LPN = 12

Taxonomy

There are five subspecies of *Bowdleria punctata*, each restricted to a single island in New Zealand and its outlying islets. The North Island subspecies (*M. p. vealeae*) and South Island subspecies (*M. p. punctatus*) are described as widespread and locally common. The Stewart Island (*M. p. stewartianus*) and the Snares (*M. p. caudatus*) subspecies are described as being moderately abundant (Heather and Robertson 1997). IUCN and BLI only recognize the species *Bowdleria punctata*; it is not addressed at subspecies level. Neither the species nor the subspecies is addressed by ITIS (www.itis.gov, accessed June 8, 2012). However, the New Zealand Department of Conservation (NZDOC) recognizes the Codfish Island fernbird as a valid subspecies. Because New Zealand recognizes the subspecies, and absent peer-reviewed information to the contrary, we currently consider *Bowdleria punctata wilsoni* to be a valid subspecies within a multispecies genus.

Species Description

There is little information available about this species. The Codfish Island fernbird is found only on Codfish Island, New Zealand. Codfish Island is a nature reserve of 1,396 ha (3,448 ac) located 3 km (1.8 mi) off the northwest coast of Stewart Island (McClelland 2007). McClelland (2007) indicated that, in the past, the Codfish Island fernbird was restricted to low shrubland in the higher areas of Codfish Island. Fernbirds are sedentary and are not strong fliers. They are secretive and reluctant to leave cover and feed in low vegetation or on the ground, eating mainly caterpillars, spiders, grubs, beetles, flies, and moths (Heather and Robertson 1997).

Population

Although there is no current estimate of the size of the Codfish Island fernbird population (estimates are based on incidental encounter rates in the various habitat types on the island), the population as of 2007 was believed to be several hundred. In 1966, the status of the Codfish Island subspecies (*B. punctata wilsoni*) was considered relatively safe (Blackburn 1967), but estimates dating from 1975 indicated a gradually declining population to approximately 100 individuals (Bell 1975 as cited in IUCN 1979). While there are no accurate data on the population size or trends on Putauhinu, as of 2007, the numbers were estimated to be between 200 and 300 birds spread

over the island (McClelland 2007). McClelland believes that the population has likely stabilized (2007).

Factors Affecting the Species

Codfish Island's native vegetation has been modified by the Australian brush-tailed possum (*Trichosurus vulpecula*), which was introduced to the Island. Codfish Island fernbird populations were also reduced due to predation by weka and Polynesian rats (McClelland 2007; McClelland 2002, pp. 1–9; Merton 1974, pers. comm., as cited in IUCN 1979). The Codfish Island fernbird population was reported to have rebounded strongly with the removal of predator species in the 1980s and 1990s (McClelland 2007). Additionally, it successfully recolonized forest habitat, which greatly expanded its range. However, because there is always the chance that rats could reestablish a population on the island; the island is being monitored for rats. To safeguard the Codfish Island fernbird, the NZ DOC established a second population on Putauhinu Island, a small 144-ha (356-ac), privately owned island located approximately 40 km (25 mi) south of Codfish Island. The Putauhinu population established rapidly, and McClelland (2007) reported that it is believed to be stable. Even with a second population on Putauhinu Island, the Codfish Island fernbird still remains vulnerable to naturally occurring storm events due to its restricted range, predation, and small population size.

Conservation Status

The Codfish Island fernbird has varying levels of conservation status. At the species level, IUCN categorizes *Bowdleria punctata* as least concern (BLI 2010k); however, neither the IUCN nor BLI addresses the subspecies individually. The 2008 New Zealand Threat Classification System manual indicates that the two “at risk” categories: “range restricted” and “sparse” have been replaced by a single category called “naturally uncommon” (p. 10). The NZDOC categorizes this subspecies as “naturally uncommon.” It is not listed in any appendices of CITES (CITES 2010).

In the previous ANOR, the Codfish Island fernbird received an LPN of 12. After reevaluating the available information, we find that no change in the LPN for this subspecies is warranted. The information available indicates that the subspecies faces threats that are low to moderate in magnitude because: (1) It exists on an island that is a nature reserve, and (2) the removal of predators and the establishment of a second population

have allowed for a rebound in the subspecies' population. Although the actual population numbers for this subspecies are unknown (possibly around 500 individuals), threats are nonimminent because the conservation measures have been successful. Therefore, an LPN of 12 remains valid for this subspecies. However, we will continue to monitor the status of this subspecies.

Ghizo white-eye (*Zosterops luteirostris*), LPN = 2

Species and Habitat Description

There is little information available about this species and its habitat (Filardi 2012, pers. comm.). Its range is estimated to be less than 35 km² (13.5 mi²), of which less than 1 km² (0.39 mi²) is old growth forest. The Ghizo white-eye (also known as the splendid white-eye) is described as “warbler-like.” Its physical characteristics include silvery-white eye rings with dark olive upper parts and its underparts are bright yellow (BLI 2012). The species has a black beak and orange-yellow legs (BLI 2012). The Ghizo white-eye is endemic to the small island of Ghizo, which is 11 km long and 5 km wide (7 by 3 mi). Ghizo is a densely populated island in the Solomon Islands in the South Pacific Ocean, east of Papua New Guinea (BLI 2010m). As of 2005, the human population on the island was estimated to be approximately 6,670 (www.adb.org, accessed September 9, 2010).

Population

A very rough population estimate for this species is between 250 and 1,000 mature individuals (BLI 2012). However, it is based on (1) population density estimates for close relatives with a similar body size, and (2) the fact that only a portion of its estimated extent of occurrence is likely to be occupied (BLI 2012). In the 1990s, this species was characterized as being locally common in the remaining tall or old-growth forest, which is very fragmented and is now believed to be less than 1 km² (0.39 mi²). It is unclear whether the remaining habitat can support sustainable breeding populations (Filardi pers. comm. 2012, Buckingham *et al.* 1995, as cited in BLI 2008). Biologists familiar with this species recommend that systematic surveys be conducted for this species to verify its status in the wild and to evaluate the condition of its habitat and its population. Although there are no data on population trends, the species is very likely declining due to habitat loss and

degradation (Filardi pers. comm. 2012, BLI 2012).

Factors Affecting the Species

This species' small population is likely declining due to habitat loss. Areas around Ghizo Town, which previously supported the species, have been further degraded since the town was devastated by a tsunami, and habitat was found less likely able to support the species in 2012 (Filardi *in litt.* 2012). The tsunami in 2007 contributed to the loss of habitat to the point where the area around Ghizo town, which once contained the species, has been deemed unable to support the species (Filardi *in litt.* 2012 in BLI 2012). Extreme weather events are likely to affect this species; however, little information is available.

The species is also affected through conversion of forested areas to agricultural uses (BLI 2008). The very tall old-growth forest on Ghizo is still under pressure from clearance for local use as timber, firewood, and gardens, as are the areas of secondary growth, which are already suboptimal habitats for this species. Its very small population is believed to still be declining; and species with fragmented habitat in combination with small population sizes may be at greater risk of extinction due to synergistic effects (Davies *et al.* 2004, pp. 265–271).

Conservation Status

Few, if any, protections are in place for this species. The IUCN Red List classifies this species as endangered because of its very small population that is considered to be declining due to habitat loss (Filardi 2012, pers. comm., BLI 2012). It is not listed in any appendices of CITES (CITES 2012).

In the previous ANOR, the Ghizo white-eye received an LPN of 2. After reevaluating the available information, we find that no change in the LPN for this species is warranted. The Ghizo white-eye does not represent a monotypic genus. It faces threats that are high in magnitude due to declining suitable habitat and its small, declining population size. The best available information indicates that forest clearing is occurring at a pace that is rapidly denuding the habitat; secondary growth is being converted to agricultural purposes. Further, the human population on the small island is likely contributing to the reduction in old-growth forest for local uses such as gardens and timber. The estimate of the Ghizo white-eye population is believed to be between 250 and 1,000 individuals, and its population trend is believed to be declining. These threats

to the species are ongoing, of high magnitude, and imminent. Thus, based on the best available scientific and commercial information, the LPN remains a 2 for this species.

Black-backed tanager (*Tangara peruviana*), LPN = 8

Species and Habitat Description

This species' physical characteristics include an underbody color of blue-turquoise and a pale red-brown vent or cloaca. The male has a chestnut-colored head and black back. The female is duller and greener. It has a complex distribution with seasonal fluctuations in response to the ripening of *Schinus* fruit, at least in Rio de Janeiro and São Paulo (BLI 2010n). It has been observed visiting gardens and orchards of houses close to forested areas. Its diet consists primarily of fruit and to a smaller extent, insects (Moraes and Krul 1997).

The black-backed tanager is endemic to the coastal Atlantic forest region of southeastern Brazil. The species has been documented in Rio de Janeiro, São Paulo, Parana, Santa Catarina, Rio Grande do Sul, and Espírito Santo (BLI 2010n; Argel-de-Oliveira *in litt.* 2000, as cited in BLI 2008). The species is generally restricted to *Restinga* habitat, which is a Brazilian term that refers to sandy forest habitat consisting of a patchwork of vegetation types, such as beach vegetation; open shrubby vegetation; herbaceous, shrubby coastal sand dune habitat; and both dry and swamp forests distributed over coastal plains (McGinley 2007, pp. 1–2; Rocha *et al.* 2005, p. 263). This habitat type is specific to the local nutrient-poor, sandy, acidic soils of the Atlantic Forest. In addition to being found in undisturbed habitat, the black-backed tanager has also been observed in secondary forests (BLI 2008).

The Atlantic Forest extends up to 600 km (373 mi) west of the Atlantic Ocean. It consists of tropical and subtropical moist forests, tropical dry forests, and mangrove forests at mostly low-to-medium elevations less than 1,000 m (3,281 ft); however, altitude can reach as high as 2,000 m (6,562 ft) above sea level.

Population

Within suitable habitat, the black-backed tanager is generally not considered rare (BLI 2010n). The population estimate is between 2,500 to 10,000 individuals (BLI 2012). This species is more common in São Paulo during the winter, and records from Espírito Santo are only available from the winter season. Additional knowledge of the species' seasonal

movements would provide an improved understanding of the species' population status and distribution, but populations currently appear small and fragmented and are believed to be declining, likely in response to extensive habitat loss (BLI 2012).

Factors Affecting the Species

The primary factor affecting this species is the rapid and widespread loss of habitat. As of 2000, between 7 and 10 percent of its habitat remained intact (Morellato and Haddad 2000, p. 786; Oliveira-Filho and Fontes 2000, p. 794). Based on a number of estimates, 92 to 95 percent of the area historically covered by tropical forests within the Atlantic Forest biome has been converted or severely degraded as a result of various human activities (Butler 2007, p. 2; Conservation International 2007a, p. 1; Höfling 2007, p. 1; TNC 2007, p. 1; WWF 2007, pp. 2–41; Saatchi *et al.* 2001, p. 868; Morellato and Haddad 2000, p. 786; Myers *et al.* 2000, pp. 853–854). In addition to the overall loss and degradation of its habitat, the remaining tracts of its habitat are severely fragmented.

Its remaining suitable habitat in the areas of Rio de Janeiro and São Paulo are affected by ongoing development of coastal areas, primarily for tourism enterprises (e.g., large hotel complexes, beachside housing) and associated infrastructure support (BLI 2012; WWF 2007, pp. 7 and 36–37; del Hoyo 2003, p. 616). These activities have drastically reduced the species' abundance and extent of its occupied range. These activities affect the species' continued existence because populations are being limited to highly fragmented patches of habitat (BLI 2012). This species seems to tolerate some environmental degradation if there are well-preserved stretches in its territory in which the birds can seek shelter; however, we expect habitat loss and degradation will likely increase in the future.

Because this species inhabits coastal areas, sea level rise may also affect this species (Alfredini *et al.* 2008, pp. 377–379). In Santos Bay on the coast, sea level rise scenarios were investigated based on predictions of sea level increases between 0.5 and 1.5 m (1.6 and 4.9 ft) by the year 2100 (Alfredini *et al.* 2008, pp. 378). Even small increases in sea level may cause flooding and erosion and could change salt marsh zones within this species' habitat (Alfredini *et al.* 2008, pp. 377–379). As sea level rises, less habitat will be available for this species. Habitat loss due to sea level rise may be compounded by an increased demand by humans to use land for housing and

infrastructure. The black-backed tanager would likely attempt to move inland in search of new suitable habitat as its current habitat disappears. However, there may not be enough suitable habitat remaining for the species. Although Brazil has several laws implementing protection for species such as the black-backed tanager and small portions of this species' range occur in six protected areas, none of the protected areas are supported by effective protection according to BLI (2012). Its habitat is under pressure from the intense development that occurs in coastal areas, particularly south of Rio de Janeiro. These factors affecting the black-backed tanager's remaining habitat are ongoing due to the challenges that Brazil faces to balance its competing development and environmental priorities.

Conservation Status

The species is classified as vulnerable by the IUCN (BLI 2012). The black-backed tanager is not listed in any appendices of CITES (CITES 2010). Portions of the tanager's range are in six protected areas, although protections are not always effective (BLI 2012). This species is protected under the National Environmental Policy Act (Law 6.938 of 1981), implemented by the Brazilian Institute of the Environment and Natural Resources (Instituto Brasileiro do Meio Ambiente e do Recursos Naturais Renováveis (IBAMA)). The basis of environmental law and policy in Brazil is Article 225 of its Constitution (Pereira Neto *et al.* 2011, p. 63).

In the previous ANOR, the black-backed tanager received an LPN of 8. After reevaluating the available information, we find that no change in the LPN for this species is warranted at this time. The black-backed tanager does not represent a monotypic genus. Despite laws in place, its habitat continues to diminish. We find that threats (primarily habitat loss) to the species are moderate in magnitude due to the species' fairly large range, existence in protected areas, and apparent flexibility in diet and habitat suitability. Threats are imminent because the species is at risk due to ongoing and widespread loss of habitat due to beachfront and related development. Therefore, an LPN of 8 remains valid for this species.

Lord Howe Island pied currawong
(*Strepera graculina crissalis*),
LPN = 6

Taxonomy

The Lord Howe Island pied currawong is a subspecies distinct from the five mainland pied currawongs (*Strepera graculina* spp.). In 2004, it was suggested that its taxonomy be reviewed to determine if it warrants recognition as a distinct species (McAllan *et al.* 2004). ITIS recognizes only *S. graculina* (ITIS 2012, accessed August 21, 2012) rather than the subspecies. The subspecies is not specifically addressed by BLI or IUCN. Because Australia recognizes the subspecies, and absent peer-reviewed information to the contrary, we consider *S. graculina crissalis* to be a valid subspecies within a multispecies genus.

Species Range and Habitat Description

This subspecies is endemic to Lord Howe Island, New South Wales, Australia. Lord Howe Island is 600 km (373 mi) northeast of Sydney, Australia. This is also the distance to the subspecies' closest relative, the mainland pied currawong (*S. graculina*). The Lord Howe pied currawong is limited to an 18-km² (6.95 mi²) area on the 20-km² (7.7-mi²) island (Government of Australia 2012, p. 3). It has been recorded to a limited extent on small nearby islets of the Admiralty group (New South Wales Department of Environment & Climate Change (NSW DECC) 2010; Garnett and Crowley 2000). Lord Howe Island is unique among inhabited Pacific Islands in that less than 15 percent of the island has been cleared (Wilkinson and Priddel 2011, p. 508) and less than 24 percent has been disturbed (NSW Department of Environment and Conservation (DEC) 2007a).

The Lord Howe pied currawong breeds in rainforests and palm forests, particularly along streams. Its territories include sections of streams or gullies that are lined by tall timber (Garnett and Crowley 2000). The highest densities of Lord Howe pied currawong nests have been located on the slopes of Mount Gower and in the Erskine Valley, with smaller numbers on the lower land to the north (Knight 1987, as cited in Garnett and Crowley 2000). The nests are typically situated high in trees and are made in a cup shape with sticks and lined with grass and palm thatch (NSW DECC 2005). As of 2001, most of Lord Howe Island was still forested.

The Lord Howe pied currawong is omnivorous and eats a wide variety of food, including native fruits and seeds (Hutton 1991, Auld *et al.* 2009). It is the

only remaining native island vertebrate predator (NSW DECC 2010). It has been recorded eating seabird chicks, poultry, and chicks of the Lord Howe woodhen (*Tricholimnas sylvestris*) and white tern (*Gygis alba*). It also feeds on both live and dead rats (Hutton 1991). Food brought to Lord Howe pied currawong nestlings by its parents was observed to be, in decreasing order of frequency: invertebrates, fruits, reptiles, and nestlings of other bird species (Lord Howe Island Board (LHIB) 2006).

Population

In the 2000 Action Plan for Australian Birds (Garnett and Crowley 2000), the Lord Howe pied currawong population was estimated to be approximately 80 mature individuals. In 2007, the Foundation for National Parks & Wildlife (FNPW 2007) estimated that the breeding population of the Lord Howe pied currawong was between 80 and 100 pairs, with a nesting territory in the tall forest areas of about 5 ha (12 ac) per pair (Carlile 2007, pers. comm. in Government of Australia 2012, p. 3). The most recent population estimate was between 100 and 200 individuals (from surveys in 2005–2006) (NSW DECC 2010, p. 3). It was recently described as being widespread on the island and occurring in urban areas (Government of Australia 2012, p. 3); however, a precise estimate of the population is unavailable.

Factors Affecting the Species

The small population size makes this species highly vulnerable to factors that can be detrimental to its survival. Its population size is limited by the amount of available habitat and the lack of food during the winter (FNPW 2007). Two potential threats have been identified: the introduction of exotic predators and the persecution of the Pied Currawong (Lord Howe Island) by humans in retaliation to attacks on domestic and endemic birds (Garnett & Crowley 2000; Hutton 1991). On Lord Howe Island, ten bird species have become extinct due to hunting, introduced predators, and competitors (Government of Australia 2012b, p. 633). The Lord Howe pied currawong remains unpopular with some residents, likely because of its predatory nature on nestlings. The incidence of shooting has declined since the 1970s, when conservation efforts on Lord Howe Island began (Hutton 1991), but occasional shootings occurred as of 2007 (Carlile 2007, pers. comm.). It is unclear what effect this localized killing has on the overall population size and distribution of the species (Garnett and Crowley 2000).

The Lord Howe Island Pied Currawong has persisted in reasonable numbers despite the introduction of the black rat (*Rattus rattus*) in 1918 (Fullagar & Disney 1975; McAllan *et al.* 2004). However, it may benefit from previous rat eradication programs and a rat eradication program that is currently underway (The Daily Telegraph, July 20, 2012; Carlile 2007, pers. comm.). The removal of feral animals has resulted in the recovery of some forest understory (WWF 2001).

Other factors affecting the species include nontarget poisoning, and effects associated with extremely small population sizes (NSW DECC 2010). Because the Lord Howe pied currawong often preys on rats, it may be subject to nontarget poisoning during rat-baiting programs (Wilkinson and Priddel 2011, p. 509; DEC 2007b). The Pied Currawong may actually have benefited from the introduction of some exotic plants and animals that are now used as a food source (Garnett & Crowley 2000; McFarland 1994; Mills undated; Cooper 1990; Hutton 1991).

Habitat loss and degradation continue to occur. All the forest areas adjacent to clearings continue to suffer from progressive dieback (Sinclair 2002, p. 6). Sinclair notes that the Permanent Park Preserve and Transit Hill are degrading at the edges where rainforest trees (which need to be buffered) are exposed to strong winds. Close monitoring of the population is needed because this small, endemic population is highly susceptible to the factors identified above as well as catastrophic events such as disease or introduction of a new predator (Government of Australia 2012b, p. 633).

Conservation Status

Various levels of conservation and protections exist for this subspecies. At the species level, it is considered least concern by the IUCN; the subspecies is not addressed (BLI 2010o). It is not listed in any appendices of CITES. The NSW Threatened Species Conservation Act of 1995 lists the Lord Howe pied currawong as vulnerable due to its extremely limited range (it only occurs on Lord Howe Island) and its small population size (NSW DECC 2010). The pied currawong is also listed as vulnerable under the Australian Commonwealth Environment Protection and Biodiversity Conservation Act of 1999. These laws provide a legislative framework to protect and encourage the recovery of vulnerable species (NSW DEC 2006a). The Lord Howe Island Act of 1953, as amended, (1) established the Lord Howe Island Board (LHIB), (2) made provisions for the LHIB to care,

control, and manage the island; and (3) established 75 percent of the land area as a permanent park preserve (NSW DEC 2007). Additionally, the Lord Howe Island Biodiversity Management Plan was finalized in 2007, and is the formal Recovery Plan for threatened species and communities of the Lord Howe Island Group (DEC 2007a, Government of Australia 2005, p. 574).

In the previous ANOR, the Lord Howe pied currawong received an LPN of 6. After reevaluating the threats to the Lord Howe pied currawong, we have determined that no change in the LPN representing the magnitude and imminence of threats to the subspecies is warranted. The Lord Howe pied currawong does not represent a monotypic genus. It faces threats that are high in magnitude due to a combination of factors including its extremely small population size, nontarget poisoning, and habitat clearing and modification. Despite conservation efforts, the population of the Lord Howe pied currawong has remained around 100 to 200 individuals. Species with small, declining population sizes such as these may be at greater risk of extinction due to synergistic effects of factors affecting this species (Davies *et al.* 2004, pp. 265–271). However, because conservation efforts for the species have been implemented, and the species is being closely managed and monitored, we find that the threats are nonimminent. Thus, based on the best available information, the LPN remains at 6 to reflect nonimminent threats of high magnitude.

Invertebrates

Harris' mimic swallowtail (*Mimoides* (*syn. Eurytides*) *lysithous harrisianus*), LPN = 6

Species and Habitat Description

Harris' mimic swallowtail butterfly is a subspecies endemic to Brazil (Collins and Morris 1985). Although the species' range historically included Paraguay, the subspecies has not recently been confirmed in Paraguay (Finnish University and Research Network 2004; Collins and Morris 1985). Occupying the lowland swamps and sandy flats above the tidal margins of the coastal Atlantic Forest, the subspecies prefers alternating patches of strong sun and deep shade (Brown 1996; Collins and Morris 1985). This subspecies is polyphagous, meaning that its larvae feed on more than one plant species (Kotiaho *et al.* 2005). Information on its preferred host plants and adult nectar-sources was published in the status review (also known as a 12-month

finding) on December 7, 2004 (69 FR 70580). The Harris' mimic swallowtail butterfly mimics at least three butterfly species in the *Parides* genus, including the Fluminense swallowtail (described below). This mimicry system makes it difficult to distinguish this subspecies from the species that it mimics (Brown *in litt.* 2004; Monteiro *et al.* 2004).

Population

The Barra de São João colony is the best-studied. Between 1984 and 2004, the population maintained a stable size, varying between 50 to 250 individuals (Brown *in litt.* 2004; Brown 1996; Collins and Morris 1985), and was reported to be viable, vigorous, and stable in 2004 (Brown *in litt.* 2004). There are no estimates of the size of the colony in Poço das Antas Biological Reserve where it had not been seen for 30 years prior to its rediscovery there in 1997 (Brown *in litt.* 2004). Population estimates are lacking for the colony at Macaé, where the subspecies was netted in Jurubatiba National Park in the year 2000, after having not been seen in the area for 16 years (Monteiro *et al.* 2004).

Range

In Rio de Janeiro, Harris' mimic swallowtail has been confirmed in three locations. Two colonies were identified on the east coast of Rio de Janeiro, at Barra de São João and Macaé, and the other in Poço das Antas Biological Reserve, farther inland. The range of Harris' mimic swallowtail overlaps two protected areas: Poço das Antas Biological Reserve and Jurubatiba National Park, and therefore it is somewhat protected from habitat loss. Both Barra de São João and the Poço das Antas Biological Reserve are within the São João River Basin. The Barra de São João River Basin encompasses a 216,605-ha (535,240-ac) area, of which 150,700 ha (372,286 ac) is managed as a protected area. The Harris' mimic swallowtail was previously known in Espirito Santo; however, there are no recent confirmations of its occurrence there (New and Collins 1991; Collins and Morris 1985).

Factors Affecting the Species

Habitat destruction has been the main threat to this subspecies (Brown 1996; Collins and Morris 1985), especially urbanization in Barra de São João, industrialization in Macaé (Jurubatiba National Park), and previous fires that occurred in the Poço das Antas Biological Reserve. As described in detail for the Fluminense swallowtail (below), Atlantic Forest habitat has been reduced to 5 to 10 percent of its original cover. More than 70 percent of the

Brazilian population lives in the Atlantic Forest region, and coastal development is ongoing throughout the Atlantic Forest region (TNC 2009; Butler 2007; Conservation International 2007; CEPF 2007a; Höfling 2007; Peixoto and Silva 2007; Pivello 2007; WWF 2007; Hughes *et al.* 2006).

Habitat destruction caused by fires in the Poço das Antas Biological Reserve appears to have abated. The Reserve was established to protect the golden lion tamarin (*Leontopithecus rosalia*) (Decree No. 73,791, 1974), but the Harris' mimic swallowtail, which occupies the same range, likely benefits as a result of efforts to conserve golden-lion-tamarin habitat (Teixeira 2007; WWF 2003; De Roy 2002). The revised management plan indicates that the Reserve is to be used for research and conservation with limited public access (CEPF 2007a; IBAMA 2005). The Jurubatiba National Park is located in a region that is undergoing continuing development pressures from urbanization and industrialization (Savarese 2008; Khalip 2007; Brown 1996; IFC 2002; CEPF 2007b; Otero and Brown 1984), and there is no management plan in place for the Park (CEPF 2007b). However, as discussed for the Fluminense swallowtail, the Park, as of 2007, was considered to be in a very good state of conservation (Rocha *et al.* 2007).

As of 2004, conditions at Barra de São João appeared to be suitable for long-term survival of this subspecies. The Harris' mimic swallowtail's preferred environment of both open and shady areas continues to be present in the region, with approximately 541 forest patches averaging 127 ha (314 ac) in size, covering nearly 68,873 ha (170,188 ac), and a minimum distance between forest patches of 276 meters (m) (0.17 mi) (Teixeira 2007). In studies between 1984 and 1991, Brown (1996) determined that Harris' mimic swallowtails in Barra de São João flew a maximum distance of 1,000 m (0.62 mi). It follows that the average flying distance would be less than this figure. Thus, the average 276-m (0.17-mi) distance between forest patches in the Barra de São João River Basin is clearly within the flying distance of this subspecies. Because the colony at Barra de São João has maintained a stable population for 20 years, it may be that the conditions available there remain suitable.

Another factor affecting butterfly species is collection. Trade in wildlife parts and products is extremely lucrative, and, as wildlife becomes rarer, it becomes worth more in value (TRAFFIC 2010, pp. 52, 122, 179). Although there are laws to prohibit

illegal wildlife trade, in some countries, laws are rarely enforced due to inadequate resources; and only a fraction of smuggled wildlife is intercepted (TRAFFIC 2012, p. 4; TRAFFIC 2010, p. 7). For example, in 1998, in the United States 100 Golden Birdwing (*Troides aeacus*, CITES Appendix II) butterflies were seized; no permit had been issued for the specimens, which had been falsely labeled before being exported from Thailand (TRAFFIC 2010, p. 28). In 2001, two Russian insect collectors were arrested in India and were found to have approximately 2,000 butterflies in their possession (p. 52). In 2007, a Japanese individual was convicted for illegal sale of \$38,831 U.S. dollars (USD) worth of protected butterfly species. This individual is apparently known as the world's top smuggler of protected butterflies. One of the smuggled butterfly species was Homerus Swallowtail (*Papilio homerus*, CITES Appendix I). During this investigation, 43 butterflies were sold to undercover agents, including 2 Alexandra's birdwings (*Ornithoptera alexandrae*, CITES Appendix I), 2 Luzon Peacock swallowtails (*Papilio chikae*, CITES Appendix I), and 6 Corsican swallowtails (*Papilio hospiton*, CITES Appendix I) (p. 122). In 2009, in Japan an individual was sentenced to 1 year and 6 months' imprisonment and fined 1 million yen (\$10,750 USD) due to illegally importing and selling rare butterfly species. He was found to have illegally imported 145 butterflies from France. Among the specimens were three Queen Alexandra's Birdwings (*Ornithoptera alexandrae*, CITES Appendix I) and one Apollo Butterfly (*Parnassius apollo*, CITES Appendix II) (p. 179).

The only known populations are within close proximity to a major, expanding city in Brazil—Rio de Janeiro, the second largest city in Brazil. As this species becomes rarer, it becomes even more desirable to collectors (TRAFFIC 2010, pp. 52, 122, 179). Although the species exists in a protected area, collectors will take risks to obtain these rare and desirable species. Although we do not know the full extent of illegal trade, according to the 2010 TRAFFIC report, this may represent only a small fraction of the illegal collection of butterfly species that occurs.

Conservation Status

IBAMA considers this subspecies to be critically imperiled (Portaria No. 1,522 1989; Ministerio de Meio Ambiente 2003). As of 1996, collection and trade of the subspecies was

prohibited (Brown 1996). In 1998, Brazil enacted the Lei de Crimes Ambientais ou Lei da Natureza—Law no 9.605/98, which addresses environmental crimes and sets forth penal and administrative penalties resulting from activities that are harmful to the environment (IBAMA 2011). This law addresses the integrity of biodiversity and other natural resources and assesses civil, administrative, and criminal penalties to private individuals, corporations, and businesses. Harris' mimic swallowtail was categorized on the IUCN Red List as endangered in the 1988, 1990, and 1994 IUCN Red Lists (IUCN 1996). However, it currently is not included in the current IUCN Redlist (IUCN 2010; Xerces Society 2010a). This species is not listed on any appendices of CITES.

In the previous ANOR, the Harris' mimic swallowtail received an LPN of 6. After reevaluating the threats to this species, we have determined that no change in the listing prioritization number is warranted. Harris' mimic swallowtail is a subspecies and is not within a monotypic genus. Although the best-studied colony has maintained a stable and viable size for nearly two decades, there is limited suitable habitat remaining for this subspecies. Habitat destruction remains a threat. These threats are high in magnitude due to its small endemic population, collection, and potential catastrophic events such as severe tropical storms or introduction of a new disease or predator. Because the population is very small and limited to only two small areas, we find the threats are of high magnitude. However, we do not find that these threats are imminent because the subspecies is protected by Brazilian law, and the colonies are located within protected areas. Based on the best available information, the LPN of 6 will remain to reflect nonimminent threats of high magnitude for this species.

Jamaican Kite Swallowtail (*Protographium marcellinus*, syn. *Eurytides*), LPN = 2

Species Description and Range

The Jamaican kite swallowtail butterfly is endemic to Jamaica, preferring wooded, undisturbed habitat containing its only known larval host plant: black lancewood or West Indian lancewood (*Oxandra lanceolata*). The food preferences of adults have not been reported (Bailey 1994; Collins and Morris 1985). Since the 1990s, adult Jamaican kite swallowtails have been observed in the parishes of St. Thomas and St. Andrew in the east; westward in St. Ann, Trelawny, and St. Elizabeth; and in the extreme western coast, in the

Parish of Westmoreland (Garraway in litt 2011; Harris 2002; Möhn 2002; WRC 2001; Bailey 1994; Smith *et al.* 1994). There is only one known breeding site in the eastern coast town of Rozelle, St. Thomas Parish, although it is possible that other sites exist given the widely dispersed nature of the larval food plant (Garraway in litt 2011; Robbins in litt. 2004; Garraway *et al.* 1993; Bailey 1994; Smith *et al.* 1994; Collins and Morris 1985).

Population

The Jamaican kite swallowtail maintains a low population level; there is no known estimate of its population size (Garraway 2011 in litt). It occasionally becomes locally abundant in Kingston and Rozelle during the breeding season in early summer and again in early fall (Garraway in litt 2011; Bailey 1994; Smith *et al.* 1994; Garraway *et al.* 1993; Collins and Morris 1985; Brown and Heineman 1972), and experiences episodic population explosions (72 FR 20184; 69 FR 70580). The population in St. Thomas has generally been regarded as the core population (Garraway in litt 2011).

Factors Affecting the Species

Habitat loss and degradation had been considered to be the primary factors affecting the Jamaican kite swallowtail; however, now the primary factors affecting the species are believed to be its small population size and that it is endemic only to Jamaica (Garraway in litt 2011). After centuries of a high rate of deforestation, the island lost much of its original forest (Gartner *et al.*, 2008, pp. 8, 11; Berglund and Johansson 2004, pp. 2, 5; Evelyn and Camirand 2003, p. 354; Koenig 2001, p. 206; Koenig 1999, p. 9). Eight percent of the total land area of Jamaica is covered with forest classified as minimally disturbed closed broadleaf (Evelyn and Camirand 2003 in Strong in litt. 2011). Some of the species' most important habitat is protected from human activities due to the inaccessibility of the habitat, but even these areas have been encroached upon and degraded. However, in some areas, its habitat is regenerating (Garraway in litt. 2011).

Monophagous butterflies (meaning that their larvae feed only on a single plant species) such as the Jamaican kite swallowtail tend to be more affected by habitat degradation than polyphagous species, due largely to their specific habitat and ecological requirements (Kotiaho *et al.* 2005). Harvest and clearing has reduced the availability of this species' only known larval food plant. In Rozelle, extensive habitat modification for agricultural and

industrial purposes such as mining has diminished this species' habitat (WWF 2001; Gimenez-Dixon 1996). When habitat is altered through open-pit mining, it is irreversibly modified and, therefore, it is impossible to restore the previous ecosystem. These sites can be rehabilitated; however, a typical reclaimed and rehabilitated site often fails to regenerate with woody vegetation (Strong *in litt.* 2011). As of 2004, black lancewood was being impacted by clearing for cultivation and by felling for the commercial timber industry (Windsor Plywood 2004; Collins and Morris 1985). However, more recent information indicates that its food source is more readily available than previously believed (Garraway *in litt.* 2011).

Jamaica is subject to high-impact stochastic events such as hurricanes. Hurricane-related weather damage in the last two decades along the coastal zone of Rozelle has resulted in the erosion and virtual disappearance of the once-extensive recreational beach (Economic Commission for Latin America and the Caribbean (ECLAC), United Nations Development Programme (UNDP), and the Planning Institute of Jamaica (PIOJ) (2004)). Hurricane Ivan, a category 5 hurricane, caused severe local damage to Rozelle Beach in 2004, including road collapse caused by the erosion of the cliff face and shoreline. The estimated restoration cost from Hurricane Ivan damage was \$23 million USD (\$1.6 million Jamaican dollars (J\$) (ECLAC *et al.* 2004), indicating the severity of the damage inflicted by these hurricanes. While we do not consider stochastic events to be a primary factor affecting this species, we believe that the damage caused by hurricanes is contributing to habitat loss.

The Jamaican kite swallowtail has been collected for commercial trade in the past (Melisch 2000; Schütz 2000; Collins and Morris 1985). The Jamaican Wildlife Protection Act of 1998 carries a maximum penalty of U.S. \$1,439 (J \$100,000) or 12 months of imprisonment for violating its provisions. This deterrent appears to be effectively protecting this species from illegal trade (National Environment and Planning Agency 2005). As of 2008, we were unaware of any recent seizures under the Lacey Act or smuggling of this species into or out of the United States (Office of Law Enforcement, U.S. Fish and Wildlife Service, Arlington, Virginia *in litt.*). With the legal prohibition described below in effect, however, the current impact of collection is likely negligible (Garraway *in litt.* 2011).

Conservation Status

Various levels of conservation exist for the species. In addition to being protected under Jamaica's Wildlife Protection Act of 1998, it is also included in Jamaica's National Strategy and Action Plan on Biological Diversity. This strategy established specific goals and priorities for the conservation of Jamaica's biological resources (Schedules of The Wildlife Protection Act 1998). The Forest Act of 1996 and the Forest Regulations Act of 2001 increased the power of Jamaican authorities to protect the species' habitat (Gartner *et al.* 2008, pp. 9–10). These included mandates to determine the biodiversity in the forest as well as the ability to acquire private lands as forest reserves. Since 1985, the Jamaican kite swallowtail has been categorized on the IUCN Red List as "Vulnerable" (IUCN 2012). This species is not listed in any of the appendices of CITES (CITES 2012).

In the previous ANOR, the Jamaican kite swallowtail received an LPN of 2. After reevaluating the factors affecting the Jamaican kite swallowtail, we have determined that no change in the listing priority number is warranted. The Jamaican kite swallowtail does not represent a monotypic genus. The current factors affecting the species are high in magnitude particularly since there is only one known larval host plant. There is only one known breeding site and the species' larval food plant has a restricted distribution. In addition, stochastic events such as hurricanes and tropical storms are unpredictable but are likely to occur. Although Jamaica has taken regulatory steps to preserve native swallowtail habitat, the threats affecting this species are imminent; it has a very small population size, and habitat destruction based on hurricanes and tropical storms is very likely to occur. Based on a reevaluation of the threats to this species, the LPN remains a 2 to reflect imminent threats of high magnitude.

Fluminense Swallowtail (*Parides ascanius*), LPN = 5

Species and Habitat Description

The Fluminense swallowtail is a white and rose swallowtail butterfly endemic to Brazil's restinga habitat within the Atlantic Forest region in the tropical and subtropical moist broadleaf forests of southeastern coastal Brazil (Uehara-Prado and Fonseca 2007, p. 265; Thomas 2003). Its habitat is characterized by medium-sized trees and shrubs that are adapted to coastal conditions (Kelecom *et al.* 2002, p. 171). During the caterpillar stage of its

lifecycle, it feeds on *Aristolochia macroura* (Dutchman's pipe) and is believed to be monophagous (Otero and Brown 1984).

Range

One study predicted the species potentially occurs in an area of 1,675,457 ha (4,140,127 ac) within the State of Rio de Janeiro (Uehara-Prado and Fonseca 2007, p. 265). While the presence of suitable habitat should not be used to infer the presence of a species, it can facilitate more focused efforts to identify and confirm additional locations and the conservation status of the Fluminense swallowtail (Uehara-Prado and Fonseca 2007, p. 266). The only known occurrences of the Fluminense swallowtail correlated with existing protected areas within Rio de Janeiro, including the Poço das Antas Biological Reserve (Uehara-Prado and Fonseca 2007). This Reserve, established in 1974, encompasses 13,096 ac (5,300 ha) of inland Atlantic Forest habitat (CEPF 2007a; Decree No. 73,791, 1974). The Poço das Antas Biological Reserve and the Jurubatiba National Park are the only two protected areas considered large enough to support viable populations of the Fluminense swallowtail (Brown *in litt.* 2004; Robbins *in litt.* 2004; Otero and Brown 1984).

In Rio de Janeiro, the species has been documented in five locations including: Barra de São João and Macaé (in the Restinga de Jurubatiba National Park) along the coast; and farther inland at the Poço das Antas Biological Reserve (Brown *in litt.* 2004). Other verified occurrences were in the Área de Tombamento do Mangue do Rio Paraíba do Sul and in Parque Natural Municipal do Bosque da Barra (Instituto Iguacu 2008; Uehara-Prado and Fonseca 2007).

Population

This swallowtail species is sparsely distributed throughout its range, reflecting the patchy distribution of its preferred habitat (Uehara-Prado and Fonseca 2007; Tyler *et al.* 1994; Otero and Brown 1984). The species is described as being seasonally common, with sightings of up to 50 individuals seen in one morning in the Barra de São João area. It was historically seen in Rio de Janeiro, Espírito Santo, and São Paulo (Gelhaus *et al.* 2004). However, there are no recent confirmations of this species in either Espírito Santo or São Paulo.

A population estimate reported in 1984 in Barra de São João was between 20 and 100 individuals (Otero and Brown 1984). The colony within the

Poço das Antas Biological Reserve was rediscovered in 1997, after a nearly 30-year absence from this location (Brown *in litt.* 2004). Researchers noted only that “large numbers” of swallowtails were observed (Brown *in litt.* 2004; Robbins *in litt.* 2004). There are no population estimates for other colonies. However, individuals from the population considered to be the most viable in Barra de São João migrate widely in some years, and this is likely to enhance gene flow among colonies (Brown *in litt.* 2004).

Factors Affecting the Species

Habitat destruction has been the main factor affecting this species (Brown 1996; Gimenez Dixon 1996; Collins and Morris 1985). Monophagous butterflies tend to be more susceptible to habitat degradation than polyphagous species (Kotiaho *et al.* 2005, p. 1,966), and the restinga habitat preferred by Fluminense swallowtails is a highly specialized environment that is restricted in distribution (Ueraha-Prado and Fonseca 2007, p. 264; Brown *in litt.* 2004; Otero and Brown 1986). Fluminense swallowtails require large areas to maintain viable populations (Uehara-Prado *et al.* 2007, pp. 43–53; Brown *in litt.* 2004; Otero and Brown 1986). The Atlantic Forest habitat, which once covered 1.4 million km² (540,543 mi²), has been reduced to between 5 and 10 percent of its original cover. It also contains more than 70 percent of the Brazilian human population (TNC 2009; Butler 2007; Conservation International 2007; CEPF 2007a; Höfling 2007; WWF 2007). The restinga habitat upon which this species depends was reduced by 17 km² (6.56 mi²) each year between 1984 and 2001, equivalent to a loss of 40 percent of restinga vegetation over the 17-year period (Temer 2006, unpaginated). In addition, of the forest that remains, 83 percent exists in small fragments of less than 50 ha (123 acres). The major ongoing human activities that have resulted in habitat loss, degradation, and fragmentation include: conversion to agriculture, plantations, livestock pastures, human settlements, hydropower reservoirs, commercial logging, subsistence activities, and coastal development (Butler 2007; Pivello 2007; TNC 2007; Peixoto and Silva 2007; WWF 2007; Hughes *et al.* 2006).

Collection and commercial exploitation was identified as a factor affecting the Fluminense swallowtail (Collins and Morris 1985; Melisch 2000; Schütz 2000). The species is easy to capture. Species with restricted distributions or localized populations, such as the Fluminense swallowtail,

tend to be more vulnerable to overcollection than those with a wider distribution (Brown *in litt.* 2004; Robbins *in litt.* 2004).

Parasitism has been indicated to be another factor affecting the Fluminense swallowtail. Recently, Tavares *et al.* (2006) discovered four species of parasitic chalcid wasps (*Brachymeria* and *Conura* species; Hymenoptera family) associated with Fluminense swallowtails. Parasitoids are species whose immature stages develop on or within an insect host of another species, ultimately killing the host (Weeden *et al.* 1976). This is the first report of parasitoid association with Fluminense swallowtails (Tavares *et al.* 2006, p. 1,197). To date, there is no information regarding the magnitude of effect these parasites are having on the Fluminense swallowtail.

Although the Fluminense swallowtail and the Harris’ mimic swallowtail face similar threats, there are several dissimilarities that influence the magnitude of these threats. Fluminense swallowtails are monophagous (Kotiaho *et al.* 2005; Otero and Brown 1984). In contrast, Harris’ mimic swallowtail is polyphagous (Brown 1996; Collins and Morse 1985); its larvae feed on more than one plant species (Kotiaho *et al.* 2005). In addition, although their ranges overlap, Harris’ mimic swallowtails tolerate a wider range of habitat than the highly specialized restinga habitat preferred by the Fluminense swallowtail. Also unlike the Harris’ mimic swallowtail, Fluminense swallowtails require a large area to maintain a viable population (Brown *in litt.* 2004; Monteiro *et al.* 2004); in part because they are known to feed on only one food source.

According to the 2005 management plan (IBAMA 2005), the Poço das Antas Biological Reserve is used solely for protection, research, and environmental education. Public access is restricted, and there is an emphasis on habitat conservation, including protection of the Río São João. This river runs through the Reserve and is integral to maintaining the restinga conditions preferred by the Fluminense swallowtail. The Reserve was plagued by fires in the late 1980s through the early 2000s, but fire is not currently believed to be a factor affecting the species. Between 2001 and 2006, there was an increase in the number of private protected areas near or adjacent to the Poço das Antas Biological Reserve and Barra de São João (Critical Ecosystem Partnership Fund (CEPF) 2007a). Corridors have been planned or created to connect existing protected areas and 13 privately protected forests by

planting and restoring habitat previously cleared for agriculture or by fires, which should assist the habitat connectivity for this species (De Roy 2002, unpaginated).

The Jurubatiba National Park (14,860 ha; 36,720 mi²), located in Macaé and established in 1998 (Decree of April 29 1998), is one of the largest contiguous areas containing restinga habitat under protection in Brazil (CEPF 2007b; Rocha *et al.* 2007). The Macaé River Basin forms the outer edge of the Jurubatiba National Park and contains the habitat preferred by the Fluminense swallowtail ((International Finance Corporation (IFC) 2002; Brown 1996; Otero and Brown 1984). Rocha *et al.* (2007) described the habitat as being in a very good state of conservation, but lacking a formal management plan. Threats to the Macaé region include industrialization for oil reserve and power development (IFC 2002) and intense population pressures (including migration and infrastructural development) (Brown 1996; CEPF 2007b; IFC 2002; Khalip 2007; Otero and Brown 1984; Savarese 2008). The researchers concluded that the existing protected area system may be inadequate for the conservation of this species.

Conservation Status

Brazil categorizes the Fluminense swallowtail to be “Imperiled” (Portaria No. 1,522 1989; MMA 2003). Commerce in this species is strictly prohibited (Brown *in litt.* 2004). According to the 2012 IUCN Red List, the Fluminense swallowtail has been classified as “Vulnerable” since 1983, based on its distribution and habitat fragmentation and loss that has occurred within its predicted range. This species has not been formally considered for listing in the appendices to CITES (www.cites.org). However, the European Commission listed Fluminense swallowtail on Annex B of Regulation 338/97 in 1997 (Grimm *in litt.* 2008), and the species continues to be listed on this Annex (Eur-Lex 2008, verified August 20, 2012). There has been no legal trade of this species into the European Union since its listing on Annex B (Grimm *in litt.* 2008), nor are we aware of any recent reports of seizures under the Lacey Act or smuggling in this species into or out of the United States (Office of Law Enforcement, U.S. Fish and Wildlife Service, Arlington, Virginia *in litt.* 2008).

In the previous ANOR, the Fluminense swallowtail received an LPN of 5. After reevaluating the factors affecting the Fluminense swallowtail,

we have determined that no change in the listing priority number is warranted. The Fluminense swallowtail does not represent a monotypic genus. The species is currently affected by habitat destruction; however, we have no information to suggest that overutilization and parasitism are currently occurring such that they are threats to the Fluminense swallowtail. Habitat destruction is of high magnitude because the species: (1) Occupies highly specialized habitat; (2) requires large areas to maintain a viable colony; and (3) is only found within two protected areas considered to be large enough to support viable colonies. However, additional populations have been reported, increasing previously known population numbers and distribution. The threat of habitat destruction is nonimminent because most habitat modification is the result of historical destruction that has resulted in fragmentation of the current landscape; however, the potential for continued habitat modification exists, and we will continue to monitor the situation. Based on the conservation measures in place, we believe that overutilization is not currently a threat to the Fluminense swallowtail. On the basis of this information, the Fluminense swallowtail retains a priority rank of 5.

Hahnel's Amazonian Swallowtail (*Parides hahneli*), LPN = 2

Species and Habitat

Hahnel's Amazonian swallowtail is endemic to Brazil and is found only on sandy beaches where the habitat is overgrown with dense scrub vegetation (Tyler *et al.* 1994; New and Collins 1991; Collins and Morris 1985). Hahnel's Amazonian swallowtail is likely monophagous. This swallowtail depends upon highly specialized habitat—beaches of river drainage areas. Wells *et al.* (1983) describe the habitat as ancient sandy beaches covered by scrubby or dense vegetation that is not floristically diverse. The larval host-plant is believed to be a species in the Dutchman's pipe genus, either *Aristolochia lanceolato-lorato* or *A. acutifolia* (Tyler *et al.* 1994; Collins and Morris 1985).

Hahnel's Amazonian swallowtail is known from three locations along the tributaries of the middle and lower Amazon River basin in the states of Amazonas and Pará (Brown 1996; Tyler *et al.* 1994; New and Collins 1991; Collins and Morris 1985). Hahnel's Amazonian swallowtail is highly localized, reflecting the distribution of its highly specialized preferred habitat (Brown *in litt.* 2004).

Population

The population size of Hahnel's Amazonian swallowtail is not known, nor do we have information on any population trend for this species. Within its range, Hahnel's Amazonian swallowtail populations are described as being small (Brown *in litt.* 2004).

Factors Affecting the Species

Habitat alteration (e.g., for dam construction and waterway crop transport) and destruction (e.g., clearing for agriculture and cattle grazing) are ongoing in Pará and Amazonas where this species is found (Hurwitz 2007; Fearnside 2006). Researchers believe that, because Hahnel's Amazonian swallowtail has extremely limited habitat preferences, any sort of river modification such as impoundment, channelization, or levee construction would have an immediate and highly negative impact on the species (New and Collins 1991; Wells *et al.* 1983).

Competition for host plants has been identified as a potential factor affecting Hahnel's Amazonian swallowtail. Researchers in the past believed that this species might suffer from host plant competition with other butterfly species in the region (Brown 1996; Collins and Morris 1985; Wells 1983). It occupies the same range with another swallowtail butterfly, *Parides chabrias ygdrasilla*, and mimics at least two other genera that occupy the same area, *Methona* and *Thyrides* (Brown 1996). However, this competition has not been confirmed, and, at this time, there is insufficient information to conclude that this is a factor affecting this species.

This species of swallowtail has been collected for commercial trade (<http://www.johnnyvalencia.com/?tag=parides-hahneli>; Melisch 2000; Schütz 2000; Collins and Morris 1985). Species with restricted distributions or localized populations, such as the Hahnel's Amazonian swallowtail, are more vulnerable to collection than those with a wider distribution (Brown *in litt.* 2004; Robbins *in litt.* 2004). Although not strictly protected from collection throughout Brazil, the state of Pará recently declared the capture of Hahnel's Amazonian swallowtail for purposes other than research to be forbidden (Decreto No. 802, 2008). As of 2008, seizures under the Lacey Act of Hahnel's Amazonian swallowtail into or out of the United States had not been reported (Office of Law Enforcement, U.S. Fish and Wildlife Service, Arlington, Virginia *in litt.* 2008). The best available information does not indicate that collection is impacting the species.

Conservation Status

Hahnel's Amazonian swallowtail continues to be listed as "Data Deficient" by the IUCN Red List (IUCN 2012). Hahnel's Amazonian swallowtail is listed as endangered on the state of Pará's list of threatened species (Resolução 054 2007; Decreto No. 802 2008; Secco and Santos 2008). Hahnel's Amazonian swallowtail is not listed in any Appendices of CITES (CITES 2012). Hahnel's Amazonian swallowtail is listed on Annex B of Regulation 338/97 (Eur-Lex 2008), and there has been no legal trade in this species into the European Union since its listing on Annex B in 1997 (Grimm *in litt.* 2008).

In our previous ANOR, the Hahnel's Amazonian swallowtail received an LPN of 2. After reevaluating the threats to the Hahnel's Amazonian swallowtail, we have determined that no change in the LPN is warranted. This swallowtail does not represent a monotypic genus. It faces threats that are high in magnitude and imminence due to its small endemic population, and limited and decreasing availability of its highly specialized habitat (beaches of river drainage area) and food sources. Dam construction, waterway crop transport, clearing for agriculture and cattle grazing are ongoing in Pará and Amazonas. These threats are imminent due to the species' highly localized and specialized habitat requirements. Secondary concerns are possible illegal collection and competition with other species. Based on a reevaluation of the threats, the LPN remains a 2 to reflect imminent threats of high magnitude.

Kaiser-I-Hind Swallowtail (*Teinopalpus imperialis*), LPN = 8

Species Description and Range

The Kaiser-I-Hind swallowtail is native to the Himalayan regions of Bhutan, China, India, Laos, Myanmar, Nepal, Thailand, and Vietnam (TRAFFIC 2007; Baral *et al.* 2005; Food and Agriculture Organization (FAO) 2001; Igarashi 2001; Masui and Uehara 2000; Forest Resources Assessment Program of Bhutan 1999; Osada *et al.* 1999; Tordoff *et al.* 1999; Trai and Richardson 1999; Shrestha 1997). This species prefers undisturbed (primary), heterogeneous, broad-leaved-evergreen forests or montane deciduous forests, and is found at altitudes between 1,500 and 3,050 m (4,921 to 10,000 ft) (Igarashi 2001; Tordoff *et al.* 1999; Collins and Morris 1985). This species is polyphagous. It has been reported that the adult Kaiser-I-Hind swallowtails do not feed, but this remains unclear (Collins and Morris 1985). Larval host-

plants may differ across the species' range, but they include:

Magnolia campbellii in China (Sung and Yan 2005; Yen and Yang 2001; Igarashi and Fukuda 2000);

Magnolia spp. in Vietnam (Funet 2004);

Daphne spp. in India, Nepal, and Myanmar (Funet 2004); and

Daphne nipalensis also in India (Robinson *et al.* 2004).

Populations

Despite the species' widespread distribution, local populations are described as not being abundant (Collins and Morris 1985). The known locations within each range country are as follows:

Bhutan: The species was reported to be extant (still in existence) in Bhutan (FRAP 1999; Gimenez Dixon 1996), although specific details on locations or population information are not readily available.

China: The species has been reported in Fujian, Guangxi, Hubei, Jiangsu, Sichuan, and Yunnan Provinces (Sung and Yan 2005; Igarashi and Fukuda 2000; UNEP-WCMC 1999; Gimenez Dixon 1996; Collins and Morris 1985).

India: Assam, Manipur, Meghalaya, Sikkim, and West Bengal (Bahuguna 1998; Collins and Morris 1985; Gimenez Dixon 1996; Ministry of Environment and Forests 2005). There is no recent status information on this species (Bombay Natural History Society *in litt.* 2007) with the exception of the region of Assam where the species had not been sighted in several years (Barua *et al.* 2010, p. 8).

Laos: The species has been reported in Laos (Osada *et al.* 1999), but no further information is available (Vonxaiya *in litt.* 2007).

Myanmar: The species has been reported in Shan, Kayah (Karen) and Thaninanthayi (Tenasserim) states (Collins and Morris 1985; Gimenez Dixon 1996).

Nepal: The species has been reported in Nepal in the Central Administrative Region at two localities: Phulchoki Mountain Forest and Shivapuri National Park (Baral *et al.* 2005; Nepali Times 2002; Shrestha 1997, Gimenez Dixon 1996; Collins and Morris 1985).

Thailand: The species has been reported in the northern province of Chang Mai (Pornpitagpan 1999). The species has limited distribution in the higher elevation mountains (greater than 1,500 m (4,921 ft)) of northern Thailand and is found within three national parks according to the CITES Scientific Authority of Thailand (2007).

Vietnam: The species has been confirmed in three Nature Reserves

(Tordoff *et al.* 1999; Trai and Richardson 1999).

Factors Affecting the Species

Habitat destruction is believed to negatively impact this species, which prefers undisturbed high-altitude habitat (Igarashi 2001; Tordoff *et al.* 1999; Collins and Morris 1985). In China and India, the Kaiser-I-Hind swallowtail populations are at risk from habitat modification and destruction due to commercial and illegal logging (Barua *et al.* 2010; Maheshwari 2003; Yen and Yang 2001). In Nepal, the species is at risk from habitat disturbance and destruction resulting from mining, wood collection for use as fuel, agriculture, and grazing animals (Baral *et al.* 2005; Shrestha 1997; Collins and Morris 1985). In Nepal, the Forest Ministry considered habitat destruction to be a critical threat to all biodiversity, including the Kaiser-I-Hind swallowtail, in the development of its biodiversity strategy (HMGN 2002). In Thailand, habitat degradation and loss caused by deforestation and land conversion for agricultural purposes is considered to be a primary factor affecting this species (FAO 2001; Hongthong 1998).

The Kaiser-I-Hind swallowtail is highly valued and has been collected for commercial trade, despite range country regulations prohibiting or restricting such activities, in part because it is very difficult to enforce protections for species such as butterflies that are easy to collect and smuggle (TRAFFIC 2007; Schütz 2000; Collins and Morris 1985). Between 1990 and 1997, illegally collected specimens were selling for 500 Rupees (12 USD) per female and 30 Rupees in India (0.73 USD) per male (Bahuguna 1998), and illegal species purportedly derived from Sichuan were being advertised for sale on the internet for 60 U.S. Dollars (US\$), despite restrictions in China.

In a recent survey conducted by TRAFFIC Southeast Asia (2007), of 2,000 residents in Ha Noi, Vietnam, the Kaiser-I-Hind swallowtail was among 37 Schedule IIB-species that were actively being collected (p. 36). The majority of the survey respondents were unaware of legislation prohibiting collection of Schedule IIB-species (p. 7). This is a highly desirable species, and there is a culture within Vietnam of consuming rare and expensive wild animal dishes, particularly in Ha Noi among the elite (TRAFFIC 2007, p. 9). This practice does not seem to be decreasing; rather it appears to be increasing. Although Vietnam has implemented several action plans to strengthen control of trade in wild fauna and flora (TRAFFIC 2007, p. 9), within-country protections

are likely inadequate to protect this species from illegal collection throughout its range.

According to the Thai Scientific Authority, there are no captive breeding programs for this species; however, the species is offered for sale by the Lepidoptera Breeders Association (2009). It was marketed as derived from a captive breeding program in Thailand, although in 2009, specimens were noted as being "out of stock" (Lepidoptera Breeders Association 2009).

Between 1991 and 2012, CITES records indicate that 163 specimens were traded internationally under valid CITES permits (UNEP-WCMC CITES trade database 2012). Reports that the Kaiser-I-Hind swallowtail is being captive-bred in Taiwan (Yen and Yang 2001) remain unconfirmed. Since 1993, there have been no reported seizures under the Lacey Act or smuggling of this species into or out of the United States (Office of Law Enforcement, U.S. Fish and Wildlife Service, Arlington, Virginia *in litt.* 2008). Therefore, on the basis of global trade data, although illegal trade remains a concern, we do not consider legal international trade to be a significant factor affecting this species.

Conservation Status

Since 1996, the Kaiser-I-Hind swallowtail has been categorized on the IUCN Red List as "Lower Risk/near threatened" (IUCN 2012; Gimenez Dixon 1996). The Kaiser-I-Hind swallowtail has been listed in CITES Appendix II since 1987 (CITES 2012).

In China, the species is protected by the Animals and Plants (Protection of Endangered Species) Ordinance (1989), which restricts import, export, and possession of the species. On China's 2005 Species Red List, it was described as "Vulnerable" (China Red List 2006).

In India, the Kaiser-I-Hind swallowtail is listed on Schedule II of the Indian Wildlife Protection Act of 1972, which prohibits hunting without a license (Indian Wildlife Protection Act 2006; Collins and Morris 1985).

In Nepal, the Kaiser-I-Hind swallowtail is protected by the National Parks and Wildlife Conservation Act of 1973 (His Majesty's Government of Nepal (HMGN) 2002). However, the Forestry Ministry of Nepal determined in 2002 that the high commercial value of its "Endangered" species on the local and international market may result in local extinctions of species such as the Kaiser-I-Hind (HMGN 2002).

In Thailand, the Kaiser-I-Hind swallowtail and 13 other invertebrates are listed under Thailand's Wild Animal Reservation and Protection Act

(WARPA) of 1992 (B.E. 2535 1992), which makes it illegal to collect wildlife (whether alive or dead) or to have the species in one's possession (Choldumrongkul *in litt.* 2007; FAO 2001; Pornpitagpan 1999; Hongthong 1998). In addition to prohibiting possession, WARPA prohibits hunting, breeding, and trading. Import and export are allowed only for conservation purposes (Jaisielthum *in litt.* 2007).

In Vietnam, the species is listed as "Vulnerable" in the 2007 Vietnam Red Data Book, due to declining population sizes and area of occupancy (Canh *in litt.* 2007). In Vietnam, this species of swallowtail is reported to be among the most valuable of all butterflies (World Bank 2005). In 2006, the species was listed on Vietnam's Schedule IIB of Decree No. 32 on "Management of endangered, precious, and rare forest plants and animals." A Schedule IIB-listing restricts the exploitation or commercial use of species with small populations or that are considered by the country to be in danger of extinction (Canh *in litt.* 2007). The species is provided some protection from habitat destruction in Vietnam, where it has been confirmed in three nature reserves that have low levels of disturbance (Tordoff *et al.* 1999; Trai and Richardson 1999).

After reevaluating the threats to this species, we have determined that no change in its LPN is warranted. The Kaiser-I-Hind swallowtail does not represent a monotypic genus. The current factors, habitat destruction and illegal collection, are moderate in magnitude due to the species' wide distribution and to various protections in place within each country. We find that the threats are imminent due to ongoing habitat destruction and high market value for specimens. Based on our reassessment of the threats, we have retained an LPN of 8 to reflect imminent threats of moderate magnitude.

Molluscs

Colorado Delta Clam (*Mulinia coloradoensis*), LPN = 2

Taxonomy

The Colorado Delta clam is a member of the family *Macridae* (Phylum *Mollusca*). This species is restricted to the Gulf of California and west Mexican area (Keen 1971, p. 207). The treatment of *Mulinia coloradoensis* as a distinct species is widely accepted among experts of molluscan studies (Arizona-Sonora Desert Museum 2011, p. 1; Smithsonian Institution 2011, p. 1; Gemmell *et al.* 1987, p. 45; Bernard 1983, p. 40). The taxonomy of *M. coloradoensis* has been validated as a

unique species through morphometric analysis (Flessa and Tellez-Duarte 2001, p. 5). Accordingly, we conclude that *M. coloradoensis* is a valid species.

Species Description

The Colorado Delta clam was described by Dall (1894, p. 6) as having a "larger" shell, solid, rude (relatively undeveloped or primitive), equilateral, resembling *M. modesta*, but having a more arched posterior dorsal margin, the base behind the posterior dorsal angle. It was also described as being somewhat concavely flexuous, with slightly elevated ridges that radiate. The length of a medium-sized specimen is 49 millimeters (mm) (0.2 in), and its height 36.5 mm (0.14 in), and the width is 32 mm (0.13 in). Rodriguez *et al.* (2001a, p. 253) report the species can reach lengths of almost 60 mm (0.24 in).

Little is known about the life history of the Colorado Delta clam. The species is known to take 3 years to grow to an average adult size of 30 mm (0.12 in) (Kowalewski *et al.* 2000, p. 1060; Kowalewski *et al.* 1994, p. 231), and it likely does not live much longer. The lifespan of this species is likely about 3 years, which is average for this genus. Other species of *Mulinia* are known to live up to 2 years (Lu *et al.* 1996, p. 3482). The family *Macridae* is commonly found in sandy or muddy substrates associated with brackish water (Leal 2002, p. 59–61). This species is an infaunal (aquatic animal that lives in the substrate of a body of water, usually in a soft sea bottom), suspension-feeding estuarine bivalve (Rodriguez *et al.* 2001a, p. 252). The species is found in low intertidal mud at depths of about 7 cm (2.75 in) beneath sediment (Rodriguez *et al.* 2001a, p. 253).

No specific information has been collected regarding the reproductive biology of the Colorado Delta clam, although Rodriguez *et al.* (2001a, p. 255) speculate the species may spawn in response to episodes of fresh water inflow. Reproduction in bivalves is mostly through external fecundation (sperm and egg cells unite external to the bodies of reproducing individuals) (Leal 2002, p. 26). A species within the same genus, *M. lateralis*, is known to spawn from May to November (Puglisi and Thiebaud 2008, p. 2; Lu *et al.* 1996, p. 3,482). A female *M. lateralis* will release between 0.5 to 2 million eggs during a spawning event (Lu *et al.* 1996, p. 3482), indicating the Colorado Delta clam could potentially exhibit high fecundity in the proper conditions.

Historical Range

The Colorado Delta clam was once an abundant species in the head of the Gulf of California in the estuary of the Colorado River (Martinez 2012; Dall 1894, p. 6). This species is present in cheniers (piles of dead shells) as far as 75 km (47 mi) from the mouth of the Colorado River Delta (Rodriguez *et al.* 2001b, pp. 185–186). This finding indicates the species historically had a broad distribution (Martinez 2012; Alles 2006, p. 2; Arias *et al.* 2004, p. 11; Zamora-Arroyo *et al.* 2005, p. 2; Cohen *et al.* 2001, p. 35; Luecke *et al.* 1999, p. 1).

Current Range

This species is now known to exist as a relict population at Isla Montague, Mexico, at the mouth of the Colorado River Delta (Martinez 2012; Cintra-Buenrostro *et al.* 2005, p. 296; Flessa and Tellez-Duarte 2001, p. 9; Rodriguez *et al.* 2001a, p. 251; Flessa and Rodriguez 1999, p. 8). Although Keen (1971, p. 207) indicated the species also occurs in "west Mexican area," there are no reliable records of the species from that area and the available evidence indicates the species' distribution is restricted to the Delta (Flessa and Tellez-Duarte 2001, p. 9; Flessa and Rodriguez 1999, p. 5).

The relative abundance of Colorado Delta clam is associated with salinity, which is common with *Mulinia* clams (Flessa and Rodriguez 1999, p. 8). Abundance of dead shells of Colorado Delta clam decreases with increasing distance from the mouth of the Colorado River, suggesting the species distribution is influenced by freshwater inflow (Rodriguez *et al.* 2001b, p. 188).

Population Estimate

We are unaware of precise estimates of the population size for Colorado Delta clam. However, the species is believed to now comprise less than one percent of the living fauna in the Delta (Avila-Serrano *et al.* 2006, p. 656; Flessa and Tellez-Duarte 2001, p. 2; Rodriguez *et al.* 2001b, p. 186; Kowalewski *et al.* 2000, p. 1060; Kowalewski *et al.* 1994, p. 219). Prior to 1998, the species was described as the most abundant mollusk that lived in the Colorado River Delta area (Rodriguez *et al.* 1998, p. 1). The best available information suggests that the species has experienced a 90 percent reduction from historical population size caused by the decrease in freshwater flow to the estuary (Martinez 2012; Avila-Serrano *et al.* 2006, pp. 650, 658; Cintra-Buenrostro 2005, p. 300).

Factors Affecting the Species

Virtually the entire flow of the Colorado River has been captured and consumed by municipal, industrial, and agricultural users before entering Mexico (Alles 2006, p. 2, 6; Cohen 2005, p. 2; Morrison *et al.* 1996, p. xii; Rodriguez *et al.* 2001b, p. 183). The Delta is now believed to support only about 60,000 ha (150,000 ac) of wetland habitats and riparian communities, having been reduced by over 90 percent over the past 80 years (Cohen 2005, p. 2; Arias *et al.* 2004, p. 11; Cohen *et al.* 2001, p. 35; Glenn *et al.* 1996, p. 1175). The reduction in the extent of the estuary ecosystem in the Colorado Delta mirrors the decline of the Colorado Delta clam (Martinez 2012). Through examination of dead shells, which accumulate in cheniers, the Colorado Delta clam once dominated the bivalve community of the Delta with a massive population extending 75 km (47 mi) into the Gulf of California (Rodriguez *et al.* 2001a, p. 254; Kowalewski *et al.* 2000, pp. 1059–1060).

The relict population at Isla Montague continues to survive, apparently on scarce and intermittent freshwater inflow (Martinez 2012). The ecological conditions within the Delta, upon which the Colorado Delta clam depends, have undergone significant changes due to the reduction of freshwater inflow. Rodriguez *et al.* (2001a, p. 257) demonstrated that the decrease of freshwater, nutrients, and sediments from Colorado River inflow is largely responsible for the decline in the abundance and distribution of the Colorado Delta clam. Zamora-Arroyo *et al.* (2005, p. 3) determined that lack of dedicated freshwater input is the principle threat to the Delta and Upper Gulf of California.

Since completion of upstream dams, primarily Glen Canyon Dam in 1963, very little fresh water reaches the Gulf of California in most years (Avila-Serrano *et al.* 2006, p. 649; Baron *et al.* 2002, p. 1251; Postel *et al.* 1998, p. 120; Glenn *et al.* 1992, p. 818). Construction of upstream dams and diversions since the 1930s has transformed the upper Gulf of California to an inverse estuary with salinity increasing toward the mouth of the river (Rodriguez *et al.* 2001b, p. 183; Lavin *et al.* 1998, p. 769). Salinity at the mouth of the Colorado River has increased from 22–33 practical salinity units (psu) before the construction of the Hoover Dam in 1923 to 38 psu today (Cintra-Buenrostro *et al.* 2011). There are long periods when no fresh water reaches the Gulf, which creates highly saline conditions and increasing water temperatures (Varady

et al. 2001, p. 205), and the estuary of the Delta is becoming increasingly saline due to lack of freshwater inflow (Alles 2006, p. 2). Dams also trap most sediment before it reaches the Gulf (Alles 2006, p. 8). These conditions are not conducive to the survival of this clam species.

Intermittent and unplanned flood releases from upstream dams between 1980 and 2000 resulted in water flowing to the Delta in 10 of those 20 years (Varady *et al.* 2001, p. 203), causing reestablishment of riparian habitat (Rowell *et al.* 2006, pp. 47–48; Luecke *et al.* 1999, p. 7). These releases are likely critical to the maintenance of the aquatic community in the estuary and the continued survival of the species at Isla Montague.

In addition to intermittent flood releases from major dams along the Colorado River, the Delta appears to also be sustained by groundwater seepage and agricultural return water (Rowell *et al.* 2006, p. 48; Arias *et al.* 2004, p. 12). The only water that now reaches the Delta on a regular basis is agricultural return flows, largely from the Mexicali Valley via the Rio Hardy (Alles 2006, p. 2; Cohen 2005, p. 1; Cohen *et al.* 2001, p. 44). There is usually no surface connection from the Cienega de Santa Clara, a large wetland in the upper Delta (Glenn *et al.* 1992, p. 822). Agricultural return flow from the Mexicali Valley, coupled with aquifer inflow, is a freshwater source that ensures the continued survival of the clam.

The contribution of agricultural return flow is due to the recent lining of the All-American Canal, which was completed in 2009. Prior to lining, the All-American Canal was a source of recharge to the Mexicali Valley aquifer (Calleros 1991, p. 837). Sixty percent of the annual recharge to the subterranean aquifer of the Mexicali Valley is due to subterranean flows (Calleros 1991, p. 829), largely from the All-American Canal. Further reductions in freshwater inflow to the Delta may occur in the near future (Martinez 2012).

Drought

At a regional scale, there is broad consensus among climate models that the southwestern United States and northern Mexico will become drier in the twenty-first century, and that the trend is already under way (Martinez 2012; Seager *et al.* 2007, pp. 1181–1184) with increasing aridity in the Southwest occurring as early as 2021–2040. Wetlands in the southwestern United States and northern Mexico are predicted to be particularly at risk of drying (Seager *et al.* 2007, pp. 1183–

1184), which has severe implications for aquatic ecosystems.

Numerous models also predict a decrease in annual precipitation in the southwestern United States and northern Mexico (Solomon *et al.* 2009, p. 1707; Christensen *et al.* 2007, p. 888). Solomon *et al.* 2009 predicts precipitation in the southwestern United States and northern Mexico will decrease by as much as 9 to 12 percent. Christensen *et al.* (2007, p. 888) contend the projection of smaller warming over the Pacific Ocean than over the continent is likely to induce a decrease in annual precipitation in the southwestern United States and northern Mexico. This decrease would modify freshwater and sediments vital to the survival of the Colorado Delta clam.

Warmer water temperatures across temperate regions are also predicted to expand the distribution of existing aquatic nonnative species, which could affect this species (Martinez 2012; Mohseni *et al.* 2003, p. 389). There could be 31 percent more suitable habitat for aquatic nonnative species, which are often tropical in origin and better adapted to warmer water temperatures. This change in temperatures could result in an expansion in the range of nonnative aquatic species to the detriment of native species like the Colorado Delta clam.

The Colorado Delta clam is currently threatened by the ongoing and continuing reduction in freshwater input into the Gulf of California, and the inadequacy of regulatory mechanisms to ensure freshwater input (Martinez 2012). Freshwater is critical to the species' survival because the species' life history is tied to the inflow of freshwater to ensure the maintenance of its brackish water habitat. The Delta continues to experience a reduction in freshwater inflow, which is critical to the survival of the species because it depends on the availability of brackish water. Furthermore, the available information indicates that loss of freshwater will likely worsen in the near and long-term future.

Conservation Status

This species exists in Mexico's Biosphere Reserve of the upper gulf of California and the Colorado River Delta, which consists of 930,777 hectares (2.3 million acres). Monitoring of this species is being conducted in connection with the Colorado River Delta-Sonoran Joint Venture between Mexico and the United States (Zamora *et al.* 2007, 2002). A workshop was held in 2002 to determine conservation

priorities in the Colorado River Delta (Zamora-Arroyo *et al.* 2005, p. 3). As of 2002, NGOs in Mexico were working with the Government of Mexico's Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales, or SEMARNAT) to develop ways to protect Mexico's Colorado River riparian corridor (Zamora-Arroyo *et al.* 2005, p. 4). SEMARNAT's purpose is to promote the protection, restoration, and conservation of ecosystems and natural resources. In 2007, SEMARNAT published a report on the goals and priorities of the Conservation and Management Program for the Reserve (SEMARNAT 2007, 323 pp.). It is not listed on any of the appendices of CITES.

After reviewing the factors affecting this species, we found that the species has experienced an approximate 90 percent reduction from historical population size caused by the decrease in freshwater flow to the estuary. The available evidence indicates that Colorado delta clam is now restricted to one relict population at Isla Montague at the mouth of the Colorado River delta. Since habitat containing the entire range of the species may be rendered unsuitable within the future, we find that threats are of high magnitude. Accordingly, we find the Colorado delta clam is subject to high-magnitude imminent threats, and we assign a LPN of 2 for this species.

Preclusion and Expeditious Progress

A listing proposal is precluded if the Service does not have sufficient resources available to complete the proposal, because there are competing demands for those resources, and the relative priority of those competing demands is higher. Thus, in any given fiscal year (FY), multiple factors dictate whether it will be possible to undertake work on a listing proposal regulation or whether promulgation of such a proposal is precluded by higher priority listing actions—(1) the amount of resources available for completing the listing function; (2) the estimated cost of completing the proposed listing, and (3) the Service's workload and prioritization of the proposed listing in relation to other actions.

In 2009, the responsibility for listing foreign species under the Act was transferred from the Service's Division of Scientific Authority, International Affairs Program, to the Endangered Species Program. The Branch of Foreign Species (BFS) was established in June 2010 to specifically work on petitions and other actions under Section 4 of the Act for foreign species.

Section 4(b) of the Act states that the Service may make warranted-but-precluded findings only if it can demonstrate that (1) An immediate proposed rule is precluded by other pending proposals and that (2) expeditious progress is being made on other listing actions. Preclusion is a function of the listing priority of a species in relation to the resources that are available and competing demands for those resources. Thus, in any given fiscal year (FY), multiple factors dictate whether it will be possible to undertake work on a proposed listing regulation or whether promulgation of such a proposal is warranted-but-precluded by higher priority listing actions.

The resources available for listing actions are determined through the annual Congressional appropriations process. The appropriation for the Listing Program is available to support work involving the following listing actions: Proposed and final listing rules; 90-day and 12-month findings on petitions to add species to the Lists of Endangered and Threatened Wildlife and Plants (Lists) or to change the status of a species from threatened to endangered; annual determinations on prior "warranted-but-precluded" petition findings as required under section 4(b)(3)(C)(i) of the Act; critical habitat petition findings; proposed and final rules designating critical habitat; and litigation-related, administrative, and program-management functions (including preparing and allocating budgets, responding to Congressional and public inquiries, and conducting public outreach regarding listing and critical habitat).

The work involved in preparing various listing documents can be extensive and may include, but is not limited to: gathering and assessing the best scientific and commercial data available and conducting analyses used as the basis for our decisions; writing and publishing documents; and obtaining, reviewing, and evaluating public comments and peer review comments on proposed rules and incorporating relevant information into final rules. The number of listing actions that we can undertake in a given year also is influenced by the complexity of those listing actions; that is, more complex actions generally are more costly.

We cannot spend more than is appropriated for the Listing Program without violating the Anti-Deficiency Act (see 31 U.S.C. 1341(a)(1)(A)). In addition, in FY 1998 and for each fiscal year since then, Congress has placed a statutory cap on funds which may be expended for the Listing Program, equal

to the amount expressly appropriated for that purpose in that fiscal year. This cap was designed to prevent funds appropriated for other functions under the Act (for example, recovery funds for removing species from the Lists), or for other Service programs, from being used for Listing Program actions (see House Report 105–163, 105th Congress, 1st Session, July 1, 1997).

Effective in FY 2012, the Service's Listing Program budget has included a foreign species subcap to ensure that some funds are available for other work in the Listing Program. Prior to FY 2012, there was no distinction between listing domestic and foreign species. To reasonably balance the foreign species listing commitment with other listing program responsibility, Congress further refined the appropriations of the Service to add "and, of which not to exceed \$1,500,000 shall be used for implementing subsections (a), (b), (c), and (e) of section 4 of the Endangered Species Act, as amended, for species that are not indigenous to the United States * * *" (See Conference Report 112–331, 112th Congress, 1st session, December 15, 2011).

Thus, through the listing program cap and the foreign species subcap, Congress has determined the amount of money available for foreign species listing activities, including petition findings and listing determinations. Therefore, the funds in the foreign species subcap set the limits on our determinations of preclusion and expeditious progress.

In FY 2012, expeditious progress is that amount of work that can be achieved with \$1,500,000, which is the amount of money that Congress appropriated for the foreign species subcap within the Listing Program budget (Conference Report 112–331). Funding in the amount of \$1,500,000 is being used for work in the following categories: compliance with court orders and court-approved settlement agreements requiring that petition findings or listing determinations be completed by a specific date; section 4 (of the Act) listing actions with absolute statutory deadlines; essential litigation-related, administrative, and listing program-management functions; and high-priority listing actions for some of our candidate species. In addition, available staff resources are also a factor in determining which high-priority species are provided with funding.

Our expeditious progress also includes work on petition findings and listing actions that we funded in FY 2010 and FY 2011 but have not yet been completed to date. These actions are listed below. Actions in the top section

of the table are being conducted under a deadline set by a court. Actions in the bottom section of the table are being conducted to meet statutory timelines, that is, timelines required under the Act.

BFS may, based on available staff resources, work on species described

within this ANOR with an LPN of 2 or 3, and when appropriate, species with a lower priority if they overlap geographically or have the same threats as the species with the high priority. Because the actions below are either the subject of a court-approved settlement

agreement or subject to an absolute statutory deadline and, thus, are higher priority than work on proposed listing determinations for the 20 species described above, publication of proposed rules for these 20 species is precluded.

TABLE 3—ESA FOREIGN SPECIES LISTING ACTIONS FUNDED IN PREVIOUS FISCAL YEARS AND FY 2013 BUT NOT YET COMPLETED

Species	Action
Actions Subject to Court Order/Settlement Agreement	
All have been completed (See Table 4 below for these specific actions)	
Actions with Statutory Deadlines	
11 tarantula species	90-day petition finding.
15 bat species	90-day petition finding.
Caribou, Peary and Dolphin and Union	12-month petition finding.
Chimpanzee	12-month petition finding.
Caiman, broad-snouted	Final downlisting determination.
Ridgway's Hawk eagle	90-day petition finding.
Virgin Islands coqui	90-day petition finding.
Flores hawk-eagle	90-day petition finding.
Emperor penguin	90-day petition finding.
10 sturgeon species	90-day petition finding.

Despite the priorities that preclude publishing proposed listing rules for these 20 species described in this notice, we are making expeditious progress in adding to and removing

species from the Federal lists of threatened and endangered species. Our expeditious progress for foreign species since publication of our previous Annual Notice of Review, published on

May 3, 2011 (76 FR 25150), to April 25, 2013, includes preparing and publishing the following:

TABLE 4—ESA FOREIGN SPECIES LISTING ACTIONS PUBLISHED SINCE THE PREVIOUS ANOR WAS PUBLISHED ON MAY 3, 2011

Publication date	Species	Action	FR pages
05/26/2011	Salmon-crested cockatoo	Final rule; threatened with special rule	76 FR 30758–30780
06/02/2011	Straight-horned markhor	90-day finding; initiation of status review.	76 FR 31903–31906
08/09/2011	Crimson shining parrot	Status review; not warranted	76 FR 49202–49236
08/09/2011	Philippine cockatoo	Proposed rule; endangered	76 FR 49202–49236
08/09/2011	Yellow-crested cockatoo	Proposed rule; endangered	76 FR 49202–49236
08/09/2011	White cockatoo	Proposed rule; threatened with special rule.	76 FR 49202–49236
08/11/2011	Six Eurasian birds	Final rule; endangered throughout their range.	76 FR 50052–50080
09/01/2011	Chimpanzee	Petition finding; initiation of status review.	76 FR 54423–54425
10/11/2011	Yellow-billed parrot	Proposed rule; threatened with special rule.	76 FR 62740–62754
10/12/2011	Two South American parrot species ...	Status review; not warranted	76 FR 63480–63508
01/05/2012	Broad-snouted caiman	Proposed rule; downlisting	77 FR 666–697
05/03/2012	Wood bison	Final rule; downlisting	77 FR 26191–26212
05/23/2012	Morelet's crocodile	Final rule; delisting	77 FR 30820–30854
07/06/2012	Military and great green macaw	Proposed rule; endangered	77 FR 40172–40219
07/06/2012	Hyacinth macaw	Proposed rule; endangered	77 FR 39965–39983
07/06/2012	Scarlet macaw	Proposed rule; endangered	77 FR 40222–40247
07/24/2012	Six Peruvian and Bolivian bird species	Final rule; endangered	77 FR 43433–43467
08/07/2012	Markhor, straight-horned	Proposed rule; downlisting with special rule.	77 FR 47011–47027
09/19/2012	Scimitar-horned	90-day petition finding	77 FR 58084–58086
11/27/2012	oryx, dama gazelle, and addax	90-day petition finding	77 FR 70727–70733
01/02/2013	Lion, African	Proposed listing determination	78 FR 59–72
01/10/2013	Hummingbird, Honduran emerald	Proposed listing determination	78 FR 2239–2249
01/10/2013	Macaw, blue-throated	Proposed listing determination	78 FR 2239–2249

As explained above, a determination that listing is warranted-but-precluded must also demonstrate that expeditious progress is being made to add or remove qualified species to and from the Lists of Endangered and Threatened Wildlife and Plants. As with our “precluded” finding, expeditious progress in adding qualified species to the Lists is a function of the resources available and the competing demands for those funds. Given that limitation, we find that we are making progress in FY 2012 in the foreign species branch of the Listing Program.

We have endeavored to make our listing actions as efficient and timely as possible, given the requirements of the relevant law and regulations, and constraints relating to workload and personnel. We are continually considering ways to streamline processes or achieve economies of scale, such as by batching related actions together. Given our limited budget for implementing section 4 of the Act, these actions described above collectively constitute expeditious progress.

Our expeditious progress also includes work on pending listing actions described above in our “precluded finding,” but for which decisions had not been completed at the time of this publication.

Monitoring

Section 4(b)(3)(C)(iii) of the Act requires us to “implement a system to

monitor effectively the status of all species” for which we have made a warranted-but-precluded 12-month finding, and to “make prompt use of the [emergency listing] authority [under section 4(b)(7)] to prevent a significant risk to the well being of any such species.” For foreign species, the Service’s ability to gather information to monitor species is limited. The Service welcomes all information relevant to the status of these species, because we have no ability to gather data in foreign countries directly and cannot compel another country to provide information. Thus, this ANOR plays a critical role in our monitoring efforts for foreign species.

With each ANOR, we request information on the status of the species included in the notice. Information and comments on the annual findings can be submitted at any time. We review all new information received through this process as well as any other new information we obtain using a variety of methods. We collect information directly from range countries by correspondence, from peer-reviewed scientific literature, unpublished literature, scientific meeting proceedings, and CITES documents (including species proposals and reports from scientific committees). We also obtain information through the permit application processes under CITES, the Act, and the Wild Bird Conservation Act (16 U.S.C. 4901 *et seq.*). We also consult

with the IUCN species specialist groups and staff members of the U.S. CITES Scientific and Management Authorities, and the Division of International Conservation; and we attend scientific meetings, when possible, to obtain current status information for relevant species. As previously stated, if we identify any species for which emergency listing is appropriate, we will make prompt use of the emergency listing authority under section 4(b)(7) of the Act.

References Cited

A list of the references used to develop this notice is available at <http://www.regulations.gov> at Docket No. FWS-R9-ES-2012-0044.

Authors

This Notice of Review was primarily authored by Amy Brisendine and staff of the Branch of Foreign Species, Endangered Species Program, U.S. Fish and Wildlife Service.

Authority

This Notice of Review is published under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: April 8, 2013.

Rowan W. Gould,

Director, Fish and Wildlife Service.

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