DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS–R9–IA–2009–0028; 92210–1111–0000–B6]

RIN 1018–AV74

Endangered and Threatened Wildlife and Plants; Listing Seven Brazilian Bird Species as Endangered Throughout Their Range

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered status for the following seven Brazilian bird species and subspecies (collectively referred to as "species" for purposes of this rule) under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*): Black-hooded antwren (*Formicivora erythronotos*), Brazilian merganser (*Mergus octosetaceus*), cherry-throated tanager (*Nemosia rourei*), fringe-backed fire-eye (*Pyriglena atra*), Kaempfer's tody-tyrant (*Hemitriccus kaempferi*), Margaretta's hermit hummingbird (*Phaethornis malaris margarettae*), and southeastern rufous-vented ground-cuckoo (*Neomorphus geoffroyi dulcis*).

DATES: This rule becomes effective January 27, 2011.

ADDRESSES: This final rule is available on the Internet at *http://www.regulations.gov.* Comments and materials received, as well as supporting documentation used in the preparation of this rule, will be available for public inspection, by appointment, during normal business hours at: U.S. Fish and Wildlife Service, Endangered Species Program, 4401 N. Fairfax Drive, Suite 400, Arlington, VA 22203.

FOR FURTHER INFORMATION CONTACT: Janine Van Norman, 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; facsimile 703–358–1735. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Background

On August 12, 2009, we published a proposed rule (74 FR 154) to list the following seven Brazilian bird species—black-hooded antwren (*Formicivora erythronotos*), Brazilian merganser (*Mergus octosetaceus*), cherry-throated tanager (*Nemosia rourei*), fringe-backed fire-eye (*Pyriglena atra*), Kaempfer's tody-tyrant (*Hemitriccus kaempferi*), Margaretta's hermit (*Phaethornis malaris margarettae*), and southeastern rufous-vented ground-cuckoo (*Neomorphus geoffroyi dulcis*)—as endangered under the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 *et seq.*). All of the above species are found in the Atlantic Forest, with the exception of the Brazilian merganser, which is also found in the Cerrado Biome.

We opened the public comment period on the proposed rule for 60 days, ending October 13, 2009, to allow all interested parties an opportunity to comment on the proposed rule.

We are addressing the seven Brazilian bird species identified above under a single rule for three reasons. First, all of these species are found in the Atlantic Forest Biome and Cerrado Biome; thus, it is reasonable to address them together within a regional conservation perspective. Biomes are large geographic areas such as forests and deserts which share similar climate and geography and consist of similar naturally occurring vegetation and fauna. Second, each of these seven species is subject to similar threats of comparable magnitude. The major threat to these species is the loss and degradation of habitat due to deforestation and other ongoing development practices affecting southeastern Brazil, as well as associated threats due to severely restricted distributions of these species and small, declining populations (such as potential loss of genetic viability). Third, combining species that face similar threats within the same general geographic area into one rule allows us to maximize our limited staff resources, thus increasing our ability to complete the listing process for warranted-but-precluded species.

Previous Federal Actions

On November 28, 1980, we received a petition (the 1980 petition) from Dr. Warren B. King, Chairman, United States Section of the International Council for Bird Preservation (ICBP), to add 60 foreign bird species to the List of Endangered and Threatened Wildlife (50 CFR 17.11(h)), including 5 of the 7 Brazilian bird species (black-hooded antwren, cherry-throated tanager, fringe-backed fire-eye, Margaretta's hermit, and southeastern rufous-vented ground-cuckoo) that are the subject of this final rule. Two other foreign species identified in the petition were already listed under the Act. In response to the 1980 petition, we published a substantial 90-day finding on May 12, 1981 (46 FR 26464), for 58 foreign species and initiated a status review.

On January 20, 1984 (49 FR 2485), we published a 12-month finding within an annual review on pending petitions and description of progress on all pending petition findings. In that notice, we found that all 58 foreign bird species from the 1980 petition were warranted but precluded by higher priority listing actions. On May 10, 1985, we published an annual notice (50 FR 19761), in which we continued to find that listing all 58 foreign bird species from the 1980 petition was warranted but precluded. We published additional annual notices on the 58 species included in the 1980 petition on January 9, 1986 (51 FR 996); July 7, 1988 (53 FR 25511); December 29, 1988 (53 FR 52746); April 25, 1990 (55 FR 17475); November 21, 1991 (56 FR 58664); and May 21, 2004 (69 FR 29354). These notices indicated that the black-hooded antwren, cherry-throated tanager, fringe-backed fire-eye, Margaretta's hermit, and southeastern rufous-vented ground-cuckoo, along with the remaining species in the 1980 petition, continued to be warranted but precluded.

On May 6, 1991, we received a second petition (the 1991 petition) from ICBP to add an additional 53 foreign bird species to the List of Endangered and Threatened Wildlife, including the 2 remaining Brazilian bird species (Brazilian merganser and Kaempfer's tody-tyrant) that are the subject of this rule. In response to the 1991 petition, we published a substantial 90-day finding on December 16, 1991 (56 FR 65207), for all 53 species and initiated a status review. On March 28, 1994 (59 FR 14496), we published a 12-month finding on the 1991 petition, along with a proposed rule to list 30 African birds under the Act (15 each from the 1980 petition and 1991 petition). In that document, we announced our finding that listing the remaining 38 species from the 1991 petition, including the Brazilian merganser and Kaempfer's tody-tyrant, was warranted but precluded by higher priority listing actions. We made a subsequent warranted-but-precluded finding for all outstanding foreign species from the 1980 and 1991 petitions, including the seven Brazilian bird species that are the subject of this final rule, as published in our annual notice of review (ANOR) on May 21, 2004 (69 FR 29354).

Per the Service's listing priority guidelines (September 21, 1983; 48 FR 43098), our 2007 ANOR (72 FR 20183, April 23, 2007) identified the listing priority numbers (LPNs) (ranging from 1

to 12) for all outstanding foreign species. The LPNs for the seven Brazilian bird species that are the subject of this final rule are as follows: The black-hooded antwren, Brazilian merganser, cherry-throated tanager, fringe-backed fire-eye, and Kaempfer's tody-tyrant are LPN 2; and the Margaretta's hermit and southeastern rufous-vented ground-cuckoo are LPN 3. Listing priorities of 2 and 3 indicate that the subject species and subspecies, respectively, face imminent threats of high magnitude. With the exception of listing priority ranking of 1, which addresses monotypic genera that face imminent threats of high magnitude, categories 2 and 3 represent the Service's highest priorities.

On July 29, 2008 (73 FR 44062), we published in the **Federal Register** a notice announcing our annual petition findings for foreign species. In that notice, we announced listing to be warranted for 30 foreign bird species, including the seven Brazilian bird species which are the subject of this final rule, and stated that we would "promptly publish proposals to list these 30 taxa."

On September 8, 2008, the Service received a 60-day notice of intent to sue from the Center for Biological Diversity (CBD) claiming violations of section 4 of the Act for the Service's failure to promptly publish listing proposals for the 30 "warranted" species identified in our 2008 ANOR. Under a settlement agreement approved by the U.S. District Court for the Northern District of California on June 15, 2009 (*CBD* v. *Salazar,* 09–CV–2578–CRB), the Service was required to submit to the **Federal Register** proposed listing rules for the black-hooded antwren, Brazilian merganser, cherry-throated tanager, fringe-backed fire-eye, Kaempfer's tody-tyrant, Margaretta's hermit, and southeastern rufous-vented ground-cuckoo by July 31, 2009. On August 12, 2009, we published the proposed rule (74 FR 154) to list these species as endangered.

Summary of Changes From the Proposed Rule

This final rule incorporates changes to our proposed listing based on new information and on comments that we received. Specifically, we included new information on recent location data for Brazilian merganser and the cherry-throated tanager. We also updated the population estimate, range, and conservation status on the Kaempfer's tody-tyrant and clarified what is known about the taxonomy of the Margaretta's hermit hummingbird.

Summary of Comments and Recommendations

In the proposed rule published on August 12, 2009 (74 FR 154), we requested that all interested parties submit information that might contribute to the development of a final rule. We also contacted appropriate scientific experts and organizations and invited them to comment on the proposed listings. We received four comments on the proposed rule, including two from peer reviewers and two from the public. One comment from the public expressed support for the proposed listings but provided no substantive information. Based on our request in our proposed rule for information on climate change, this commenter requested that we take climate change into account when evaluating threats to the cherry-throated tanager, and cited Birdlife International's Web site for this species. The science of climate change is still uncertain, particularly with respect to how it will affect the long-term persistence of protected species as well as the quality and quantity of ecosystems upon which they depend. We did evaluate climate change as a threat to all of these species in this final rule (refer to the evaluation under Factor E for each species).

The other comment received from the public was also nonsubstantive—the commenter asked why these seven species should be listed under the Act if they are nonnative to the United States. The Act provides for the listing of any species that qualifies as an endangered or threatened species, regardless of its native range. Protections under the Act that apply to species not native to the United States include restrictions on importation into the United States; sale or offer for sale in foreign commerce; and delivery, receipt, carrying, transport, or shipment in foreign commerce and in the course of a commercial activity. Listing also serves to heighten awareness of the importance of conserving these species among foreign governments, conservation organizations, and the public.

Peer Review

In accordance with our policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from nine knowledgeable individuals with scientific expertise that included familiarity with these seven species, the geographic region in which the species occur, and conservation biology principles. We received responses from two of the peer reviewers. The peer reviewers generally agreed that the description of the biology and habitat for each species was accurate and based on the best available information. New location data were provided for the Brazilian merganser and the cherry-throated tanager, and we incorporated the information into the rulemaking as appropriate.

Atlantic Forest and Cerrado Biome—Habitat Descriptions

The Atlantic Forest Biome and the Cerrado Biome, in which all of these species occur, are two main ecological regions that exist almost entirely in Brazil. 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 (Morellato and Haddad 2000, pp. 786–787; Conservation International 2007a, p. 1; Höfling 2007, p. 1). 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. According to Conservation International, less than 10 percent of this habitat remains intact; other estimates are that 7 percent remains intact (Morellato and Haddad 2000, p. 786; Oliveira-Filho and Fontes 2000, p. 794). Based on a number of other 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 (Morellato and Haddad 2000, p. 786; Myers *et al.* 2000, pp. 853–854; Saatchi *et al.* 2001, p. 868; Butler 2007, p. 2; Conservation International 2007a, p. 1; Höfling 2007, p. 1; The Nature Conservancy (TNC) 2007, p. 1; World Wildlife Fund 2007, pp. 2–41). In addition to the overall loss and degradation of native habitats within this biome, the remaining tracts of habitat are severely fragmented. The current rate of habitat decline is unknown.

The Cerrado Biome is in central Brazil and is considered one of the most biodiverse savannas in the world (Ratter *et al.* 1997, p. 223; Conservation International 2007b; World Bank 2010). It has an annual rainfall between 800 and 2,000 millimeters (mm) (31 to 79 in). This tropical savannah ecoregion is characterized by woody savanna generally 2–8 m (6–26 ft) in height and well-drained soil. The altitude in this

region is between 300 and 1,200 m (984 and 3,937 ft), and the habitat has specific soil characteristics. Other characteristics of this biome are soil depths of at least 3 m (9.8 ft) and aluminum-rich soils (Schmidt 2008, pp. 3–4).

Species Descriptions

Below is a species-by-species description. The species are described in alphabetical order, beginning with the black-hooded antwren, followed by the Brazilian merganser, cherry-throated tanager, fringe-backed fire-eye, Kaempfer's tody-tyrant, Margaretta's hermit hummingbird, and southeastern rufous-vented ground-cuckoo.

I. Black-hooded Antwren (Formicivora erythronotos)

Species Description

The black-hooded antwren measures 10.5 to 11.5 centimeters (cm) (4 to 4.5 inches (in)) (BirdLife International (BLI) 2010d, p. 1; Sick 1993, p. 414). Males are black with a reddish-brown back. They have a black narrow bill and a long tail. The wings are black with three thin white stripes on the wings (wing bars). Females have similar coloring, except they have brown-olive feathers where black feathers appear on males (BLI 2010d, p. 1).

Taxonomy

The black-hooded antwren is a small member of the diverse "antbird" family (Thamnophilidae). The species was previously recognized under the genus *Myrmotherula* (Collar *et al.* 1992, p. 667; Sick 1993, p. 414; BLI 2010d, p. 1).

Habitat and Life History

The black-hooded antwren inhabits lush understories of remnant old-growth and early successional secondary-growth coastal forests, and it may also occur in dense understories of modified restinga (BLI 2010d, p. 1; Tobias and Williams 1996, p. 64). Restinga is a Brazilian term that describes white sand forest habitat consisting of a patchwork of vegetation types, such as beach vegetation; open shrubby vegetation; herbaceous, shrubby coastal sand dune habitat; and dry and swamp forests distributed over coastal plains from northeastern to southeastern Brazil (McGinley 2007, pp. 1–2; Rocha *et al.* 2005, p. 263).

Although the specific habitat requirements of the black-hooded antwren are still unclear, the species is not considered a tropical forest specialist. The black-hooded antwren typically forages in pairs or small family groups and consumes various insects, spiders, and small frogs (Collar *et al.* 1992, p. 667; del Hoyo 2003, p. 616; Sick 1993, p. 405; Tobias and Williams 1996, p. 65). Their foraging zone is in dense vegetation generally between ground level and 3 meters (m) (10 feet (ft)) above the ground, but they are also known to forage in higher vegetation zones up to 7 m (23 ft) above the ground. Females typically lay two eggs in fragile nests resembling small cups made of plant material (*e.g.,* rootlets, stems, moss) that are attached to horizontal branches within roughly 1 m (3.3 ft) of the ground (Collar *et al.* 1992, p. 667; Sick 1993, p. 405). Both sexes help to build the nests, brood clutches, and attend their young.

Range and Distribution

The black-hooded antwren is endemic to the Atlantic Forest Biome in the southeast portion of the State of Rio de Janeiro (BLI 2010d, p. 1; Collar *et al.* 1992, pp. 667). Currently, the only confirmed population is believed to be restricted to remnant patches of forest habitat along roughly 30 kilometers (km) (19 miles (mi)) of coast in southern Rio de Janeiro, near the border with São Paulo (Browne 2005, p. 95; Tobias and Williams 1996, p. 64). However, there have also been recent unconfirmed reports that the species may occur at the State Ecological Reserve of Jacarepiá, located roughly 75 km (47 mi) northeast of the city of Rio de Janeiro (Association for the Defense of the Environment in Jacarepiá (ADEJA) 2007, p. 3; WorldTwitch 2007, p. 12).

Population Estimates

The black-hooded antwren was known from 20 specimens that were purportedly collected in the 1800s in montane forest habitats of central Rio de Janeiro, Brazil. The species had not been reported since that collection until it was rediscovered in 1987 in the Atlantic forest in south Rio de Janeiro (BLI 2010d, p. 1).

The extant population is estimated to be between 1,000 and 2,499 birds, and is fragmented among seven occupied sites, including Bracuí, Frade, São Gonçalo, Taquari and Barra Grande, Ariró, and Vale do Mambucaba. Vale do Mambucaba has the highest known density of pairs (156 pairs per square km (km^2)), followed by Mambucaba (densities of 89 pairs/km^2). There are no known estimates for the other locations, but it is believed that the numbers are few (BLI 2010d, p. 1). At least one of the fragmented populations is believed to be reproductively isolated. The population, as a whole, is also believed to be declining rapidly due to continued loss of habitat (BLI 2010d, pp. 1–3).

Conservation Status

The IUCN considers the black-hooded antwren to be "Endangered," because "it has a very small and severely fragmented range that is likely to be declining rapidly in response to habitat loss" (BLI 2010d, p. 3). The species is also protected by Brazilian law and occurs in the buffer area of Serra da Bocaína National Park (BLI 2010d, p. 2). The species is not listed in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (*http://www.cites.org*).

II. Brazilian Merganser (Mergus octosetaceus)

Species Description

The Brazilian merganser is described as resembling a cormorant (Sick 1993, p. 163). The species has a distinctive green crest, which extends over the nape of the neck and which is more developed in males (Sick 1993, p. 163). The bird has a white wing speculum and red feet, and is 49–56 cm (19–22 in) in length (BLI 2007a, p. 1). The breast is pale grey with dark markings, and dark grey coloring in the upper breast (BLI 2007a, p. 1).

Taxonomy

The Brazilian merganser was first described by Vieillot in 1817 (Partridge 1956, p. 473). The species is in the family Anatidae (BLI 2007a, p. 1).

Habitat and Life History

The Brazilian merganser is highly adapted to mountainous, highly oxygenated clear-water streams and rivers, generally with pools greater than 1 m (3 ft) in depth, and typically bordered by evergreen forests (Bruno *et al.* 2006, p. 26; Collar *et al.* 1992, pp. 80–86; Ducks Unlimited 2007, p. 1; Hughes *et al.* 2006, p. 23; Lamas and Lins 2009, p. 3; Partridge 1956, pp. 478–480; Sibley and Monroe 1990, p. 41; Silveira and Bartman 2001, pp. 294–295). The Brazilian merganser's original distribution area encompassed the Atlantic Forest and Cerrado biome (Bianchi *et al.* 2005, p. 73; Braz *et al.* 2003, p. 70; Lamas and Lins 2009, p. 3; Silveira and Bartman 2001, pp. 294–295; Silveira 2008, pp. 420–421).

Brazilian mergansers are strong swimmers and divers, and have been observed to dive to a depth of 0.5 m (1.6 ft) (Silveira *et al.* 2001, p. 291). They typically feed in river rapids, still waters, or pools adjacent to waterfalls, whereas they rest and preen on exposed rocks in more slack water areas or at the river edges (Braz *et al.* 2003, p. 70; Hughes *et al.* 2006, p. 21; Lamas and

Lins 2009, p. 4; Partridge 1956, pp. 481–482; Silveira and Bartman 2001, p. 291). Brazilian mergansers feed primarily on a variety of fish species such as the Lambari (*Astyanax* species), and occasionally on insects, snails, and other aquatic macro-invertebrates (Partridge 1956, p. 483, Silveira *et al.* 2001, p. 291; Hughes *et al.* 2006, p. 32; Lamas 2006, p. 151; Lamas and Lins 2009, p. 4).

Brazilian mergansers are not migratory and are believed to be monogamous. Breeding pairs appear to maintain their territories along a stretch of river (up to ca. 12 km (7.5 mi)) throughout the year (Partridge 1956, p. 477; Silveira and Bartman 2001, p. 295; Braz *et al.* 2003, p. 70; Hughes *et al.* 2006, pp. 23, 33; Lamas 2006, p. 149; Ducks Unlimited 2007, p. 1). The breeding season begins in June, and young hatch around August (Partridge 1956, p. 487; Lamas and Santos 2004; Bruno *et al.* 2006, p 27). Their brood size is between two and six (Silveira *et al.* 2001, p. 296; Bruno *et al.* 2006, p. 26). Females establish their nests in the cavities of trees that are adjacent to the river. The females incubate their eggs alone, although males are attentive and remain nearby feeding and perching at the river shoreline (Bruno *et al.* 2006, p. 29; Lamas and Santos 2004, p. 38; Partridge 1956, pp. 484–485). Females may also locate their nests in the cavities of cliffs or rocky outcrops or in river banks (Bruno *et al.* in press; Lamas and Santos 2004, pp. 38–39; Lamas and Lins 2009, p. 4).

Range and Distribution

For as long as the Brazilian merganser has been known, it has always been considered a rare species, possibly due to its shy nature (Lamas 2006, p. 151). It occurs in a few fragmented locations in south-central Brazil, including the upper tributaries of rivers within the Atlantic Forest biome and to the west in the Cerrado biome (Silveira and Bartmann 2001, pp. 287–288). The Brazilian merganser occurred historically in riverine habitats throughout southeastern Brazil, northeastern Argentina, and eastern Paraguay (Hughes *et al.* 2006, p. 24). Currently, the species is found in extremely low numbers at disjunct localities of Brazil, and possibly in northeastern Argentina and eastern Paraguay (BLI 2007a, pp. 1–5; Hughes *et al.* 2006, pp. 28–31; Lamas and Lins 2009, p. 3). The Brazilian merganser may be extirpated from Argentina and Paraguay, and from Mato Grosso do Sul, São Paulo, Rio de Janeiro, and Santa Catarina, in Brazil (BLI 2009b, pp. 1–2). The vast majority of the species' extant population and remaining suitable habitats occur in Brazil, including its largest population, which is estimated to contain around 80 pairs (Lamas 2006, p. 151).

The species likely still occurs in the Brazilian States of Tocantins, Bahia, Goiás, Minas Gerais, and Paraná (Hughes *et al.* 2006, pp. 51–52). It was found in 2002 at the Serra de Canastra National Park (SCNP), Minas Gerais. In 2004 it was found at Itacolomi State Park, Minas Gerais (DePaula *et al.* 2008, p. 289). Although SCNP is a 200,000-hectare (ha) (494,211-acre (ac)) nationally protected park, only 71,500 ha (176,680 ac) are under strict protection (Lamas 2006, p. 150). In 2001–2002, the species was observed in nine localities in SCNP (Lamas 2006, p. 145). The SCNP is the only site where this species is being regularly monitored (Hughes *et al.* 2006, p. 52). Other recent sightings of the species in previously undocumented areas of Brazil indicate that the Brazilian merganser may be more abundant and widespread than previously believed (Bianchi *et al.* 2005, p. 72; Lamas 2006, p. 145). For example, the species was recently confirmed in a nonprotected area in the State of Minas Gerais, Brazil (Lamas *et al.* 2009).

Historically, the Brazilian merganser occurred in Argentina, Brazil, and Paraguay. In Argentina, the Brazilian merganser was documented in three protected areas: The Iguazú National Park, the Parque Provincial Urugua-í, and the Private Reserve Urugua-í (Chebez 1994; Antas 1996; Chebez *et al.,* 1998 in Hughes *et al.* 2006, p. 49). Some researchers believe that sizable overall populations may still exist in the extensive river systems of Misiones in Argentina, specifically in the Uruguaí Provincial Park (Hughes *et al.* 2006, pp. 31, 50–51). In 2002, it was reported to have been found on the Arroyo Uruzú in Misiones, Argentina, the first record in the country in 10 years, despite extensive surveys (BLI 2010b). However, it is unclear whether the species still exists in Argentina. In Paraguay, the last confirmed sighting of the species is from 1984 (Hughes *et al.* 2006, p. 31). We are unable to confirm that the species exists in areas outside of Brazil, and therefore are unable to evaluate any threats. Because we do not know if populations of this species still exist outside of Brazil, for the purpose of this rule, we are limiting our analysis of threats to the current Brazilian population of the species.

Population Estimate

BLI estimates the total population is between 50 and 249 individuals, and the population is presumed to be declining (BLI 2010b, p. 1). Recent records indicate the population size may be larger than 250, although researchers have not been able to estimate the total population size (Lamas and Lins 2009, p. 5).

Conservation Status

IUCN considers the Brazilian merganser to be "Critically Endangered," because "although recent records from Brazil, and particularly a recent northerly range extension, indicate that this species' status is better than previously thought, the remaining population is still extremely small and severely fragmented, and the perturbation and pollution of rivers continues to cause declines" (BLI 2009b, p. 1). The species is not listed in any of the Appendices of CITES (*http://www.cites.org*).

III. Cherry-Throated Tanager (Nemosia rourei)

Species Description

The cherry-throated tanager has black plumage on its head with a white crown, black coloring on its back, wings with gray scapular feathers, white feathers on its undersides, and red coloring on its throat and upper chest. Its tail is square tipped, its bill is black, and it has pink feet (Bauer *et al.* 2000, p. 102; BLI 2010d, p. 1; Venturini and Paz 2007, p. 609). It has a distinct vocalization with calls between 5 and 8 kilohertz (described in Bauer *et al.* 2000, pp. 103–104) and has been observed both singly and in small flocks. The species' diet includes caterpillars, butterflies, ants, and various other arthropods (Bauer *et al.* 2000, p. 104; Venturini *et al.* 2005, p. 65).

Taxonomy

The cherry-throated tanager is a member of the Thraupidae family. It was first described by Cabanis in 1870 (BLI 2010d, p. 1).

Habitat and Life History

The cherry-throated tanager is endemic to the Atlantic Forest in southeast Brazil. It inhabits the upper canopies of trees within humid, montane primary forests at elevations 850–1,250 m (2,789–4,101 ft) above sea level (Bauer *et al.* 2000, pp. 97–104; Venturini *et al.* 2005, pp. 60–66). The cherry-throated tanager is a primary forest-obligate species that typically forages within the interior crowns of tall, epiphyte-laden trees and occasionally within lower canopy levels (ca. 2 m (7 ft)) at the forest edge. Cherry-throated tanagers can be found in mixed-species flocks. Observations indicate that they require relatively

large territories (ca. 4 km² (1.5 mi²)) (Venturini *et al.* 2005, p. 66). Within its current distribution, the species makes sporadic use of coffee (*Coffea* spp.), pine (*Pinus* spp.), and eucalyptus (*Eucalyptus* spp.) plantations, presumably as travel corridors between remaining patches of primary forest (Venturini *et al.* 2005, p. 66).

Little is known about the breeding behavior of the cherry-throated tanager. However, a single field observation indicates that perhaps both sexes help build nests (Venturini *et al.* 2002, pp. 43–44). A nest (observed in November) was constructed of moss, and possibly thin twigs, and the material was placed in natural depressions of branches near the trunk within the mid-canopy (Venturini *et al.* 2002, pp. 43–44).

Range and Distribution

The cherry-throated tanager is found in primary forest habitats in Espírito Santo and possibly Minas Gerais and Rio de Janeiro, Brazil (BLI 2010d, p. 1). In 1941, it was found in the mountains of Espírito Santo State at three sites: Itarana, Jatiboca (elevation 900 m (2,953 ft)), and the Augusto Ruschi Biological Reserve (Venturini *et al.* 2005, p. 63). Since 1998, the cherry-throated tanager has been documented at various sites of remnant primary forest in south-central Espírito Santo. In February 1998, it was located in a private reserve, Fazenda Pindobas IV, in the municipality of Conceição. It was also documented in Caetés, in the Vargem Alta municipality in southern Espírito Santo (30 km (18.6 mi) southeast of Pindobas) (Venturini *et al.* 2005, p. 61). Bauer *et al.* (2000, p. 99) reported a sighting in Pirapetinga (Minas Gerais) at an altitude of 150 m (492 ft). In October 2002 and in January 2003, researchers heard *Nemosia* vocalizations in the Augusto Ruschi Biological Reserve (Biológica Augusto Ruschi), which may have been this species (Venturini *et al.* 2005, pp. 63–64). However, the cherry-throated tanager may only currently exist in Espírito Santo, where a corridor was just established specifically for this species via Decree no. 2529–R (BLI 2010h). Espírito Santo contains Atlantic Forest remnants, which may contain the only viable remaining habitat for this species.

Population Estimates

The cherry-throated tanager was presumed to be extinct until 1998. Prior to that, the species was only known from a single specimen collected in the 1800s and from a reliable sighting of eight individuals in 1941 (Collar *et al.* 1992, p. 896; Ridgely and Tudor 1989, p. 34; Scott and Brooke 1985, p. 126). The species was rediscovered in 1998 (Bauer *et al.* 2000, p. 97; Venturini *et al.* 2005, p. 60). BLI estimates the population to range from 50 to 249 individuals, and it is believed to be declining (BLI 2010d, p. 1). Venturini *et al.* (2005, p. 66) believe the IUCN population estimate of 250 birds may be too high, considering that the maximum number of individuals recently recorded was 14, including 6 birds in Pindobas and 8 birds in Caetés.

Conservation Status

IUCN considers the cherry-throated tanager to be "Critically Endangered" because its extant population is extremely small (estimated to be between 50 and 249 individuals), highly fragmented, and presumed to be declining (BLI 2010d, p. 1). On the Brazilian Red list the species is "threatened" (MMA 2003, Machado *et al.* 2008). Within Brazil, similar to U.S. State wildlife categories of conservation status, this species is categorized differently based on each "state" within which it is found. In Espírito Santo, it is considered "critically endangered" (ES–DOE 2005). In the Minas Gerais Region, it is considered "Probably extinct" (Machado *et al.* 2008). The species is not listed in any of the Appendices of CITES (*http://www.cites.org*).

IV. Fringe-Backed Fire-Eye (Pyriglena atra)

Species Description

The fringe-backed fire-eye has distinctive red eyes and measures approximately 17.5 cm (7 in) in length. Males are black with a small patch of black feathers on their backs lined with white edges. Females are more of a reddish-brown color, with a black tail, brown underparts, and a whitish throat (BLI 2010e, p. 1).

Taxonomy

The fringe-backed fire-eye belongs in the "antbird" family Thamnophilidae, and was first described by Swainson in 1825 (BLI 2010e, p. 1). Sick (1991, p. 416) describes this species to be similar to the white-backed fire-eye (*Pyriglena leuconota*). The fringe-backed fire-eye was previously referred to as Swainson's fire-eye, and is also called "Alapi noir" in French, "Fleckenmantel-Feuerauge" in German, and "Ojodefuego de Bahía" in Spanish (del Hoyo 2003, p. 637).

Habitat and Life History

The fringe-backed fire-eye is endemic to the Atlantic Forest biome and typically inhabits dense understory at the edges of lowland primary tropical forests (BLI 2007e, p. 2; Collar *et al.* 1992, p. 677; del Hoyo *et al.* 2003, p. 637). The species has also been found to occupy degraded forests and dense understory of secondary-growth forest stands. It can also occupy early-successional forest stands, but avoids any areas with open understories (e.g., sunny openings, interior forest) (del Hoyo *et al.* 2003, p. 637).

The fringe-backed fire-eye forages in dense, tangled vegetation with numerous horizontal perches within approximately 3 m (10 ft) of the ground, although it occasionally feeds higher up in the canopy (ca. 10 m (33 ft)) (Collar *et al.* 1992, p. 677; del Hoyo *et al.* 2003, p. 637). The species typically occurs as individual birds, in closely associated pairs, or in small family groups. The bird often relies on army ant (*Eciton* spp.) swarms to flush their prey, which may include cockroaches (superfamily Blattoidea), grasshoppers (family Acrididae), winged ants (class Chilopoda), caterpillars (order Lepidopera), and geckos (family Gekkonidae) (Sick 1993, pp. 403–404; del Hoyo *et al.* 2003, pp. 637–638).

Limited specific information is known about the species' breeding behavior (del Hoyo *et al.* 2003, p. 638). However, females of this genus typically lay two eggs in spherical nests that are approximately 10 cm (4 in) in diameter, have a side entrance, and are attached to vegetation within roughly 1 m (3.3 ft) of the ground (Sick 1993, pp. 405–406). Both sexes in this genus typically help to build nests, brood clutches, and attend their young (Sick 1993, pp. 405–406).

Range and Distribution

The fringe-backed fire-eye occurs along a narrow belt of coastal forest habitat from southern Sergipe to northeastern Bahia, Brazil (del Hoyo *et al.* 2003, p. 637; BLI 2010e, p. 1). The fringe-backed fire-eye's distribution is less disjunct than previously believed (BLI 2010e). The species' entire population was previously believed to be restricted to a few sites of remnant primary forest, totaling roughly 9 km² (3.5 mi²) in northeastern Bahia. In 2002, approximately 18 individuals were observed in a forested site in Sergipe (del Hoyo *et al.* 2003, p. 638). This discovery extended the species' known range to the north by approximately 175 km (109 mi) (del Hoyo *et al.* 2003, p. 638). Its current estimated range is 5,000 km² (1,930 mi²), although it exists in fragmented or degraded habitat within its range (BLI 2010e).

Population Estimates

The fringe-backed fire-eye's population is estimated to be between

1,000 and 2,499 individuals (BLI 2010e, p. 1). The available information indicates that the species' population is fragmented among 6 to 10 occupied areas (BLI 2010e, p. 3). Its population, along with the extent and quality of its habitat, continues to decline (BLI 2010e, p. 1).

Conservation Status

IUCN considers the fringe-backed fire-eye to be "Endangered" because it has "a small fragmented range, within which the extent and quality of its habitat are continuing to decline and where it is only known from a few localities" (BLI 2010e, p. 1). In addition, the species is protected under Brazilian law (Collar *et al.* 1992, p. 678). The species is not listed in any of the Appendices of CITES (*http://www.cites.org*).

V. Kaempfer's Tody-Tyrant (Hemitriccus kaempferi)

Species Description

The Kaempfer's tody-tyrant is an olive-green bird measuring 10 cm (4 in) in length (BLI 2010c, p. 1). The head and face have olive-brown coloring, while the upper parts and breast are a dull olive-green, the underparts are a pale greenish-yellow, and the throat is a pale yellow color. The primary wing feathers are dark and the secondary wing feathers have greenish-yellow borders. Each eye has a pale ring (BLI 2010c, p. 1).

Taxonomy

The Kaempfer's tody-tyrant is a member of the flycatcher family (Tyrannidae) (BLI 2010c, p. 1). The species was previously recognized under the genus *Idioptilon,* and was first described by Zimmer in 1953 (BLI 2010c, p. 1).

Habitat and Life History

The Kaempfer's tody-tyrant is endemic to the Atlantic Forest biome and inhabits well shaded edges of medium-height (ca. 12 to 15 m (39 to 49 ft)) primary- and secondary-growth alluvial forests that are typically in close proximity to rivers. The species appears to avoid tall, mature primary forest habitats (Collar *et al.* 1992, p. 776; Barnett *et al.* 2000, pp. 372–373; BLI 2010c, pp. 1–2). The Kaempfer's tody-tyrant feeds predominantly in the mid-story within roughly 1 to 3 m (3.3 to 10 ft) off the ground, but may also feed higher up (ca. 6 m (20 ft)) in the tree canopy.

There is little information available describing the diet of the Kaempfer's tody-tyrant; however, similar species within the Tyrannidae family feed on a variety of insects, which they often catch while in flight (Sick 1993, pp. 452–453). Breeding pairs typically forage together and appear to maintain small, well-defined, permanent territories (Barnett *et al.* 2000, p. 373; BLI 2010c, p. 2).

Both sexes help to build their nests, which can be located up to approximately 6 m (20 ft) above the ground and 2–3 m (6.6–10 ft) within the primary forest margin. Nests resemble elongated cups that can be up to 45 cm (18 in) long and are made of live mosses, grass, and dead leaves wrapped around a horizontal branch near the main trunk (Barnett *et al.* 2000, p. 373).

Range and Distribution

The Kaempfer's tody-tyrant inhabits humid, lowland forests of the coasts of Paraná and northeastern Santa Catarina, Brazil (Collar *et al.* 1992, p. 776; Collar *et al.* 1994, p. 139; Barnett *et al.* 2000, p. 371; Belmontes-Lopez *et al.* 2008, p. 2; BLI 2010c, p. 1). The Kaempfer's tody-tyrant has been located in the following 11 localities in southeast Brazil: Salto Piraí; Brusque; the RPPN Volta Velha near Itapoá; São Francisco do Sul municipality; Barra Velha municipality; Blumenau municipality; Piçarras/Itajuba (Piçarras municipality); Morro do Bau (Ilhota municipality); Sanepar bridge (São João River); National Park Saint-Hilare/Langue; Santa Catarina; and Guaraguaçu Ecological Station in southeast Paraná (BLI 2010c, p. 1). Recent survey records have extended the known range to 7,800 km^2 (3,012 m^2), although within this range the species' existence is sporadic due to fragmented habitat. According to BLI, the species is rare, but has been recorded in recent years in all of the locations above except Brusque. The last record for Brusque is from 1950, and the area has not been resurveyed since that time.

Population Estimates

There is very little information currently available that specifically addresses the Kaempfer's tody-tyrant's abundance; however, its extant population is estimated to be between 9,000 and 18,500 individuals and is believed to be declining (BLI 2010c, pp. 1–2).

Conservation Status

The IUCN considers the Kaempfer's tody-tyrant to be "Endangered" because it is estimated to have an extremely small and fragmented range (BLI 2010c, p. 1). It is protected by Brazilian legislation and by the State of Paraná (Belmontes-Lopez et al 2008, p. 2; BLI 2010c). The species is not listed in any of the Appendices of CITES (*http://www.cites.org*).

VI. Margaretta's Hermit (Phaethornis malaris margarettae)

Species Description

The Margaretta's hermit is a long-billed hummingbird. The average bill length is 37 millimeters (mm) (1.5 in) and the average tail length is 42 mm (1.7 in) (Hinkelmann 1996, pp. 122–123). Hinkelmann (1996, p. 147) describes the species to be morphologically similar to *Phaethornis malaris bolivianus,* with a paler underside.

Taxonomy

The Margaretta's hermit is in the hummingbird family, Trochilidae, but its taxonomic classification has been unclear for many years and is still disputed. This species is in the subfamily, Phaethornithinae, which are the "hermit" hummingbirds that occur in southern Mexico, Central America, and in South America as far south as northern Argentina. The Margaretta's hermit was first described as a new species in 1972 by A. Ruschi (Sibley and Monroe 1990). This bird has variously been considered a full species (*Phaethornis margarettae*) and placed as a subspecies with the long-billed hermit (*Phaethornis superciliosus*) and the great-billed hermit (*Phaethornis malaris*). A multitude of information indicates that Margaretta's hermit is most appropriately considered to be a subspecies of the great-billed hermit (P. malaris) (Howard and Moore 1980, p. 205; King 1981, p. 2; Sibley and Monroe 1990, p. 143; Sick 1993, p. 341; Hinkelmann 1996, pp. 125–135; del Hoyo *et al.* 1999, p. 543). Neither the IUCN nor BirdLife International currently recognizes the subspecies Margaretta's hermit (*Phaethornis malaris margarettae*); only the species level is recognized (BLI 2010j; IUCN 2010). IUCN's conservation status for both *P. malaris and P. superciliosus* is "least concern." Birdlife International recognizes *Phaethornis malaris margarettae* as *Phaethornis superciliosus* (BLI 2010j). Avibase, a database of all birds of the world maintained by Bird Studies Canada, indicates that it is a full species, *Phaethornis margarettae* (Avibase 2010). However, *Phaethornis malaris margarettae* is recognized by the Integrated Taxonomic Information System (ITIS) (ITIS 2010, *http://www.itis.gov*) as a subspecies. The 2009 Clement's Checklist, maintained by Cornell Lab of Ornithology, also accepts the taxonomy as *Phaethornis malaris margarettae.* Absent peer-reviewed

information to the contrary and based on the best available information, we consider Margaretta's hermit to be a subspecies of *Phaethornis malaris: Phaethornis malaris margarettae.*

Habitat and Life History

The Margaretta's hermit is endemic to the Atlantic Forest biome and is found in shrubby understories of primary- and secondary-growth tropical lowland rainforest (King 1981, p. 2; Hinkelmann 1996, pp. 133–140; Sibley and Monroe 1990, p. 143; del Hoyo *et al.* 1999, p. 543). Hummingbirds feed on the nectar of a variety of plant species, especially bromeliads, and often have a symbiotic relationship with specific plants for which they function as pollinators (Sick 1993, pp. 324–326; del Hoyo *et al.* 1999, p. 543; Buzato *et al.* 2000, p. 824). They also feed on a variety of small arthropods, which are an especially important source of protein for raising their young.

Females typically lay two eggs and are solely responsible for tending their young. Hummingbird nests are usually constructed on vegetation of items such as detritus, webs, leaves, and animal hair cemented together with regurgitated nectar and saliva (Sick 1993, pp. 330–331). Little is known of the subspecies' seasonal movements, but its daily movements within a local area are likely associated with the timing of flowering plants that are used for feeding (Sick 1993, pp. 324–336; del Hoyo *et al.* 1999, p. 543).

Range and Distribution

The Margaretta's hermit historically occurred in coastal forested habitats from Penambuco to Espírito Santo, Brazil (Sibley and Monroe 1990, p. 143; del Hoyo *et al.* 1999, p. 543; Hinkelmann 1996, pp. 132–135). The last confirmed occurrence of the Margaretta's hermit is from a relatively old (ca. 1978) sighting of the subspecies on a privately owned remnant forest called Klabin Farm, which is located in Espírito Santo and presently includes 40 km^2 (15.5 mi^2) of land (King 1981, p. 2). A portion of this area (ca. 15 km^2 (5.8 mi^2)) was designated as the Córrego Grande Biological Reserve in 1989 (Willis and Oniki 2002, p. 21; Costa 2007, p. 20). We consider this to be the species' current range. Margaretta's hermit likely also occurred at the Sooretama Biological Reserve in Espírito Santo until around 1977 (King 1981, p. 2).

Population Estimates

The current population of Margaretta's hermit is unknown, although it is likely to be small in light of the very limited area the subspecies may occupy (King 1981, p. 2).

Conservation Status

IUCN considered the Margaretta's hermit to be "Endangered" because its extant population was believed to have an extremely restricted distribution and the population is likely very small, if it survives at all (King 1981, p. 2). *Phaethornis superciliosus* and *Phaethornis malaris* are both currently classified as "Least Concern" by the IUCN, although the taxonomy of Margaretta's hermit is still uncertain. Both *Phaethornis superciliosus and Phaethornis malaris* are included in Appendix II of CITES (*http://www.cites.org*).

VII. Southeastern Rufous-vented Ground-cuckoo (Neomorphus geoffroyi dulcis)

Species Description

The southeastern rufous-vented ground-cuckoo is a large-sized terrestrial bird. The cuckoo has a distinctive flat frontal crest, a long tail and long legs, and a yellow-green curved bill (Roth 1981, p. 388; Payne 2005, p. 206). The species is blackish brown or reddish black in color, and has brown scale-like coloring on the breast with a black breast band and a reddish belly. It has a bare face with gray to blue coloring (Payne 2005, p. 206).

Taxonomy

The southeastern rufous-vented ground-cuckoo is one of seven subspecies of the rufous-vented ground-cuckoo (*Neomorphus geoffroyi*) in the Cuculidae family that occur at several disjunct localities from Nicaragua to central South America (Howard and Moore 1980, p. 178; Sibley and Monroe 1990, p. 107; del Hoyo *et al.* 1997, pp. 606–607; Payne 2005, pp. 204–207). Neither the IUCN nor BirdLife International currently addresses this subspecies; only the species level is addressed (BLI 2008; IUCN 2009). However, the subspecies is recognized by ITIS (ITIS 2009). Absent peer-reviewed information to the contrary and based on the best available information, we consider it to be a valid subspecies.

Habitat and Life History

The southeastern rufous-vented ground-cuckoo is an extremely shy, ground-foraging bird that requires large blocks of mature, undisturbed, tropical lowland forest within the Atlantic Forest biome (King 1981, p. 1; Sick 1993, p. 286; del Hoyo *et al.* 1997, pp. 606–607; Payne 2005, pp. 204–207). This species is unable to sustain flight for long distances, and researchers believe that major rivers and other extensive areas of nonhabitat impede their movements.

Southeastern rufous-vented ground-cuckoos feed on large insects, scorpions, centipedes, spiders, small frogs, lizards, and occasionally seeds and fruit. The species is agile when on the ground and highly adept at running and jumping through branches in pursuit of prey (Sick 1993, p. 278). The species is often associated with army ant (*Eciton* spp.) and red ant (*Solenopsis* spp.) colonies, whose foraying columns they use as "beaters" to flush their prey (Sick 1993, p. 286). They are also known to forage for flushed prey behind other species, such as the white-lipped peccary (*Tayassu pecari*) (Sick 1993, p. 286).

Unlike some other species of cuckoos, southeastern rufous-vented ground-cuckoos are not believed to be parasitic nesters. They build their own nests approximately 2.5 m (8 ft) above ground level in the branches of swampy vegetation (Roth 1981, p. 388; Sick 1993, p. 286). The species' nest resembles a shallow bowl, roughly 25 cm (10 in) across, made of sticks and lined with leaves. Once the young are fledged, the adults care for them away from the nest site (del Hoyo *et al.* 1997, pp. 606–607).

Range and Distribution

Although the southeastern rufous-vented ground-cuckoo had a widespread distribution historically, it has likely always been locally rare (King 1981, p. 1). Historic distributions included the Brazilian states of Bahia, Minas Gerais, Espírito Santo, and possibly Rio de Janeiro (King 1981, p. 1; Payne 2005, p. 207). The last confirmed sighting of this subspecies was in the Sooretama Biological Reserve north of the Doce River in Espírito Santo in 1977, and the subspecies was thought to be extinct (Roth 1981, p. 388; Scott and Brooke 1985, pp. 125–126; Payne 2005, p. 207). However, a recent photographic record (ca. 2004) indicates that the subspecies may still occur at Doce River State Park in Minas Gerais (Scoss *et al.* 2006, p. 1).

Population Estimates

The current population of rufous-vented ground cuckoos is unknown, although likely very low if the subspecies still exists (King 1981, p. 1).

Conservation Status

In 1981, when the original petition to list this subspecies was submitted, IUCN considered the southeastern rufous-vented ground-cuckoo to be "Endangered" because although the subspecies was "never numerous, this

extremely shy species is among the first to disappear if its primary forest habitat is disturbed and in southeastern Brazil where it occurs, most of such forest has been destroyed" (King 1981, p. 1). As of 2009, IUCN characterizes the rufous-vented ground-cuckoo as "Least Concern." Neither the species nor the subspecies are listed in any of the Appendices of CITES (*http://www.cites.org*).

Summary of Factors Affecting the Species

Section 4 of the Act (16 U.S.C. 1533), and its implementing regulations at 50 CFR part 424, set forth the procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. The five factors are: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence. Listing actions may be warranted based on any of the above threat factors, singly or in combination. In considering what factors might constitute threats, we look beyond the exposure of the species to determine whether the species responds to the factor in a way that causes actual impacts to the species and we look at the magnitude of the effect. If there is exposure to a factor, but no response, or only a beneficial response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant the factor is. If the factor is significant and therefore a threat, it may drive or contribute to the risk of extinction of the species such that the species warrants listing as threatened or endangered as those terms are defined by the Act. In making this final listing determination, we evaluated threats to each of these seven Brazilian bird species. Our evaluation of this information is discussed below.

These seven species all occur in the same biome: The Atlantic Forest, and with respect to the Brazilian merganser, also in the Cerrado Biome. These species depend on similar physical and biological features and on the successful functioning of their ecosystems to survive. They also face the same or very similar threats. Although the listing determination for each species is analyzed separately, we have organized the specific analysis for each species within the context of the broader scale and threat factor in which it occurs to avoid redundancy. Since these species face a suite of common threat factors, similar management actions will reduce or eliminate those threats. Effective management of these threat factors often requires implementation of conservation actions at a broader scale to enhance or restore critical ecological processes and provide for long-term viability of those species in their native environment. Thus, by taking this broader approach, we hope to organize this final rule effectively.

We are listing each of the seven species (species may also include subspecies, as defined in Section 3(15) of the Act) addressed in this rule as endangered. Many of the threats are the same or similar for all seven species. For each species, we identified and evaluated those factors that threaten the species and that may be common to all of the species. For example, the degradation of habitat and habitat loss due to deforestation is a threat to each species. We also identified and evaluated threats that may be unique to certain species, and that may not apply to all of the species addressed in this final rule. For example, the Brazilian merganser may be the only species addressed in this rule that is found in the Cerrado biome, and we have addressed threats that are unique to that species specifically, although most of the threats in the Atlantic Forest are the same in the Cerrado biome.

A. The Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

The best available information indicates that the threats to all of the seven Brazilian species addressed under this factor occur throughout the entire range of each species. These threats include the loss, degradation, and fragmentation of native habitats within the Atlantic Forest biome and, with respect to the Brazilian Merganser, in the Cerrado Biome. Habitat loss and fragmentation are the most significant threats to these species (Marini and Garcia 2005, p. 667). The major human activities that have resulted in the destruction, modification, or curtailment of native habitats within the Atlantic Forest biome include extensive establishment of agricultural fields (*e.g.,* soy beans, sugarcane, and corn), plantations (*e.g.,* eucalyptus, pine, coffee, cocoa, rubber, and bananas), livestock pastures, centers of human habitation, and industrial developments (*e.g.,* charcoal production, steel plants, and hydropower reservoirs). The Cerrado biome faces similar threats (Ratter *et al.* 1997, p. 223; Marini 2009, p. 1558). Forestry practices such as commercial logging, subsistence activities such as fuel wood collection, and changes in fire frequencies also contribute to the degradation of the native habitat (Scott and Brooke 1985, p. 118; Júnior *et al.* 1995, p. 147; Nunes and Kraas 2000, p. 44; Saatchi *et al.* 2001, pp. 868–869; BLI 2003a, p. 4; TNC 2007, p. 2; Peixoto and Silva 2007, p. 5; World Wildlife Fund 2007, pp. 3–51). In addition to the overall loss and degradation of native habitat within these biomes, the remaining tracts of habitat are severely fragmented.

Based on a number of recent estimates, 92 to 95 percent of the area (over 1,250,000 km^2 (482,628 mi^2)) historically covered by tropical forests within the Atlantic Forest biome has been converted or severely degraded as a result of various human activities (IUCN 1999, p. 22; Morellato and Haddad 2000, p. 786; Myers *et al.* 2000, pp. 853–854; Saatchi *et al.* 2001, p. 868; Butler 2007, p. 2; Conservation International 2007a, p. 1; Höfling 2007, p. 1; TNC 2007, p. 1; World Wildlife Fund 2007, pp. 2–41). The Atlantic Forest has the two largest cities in Brazil, São Paulo and Rio de Janeiro, and is home to approximately 70 percent of Brazil's 169 million people (Critical Ecosystem Partnership Fund (CEPF) 2002; The Brazilian Institute of Geography and Statistics (IBGE) 2007, Central Intelligence Agency Factbook, 2010).

Conversion to agriculture or plantations creates disturbed areas that are conducive to weedy plant invasion and establishment of alien plants from dispersed fruits and seeds. Over time, this results in the conversion of a community dominated by native vegetation to one dominated by nonnative vegetation (leading to negative impacts typically associated with nonnative plants, detailed below). Conversion to agriculture or plantations also increases watershed erosion, runoff, and sedimentation which further degrade habitat. These threats are significant, ongoing, and are expected to continue and increase in magnitude and intensity into the foreseeable future without adequate control.

Fire is a relatively new human-related threat to native species and natural vegetation in Brazil. (Nepstad *et al.* 2001, p. 395). Farmers practice slash-and-burn agriculture that creates open lowland areas suitable for the later colonization of nonnative plant species (Nunes and Kraas 2000, pp. 44–47).

Fires of all intensities, seasons, and sources are destructive to the Atlantic Forest and Cerrado Biome (Nepstad *et al.* 2001, p. 395–407). Fire can destroy dormant seeds as well as plants, even in steep or inaccessible areas. Successive fires that burn farther and farther into native habitat destroy native plants and remove habitat for native species. These fires alter microclimate conditions and cause conditions to be more favorable to alien plants. Alien plant species most likely to be spread as a consequence of fire are those that produce a high fuel load, are adapted to survive and regenerate after fire, and establish rapidly in newly burned areas. The threat from intentional and accidental ignition of fires related to slash-and-burn clearing to the species in this final rule that depend on forested ecosystems is significant. Fire damages native vegetation and these species' habitat, including seedlings and juvenile and adult plants.

Species-Specific Evaluation Under Factor A

Black-Hooded Antwren

The black-hooded antwren appears not to be strictly tied to primary forest habitats. It may make use of secondary-growth forests or other disturbed areas such as modified restinga (described under Black-Hooded Antwren Habitat and Life history above), eucalyptus stands, abandoned banana plantations, and recently burned sites (Tobias and Williams 1996, p. 64; BLI 2010a, p. 1). However, its use of secondary-growth forests or other disturbed areas does not necessarily lessen the threat to the species from the effects of deforestation and habitat degradation. This species, although it may be tolerant of secondary-growth forests or other disturbed sites, has a small and declining population size (estimated to be 1,000—2,499 birds) and a severely restricted range of less than 130 km^2 (50 mi^2). Its habitat continues to be impacted. Habitat degradation can adversely impact this species just as equally as it impacts primary forest-obligate species (Harris and Pimm 2004, pp. 1612–1613). While the black-hooded antwren is relatively abundant locally, the entire range of the species encompasses only about 130 km^2 (50 mi^2), with only 45 percent of this area considered occupied (BLI 2010a, pp. 1–2).

The black-hooded antwren occurs in one of the most densely populated regions of Brazil, and most of the tropical forest habitats believed to have been used historically by the species have been converted or are severely degraded due to the wide range of human activities identified above (BLI 2003a, p. 4; BLI 2010d, p. 2; Collar *et al.* 1992, p. 667; Conservation International 2007a, p. 1; del Hoyo 2003, p. 616; Höfling 2007, p. 1; TNC 2007, p. 1; World Wildlife Fund 2007, pp. 3–51). In addition, the remaining tracts of suitable habitat in Rio de Janeiro and São Paulo are threatened by ongoing development of coastal areas, primarily for tourism enterprises (*e.g.,* large hotel complexes, beachside housing) and associated infrastructure support, as well as widespread clearing for expansion of livestock pastures and plantations, primarily for *Euterpe* palms (also known as Acai palms) (Collar *et al.* 1992, p. 667; BLI 2003a, p. 4; del Hoyo 2003, p. 616; World Wildlife Fund 2007, pp. 7 and 36–37; BLI 2010d, p. 2). These impacts have recently reduced suitable habitats at various key sites known to be occupied by the black-hooded antwren, such as Vale do Mambucaba and Ariró. The remaining occupied habitats at these sites are subject to ongoing human disturbances such as off-road vehicle use, burning, and recreational activities (Collar *et al.* 1994, p. 134; del Hoyo 2003, p. 616; BLI 2010a, p. 2).

Summary of Factor A—Black-Hooded Antwren

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 many new hydroelectric dams), slash-and-burn clearing, intentional and accidental ignition of fires (CEPF 2001, pp. 9–15). Even with the recent passage of a national forest policy and despite many other legal protections in Brazil (*see* Factor D), the rate of habitat loss throughout the Atlantic Forest biome has increased since the mid-1990s (Hodge *et al.* 1997, p. 1; CEPF 2001, p. 10; Rocha *et al.* 2005, p. 270). Native habitats at many of the remaining sites may be lost over the next several years (Rocha *et al.* 2005, p. 263). Furthermore, because the black-hooded antwren's extant population is already small, highly fragmented, and believed to be declining (BLI 2010a, pp. 1–3), any further loss or degradation of its remaining suitable habitat represents a significant threat to the species. Therefore, we find that destruction and modification of habitat are threats to the continued existence of the black-hooded antwren.

Brazilian Merganser

The Brazilian merganser is extremely susceptible to habitat loss and degradation, habitat fragmentation, and hydrological changes from human activity (Collar *et al.* 1992, pp. 83–84; Silveira 1998, p. 58; Silveira and Bartman 2001, pp. 297–298; Hughes *et al.* 2006, pp. 36–41; Lamas 2006, pp. 151–153; Lamas and Lins 2009, p. 5). This species' habitat, particularly at the Serra de Canastra National Park (SCNP) in Minas Gerais, has been heavily impacted by changes to the hydrology around the park. These human activities include the establishment of hydroelectric power plants, building of dams and reservoirs, and deforestation (Lamas 2006, pp. 151–152). This species is adapted to highly oxygenated mountainous flowing riverine conditions, and therefore cannot occupy the lacustrine (lake-like) conditions of reservoirs that result from dam building activities within its occupied range (Hughes *et al.* 2006, pp. 23, 41). The loss of the species' terrestrial habitat has occurred due to the removal of forest cover and the degradation of water quality. Current estimates indicate that between 67 and 80 percent of the tropical savannah habitat historically comprising the Cerrado biome has been converted or severely degraded (Mantovani and Pereira 1998, p. 1455; Myers *et al.* 2000, p. 854; Butler 2007, p. 1; Conservation International 2007b, p. 1; World Wildlife Fund 2007, p. 50). Specific threats in SCNP include deforestation and subsequent erosion of river banks and siltation; erosion due to cattle grazing, mining, and associated dynamiting and waste disposal; domestic sewage; and pesticides (Lamas 2006, p. 152). In addition to the overall loss and degradation of native habitat within this species' habitat, the remaining tracts of habitat are severely fragmented.

Several secondary impacts that degrade suitable habitats have also resulted from the above activities and represent significant risks to the Brazilian merganser. These secondary impacts include increased runoff and severe siltation (from agricultural fields, livestock pastures, deforestation, diamond mining, and human impacts from population centers); changes in hydrologic conditions and local water tables (as a result of dam operations (*e.g.,* flood control, power generation) and excessive pumping for irrigation or domestic and industrial water use); and increases in water pollutants (due to agricultural, industrial, and domestic waste products) (del Hoyo *et al.* 1992, p. 625; Benstead 1994, p. 8; Collar *et al.*

1994, p. 51; Pineschi 1999, p. 1; Silveira and Bartman 2001, pp. 297–298; Braz *et al.* 2003, p. 70; Lamas and Santos 2004, p. 40; Bianchi *et al.* 2005, p. 73; Hughes *et al.* 2006, pp. 40–48; Lamas 2006, pp. 151–153; BLI 2007a, pp. 1–6; Ducks Unlimited 2007, p. 1; Silveira 2008, p. 421; Lamas and Lins 2009, p. 5). These secondary impacts negatively affect the Brazilian merganser by reducing water clarity, altering water depths and flow patterns, removing or limiting populations of preferred prey species, and introducing toxic compounds. These secondary impacts may also increase the risk of introducing disease vectors and expanding populations of potential predator and competitor species into areas occupied by the Brazilian merganser.

The loss of habitat throughout the historic range of the Brazilian merganser due to the above human activities has drastically reduced the species' abundance and extent of its occupied range. These activities are currently a significant risk to the species' continued existence because populations are being limited to highly fragmented patches of habitat (Collar and Andrew 1988, p. 21; Collar *et al.* 1992, pp. 83–84; Collar *et al.* 1994, p. 51; Benstead 1994, p. 8; Benstead *et al.* 1994, p. 36; Silveira 1998, pp. 57–58; Hughes *et al.* 2006, pp. 37–48; BLI 2007a, pp. 1–6). Although this species seems to tolerate some environmental degradation if there are well preserved stretches in its territory in which the birds can seek shelter (Lamas 2006, p. 151), we expect the degree of these threats will continue and likely increase in the future.

Summary of Factor A—Brazilian Merganser

The above-mentioned human activities and their secondary impacts have significantly reduced the amount of suitable habitat for the Brazilian merganser, and the remaining areas of occupied habitat are highly fragmented. In addition, these activities are ongoing and continue to adversely impact all of the remaining suitable habitat within the Atlantic Forest and Cerrado biomes that may still harbor the Brazilian merganser. Even with the recent passage of national forest policy and despite many other legal protections in Brazil (see Factor D), the rate of habitat loss throughout southeastern Brazil has increased since the mid-1990s (Hodge *et al.* 1997, p. 1; CEPF 2001, p. 10; Rocha *et al.* 2005, p. 270). Furthermore, because the Brazilian merganser's extant population is already extremely small, highly fragmented, and believed to be declining (BLI 2010b, pp. 1–4), any further loss or degradation of its remaining suitable habitat will severely impact the species (see Factor E). Therefore, based on the best scientific data currently available, we find that the present or threatened destruction, modification, or curtailment of the species' habitat or range threatens the continued existence of the Brazilian merganser.

Cherry-Throated Tanager

Most of the tropical forest habitats believed to have been used historically by the cherry-throated tanager have been converted or are severely degraded due to human activities (Ridgely and Tudor 1989, p. 34; Bauer *et al.* 2000, pp. 98–105; Venturini *et al.* 2005, p. 68; BLI 2010d, p. 2). Degraded and fragmented forests cause a decrease in gene flow, which may cause inbreeding and decreased fitness of forest species (Tabanez and Viana 2000, pp. 929–932). In the Atlantic Forest, there is a high percentage of rare tree species (these researchers defined rare species as being found only once in the forest fragment). Due to their method of reproduction, if these rare tree species are not able to cross-pollinate, rather if they are self-pollinating or self-incompatible (in-breeding), reduction in fitness may occur. This inbreeding could lead to an increase in local extinction of tree species on which species such as the cherry-throated tanager depends. The degradation of forests has led to an increase in density of liana (woody vines that may be native or non-native) in the Atlantic forests of Brazil in part due to the increase in light availability. Liana infestation of these forest fragments cause tree falls and encourage gap-opportunistic species to take over (Tabanez and Viana 2000, pp. 929–932), thus further altering the old forest structure of the cherry-throated tanager's preferred habitat.

Secondary impacts that are associated with forest fragmentation and degradation include the potential introduction of disease vectors and exotic predators within the species' historic range. As a result of these secondary impacts, there is often a time lag between the initial conversion or degradation of suitable habitats and the extinction of endemic bird populations (Brooks *et al.* 1999a, p. 1; Brooks *et al.* 1999b, p. 1140). Therefore, even without further habitat loss or degradation, the cherry-throated tanager remains at risk from past impacts to its primary forest habitats.

Summary of Factor A—Cherry-Throated Tanager

The activities described above and their secondary impacts continue to threaten the last known tracts of habitat within the Atlantic Forest biome that may still harbor the cherry-throated tanager. Because the species' extant population is extremely small, highly fragmented, and believed to be declining (BLI 2010d, p. 1), any further loss or degradation of its remaining suitable habitat will adversely impact the cherry-throated tanager. Therefore, we find that past and ongoing destruction and modification of the cherry-throated tanager's habitat are threats to the continued existence of the species.

Fringe-Backed Fire-Eye

The fringe-backed fire-eye occurs in one of the most densely human populated regions of Brazil. Most of the tropical forest habitats believed to have been used historically by the species have been converted or are severely degraded due to a wide range of human activities described above (Collar and Andrew 1988, p. 102; Collar *et al.* 1992, p. 678; Sick 1993, p. 407; Collar *et al.* 1994, p. 135; BLI 2003a, p. 4; del Hoyo *et al.* 2003, p. 638; Conservation International 2007a, p. 1; Höfling 2007, p. 1; TNC 2007, p. 1; World Wildlife Fund 2007, pp. 3–51; BLI 2010e, p. 2).

This species is not believed to be strictly tied to primary forest habitats and may be able to make use of early successional, secondary-growth forests with dense understory vegetation (Collar *et al.* 1992, p. 677; del Hoyo *et al.* 2003, p. 637; BLI 2007e, p. 2). However, this does not necessarily lessen the risk to the species from the effects of deforestation and habitat degradation. Habitat degradation can adversely impact species that tolerate secondary-growth forests as equally as it impacts primary forest-obligate species (Harris and Pimm 2004, pp. 1612–1613). The entire range of the fringe-backed fire-eye encompasses approximately 4,990 km^2 (1,924 mi^2), with only 20 percent of this area considered occupied (BLI 2007e, pp. 1–4; BLI 2010e).

The susceptibility to extirpation of limited-range species that are tolerant of secondary-growth forests or other disturbed sites can occur for a variety of reasons. These reasons may include when a species' remaining population is already too small or its distribution too fragmented such that it may no longer be demographically or genetically viable (Harris and Pimm 2004, pp. 1612–1613). In addition, while the fringe-backed fire-eye may be tolerant of secondary-growth forests or other disturbed sites, these areas may not represent optimal conditions for the species, which could include dense understories and abundant prey species. For example,

management of plantations often involves intensive control of the site's understory vegetation and long-term use of pesticides, which eventually result in severely diminished understory cover and loss of potential prey species (Scott and Brooke 1985, p. 118; Saatchi *et al.* 2001, pp. 868–869; Rolim and Chiarello 2004, pp. 2687–2691). Such management practices eventually result in the loss of native understory plant species and create relatively open understories, which the fringe-backed fire-eye avoids (Collar *et al.* 1992, p. 677; del Hoyo *et al.* 2003, p. 637; BLI 2007e, p. 2).

Secondary impacts associated with the above human activities include the potential introduction of disease vectors or exotic predators within the species' historic range (see Factor C). As a result of these secondary impacts, there is often a time lag between the initial conversion or degradation of suitable habitats and the extinction of endemic bird populations (Brooks *et al.* 1999a, p. 1; Brooks *et al.* 1999b, p. 1140). Even when potentially occupied sites may be formally protected (see Factor D), the remaining fragments of forested habitat will likely undergo further degradation due to their altered dynamics and isolation (through infestation of gap-opportunistic species, which alter forest structure and decrease in gene flow between species) (Tabanez and Viana 2000, pp. 929–932). Therefore, even without further habitat loss or degradation, the fringe-backed fire-eye remains at risk from past impacts to its suitable habitats.

Summary of Factor A—Fringe-Backed Fire-Eye

Most of the tropical forest habitats believed to have been used historically by the fringe-backed fire-eye have been converted or are severely degraded due to the above human activities. In addition, the remaining tracts of suitable habitat potentially used by the species, including many secondary-growth forests, are subject to ongoing clearing for agriculture fields and plantations (*e.g.,* sugar cane and oil palm), livestock pastures, and industrial and residential developments (Collar and Andrew 1988, p. 102; Collar *et al.* 1992, p. 678).

Even with the recent passage of national forest policy and in the face of many other legal protections in Brazil (see Factor D), the rate of habitat loss throughout the Atlantic Forest biome has increased since the mid-1990s (Hodge *et al.* 1997, p. 1; CEPF 2001, p. 10; Rocha *et al.* 2005, p. 270), and native habitat at many of the remaining sites where this species exists may be lost over the next several years (Rocha *et al.* 2005, pp. 263, 270). Furthermore, because the species' extant population is already small, highly fragmented, and believed to be declining (BLI 2010e, p. 1), any further loss or degradation of its remaining suitable habitat represents significant threat to the species (see Factor E). Therefore, we find that destruction and modification of habitat are threats to the continued existence of the fringe-backed fire-eye.

Kaempfer's Tody-Tyrant

The Kaempfer's tody-tyrant is not strictly tied to primary forest habitats and can inhabit secondary-growth areas (Collar *et al.* 1992, p. 776; Barnett *et al.* 2000, pp. 372–373, 377; BLI 2010c, pp. 1–2). However, this does not lessen the threat to the species from the effects of ongoing deforestation and habitat degradation. This species has a restricted range (i.e., less than 21,000 km^2 (8,100 mi^2)), and its habitat is likely to continue to shrink and become more degraded due to development along the coast and secondary impacts that accompany development. Thus, habitat degradation can adversely impact such species just as equally as it impacts primary forest-obligate species (Harris and Pimm 2004, pp. 1612–1613).

The susceptibility to extirpation of limited-range species that are tolerant of secondary growth occurs for a variety of reasons. These reasons include when a species' remaining population is already too small or its distribution too fragmented such that it may no longer be demographically or genetically viable (Harris and Pimm 2004, pp. 1612–1613). In addition, while the Kaempfer's tody-tyrant may be tolerant of secondary-growth forests or other disturbed sites, some areas may not represent optimal conditions for the species. For example, management of plantations often involves intensive control of the site's understory vegetation and long-term use of pesticides, which eventually result in severely diminished understory cover and increased incidence of potential prey species (Scott and Brooke 1985, p. 118; Saatchi *et al.* 2001, pp. 868–869; Rolim and Chiarello 2004, pp. 2687–2691). Such management practices eventually result in the loss of native understory plant species and relatively open understories. Insectivorous birds that feed in the understory, including those in the genus *Hemitriccus,* are especially vulnerable to such habitat modifications (Goerck 1997, p. 117). While the Kaempfer's tody-tyrant may inhabit some degraded habitat, this species does not appear to occupy altered sites such as plantations (Barnett *et al.* 2000, p. 377).

Even when potentially occupied sites are formally protected (see Factor D), the remaining fragments of forested habitat may undergo further degradation. The degradation is due to the area's altered dynamics and species isolation. This is characterized by decreased gene flow, an increase in inbreeding, decrease in species fitness, increase in liana infestation, and dominance of gap-obligate species (Tabanez and Viana 2000, pp. 929–932). Secondary impacts that are associated with human activities that degrade and remove native habitats within the Atlantic Forest biome include the potential introduction of disease vectors and exotic predators within the species' historic range (see Factor C). As a result of these secondary impacts, there is often a time lag between the initial conversion or degradation of suitable habitats and the extinction of endemic bird populations (Brooks *et al.* 1999a, p. 1; Brooks *et al.* 1999b, p. 1140). Therefore, even without further habitat loss or degradation, the Kaempfer's tody-tyrant remains at risk from past impacts to its suitable forested habitats.

Summary of Factor A—Kaempfer's Tody-Tyrant

The Kaempfer's tody-tyrant occurs in one of the most densely populated regions of Brazil, and most of the tropical forest habitats believed to have been used historically by the species have been converted or are severely degraded due to the range of human activities identified above. In addition, the remaining tracts of suitable habitat potentially used by the species, including many secondary-growth forests, are subject to ongoing clearing for agricultural fields, plantations (*e.g.,* banana, palmetto, and rice), logging, livestock pastures, and industrial and residential developments (Collar *et al.* 1992, p. 776; Barnett *et al.* 2000, pp. 377–378; BLI 2010c, p. 4).

Even with the recent passage of national forest policy and despite many other legal protections in Brazil (see Factor D), the rate of habitat loss throughout the Atlantic Forest biome has increased since the mid-1990s (Hodge *et al.* 1997, p. 1; CEPF 2001, p. 10; Rocha *et al.* 2005, p. 270). Native habitat at many of the remaining sites may continue to be lost over the next several years (Rocha *et al.* 2005, p. 263). In addition, because the extant population of the Kaempfer's tody-tyrant is already small, highly fragmented, and believed to be declining (BLI 2010c, pp. 1–3), any further loss or degradation of its remaining suitable habitat will adversely impact the species. Therefore,

we find that destruction and modification of habitat are threats to the continued existence of the Kaempfer's tody-tyrant.

Margaretta's Hermit

Most of the tropical forest habitats believed to have been used historically by the Margaretta's hermit have been converted or are severely degraded due to habitat destruction for uses such as agriculture, development, or firewood, similar to the other species above. The Margaretta's hermit cannot occupy these extensively altered areas (ICBP 1981, p. 2; Scott and Brooke 1985, p. 118; Sick 1993, p. 338; del Hoyo *et al.* 1999, p. 543). While the Margaretta's hermit is not strictly tied to primary forest habitats and can make use of secondary-growth forests, this does not lessen the threat to the subspecies from the effects of deforestation and habitat degradation. Habitat degradation can adversely impact species that are tolerant of secondary-growth forests just as equally as it impacts primary forest obligate species (Harris and Pimm 2004, pp. 1612–1613).

The susceptibility to extirpation of rare, limited-range species that are tolerant of secondary-growth forests occurs for a variety of reasons, such as when a species' remaining population is already too small or its distribution too fragmented such that it may no longer be demographically or genetically viable (Harris and Pimm 2004, pp. 1612–1613). The last site known to be occupied by the Margaretta's hermit totaled only about 40 km^2 (15 mi^2) (ICBP 1981, p. 2). While the Margaretta's hermit may be tolerant of secondary-growth forests, they may not represent optimal conditions for the species. For example, many hummingbird species are susceptible to excessive sunlight and readily abandon their nests in altered forested sites that receive too much exposure from sunlight (Sick 1993, p. 331). This exposure can occur due to various human activities that result in partial clearing (*e.g.,* selective logging). In addition, management of plantations often involves intensive control of the site's understory vegetation, which eventually results in severely diminished understory cover as well as food sources (Rolim and Chiarello 2004, pp. 2679–2680; Saatchi *et al.* 2001, pp. 868–869). Even if the forest canopy structure remains largely intact, such management practices eventually result in loss of native understory plant species and severely altered understory structure and dynamics, which can be especially detrimental to species such as the Margaretta's hermit.

Additionally, even when forested lands are formally protected (see Factor D), the remaining fragments of habitat where the subspecies may still occur will likely continue to undergo degradation due to their altered dynamics and isolation (Tabanez and Viana 2000, pp. 929–932). The potential introduction of disease vectors or exotic predators within the subspecies' historic range (see Factor C) is a secondary impact that can be associated with human activities and that can further degrade the remaining tracts of forested habitat potentially used by the subspecies. As a result of secondary impacts, there is often a time lag between the initial conversion or degradation of suitable habitats and the extinction of endemic bird populations (Brooks *et al.* 1999a, p. 1; Brooks *et al.* 1999b, p. 1140). Therefore, even without further habitat loss or degradation, the Margaretta's hermit remains at risk from past impacts to its suitable forested habitats.

Summary of Factor A—Margaretta's Hermit

The Margaretta's hermit's range occurs within one of the most densely populated regions of Brazil. Human activities and their secondary impacts continue to threaten the last known tracts of habitat within the Atlantic Forest biome that may still harbor the Margaretta's hermit. Even with the recent passage of national forest policy and despite many other legal protections in Brazil (see Factor D), the rate of habitat loss throughout the Atlantic Forest biome has increased since the mid-1990s, and native habitats at many of the remaining sites where this species is likely to occur may be lost over the next several years (Rocha *et al.* 2005, p. 263). The Margaretta's hermit has already been reduced to such an extent that it is now only known from a relatively old (ca. 1978) sighting (ICBP 1981, p. 2; Willis and Oniki 2002, p. 21), and any further loss or degradation of its remaining suitable habitat could cause the extinction of this subspecies. Therefore, we find that destruction and modification of habitat are threats to the continued existence of the Margaretta's hermit.

Southeastern Rufous-Vented Ground-Cuckoo

Most of the tropical forest habitats believed to have been used historically by the southeastern rufous-vented ground-cuckoo have been converted or severely degraded by the human activities discussed above (ICBP 1981, p. 1; Scott and Brooke 1985, p. 118; Sick 1993, p. 286; del Hoyo *et al.* 1997, pp. 606–607; Payne 2005, p. 207). Terrestrial insectivorous birds that are primary forest-obligate species, such as the southeastern rufous-vented ground-cuckoo, are especially vulnerable to habitat modifications (Goerck 1997, p. 116), and cannot occupy these extensively altered habitats. Del Hoyo *et al.* (1997, p. 207) suggest that the rufous-vented ground-cuckoo would be one of the first species to be extirpated from an area when its primary forest habitat is isolated. This is based on the extirpation of another *Neomorphus geoffroyi* subspecies at Barro Colorado in response to operations of the Panama Canal (del Hoyo *et al.* 1997, pp. 606–607; Payne 2005, p. 207).

Even when they are formally protected (see Factor D), the remaining fragments of primary forest habitat where the subspecies may still occur will likely undergo further degradation due to their altered dynamics and isolation (Tabanez and Viana 2000, pp. 929–932). In addition, secondary impacts associated with human activities include the potential introduction of disease vectors or exotic predators within the subspecies' historic range (see Factor C). As a result of the above influences, there is often a time lag between the initial conversion or degradation of suitable habitats and the extinction of endemic bird populations (Brooks *et al.* 1999a, p. 1; Brooks *et al.* 1999b, p. 1140). Therefore, even without further habitat loss or degradation, the southeastern rufous-vented ground-cuckoo remains at risk from past impacts to its primary forest habitats.

Summary of Factor A—Southeastern Rufous-Vented Ground-Cuckoo

The above human activities and their secondary impacts continue to threaten the remaining tracts of habitat within the Atlantic Forest biome that may still harbor the southeastern rufous-vented ground-cuckoo (del Hoyo *et al.* 1997, pp. 606–607; BLI 2003a, p. 4; Conservation International 2007a, p. 1; Höfling 2007, p. 1; TNC 2007, p. 1; Payne 2005, p. 207; World Wildlife Fund 2007, pp. 3–51). Even with the recent passage of national forest policy, and despite many other legal protections in Brazil (see Factor D), the rate of habitat loss throughout southeastern Brazil has increased since the mid-1990s (Hodge *et al.* 1997, p. 1; CEPF 2001, p. 10; Rocha *et al.* 2005, p. 270). The subspecies' population has already been reduced to such an extent that it is now only known from one possible recent (ca. 2004) sighting of a single bird (Scoss *et al.* 2006, p. 1). Any further loss or degradation of remaining suitable habitat could cause the

extinction of this subspecies. Therefore, we find that destruction and modification of habitat are threats to the continued existence of the southeastern rufous-vented ground-cuckoo.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Black-hooded antwren, Cherry-throated tanager, Fringe-backed fire-eye, Kaempfer's tody-tyrant, and Southeastern rufous-vented ground-cuckoo

Other than bird watching, we are unaware of any commercial, recreational, scientific, or educational purpose for which the black-hooded antwren, Cherry-throated tanager, Fringe-backed fire-eye, Kaempfer's tody-tyrant, and Southeastern rufous-vented ground-cuckoo are currently being used. Ecotourism such as bird watching is a vital component of conservation efforts. These efforts focus people's awareness on the forest and its value. Ecotourism, although it may have detrimental effects in some cases, is generally considered important to species' long-term conservation (Riley & Wardill 2001; Whitten 2006). The best available information does not indicate that tourism, particularly bird watching, threatens any of these species. As a result, we do not consider overutilization to threaten the continued existence of the black-hooded antwren, cherry-throated tanager, fringe-backed fire-eye, Kaempfer's tody-tyrant, and southeastern rufous-vented ground-cuckoo.

For the following two species, Brazilian merganser and Margaretta's hermit, additional discussion of threats follows.

Brazilian Merganser

Historically, there was likely little rangewide hunting pressure on the Brazilian merganser, presumably due to the species' secretive nature, naturally low densities in relatively inaccessible areas, and poor palatability (Partridge 1956, p. 478; Silveira and Bartman 2001, p. 297; Lamas 2006, pp. 152–153). Since the first formal description of the species in the early 1800s, the Brazilian merganser was collected for scientific study and museum exhibition (Hughes *et al.* 2006, p. 46; BLI 2007a, p. 2). Past hunting and specimen collection may have contributed to the species' decline in some areas (Hughes *et al.* 2006, p. 46). These activities may continue today, although presumably at very low levels (Benstead 1994, p. 8; Hughes *et al.* 2006, p. 48). In the proposed rule, species collection for scientific study, museum exhibition, and hunting were mentioned as possibly affecting populations of the Brazilian merganser. Although these may occur, the best available information does not indicate that they are occurring on a scale that threatens this species (BLI 2010b, p. 2). Therefore, we do not believe these activities are threats to the species.

Tourism is known to occur in SCNP; however, it currently does not appear to be a threat to the species (Lamas 2006, p. 152). SCNP's protected area is approximately 715 km^2 (276 mi^2) (Lamas 2006, p. 146). The park was specifically created to protect the headwaters of the São Francisco River (2,830 km (1,760 mi) in length), and to protect wildlife in Southeastern Brazil. Although the Brazilian merganser is a shy species, some birds may become habituated to tourism. A breeding pair was observed for several years that inhabited a frequently visited area of the park (Bartmann 1988; Silveira and Bartmann 2001 in Lamas 2006, p. 152). This is uncommon behavior for this species, but it demonstrates that some of these birds are able to tolerate some amount of tourism. Additionally, although tourism occurs in the park, tourists do not access the entire area that may be potentially inhabited by the Brazilian merganser. Not all of the suitable habitat for this species is easily accessible to tourists (Lamas 2006, pp. 146–147). Based on surveys done by Lamas, it appears that there is adequate habitat in the park for the species to conduct breeding and feeding activities despite the level of tourism that occurs. During the 2001–2002 period, 49 stream segments were surveyed, and this species was found in 9 locations; 81 birds were believed to inhabit the areas sampled (Lamas 2006, pp. 145, 149). There appears to be a healthy population of Brazilian mergansers in this park, and again, not all of the suitable habitat for this species is easily accessible to tourists. The amount of tourism occurring does not appear to negatively affect this species based on the unexpectedly high number of birds encountered during the 2001–2002 survey results. Therefore, we do not find that tourism is a threat to the species.

We are unaware of any other commercial, recreational, scientific, or educational purpose for which the Brazilian merganser is currently being used. As a result, we do not consider overutilization to threaten the continued existence of the Brazilian merganser.

Margaretta's Hermit

In the past, many species of hummingbirds that occur in southeastern Brazil such as the Margaretta's hermit were collected for use in the fashion industry due to their colorful plumage. Populations of some species have been extirpated or remain severely diminished as a result (Sick 1993, pp. 337–338). Due to concerns about hummingbirds in international trade, in 1987, the entire family, Trochilidae, was listed in Appendix II of CITES (www.cites.org). CITES is a treaty that implements a system of permits to regulate international trade in certain protected animal and plant species.

Appendix II of CITES includes species that, although not necessarily threatened presently with extinction, may become so unless the trade in specimens is strictly controlled. International trade in specimens of Appendix-II species is authorized through permits or certificates, once the granting authorities have ascertained certain factors, including that trade will not be detrimental to the survival of the species in the wild, and that the specimen was legally acquired (www.cites.org).

Since the listing of the family under CITES in 1987, there have been eight CITES-permitted international transactions in specimens of the species *Phaethornis malaris;* however, no trade has been reported at the subspecies level, *Phaethornis malaris margarettae* (John Caldwell, United Nations Environment Programme, World Conservation Monitoring Centre (UNEP–WCMC), pers. comm., May 13, 2008). According to WCMC, the 8 transactions involved a total of 30 specimens of *Phaethornis malaris,* which were imported into the United States from the United Kingdom, Peru, and Suriname. The two latter countries are within the species' range (John Caldwell, UNEP–WCMC, pers. comm., May 12, 2008). Due to the suspected small, declining population and restricted range of the Margaretta's hermit, we believe that the 30 specimens reported in trade were not this subspecies. Furthermore, we are unaware of any unreported CITES trade or illegal international trade in specimens of Margaretta's hermit. Therefore, we believe that international trade is not a factor influencing the subspecies' status in the wild.

Local hummingbird populations may also be impacted by collection for various uses, including scientific research, preparation of "novelty" exhibits, consumption in local dishes, and for the zoo or pet trade (Scott and Brooke 1985, p. 118; Sick 1993, pp. 337–338; Rolim and Chiarello 2004, pp. 2679–2680). However, the best available information does not indicate that these

activities occur with respect to the Margaretta's hermit.

The population of the Margaretta's hermit is likely extremely small and occurs within a severely restricted range. Due to its rarity, the removal or dispersal of any individuals of this subspecies or even a slight decline in the population's fitness due to any intentional or inadvertent hunting and specimen collection would adversely impact the subspecies' overall viability (see Factor E). However, while these potential influences remain a concern for future management of the Margaretta's hermit, we are unaware of any other commercial, recreational, scientific, or educational purpose for which the Margaretta's hermit is currently being utilized.

Summary of Factor B

The best available information does not indicate that overutilization for commercial, recreational, scientific, or educational purposes are threats to the seven bird species addressed in this rule. Therefore, we find that overutilization for commercial, recreational, scientific, or educational purposes is not a threat to any of these seven species.

C. Disease or Predation

Black-Hooded Antwren, Brazilian Merganser, Cherry-Throated Tanager, Fringe-Backed Fire-eye, Kaempfer's Tody-Tyrant, Margaretta's Hermit, and Southeastern Rufous-Vented Ground-Cuckoo

Diseases of these seven species are poorly known and are not currently considered to be a threat to the Black-hooded antwren, Brazilian Merganser, Cherry-throated tanager, Fringe-backed fire-eye, Kaempfer's tody-tyrant, Margaretta's hermit, and Southeastern rufous-vented ground-cuckoo, or a factor in their decline. Large, stable populations of wildlife species are generally able to adapt to natural levels of disease within their historic ranges. However, the extant populations of these seven species are considered to be small, fragmented, and declining (see species descriptions above). Extensive human activity in previously undisturbed or isolated areas has been known to lead to the introduction and spread of exotic diseases such as West Nile virus. Some of these diseases can negatively impact endemic bird populations (Neotropical News 2003, p. 1; Naugle *et al.* 2004, p. 704). However, there is no evidence that disease is negatively impacting any of these seven bird species.

Extensive human activity in previously undisturbed or isolated areas can also lead to altered predator populations and the introduction of various exotic predator species, such as feral cats (*Felis catus*) and rats (*Ratus* spp.), which can be especially harmful to populations of endemic bird species (Courchamp *et al.* 1999, p. 219; Small 2005, p. 257; American Bird Conservancy 2007, p. 1; Duncan and Blackburn 2007, pp. 149–150; Salo *et al.* 2007, pp. 1241–1242). Large, stable populations of wildlife species generally adapt to natural levels of predation within their historic ranges. However, the best available scientific and commercial information does not indicate that the occurrence of predation is of sufficient magnitude that it threatens the Black-hooded antwren, Cherry-throated tanager, Fringe-backed fire-eye, Kaempfer's tody-tyrant, and Southeastern rufous-vented ground-cuckoo. Nor do we expect the degree of predation on each of these species to increase in the future.

For the following two species, Brazilian merganser and Margaretta's hermit, additional discussion of potential predation threats follows.

Brazilian Merganser

There are a number of suspected predators of the Brazilian merganser (Hughes *et al.* 2006, p. 44; Lamas and Santos 2004, p. 39; Partridge 1956, p. 486). Lins and colleagues observed a great black-hawk (*Buteogallus urubitinga*) swooping over a merganser in Serra da Canastra. The merganser evaded capture by diving under the water each time the hawk got close (Lamas and Lins 2009, p. 4). Partridge (1956, p. 480) also drew attention to the black-and-white hawk-eagle as amongst the most dangerous predators of Brazilian merganser in Argentina. The same author highlighted the "dourado" (*Salminus brasiliensis,* syn. *maxillosus*), one of the most voracious fish of the upper Paraná, as a potential enemy to young ducklings of any species. Partridge hypothesized that the species' distribution may be naturally limited to upper river tributaries above waterfalls due to predation of their young by large predatory fish, such as the dourado. In addition, extensive human activity in previously undisturbed or isolated areas can result in altered predator or competitor (*e.g.,* cormorant (*Phalacrocorax* spp.)) populations and the introduction of various exotic predator species, such as feral dogs (*Canis familiaris*) and fish such as the largemouth bass (*Micropterus salmoides*) (Hughes *et al.* 2006, pp. 44–45). However, the best available scientific and commercial information does not indicate that the occurrence of these predators causes significant threats to the Brazilian merganser.

Margaretta's Hermit

With regard to predation, a variety of reptiles (e.g., snakes, lizards) and predatory birds (*e.g.,* owls, hawks) are known to prey on hummingbirds (Sick 1993, pp. 336–337). Young hummingbirds can be parasitized by botflies (*Philornis* spp.) (Sick 1993, pp. 336–337). Furthermore, nestling hummingbirds can be killed by raiding army ants (*Eciton* spp.), while some hornets and bees are potential competitors for flower nectar and have been known to lethally sting adult hummingbirds. Although this species is affected by predators, the available information suggests that predation is naturally occurring at a normal level and is a normal aspect of population dynamics. As a result, we do not believe that predation is considered to currently pose a threat to this species. The best available scientific and commercial information does not indicate that the occurrence of these predators or parasites causes significant threats to the Margaretta's hermit.

Summary of Factor C

Disease and predation remain a concern for the management of each of these seven species (black-hooded antwren, Brazilian merganser, cherry-throated tanager, fringe-backed fire-eye, Kaempfer's tody-tyrant, Margaretta's hermit, and the southeastern rufous-vented ground-cuckoo). However, the best available information does not indicate that the occurrence of disease or predation incurred by these species rises to the level of threats that place any of these species at risk of extinction. As a result, we do not find that disease or predation threatens the continued existence of any of these seven species.

D. The Inadequacy of Existing Regulatory Mechanisms

All of these seven species are formally recognized as "endangered" in Brazil (Order No. 1.522) and are directly protected by various laws promulgated by the Brazilian government (Collar *et al.* 1992, p. 667; ECOLEX 2007, pp. 1–2; BLI 2010d, p. 2). For example, there are measures that prohibit, or regulate through Federal agency oversight, the following activities with regard to endangered species: Export and international trade (*e.g.,* Decree No. 76.623, Order No. 419–P), hunting (*e.g.,* Act No. 5.197), collection and research (Order No. 332), captive propagation (Order No. 5), and general harm (*e.g.,*

Decree No. 3.179). These measures (1) prohibit exploitation of the remaining primary forests within the Atlantic Forest biome (*e.g.,* Decree No. 750, Resolution No. 10); (2) govern various practices associated with the management of primary and secondary forests, such as logging, charcoal production, reforestation, recreation, and water resources (*e.g.,* Resolution No. 9, Act No. 4.771, Decree No. 1.282, Decree No. 3.420, Order No. 74–N, Act No. 7.803); (3) establish provisions for controlling forest fires (*e.g.,* Decree No. 97.635, Order No. 231–P, Order No. 292–P, Decree No. 2.661); and (4) regulate industrial developments, such as hydroelectric plants and biodiesel production (e.g., Normative Instruction No. 65, Law No. 11.116).

There are also various regulatory mechanisms (Law No. 11.516, Act No. 7.735, Decree No. 78, Order No. 1, Act No. 6.938) in Brazil that direct Federal and State agencies to promote the protection of lands and that govern the formal establishment and management of protected areas to promote conservation of the country's natural resources (ECOLEX 2007, pp. 5–7). These mechanisms generally aim to protect endangered wildlife and plant species, genetic resources, overall biodiversity, and native ecosystems on Federal, State, and privately owned lands (*e.g.,* Law No. 9.985, Law No. 11.132, Resolution No. 4, Decree No. 1.922). Brazil's formally established protection areas were developed in 2000 and are categorized based on their overall management objectives. These include national parks, biological reserves, ecological reserves, ecological stations, environmental protection areas, and national forests (Ryland 2005, pp. 612–618). These areas allow varying uses and provide varying levels of protection for specific resources (Costa 2007, pp. 5–19). For example, Biological Reserves are restricted to a greater extent than the National Parks. Official uses of reserves include scientific study, environmental monitoring, and scientific education (Costa 2007, p. 9).

Protected areas were recommended for the majority of 900 priority areas for biodiversity conservation for Brazil's major biomes. Establishment of biodiversity corridors, with parks and reserves as key elements and the creation of protected areas in the 23 Amazonian ecoregions identified by World Wildlife Fund, was also recommended. As of 2005, there were 478 protected areas totaling 37,019,697 ha (14,981,340 ac). In addition to the Federal and State protected areas, there are also 450 private natural heritage reserves (RPPNs). In June 2010, 4 new protected areas in the Atlantic Forest's Bahia region were established through decree encompassing 65,070 ha (160,791 ac) (Conservation International 2010). Although these protected areas exist, activities such as deforestation and sustainable-use practices still occur in the Cerrado and Atlantic Forest regions (Ryland 2005, p. 616).

Brazil is faced with competing priorities of encouraging development for economic growth and resource protection. In the past, the Brazilian government, through various regulations, policies, incentives, and subsidies, has actively encouraged settlement of previously undeveloped lands in southeastern Brazil, which helped facilitate the large-scale habitat conversions that have occurred throughout the Atlantic Forest and Cerrado biomes (Ratter *et al.* 1997, pp. 227–228; Saatchi *et al.* 2001, p. 874; Brannstrom 2000, p. 326; Butler 2007, p. 3; Conservation International 2007c, p. 1; Pivello 2007, p. 2). These development projects include logging, housing and tourism developments, and expansion of plantations (Collar *et al.* 1992, p. 776; Ratter *et al.* 1997, pp. 227–228; Barnett *et al.* 2000, pp. 377–378; Saatchi *et al.* 2001, p. 874; Butler 2007, p. 3). All of these projects impact potentially important sites for each of these seven species and would affect habitat within and adjacent to established protection areas (Collar *et al.* 1992, p. 776; Barnett *et al.* 2000, p. 377–378). The Brazilian government encouraged further development of dams for hydroelectric power, irrigation, or municipal water supplies; expansion of agricultural practices, primarily for soybean production; and tourism enterprises (Braz *et al.* 2003, p. 70; Hughes *et al.* 2006, pp. 51–56). These competing priorities make it difficult to enforce regulations that protect the habitat of these seven species.

Thus, for the above reasons as well as lack of funding, personnel, or local management commitment, some of Brazil's protected areas exist without the current capacity to achieve their stated natural resource objectives (Neotropical News 1996, pp. 9–10; Neotropical News 1999, p. 9; IUCN 1999, pp. 23–24; Bruner *et al.* 2001, p. 125; ADEJA 2007, pp. 1–2; Costa 2007, p. 7). The Worldwide Fund for Nature found that 47 of 86 protected areas were below the minimum level of implementation of Federal requirements, with only seven considered to be fully implemented (Neotropical News 1999, p. 9). More recently, the Brazilian government has given greater recognition to the environmental consequences of such rapid expansion, and has taken steps to better manage some of the natural resources potentially impacted (Nunes and Kraas 2000, p. 45; Neotropical News 2003, p. 13; Venturini *et al.* 2005, p. 68; Butler 2007, p. 7; Costa 2007, p. 7). Despite these efforts, threats to areas containing habitat for each of these seven species continue (ADEJA 2007, pp. 1–2; BLI 2010d, p. 2). Therefore, even with the expansion or further designation of protected areas, it is unlikely that the identified impacts to each of these seven species (*e.g.,* habitat loss due to residential and agricultural encroachment, resource extraction, and grazing) will be adequately addressed through existing regulatory mechanisms at the sites where these species are found or in their habitat.

Species-Specific Evaluations under Factor D

Black-Hooded Antwren

The black-hooded antwren occurs in a narrow coastal band below Rio de Janeiro. It has been seen in the buffer zone around Serra da Bocaína National Park and possibly within Tamoios Environmental Protection Area and the Ecological Reserve of Jacarepiá (del Hoyo 2003, p. 616; World Twitch 2007, p. 12; BLI 2010d, p. 2). It has been recommended that some of the sites where the species has been found be expanded and other sites be designated to ensure the species' currently occupied range is within protected areas.

Brazil's laws requiring resource protection that should benefit the black-hooded antwren are not effective due to the pressure to develop that is occurring in coastal areas south of Rio de Janeiro. Despite the existence of regulatory mechanisms to protect the species and its habitat, habitat loss throughout the Atlantic Forest biome has increased for more than a decade, with adverse impacts continuing and likely increasing into the foreseeable future. The existing regulatory mechanisms have proven difficult to enforce (Scott and Brooke 1985, pp. 118, 130; Neotropical News 1997b, p. 11; BLI 2003a, p. 4; Conservation International 2007c, p. 1; Costa 2007, p. 7; TNC 2007, p. 2; Peixoto and Silva 2007, p. 5). As a result, threats to the black-hooded antwren's remaining habitat are ongoing (see Factor A) due to the challenges that Brazil faces to balance its competing development and conservation priorities. Therefore, when viewed in combination with the habitat threats identified in Factor A, we find that the existing regulatory mechanisms are

inadequate to ameliorate the current threats to the black-hooded antwren.

Brazilian Merganser

The Brazilian merganser is legally protected by national legislation promulgated by the governments in all three countries (Brazil, Argentina, and Paraguay) where it historically occurred (Hughes *et al.* 2006, pp. 50–57). According to the best available information, the vast majority of the species' remaining suitable habitats occurs (Hughes *et al.* 2006, pp. 28–31; BLI 2009a, pp. 1–2) in Brazil, and it is unclear whether there are populations remaining in Argentina and Paraguay (BLI 2010b). The Brazilian merganser is formally recognized as "endangered" (Order No. 1.522) in Brazil, and there are regulatory mechanisms that require direct protection of the species (ECOLEX 2007, pp. 1–2).

Four of Brazil's protected areas represent the major sites where the Brazilian merganser still occurs (Hughes *et al.* 2006, pp. 53–54). It occurs in a few fragmented locations in south-central Brazil, including the upper tributaries of rivers within the Atlantic Forest biome and to the west in the Cerrado biome (Silveira and Bartmann 2001, pp. 287–288; DePaula *et al.* 2008, p. 289). Notable among these areas are the Serra da Canastra National Park in Minas Gerais, which currently encompasses a portion of the species' largest known subpopulation (Bruno *et al.* 2006, p. 25; Lamas 2006, p. 151); the Chapada dos Veadeiros National Park in Goiás (Bianchi *et al.* 2005, pp. 72–73); and Jalapao State Park in Tocantins State (DePaula 2008, p. 289). These areas are considered critical for protecting some of the species' key remaining subpopulations (Collar *et al.* 1992, pp. 84–85; del Hoyo *et al.* 1992, p. 625; Silveira 1998, pp. 57–58; Silveira and Bartman 2001, pp. 287–300; Braz *et al.* 2003, pp. 68–71; Lamas and Santos 2004, pp. 39–40; Bianchi *et al.* 2005, pp. 72–74; Bruno *et al.* 2006, p. 30; Lamas 2006, pp. 145–154; BLI 2010a, pp. 1–2). Some conservation initiatives are under way. For example, the Service recently provided funding for a project to develop and strengthen conservation partnerships with local agricultural producers in the Serra da Canastra region, which could benefit the Brazilian merganser (US FWS 2006, p. 3). Additionally, in March 2010, the Global Environmental Facility (GEF) approved a $13 million grant for the Sustainable Cerrado Initiative, which seeks to conserve the Cerrado Biome (World Bank 2010.)

Although the four areas protected under Brazilian law include important sites where the species occurs, resource extraction and livestock grazing continue in Brazilian merganser habitat and pose threats to this species. In addition, not all of the remaining Brazilian mergansers occur in protected areas. Some key areas where the species occur are not formally protected and are subject to ongoing threats, such as proposed hydropower projects, logging, and continuing development (Lamas 2006; BLI 2010b). For these reasons, we expect these threats will continue into the future.

Despite the existence of these regulatory mechanisms, habitat loss throughout the Atlantic Forest biome has increased for more than a decade, with adverse impacts continuing and expected to increase into the future (Scott and Brooke 1985, p. 118; Collar *et al.* 1992, p. 84; BLI 2003a, p. 4; BLI 2003b, pp. 1–2; Braz *et al.* 2003, p. 70; Lamas and Santos 2004, p. 40; Hughes *et al.* 2006, p. 61; TNC 2007, p. 2). Illegal or unauthorized activities continue to impact the Brazilian merganser, including logging of gallery forests within riverine buffer areas. These activities include encroachment of logging; livestock grazing, subsistence activities within protected primary and secondary forests; and intentional burning (Hughes *et al.* 2006, p. 61; TNC 2007, p. 2; BLI 2009, p. 1).

Brazil's resource protection laws are inadequate to combat the intense development pressure that exists within the species' range. Despite the existence of these regulatory mechanisms, and the establishment in 2003 of a Brazilian Merganser Recovery Team, there are additional challenges. Protected areas do not address all the threats to the Brazilian merganser, nor do they encompass all occupied habitat of the species. There are government-sponsored programs that encourage development within the range of the species, and there is an absence of adequate enforcement. As a result, threats to the species' remaining habitat are ongoing (see Factor A). Therefore, when viewed in combination with the habitat threats and small population size identified under Factors A and E, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the Brazilian merganser.

Cherry-Throated Tanager

Few sites have recently confirmed observations of the cherry-throated tanager. Possible sightings of the cherry-throated tanager have occurred in the Augusto Ruschi Biological Reserve (also known as Nova Lombardia Biological Reserve), which is approximately 5,000 hectares (ha) (12,355 acres (ac)) in Espirito Santo. Espirito Santo is likely the only State in Brazil where this species still exists. One of the key sites still occupied by the species is the Pindobas IV Farm. It was recommended that the farm be formally designated as a protected area to help ensure the species' future protection, and the owners of this farm have expressed interest in this recommendation (Bauer *et al.* 2000, p. 106; BLI 2010d, p. 2). Under Brazilian law, the remaining native forest on the owner's land could be designated as a private natural heritage reserve. In addition, in June 2010, the cherry-throated tanager received additional protections in the form of a decree (no. 2529–R) and wildlife corridors. Ten priority conservation areas were recognized by the State of Espirito Santo (BLI 2010h). These conservation measures represent progress for the conservation of this species.

Although Brazil still has various government-sponsored measures that continue to facilitate development projects, there is also a wide variety of regulatory mechanisms that require protection of the cherry-throated tanager and its habitat throughout the species' potentially occupied range. Conservation measures have improved within Brazil. However, due to competing priorities, threats to the species' remaining habitat are ongoing and are expected to continue. Therefore, when viewed with Factors A and E, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the cherry-throated tanager.

Fringe-Backed Fire-Eye

As of 2007, the fringe-backed fire-eye did not occur within any protected areas, although it has been recommended that some of the key sites it occupies should be formally designated as protected areas to help ensure the species' future protection (Collar *et al.* 1992, p. 678; del Hoyo *et al.* 2003, p. 638; BLI 2007e, p. 2). Six Important Bird Areas have been identified in northern Bahia where this species may or is likely to occur (BLI 2010f). However, even with any future designation of protected areas, it is unlikely that all of the previously identified resource concerns for the fringe-backed fire-eye would be sufficiently addressed at these sites.

Although there is a wide variety of regulatory mechanisms in Brazil that require protection of the fringe-backed fire-eye and its habitat throughout the species' potentially occupied range, Brazil still has various government-

sponsored measures that continue to facilitate potentially harmful development projects. Due to competing priorities, significant threats to the species' remaining habitat are ongoing and are expected to continue. Therefore, when viewed in combination with habitat threats and small population size identified under Factors A and E, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the fringe-backed fire-eye.

Kaempfer's Tody-Tyrant

Currently, the Kaempfer's tody-tyrant is known to occur in 11 localities in southeast Brazil (Belmonte-Lopes *in litt.* in BLI 2010c). Although Brazil still has various government-sponsored measures that continue to facilitate development projects, there is also a wide variety of regulatory mechanisms in Brazil that require protection of the Kaempfer's tody-tyrant and its habitat throughout the species' potentially occupied range. The existing regulatory mechanisms that apply to this species have proven difficult to enforce (Scott and Brooke 1985, pp. 118, 130; BLI 2003a, p. 4; Conservation International 2007c, p. 1; Costa 2007, p. 7; TNC 2007, p. 2; Peixoto and Silva 2007, p. 5). As a result, significant threats to the species' remaining habitats are ongoing (see Factor A) due to competing priorities. Therefore, when viewed in combination with habitat threats and small population size identified under Factors A and E, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the Kaempfer's tody-tyrant.

Margaretta's Hermit

The Margaretta's hermit is included in Appendix II of CITES (*http://www.cites.org*). CITES is an international treaty among 175 nations, including Brazil and the United States, that entered into force in 1975 (UNEP–WCMC 2009a). In the United States, CITES is implemented through the Endangered Species Act (Act). The Act designates the Secretary of the Interior as the Scientific and Management Authorities to implement the treaty. Under this treaty, countries work together to ensure that international trade in animal and plant species is not detrimental to the survival of wild populations, by regulating the import, export and re-export of CITES-listed animal and plant species (*http://www.cites.org*). As discussed under Factor B, we do not consider international trade under CITES to be a threat to the Margaretta's hermit. Therefore, CITES is an effective mechanism to control international trade through valid CITES permits. Any international trade that occurs in the future would be effectively regulated under CITES.

Successful efforts to protect the last site known to harbor the Margaretta's hermit from further development occurred in the mid-1980s (Pereira 2007, p. 2), and a portion of this area was designated as the Córrego Grande Biological Reserve in 1989 (Costa 2007, p. 20). However, nearly the entire site burned in 1986, and the subspecies has not been recorded there since that time (Willis and Oniki 2002, p. 21). The Margaretta's hermit likely also occurred at the Sooretama Biological Reserve in Espírito Santo in 1977 (ICBP 1981, p. 2). Therefore, even with formal designation of protected areas, it is unlikely that the identified threats to the Margaretta's hermit are sufficiently addressed at these sites.

Although there is a wide variety of regulatory mechanisms in Brazil that require protection of the Margaretta's hermit and its habitat throughout the subspecies' potentially occupied range, there are government-sponsored measures that remain in place in Brazil that continue to facilitate potentially harmful development projects. The existing regulatory mechanisms that apply to the Margaretta's hermit have been difficult to enforce (Scott and Brooke 1985, p. 118, 130; BLI 2003a, p. 4; Conservation International 2007c, p. 1; Costa 2007, p. 7; TNC 2007, p. 2; Peixoto and Silva 2007, p. 5). As a result, significant threats to the subspecies' remaining habitats are ongoing (see Factor A). Therefore, when viewed in combination with habitat threats and small population size identified under Factors A and E, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the Margaretta's hermit.

Southeastern Rufous-Vented Ground-Cuckoo

Two protected areas, Sooretama Biological Reserve and Doce River State Park, represent the major sites where the southeastern rufous-vented ground-cuckoo may still occur (Scott and Brooke 1985, pp. 125–126; Payne 2005, p. 207). The protective measures potentially implemented at these two areas are considered critical for protecting any remaining populations of the subspecies. However, not all of the identified threats for the subspecies are sufficiently addressed at the two protected areas that may still harbor the southeastern rufous-vented ground-cuckoo (AMDA 2006, p. 2; Barbosa 2007, p. 1; Bruner *et al.* 2001, pp. 125–128; Nunes and Kraas 2000, p. 44).

Although there is a wide variety of regulatory mechanisms in Brazil that require protection of the southeastern rufous-vented ground-cuckoo and its habitat throughout the subspecies' range, there are various government-sponsored measures that remain in place in Brazil that continue to facilitate development projects that could harm the species. The existing regulatory mechanisms, as currently enforced, do not reduce the threats to the species (BLI 2003a, p. 4; Conservation International 2007c, p. 1; Costa 2007, p. 7; TNC 2007, p. 2; Neotropical News 1997b, p. 11; Peixoto and Silva 2007, p. 5; Scott and Brooke 1985, p. 118, 130; Venturini *et al.* 2005, p. 68). Therefore, when viewed in combination with habitat threats and small population size identified under Factors A and E, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to the southeastern rufous-vented ground-cuckoo.

Summary of Factor D

Regulatory mechanisms exist in Brazil to protect these seven species. In addition, a $13 million grant was awarded for the Sustainable Cerrado Initiative, which seeks to conserve the Cerrado Biome (World Bank 2010, p. 1). However, it is difficult to manage the protected areas, and several challenges still remain to be adequately addressed. The lack of implementation and enforcement, coupled with Brazil's past and current incentives to develop areas which may contain suitable habitat for these species, have resulted in a failure to protect or curb habitat destruction in the species' only known habitats (Factor A). Because we are unaware of any regulatory mechanisms that effectively limit or restrict habitat destruction, we believe that the inadequacy of regulatory mechanisms is a contributory risk factor for these seven species. In summary, we find that the existing regulatory mechanisms are inadequate to ameliorate the current threats to these seven species.

E. Other Natural or Manmade Factors Affecting the Continued Existence of the Species

All seven species have limited geographic ranges and small population sizes. Their existing populations are extremely localized, and sometimes geographically isolated from one another, leaving them vulnerable to localized extinctions from habitat modification and destruction, natural catastrophic changes to their habitat

(*e.g.,* flood scour, drought); other stochastic disturbances; decreased fitness from reduced genetic diversity; and climate change.

Potential Loss of Genetic Diversity and Stochastic Disturbance and Population Isolation

Under this factor we first explore whether the risks, represented by demographic, genetic, and environmental stochastic events, threaten the continued existence of each of these seven species. All seven species addressed in this rule have limited geographic ranges and small, declining populations. Their existing populations are extremely localized and geographically isolated from one another, leaving them vulnerable to localized extinctions from habitat modification, progressive degradation from erosion or runoff (non-point source pollutants), natural catastrophic changes to their habitat (*e.g.,* drought), other stochastic disturbances, and decreased fitness from reduced genetic diversity. Demographic stochasticity is defined by chance changes in the population growth rate for a species (Gilpin and Soulé 1986, p. 27). Population growth rates are influenced by individual birth and death rates (Gilpin and Soulé 1986, p. 27), immigration and emigration rates, as well as changes in population sex ratios. Natural variation in survival and reproductive success of individuals and chance disequilibrium of sex ratios may act in concert to contribute to demographic stochasticity (Gilpin and Soulé 1986, p. 27).

Genetic stochasticity is caused by changes in gene frequencies due to genetic drift, and diminished genetic diversity, and/or effects due to inbreeding (*i.e.,* inbreeding depression) (Lande 1995, p. 786). Inbreeding can have individual or population-level consequences, either by increasing the phenotypic expression (the outward appearance, or observable structure, function, or behavior of a living organism) of recessive, deleterious alleles or by reducing the overall fitness of individuals in the population (Charlesworth and Charlesworth 1987, p. 231; Shaffer 1981, p. 131). Environmental stochasticity is defined as the susceptibility of small, isolated populations of wildlife species to natural levels of environmental variability and related "catastrophic" events (*e.g.,* severe storms, extreme cold spells, wildfire) (Dunham *et al.* 1999, p. 9; Mangel and Tier 1994, p. 612; Young 1994, pp. 410–412). Each risk will be analyzed specifically for each species.

Small, isolated populations of wildlife species that have gone through a reduction in population numbers can be susceptible to demographic and genetic problems (Shaffer 1981, pp. 130–134). These threat factors, which may act in concert, include: Natural variation in survival and reproductive success of individuals; chance disequilibrium of sex ratios; changes in gene frequencies due to genetic drift; diminished genetic diversity and associated effects due to inbreeding (*i.e.,* inbreeding depression); dispersal of just a few individuals; a few clutch failures; a skewed sex ratio in recruited offspring over just one or a few years; and chance mortality of just a few reproductive-age individuals. These small populations are also susceptible to natural levels of environmental variability and related "catastrophic" events (*e.g.,* severe storms, extreme cold spells, wildfire), which we will refer to as environmental stochasticity (Dunham *et al.* 1999, p. 9; Mangel and Tier 1994, p. 612; Young 1994, pp. 410–412).

There is very little information available regarding the historic distribution and abundance of the black-hooded antwren, Brazilian merganser, cherry-throated tanager, fringe-backed fire-eye, Kaempfer's tody-tyrant, Margaretta's hermit, and southeastern rufous-vented ground-cuckoo. However, these species' historic populations were likely larger and more widely distributed than today, and they likely maintained a minimum level of genetic interchange among local subpopulations in order for them to have persisted (Middleton and Nisbet 1997, p. 107; Vilà *et al.* 2002, p. 91; Wang 2004, p. 332).

Demographic and genetic stochastic forces typically operate synergistically. Initial effects of one threat factor can later exacerbate the effects of other threat factors (Gilpin and Soulé 1986, pp. 25–26). Any further fragmentation of populations will, by definition, result in the further removal or dispersal of individuals, which will exacerbate other threats. Conversely, lack of a sufficient number of individuals in a local area or a decline in their individual or collective fitness may cause a decline in the population size, despite the presence of suitable habitat patches.

The combined effects of habitat fragmentation (Factor A) and genetic and demographic stochasticity (Factor E) on a species' population are referred to as patch dynamics. Patch dynamics can have profound effects on fragmented subpopulations and can potentially reduce a species' respective effective population by orders of magnitude (Gilpin and Soulé 1986, p. 31). For example, an increase in habitat fragmentation can separate subpopulations to the point where individuals can no longer disperse and breed among habitat patches, causing a shift in the demographic characteristics of a population and a reduction in genetic fitness (Gilpin and Soulé 1986, p. 31). Furthermore, as a species' status continues to decline, often as a result of deterministic forces such as habitat loss or overutilization, it will become increasingly vulnerable to a broad array of other forces. If this trend continues, its ultimate extinction due to one or more stochastic events becomes more likely.

A single stochastic environmental event can severely reduce existing wildlife populations and, if the affected population is already small or severely fragmented, it is likely that demographic stochasticity or inbreeding will become operative, which would place the population in jeopardy (Gilpin and Soulé 1986, p. 27; Lande 1995, pp. 787–789). We find that these factors threaten the continued existence of each of these species.

Climate Change

Climate is influenced primarily by long-term patterns in air temperature and precipitation. The exact nature of the impacts of climate change and increasing temperatures on these seven Brazilian species is unknown. However, changes to climatic conditions, such as temperature and precipitation regimes, are occurring and are expected to continue over the next 100 years (Solomon *et al.* 2007, p. 70; Trenberth *et al.* 2007, pp. 252–253, 262–263). For example, NASA researchers found that during one August of the Amazon dry season, there was a distinct pattern of higher rainfall and warmer temperatures over deforested regions (Negri *et al.* 2003, pp. 1306–1320). In other parts of the world, species have been observed to migrate upward in elevation in response to rises in temperature. The species in this final rule may be among the species most vulnerable to extinction due to anticipated increases in temperature because they are not migratory and therefore highly dependent on their habitat (Moore *et al.* 2008, p. 960). Since temperature and precipitation affect ecosystem characteristics, any change in climate is likely to affect these species. El Niño is a disruption of the ocean atmospheric system which affects regional weather and climate such as rainfall. Although we are able to make general predictions about the severity of El Niño events, we are still unable to make reliable, precise projections of changes in El Niño events due to the complexity of the factors

involved in these weather patterns. Periodic climatic and weather patterns such as El Niño and La Niña can cause or exacerbate negative impacts on terrestrial ecosystems and neotropical bird populations (England 2000, p. 86; Holmgren *et al.* 2001, p. 89; Crick 2004, p. 1; Plumart 2007, pp. 1–2; Sorte and Jetz 2010, p. 862). However, future changes in precipitation are uncertain because they depend in part on how these El Niño events might change.

Climate change could potentially affect ecosystems by changes in rainfall patterns, drought, species distributions, and phenology. The probability of species going extinct due to changes in climate increases when ranges are restricted and population numbers decline (IPCC 2007, p. 8; Helmuth 2009, p. 753). This could be experienced by each of these seven Brazilian bird species, which are characterized by limited ranges, restricted habitat requirements, and small, declining populations. Climate change may exacerbate habitat loss or modification of habitats that are affected by deforestation (IPCC 1997, p. 11; Negri *et al.* 2003, pp. 1306–1320). In the Atlantic Forest, increased rainfall in combination with deforestation has increased the frequency and magnitude of landslides, which add to the destruction of these seven birds' habitat. The projected effects of climate change such as increasing temperatures on each of the seven species addressed in this final rule may affect microclimatic conditions, which may in turn lead to the loss of native species due to physiological stress and the loss or alteration of habitat.

For example, trees cool their area of influence through high rates of evapotranspiration, or water loss to the atmosphere from their leaves (Parmesan and Mathews 2005, p. 337). Areas where trees have been replaced with pastures have lower evapotranspiration rates, thus causing local areas to be warmer (Negri *et al.* 2003, p. 1306; Parmesan and Mathews 2005, p. 337). These seven Brazilian species are particularly vulnerable to extinction due to these kinds of environmental changes. Local changes in climate can also act in concert with other threats to the species such as habitat loss and degradation, magnifying the detrimental effects on the seven Brazilian species identified in this rule.

Although we can speculate, climate change models that are currently available are not yet able to make meaningful predictions of local climate change for specific areas (Parmesan and Matthews 2005, p. 354), such as the Atlantic Forest and Cerrado bioregions. In addition, we do not have models to predict how the local climate in the range of these Brazilian bird species will change, and we do not know how any change that may occur would affect these species. Recent models and research suggest that climate change may be an additional stress for species already threatened by other changes to their habitats (McCarty 2001, p. 325; Brook *et al.* 2008, p. 453, Sorte and Jetz 2010, pp. 862–869).

Species-Specific Discussion Under Factor E

Brazilian Merganser

Another factor possibly affecting the Brazilian merganser is increased competition with exotic fish species. The peacock bass (*Cichla* spp.) was introduced into reservoirs within Brazilian merganser habitat. Bass populations may expand and outcompete Brazilian merganser with respect to food (Lamas 2006, p. 152). Although the Brazilian merganser undoubtedly competes with exotic fish species for food, the available information does not suggest that this occurs at a magnitude that threatens the Brazilian merganser. Therefore, we do not find that competition with exotic fish species is a threat to the continued existence of the Brazilian merganser.

Kaempfer's Tody-Tyrant

Sea level rise was suggested to affect Kaempfer's tody-tyrant (BLI 2010c). In Santos Bay on the coast, sea level rise scenarios were conducted based on predictions of increases between 0.5 and 1.5 m (1.64 and 4.92 ft) by the year 2100. Small increases in sea level could cause flooding, erosion, and change salt marsh zones (Alfredini *et al.* 2008, pp. 379–379) within this species' habitat. The Kaempfer's tody-tyrant inhabits riverine lowland forests between 0–50 m (164 ft) above sea level. As sea level rises, there will not only be less habitat available for the Kaempfer's tody-tyrant, but also increased demand for coastal land for human development such as housing as land becomes more scarce. The Kaempfer's tody-tyrant will likely attempt to move inland as its habitat disappears in search of suitable habitat, however, there may not be suitable habitat remaining for the species. Therefore, the species is likely to be affected by continued sea level rise.

Summary of Factor E

In summary, these seven species all have limited geographic ranges and small population sizes and they are subject to ongoing natural and manmade threats that are considered to be imminent. The small and declining numbers that make up the populations of these seven Brazilian species: The Black-hooded antwren, Brazilian Merganser, Cherry-Throated Tanager, Fringe-Backed Fire-Eye, Kaempfer's Tody-Tyrant, Margaretta's Hermit, and the Southeastern Rufous-Vented Ground Cuckoo, make them susceptible to the potential loss of genetic diversity, stochastic disturbance, and population isolation. We assessed the potential risks of loss of genetic diversity and environmentally-stochastic disturbance to each of these seven species populations. We currently do not know if levels of genetic diversity are adequate to sustain populations of these species. We cannot completely predict the effects of the potential loss of genetic diversity and stochastic disturbance and population isolation at this time, but each threat is likely to occur to some extent and may be compounded by the others (Nepstad 2001, pp. 395–407; Brook *et al.* 2008, p. 453). Without efforts to maintain buffer areas and reconnect some of the remaining tracts of suitable habitat near these species' currently occupied sites, it is doubtful that the individual tracts are currently large enough to support viable populations of many birds endemic to the Atlantic Forest such as these, and the eventual loss of any small, isolated, and declining populations appears to be inevitable. We expect that these species' increased vulnerability to demographic stochasticity and inbreeding will be operative even in the absence of any human-induced threats or stochastic environmental events, which will likely further exacerbate the species' vulnerability to local extirpations and eventual extinction.

Climate change has the potential to increase the vulnerability of these seven species to random catastrophic events and other threats. The probability of species going extinct increases when ranges are restricted, habitat is decreased, and population numbers decline (Marini *et al.* 2009, p. 1558). These combined potential threats reduce the ability of these species to cope with other stressors. In addition to their declining numbers, the high level of population fragmentation makes them susceptible to genetic and demographic stochasticity. The magnitude of these threats is high for each of these species because of their reduced ranges and population sizes which result in a reduced ability to adapt to environmental change. We are not able to definitely state, based on the best available information, that climate

change affects these seven species to such a magnitude that it is considered a threat.

However, based on the best scientific and commercial information available, we conclude that these seven species are threatened by potential loss of genetic diversity, environmentally-stochastic disturbance, small, declining populations, and with respect to Kaempfer's tody-tyrant, sea level rise.

Habitat loss is by far the greatest threat to each of these seven species. The threats identified in Factors D and E intensify the effects of habitat loss due to deforestation from activities such as slash and burn agriculture, conversion to livestock pastures and areas of human habitation or industrial development, and conversion to plantations as described in Factor A. Therefore, we find that these seven Brazilian species are at risk of extinction due to other natural and manmade factors such as the potential loss of genetic diversity, stochastic disturbance, and small, declining and isolated populations.

Conclusion and Status Determinations

Section 3 of the Act defines an endangered species as any species that is "in danger of extinction throughout all or a significant portion of its range." We have carefully assessed the best scientific and commercial information available regarding threats to each of these seven Brazilian bird species. Significant effects have already occurred as a result of habitat loss, and some populations have likely been extirpated. The most significant threat to the seven species in this rule is habitat loss and alteration (Marini *et al.* 2009, p. 1558). Various past and ongoing human activities and their secondary influences continue to impact all of the remaining suitable habitats that may still harbor each of these seven species (see Factors A and D). We expect that any additional loss or degradation of habitats that are used by these species will have impacts on the species due to each species' fragmented state. This is because with each contraction of an existing subpopulation, the likelihood of interchange with other subpopulations within patches decreases, while the likelihood of its reproductive isolation increases.

Under the Act and our implementing regulations, a species may warrant listing if it is threatened or endangered throughout all or a significant portion of its range. Each of these species in this listing rule is highly restricted in its range. In each case, the threats to the survival of these species occur throughout the species' range and are not restricted to any particular portion of that range. Accordingly, our assessment and determination apply to each species throughout its entire range.

We find that each of these seven species is presently in danger of extinction throughout its entire range, based on the immediacy, severity, and scope of the threats described above. These species face immediate and significant threats, primarily from the threatened destruction and modification of their habitats due to deforestation and habitat degradation. The habitat conversion is compounded because of these species' small, declining populations and limited distribution. As described earlier, reasons for habitat loss include extensive establishment of agricultural fields (*e.g.,* soy beans, sugarcane, and corn), changes in fire frequencies, plantations (*e.g.,* eucalyptus, pine, coffee, cocoa, rubber, and bananas), livestock pastures, centers of human habitation, and industrial developments (*e.g.,* charcoal production, steel plants, and hydropower reservoirs) (Factor A). We determined that the inadequacy of existing regulatory mechanisms is a contributory risk factor that endangers these species' continued existence (Factor D). Although we acknowledge that there is limited information on the specific nature of potential impacts from climate change to the species included in this final rule (Factor E), we are concerned about projected climate change. Stronger and more frequent El Niño events are predicted to occur. These events and rising temperatures associated with climate change, in combination with the potential loss of genetic diversity, stochastic disturbance, and population isolation, are likely to occur. However we are not able to definitely state, based on the best available information, that climate change affects these seven species to such a magnitude that it is considered a threat. We also assessed the potential risks of loss of genetic diversity and environmentally-stochastic disturbance to each of these seven species populations (Factor E). We expect that these species' increased vulnerability to demographic stochasticity and inbreeding will likely further exacerbate the species' vulnerability to local extirpations and eventual extinction.

Based on our analysis, we have no reason to believe that population trends for any of the species addressed in this final rule will improve, nor will the effects of current threats acting on the species be ameliorated in the future.

These species are in danger of extinction throughout all of their ranges. Therefore, on the basis of the best available scientific and commercial information, we are listing the following seven species as endangered under the Act: Black-hooded antwren (*Formicivora erythronotos*), Brazilian merganser (*Mergus octosetaceus*), cherry-throated tanager (*Nemosia rourei*), fringe-backed fire-eye (*Pyriglena atra*), Kaempfer's tody-tyrant (*Hemitriccus kaempferi*), Margaretta's hermit (*Phaethornis malaris margarettae*), and southeastern rufous-vented ground-cuckoo (*Neomorphus geoffroyi dulcis*).

Available Conservation Measures

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

Section 7(a) of the Act, as amended, and as implemented by regulations at 50 CFR part 402, requires Federal agencies to evaluate their actions within the United States or on the high seas with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any has been proposed or designated. However, given that the black-hooded antwren, Brazilian merganser, cherry-throated tanager, fringe-backed fire-eye, Kaempfer's tody-tyrant, Margaretta's hermit, and southeastern rufous-vented ground-cuckoo are not native to the United States, we are not designating critical habitat in this rule.

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

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. As such, these prohibitions would be applicable to the black-hooded antwren, Brazilian merganser, cherry-throated tanager, fringe-backed fire-eye, Kaempfer's tody-tyrant, Margaretta's hermit, and southeastern rufous-vented ground-cuckoo. These prohibitions, under 50 CFR 17.21, in

part, make it illegal for any person subject to the jurisdiction of the United States to "take" (take includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) any endangered wildlife species within the United States or upon the high seas; or to import or export; to deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or to sell or offer for sale in interstate or foreign commerce any endangered wildlife species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken in violation of the Act. Certain exceptions apply to agents of the Service and State conservation agencies.

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

Required Determinations

National Environmental Policy Act (NEPA)

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

References Cited

A complete list of all references cited in this rule is available on the Internet at *http://www.regulations.gov* or upon request from the Endangered Species Program, U.S. Fish and Wildlife Service (*see* the **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this final rule are the staff members of the Branch of Foreign Species, Endangered Species Program, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Arlington, VA 22203.

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

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

PART 17—[AMENDED]

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

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

■ 2. Amend § 17.11(h) by adding new entries for "Antwren, Black-hooded," "Cuckoo, Southeastern Rufous-vented Ground," "Fire-eye, Fringe-backed," "Hermit, Margaretta's," "Merganser, Brazilian," "Tanager, Cherry-throated," and "Tody-tyrant, Kaempfer's" in alphabetical order under BIRDS to the List of Endangered and Threatened Wildlife as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
BIRDS							
*	*	*	*	*	*	*	
Antwren, black-hooded.	*Formicivora erythronotos*.	Brazil	Entire	E	774	NA	NA
*	*	*	*	*	*	*	
Fire-eye, fringed-backed.	*Pyriglena atra*	Brazil	Entire	E	774	NA	NA
*	*	*	*	*	*	*	
Ground-cuckoo, southeastern rufous-vented.	*Neomorphus geoffroyi dulcis*.	Brazil	Entire	E	774	NA	NA
*	*	*	*	*	*	*	
Hermit, Margaretta's	*Phaethornis malaris margarettae*.	Brazil	Entire	E	774	NA	NA
*	*	*	*	*	*	*	
Merganser, Brazilian	*Mergus octosetaceus*.	Brazil, Argentina, Paraguay.	Entire	E	774	NA	NA
*	*	*	*	*	*	*	
Tanager, cherry-throated.	*Nemosia rourei*	Brazil	Entire	E	774	NA	NA
*	*	*	*	*	*	*	
Tody-tyrant, Kaempfer's.	*Hemitriccus kaempferi*.	Brazil	Entire	E	774	NA	NA

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*		*

Rowan W. Gould,

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

[FR Doc. 2010–32628 Filed 12–27–10; 8:45 am]

BILLING CODE 4310–55–P