

■ COSTA RICA



Yellow-billed Cotinga *Carpodectes antoniae*

COSTA RICA, like neighbouring Panama, is part of the land-bridge between the very different avifaunas of North and South America, and in consequence a disproportionately large number of bird species, c.850, have been recorded from this small country (50,900 km²) and its territorial waters including Cocos Island (Stiles and Skutch 1989). The species total includes c.600 permanent residents and more than 200 regular migrants (primarily from breeding areas in North America) (Stiles and Skutch 1989). Six species are endemic to the country, 78 have restricted ranges (Stattersfield *et al.* in prep.) and four are threatened (Collar *et al.* 1992). This analysis has identified 14 Key Areas for the threatened birds in Costa Rica (see 'Key Areas: the book', p. 11, for criteria).

THREATENED BIRDS

Four Costa Rican species were considered at risk of extinction by Collar *et al.* (1992), one of which, *Amazilia boucardi*, is confined to the country (see Table 1). Both *A. boucardi* and *Carpodectes antoniae* are dependent on mangroves, the other two threat-

ened birds (and *C. antoniae*, at least seasonally) relying on wet forest (Collar *et al.* in press). All four are found primarily in the lowland tropical zone (0–500 m), with *Cephalopterus glabricollis* breeding in the subtropical zone (up to 2,000 m), and all four are threatened by loss of habitat (Collar *et al.* in press). The distributions of these four threatened birds and their relationship to Endemic Bird Areas are shown in Figure 1.

KEY AREAS

The 14 Costa Rican Key Areas would, if adequately protected, help ensure the conservation of all four of the country's threatened species—always accepting that important new populations and areas may yet be found. Eight of these areas are important for two threatened birds (Tables 1–2), although each Key Area is vitally important for the conservation of the threatened species and habitats that it supports. Just one threatened bird, *Amazilia boucardi*, is endemic to Costa Rica, and is thus totally reliant for its survival on the integrity of the mangroves in the seven Key Areas from which it is known (see 'Outlook', be-

Key Areas for Threatened Birds in the Neotropics

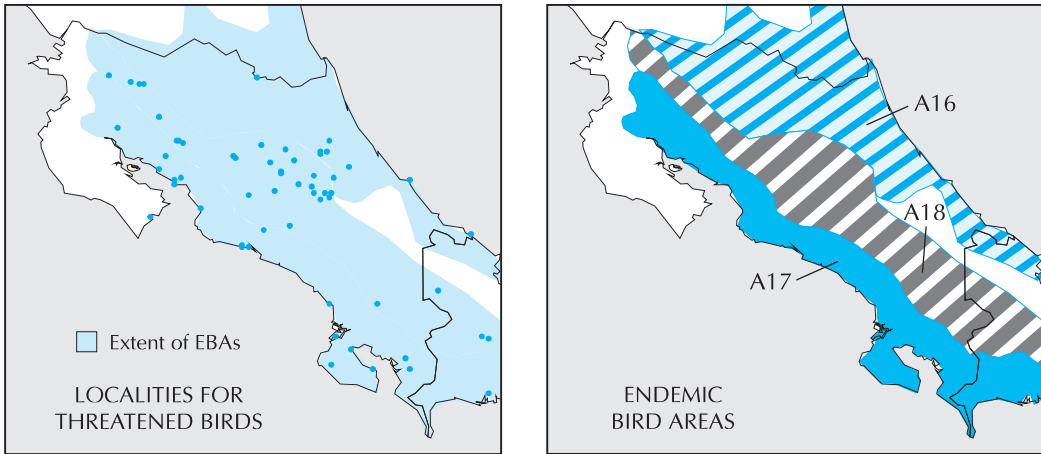


Figure 1. The localities where threatened birds have been recorded in Costa Rica and their relationship to Endemic Bird Areas (EBAs).

- Three Costa Rican threatened species have restricted ranges and thus occur within the various EBAs listed below (figures are numbers of these species in each EBA).

A16 Central American Caribbean slope (1)
A17 South Central American Pacific slope (2)

A18 Costa Rica and Panama highlands (1)

A21 Cocos Island (0: see 'Recent changes to the threatened list', below)

low). Although *Cephalopterus glabricollis* appears to be well represented in Costa Rican Key Areas, these are primarily within its breeding grounds, and the species remains relatively exposed when in its winter quarters (see 'Old records and little-known birds', below). The large number of Key Areas selected for *Amazilia boucardi* and *Carpodectes antoniae* reflects the importance that each of these areas potentially has for the continued survival of the two species.

KEY AREA PROTECTION

Costa Rica has placed more than 8% of its territory in national parks and equivalent reserves (Stiles and Skutch 1989), and indeed eight (57%) of the Key Areas currently have some form of protected status, four as national parks or biological reserves (IUCN categories I and II). Outside Costa Rica's protected areas, however, the natural habitats and birds are

increasingly threatened, and it is even questionable whether the parks and reserves will survive as pressure on the land becomes more intense (Stiles and Skutch 1989). Thus, effective management is required of activities undertaken within protected Key Areas, but for the six Key Areas (43% of the total) that are currently unprotected attention in the form of appropriate conservation measures is perhaps more urgent if the populations of their threatened species are to survive. All four threatened species are present within at least two protected Key Areas.

RECENT CHANGES TO THE THREATENED LIST

With the publication of Collar *et al.* (1994), seven species (Military Macaw *Ara militaris*, Cocos Cuckoo *Coccyzus ferrugineus*, Turquoise Cotinga *Cotinga ridgwayi*, Three-wattled Bellbird *Procnias tricarunculata*, Cocos Flycatcher *Nesotriccus ridgwayi*, Cocos

Table 1. Coverage of threatened species by Key Area. Areas in bold currently have some form of protected status.

Areas	Key Areas	No. of	Total nos. of Key	
	occupied	Key Areas protected	Costa Rica	
Neotropics				
Mangrove Hummingbird <i>Amazilia boucardi</i> ^E	05,06,07,08,10,12,13	4	7	7
Keel-billed Motmot <i>Electron carinatum</i>	01,02,03	2	3	7
Yellow-billed Cotinga <i>Carpodectes antoniae</i>	07,08,09,10,11,12,13,14	4	8	9
Bare-necked Umbrellabird <i>Cephalopterus glabricollis</i>		01,02,03,04	3	4 6

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	No. of areas
<i>Amazilia boucardi</i>	-	-	-	-	1	1	1	1	-	1	-	1	1	-	7
<i>Electron carinatum</i>	1	1	1	-	-	-	-	-	-	-	-	-	-	-	3
<i>Carpodectes antoniae</i>	-	-	-	-	-	-	1	1	1	1	1	1	1	1	8
<i>Cephalopterus glabricollis</i>	1	1	1	1	-	-	-	-	-	-	-	-	-	-	4
No. of species	2	2	2	1	1	1	2	2	1	2	1	2	2	1	

Table 2. Matrix of threatened species by Key Area.

Finch *Pinaroloxias inornata* and Black-cheeked Ant-tanager *Habia atrimaxillaris* were added to the Costa Rican threatened species list, with Keel-billed Motmot *Electron carinatum* being relegated to Near Threatened status; the additional species have not, however, been included in the Site Inventory (see 'Key Areas: the book', p. 12). Three of these recently added species are endemic to Cocos Island and were reclassified (on the basis of new criteria) owing to their ranges being less than 100 km² (Collar *et al.* 1994). With three threatened species in such a small area, Cocos Island, which is not currently covered in the Key Area analysis, should in future be considered a high priority for bird conservation. With the exception of *Ara militaris* (which may be sympatric with *Cephalopterus glabricollis* during the non-breeding season), the mainland species added in Collar *et al.* (1994) are each broadly sympatric with the species considered in this analysis, and thus will not have any major impact on the Key Area analysis, although each species should be considered in future conservation strategies or initiatives.

OLD RECORDS AND LITTLE-KNOWN BIRDS

Each of the four threatened species has been relatively regularly and recently (1980s and 1990s) recorded from Costa Rica. However, this disguises the fact that each bird remains poorly known. The status, population and even the distribution of *Amazilia boucardi*, for example, are poorly known, both within the Key Areas and in mangrove areas where its pres-

ence is to be expected (e.g. CR 09 Río Sierpe and CR 14 Río Coto). The ecological requirements of *Carpodectes antoniae*, especially those related to seasonal movements and breeding, are essentially unknown, but urgently need elucidation if its conservation is to be assured. Likewise, *Cephalopterus glabricollis* migrates to the Caribbean lowlands outside the breeding season, but very few precise areas are currently known.

OUTLOOK

Each of the 14 Key Areas in Costa Rica would, if adequately protected, help ensure the survival of the country's four threatened species. The guaranteed integrity of the areas currently under some form of protection is essential, but increasing this protection to currently unprotected Key Areas such as those supporting two threatened species would increase the likelihood of long-term survival for each species. Therefore, the protection of at least Volcán Tenorio and Bijagua (CR 02), Parrita-Palo Seco (CR 08) and Puerto Jiménez (CR 12) would be desirable. Surveys are urgently required to determine the status, distribution and ecological requirements of *Amazilia boucardi* and *Carpodectes antoniae*, both within the appropriate Key Areas (see 'Old records and little-known birds', above) and in as-yet-unsurveyed mangroves. Determination of the primary non-breeding areas for *Cephalopterus glabricollis* is also needed if this species is to be adequately protected throughout its life-cycle.

DATA SOURCES

The above introductory text and the Site Inventory (below) were compiled from information supplied by M. Reid, as well as from the following references.

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SITE INVENTORY

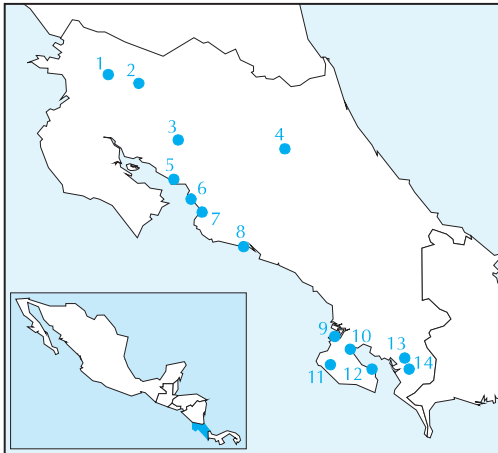


Figure 2. Key Areas in Costa Rica.

01 Rincón de la Vieja	Tárcoles
02 Volcán Tenorio and Bijagua	08 Parrita–Palo Seco
03 Monteverde	09 Río Sierpe
04 Braulio Carillo–La Selva–Rara Avis	10 Rincón
05 Puntarenas	11 Corcovado
06 Tivives	12 Puerto Jiménez
07 Río Grande de	13 Golfito
	14 Río Coto

Rincón de la Vieja (Guanacaste/Alejuela)

CR 01

Rincón de la Vieja National Park (IUCN category II), 14,083 ha

10°48'N 85°20'W
EBA A18

The area lies at the northern end of the Cordillera de Guanacaste in the north-west corner of Costa Rica,

with the national park protecting an area of moist montane and foothill forest (Stiles and Skutch 1989).

<i>Electron carinatum</i>	1988	Known from two areas on the northern slopes at 300–500 m, but densities are low.
<i>Cephalopterus glabricollis</i>	1989	Birds (probably breeding) seen at 1,500 m.

Volcán Tenorio and Bijagua (Guanacaste/Alejuela)

CR 02

Unprotected

10°44'N 85°06'W
EBA A18

Bijagua is at the headwaters of the Río Zapote on the northern (Caribbean) slope of Volcán Tenorio in the Cordillera de Guanacaste. This area embraces tropi-

cal moist and subtropical wet forest (Slud 1964), although the remaining extent of either is not known.

<i>Electron carinatum</i>	c.1914	Mentioned for this locality.
<i>Cephalopterus glabricollis</i>	c.1991	Repeated recent records suggest this to be an important area.

Monteverde (Alejuela)

CR 03

Monteverde Biological Reserve (private), c.20,000 ha

10°18'N84°48'W
EBA A18

The reserve protects an area of cloud- and wet montane forest (with some moist forest lower down) in the Cordillera de Tilarán. It sits on the continental divide, at the head of the Río Peñas Blancas.

<i>Electron carinatum</i>	1986	An individual was noted having pair-banded with a Broad-billed Motmot <i>E. platyrhynchum</i> in the Peñas Blancas valley.
<i>Cephalopterus glabricollis</i>	c.1991	Groups of displaying males regularly recorded in the upper Peñas Blancas valley.

Braulio Carillo–La Selva–Rara Avis (Heredia)

CR 04

Braulio Carillo National Park (IUCN category II), 44,099 ha
La Selva Protection Zone (IUCN category VIII), 2,815 ha10°02'–26'N83°59'W
EBAs A16, A18

This large, contiguous protected area is situated on the Caribbean slope of the Cordillera Central. It comprises a number of small field or biological stations such as Rara Avis and La Selva, a protected forest, and the large Braulio Carillo National Park which embraces Volcán Barva. The area is relatively intact, and forms Costa Rica's only sizeable protected tract of forest which extends from the Caribbean lowlands in a continuous belt up into montane forest.

<i>Cephalopterus glabricollis</i>	1993	Groups of displaying males regularly recorded in the upper Peñas Blancas valley (e.g. M. Reid <i>in litt.</i> 1994).
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Puntarenas (Puntarenas)

CR 05

Unprotected

10°00'N84°50'W
EBA A17

Puntarenas is on a peninsula projecting into the northern side of the Golfo de Nicoya. Areas of mangrove at the base of this peninsula are under severe pressure from deforestation and pollution.

<i>Amazilia boucardi</i>	1990	Apparently common, though much less so in recent years owing to pollution and deforestation.
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Tivives (Puntarenas)

CR 06

Río Tivives Protection Zone (IUCN category VIII), 2,368 ha

9°51'N84°42'W
EBA A17

Tivives is at the mouth of the Río Jesús María on the eastern shore of the Golfo de Nicoya. At the base of this peninsula are areas of mangrove which, though protected, are under severe pressure from deforestation and pollution. The extent of *Pelliciera* mangrove, and hence of suitable hummingbird habitat, is relatively small, although still important.

<i>Amazilia boucardi</i>	1990	A small population persists, despite the limited habitat.
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Río Grande de Tárcoles (Puntarenas)**CR 07**

Carara Biological Reserve (IUCN category I), 4,700 ha

9°45'N 84°37'W
EBA A17

An extensive area of mangrove exists at the mouth of the Río Grande de Tárcoles, which is on the eastern side of the Golfo de Nicoya. This area includes the extensive mangroves in the Pigres–Estero Guacalillos sector, and the Carara Biological Reserve (through which the Río Grande de Tárcoles flows, and which

comprises primarily tall humid forest). These localities are all within close proximity, and are important as a contiguous unit for the threatened species, and for the regionally threatened Scarlet Macaw *Ara macao*.

<i>Amazilia boucardi</i>	1990	A sizeable population exists.
<i>Carpodectes antoniae</i>	1990	Recorded, but present status unknown.

Parrita–Palo Seco (Puntarenas)**CR 08**

Unprotected

9°29'N 84°18'W
EBA A17

Parrita (at the mouth of the Río Pirrís) and Palo Seco (at the mouth of the Río Palo Seco) are c.5 km apart on a stretch of coast that supports a large expanse of mangrove and adjacent lowland humid forest. Al-

though the large tourist population at Palo Seco would make the protection of particular areas difficult, protection is clearly desirable in the coastal sector and adjacent forest as far inland as Pozo Azul.

<i>Amazilia boucardi</i>	1985	A breeding population is present, although the size is unknown.
<i>Carpodectes antoniae</i>	1989	A large population was previously known to exist, although its status is currently unknown.

Río Sierpe (Puntarenas)**CR 09**

Unprotected

8°48'N 83°36'W
EBA A17

The Río Sierpe is just north of the Península de Osa and comprises an important area of mangroves along the coast at its mouth, and adjacent fringing lowland forest along the Río Sierpe inland. Both habitats are essential for *Carpodectes antoniae*, but neither is

formally protected at present. There is an urgent need for a survey of the area, primarily for *C. antoniae*, but also for *Amazilia boucardi* which may well be present in the mangroves.

<i>Carpodectes antoniae</i>	1987	Found to be numerous in what is possibly one of its most important breeding areas.
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Rincón (Puntarenas)**CR 10**

Golfo Dulce Forest Reserve (IUCN category VIII), 67,287 ha

8°42'N 83°29'W
EBA A17

Rincón is at the head of the Golfo Dulce, on the Península de Osa, in an area that appears to have retained a large enough expanse of mangrove to warrant a higher level of protection. The presence of

forest tracts adjacent to the mangroves suggest that this area could be important for both species mentioned below, although surveys are urgently needed.

<i>Amazilia boucardi</i>	1971	A lack of recent records highlights the need for a survey of these mangroves, which may harbour a sizeable population of this species.
<i>Carpodectes antoniae</i>	1989	Large groups were once recorded, but the only recent record is of three birds seen in January 1989.

Corcovado (Puntarenas)

CR 11

Corcovado National Park (IUCN category II), 54,568 ha

8°35'N83°38'W
EBA A17

The national park is situated on the Pacific side of the Península de Osa and comprises large tracts of low-land tropical forest, but as it lacks any large expanses of mangrove it is of only seasonal importance to *Carpodectes antoniae*. However, the park is impor-

tant for two other forest species, Black-cheeked Ant-tanager *Habia atrimaxillaris* and Turquoise Cotinga *Cotinga ridgwayi* (see 'Recent changes to the threatened list', above).

<i>Carpodectes antoniae</i>	1986	Recorded in the non-breeding season (July–February) of a number of years, most recently in 1986.
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Puerto Jiménez (Puntarenas)

CR 12

Unprotected

8°33'N83°19'W
EBA A17

Puerto Jiménez is on the western side of the Golfo Dulce, at the eastern end of the Península de Osa. The large area of mangrove in this area has been logged for the tall *Rhizophora* mangroves, leaving a predominance of *Pelliciera* species which are fav-

oured by *Amazilia boucardi* (and may explain its local abundance in the immediate area). The lack of recent records of either species suggests that surveys are urgently needed.

<i>Amazilia boucardi</i>	1978	Large breeding population thought to persist, but apparently no recent documented records.
<i>Carpodectes antoniae</i>	1926	Judged locally common but no subsequent records.

Golfito (Puntarenas)

CR 13

Golfito Faunal Refuge (IUCN category IV), 1,350 ha

8°38'N83°04'W
EBA A17

Golfito is on the northern side of the Golfo Dulce and comprises mangroves (in a poor state) to the north of town, and steeply sloping forests beyond (Stiles and Skutch 1989). Owing to the disturbed and frag-

mented nature of the habitat, the current status of both threatened species is in urgent need of assessment.

<i>Amazilia boucardi</i>	1986	At least three seen in March 1986, but no estimate of the size of this population.
<i>Carpodectes antoniae</i>	1983	Up to six seen in mangroves.

Río Coto (Puntarenas)

CR 14

Unprotected

8°33'N83°02'W
EBA A17

The Río Coto flows into the eastern side of the Golfo Dulce, and appears to have retained a large enough expanse of mangroves at its mouth and inland (at least 10 km) to warrant some form of protection.

There is an urgent need for a survey, primarily for *Carpodectes antoniae*, but also for *Amazilia boucardi* which may well be present.

<i>Carpodectes antoniae</i>	c.1983	This site is mentioned as one of the species' main nesting areas, although no formal assessment has been made.
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