

Finding the right umbrella(bird) to foster Neotropical forest conservation

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No matter how much imagination you have, umbrellabirds will defy the limits of what you deemed possible in the living world. Taking advantage of their unique charm, two Neotropical conservationists explain why and how these birds can help protect less inspiring species.

The Neotropics encompass a wide array of ecosystems, from very humid to very dry, where different geological and climatic forces have shaped the evolution of a huge avifauna of over 3,250 bird species, the richest avifauna in the world! Unfortunately, the survival of a great many Neotropical birds is dramatically affected by the rapid spread of destructive practices, responsible for the fact that 25% of the world's threatened bird species are found in this biogeographic region.

With insufficient resources available for biodiversity conservation, and an enormous conservation crisis placing Neotropical birds at ever-increasing risk, finding shortcuts to assess the conservation value of a given area or to raise people's awareness about its conservation become priceless²⁰. One such initiative focuses on the identification of species to fulfill the two following criteria; first, being so charismatic that they can foster forest conservation²⁰, and second, being strongly reliant on a specific forest type in which many other species co-exist¹⁶. In brief, this alternative focuses on species that are good flagships for conservation messages and strong umbrellas for conserving less striking species.

Coincidentally, three large, imposing, forest-based birds are known as umbrellabirds (*Cephalopterus* spp.). They belong to the impressive Cotingidae, a family well known for their amazing displays and plumages. Umbrellabirds have effectively been used as flagship species for enhancing conservation action at various scales^{2,10}. Here, we report interesting facts about this fantastic trio while mentioning our preferred sites to watch them in Ecuador and Costa Rica, two countries with a fantastic assortment of Neotropical birds (see box and maps for details).

The eccentric ecology of the umbrellabirds

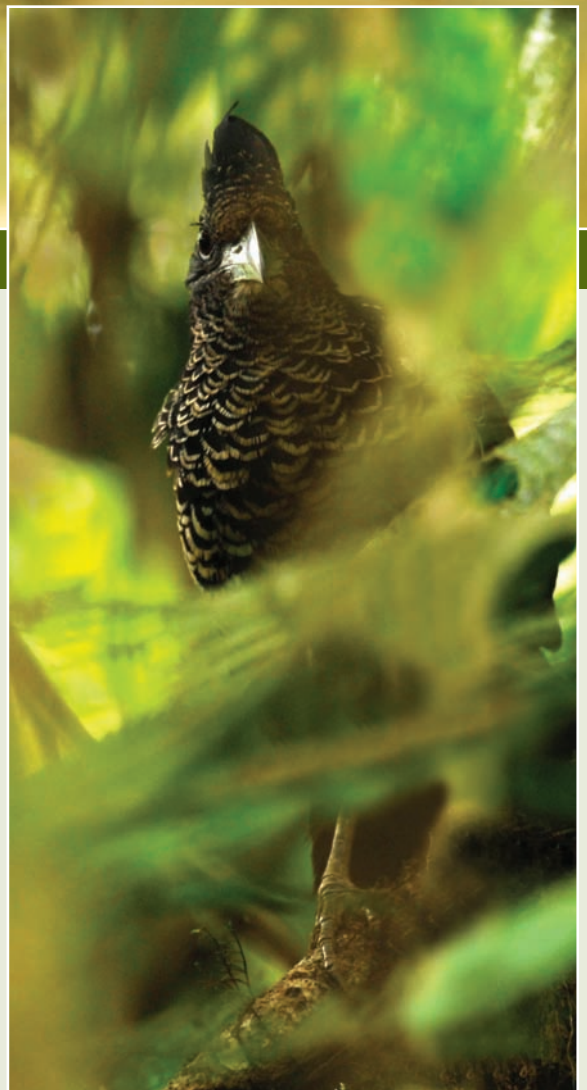
Since the first description of an umbrellabird in 1809, they have informed ideas on sexual selection and evolution, especially when it was later learnt that these big birds have a breeding strategy that involves complex displays and vocalisations. Their special courtship and reproductive strategies are perhaps their most interesting behavioural traits. All three species have leks, where the males display for the females. At these arenas, observers can best appreciate the awkward grace of the male umbrellabirds, especially during the early morning. However, remember that the leks of Bare-necked Umbrellabird, at least, are seasonal³, and that peak display hours can be mid morning, as in Long-wattled Umbrellabird⁹. Although some leks are also active during afternoon the intensity of activity is meagre in comparison to the busy mornings.

The social structure of umbrellabirds is fascinating. As a rule, most lekking species are polygynous (i.e. a male mates with several females but is emancipated from nesting duties), and are mainly frugivorous¹⁹. The general explanation for this is that, because fruits are a reliable and superabundant food source, females can assume all of the nesting activities without the assistance of males. On the other hand, the males are divorced from parental responsibilities and spend most time at their arenas, trying to 'seduce' the females¹⁹. Females single-handedly construct the rather large open cup nest, which is built of small twigs, leaves and mosses. These are usually placed in the midstorey, being sometimes so flimsy that the single egg is visible from



Long-wattled Umbrellabird *Cephalopterus penduliger*,
north-west Ecuador (Murray Cooper)





Top: Rufous-crowned Antpitta *Pittasoma rufopileatum* (Dubi Shapiro) shares its habitat with Long-wattled Umbrellabird *Cephalopterus penduliger* in north-west Ecuador

Bottom, left and right: The threatened Banded Ground Cuckoo *Neomorphus radiolosus* (Murray Cooper) occurs in the same areas as Long-wattled Umbrellabird *Cephalopterus penduliger*

below⁸, although fungus may grow between the branches, effectively binding the entire nest⁷.

Their intricate social arrangement illustrates another of nature's concentric rings. Given that fruit is essential for survival, knowing a few of their favourite plants will prove handy. Laurels, several palms, *Cecropia*, figs, two genera in the nutmeg family, serrette, and small-seeded plants in the families Asteraceae, Passifloraceae, Marcgraviaceae and Piperaceae have been reported in the diet of all three species^{4,5,12,18}. These plant species benefit greatly from the seed dispersal provided by the umbrellabirds. Remarkably, the different sexes of Long-wattled Umbrellabird help with seed dispersal in different ways¹². As the males congregate, the seeds they disperse tend to concentrate below their lekking places, whereas those carried by the females, which tend to roam more extensively in the forest while searching for food or mates, are dispersed further afield¹².

Species accounts

Bare-necked Umbrellabird

Cephalopterus glabricollis (Vulnerable)

Possibly the best-studied umbrellabird, this species occurs in the small Costa Rican and Panamanian highlands Endemic Bird Area¹⁷. In Costa Rica, one of the best lekking areas to visit is on the Caribbean slope of the Tilarán Mountains, in the vicinity of the famous Monteverde Cloud Forest^{2,3}. The reserve with the most accessible lek is owned and managed by the Monteverde Conservation League. The best season to observe its spectacular display is April, when ten or more males gather in the forest interior. The birds fill their red throat pouches (actually an expanded air sac) to later empty it, while bobbing their bodies up and down, and uttering a unique hollow sound that fills the forest. Reaching the lekking area necessitates being in good physical condition, and spending one night at the San Gerardo field station (3–4 hours walk), where c.300 bird species are possible.

If you are in the Monteverde area you should definitely also try for Resplendent Quetzal *Pharomachrus mocino* and the strident Three-wattled Bellbird *Procnias tricarunculatus*. Other locations for which recent sightings of Bare-necked Umbrellabird are available (all seemingly outside breeding areas) include the new Hanging Bridges in the Arenal Volcano area, the Aerial Tram in the vicinity of Braulio Carrillo National Park, the Quebrada Gonzáles sector of the same park, and La Selva Biological Station.

Long-wattled Umbrellabird

Cephalopterus penduliger (Vulnerable)

Although all umbrellabirds are seriously shocking in their appearance, this species wins the prize for the over-generous formality of its all-black 'suit' and disproportionately long 'tie'. This extraordinary species has evolved in a tremendously bird-rich zone in north-west South America, the Chocó Endemic Bird Area¹⁷, which extends from south-west Colombia to north-west Ecuador. This EBA hosts more than 60 endemics^{14,17}. Most visitors experience this irresistible birders' magnet in Ecuador, for example in the legendary cloud forests of the Mindo region, where birders can enjoy the Long-wattled Umbrellabird.

The best place in the latter region is the easily accessed Reserva Mangaloma, where a lekking area is apparently active year-round. The lek is at the end of the 'blue' trail, however umbrellabirds have been reported from the 'red' and 'yellow' trails as well. The trail network allows you to search for other enigmatic birds such as the recently rediscovered Banded Ground Cuckoo *Neomorphus radiolosus*, the little-known Rufous-crowned Antpitta *Pittasoma rufopileatum*, and some 30 other Chocó endemics. Another potentially good site is Sachatamia Lodge, from where the first-ever nest was described in 2003¹¹. Pale-mandibled Araçari *Pteroglossus erythropygius*, Chocó Toucan *Ramphastos brevis* and Toucan Barbet *Semnornis ramphastinus* visit feeding trays here.

Another great site for this umbrellabird, where a great deal of research into the species is currently underway¹², is Bilsa Biological Station in Esmeraldas province. This privately run reserve lies inside the large Mache-Chindul Ecological Reserve, which protects the last large tract of wet forest in the coastal mountains. Good weather is almost a prerequisite for reaching Bilsa; whilst drier months (July–December) permit car access right to the station or at least close to it, wetter months (January–May) demand a four-hour journey on a muddy road. Nonetheless, Long-wattled Umbrellabird and 300 other species offer more than recompense for the effort. The most accessible lek at Bilsa is just a 30-minute walk from the cabins, via a forest trail that starts midway between the station and La Yecita village. Following an early-morning visit to a lek with 5–15 displaying umbrellabirds, Brown Wood Rail *Aramides wolfei* and Banded Ground Cuckoo are just two of the many possibilities during a full morning of superb birding along this trail.

If you are after an extreme mixture of endemics, visit Buenaventura Reserve in the

south-west Andean foothills. A 'hidden' valley with nice patches of Chocó forest harbours good numbers of this umbrellabird, as well as other Chocó endemics, the rare Ecuadorian endemic duo El Oro Parakeet *Pyrrhura orcesi* and El Oro Tapaculo *Scytalopus robbinsi*, as well as Gray-backed Hawk *Leucopternis occidentalis*, Ochraceous Attila *Attila torridus* and other species confined to the Tumbesian region¹⁷. At Buenaventura, the 'Umbrellabird' trail usually offers a pair or a trio, and has also provided the site for a second breeding study⁸. Although very early morning is best, a late-afternoon walk resulted in an undocumented show of a male vigorously bathing in the rain!

Amazonian Umbrellabird *Cephalopterus ornatus* (Least Concern)

As its name implies this species is widespread in the Amazon basin, but it is seemingly more numerous close to the Andes¹⁴. Interestingly, there are two subpopulations; one apparently restricted to the Amazonian lowlands (see *Neotropical Birding* 4: 60), whilst the other favours slopes in the eastern base of the Andes. Without doubt, this bird wins the Elvis Presley hairdo competition! Though its crest is similar to the other umbrellabirds, it is exaggeratedly larger and has a white base.

In the lowlands of Ecuador this Amazonian beauty is best found on Isla Sani, a river island in the río Napo, close to the Sani community. The best lodging for a visit to this island is the community owned and run Sani Lodge, where a local guide will show you exactly where to go. Keep an eye on the *Cecropia* trees, since the birds are often found there feeding on their copious fruits. A visit to Sani provides a splendid opportunity to explore the upper Amazon basin, with access to a wide range of habitats, from *terra firme*, through *várzea* to river islands and oxbow lakes. It is possible to visit a parrot clay lick, and the lodge also has a canopy tower with lots of such 'fancy' birds as macaws, toucans, jacamars and tanagers. And for speciality hunters, this is also a good site for the endemic and highly localised Cocha Antshrike *Thamnophilus praecox*.

A good alternative in southern Ecuador is the Bombuscaro area of Podocarpus National Park. Here, we suggest you to stay at Cabañas Copalinga, a short distance from the entrance to the park. An early start is mandatory as the species tends to be active in the vicinity of the river during the early morning, sometimes in the company of noisy groups of Inca Jays *Cyanocorax yncas* and Subtropical Caciques

Cacicus uropygialis. The local avifauna resulting from the merging of the Amazon with the Andes makes this place a birders' paradise. Some of the gems include Coppery-chested Jacamar *Galbula pastazae*, White-breasted Parakeet *Pyrrhura albipectus* and Foothill Elaenia *Myiopagis olallai*, amongst the 400-species bird list.

Finally, the recently opened Yankuam Lodge¹ offers quite good chances for Amazonian Umbrellabirds right in front of the lodge entrance. As noted by Capper & Pereira¹, the Yankuam area provides relatively easy access to the stunning Orange-throated Tanager *Wetmorethraupis sterrhopteron*, whilst birders have also found good numbers of the rare and localised Sharpbill *Oxyruncus cristatus*, Cinnamon-breasted Tody-Tyrant *Hemitriccus cinnamomeipectus*, Roraiman Flycatcher *Myiophobus roraimae* and Royal Sunangel *Heliangelus regalis*^{6,13}.

Umbrellabirds as conservation 'umbrellas'

Several conservationists have argued that a myriad of poorly known and highly threatened species can be 'sheltered' under a smaller number conservation umbrellas¹⁵: better-known or more charismatic species whose 'shade' extends over more 'unobtrusive' species in need of conservation. Until recently, little was known of the umbrellabirds^{5,9} but, what happened next?

Field ornithologists began documenting the feeding and breeding biology of the more threatened umbrellabirds, the Bare-necked and the Long-wattled^{3,4,5,8,9,11,12}. Curiously, despite being the most widespread umbrellabird and the first studied in the field, the Amazonian species has since become the least known of the three¹⁶. With new data available on these threatened umbrellabirds, it was soon realised that their remarkable breeding biology and spectacular adornments could help increase local people's awareness of biodiversity in general, and raise funds for conservation². Can anyone who cares about nature resist the charm of the stunning umbrellabirds? Process-minded conservationists also appreciate that umbrellabirds play a major role in shaping forest structure and in helping to reforest deforested areas through seed dispersal¹².

At Bilsa, Jordan Karubian and his colleagues began studying the Long-wattled Umbrellabird half a decade ago. What started as a scientific journey soon became a broader research and conservation programme. As Jordan explained, the 'Pájaro Toro' has served as a rallying point for conservation



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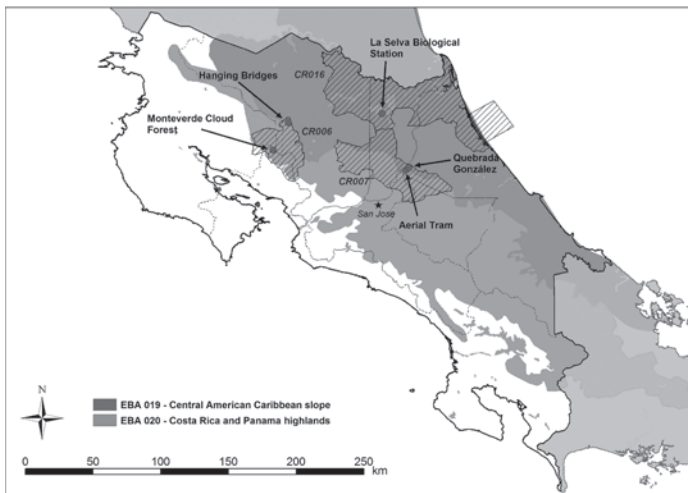
Male Bare-necked Umbrellabird *Cephalopterus glabricollis* at its display perch, Costa Rica (Michael & Patricia Fogden)

Two spectacular neighbours of the Bare-necked Umbrellabird *Cephalopterus glabricollis* in Costa Rica: Resplendent Quetzal *Pharomachrus mocino* (Randall Ortega) and male Three-wattled Bellbird *Procnias tricarunculata* displaying to a female (Michael & Patricia Fogden)



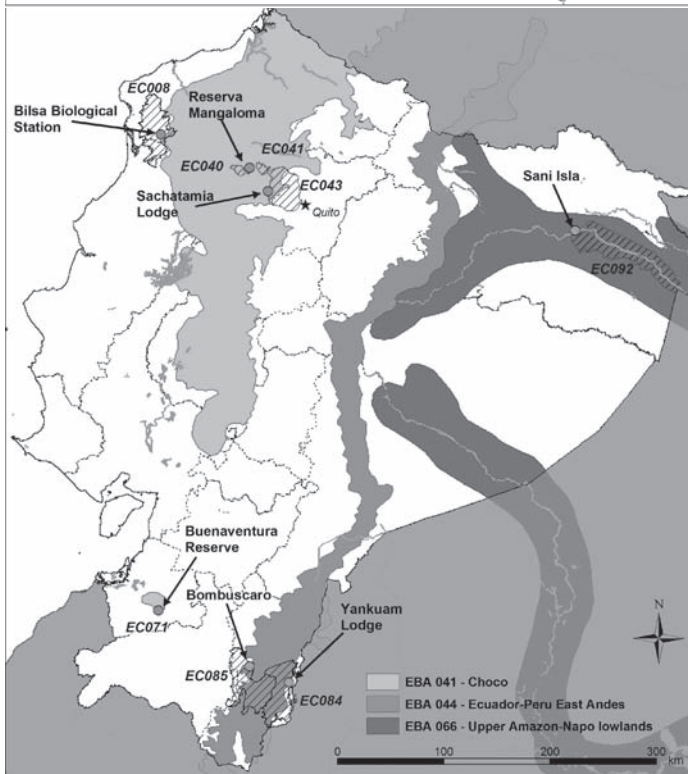
Above, top: Amazonian Umbrellabird *Cephalopterus ornatus* at Yanachaga-Chemillén National Park, Peru (Leif Gabrielsen)

Above, bottom: The range-restricted White-breasted Parakeet *Pyrrhura albipectus* (Nick Athanas/Tropical Birding) and flocks of tanagers can be seen along with Amazonian Umbrellabird *Cephalopterus ornatus*



Top: Map showing localities to search for Bare-necked Umbrellabird *Cephalopterus glabricollis* in Caribbean Costa Rica

Bottom: Map showing localities to search for Long-wattled Umbrellabird *Cephalopterus penduliger* in north-west Ecuador, and Amazonian Umbrellabird *C. ornatus* in eastern Ecuador



conservation aims. Because of the attention the Long-wattled has garnered, the project's staff has managed to investigate and protect other threatened, poorly known, and possibly less alluring species like Banded Ground Cuckoo and Brown Wood Rail.

In Costa Rica, Johel Chaves-Campos' experience has been similar, by demonstrating that Bare-necked Umbrellabird plays a key role in rainforest conservation². Besides the features mentioned for Long-wattled, the Bare-necked Umbrellabird exhibits another trait that makes its conservation more challenging, while increasing the size of its umbrella. Bare-necked Umbrellabirds remain in their montane breeding grounds for about six months, before moving downslope to the foothills and lowlands^{2,3}. This means that all research and conservation efforts focused on this large bird can also benefit a larger number of species including, as is also the case with the Long-wattled Umbrellabird, many regional endemics and globally threatened species.

Jordan and Johel's case studies provide great examples of what can be done when appropriately using the

owing to its great charisma. Bringing together, under a single umbrella, funding from scientific and conservation sources alike, they have achieved environmental education (local projects structured around the 'Pájaro Toro'), involving both local people and undergraduate students, dissemination through scientific and non-technical articles, and radio broadcasts. Current research on the species' role as a dispersal agent is unlocking new doors for further investigation, but also for further

umbrella species concept as a conservation tool. Committed and cooperative conservation experiences make these 'umbrellabird-umbrella' cases even more rewarding.

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Bare-necked Umbrellabird

- Monteverde Conservation League ~ www.acmcr.org/home.htm
- Aerial Tram ~ www.rainforestrams.com/craintro.html
- Arenal Hanging Bridges ~ www.hangingbridges.com
- La Selva Biological Station ~ www.ots.ac.cr

ECUADOR

Long-wattled Umbrellabird

- Reserva Mangaloma ~ www.imaymanaforestconservation.org
- Bilsa Biological Station ~ www.jatunsacha.org
- Buenaventura Reserve ~ www.focotoco.org/buenaven.htm

Amazonian Umbrellabird

- Sani Lodge ~ www.sanilodge.com
- Cabañas Copalinga ~ www.copalinga.com

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