EDITORIAL

Sangihe's forest birds under threat

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Situated between the islands of Sulawesi (Indonesia) and Mindanao (Philippines), the small, biologically diverse volcanic island-group comprising Sangihe and Talaud has long been recognised as hosting an important endemic avifauna and is admitted by BirdLife International as an Endemic Bird Area (the Sangihe-Talaud EBA; as profiled by Stattersfield *et al*. 1998). Sangihe, the largest island, hosts ten endemic bird species (*sensu* BirdLife International 2020): five are Critically Endangered, two Endangered and two Near Threatened (Table 1), among them the much sought-after Cerulean Paradise-flycatcher *Eutrichomyias rowleyi* (Plate 1) for which the island is best known. It is also home to Sangihe Tarsier *Tarsius sangirensis* and Talaud Bear Cuscus *Ailurops melanotis*, two of the most range-restricted and threatened mammals in the world.

Forest loss has afflicted Sangihe since the 17th century and intensified in the early 20th as the planting of coconut, nutmeg and clove plantations proliferated (Whitten *et al*. 1987). By the turn of the millennium, primary forest covered less than 1% of the island (Riley 2002) and recent estimates suggest just 5.2 km^2 persists (Mamengko & Mole 2006), most of it in a remnant area around the peak of Gunung Sahendaruman in the south of the island. All four Critically Endangered bird species to have been seen since 1900 (Cerulean Paradise-flycatcher, Sangihe Whistler *Coracornis sanghirensis*, Sangihe Golden Bulbul *Hypsipetes platenae* and Sangihe White-eye *Zosterops nehrkorni*) have been restricted to this forest patch for several decades, making them among the most

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Plate 1. Cerulean Paradise-flycatcher *Eutrichomyias rowleyi*, Sangihe, Indonesia.

geographically confined birds in the world (Whitten *et al*. 1987, Martin 2018, Burung Indonesia 2021). For other taxa, it is already too late: the island's endemic subspecies of Red-and-blue Lory *Eos histrio histrio* is extinct and, following the retraction of the sole 20th century record in 1997 (see Riley 2002, Martin 2018), Sangihe Dwarf-kingfisher *Ceyx sangirensis* has remained unseen since the initial collection of approximately seven specimens some time prior to 1879 (Blasius 1888, Meyer & Wiglesworth 1898). These forests and

Table 1. Bird species (*sensu* BirdLife International 2020) endemic to Sangihe and their respective IUCN statuses and population sizes.

Endemic species	IUCN status	Population size
Sangihe Scops-owl *Otus collari*	LC	Unknown
Sangihe Lilac Kingfisher *Cittura sanghirensis*	NT	Unknown
Sangihe Dwarf-kingfisher *Ceyx sangirensis*	CR	? [possibly extinct]
Sangihe Hanging-parrot *Loriculus catamene*	NT	6,700–31,000
Cerulean Paradise-flycatcher *Eutrichomyias rowleyi*	CR	21–100
Sangihe Golden Bulbul *Hypsipetes platenae*	CR	30–150
Sangihe Whistler *Coracornis sanghirensis*	CR	50–249
Sangihe White-eye *Zosterops nehrkorni*	CR	1–49
Sangihe Pitta *Erythropitta caeruletiroques*	EN	50–249
Elegant Sunbird *Aethopyga duyvenbodei*	EN	13,000–29,000

mountain streams are also the main source of water and electricity (via micro hydro power) for people living in remote villages on and around the mountain. Sahendaruman is designated as a Protected Forest by the Indonesian Government in recognition of its vitally important ecological functions—however, this imposes no requirement to conserve the species within the forest and small-scale loss for agriculture and timber has continued. Without forest restoration, the island's endemic birds are at great risk of extinction (Martin 2018).

Since 2002, Burung Indonesia (the national BirdLife Partner) has pioneered the development of Village Resource Management Agreements (VRMAs) in local communities around the mountain, agreements forged between individual villages and local government to achieve multiple conservation and development goals, including to maintain natural forest cover for the benefit of people and biodiversity by preventing encroachment and reducing threats such as the use of fire and pesticides on nearby agricultural lands. The VRMAs support and complement the work of the local Forest Management Unit in the Protected Forest by ensuring participation of local people in discussions about the use of natural resources and helping resolve disputes concerning the borders between the forest and farmland. In an ongoing Burung Indonesia project, supported by BirdLife International's Preventing Extinctions Programme, they are developing and supporting VRMAs in additional villages around Gunung Sahendaruman. Permaculture home gardens are being established in these villages to increase agricultural productivity and reduce pressure for encroachment into the natural forest. In consultation with local villagers, the project is identifying areas with potential for forest restoration, with the long-term aim of increasing the area of suitable habitat for the endemic species (M. Crosby *in litt*. 2021). However, despite these best efforts, new threats continue to emerge.

In January 2021, mining firm PT Tambang Mas Sangihe (TMS)—70% owned by Canadian-listed Baru Gold Corporation, the remaining 30% by three Indonesian companies—was controversially granted a permit for gold mining by the Ministry of Energy and Mineral Resources that allows 'construction, mining, production, and geological and geotechnical investigations' across a 42,000-ha concession that spans more than half of the island (see Figure 1). Within it: the critical forests of Sahendaruman.

Mining activity on small islands (<2,000 km^2; Sangihe is c.600 km^2) and in coastal areas is usually illegal since the introduction of a protecting law in 2014. However, the company was granted a contract of work in 1987, predating the legislation

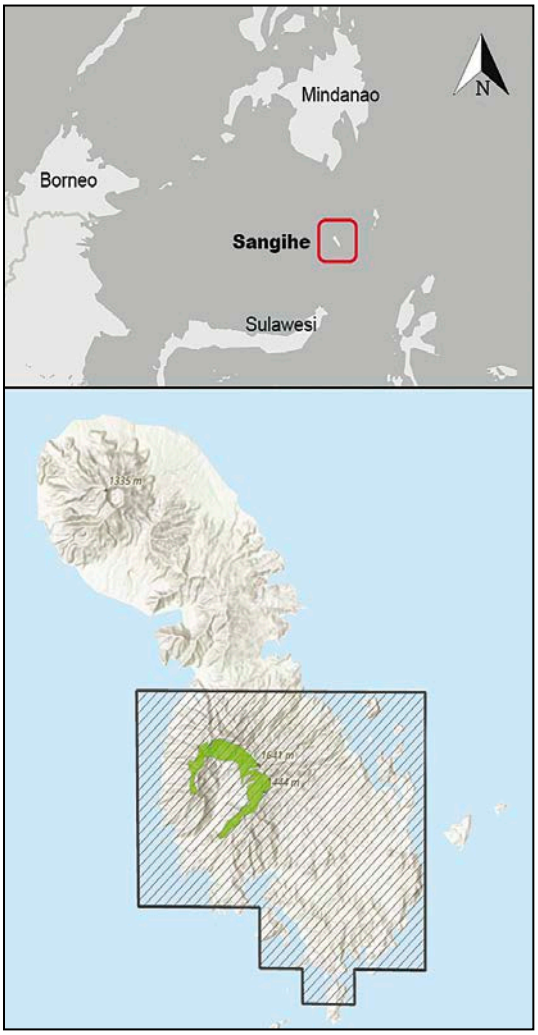

Figure 1. The location of the island of Sangihe. The only area of remnant forest (green) that hosts the island's remaining Critically Endangered bird species is entirely encapsulated by the newly issued mining concession permit (hashed).

that typically would have shielded the island from such proposals—as a result, it was given the green light. Currently, the concession encompasses an area of 110 ha that is approved for mining (65 ha for 2021 activities); none, thankfully, is very close to Sahendaruman forest. While the endemic scops-owl, hanging-parrot and lilac kingfisher may occur in the proposed mining area, these species are widespread across the island and adaptable to degraded habitats. In the absence of dedicated bird surveys of the site, it is plausible that Sangihe Pitta *Erythropitta caeruleitorques* (Plate 2) and Elegant Sunbird *Aethopyga duyvenbodei* are present—both are Endangered.

Local communities claim to have never been consulted about the company's planned mining

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Plate 2. Sangihe Pitta *Erythropitta caeruleitorques*, Sangihe, Indonesia.

operation and have understandably expressed their concern of the potential impacts on their health and livelihoods, especially in response to TMS's failure to offer attractive compensation for their land. They have joined environmental defence lawyers to file a lawsuit against the company's mining and environmental permits. The trial for the first lawsuit took place on 12 August 2021 in the Jakarta administrative court and legal disputes and protests remain ongoing.

It is vital that Sahendaruman is conserved and no explorations of its remnant forests—as would be legally permissible under the concession—are made. If this does occur, and mining sites are identified that threaten the island's key species, additional operation permits would have to be sought—and no doubt contested by local people and NGOs. Already the forest is too small and needs expanding to prevent the extinction of irreplaceable species: there is no room for more damage.

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