

Flycatchers and fantails: new songbirds discovered on tiny islands

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Birds

Five species and five subspecies found in Indonesia in the largest discovery of its kind in more than a century

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A Togjian jungle flycatcher, one of the new sub-species discovered during the six-week expedition. Photograph: James Eaton/Birdtour Asia/Science

Ten new songbird species and subspecies have been identified on a trio of previously under-explored Indonesian islands in the largest discovery of its kind in more than a century, according to a new study.

Hidden away on the remote Wallacean islands of Taliabu, Peleng and Batudaka, close to where British naturalist **Alfred Russel Wallace** independently developed the theory of evolution to Charles Darwin, five new bird species and five subspecies were detected during a six-week expedition to the area, off the coast of Sulawesi.

Although birds are among the most comprehensively documented animal classes, with only a handful of new species identified each year, the pioneering methodology used in the study, **published in the journal Science**, has raised the prospect of further discoveries around the world. The researchers concentrated their efforts on the islands of Taliabu and Peleng due to their likely high biodiversity because of their genetic isolation over the last few million years, revealed by using sea-depth analysis of the deep water channels in the archipelago.

Nine of the 10 new forms were discovered on Peleng and Taliabu. The new species identified in the study led by Frank Rheindt at National University of Singapore include the Peleng fantail, the Peleng leaf warbler, the Taliabu grasshopper warbler, the Taliabu myzomela and the Taliabu leaf warbler.



The Taliabu grasshopper warbler, one of the five new species discovered. The majority of the birds identified by the study were discovered on islands' little-explored highlands. Photograph: James

The new sub-species include the Togian jungle flycatcher, the Banggai mountain leaftoiler, the Taliabu snowy-browed flycatcher, the Taliabu island thrush and the Sula mountain leaftoiler.

The findings mark the largest number of new species identified from such a small geographically confined region in more than 100 years.

Approximately 86% of existing species on Earth and 91% of species in the ocean are believed to await formal **scientific description**, but researchers fear that much of the world's biodiversity is at risk of disappearing before it can be identified.

Although the new species and subspecies have only just been formally identified, researchers warned that rampant forest destruction on the islands caused by logging and forest fires driven by the climate crisis threaten the survival of the birds.

"It's a real surprise to see that in the 21st century there's still a place on Earth, a relatively limited area, where there are five new subspecies and five new species of birds to be found," said Prof Rheindt. "It goes to show that there are still many areas on Earth that are underexplored.

"In this era of environmental crisis, the year 2019 has shown that we have entered a critical stage. We will lose a lot of biodiversity in the future and we have limited resources to conserve what we have. How are we to conserve our biodiversity if we don't know where it is? We really need a new push for biodiversity discovery and I hope that this study will provide the impetus for that."

Rheindt first visited some of the islands in the study while on a solo exploring trip in 2009, returning four years later with a field permit from the Indonesian government and a research team. The majority of the birds, nine of the 10, were discovered on the little-explored highlands of the **Indonesia** islands, which were difficult to access.



The scarlet-bodied Taliabu myzomela inhabits forest canopy. Photograph: James Eaton/Birdtour Asia/Science

"The islands I visited are separated from Sulawesi by deep seas and that's an incredibly important point, because the depth of the sea is a very important factor in how much endemism – species that are not shared with any other place on Earth – we can expect on an island.

"Every time there is an ice age, the global sea level recedes by up to 120m. All of these places that we see as islands today are not really islands. But the islands I chose for this exploration are true islands in that they have never been connected to Sulawesi because deep sea separates [them]. Hence, you might expect a lot of special species there that are not found anywhere else on Earth."

In the last 20 years, only 161 new species of birds have been found worldwide, with even fewer in restricted geographic areas. There are roughly 11,000 recognised bird species, yet it is believed many more remain to be discovered.

Of the new species, the Peleng fantail is identifiable by the distinct black scaling below its black breast patch, its clean white throat and unique courtship vocalisation. The Taliabu grasshopper warbler, also conspicuous for its vocalisations, has fine dusky speckling which increases toward its breast and lower throat. The scarlet-bodied Taliabu myzomela inhabits forest canopy and was photographed feeding at flowers. The Taliabu leaf warbler, which has been scientifically named after a former Indonesian environment minister, is most notable for its entirely lemon underparts. Finally, the Peleng leaf warbler is identifiable by its lack of both a central crown stripe and wingbars, and its lemon-yellow underparts contrasting with a white throat.