

# Birds of Santa Cruz

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Cardinal myzomela or red feather money bird (*Myzomela cardinalis*) (top left) is a species found from Makira to Vanuatu and Fiji. The Santa Cruz group has a distinct subspecies. Red feather money (above centre) is made from the feathers of Cardinal myzomela birds. The feathers are plucked under the chest after being trapped and then the bird released. Red feather money is only made on Santa Cruz. Santa Cruz white-eye (*Zosterops santacruensis*) (top centre) is another species found only on Santa Cruz Island. This is a common bird in secondary forests. Sanford's white-eye (*Woodfordia lacertosa*) (top right) is only endemic to Santa Cruz. The only member of the genus occurs on Rennell Island. Red-bellied Fruit Dove (*Ptilinopus greyii*) (above) is an endemic of New Caledonia, Vanuatu, and Temotu. This bird is quite common on Santa Cruz Island.

Temotu Province is made up of many remote islands and island groups. Because of this, many of the plants and animals that live on these islands are species or subspecies that are found nowhere else in the world. The birds of Temotu Province are virtually un-surveyed by modern ornithologists, as evidenced by the recent description of a new species of white-eye from Vanikoro Island (Dutson 2008), and relatively little is known about the status and distribution of many of the restricted-range Santa Cruz bird species. No recent surveys have involved the collection of specimens, tissues and associated data. In addition to providing verifiable documentation of distributional records, specimens and their ancillary materials can provide important data for studies of avian systematics, biogeography, morphology, annual cycles, population biology, energetics and wildlife management (Hustler 1996, Remsen 1995, Payne & Sorenson 2003, Bates et al. 2004). More extensive collections of birds from around Temotu Province would enhance our understanding of avian diversity and biogeographic history in the tropical Pacific (e.g., Mayr & Diamond 2001).

Here, we present a complete list of the birds encountered on a brief survey and collecting expedition to Santa Cruz Island. Observations and specimen data include some poorly known species and add significantly to our knowledge of Santa Cruz's rainforest birds. We discuss the importance of our records of species that are considered uncommon to nationally or globally rare.

## METHODS:

The site was a mixture of heavily logged and lightly logged areas in the western portion of the island (10° 46.676'S, 165° 51.106'E) is low hills (~100m asl).

We surveyed birds at both sites using mist-nets and visual observations and when possible RGM recorded bird songs using a Tascam HD-P2 digital recorder and a Sennheiser ME-66 short shotgun

microphone. Mist nets were erected in various habitats including logging roads, secondary forest, and primary forest. Seven nets were set up on the first afternoon, 16 October 2008, and more were added each day until a total of 20 12-meter nets were deployed. The nets were opened at 0600 hrs each day and then closed again at 1700 hrs. Nets were usually checked every 1.5 – 2 hours, but more often during periods of rain. Nets were taken down at the end of the day on 21 October 2008. Visual surveys were mostly opportunistic: species were recorded during net checks and other occasions when time permitted. Sound recordings were used to document vocalizations, but also to confirm species identities.

Netted birds were either examined and released or were euthanized and prepared as museum skins. For all of these specimens, we recorded soft part coloration (iris, maxilla and mandible, tarsus and toes), moult condition (wing, tail, and body), extent of skull ossification, absence or presence of bursa of Fabricius (measured if present), gonad condition and size, amount of fat, and stomach contents, to maximize the potential usefulness of these specimens (Remsen 1995). For each specimen with a full stomach, contents were preserved in ethanol. Small samples of heart, liver and pectoral muscle were removed and flash frozen in liquid nitrogen. The specimens and their associated stomach contents and tissues were deposited in the University of Kansas Biodiversity Research Center (BRC). We also collected ectoparasites, mostly chewing lice (Insecta: Phthiraptera), from freshly killed birds using the post-mortem ethyl acetate fumigation and ruffling method (Clayton & Drown 2001). These specimens are housed at the Field Museum of Natural History, Chicago.

## RESULTS:

We netted 10 species of birds on Santa Cruz Island and observed several others. A total of 23 individuals were collected for further study, the rest were released. The following are details notes

on species of interest and other findings.

**Doves and Pigeons.** Four species of doves and pigeons resident on Santa Cruz were abundant. Red-bellied Fruit Dove (*Ptilinopus greyii*), Mackinlay's Cuckoo-Dove (*Macropygia mackinlayi*), and Pacific Imperial Pigeon (*Ducula pacifica*) were all seen and heard throughout the day. Emerald Dove (*Chalcophaps indica*) was less conspicuous, but was often observed flying low through the forest, crossing logging roads, and one individual was netted. Santa Cruz Ground Dove (*Gallinolumba santacruensis*) was not recorded. A priority for future surveys of Temotu Province will be visits to islands, such as Tinakula and Utupua, where this species has recently been seen.

**Collared Kingfisher (*Todirhamphus chloris*).** The Collared Kingfisher is a common species on islands throughout the Pacific region. The species is incredibly variable though and most island groups have a distinct subspecies. Temotu Province is unusual in having at least 5 distinct subspecies of this bird (Mayr 1945). We frequently encountered this species on Santa Cruz. The subspecies recorded from Santa Cruz (ornata) is not listed as having any differences in plumage between the males and females, yet we encountered 2 distinct plumage types, one with white in the face and underparts and the other with chestnut in the face and underparts. It is unknown if these two color forms represent differences between males and females or the presence of two subspecies on the island. More research is needed, and this species needs to be surveyed on other islands in Temotu Province. We collected one individual of each color type and genetic analysis may help decipher the origin of the different color types.

**Cardinal Myzomela (*Myzomela cardinalis*).** The Cardinal Myzomela is a common forest bird in Vanuatu, Temotu, and Makira Island. In Temotu it is particularly well known because it is the source of feathers for red-feather money. The species was common in forest and disturbed habitats. We collected two individuals for genetic comparisons to this species on other islands.

**White-eyes.** Two species of White-eye (Zosteropidae) are endemic to Santa Cruz Island. Such species, which are found nowhere else in the world, are generally conservation priorities because of their very restricted range. We encountered Santa Cruz White-eye (*Z. santacruensis*) frequently in roadside scrub and logged areas. We also found an active nest along a logging road. It appears to do well in disturbed areas. We netted many individuals and kept four for more detailed study. Sanford's White-eye (*Woodfordia lacertosa*) was found in the same areas but was less common than Santa Cruz White-eye. It is unknown if this is due to the disturbed nature of the habitat that we spent most of our time in, and that the species might be more common in pristine forest, or if this reflects the normal population level of the species. We netted a single individual, which was collected for further study.

**Black-throated Shrikebill (*Clytorhynchus nigrogularis*).** This species was not encountered on any of our surveys and was not captured in any of our mist nets. Compared to the endemic

White-eyes of Santa Cruz, which seem to tolerate secondary forest quite well, this species may rely on pristine old-growth forest, and thus be restricted to portions of the island where such habitat still exists. This species is quite distinct from its relatives on other islands, and it has been proposed that the birds on Santa Cruz Island be considered a distinct species (Dutson 2006). This appears to be the Santa Cruz endemic most sensitive to habitat degradation. Survival of this species may rely on maintaining large tracts of tall native forest. More surveys are needed.

## DISCUSSION:

These results indicate that there is still much to be learned about the distribution and abundance of forest birds in Temotu Province, and throughout the Solomon Islands in general. This survey only scratched the surface of the bird diversity on Santa Cruz Island, let alone Temotu Province. Much remains to be learned about the behavior, natural history, and conservation of the endemic species and subspecies of birds throughout the province. It is our hope to use this preliminary survey as a model for future collaborative surveys between the University of Kansas, the provincial authorities of Temotu Province, Conservation International, and any other interested parties in the Solomon Islands (e.g., students).

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Collared Kingfisher (*Todirhamphus chloris*) (top and top centre). Two forms of this species (white and buff) were encountered on the surveys. The Santa Cruz population was supposed to have only one form, and the basis of this difference is not yet known. Golden Whistler (*Pachycephala pectoralis*) (above centre) is the most variable of bird species, with dozens of subspecies in the Solomon region. This striking subspecies was the most common, and most vocal bird in the forests of Santa Cruz. Golden Whistler (*Pachycephala pectoralis*) nest (above).