

The avifauna of Makira (San Cristobal), Solomon Islands

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ABSTRACT—The island of Makira in the eastern Solomon Islands is a globally significant priority for bird conservation and, like other islands in Melanesia, its avifauna plays an important role in understanding patterns of biogeography and speciation. Large portions of the island have rarely been visited by ornithologists, however, and published natural history information is limited for many species. We conducted field surveys, interviews, and camera trapping on Makira from October 2015 to February 2016, including the first ornithological surveys in southern Makira. We identify minor differences between the bird communities in the southern and northern parts of the island and report on noteworthy natural history observations, including nest descriptions for Yellow-legged Pigeon (*Columba pallidiceps*) and Shade Warbler (*Horornis parens*). We did not detect 3 endangered terrestrial species (Makira Woodhen [*Gallinula silvestris*], Thick-billed Ground-Dove [*Gallicolumba salamonis*], and White-bibbed Ground-Dove [*Gallicolumba jobiensis*]), and all 3 are probably extinct on Makira. High numbers of invasive species are present throughout Makira's forests, in particular rats (*Rattus* spp.), which were found at all our survey sites and accounted for nearly 34% of camera trap images, and cats (*Felis catus*), which were recorded at all sites that received >75 camera-days of survey effort. The widespread presence of invasive predators in remote and unlogged forests helps explain the disappearance of native species from the island. Controlling unregulated logging and protecting the remaining lowland forest in southern Makira is now the most important priority for biodiversity conservation on the island. In addition to our own observations, we review findings from other ornithological fieldwork on Makira and provide a comprehensive list of 114 bird species recorded on the island. Received 26 October 2016. Accepted 29 April 2017.

Key words: biogeography, conservation, endemic species, Makira, Makira Woodhen, Shade Warbler, Solomon Islands birds, Yellow-legged Pigeon.

Pisin blo Makira (San Cristobal), Solomon Islands

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Key words: biogeography, bird blo Solomon Islands, conservation, endemic species, Makira, Makira Woodhen, Shade Warbler, Yellow-legged Pigeon.

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The Solomon Islands are home to exceptionally high levels of avian endemism and provide a valuable study system for understanding patterns of evolution and speciation (Mayr and Diamond 2001). As with all tropical islands, they are also highly susceptible to human-driven extinction. High levels of habitat loss have led to the Solomon Islands being recognized as part of a biodiversity hotspot (Mittermeier et al. 2004), and 11% of the bird species in the country are threatened with extinction (BirdLife International 2017a). Furthermore, given current trends in global climate

change, habitat destruction, and the expansion of invasive species, threats to island ecosystems like the Solomon Islands will likely increase in the near future (Kier et al. 2009). In this context, establishing baseline data on the distribution and status of island birds provides a valuable reference point to measure future changes.

Here we contribute such data for the island of Makira (formerly San Cristobal). Located at the eastern extreme of the main Solomons group, Makira is a rugged, mountainous island (3,188 km²; highest elevation 1,040 m) that has experienced less commercial logging than other forested islands in the Solomons (Pauku 2009). Together with its outlying islands, Makira is home to 33 endemic taxa, 21 of which are single-island endemics found only on Makira itself; for an area this size, this is one of the highest concentrations of range-restricted bird species on earth (Danielsen et al. 2010). In addition to high endemism, Makira also represents an important stronghold for 2 species that are much rarer in other parts of their range, Yellow-legged Pigeon (*Columba pallidiceps*) and Chestnut-bellied Imperial-Pigeon (*Ducula brenchleyi*; Dutson 2011).

Although Makira retains significant areas of forest, recent and ongoing logging activities have affected large areas of the lowlands, and logging continues at multiple locations on the island with limited oversight and environmental controls. Like many tropical islands, Makira's avifauna has also been impacted by invasive species, specifically dogs (*Canis familiaris*), cats (*Felis catus*), rats (*Rattus* spp.), and more recently cane toads (*Rhinella marina*) and fire ants (*Wasmannia auropunctata*). Home to ~40,000 people as of 2009, Makira has the highest population growth rate in the Solomons (Solomon Islands Government 2011), and the island's natural environment will undoubtedly face increased pressure in the near future.

Makira was one of the first islands in the Solomons to be visited by European explorers, and so it is unsurprising that some of the region's earliest bird collections were made on the island. Among these are specimens collected by J. MacGillivray ca. 1850 aboard the *HMS Rattlesnake* as well as collections from brief visits to Makira in the 1860s (see Mayr and Diamond 2001). Ornithological work on Makira has mostly followed established entry points of western

influence. In 1929, E. Mayr and members of the Whitney South Seas Expedition traveled inland from the Catholic Mission at Wanione Bay on Makira's northeast coast, and in 1953 I. Galbraith spent time around Kirakira and then revisited Wanione Bay, traveling farther into the interior than the Whitney Expedition (Cain and Galbraith 1956, Galbraith and Galbraith 1962). In the 1940s and 1950s, W. French spent 13 years on the Three Sisters Islands close to Makira and compiled a list of species observed there, many of them migrants that likely also visit mainland Makira (French 1957). After another hiatus, ornithological fieldwork on Makira resumed with a conservation assessment in 1988 by the Maruia Society of New Zealand (Lees et al. 1991) and visits by D. Buckingham et al. in 1990 to areas along the north coast and in the valley of the Ravo River (Buckingham et al. 1995) and by GD in 1998 who spent time along the north coast and near the village of Hauta (Dutson 2001). More recently, in November–December 2006, a team led by University of Copenhagen visited sites in the central highlands (Danielsen et al. 2010).

A list of birds recorded on Makira was first compiled by Mayr (1945) as part of a wider overview of the region's avifauna. Additions and updates to this were provided by Cain and Galbraith (1956) and later expanded by Galbraith and Galbraith (1962). More recently, Mayr and Diamond (2001) reviewed all breeding species in Northern Melanesia, and these and many other records are summarized in Dutson (2011). With the exception of Cain and Galbraith (1956) and Galbraith and Galbraith (1962), however, all these works have a regional focus and provide limited detail on Makira itself.

Reviewing patterns of avian biogeography across the region, Mayr and Diamond in 2001 concluded that "most Northern Melanesian bird taxa and their island-by-island distributions have thus surely been discovered by now" (Mayr and Diamond 2001: p. 35). In the case of Makira, their assessment has held true, and it seems probable that all of Makira's resident bird species have been discovered. Nevertheless, important gaps remain in our knowledge of Makira's birdlife. Three are notable: First, as noted by Mayr and Diamond (2001), early ornithologists tended to focus on finding endemic taxa, often to the exclusion of more widespread or migratory species. Second,

little information on the basic natural history of Makiran birds has been published, and for many of the island's species, basic data on nesting, breeding, and diet are lacking. Third, with the exception of the detailed elevational data collected by Diamond (Mayr and Diamond 1976, 2001), species presence-absence data in Melanesia have often been generalized to entire islands with little attention paid to within-island variation. As Cain and Galbraith observed, "the first [ornithological] authorities were careless about locality records" (Cain and Galbraith 1956: p. 103), and there is a considerable lack of site-specific inventories from the region (Kratzer et al. 2009). Within-island variations in habitat and precipitation are often significant; in the case of Makira, for example, the southern 'weather' coast receives ~40% more rain than northern parts of the island, making it one of the wettest places in all of the Solomon Islands (4,600–5,000 mm annually; Mayr and Diamond 2001). To date, however, the only published ornithological records from anywhere along this coast are from small specimen collections made near Makira Harbor in the 1860s–1870s (Ramsay 1882a).

Here we review of the avifauna of Makira, provide site-specific information for 8 localities in the southern and eastern parts of the island, and comment on noteworthy natural history observations. In summarizing these data, we aim to provide a reference point against which future studies of Makira's avifauna can be compared.

Methods

Field surveys

JCM conducted fieldwork on Makira from 6 October to 9 December 2015 and from 13 January to 6 February 2016 at 39 localities (32 villages; 7 field sites) between the villages of Mwakourukuru and Tetere on the south coast. Observations were also made at sites near Namuga in Star Harbor, around Kirakira on the island's north coast, and while crossing the island on foot along the valley of the Wairaha River (Fig. 1). Eight locations received an extended survey effort of >3 field days (Table 1). Survey methods were primarily audiovisual surveys (76 field days), supplemented by camera trapping (11–15 cameras in 10 deployments across 6 localities: 707 camera-days), nocturnal surveys with spotlights

(often from 1900 to 0300 h; 3 localities, 11 nights), and shadowing local hunters in the forest (4 localities; 26 d). Nearshore marine bird species were recorded while traveling along the coastline by boat (full circumnavigation of the island; 31 d).

JCM used a Marantz PMD661 digital recorder and Sennheiser MKH70 microphone to make sound recordings and a Garmin 60CSX GPS for elevation and location information. An approximate measure of the relative abundances of species at each site was calculated following methods described by Stotz et al. (1996). Recordings, photographs, and daily species lists are archived and publically available through ebird.org and the Macaulay Library of Natural Sounds (Ithaca, NY).

In addition to JCM's fieldwork, we summarize previously unpublished observations from (1) REJ, who was resident in the Bauro district while working for Conservation International from 1995 to 2003 and visited Makira repeatedly between 1995 and 2016; (2) TED's research in the Kahua region (Wanione east and west), northeast Makira, in 2010–2011 and from January to July 2012 (Davies et al. 2015); (3) an expedition by GD and colleagues in the upper Pehuru catchment, Kahua region, during 8–20 January 2016, which included use of camera traps; and (4) JACU's long-term research program in Star Harbor, Kirakira, and Uki (2006–2015).

Interviews

JCM conducted interviews with local people at 32 communities along Makira's southern coast with the goal of recording local knowledge of Makiran birds. To facilitate discussions, illustrations from Dutson's (2011) *Birds of Melanesia* were used, and interviews followed a standard approach in which JCM presented plates from Dutson (2011) and asked whether people recognized the species illustrated. After an initial review in which plates were presented without comments by the interviewer, JCM would then follow up by pointing out species of interest and asking about them specifically. Although this approach has important short-comings (Diamond 1991), it can nevertheless provide useful insight into which species occur in a given area (e.g., Birchenough et al. 2003).

Table 1. Localities in southern and east Makira that received >3 d survey effort by JCM during 6 October 2015 to 6 February 2016. Locations are organized according to district and listed with the villages through which access was arranged. Unless specified, audiovisual surveys were conducted on all days.

Locality	Coordinates	Survey dates	Description, habitat, human impact, survey effort.
Napasiwe			
1. Star Harbor, Namuga village	10.819°S 162.286°E	13–14 Oct, 24–25 Oct, 3–6 Feb	Large bay on the on the north side of the Surville Peninsula. JACU has a long-term research project on Nafnua Island (10.810°S, 162.302°E; 3 ha, 0.5 km off the coast). JCM visited Nafnua and the mainland at Wairouguroung (10.816°S, 162.242°E; 24 Oct), and Namaré (10.760°S, 162.279°E; 5 Feb). Mangroves, coastal mudflats, offshore islets, disturbed lowland forest. Human activity high with multiple family settlements and gardens in addition to the large village of Namuga.
2. Namama Ridge, Nasuafu village	10.774°S 162.154°E	15–21 Oct	Thickly forested ridge along Makira's southern coast, 5.5 km inland from Nasuafu village. JCM and JACU camped on the ridge (450 m) in stunted ridge forest with higher forest on lower slopes nearby. Never logged, and only occasionally visited by local people. Camera trapping (75 camera-days).
3. Mt Gasiraha, Kereapena and Puamarewa villages	10.786°S 162.070°E	27 Oct–3 Nov	Prominent outlying peak along Makira's southeastern coast. JCM camped at 590 m near the site of an abandoned forest settlement and visited areas between the summit (790 m) and Nora Ridge (10.783°S, 162.056°E; 350 m). Hill and ridge forest, never logged but with gardens in the nearby valley. Nocturnal surveys (1 night), camera-trapping (105 camera-days, 2 arrays ~1 km apart). Camera traps were also set east of Gasiraha along the Herisu River (10.784°S, 162.104°E; 70 m, 56 camera-days).
4. Nagatowahe, Puamarewa village	10.705°S 162.073°E	6–14 Nov	Site of an abandoned forest settlement in a steep-sided valley, 8 km northeast of Puamarewa village. JCM camped near the settlement site (410 m), visited nearby ridges around Mt. Haugarinibo (10.691°S, 162.072°E; 904 m), and spent 11–14 Nov at Haukorekore (10.718°S, 162.061°E; 480 m), 1.9 km to the southwest. Unlogged hill forest, ridge forest, occasionally visited by local pig hunters. Camera trapping (60 camera-days at Nagatowahe, 45 at Haukorekore), surveys with dogs (10 d).
Ravo			
5. Keve, Raa village	10.728°S 161.809°E	7–22 Dec, 16–20 Jan	Floodplain along the Magariate River extending inland from Marunga village. JCM camped along the south side of the valley (73 m). Degraded lowland forest, swamps, gardens, secondary growth with dense vine tangles. Logged in the early 2000s with most large trees removed and the resulting erosion drowning streams in gravel runoff. Still being cleared for gardens, with several semi-permanent settlements of 5–10 people. Audiovisual surveys (6 d), camera trapping (187 camera-days), nocturnal surveys (4 nights), surveys with dogs (5 d).
6. Wetewete, Marogu and Wemarega villages	10.588°S 161.707°E	28 Nov–2 Dec	Low ridge near the headwaters of the Wairaha River, 7 km north of Wemaregha village. JCM camped along an old road cut (380 m). Hill forest, secondary growth; selectively logged in the early 2000s and heavily degraded in areas with old road cuts, tree-falls, and clearings. As of Dec, 2015 a large logging camp was active 2 km east of the site with rapid clearing underway by heavy machinery. Camera trapping (91 camera-days).

Table 1. Continued.

Locality	Coordinates	Survey dates	Description, habitat, human impact, survey effort.
7. Wemarega lowlands, Wemarega vilalge	10.649°S 161.698°E	2–6 Dec	Small coastal village and nearby river. JCM stayed in the village (sea level). Gardens, logged forest, mangroves, beach; frequent human use with people clearing garden plots and traveling to and from a nearby logging concession.
Haununu			
8. Wapu River, Finebay and Apaoro villages	10.526°S 161.535°E	25 Jan–1 Feb	Small river and floodplain between Apaoro and Finebay villages. JCM camped near the river (sea level) and visited the floodplain and nearby valleys along Warigapu (10.513°S, 161.551°E; 80 m) and Sugurufi (10.530°S 161.549°E; 80 m) creeks. Mangroves, swamps, gardens and secondary growth, with patches of lowland forest in the valleys. Logged in the early 2000s and still being cleared for gardens with daily visits by local people. Camera trapping in the main floodplain (first array) and along Warigapu creek (second array; 33 and 55 camera-days, respectively), nocturnal surveys (6 nights), surveys with dogs (11 d).

In larger communities, interviews were usually repeated 2–4 times. The number of participants at a given interview varied with occasionally >30 people present as part of a large village meeting. Whenever possible, however, discussions were conducted with a single interviewee, although in practice they often occurred with one or more additional people looking on and offering commentary. Findings on the naming and salience of birds will be discussed elsewhere (Mittermeier unpubl. data), but results relevant to presence and distribution are presented here.

Linguistic context

In traditional Makiran culture, bird species have significant totemic and spiritual importance (Fox 1925), and although many visiting ornithologists have benefited from this local knowledge, most have been haphazard in their recording of it. Makira is home to 6 related languages, all within the broader Austronesian language family, and most share words and have some degree of mutual intelligibility (see Simons and Fennig 2017 for geographic distribution of languages on the island). Although each language has its own tones, vocabulary, and pronunciation, all contain vowels and consonants that do not readily reproduce English equivalents, which frequently results in inconsistent transcription of place names and local species nomenclature. Although here we have made an effort to use consistent orthography, inconsistencies are inevitable, and some of our spellings will differ from those in other sources. For example, we write “g” rather than “gh” as some other sources do (e.g., “Wemarega” vs. “Wemaregha” for the south coast village).

People on Makira often move around the island and settle in areas other than their initial place of birth. Thus, we report the language rather than the locality of a local bird name because an informant interviewed in one area may originally be from another. Two languages are responsible for the names we report here: Bauro, spoken in central Makira where REJ spent significant periods of time, and the southern areas also visited by JCM; and Kahuan, the language of eastern Makira including most of the villages visited by JCM as well as the areas where TED and GD conducted fieldwork.

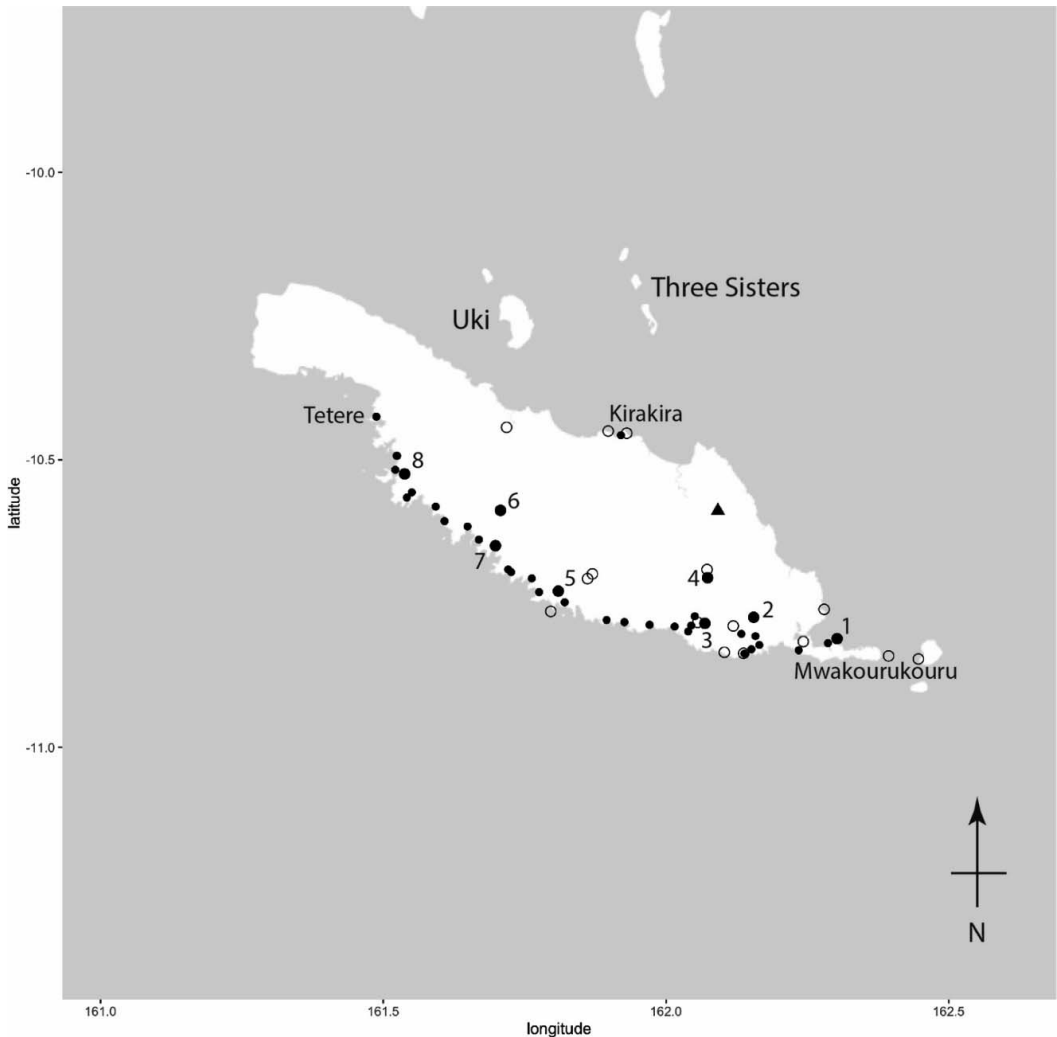


Figure 1. Makira, with locations surveyed October 2015 to February 2016. Small circles indicate villages where JCM conducted interviews; larger circles mark survey sites visited 1–3 d (open circles) and >3 d by JCM (filled circles); and filled triangle indicates location visited by REJ and GD. Numbered locations correspond to sites in Table 1.

Literature review

We reviewed recently published records (Danielsen et al. 2010, Davies et al. 2015, Sardell 2016), gray literature (e.g., bird-watching trip reports and travel accounts available in the online repositories: cloudbirders.org, wildwings.co.uk), and observation records in online databases (ebird.org and observado.org) to compile an updated list of birds recorded on Makira. Where possible, we contacted observers directly to discuss sightings of note.

We restricted our review to the main island of Makira and the associated small islands within 1

km of the coast. The more distant islands of Uki (often spelled Ugi), the Three Sisters (7.5 and 20 km off Makira's northern coast, respectively), and Santa Ana and Santa Catalina (7.5 and 8.5 km east of Makira) are not treated here. Although many of Makira's endemic taxa also occur on these outlying islands, they were not a primary focus of our fieldwork. The island of Ulawa, 65 km north of Makira, is politically grouped with Makira as part of the Makira-Ulawa province but is both geographically and biologically closer to Malaita (JACU, pers. obs.).

Table 2. Vertebrate species recorded during camera trapping on Makira from 6 October 2015 to 6 February 2016. Data fields show the percent of images of a given species at a site; total images per site are listed in the final row. Introduced species are marked *. “Other” consists primarily of insects and other invertebrates. Sites are (1) Namama Ridge, (2) Herisu River, (3) Mt. Gasiraha, first array, (4) Mt. Gasiraha, second array, (5) Nagatowahe, (6) Haukorekore, (7) Keve, (8) Wetewete, (9) Wapu River, first array, (10) Wapu River, second array, and (11) Kahua. For location descriptions see Table 1.

Species	1	2	3	4	5	6	7	8	9	10	11	Total (%)
*Feral rat	50	68.4	13.9	21.8	45.4	36.3	18.9	44	41.3	41.1	27.5	33.7
Makira Thrush	32.2		2.3	39	31.8	7.7		17.7	2.1	5.5	35.6	21.7
Bronze Ground-Dove		15.7	11.6	6	4.5	24.6	38.8	32.8	36.9	13.3	5	19.7
Melanesian Scrubfowl	12.9		34.8	5.2	9	15.5	6.9		10.8	12.2	17.6	9.5
*Feral cat			27.9	27		5.1	1.8	1.1		8.8	3	4.6
Stephan's Dove							16.6			10		2.3
*Cane Toad		15.7					0.4	2.2	2.1	5.5	1.6	1.7
Mangrove Monitor											5.4	1.7
*Domestic dog					4.5	9	8.7					1.4
*Northern Common Cuscus											2.6	0.8
Buff-banded Rail							6.4					0.7
*Feral pig								2				0.7
Rufous Night-Heron			4.6	0.7							0.6	0.3
Oriole Whistler	4.8					1.2						0.2
Shade Warbler			2.3									<0.1
Rufous-tailed Bush-hen							0.4					<0.1
Pacific Black Duck									2.1			<0.1
Other					4.5		0.4		6.5	3.3	1.1	0.8
Total images	62	19	43	133	22	77	216	625	46	90	626	

In the case of pelagic birds, we limit our discussion to species that either nest on Makira or were observed within 1 km of the coast. Pelagic species that occur in deep, offshore waters are unlikely to be impacted by land use changes on the island and are rarely encountered by local people. Species lists presented here follow the taxonomy of Clements et al. (2017) unless otherwise specified.

Results

JCM recorded 98 species on Makira during surveys conducted between October 2015 and February 2016, including 69 resident land birds, 17 boreal migrants, and 12 seabird species. With the exception of the probably extinct Makira Woodhen (*Gallinula silvestris*), all the island's endemic taxa were observed. Eight species had no previous published records from Makira: 6 migratory shorebirds, a migratory tern, and a migratory cuckoo. All are expected additions to the island's list. Efforts to obtain visual and audio vouchers of bird species resulted in 82 species photographed, including all of Makira's endemic

bird species, together with audio recordings of 20 species.

At forest survey sites, species diversity ranged from 28 to 43 species (mean: 36.7). Some sites covered a greater range of habitats, for example Mt. Gasiraha (43 species), where surveys accessed both lowland and montane and hill forest, and Wemarega (44 species), where habitats included a range of coastal and forest environments). These sites tended to have more species, although note that our methods were not designed to explicitly compare site diversity.

Camera traps documented 17 species of vertebrates, 10 of which were native birds (Table 2). Cameras that stayed at locations longer (Keve, Wetewete, and Kahua) tended to detect more species while those with the shortest deployments had the fewest species detections (Herisu and Namama). The frequency of species captured by cameras was highly skewed, with 6 species accounting for 91.5% of all detections. Among these 6, 2 were invasive species (rat species and cats), and 4 were native birds: Makira Thrush (*Zoothera margaretae*), Bronze Ground-Dove (*Gallinolumba beccarii*), Melanesian Scrubfowl

(*Megapodius eremita*), and Stephan's Dove (*Chalcophaps stephani*).

Invasive rats were recorded at all our camera trap locations and were the most commonly detected species overall, singlehandedly accounting for nearly 34% of all images. The high detection of rats may also be partially due to our methods; many of our cameras were baited with rice and bits of fruit that attracted rats and undoubtedly increased their detection. Feral cats were recorded at 7 of 11 camera arrays, including all arrays with >75 camera-days of survey effort. At one short deployment site where cats were not detected by camera traps (Nagatowahe), they were found by hunters during our survey time. Given this pattern, the lack of detection of cats at some of our sites is almost certainly due to survey effort rather than true absence.

Among native birds, Makira Thrush was the most frequently detected species, followed by Bronze Ground-Dove (detected at 9 and 10 sites, respectively). Both species are shy and often difficult to detect during audiovisual surveys, and our results show that camera traps are an effective way to document these species.

Interview efforts resulted in 21 interviews conducted in formalized one-on-one context and a further 40 conducted informally with groups of people. In the individual interviews, some respondents provided names for up to 63 species (~60% of all of Makira's regularly occurring birds), although results varied widely, and more often 37–40 species were named. During interviews conducted in Bauro in the late 1990s, REJ found that people who remained in forest villages through their teenage years identified on average twice as many birds as those who had been to secondary school away from the forest.

In several instances, species commonly recognized in interviews, such as Australasian Swamp-hen (*Porphyrio melanotus*), Beach Thick-knee (*Esacus magnirostris*), and Barn Owl (*Tyto alba*), were rarely seen in our surveys. The reverse was also true, with species such as Ochre-headed Flycatcher (*Myiagra cervinicauda*) and Gray-throated White-eye (*Zosterops ugiensis*) seen regularly in surveys but rarely named in interviews.

Our literature review compiled 114 species, 3 of which are recent additions to the island with no previous published documentation: Great Cormo-

rant (*Phalacrocorax carbo*), Pied Stilt (*Himantopus leucocephalus*), and Little Whimbrel (*Numenius minutus*); see species accounts. Of the 16 species with records from Makira not observed during October 2015 to February 2016, 2 are austral migrants found in the Solomons mainly from March to September (Shining Bronze-Cuckoo [*Chrysococcyx lucidus*] and Sacred Kingfisher [*Todiramphus sanctus*], both recorded in northern Makira in early September; Buckingham et al. 1995), and one has only been found along the north coast (Cardinal Lory [*Chalcopsitta cardinalis*]), see species accounts. Seven are species with established patterns of vagrancy within Melanesia that likely occur only occasionally on Makira: Plumed Whistling-Duck (*Dendrocygna eytoni*), one record from September 1990 (Buckingham et al. 1995); Australian Pelican (*Pelecanus conspicillatus*), which bred on Santa Ana, with individuals occasionally reaching Star Harbor (Cain and Galbraith 1956); Great Cormorant and Little Pied Cormorant (*Phalacrocorax melanoleucos*), see species accounts; Intermediate Egret (*Mesophoyx intermedia*), one record from July 1934 (Cain and Galbraith 1956); Little Whimbrel and Pied Stilt, see species accounts. Three are resident landbirds not detected by JCM: Oriental Hobby (*Falco severus*), see species accounts; White-browed Crake (*Poliolimnas cinereus*), recorded near Kirakira in September 1990 (Buckingham et al. 1995); and Barn Owl, see species accounts. Three are likely extinct or extirpated from the island: Makira Woodhen (*Gallinula silvestris*), Thick-billed Ground-Dove (*Gallicolumba salamonis*), and White-bibbed Ground-Dove (*Gallicolumba jobiensis*).

Of the resident or frequently occurring species not recorded, Barn Owl was commonly recognized in interviews while Oriental Hobby and White-browed Crake were never recognized. These records, together with the estimates of relative abundance across each of our survey sites, are presented in Appendix 1. Comments on some species are discussed below.

Selected species accounts

Petrels and shearwaters (Procellariidae)—Several Melanesian islands host breeding populations of petrels or shearwaters, but Makira apparently lacks such populations. The only Procellariidae

species we observed near the coast were dark morph Wedge-tailed Shearwaters (*Ardenna pacifica*), which breed in Vanuatu, New Caledonia, and perhaps Temotu (Dutson 2011). Despite being seen fairly frequently close to shore, this species was not identified in interviews and did not have a local name that we encountered.

Several other Procellariidae have been reported from deep waters around Makira: Streaked Shearwater (*Calonectris leucomelas*), Short-tailed Shearwater (*Ardenna tenuirostris*), Flesh-footed Shearwater (*Puffinus carneipes*), Tropical Shearwater (*P. bailloni*), Vanuatu Petrel (*Pterodroma occulta*), White-necked Petrel (*P. cervicalis*), Gould's Petrel (*P. leucoptera*), Collared Petrel (*P. brevipes*), Tahiti Petrel (*Pseudobulweria rostrata*), Wilson's Storm-Petrel (*Oceanites oceanicus*), and Black-bellied Storm-Petrel (*Fregatta tropica*) (Greensmith 1975; Dutson 2001, 2011; Collins 2016; S. Lorenz, 24 October 2017 [ebird.org]). Although local people travel offshore to fish, none of these species was recognized in interviews or encountered by us near the coast.

Tropicbirds (Phaethontidae)—Red-tailed Tropicbird (*Phaethon rubricauda*) has been recorded near the Three Sisters (French 1957), and White-tailed Tropicbird (*Phaethon lepturus*) has been seen several times off coastal Makira (G. Dutson, pers. obs.; F. Lambert and N. Voaden, 30 Mar 2009 [ebird.org]), but neither are known to nest on Makira nor occur close to shore, and tropicbirds were not recognized in interviews.

Frigatebirds (Fregatidae)—Both Great (*Fregata minor*) and Lesser (*F. ariel*) frigatebirds are found regularly in Melanesia. On Makira, the Great Frigatebird is rare. It was not recorded by French during more than 13 years on the Three Sisters (French 1957), and during multiple visits, GD has only encountered it once: a single individual off Santa Ana in 1997. JCM observed it on 2 occasions, a single bird among a large congregation of Lesser Frigatebirds at a roosting island near Raa on 21 January and another single bird at Namarê on 5 February. Large roosting aggregations of Lesser Frigatebirds occur on Nafinua Island (>300 in Oct 2015) and Marau Island close to Raa (>500 in Nov 2015 and Jan 2016).

Boobies (Sulidae)—Both Red-footed Booby (*Sula sula*) and Brown Booby (*S. leucogaster*) occur widely across the Solomons (Dutson 2011), although the Brown Booby is significantly more

common in most areas (Greensmith 1975). While we encountered Brown Boobies regularly just offshore and roosting on coastal rocks, we never observed Red-footed Boobies near the coast nor were they recorded by French (1957) on the Three Sisters. Several records exist of the Red-footed Booby farther offshore near Makira (GD, pers. obs.) but there are no reports of this species close to the island, and it seems to be restricted to deeper water. Local people were familiar with booby species ("pina" or "pinafuri" in Kahuan), and on several occasions reported seeing 2 color types, which suggests that white-morph Red-footed Boobies are occasionally observed from fishing boats.

Cormorants (Phalacrocoracidae)—A flock of 13 Great Cormorants observed near the mouth of the Ravo River in northern Makira on 30 July 2012 by M. Lagerqvist is apparently the first record for the island (Lagerqvist 2013). Although we did not find the species ourselves, we also received a convincing account from a man in Piruma on the south coast who claimed to have caught and eaten a cormorant that was likely this species. Great Cormorant is a recent colonist to Rennell, where it began breeding in 1993 (Mayr and Diamond 2001: p. 367), and seems to be in the process of expanding its range in the region. Little Pied Cormorant has been recorded from lakes on Santa Ana and the Three Sisters (Buckingham et al. 1995) but is known from only a single record on Makira: a specimen collected near Star Harbor in 1954 that probably arrived from Santa Ana (Galbraith and Galbraith 1962). As Galbraith and Galbraith (1962) observed, the absence of this species from Makira is surprising.

Makira Woodhen (Gallinula silvestris)—This species is known from 2 published records: a specimen collected by Mayr in 1929 (Mayr 1933) and a report received by Galbraith in 1953 (Cain and Galbraith 1956; note here we follow Pratt and Mittermeier [2016] in using the English name "woodhen" as opposed to "moorhen"). Galbraith's report states simply that the species is "said to be not uncommon in rocky valleys below Wuranakumau (1400 ft. on Nagasi ridge)—one seen there by members of our party" (Cain and Galbraith 1956: p. 98), and so leaves some ambiguity as to whether the sighting was reported secondhand.

Despite a significant search effort, we did not find the Makira Woodhen. In coastal Kahua, TED encountered a few older people who were familiar with the woodhen through stories but had never seen it themselves. On the south coast and in the interior areas of Kahua, however, JCM and GD received multiple reports of birds matching the description of this species, including 12 reports from within the last 10 years. This discrepancy could result from the woodhen having disappeared longer ago in these coastal areas; however, it might also be due to differences in interview methods; JCM and GD asked about this species specifically, whereas TD did not. Although the Makira Woodhen has a local name (“kia” in both Bauro and Kahuan), nearly all recent accounts described an unusual bird that the observer did not know or had not seen before rather than naming the species specifically. That only older people recognized the woodhen by name, more so than with other species, likely reflects the rapid decline in encounters with this species over the past century.

Although recent reports of the Makira Woodhen are potentially hopeful, they should be treated with caution. Eyewitness accounts of rare or extinct species can be unreliable, and despite following up on the most promising reports with extensive field surveys, we never encountered any sign of the woodhen. In several instances, accounts almost certainly resulted from confusion with another species, such as Australasian Swamphen or Palevented Bush-hen (*Amaurornis moluccana*). Even reports that include diagnostic morphological features must be treated with caution because images of the Makira Woodhen have been circulated previously around the island, and strong incentives exist to provide an interesting account to a foreign visitor. Without definite confirmation provided by a photograph or specimen, we cautiously conclude that the species may be extinct.

Even if a small population of Makira Woodhen does persist, the outlook for its survival is poor. The human population across the island is growing rapidly, and many people hunt over large areas of forest with dogs that frequently catch and kill ground-dwelling birds. Virtually every report we received, both historical and recent, ended with the bird in question having been killed by dogs or shot with a slingshot. Meanwhile, as evidenced by our camera trap data, feral cats and rats are abundant

even in areas with low human use, and these invasive species undoubtedly impact ground-nesting birds like the Makira Woodhen. Interestingly, many of the reports of woodhen referred to it occurring in lowland habitats rather than mountains; if true, this would put the species at higher risk from anthropogenic impacts and could help to explain its decline.

Beach Thick-Knee (*Esacus magnirostris*)—This species is widespread but susceptible to disturbance and coastal development, and in other parts of Melanesia it can be extremely rare (BirdLife International 2017b). On Makira, it was frequently recognized by local people (“putaputagou” in Bauro and Kahuan, or “manu ou” in some Kahuan areas) but rare, and it may be threatened by increasing human activity in coastal areas. We encountered it only once near mainland Makira, on a tiny islet close to Raa where local villagers had captured a fledgling as a pet. We also found it on Santa Ana (where a local landowner protected an area of coastal habitat), Santa Catalina, and Uki, and it seems to be more common on smaller islands in the region.

Migratory shorebirds (*Scolopacidae*, *Charadriidae*, *Glareolidae*)—Little has been published on migratory shorebirds in the Solomons, and much of what is known comes from records by Hadden (2004) on Bougainville and French (1957) on the Three Sisters. On Makira, the paucity of records is likely a combination of limited available shorebird habitat along the north coast, together with most observers focusing on forests. We observed 16 migratory shorebird species on Makira, 6 of which had not previously been recorded on the island: Black-bellied Plover (*Pluvialis squatarola*), Greater Sand Plover (*Charadrius leschenaultii*), Marsh Sandpiper (*Tringa stagnatilis*), Great Knot (*Calidris tenuirostris*), Terek Sandpiper (*Xenus cinereus*), and Common Greenshank (*Tringa nebularia*). Two other species have also recently been reported on Makira for the first time: Little Whimbrel, a single bird photographed on the Kirakira airstrip in August 2013 (Van Beirs 2009), and Pied Stilt, 3 individuals seen in Kirakira by M. Lagerqvist on 31 July 2013 and a single bird photographed at the same location by M. Van Beirs in August 2013. Other as yet unrecorded migratory shorebirds probably also visit Makira (French 1957; JCM, pers. obs.); note, however, that French’s records of Little Stint (*Calidris*

minuta), a rare vagrant in the region, may likely have been Red-necked Stint (*Calidris ruficollis*).

We saw both Gray-tailed Tattler (*Tringa brevipes*) and Wandering Tattler (*T. incana*) on Makira, but the challenge of identifying non-vocal individuals limited our ability to distinguish and quantify the 2 species. In situations where we could identify calling birds, we recorded Wandering Tattler along the lower Wairaha River near Naturara and large flocks of Gray-tailed Tattler on the mudflats near Namarê.

Mudflats and sandflats that provide appropriate habitat for migratory shorebirds are limited on Makira, and all our noteworthy records came from a single small area, Namarê (~8 ha). These locations are easily disturbed but also provide opportunities for site-based conservation efforts. Even in the context of Makira's high endemism, the importance of these shorebird stopover points should not be overlooked, particularly given that 2 of the species we recorded on Makira and nearby Santa Ana are globally threatened: Great Knot and Far Eastern Curlew (*Numenius madagascariensis*), both Endangered.

Terns (Sternidae)—We encountered 8 tern species around coastal Makira. Two widespread and conspicuous coastal species, Great Crested Tern (*Thalasseus bergii*; Kahuan and Bauro “ganawe”) and Black-naped Tern (*Sterna sumatrana*; Kahuan “magahe”), were readily identified in interviews. Species that occur less frequently close to shore were occasionally recognized but only infrequently given names, species such as Brown Noddy (*Anous stolidus*) and Black Noddy (*A. minutus*), locally called “manu ni waiê,” literally bird of bonito in Kahuan because of their propensity to congregate near schooling bonito or skipjack tuna (*Katsuwonus pelamis*). Some more pelagic and migratory species were never identified in interviews, including Bridled Tern (*Onychoprion anaethetus*), Sooty Tern (*O. fuscatus*), and Common Tern (*Sterna hirundo*). Large congregations of Little Terns (*Sternula albifrons*) feeding off Cape Surville on 4 February and roosting on mudflats at Namarê on 5 February are the first documented records for Makira. Roseate Tern (*Sterna dougallii*) has bred on the Three Sisters (French 1957) and is likely an occasional visitor to Makira, and Gray-backed Tern (*O. lunatus*) has been recorded in offshore waters

around the island (C. Collins and P. Carr, 17 Apr 2016 [ebird.org]).

Yellow-legged Pigeon (Columba pallidiceps)—This species occurs throughout the Solomon and Bismarck archipelagos but is “rare on all islands except Makira” (Dutson 2011: p. 304). On Bougainville, for example, no records have been confirmed since the 1930s (Hadden 2004), and only a handful of recent records exist from other islands in the pigeon's range (BirdLife International 2017c). Although this species has been encountered relatively frequently near Hauta in central Makira, mostly in hill forest at 400–600 m (Buckingham et al. 1995; GD and REJ, pers. obs.), we found it to be rare on the south coast and only observed it a single location near Mt. Gasiraha on 29 October (1 individual) and on 30 October (3 individuals). Near Kahua, Yellow-legged Pigeons were seen on several occasions in September 2015 by REJ but were neither encountered by TED in 2010–2012 (Davies et al. 2015) nor seen by GD in January 2016. Local people rarely recognized Yellow-legged Pigeon in interviews on the south coast, and when they did they often confused it with Metallic Pigeon (*Columba vitiensis*), reinforcing the probability that it is rarely encountered. TED also found that people in Kahua did not recognize the bird.

Similar to previous observers (Buckingham et al. 1995, Read 2013, Baptista et al. 2016a), we observed Yellow-legged Pigeon feeding on the ground where it flushed with a slow, ponderous flight. The Kahuan name “kuwau ni ano” (literally ground pigeon) reflects this terrestrial feeding behavior (the Bauro name, “manu baumahui,” means white-headed bird). On birds in the hand, REJ observed that this species has slender toes like those of ground doves, unlike the strong perching toes of Metallic Pigeon and other fruit pigeons, which may be indicative of terrestrial behavior (REJ, pers. obs.). Although Yellow-legged Pigeons undoubtedly spend significant time on the ground, they are not exclusively ground-feeders, and REJ observed up to 5 individuals in fruiting trees (Lauraceae sp.) in 1995–1996.

Little is known of the nesting behavior of Yellow-legged Pigeon. In September 2001, REJ observed a nest of this species at 500 m near an abandoned village site (10.562°S, 161.885°E) in the Bauro highlands. The nest was placed on the ground near the base of large tree (*Geniostoma*

papuana) and contained a single large chick close to fledging. A second nest was found by RT on 14 August 2015 in a steep gully at 720 m in Kahua. It was also on the ground but placed on a ledge along the edge of a gully, and at the time of discovery a male was incubating a single egg.

Given their secretive behavior, Yellow-legged Pigeons are likely under-recorded through much of their range; however, their terrestrial feeding and nesting undoubtedly makes them vulnerable to mammalian predators such as feral cats and hunting dogs. In several instances, we encountered hunters who reported cornering and killing “ground-pigeons” with hunting dogs, and on one occasion JCM observed a Metallic Pigeon freshly killed by dogs. Certainly, Yellow-legged Pigeons are killed the same way. The combination of terrestrial behavior and relatively large body size has proven deadly for many island birds, and finding Yellow-legged Pigeons so rarely on southern Makira, an island considered to be a stronghold for the species, is concerning. Although we feel this species is appropriately listed as Vulnerable for the time being, its conservation status should be monitored closely.

Chestnut-bellied Imperial-Pigeon (*Ducula brenchleyi*)—On the south coast, we observed this species frequently in lowlands and hill forest at 12 locations, with flocks of 15–25 individuals congregating near fruiting fig trees. On the north coast, it was regularly recorded around Kahua and Pehuru in most habitats except cacao plantations and was occasionally seen close to Kirakira. Together with Red-knobbed Imperial-Pigeon (*D. rubricera*) and Island Imperial-Pigeon (*D. pistrinaria*), this was one of the most readily recognizable birds in interviews (“gao” in Bauro, and “gao” or “agê” in Kahuan).

Little has been published on the breeding behavior of this species. Between 29 November and 6 December, JCM observed a Chestnut-bellied Imperial-Pigeon sitting on a nest in a small rosewood (*Pterocarpus indicus*) next to the beach at Waimarega on the south coast. The nest was located three-fourths of the way up the tree (~10 m above the ground) and hidden in an epiphyte growing in a fork of the tree (photos available through ebird.org).

Our observations confirm previous conclusions that, absent hunting pressure, Chestnut-bellied Imperial-Pigeons readily occur in coastal

lowland forests (Galbraith and Galbraith 1962, Baptista et al. 2016b) and provide evidence of a recent population increase on Makira. When surveying pigeon populations near Hauta in 1995–1996, for example, REJ rarely encountered large pigeons in coastal lowlands or near villages and almost never saw Chestnut-bellied Imperial-Pigeons in these areas. The 2003 firearms ban in the Solomon Islands and the subsequent reduction in hunting provides an explanation for this trend. Primarily a nomadic fig specialist, Chestnut-bellied Imperial-Pigeons range widely and congregate in large numbers at fruiting fig trees where they are easily shot. Hunters described often being able to kill multiple birds at these feeding sites and noted that Chestnut-bellied Imperial-Pigeons, unlike other species, would remain perched while they fired multiple shots into a tree. Absent firearms, however, hunting large pigeons is challenging, and in 2015–2016 we observed few instances where hunters had successfully killed Chestnut-bellied Imperial-Pigeons with a slingshot or bow. Pending further study of the status of this species on Guadalcanal and Malaita, we would recommend down-listing Chestnut-bellied Imperial-Pigeon from Vulnerable to Near Threatened.

White-bibbed Ground-Dove (*Gallicolumba jobiensis*)—The distinctive Solomons-endemic subspecies *chalconotus* of the White-bibbed Ground-Dove was described by Mayr based on a single adult male collected on Vella Lavella (Mayr 1935) and may warrant consideration as a distinct species (Dutson 2011). In addition to Mayr’s specimen, 2 specimens of immature males were collected on Guadalcanal (Holyoak 1978). The only known female and the only record from Makira is a single specimen collected by G. Richards near Tetere (“Makira Harbor”) in 1878 that was originally identified as a Bronze Ground-Dove (“*Phlogoenas johanna*”; Tristram 1879) but was later determined to be the previously unknown female plumage of *chalconotus* (Holyoak 1978). We found no evidence of White-breasted Ground-Dove on Makira, and despite targeting it specifically in interviews, we found no convincing reports of people having seen this distinctive species. Assuming the female specimen identified by Holyoak is in fact this species, it would seem that it either occurred only

occasionally on Makira or is now extinct on the island.

Thick-billed Ground-Dove (*Gallicolumba salamonis*)—This species is known from 2 specimens, one of which, the type, was collected on “San Christoval” in April 1882 by J. Stephen (Ramsay 1882b). It has not been recorded on the island since and is now considered extinct (Dutson 2011). We found no trace of it during our survey work, which adds further support to this conclusion.

Himalayan/Oriental Cuckoo (*Cuculus saturatus/optatus*)—The taxonomy of the Oriental Cuckoo (*Cuculus optatus*) and Himalayan Cuckoo (*C. saturatus*) remains unclear, with some authorities recognizing 2 species (e.g., Clements et al. 2017) and others treating them as conspecific (e.g., del Hoyo and Collar 2014). The 2 taxa are difficult to distinguish in the field away from their breeding grounds, and both could potentially reach the Solomon Islands. Galbraith and Galbraith (1962) list a single record of “*Cuculus saturatus*” from Uki near Makira based on a record published by Ramsay in 1882. This record, however, is actually written as “*Cuculus (?tymbonomus)*” (Ramsay 1882a: p. 21), and *Cuculus tymbonomus* is an early synonym of *Cacomantis variolosus* (Brush Cuckoo), which creates some confusion as to which species the record represents. On 21 January, JCM observed and photographed a single Himalayan/Oriental Cuckoo on a tiny islet near Raa, confirming at least one of these species occurs occasionally on Makira as a nonbreeding visitor.

Barn Owl (*Tyto alba*)—Barn Owl was one of the most readily recognizable species in interviews (‘giora’ or ‘siora’ in both Bauro and Kahuan) and is a memorable and salient species among local people. It features in several local stories, which contributes to its high recognition. Despite this, JCM never encountered it during his fieldwork on the south coast, similar to Galbraith who received frequent reports of the species but never saw it himself (Cain and Galbraith 1956), and to TED in Kahua who received reports but never encountered the bird. Although records exist from Santa Ana (Mayr 1945) and the Three Sisters (French 1957), there are no published records of Barn Owls on mainland Makira. REJ, however, has observed the species on 2 occasions in the Ravo River valley, and this sighting together with the widespread local recognition

indicates it is present, although obviously rare, on the island. Barn Owls are also rare on other large islands in the Solomons. Bougainville, for example, has only one confirmed record (Hadden 2004).

Solomons Boobook (*Ninox [jaquinoti] roseoaxillaris*)—The Makira-endemic *roseoaxillaris* subspecies of Solomons Boobook (*Ninox jacquinoti*) has been recognized as a distinct species, Makira Boobook, based on plumage and size differences (del Hoyo and Collar 2014), a division not currently accepted by Clements et al. (2017). Even more notable than its plumage differences, the vocalizations of this taxon are strikingly distinct from boobooks on nearby islands (e.g., ML 34050711), and we believe its treatment as a distinct species is warranted. Few specimens and few recent records exist, but Makira Boobook seems to be widespread in small numbers on the island. We recorded it at 6 sites along the south coast as well as in Kahua but always found the species to be uncommon and restricted to forest, suggesting it occurs at significantly lower densities or is absent from logged or heavily disturbed areas. Our observations are consistent with previous population estimates, and we support its (precautionary) categorization as Vulnerable.

Sacred Kingfisher (*Halcyon sancta*)—This species is an austral migrant that occurs primarily in the Solomons from March to September. On Makira, birds have been seen in early September on the northern side of the island (Buckingham et al. 1995). Several, now older, published records suggest that some populations are resident (e.g., French 1957), but there are no recent observations of resident populations in the Solomon Islands, and the breeding status of this species in the region requires confirmation. On 2 occasions we briefly encountered birds that might have been this species (near Namuga on 5 Feb and near the mouth of the Wairaha River in northern Makira on 26 Nov) but never definitively recorded it during our fieldwork and found no evidence of residence in southern Makira.

Oriental Hobby (*Falco severus*)—This species is uncommon in the region. Mayr (1945) included only a single record of Oriental Hobby in his review of Solomon birds, and Hadden (2004) found it at only a few localities on Bougainville. This is also the case on Makira, where JCM failed to find it and where only a handful of records exist

from Hauta (REJ and GD, pers. obs.; K. Riding, 8 Sep 2009 [ebird.org]) and in western Makira (GD, pers. obs.; F. Lambert and N. Voaden, 30 Mar 2009 [ebird.org]). While Oriental Hobby was not recognized during interviews on the southern coast, in central Makira the Bauro name is “maragigi.”

Cardinal Lory (*Chalcopsitta cardinalis*)—Cardinal Lory is known from multiple records along Makira’s north coast but seems to be scarce or rare in most areas (Mayr 1945, Buckingham et al. 1995, Dutton 2011) and was not recorded by several expeditions to the island (Galbraith and Galbraith 1962, Danielsen et al. 2010). JCM never observed it on the south coast, and GD did not record it around Kirakira or in Kahua in January 2016. By contrast, TED frequently encountered Cardinal Lory around Kahua in 2012 (Davies et al. 2015), even in intact forest. Overall, this species seems to be an occasional or irruptive visitor to coastal areas and lowland forests along Makira’s north coast.

Cardinal Myzomela (*Myzomela cardinalis*)—This species has recently expanded its range into the northern coast of Makira where it competes and hybridizes with the endemic Sooty Myzomela (Sardell and Uy 2016). Our observations support this north coast distribution. Cardinal Myzomelas were common around Kirakira as well as east to Namuga, but JCM never observed it along the south coast. Interviews showed similar results. Cardinal Myzomela was widely recognized, but in the south it was described as only being seen on the “other side of the island” and often identified as ‘kikito ni uki’ (Bauro and Kahuan), meaning “myzomela from Uki Island.” In Kahua, TD saw both this species and Sooty Myzomela regularly, with juveniles of both species present in May 2012.

Makira Honeyeater (*Meliarchus sclateri*)—This distinctive endemic species is characteristic of Makira’s forests and was common at all locations along the southern coast and in mangroves around Star Harbor. Like Buckingham et al. (1995), however, who observed it only once near Kirakira, we found it noticeably absent from the plantations and secondary growth on the north coast, where it may be susceptible to habitat degradation. REJ observed it commonly in disturbed areas around villages in the 1990s but found it scarce in these habitats in 2015. Makira Honeyeaters are often

targeted with slingshots, and the rise of slingshot hunting following the removal of firearms could partially explain this decline. In interviews, Makira Honeyeater was one of the most easily recognized and widely known species (“anganiwake” or “gakou” in both Bauro and Kahuan).

Oriole Whistler (*Pachycephala orioloides*)—One of the most conspicuous of Makira’s forest birds, this whistler was recorded at all of JCM’s survey sites as well as in Kahua, where it occurred in all habitats except cacao plantations (Davies et al. 2015). Vocal behavior of this species varied substantially between sites. At Mt. Gasiraha and Namama Ridge, they were extremely vocal, dominating the dawn chorus (e.g., ML34048191), whereas at Wetewete and Keve, whistlers were only occasionally heard singing, even though they were frequently seen during surveys. This variation could result from more aggressive territorial defense in undisturbed forest (both Wetewete and Keve had been logged, whereas Gasiraha and Namama had not) or seasonal variation (Wetewete and Keve were visited in Dec–Jan, while Gasiraha and Namama were in Oct–Nov). Near Kahua, GD only rarely encountered whistlers singing in January.

Dusky Fantail (*Rhipidura tenebrosa*)—From his visit to the north coast near Wanione, Mayr concluded that Dusky Fantail is “more common in mountains than lowlands” (Mayr 1945: p. 254), and several subsequent authors have listed this species as a primarily montane or hill forest bird (Galbraith and Galbraith 1962, Davies et al. 2015). On the south coast, we observed Dusky Fantail at 6 localities between 40 and 380 m, always in closed canopy, unlogged forest. These findings support the conclusion of Buckingham et al. (1995) and several subsequent observers that Dusky Fantail is not a montane species but instead is dependent on intact forest, which in the north of the island is often restricted to hills (Buckingham et al. 1995, Danielsen et al. 2010, Dutton 2011). The Bauro (“hiruhiru hagasuabo”) and Kahuan (“waifurifuri ni tana bo”) names for this species both translate to “the fantail which follows pigs,” which REJ and JCM were told alluded to the superstition that hunters knew pigs were nearby if this species was seen. To be such a cultural omen means the bird must have been uncommon for a long time.

Gray Fantail (*Rhipidura albiscapa*)—This species is widespread across Australasia, with the subspecies *brenchleyi* occurring on Makira as well as in Vanuatu. On Makira, Gray Fantail is restricted to high elevation ridgetops, and near the southern coast we only recorded it above 800 m around Mt. Haugarinibo. A pair attending and incubating a nest in the mid-story on a ridge at 830 m on 7 and 13 November is apparently the first breeding observation for Makira (photos available on ebird.org). The nest construction closely matched descriptions of Gray Fantail nests in other parts of the species' range (Boles 2016).

Pacific Robin (*Petroica multicolor*)—The Makira-endemic subspecies *polymorpha* of Pacific Robin seems to have a patchy distribution on Makira and does not regularly occur in many areas of the southern mountains. We spent limited time in suitable habitat above 800 m (1–2 h on 6 d) but only encountered the species once: a single individual on the summit of Mt. Gasiraha on 28 October. Buckingham et al. (1995), by contrast, found this species commonly in the central highlands near Hauta above 680 m, as did Sardell (2016), who even recorded it down to 40 m in the upper reaches of the Ravo River. In interviews, the species was almost never recognized by people on the south coast ('manu waipupua' in Bauro).

Shade Warbler (*Horornis parens*)—This Makira-endemic species is restricted to highlands, and we found it commonly in forest above 400 m. It was often recognized by local people by its distinctive song ("gogohirigi" in Bauro, "toharigi" in Kahuan, both of which are onomatopoeic renderings of the song). Little is known of the breeding behavior of Shade Warbler, and the nest is apparently undescribed (Clement 2016). On 27 October 2015, JCM located a nest of this species in dense undergrowth along a forest stream near Mt. Gasiraha (460 m). The nest was a ball-like structure with a roof and side entrance, constructed of a messy clump of dead leaves of *Pandanus* sp. with black rootlets and coarse black fern-like plants woven in. The nest cup (7 cm across, 4.4 cm deep) and was lined with bits of dry *Pandanus* sp. leaf fibers, and the nest was placed in a vine tangle ~1 m above the ground. This nest construction is generally similar to that of related warbler species in Fiji and Palau (Clement 2016). When first seen, the nest contained 2 dark red

eggs, but camera trap images captured nocturnal predation by a rat, and on October 30 the nest had been abandoned, an observation that provides direct evidence of how invasive mammals prey on native bird species on Makira.

Makira Thrush (*Zoothera margarethae*)—Previous studies have variously concluded that the Makira Thrush is restricted to highlands and hill forest above 200 m (Dutson 2011), highlands from 400 to 700 m (Buckingham et al. 1995, Danielsen et al. 2010), or "mountain forest above 1800 ft [= 550 m]" (Mayr 1945: p. 251), and in Kahua, TED found it only in intact forest above 500 m. Somewhat surprisingly, then, we encountered Makira Thrush on multiple occasions in lowland forest in both northern and southern Makira. On 21 November, 2 Makira Thrushes were recorded singing, and apparently territorial, in forest at 150 m in the headwaters of the Wairaha River ~5 km from the south coast (10.615°S, 161.724°E). The following day, another 2 birds were heard singing along densely forested streams in logged forest near the mouth of the Wairaha River at sea level in northern Makira (10.443°S, 161.717°E). Along the Wapu River, camera traps photographed Makira Thrushes in swamp forest adjacent to coastal mangroves and in lowland forest along a stream at 40 m. Although several of these locations had been disturbed by logging, thrushes were always in patches of remaining closed-canopy forest. The species is undoubtedly more common in highland environments, but the previous lack of records may be due to limited availability of suitable habitat in the north coastal lowlands.

Singing Starling (*Aplonis cantorides*)—Galbraith and Galbraith (1962) comment specifically that Singing Starlings are absent from Makira. The species seems, however, to have recently colonized the island and is now a rare breeder in coastal habitat near Kirakira (Buckingham et al. 1995, Dutson 2011). JCM and JACU observed it in disturbed habitats around Kirakira and in coastal mangroves near Star Harbor, and in January 2016, GD recorded a flock of 30 near Kirakira, a higher count than previous records. As with other species that occur in this habitat type (Cardinal Lory, Cardinal Myzomela, Olive-backed Sunbird), we never recorded it along the south coast despite carefully checking starling flocks there.

Olive-backed Sunbird (*Nectarinia jugularis*)—Similar to Singing Starling, this species is described as “apparently absent from San Cristobal” by Cain and Galbraith (1956: p. 288). It also seems to have recently colonized mainland Makira, however, and was first recorded near Kirakira by JACU in 2005, with additional records from 2013 (Sardell 2016). JCM observed a single individual on 25 November 2015 near the Kirakira airport, providing further evidence that the species is in the process of expanding its range onto Makira.

Species requiring further confirmation

Three species of land birds have been reported from single, unconfirmed sight records on Makira: Spotless Crake (*Porzana tabuensis*), Meek’s Lorikeet (*Charmosyna meeki*), and North Melanesian Cuckooshrike (*Coracina welchmani*; Buckingham et al. 1995, Danielsen et al. 2010). Note that a report of Imitator Goshawk (*Accipiter imitator*) by Buckingham et al. (1995) has subsequently been retracted. We found none of these species, nor were they recognized by interview respondents, although all 3 are difficult to observe and identify without binoculars. The potential presence of these species on Makira is intriguing, and in all cases the observers involved were highly experienced; nevertheless, we hesitate to include them absent documentation or further sightings.

Eight species not yet mentioned likely occur on Makira as occasional vagrants but as yet have no definite records: Royal Spoonbill (*Platalea regia*), recorded from Rennell by Mayr (1945) and the Three Sisters by French (1957); Swamp Harrier (*Circus approximans*), Three Sisters (French 1957); Peregrine Falcon (*Falco peregrinus*), Three Sisters (French 1957) as well as an unconfirmed sighting on the Ravo River by Buckingham et al. (1995); Black Bittern (*Dupetor flavicollis*) near Ula by Galbraith in 1953; Silver-capped Fruit-dove (*Ptilinopus richardsii*), abundant on the islands of Santa Ana, Santa Catalina, and Uki, and so may occasionally visit mainland Makira; Pacific Pigeon (*Ducula pacifica*), common on the Three Sisters according to French; Nicobar Pigeon (*Caloenas nicobarica*), which breeds on the Three Sisters (French 1957) but not seen on Makira or recognized in interviews; and Long-tailed Koel

(*Eudynamis taitensis*), an uncommon austral migrant across Melanesia, described as “common” on the Three Sisters (French 1957) but with no records on Makira and unknown to local people there.

Discussion

Our study offers preliminary insight into the differences between bird communities on Makira’s northern and southern coasts. In general, the south’s more rugged coastline and lower human population have led to less development and larger remaining tracts of lowland forest. This lack of development coincides with several forest species more readily occurring in lowlands on this side of the island, such as Chestnut-bellied Imperial-Pigeon, Makira Thrush, and Dusky Fantail. Conversely, the north side of the island hosts 4 species that do not occur in southern Makira: Cardinal Lory, Cardinal Myzomela, Olive-backed Sunbird, and Singing Starling. While the absence of these species in the south may be partially due to habitat differences, it also likely reflects patterns of interspecies competition. As Galbraith and Galbraith observe, this finding “supports other evidence in suggesting that [Makira] is not an avifaunal vacuum preserved by physical isolation but that the endemic forms have redeployed ecologically to form a thin but harmonious avifauna which presents an effective barrier to colonization” (Galbraith and Galbraith 1962: p. 6).

Many Melanesian islands are characterized by distinct highland bird communities, but this pattern is muted on Makira, perhaps because of its lower elevation and the fragmented nature of its highland habitats. Although 8 species have been variously identified as restricted to the highlands (Makira Woodhen, Makira Thrush, Shade Warbler, Pacific Robin, Gray Fantail, Dusky Fantail, Makira Leaf Warbler, Gray-throated White-eye; Mayr 1945, Mayr and Diamond 2001, Danielsen et al. 2010, Davies et al. 2015), we found that 3 of these (Makira Thrush, Dusky Fantail, Gray-throated White-eye) regularly occur in the lowlands in areas of appropriate habitat, and interview results suggest the same may have been true for a fourth (Makira Woodhen). Sardell (2016) also observed Pacific Robin in lowland habitat, a pattern not found by us but that could result from the overall

patchy distribution of the species. From this evidence, only 3 or perhaps 4 species on Makira seem to be true montane specialists (Shade Warbler, Makira Leaf Warbler, Gray Fantail, and potentially Pacific Robin).

Invasive species are widespread on Makira. Several of these have been on the island for long periods, and their principal impacts on the native fauna have already taken effect. The eastern Solomons were among the first areas in the region to acquire cats, for example (Mayr and Diamond 2001: p. 32), and dogs, rats, and pigs have also been on the island for several centuries. More recently arriving invasive species such as cane toads and fire ants now seem to have also colonized most if not all of Makira. In the case of cane toads, we found them to be extremely common at most lowland sites on the south coast and even observed them in highlands up to 845 m in the center of the island.

Three species seem to have gone extinct or nearly extinct from Makira in historical times: Makira Woodhen, Thick-billed Ground-Dove, and White-breasted Ground-Dove. Common to all these species is that they were terrestrial and, with the possible exception of the woodhen, likely occurred in lowland habitats. As such, they were heavily impacted by the arrival of invasive species, human hunting pressure, and habitat modification along the coast.

Today, the most immediate threat to Makira's birds is the loss of habitat due to logging and land conversion for agriculture, exacerbated by increased human population and societal changes that prioritize cash income over subsistence. Secondary to this, the next principal threat is the continued predation of native wildlife by large populations of invasive species and, in particular, the predation of terrestrial and ground-feeding birds by hunting dogs. Overall, our findings emphasize the need to conserve the few remaining tracts of lowland forest left on the island, particularly those that remain along the southern coast.

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Literature cited

- Baptista LF, Trail PW, Horblit HM. 2016a. Yellow-legged Pigeon (*Columba pallidiceps*). In: del Hoyo J, Elliott A, Sargatal J, Christie DA, de Juana E, editors. Handbook of the birds of the world alive. Barcelona (Spain): Lynx Edicions.
- Baptista LF, Trail PW, Horblit HM. 2016b. Chesnut-bellied Imperial-Pigeon (*Ducula brenchleyi*). In: del Hoyo J, Elliott A, Sargatal J, Christie DA, de Juana E, editors. Handbook of the birds of the world alive. Barcelona (Spain): Lynx Edicions.
- Birchough AC, Douglas GW, Evans SM. 2003. Assessing the distribution of estrildid finches on Vanuatu using local knowledge. *Bird Conservation International*. 13:29–44.
- BirdLife International. 2017a. Country profile: Solomon Islands; [cited 22 Apr 2017]. Cambridge (UK): BirdLife International. www.birdlife.org
- BirdLife International. 2017b. Species factsheet: *Esacus magnirostris*; [cited 22 Apr 2017]. Cambridge (UK): BirdLife International. www.birdlife.org
- BirdLife International. 2017c. Species factsheet: *Columba pallidiceps*; [cited 22 Apr 2017]. Cambridge (UK): BirdLife International. www.birdlife.org
- Boles W. 2016. Grey Fantail (*Rhipidura albiscapa*). In: del Hoyo J, Elliott A, Sargatal J, Christie DA, de Juana E, editors. Handbook of the birds of the world alive. Barcelona (Spain): Lynx Edicions.
- Buckingham DL, Dutton G, Newman JL. 1995. Birds of Manus, Kolombangara and Makira (San Cristobal) with notes on mammals and records from other Solomon Islands [expedition report]. Cambridge (UK): Official Cambridge Expedition Charity.
- Cain AJ, Galbraith ICJ. 1956. Field Notes on birds of the Eastern Solomon Islands. *Ibis*. 98:100–134, 262–295.
- Clement P. 2016. Shade Warbler (*Cettia parens*). In: del Hoyo J, Elliott A, Sargatal J, Christie DA, de Juana E,

- editors. Handbook of the birds of the world alive. Barcelona (Spain): Lynx Edicions.
- Clements JF, Schulenberg TS, Iliff MJ, Roberson D, Fredericks TA, et al. 2017. eBird/Clements checklist of birds of the world: v2017. www.birds.cornell.edu/clementschecklist/download/
- Collins C. 2016. South west Pacific odyssey 6–23 April 2016: systematic list; [cited 6 December 2017]. www.wildwings.co.uk
- Danielsen F, Filardi CE, Jønsson KA, Kohaia V, Krabbe N, et al. 2010. Endemic avifaunal biodiversity and tropical forest loss in Makira, a mountainous Pacific island. *Singapore Journal of Tropical Geography*. 31:100–114.
- Davies TE, Clarke RH, Ewen JG, Fazey IRA, Pettorelli N, Cresswell W. 2015. The effects of land-use change on the endemic avifauna of Makira, Solomon Islands: endemics avoid monoculture. *Emu*. 115:199–213.
- del Hoyo J, Collar NJ. 2014. HBW and BirdLife International illustrated checklist of the birds of the world, volume 1: non-passerines. Barcelona (Spain): Lynx Edicions.
- Diamond JM. 1991. Interview techniques in ethnobiology. In: Pawley A, editor. *Man and a half: essays in Pacific anthropology and ethnobiology in honour of Ralph Bulmer*. Auckland (New Zealand): Polynesian Society; p. 83–86.
- Dutson G. 2001. New distributional ranges for Melanesian birds. *Emu*. 10:237–248.
- Dutson G. 2011. *The birds of Melanesia: Bismarcks, Solomons, Vanuatu and New Caledonia*. London (UK): Christopher Helm.
- Fox CE. 1925. *The threshold of the Pacific: an account of the social organisation magic and religion of the people of San Cristoval in the Solomon Islands*. New York (NY): Alfred A. Knopf.
- French WM. 1957. [Correspondence] *Birds of the Solomon Islands*. *Ibis*. 99:126–127.
- Galbraith ICJ, Galbraith EH. 1962. Land birds of Guadalcanal and the San Cristoval Group, Eastern Solomon Islands. *Bulletin of the British Museum (Natural History)*. 9:1–86.
- Greensmith A. 1975. Some notes on Melanesian sea birds. *Sunbird: Journal of the Queensland Ornithological Society*. 6:77–89.
- Hadden D. 2004. *Birds and bird lore of Bougainville and the North Solomons*. Alderley (Australia): Dove Publications.
- Holyoak DT. 1978. A female specimen of *Gallinula jobiensis* from San Christoval, Solomon Islands. *Bulletin of the British Ornithologists's Club*. 98:98–99.
- Kier G, Krefl H, Lee TM, Jetz W, Ibisch PL, et al. 2009. A global assessment of endemism and species richness across island and mainland regions. *Proceedings of the National Academy of Sciences USA*. 106:9322–9327.
- Kratter AW, Steadman DW, Smith CE, Christopher E, Webb HP. 2009. Avifauna of a lowland forest site on Isabel, Solomon Islands. *Auk*. 118:472–483.
- Lagerqvist M. 2013. *The Solomons 9/7–11/8 2012 & 12–22/7 2010*; [cited 6 December 2017]. www.cloudbirders.org
- Lees A, Garnett M, Wright S. 1991. *A representative protected forest system for the Solomon Islands*. Nelson (New Zealand): Maruia Society.
- Mayr E. 1933. *Birds collected during the Whitney South Sea Expedition*. XXII. *American Museum Novitates*. 590:1–6.
- Mayr E. 1935. *Birds collected during the Whitney South Sea Expedition*. XXX. *Descriptions of twenty-five new species and subspecies*. *American Museum Novitates*. 820:1–6.
- Mayr E. 1945. *Birds of the Southwest Pacific: a field guide to the birds of the area between Samoa, New Caledonia, and Micronesia*. New York (NY): Macmillan.
- Mayr E, Diamond JM. 1976. *Birds on Islands in the Sky: origin of the montane avifauna of Northern Melanesia*. *Proceedings of the National Academy of Sciences USA*. 73:1765–1769.
- Mayr E, Diamond JM. 2001. *The birds of Northern Melanesia: speciation, ecology, and biogeography*. Oxford (UK): Oxford University Press.
- Mittermeier RA, Gil PR, Hoffman M, Pilgrim J, Brooks T, et al. 2004. *Hostspots revisited*. Mexico City (Mexico): Cemex.
- Pauku RL. 2009. *Solomon Islands forestry outlook study. Asia-Pacific Forestry Sector Outlook Study II Working Paper Series*. Bangkok (Thailand): Food and Agriculture Organization (FAO). Working Paper No. APFSOS II/WP/2009/31.
- Pratt HD, Mittermeier JC. 2016. Notes on the natural history, taxonomy, and conservation of the endemic avifauna of the Samoan Archipelago. *Wilson Journal of Ornithology*. 128:217–241.
- Ramsay EP. 1882a. Notes on the zoology of the Solomon Islands. *Proceedings of the Linnean Society of New South Wales*. 1:16–43.
- Ramsay EP. 1882b. Description of two new birds from the Solomon Islands. *Proceedings of the Linnean Society of New South Wales*. 2:299–301.
- Read JL. 2013. The birds of Tetepare island, Solomon Islands. *Australian Field Ornithology*. 30:67–78.
- Sardell JM. 2016. Recent dispersal events among Solomon Islands bird species reveal differing potential routes of island colonization. *Pacific Science*. 70:201–208.
- Sardell JM, Uy JAC. 2016. Hybridization following recent secondary contact results in asymmetric genotypic and phenotypic introgression between island species of *Myzomela* honeyeaters. *Evolution*. 70:257–269.
- Simons GF, Fennig CD, editors. 2017. *Ethnologue: languages of the world*, 20th edition. Dallas (TX): SIL International. www.ethnologue.com
- Solomon Islands Government. 2011. *Statistical Bulletin 06/2011: Report on 2009 Population and Housing Census*. Solomon Islands Government, Honiara, Solomon Islands.
- Stotz DF, Fitzpatrick JW, Parker TA III, Moskowitz DK. 1996. *Neotropical birds: ecology and conservation*. Chicago (IL): University of Chicago Press.
- Tristram HB. 1879. On a collection of birds from the Solomon Islands and New Hebrides. *Ibis*. 4:437–444.
- Van Beirs M. 2009. *The Solomon Islands 2–26 September: tour report*; [cited 5 Dec 2017]. www.birdquest-tours.com

Species	1	2	3	4	5	6	7	8	9	10
Wandering Tattler <i>Tringa incana</i>										
Common Greenshank <i>Tringa nebularia</i>	R									
Marsh Sandpiper <i>Tringa stagnatilis</i>	R									
[Little Whimbrel <i>Numenius minutus</i>]										
Whimbrel <i>Numenius phaeopus</i>	C								R	
Bar-tailed Godwit <i>Limosa lapponica</i>	U									
Ruddy Turnstone <i>Arenaria interpres</i>	U									
Great Knot <i>Calidris tenuirostris</i>	R									
Sharp-tailed Sandpiper <i>Calidris acuminata</i>	U									R
Red-necked Stint <i>Calidris ruficollis</i>	C									
Brown Noddy <i>Anous stolidus</i>									F	
Black Noddy <i>Anous minutus</i>									C	
Sooty Tern <i>Onychoprion fuscatus</i>									C	
Bridled Tern <i>Onychoprion anaethetus</i>									F	
Little Tern <i>Sternula albifrons</i>	C								U	
Black-naped Tern <i>Sterna sumatrana</i>									U	
Common Tern <i>Sterna hirundo</i>									F	
Great Crested Tern <i>Thalasseus bergii</i>	F								U	
Metallic Pigeon <i>Columba vitiensis</i>					R			U		
Yellow-legged Pigeon <i>Columba pallidiceps</i>			R							
Mackinlay's Cuckoo-Dove <i>Macropygia mackinlayi</i>		U	F	U	F	C	F	U		F
Crested Cuckoo-Dove <i>Reinwardtoena crassirostris</i>		R	U	U		U	R	R		
Stephan's Dove <i>Chalcophaps stephani</i>					U	U	U	U		
Bronze Ground-Dove <i>Gallinula beccarii</i>		R		U	U	U		R		
[Thick-billed Ground-Dove <i>Gallinula salomonensis</i>]										
[White-bibbed Ground-Dove <i>Gallinula jobiensis</i>]										
‡Yellow-bibbed Fruit-Dove <i>Ptilinopus solomonensis solomonensis</i>	C	C	C	C	C	C	C	F		C
†White-headed Fruit-Dove <i>Ptilinopus eugeniae</i>			F		F	F	F	F		F
Red-knobbed Imperial-Pigeon <i>Ducula rubricera</i>	F	C	C	F	C	F	C	C		C
Island Imperial-Pigeon <i>Ducula pistrinaria</i>	F						F			F
Chestnut-bellied Imperial-Pigeon <i>Ducula brenchleyi</i>			F		U	F	F	F		F
Himalayan/Oriental Cuckoo <i>Cuculus saturatus/optatus</i>										
Brush Cuckoo <i>Cacomantis variolosus</i>		F	F	F						
[Shining Bronze-Cuckoo <i>Chrysococcyx lucidus</i>]										
Pacific Koel <i>Eudynamis orientalis</i>					F		U	F		
[Barn Owl <i>Tyto alba</i>]										
†Solomons Boobook <i>Ninox jacquiniti roseoaxillaris</i>		R	R	U	U			U		
‡Glossy Swiftlet <i>Collocalia esculenta</i>	F	C	F	C	C	C	C	C		C
White-rumped Swiftlet <i>Aerodramus spodiopygius</i>			U	U						
Uniform Swiftlet <i>Aerodramus vanikorensis</i>	C		C	C	C	C	C			C
†Moustached Treeswift <i>Hemiprocne mystacea carbonaria</i>						U	F			
Common Kingfisher <i>Alcedo atthis</i>							U	U		U
†Makira Dwarf-Kingfisher <i>Ceyx gentianus</i>		F	U	F	F	U	U	U		
‡Pacific Kingfisher <i>Todiramphus sacer solomonensis</i>	F	U	U	U	F	U	F	F		U
Beach Kingfisher <i>Todiramphus saurophagus</i>									U	
[Sacred Kingfisher <i>Todiramphus sanctus</i>]										
Dollarbird <i>Eurystomus orientalis</i>	U		R	R	U		R			
Finsch's Pygmy-Parrot <i>Micropsitta finschii</i>		U	F			F	U	U		U
Eclectus Parrot <i>Eclectus roratus</i>	F		U	R		U	F	U		U
Singing Parrot <i>Geoffroyus heteroclitus</i>		U	U		R					
Duchess Lorikeet <i>Charmosyna margarethae</i>			U	F	R		R			
Yellow-bibbed Lory <i>Lorius chlorocercus</i>	F	C	F	C	F	F	C	U		
[Cardinal Lory <i>Chalcopsitta cardinalis</i>]										
Rainbow Lorikeet <i>Trichoglossus haematodus</i>	F				U		F	U		C
‡Cardinal Myzomela <i>Myzomela cardinalis pulcherrima</i>	F									F
‡Sooty Myzomela <i>Myzomela tristrami</i>	U	F	F	F	F	F	F	F		U
†Makira Honeyeater <i>Meliarchus sclateri</i>	C	C	C	C	F	C	F	F		
†Barred Cuckooshrike <i>Coracina lineata makirae</i>			U		U	U		U		

Species	1	2	3	4	5	6	7	8	9	10
‡Long-tailed Triller <i>Lalage leucopyga affinis</i>	F					F	F	F		F
†Makira Cicadabird <i>Edolisoma salomonis</i>		F	F	F	F	F	U			
‡Oriole Whistler <i>Pachycephala orioloides christophori</i>		C	C	C	F	F	F	U		
†Spangled Drongo <i>Dicrurus bracteatus longirostris</i>		F	F	F	U	F	U	U		
Willie-wagtail <i>Rhipidura leucophrys</i>	C					R	F	F		C
†Rufous Fantail <i>Rhipidura rufifrons russata</i>		C	C	F	F		F	F		F
†Dusky Fantail <i>Rhipidura tenebrosa</i>			U	U						
Gray Fantail <i>Rhipidura albiscapa</i>				R						
†Chestnut-bellied Monarch <i>Monarcha castaneiventris megarhyncha</i>		U	F	F	C	F	C	F		F
†White-collared Monarch <i>Symposiachrus vidua vidua</i>		F	F	F	F	F	U			
†Ochre-headed Flycatcher <i>Myiagra cervinicauda</i>		F	U	U	U		U			
†Pacific Robin <i>Petroica multicolor polymorpha</i>			R							
Pacific Swallow <i>Hirundo tahitica</i>					F		F			F
†Shade Warbler <i>Horornis parens</i>		F	F	C						
†Makira Leaf Warbler <i>Phylloscopus makirensis</i>		F	F	C						
†Gray-throated White-eye <i>Zosterops ugiensis ugiensis</i>			U	F		F				
†Makira Thrush <i>Zosterops margaretae</i>		R	U	F	R	F				
Metallic Starling <i>Aplonis metallica</i>	C		R		F	U	C			C
†Makira Starling <i>Aplonis dichroa</i>	U	C	F	C	C	C	C	U		
Singing Starling <i>Aplonis cantoroides</i>	F									U
†Mottled Flowerpecker <i>Dicaeum tristrami</i>	F	C	C	C	C	C	C	F		U
Olive-backed Sunbird <i>Cinnyris jugularis</i>										R
Total	45	28	43	36	39	33	44	34	13	29