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NEW AND SIGNIFICANT ISLAND RECORDS, RANGE EXTENSIONS AND ELEVATIONAL EXTENSIONS OF BIRDS IN EASTERN SULAWESI, ITS NEARBY SATELLITES, AND TERNATE

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ABSTRACT

The Wallacean Region continues to be widely unexplored even in such relatively well-known animal groups as birds (Aves). We report on the results of an ornithological expedition from late Nov 2013 through early Jan 2014 to eastern Sulawesi and a number of satellite islands (Togian, Peleng, Taliabu) as well as Ternate. The expedition targeted and succeeded with the collection of 7–10 bird taxa previously documented by us and other researchers but still undescribed to science. In this contribution, we provide details on numerous first records of bird species outside their previously known geographic or elevational ranges observed or otherwise recorded during this expedition. We also document what appears to be a genuinely new taxon, possibly at the species level of kingfisher from Sulawesi that has been overlooked by previous ornithologists. Our results underscore our fragmentary knowledge of the composition of the avifauna of eastern Indonesia, and demonstrate that there continues to be a high degree of cryptic, undescribed avian diversity on these islands more than a century and a half after they were visited by Alfred Russel Wallace and other collectors.

INTRODUCTION

Wallacea is an important biogeographic sub-region at the interface between the Oriental Region to the west and the Australasian Region to the east. Wallacea was circumscribed by and named after Alfred Russel Wallace, a naturalist and evolutionary biologist who explored the region between 1854 and 1862 and became famous for his contributions to the discovery of new bird species from the region, as well as for the evolutionary theories that he formulated based on his observations in the region (van Wyhe 2013). Despite the early focus on bird collection in Wallacea by Wallace and some of his contemporaries (summary see White & Bruce 1986), today the region is relatively understudied compared to most other tropical regions around the world, and there continue to be mountain ranges and sizable islands in Wallacea that have never been exhaustively surveyed by ornithologists.

Wallacea is divided into three geographic sections: (1) the Moluccas (=Maluku), (2) the Lesser Sunda Islands (=Nusa Tenggara) and (3) Sulawesi (=Celebes) and its satellite islands. The latter has attracted much interest by biogeographers because of its high levels of

ancient endemism. However, despite a certain degree of ornithological collecting activity in Sulawesi's northern, southern and central provinces (e.g. Stresemann 1931), large parts of the island, such as the eastern and the south-eastern peninsulas, have been neglected, while many of its satellite islands have never been properly surveyed (White & Bruce 1986).

In this contribution, we report on new avifaunal discoveries from three satellite island groups off the eastern Sulawesi peninsula, namely the Sula Islands, the Banggai Islands and the Togian Islands. We also report on new discoveries from an isolated mountain, Gunung Tumpu, on the eastern Sulawesi peninsula itself. This is one of the least-explored areas of the Sulawesi mainland. Lastly, we add a few new bird records from the island of Ternate that were made during our brief visit to the island during permit acquisition for the main fieldwork.

Ornithological exploration in the eastern Sulawesi region

The largest eastern Sulawesi satellites, the Sula Islands, were visited by just a few collectors in the late 19th and early 20th centuries (White & Bruce 1986), with the most recent such visit by J. J. Menden in 1938 the only significant collecting effort to have been undertaken on these islands (White & Bruce 1986). However, all these early explorers frequented only the coastal lowlands of the Sula Islands, avoiding the mountainous interior. During a trip to the smaller Sula islands of Sanana and Mangole in December 1988, D. Yong (pers. comm.) was the first ornithologist to confirm the continued existence of most endemics in modern times. In 1991, P. J. Davidson and colleagues from the University of East Anglia (UEA), UK, were probably the first ornithologists to visit the highlands of the Sula Islands above 600 m during their extensive survey of the group's largest island of Taliabu, with several important findings including potential new taxa (Davidson *et al.* 1991, Davidson & Stones 1993, Davidson *et al.* 1995). For simplicity, we refer to their original report (Davidson *et al.* 1991) when citing the findings of the UEA expedition. Then, the lowlands, not the highlands, of Taliabu were visited again in 1997 (F. Verbelen, pers. comm.) and in 2005 (B. King, in *litt.* 2006), but no additional discoveries were made. Finally, Rheindt (2010) spent ten days on Taliabu in April 2009, much of it in the highlands up to the highest point, relocating all of Davidson *et al.*'s (1991) new records and finding several additional novel taxa to science and 4 new island records. However, none of these modern expeditions to Taliabu involved collecting, so the new bird taxa from this island remain undescribed.

The Banggai Islands and the Togian Islands are further examples of Sulawesi satellites that have received limited attention by ornithologists. The first modern ornithological work carried out on these islands was by M. Indrawan and colleagues (e.g. Indrawan *et al.* 1993, 1997, 2006, 2009), including the description of two novel bird species from the Togian Islands (Indrawan & Somadikarta 2004; Indrawan *et al.* 2008). More recently, Mallo et al.'s (2010) fieldwork in the hills of western Peleng, which is the largest island in the Banggai group, led to the rediscovery of the Banggai Crow *Corvus unicolor*. In the same area, Rheindt *et al.* (2010) documented 16 new island records and multiple novel bird taxa to science, at least one at the species level. However, in the absence of specimen collection, all this novel avian diversity remains undescribed. We are unaware of modern ornithological work in the highlands of the adjacent eastern Sulawesi peninsula.

The main purpose of our expedition to the eastern Sulawesi peninsula and nearby satellites was to collect specimens of undescribed bird taxa previously documented by Davidson *et al.* (1991), Rheindt (2010) and Rheindt *et al.* (2010). We succeeded in obtaining type material of the vast majority of these undescribed forms, each of which will be published separately. In the present contribution, we concentrate on a large number of geographic and elevational range extensions documented during this fieldwork as well as other noteworthy observations of a more taxonomic character. We also document one additional putative new bird taxon to science that had eluded previous field ornithologists, and that will remain undescribed until specimen material becomes available.

Earth history of eastern Sulawesi

The modern discovery of novel avian diversity in Indonesia is closely tied to our increased understanding of the earth-historic background of each island group. For instance, the close avifaunal connection between the Sula and Banggai Islands has long puzzled ornithologists: the geographic position of the Banggai group, only ~14 km off Sulawesi (Fig. 1), seemingly contradicts the obvious ties with the Sula Islands, more than 80 km distant. Yet modern palaeoclimatic, geologic and bathymetric data satisfactorily account for this unusual biogeographic link. Hall (2002) demonstrated that the two archipelagos constitute a tectonic unit that has been drifting west towards Sulawesi and has closely approached it only within the last four million years. Apart from their common geologic origin, the Sula and Banggai islands have also repeatedly been connected during *c.*20 ice ages within the last three million years, each lasting *c.*10,000–50,000 years, when glacial periods caused global sea levels to

fall by up to 120 m (Bintanja *et al.* 2005, Caputo 2007), exposing shallow areas, such as the string of tiny islets that connect the Sula and Banggai archipelagos (Fig. 1). On the other hand, the narrow strait between Sulawesi and the Banggai Islands has never accommodated a landbridge, being characterised by a deep-sea trench of *c.*400–700 m (Becker *et al.* 2009). The Togian Islands are equally surrounded by deep sea on most sides, but there is one undersea ridge at <120 m depth that connects them to the eastern peninsula of Sulawesi (Fig. 1), suggesting repeated land connections during Pleistocene glaciations, including very recent ones, such as the last glacial maximum at 15,000 – 20,000 years ago.

The bathymetric separation of the Sula-Banggai island complex from Sulawesi suggests that these islands may harbour a high degree of bird taxa distinct from those of Sulawesi, including perhaps undescribed ones. Bathymetry continues to be a useful tool in predicting the degree of endemism of island groups within the Indonesian archipelago and beyond.

METHODS

Expedition schedule

We traveled to eastern Indonesia from 30 Nov 2013 through 6 Jan 2014 in order to collect birds at four different sites: (1) the island of Taliabu (Sula Islands; 6–16 Dec 2013), (2) the island of Peleng (Banggai Islands; 18–23 Dec 2013), the island of Batudaka (Togian Islands; 24–28 Dec 2013) and the mountain (= “Gunung”) Tumpu (1–5 Jan 2014), the highest and most isolated peak of the eastern peninsula of Sulawesi. Our collecting activity was preceded by a short stay on Ternate (30 Nov–3 Dec 2013; FER and AH only) for permit acquisition purposes, during which we also made some new island records. Table 1 outlines the precise locations of collecting sites.

A few years prior to our expedition, FER made a separate trip to Batudaka Island (Togian Islands) from 23–27 April 2009, during which he observed but did not collect birds. Some of the sightings from that trip were novel and so are listed here.

Field Methods

Birds were mist-netted with 17 ground nets of 6–9 m length, two of which were deployed as canopy nets at ~7m height on limited occasions in the highlands of Peleng. Caught individuals were subjected to the following measurements and processing steps: weight, wing length, tarsus length, bill length, tail length, total length, wing spread, presence

of molt, determination of sex and age if possible, bare parts coloration. Those birds for which we had permits were collected, prepared as skins and deposited in the Bogor Museum for posterity, while liver and muscle tissue samples were taken for potential future DNA analysis. Only a small minority (7.7% of collected samples) were put into alcohol for later preparation at Bogor, while all other specimens were prepared in the field.

Table 1. Collecting localities and other localities mentioned in the text.

Name of locality and elevation	**Place type**	**Island**	**Approximate coordinates (S, E)**	**Was mist-netting carried out here?**
Luwuk (0m)	city	Sulawesi	0º57’06”, 122º47’32”	No
Tikong (0m)	town	Taliabu (Sula Is.)	1º39’58”, 124º31’29”	No
Jorjoga (0m)	town	Taliabu (Sula Is.)	1º40’46”, 124º48’23”	No
Wahe (formerly Binadesa; 27m)	village	Taliabu (Sula Is.)	1º42’58”, 124º50’37”	Yes
Waiyo Dinahana (1178m)	traditional resting spot at highest point along cross-island path	Taliabu (Sula Is.)	1º47’37”, 124º48’14”	Yes
Waiyo Pinang (428m)	traditional stream crossing	Taliabu (Sula Is.)	1º44’25”, 124º49’31”	Yes
Kokolomboi (783m)	village	Peleng (Banggai Is.)	1º17’34”, 122º52’30”	Yes
Leme-Leme (0m)	village	Peleng (Banggai Is.)	1º16’19”, 122º50’26”	No
Sumber Agung (91m)	village	Sulawesi	0º57’17”, 122º12’18”	No
Cabang Dua Camp (1266m)	traditional forest camp of local *damar* collectors	Sulawesi	1º02’07”, 122º11’44”	between here and next locality
Gunung Tumpu (2503m)	mountain top	Sulawesi	1º03’56”, 122º11’23”	between here and previous locality
Wakai (0m)	town	Batudaka (Togian Is.)	0º24’38”, 121º52’04”	No
Dolomino Forest (49m) near Tanimpo village	small forest plot	Batudaka (Togian Is.)	0º26’03”, 121º51’22”	Yes

This contribution targets our new avifaunistic records from this expedition, so we refrain from providing a complete list of collected material and measurements. During the expedition, observations were made and sound recordings of birds were taken opportunistically.

RESULTS

Species accounts

Noteworthy and novel records are provided in the following. All other species recorded during our expedition are listed in Table 2.

Bulwer's Petrel (*Bulweria bulwerii*): We saw one from the boat from Luwuk (Table 1) to Taliabu about halfway into the journey (6 Dec 2013; identifiable photographs available from PRW) and had another very likely sighting of a distant individual on the return boat journey from Taliabu to Luwuk (17 Dec).

This species is widespread in Indonesian waters (Argeloo & Dekker 1996). Coates & Bishop (1997) specify its regional range as "…NE Sulawesi; Ternate… (once)…". Our sightings are slightly to the south of Coates & Bishop's (1997) specified range and corroborate this species' regular occurrence in the Molucca Sea.

Eastern Reef Egret (*Egretta sacra*): During our expedition, we saw one adult dark-morph individual on the coast off Jorjoga (Taliabu Island; 17 Dec 2013; Table 1) and one white-morph individual on the coast off Tikong (Taliabu Island; 6 Dec 2013; Table 1). We also saw a dark-morph individual on the coast of the village of Leme-Leme on Peleng Island (23 Dec 2013; Table 1), whence they are already known. During a trip a few years prior, FER saw one dark-morph individual on the tiny island of Kadidiri near Wakai (Batudaka Island, Togian Archipelago; Table 1) on 25 Apr 2009.

Although widespread throughout Wallacea, Coates & Bishop (1997) do not mention this bird for the Sula and Togian islands. Davidson *et al.* (1991) reference sightings by third parties in 1990 from Taliabu and Mangole, but the bird remains unrecorded in Togian. The new Togian record is unsurprising in view of this species' wide occurrence across Wallacea.

Little Egret (*Egretta garzetta*): On 28 Dec 2013, FER saw one individual in mangrove-associated mudflats near Wakai (Batudaka Island, Togian Archipelago; Table 1) exhibiting black legs and slightly paler, greenish feet that were not as yellow as typical for nominate *garzetta*. We also saw ~7 individuals in rice paddies near Sumber Agung (eastern peninsula of Sulawesi; 31 Dec 2013; Table 1) but were unable to assess foot color.

Coates & Bishop (1997) mention that foot color roughly intermediate between nominate *garzetta* to the west and *nigripes* to the east is typical for Philippine breeders and that birds exhibiting intermediate foot color have also been recorded from North Sulawesi and Buru, perhaps representing Philippine dispersers. Our record from Togian suggests that

birds with intermediate foot color may disperse widely throughout the Wallacean region, perhaps mainly in the northern winter. Future fieldwork may shed light on whether breeding populations in Sulawesi and satellites all relate to true *nigripes* (Coates & Bishop 1997), or whether the birds of intermediate foot color also breed in the region.

***Gorsachius* Night-Heron** (*Gorsachius* spec.): An immature *Gorsachius* night-heron was flushed in primary forest on Peleng at ~1000m (20 Dec 2013), but identification as Malayan *G. melanolophus* or Japanese Night-heron *G. goisagi* was not possible on account of the briefness of the sighting.

Malayan Night-heron has been recorded twice on Peleng (Coates & Bishop 1997, Rheindt *et al.* 2010), suggesting that its presence on the island is more than accidental. A possible third sighting of this shy and rarely-observed species from Peleng in the middle of the northern winter suggests it occurs regularly here, either as a winter visitor or as a resident.

Black-winged Kite (*Elanus caeruleus hypoleucus*): A sighting of one adult (7 Dec 2013) near Jorjoga (Taliabu; Table 1) extends the range of this species eastwards in the Sulawesi subregion to the Sula Archipelago. The nearest island listed by Coates & Bishop (1997) is Sulawesi. The species may have invaded Taliabu recently as it requires open habitat that would have been unavailable before recent deforestation.

Honeybuzzard (*Pernis* spec.): One individual seen by FER near Wakai (Batudaka Island; 26 Apr 2009; Table 1) is a first record of this genus from the Togian Archipelago (Coates & Bishop 1997), but the species remained unidentified because of the great distance. The bird's affinity with the genus *Pernis* is unequivocal based on its distinct jizz, long ('pigeon-like') neck shape and irregular tail bands. As the date of the sighting is slightly late for a migrant Oriental Honeybuzzard (*P. orientalis*), it may well have been a resident Sulawesi Honeybuzzard (*P. celebensis*). However, occasional Oriental Honeybuzzards are known to winter in Indonesia, rendering the species in this record uncertain.

Chinese Goshawk (*Accipiter soloensis*): On 6 Dec 2013, FER spotted one flying individual near Wahe (=Binadesa; Taliabu; Table 1) that exhibited the distinctive underwing pattern of this species. Another individual, but based on direction probably not the same, was seen perched a minute later, showing a light iris, grey upperparts and head (with pale-brown edging on back), a grey uppertail with lighter bars and the distinctive orange cere of this species.

Within the Sula Islands, Coates & Bishop (1997) only report this species from Mangole, making these the first records for Taliabu. Given its wide Wallacean winter distribution, the species is likely to be regular on Taliabu, which is also supported by our sighting of what was believed to be two individuals.

Vinous-breasted Sparrowhawk (*Accipiter rhodogaster sulaensis*): One female (sexed by gonads) was collected from a mistnet above the village of Kokolomboi (Table 1) on Peleng at >700m (21 Dec 2013). The collecting locality is very close to the spot where Rheindt & Verbelen (2011) discovered the first nest of this species.

Table 2. Bird species recorded during our field work but not listed in the main accounts of this contribution. All species were seen.

Sula leucogaster – Brown Booby	c15 from boat en route from Luwuk to Taliabu and c5 on way back
Fregata spec. – frigatebird species	1 subadult male seen from boat en route from Taliabu to Luwuk was probably a Great Frigatebird (*Fregata minor*), but Christmas Frigatebird (*Fregata andrewsi*) cannot be ruled out – photos allowed aging but distance too great for species ID
Tachybaptus ruficollis – Little Grebe	~30 at Danau Tolire on Ternate, very vocal and potentially in breeding season; both grebe species (this and *T. novaehollandiae*) recorded from Ternate, but all the birds in this lake appeared to be *T. ruficollis*
Stercorarius pomarinus – Pomarine Jaeger	5-10 each from boat en route Luwuk – Taliabu and return, both adults and juveniles (good photos)
Sterna hirundo longipennis – Common Tern	5-10 on boat ride near Taliabu (several good photos)
Thalasseus bergii cristatus – Great Crested Tern	2-7 each from boat en route to Taliabu and back to Luwuk
Onychoprion anaethetus anaethetus – Bridled Tern	c15 seen from boat en route to Taliabu with one good photo; dark upper plumage but slightly lighter contrasting backs
Ardea purpurea – Purple Heron	1-2 en route from van near Pagimana (east Sulawesi)
Casmerodius albus – Great Egret	c10 on Taliabu in total, mostly near beach
Bubulcus ibis – Cattle Egret	c30 at Danau Tolire on Ternate
Ardeola speciosa – Javan Pond Heron	1 in non-breeding plumage inside the village of Wakai (Batudaka Island, 26 Dec 2013)
Pandion haliaetus – Osprey	two singletons (25–26 April 2009) near Wakai (Batudaka Island) may or may not have been the same individual and may have referred to either local breeders (*cristatus*) or northern migrants (*haliaetus*), the latter being known from nearby Sulawesi
Haliastur indus – Brahminy Kite	common in Taliabu lowlands; ~4 around Peleng coast; 1–2 on Togian; c4 (incl. juv.) on Ternate
Haliaeetus leucogaster – White-bellied Sea-Eagle	1–2 adults near Wakai (Batudaka Island) on 27–28 Dec 2013 and 1 again on 26 Apr 2009; 1 adult at Pagimana (eastern peninsular Sulawesi; 31 Dec 2013); 1 imm. photographed at Tikong (Taliabu; 6 Dec 2013)
Nisaetus lanceolatus – Sulawesi Hawk-Eagle	1 juv. perched en route near Salodik (Sulawesi); identifiable photos taken
Spilornis rufipectus sulaensis – Sulawesi Serpent-Eagle	1+1 near Jorjoga (Taliabu); ~3 between coast and Kokolomboi (Peleng)

Aquila gurneyi – Gurney's Eagle	1 at Danau Tolire on Ternate looked subadult; a juvenile was seen at the same spot in May 2012 (Bas van Balen, in litt.), so there may be a nest around here
Ictinaetus malayensis – Black Eagle	1 at ~1800m on Gunung Tumpu (Sulawesi); also 1 in Luwuk (Sulawesi) and 1 near Salodik (Sulawesi) en route
Hieraaetus kienerii formosus – Rufous-bellied Eagle	1 ad. near Wakai (Batudaka Island; 23 Apr 2009); 1 ad. + 1 imm. at ~700m along ascent above Wahe (=Binadesa; Taliabu; 8 Dec 2013)
Accipiter trinotatus – Spot-tailed Sparrowhawk	1 ad. seen and tape-recorded at ~1400m (perched and later flushed) on Gunung Tumpu (Sulawesi)
Accipiter novaehollandiae – Variable Goshawk	1 at Lake Tolire (Ternate) only glimpsed, but then sound-recorded as it sat hidden in a tree and identification confirmed by comparison with other sound-recordings
Falco moluccensis – Spotted Kestrel	1-2 near Jorjoga (Taliabu); 2-3 on Ternate
Gallirallus torquatus sulcirostris – Barred Rail	1 dead individual collected in snare around 1000m on Peleng; not seen alive
Rallina eurizonoides minahasa – Slaty-legged Crake	2–3 seen and sound-recorded along trail through old secondary growth above Wakai (Batudaka Island) before dusk, with intense subsequent vocal activity in the dark, seemingly related to heavy passing rain shower; 1 injured individual near Kokolomboi caught by locals in snare
Actitis hypoleucos – Common Sandpiper	total ~5 on Taliabu; 2 on Batudaka (Togian)
Phalaropus lobatus – Red-necked Phalarope	c200 altogether on both boat rides to and from Taliabu (with good photos); also ~50 at sea between Luwuk and Peleng; c30 from speedboat between Ternate and Halmahera
Turacoena manadensis – Sulawesi Black Pigeon	extremely shy, so heard only (on Taliabu mostly below 600m; on Peleng ~300-1000m; on Batudaka [Togian] around ~150-300m); seemingly impossible to see at this time of year despite extreme efforts
Streptopelia chinensis – Spotted Dove	c10 near Jorjoga (Taliabu); 2 above Sumber Agung near Gunung Tumpu (Sulawesi); 1 on Halmahera's coast opposite Ternate
Macropygia amboinensis – Brown Cuckoo-Dove	*[albiceps]* 2-3 on Ternate (also sound-recorded); *[sedecima]* common at 0-1300m on Taliabu, voice taped; *[albicapilla]* on Peleng quite shy this time of year, but ~10 seen (mostly flying over); same subspecies on Sulawesi common by voice around Gunung Tumpu and seen ~5 times up to at least ~2000m; *[atrata]* several seen and heard on Togian
Chalcophaps indica indica – Emerald Dove	several seen and heard on Taliabu at 0-500m; on Peleng only 1 seen (~300m) but more heard; on Togian ~4 seen and more heard; on Sulawesi a couple of birds were flushed along coast near Tomeang (seen from van); 2 *Chalcophaps* individuals on Ternate flushed on a mountain were very likely this species as no other species is reported from Ternate
(possible *Gallicolumba tristigmata* – Sulawesi Ground-Dove)	very likely this species flushed twice (1600 & 2100m) on Gunung Tumpu (Sulawesi) but views too short; in either case it was a terrestrial pigeon in good forest (too big for *Chalcophaps* and colors different)
Ducula radiata – Grey-headed Imperial-Pigeon	1 seen perched at ~2000m on Gunung Tumpu (Sulawesi); *Ducula* individuals heard at high elevations on this mountain may all have been this species
Ducula luctuosa – Silver-tipped Imperial-Pigeon	c10 close to sea level on Taliabu; sightings of 2+2 on Batudaka (Togian) could also have been *Ducula bicolor* and remain unidentified.
Ptilinopus fischeri centralis – Red-eared Fruit-Dove	common on Gunung Tumpu (Sulawesi) above 1500m
Ptilinopus superbus temminckii – Superb Fruit-Dove	common on Gunung Tumpu (Sulawesi) above ~1500m
Ptilinopus mangoliensis – Sula Fruit-Dove	1 seen at fruiting tree at ~500m on Taliabu; heard from 0-1200m on Taliabu
Ptilinopus subgularis – Banggai Fruit-Dove	1 seen at ~950m on Peleng, many more heard

Ptilinopus melanospila – Black-naped Fruit-Dove	common on Taliabu; only 1 male seen on Peleng at ~900m although more heard; only 1 male and 1 female seen on Batudaka (Togian), but many heard
Ptilinopus monacha – Blue-capped Fruit-Dove	At Lake Tolire on Ternate 1 was photographed and several tape-recorded
Treron griseicauda – Grey-cheeked Green Pigeon	c30 slightly above Wahe (Taliabu); c2+2+4 seen at ~200m on Batudaka (Togian)
Cacatua alba – White Cockatoo	One pair at the far side of Lake Tolire (Ternate) observed perched and flying; forestry official told us these were possibly re-introduced from confiscated trade individuals, but species is originally native to Ternate
Trichoglossus ornatus – Ornate Lorikeet	c3-4 brief sightings of overflying pairs or small groups on Batudaka (Togian)
Trichoglossus flavoviridis flavoviridis – Yellow-and-green Lorikeet	rather common at 0-1200m on Taliabu
Prioniturus platurus – Golden-mantled Racket-tail	*[sinerubris]* somewhat common on Taliabu at 300-1300m; *[ssp. nov.]* many seen on Peleng (season seemingly good) all the way down to Kokolomboi; often in flight but some perched; *[platurus]* on Batudaka (Togian) common from 0-300m, on Gunung Tumpu (Sulawesi) only distant flight views but common by voice up to ~2100m
Prioniturus flavicans – Yellowish-breasted Racket-tail	good views of several groups at ~200m on Batudaka (Togian), very distinct vocalizations from *P. platurus*
Tanygnathus sumatranus – Blue-backed Parrot	c5 near Wahe (Taliabu); 2 seen at ~200m on Batudaka (Togian) but also heard at night
Tanygnathus megalorynchos – Great-billed Parrot	1 at Lake Tolire (Ternate)
Eclectus roratus vosmaeri – Eclectus Parrot	1 heard and tape-recorded around Lake Tolire (Ternate)
Alisterus amboinensis – Moluccan King Parrot	*[sulaensis]* total of ~10 near Wahe (Taliabu); *[versicolor]* only ~5-10 seen (600-1000m) on Peleng, with 1 collected
Loriculus sclateri – Sula Hanging-Parrot	very common on Taliabu; very common on Peleng with 1 collected
Loriculus stigmatus – Great Sulawesi Hanging-Parrot	common on Batudaka (Togian)
Cuculus saturatus – Oriental Cuckoo	1 silent ad. flying over near Wahe (Taliabu)
Eudynamis melanorhyncha – Black-billed Koel	one female photographed in palm field in Luwuk (Sulawesi) outskirts; on Taliabu heard calling and taped 0-300m but never seen; on Peleng heard commonly up to 1000m; on Batudaka (Togian) heard especially at night
Scythrops novaehollandiae – Channel-billed Cuckoo	2 at Jorjoga (Taliabu) flying over sea; c3 around Lake Tolire
Phaenicophaeus calyorhynchus – Yellow-billed Malkoha	1 photographed on the outskirts of Luwuk in a palm field.
Centropus celebensis celebensis – Bay Coucal	1 seen on Batudaka (Togian) but many heard
Centropus bengalensis – Lesser Coucal	1 heard on Ternate in a clearing on the lower slopes of the island's volcano; 1 ad. and 1 juv. seen near Wahe (Taliabu; 7–8 Dec 2013), but also heard elsewhere in lowland degraded habitat on Taliabu; heard widely around Kokolomboi (Peleng; 22 Dec 2013) and near Wakai (Batudaka Island; 23–27 Apr 2009 and 25–27 Dec 2013)
Otus sulaensis – Sula Scops Owl	heard 0-1300m on Taliabu; 2 collected

Otus mendeni – Banggai Scops Owl	on Peleng heard 600-1000m; 2 collected
Otus magicus – Moluccan Scops Owl	on Ternate heard only
Ninox burhani – Togian Boobook	1 seen with difficulty on Batudaka (Togian) at ~200m; good views straight overhead, perched above head for long views; conventional vocalizations heard (sparingly) but we also taped an apparent juvenile's call that led to this sighting
Eurostopodus macrotis – Great Eared Nightjar	on Peleng 1+1 seen (600-1000m) and more heard; heard only a single time at Wahe (Taliabu); apparently bad season for nightjars with few around
Aerodramus [infuscatus] sororum – Sulawesi Swiftlet	on Taliabu 0-1300m; common above Sumber Agung near Gunung Tumpu (Sulawesi); electric buzzing call; pale rump obvious
Aerodramus [infuscatus] infuscatus – Halmahera Swiftlet	many seen in early morning over Lake Tolire (Ternate); downward views onto water ensured observation of the slightly paler rump (which is otherwise hard to see)
Collocalia esculenta – Glossy Swiftlet	commonly seen on the main volcano of Ternate Island (ssp. *spilura*; 1–2 Dec 2013); ssp. *esculenta* encountered at most elevations throughout Taliabu (7–15 Dec 2013) and Peleng (19–23 Dec 2013) and collected on each island; on Gunung Tumpu, only ~5 *esculenta* individuals seen once as they flew around their nesting crevices at a waterfall at ~700m (5 Jan 2014); common on Batudaka (23–27 Apr 2009; 25–28 Dec 2013)
Hirundapus caudacutus – White-throated Needletail	c5 above Sumber Agung near Gunung Tumpu (Sulawesi)
Hemiprocne longipennis – Grey-rumped Treeswift	common on Taliabu up to 800m (7–15 Dec 2013); on Peleng, ~10 seen at various elevations (19–23 Dec 2013); seen repeatedly on Batudaka between 0–250m
Halcyon melanorhyncha eutreptorhyncha – Great-billed Kingfisher	1 in mangroves at Jorjoga (Taliabu) with close-range photos
Halcyon chloris – Collared Kingfisher	c5 on Peleng at ~200-400m; common on Batudaka (Togian); c4 on coast near Gunung Tumpu (Sulawesi); 1 perched on wire below Salodik (Sulawesi)
Alcedo atthis hispidioides – Common Kingfisher	1-2 in mangroves near Jorjoga (Taliabu) with all-black mandible
Ceyx lepidus wallacii – Variable Dwarf-Kingfisher	Taliabu c10 caught and collected, though views of wild individuals restricted to darting fly-bys
Rhyticeros cassidix – Knobbed Hornbill	on Batudaka (Togian) a total of ~25; at Salodik (Sulawesi) 6 photographed
Coracias temminckii – Purple-winged Roller	total of ~5-6 en route from van near Pagimana (Sulawesi), perched on wire and seen well on several occasions; 1 seen and photographed in coconut palm field near Luwuk
Mulleripicus fulvus – Ashy Woodpecker	not uncommon on Batudaka (Togian) by sound, seen ~3 times in wild, plus 2 caught and collected; ~5 from 1000-2000m on Gunung Tumpu (Sulawesi)
Dendrocopos temminckii – Sulawesi Pygmy Woodpecker	c5 at 600-2100m on Gunung Tumpu (Sulawesi)
Pitta erythrogaster – Red-bellied Pitta	*[dohertyi]* 1 seen near Kokolomboi (Peleng), also photographed, with more heard; on Peleng this species was more vocal than in April 2008, unlike most other species; on Taliabu, heard only once at ~300m; *[celebensis]* seen well at ~200m on Batudaka (Togian) and subsequently 3 collected
Hirundo tahitica – Pacific Swallow	common in Taliabu lowlands; ~5 in Tataba (Peleng); common around Sumber Agung near Gunung Tumpu (Sulawesi)
Hirundo rustica – Barn Swallow	Common on Ternate (1-2 Dec 2013)
Motacilla flava simillima – Yellow Wagtail	1 seen near Jorjoga (Taliabu); olive crown and ear-coverts but white supercilium (photo available), winter plumage

Anthus gustavi – Pechora Pipit	2 silent individuals in burned forest plot near Jorjoga (Taliabu) with OK photos; strong white 'suspenders', white double wingbar, very white underparts (apart from black streaks)
Coracina leucopygia – White-rumped Cuckooshrike	3 pairs seen en route during van stops near Pagimana (Sulawesi)
Coracina schistacea – Slaty Cuckooshrike	on Taliabu, ~15 seen in total from 0-1000m; on Peleng only 1 sighting of a pair at ~1000m but heard ~2-3 times; giving single-wing flick
Coracina sula – Sula Cicadabird	common in Taliabu lowlands but seen up to 700m; tape-recorded
Coracina [tenuirostris] pelingi – Common Cicadabird	on Peleng, c3 females seen; heard ~10 times
Coracina morio – Sulawesi Cicadabird	several males and females photographed and sound-recorded near Wakai (Batudaka Island; 23–27 Apr 2009; 26–27 Dec 2013)
Lalage aurea – Rufous-bellied Triller	Quite common on Ternate with a total of c10 at all elevations visited (1-2 Dec 2013)
Ixos [affinis] longirostris – Sula Golden Bulbul	common on Taliabu at 0-1200m
Ixos [affinis] harterti – Banggai Golden Bulbul	on Peleng common and seen often, but very shy this time of year and most views poor; tail tip seems to have light-yellow terminal band contrasting with dark yellow subterminal area (band wider on undertail)
Ixos [affinis] aureus – Togian Golden Bulbul	on Batudaka (Togian) common in hill forest and second growth (also tape-recorded)
Oriolus chinensis – Black-naped Oriole	*[frontalis]* common in Taliabu lowlands (<300m); on Peleng ~2-3 seen at 900-1000m (a high elevation); *[celebensis]* a few on Batudaka (Togian) up to ~300m
Corvus enca – Slender-billed Crow	*[mangoli]* common near Taliabu coast; *[celebensis]* a few en route on coast near Gunung Tumpu (Sulawesi), also photographed in outskirts of Luwuk
Monticola solitarius – Blue Rock Thrush	1 female at Tikong (Taliabu)
Turdus poliocephalus tax. nov. – Island Thrush	many seen on Taliabu at 1200-1300m, tape-recorded, ~7 individuals caught and collected
Locustella sp. nov. – grasshopper-warbler species	2-3 seen on Taliabu at ~1300m; tape-recorded; 1 collected
Cisticola juncidis constans – Zitting Cisticola	c10 in alang-alang above Sumber Agung near Gunung Tumpu (Sulawesi)
Cisticola exilis rustica – Golden-headed Cisticola	c5 in alang-alang above Sumber Agung near Gunung Tumpu (Sulawesi)
Gerygone sulphurea flaveola – Bright-capped Cisticola	common around Sumber Agung near Gunung Tumpu (Sulawesi); heard only on Peleng at 0-200m
Phyllergates cuculatus – Mountain Tailorbird	on Taliabu, reasonably common at ~700-1300m with several collected; on Peleng 3 seen in wild, all enticed to enter net and subsequently collected at 950-1100m; on Gunung Tumpu (Sulawesi) seen at ~1300-2100m and 2 collected
Phylloscopus sp. nov. 1 – leaf-warbler species	on Taliabu reasonably common at ~800-1300m; 2 caught and collected; tape-recorded (see Rheindt 2010)
Phylloscopus sp. nov. 2 – leaf-warbler species	on Peleng, only seen ~4 times; very secretive this time of year although tape-recorded twice; 1 collected at ~1100m (see Rheindt *et al.* 2010)
Phylloscopus borealis – Arctic Warbler	On Ternate's main volcano, 1 was seen, sharp call notes of more individuals heard and tape-recorded; the seen individual lacked any yellow tinge to underparts (incl. vent) and was probably nominate *borealis*; on Peleng, silent followers of mixed flocks at ~900-1000m on ~5 occasions; on Gunung Tumpu (Sulawesi) ~3-4 in mixed flocks at ~400-800m; on Taliabu, 2 collected

Phylloscopus sarasinorum – Sulawesi Leaf-Warbler	common at ~1400-2400m on Gunung Tumpu (Sulawesi), with 1 collected
Trichastoma celebense – Sulawesi Babbler	*[togianense]* extremely common on Batudaka (Togian) where we collected ~10; *[rufofuscum]* sparingly heard and seen on Gunung Tumpu (Sulawesi) up to ~1300m, with 1 collected at 1300m
Lophozosterops squamiceps – Streak-headed White-eye	c5 seen at ~1500-1800m on Gunung Tumpu (Sulawesi), with 1 collected
Zosterops montanus – Mountain White-eye	extremely common on Taliabu mountains at ~1000-1300m; on Gunung Tumpu (Sulawesi) once a group of 3-4 in mixed flock in dwarf vegetation on ridge at 1600m
Cyornis hoevelli – Blue-fronted Blue-Flycatcher	1 male + 1 male + 1 female at ~1500-2100m on Gunung Tumpu (Sulawesi)
Rhinomyias colonus – Henna-tailed Jungle-Flycatcher	*[colonus]* commonly heard but only seen ~3 times in Taliabu lowlands at 0-500m, and ~6 caught and collected; *[pelingensis]* only 1 seen in wild at ~700m but ~10 collected (~600-1000m), going even into canopy nets
Muscicapa griseisticta – Grey-streaked Flycatcher	On Ternate c5 seen (1-2 Dec 2013); occasionally seen in Taliabu at 0-1000m; on Peleng ~7 in total at all elevations
Ficedula westermanni – Little Pied Flycatcher	on Taliabu seen ~3 times but heard frequently around 1000-1300m
Eumyias panayensis – Island Verditer Flycatcher	on Taliabu c4 seen (heard more often) at ~900-1300m; 1 male seen at ~1350m on Gunung Tumpu (Sulawesi)
Hypothymis azurea – Black-naped Monarch	*[blasii]* common on Taliabu 0-700m, also collected; same subspecies common on Peleng at all elevations, with 1-2 collected; *[puella]* seen and heard often on Batudaka (Togian), with 1 collected; also ~5 at ~300-400m on Gunung Tumpu (Sulawesi) and 2 photographed at close range at Salodik (Sulawesi)
Monarcha cinerascens – Island Monarch	On Ternate only 1 at Lake Tolire; on Taliabu quite common at 0-700m
Myiagra galeata galeata – Slaty Monarch	1 male +1 female seen at Lake Tolire (Ternate), more heard
Piezorhynchus alecto alecto – Shining Flycatcher	On Ternate 1+1 seen (both males), more heard
Rhipidura leucophrys – Willie Wagtail	Common on Ternate
Rhipidura [teysmanni] sulaensis – Sula Rusty-bellied Fantail	common ~900-1300m on Taliabu, also collected
Rhipidura [teysmanni] tax. nov. – Banggai Rusty-bellied Fantail	seen ~10 times at ~900-1000m on Peleng, with 4 collected
Rhipidura [teysmanni] toradja – Sulawesi Rusty-bellied Fantail	on Gunung Tumpu (Sulawesi) seen at ~1500-2100m and 5 collected
Culicicapa helianthea – Citrine Canary-Flycatcher	on Taliabu reasonably common ~400-800m; on Peleng seen ~3 times at 900-1000m but heard more often; c5 at ~800-1400m on Gunung Tumpu (Sulawesi)
Hylocitrea bonensis - Hylocitrea	c15 at ~1500-1800m on Gunung Tumpu (Sulawesi)
Pachycephala sulfuriventer – Sulphur-bellied Whistler	c15 at ~1500-2100m on Gunung Tumpu (Sulawesi)
Pachycephala pectoralis – Golden Whistler	*[clio]* not common but daily at 0-1300m on Taliabu with several collected; *[pelengensis]* on Peleng commonly seen at ~600-1000m, with ~15 collected; [*tidorensis*] 1 male + 1 female seen on mid-elevation slopes of Ternate's main volcano, more heard
Pachycephala griseonota – Drab Whistler	*[lineolata]* on Taliabu 0-1000m, less common than *P. pectoralis;* on Peleng perhaps only 2-3 sightings at ~900-1000m

Pachycephala phaionotus – Island Whistler	1+1 around Lake Tolire (Ternate)
Artamus monachus – Ivory-backed Woodswallow	1+1 in Taliabu lowlands; ~4 at 900m on Peleng
Aplonis panayensis – Asian Glossy Starling	on Batudaka (Togian) mostly around Wakai
Streptocitta albertinae – Bare-eyed Mynah	1-2 between Jorjoga and Wahe (Taliabu); tape-recorded
Enodes erythrophris – Fiery-browed Starling	c10 at ~1300-1400m on Gunung Tumpu (Sulawesi)
Basilornis galeatus – Helmeted Mynah	total of ~10 at 700-1200m on Taliabu; 4+2 at ~900-1000m on Peleng
Basilornis celebensis – Sulawesi Crested Mynah	at ~250m elevation near Wakai (Batudaka Island), 2 on 25 April 2009 and ~7 on 26 Dec 2013
Myza celebensis – Lesser Streaked Honeyeater	on Gunung Tumpu (Sulawesi) seen at ~1300-2100m and 2 caught
Myza sarasinorum – Greater Streaked Honeyeater	on Gunung Tumpu (Sulawesi) only seen well once but heard frequently at ~2000-2400m
Myzomela chloroptera – Sulawesi Myzomela	*[tax. nov.]* extremely common on Taliabu at 1000-1300m but seen as low down as sea level, also collected; *[chloroptera]* c5 at ~1500-2100m on Gunung Tumpu (Sulawesi); *[tax.nov.]* on Peleng one was tape-recorded at 1000m and very probably seen in the same flock (although sighting was filed away as a probable flowerpecker in the field and was only confirmed on examination of recording)
Anthreptes malacensis – Brown-throated Sunbird	*[extremus]* 1 male + 1 female at ~300m on Peleng; *[celebensis]* common at 0-300m on Batudaka (Togian), with 1 collected
Nectarinia aspasia – Black Sunbird	*[auriceps]* common on Ternate during our visit; common on Taliabu at 0-1000m; common at 0-1100m on Peleng; *[porphyrolaema]* common at 0-300m on Batudaka (Togian), and ~5 at ~300-600m on Gunung Tumpu (Sulawesi)
Nectarinia jugularis – Olive-backed Sunbird	*[frenata]* common on Ternate; *[robustirostris]* common at 0-300m on Taliabu, also collected; on Peleng only a few of same subspecies at ~200-400m; *[plateni]* on Batudaka (Togian) only on coast, not on interior hills; same subspecies also around Sumber Agung near Gunung Tumpu (Sulawesi)
Aethopyga siparaja beccarii – Crimson Sunbird	1-2 at ~500m on Gunung Tumpu (Sulawesi)
Dicaeum aureolimbatum – Yellow-sided Flowerpecker	~10 seen from ~200–1000m on Gunung Tumpu (1–4 Jan 2014), with another ~6 at nearby town of Salodik (~700m); common above Wakai (Batudaka Island) at ~200–250m (23–27 April 2009; 25–27 Dec 2013)
Dicaeum nehrkorni – Crimson-crowned Flowerpecker	1 male at ~1350m on Gunung Tumpu (Sulawesi)
Dicaeum celebicum – Grey-sided Flowerpecker	[*sulaense*] common on Taliabu at 0-1300m; on Peleng fairly common at all elevations (0-1100m); [*celebicum*] 1-2 at Salodik (Sulawesi)
Lonchura malacca – Chestnut Munia	c5 in alang-alang above Sumber Agung near Gunung Tumpu (Sulawesi)
Lonchura molucca – Black-faced Munia	common in degraded agricultural habitat around Jorjoga and Wahe (=Binadesa; Taliabu; 7–8 Dec, 14 Dec 2013) and around Wakai (Batudaka Island; 23–27 April 2009)
Lonchura punctulata – Sclay-breasted Munia	c5 in alang-alang above Sumber Agung near Gunung Tumpu (Sulawesi)

The bird in the hand caused great initial confusion for two reasons: (1) its eye color and legs were orange-tinged (as shown in Plate 1 in Rheindt & Verbelen 2011) as is more typical of the Small Sparrowhawk *Accipiter nanus* of Sulawesi; (2) its measurements (weight: 110g; wing length: 16cm; wing spread: 48cm; total length: 27cm; bill: 1.9cm; tarsus: 5.1cm) put it at the lower end or even slightly below the typical range of variation within *A. rhodogaster*, but at the upper end of variation within *A. nanus*, even when accounting for gender differences (Blasius 1897). *A. nanus* is a Sulawesi montane endemic unknown from other islands. We considered whether the specimen from Peleng may actually refer to *A. nanus*, but we discarded this hypothesis because the specimen lacks the obsolete white tail spots that are found on *A. nanus* (Blasius 1897) and the middle front toe is more than twice the culmen length, as is typical for *A. rhodogaster*, compared to a significantly shorter toe in *A. nanus* (Blasius 1897).

Our findings suggest that *A. rhodogaster sulaensis* seems to approach *A. nanus* in body dimensions and bare parts coloration, whereas those traits are generally quite different between *A. nanus* and nominate *A. r. rhodogaster* on Sulawesi. This is a potential case of character displacement in which two species differ discretely from each other where they co-occur, but the differences are diminished in areas where the two do not overlap, presumably because there is no danger of fitness reduction through potential hybridization in areas of allopatry or because there is more ample niche space. Future comparisons of *A. r. sulaensis* from Peleng and from the Sula Islands are necessary to investigate whether Peleng birds may be a distinct new taxon.

Oriental Hobby (*Falco severus*): On 26 Apr 2009, FER saw one adult individual of this distinctive species near Wakai (Batudaka Island; Table 1). This is the first published record for the Togian Islands (Coates & Bishop 1997), confirming the species' widespread occurrence in Sulawesi and its satellites.

Blue-breasted Quail (*Coturnix chinensis lineata*): On 24 Apr 2009, FER flushed at least two from a small agricultural plot above the town of Wakai (Batudaka Island; Table 1) and then briefly saw them on the ground. More than five years later, on 25–27 Dec 2013, FER saw 1–3 individuals each on three independent occasions around the same location in recently cleared land above Wakai at ~200–300m elevation. On about two occasions, the birds showed a peculiar bush-perching habit after having been flushed, rendering their observation easy. A male was also flushed from alang-alang grassland above Sumber Agung on the eastern Sulawesi peninsula on 31 Dec 2013.

Blue-breasted Quail have previously been reported from the Togian Islands once before (Indrawan *et al.* 2006). It is unknown whether they are the product of a recent invasion to the Togian Islands, given extensive habitat clearance on these islands, or whether the species has been present on smaller natural clearings on these islands for a longer time. Arguing for the latter explanation is their unique bush-perching behavior, which may be an adaptation to the lack of extensive natural grasslands.

White-throated Pigeon (*Columba vitiensis halmaheira*): This species was unusually common on Taliabu between 8–14 Dec 2013, with numerous sightings of birds in high flight across the island plateau, but also views of perched birds between 500–1300m. In primary forest on the 1300m high plateau, this species was heard singing throughout various times of day.

These records constitute an elevational range extension of this species on Taliabu (previously ~900m; Rheindt 2010). They also suggest strong seasonality in the occurrence of this bird, which was only seen once during a similarly long visit to Taliabu in Apr 2009 (Rheindt 2010), when the bird must have been more secretive or seasonally absent compared to Dec.

Green Imperial Pigeon (*Ducula aenea pulchella*): This species was seen commonly (with a total of ~30 individuals) on Taliabu at 0–500m (8–13 Dec 2013). Approximately 2–3 were spotted on Peleng above Kokolomboi at ~800m (19 Dec 2013; Table 1), and the species was not uncommon on Batudaka Island near Wakai (Togian Archipelago; 25–27 Dec 2013; Table 1), where FER had also previously seen it commonly from 23–27 Apr 2009.

We mention these records because birds on the Togian Islands consistently show an extensive brown area on the shoulder that is often absent or obsolete on other islands. This color trait appears to be sufficient to re-instate the validity of the subspecies name *pulchella*, which had been proposed for Togian birds but was later widely considered a synonym of *D. aenea paulina* from Sulawesi (Indrawan *et al*. 2006; White & Bruce 1986).

White-bellied Imperial Pigeon (*Ducula forsteni*): Approximately 20 were seen at ~500m elevation on Taliabu on the descent from the highland plateau above Wahe (=Binadesa; 14 Dec 2013; Table 1). A singleton was then seen well in flight (21 Dec 2013) on Peleng above Kokolomboi (Table 1) at ~900m. Finally, FER saw a perched individual in secondary forest interior at ~150m elevation above Wakai (Batudaka Island; 27 Dec 2013; Table 1).

The sightings on Taliabu and Peleng in Dec 2013 (i.e., 1 sighting of ~20 individuals and a singleton, respectively) were relatively infrequent compared to visits to these islands in

Apr 2009 when the species was seen commonly on a daily basis across a more extensive elevational range (Rheindt *et al.* 2010; Rheindt 2010). Our records demonstrate potential seasonality in its local presence.

Pink-necked Green Pigeon (*Treron vernans*): A flock of ~5 was seen by PRW and FER in mangroves adjacent to Jorjoga (Taliabu Island; 15 Dec 2013; Table 1), while FER saw a flock of ~12 in mangroves adjacent to Wakai (Batudaka Island; Togian Archipelago; 28 Dec 2013; Table 1). In both cases, we ruled out the sympatric Grey-cheeked Green Pigeon (*Treron griseicauda*) because males showed an orange breast patch and a pinkish neck.

These records extend the range of this species to the Sula Islands, whence they had been unknown (Coates & Bishop 1997), confirming this species' more extensive distribution in Wallacea.

Rusty-breasted Cuckoo (*Cacomantis sepulcralis virescens*): On Taliabu's high plateau, one silent juvenile was observed at ~1300m possibly being fed by resident *Phylloscopus* leaf-warblers (12 Dec 2013). Identification of the juvenile was unequivocal as this is the only *Cacomantis* cuckoo possible by distribution. A day later, two adults were observed vocalizing nearby and were sound-recorded at ~900m. The sound-recordings matched with vocalizations heard throughout Taliabu during our visit (7–15 Dec 2013) from sea level to ~1300m. On Peleng, the species was equally common by voice (19–23 Dec 2013), and was heard and sound-recorded at various elevations from sea level to ~1000m. One adult individual was collected on Peleng. On Gunung Tumpu (Table 1) on Sulawesi's eastern peninsula, the species was heard and sound-recorded at ~1700–2200m (3–4 Jan 2014). Finally, on Batudaka Island in the surroundings of the town of Wakai (Togian Archipelago; ~0-250m), the species was heard on a daily basis during two visits (25–28 Dec 2013; 23–27 Apr 2009).

Rheindt (2010) demonstrated that individuals on Taliabu sound-recorded by two different researchers during Mar–Apr did not match the distinct vocalizations of the Moluccan taxa *aeruginosus* and *heinrichi*, which are vocally unlike all other taxa of the *sepulcralis-variolosus* complex and should therefore be afforded species rank as *C. aeruginosus* (Rheindt & Hutchinson 2007; Coates & Bishop 1997). Instead, Taliabu individuals were identical in their sonographically hook-like note structure to the Sulawesi taxon *virescens* (see figure 3 in Rheindt & Hutchinson 2007). Birds recorded on Taliabu and Peleng during this expedition again exhibited the same note structure, confirming the presence of *virescens* on these islands during December. Given that (1) we observed a silent juvenile (being fed by warblers) in relatively close proximity to where we sound-recorded the

vocalizations of adult *virescens*, and (2) that *aeruginosus* and *heinrichi* are reported to be elevationally segregated from other taxa on islands where they co-occur (e.g. Halmahera; pers. obs.), and (3) that nobody has ever reported an *aeruginosus* / *heinrichi*-like vocalization from Taliabu while *virescens* has been sound-recorded multiple times over many months, it is safe to assume that *virescens* breeds on Taliabu, further refuting Coates & Bishop's (1997) previous attribution of Taliabu birds to the taxon *aeruginosus*.

Drongo Cuckoo (*Surniculus lugubris musschenbroeki*): Two to three individuals were seen giving their ascending vocalization on Peleng above Kokolomboi at ~900m (20-21 Dec 2013; Table 1), and more individuals were heard only.

Rheindt *et al.* (2010) provided a new record of this species for Peleng at a site around 100m elevation. Our new records considerably extend the elevational range of this species on Peleng, indicating that it is found at all elevations. It may have gone unnoticed by previous ornithologists because of seasonal differences in calling behavior.

Sulawesi Masked Owl (*Tyto rosenbergii*): A pair belonging to the local subspecies *pelingensis* was seen at its nesting hole in daylight (~16.30h) in a large remnant tree in an orchard below the village of Kokolomboi on Peleng Island at ~500m elevation (22 Dec 2013; Table 1). Locals reported that the pair had been seen around the same tree for several months. In a mosaic of orchards and secondary forest habitat above Wakai on Batudaka Island (Togian Archipelago; Table 1) at ~100-200m elevation, *Tyto* vocalizations were heard by FER on three different nights (23–26 Apr 2009) but despite efforts the birds were never seen. More than four years later, FER returned to the same spot on two nights (26–28 Dec 2013) and sound-recorded the *Tyto* owls there. Up to three individuals were heard from a single location, and at one point two engaged in a heated duet that was sound-recorded. Playback drew the birds into view, but they passed over in slow flight before disappearing down a valley.

Indrawan *et al.* (2006) reported a Sulawesi Masked Owl on the Togian Islands caught by villagers and transported to a rescue centre in Java. Despite Indrawan *et al.*'s (2006) record, there has been controversy over whether Sulawesi Masked Owl on Togian may co-exist with Minahasa Masked Owl *Tyto inexspectata* based on birdwatchers' impressions of call notes heard on Batudaka Island (F. Verbelen, pers. comm.). The islands were entirely forested until relatively recently, possibly making them unsuitable for the edge-inhabiting *T. r. rosenbergii* and more suitable for the forest-inhabiting *T. inexspectata*. However, modern

deforestation has created sufficient edge and agricultural habitat to facilitate colonization by *T. r. rosenbergii*.

The new recordings demonstrate that the birds in the surroundings of Wakai on Batudaka Island are Sulawesi Masked Owls as their calls are distinctly shorter than the longer hisses of *T. inexspectata* and possess a screeching quality typical of *T. rosenbergii* and distinct from the exclusive hissing quality of *T. inexspectata*. A series of shorter screeches recorded on Batudaka Island on one occasion closely resembles a similar recording of Sulawesi Masked Owl from the Sulawesi mainland (see www.xeno-canto.org). The identity of these Batudaka birds as Sulawesi Masked Owls also matches their occurrence in orchard and forest edge habitat. The presence of Sulawesi Masked Owls on the Togian Islands may be a recent phenomenon following deforestation. At the same time, it cannot be ruled out that it has long been there in gaps and edges, or that *T. inexspectata* co-exists with *T. rosenbergii* on Togian, but replaces it in the remaining tracts of primary rainforest.

Uniform Swiftlet (*Aerodramus vanikorensis*): This species was commonly seen around the village of Sumber Agung on Sulawesi's eastern peninsula at ~100m (31 Dec 2013; 5 Jan 2014; Table 1), as well as the island of Batudaka (Togian Archipelago), mostly at coastal elevations, including on the small offshore islet of Kadidiri and at sea (23–27 Apr 2009; 25–28 Dec 2013). The birds were often seen in good light, making their identification from Moluccan Swiftlet (*Aerodramus [infuscatus] sororum*) unequivocal based on the rump being concolorous with the back. The records on Togian are a range extension (Coates & Bishop 1997).

Purple Needletail (*Hirundapus celebensis*): Approximately four individuals were seen on Taliabu Island's high plateau at ~1300m on 10 Dec 2013 when they were observed in rapid flight around the highest part of the island close to dusk. The birds moved into the area, hunted in typical needletail manner and disappeared a few minutes later. Some of the closer views were of birds passing just overhead. The light was good enough to clearly see the contrasting white vent triangle; in contrast, we could see no pale color on the back or on the throat, ruling out transient White-throated Needletails (*Hirundapus caudacutus*), which we saw approximately two weeks later on Sulawesi. Even though the Sulawesi sightings were over a much greater distance, the white throat and back marks were well-visible, strengthening our conviction that our close-distance sightings in Taliabu's highlands represent Purple Needletail.

Our Taliabu records of Purple Needletail represent an eastward range extension of this species within Wallacea, where it was not previously known east of Sulawesi (Coates & Bishop 1997).

Ruddy Kingfisher (*Halcyon coromanda*): On Taliabu (7–15 Dec 2013), one was collected on the island's high plateau at ~1300m and another at ~500m (both showing the extensive whitish-blue rump of the local taxon *sulana*), while a third was seen in coastal coconut palm plantations at ~50m near Jorjoga (Table 1). On Peleng (19–23 Dec 2013), one was briefly seen in flight at ~950m where the species was repeatedly heard and sound-recorded; another individual was collected near here at ~1000m, again showing the extensive whitish-blue rump of the local subspecies *pelingensis*. On Batudaka Island above the town of Wakai (27 Dec 2013; Table 1), one was heard, sound-recorded and flushed at ~250m, showing the extensive blue rump of the local subspecies *rufa*.

Coates & Bishop (1997) do not provide upper elevational limits for this species on most islands where it occurs. They suggest a general upper limit at 200m (Sulawesi) to 300m (Sangihe), implying that locally breeding populations are lowland birds. Our records from Taliabu up to ~1300m and from Peleng up to ~1000m represent elevational range extensions compared to previous records on Taliabu at 500m (Rheindt 2010) and on Peleng at 750m (Rheindt *et al.* 2010), and show that – at least on some islands – Ruddy Kingfishers occur over a wide range of elevations.

Sacred Kingfisher (*Halcyon sancta*): One shy individual, possibly an immature based on its barred breast sides, was seen on Batudaka Island above the town of Wakai (Table 1) at ~200m on 26 Dec 2013.

Coates & Bishop (1997) list this species' occurrence in the region as mainly between April and October, exceptionally December. This is an unusual late-December occurrence in Wallacea at a season when most individuals are in their Australian breeding grounds. Our record suggests that some birds, perhaps mainly immatures, may oversummer in Wallacea.

Scaly-breasted Kingfisher (*Actenoides princeps tax. nov.*): On 3 Jan 2014 at ~2100m elevation on Gunung Tumpu on Sulawesi's eastern peninsula (Table 1), FER observed a large male kingfisher perching silently on a branch about 2–3m above ground at ~10m distance for ~2 min before it flew into the distant canopy. The bird had a deep-blue cap and a beak that was mostly but not entirely bright red, with limited parts of the beak (such as the tip) more yellowish. The bird had a white throat and solid, unmarked, intensely orange underparts, with the orange reaching onto the nape in a collar, in a superficially similar fashion to the lowland-

inhabiting Green-backed Kingfisher (*Actenoides monachus*). However, the bird also had a conspicuous round buff loral patch and an earth-brown back with off-white scaling, confirming its affinity with the montane Scaly-breasted Kingfisher complex. The tail was mostly hidden by a branch but was probably all-brown based on suggestive glimpses.

The Scaly-breasted Kingfisher is a Sulawesi montane endemic with pronounced morphological variation across different mountain ranges (Coates & Bishop 1997). This complex may form a radiation of up to three species, and it was split into two by del Hoyo & Collar (2014). The complex is known from most mountain ranges of Sulawesi, but it has probably never been found on the isolated mountains on the eastern peninsula (Coates & Bishop 1997). The form we document from Gunung Tumpu, the highest and most isolated mountain on the eastern peninsula, appears to present additional morphological variation that exceeds the variation hitherto known within the complex. The observed individual differs from all other Scaly-breasted Kingfishers in its entirely orange and unbarred underparts (which are white with variable barring in other forms). It also differs from most but not all other forms in its largely red beak (Coates & Bishop 1997). As its resemblance to Green-backed Kingfishers in certain traits is highly superficial, a hybrid origin is extremely unlikely. It may well be the most distinct member of the Scaly-breasted Kingfisher complex. FER was unable to take a photograph. In the absence of a collected individual, this putatively distinct form remains undescribed.

Purple-bearded Bee-eater (*Meropogon forsteni*): One individual was seen by Suparno at ~1300m on Gunung Tumpu on Sulawesi's eastern peninsula (3 Jan 2014; Table 1). While this species is widely distributed in montane Sulawesi, it has not previously been reported from isolated Gunung Tumpu.

Grey Wagtail (*Motacilla cinerea*): The species was seen commonly on Taliabu (7–15 Dec 2013) across all elevations, with one individual collected. About five were seen along a river at Gunung Tumpu on Sulawesi's eastern peninsula (1–3 Jan 2014). One was seen near Wakai during a visit to Batudaka Island on 26 Apr 2009.

Indrawan *et al.* (2006) provide one previous record for this species from Una-Una, but our Wakai observation is a new record for the main Togian Islands (Coates & Bishop 1997).

Caerulean Cuckooshrike (*Coracina temminckii*): The species was seen commonly on a daily basis between 400m and over 2000m on Gunung Tumpu on Sulawesi's eastern peninsula (1-4 Jan 2014; Table 1). These sightings stand in contrast to Coates & Bishop's

(1997) assertion that the species seems uncommon in the outlying ranges of the eastern peninsula.

Sulawesi Triller (*Lalage leucopygialis*): On 8 Dec and 14–15 Dec 2013, about 10 were seen in degraded orchard and forest edge habitat in the Taliabu lowlands around the village of Wahe (=Binadesa). The species was also commonly found near Wakai on Batudaka Island at ~100–250m elevation (23–27 April 2009).

The species' occurrence on the Togian Islands has previously been in doubt as Indrawan *et al.* (2006) report a potential sighting by an Earthwatch volunteer (R. Hong) on Talatakoh Island but refrained from fully accepting this provisional record. Our multiple sightings confirm the existence of this species on the Togian Islands.

Sooty-headed Bulbul (*Pycnonotus aurigaster*): This species was commonly encountered in agricultural land and pastures above the village of Sumber Agung at the base of Gunung Tumpu on Sulawesi's eastern peninsula (1 Jan and 5 Jan 2014; Table 1).

The species became established in South Sulawesi probably from escaped Javan cagebirds (Coates & Bishop 1997), and has now spread to the northern peninsula of Sulawesi (Fitzsimons *et al.* 2011). To the best of our knowledge, these are the first records from the eastern peninsula, where the species is now well-established also. Thus, the species probably now occurs in anthropogenic habitats in all mainland provinces of Sulawesi.

Sulawesi Drongo (*Dicrurus montanus*): FER saw two singletons at about 1350m and 2100m on Gunung Tumpu on Sulawesi's eastern peninsula (2–3 Jan 2014; Table 1).

Coates & Bishop (1997) list this as a widespread montane endemic of Sulawesi with an elevational range between 550-1800m. Our record slightly extends the reported elevational range of this species and demonstrates its occurrence even on Gunung Tumpu, an isolated mountain peak on the eastern peninsula whence the species had not been reported previously to the best of our knowledge. It may also occur in connecting hill habitat above 500m between Gunung Tumpu and the central portion of the island.

Hair-crested Drongo (*Dicrurus hottentottus*): On Taliabu, taxon *pectoralis* was seen daily from 0–1300m, but was generally sparse. Taxon *banggaiensis* on Peleng was seen frequently at ~600-1000m (only red-eyed), but limited time was spent at lower elevations where it was only heard (no white-eyed Peleng individuals were seen on this trip; see Rheindt *et al.* 2010). On Batudaka (Togian Islands), presumably subspecies *leucops* was seen commonly. One additional (white-eyed) *leucops* was seen and photographed at Salodik (Sulawesi).

Most individuals on Batudaka were white-eyed, although a few red-eyed individuals were seen in the same area where unequivocal dark-eyed immatures were also observed. Eye color variation in Togian drongos is confusing. Indrawan *et al.* (2006) also saw mostly white-eyed individuals and interpreted a brown-eyed individual as an immature, while regarding red-eyed individuals as the montane Sulawesi Drongo *Dicrurus montanus*. Give our own observations of red, dark and white eye colors being represented in the same flocks, we feel that the situation may be more complicated. Togian's drongo situation may be more akin to that of the drongos on Peleng (see Rheindt *et al.* 2010) where there is presumably an elevational cline of eye colors, with white-eyed birds from the lowlands intergrading with red-eyed birds from the highlands. Likewise on Togian, red-eyed birds may represent an ancient stock that is being replaced by white-eyed arrivals from Sulawesi.

Malia (*Malia grata stresemanni*): Between 7–9 flocks of this species, each with 3–5 individuals, were seen on Gunung Tumpu (Sulawesi) at ~1500–2400m (2–4 Jan 2014).

This montane Sulawesi endemic occurs widely throughout the island from 900–2400m (Coates & Bishop 1997). Given the scarcity of ornithological work on isolated Gunung Tumpu on the eastern peninsula, it is worthwhile to point out that this species is not absent here but seems to occur rather commonly.

Banggai Crow (*Corvus unicolor*): On Peleng, we observed this species between 700–1000m and heard its distinctive vocalizations down to 300m elevation (19–23 Dec 2013).

The latter elevation is unusually low, but villagers of Kokolomboi confirmed (pers. comm.) that the species is now found at elevations where it was previously scarce. The reasons for this apparent elevational shift are unknown.

Eyebrowed Thrush (*Turdus obscurus*): One adult was seen well in a fruiting tree by PRW and FER on Peleng's highland plateau at approximately 950m (22 Dec 2013).

To the best of our knowledge, this is only the fourth record of this migratory species in Wallacea, with two previous records on Flores (Lesser Sunda Islands) and one on Sulawesi (Coates & Bishop 1997). The species may be a regular winter visitor to Wallacea but overlooked given its shyness and the few ornithologists in the region.

Red-and-black Thrush (*Zoothera mendeni*): On Peleng (19–23 Dec 2013), we caught five singletons in mistnets at elevations between 800–1100m. In contrast to previous visits in 2009, this species was extremely shy and non-vocal during our visit, possibly as this fell

during the peak of brood care; indeed villagers found a nest with fledglings above the village of Kokolomboi at ~700m (23 Dec 2013; Table 1).

Our present records indicate that this species is not restricted to the lowlands of Peleng, as was erroneously assumed by Rheindt *et al.* (2010), but that its core distribution in present-day Peleng may be the less-disturbed remnant hill forests almost up to the island's peaks at ~1150m.

Great Shortwing (*Heinrichia calligyna*): We sought out this species with playback of song recordings across a wide variety of altitudinal zones on Gunung Tumpu (1–5 Jan 2014; Table 1), but the lack of response and the fact that we did not hear any *Heinrichia*-like songs suggests that our visit coincided with low song activity in this species, as with many others. However, one male was mist-netted at approximately 1300m late on 4 Jan 2014. The next morning, playback at the site of collection did not produce unequivocal views of this species, although a brief encounter with a small brown terrestrial bird, possibly the female, is suggestive.

The Sulawesi montane endemic Great Shortwing exhibits great taxonomic variation across the island, especially in female plumage, while males look more uniform across geographic regions. There are suggestions that some populations in the province of Central Sulawesi – to which Gunung Tumpu belongs politically (but not biogeographically) – may pertain to undescribed taxa (Coates & Bishop 1997). Our procurement of a male only, with a lack of female sightings or song recordings, makes it presently impossible to assess whether birds on isolated Gunung Tumpu belong to any known taxon or whether they require description as a new taxon. Future work on Gunung Tumpu's birdlife will hopefully clarify the affinity of local Great Shortwings.

Chestnut-backed Bush-Warbler (*Locustella castanea*): One individual of this shy species was seen well by FER on Gunung Tumpu on Sulawesi's eastern peninsula at ~1500m (3 Jan 2014), and the species' distinctive song was heard and sound-recorded commonly here from ~1300–2200m.

These records are within the elevational range reported by Coates & Bishop (1997) but confirm the presence of this montane species on isolated Gunung Tumpu.

Gray's Grasshopper Warbler (*Locustella fasciolata*): This species is a widespread winterer in Wallacea, with previous records including, amongst many others, the islands of Taliabu, Ternate (Coates & Bishop 1997) and Peleng (Rheindt *et al.* 2010). However, most previous field workers have been unaware that *Locustella fasciolata s. l.* comprises two deeply

diverged lineages that differ from each other in DNA, courtship vocalization and breeding range. Alström *et al.* (2011) found a 5% model-corrected cytochrome-*b* divergence between nominate *fasciolata* from the Far Eastern Russian mainland, north-east China and Korea and *amnicola* (=Sakhalin Grasshopper Warbler) from Sakhalin and Japan. Sound recordings deposited in sound libraries (such as www.xeno-canto.org) demonstrate that the song of *fasciolata* is significantly faster in delivery and different in rhythm and structure from that of *amnicola*. Hence, treatment of the complex as two sister species is likely in the future. It is unknown whether these two sister species have separate winter ranges, as is being shown for some similar warbler sister species from the same breeding region (e.g. Yap *et al.*, in press), or whether the two broadly overlap in the winter.

We noted members of the species complex on various islands. On 3 Dec 2013 on Ternate, FER had good views of two individuals, and a few more were heard and sound-recorded on the lower slopes of the island's main volcano. One of the individuals seen on Ternate gave an unsolicited typical fast-paced nominate *fasciolata* song (judging from recordings on xeno-canto from the breeding range). The second individual taped on Ternate gave a much slower-paced song that superficially resembles *amnicola*; however, the latter recording is atypical in that the bird reacted very strongly to playback and gave song elements in a somewhat haphazard, erratic fashion unusual for any member of this complex. Given that the song was not uttered under completely natural conditions, identification of this second individual as either nominate *fasciolata* or *amnicola* is uncertain.

On Taliabu, one was heard at ~500m (14 Dec 2013). Its sound-recorded song is fast-paced and typical of the nominate taxon *fasciolata*. Another 1-2 were seen and calls but not songs were heard in a burned field near Jorjoga (Taliabu; Table 1) at ~100m elevation; these birds are also assumed to be nominate *fasciolata*. On Peleng (19–23 Dec 2013), only calls (not songs) were heard at ~100–900m, so identification was not attempted.

In summary, we have firm evidence of the occurrence of *fasciolata*, not *amnicola*, for at least Taliabu and Ternate. However, we cannot rule out the presence of *amnicola* in the area.

Black-fronted White-eye (*Zosterops atrifrons*): The subspecies *sulaensis* was commonly seen, heard and sound-recorded on Taliabu from sea level to at least 700m (8–15 Dec 2013). On Peleng, we commonly found birds ascribed to the subspecies *subatrifrons* at all elevations to 1100m (19–23 Dec 2013). On Gunung Tumpu on Sulawesi's eastern peninsula (1–4 Jan 2014), we saw about 15 across a wide elevational range from 200–2000m.

The latter record indicates a slight elevational range extension for Sulawesi compared with the 100–1500m indicated by Coates & Bishop (1997). On Gunung Tumpu our uppermost observations of this species were at a higher elevation than our sole observation of Mountain White-eyes (*Zosterops montanus*) at 1600m. However, the Mountain White-eyes were seen on top of a stunted ridge while Black-fronted White-eyes were seen in taller forest. The elevational overlap on Gunung Tumpu parallels the situation described for Taliabu (Rheindt 2010) where the two species were even observed in the same flocks.

Rheindt *et al.* (2010) documented that the population on Peleng – often ascribed to its own taxon *subatrifrons* – has a stable song type that is intermediate in certain characters between the songs of *atrifrons* on Sulawesi and *sulaensis* on Taliabu. During this visit (19–23 Dec 2013), we made the possible observation that birds at higher elevations on Peleng may have a wider eye ring (more akin to *sulaensis*) while those lower on Peleng have a narrower eye ring (more akin to *atrifrons*). Our sample size for these observations is limited, and more research is needed to confirm this pattern. However, a similar pattern of morphological intermediacy across the Peleng elevational gradient has been reported for Hair-crested Drongos (*Dicrurus hottentottus*; Rheindt *et al.* 2010). One possible explanatory hypothesis, that Taliabu-like bird populations on Peleng are being infiltrated in the western lowlands by new-comers from Sulawesi, requires rigorous testing using genomic datasets.

Mangrove Blue-Flycatcher (*Cyornis rufigastra*): One female of the Sulawesi taxon *omissa*, which is sometimes regarded as an independent species, was collected in riverside habitat in intact submontane rainforest at ~1300m on Gunung Tumpu on Sulawesi's eastern peninsula (4 Jan 2014).

FER commonly encountered a lowland population resembling *C. [r.] omissa* in secondary forest, edge and orchard habitat near Wakai on Batudaka Island (Togian Archipelago; Table 1) at ~150–300m (23–27 Apr 2009). This population was first mentioned by Indrawan *et al*. (2006) as belonging to the Mangrove Blue-Flycatcher. From 25–27 December 2013, our expedition again encountered this population in the same area near Wakai, collecting several individuals. As *C. [r.] omissa* on Sulawesi is an upland bird, this novel lowland population of *Cyornis* flycatcher may constitute a taxon new to science. A detailed description of these birds, including their vocalizations, will be published separately.

Snowy-browed Flycatcher (*Ficedula hyperythra*): We commonly encountered this species on the high plateau of Taliabu at ~1300m (8–13 Dec 2013), with more than 10 individuals caught in mistnets (but not all collected). We also saw a male and a female feeding a juvenile,

and collected another male and juvenile at around 1700–2100m on Gunung Tumpu on Sulawesi's eastern peninsula (3–4 Jan 2014; Table 1).

This species was only recently discovered on Taliabu (Davidson *et al.* 1991), when it was thought that this might be a new subspecies. We confirm that the female upperparts colour of the Taliabu population is dingy blue, unlike the brown-backed female of adjacent *jugosae* from the province of Central Sulawesi, to which Gunung Tumpu belongs. Future work will need to determine if Taliabu birds are sufficiently similar to be included in the Moluccan taxa *alifura* from Buru or (less likely) *pallidipectus* from Bacan (Coates & Bishop 1997), or whether they deserve independent taxon status on their own.

White-breasted Wood-Swallow (*Artamus leucorynchus*): One was observed on Ternate at sea level on 1 Dec 2013. Then 3–4 were seen around Tatendeng in western Peleng at sea level on 23 Dec 2013. Several were also seen around the town of Sumber Agung on Sulawesi's eastern peninsula close to sea level (1 Jan 2014; Table 1).

This species is widespread throughout Wallacea, but apparently ours is the first record of this species for Ternate (Coates & Bishop 1997).

Metallic Starling (*Aplonis metallica*): Although commonly seen on Ternate during our visit (1–2 Dec 2013), this species is listed as having been recorded on Ternate only once (Coates & Bishop 1997). Our sightings indicate that the species has spread on the island, likely due to increased human settlement.

Tree Sparrow (*Passer montanus*): This human commensal has become well-established in coastal settlements on Ternate (seen 1–2 Dec 2013), Taliabu (Jorjoga and Tikong; Table 1; seen 7–15 Dec 2013), Peleng (Leme-Leme and Tataba; Table 1; seen 19–23 Dec 2013) and Batudaka Island in the Togian Archipelago (Wakai; Table 1; seen 23–27 Apr 2009 and 25–27 Dec 2013).

Among these islands, the species has previously been reported in Ternate, Taliabu and the Togian Islands (Indrawan *et al.* 2006; Coates & Bishop 1997). We are not aware of any published reports from Peleng Island, although the species was found at the harbour of the local capital Banggai (on the island bearing the same name) as early as 1991 (Indrawan *et al.* 1997). Our records confirm this species' ongoing colonization of human settlements even on the smaller island groups in Wallacea.

Blue-faced Parrotfinch (*Erythrura trichroa*): PRW and FER saw one male at ~1200m on Taliabu's high plateau, and PRW took a diagnostic photograph (10 Dec 2013).

The species has never been conclusively recorded on the Sula Islands, although Rheindt (2010) reported a brief sighting of what was probably this species at 900m on Taliabu. Our record confirms the presence of this species on the Sula Islands. Its subspecific identity here remains uncertain, as each adjacent island group (Sulawesi, Buru and the northern Moluccas) is inhabited by a different subspecies.

DISCUSSION

Our work indicates that the avifauna of Wallacea continues to be fragmentarily known, and much more fieldwork is needed to better understand elevational and geographic limits of bird species in the region. We provided many range extensions for bird species previously unrecorded for the little-studied Togian Islands. However, even islands such as Peleng (in the Banggai group) and Taliabu (in the Sula group) yielded new island records and significant elevational extensions.

Most significantly, our research demonstrates that new species-level and subspecies-level taxonomic diversity remains to be documented in Wallacea. Based on information from previous trips to the region (Davidson *et al.* 1991; Rheindt 2010; Rheindt *et al.* 2010; Rheindt, unpublished), we were able to collect specimen material for multiple bird taxa new to science during this one expedition. All of these will be subject to taxon descriptions at a future point in time and are only mentioned in passing in the present contribution.

Despite our failure to collect a type specimen, another significant result of our fieldwork is the discovery of a distinct, new taxon of kingfisher on the highest mountain of the eastern peninsula of Sulawesi that has previously gone unnoticed and represents some of the most distinct morphological variation within its species complex. The new population of Scaly-breasted Kingfisher (*Actenoides princeps tax. nov.*) may well turn out to be sufficiently differentiated to constitute a species-level lineage. Future collecting efforts in eastern Sulawesi will need to specifically target this bird.

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REFERENCES

Alström, P., S. Fregin, J.A. Norman, P.G.P. Ericson, L. Christidis & U. Olsson, 2011. Multilocus analysis of a taxonomically densely sampled dataset reveal extensive non-monophyly in the avian family Locustellidae. *Mol. Phylogenet. Evol.* **58**: 513-526.

Argeloo, M. & R. Dekker, 1996. Bulwer's Petrel in Indonesia. *Kukila* **8**: 312-135.

Becker, J.J., D.T. Sandwell, W.H.F. Smith, J. Braud, B. Binder, J. Depner, D. Fabre, J. Factor, S. Ingalls, S.-H. Kim, R. Ladner, K. Marks, S. Nelson, A. Pharaoh, G. Sharman, R. Trimmer, J. von Rosenburg, G. Wallace & P. Weatherall, 2009. Global bathymetry and elevation data at 30 arc seconds resolution: SRTM30_PLUS. *Marine Geodesy* **32**: 355–371.

Bintanja, R., R.S.W. van de Wal & J. Oerlemans, 2005. Modelled atmospheric temperatures and global sea level over the past million years. *Nature* **437**: 125–128.

Blasius, W., 1897. *Neuer Beitrag zur Kenntnis der Vogelfauna vom Celebes*. Festschrift der Herzoglichen Technischen Hochschule Carolina-Wilhelmina. Braunschweig, Friedrich Vieweg und Sohn.

Caputo, R., 2007. Sea level curves: perplexities of an end-user in morphotectonic applications. *Global & Planetary Change* **57**: 417–423.

Coates, B. J. & K.D. Bishop, 1997. *A field guide to the birds of Wallacea.* Dove Publications, Alderley.

Davidson, P.J. & T. Stones, 1993. Birding in the Sula Islands. *Oriental Bird Club Bull.* **18**: 59–63.

Davidson, P.J., R.S. Lucking, A.J. Stones, N.J. Bean, W. Raharjaningtrah & H. Banjaransari, 1991. *Report on an ornithological survey of Taliabu, Indonesia*. University of East Anglia, Norwich.

Davidson, P.J., T. Stones & R.S. Lucking, 1995. The conservation status of key bird species on Taliabu and the Sula Islands, Indonesia. *Bird Conserv. Intern.* **5**: 1–20.

Del Hoyo, J. & N.J. Collar, 2014. HBW and BirdLife International Illustrated Checklist of the Birds of the World. Vol. 1. Non-passerines. Lynx Edicions, Barcelona.

Fitzsimons, J.A., J.L. Thomas & M. Argeloo, 2011. Occurrence and distribution of established and new introduced bird species in north Sulawesi, Indonesia. *Forktail* **27**: 23-28.

Hall, R., 2002. Cenozoic geological and plate tectonic evolution of Southeast Asia and the southwest Pacific: computer-based reconstructions, models and animations. *J. Asian Earth Sci.* **20**: 353–431.

Indrawan, M. & S. Somadikarta, 2004. A new hawk-owl from the Togian Islands, Gulf of Tomini, central Sulawesi, Indonesia. *Bulletin of the British Ornithologists' Club* **124**: 160-171.

Indrawan, M., M.S. Fujita, Y. Masala & L. Pesik, 1993. Status and conservation of Sula Scrubfowl (*Megapodius bernsteinii* Schlegel 1866) in Banggai Islands, Sulawesi. *Trop. Biodiver*. **1**: 113-130.

Indrawan, M., Y. Masala & L. Pesik, 1997. Recent bird observations from the Banggai Islands. *Kukila* **9**: 61-70.

Indrawan, M., S. Somadikarta, J. Supriatna, M.D. Bruce, Sunarto & G. Djanubudiman, 2006. The birds of the Togian islands. *Forktail* **22**: 7-22.

Indrawan, M., Rasmussen, P.C. & Sunarto, 2008. A new white-eye *Zosterops* from the Togian Islands, Sulawesi, Indonesia. *Wilson J. Orn*. **120**: 1-9.

Indrawan, M., Y. Masala & A. Maleso, 2009. *Leap of faith of the unconverted: participatory action research in Banggai Islands, Central Sulawesi, Indonesia*. Contribution to the Third International Field Ecology Symposium: assessing and restoring biodiversity in a human dominated landscape. Chiang Mai, Thailand, 12-15 Feb 2009.

Mallo, F.N., D. D. Putra, P. C. Rasmussen, Herlina, S. Somadikarta, M. Indrawan, Darjono, I. N. Mallo, P. Sweet, A. Rahman, W. Raharjaningtrah & Y. Masala. 2010. Rediscovery of the critically endangered Banggai Crow *Corvus unicolor* on Peleng Island, Indonesia, part 2: taxonomy. *Bull. Brit. Orn. Club* **130**: 166–180.

Rheindt, F.E., 2010. New biogeographic records for the avifauna of Taliabu (Sula Islands, Indonesia), with the preliminary documentation of two previously undiscovered taxa. *Bulletin Brit. Orn. Cl.* **130**: 33-51.

Rheindt, F.E. & R.O. Hutchinson, 2007. A photoshot odyssey through the confused avian taxonomy of Seram and Buru (southern Moluccas). *BirdingASIA* **7**: 18–38.

Rheindt, F.E. & F. Verbelen, 2011. First nest description of the Wallacean endemic Vinous-breasted Sparrowhawk *Accipiter rhodogaster*, with notes on its vocalizations and intra-species taxonomy. *Kukila* **15**: 83-88.

Rheindt, F.E., F. Verbelen, Dadang Dwi Putra, A. Rahman & M. Indrawan, 2010. New biogeographic records in the avifauna of Peleng Island (Sulawesi, Indonesia), with taxonomic notes on some endemic taxa. *Bulletin Brit. Orn. Cl.* **130**: 181-207.

Stresemann, E. 1931. Vorläufiges über die ornithologischen Ergebnisse der Expedition Heinrich 1930-1931. *Orn. Monatsber*. **39**: 7-14.

Van Wyhe, J., 2013. *Dispelling the Darkness: Voyage in the Malay Archipelago and the Discovery of Evolution by Wallace and Darwin*. World Scientific, London.

White, C.M.N & M.D. Bruce, 1986. *The Birds of Wallacea. An Annotated Checklist*. BOU Checklist No. 7. British Ornithologists' Union, Tring.