

- Chao, A., Chazdon, R. L., Colwell, R. K. and Shen T.-J. (2005) A new statistical approach for assessing similarity of species composition with incidence and abundance data. *Ecol. Lett.* 8: 148–159.
- Colwell, R. K. (2006) EstimateS: Statistical estimation of species richness and shared species from samples. Version 8. Persistent URL <purl.oclc.org/estimates>
- Colwell, R. K. and Coddington, J. A. (1994) Estimating terrestrial biodiversity through extrapolation. *Philos. Trans. Roy. Soc.* 345: 101–118.
- Colwell, R. K., Mao, C.-X. and Chang, J. (2004) Interpolating, extrapolating, and comparing incidence-based species accumulation curves. *Ecology* 85: 2717–2727.
- IUCN 2007. *2007 IUCN Red List of threatened species.* www.iucnredlist.org. [accessed 13 February 2008].
- Kennedy, R., Gonzales, P., Dickinson, E., Miranda, H. and Fisher, T. (2000) *A guide to the birds of the Philippines.* Oxford, UK: Oxford University Press.
- Lohman, D. J., Prawiradilaga, D. M. and Meier, R. (2009) Improved COI barcoding primers for Southeast Asian perching birds (Aves: Passeriformes). *Mol. Ecol. Res.* 9: 37–40.
- Walther, B. A. and Morand, S. (1998) Comparative performance of species richness estimation methods. *Parasitology* 116: 395–405.

James Paul S. Gomez, Institute of Biology, University of the Philippines, Diliman, Quezon City, Philippines. Email: jsgomez@up.edu.ph

Rogelio V. Sison, National Museum of the Philippines Zoology Division, P. Burgos St., Manila 1000, Philippines

David J. Lohman, Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543, Republic of Singapore. Email: lohman@nus.edu.sg

## Additional altitudinal records from Seram, South Maluku, Indonesia

JOHN BOWLER

Further to the welcome set of new island records and new altitudinal records from South Maluku (Rheindt and Hutchison 2007a), I present some additional records from Seram (2–3°S 127–130°E). These records were obtained during ornithological research conducted on Seram in July–September 1987 as part of an Operation Raleigh expedition and all altitudinal data pertain to areas within the Manusela National Park in the centre of this island. Rheindt and Hutchinson (2007a) generally refer to the altitudinal data given in Coates and Bishop (1997), which in turn were frequently sourced from Bowler and Taylor (1989, 1993). Baseline altitudinal data for all species on Seram are given by White and Bruce (1986).

Altitudinal data in 1987 were mostly obtained from work conducted on the northern face of the Merkele Ridge between the villages of Roho (300 m), Kanikeh (700 m) and the summit ridge of Gunung Binaia at 2,850 m, between 25 July–14 August 1987, and from the separate ridge of Gunung Kobipoto (1,470m) on 15–24 August 1987. Averages of the readings of three altimeters were taken for each observation. Most of these data have appeared elsewhere, e.g. Bowler and Taylor (1989, 1993), but I present some previously unpublished information here, gleaned from my field notebooks, as well as referring to the results where relevant of the 1996 Cambridge University expedition to north-east Seram (Isherwood *et al.* 1997).

The island of Seram remains comparatively little visited and further fieldwork will undoubtedly add to our current knowledge of the altitudinal range of bird species on this island.

RED-BREASTED PYGMY PARROT *Micropsitta bruijnii pileata*  
Up to six tiny parrots were observed and heard in the upper canopy of intact lower montane forest above

Kanikeh at 1,500 m on 4 August 1987, which were assumed to be this species. Although, not specifically identified at the time, subsequent observations of a single bird of this species on Gunung Kobipoto (Bowler and Taylor 1989), plus frequent observations of the only other small parrot species on the island, the Red-flanked Lorikeet *Charmosyna placensis*, a lowland forest species, leave the identification as this species most likely. This record suggests that the upper altitudinal limit of Red-breasted Pygmy Parrot on Seram may be well above the 900 m given in Coates and Bishop (1997), as indeed it is on Buru (1,200 m in Coates and Bishop 1997).

ISLAND LEAF-WARBLER *Phylloscopus poliocephalus ceramensis*

The lower altitudinal limit of this species on Seram was given erroneously as 700 m in Bowler and Taylor (1989). The authors overlooked two of their own records of this species in bird parties in lowland forest near Roho at an altitude of 350 m on 25–26 July 1987, whilst Isherwood *et al.* (1997) recorded this species at 300 m near Wae Fufa, north-east Seram, in 1996. The altitudinal limits of this species clearly extend to much lower elevations on Seram than either on Buru, where *P. p. everetti* was not recorded in areas visited up to 1,200 m by Jepson (1993), although Coates and Bishop (1997) list this race as occurring down to 700 m, or on Bacan, where *P. p. waterstradti* is recorded as occurring between 1,500 and 2,100 m (Coates and Bishop 1997). The situation on Seram appears to be more like that on Halmahera, where Lambert and Yong (1989) recorded *P. p. henrietta* down to 550 m, and Coates and Bishop (1997) report it down to 300 m. These differences in altitudinal tolerance, together with reported variation in both plumage and song between the island populations (see Rheindt and

Hutchison 2007b), indicate that this complex species group is worthy of further study.

SNOWY-BROWED FLYCATCHER *Ficedula hyperythra negroides*

The upper altitudinal limit of this species on Seram was given erroneously as 2,000 m, instead of 2,300 m, in Bowler and Taylor (1989), an error transferred to Coates and Bishop (1997) but corrected to 2,300 m by Rheindt and Hutchinson (2007a). Birds of this species were frequently seen above 2,000 m on Gunung Binaia in August 1987, featuring regularly on transects conducted at 2,100 m and 2,200 m. No birds were observed above 2,300 m, however, despite extensive fieldwork at these higher elevations. Birds were also regularly observed at lower elevations as well, commonly down to 1,000 m and occasionally to 700 m (Bowler and Taylor 1989), indicating that the altitudinal centre of the range of this species on Seram lies somewhat below 2,000 m.

CINNAMON-CHESTED FLYCATCHER *Ficedula buruensis ceramensis*

The upper altitudinal limit of this species was raised to c.1,250 m on Gunung Kobipoto by Rheindt and Hutchinson (2007a), and the authors go on to state that this race seems to be restricted to bamboo vegetation in montane forest. In 1987, this species was found to be commonest in submontane forest near Kanikeh at 650–850 m, where it was often found within stands of bamboo. It was also observed less frequently in intact forest at this altitude outside bamboo stands, as well as in secondary garden areas within the enclave. At Wae Fufu, north-east Seram, Isherwood *et al.* (1997) commonly found this species in primary lower montane forest above 800 m in August 1996, with birds generally seen low down in patches of small tree-ferns but also flicking between the stems of ginger herbs at 1.0–1.5 m from the forest floor. An adult bird was observed in intact lowland rainforest at 200 m north of Gunung Kobipoto on 20 August 1987, and an immature bird was observed in lowland rainforest at 100 m near Solea on 30 August 1987 (Bowler and Taylor 1989), whilst an adult was observed in bamboo at Hoti, north-east Seram, at just 30 m elevation on 23 July 1996 (Isherwood *et al.* 1997). This species would therefore appear to occur at a wide range of elevations on Seram and in a variety of vegetation types, as it is reported to do on Buru, where the nominate race has been observed in degraded lowland forest near the coast (Jepson 1993) as well as in forest at higher altitudes.

OLIVE HONEYEATER *Lichmera argentauris patasiwa*

This species is a small-island specialist, with records to date in South Maluku confined to small offshore islets around Seram. Rheindt and Hutchison (2007a) reported birds of this species flying towards the mainland from the islet of Pulau Opin near Sawai, an act mirrored by a bird seen flying from the islet of Pulau Lusaoloate on 16 September 1987 (Bowler and Taylor 1989), the type locality for this race (White and Bruce 1986). It seems likely, despite the absence of records to date, that birds must regularly visit coastal habitats on the main island of Seram.

SCARLET MYZOMELA *Myzomela dibapha elisabethae*

The upper altitudinal limit of this species was raised to 2,300 m on Gunung Binaia by Rheindt and Hutchinson (2007a), and the authors go on to state that they doubt the species occurs below 1,800 m on this mountain as a result of habitat constraints, despite it occurring at 1,000–1,400 m on the lower isolated ridge of Gunung Kobipoto. In August 1987, this species was commonly seen on the northern slope of Gunung Binaia at 1,200–1,400 m elevation, including a group of 10 birds containing three red males taking nectar from tree-heather flowers at 1,200 m on 3 August 1987. Isherwood *et al.* (1997) recorded 15 sightings of this species on forested ridges at 800–1,000 m during fieldwork at Wae Fufa, north-east Seram, in August 1996. In addition, this species was also present on occasion as low as 650–700 m at the edges of the enclave near Kanikeh, where birds, including red males, were observed feeding high up in the crowns of flowering trees in July–August 1987 (see Bowler and Taylor 1989). This species would appear to have a similarly wide altitudinal tolerance on Seram, as it does on Buru, where *M. d. wakoloensis* has been recorded from the lowlands to 1,500 m (Coates and Bishop 1997).

## ACKNOWLEDGEMENTS

I would like to thank John Taylor for his help and companionship in the field, the Operation Raleigh organisation and its members in the field in Seram for providing vital logistical support, and the Directorate-General of Forest Protection and Nature Conservation (PHPA) in Bogor, Ambon and Seram for their support and assistance.

## REFERENCES

- Bowler, J. and Taylor, J. (1989) An annotated checklist of the birds of the Manusela National Park, Seram (birds recorded on the Operation Raleigh Expedition). *Kukila* 4: 3–29.
- Bowler, J. and Taylor, J. (1993) The avifauna of Seram. Pp.143–160 in I. D. Edwards, A. A. Macdonald and J. Proctor, eds. *Natural history of Seram*. Andover, UK: Intercept.
- Coates, B. J. and Bishop, K. D. (1997) *A guide to the birds of Wallacea*. Alderley, Queensland: Dove Publications.
- Isherwood, I. S., Willis, J. D. A., Edwards, T. R. K., Ekstrom, J. M. M., Kuriake, S., Lubis, I. R., Notanbun, H., Putnarubun, J., Robinson-Dean, J. C. and Tobias, J. A. (1997) *Biological surveys and conservation priorities in north-east Seram, Maluku, Indonesia*. Cambridge, UK: CSB Conservation Publications.
- Jepson, P. (1993) Recent ornithological observations from Buru. *Kukila* 6: 85–109.
- Lambert, F. and Yong, D. (1989) Some recent bird observations from Halmahera. *Kukila* 4: 30–33.
- Rheindt, F. E. and Hutchinson, R. O. (2007a) New island records and new altitudinal records of birds from South Maluku, Indonesia. *Forktail* 23: 158–161.
- Rheindt, F. E. and Hutchinson, R. O. (2007b) A photostory odyssey through the confused avian taxonomy of Seram and Buru (southern Moluccas). *BirdingASIA* 7: 18–38.
- White, C. M. N. and Bruce, M. D. (1986) *The birds of Wallacea*. London: British Ornithologists' Union (Checklist no. 7).