

SHORT NOTE

Woodford's rail (*Nesoclopeus woodfordi*) on Bougainville Island, Papua New Guinea

DON HADDEN

P.O. Box 6054, Christchurch 8030, New Zealand

hadden@clear.net.nz

The Woodford's rail (*Nesoclopeus woodfordi*) population increased greatly on Bougainville Island, Papua New Guinea (Fig. 1), during the secessionist uprising of 1989-1997 when the island was isolated from the rest of the world. On my return in 1999, I found Woodford's rails to be common throughout the entire eastern lowlands from Buka Passage to Buin (Fig. 1).

Woodford's rail is a little-known species recorded only with certainty from Bougainville Island, and Santa Isabel and Guadalcanal islands in the Solomon Islands. The Guadalcanal record is of 1 specimen taken by M. Woodford (Ogilvie-Grant 1889). The first specimens from Bougainville were 1 male and 1 female collected by Meek in 1904 (Rothschild & Hartert 1905). A further 4 males, 1 of which was immature, were taken in January 1908. A male was collected on Bougainville by the Whitney South Seas expedition (Mayr 1949). Two specimens collected by Father Poncelet, a missionary in the Buin area (Danis 1937a, b), were the last taken on Bougainville. Therefore it is more than 60 years since Woodford's rails have been seen on Bougainville, despite a 3-month collecting trip by Schodde (1977) and visits by experienced ornithologists such as Diamond (1975).

During the 5 years I observed birds on Bougainville in 1976-1980, I neither saw nor heard of Woodford's rails from any of the local people with whom I discussed birds. Later, Kaestner (1987) observed a Woodford's rail south of Aropa on the rainy afternoon of January 6 1985. However, Woodford's rails captured for me and the hundreds I have since seen in the field differed quite significantly from the bird Kaestner described. His bird was "swamp hen-sized" i.e. 45 cm in length cf. 30 cm for Woodford's rail. Its back and wings were

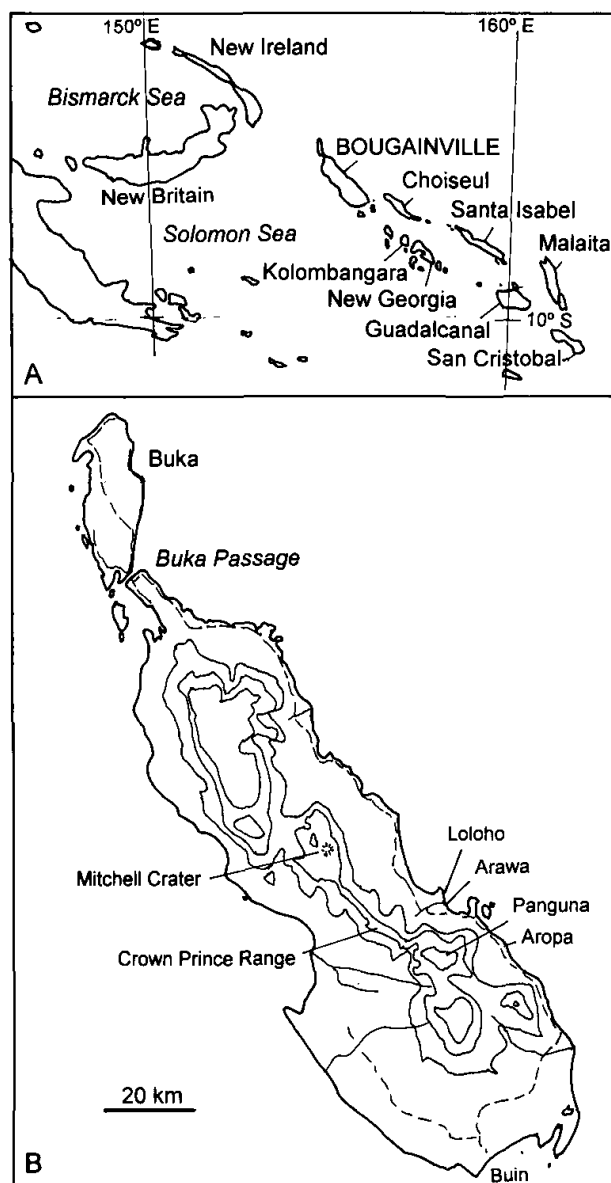


Fig. 1 A, Eastern Papua New Guinea, including Bougainville, and the Solomon Islands (islands east of Bougainville); B, detail of Bougainville, showing localities mentioned in text.

brown. When flapping its brown wings while running off the road, dark barring was seen. All my field observations of Woodford's rail are of birds with black backs and wings. In the hand, in good light, a brownish wash can be seen, but in the field, especially at 1530 h on a rainy day, the birds look black. None of the numerous Woodford's rails I have seen has had any dark barring and neither have the juveniles that I have seen accompanying adults. There are 2 possibilities: Kaestner saw an unknown species of swamp hen-sized rail, or made an inaccurate description of a Woodford's rail. The latter is more likely, which would then give 1 sighting on Bougainville in the 60 years since Father Poncelet's birds were collected.

Brief sightings of dark rails that were possibly Woodford's rails have been made on other islands. Hamlin (unpubl. Whitney Expedition diary) and Diamond (1987) saw birds on Choiseul. On New Georgia, Sibley (1951) made 2 observations and Blaber (1990) 3 sightings between 1985 and 1988. Finch (1985) observed dark rails twice on Kolombangara. Similar birds have also been seen on Malaita (Dutson 2001). These observers presumed the birds to be Woodford's rails but cautiously did not claim positive identification because, except for Finch, the sightings were relatively brief. Finch did not publish a description. It is possible that some of these observations were of the then-undescribed Roviana rail *Gallirallus rovigianae* (Diamond 1991). Dutson (pers. comm.) and H.P. Webb, G. Richardson, and J. Hornbuckle (unpubl. data) have reported Woodford's rails recently from Guadalcanal. Information on Woodford's rails from Isabel (Kratte *et al.* 2001a, 1b) indicates that the population there is no longer "endangered" (Collar *et al.* 1994).

Having arrived on Bougainville in 1999, with the belief that Woodford's rails "became extinct many decades ago on Bougainville and Guadalcanal" (Diamond 1991) and that there were tiny numbers on just 1 island in the world, I am pleased to report that they are now thriving on 2 islands. With unconfirmed observations on 4 other Solomon islands likely to be substantiated, it seems that Woodford's rails face a more hopeful future. This is good news when other flightless ground birds around the world seem to be sliding towards extinction. Diamond (1991) observed that of island rails "of the flightless or weak flying taxa half of those that were extant at the time of European discovery have subsequently become extinct and at least half of the survivors are now endangered."

No ornithologists had been able to visit central Bougainville for 8 years before 1999 and, apart from the Peace Monitoring Group, there are still fewer than 20 expatriates working for non-governmental organizations in Arawa. Significant areas along the

Crown Prince Range north and south of Panguna and through the foothills to within a few kilometres of the coast are still inaccessible to expatriates. Armed Bougainville Revolutionary Army personnel maintain a road block on the access to their area: the block was still in place in 2002. Arawa, which was once 1 of the most modern towns in Papua New Guinea has been heavily damaged, with about 50% of the housing destroyed and all factories, hospitals, government buildings, shops, and communication centres burnt out. What were extensive mown grassed areas around the town and at the golf course, playing fields, and sports grounds, are now overgrown with head-high grasses. It is in these extensive grasslands that Woodford's rail thrives. Apart from the willy wagtail (*Rhipidura leucophrys*) it is possibly the most noticeable species of bird. A colleague, knowing of my interest in birds, advised me when I arrived in Arawa in July 1999, that I would be disappointed as there were no birds here except for a big black one that would run off the road when you drove by. If a non-ornithologist notices a bird, it must be common, so at first I discounted the possibility of its being Woodford's rail, believing that species to be extinct and, if extant, then to exist in tiny numbers in undisturbed forest. It should certainly not be fossicking in the town rubbish dump or wandering around on the roads. Eventually I asked my students to catch a bird for me, which they promptly did, proving beyond doubt it was Woodford's rail (Plates 6, 7, pp. 133, 134).

Its description was as follows: head black; lower bill creamy greenish-yellow at base but light grey for outer 3rd; upper mandible dark grey at base, light grey for outer 3rd of beak; eye red; back black from head to tail, including wings, but wash of dark brown on wing coverts by shoulder of wing; underparts black to under tail with some grey flecks under bill, but no barring under tail; underwings with series of small light grey irregular barring and speckles on underwing coverts, a very few spots on primaries near the underwing coverts, but rest of primaries black; thighs black; legs light greenish-grey, including toes and claws. Measurements: wing 148.1 mm; bill 38.6 mm; tarsus 60.7 mm; tail 78 mm.

Subsequently I have had several Woodford's rails brought to me. Opposite Arawa High School are the abandoned Arawa Botanic Gardens, which were by 1999 a wilderness of grass and shrubs. Occasionally all the High School students are sent out to clear this area using grass knives. As it is full of Woodford's rails – I could hear them while I was teaching – I knew many were destined for the pot. However, the first time this area was cleared I foolishly offered a substantial amount of money for each bird they found. I had to renege on my offer very

quickly as youth after youth brought me Woodford's rails. These birds differed in several respects from the Bougainville subspecies *Nesoclopeus woodfordi tertius* as described by Mayr (1949). With specimens now available from Isabel and easily obtainable from Bougainville, a review of the taxonomy of this rail is now possible and will be prepared by Guy Dutson (pers. comm.).

Field observations

Woodford's rails living in long grasses next to the Bovo River in Arawa would wade into the water, at times up to their belly. A stony bar running into the river at a bend was frequently explored for food, with the birds pecking at items amongst the rocks. A bird that picked up a large dangling food item raced into the long grass with it. Often the Woodford's rails foraged in association with purple swamp-hens (*Porphyrio porphyrio*) and black ducks (*Anas superciliosa*) that frequented the same stony bend in the river. When walking, a Woodford's rail flicked its tail at each step and jerked its head backwards and forwards in typical rail fashion.

Woodford's rail is definitely flightless. Frequently our vehicle startled birds foraging on the road. Occasionally some birds, instead of diving for cover, have run rapidly along the road in front of the vehicle, wings flapping furiously before turning aside. When motorcycling near Loloho in early March 2001, I saw a Woodford's rail on the road. It noticed me and started running, not back towards safety, but on what looked to be a collision course. Very quickly, running with desperate speed, wings flapping, it just avoided my front wheel. The road verge was covered in dense grass. It did not attempt to plough headfirst into the grass, but tried to get over it. It made a 30 cm springing takeoff and, vigorously flapping its wings, reached perhaps 50 cm in height before dropping like a stone on the other side. It would not have covered more than 1 m horizontally. I have no doubt that if this bird could have flown it would have. Occasionally, when concealed from Woodford's rails, I have watched them stretch up on tiptoe and rapidly flap their wings before settling to fossick on the road again. None of these birds has ever left the ground, despite its vigorous wing-flapping. Once, 1 bird performed its tiptoe wing-flapping display 3 times before walking into cover. Usually, when running for cover Woodford's rails lower their heads, stretch their necks out slightly below the level of the back and disappear into the nearest long grass. Normally birds seek a small gap in the roadside grasses through which to escape. If there is no gap they run along, apparently seeking one. Birds running parallel to the side of the road can be seen making sudden head movements as they appear to be about to disappear but then race on until a gap is found and they disappear.

Eggs and nests

On 17 February 2001, I was given 2 Woodford's rail eggs (Plate 8, p.134). Some men clearing under cocoa trees on a hillside had come across the nest hidden in long grass. The eggs measured 44.5×32.5 mm and 45×33 mm. They were creamy buff with reddish-brown or rusty blotches and spots, very similar to the colour of dried blood, and blotches of varying shades of grey. One egg was blotched a little more heavily than the other but on both the blotches were concentrated toward the thicker end. Incubation had not begun so it is uncertain if this was a full clutch. Only 3 other Woodford rail nests have been seen. On 12 August 1926 Father Poncelet collected 2 eggs at Buin. The eggs are in the British Museum and measure 46.5×33.3 mm and 47.2×33.9 mm (Harrison & Parker 1967). On 22 July 1988, a presumed Woodford's rail nest of 6 eggs was found near Kolamola village on Isabel (Webb 1992). The only other nest contained a clutch of 4 collected by the Whitney Expedition in 1927, also on Isabel. del Hoyo *et al.* (1996) states "Breeding. Bougainville, Aug. Eggs 2 - 4." I am unaware of any 4-egg clutch from Bougainville and presume that the 4 eggs referred to are those collected by the Whitney Expedition in 1927 on Isabel.

It is probably only coincidence that the 2 Woodford's rail nests known from Bougainville contained only 2 eggs, but family groups I have observed have included only 2 young. Woodford's rails collected on Isabel (Kratter *et al.* 2001a) included 2 downy chicks but the authors do not record if the 2 chicks constituted the full brood. As family groups fossick, the half-grown young search for food themselves but quickly run to their parents when the older birds pick up food items. The chicks take these from the parent's beak, occasionally the 2 chicks have been seen racing to get there first. One chick waded into the Tupukas River after an adult, nearly losing its footing as the adult waded into water too deep for the young bird. The data from Bougainville show that Woodford's rails may nest at any time of the year. Nests with eggs have been found in February and August. I have seen family parties on 28 February (2 $\frac{1}{2}$ -grown chicks), 18 March (1 $\frac{1}{2}$ -grown chick), 7 June (2 $\frac{1}{2}$ -grown chicks), 14 August (1 $\frac{1}{2}$ -grown chick), and 2 September (2 $\frac{1}{2}$ -grown chicks). On Isabel, 3 of 6 specimens collected had enlarged gonads in June or July (Kratter *et al.* 2001b).

Calls

I do not know of any reports by an ornithologist who has actually watched a Woodford's rail calling. In my experience, calls are always made while the birds are concealed. There are 2 main types of calls. The first is a short, low, shrill call that sometimes sounds like the noise made when metal drags across metal as when a knife is drawn through a

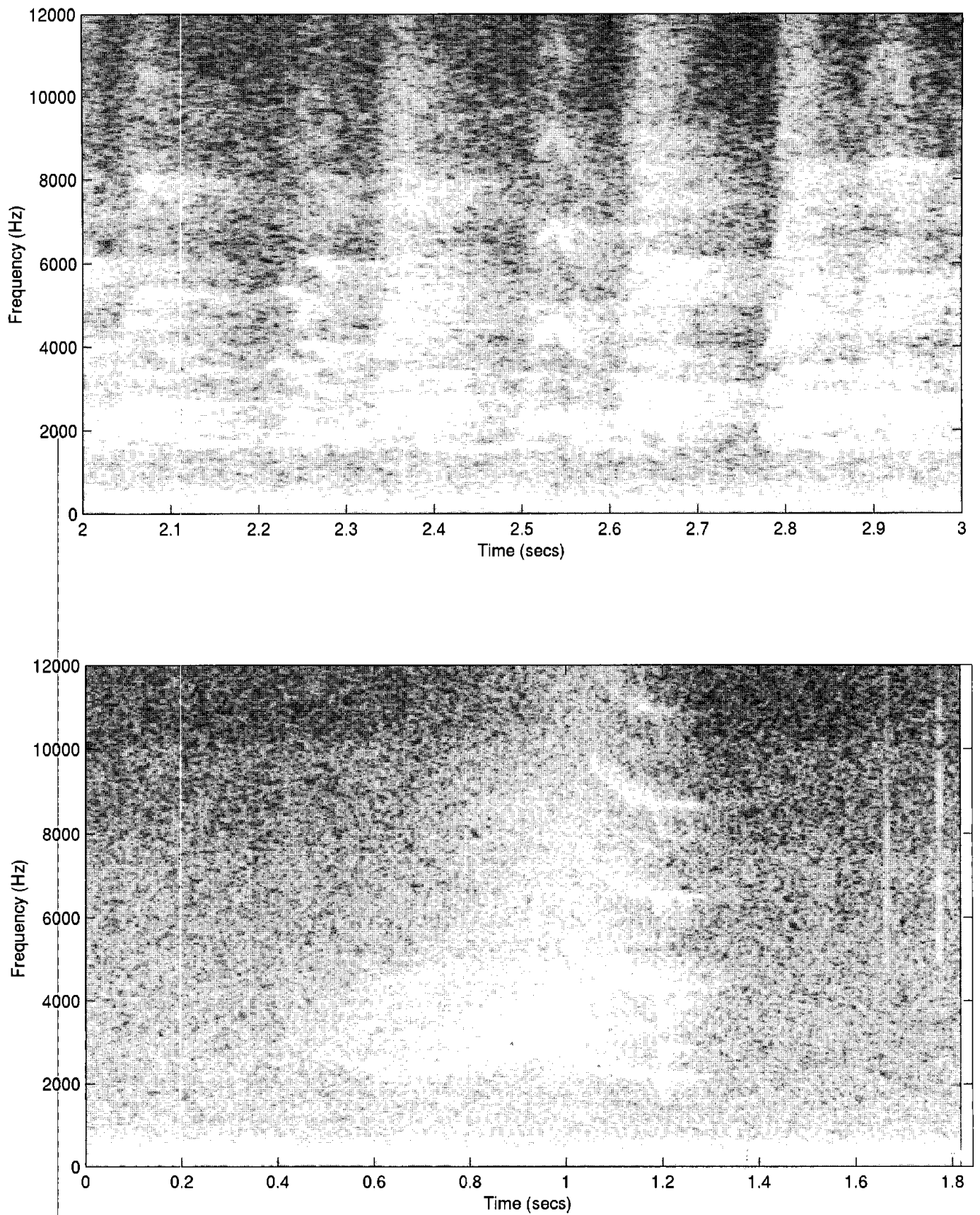
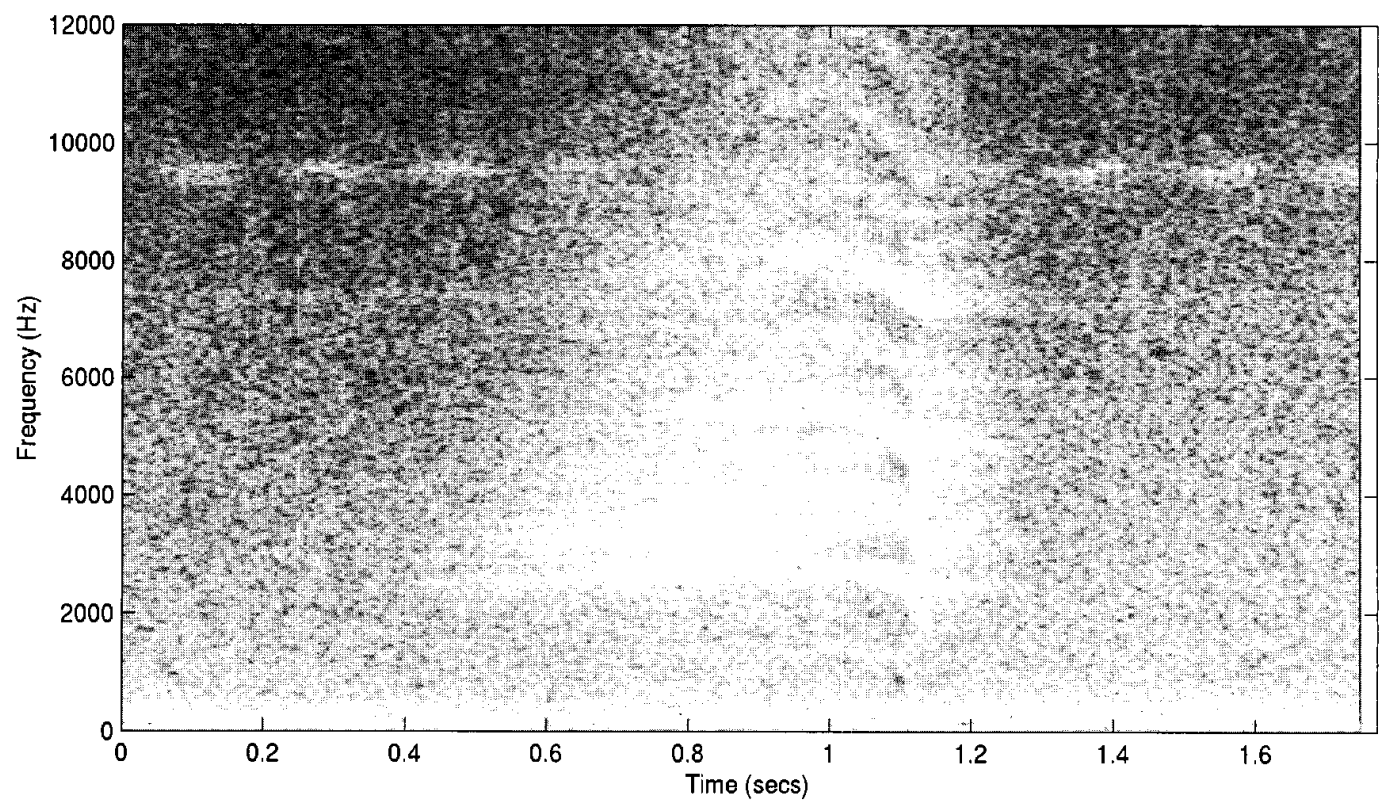
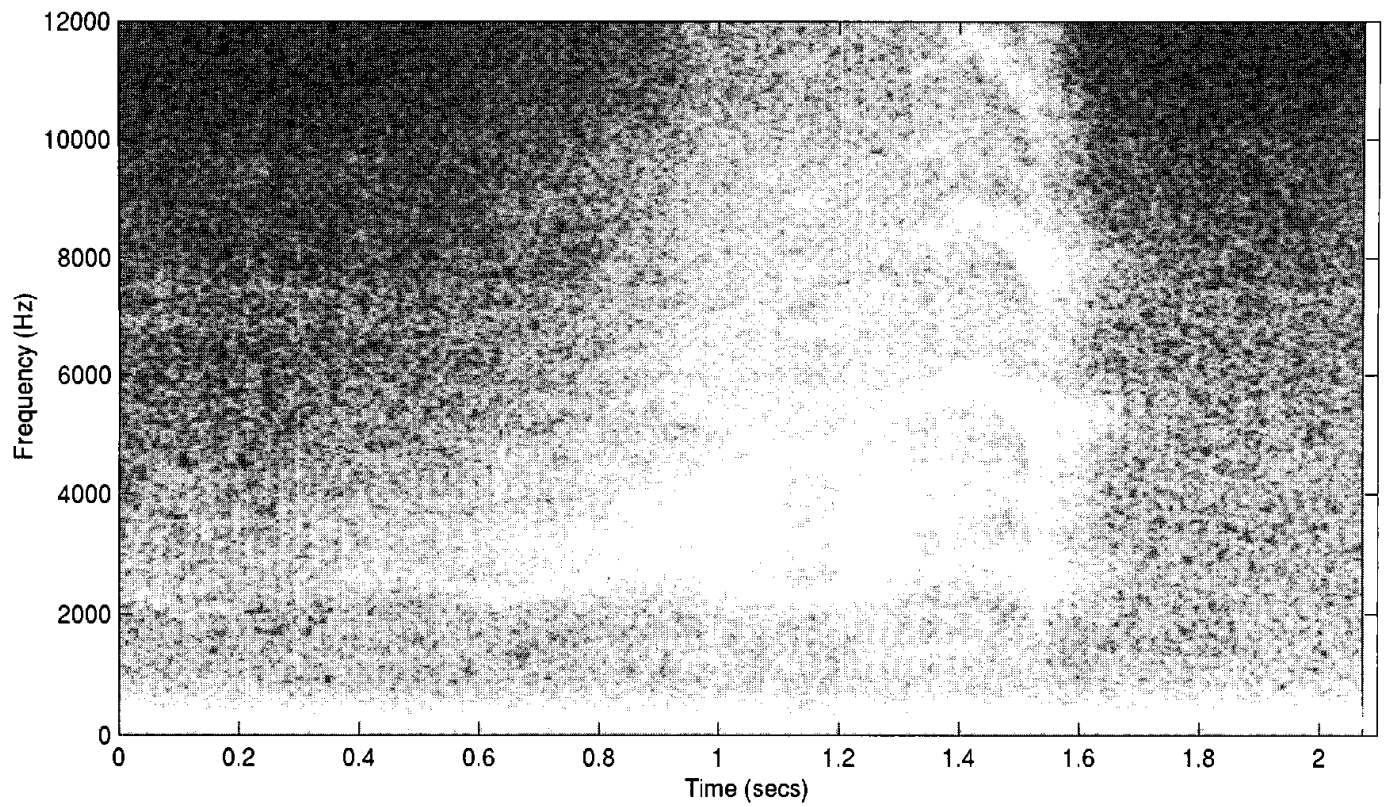


Fig. 2 (And opposite page) Four sonograms of calls of Woodford's rail (*Nesoclopeus woodfordi*) on Bougainville. Sonograms generated using software developed within Landcare Research New Zealand, in the Matlab mathematical language environment.



sharpeners. The call varies; sometimes it has a strained quality as though the bird is forcing the call, sometimes it has a rasping quality with an added shrillness or squeakiness, and at other times the call sounds like fingernails scraping down a blackboard. Each call lasts c.1 s.

The second type are group calls. At times 2 or more Woodford's rails simultaneously give short, rapid, repeated piping calls. These calls are not harsh, sharp or squeaky, but are reminiscent of oystercatchers (*Haematopus* spp.) calling at an intruder near the nest. The calls sound nothing like the cat-like duetting of rufous-tailed bush-hens (*Amaurornis olivaceus*) or the harsh, nasal calls of purple swamp-hens. The calls were loud enough to be heard above the noise of my motorbike. Usually, there seem to be 3 or 4 birds calling. On Isabel, Woodford's rails' calls are described as "bouts of duets ... one pair beginning and another pair following when the first duet dies off." (Kratter *et al.* 2001a). However, the groups I have heard seem to have more than 2 birds. Once it seemed there might be up to 10 or so birds, all in 1 general area, that called continuously for several minutes. On Bougainville, birds did not seem to take up duetting when another pair's calls died away. They all called together. Once, while I was standing beside an area of dense grass, a rail approached unseen giving a short, typically rail *chip* call that was slightly harsh, with a slight squeaky overtone. I believe this was also a Woodford's rail.

On 13 October 2001, I finally confirmed that the calls I had been hearing were indeed made by Woodford's rails. Birds were calling at the edge of a reed-fringed lagoon behind the beach just north of Aropa airport. Suddenly 2 birds rushed out of the reeds, paused while they looked at me, scuttled back into the reeds, and the calls resumed. Sonograms of these 13 October calls and others are shown in Fig. 2.

One of the Woodford's rails brought to me by my students had all the primaries and secondaries in sheath, which indicates that these feathers are moulted simultaneously. When the bird was given to me it seemed large in comparison to others I had handled that day, and its measurements confirmed its size: bill 45.1 mm; tarsus 60.2 mm; tail 70.2 mm. These measurements, especially the bill length, show it was an adult. The only immature bird collected so far from Bougainville was taken on 12 January 1908. Its measurements were: bill 36 mm; tarsus 56.5 mm; tail 69 mm.

One other similar Bougainville specimen is known. White (1937) states "a male collected by Rev. Poncelet at Buin 7 March 1936 shows that this rail drops all its quills simultaneously when moulting." Kratter *et al.* (2001b) found that 4 of their 7 adult males and both their juvenile males had some moulting remiges in June and July, but did not report if

any of them had all the feathers in sheath. They also stated that they were not able to find any moult data for Solomon Island birds between February and June and so must have overlooked (White 1937).

Population expansion

It is reasonable to ask why the Woodford's rail population had expanded dramatically while the war was on and the island was blockaded. For some time, no imported food reached the island and it could be assumed that a bird the size of Woodford's rail would have been hunted for food, putting even more pressure on an endangered bird. Discussing the situation with local people revealed that some were indeed captured for food. However, perhaps the main reason for their spectacular increase in numbers appears to have been the huge amount of suitable habitat that became available. Not only are there now extensive areas of 2 m-tall grass in and around Arawa, but all the coastal coconut and cocoa plantations were neglected because no cocoa or copra could be exported. Consequently a ground cover of grasses, shrubs, and other plants sprang up throughout the coconut plantations that are located in most coastal areas along the length of the island. It seems that these thickets provided ideal habitat for Woodford's rail. Perhaps previous sightings of rails in true forest were of a relict population surviving in a marginal habitat. While travelling by road from Buin in the south to Buka Passage in the north, I encountered Woodford's rails everywhere.

ACKNOWLEDGEMENTS

I am grateful to Mary Le Croy, American Museum of Natural History, for valuable input into a first draft. It has benefited greatly from information provided by her. Spectrograms were processed by Dr Stephen McNeill, Landcare Research New Zealand, Lincoln; the recordings are held at the McPherson Natural History Unit Sound Archive. My thanks also to Dr Guy Dutson for useful comments on a first draft of this paper.

LITERATURE CITED

- Blaber, S.J.M. 1990. A checklist and notes on the current status of the birds of New Georgia, Western Province, Solomon Islands. *Emu* 90: 205-214.
- Buckingham, D.L.; Dutson, G.C.L.; Newman, J.L. 1995. Birds of Manus, Kolombangara and Makira (San Cristobal) with notes on mammals and records from other Solomon Islands. Unpubl. report, Cambridge Solomons Rainforest Project 1990.
- Collar, N.J.; Crosby, M.J.; Stattersfield, A.J. 1994. *Birds to watch 2. BirdLife conservation series no 4*.
- Danis V. 1937a. Étude d'une nouvelle collection d'oiseaux de L'Ile Bougainville. *Bulletin du Muséum national d'Histoire naturelle 2ème série* 9: 119-123.
- Danis V. 1937b. Étude d'une nouvelle collection d'oiseaux de L'Ile Bougainville. *Bulletin du Muséum national d'Histoire naturelle 2ème série* 9: 362-365.

- del Hoyo J.; Elliot A.; Sargata, J. (eds.) 1996. *Handbook of the birds of the world. Vol 3. Hoatzin to auks*. Barcelona, Lynx Edicions.
- Diamond, J.M. 1975. Distributional ecology and habits of some Bougainville birds (Solomon Islands). *Condor* 77: 14-23.
- Diamond, J.M. 1991. A new species of rail from the Solomon Islands and convergent evolution of insular flightlessness. *Auk* 108: 461-470.
- Diamond, J.M. 1987. Extant unless proven extinct? Or extinct unless proven extant. *Conservation biology* 1: 77-79.
- Diamond, J.M. 2002. Dispersal, mimicry and geographic variation in Northern Melanesian birds. *Pacific science* 56(1): 1-22.
- Doughty, C.; Day, N.; Plant A. 1999. *Birds of the Solomons, Vanuatu and New Caledonia*. London, Christopher Helms.
- Dutson, G. 2001. New distributional ranges for Melanesian birds. *Emu* 101: 237-248.
- Finch, B.W. 1985. Noteworthy observations in Papua New Guinea and Solomons. *Papua New Guinea Bird Society newsletter* 215: 7.
- Harrison, C.J.O.; Parker, S.A. 1967. The eggs of Woodford's rail, Rouget's rail, and the Malayan banded crane. *Bulletin of the British Ornithologists' Club* 87(2): 14-16.
- Kaestner, P. 1987. Some observations from a lowland swamp forest in south Bougainville. *Muruk* 2: 34-38.
- Kratter, A.W.; Steadman, D.W.; Smith, C.E.; Filardi, C.E.; Webb, H.P. 2001a. Avifauna of a lowland forest site on Isabel, Solomon Islands. *Auk* 118(2): 472-483.
- Kratter, A.W.; Steadman, D.W.; Smith, C.E.; Filardi, C.E. 2001b. Reproductive condition, moult, and body mass of birds from Isabel, Solomon Islands. *Bulletin of the British Ornithologists' Club* 121(2): 128-144.
- Mayr, E. 1949. Birds collected during the Whitney South Sea Expedition 57. Notes on the birds of northern Melanesia 2. *American Museum novitates* no. 1417.
- Mayr, E. and Diamond, J. 2001. *The birds of northern Melanesia. Speciation, ecology and biogeography*. New York, Oxford University Press.
- Ogilvie Grant, W.R. 1889. Third contribution to the list of birds collected by Mr C.M. Woodford in the Solomon Archipelago. *Annals and magazine of natural history* 4, series 6: 320.
- Rothschild, W.; Hartert, E. 1905. Further contributions to our knowledge of the ornithology of the Solomon Islands. *Novitates zoologicae* 12: 243-268.
- Schodde, R. 1977. Contributions to Papuan Ornithology VI. Survey of the birds of southern Bougainville Island, Papua New Guinea. *Division of Wildlife Research technological paper* no. 34. CSIRO, Australia.
- Sibley, C.G. 1951. Notes on the birds of New Georgia, central Solomon Islands. *Condor* 53: 81-92.
- Webb, H.P. 1992. Field observations of the birds of Santa Isabel, Solomon Islands. *Emu* 92: 52-57.
- White, C.M.N. 1937. Notes on some Solomon Island birds. *Bulletin of the British Ornithologists' Club* 58: 46-48.

Keywords Woodford's rail; *Nesoclopeus woodfordi*; populations; Bougainville



Plate 5 Examples of birds killed by brushtail possums (*Trichosurus vulpecula*). Carcasses of hedge sparrow (*Prunella modularis*, extreme left) and 2 house sparrows (*Passer domesticus*) recovered from possum pens, showing typical examples of the removal of brain tissue after predation. In the bird in the centre the skull remains partially intact secured by a skin flap, whereas only the beaks or the lower beak alone, remain in the birds on the right and left, respectively.



Plate 6 Head of Woodford's rail (*Nesoclopeus woodfordi*) caught alive at Arawa, Bougainville, 2 April 2000.



Plate 7 Underwing of Woodford's rail (*Nesoclopeus woodfordi*) caught alive at Arawa, Bougainville, 2 April 2000.



Plate 8 Left, egg of Woodford's rail (*Nesoclopeus woodfordi*); right, for comparison, egg of rufous-tailed bush-hen (*Amaurorus olivaceus*). Arawa, Bougainville, 17 Feb 2001.