

The birds of Sapwuahfik Atoll, with first record of the Grey Wagtail, *Motacilla cinerea*, from the Federated States of Micronesia

by *Donald W. Buden*

Received 1 October 1998

Sapwuahfik (formerly Ngatik) Atoll is one of many remote, seldom visited, and biologically poorly known groups of islands in the tropical Pacific; its biota have never been surveyed systematically. The present study provides information on the occurrence and distribution of bird species on Sapwuahfik, and is based largely on my observations during 28 May–1 July 1998.

Sapwuahfik Atoll is a part of the Federated States of Micronesia, which includes the main islands of Yap, Chuuk [formerly Truk], Pohnpei, and Kosrae, and their many outliers. The name Ngatik was used for the atoll prior to 1985, and is still used for the largest and only permanently settled island. The atoll is about 160 km southeast of Pohnpei, the nearest island and the administrative seat. It is about 21.0 km long and up to 9.5 km wide (Fig. 1). Its ten, low, coralline islands have a total land area of about 1.6 km². A deep water channel on the southern side provides the only passage for boats into and



Figure A. Shelter on the lagoon-side beach of Jirup Island, Sapwuahfik Atoll.

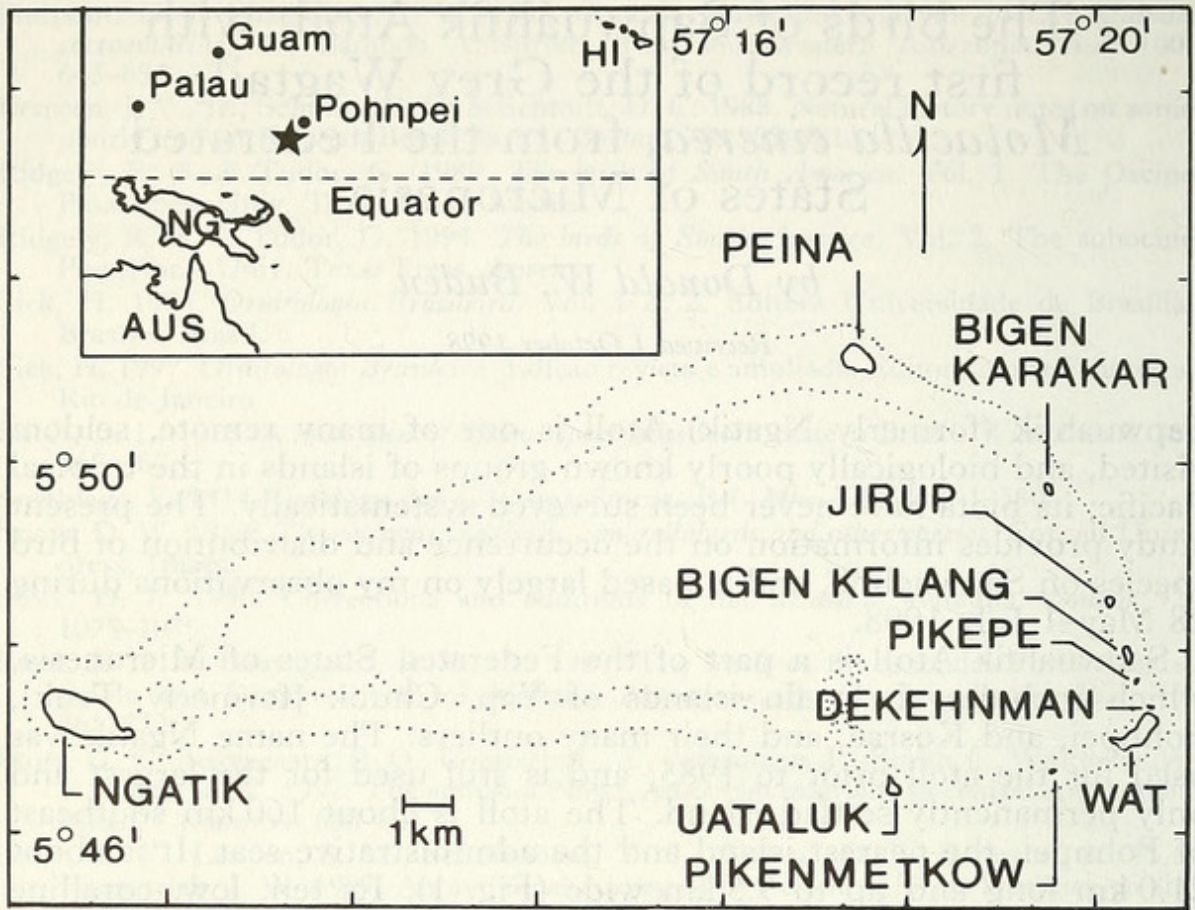


Figure 1. Location map for Sapwuahfik Atoll.

out of the lagoon; inter-island passages are shallow and easily waded at low tide, usually being less than 1.0 m deep. The 1994 FSM national census recorded 603 resident islanders (Office of Planning & Statistics 1996), all domiciled on Ngatik, at the extreme western end of the atoll. The nine other islands are distributed along the eastern perimeter and are uninhabited or inhabited only intermittently and for short periods by visitors from Ngatik. No more than 12 people were living on these eastern islands at any time during my visit.

The vegetation on the atoll consists largely of *Cocos* (coconut) forest, which abuts sandy beach on the lagoon side and rocky beach on the ocean side or is bordered by a discontinuous band of coastal thicket several metres wide and consisting largely of *Tournefortia* and *Scaevola*. The understorey consists of young palms, *Pandanus* trees, and broad leaf trees and shrubs, with a ground cover of mosses, ferns, grasses, sedges, and other herbs. In the central part of the largest islands, taro (*Cyrtosperma*) is cultivated in excavated pits, and breadfruit trees (*Artocarpus altilis*) are co-dominant with *Cocos*. The physiognomy of the different islands varies in large measure according to the degree and recency of human activity (cutting, burning, planting, Fig. A), and the rooting of pigs. Rainfall averages about 406 cm/year (Anthony 1996), but effects of the 1997/1998 El Niño-induced drought were evident in the many dead and withered epiphytes, especially along the windward shores.

Methods

Nomenclature follows Pratt *et al.* (1987), except that the Pacific Golden Plover (*Pluvialis fulva*) is treated as a species distinct from the American Golden Plover (*P. dominica*). The terms of abundance are: very common (30 or more sightings/day), common (15–30/day), fairly common (5–15/day), uncommon (up to 10/day on most days), scarce (up to 5/day, but may be unrecorded on more than half the days). Resident species are defined as those that occur year-round and breeding is documented by personal observations or by corroborating reports by local islanders. Nonbreeding visitors include vagrants or accidentals, as well as passage migrants and off-season visitors. The overall status of bird populations on Sapwuahfik is based on my observations during summer 1998 together with anecdotal information provided by resident islanders and inferences from the status of populations on surrounding islands, relying largely on personal observations and Pratt *et al.* (1987).

Relative abundance and population size were assessed by a combination of transect counts and incidental observations throughout the study period. Waterbirds were censused during circumferential walks along beaches, covering the upper beach to the outer reef. Land birds were censused using 50 m wide, fixed-width transects through the forest. The distances covered (see Table 1) were roughly proportional to island size and were estimated using a 1:25 000 scale photomosaic map (Pohnpei State Land Commission 1985). All census routes were covered only once. Place names are from Bryan (1971), with orthographic changes made by local residents. Island areas were determined by superimposing a grid (1,600 grid units/km²) over a 1:25,000 scale map and counting units over each island, and estimating fractions thereof.

Species Accounts

WHITE-TAILED TROPICBIRD *Phaeton lepturus*

The White-tailed Tropicbird is probably a scarce and irregular breeder on Sapwuahfik. I saw only four: three flying high above Peina on 4 June, and one flying below canopy level on Bigen Kelang on 21 June. Most of the islanders queried were unsure whether it nested on the atoll, but one recalled finding a nest with two young in the crown of a coconut tree on Bigen Keland in March 1977.

GREAT FRIGATEBIRD *Fregata minor*

The Great Frigatebird is present in small numbers throughout the atoll; local islanders indicate it roosts but does not nest there. I observed small groups of up to nine soaring high above the islands almost daily, usually at dawn and dusk.

PACIFIC REEF-HERON *Egretta sacra*

The Pacific Reef-Heron is uncommon to fairly common and usually solitary (maximum four seen together) on beaches and reef flats throughout the atoll. I saw no evidence of nesting during my visit, but

TABLE 1

Status and abundance of birds on Sapwuahfik Atoll based on general observations combined with counts along 50 m wide transects; nc=observed on transects but not counted.

| Species | Status ^a | Density | | |
|-------------------------------|---------------------|-----------------------|-----------------------|---------|
| | | Birds/km ^b | Birds/ha ^c | Birds/h |
| White-tailed Tropicbird | B/S | | | |
| Great Frigatebird | NBV/UC | | | |
| Pacific Reef-Heron | B/UC-FC | 1.4 | | 3.0 |
| Red Junglefowl (Chicken) | I | | | |
| Pacific Golden Plover | NBV/C-VC | 2.9 | | 6.4 |
| Mongolian Plover | NBV/S | | | |
| Tattler spp. | NBV/C | 2.4 | | 5.3 |
| Whimbrel | NBV/S | 0.3 | | 0.6 |
| Bristle-thighed Curlew | NBV/S | | | |
| Ruddy Turnstone | NBV/C | 2.8 | | 6.2 |
| Sanderling | NBV/S | | | |
| Great Crested Tern | B/FC | 1.2 | | 2.6 |
| Black-naped Tern | B/FC | 0.6 | | 1.3 |
| Brown Noddy | B/VC | nc | nc | nc |
| Black Noddy | B/VC | nc | nc | nc |
| White Tern | B/FC-C | | 0.5 | 3.7 |
| Micronesian Pigeon | B/UC ^d | 0.1 | 1.0 | |
| Long-tailed Cuckoo | NBV/S | | | |
| Micronesian Honeyeater | B/VC | | 1.8 | 13.1 |
| Micronesian Starling | B/VC | | 2.7 | 20.0 |
| Caroline Islands Reed-Warbler | (B)/C | 0.7 | 5.1 | |
| Grey Wagtail | NBV | | | |

^aB=resident year-round, breeding confirmed, (B)=resident year-round, breeding not confirmed but very probable, I=introduced and feral, NBV=nonbreeding visitor, VC=very common, C=common, FC=fairly common, UC=uncommon, S=scarce.

^bbased on single circumferential surveys of all islands, and covering the area from the upper beach to the reef edge (total survey time=320 min, total distance=11.7 km).

^cbased on forest surveys only: Ngatik 85 min/3.9 km, Peina 60/1.4, Bigen Karakar 15/0.2, Jirup 27/0.4, Bigen Kelang 22/0.3, Pikepe 10/0.1, Dekehnman 4/0.07, Wat 105/2.1, Pikenmetkow 10/0.1, Uataluk 25/0.4 (total=363 min/8.97 km).

^dapparently confined to Wat where encountered at the rate of 3.7/hr, and with a population density estimated at 0.6/ha.

several islanders stated young birds are sometimes kept as pets. Of the 31 for which I recorded colouration, 12 (39%) were dark (greyish blue) morphs, 11 (35%) were piebald, and eight (26%) were white. I roughly estimated a total population of 30–40.

RED JUNGLEFOWL (DOMESTIC CHICKEN) *Gallus gallus*

Chickens (and pigs) are introduced, common, and semi-feral on Sapwuahfik. They are fed table scraps (especially rice and taro) and ground coconut, but they also range freely, taking natural foods. They stay mainly in the vicinity of human habitation and are much less frequently encountered in the more remote regions. I recorded *G. gallus* on Ngatik, Peina, Bigen Karakar, Jirup, Bigen Kelang, and Wat.

PACIFIC GOLDEN PLOVER *Pluvialis fulva*

The Pacific Golden Plover is a common to very common nonbreeding visitor, usually seen on beaches and reef flats. It was the most numerous shorebird species on Sapwuahfik in June 1998.

LESSER SAND PLOVER *Charadrius mongolus*

One Lesser Sand Plover that I saw at low tide on a reef flat at Dekehnman on 17 June is the only record. It was in a small group of shorebirds that included four *Arenaria interpres* and two *Pluvialis fulva*. A dark gray patch on the side of the face helped to identify it as a sand plover, and its relatively short, stubby bill, distinguished it from *C. leschenaultii*.

WANDERING TATTLER *Heteroscelus incanus* and **SIBERIAN TATTLER***H. brevipes*

Two species of tattler occur regularly in Micronesia as migrants (Pratt *et al.* 1987). As they are morphologically very similar to each other, I include all tattler records as a species pair. I heard the bisyllabic call diagnostic of *H. brevipes* on only two or three occasions, whereas the rapidly uttered successive series of notes characteristic of *H. incanus* were heard more often. Tattlers were common on beaches and reef flats throughout the atoll, and usually solitary.

WHIMBREL *Numenius phaeopus*

I saw no more than five or six Whimbrels during five weeks on Sapwuahfik. In flight, they all showed a prominent white patch on the rump and base of tail, a characteristic of Eurasian subspecies.

BRISTLE-THIGHED CURLEW *Numenius tahitiensis*

The one Bristle-thighed Curlew I saw on a beach at Pikepe on 12 June 1998 is the only record. Its disyllabic call and elongate, hairlike thigh feathers observed clearly through binoculars from about 10 m readily distinguished it from *N. phaeopus*.

RUDDY TURNSTONE *Arenarius interpres*

Turnstones were fairly common on Sapwuahfik throughout the study period, being most numerous on rocky beaches, and usually in small flocks of 5–10.

SANDERLING *Calidris alba*

A Sanderling that I saw on a tidal flat on Bigen Kelang on 15 June, and again (presumably the same bird) on three other occasions at the same site over the next four days is the only record.

GREAT CRESTED TERN *Sterna bergii*

This species is uncommon to locally fairly common and breeds in small numbers on coralline sand and gravel bars. I observed singles and small groups of 2–3 in flight throughout the atoll, and larger assemblages of about 10–15 at Ngatik, Jirup, and Uataluk. Hitler

Sehpin, who resides on Jirup for a large part of the year informed me that *S. bergii* nests on the exposed bars off the northern end of the island, usually timed to the lowest tides of summer. I saw several adults but no evidence of nesting during my initial visit to the site on 6 June, but recorded five nests (all 1 egg) and 10 adults on 14 June, and 15 nests (all 1 egg) and 16 adults on 18 June; all nests were on the ground in an area roughly 2×1.5 m. Neither eggs nor young were present on 26 June, when the bar appeared to have been resculpted by waves during high tides.

BLACK-NAPED TERN *Sterna sumatrana*

The Black-naped Tern is fairly common throughout the atoll and usually seen in small groups of 2–10. I found one nesting colony of about 50 birds on a shell and coral rubble bar between Wat and Pikepe. No eggs were present on 11 June, but I found three clutches (on the ground) on 16 June, nine on 17 June, and 15 (6 with 1 egg, 9 with 2 eggs) on 20 June, all within a 20×2.5 m strip along the top of the ridge. On 26 June, I found only three clutches, the others probably having been harvested by islanders or destroyed during high tides.

BROWN NODDY *Anous stolidus*

The Brown Noddy is a common to very common resident throughout the atoll, but the population is difficult to assess as the birds often are hidden from view high in the crowns of coconut trees, where they nest and roost. The largest concentrations I observed were flocks of about 30–150 soaring over the larger islands on several occasions at dusk. I roughly estimate a total population of about 500–1,000. Young were frequently heard calling from the tops of the trees on Peina, Bigen Kelang, and Wat throughout June.

BLACK NODDY *Anous minutus*

The Black Noddy is a common to very common resident throughout the atoll. Resident islanders indicate it usually nests in *Artocarpus* (breadfruit) and *Pandanus* trees. I saw no nests but observed many birds flying with strands of algae and other plant materials in their bills, presumably for nest building. Singles and small groups of 5–10 were nearly always in view over the reef flats, and larger groups of 20–30 were often seen feeding on small fish driven to the surface of the lagoon by larger predators. The largest group I saw was about 50 roosting in two adjacent *Guettarda* trees at the forest edge on the windward side of Uataluk on 9 June. I roughly estimated a total population of about 500–1,000.

WHITE TERN *Gygis alba*

The White Tern is fairly common in *Cocos* throughout the atoll, usually in small groups of 2–6, and often in *Pandanus* trees; many I saw appeared to be paired, flying in tandem.

MICRONESIAN PIGEON *Ducula oceanica*

The Micronesian Pigeon is an uncommon resident apparently confined to Wat, and with a total population (extrapolated from strip

census counts—Table 1) of about 50. Hunting pressure is heavy and if unabated may eventually contribute to extirpation. Two were shot by one of the islanders that brought me to the eastern islands from Ngatik. The species is prized as game and there are no hunting regulations.

LONG-TAILED CUCKOO *Eudynamys taitensis*

The Long-tailed Cuckoo is apparently an uncommon but regular nonbreeding visitor to Sapwuahfik and it has been observed by many islanders (pers. comm.), mainly during the northern summer. It migrates to central and southern Pacific islands from breeding grounds in New Zealand (Pratt *et al.* 1987). I saw none, but I include *E. taitensis* as part of the avifauna based on the many sightings by local residents who described it to me in detail, referring to it by its Pohnpeian name, Likoprei.

MICRONESIAN HONEYEATER *Myzomela rubratra*

The Micronesian Honeyeater is common to very common throughout the atoll, being most numerous at the forest edge. Many of those I saw during late May-early July appeared to be paired. A nest I observed about 5 m high in the crown of a young coconut tree on Peina on 4 June was occupied by an adult that was flushed (presumably the same bird) on several occasions throughout the day. Although small in size, honeyeaters are also considered "game", and they are less numerous on Ngatik than on the more remote and sparsely populated islands.

MICRONESIAN STARLING *Aplonis opaca*

The Micronesian Starling was the most common landbird on the atoll during summer 1998 (Table 1), but it was relatively scarce on the main island (0.56/ha), doubtless due to excessive hunting pressure. It occurs in all habitats, and from the ground to the topmost part of the canopy. I saw no nests, but observed many juveniles with distinctly striped underparts, some soliciting food from adults.

CAROLINE ISLANDS REED WARBLER *Acrocephalus syrinx*

The Caroline Islands Reed Warbler (Fig. B) is common in *Cocos* forest throughout the atoll, being most numerous in dense thickets or patches of understorey. I recorded reed-warblers on all islands with the exception of Dekehnman, where it almost certainly occurs at times in view of that island's proximity to Wat. Many I saw appeared to be paired, and one on Uataluk was observed carrying grasses (presumably nesting material) on 10 June.

GREY WAGTAIL *Motacilla cinerea*

A Grey Wagtail (sex undetermined), seen on 3 and 4 June and collected on 7 June and deposited as a study skin in the Museum of Comparative Zoology, Harvard University (MCZ 333096), is the first record for the Federated States of Micronesia. Measurements (mm) of the dried skin are wing (flattened against rule) 81, tail 90, and exposed culmen 12; body mass at time of capture was 19 g. The bird was flushed



Figure B. Caroline Islands Reed Warbler *Acrocephalus syrinx* captured and released on Peina Island.

from the ground on many occasions, mainly along a trail leading into the forest, and was usually observed walking or hopping in tight circles, apparently feeding on insects flying close to the ground. *M. cinerea* breeds in Eurasia and overwinters south to southern Africa, southern Asia, Indonesia, the Philippines, New Guinea and Australia (Pizzey 1980, Pratt *et al.* 1987). It is a rare migrant to western Micronesia (Pratt *et al.* 1987), where 2–3 were observed at Koror, Palau during 12–16 October 1978 (Engbring & Owen 1981), another on Guam on 15 March 1981, and possibly two others (identified as being either *M. cinerea* or *M. flava*) on 26 February 1981 (Maben & Wiles 1981). None of the Sapwuahfik islanders who viewed the prepared specimen was familiar with the species, indicating it is of unusual occurrence there. The Sapwuahfik record extends the range of the species about 1,600 km southeastward into Oceania.

Discussion

Of the 23 species of birds recorded on Sapwuahfik Atoll, one (the Red Junglefowl=chicken) is introduced, and 11 are nonbreeding visitors, eight being migrant charadriiforms. The indigenous, resident, breeding avifauna includes four landbirds (all widely distributed in Micronesia) and seven waterbirds (a tropicbird, a heron, and five terns). The most common waterbirds are Brown Noddy and Black Noddy, and the most common land birds are the Micronesian Starling and Micronesian Honeyeater. In view of small island size and little habitat diversity, few

if any additions to the list of resident breeders are likely, but observations at different times of the year will doubtless add many species to the list of migrants. Several islanders reported seeing kingfishers from time to time, referring to them as kutoahr, the Pohnpeian name for the Micronesian Kingfisher (*Halcyon cinnamomina*). Whether they are Micronesian Kingfishers or (more likely) Sacred Kingfishers (*H. sancta*), which apparently migrate or wander widely in Micronesia (Buden 1998), or some other species is uncertain.

The paucity of birds on the main island, Ngatik, is probably due in large measure to excessive hunting pressure from the human residents. Birds are hunted on the other islands as well (though less frequently), and this activity alone or in combination with environmental stress (e.g., droughts, storms, introduced predators) may eventually contribute to the extirpation of the small and localized population of Micronesian Pigeon, as it apparently did on Kapingamarangi Atoll (Buden 1988), about 500 km to the south. Virtually all bird species on Sapwuahfik are considered game. One group of hunters I encountered had recently "bagged" pigeons, starlings, honeyeaters, noddies, and White Terns. The eggs and young of seabirds also are harvested from time to time.

Potential predators of birds on Sapwuahfik include four species of introduced mammals: I recorded cats *Felis catus* (on Ngatik, Bigen Karakar, and Peina), dogs *Canis familiaris* (on Ngatik, Bigen Kelang, and Wat), rats *Rattus* spp. (on Ngatik, Peina, Dekehnman, and Wat), and pigs *Sus scrofa* (on Ngatik, Peina, Jirup, Bigen Kelang, and Wat). Rats are especially abundant on Wat, occurring on the ground, in houses, and in trees, and in daylight as well as at night. Using eight Japanese snaptraps, residents at the southern end of Wat caught 13 rats in and around their house during the night of 19 June, and several others had escaped. All 13 were black rats (*Rattus rattus*): eight males averaged 195.0 g (160–240 g) in body mass and five females averaged 192.0 g (150–235 g). The characteristically smaller Polynesian rat (*R. exulans*) occurs together with the black rat at least on Ngatik where I collected two males (75 and 61 g) and two females (63 and 64 g)—males had enlarged scrota and the females diagnostically bore four pairs of nipples. Several Ngatik residents indicated that they had observed both large-sized rats and small-sized rats with young. I did not assess rat populations on islands other than Ngatik and Wat.

Acknowledgements

I thank Kanio Frank (former Representative for Sapwuahfik on Pohnpei) and Welenson Saimon (chief of Sapwuahfik) for making preliminary arrangements for my visit to the atoll, Taylor Sehpin (teacher at Sapwuahfik Elementary School) for logistical support during my stay, and I am grateful to many other residents, especially Harrison Panuel, Snyder Panuel, Hitler Sehpin, Misko Sehpin, and Regina Sue for all of their many kindnesses and courtesies.

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A range extension for the Caatinga Black-tyrant, *Knipolegus franciscanus* (Tyrannidae), a rare Brazilian endemic

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Received 16 January 1999

The Caatinga Black-tyrant *Knipolegus franciscanus* is probably the least known member of the genus *Knipolegus*. Silva & Oren (1992) were the first to recognize it as a valid species. The species is known from the following localities: in the state of Minas Gerais, Pirapora (17°20'S, 44°56'W) (Pinto, 1944), Januária (15°29'S, 44°21'W) (Snethlage, 1928, as "Brejo Januaria"; Willis & Oniki, 1991, Mattos *et al.* 1991), Itacarambi (15°06'S, 44°05'W) (Mattos *et al.* 1991, Silva & Oren, 1992), Montalvânia (14°25'S, 44°21'W) (Mattos *et al.* 1991) and Manga (14°45'S, 43°55'W) (Mattos *et al.* 1991); in the state of Goiás, Iaciara (14°05'S, 46°37'W) (Silva & Oren, 1992) and "Serra Geral" (Silva & Oren, 1992, an imprecise locality); in the state of Bahia, the only published record was from Bom Jesus da Lapa (13°15'S, 43°25'W), the type locality (Snethlage, 1928, as "Lapa do Bom Jesus"). An additional record from Minas Gerais is at Curral de Pedras, on the rio Jequitai banks, municipality of Jequitai (17°15'S, 44°28'W), where M. Raposo (pers. comm.) collected five specimens (deposited in the Museu Nacional de Rio de Janeiro) in November 1995.

On 6 January 1997 a female was seen in a "lajeiro" (a rocky outcrop) in the caatinga vegetation, close to the village of São Tomé, municipality of Campo Formoso, Bahia (10°36'S, 40°56'W), elevation c. 540 m. Typical colour markings observed were the black tail, the



Buden, Donald W. 1999. "The birds of Sapwuahfik Atoll, with first record of the Grey Wagtail, *Motacilla cinerea*, from the Federated States of Micronesia." *Bulletin of the British Ornithologists' Club* 119, 261–270.

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