



Preliminary Baseline Survey of the Avifauna of the Nakorotubu Range, Ra and Tailevu Provinces, Fiji.

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Chapter 3

Preliminary Baseline Survey of the Avifauna of the Nakorotubu Range, Ra and Tailevu Provinces, Fiji.

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SUMMARY

This report is a preliminary baseline survey of the avifauna of the Nakorotubu Range, Ra-Tailevu Provinces, Viti Levu. The report provides observations and comments on the avifauna observed in the study area.

A total of 38 bird species were recorded in the surveys, fifteen of which were endemic species, four introduced and the remainder native species.

Three globally threatened species for Fiji were recorded – Pink-billed Parrotfinch (Viti Levu endemic), Black-faced Shrikebill and the Friendly Ground-Dove. For birds, the Nakorotubu Range has the same conservation significance as other large forest blocks on Viti Levu.

INTRODUCTION

The Nakorotubu Range is an important forest refuge for Fiji's native flora and fauna covering the whole mountain range that runs along the eastern side of Viti Levu from the Tailevu province in the south up to the province of Ra in the north. It connects to the lowland tropical rainforests of southern and central Viti Levu and also to the dry forests of northern Viti Levu like the Nakauvadra Range. Little bird work has been done in the whole area except a survey that was conducted by Dr Dick Watling around Soa village. The main objectives of this survey were to do a checklist of the bird species of Nakorotubu, look at their abundance and also the presence of Fiji's threatened birds in the area.

Conservation Significance

In the annotated accounts and discussion of the observations, prominence is given to the Conservation Significance of the species concerned. Conservation Significance is based on the following:

- Endemicity – Single Island, National, Regional or Regional Near-endemic for those birds whose distribution is primarily within the region but which extends to a few islands or an island group outside the region.
- Global Threat Status - according to the '2008 IUCN Red List of Threatened Species'. The threatened species categories now used in Red Data Books and Red Lists have been in place, with some modification, for over 30 years. Since their introduction these categories have become widely recognised internationally, and the Red List categories provide an easily and widely understood method for highlighting those species under higher extinction risk, so as to focus attention on the need for or efficacy of existing conservation measures. A simplified description of the categories applicable for this guide are as follows (refer <http://www.redlist.org> for a full description and the annually updated status):
 - CRITICALLY ENDANGERED - when a species is facing an extremely high risk of extinction in the wild in the immediate future;
 - ENDANGERED – when a species is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future;
 - VULNERABLE – a species is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future;

- NEAR THREATENED – is a sub-category of LOWER RISK category, for species which are close to qualifying for Vulnerable; and,
- DATA DEFICIENT – there is insufficient information to make an evaluation.

Introduced and naturalised species, some of these species pose a threat to native species and generally increase in abundance as a result of habitat disturbance, especially loss of forest.

National Conservation Status – IUCN's Global Status is used wherever a threatened category has been applied, especially for national endemic species. However, the majority of species in Fiji are resident and breed in other Pacific island countries or even further afield. In such cases the Global Status does not reflect the often differing status in each country, which is very important for the countries concerned. To rectify this, two categories for the conservation status of the Fijian populations of these birds are used.

These follow Watling (2001):

- **At Risk** - the higher category for birds considered to be severely threatened in Fiji;
- **Conservation Concern** – a lower category for birds whose status is known to be declining, under threat or very vulnerable because of small population size, introduced predators or competitors, or adverse land use practices here in Fiji.

METHODS AND STUDY AREA

Study area and base camps

The study area in the Nakorotubu Range is demarcated on Map 6. The team hiked from Matuku village to Base camp 1 (Nabavatu) along the Nabavatu Creek on November 30 and spent three nights there and hiked back to Matuku village on December 3. On December 4 we visited the limestone forests of Nalidi looking for caves and on December 5 hiked from Matuku village to Base camp 2 (Nalalau) on the headwaters of the Lequ Creek which flows down to Nalidi village. We spent two nights at Base camp 2, before hiking back to Matuku village on December 7. The team departed Matuku village for Nasau village on December 7 and spent December 8 surveying the forests around the village. On December 9 the team departed Nasau village for Base camp 3 (Nubunivonu) and spent two nights at Base camp 3 before hiking back to Nasau village on December 11.

Field methods

Bird observations were categorized according to three different observational methods:

1. Standardised Transects: Observations during timed transects along paths and river/stream beds – these are then expressed as encounter rates (number of individuals observed divided by number of standardised observer hours (Masibalavu and Dutson 2006);
2. Observations during timed periods at an observation post with a 200m view over the forest;

3. Incidental observations around the base camps and when hiking between camps.

A summary of the location of the sites surveyed is listed in Table 3.1, and shown in Map 5. A total of 38 hours was spent on bird surveying, 29.25 hours was spent on forest observations, 3.3 hours was spent in 'forest edge – garden' habitats and 5.4 hours in open country (Table 3.2).

RESULTS

Species Recorded

A total of 38 species were recorded in the Nakorotubu Range, primarily in forested habitats but including peripheral open habitats. Fifteen of these are Fijian endemic species (Table 3.3). Three introduced bird species (Common mynah, Jungle mynah and Red-vented bulbul) now considered as invasive were also observed, mainly close to villages and settlements. The Fiji-bush Warbler is the most common species encountered during the survey.

The Pink-billed Parrotfinch (Endangered) one of Viti Levu's most threatened birds, was observed a couple of times in the intact lowland rainforests of Nasau. The other two threatened birds of Viti Levu, the Red-throated Lorikeet (Critically Endangered) and the Long-legged Warbler (Endangered) were not recorded. Two species, the Friendly Ground Dove and the Black-faced Shrikebill that are categorized as Vulnerable, were also recorded.

Four caves visited during the survey had White-rumped swiftlets colonies. The three caves in Nasau had approximately more than 1000 swiftlets in each, whereas the rock overhang near Base camp 1 had about 100 swiftlets.

DISCUSSION

The composition of the birds of Nakorotubu is similar to other large forest blocks on Viti Levu – given the paucity of data (this survey, Watling 2003, Masibalavu 2003, Watling 2008).

No Long-legged warblers were observed despite the healthy state of the native forests. The reason for this could be the lack of running creeks at elevations of more than 300 m above sea level found at other sites like Monasavu, Wabu, and Nakauvadra, where this species was previously recorded (Masibalavu 2004, Masibalavu 2008).

Weather conditions at Base camp 1 and Base camp 2 were drier permitting more work to be done; however, rain was encountered in Base camp 3 which affected the field work. The drier state of the forest in Base camp 1 and Base camp 2 could be a factor affecting the bird composition of this area but this needs follow up work. The vegetation around Base camp 3 is typical lowland tropical rainforest like the Sovi Basin (Naitasiri Province), with a similar bird composition (Masibalavu et. al. 2003, Watling, 2003). The presence of birds like the Pink-billed parrotfinch and Friendly ground dove in the forests of Nasau is noteworthy and would be worth follow up monitoring. Base camp 3,

despite the poor weather, had greater bird activity compared to the two other camps, and this could be attributed to the healthy state of the forest, large forest size and connectivity to other forest systems.

An interesting observation made in this survey was that of the Polynesian starling in Base camp 2. This species is usually rare in forests of Viti Levu; however, we observed this species to be fairly common here moving and foraging in large groups of up to ten individuals. This was observed for the two days we spent at this site. They also showed signs of aggressive behavior towards other species. Whether they were mating or marking out their territory is not clear, but the observation is worthy of a follow up survey.

The presence and abundance of large birds such as Masked-shining parrot and barking pigeon (Table 3.2) in the area can show that both the health and size of the forest is large enough to contain a viable population of birds and other species.

Few trees were observed to be flowering except for some *Bischofia javanica*, *Erythrina* sp., *Garcinia* sp. and *Parinari insularum* which attracted species like White eyes, Slaty monarch, Collared lorry, Wattled honeyeater and Orange-breasted myzomela. However, there were more trees with fruits like *Endospermum macrophyllum*, *Parinari insularum*, *Callophyllum* spp., *Ficus* spp., *Amoraria* sp., *Garcinia* spp., and *Cananga odorata* which attracted birds like the Barking pigeon, Many-colored fruit dove and Golden dove. White-rumped Swiftlets were found nesting during the survey. The three caves visited in Nasau have a good population of this species with each cave having well over 1000 birds. The limestone forests of Nakorotubu were not well covered in this survey and this is noteworthy for future surveys in this area.

Interestingly, not many introduced bird species were encountered during this survey. The majority recorded were mainly near and around villages and settlements. None were observed in any of the camp sites, which show that they have not really been able to spread to these forest areas. However, this should be monitored in the future.

CONCLUSIONS AND CONSERVATION SIGNIFICANCE

The birds of the Nakorotubu Range are similar in composition and approximate abundance, and hence conservation significance, to other large forest blocks on Viti Levu. Further surveys are required to determine the presence/absence of rare species such as the Long-legged Warbler and the Red-throated Lorikeet. Being an important refuge for birds and the fact that it is connected to other large forest blocks, there is a need to set aside some portions of the Nakorotubu Range as permanent reserves. Future surveys are needed and monitoring program in place for the birds of Nakorotubu. The site could qualify to be one of Fiji's Important Bird Areas (IBA's) due to the presence and abundance of some of Fiji's threatened birds.

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Table 3.1: Summary of the dates and sites surveyed for birds during the Nakorotubu Biodiversity Survey. These points are also shown on Map 6.

No.	Date	GPS 1 (E)	GPS 2 (N)	Name of site	Description
1	1/12/2009	019-59-091	039-33-557	Base Camp 1	Session 1: camp to swiftlet cave, then up to the ridge, before heading back to camp.
2	1/12/2009	019-59-350	039-33-056	Esiesi	Rock overhang. White-rumped swiftlet, colony 1 about 30, colony 2 about 100.
3	1/12/2009	019-59-719	039-33-721	Korotibi ridge	Session 2: camp 1 towards Korotibi ridge, lowland rainforest, lower portion disturbed by cattle
4	2/12/2009	019-59-649	039-34-310	Korotibi ridge	Session 3: 1 ^o lowland trf, still intact. Birding along ridge
5	2/12/2009	019-59-407	039-34-489	Old fort/ village site	Session 4: Bird lookout (not very clear though, overgrowth, b/fast)
6	2/12/2009	019-57-991	039-35-358	near Lou creek	Session 5: Lou crk, heading back to camp, follow ridge dividing Nabavatu and Savura.
7	2/12/2009	019-58-767	039-34-080	Upper Base Camp 1	Session 6: sitting at viewpoint, about 1.5km upstream from camp.
8	3/12/2009	019-59-091	039-33-557	Base Camp 1	Session 7: upstream from Camp 1, open area, viewpoint.
9	3/12/2009	019-59-122	039-32-562	Base Camp 1	Session 8: following track back to Matuku from Camp, closed forest, partial disturbance from cattle.
10	3/12/2009	019-58-315	039-29-990	Na Me.	Session 9: Birding from Na Me back towards Matuku village, closed intact lowland rainforest.
11	3/12/2009	019-59-092	039-30-464	Matuku village	Session 10: Birding along road from Agriculture Office towards Matuku road. Disturbed, open
12	4/12/2009	019-63-042	039-24-186	Leuleu, Nalidi.	Session 11: Intact limestone forest, raining.
13	4/12/2009	019-60-156	039-30-106	Matuku village	Session 12: Birding along track from Matuku village to base camp 2.
14	5/12/2009	019-61-188	039-34-372	Base Camp 2	Session 13: Camp 2 - Along track to about 1km from base camp towards verevere route
15	5/12/2009	019-60-471	039-31-916	Matuku paddock.	Session 14: open area, vegetation partially cleared for paddock. Some introduced species
16	5/12/2009	019-60-632	039-32-054	Vatukeresia peak.	Session 15: Vatukeresia lookout to Camp 2, Intact lowland rainforest.
17	5/12/2009	019-61-201	039-33-604	Base Camp 2	Intact montane forest. Unique vegetation. Common birds, no introduced species.
18	5/12/2009	019-61-911	039-33-861	Burewai trail.	Session 16: Intact lowland-montane forest. Disturbed vegetation along track.
19	6/12/2009	019-61-590	039-34-782	Burewai trail.	Session 17: Intact lowland-montane forest. Disturbed vegetation along track to Verevere.
20	6-7/12/2009	019-61-532	039-33-856	Burewai trail	Set up 2 mist-nets, along track to Burewai about 200m from Camp 2.
21	7/12/2009	019-60-794	039-33-012	Camp 2 - Matuku	Session 18: Along track from camp 2 back towards Matuku village
22	8/12/2009	019-66-176	039-18-106	Nasau village	Session 19: Nasau village - up Waimaca creek. Open secondary forest.
23	8/12/2009	019-64-188	039-18-762	Nasau village	Session 20: Nasau village - along road from village to about 2km, Open, disturbed.
24	8/12/2009	019-65-323	039-18-506	Waimaca cave 1 & 2	Limestone caves, big, at least more than 1000 swiftlets in each cave. Signs of a lot disturbance and visit by graffiti on the walls
25	8/12/2009	019-65-378	039-18-515	Waimaca cave 3	
26	9/12/2009	019-65-687	039-20-975	Base Camp 3	Session 21: Birding from Base Camp 3 along ridge on opposite side of stream. Intact lowland rainforest.
27	9/12/2009	019-65-177	039-21-396	Base Camp 3	Session 22: Walked upstream for about 1km and follow creek up to waterfall then follow ridge back to paddock
28	10/12/2009	019-66-032	039-22-437	Base Camp 3	Session 23: Upstream and follow 2 creeks to waterfalls to search for LL Warbler.

Table 3.2: Observation time (minutes) in different habitats and for different methods

Observation Method		Standardised Transect	Observation Site	Incidental		
Date	Time (hr)			Forest	Open	Forest Edge/ Gardens
1-Dec	0600-1000	240				
	1530-1800	150				
2-Dec.	0725-0830				65	
	0900-1000		60			
	1500-1730		150			
	1600-1800	120				
3-Dec	0645-0730		45			
	940-1000	65				
	1540-1630	50				
	1640-1700			20		
4-Dec	1420-1440	20				
	1430-1700		150			
5-Dec	645-745			60		
	630-830	120				
	910-1010	60				
	1720-1800		40			
6-Dec	1230-1530	180				
7-Dec	650-800	70				
8-Dec	1100-1230		90			
	1500-1700			120		
9-Dec	1530-1800	150				
	1500-1730				150	
10-Dec	915-1100	105				
	Tot. Obs Time (min)	1330	210	325	200	215

Table 3.3: Land and Freshwater Birds of Viti Levu with those Species Observed at Nakorotubu. English and Scientific names follow Watling (2001).

	Common Name	Scientific Name	Origin	Endemicity	Threat Status (IUCN Listing)	Number recorded	10 hour Abundance Index	Abundance category	Comment (observations of this survey)
1	Pacific Black Duck	<i>Anas superciliosa</i>	N			7	2.1	U	Observed along the main streams
2	Reef Heron	<i>Egretta sacra</i>	N			4	1.2	U	Observed at Forest Edge, open areas and along streams and flying
	White-faced Heron	<i>Ardea novaehollandiae</i>	RJ			0	0		Not observed
3	Fiji Goshawk	<i>Accipiter rufitorques</i>	N	E		7	2.1	U	Mainly observed from lookout points
4	Pacific Harrier	<i>Circus approximans</i>	N			3	0.9	R	Observed in Open Area and lookout points
	Peregrine Falcon	<i>Falco peregrinus</i>	N			0			Not observed
5	White-throated Pigeon	<i>Columba vitiensis</i>	N			3	0.9	R	
6	Spotted Turtle-dove	<i>Streptopelia chinensis</i>	I			3	0.9	R	Observed in Open Areas only
7	Friendly Ground-dove	<i>Gallicolumba stairii</i>	N	RE	V	3	0.9	R	Observed foraging on forest floor in intact lowland rainforest in Camp 1 and Camp 3.
8	Barking Pigeon	<i>Ducula latrans</i>	N	E		119	33.4	VC	
9	Many-coloured Fruit-dove	<i>Phileinopus perousii</i>	N	RE		7	2.1	U	
10	Golden Dove	<i>Chrysoenas luteovirens</i>	N	E		47	13.6	C	
11	Collared Lory	<i>Phigys solitarius</i>	N	E		83	23.3	VC	
	Red-throated Lorikeet	<i>Charmosyna amabilis</i>	N	E	CE	0	0		Not observed

(Table 3.3 Contn'd)

	Common Name	Scientific Name	Origin	Endemicity	Threat Status (IUCN Listing)	Number recorded	10 hour Abundance Index	Abundance category	Comment (observations of this survey)
12	Masked Shining Parrot	<i>Prospeia personata</i>	N	ES	NT	34	10	C	
13	Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	N			20	5.9	F	
	Barn Owl	<i>Tyto alba</i>	N			0	0		Not observed
14	White-rumped Swiftlet	<i>Aerodramus spodiopygia</i>	N			68	20.1	VC	
15	White-collared Kingfisher	<i>Todiramphus chloris</i>	N			36	10.6	C	
16	Polynesian Triller	<i>Lalage maculosa</i>	N	RE*		66	19.5	C	
17	Red-vented Bulbul	<i>Pycnonotus cafer</i>	I			10	3	U	Observed near villages only
18	Island Thrush	<i>Turdus poliocephalus</i>	N			75	22.2	VC	
19	Fiji Bushwarbler	<i>Vitia ruficapilla</i>	N	E		150	44.3	VC	
	Long-legged Warbler	<i>Trichocichla rufa</i>	N	E	E	0	0		Not observed
20	Streaked Fantail	<i>Rhipidura spilodera</i>	N	RE*		37	10.9	C	
21	Slaty Monarch	<i>Mayornis lessoni</i>	N	E		114	33.7	VC	
22	Lesser Shrikebill	<i>Clytorhynchus vitiensis</i>	N	RE		31	9.2	C	
23	Black-faced Shrikebill	<i>Clytorhynchus nigrogularis</i>	N	E	V	7	2.1	U	
24	Vanikoro Broadbill	<i>Myiagra vanikorensis</i>	N	RE*		53	15.7	C	
25	Blue-crested Broadbill	<i>Myiagra azureocapilla</i>	N	E		72	20.7	VC	
26	Scarlet Robin	<i>Petroica multicolor</i>	N			25	7.4	C	
27	Golden Whistler	<i>Pachycephala pectoralis</i>	N			48	14.2	C	

(Table 3.3 Contin'd)

	Common Name	Scientific Name	Origin	Endemicity	Threat Status (IUCN Listing)	Number recorded	10 hour Abundance Index	Abundance category	Comment (observations of this survey)
28	Fiji White-eye	<i>Zosterops exploratory</i>	N	E		140	14.1	VC	
29	Silvereye	<i>Zosterops lateralis</i>	N			4.0	1.2	U	Observed at Forest Edge only
30	Orange-breasted Myzomela	<i>Myzomela jugularis</i>	N	E		48	14.2	C	
31	Wartled Honeyeater	<i>Foulehaio carunculata</i>	N	RE*		121	35.7	VC	
32	Giant Forest Honeyeater	<i>Gymnomyza viridis</i>	N	E		92	27.2	VC	
33	Fiji Parrotfinch	<i>Erythrura pealii</i>	N	E		39	11.5	C	
34	Pink-billed Parrotfinch	<i>Erythrura kleinschmidti</i>	N	ES	V	2	0.6	R	Observed in intact lowland rainforest near Camp 3 and open habitat near village.
	Red Avadavat	<i>Amandava amandava</i>	I			0	0		Not observed
35	Polynesian Starling	<i>Aplonis tabuensis</i>	N	RE*		22	6.5	F	Common in the forest around Camp 2
36	Common Mynah	<i>Acridotheres tristis</i>	I			10	3	U	Observed only in village & farmland
37	Jungle Mynah	<i>Acridotheres fuscus</i>	I			4	1.2	U	Observed only in open habitats near villages
38	Fiji Woodswallow	<i>Artamus mentalis</i>	N	E		3	0.9	R	