

The Upper Navua Conservation Area

Fiji's first 'Wetland of
International Importance'

INFORMATION BOOKLET

By Kelera Macedru
Funded by Rivers Fiji Limited



ACKNOWLEDGEMENT

This booklet would not have been possible without the Upper Navua Conservation Area (UNCA) *mataqali* landowners, who kept their land as a conservation area, now internationally recognized as Fiji's first Ramsar site. The known landowners are *Mataqali Sauturaga I, Sauturaga II, Ketenatukani, Vuanitavola, Vunimoli, Cawanisa, Naviaraki I, Naviaraki II* and *Navau*. We also acknowledge the assistance of Nabukelevu village in their efforts to assist Rivers Fiji Ltd. in protecting the UNCA, not to mention the village communities in Wainadiro and Waibogi village who have also provided great assistance throughout the years.

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INTRODUCTION

Fiji became signatory to the Ramsar Convention on Wetlands in the year 2006 and nominated the Upper Navua Conservation Area as Fiji's 'Wetland of International Importance' / 'Ramsar site' as a requirement for party members to the Convention. The Upper Navua Conservation Area (UNCA) became Fiji's first and this time only Ramsar site. With an area of 615 hectares the Ramsar site contains a spectacular count of Fiji's native and or endemic species. The wetland site contains one of the largest remaining protected stand of the endemic and very threatened sago palm *Metroxylon vitiense*, and in the year 2003, two freshwater species of goby fish were identified in the waters of the UNCA one of which was scientifically described for the first time. The Ramsar site also contains 15 of Fiji's island endemic land birds to which Viti levu has a total of 17 species.

The UNCA is a source of economic sustenance to the nearby village communities with its wide range of food products, building materials, medicine source, and ornamental materials not to mention the river has been used as a means of transportation for so many years.

Through the management of eco-tourism company Rivers Fiji Limited, who operate whitewater rafting activities at the UNCA, the village communities of Nabukelevu, Wainadiro and Waibogi have been provided employment opportunities as rafting guides, porters and drivers. Rivers Fiji Ltd. when possible have often used the local resources provided by the nearby village communities, this relationship strengthens the link between business and the local community.

UNCA landowning rafting guides have continued to be the first ambassadors of the Ramsar site providing information on the

significant biodiversity, hydrology and geology of the site, as well as the always interesting traditional folklore which is always attractive to hear. They are also the first monitors on the state of the wetland, and its maintenance for over 7 years is attributed to their perseverance as well as to the company Rivers Fiji Ltd. In addition to this, Fiji's established 'National Wetland Steering Committee' that is made up of the local Government Department, NGOs, Academics, Private Consultants and the Private sector has participated at the administrative level to continue overseeing the management of the UNCA from the continual threat of logging and dam construction, as well as promoting the public awareness of Fiji's first Ramsar site.

Fiji at this time continues to fight for the survival of its wetlands and will continue to do so...

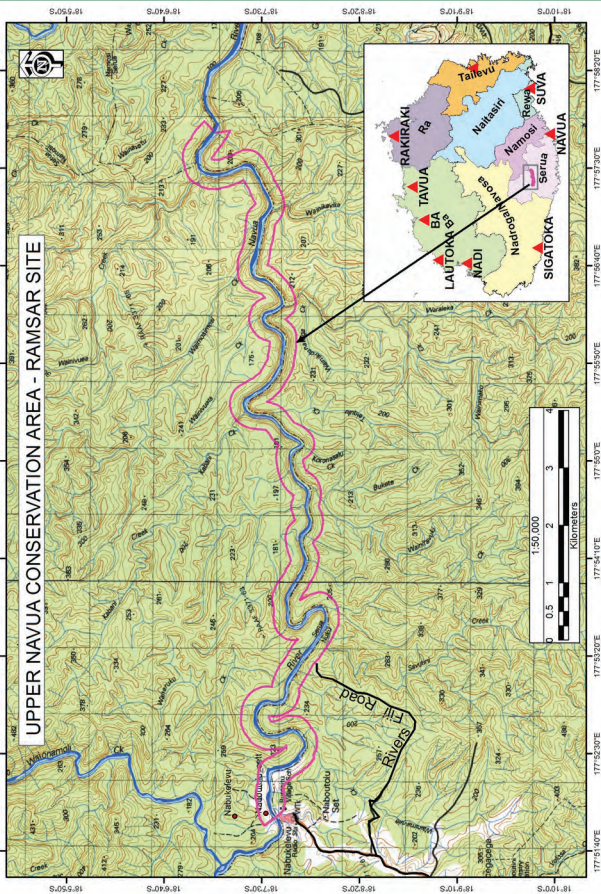
'the UNCA is a good example of how a Ramsar site can be managed through cooperation between the private sector, the government and the community' Dr. Lew Young Senior Regional Advisor for Asia Oceania (2013)



Rivers Fiji River Guides Back Row L-R: Apenisa, Joape (Director Environment Dept. 2013), Kinivuai, Simione, Noa, Vilikesa, Esala

Front Row L-R: Mosese, Pita, Eparama, Andre

UPPER NAVUA CONSERVATION AREA - RAMSAR SITE



FIJI'S RAMSAR SITE

Name of Wetland a.k.a Ramsar site: Upper Navua Conservation Area (UNCA)

Geographical Coordinates: Latitude 18°7'41.5302"S
Longitude 177°54' 57.1278"E
Latitude 18°7' 34.482" S
Longitude 177° 54' 46.713" E

Elevation: Upper Reach 110 meters
Lower Reach 47 meters

Area: 615 hectares including river.

General Location: The Upper Navua Conservation Area is located in the Serua province on the south-eastern side of Viti levu. The nearest town is Pacific Harbour, located 40 km away and Navua town is located along the lower reaches of the Navua River. Approximately 15 villages/settlements are included along the Navua River including the larger town of Navua, located near the river mouth.

The Ramsar Convention: The Convention is a intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetland areas and their resources. It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. It is the only global treaty that deals with a particular ecosystem. Its member countries cover all geographical regions on the globe.

(Source: www.ramsar.org)

The Upper Navua Conservation Area | Fiji's 'Wetland of International Importance'

A TIMELINE OF EVENTS FOR THE UNCA, FIJI'S first WETLAND OF INTERNATIONAL IMPORTANCE/ RAMSAR SITE

- 1998:** As a means of promoting conservation and assisting the landowners in the process of protecting the UNCA, Rivers Fiji Limited began operations as a white-water rafting business within the UNCA.
- 2000:** With the help of several landowning groups, a logging company and the iTaukei Land Trust Board (iTLTB), the Upper Navua Conservation Area (UNCA) was established.
- 2003:** A scientific study was conducted at the UNCA highlighting the significant species documented within the 615 hectare conservation area.
- 2005:** Fiji cabinet endorsed Fiji's nomination of the UNCA as Fiji's first 'Wetland of International Importance' or Ramsar site under the Ramsar Convention on Wetlands.
- 2006:** Fiji became the 152nd country to become party to the Ramsar Convention.
- 2010:** A Ramsar Small Grants Fund made available to Fiji in the year 2007, funded an educational tour for the children of the 9 landowning *mataqalis* and the 2 villages located near the conservation area, that is, Wainadiro and Waibogi.
- 2011-on going:** Fiji continues to promote it first and at this time only 'Wetland of International Importance'.

LAND USE IN THE SURROUNDING AREAS/CATCHMENTS

The surrounding area is under a logging lease, while in other areas, subsistence farming occurs by the local villagers. The shifting agricultural gardens mainly confined to the lower portions of the river near Wainadiro include major staple foods, such as taro (*dalo*), cassava (*tavioka*), yam (*uvi*), and sweet potato (*kumala*), with associated plants, bananas, breadfruit, mango, papaya and a range of citrus trees. Also present is the (*duruka*), pineapple, and kava (*yaqona*).

On land, cattle and horses are often left to graze without been fenced in (they are often used as means of transportation), while the river constitutes part of the traditional fishing grounds or '*iqoliqoli*' of the Fijian landowners. Traditional fishing holes are often identified by types; this include deep water holes and rapid areas, especially for favored habitats for species such as freshwater eels (*duna*), prawns (*ura*), crabs (*sarakali*), shellfish (*sici*).

There are also a number of caves, located along the river within the UNCA that act as safe havens, and traditional camp sites, that for centuries have been used by fishermen and travellers for temporary stays or to take refuge. The names of these caves are identified in the native language.

The secondary forests contain many useful wild food trees, a wide range of medicinal plants, firewood, construction materials, dyes, perfumes, materials for handicrafts and many other product and services that are often depended upon by the nearby village communities.

CULTURE AND TRADITION



A landowner awareness activity at the UNCA © Kelera Macedru

The only village located near the UNCA at this time is Nabukelevu village, however in earlier times the area hosted a number of village sites that have since been abandoned. The village is presided over by a village chief or headman and elders. Gardens/Plantations are still tended in a relatively traditional manner with some produce being sold in the markets, but most are kept for personal use.

The river acts as a source of protein as well as a transport system for the villages located in proximity to the UNCA. *Bilibilis* a local transport floater, made from bound bamboos, are often seen along the lower reaches of the river towards Wainadiro and Waibogi village.

The abandoned village sites, burial grounds and other sacred sites located in or near the UNCA are protected by traditional customs and the conservation area.

LAND TENURE, JURISDICTION AND MANAGEMENT

All the land in and around the UNCA is owned by traditional land owning clans, known as *mataqali*. Nine *mataqalis* who live in Nabukelevu village, as well as several villages along the coastal side of the Serua province, own land in and around the conservation area.

The land and waters within the UNCA are under the direct management of Rivers Fiji Ltd. as per terms and conditions of their lease. A management permit plan for the UNCA by Rivers Fiji Ltd, currently deals with the issuing of permits, management plan of tourist activities and the distribution of benefits to landowning groups. An updated management plan according to the 'Ramsar site Management plan guidelines' as provided by the Convention is currently being undertaken.

CURRENT LAND USE

At the site, Rivers Fiji Ltd. as per lease operates a white water-rafting activity and a percentage of the income goes directly to the 9 landowning *mataqalis* and the 2 villages, outside the UNCA boundary which is Wainadiro and Waibogi.

GEOLOGY

Physical Description

The geology of the site is described as *Navua* mudstone, that is, mudstone and fine-grained sandstone, minor limestone and basal conglomerate. A small deposit of andesitic flows and pyroclastics is located near the village of Nabukelevu. The age of the mudstone is dated to the Mio-Pliocene, that is 20-25 million years ago.

Pieces of fossilized coral and petrified wood can be seen within the layers of mudstone.



*A piece of fossilized coral embedded in to the rocks at the UNCA gorge
© Kelera Macedru*

HYDROLOGY



© Kelera Macedru

The Upper Navua river represents Fiji's third largest freshwater drainage, it is documented to contain over 50 waterfalls in the dry season (May-October) and over 100 in the wet season (November-April). There are approximately 53 mapped rivers within the UNCA.

The Upper Navua river is channelled into a narrow and sheer-walled canyon near *Manaqe* creek creating a funnel effect that sees water fluctuations of 30 feet and greater during severe weather.

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BIRDS

Fiji has 27 endemic bird species. Fiji's largest island Viti levu has 17 of these endemic species. In the year 2003, scientists documented 15 of 17 endemic birds of Viti levu within the sanctuary of the Upper Navua Conservation Area.



Some species profile include excerpts from the book by Dr. Dick Watling '*Mai Veikau Tales of Fijian Wildlife*' 2nd edition.

The '*Birds of the Fiji Bush*' by Fergus Clunie is the recommended reading for extra information on bird profiling.

Pink-billed Parrot Finch

Fijian name: Sitibatitabua
(*Erythrura kleinschmidtii*)

Brief Information: 12cm. The parrot finch consumes a wide range of insects, ranging downwards from large beetles and grasshoppers. It is also known to feed on flower buds and fruit. The bird is confined to wet forests and the thick bushes of Viti levu up to 1,000m. The Pink billed parrot finch is generally rare to find.

Endemic to Viti Levu, Fiji



© Birdlife International

Masked Shinning Parrot

Fijian name: Kaka
(*Prosopiea personata*)

Brief Information:

47cm. A bright green parrot with a striking yellow orange breast and belly. Males are slightly larger than females. Sociable often found feeding in flocks of a few birds, a flock may number up to 40 birds.

Endemic to Viti Levu, Fiji.

Location: The masked shinning parrot is commonly seen and/or heard whilst rafting through the UNCA.

Except from 'Mai Veikau Tales of Fijian Wildlife' (Watling 2011): Parrots are said to be long lived birds between 30-50 years.



© Paddy Ryan

Giant Forest Honeyeater

Fijian name: Sovau, Ikou, Cavucavuivalu
(*Gymnomyza viridis*)

Brief Information: 27cm. A large honeyeater with typically slender, slightly down-curved bill and drab plumage. The entire bird is olive green. Fiji has two identified races: *G.v., viridis* and *G.v.brunneirostris*.

Island Endemic to Viti levu, Vanua levu and Taveuni Fiji.

Location: Forest area of the UNCA, most often can be identified by hearing its call



© Birdlife International

Eastern Reef Heron

Fijian name: Belo
(*Egretta sacra*)

Brief Information: About 60-75cm. The Eastern Reef Heron is found in 3 distinct colour phases in the region; these are, the white, grey and mottled phase. Colour does not indicate age or sex. Clumsy courtship includes chases and aerobatics. The grey birds are more numerous while the mottled phase is much rare, only found in Fiji.

Native to Fiji.

Location: Often found on the river banks as you draw towards Wainadiro village.



© Paddy Ryan

Fiji Goshawk



© Paddy Ryan

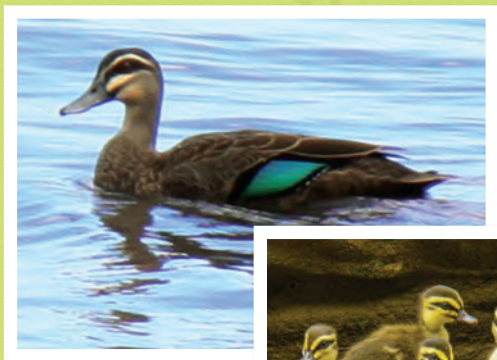
Fijian name: Latui, Reba, Tuitui
(*Accipiter rufitorques*)

Basic Information: The female is generally larger than the male, at 40cm while a male is at 30cm. It is a small hawk with a long tail and long rounded wings. Its kill range includes the barking pigeon down to rats, mice, lizards, snakes and insects. It is known to snatch fish and prawns from shallow water.

Endemic to Fiji

Location: Often found in well wooded areas.

Pacific Black Duck



© Mark Fraser



Ducklings of the Pacific black duck at the UNCA © Kelera Macedru

Fijian name: Ganiviti
(*Anas superciliosa*)

Brief Information: 50cm. Nests are often found far from the water, the passage of newly hatched ducklings must be the most vulnerable stage. It is rare to see more than two ducklings survive, even though it is known to lay up to 10 pale green eggs.

Native to Fiji.

Location: Found in various location within the Upper Navua River.

Golden Whistler

Fijian name: Ketedromo, Didibesau
(*Pachycephala pectoralis*)

Brief Information: 18-20cm. Fiji currently has 3 major racial trends for this particular species. The male for the Viti levu species has a yellow forehead, sometimes 2 yellow forehead spots, while the female is an olive brown.

Native to Fiji.

Location: Found in mature forested areas.



© Alifereti Naikatini

Fijian Woodswallow

Fijian name: Levecagi, Sikorere, Vukase
(*Artamus mentalis*)

Brief Information:

17cm. Woodswallows and are known to have superb powers of flight, with small insects being known to be eaten in flight. Hawks and Falcons are known to attack Woodswallows.

Endemic to Fiji.

Location: Essentially birds of the forest edge.

Except from 'Mai Veikau Tales of Fijian Wildlife' (Watling 2011): Wood swallows are communal breeders. A group of 6-8 birds form a family unit, building nests, protecting their young and having sex together!



© Tuverea Tuamoto

Pacific Golden Plover

Fijian name: Dilio, Dolidoli, Juli
(*Pluvialis fulva*)

Brief Information: 23cm. A migratory species that has been recorded to breed between June and July, after it departs the breeding ground from late August to early September (birdlife.org 2013)

Native to Fiji.

Location: Often found flying along the Upper Navua River.

Except from 'Mai Veikau Tales of Fijian Wildlife' (Watling 2011): Every year all the waders (10 species are annual visitors to Fiji) with one exception, make an amazing trans-equatorial migration, their destination is the deserted wastelands of the Arctic tundra in either Russia or North America.



© Tuverea Tuamoto

Vanikoro Broadbill

Fijian name: Matayalo, Solesolewaqa, Tinaniuto
(*Myiagra vanikoroensis*)

Brief Information: 13cm. The Vanikoro broadbill is a small attractive bird, with four different races documented in Fiji. It has been described as a 'leaf –snatching' flycatcher taking insects from the underside of leaves on short flights, or often seen hovering around the leaves.

Native to Fiji.

Location: It can be found from montane forest to mangrove areas.



© Jörg Kretzschmar

Golden Dove

Fijian name: Ko, Buneko
(*Chrysoenas luteovirens*)

Brief Information: 20cm. The male is a bright lemon yellow with olive green streaking. While the female is uniformly green but lighter on its under parts. Initially all juveniles are similar to females. Females are described to utter a low hoarse growl while the males give a repeatedly high sounding yap likened to a young dog.

Endemic to Fiji.

Location: A forest species, though common also at the forest edge.



© Baravi Thaman

White Collared Kingfisher

Fijian name: Sekala, Lele, Lesi, Sese
(*Todirhamphus chloris*)

Brief Information: 21cm. In Fiji the White Collared Kingfisher is separated in several subspecies, all of which are confined to several islands or island groups within Fiji.

Native to Fiji.

Location: Broad habitat tolerance, found in montane forest to village site.



© Chris Thomson

Collared Lory

Fijian name: Kula, Drisi
(*Phigis solitarius*)

Brief Information:

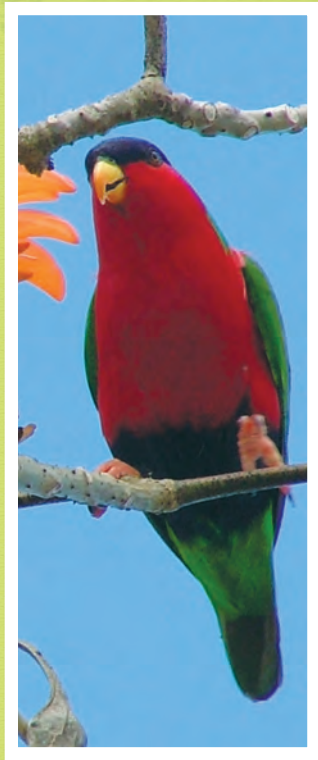
20cm. One of Fiji's most striking birds. Sexes are similar. Feeding flocks are very active and nomadic following tree blossoms. They also eat ripe fruit and other insects.

Endemic to Fiji.

Location: Not restricted to any particular habitat.

Except from 'Mai Veikau Tales of Fijian Wildlife' (Watling 2011):

The *Kula* bird was traded with the Samoans and Tongans for its red feathers. The woollen fringe of mats is still called *Kula* today— a relic of the time when red feathers were used for this purpose.



© Johnson Seeto

Fiji Bush Warbler

Fijian name: Manu, Maya, Tikivili, Biliwi
(*Cettia ruficapilla*) synonym (*Vitia ruficapilla*)

Brief Information: 12cm. Often singing in duet: a loud, richly melodious, clear whistling warble which varies racially. There is traditional significance to its call especially for the native hunters. It can either be good luck or bad luck depending on which side of the path, the hunters would hear its call.

Except from 'Mai Veikau Tales of Fijian Wildlife' (Watling 2011):
A call from the right is often a good omen when hunting pigs or searching for wild yams, while a call from the left, may result in the hunting group retiring back to the village.

Location: Can be found in thick undergrowth in mature forest, secondary bush and agriculture land.



© Vilikesa Masibalavu

The Upper Navua Conservation Area | Fiji's 'Wetland of International Importance'

Slaty Flycatcher

Fijian name: Sasaire, Cewa
(*Mayrornis lessoni*)

Brief Information: 13cm. A delicate, slate-grey flycatcher, darker above with conspicuous white eye ring and a black tail with white tips, especially marked on the lateral tail feathers.

Endemic to Fiji.

Location: A bird of the sub-canopy forest, but commonly encountered in well wooded parks and/or gardens.



© Alifereti Naikatini

PLANTS

The UNCA is notable in having the most well developed examples of ultimate riparian vegetation (adapted to fast flowing water), river gorge and cliff vegetation in Fiji. Many of the near river plants are native species (most of which are endemic), restricted to fast flowing river habitats.

Under Fiji's environment report produced in the year 1992, Fiji has about 750 endemic species, 40-50% are represented by vascular plants (ferns, horsetails and club mosses).

Brown Pine

Fijian name: Kuasi
(*Podocarpus neriifolius*)

Brief Information: Commonly known as Brown Pine. It is a conifer that can grow to about 15 meters in length. A form of the species with longer leaves is found along fast-flowing rivers and streams in many parts of the world. *Kuasi* is a good timber tree for houses and furniture, traditionally used by Fijians for spears, poles and dugout canoes.

Native to Fiji.

Location: Forested areas of the UNCA



© Randy Thaman

Kalabuci ni wai

Fijian name: Kalabuci, Kalabuci-ni-wai
(*Acalypha rivularis*)

Brief Information: The *Kalabuci* or *Kalabuci ni wai* is often associated with riparian species, that is, species that have adapted to fast flowing water. It is also used as an indicator species for streams and creeks that are still intact and not under a lot of disturbances. The plant is often utilized for its medical properties by the indigenous Fijian community residing near the UNCA.

Endemic to Fiji.

Location: *Kalabuci* is often found in the riparian zone.



© South Pacific Regional Herbarium (SPRH)

Masiratu

English name: Unknown
(*Degeneria vitiensis*)

Brief Information: *Masiratu* has several features considered primitive among flowering plants and belongs to a group of plants (the magnoliids) that existed during the time of the dinosaurs (more than 100 million years ago).

It is also featured in the Fijian five dollars currency.

The **only plant family Endemic** to Fiji.

Location: Often found in upland forests and steep slopes.



© Baravi Thaman

Bamboo Tree

Fijian name: Bitu ni vavalagi
(*Bambusa vulgaris*)

Brief Information: Height between 10-20 m. The tall bamboo was an early introduction to Fiji, a large bamboo can measure to 20m in height. Often used in Fiji for the construction of rafts (*bilibili*), fences and houses. Also used as 'containers' for cooking prawns over open fires.

Introduced to Fiji.

Location: Found along the trek to the 'safety talk' site at the UNCA.



© Kelera Macedru

Sago

Fijian name: Soga, Sogo, Niu soria, Seko
(*Metroxylon vitiense*)

Brief Information: A large palm can grow to 15m in height. At maturity, between 15-20 years, flowers are produced, and these develop into fruits. By the time the fruits fall, all the fronds have died and fallen back, the palm tree dies thereafter. Research undertaken in the year 2007, found the Sago palm to satisfy the identification of this palm under the IUCN criteria to be 'Critically endangered'.

Endemic to Fiji.

Location: Often found on the upper slopes of the gorge cliffs and adjacent areas, both the main river and tributaries.



© Kelera Macedru

Vutu Tree

English name: Unknown
(*Barringtonia edulis*)

Brief Information: At a height of 6-24m, the *Vutu* tree has flowers with large and showy pendant inflorescences. Its fruits are often eaten raw or cooked. Its wood is used as casing timber.

Native to Fiji.

Location: Found along the trek towards the 'safety talk' site at the UNCA.



© Filipe Osborne

Pacific Ground Orchid

Fijian name: Unknown
(*Spathoglottis pacifica*)

Brief Information: The *Spathoglottis pacifica* is a South Pacific orchid with narrow, folded, and long leaves. Its floral colour is extensive and ranges from brilliant yellow, pure white, crimson, purple, and magenta.

Native to Fiji.

Location: Often seen overhanging from gorge.



© Ian Sutton



MAMMALS

Bats are the only mammals that are native to Fiji. Fiji is documented to have six species of bats, three of which are cave roosting species, while the rest are forest dwellers. Flying foxes play important roles in the Fiji ecosystem as they are essential pollinators and dispersers of native fruit trees.



Samoan Flying Fox

Fijian name: Beka lulu, Beka dravu, Beka qasi (*Pteropus samoensis*)

Brief information:

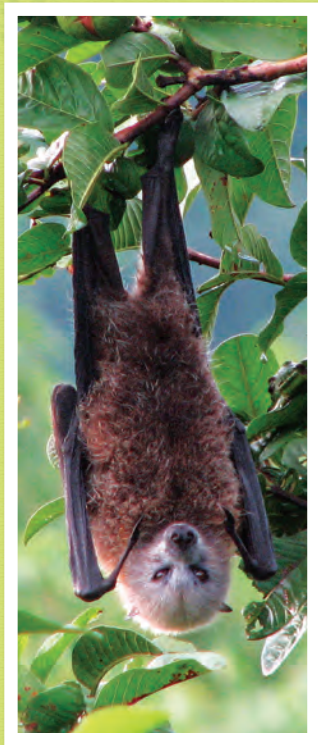
A medium sized flying fox. The Samoan flying fox is not gregarious, often observed singly or in groups of 2-3 individuals. The species has been observed to be far more dependant on primary forests or well-developed forests than the *P.tonganus*. It is known to be hunted for consumption.

Native to Fiji.

Except from ('Mai Veikau Tales of Fijian Wildlife' (Watling 2011):

'Bats often urinate on themselves to keep them cool

Location: The Samoan flying fox is a common sight at the UNCA



© Tim Howick Smith

Pacific Flying Fox

Fijian name: Beka dina
(*Pteropus tonganus*)

Brief Information: The Pacific flying fox is the largest most common bat in Fiji, it is known to roost in large colonies, while the Samoan flying fox roosts in small groups of 2-4 pairs. It is known to be hunted for consumption.

Native to Fiji.

Except from 'Mai Veikau Tales of Fijian Wildlife' (Watling 2011): Under arm boils are locally termed '*beka luve*' in Fijian, directly translated as 'bat young', in recognition of how bats hold their wings out when carrying their young under their arms.

Location: Often seen around the UNCA.



© Mark Fraser

Fiji Blossom Bat

Fijian name: Kalakalavo
(*Notopteris macdonaldi*)

Brief Information: 98-110 mm. The Fiji Blossom bat, is Fiji's only nectar feeding, cave roosting bat. It is a flower and a nectar feeder, that roosts in deep large caves.

Native to Fiji.

Except from 'Mai Veikau Tales of Fijian Wildlife' (Watling 2011):
Often distinguished when its eyes reflect red in torch light
Fiji's population is said to represent the global number for this species.

Location: Its cave roost is located outside the conservation area, but its feeding grounds also includes the UNCA.



© Alifereti Naikatini



HERPETOFAUNA

The known terrestrial herpetofauna of Fiji consists of 30 species, 4 iguanas, 3 snakes, 10 geckos and 12 skinks. Forty percent of these species are endemic to Fiji.



Viti Banded Iguana

Fijian name: Vokai, Saumuri
(*Brachylophus bulabula*)

Brief Information: Of the three iguanas documented in Fiji, the *Viti* Banded Iguana is located on Fiji's largest islands and the *Lomaiviti group*. Females are typically uniform green but some population show occasional light banding. Tails are encircled by alternating bands of white and green. Often associated with superstition in traditional Fijian villages.

Endemic to Fiji.

Location: It is found in lowland forests commonly seen climbing on trees.



© Theo Blossom

Pacific Boa

Fijian name: Gata, Gwata
(*Candoia bibroni*)

Brief Information: The Pacific boa is the smallest member of the boa constrictor family. Its colour varies in Fiji from brick red to dark, nearly black individuals.

Except from 'Mai Veikau Tales of Fijian Wildlife' (2011): This colour variations and patterning have given rise to several Fijian snake names and the erroneous belief that they are all different species.

Location: Found in trees, bushes, rock clefts in range of forests, and dry forest.



©Theo Blossom

Fijian Green Tree Skink

Fijian name: Moko sari
(*Emoia concolor*)

Brief Information: Adults are around 56-86mm in length . They are known as terrestrial nesters, with females producing 1-4 eggs. Apart from not caring for their young who must be self reliant from birth, little else is known about its reproductive ecology.

Endemic to Fiji.

Location: Found in a wide range of habitats from low and highland forests to agricultural areas.



© Mark Fraser



GOBIES

There are more different species of gobies in freshwaters of Fiji and the Pacific islands than there are in any other group of fish. Most gobies in streams and rivers are very connected to the ocean, they will reproduce in freshwater and the fertilized eggs will wash out to sea where they will grow for 2-6 months before re-entering streams as 'white-bait'. The gobies will migrate far inland, even finding them above huge waterfalls because they have fused fin that makes a suction cup allowing them to climb up steep rock walls. The gorge represents a significant portion of migratory pathway and also spawning grounds for these species.



Lever's Fijian Goby

Fijian name: Beli
(*Redigobius leveri*)

Brief Information: Its maximum size has been recorded at 4.2cm. This species occurs in shallow freshwater creeks and rivers below 100 m elevation. It can be common in “less disturbed” freshwater streams. It has been described as being a carnivore on benthic invertebrates.

The *Beli* is a totem fish for the indigenous Fijians from the *Namosi* province.

Endemic to Fiji.



© Paddy Ryan

Orange Spotted Scale less Goby

Fijian name: Beli
(*Schimatogobius vitiensis*)

Brief Information: The new goby *Schimatogobius vitiensis* was found in the rapids of the UNCA, documented for the first time in 2003. The genus *Schimatogobius* are unusual among gobies in that they are small, scale less species usually found living among rocks in fast flowing freshwater streams.

Endemic to Fiji.



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FRESHWATER EELS

This group will spend its juvenile and adult life in freshwater before migrating from headwaters of rivers all the way to the ocean where it will breed and die. The young larvae look like see-through leaves and will re-enter the mouth of the streams and spend the rest of their lives in freshwater. Worldwide there are 15 different species of freshwater eels and Fiji has at least 5 species.

Giant Mottled Eel

Fijian name: Duna, Diria
(*Anguillae marmorata*)

Brief Information: The Giant mottled eel belongs a group of eels having a long dorsal fin, its origins extending far beyond the anus. The species has been called marmorata (from marmor, marble) because for adults, the back has brown-black mottling on a grey-yellow background. Males measure from 40-70cm in length. Life spans extends to 13-17 years for females and 5-10years to males.

Native to Fiji.

Location:

Often found in freshwater, creeks and rivers up to at least 1000m elevation.



© Baravi Thaman

Spotted Freshwater Moray Eels

Fijian name: Bonu dadarikai, Dadarikai
(*Gymnothorax polyuranodon*)

Basic information: 92.5cm TL .A bottom dwelling species that is found in marine, estuarine, and freshwater habitats. Its life cycle is not fully understood; individuals spend the initial cycle of their life in a marine environment then migrate to freshwater as adults. Individuals do not move further upstream than 20-30km into freshwater. This species has a very shallow depth range of 0–3 m.

Native to Fiji.



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References:

Pacific Golden Plover *Pluvialis fulva* 2013, Birdlife International, viewed 17th October 2013, <<http://www.birdlife.org/datazone/speciesfactsheet.php?id=3112>>.

Clunie, F, 2007, 'Birds of the Fiji Bush', Fiji Museum, Suva.

Department of Environment Fiji Islands, 2008, 'National Report for Fiji to the 4th Oceania Regional Meeting for the Ramsar COP10 10-11 April 2008 Apia Samoa' by Senior Environment officer Eleni Tokaduadua.

IUCN Red list, 2013, The IUCN List of Threatened Species, viewed 17th July 2013, <http://www.iucnredlist.org/details/summary/195780/0>

Keith, P, Marquet, G, Gerbeaux, P, Vigneux, E, Lord, C, 2013, 'Freshwater fish and crustaceans of Polynesia: taxonomy, ecology, biology and management, Société Française d'Ichtyologie, Paris, France.

Keppel, G, Ghazanfar, S, 2006, 'Trees of Fiji A Guide to the 100 Rainforest Trees revised edition, Secretariat of the Pacific Community, Fiji.

Morrison, C, 2003, 'A field guide to the Herpetofauna of Fiji', The University of the South Pacific, Fiji.

Palmeirim, J M, Champion A, Naikatini A, Niukula J, Tuiwawa M, Fisher M, Yabaki-Gounder M, Thorsteinsdottir S, Qalavaki S, Dunn T, 2007, 'Distribution, status and conservation of the bats of the Fiji Islands', *Oryx* vol 41, no.4 pp. 509-519.

Terry, JP, Ollier, CD, Pain, CF 2002, 'Geomorphological evolution of the Navua River Fiji', *Physical Geography*, vol. 23, no. 5, pp. 418-426.

Thaman R, Gregory M, Takeda S, 2011, *Trees of Life A guide to Trees*

References: Con't

and Shrubs of The University of the South Pacific, The University of the South Pacific, Suva, Fiji.

Watling, D, 2004, A Guide to the Birds of Fiji & Western Polynesia, Environment Consultants (Fiji)L Ltd, Fiji.

Watling, D, Bennet, G, 2005, 'Palms of the Fiji islands', Environment Consultants (Fiji) Limited, Fiji.

Watling D, Ryan P, Bathgate J, Corbett R, undated, 'Bouma field guide, Birds and Animals', The National Trust of Fiji.

Watling D, Chape S, 1992 'Environment: Fiji The National State of Environment Report', International Union for the Conservation of Nature, Fiji.

Young L, 2013 '*Conserving Fiji's Wetlands*', The Ramsar Convention on Wetlands, Viewed 5th September 2013, <http://www.ramsar.org/cda/en/ramsar-fijireportunca/main/ramsar/1%5E25939_4000_0__>

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For more information please contact us at:

Rivers Fiji Limited

P.O Box 307

Pacific Harbour

Tel: 3450147

Email: info@riversfiji.com

www.riversfiji.com



