PT FREEPORT INDONESIA
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FIELD GUIDE TO FROGS

OF THE MIMIKA REGION - PAPUA, INDONESIA

Stephen J. Richards, Burhan Tjaturadi
Mumpuni, Pratita Puradyatmika

THE 9TH BOOK IN A SERIES OF FIELD GUIDES TO THE FLORA AND FAUNA OF MIMIKA REGION, PAPUA

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Cover Illustration
Main Picture - *Sphenophryne cornuta* (male with babies)
Inset from left to right
Oreophryne sp. nov.*; Litoria prora ; Litoria auae ; Asterophrys turpicola*

FOREWORD

I am proud to welcome the FIELD GUIDE TO FROGS OF THE MIMIKA REGION – PAPUA, INDONESIA book illustrating 51 frog species found in the PTFI Contract of Work area. In doing so, I would like to congratulate the individuals who contributed to the publication of this volume and thank them for their hard work. Principal among these are Stephen Richards, Burhan Tjaturadi and Pratita Puradyatmika who conducted the latest frog survey in 2006 and Mumpuni who assisted in identifying the frogs species.

PT Freeport Indonesia (PTFI) has been operating for more than 40 years in Papua, one of the richest biodiversity centers in the world. Expanses of tropical rain forests like the verdant jungles of Papua hold countless mysteries. More than 50% of the island's flora and fauna are endemic.

PTFI has funded comprehensive surveys of biodiversity in the area since 1996 and identified more than 8,000 species of vascular plants, 133 species of reptiles and amphibians, 273 species of birds, 44 species of mammals, 97 species of water insects, 250 species of fish and 300 species of invertebrates. As a part of this work, Stephen Richards and Burhan Tjaturadi conducted a frog survey in 2006 and identified 51 species of frogs. Only 30% of the species documented in 2006 were found in a similar 1997 survey by Allen Allison and A.A. Dwiyahreni.

The book is an important supplement to our continuous efforts in Corporate Social Responsibility, in particular to support environmental protection, education, and research in Papua. We strongly encourage and support efforts related to the cultivation of environmental and biodiversity knowledge and promotion of Papua Because protecting the richness of biodiversity in our project area is one of the foremost priorities in our environmental policy, PTFI looks for innovative ideas to preserve and rehabilitate the environment. Preserving the biodiversity in Papua requires that we maintain the rich forests that support this biodiversity. Therefore, I urge all of us to take personal responsibility to protect Papua forest.

We believe increased knowledge about the biodiversity in Papua is an important factor, in combination with effective program implementation, to help preserve and protect the environment in Papua. I would like to congratulate the authors for making this book a reality and hope the book will bring benefit to people interested in exploring biodiversity in Papua.

MAROEF SJAMSOEDDIN

President Director of PT Freeport Indonesia

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Introduction

Frogs and toads make up the amphibian order Anura, also known as tailless amphibians. There are more than 300 native frog species in eleven frog families known from Indonesia (Bombinatoridae, Bufonidae, Ceratobatrachidae, Dicroglossidae, Hylidae, Limnodynastidae, Megophryiidae, Microhylidae, Myobatrachidae, Ranidae and Rhacophoridae). One additional family, the Pipidae, is represented by the introduced clawed frog (*Xenopus*) a native of Africa. The distribution of these families across the country is highly variable, reflecting the influence of the differing geological histories of Indonesia's extensive archipelago of islands.

According to their histories of formation the islands of Indonesia can be categorized into three broad groups, namely the Sundanese region consisting of Sumatera, Java, Bali and Borneo; the Sahul region consisting of New Guinea and its surrounding islands; and Wallacea consisting of Celebes, most parts of Nusa Tenggara and the Moluccas. The different histories of island formation in each of these regions are reflected in their very different faunas and floras including frogs.

The Sundanese region is dominated by frogs of the families Bufonidae, Bombinatoridae, Dicroglossidae, Megophryiidae, Microhylidae, Ranidae, and Rhacophoridae. In contrast the Sahul region is dominated by the families Hylidae and Microhylidae with a moderate diversity of Ceratobatrachidae and Ranidae and few Limnodynastidae and Myobatrachidae. The only Bufonidae in the region are introduced pests. Wallacea is known as an in-between region with many species related to frogs from the Sundanese region and others related to frogs from the Sahul region.

Papuan frogs are dominated by species from two families, the Microhylidae and Hylidae. Hylidae in Papua contains two genera (*Litoria* and *Nyctimystes*), while Microhylidae consists of 17 genera namely *Albericus, Asterophrys, Austrochaperina, Callulops, Choerophryne, Cophixalus, Copiula, Hylophorbus, Liophryne, Mantophryne, Metamagnusia, Oninia, Oreophryne, Oxydactyla, Pseudocallulops, Sphenophryne* and *Xenorhina*. One of the most striking features of the Papuan frog fauna is that many species remain to be discovered and described. There is no doubt that the total number of frog species known from Papua will continue to increase as many regions are still not explored properly to document their fauna.

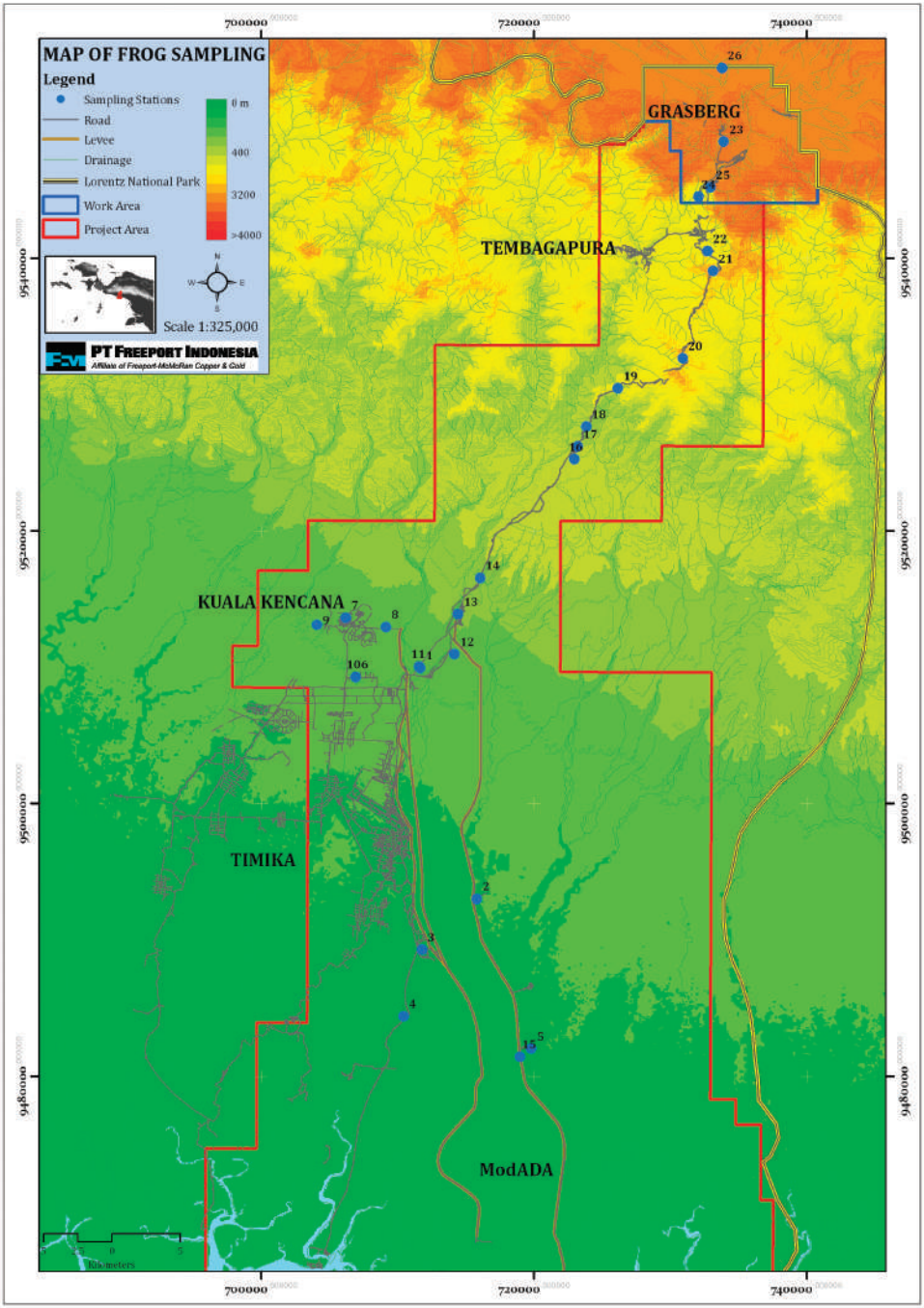


Figure 1. Map of Mimika showing frog survey localities

Mimika environment

The Mimika Administration Area is located in the south of Papua Province of Indonesia and contains an extraordinary variety of ecosystems extending from coastal lowlands at sea level to tropical glaciers at 5,000 m asl. The World Heritage listed Lorentz National Park is located in Mimika to the east of PT Freeport Indonesia's contract of work area where the company is mining copper and gold.

Rainfall in Mimika is very high, and varies across the region. Rainfall totals for the years 2008 – 2012, taken from several climate stations in lowland and highland areas, are presented in the table below.

Table 1. Rainfall in Mimika Region 2008 - 2012

LOCATION	Altitude (m asl)	2008	2009	2010	2011	2012
Grasberg	4,200	3,703	2,468	3,408	4,167	4,059
Mill MP-74	3,500	4,309	5,407	6,149	6,120	6,361
Tembagapura	2,000	6,307	6,620	7,653	8,320	7,574
Kuala Kencana	100	12,234	8,259	8,431	7,811	8,369
Timika	80	5,832	5,066	5,995	6,019	5,177
MP-21	50	No data	2,509	5,106	4,297	4,255

Source: PT Freeport Indonesia

The rainfall records in Table 1 are not only from different altitudes but also represent different habitats. For example Grasberg is in sub-alpine habitat, Mill MP-74 is in upper-montane forest, Tembagapura is in mid-montane forest, and Kuala Kencana is in lowland tropical rain forest while Timika is in a transition zone between lowland tropical rain forest and swamp forest, and MP-21 is in swamp forest. Despite these variations the rainfall data shown above demonstrate that the Mimika region is extremely wet, with average yearly rainfall above 3,000 mm (3 meter) per year at most sites. These conditions have generated a wide variety of suitable habitats for frogs.

This book is based on a frog survey in PT Freeport Indonesia's contract of work area that examined the frog fauna of several local ecosystems including swamp forest, lowland tropical rainforest, heath forest, montane forest and sub-alpine areas. Below we briefly describe the main vegetation types of each ecosystem that was surveyed.

A permanent swamp in lowland forest

Swamp Forest

Swamp forest in the Mimika region consists of two types, sago swamp forest and pandanus swamp forest. As the names imply,sago swamp forest is dominated by the sago palm (*Metroxylon sagu*) while the pandanus swamp forests are dominated by a Pandanus community. Survey location no. 4 is in sago swamp forest while survey location no. 5 is in pandanus swamp forest.

Sago swamp forests in Mimika contain about 120 species of plants. Dominant species besides the sago tree are *Intsia palembanica, Hopea novoguineensis, Artocarpus fretessii* and *Terminalia complanata*, while on the forest floor ferns such as *Diopteris* sp., *Bolbitis* sp., *Nephrolepis* sp. and *Thelyptersi* sp. as well as herbs like *Curculigo* sp., *Riedelia graminea*, *Elatostema* sp., *Hanguana sumatrana*, *Leea zipeliana*, and *Riedelia* cf. *carolina* can be found.

The pandanus swamp forests are somewhat more diverse with about 257 species of plants. Dominant trees besides *Pandanus* include *Vatica papuana, Intsia palembanica, Campnosperma brevipetiolata, Stemonurus* sp*., Mallotus* sp*., Metroxylon sagu* and *Hopea novoguineensis*. On the forest floor can be found ferns such as *Selaginella* sp*., Asplenium* sp. and *Nephrolepis* sp. as well as several types of herbs such as *Scirpodendron americanus, Riedelia* cf*. carolina, Curculigo sp., Hanguana sumatrana,* and *Riedelia graminea.*

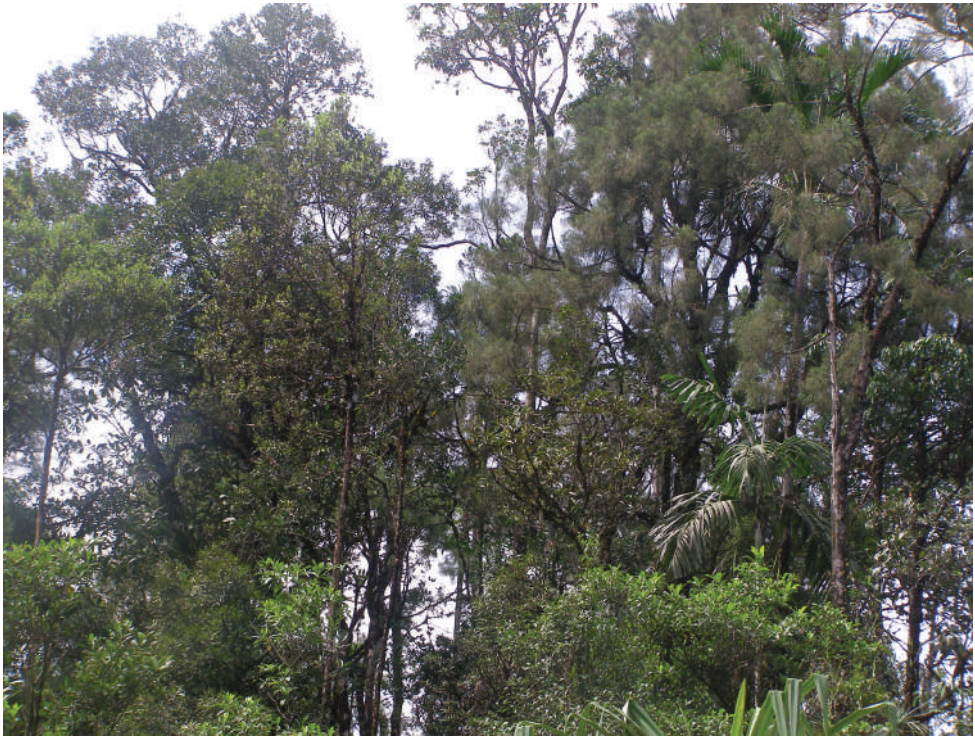
Lowland tropical rain forest

Lowland Tropical Rain Forest

Lowland tropical rain forest occurs at altitudes slightly above the swamp forest and the forest contains more plant species than most other ecosystems in Mimika. A total of 10 locations were surveyed in lowland tropical rain forest. In Figure 1 these are survey location No. 1, 2, 6, 7, 8, 9, 10, 11, 12 and 13.

There are more than 500 species of plants in this rich ecosystem, and the main families are Anacardiaceae, Annonaceae, Apocynaceae, Burseraceae, Dipterocarpaceae, Ebenaceae, Euphorbiaceae, Fabaceae (Leguminoceae), Guttiferae (Clusiaceae), Meliaceae, Myristicaceae, Myrtaceae, Rubiaceae, Sapotaceae, and Sterculiaceae. Major canopy trees include *Pometia pinnata*, *Ficus* spp., *Alstonia scholaris*, and *Terminalia* spp and other dominant tree species in this region include *Sloanea* sp., *Canarium indicum, Chisocheton* sp., *Mallotus* sp. and *Terminalia complanata*.. The lower forest strata are relatively open, and dominated by trees such as *Garcinia* sp., *Diospyros* sp., *Myristica* spp., *Maniltoa* sp. and *Microcos* sp. There are also some trees that have stilt-root.

Ferns found on the forest floor include *Bolbitis* sp., *Thelypteris* sp., *Selaginella* sp.,



Heath forest

Nephrolepis falcate, *Lindsaea* cf. *repens*, *Sphaerostephanos polycarpus*, and *Asplenium* cf. *tenerum* and some herbs such as *Elatostema* sp. *Riedelia Graminae, Costus speciosus, Riedelia cf. carolina* and *Schismatoglotis calyotrata*.

Heath Forest

Heath forest, (Heidewald) develops mainly over coarse siliceous deposits which give rise to podzolized soil and is dominated by conifers that have grown on peat soils. It is found above the lowland tropical rain forest at altitudes ranging between 150-600 m above sea level. This region is made up of three land systems, such as Warba, Makirime and Aimas Land Systems. A total of 4 survey locations were selected to represent the heath forest ecosystem, Locations No. 14, 15, 16 and 17 (Figure 1).

There are about 330 species of plants recorded from the heath forest ecosystem. Dominant tree species in these forests are *Dacrydium falciforme, Dacrydium* sp. and *Nauclea papuana* . On the forest floor ferns such as *Selaginella* sp. *Bolbitis* sp. *Thysanobotrya dubia, Nephrolepis* sp. and *Thelypteris* sp., and some herbs such as *Riedelia graminea, Begonia* sp. *Pandanus* sp. and *Ophiorrhiza* spp. can be found.

Montane forest is characterized by trees covered with moss

Montane Forest

The montane forest zone in Mimika extends between 600 - 3500 m above sea level and can be divided into three 'sub-zones'; Lower Montane forest, Mid-Montane Forest and Upper Montane Forest. The number of plant species is low when compared with lowland areas but levels of species endemism are higher. A total of eight locations were surveyed within the montane forest ecosystem; locations 18, 19, 20, 21, 22, 23, 24 and 25.

Lower Montane Forest is located at an altitude of 600 - 1800 m above sea level and is bordered at the lower altitudes by heath-forest. This sub-zone has vegetation typically dominated by *Castanopsis acumintissima* often associated with *Lithocarpus* sp. In some disturbed (open) areas *Ficus* spp., *Timonius timon* and *Gymnostoma* sp. can be encountered. At altitudes above 1,700 m mist frequently blankets the forest so that mosses thrive on tree trunks and branches. This sub-zone is often called cloud forest or the moss forest. At this altitude the forest begins the transition to Mid Montane Forest where *Nothofagus pullei* dominates the sub-zone.

Mid Montane Forest occurs between about 1,800-2,800 m above sea level. This ecosystem sub-zone is characterized by the dominance of *Nothofagus pullei* associated with *Dacrydium* sp. and *Podocarpus* sp. Several other species that grow in these areas include *Papuacedrus* sp., *Phyllocladus* sp. and *Pittosporum* sp. This sub-zone is very humid so almost all trees are covered with moss.

Upper Montane Forest is still dominated by *Nothofagus pullei* and the tree trunks remain covered with moss. This ecosystem sub-zone is at an altitude of 2,800-3,500 m above sea level and the *Nothofagus pullei* is here associated with *Homalanthus* and*Nothofagus* sp. and closer to theforest floor *Elaeocarpus* sp., *Coprosma brassii* and *Piper* sp. are present.

Sub-Alpine Zone

The Sub-Alpine zone is at an altitude of 3,500-4,170 m above sea level. In this zone, the forest is dominated by just two tree species *Podocarpus brassii* and *Dacrycarpus compactus* and they grow to a height of only 5-6 meters. On the forest floor the trees are associated with the grasses *Deschampsia klossii*, *Anaphalis helweghii*, *Vaccinium* sp., *Styphelia suaveolens,* and *Rubus lorentzianus* while medium-sized vegetation includes the fern *Cyathea* sp. and various types of *Rhododendron, Olearia velutina, Drimys piperita, Coprosma brassii* and *Schefflera monticola*. Extensive wet *Deschampsia klossii* grasslands dominate large areas of this zone..

Two sites were selected to represent the sub-alpine ecosystem zone: Bokopa Valley (Site No. 26) which was wet grassland (wet meadows) and Fairy Lake which has a more diverse vegetation including herbs, grass, bushes, tree-ferns and stunted trees.

Sub-alpine vegetation zone, where tree ferns and *Deschampsia klossii* grass dominate the forest floor.

There is no single external character that identifies which family each frog in the Mimika region belongs in:

1. a) Extensive webbing between toes 2

   b) Toes without webbing or with only narrow fringe of webbing 4

2. a) Size large (to ~80 mm), skin strongly granular with distinct bony ridges on head around eyes, large poison glands behind eyes and numerous prominent black-tipped tubercles on body . . . . . Bufonidae (*Duttaphrynus melanostictus*; Asiatic Toad)

   b) not as above 3

3. a) Size large (generally > 45 mm), limbs long, fingers without webbing; fingers and toes with poorly developed discs; snout moderately to extremely pointed, generally terrestrial or aquatic . . . . . Ranidae (Bullfrogs) or Dicroglossidae (if eyes on top of head)

   b) Size small to large (<30 mm to > 130 mm), fingers generally with extensive (at least basal) webbing, finger and toe discs well developed, generally arboreal . . . . . Hylidae (Treefrogs)

4. a) Size usually small (< 50 mm) but occasionally large (up to 80 mm), limbs short, toes normally without webbing but some species with basal webbing between toes; finger and toe discs usually well developed, but occasionally poorly developed or absent; burrowing, terrestrial or arboreal . . . . . Microhylidae

   b) Size moderate (>50 mm) head very broad, no expanded discs on fingers. . . . . Limnodynastidae (one genus, *Lechriodus*, in Mimika area)

   c) Size moderate (>45 mm), head slender, numerous short folds on back, small but distinct dics on fingers . . . . . Ceratobatrachidae (one species, *Platymantis papuensis*, in Mimika area)

Species Accounts

Description:
A moderate-sized (males to ~50 mm) frog with remarkably variable colouration. The back may be uniform brown, or mottled, blotched or striped and there are numerous short skin folds or ridges running along the back. The fingers and toes are long and slender, and this is one of the few ground-dwelling frogs in the area that lacks webbing between both the fingers and the toes.

Habitat, advertisement call, ecology:
Platymantis papuensis is a terrestrial frog that forages for food on the forest floor but may climb on to rocks or fallen logs at night to call. The call is a series of rapid 'wick-wick-wick-wick' notes. Large eggs are deposited in hidden 'nests' where they develop directly into tiny frogs, by-passing the tadpole stage.

Distribution:
This species is one of the most abundant frogs throughout lowland New Guinea north of the central mountains. However it appears to be absent from the southern lowlands east of the Mimika area.

Description:
A moderate-sized (males ~30-35 mm, females to 40 mm), bright green treefrog, often with small pale spots on the back. There is extensive webbing between the fingers, and a conspicuous feature of this species that distinguishes it from other green treefrogs in the area is a pale cream or yellow stripe that runs along the edge of the snout between the nostril and the eye.

Habitat, advertisement call, ecology:
Litoria auae is an arboreal species that lives in the forest canopy and descends to call from bushes and grass, and sometimes even the ground, near pools in the forest after heavy rain. The call is a very loud, harsh and drawn-out 'waaaaaah', lasting more than one second and may be produced singly or in couplets or even triplets: 'waaaah-waaaah-waaaah'.

Distribution:
Known from a number of localities in the southern lowlands and foothills of New Guinea, this species occurs from the Mimika area in the west to the Gulf Province lowlands of Papua New Guinea in the east.

Description:
Frogs of the *Litoria bicolor* group are small, slender, smooth-skinned predominantly green species and the population occurring in the Mimika area is no exception with males reaching a body length of just ~30 mm. Although the taxonomy of the *Litoria bicolor* group in New Guinea has recently been reviewed it appears that the species found at Mimika does not have a name.

Habitat, advertisement call, ecology:
These small treefrogs gather in large numbers in grass and reeds in and around lakes, rivers, swamps and forest pools where males call from leaves above the water with a series of sharp clicks and buzzes.

Distribution:
The broader distribution of the Mimika species is unclear, but it appears to be abundant in both forest and heavily disturbed habitats where suitable reeds and floating grasses occur so it probably has a wide distribution in south-western Papua Province.

Description:
This is a small (males ~27-29 mm) bright green frog that differs from *Litoria* cf *bicolor* in having a slightly rough skin, a blunt (vs rounded) snout, very large eyes, and small brown spots on the hands and feet.

Habitat, advertisement call, ecology:
Litoria christianbergmanni is a poorly known species that was only formally described in 2008. In the Mimika area it was found on low vegetation along a small, clear seepage in wet mossy rainforest in the foothills. The call is a series of short (around 0.05 s) and long (around 0.1-0.3 s) buzzes repeated rapidly – 'buzzz-zip-zip-zip'…'zip-zip-buzzz'.

Distribution:
This species is currently known only from 2 places, the foothills of the Mimika region and in the FakFak Mountains. It probably occurs in other suitable forest habitats between these localities.

Description:
This is a moderately large (males to ~50 mm, females ~65 mm) brown or green and brown frog, with nearly fully-webbed fingers, large finger discs, and a large flap of skin on the heel of each foot. It also has a well-developed fold of 'wavy' skin along the outside edge of each arm and leg.

Habitat, advertisement call, ecology:
Males gather around small swamps, seepages and slow-flowing streams in rainforest where the mottled green and brown back of this attractive species makes it extremely difficult to spot against a mossy tree trunk. The call is a series of harsh 'waa-waa-waa' notes interspersed with longer, rasping 'growls'.

Distribution:
Litoria eucnemis has a very wide distribution, being known from lowlands and foothills over most of the island of New Guinea and there is an isolated population on Cape York Peninsula, Australia.

Description:
This treefrog is the smallest known member of the *Litoria genimaculata* complex (males ~25-27 mm). Like other members of this group it is a predominantly brown and green frog with a broad head, a distinctly serrated flap of skin along the outside of the leg and fore-arm, and a small spike on the heel. This species can be distinguished from *Litoria* cf *genimaculata* sp. 2 and *Litoria papua* (see below) by having a poorly-developed heel spike that is reduced to a small tubercle, by its extremely small size, and by its large and prominent eyes.

Habitat, advertisement call, ecology:
The habitat and ecology of this species are poorly known. Only two animals have been found, both on leaves in lowland swampy forest dominated by Sago palms. Its call is unknown but males lack a vocal sac and so the call is likely to be very soft.

Distribution:
Known only from one swamp near Timika.

Description:
Like *Litoria* cf *genimaculata* sp. 1, this species is predominantly green and brown, and the pattern on its back can be extremely variable. This is the largest member of the *L. genimaculata* complex in the Mimika area (males 40-44 mm) but otherwise it is typical of the group in having a distinctly serrated flap of skin along the outside edge of the leg and fore-arm, and a small spike on the heel.

Habitat, advertisement call, ecology:
Unlike both *Litoria* cf *genimaculata* sp. 1 and *Litoria papua* this species was found only along clear, flowing lowland streams where males called from ~2-10 m high in trees next to the streams. The call is a long series of rather quiet 'toc…toc… toc…toc…' notes.

Distribution:
Known only from small, clear streams in lowland forest in the Mimika area.

Description:
The giant White-lipped Treefrog, *Litoria infrafrenata*, is the largest treefrog in New Guinea and females are known to reach an impressive 135 mm long. This frog is usually bright green but individuals can change colour quite rapidly to become drab dark brown. It is a rather slender, long-legged species that can be easily distinguished from other large green treefrogs in the area by having a conspicuous white stripe along the lower jaw.

Habitat, advertisement call, ecology:
Litoria infrafrenata is an arboreal frog that descends from high in the trees to breed in rivers, swamps and ponds. The loud, harsh call of this species is a conspicuous sound at night around the Mimika area, sounding like 'Kat-tak…Kat-tak….Kat-tak….' This beautiful frog has adapted well to modified environments and thrives in disturbed forest, suburban gardens, and even inside people's homes.

Distribution:
The White-lipped Treefrog has one of the widest distributions of any Papuan frog, being found throughout the lowlands and foothills of mainland New Guinea and on many offshore islands.

Description:
This large (~70 mm SVL) bright green treefrog is similar to the giant White-lipped Treefrog, *Litoria infrafrenata*, but is smaller, more robust, and lacks the white lip characteristic of that species.

Habitat, advertisement call, ecology:
An arboreal frog that was heard calling from high in *Pandanus* trees in near-impenetrable swamps close to Timika. Its loud, harsh call is quite different from that of *L. infrafrenata* consisting of a very long series of short guttural grunts. It is a beautiful frog but unlikely to be seen due to the difficulty of accessing its swampy habitat.

Distribution:
This species is currently known only from lowland swamps in the Timika area .

Description:
A small (males <30 mm) and extremely slender treefrog with a blunt snout. The back is generally pale grey-green or brown and the hidden surfaces of the legs are pale yellow. Although similar to *Litoria nigropunctata* which is known only from northern Papua Province, it differs from that species in its slightly smaller size, in having a different advertisement call, and genetically.

Habitat, advertisement call, ecology:
Males call from trees and from low foliage around shallow, slow-flowing seepages and small swamps after rain. The call is a short, distinctly pulsed 'chirp'.

Distribution:
This frog is known from several localities along the southern foothills of New Guinea's central mountain range, from the Mimika area in the west to the Kikori River basin in Papua New Guinea in the east.

Description:
This frog is one of three species in the Mimika region that is related to *Litoria genimaculata* (see above). Like the other two species described above it has a green ring around the iris, a serrated flap of skin along the edge of the arm and leg, a small spike on the heel, and is mottled green and brown on the back. *Litoria papua* can be distinguished from other members of the group by its medium size (males ~30-34 mm) which is much larger than *Litoria* cf *genimaculata* sp. 1 (males ~25-27 mm) and much smaller than *Litoria* cf *genimaculata* sp. 2 (males ~40-44 mm; see above).

Habitat, advertisement call, ecology:
Litoria papua was found in flooded areas in lowland forest where males called from low vegetation with a rather high-pitched 'ticking' sound.

Distribution:
This species was originally described from the Lorentz River and is currently known only from the Mimika area.

Description:
Litoria pronimia is a small (males <30 mm) and extremely slender treefrog that resembles *Litoria* cf. *nigropunctata* in overall size and body shape. However males differ from that species and from all other frogs in the Mimika area except *Litoria prora* by having a prominent, nail-like 'rostral spike' extending forwards from the tip of the snout. Females of this species lack the rostral spike.

Habitat, advertisement call, ecology:
Males call from low vegetation around small swamps and pools in the forest. The call is extremely distinct, consisting of a series of unmusical, spluttering 'clicks'.

Distribution:
This bizarre species has quite a broad distribution in the southern foothills of the central mountain range, extending as far east as the Gulf Province of Papua New Guinea.

Description:

Litoria prora is one of the most remarkable-looking frogs in the Mimika region. It is a moderately large (males to ~45 mm, females to ~55 mm) and robust species with granular (rough) skin, very extensively webbed fingers, and prominent skin flaps along the arms and legs and below the vent. Like *L. pronimia* males have a prominent spike on the tip of the snout, but in *L. prora* the female also has a prominent rostral spike. It differs further from *L. pronimia* by its much larger size, robust body and well developed skin folds on the arms and legs.

Habitat, advertisement call, ecology:

This species spends most of its life high in the forest canopy, so it is rarely seen. After heavy rain males and females descend to lower branches that are hanging over small forest pools. Here they lay their eggs glued to the leaves in a thick jelly mass that hangs over the water. The eggs and embryos develop inside this jelly, feeding only on their yolk supplies, until they drop into the forest pools below as free-swimming tadpoles. The male's call is a rather melodious 'bleating' sound.

Distribution:

Although rarely seen, this species has a wide distribution in the southern foothills of New Guinea's central mountain range.

Description:
This is an extremely attractive, moderately large (males to ~55 mm) and slender green treefrog that was originally discovered and described from the Mimika region. It could be confused with young White-lipped Treefrogs, *Litoria infrafrenata* but can be distinguished from that species by its scantily webbed fingers and in lacking a prominent white stripe along the lower lip.

Habitat, advertisement call, ecology:
Litoria sanguinolenta was frequently heard calling in Pandanus and Sago swamps in the lowlands around Timika, but was difficult to find due to the spiny nature of the plants in these swampy habitats. The call is a very harsh series of ~7-10 distinctly pulsed notes lasting about half a second and repeated continuously at ~1-2 second intervals.

Distribution:
Although this species appears to be common in lowland forest swamps in the Mimika area it is not known with certainty from many sites and has not been recorded to date from Papua New Guinea.

Description:
A moderate sized (males ~39-43 mm) mottled brown frog with a distinctly 'flattened' appearance, long legs, and only limited webbing between the fingers. It differs from other similarly-sized brown frogs in the area by lacking a flap of serrated skin along the arm and leg, and lacking a heel spike. This 'species' is a complex and the Mimika population may warrant recognition as a distinct species once taxonomic studies have been completed.

Habitat, advertisement call, ecology:
Litoria thesaurensis lives along permanent and temporary streams in lowland forest around Kuala Kencana where males perched on low foliage near pools in the stream bed. The call was not heard here but elsewhere in southern New Guinea this species produces a series of short 'waah-waah-waah' calls.

Distribution:
Known from a number of sites in the lowlands and foothills along the southern slopes of New Guinea's central mountain range.

Description:
A tiny (males <23 mm) predominantly brown frog that can be distinguished from all other frogs in the area by it very small size, long legs and extremely sharp snout. It has a slightly warty skin and only minimal webbing between the fingers.

Habitat, advertisement call, ecology:
Frogs aggregate in large numbers around small swamps and ponds in the rainforest where males call from leaves hanging over the water. The call is an explosive series of high-pitched chattering notes that is surprisingly loud for the size of the frog.

Distribution:
This species has a wide distribution in lowland and foothill rainforests along the southern edge of New Guinea's central mountains, and extends well into neighbouring Papua New Guinea.

Description:
Litoria wollastoni is a medium-sized (males to ~45 mm) frog with very long legs, a sharply pointed snout and a small spike on the heel. There is only a trace of webbing between the fingers. The colour is extremely variable, and the back may be uniform brown or green, or patterned with various markings.

Habitat, advertisement call, ecology:
This frog is part of a taxonomically difficult complex of species that all breed along torrential mountain streams, where males call from bushes and trees next to or hanging over, the fast-flowing water. Calls of this group usually have a clear, ringing sound so that they can be heard above the rushing sound of the water, but the call of *L. wollastoni* in the Mimika area is unknown. Tadpoles have large, sucker-like mouths that they use to cling to the rocks so that they do not get swept away.

Distribution:
Frogs resembling *L. wollastoni* occur all over the mountains of New Guinea, but several species are probably included under this name. *Litoria wollastoni* was originally described from the Mimika area, and its broader distribution has yet to be resolved. (Individual illustrated above is from Papua New Guinea.)

Description:
This very large (to ~ 100 mm) frog differs from all other treefrogs in the Mimika area by having a vertical pupil and a network of vein-like markings on its eyelid. On the back it has a striking pattern of spots and blotches against a background colour of green to yellowish-gold.

Habitat, advertisement call, ecology:
Although very poorly known, this species probably breeds in torrential rocky streams. The call has been described as a 'low pitched "growl" of about 30 notes' by Menzies (2006).

Distribution:
Nyctimystes granti is known only from a handful of sites between the Utakwa River and the Star Mountains, at altitudes between about 900 and 1,500 m. (Individuals illustrated above are from Papua New Guinea.)

Description:
A moderately large (males to ~50 mm) grey-brown frog with a very broad head and only basal webbing between the toes. It is superficially similar to *Platymantis papuensis* but differs from that species in having a much wider head, and granular (vs smooth with longitudinal ridges) skin.

Habitat, advertisement call, ecology:
This is a terrestrial species that breeds in small pools and flooded areas on the forest floor, where breeding pairs create foamy gelatinous masses that float on the surface and into which they place their fertilised eggs. The foam mass gradually breaks down, releasing the embryos into the water below to complete their development as free-swimming tadpoles. The call is a series of rapid 'popping' sounds.

Distribution:
Lechriodus melanopyga has a very wide distribution in the lowlands and foothills of New Guinea, both north and south of the central mountains.

Description:
This is a very small (13-19 mm) frog with large and conspicuous discs on the fingers and toes. The body is quite warty and the forearms are very long. The colour is brown and the back may be quite uniform, or it can be marked with darker and lighter brown pigmentation that forms a wide range of shapes and patterns.

Habitat, advertisement call, ecology:
Albericus laureni is an arboreal species, and males normally call from leaves ~2-5 m high in rainforest. The call is a short, nasal 'zeeep' lasting about 0.15-0.2 seconds.

Distribution:
This species was originally described in 2000 from the Wondiwoi Mountains to the west of the Mimika area. In the Mimika area it occurs from the lowlands to over 1000 m altitude along the Timika-Tembagapura road. Interestingly, in this area the call changes subtly with altitude and it is possible that two species occur in the region, one replacing the other at higher altitudes. However the differences in call structure may also reflect differences in temperature, which are known to affect some call parameters. We have taken the conservative approach and consider only one species to be involved, but further studies may reveal that two morphologically similar species occur in this area.

Description:
This moderately large (males to ~50 mm) species is one of the most extraordinary frogs so far known from the Mimika region. It is immediately recognised by its stocky, almost round body and enormous head, the elongated tubercles above each eye, and the 'fang-like' tubercles on the lower jaw. The colour varies markedly, from nearly black to yellowish-brown.

Habitat, advertisement call, ecology:
Males of this species call from hidden positions on or just under the litter on the forest floor. The call is a melodious trill lasting about half a second, that increases in frequency as it progresses, and has been likened to the sound made by a cat: 'p-r-r-r-r-r-r-u-p'. The behaviour of this species is as bizarre as its appearance. When alarmed or threatened frogs stand high on their legs and open their mouths in a defensive gape, exposing the blue interior of their mouths. And if this defence does not work this frog will leap at, and bite, the presumed predator. Despite its fearsome appearance and behaviour this species is completely harmless and the bite aims to startle rather than to injure.

Distribution:
Asterophrys turpicola is widely distributed in forested lowlands and foothills, both north and south of the central mountains in New Guinea.

Description:
This is a moderately small (males ~ 30 mm) and robust, grey or brownish species with a narrow snout and small eyes. There is no webbing between the toes, and the fingers and toes have only small discs. The skin is moist and slippery making capture difficult.

Habitat, advertisement call, ecology:
Unlike most microhylid frogs in New Guinea this species is found almost exclusively in association with streams and seepages in the forest, where males call from hidden positions between rocks or under leaves that have accumulated at the water's edge. The call is a series of up to 85 loud, harsh, yapping notes lasting more than 30 seconds.

Distribution:
Austrochaperina derongo has a very wide distribution in the lowlands and mountains of New Guinea, extending from the Mimika area eastwards to at least the Purari basin in south-central Papua New Guinea.

Description:
A moderately large (males ~47 mm, females to ~60 mm) and robust frog with a blunt snout, short legs and no webbing between the toes. The colour is dark purplish-brown with numerous tiny white flecks on the sides.

Habitat, advertisement call, ecology:
This species is seen and heard only after rain, when they emerge from burrows in the forest floor to call and to forage for food. The call is a very loud series of 12-15 rapidly repeated harsh, barking notes lasting 3-4 seconds.

Distribution:
This species was previously confused with *Callulops robustus* from Papua New Guinea, but it is morphologically and acoustically distinct from that frog and from other species in the genus. *Callulops kampeni* is currently known only from the Mimika area.

Description:
A tiny species (males just ~12.5 mm) with a prominent snout that extends distinctly beyond the lower jaw. Fingers and toes are short, and the finger discs are poorly developed. The colour is normally pale mottled brown, and there is usually an 'hour glass'-shaped marking on the back.

Habitat, advertisement call, ecology:
This frog is difficult to find even when it is calling. Males were located in dense, mossy forest in the foothills behind Timika where they called from well-concealed positions only during and after heavy rain. The call is a long series of soft, scratchy notes that is reminiscent of an insect.

Distribution:
To date this species is known only from several specimens found in the foothills of the Mimika region.

Description:
A small, rather slender species (males ~17 mm) with an angular but not protruding snout. The body is normally uniform brown, with a dark spot behind the eye and another on the side. The toes are quite long and slender, and there are small but distinct discs on the fingers and toes.

Habitat, advertisement call, ecology:
This small frog was found in both undisturbed and in moderately modified forest, including the outskirts of Kuala Kencana. Males called from exposed positions on leaves just ~0.5-2 m above the ground. The call lasts for about 0.7 seconds and is a series of four musical peeps repeated in rapid succession.

Distribution:
To date this species is known only from forests in the lowlands of the Mimika region.

Description:
A moderately small, rather squat species (males ~25 mm) with a narrow snout. The body is normally uniform brown, with a dark spot above the groin and a narrow dark line along the side. The toes are quite long and slender, and have large discs, while the discs on the fingers are small and inconspicuous.

Habitat, advertisement call, ecology:
This small frog was found in both undisturbed and moderately modified forest, including the outskirts of Kuala Kencana. Males called from within litter on the ground. The call is a 'train' of 20-25 very harsh chattering notes uttered in rapid succession and lasting about 2.5 seconds.

Distribution:
To date this species is known only from forests in the lowlands of the Mimika region.

Description:
A moderately small, slender, long-legged species (males ~30 mm) with a rounded snout. The body is normally brown, with a dark spot above the groin and a faint, narrow dark line along the side. The toes are quite long and slender, and have larger discs than the fingers.

Habitat, advertisement call, ecology:
This rather non-descript frog was found in undisturbed and in moderately modified lowland forest, including the outskirts of Kuala Kencana. Males called from hidden perches on the ground. The call is a series of ~9-13 melodious honking notes 'ank-ank-ank' lasting for 3-4.5 seconds.

Distribution:
This species appears to have a wide distribution in the lowlands of southern New Guinea.

Description:
A small, slender, long-legged species (males ~25 mm) with a rounded snout. This species is very similar to *Hylophorbus rufescens* but is smaller and has more distinct dark markings on the side of the body. The toes are quite long and slender, and have larger discs than the fingers.

Habitat, advertisement call, ecology:
This rather non-descript frog was found in undisturbed and in moderately modified lowland forest, including the outskirts of Kuala Kencana. Males called from hidden perches on or slightly above the ground. The call is a series of ~5-10 melodious honking notes 'ank-ank-ank-ank-ank' produced much faster than *H. rufescens* so that each call lasts just 1-1.5 seconds.

Distribution:
This species is currently known only from the lowlands of the Mimika area.

Description:
A small, slender, long-legged species (males ~25 mm) with a rounded snout. This species is very similar to *Hylophorbus* sp. 1 and it can be most easily distinguished by its distinctive call. The toes are quite long and slender, and they have larger discs than the fingers.

Habitat, advertisement call, ecology:
This rather non-descript frog was found in undisturbed and in moderately modified lowland forest, including the outskirts of Kuala Kencana. Males called from hidden perches on the ground. The call is a series of short honking notes that are produced so rapidly that they sound like a single melodious 'rattle' rather than a series of individual notes. Each call contains 5 notes and lasts just 0.2-0.3 seconds.

Distribution:
This species is currently known only from the lowlands of the Mimika area.

Description:
A moderately small, slender, long-legged species (males ~30-33 mm) with a rounded snout. The body is normally brown, with a dark spot above the groin and a faint, narrow dark line along the side. The toes are quite long and slender, and have larger discs than the fingers. This species is extremely similar to *H. rufescens,* from which it can be distinguished predominantly by its call (see below)

Habitat, advertisement call, ecology:
This rather non-descript frog was found in undisturbed and in moderately modified lowland forest, including the outskirts of Kuala Kencana. Males called from hidden and exposed perches on the ground. The call is a very long series of more than 25 melodious honking notes repeated very slowly and lasting between 30-60 seconds.

Distribution:
Although currently without a name this species appears to have a wide distribution in the lowlands of southern New Guinea.

Description:
A moderate-sized (males ~40 mm) short-legged species with a rather angular snout and a dark bar on the side of the face. Body colour is extremely variable ranging from dark brown to nearly yellow, and there are a series of narrow ridges on the back. The toes are quite long and slender, and both fingers and toes have expanded discs.

Habitat, advertisement call, ecology:
This frog is more frequently heard than seen, and males call from hidden and exposed perches on the ground where they are extremely difficult to see in the leaf litter. The call is a series of loud but rather melodious chirps that can be heard for a long distance through the forest.

Distribution:
This species has a wide distribution in the foothills of New Guinea. In the Mimika area it was heard calling from mossy forest in the hills behind Timika.

Description:
Frogs of the genus *Oreophryne* are mostly rather small (usually < 30 mm), and are often difficult to find because many species live high in the forest canopy. They are also generally non-descript and often difficult to identify. *O. albopunctata* was originally discovered and described from the Mimika area but was not seen again until recently. It is a small (males 17-23 mm), slender brown frog which sometimes has a small white tubercle on the top of each leg. There is usually a dark spot above the groin that has a pale edge; and the back may be strongly mottled with paler brown.

Habitat, advertisement call, ecology:
This frog is rarely seen because males call from hidden perches in trees, often high above the ground. The call is a series of 20-23 loud, finely pulsed buzzes lasting about 2.5-3.0 seconds that gives the impression of a ratchet being turned rapidly.

Distribution:
This species is currently known with certainty only from the Mimika area

Description:
Oreophryne crucifer is a small species (males to 25 mm) with a blunt snout, smooth skin and traces of webbing between the toes. There is a pale bar between the eyes and the finger and toe discs are well developed.

Habitat, advertisement call, ecology:
Frogs called from leaves high in trees in mossy lower-montane (~1000 m altitude) forest next to the road to Tembagapura at night after rain. The call is a loud and harsh rattle of about 30 notes that lasts 1.5-2 seconds.

Distribution:
This species is currently known only from the mossy forests of the Mimika area.

Description:
Oreophryne oviprotector was recently described from southern Papua New Guinea. It is a small (males 20-22 mm), rather stocky frog with large eyes and a green bar on top of the head between the eyes. The finger and toe discs are large and there is a slight trace of webbing between the toes.

Habitat, advertisement call, ecology:
This frog is normally found perched on leaves in trees and low shrubs where males produce a call that is a short, harsh rattle with about 20 notes and lasting less than one second.

Distribution:
This species is known from numerous sites in southern New Guinea between the Mimika area in the west and Gulf Province of Papua New Guinea in the east.

Description:
Oreophryne sp 1 is an undescribed species that was only recently discovered in the mountains near Tembagapura. It is a small (males 17-19 mm), frog with an inverted 'U' shaped mark on the lower lip. The finger and toe discs are large and there is no webbing between the toes.

Habitat, advertisement call, ecology:
This frog was found calling from leaves around 3 m high in mossy forest at around 1600 m altitude along the road to Tembagapura. The call is a rapidly produced series of rather musical 'clicks' lasting several seconds.

Distribution:
This species is new to science and is known only from one site in the mountains of the Mimika region.

Description:
Oreophryne sp 2 is an undescribed species that was discovered near Kuala Kencana in 2006. It is a moderately large species (males 27-30 mm) with short legs and large finger and toe discs. There is some basal webbing between the toes.

Habitat, advertisement call, ecology:
This frog was found calling from leaves usually more than 2 m high in forests between sea level and around 700 m altitude. The call is a series of 10-11 loud and melodious 'piping' notes lasting about three seconds. Several individuals were heard giving calls at approximately double this rate suggesting that a second, closely related species may occur in the area.

Distribution:
This species is new to science and is currently known only from the lowlands and foothills of the Mimika area.

Description:
Oreophryne sp 3 is an undescribed species that was discovered in the foothills of the Mimika region in 2006. It is a small species (males 15-17 mm) with a rather blunt snout and large eyes. The skin has a few scattered tubercles and many of these are covered by a patch of brown pigment giving the back a spotted appearance. There is some basal webbing between the toes.

Habitat, advertisement call, ecology:
Frogs called from leaves around 2-3 m high in mossy forest around 500 m altitude. The call is a long musical 'trill' with about 40 pulses and lasting about 2.5 seconds.

Distribution:
This species is new to science and is currently known only from the foothills of the Mimika area.

Description:
Oreophryne sp 4 is an undescribed species that was discovered in the lowlands near Kuala Kencana in 2006. It is a small species (males 17-19 mm) with a rather blunt snout and a pale bar between the eyes. The skin has a few scattered tubercles and there is a faint, inverted 'U'-shaped mark on the upper lip.

Habitat, advertisement call, ecology:
Frogs called from leaves around 2-3 m high in lowland forest around Kuala Kencana. The call is a series of about 15-20 soft, musical 'piping' notes repeated rapidly and lasting about 5-6 seconds.

Distribution:
This species is new to science and is currently known only from the lowlands of the Mimika area.

Description:
Oreophryne sp 5 is an undescribed species that was discovered in the montane forests around Tembagapura in 2006. It is a tiny species (males 12-14 mm) with a very blunt snout. The skin is smooth, the back is faintly mottled with darker brown, and the finger and toe discs are poorly developed.

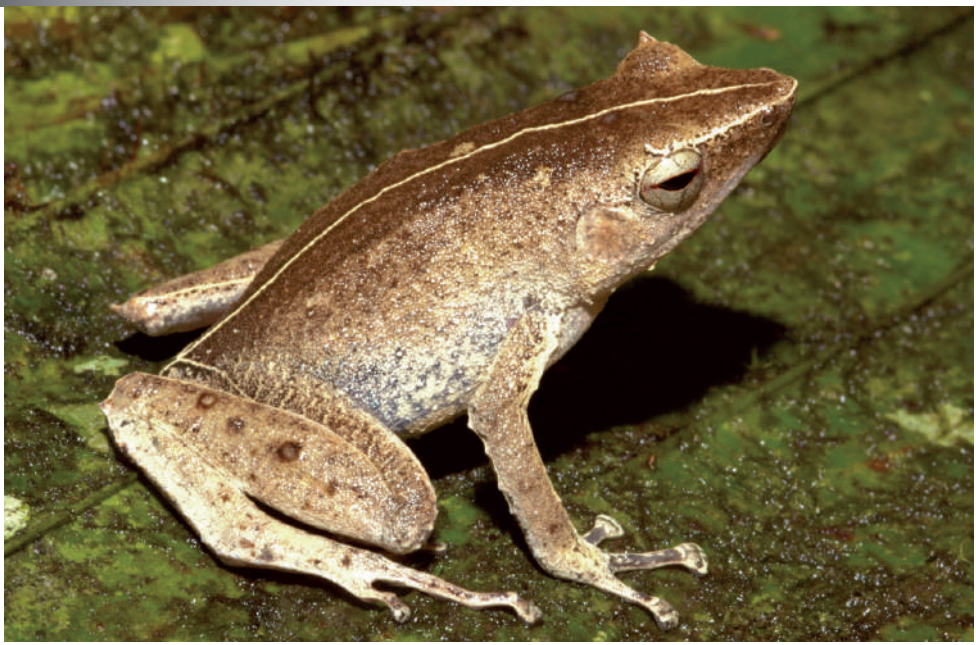
Habitat, advertisement call, ecology:
Frogs called from within or on leaves slightly above, the dense clumps of moss that carpet the ground and tree roots in the wet montane forests around Tembagapura. The call is a series of about five harsh, distinctly pulsed 'creaking' notes in which each note is slightly longer than the previous one. The entire call lasts for around five seconds

Distribution:
This species is new to science and is currently known only from the montane forests of the Tembagapura area.

Description:
Oreophryne sp 6 is an undescribed species that was discovered in the montane forests around Tembagapura in 2006. It is a moderately small species (males 15-21 mm) with a blunt snout. The skin is smooth, and the back normally has one or more distinct black spots. The finger and toe discs are moderately well developed.

Habitat, advertisement call, ecology:
Frogs called from leaves in trees and bushes in wet montane forests around Tembagapura, and this species was common in disturbed habitats along the road verges where males called strongly after rain at night. The call is a very long train of 40-60 rapidly produced melodious 'clicks' and lasts 3-4.5 seconds.

Distribution:
This species is new to science and is currently known only from the montane forests of the Tembagapura area.



Description:
Sphenophryne cornuta is an extremely distinctive frog. Although not very large (males 28-34 mm) this species can be easily recognised by its very sharp snout and the small but distinct spike above each eye. The skin is smooth, and the back is normally rather uniform grey or brown. The finger and toe discs are very well developed.

Habitat, advertisement call, ecology:
Frogs call from leaves in trees and bushes in the lowlands and foothills of the Mimika area. The call is a series of about 30 low, rasping notes repeated rapidly and lasting about seven seconds. Males of this species are excellent parents and can sometimes be seen transporting their babies through the forest on their backs.

Distribution:
This species is widespread in the lowlands and foothills of New Guinea.

Description:
Xenorhina adisca is a small (to 24 mm) short-legged frog that can be recognised by its narrow snout, tiny eyes, very short legs and lack of discs on the fingers and toes. The skin is smooth, and the back is brown while the belly is red.

Habitat, advertisement call, ecology:
Only three individuals of this species have ever been seen. They were found in leaf litter but little else, including the call, is known about their ecology.

Distribution:
This species is known only from one site in the mountains near Tembagapura.

Description:
Xenorhina macrops is a large (to 55 mm) frog that can be recognised by its fat body, narrow snout, and relatively large eyes (for the genus). The skin is smooth, and the back is normally rather uniform grey or brown.

Habitat, advertisement call, ecology:
This is a species of montane forests where males call from beneath moss or debris on the forest floor at altitudes over about 2000 m. The call is a single loud, mournful 'hoot'.

Distribution:
This species is known from a number of sites in the mountainous regions of Papua Province.

Description:
Xenorhina minima is a medium-sized (males 24-30 mm) short-legged frog that can be recognised by its fat body, bluntish snout, small eyes, very short legs and lack of discs on the fingers and toes. The skin is smooth, and the back may be dramatically coloured with orange.

Habitat, advertisement call, ecology:
This is a species of montane forests where males call from in or under moss and humus on the forest floor at altitudes over about 2500 m. The call is a series of soft, single 'hoots' uttered at intervals of about 5-10 seconds.

Distribution:
This species is known from a number of sites in the mountainous regions of central Papua Province.

Description:
Xenorhina sp. 1 is a medium-sized (males 22-26 mm) short-legged frog that can be recognised by its rather slender body, narrow snout, small eyes, very short legs and lack of discs on the fingers. The skin is slightly rough, and the back is uniform brown.

Habitat, advertisement call, ecology:
This is a species of lowland swamp forests where males call from within small depressions on the forest floor. Calling sites are restricted to patches of soil trapped in tree (particularly Sago) roots that remain exposed above the water in regularly inundated swampy forest. The call is a series of about 27 short but musical 'pok-pok-pok' notes lasting about 12 seconds.

Distribution:
This species is known only from swampy lowland forests in the Mimika area.

Description:
Xenorhina sp. 2 is a moderately large (males 34-37 mm) short-legged frog that can be recognised by its rather broad, flattened body, narrow snout, tiny eyes, very short legs and small but distinct discs on the fingers and toes. The skin is slightly rough, and the back is uniform brown often with a narrow stripe running from the snout to the vent.

Habitat, advertisement call, ecology:
This is a species of lowland forests where males call from within leaf litter on the forest floor. The call is quiet 'hoot'.

Distribution:
This species is known only from lowland forests in the Kuala Kencana area.

Description:
Limnonectes grunniens is a very large species growing to about 110 mm. It has a distinctively flattened head and fully webbed feet, and the eyes are higher on the head than seen in other frogs in the region. The skin is smooth to slightly rough, and the back is usually uniform brown though there may be some darker bars on the legs.

Habitat, advertisement call, ecology:
This is a highly aquatic species that occupies a variety of aquatic habitats in lowland forests and disturbed areas. Males call from within or adjacent to streams, pools and swamps. The call is a series of loud, rather harsh chattering notes.

Distribution:
This species occurs widely in the lowlands of both southern and northern New Guinea. (Individual illustrated above is from Papua New Guinea.)

Description:
Hylarana arfaki is one of the largest frog species in mainland New Guinea, growing to more than 150 mm. It is a robust, long-legged species with large eyes and fully webbed feet. The skin is extremely warty in males, but less so in females and the back is usually uniformly or slightly mottled brown.

Habitat, advertisement call, ecology:
This species is most commonly encountered on the banks of rivers and streams, into which they leap when disturbed. The call is a slightly resonant 'squawk' usually uttered from a slightly elevated position, often from a rock or branch adjacent to or overhanging the water.

Distribution:
This species occurs widely in the lowlands and foothills of both southern and northern New Guinea.

Description:
Hylarana daemeli is a moderately large species growing to about 80 mm. It is a slender species with extremely long legs and a projecting snout. The skin is smooth and there is a pair of narrow skin folds extending down the back from behind the eyes. The back is usually uniform brown but there are narrow darker bars on the legs and sometimes a faint darker 'mask' on the side of the head.

Habitat, advertisement call, ecology:
This is a semi-aquatic species that occupies a variety of habitats in lowland forests and disturbed areas. Males call from within or adjacent to streams, pools and swamps. The call is a series of loud, 'duck-like' quacking notes.

Distribution:
This species occurs widely in the lowlands of southern New Guinea and also occurs in northern Australia.

Description:
Hylarana novaeguineae is a small species of *Hylarana* growing to about 50 mm. It is a slender species with extremely long legs and could be mistaken for a young *H. daemeli*. Apart from its much smaller size it differs from that species by having reduced webbing between the toes and a more distinct white gland along the lip.

Habitat, advertisement call, ecology:
This is a semi-aquatic species that occupies swampy and flooded grassland and forest habitats in the lowlands. In the Timika area two different call types were heard, and it is possible that both *H*. *novaeguinea* and a morphologically similar but as-yet undescribed species both occur in the region. The most common call type is a series of 5-7 rapid 'wik-wik-wik-wik-wik' notes lasting around a second. The second call type was similar but distinctly harsher.

Distribution:
This species occurs widely in the lowlands of southern New Guinea.

Introduced Species

Description:
Duttaphrynus melanostictus is a large toad growing to about 80 mm. It has very warty skin, a strong ridge on the head that curves around each eye, a distinct gland behind the eye, and black-tipped tubercles across the back.

Habitat, advertisement call, ecology:
This is a highly invasive species that occupies a variety of disturbed habitats. Although it is abundant in the vicinity of towns and fields it rarely occurs in pristine rainforest. The call is a long series of loud, rather harsh ratchet-like notes lasting up to at least 20 seconds.

Distribution:
This species occurs widely in the lowlands of Asia and has been introduced accidentally to a number of towns in western New Guinea. It is abundant in the Timika area.

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Index to scientific names

About the Authors

Stephen Richards is a Research Associate at the South Australian Museum in Adelaide, Australia. He has been studying the biodiversity of New Guinea for over 20 years, with a particular focus on frogs, reptiles and dragonflies. These studies have led to the discovery of more than 150 new species of frogs and dozens of new reptiles and dragonflies, and resulted in the publication of nearly 100 peer-reviewed scientific papers on the taxonomy and biogeography of the New Guinea fauna. Formerly the Senior Curator of Terrestrial Vertebrates at the Museum and Art Gallery of the Northern Territory and leader of Conservation International's Rapid Biodiversity Assessment Program (RAP) for the Asia-Pacific Region, Stephen is currently the Regional Chair of the IUCN Species Survival Commission's Amphibian Specialist Group for the Melanesian region.

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THE 9TH BOOK
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TO THE FLORA AND FAUNA
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