WILD Madagascar

Photos by **NICK GARBUTT**

The Red Island is home to a host of outlandish creatures that could have been dreamed up by Lewis Carroll. **NICK GARBUTT** falls under its spell.

THE EXPERT

NICK GARBUTT was an adviser on BBC2's new *Madagascar* series and has written several books about the island's wildlife.

Eighty per cent of species on Madagascar, including this handsome panther chameleon, are endemic to the island.

LEMUR ISLAND WILDLIFE HOTSPOTS

By DAVID ANDREW, specialist contributor to Lonely Planet's *Madagascar* guidebook.

Réserve Spéciale de l'Ankàrana

This park is dominated by jagged limestone outcrops or *tsingy*, with pockets of deciduous forest between the eroded peaks. Look for bats in the area's many caves and up to 10 lemur species, including the crowned and northern sportive.

Masoala Peninsula & Réserve de Nosy Mangabe

The rainforest on this remote peninsula is home to the flamboyant helmet vanga and red-ruffed lemur. Nearby Nosy Mangabe island is the best place to spotlight an aye-aye (*above*).

Parc National d'Ankarafantsika

Coquerel's sifakas (*above right*) sunbathe in the canopy of this dry deciduous forest; nocturnal mongooses and mouse lemurs and tree boas are easily seen on night walks. Take a boat trip on Lac Ravelobe to see endangered Madagascar fish-eagles.

Parc National d'Andasibe-Mantadia

Indris (*left*) are the stars of this large, hilly expanse of rainforest; its many other mammals include diademed sifakas and Goodman's mouse lemurs. The park has a long bird list, as well as Parson's chameleons and giraffe-necked weevils.

Pitta-like ground-roller

Réserve Forestière de Kirindy

Several lemurs occur in Kirindy, but this dry forest is synonymous with two hard-to-see carnivores – the fosa (*right*) and narrow-striped mongoose – both of which can be reliably encountered here. October is best for fosas.

Parc National de Ranomafana

Follow Ranomafana's trail network to explore rainforested hills dissected by rushing streams. Keep your eyes peeled for minuscule leaf chameleons (*below left*), plus Milne-Edwards' sifaka and three species of bamboo lemur.

Helmet vanga

Réserve Privée de Berenty

Though not as scenic as some reserves, Berenty – an island of natural vegetation amid a sea of sisal plantations – is *the* place to see ring-tailed lemurs (*left*) and the famous 'dancing' Verreaux's sifakas.

Ifaty

Hot, sandy and very dry, Ifaty has some of the last remnants of spiny forest – a bizarre mix of octopus trees, baobabs and other drought-adapted plants. Humpback whales (*above*) cruise offshore in July–September.

Leaf-litter tree frog

Map illustration by Sam Symonds

An indri executes one of its hallmark death-defying leaps. The indri is the only virtually tail-less lemur.

GLANCE AT A map of Africa and it would be easy to dismiss the omelette-shaped island off the south-east coast as nothing more than an insignificant chip off the old continental block. You might assume that its fauna and flora would be an impoverished version of the biological riches found on the mainland. Think again.

Madagascar may be 'merely' 400km from Africa at the Mozambique Channel's narrowest point, but when you're there you feel light years away. It is not just different: it is very, very different. Where else might you find a primate that thinks it's a woodpecker, a gecko that screams like a banshee and morphs into tree trunks, or a beetle with pretensions to being a giraffe? There are also chameleons the size of ants and rats the size of rabbits. Truly, Madagascar is a topsy-turvy place.

Like countless other visiting naturalists, when I first set foot on the island 20 years ago I felt as if I had followed Alice into Wonderland. Since then I have returned many times to the 'Red Island' (its soil is often a distinctive terracotta colour) and it has never failed to work its magic.

> "The tiniest mouse lemur is a ridiculously cute, goggle-eyed creature that tips the scales at just 25g."

LAND OF LEMURS

Eighty per cent of Malagasy wildlife occurs nowhere else – a staggering statistic. But of the thousands of weird and wacky endemic animals found here, it is the telegenic lemurs that have become the stars. These charismatic mammals are offshoots of the primate family tree, most closely related to bushbabies and pottos. With no higher primates to compete with on Madagascar, they were able to diversify into more than 100 species, encompassing a wonderful variety of shapes, sizes and behaviour.

At one extreme are the nocturnal mouse lemurs – the world's smallest primates. A big silverback mountain gorilla can easily be 6,500 times heavier than the tiniest of them all, Madame Berthe's mouse lemur – a ridiculously cute, goggle-eyed creature ▶

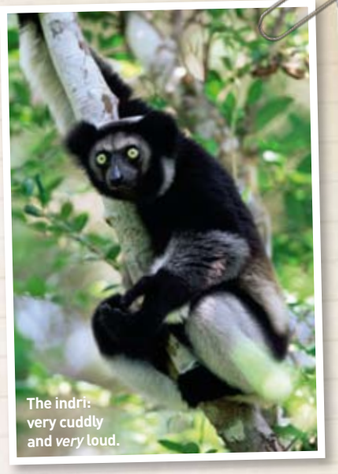
Producer's notes

LEMUR MAGIC

Mary Summerill is series producer of *Madagascar*.

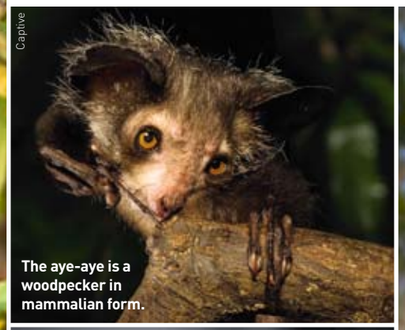
Filming indris was a top priority for the crew, and we were lucky to be able to spend a month following an indri family in the Mitsinjo rainforest reserve. The group comprised a breeding pair and their two offspring – a young male and his six-month-old sister. Their territorial wailing at first light was a highly effective alarm clock for the heavy sleepers among us.

It was a challenge to keep up with these enchanting animals as they moved through the steep, tangled forest, but – at the risk of sounding anthropomorphic – as we got to know them it seemed that they would wait for us to catch up. Unfortunately, just as we had got the camera set up, they would gently move on again and wait a little further on: endearing, but frustrating! The juveniles were very playful – at one point the male spent 15 minutes throwing himself on and off a log right in front of us.



The indri: very cuddly and *very* loud.

Verreaux's sifaka is the best-known of the eight sifaka species. These long-limbed lemurs are named for their *shi-fak* alarm calls.



Captive

The aye-aye is a woodpecker in mammalian form.

Dawn breaks at Berenty, whose resident star is the ring-tailed lemur.

A black and white ruffed lemur shows off the athleticism for which its family is renowned.

that tips the scales at just 25g. Collectively the most abundant members of their family, the hyperactive mouse lemurs are a highlight of night walks through wooded areas, leaping nimbly among the trees in search of berries, blossom, beetles and other titbits.

My favourite lemur, though, is the largest living species – the indri. In looks it recalls a gangly, piebald teddy bear, and it can perform prodigious leaps of up to 10m between trees. But its plangent, haunting cries are more extraordinary still: they have the emotional power of whalesong. In the early morning, waves of this hackle-raising sound travel far and wide through the indris' rainforest home in the humid east of the island, as each family announces ownership of its territory.

Mouse lemur: P Oxford/NPL

Mouse lemurs fill a similar ecological niche to dormice or bushbabies. This one is a brown mouse lemur.

> "The aye-aye is the epitome of zoological deviance: a jumble of quirky physical features and behaviour."

Of course, the lemur tourists most want to see is an instantly recognisable species synonymous with Madagascar itself. But though the ring-tailed lemur is today a global pin-up, it is rather atypical of its family. It lives in unusually large groups (on average 12–15 strong), spends about a quarter of its time on the ground and thrives in extremely arid habitats in the hot and dusty south.

No discussion of lemurs is complete without a mention of the animal that encapsulates all that is outrageous and wonderful about Malagasy wildlife. Hardly anyone gets to see one in the wild (I have had six sightings in two decades) and most photographs of it are taken in zoos, which only adds to its allure. Enter the aye-aye.

The aye-aye is the epitome of zoological deviance: a jumble of quirky physical features and even quirkier behaviour. Its incisors grow continuously like a rodent's, its gremlin hands have clawed digits and a skeletal middle finger, its ears are massive, mobile and leathery like those of a bat, and its mammary glands are between its hind legs. When foraging, it acts as if it ▶

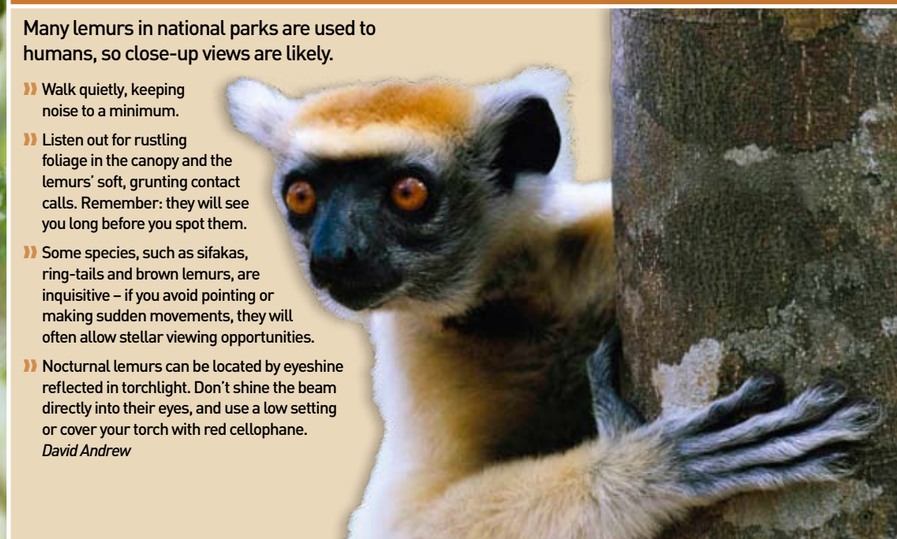
As their name suggests, greater bamboo lemurs are Madagascar's answer to the giant panda.

HOW TO WATCH WILD LEMURS

Many lemurs in national parks are used to humans, so close-up views are likely.

- Walk quietly, keeping noise to a minimum.
- Listen out for rustling foliage in the canopy and the lemurs' soft, grunting contact calls. Remember: they will see you long before you spot them.
- Some species, such as sifakas, ring-tails and brown lemurs, are inquisitive – if you avoid pointing or making sudden movements, they will often allow stellar viewing opportunities.
- Nocturnal lemurs can be located by eyeshine reflected in torchlight. Don't shine the beam directly into their eyes, and use a low setting or cover your torch with red cellophane.

David Andrew



Crew: Mary Summerill

Producer's notes

THE ROCKS THAT RING

One of Madagascar's most breathtaking landscapes is the *tsingy* of the far north. Here, tucked among the razor-sharp limestone pinnacles, pockets of lush forest shelter an array of fascinating animals. We were desperate to film the area's crowned lemurs, which traverse this seemingly hostile terrain as they move between the patches of forest in search of food. It looked impossible, but somehow the lemurs made every crossing with ease, and as they bounded from rock to rock we noticed that their thickly padded feet made the limestone finials ring.

Getting around was not so simple for us, however, especially as we had to lug a large camera mount called a jib (*above*) in order to produce swooping shots panning across the landscape. It was all a bit nail-biting – jibs are heavy and awkward to balance even on flat ground, and we had to be ultra-careful not to damage the fragile spindles of rock. If anyone had slipped, they would have been lacerated. But we trod very cautiously, and finally captured the sequence we had come for. *MS*

This avenue of Grandidier's baobabs has become an iconic image. Baobabs may live for over 2,000 years, their trunks reaching a girth of up to 30m.

were the progeny of a woodpecker and a squirrel (neither of which occurs on Madagascar). It survives largely on insect finger food, tapping the wood of rotting trees and listening for a hollow sound or the movement of juicy grubs.

CURIOUS CARNIVORE

At one time, before humans gatecrashed the evolutionary party 2,000 years ago, Madagascar was probably 80 per cent forest, and those forests were full of lemurs – ideal prey for a top predator. But no cats, dogs or civets reached the island after it drifted away from Africa 165 million years ago. So the coast was clear for a completely new type of hunter to emerge and fill the gap.

The evolutionary end-product was the fosa (pronounced *foo-sah*). An arboreal hunter *par excellence*, it is sleek, lithe and fantastically agile, climbing at speed – helped by 'reversible' ankles like squirrels – to chase lemurs through the canopy or (more often) ambush them at night as they sleep.

Fosas have an eccentric mating system. Preoccupied with procreation, in October they abandon their shy, nocturnal habits, and females in oestrous climb favourite trees (they return to the same ones every year) to advertise their availability. Over a week or so a female attracts several males with scent-marking, all of which may mate with her. Faced with such stiff competition, fosas have developed some interesting sexual adaptations. They possess the largest penis relative to body size in the mammal world, and can maintain an erection for six hours.

VANISHING ACTS

One-of-a-kind mammals like the fosa or aye-aye are undeniably exciting for the naturalist, but they represent just one element of Madagascar's peculiar fauna: its endemic reptiles, amphibians, birds and insects are equally memorable. I'm especially fond of the flat- or leaf-tailed geckos, which have taken the art of deception to sublime levels.

These lizards mimic tree bark – but they don't just have the same mottled coloration. They have gone much further, developing a skirt-like frill of skin around their entire outline to help them merge imperceptibly into a tree trunk or branch. Should this fail to deter predators, the larger species suddenly open their shocking red mouths, while letting out a blood-curdling scream.

Another fascinating group of lizards with cryptic coloration are the chameleons, which probably originated here. Today, more than 80 species – half of the world's total – are restricted to the island. They range from leviathans to Lilliputians, and many sport horns and armoured 'shields' ▶

Some ants are bigger than the pygmy stump-tailed chameleon, a Lilliputian creature found on the north-east of the island.

> "No cats, dogs or civets made it to the island after it broke away from Africa. So a new type of hunter emerged."

Mega moth: the male moon or comet moth has a 20cm wingspan and 15cm long 'tails'.

Vanga beaks come in all shapes and sizes – the helmet vanga is the 'toucan' of the family.

Madagascar's apex predator, the fosa, hunts lemurs for a living. It targets both diurnal and nocturnal species.

Hands off! A leaf-tailed gecko warns predators to leave well alone....

...and the same goes for this toxic painted mantella frog.

behind the head. The heavyweight champ, Parson's chameleon, reaches a length of 70cm – the massive, three-horned males have the swagger of mini Tricerotops.

The same cannot be said of the pygmy stump-tailed chameleon. Rarely over 20mm long, this tiny titan is among the smallest reptiles on Earth. One variety, *Brookesia peyrierasi*, is found on the idyllic island of Nosy Mangabe, off the north-east coast, where it hunts ants in the leaf-litter and tries to avoid spiky, hedgehog-like tenrecs.

The giraffe-necked weevil is surely one of the wackiest insects alive.

Charles Darwin never visited Madagascar, but had he done so I can't help thinking that its fantastic biodiversity would have helped inspire his work on evolution. Take the vangas. This endemic family of birds displays a huge range of body size and beak type that, if anything, is even more pronounced than in the famous Galápagos finches.

The 15 species of vanga have evolved to occupy niches filled in other parts of the world by woodpeckers, wood-hoopoes, shrikes, tits and nuthatches. They provide an excellent example of adaptive radiation – the process by which a small stock of 'founder' individuals is isolated and then driven to diversify in spectacular fashion.

Vangas are not the only group of animals on Madagascar to show remarkably close parallels to unrelated species elsewhere. The Malagasy poison frogs (mantella) seem uncannily similar in both appearance and behaviour to the poison-dart frogs of Central and South America (Dendrobatidae) – an exquisite example of convergent evolution. In fact, the Malagasy versions are not nearly as toxic as their New World counterparts, though their bright warning coloration is every bit as striking.

KIT-BUILT INSECTS

If I had to pick one creature that sums up what makes the Red Island so special, however, it would be the giraffe-necked weevil. Try to picture a glacé cherry with a mini Anglepoise lamp attached at one end – this beetle is like nothing else on Earth. It appears to have been assembled on a whim from a kit. But why the long, magnificently articulated neck? The female uses it like a crane-cum-robotic arm to neatly roll a leaf of the species' preferred host tree into a hollow tube. She then lays a single yellow egg, barely larger than a pinhead, inside the snug nest.

> "Picture a glacé cherry with a mini Anglepoise lamp at one end – this beetle is like nothing else on Earth."

And it's not just the wildlife that is special on Madagascar – entire habitats have also developed in their own idiosyncratic way. On an island where oddities are commonplace, one otherworldly landscape in particular stands out. The spiny forest of the island's south-west corner could be the set of a sci-fi movie: enormously swollen tree trunks resemble elephant's feet and many-fingered, spine-encrusted branches wave around like the tentacles of a demented octopus.

Not surprisingly, the vast majority of the spiny forest's animals and plants live nowhere else. They include three species of baobab tree that rise like obelisks from the surrounding canopy. Towards the end of the rainy season (February–March), they produce large flowers that are pollinated by various species of hawkmoth and some of the smaller nocturnal lemurs.

Amazingly, some diurnal lemurs choose to brave the ferocious daytime heat here, which often exceeds 40°C in summer: both ring-tails and Verreaux's sifakas (the celebrated 'dancers') have found a way to ▶

TOP 10 WILDLIFE HIGHLIGHTS

Madagascar has about 1,000km of coral reefs.

Reef: Frédéric Larrey

1 FOSA
One of the world's oddest carnivores. We used to think the fosa was a primitive cat, but in fact it is a strange mongoose. Very little is known about it.

2 INDRI
The largest and loudest lemur – its treetop choruses at daybreak are ear-splittingly loud.

3 GIRAFFE-NECKED WEEVIL
Often described as a beetle made by committee but perfectly engineered for the important job of rolling up leaves into nests.

4 AYE-AYE
An incredible animal in anyone's book – but also incredibly difficult to see in the wild. Nowhere common, it is – ironically – the most widespread species of lemur on Madagascar.

5 HELMET VANGA
What a beak! The huge, brilliant blue appendage of this rainforest species must rank among the most impressive in the bird world.

6 PARSON'S CHAMELEON
This monstrous lizard does a mean impression of Tricerotops. Like other chameleons, its riotous colours convey emotions and its reproductive state as well as providing camouflage.

7 FLATID LEAF BUG
In its nymph stage, this sap-sucking bug looks like shredded cotton wool. Then it transforms into a bright pink adult resembling a petal.

8 CORAL REEFS
Madagascar's reefs are home to myriad colourful fish and three species of turtle.

9 BAOBABS
Six of the world's eight species are unique to Madagascar. They are also called bottle trees after their huge, moisture-storing trunks.

10 LESSER HEDGEHOG TENREC
Totally unrelated to hedgehogs, but behaves like one. Its closest relatives include elephants, hyraxes and the aardvark.

No, it's not a hedgehog but a tenrec.

Green and pleasant island? Madagascar has lost most of its native forest to slash-and-burn agriculture.

Landscape: Frédéric Larrey

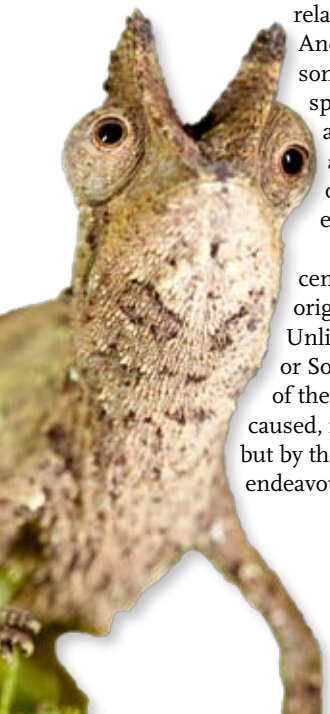
eke out an existence in this inhospitable land. The latter never drink, gaining moisture only from the foliage they eat.

UP IN FLAMES

Spectacular as it is, the biodiversity we see on Madagascar is but a fraction of its former glory. The arrival of humans on the island heralded the beginning of what can only be described as an environmental holocaust.

Hunting and deforestation have led to waves of extinctions. Gone are at least 17 species of giant lemur, some the size of gorillas; gone, too, is the elephant bird, *Aepyornis* (see box, *right*), three species of pygmy hippo and a strange ancient relative of the aardvark. And these are just some of the extinct species we know about. Meanwhile, a high proportion of the survivors are endangered.

Less than 8 per cent of Madagascar's original forest remains. Unlike in Latin America or South-East Asia, most of the habitat destruction is caused, not by big companies, but by the back-breaking endeavour of desperately poor people making charcoal or slashing and burning the forest by hand to grow crops (a practice known locally as *tavy*).



Rampant deforestation threatens many Malagasy species, such as this leaf chameleon.

> "Madagascar's wildlife has given us a remarkable insight into evolution, but its future hangs in the balance."

Yet there is a glaring paradox. Despite so much forest disappearing, there have been no known extinctions of lemurs in the recent past, even though many lemurs (and other endemic species) depend on native forest. And numerous discoveries offer a glimmer of hope. Scientific expeditions have located species – such as the Madagascar pochard – that had long been consigned to the history books, while other species – such as the aye-aye and greater bamboo lemur – have been found to be more common and widespread than previously thought.

Madagascar's incomparable wildlife has given us a remarkable insight into the workings of evolution, but its future hangs in the balance. One can only hope that economic development and the growth of ecotourism will help to save its natural riches for generations to come.

BBC TWO

MADAGASCAR will be broadcast on BBC2 in three parts. Check *Radio Times* for details.

Sinclair Stammers/Science Photo Library

Producer's notes

THE MYSTERIOUS ELEPHANT BIRD

The fate of the elephant bird is one of Madagascar's great natural-history riddles. A flightless giant standing 4m tall, this was the biggest bird ever to walk the Earth. It once thrived across the island, but vanished several centuries ago. No one is sure what caused it to die out, but it was probably 'death by 1,000 cuts' – a combination of egg collection by humans (though there is no proof of this), habitat loss and climate change.

We had heard that, amazingly, remains of elephant bird eggs (*above*) could still be found on a remote beach at Cap Sainte Marie, the island's windswept southernmost point – and this was something we had to film. We expected to see just a few scattered fragments, but came across great circles of broken, creamy-white eggshells, each obviously the remains of a huge nest several metres wide. They may have lain on that beach for 1,000 years – the last echo of an astonishing animal. *MS*