Travelogue

Six Nights in Bali: Wildlife on our Holiday in the Gianyar Regency, Indonesia

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Photographs by the authors.

Indonesia boasts a broad array of natural values. The biodiversity on offer there and in other parts of southeastern Asia attracts people from far and wide. Situated on the equator, the tropical climate of the numerous islands that make up Indonesia provides ideal environments for herpetofauna (Das 2010; De Lang 2017). The island of Bali is no exception (McKay 2006). A popular tourist destination, the 5,780-km² land mass is part of a volcanic island arc with the Greater and Lesser Sunda Islands. The significance of the island’s biogeography is reflected in the noticeable shift in wildlife assemblages between Bali and the islands east of the Lombok Strait (Wallace 1868). This contrasting shift in biodiversity has been named Wallace’s Line (Huxley 1868; Barbour 1912), with Bali being the first landmass east of this imaginary line.

Bali is a favorite holiday destination for many, particularly Australians — but it is also an exciting place to see wildlife and a place where herpetologists have described new species even in recent decades (e.g., Matsui et al. 2013; Amarasinghe et al. 2020). This island is home to both the longest snake in the world and the longest venomous snake in the world. Furthermore, it boasts lizards that glide and cobras that spray venom from their fangs. Nevertheless, our motivation for going to Bali for six nights was for a holiday, but we kept an eye out for wildlife along the way.

Most of our stay was spent in Sukawati in Gianyar Regency. While a few tracts of natural forest remain, much of the land, initially converted to rice fields (Fig. 1), has been further developed to make way for tourist accommodations, restaurants, and other attractions. Research on other continents has shown that converting forests to agricultural land decreases reptilian populations (Kanowski et al. 2006) and areas dissected by highways often support fewer reptiles in both abundance and species richness (Andrews et al. 2008). These trends are evident in Gianyar Regency, which would suggest that this location is perhaps not the first choice for a place in Bali to seek reptiles and amphibians.

Wildlife at close proximity
One of the first creatures we saw, which we would see continually for the next six nights, was an Asian House Gecko (*Hemidactylus frenatus*) on a wall behind a computer at a restaurant (Fig. 2). It was not at all camouflaged, but it had the ambient heat to keep it moving and humans to shoo away its predators.

![Fig. 1. Rice fields in Bali.](image1.jpg)

![Fig. 2. An Asian House Gecko (*Hemidactylus frenatus*).](image2.jpg)
At sunset, the streets were evidently busy but calming down (Fig. 3). Even before dark we saw numerous geckos inhabiting the walls. Spotlighting in the villages revealed an abundance of Four-lined or Common Treefrogs (*Polypedates leucomystax*). Their eye shine evident in the spotlight beams were on the ground, up trees, and on outdoor furniture in recreational areas. One frog apparently had remained still for so long that a spider with a web above it had managed to establish some silk threads across the back of the frog’s head and onto its legs (Fig. 4). Frogs were in amplexus at a water feature at one of the local temples. Having only arrived in Bali a few hours earlier, we didn’t stray far and resolved to explore other areas during the day for further spotlighting.

In the morning, a native pollinator, a Large Flying Fox (*Pteropus vampyrus*) finished its nightshift (Fig. 5). Just outside our accommodation, a Common Sun Skink (*Eutropis multifasciata*) scaled a wall and moved about on a rock ledge (Fig. 6).

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**Fig. 3.** Traffic flows through the streets of Sukawati as the sun sets.

**Fig. 4.** Spider silk neatly connects an unperturbed Four-lined Treefrog (*Polypedates leucomystax*) to outdoor furniture (left); two Four-lined Treefrogs (*Polypedates leucomystax*) in amplexus (right).

**Fig. 5.** A magnificent Large Flying Fox (*Pteropus vampyrus*) in the morning sun.

**Fig. 6.** A Common Sun Skink (*Eutropis multifasciata*) on a poolside rock ledge.
Joined by its companions and true to the species’ name, these skinks were both common and enjoying the sun.

Unexpectedly, breakfast had its own wildlife experiences. The restaurant was positioned adjacent to some rice fields and a small tract of forest suspended above a river — a perfect place for a female Common Flying Dragon (Draco volans) to capture its own breakfast (Fig. 7). We identified her as a female by her light blue dewlap, which would be yellow and more pointed in a male. This small lizard performed a routine of shifting positions on a frangipani tree and posing intermittently for brief periods. Ant trails running up the tree provided a steady supply of food. In fact, Common Flying Dragons feed exclusively on ants (Mori and Hikida 1994). Our table was on a balcony, perfectly situated to watch the lizard go about its morning. Just as well, too, because researchers believe that this species is almost exclusively arboreal (Smith 1993), easily missed if you can’t get an elevated view of the forest. Either this lizard had its regular territory here or the tree was a popular haunt for the species because we had breakfast there on other mornings and routinely observed the dragons basking and feeding. Farther away, we spotted a Plantain Squirrel (Callosciurus notatus) scampering down the sheer vertical surface of a coconut tree stem (Fig. 8). This species, also known as an Oriental or Tricolored Squirrel, is very well adapted to these modified habitats (Kwartrina et al. 2018).

Later in the day, we walked past a large lake and noticed ripples beneath the water. With our eyes following the movement, we eventually caught sight of an adult Asian Water Monitor (Varanus salvator) emerging from its aquatic refuge (Fig. 9). As the name implies, water is a second home for these lizards, the largest on the island of Bali. We soon discovered that this species is not uncommon. Despite its size, its tendency to feed on human refuse makes it very compatible with settled areas (Uyeda 2009). Later in the day, while crossing a road, we noticed a juvenile Asian Water Monitor doing the same thing.

**Hidden creatures of the rice fields and forest tracts**

As the afternoon wore on, we walked through some rice fields. A Red-eared Slider (Trachemys scripta elegans), a turtle familiar to us (Mo 2019a, 2019b), briefly appeared (Fig. 10). We saw only its head, but its identity was readily discernible. Like in our native Australia, the Red-eared Slider is an invasive species in Bali, imported from North America to various parts of the world as a popular pet (Ramsay et al. 2007). This was the
Fig. 10. A Red-eared Slider (*Trachemys scripta elegans*) peering above the water.

Fig. 11. A juvenile Green Iguana (*Iguana iguana*) we saw at a local zoological facility.

Fig. 12. Sunset over a plot of agricultural land (left), prelude to encounters with wildlife like a motionless Four-lined Tree Frog (*Polypedates leucomystax*) seeking to avoid detection (right).

Fig. 13. A Boie’s Wart Frog (*Fejervarya limnocharis*) with mainly brown and cream coloration (left), another with some green coloration on its head and back (center), and the dark M-shaped blotch on the throat sac (right) that distinguishes this species from the similar Crab-eating Frog (*F. cancrivora*).
only turtle we saw in Bali, which was disappointing because the island is home to at least two native species, the Asian Leaf Turtle (*Cycleneys dentata*) and the Asiatic Softshell Turtle (*Amyda cartilaginea*). Interestingly, locals described seeing other introduced reptiles, including Corn Snakes (*Pantherophis guttatus*) and Green Iguanas (*Iguana iguana*; Fig. 11) from the Americas and Ball Pythons (*Python regius*) from Africa.

As dusk set over the rice fields, we prepared for spotlighting. Like the previous night, the Four-lined Treefrog was abundant in the trees around us and less frequently on the ground (Fig. 12). An amphibian we knew we would eventually see in this habitat also made an appearance, the Boie’s Wart Frog (*Fejervarya limnocharis*). Found extensively across Asia, they also are known as Asian Grass Frogs, Rice Field Frogs, and Indian Cricket Frogs in other parts of their distribution. However, populations currently assigned to this species likely will be found to be distinct species (e.g. Matsui et al. 2007; Djong et al. 2011). We leapt over mudbanks to ambush them, finding individuals that were mostly brown and cream at one location, while some with green coloration were observed at another site (Fig. 13). We identified these individuals as the Boie’s Wart Frog by the dark M-shaped mark on their throat sacs, whereas Crab-eating Frogs (*F. cancrivora*), a congener found in Bali (Yodthong et al. 2019) have dark triangular or rectangular blotches on each side of the throat sac (Fig. 14).

One of the rice fields was adjacent to a patch of forest, where we stumbled upon a bent-toed gecko (*Cyrtodactylus sp.*) on a rock wall (Fig. 15). For most tourists in Bali, gecko sightings soon lose their novelty, but we knew this one was different than the various species of house geckos (*Hemidactylus* spp.) we regularly encountered on the walls of homes and other buildings. The *Cyrtodactylus* geckos in Bali have been classified as either Sulawesi Bow-fingered Geckos (*C. fumosus*; e.g., McKay 2006) or Marbled Bow-fingered Geckos (*C. marmoratus*; e.g., Janiawati et al. 2016). Only after we returned home from the trip did we discover from reading and speaking to Indonesian herpetologists that only one morphological study of bent-toed geckos in Bali has been published (Amarasinghe et al. 2020) and that the two species of bent-toed geckos mentioned above had only been assumed to be those on the island (Mecke et al. 2016a); the Sulawesi Bow-fingered Gecko has only been confirmed in Sulawesi and the Marbled Bow-fingered Gecko has only been identified in Java (Mecke et al. 2016b). Amarasinghe...
et al. (2020) examined bent-toed geckos caught in western Bali, which proved to be the newly described species, *C. jatnai*. The taxonomy of bent-toed geckos in other parts of Bali remains unresolved, such that the geckos we encountered might belong to an undescribed species of this diverse genus (Mo and Mo 2020). Alternatively, we might have been looking at *C. jatnai* outside of the study area of Amarasinghe et al. (2020), *C. fumosus* as inferred by McKay (2006), if this species is indeed not endemic to Sulawesi, or *C. marmoratus* as inferred by Das (2010) and Janiawati et al. (2016), if this species has a distribution beyond Java.

Returning to our accommodation, we passed through a village, where we came across a second bent-toed gecko (Fig. 15). This one was on the ground and had a smooth regenerated tail. As we walked through the village we found some other geckos. A Flat-tailed House Gecko (*Hemidactylus platyurus*) was too high on a wall (Fig. 16) and too fast to be examined properly. However, its identity was revealed by the appearance of its tail. An Indo-Pacific Gecko (*Hemidactylus garnotii*) on a ceramic pot was not too fast, allowing a close look while in hand (Fig. 17). We were hoping also to find the iconic Tokay Gecko (*Gekko gecko*), the world’s second largest gecko and the largest gecko in Indonesia; however, that one would have to wait for another evening.

In the morning, only a lone Sunda Teal (*Anas gibberifrons*) could be seen at one of the rice fields we spotlighted the night prior (Fig. 18). It stood still on a rock near one of the homesteads.

**A walk in the park**
We visited Bali Zoo, which gave us the opportunity to see some of the animals we might encounter in the wild, as well as species found in other parts of Bali (Fig. 19). One highlight was the endemic Bali Mynah (*Leucopsar rothschildi*), a critically endangered bird now found in only a few locations on the island. We had seen this species in other zoological
collections elsewhere in the world but seeing them in Bali was particularly fitting. The walk-through aviary gave us a perfect unobstructed view. We also saw Javan Pangolins (*Manis javanica*) and Sunda Porcupines (*Hystrix javanica*). Both were species we would love to see in the wild, but relentless poaching has dramatically reduced the likelihood of holidaymakers coming across a wild pangolin.

At one of the gibbon enclosures, we photographed a Common Flying Dragon perched on a wall (Fig. 20) seconds before a curious Siamang (*Symphalangus syndactylus*) flung one arm through the bars and almost grabbed the lizard. We also saw some reptiles that were part of the zoo’s collection (Fig. 21). One of them, a Saltwater Crocodile (*Crocodylus porosus*) would have been the largest reptile in Bali before it was extirpated. While this makes most tourists glad, they are still drawn to this animal in captivity. Another outdoor enclosure housed two of the largest snakes in the world, both of which occur in Bali, the Burmese Python (*Python bivittatus*) and Reticulated Python (*Malayopython reticulatus*). Two juvenile Komodo Dragons (*Varanus komodoensis*) were separated for their own safety. We were reminded that their native range was not that far away from where we were.
The villages after dark

On our way to dinner, we came across a familiar sight, the dried corpse of an Asian Black-spined Toad (*Duttaphrynus melanostictus*; Fig. 22) baked in the sun, an amphibian we had seen elsewhere in Asia (Mo 2020). The Asian Black-spined Toad was introduced to Bali (Church 1960) as in other parts of the world (e.g., Menzies and Tapilatu 2000; Vences et al. 2017). After sunset the next two evenings, we headed into the villages to see what we could see and spotted numerous live toads. One that we saw appeared to have lost its right eye. Others were thriving, sharing the water features of the local temples with Four-lined Treefrogs.

On a fence post, we caught a rather large eyeshine for a lizard. As we ventured closer, we made out the shape of a large gecko. This turned out to be our first Tokay Gecko. This impressive animal, with a maximum size exceeded only by the New Caledonian Giant Gecko (*Rhacodactylus leachianus*), also has a powerful bite, much in contrast to the weak jaws of the Australian geckos to which we were accustomed. Placing the Tokay Gecko on a tree for photographs, it didn’t hesitate to gape and hiss (Fig. 23).

We came across two other Tokay Geckos over the next two nights, both smaller than that first individual. One of them was quite emaciated, with few fat reserves in its thighs and the base of its tail. However, this did not prevent it from exhibiting the same amazing defensive behavior as the first Tokay Gecko (Fig. 24).

![The dried corpse of an Asian Black-spined Toad (*Duttaphrynus melanostictus*) (left), a live individual with a damaged eye (center), and a toad sharing a temple water feature with a Four-lined Treefrog (*Polypedates leucomystax*) (right).](image1)

*Fig. 22. The dried corpse of an Asian Black-spined Toad (*Duttaphrynus melanostictus*) (left), a live individual with a damaged eye (center), and a toad sharing a temple water feature with a Four-lined Treefrog (*Polypedates leucomystax*) (right).*

![An upset Tokay Gecko (*Gekko gecko*) gaping.](image2)

*Fig. 23. An upset Tokay Gecko (*Gekko gecko*) gaping.*

![An emaciated Tokay Gecko (*Gekko gecko*).](image3)

*Fig. 24. An emaciated Tokay Gecko (*Gekko gecko*).*
A day in Ubud
One day we were driven to Ubud to visit the markets and the famous monkey forest in Padangtegal (Fuentes et al. 2007). Along the way, we passed through expanses of agricultural land. This gave us the opportunity to see a variety of birds, including Cattle Egrets (Bubulcus ibis), Little Egrets (Egretta garzetta), Intermediate Egrets (Ardea intermedia), Eastern Great Egrets (A. alba modesta), Little Pied Cormorants (Microcarbo melanoleucos), and Little Black Cormorants (Phalacrocorax sulcirostris) feeding in the artificial watercourses (Fig. 25). A White-breasted Waterhen (Amaurornis phoenicurus) also made a fleeting appearance, racing from some undergrowth across a shallow stretch of water (Fig. 26). In contrast, White-rumped Munia (Lonchura striata) were easier to observe as they flocked over some exclusion netting (Fig. 27).

Even before entering the monkey forest, we encountered the resident Long-tailed Macaques (Macaca fascicularis) scavenging for fruits along the road. Inside the sanctuary, they were doing much the same with huge quantities of sweet potatoes, bananas, and corn cobs provided at food stations (Fig. 28). These wild monkey parks are popular tourist attractions in many parts of Asia (e.g. Hamada et al. 2005; Knight 2010). The monkey forest in Padangtegal stretches over some 12 ha of undulating terrain (Fig. 29). The number of macaques reported to live here varies between sources from different time periods, although the population is generally believed to range from 700 (Sambou et al. 2019) to more than 1,000 individuals (Wheatley and Harya Putra 1994). We saw plenty of babies and juveniles, and their mothers were well fed from the food provisioning that has been a long-running practice at this site (Fuentes 2010). This has desensitized the macaques to human presence, so much so that the thousands of visitors each year experience macaques at close proximity with backdrops of jungle and temples to complete the picture.

Invariably, we saw macaques stealing things from tourists. If they weren’t stealing food, they were stealing belongings to
Fig. 28. Behaviors observed in Long-tailed Macaques (*Macaca fascicularis*) at the monkey forest in Padangtegal.

Fig. 29. A series of monkey statues adorns one of the many tiled paths through the monkey forest in Padangtegal. A real Long-tailed Macaque (*Macaca fascicularis*) is so habituated to humans that it comfortably turns its back on approaching visitors.
hold as ransom for food. We ventured in prepared, our back-
pack zippers secured with pieces of wire. A few macaques tried
to investigate but quickly grew frustrated. During our visit,
we saw macaques playing in water, displaying rivalry, rais-
ing their babies, and mating — but knew that we should not
stare because the macaques interpret that as a threat (Thierry
1985). One macaque that we accidentally offended chased us
for about 10 m.

Also in the monkey forest were Common Sun Skinks.
Unlike in Sukawati, these lizards were less relaxed and always
on the move. Perhaps the possibility of being picked up by
a macaque was a causal factor. One we met on some stairs
didn’t know which way to move and remained stationary for

a few seconds (Fig. 30). We heard some people exclaiming
that they were the biggest lizards they had seen. They obvi-
ously hadn’t encounter any Asian Water Monitors. We saw
several subadult monitors foraging in the understory and leaf

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**Fig. 30.** A Common Sun Skink (*Eutropis multifasciata*) up close.

**Fig. 31.** Asian Water Monitors (*Varanus salvator*) foraging on the forest floor, blending into the leaf litter at times.

**Fig. 32.** An Asian House Gecko (*Hemidactylus frenatus*) in the Ubud markets.

**Fig. 33.** Common birds in developed areas, Spotted Doves (*Streptopelia chinensis tigrina*) (left) and a Eurasian Tree Sparrow (*Passer montanus*) (right).
litter. Occasionally, they would pause and lift their heads to survey their surroundings or keep an eye on us (Fig. 31). In the leaf litter, they were well camouflaged, especially when their heads were tunnelled into the debris in search of prey.

A walk through the markets was less wild but not as tame as the markets back home. Even during the day, the walls were adorned with Asian House Geckos (Fig. 32). Away from the buildings, Spotted Doves *(Streptopelia chinensis tigrina)* and Eurasian Tree Sparrows *(Passer montanus)* thrive in this modified habitat (Fig. 33).

Most tourists become aware that Indonesia is one of the main producers of a luxury coffee known as kopi luwak (Shepherd 2012; D’Cruze et al. 2014). The coffee beans are essentially the partially digested coffee berries that have been

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**Fig. 34.** Instead of living in the forest, an Asian Palm Civet *(Paradoxurus hermaphroditus)* spends its days as a display at a local café.

**Fig. 35.** A Brahminy Kite *(Haliastur indus)* searching for prey from an elevated perch.

**Fig. 36.** A Black-naped Oriole *(Oriolus chinensis)*.

**Fig. 37.** The forest opens up where a river dissects the landscape.

**Fig. 38.** Silhouetted, this Common Flying Dragon *(Draco volans)* did not move during the 10 minutes we watched it.
eaten and defecated by Asian Palm Civets (*Paradoxurus hermaphroditus*). Because of serious concerns for the welfare of civets used to produce kopi luwak (Carder et al. 2016), we did not visit a coffee farm during our holiday. However, we did encounter several cafés and shops selling kopi luwak. At one café, a civet was on display for tourists (Fig. 34). This individual was melanistic, hardly showing the distinctive mask or pattern of spots.

**Last forest tracts of Sukawati**

At the edge of one forest tract, a Brahminy Kite (*Haliastur indus*) perched on an exposed section of tree (Fig. 35). It appeared to be searching for prey until its focus shifted to our approach. Inside the forest, other birds, such as the Black-naped Oriole (*Oriolus chinensis*), were more active, searching for food as they moved from branch to branch (Fig. 36). For the most part, these forest tracts were quiet except where a river dissected the thick vegetation, allowing sunlight to pour into the gap (Fig. 37). At such a gap, we noticed a Common Flying Dragon clinging to the trunk of a large tree (Fig. 38).
surrounded by the spray rising from the river. Only its body silhouetted against the sunlit vegetation gave away its presence. We wondered how many other small reptiles were hiding undetected in the forest.

At another forest tract, a female Common Flying Dragon moved from branch to branch, occasionally displaying its blue dewlap (Fig. 39). It needed to be on guard though. As much as we enjoyed watching it move around the tree eating ants, a Wreathed Hornbill (*Rhyticeros undulatus*) was nearby. Although these large birds feed mainly on fruits, their diet does include other animals (Hadiorakarsa and Kinnaird 2004). This particular individual was a male, identifiable by its rufous crown and nape, white face and neck, and yellow gular pouch (Fig. 40). The Wreathed Hornbill is sexually dimorphic, with females instead having a black head, face, and neck and a blue gular pouch. We had seen a female during our visit to the Bali Zoo.

Less cryptic than the dragon, a Plantain Squirrel foraged directly above us (Fig. 41). Its thick brushy tail dangled below it as a counterbalance as it sprinted effortlessly from branch to branch. Meanwhile, on the forest floor, a Common Sun Skink had found itself a rock on which to bask and wait for insects to pass (Fig. 42). The light grayish-brown color and bright yellow sides of this individual are typical of the Common Sun Skinks in Sukawati, in contrast to the darker individuals with reddish-orange sides we saw in Ubud (Fig. 30).
We spent the last two nights spotlighting in these tracts of forest. We found another bent-toed gecko on the forest floor as well as Indo-Pacific Geckos on rocks and Tokay Geckos in trees (Fig. 43). We were drawn to eyeshine coming out of stands of bamboo, which turned out to be more Four-lined Treefrogs (Fig. 44) that showed little reaction to us milling around with our lights. We did wonder whether the insects attracted to our lights would be a welcome meal, but these were more concentrated around our faces than those of the frogs. Walking into a clearing, we also caught the eyeshine of an Asian Black-spined Toad and more Boie’s Wart Frogs (Fig. 45).

We really wanted to see one more anuran species we hadn’t yet encountered. Where the spray of a fast-flowing river along a rocky escarpment in one of the forest tracts produced a thick mist, we found a small stream that dropped abruptly into the river. The frogs here were somehow different and a closer inspection revealed that they were Schlegel’s Frogs (*Chalcorana chalconota*). They also are known as White-lipped Frogs because of the characteristic white streak along their upper lips (Fig. 46). They were not as calm as the Four-lined Treefrogs we had encountered and tended to retreat when we approached within two meters.

The village adjacent to this forest tract was quiet except for a few frog calls. A butterfly with a few pieces taken out of its wing had taken refuge on a rock wall (Fig. 47). Fortunately for this insect, we didn’t find any geckos on these walls. We did however find two more bent-toed geckos, one in some grass and another walking across a paved area (Fig. 48). After we picked up the last gecko, it feigned death until we left it alone.

**A lazy afternoon**

On our last afternoon in Bali, we settled into a restaurant for an early dinner. Outside, a pair of Zebra Doves (*Geopelia striata*) pecked food we couldn’t distinguish from the dirt (Fig. 49). This peaceful sight provided the backdrop for some reflection on our six-night holiday and how we had found some of the island’s wildlife with little effort. From our table, we could see over the railing to the roof of the story below. Despite the bulky appearance of the Common Sun Skink, it
is a good climber, and one was scuttling across the roof before finding a perfect lookout (Fig. 50). It sat there calmly for a long time before meandering again across the roof, where it found a piece of bacon. Despite the famous island of Komodo being some 440 km away, we witnessed a pig-eating lizard, albeit one you could pick up in one hand if you were quick enough to catch it.

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