IRCF REPTILES & AMPHIBIANS
CONSERVATION AND NATURAL HISTORY

TRAVELOGUE

The Top End of Down Under: The Amphibians and Reptiles of Northern Territory, Australia

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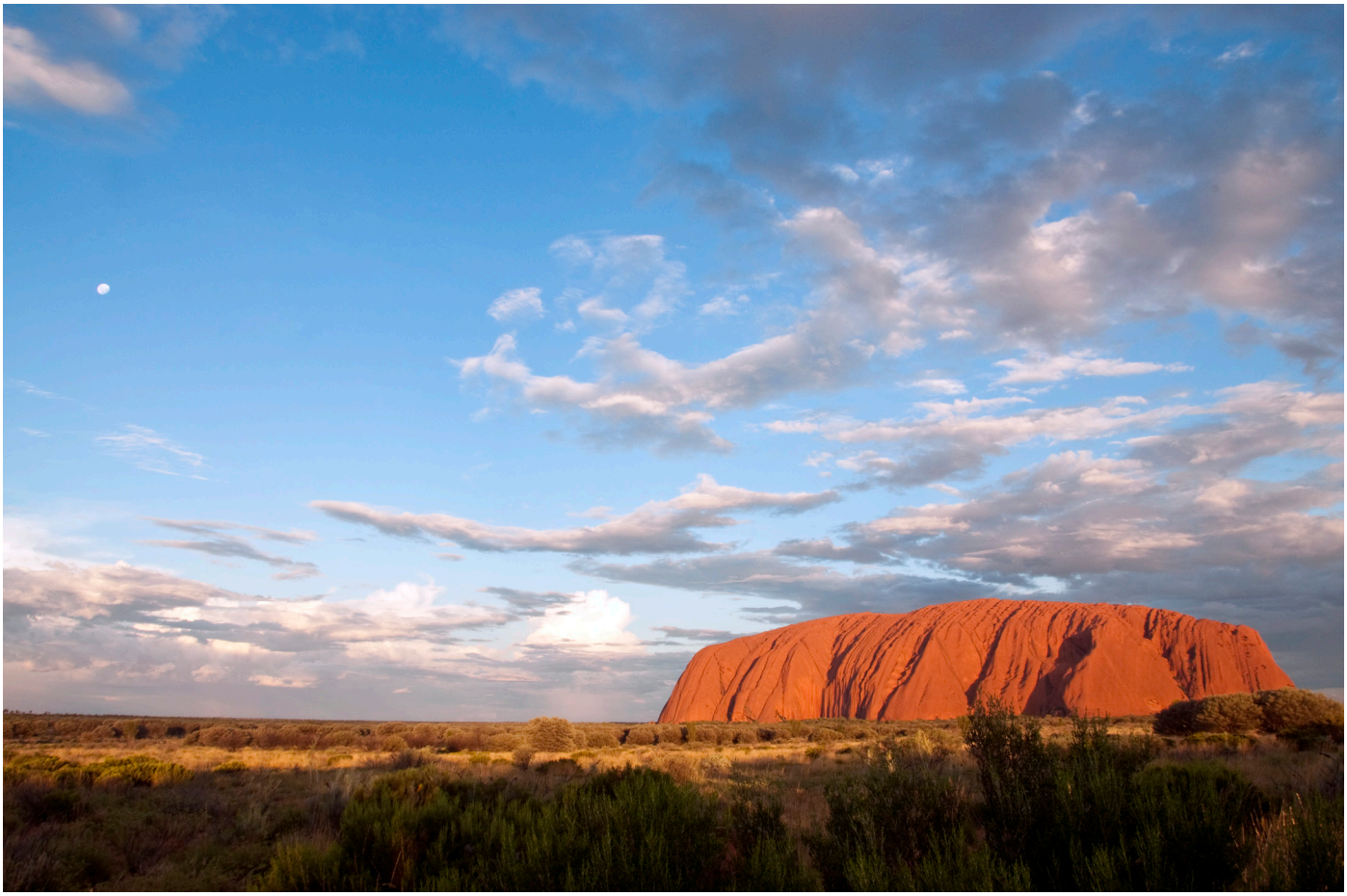
Photographs by the author unless otherwise indicated.

To the Red Centre

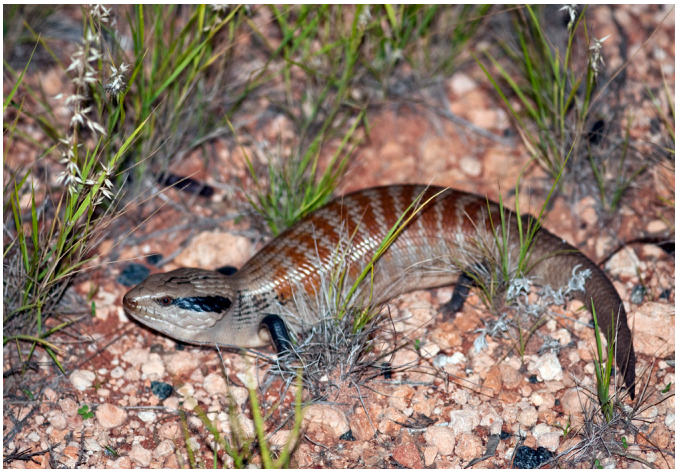
In April 1862 — just after the battle of Shiloh in Tennessee, the first large battle of the American Civil War — John McDouall Stuart and his team of thirsty and broken explorers set off on horseback from their camp in central Australia and failed five times to find a northwestern approach to the upper coast of Australia. This was Stuart's sixth attempt to lead the first expedition across the desert continent by land from south to north. This was the time of the last great exploratory feats. This was the time of Burton and Speake, and Stanley and



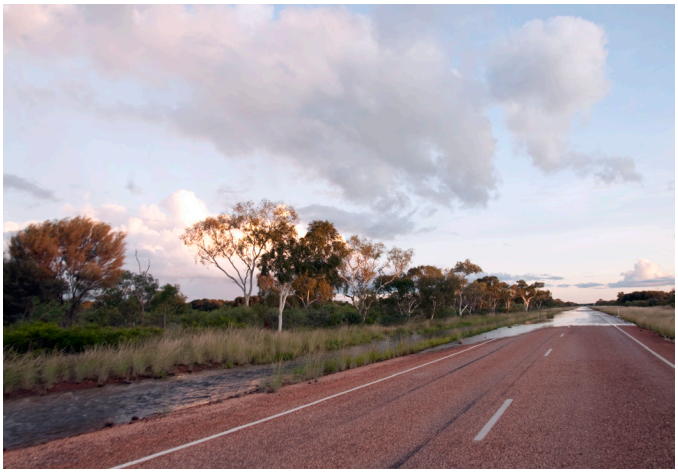
Uluru. This enormous sandstone monolith symbolizes the Australian Outback, and rivals any of the great landscapes of the American west. Photograph by Crystal Kelehear.

Livingstone. Finally, Stuart headed straight north, rather than northwest, and came upon a relatively wet area to stage their final push for the Top End coast, a place now called Daly Waters. After discovering this final staging point, Stuart and company were able to push forward to known terrain and make their way to the coast, and become the first to successfully traverse the arid Australian Outback longitudinally. Two years before, an equally ambitious, yet better funded expedition, ended in failure, hunger, thirst, and death. Stuart had finally made it, and he had never lost a man during any of his cautious expeditions (Feeken and Feeken 1970).

Nearly 150 years later, we were hauling ass on the Stuart Highway, throwing caution to the wind, and reversing Stuart's steps from north to south, penetrating the desert interior in a Toyota RAV4 that we were pretty sure was a four-wheel drive, but which definitely had a petrol motor. Most Aussies (for the last time, pronounced "Ozzies") drive around in souped-up Toyota Utes, with extra tires, diesel engines, and big long snorkels allowing air intake in case of the need for an amphibious touch. Petrol engines with or without snorkels can easily flood and are not considered the vehicles of choice around here. The reason for all this is partially Stuart's fault — his overland route made finding water sources the priority, and thus he moved from water hole to spring to intermittent stream to water hole, and the place names along the highway that follow his route and honor his name reflect this: Daly Waters, Wycliffe Wells, Newcastle Waters, Tennant Creek, Alice Springs. However, during the rainy season, this arid land can experience localized torrential downpours, which rapidly flood low areas along the highway. This happens infrequently enough that the Aussies never bothered to build proper bridges over these areas. But this year was the wettest wet season on record in Australia, with flooding in Queensland that made international headlines, and the highest volume of rain ever recorded for parts of the Northern Territory. As a result, I've seen better roads than this — a major Australian interstate highway — in Central America after a major hurricane.



We saw a few Centralian Blue-tongued Skinks (*Tiliqua multifasciata*) quickly wriggle across the highway at dusk. This individual was obviously pregnant. These skinks give birth to ridiculously large and well-developed young. Photograph by Crystal Kelehear.



A flooded section of the Stuart Highway. Record flooding in Queensland in 2010–2011 made international headlines, and parts of the Northern Territory also received record rainfall, causing modest flooding like this. Photograph by Crystal Kelehear.

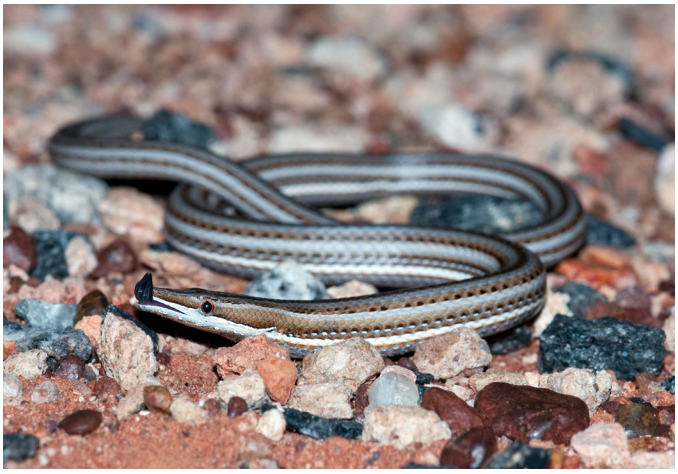
Burton's Snake-lizard (*Lialis burtonis*) is the most widely distributed pygopogid in Australia, and comes in a wide variety of dorsal patterns, ranging from gray or khaki and nondescript, to striped like this individual. All have this strangely shaped head and scissor-like jaw mechanism for grasping skinks. All also betray their ancestry by licking their eyeballs like their gecko kin.

Before setting off, we'd read disconcerting news in the local paper. A UFO convention to be held in Wycliffe Wells (the self proclaimed "UFO centre of Australia") — a town on the route to our ultimate destination — was cancelled due to flooding along the Stuart Highway. Indefatigable, we set off anyway, on a week-long, 5,000-km, balls-to-the-wall herpetological bonanza to Australia's Red Center, Uluru, and with luck, we would find our primary quarry, the Thorny Devil (*Moloch horridus*).

Pseudosnakes and Pseudospadefoots

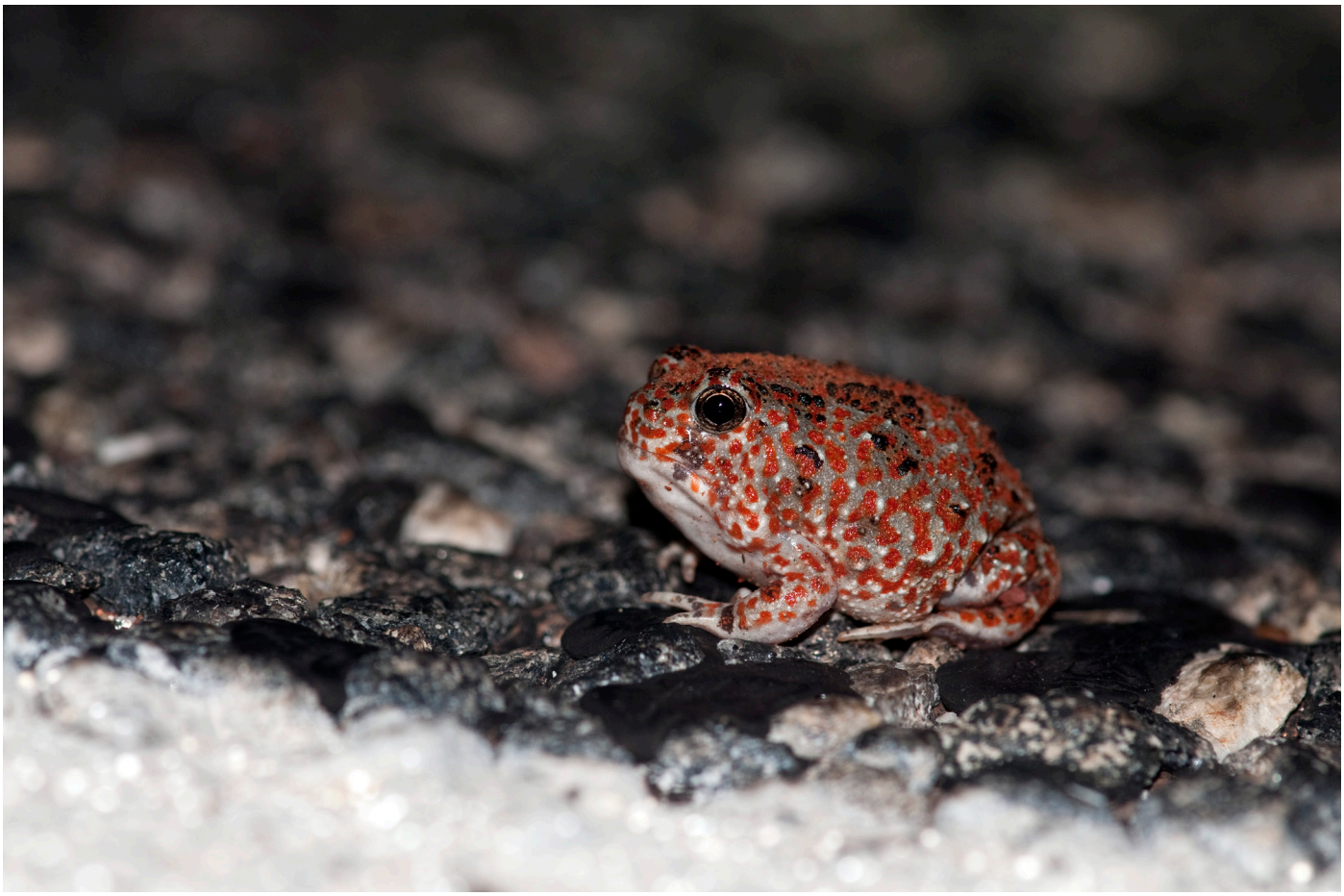
Our reaction to the news of rain was mixed; on one hand, we may have been forced to cut our trip short or concentrate our searching to areas north of the flooding. On the other hand, heavy rain might bring great luck to our nighttime searches on roads. In the American Southwest, the night after heavy rains can be an excellent time to see desert snakes — and great armies of strange burrowing frogs await rare heavy rains for feeding and breeding in both American and Australian deserts.

I was in Australia doing Cane Toad research, collaborating with Crystal Kelehear, a ravishingly pulchritudinous and terrifyingly intelligent student from Rick Shine's lab. We had a break from our lab-oriented work, and I talked her into taking me south into the desert. We'd driven down from outside Darwin the night before, camping at Katherine Gorge National Park. The gorge has red sandstone walls typical for this area of the Northern Territory (the "Top End"), and the vegetation and herpetofauna were largely familiar to us already, for we'd thoroughly explored the area around Fogg Dam Conservation Reserve and Kakadu National Park for the past eight weeks. Pandanus and white-barked Eucalyptus trees made up the forest canopy, where large roosts of mega-



Burton's Snake Lizard (*Lialis burtonis*) exhibiting its gecko-like tongue. Photograph by Crystal Kelehear.

bats — Flying Foxes (*Pteropus* spp.) — screeched restlessly in the morning as we awoke. Speeding south the next day, we saw the last of these subtropical elements of the Australian herpetofauna — a Golden Treesnake (*Dendralaphis punctulata*), Yellow-spotted Goanna (*Varanus panoptes*), and Cane



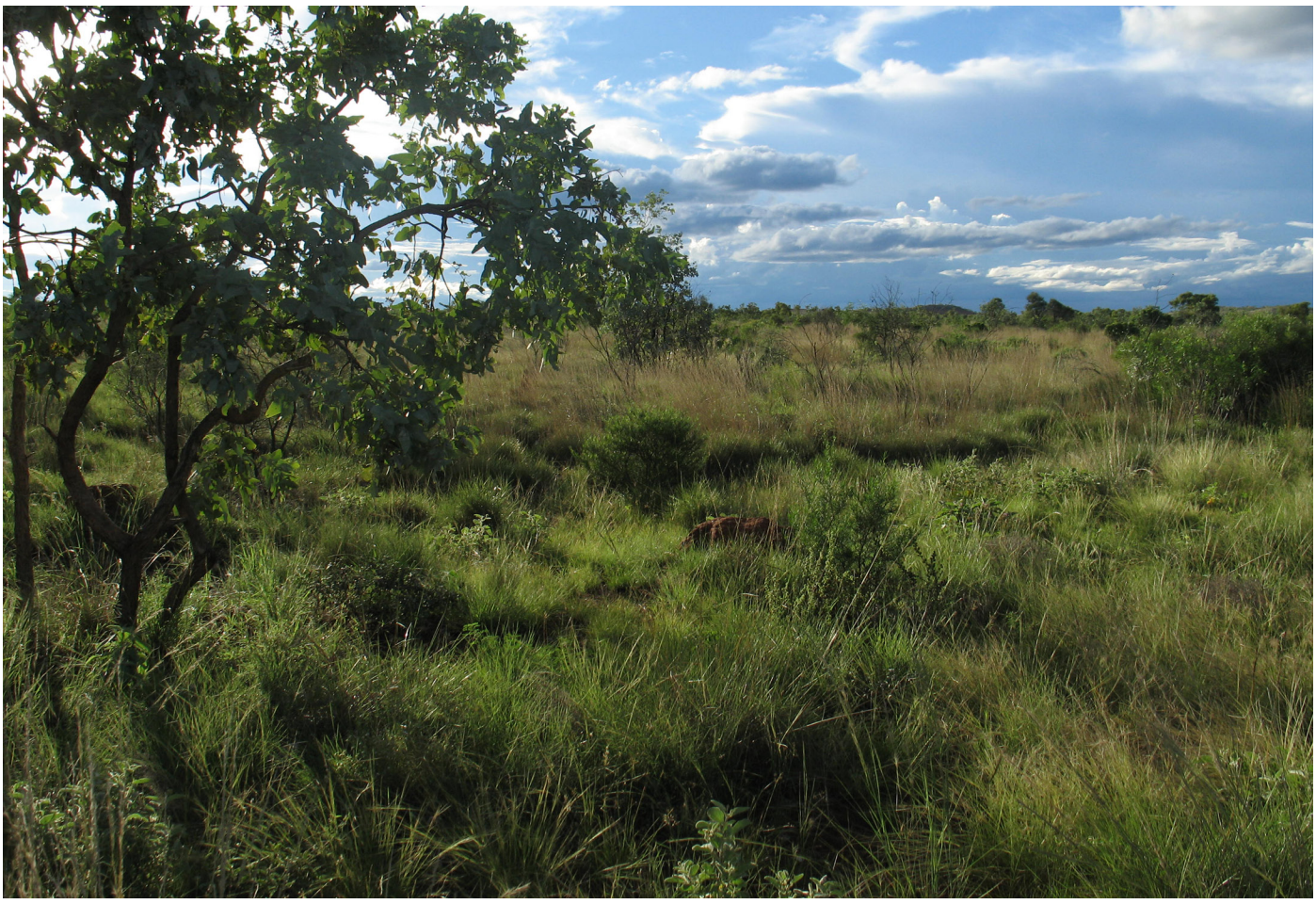
Desert Spadefoot Toads (*Notaden nichollsi*) belong to the Lymnodynastidae, an endemic Australian family of Gondwanan origin, and are only distantly related to true toads or North American spadefoots. Photograph by Crystal Kelehear.

Toads (*Rhinella marina*) — dead on the road (DOR) for the last time until our return. We began seeing instead small dragons sunning in the road, as well as the more arid-land goannas, such as Black-headed (*V. tristis*) and Sand Goannas (*V. gouldii*). During this herpetofaunal transition, the landscape and plant communities also gradually changed; trees became smaller and more widely spaced, and we entered the great spinifex grasslands, with clumps of the well-armed grasses encroaching on all ground space not occupied by a shrub or tree. We scanned in vain for Thorny Devils as soon as we thought we were within their range.

We passed through Daly Waters and made the mining town of Tennant Creek as the setting sun began lengthening the shadows of the few hardy local trees. Our plan was to drive slowly across the 100-km stretch south to the Devil's Marbles, a conservation preserve with a campsite. Somewhere along this route, the Stuart Highway had recently closed due to flooding, and we were about to negotiate this stretch at night. Trading our sunglasses for headlamps, we began our road cruise at dusk.

Just as the sun set, we were taking pictures at the first flooded stretch of highway about 5 km south of Tenant Creek. A 40-m section of highway was completely inundated by about 25 cm of rushing water. The water appeared to come from nowhere; no creek channel was apparent, and it was like huge sections of the savannah had become a flowing swamp. Our first herps came just after dark, as the last light petered out. This is what I call the "magic hour" — a really good time to see reptiles, since nocturnal species seem to briefly bask on the hot road surface to achieve their preferred body temperatures. We began calling this the "pygopodid hour" for reasons that will soon become apparent. We both saw a small snake rapidly slithering to our left in the headlights, and I shouted "snake … or, Burton's?" As Crystal got the car stopped, another snake was already slithering directly in front of us. I jumped out of the car, and Crystal went back for the one behind us while I looked at the one that was right there.

As I got close to the snake, something in my herpetological DNA told me that something wasn't right. As my headlight beam hit it, it began furiously undulating laterally away from me, and it popped out its small broad black tongue rapidly and deliberately — too deliberately. Still, I was cautious, and my brain flashed between identifications of a pygopodid and a small venomous whipsnake. Since it was kind of impor-



Spinifex grasslands at the Devil's Pebbles, north of Tennant Creek. Much of the terrain along the Stuart Highway is unbroken grassland, which is the primary habitat of many of the species we encountered during our road cruising.

tant to be sure which it was, I finally and rationally looked at it hard from the side, and told myself there was no way this thing was a snake. It had ear openings — and it just didn't look right. I reached to grab it, and had a final moment of panic before the little lizard sprung in the air like a child's toy, a sort of bouncing corkscrew. Somehow this lizard — in fact a limbless gecko belonging to a group so unique they have traditionally been placed in their own family, the Pygopodidae (Pianka and Vitt 2003) — was able to wind up the last one-fourth of its tail and use it to launch the upper three-fourth's several inches into the air. No snake I've ever seen or heard of can do this, so after several confused grabs, I had *Delma nasuta* in hand. It squirmed around along every axis — backward, forward, and around — and I tried with great difficulty to keep from breaking its extremely long tail. The whole thing was about a foot long and about the diameter of a pencil, yet its body was only about four inches long. Then, totally out of character for a snake, it opened its mouth and squeaked.

Crystal's "snake" was the same speckled, tan species. We resumed cruising excitedly, and in quick succession found two more pygopodid species — Burton's Snake Lizard (*Lialis burtonis*), which I thought the first "snake" might have been, and the Western Hooded Scaly-foot (*Pygopus nigriceps*). Three pygopodids in as many minutes, a magic hour indeed! Burton's Snake Lizard is the most common and widely distributed pygopodid in Australia, and has a bizarre, sharp-pointed face and unique hinged jaw mechanism used for

The Western Hooded Scaly-foot (*Pygopus nigriceps*) is not a snake. The head and neck markings are very similar to those of some desert Whipsnakes (*Demansia* spp.), which are venomous elapids. Note the regenerated tail.

A Scaly-foot (*Delma nasuta*). A scaly flap-foot of this limbless pygopogid can be seen about eight head-lengths behind the snout; these are the rear feet (it has no arms). The tail begins here, resulting in a tail that is considerably longer than the head and body.

A Desert Spadefoot Toad (*Notaden nichollsi*) in its defensive pose. This posture surely cleverly disguises the toad during a predatory encounter, since most of the ground cover in the desert looks very much like the dorsal pattern of the toad.

A Spencer's Burrowing Frog (*Platyplectrum spenceri*) emerging from its burrow. Crystal's sharp eyes spotted this frog emerging from a sandbar along Roe Creek west of Alice Springs, and soon we were finding dozens more. Photograph by Crystal Kelehear.

We spotted most Dingos (*Canis dingo*) at night along the edge of the highway while road cruising, not unlike typical encounters with North American Coyotes (*C. latrans*). However, this individual allowed a close inspection near our campsite at Devil's Marbles. Photograph by Crystal Kelehear.

grasping slippery skinks. *Pygopus* has a body a little longer than *Delma*, and both species have a tiny, clawless set of scaly back feet that they flick out in defiance of anyone who doubts Darwin. The Western Hooded Scaly-foot has a black nape, snout, and "teardrop" hanging from its eye, and, when seen from above, is a convincing whipsnake mimic. We eventually found two of each species, and both *D. nasuta* did the corkscrew move, and both *P. nigriceps* didn't.

Soon after dusk, we began seeing frogs and became convinced after crossing several shallow flooded stretches of the highway that we were going to have slow but safe travels. The rainwater was a decidedly good talisman. In fact, the only bad thing about the rain was that it caused an unfathomable emergence of mosquitoes, such that we only had moments to appreciate and photograph any herps we found. First, we found several Giant Frogs (*Cyclorana australis*), which are among the largest in Australia, although they are fairly modest in size by North American standards. They are about the same size and shape as a Gopher (*Lithobates capito*) or Crawfish Frog (*L. areolata*), including the big mouth. Next, we noticed a smaller, much more spherical frog in our headlight beam, and after a quick U-turn were pleased to find a little Australian Desert Spadefoot (*Notaden nichollsi*). These frogs are about the size of a golf ball and have the same shape. The Desert Spadefoot has a pretty brick red ground color with warts of yellow, black, gray, and red, and an outrageously ugly-cute face, complete with a frown that gives it a

The Northern Burrowing Frog (*Neobatrachus aquilonius*). Compare this frog to illustrations of Couch's Spadefoot from North America if you are interested in befuddling examples of convergent evolution.

disapproving look. When my camera cast a beam to focus on the Spadefoot, it assumed a defensive posture, leaning toward the camera, turning its head down, closing its eyes, throwing a shoulder toward me, and blowing up into a nearly perfect puffball. It then quickly perked up and hopped mouse-like toward cover with remarkable speed.

However, the Spadefoot lookalike contest is won not by this frog, but by what the Aussies call a Northern Burrowing Frog (*Neobatrachus aquilonius*). We found only one of these, but the similarity in overall appearance between this species and America's Couch's Spadefoot (*Scaphiopus couchii*) is remarkable. Both have a round, toad-like stature, vertically elliptical pupils, and a yellow-black blotched dorsal pattern. Like American Spadefoots, all three of these species are burrowers that breed explosively during brief but unpredictable periods of heavy rain, which in Australia usually falls in December to January (Tyler and Davies 1986). However, this year, "the wet" lasted much longer, and we were lucky to see so many so late. All three are in no way closely related to North American desert frogs; the Australian Desert Spadefoot and Northern Burrowing Frog both belong to the Lymnodynastidae, a uniquely Australian family, and the Giant Frog is a hylid more closely related to the White's Treefrog (*Litoria caerulea*) of pet store fame, than any burrowing frog in America (Pyron and Wiens 2011).

A Devil in Hand is Worth Two DOR

First MOLOCH, horrid King besmear'd with blood
Of human sacrifice, and parents tears,
Though, for the noyse of Drums and Timbrels loud,
Their children's cries unheard that passed through fire.

— John Milton, *Paradise Lost*

Moloch horridus — literally, the "horrible demon" — is the living desert icon of Australia. It is similar to the American Gila Monster (*Heloderma suspectum*) in having vicious-sounding Latin and common names. However, unlike the venomous Gila Monster, the Thorny Devil is a harmless ant-eater, and therefore more like the Horned Lizards (*Phrynosoma* spp.) of the American Southwest. In the same way that the Northern Burrowing Frog's similarity to the Couch's Spadefoot is due to similar selective pressures acting on two unrelated species, the Thorny Devil and American Horned Lizards are among the finest examples of convergent evolution (Pianka and Vitt 2003).

We raced south from our campground at the Devil's Marbles, a granite pluton weathered into enormous red spheres lying on one another in a large outcrop. Too perfect a place, apparently, to see *Moloch*, so instead we took portraits of a skinny Dingo (*Canis dingo*) lying by the road, and he didn't seem to mind much. As we sped toward Alice

We found this rather large (~1.2 m SVL) Stimson's Python (*Antaresia stimsoni*) alive on the Luritja Road between Curtin Springs and Kings Canyon National Park. Stimson's Pythons are the arid-land equivalent to Children's (*A. childreni*) or Carpet (*Morelia spilotes*) pythons found in more humid habitats.

Springs, we stopped for occasional DORs: two mangled Stimson's Pythons (*Antaresia stimsoni*), the desert equivalent to the Children's Python (*A. childreni*) found farther north, and a couple of Sand Goannas. We kept our eyes peeled to the maximum, hoping to see the prickly lizard that enticed us here. Conversation switched from talk about confusion over the size of Thorny Devils — best to adjust our search image — to how much we wanted to see one soon, so that the pressure would be off. Then we could relax and just enjoy the trip.

Our field guide (Wilson and Swan 2003) had a picture of *Moloch* taken in the Uluru district, so we knew we were getting close to good desert devil country. We reached the Lasseter Highway by late afternoon and our plan was to see Uluru at sunset — secretly hoping to see *Moloch* on the way — and road cruise at night back to camp at Curtin Springs roadhouse.

We began seeing red dunes arrested by Spinifex and shrubs, and immediately saw a small goanna in the road. We turned around, but before we could confirm that it was a Pygmy Desert Goanna (*V. eremius*), it was down a burrow. The sun was getting lower on the horizon, and a single distant thunderhead streamed with gray streaks of visible rain. We crested a dune and saw it — *Moloch* — the Thorny Devil, the horrible demon.

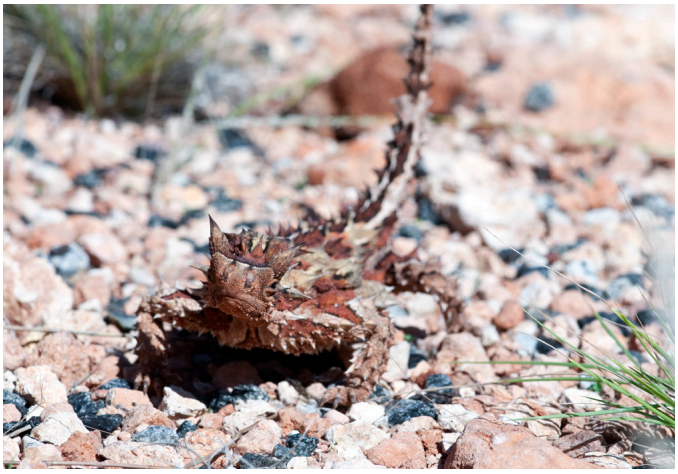
A U-turn confirmed our sighting, but unfortunately the devil was dead. We contented ourselves by examining the DOR to better adjust our search image for future live ones. Now we knew they were about the size of a hand, and that we could never have missed a live one. We admired the unexpected vividness of the dorsal coloration, with its reds, oranges, grays, and browns. We felt the sharpness of the spines, much sharper, I'd say, than those of a Horned Lizard. Still, the disappointment of not seeing a live one was crushing, and we had the nagging feeling all herpetologists get when they want to see one particular thing; the wondering about whether we'd spend three days in the desert and return empty-handed. We got back into the car and headed for Uluru.

An isolated shower near Uluru. Conditions during our desert trip were quite wet, which may have contributed to our success.

Uluru is more commonly known as Ayer's Rock, and is the most recognizable and famous of Australian natural landmarks. It is the iconic landscape of the Australian desert. Australians have wisely adopted Aboriginal names for many of their landforms and national parks, and thus the name Uluru is now in common use. Uluru is a humungous sandstone monolith — nearly arrowhead-shaped from above — and this makes it appear like a half-oval dome when seen from the ground from almost any direction. It is a geological feat that Uluru formed the way it did; most monoliths are magma intrusions into an underground rock unit, and you should get a large dome or other strange shape when the surrounding, less resistant rock erodes away. This is how many famous American rock landmarks, like Shiprock in New Mexico, Devil's Tower in Wyoming, and Stone Mountain in Georgia, formed. However, sandstone doesn't intrude into another rock; it is a sedimentary rock that forms as beach units, or as fossilized sand dunes, and Americans are familiar with the way it erodes: The arches, canyons, and mesas of our desert Southwest are all made of self-respecting sandstone. How did Uluru weather into such a fine, isolated dome? It would be the first time I saw it, and we spent equal time scanning the horizon for the rock and scouring the road for *Moloch*.

The legendary Thorny Devil (*Moloch horridus*) exhibiting camouflage. This lizard is all-defense, and one wonders how anything in the desert could find it or eat it, although goannas apparently manage to do so (Pianka 1994).

Thorny Devils (*Moloch horridus*) are not particularly satanic or horrible in appearance, as their Latin name suggests. Instead, one could easily make the claim that these well-armed desert survivors appear to be quite wise.



A Thorny Devil (*Moloch horridus*). Photograph by Crystal Kelehear.

Suddenly it was there, hanging on the horizon — a huge, single red rock in the distance. I could already tell from this far away it was going to be every bit as spectacular as advertised, worth all the hype and acclaim it gets. Uluru jumps out against the rest of the landscape, shatters the sky, and defies description. The car dipped to the bottom of a dune and Uluru disappeared. I sat up, straining to see it again. We topped another red dune, and in the other lane was a thorn-clad lizard, with its spiny tail arched high above its back.

"*Moloch*!"

"It's alive for sure."

"We did it! We did it!"

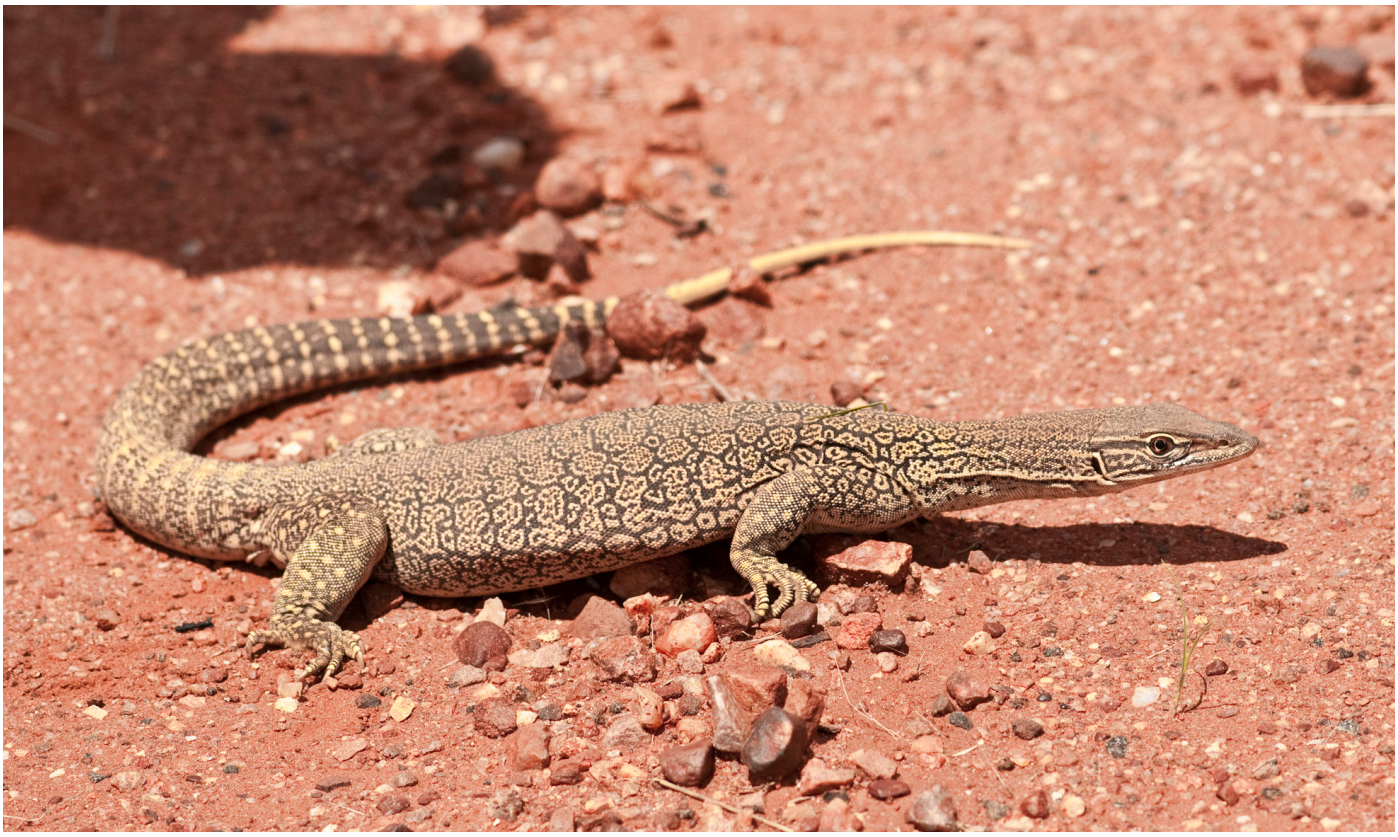
We ripped the RAV4 around exclaiming and hollering, sending red dirt and a cloud of dust flying, and within seconds we were out of the car and under *Moloch*'s spell. For a moment, there was an agonizing sense that we were to be let down again, since the critter was completely covered with ants zigzagging all over it like most road kills we'd seen — but it was indeed alive. To ensure its safety, we quickly ushered it off the road, and we too became covered with the same ants. It seemed that the red sand dune was one enormous anthill, and fortunately these ants didn't bite or sting, at least not constantly. We were hardly bothered by the ants, as well as the swarm of moisture-seeking flies that appeared from thin air to crawl into our hair-eyes-mouth-ears-nose-face-hands. We were too busy photographing *Moloch*. As I moved the lizard from the road, it whipped its tail around a few times, and I was reminded how much more spiny they are than Horned Lizards. Horned Lizards can be picked up fairly confidently, although you wouldn't really want to squeeze one. Thorny

Devils, on the other hand, are unpleasant to even gingerly cup — about as bad as picking up a fully armed rose bough. What kind of animal would attempt to eat a Thorny Devil? I guess nothing, and that's the idea. At one point, I put the devil in my outstretched T-shirt so I wouldn't have to carry it with my hands.

This pincushion of thorns is multicolored, ensuring camouflage against the red sand and gravel of the desert, and it has the added touch of an extra "head" — a bonus set of thorns on the back of the neck that could potentially fool a predator into attacking the wrong head. On top of this, *Moloch* also walks in a bizarre, jerking gait, seesawing along an even plane parallel with the sand, possibly to maintain the appearance of a benign piece of dried vegetation blowing back and forth in the wind. Thorny Devils are agamids, an iguanid-like family restricted to the Eastern Hemisphere. Therefore, despite their similarity in form, appearance, and ecology to the Horned Lizards of the Southwest, they are much more closely related to the other agamids, or "dragons," of Australia. American Horned Lizards have relatives with a more-or-less flattened form and spiny scales, so it is easy to imagine their evolution into the spiny pancakes they are now. However, probably the only lizards even remotely similar to *Moloch* in Australia are the Bearded Dragons (*Pogona* spp.) familiar to reptile enthusiasts, which don't look very similar to *Moloch* at all. Unlike our Horned Lizards, which represent a modest adaptive radiation of some fifteen species in North America, there is only one *Moloch*.

We eventually encountered more Thorny Devils around Uluru, and the Olgas, Kata Tjuta, another sandstone marvel 30 km from Uluru. One of these devils was much more bold than the first, and demonstrated its jerky gait and zapped ants right in front of us, after we'd picked it up to move it from the road. We couldn't understand why we found so many DOR, since they were so recognizable on the road. Australians are remarkably conservation-minded, and unlike Americans, do not seem to hold a penchant for swerving out of their way to hit wildlife, even snakes.

One afternoon, a heavy thunderstorm in the distance framed Uluru in blue-purple. Uluru changed from a washed out red to a bright pink, with a prune sky as backdrop. The rock hung on the horizon, its erosional streaks elegantly streaming down to the desert floor, which was completely flat and scattered only with Spinifex and an occasional drooping tree. Its weird pitted concavities were as expressive as a face. The rock holds great power, whether you are a hunter-gatherer living at a waterhole in its shadow, a white Western tourist to whom its spiritual pull is incomprehensible but palpable, shaking your resolve, or a scientist sobered by the immensity of time it represents. As we drove in awe of the rock, we pondered its meaning, and as we watched its famous



A Gould's Sand Goanna (*Varanus gouldii*). We encountered numerous goannas during our travels, but most were too swift to definitively identify. This is one of the more common desert species. Photograph by Crystal Kelehear.

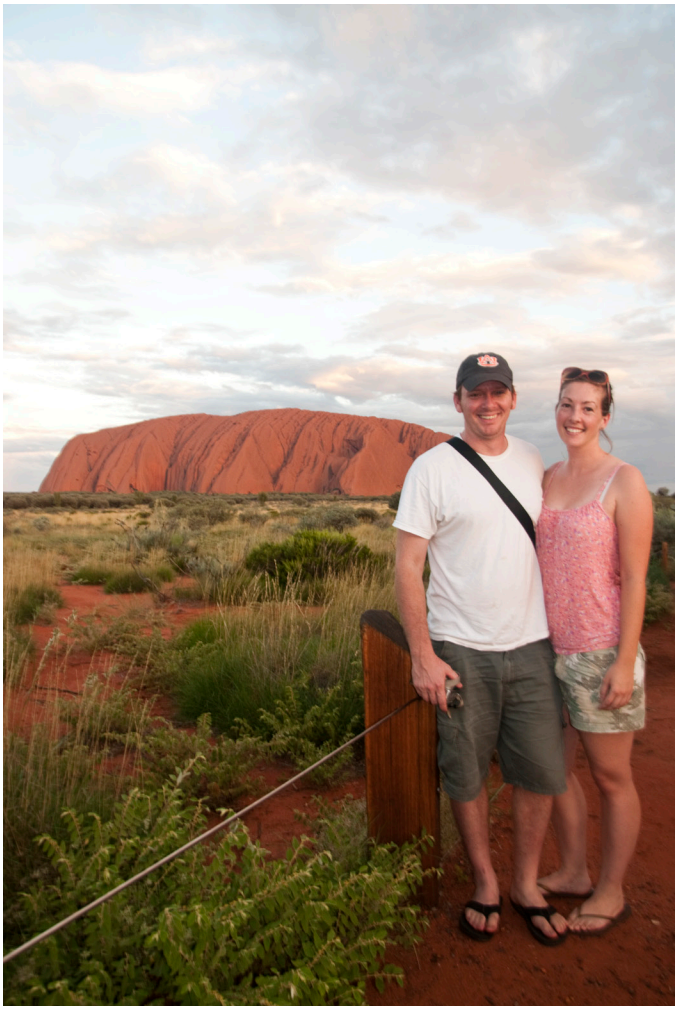
capacity to reflect minute changes of light, we didn't notice the devil in the road until it was too late. We too managed to run over a Thorny Devil.

Perentie Spring

We spent an afternoon touring around the base of Uluru, admiring ancient rock art and undertaking a closer inspection of the rock itself. The park guard had mentioned that, although it was permitted to walk to the top, you were asked by the local Aborigines not to do so, as this was considered an insult to the understandably sacred Uluru. It therefore never once crossed my mind to trespass onto their rock, mindful of all the irreverent graffiti defacing Native American sacred places. I was glad that at least here folks were still around to politely ask you not to disgrace their sacred lands. Unfortunately, Native Americans are now so outnumbered that no such thing occurs in the States. Mount Rushmore comes to mind — the sacred Black Hills of the Lakota Sioux — tattooed with four faces of their white conquerors.

I thought a better activity would be to circumnavigate the rock, which would be a much longer and harder hike, but instead we took the easy, tourist way out and simply took a short hike to Mutitjulu Waterhole at the base. We walked, brushing flies from our hair-eyes-mouth-ears-nose-face-hands, cursing them to unpleasant and sacrilegious deaths.

Thunderhead over Kata Tjuta near Uluru. Kata Tjuta is a more deeply eroded sandstone monolith divided by narrow gulleys.



After an excellent day of herping around the base of Uluru (and observing a Perentie, *Varanus giganteus*), the author and Crystal Kelehear participated in the famous sunset watch of the rock, with about two hundred other tourists and about one billion eyeball-sucking flies. A Canadian couple took this all-time best photo of us.

I won't attempt an obligatory description of the Australian desert heat, because frankly — as a Georgia native and having suffered the American Southwest — I've had it worse. However, if you've never experienced either of the above, it would be something like being a frozen pizza roll, thawed for a minute in a microwave at high power, then tossed into the oven for five minutes to make you crispy. This trick to making perfectly cooked pizza rolls works by the way.

The locals painted little swirling vortices on a rock overhang at some distant time in prehistory, a fairly appropriate indicator of a spring. The waterhole was flush with the edge of Uluru. It watered a small grove of eucalypts with a dense understory of yellow grasses, sustained untold generations of Aboriginal families, and currently, uncountable swarms of butterflies. I examined the rock up close, its sides not appearing remotely as smooth as they do in the distance, but instead rough and flaky. At the base, the rock plunged nearly perpendicular into the sand. I could see a few large flakes that

had fallen from the rock, and a few boulders were the size of trucks, with spindly eucalypts growing between their cracks. None of these had fresh edges, indicating that they had fallen off some time ago — and that's how the rock got its smooth, rounded appearance. A plate-sized flake fell off twenty thousand years ago. Then, another flake the size of a half dollar fell under the austral sun two thousand years ago. A flake here, a flake there. No flake fell as I watched for fifteen minutes, thinking this would be the ultimate treat — to observe Uluru being made. I imagine none ever would, even if I set up camp here, lived off goannas and kangaroos, drank water from the spring, had a family, and retired from hunter-gathering until I became a sun-bleached skeleton.

On my way back from the edge of Uluru I heard Crystal whistle — we kept track of each other that way — and I picked up the pace toward the sound. As I rounded a tree and saw her she pointed, exclaiming, "Shit Sean, a dirty big goanna!"

I didn't need to peer; it was exactly as she described it. The dirtiest, biggest lizard I'd ever seen. The Perentie (*Varanus giganteus*) is the largest lizard in Australia, and among the largest in the world. At over two meters, they can be ten times bigger than America's largest lizard. This individual was pushing 1.5 m in total length, a light greenish gray with brown spots, which presented a dappled appearance that somehow managed to nearly disguise the big bastard. It was probing the edge of the trail about 30 m away, swinging its alert head from side to side, holding its body well up off the ground, rather than splayed flat like more familiar squamates. A serious lizard, Perenties are large and charismatic enough that they feature prominently in Aboriginal rock art and legends, and even modern folklore, which maintains that they eat all manner of deadly Australian elapids, and not without being bitten repeatedly in the process (Cogger 1967). They are supposed to then consume plants as an antidote to the powerful venoms, or as one legend has it, they drink from healing springs. The literature indicates they eat more harmless prey, mostly smaller lizards, including smaller goannas (Losos and Greene 1988). However, one record documents a Perentie eating a King Brown Snake (*Pseudechis australis*; Pianka et al. 2004).

The Perentie appeared as large as many of the 'gators I've seen, and only the last trace of civilized restraint kept me from storming over and trying to tackle it. Two things held me

Aboriginal rock paintings at the Mutitjulu Waterhole at the base of Uluru. These spirals are thought to indicate the presence of a spring.

Sandstone landscape and pool at King's Canyon National Park. Photograph by Crystal Kelehear.

back — I was already in a reverent mood, and did not wish to be thrown into jail for attacking Australian wildlife at one of her most popular and well-patrolled national parks — and I thought the lizard could take me. Instead, as it lumbered off the trail into thick grass and shrubs, we walked hurriedly up the trail to flank it. A bridge crossed a small rivulet from the spring and we assumed the goanna would be going across it or going to drink from it. We waited, cameras ready, hoping and listening to its slow, snakelike whispering through the grass.

Finally, tongue first, it appeared, parting the tawny straw with its head and neck. Its tongue was pink and about a foot long, and shot out and back so fast that you'd miss it if you blinked. The eyes were keen, with a look that — although it's thoroughly unscientific to say it — obviously indicates something is going on upstairs. I fumbled with my camera, but of course the scene was too three-dimensional and confusing, too camouflaged and busy for my camera to find or focus on the lizard as it quickly continued across the creek — and then it was gone. I had enough of a look at it to note the attractive chainlike pattern along its fluttering, birdlike throat. Somehow the giant lizard vanished into the grassy oasis as if it had been a tiny brown skink diving into leaf litter.

Gobs of Geckos

We took advantage of the very laid back camping options of the Outback, where, in stark contrast with the U.S., camping is available nearly everywhere. At a small turnoff on the Lasseter Highway, within spitting distance of Uluru and its crowded resort area, a sign read: *Camping Permitted*. They actually had signs that told you where you *could* camp, and we never saw one that said *Camping Prohibited*, or a camping area with a list of fine-print rules and regulations like you'd expect in a U.S. National Park. At Katherine Gorge a few nights previous, we arrived late — we were road cruising and had found a 3-meter Olive Python (*Liasis olivaceus*), two Children's Pythons (*Antaresia childreni*), and a Black-headed Python (*Aspidites melanocephalus*), so we hadn't paid and didn't have our papers in order by morning. Expecting to be hassled by a park ranger (in the U.S., he'd be wearing dark aviators and a sidearm, have a Doberman for back-up, and speak into his radio, "I have a suspicious individual, and said particular individual in question does not have permit, repeat, no permit."), instead in the morning I awoke to a pleasant, whispering, and nearly musical, "*Ranger. Raaaaangaaaah.*" It was as if my mother was waking me up, rather than this extremely friendly and entirely un-frightening park official. I paid our camp fee, and that was it. No hassle for the sake of confirming his authority. The Stuart Highway is dotted with occasional roadhouses, which provide gasoline, food (we were living off "pies," which are basically pot pies, and are delicious), and Spartan accommodations. The best thing about roadhouses is that they are owned and operated by people — often farmers — rather than multinational corporations. Although this limits your options to stopping either at this roadhouse, or the one 180 km down the road, I appreciate the fact that you are supporting nice folks, and not evil ones. The Curtain Springs roadhouse near Uluru included a free camping area with toilets and showers. The only "person" that hassled us at this campground was a semi-tame but ornery Emu.

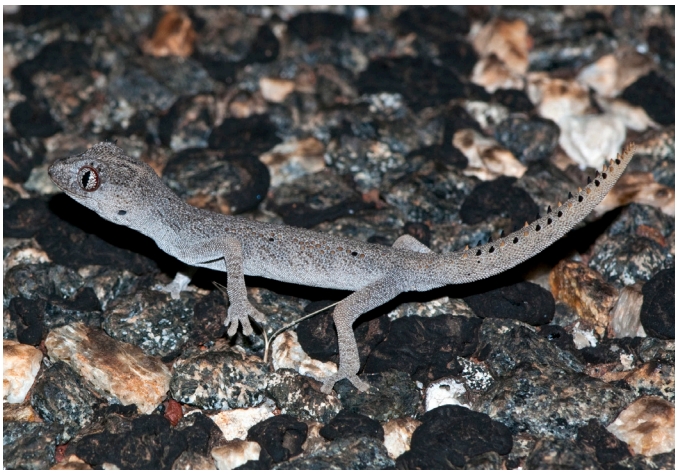
We found this excellent pink Blindsnake (*Ramphotyphlops endoterus*) while road cruising on the Lasseter Highway on the way back from Uluru. The identification was the best we could come up with using a field guide; more time, patience, and a dissecting scope would be required for keying it out with certainty. Photograph by Crystal Kelehear.

In the desert, we strategically planned our long drives to take place at night so that we could road cruise from our daytime destination to our camping area. We had excellent luck. On our first night coming back from our successful Thorny Devil quest, we found some dozen species of nocturnal pygopodids, geckos, and snakes. This included my first blind snake — a shiny pink *Ramphotyphlops endoterus*, as near as I could tell. Keying out blindsnakes is an exercise in ridiculosity and subjectivity, and utterly hopeless unless you're in the basement of a museum, with a sixty-thousand dollar dissection microscope, familiarity with discriminate function statistics, reference specimens available, and a keen imagination. To make things worse, we had a live specimen (try counting the scale rows when it's doing death rolls and doesn't have enlarged ventral scales), no magnification, and only a field guide. My favorite key feature — which helps narrow your identification down from 44 possible, but otherwise identical species, to 41 — is the shape of the snout. Well, there is no snout, just a rounded (or bilobed, or trilobed, or angular, or moderately bilobed, or sort-of angular-trilobed) spot immediately anterior to the tiny dots that are this unlucky snake's eyes. In any case, diagrams of the snout shape and their descriptions are absolutely subjective and arbitrary and useless as field characters. I'd decided it had a very obviously rounded snout until I read that no such snake occurred within

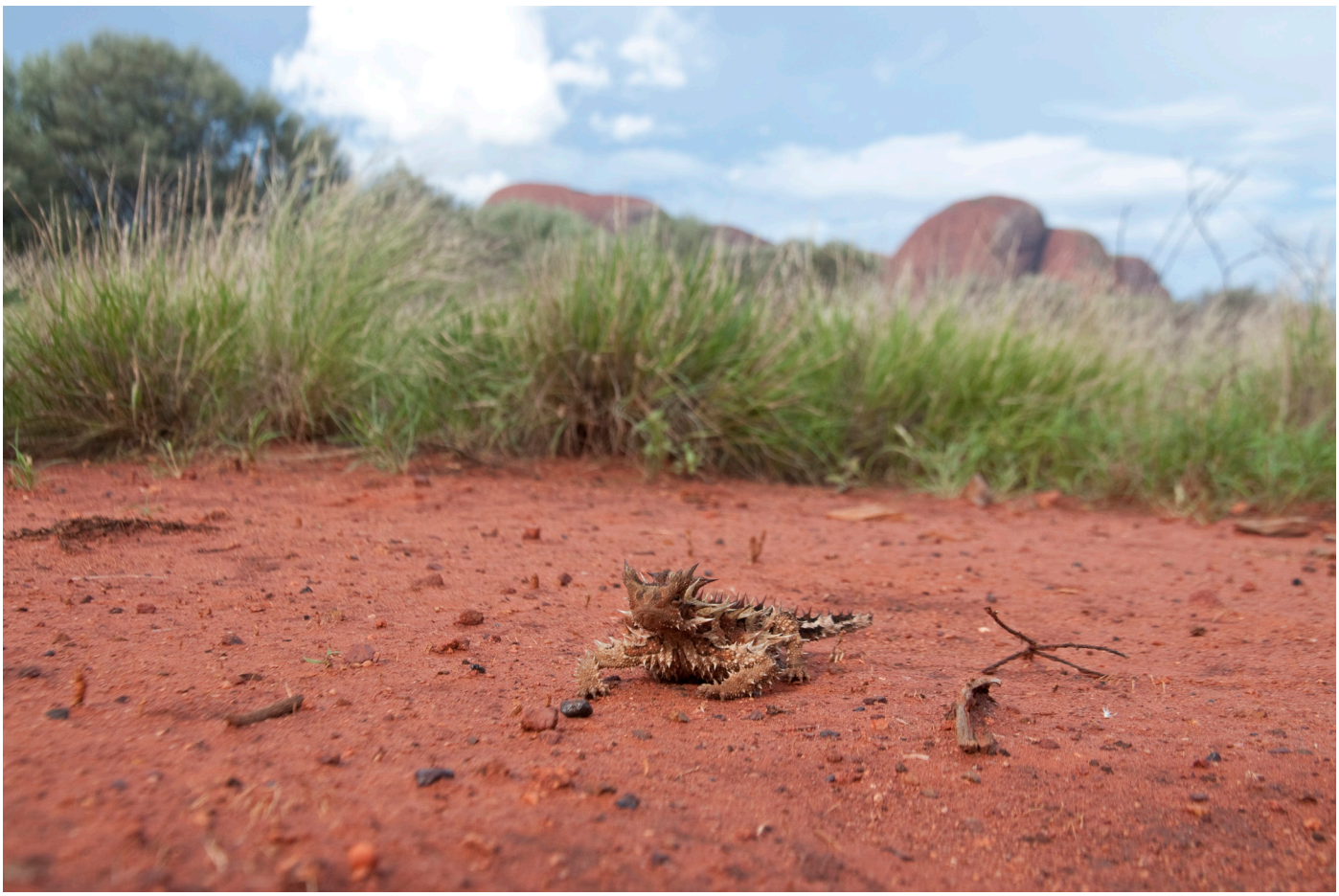
1,000 km of our location. I then concluded that, of course, the snout was utterly and positively angular.

However, in the deserts of Australia, geckos own the night. Like many groups of Australian vertebrates, the geckos simultaneously reflect ancient and more recent biogeographic trends. Australia features an endemic gecko family, the Diplodactylidae, which is ancient and presumably Gondwanan in origin (Pianka and Vitt 2003). They are similar in appearance to American eublepharid geckos (they have eyelids), but are not really that closely related. Australia also has gekkonids, which are more recent arrivals from Oceania, and are distributed mostly in the northern two-thirds of the continent (Wilson and Swan 2003). These are the familiar wall-climbing, eyelid-less geckos, which in Australia include several endemic species of *Gehyra* and a few endemic genera. Several other vertebrates reflect similar ancient dispersal patterns. Elapids and pythons are ancient radiations, whereas colubrids are recent arrivals in the north. Myobatrachids and lymnodynastids are bizarre Gondwanan endemic frogs. Microhylids and one ranid are restricted to the tropical north, and have clear Asian affinities (Tyler and Knight 2009).

I was floored by the diversity and number of geckos we found on the road at night. During the day, the great inadequacy of the American desert lizard fauna compared to Australia's — as pointed out long ago and pondered in greater depth by Eric Pianka (1986) — is not that overwhelmingly obvious. Yes, giant, apex predator lizards occur in Australia. That's a pretty big difference, but then all of our giant apex predator lizards have fur and we call them



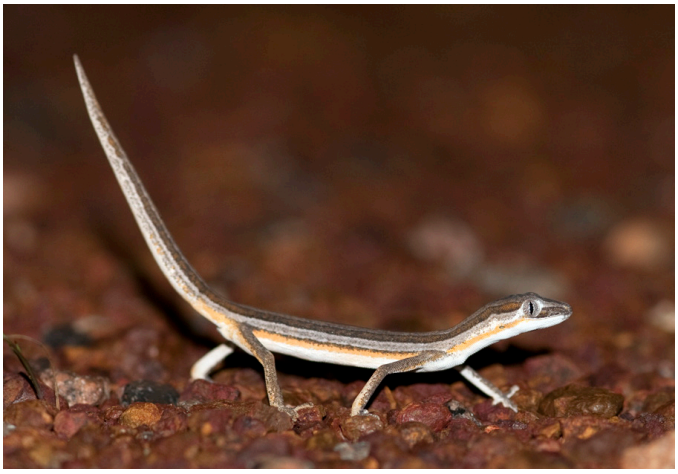
Northern Spiny-Tailed Geckos (*Strophurus ciliarus*) were the most abundant and widely distributed geckos we encountered while road cruising. Photograph by Crystal Kelehear.



A Thorny Devil (*Moloch horrius*) with Spinifex desert and the Olgas in the background. Photograph by Crystal Kelehear.

foxes or pumas. Other than that, fast active insect eaters (*Ctenotus* for *Aspidoscelis*) and comparable little ambush dragons (*Ctenophorus* for *Uta*) occur in both places. Pianka (1986) would rightly point out that I'm glossing over buckets of Australian skinks and many other lizards, but to a casual observer it's not that different. The nocturnal fauna is, for my money, where the Australian lizard fauna truly towers over America's. On a desert night in the American Southwest, you might see a few individuals of a single gecko species slowly crawling or scuttling across the road with their tails raised over their heads in excellent mimicry of a scorpion. In Australia, you can see handfuls of twelve different species in two families doing much the same thing.

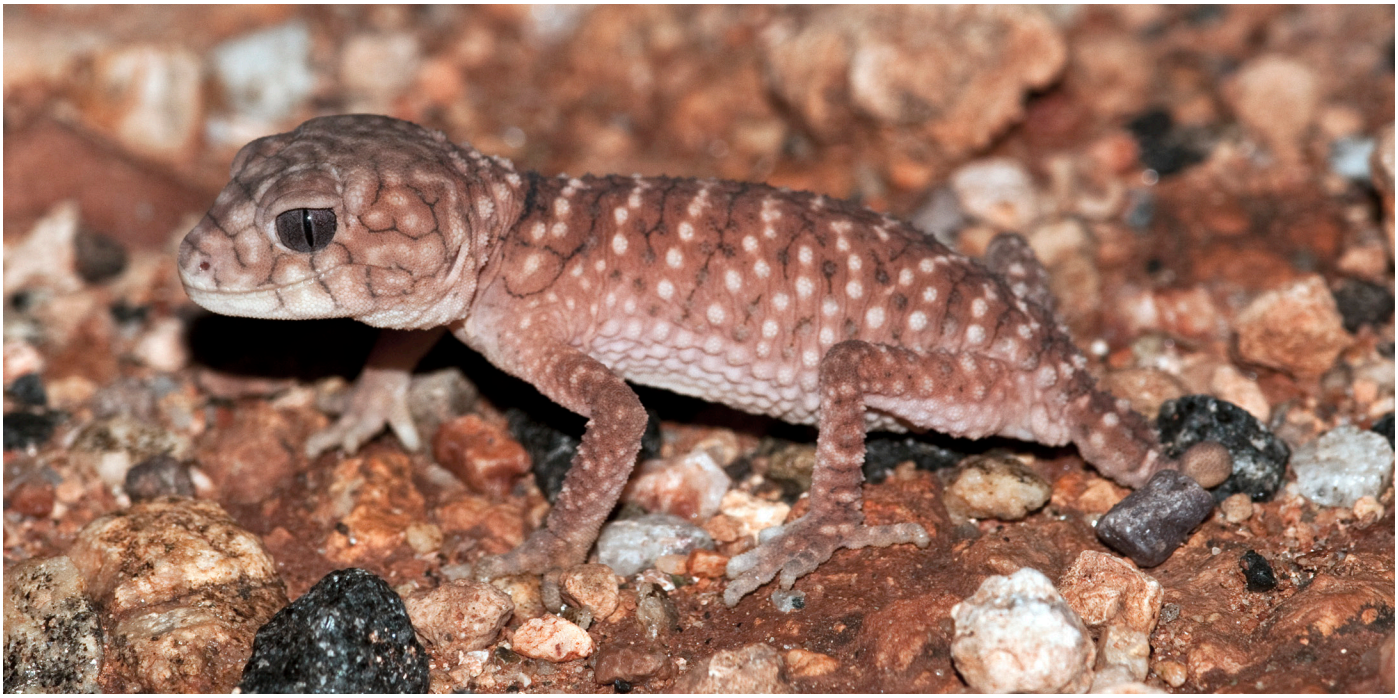
We found Marbled Velvet Geckos (*Oedura marmorata*) along the rock scree of Simpson's Gap near Alice Springs. These geckos are scansorial, unlike many of the terrestrial geckos we found during our road cruising.



The gait of nocturnal "Striped Tail-squirters" (*Strophurus jeanae*) is not unlike that of a walking stick. Also, like North America's Banded Geckos (*Coleonyx* spp.), it walks with its tail arched high, perhaps to mimic a scorpion. Photograph by Crystal Kelehear.

The bizarre *Strophurus jeanae*, a *striped* gecko, is long-legged and neon-pastel colored as though intending to give credence to reptilian cartoon characters from the 1980s. We found several of these spindly geckos crossing roads south of Tennant Creek on the night of our first frog bonanza. They carry themselves much like the *Coleonyx* geckos of the south-

Beaded Geckos (*Lucasium damaeum*) are very similar in appearance to North America's Banded Geckos (*Coleonyx* spp.), but are not very closely related. Also, this gecko shares the Australian deserts with dozens of species of geckos, unlike the situation in North American deserts, where you very rarely find more than one species in an area.

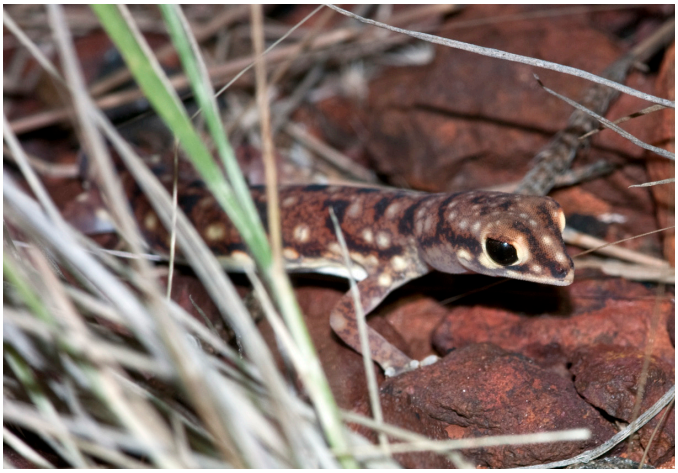


The Centralian Knob-tailed Gecko (*Nephurus amyae*). Note the knob at the end of the pathetically short tail. The author will give five dollars to anyone who can identify the adaptive significance of this funny-shaped tail. Photograph by Crystal Kelehear.

western U.S., with their tails arched high over their backs, although they are built more like a walking stick than a gecko. They have bright yellow mouths and they don't mind showing them off, which probably terrifies neurotic predators. If that doesn't work, the squeaking might, and finally, if that's not enough, intrepid *Phascogale*, you must face the stink. These geckos emit an orange goo from the cloaca, much the same consistency and chemical hairspray-smell as the alarm secretions of millipedes. Like those secretions, and the chemical defenses of bombardier beetles, the fluid stained my skin for days. This interesting little gecko apparently lacks a common name, and I found that Tail-squirter is an inclusive name for the *Strophurus* geckos. I find this an exceptionally good idea, and suggest the name "Striped Tail-squirter," rather than the obscene "Jean's Tail-squirter," for this species.

The ghostlike *Strophurus ciliarus* is no less bizarre than *S. jeanae*, but a bit more familiar since they are much more common (we saw dozens of all sizes all over the desert and even one in the tropical north) and are often featured in reptile magazines and other periodicals of dubious repute. *Strophurus ciliarus* is essentially a white gecko, and appears even more so when caught in headlights on a black road at night. The spiny black scales atop the eyes and along the tail, along with the red eyeliner, give it a comically sinister appearance, like a teenager trying to dress shockingly Goth, but winding up looking like a clown in drag.

"Funny-tailed geckos" is a collective name one might give to all the geckos with some sort of strangely-shaped tail. These include leaf-tailed geckos, knob-tailed geckos, dining set-tailed geckos, Steve Buscemi-tailed geckos, fat-tailed geckos, and flat-tailed geckos. What all these tails do for the lizards is anybody's guess. Assuming that they serve only for fat storage, why the diversity of shapes and forms? Also, if that were the case, the knob-tailed geckos must truly store their fat elsewhere. The Fat-tailed Gecko (*Diplodactylus conspicillatus*) apparently scurries down trapdoor spider holes (Pianka and Pianka 1976) and perhaps uses the tail to form a protective plug during the day. With the exception of living with trapdoor spiders, this makes sense to me, and other equally adaptive explanations might explain each bizarre tail. We saw several examples of



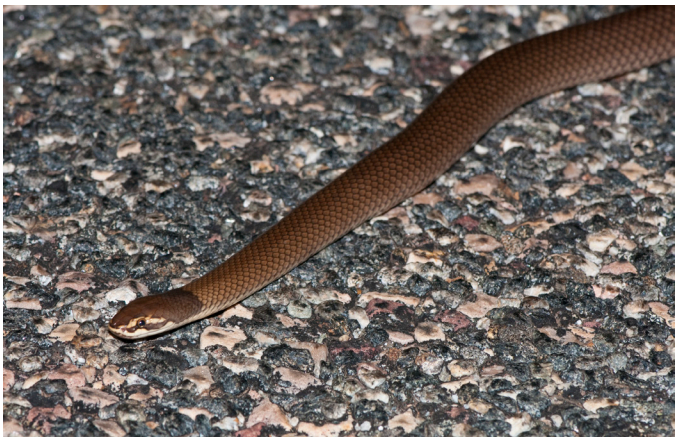
Beaked Geckos (*Rhynchoedura ornata*) have a pointy, beak-like snout, perhaps for spearing termites, their preferred prey (Pianka 1976). Photograph by Crystal Kelehear.

these attractive and charming geckos, always walking upright and slowly. Occasionally, we'd see a nice fat one, which after our U-turn would be gone. They can be fast.

The very best gecko was our last, on our final night before returning to Darwin. Crystal had been saying for weeks that she really wanted to see a Knob-tailed Gecko (or "knobbie"; Aussies give everything an affectionate, if condescending, diminutive nickname — or a "nickie"). We had seen almost everything we wanted to see, and a lot more than we bargained for, but we still hadn't seen a knobbie. Driving along the Larapinta Drive west of Alice Springs, in a valley at the foot of the decidedly Old-West McDonnell Ranges, we had seen a decent assortment of herps — Myall Snakes (*Suta suta*), various burrowing frogs (*Platyplectrum ciliarus*) — and we were about to throw in the towel and head to Alice for "mackers" (McDonald's) and a hotel. Suddenly in the road was a large-headed creature with no apparent tail, and privately in our heads we had already identified it from the moving car as a knobbie. It was one of those rare and satisfying moments in herpetology when you go out looking for something very specific — and in this case with zero expertise or intel — and find exactly what you're looking for. In fact, we had struck out where folks and field guides had told us to look — near rocky talus, but here it was in the middle of the highway. These are the moments that make it impossible to imagine not being a herpetologist. Now we just had to catch the thing.

I was stopping the car as fast as possible, and out of the corner of my eye I could see that this ponderous lizard could move. It skittered off the road as deftly and in much the same manner as a mouse, and I followed it with my headlamp, careful not to lose track. I took my foot off the clutch while still in gear, and the RAV4 lurched and stalled. I glanced at Crystal, who shot me a scornful look. I had done this dozens of times already, but I didn't want to take my headlight beam off the clump of Spinifex into which the lizard appeared to have ducked. I didn't even wait to see if a four-container road train was heading down the highway toward us. I raced over to the clump and shoved my hands into the Spinifex (it pokes, but it's not as bad as you've heard), rooting for my quarry, bringing my A'est of A games — and then there it was, the big-headed beauty, *Nephrurus amyae*. I presented it to Crystal, smiling wide, like it was some sort of nuptial gift.

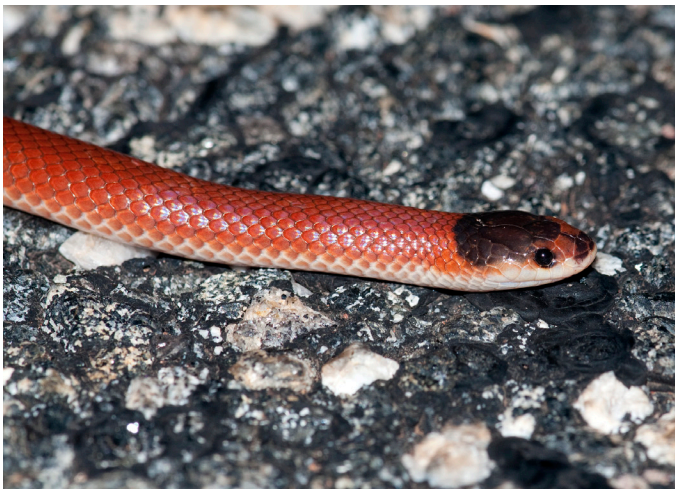
It was the size and shape of a small Horned Lizard, a washed out pink-brown-orange, and had big Martian eyes.



The Myall Snake (*Suta suta*). We found a handful of these elapids during our night near Alice Springs. Most Australian elapids are difficult to photograph safely, since all wriggle restlessly while trying to avoid observers, and many lunge laterally and unpredictably, which is probably an attempt to dodge and outflank their pursuers. Photograph by Crystal Kelehear.

Fat-tailed Geckos (*Diplodactylus conspicillatus*) occupy the burrows of trapdoor spiders, and use their spoon-shaped tails to plug the openings. Australian diplodactylid geckos have evolved a bewildering array of funny tail shapes, and the adaptive significance of most begs further study.

The tail was pathetic, absolutely puny, and ended in a tiny *Ankylosaurus*–like club. Utterly useless for defense, the knob rotated subtly, and I suppose it was intended to have been a shitty consolation for whatever critter tried to snack on the knobbie and ended up with only its tail. This knobbie was bitey, and I couldn't resist allowing it to attach to my earlobe, and it eagerly and painfully obliged.

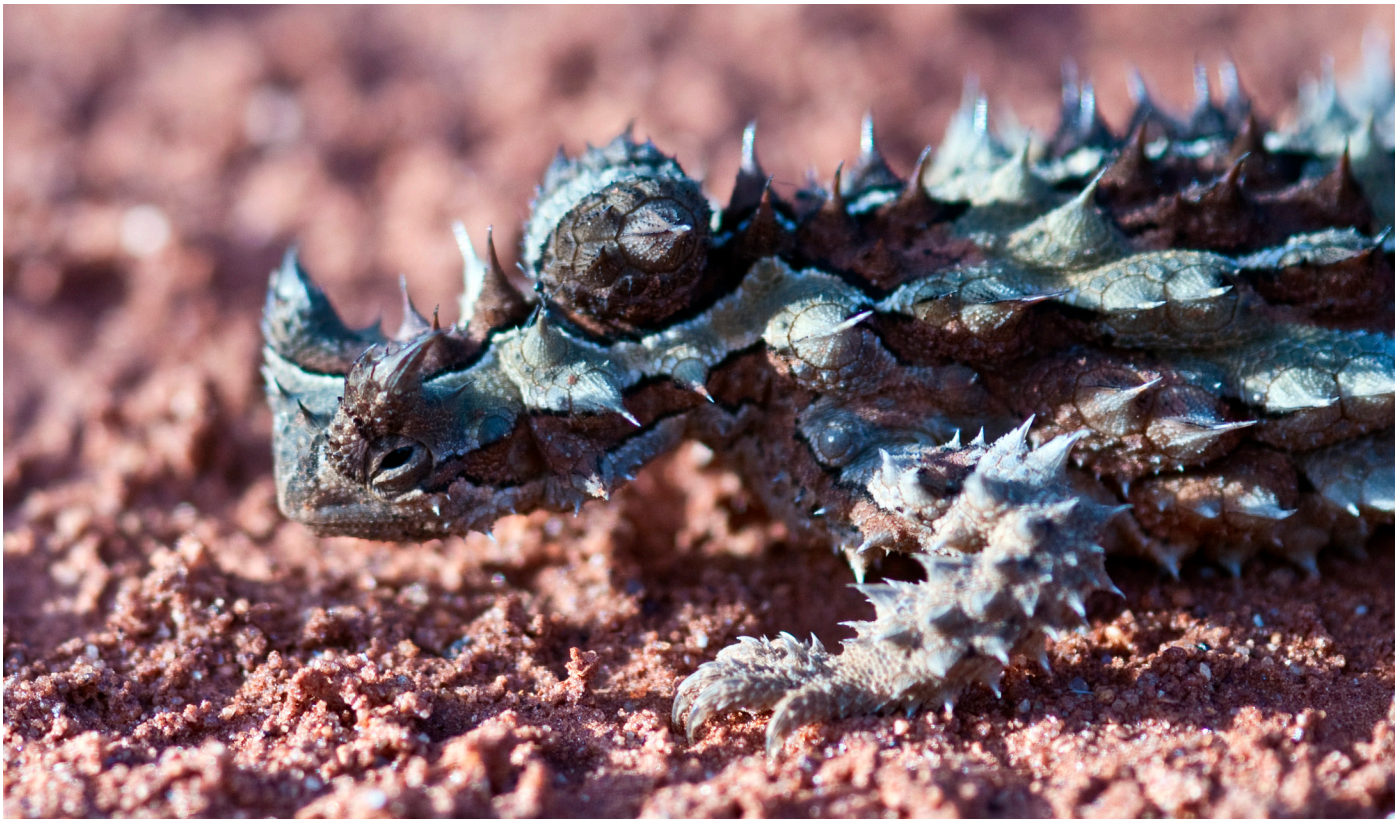


The Monk Snake (*Parasuta monachus*). We encountered a few of these elapids on highways at night. These snakes are adept sidewinders, and used this form of locomotion to move away from us when we prodded them off the road. Photograph by Crystal Kelehear.

Oasis

Australia wasn't always a desert continent. The lush rainforests along its north and eastern coasts — monsoonal, tropical, and temperate — once covered nearly the entire expanse from west to east coast, New Guinea to Tasmania (Vandenbeld 1988, Adam 1992). Evidence for this comes from the disjunct distribution of certain species, such as Scrub Birds (*Atrichornis* spp.), certain plants, and certain limnodynastid frogs, which are found only in tiny pockets of wetter regions along the eastern coast and Western Australia, and none of which are very proficient fliers. Presumably, they and their habitat once had a contiguous distribution. Also, fossils of wet forest species are scattered across the interior (Vandenbeld 1988, Adam 1992). Finally, remnant pockets of freshwater fish and forests in lush oases occur in the few places with water in the heart of the blazing Outback. Principal among these is the Alice Springs region, with its flowing rivers, springs, nooks, and crannies. Examine range maps of Australian vertebrates and you'll see tiny dots in the area around Alice for various fish, reptiles, and amphibians, here separated from their nearest neighbors or relatives by thousands of kilometers. Presumably, once they were much closer when the climate was much wetter. I don't mean to disparage the way it is now, but Australia must have been a spectacular place back then.

We found a few of these relicts on our explorations around Alice Springs. We found a Carpet Python DOR while speeding toward the turnoff to the Lasseter Highway just



A Thorny Devil (*Moloch horridus*). Photograph by Crystal Kelehear.

south of town. It had been until very recently an attractive tan snake with large brown blotches, a pattern that at some point in the past was *en vogue* for carpets. According to our field guide (Wilson and Swan 2003), this is a distinct variety of the widespread *Morelia spilota* (*M. s. bredli*), which is found throughout the outer coastal region of Australia but is absent from most of the interior. A dot on the distribution map, however, graces the area surrounding Alice. A cursory glance at the unique varieties of Carpet Pythons found in Australia would convince any American that a taxonomic revision is in order. The Diamond Python of the south is very different from the Carpet Python of the north, and the Cape York version can be a brilliant yellow and black. I find while I've written this that Wikipedia now considers the Centralian Carpet Python a separate species (*Morelia bredli*), which, although dubious, is surely a better authority than the biological species concept. Kudos to the Aussies for getting along with the splitting (Rawlings et al. 2008). Whether considered separate species or several subspecies, the taxonomy has no effect on our biogeographic story. What is clear is that Carpet Pythons are not strict desert dwellers nor do they fly, and therefore Carpet Pythons did not migrate to the Alice Springs area, they *survived* there, whereas everywhere else they retreated as the deserts expanded. The fact that they are morphologically distinct underscores how long the Centralian Carpet Pythons have been stranded.

Likewise, we located frogs here that we did not find near Darwin or during our drive south of Tennant Creek, including one species found nowhere else in Australia. We walked a quaint, tree-lined trail alongside Roe Creek, where it cuts through Simpson's Gap in West McDonnell National Park, and as soon as it got dark, little frogs were everywhere. We found dozens of small Spencer's Burrowing Frogs (*Platyplectrum spenceri*), which seemingly appeared from nowhere along the sandy floodplain. In fact, they were emerging right out of the sand, and even out of the loose scree of the steep canyon walls. We found Main's Frog (*Cyclorana maini*), a smaller central Australian version of the Giant Frogs we had found farther north. And finally, we found the little ancient

Kings Canyon National Park, which features sandstone landscapes that were more familiar to my American sensibilities, such as deeply incised canyons and red hoodoos.

An oasis at Kings Canyon National Park; watered ravines like this are the home of ancient relicts such as species of palms, cycads, and Centralian Tree Frogs (*Litoria gilleni*).

Roe Creek at Simpson's Gap west of Alice Springs. The area around Alice Springs has numerous permanent sources of water, and therefore supports relicts of Australia's once more widespread ancient rainforests. At night, the sandbars in the foreground were dotted with the peaking heads of Spencer's Burrowing Frogs (*Platyplectrum spenceri*).

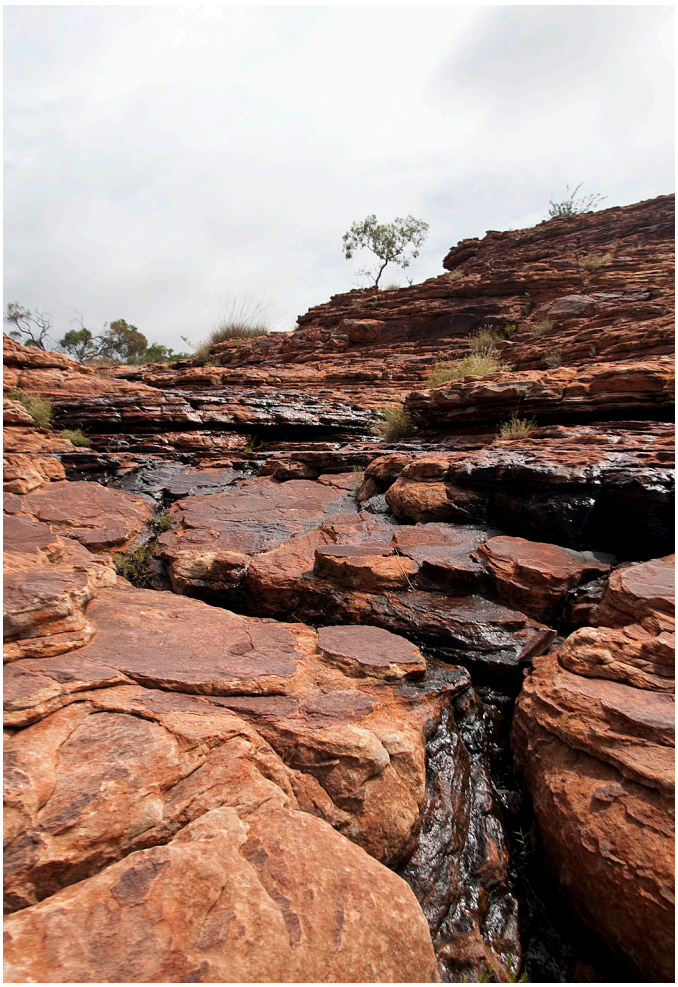
survivor we came to see. At the very base of the rocks where the canyon gap met the creek, we found *Litoria gilleni*, the Centralian Treefrog, which to us did not appear that different from the Green Treefrogs (*L. caerulea*) — their close relatives — of the north and east. However, *L. gilleni* has diverged quite a lot from the more common *L. caerulea* (Tyler and Knight 2009, Pyron et al. 2011), and it's no wonder why: these waxy green treefrogs have been stuck out here in the desert, literally clinging to existence in this oasis since the last time all of Australia was draped in forest.

Enter the Dragon

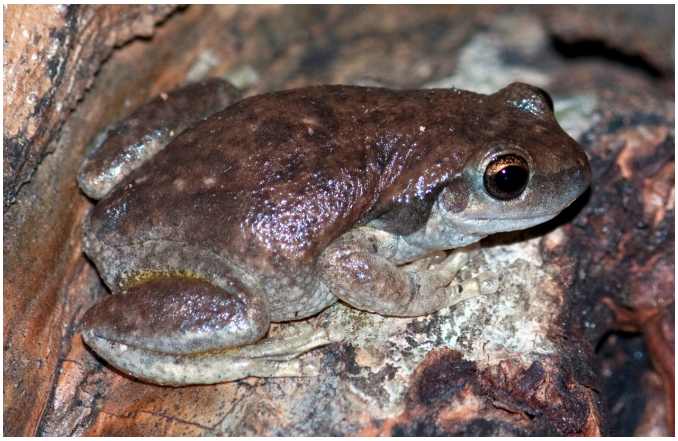
To complete the 5,000-km round trip from Darwin to Uluru, we had to head back to Darwin, and I thought a fitting completion to this story would be to relay to you, quite proudly, the last critter I saw on my Australia trip. Crystal suggested we make a detour before heading back to her house, to Litchfield National Park, where we saw termite mounds as tall as Giraffes and spectacular tropical waterfalls, but not many herps. A few days later, after wrapping up our research, we scoured city parks in downtown Darwin of all places for one of the most distinctive reptiles in all of Australia. Yes, the Frilled Dragon (*Chlamydosaurus kingii*), the little dinosaur that erects a fantastic umbrella 'round its face when threatened. And, let me clear this up once and for all, the *Jurassic Park* creators ripped off the lizard and it's not the other way around. I simply go nuts when people say, "Like the dinosaur from *Jurassic Park*?"

Well, by the end of a long afternoon, things weren't going well. I had assumed I'd see a Frilled Dragon early on during my stay in the Darwin area, since they aren't supposed to be particularly uncommon in the Top End during the wet season. I had even found some kites snacking on a road-killed frillie carcass along Anzac Parade (not the one in Sydney) near Crystal's house.

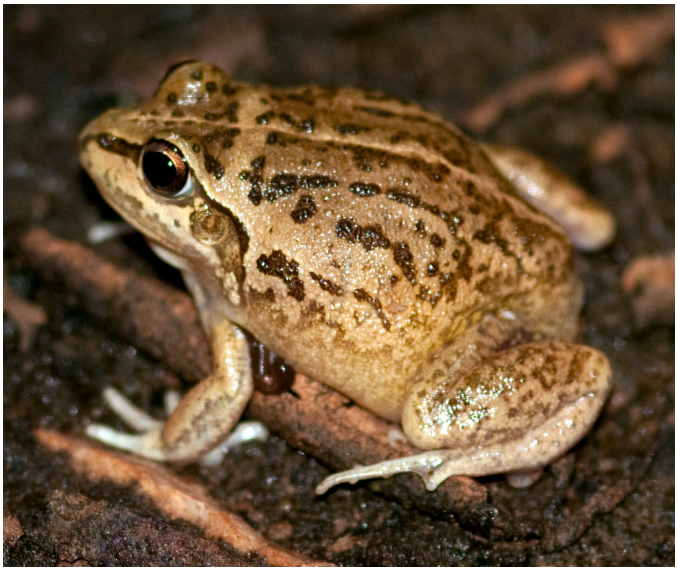
We were trying not to look like total idiots as we peeled our eyes to their maximum extent, trying to spot a frillie clinging to the bark of trees in city parks where folks were



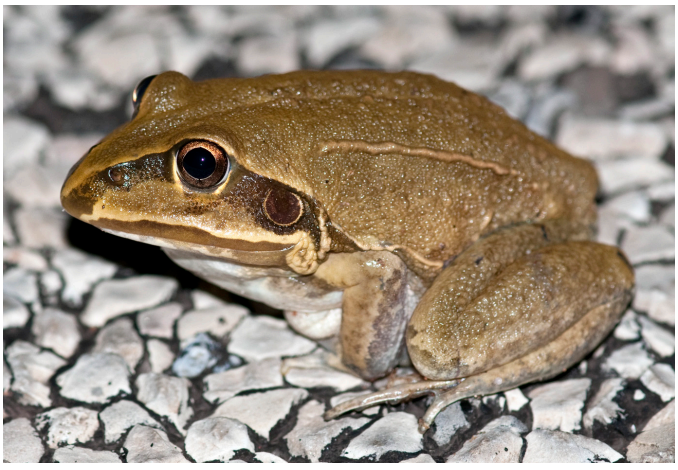
King's Canyon National Park. Photograph by Crystal Kelehear.



The Red Treefrog (*Litoria rubella*). Photograph by Crystal Kelehear.

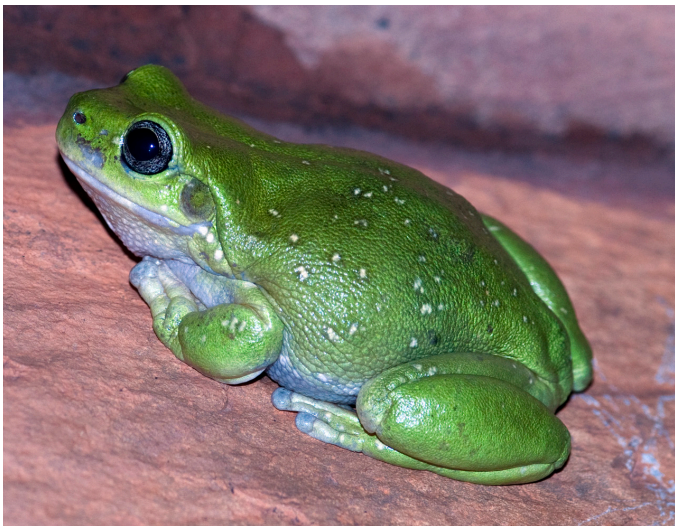


Main's Frogs (*Cyclorana maini*), interior desert-dwelling burrowing frogs, actually are hylids that are closely related to the Australian treefrogs in the genus *Litoria*. Photograph by Crystal Kelehear.



The Giant Burrowing Frog (*Cyclorana australis*). Recent molecular evidence suggests that these burrowing frogs are nested within the Australian Treefrog (*Litoria* spp.) radiation. If this is the case, then these closely related Australian hylids exhibit a remarkable range of body forms, ranging from slender treefrogs to fat burrowers. Photograph by Crystal Kelehear.

running, picnicking, or in some cases, lounging in the long grass. Still, no frillie. I had all but given up hope. I had only a sighting of the gorgeous Red-headed Honeyeater (a flying reptile) to console me. After all, in the two months I had stayed in Australia, I had seen close to one hundred species



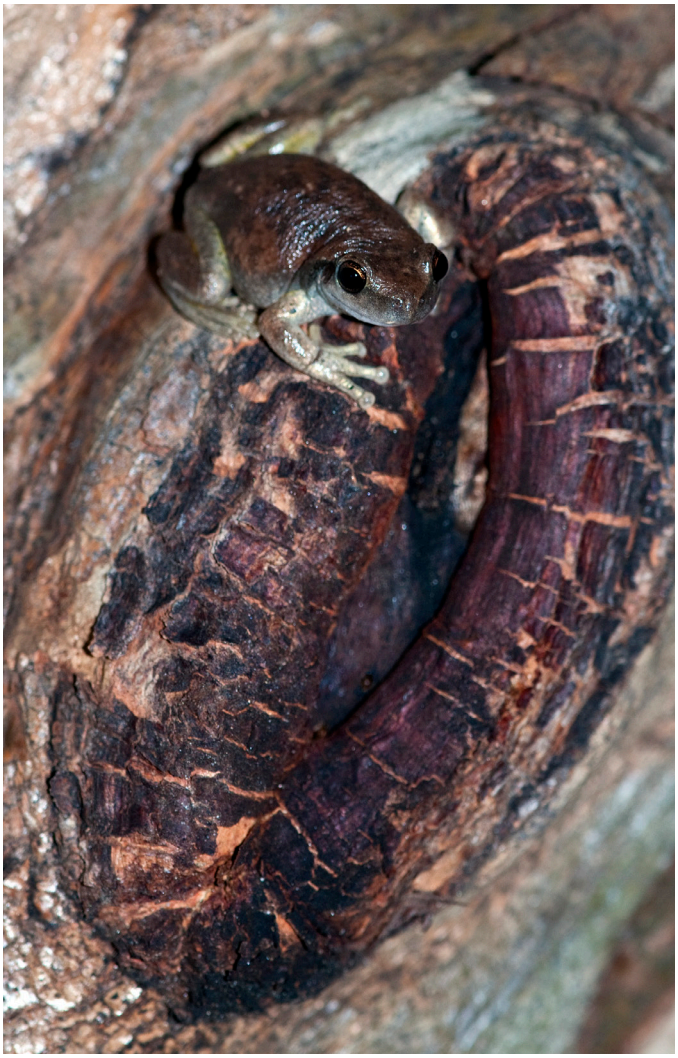
Centralian Treefrogs (*Litoria gilleni*) are oasis dwellers closely related to the common Green Treefrog (= White's Treefrog, *Litoria caerulea*) familiar to pet owners. We encountered a few of these on the canyon wall at Simpson's Gap. Photograph by Crystal Kelehear.

We found this Black-headed Python (*Aspidites melanocephalus*) alive on the Stuart Highway on our return journey, near where the habitat began to revert to a subtropical aspect. This species was on the top of my trip wish list, and this individual made quite a show of anti-predatory behavior when we ushered it off the highway, enthusiastically lunging and hissing at us.

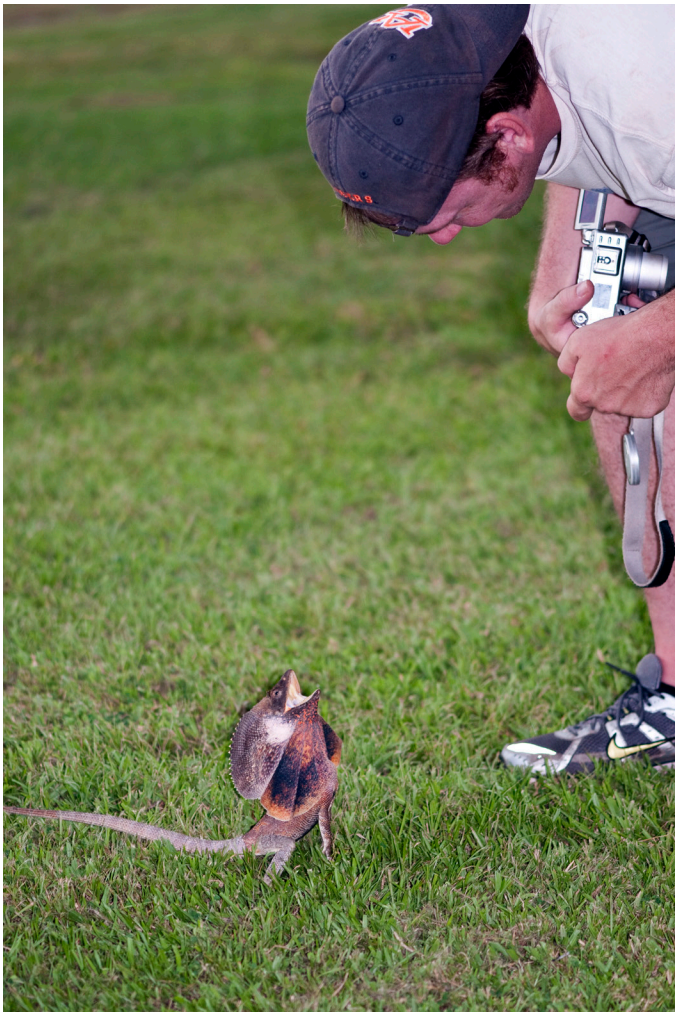
of amphibians and reptiles, and wasn't that enough? I'd seen scores of species I hadn't even known existed, and nearly every one of the species that secretly made up my wish list: Black-headed Pythons, Death Adders (*Acanthopis praelongus*), Brown Snakes (*Pseudechis nuchalis*), Thorny Devils. I didn't need to see *every* iconic Australian species to clinch the perfect herpetological adventure, and the Frilled Dragon *wouldn't necessarily* be the ultimate crescendo to such an adventure. Anyway, the sun was setting, so we gave up and headed out of East Point Park.

"Awesome! There's a frillie!" Crystal said, in an almost apologetic tone.

I glanced through the window and saw it — right on the grassy shoulder, right next to the road, right next to my face, and it looked like a very large Bearded Dragon with a huge scaly mullet hairdo swept back on its neck. Well it was about to dash into the road so I had better go rescue it!



The Red Treefrog (*Litoria rubella*), also known as the Desert Treefrog, is probably the most widely distributed and adaptable treefrog in Australia. We found them throughout the tropical north as well as nearly every desert destination we visited. Their tadpoles occupied waterholes at the base of Uluru. Photograph by Crystal Kelehear.



A Frilled Dragon (*Chlamydosaurus kingii*) getting ready to attack me. Photograph by Crystal Kelehear.

By the time she got the car stopped and pulled over, I looked back to the spot where it had been and it had vanished. Split seconds counted here. I honestly didn't panic — I didn't think, my training just kicked in. I simply acted. Quickly, and unthinking, my eyes darted to the nearest tree — probably unconsciously my brain detected its imperceptible tracks through the grass — and *there*! I saw the frillie's face, surreptitiously and very deviously hugging the tree about two meters up, monitoring my movements. I approached, and he quickly disappeared around to the other side. I screened my movements with the tree, and wondered how fast these guys were. I was sure I only had one chance, if I hadn't blown it already. If they were as fast as the other arboreal Dragons in the genus *Amphibolurus*, it was going to be tough. I was about zero of eleven with *Amphibolurus*. I side-stepped around the tree, saw him perched, looking over his shoulder, hesitated for a nanosecond, and simply grabbed it — then I was ten years old, my hands were shaking, and I didn't stop grinning for six hours.

The Frilled Dragon is in my mind the world's coolest lizard. It's inarguable. They are big, they are bold, they are beau-

Table. List of amphibian and reptile species encountered during my trip from Darwin to Uluru, 15–21 March 2011.

Katherine Gorge National Park
Green Tree Frog (*Litoria caerulea*)
Peter's Frog (*L. inermis*)
Rocket Frog (*L. nasuta*)
Red Tree Frog (*L. rubella*)
Ornate Burrowing Frog (*Platyplectrum ornatum*)
Cane Toad (*Rhinella marina*)
Rainbow Skink (*Carlia* sp.)
Shining Skink (*Cryptoblepharus* sp.)
Dtella (*Gehyra nana*)
Green Tree Snake (*Dendrelaphis punctulata*)
Brown Tree Snake (*Boiga irregularis*)

Environs of Katherine
Yellow-spotted Goanna (*Varanus panoptes*)
Black-headed Python (*Aspidites melanocephalus*)
Olive Python (*Liasis olivaceus*)
Children's Python (*Antaresia childreni*)
Keelback (*Tropidonophis mairii*)

Stuart Highway, Elliott to Devil's Marbles
Giant Frog (*Cyclorana australis*)
Main's Frog (*C. maini*?)
Northern Burrowing Frog (*Neobatrachus aquilonius*)
Desert Spadefoot (*Notaden nichollsi*)
Scaly-foot (*Delma nasuta*)
Western Hooded Scaly-foot (*Pygopus nigriceps*)
Burton's Snake-lizard (*Lialis burtonis*)
Tail-squirter (*Strophurus jeanae*)
Northern Spiny-tailed Gecko (*S. ciliarus*)
Centralian Blue-tongued Skink (*Tiliqua multifasciata*)
Gould's Sand Goanna (*Varanus gouldii*)
Black-headed Goanna (*V. tristis*)

Stuart Highway, Devil's Marbles to Alice Springs
Dragon (*Diporiphora lalliae*)
Centralian Bearded Dragon (*Pogona vitticeps*)
Comb-bearing Dragon (*Ctenophorus* sp.)
Centralian Blue-tongued Skink (*Tiliqua multifasciata*)
Gould's Sand Goanna (*Varanus gouldii*)
Stimson's Python (*Antaresia stimsoni*)

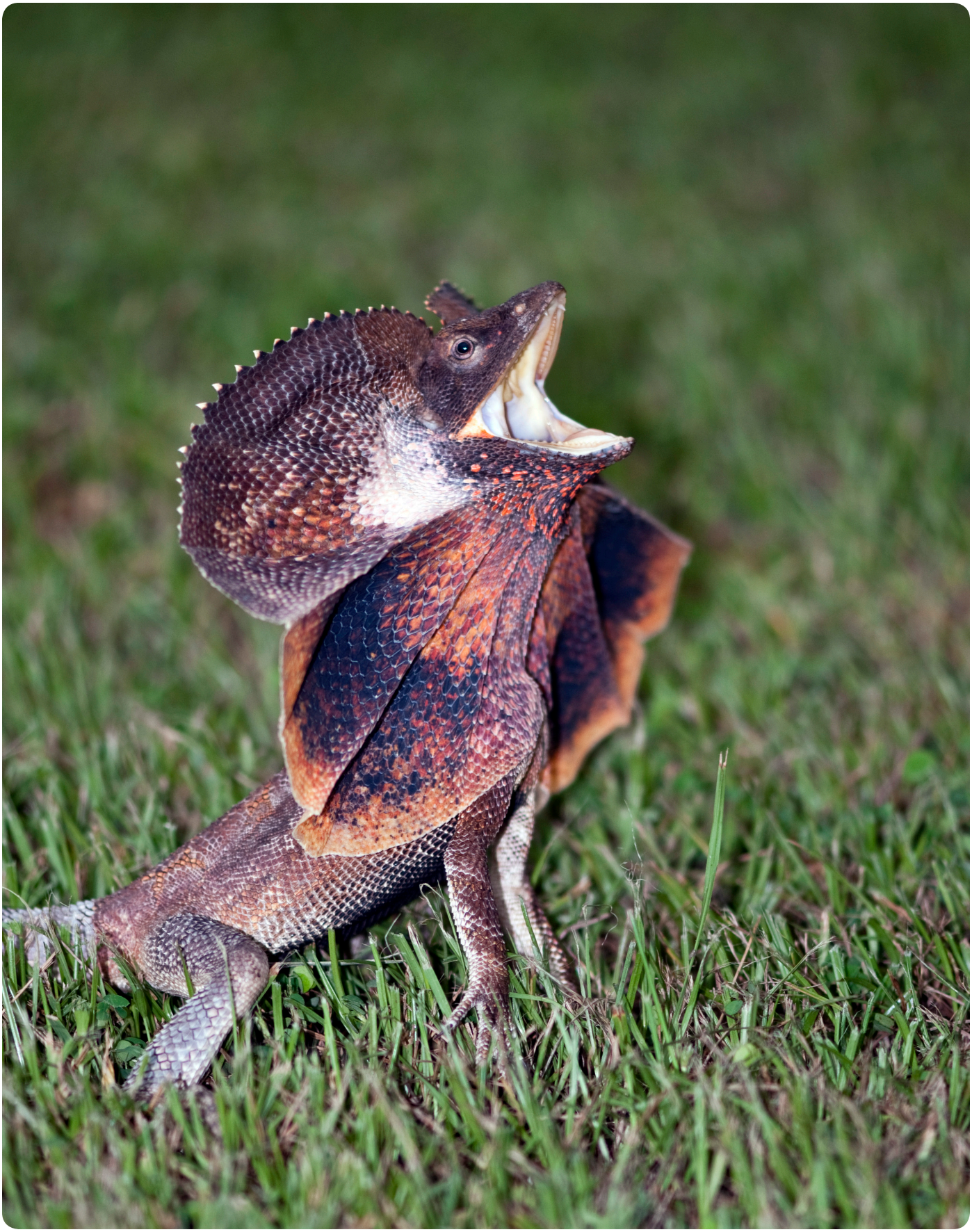
Environs of Alice Springs
Red Tree Frog (*Litoria rubella*)
Centralian Tree Frog (*L. gilleni*)
Spencer's Burrowing Frog (*Platyplectrum spenceri*)
Main's Frog (*Cyclorana maini*)
Marbled Velvet Gecko (*Oedura marmorata*)
Bynoe's Gecko (*Heteronotia binoei*)
Northern Spiny-tailed Gecko (*Strophurus ciliarus*)
Fat-tailed Gecko (*Diplodactylus conspicillatus*)
Centralian Knob-tailed Gecko (*Nephrurus amyae*)
Centralian Carpet Python (*Morelia bredli*)
Myall Snake (*Suta suta*)

Uluru District
Red Tree Frog (*Litoria rubella*)
Desert Spadefoot (*Notaden nichollsi*)
Burton's Snake-lizard (*Lialis burtonis*)
Scaly-foot (*Delma nasuta*)
Western Hooded Scaly-foot (*Pygopus nigriceps*)
Northern Spiny-tailed Gecko (*Strophurus ciliarus*)
Beaded Gecko (*Lucasium damaeum*)
Bynoe's Gecko (*Heteronotia binoei*)
Centralian Blue-tongued Skink (*Tiliqua multifasciata*)
Central Netted Dragon (*Ctenophorus nuchalis*)
Thorny Devil (*Moloch horridus*)
Short-tailed Pygmy Goanna? (*Varanus* sp., possibly *V. brevicauda*)
Gould's Sand Goanna (*V. gouldii*)
Perentie (*V. giganteus*)
Blindsnake (*Ramphotyphlops endoterus*)
King Brown Snake (*Pseudechis australis*)
Monk Snake (*Parasuta monachus*)

Curtin Springs to Kings Canyon National Park
Scaly-foot (*Delma nasuta*)
Northern Spiny-tailed Gecko (*Strophurus ciliarus*)
Fat-tailed Gecko (*Diplodactylus conspicillatus*)
Beaded Gecko (*Lucasium damaeum*)
Beaked Gecko (*Rhynchoedura ornata*)
Bynoe's Gecko (*Heteronotia binoei*)
Thorny Devil (*Moloch horridus*)
Central Military Dragon (*Ctenophorus isolepis*)
Centralian Blue-tongued Skink (*Tiliqua multifasciata*)
Gould's Sand Goanna (*Varanus gouldii*)
Stimson's Python (*Antaresia stimsoni*)
Monk Snake (*Parasuta monachus*)

Darwin City Parks (24 March 2011)
Gilbert's Dragon (*Amphibolurus gilberti*)
Tree Dragon (*A. temporalis*)
Shining Skink (*Cryptoblepharus* sp.)
Spotted Tree Goanna (*Varanus scalaris*)
Frilled Dragon (*Chlamydosaurus kingii*)

tiful, and they have that crazy frill. They apparently spend the dry season up in trees, and descend to the forest floor during the wet season to zap emerging termites and other tasty treats. As soon as my hands were around its neck the frill popped forth in all its very colorful orange-speckled glory, and its mouth popped wide open, exposing a yellow lining and a pair of admirably formidable bucked teeth. We posed it for photographs in the manicured lawn of the city park, and when I let it go the thing actually came after me. It hopped forward on two legs with its frill out and mouth open, and



After spending two months in the Top End of Australia, we finally saw a live Frilled Dragon (*Chlamydosaurus kingii*) by venturing into the wilds of a city park in Darwin, Northern Territory. Photograph by Crystal Kelehear.

Subtropical woodlands like this cover the northern quarter of the Northern Territory, and are home to such species as Yellow-spotted Goannas (*Varanus panoptes*), Water Pythons (*Liasis mackloti*), Olive Pythons (*Liasis olivaceus*), Black-headed Pythons (*Aspidites melanocephalus*), and Frilled Dragons (*Chlamydosaurus kingii*).

not only did it cross the distance between itself and me, it actually *climbed my leg*. It would switch from frilling me to frilling Crystal, depending on whomever it deemed was closer or more threatening. I cannot imagine this ruse not working against any predator with even a minor appreciation for its own ass. However, it actually would not bite. I did not offer it my earlobe (although *that* would have been a great picture) since this isn't about tryouts for the TV show *Jackass*, but I did offer it the tip of my shoe and it wouldn't bite down. All bluff. Spectacular — and yes, the *perfect* crescendo to a most excellent Australian adventure.

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