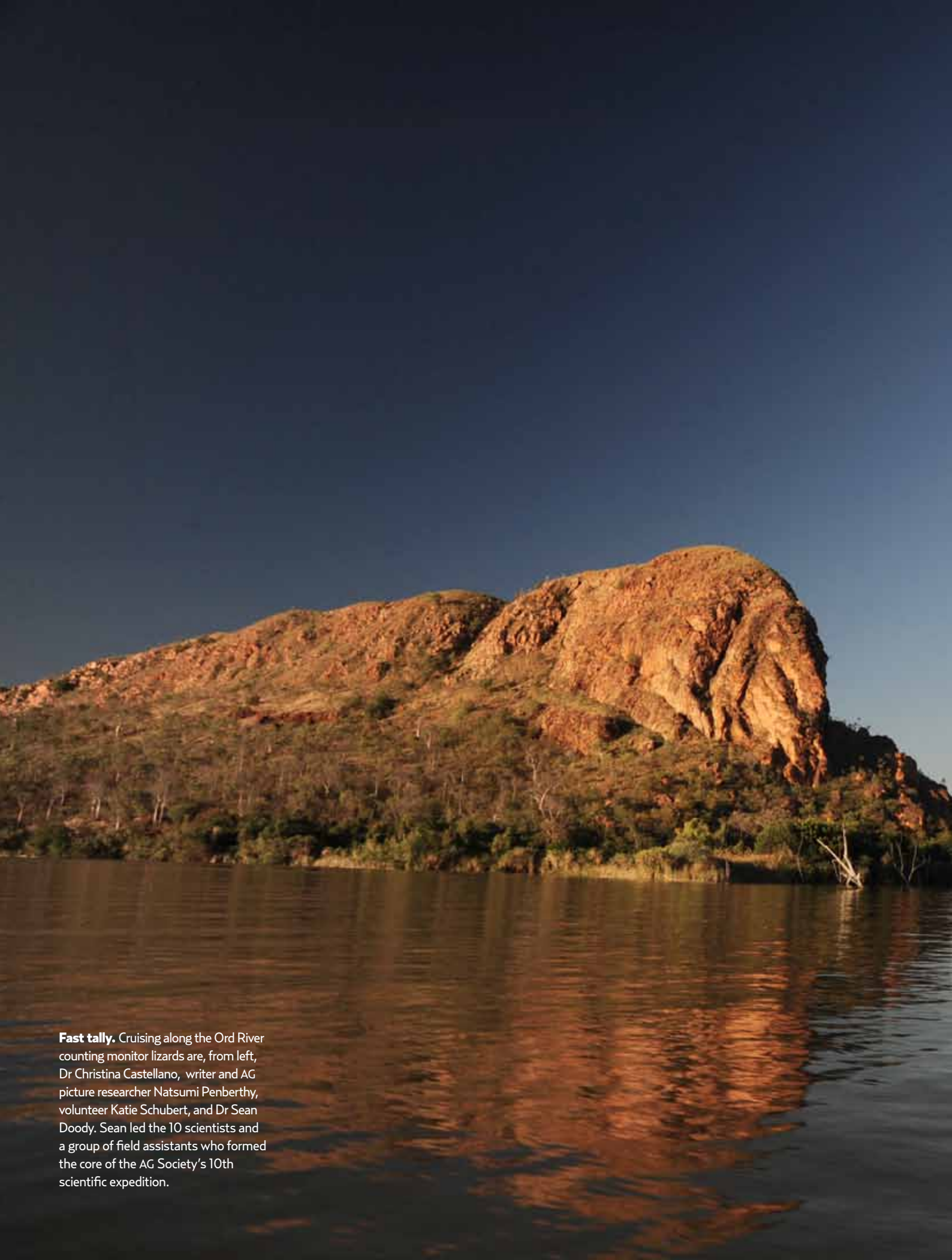


Fast tally. Cruising along the Ord River counting monitor lizards are, from left, Dr Christina Castellano, writer and AG picture researcher Natsumi Penberthy, volunteer Katie Schubert, and Dr Sean Doody. Sean led the 10 scientists and a group of field assistants who formed the core of the AG Society's 10th scientific expedition.

NOR'-WEST FRONTIER

The AG Society's 10th scientific expedition brought together an eager group of field biologists, volunteers and AG staff to make a stand against the cane toad in WA's east Kimberley.

STORY BY **NATSUMI PENBERTHY** PHOTOGRAPHY BY **BARRY SKIPSEY**

1 Volunteers and scientists rumble down a steep track from Branko's Lookout, which overlooks Sean Doody's trapping sites.
2 Back at camp HQ after another long day in the field, expeditioners share stories over dinner.

THE SUN HAS JUST SET and there's an orange glow on the horizon. The campsite is humming, and car doors are slamming as people get back from their field sites and queue for dinner. Ecologist Geoff Kay jokes about the '70s, when scientists headed into the bush kitted out in short shorts and equipped with little more than gaffer tape. Under the striped, open-air marquee, a couple of research assistants nurse well-earned beers and swap tips on noosing goannas. A group of volunteers peers over fish ecologist Dr Brendan 'Ebb' Ebner's shoulder at his laptop, from which you can hear the occasional whoosh and see fish snatching at bait in front of an underwater camera. Retired teacher Sally Wren is double-checking the list of butterfly species she's recorded with entomologist Dr Michael Braby, and raucous laughter emerges from around a camera held by science teacher Phil O'Neill. "You're killing me," Dr Colin McHenry says. "I've been looking for that speckled-tree monitor all week."

It's late May out here, in a remote and beautiful spot of Western Australia's east Kimberley, and it's a dedicated breed of field biologists that the AG Society has gathered together for its 10th scientific expedition. We're here to study the wildlife before the invasion of cane toads, forecast to arrive here during the next Wet; the data will be compared with results in following years to build a picture of the damage that the cane toads cause.

The scientists are prone to being held-up by the merest glimpse of their quarry: jumping out of moving vehicles to examine things, pointing out the familiar silhouettes of birds gliding above, lingering over gillnets, and stopping at every opportunity to snatch just one more sample. Both the AG Society and Dr Sean Doody, of Monash University in Melbourne, are responsible for pulling together this group, about 50km south of Kununurra. The experts and volunteers are together juggling eight projects (see "The 2011 expedition", page 102), fanning out from camping grounds at the El Questro Wilderness Park, a 4050sq.km cattle lease and tourism set-up.

> "This is the land of the reptile... Out here, the lizard is king."

It is a wild and awe-inspiring landscape, marked by vast escarpments of orange sandstone and shale, scrubby savannah plains and deeply-cut gorges. Distinctive fat-trunked boabs and yellow-flowered kapok trees dot the landscape.

"This is the land of the reptile," Geoff, of the Australian National University in Canberra told me, as we rumbled into camp on the first day. "In many parts of the country mammals are at the top of the food chain, but out here..." he gestured at the rocky landscape, "the lizard is king."

The scientists – whose specialties range from butterflies, frogs, birds, and reptiles, to freshwater fish and turtles – and nine research assistants have a 21-day window to gather their data. Volunteers are here to lend a hand and take a once-in-a-lifetime opportunity to participate in real field science.

Mealtime chatter reveals a group from diverse walks of life: teachers, a mapping-software technician, a bus driver, graphic

3 Colin McHenry uses a series of cameras to simultaneously photograph monitor lizards from different angles.
4 Each day Michael Braby meticulously collects and flattens butterflies for the collections of the NT Government.
5 Fish experts Dave Morgan and Brendan Ebner catch up on their 'verandah', after a day spent face down in the river surveying fish.

1, 2 The view of the Chamberlain River from Branko's Lookout in 2002 changed substantially following the 2011 floods, as seen here in May (below). Sean Doody's '09 and '10 traps were set up along the riverbank on the far right, but were washed away with the rains.

designers and many lay naturalists. We make for a diverse and cheerful group who gather under the marquee each evening to swap tales of the day.

"OH MY GOD," murmurs Sean, holding up a pair of binoculars, and scanning the stretch of the Chamberlain River that used to be his trapping site. More than 1500mm of rain fell over this region of the Kimberley last summer – twice the usual monsoon downpour – and the Pentecost River and its tributary, the Chamberlain, funnelled a 25m-high brown torrent down the Chamberlain Gorge, 3km to the south of the now destroyed trapping site.

Chris Henggler, from Kachana station in the upper catchments of the rivers, estimates that he's seen more than 75km of reshaped river path from the window of his 206 Cessna. Over a number of previous years, Sean has placed pitfall traps along the Pentecost's banks to capture a snapshot of the site's biodiversity. Now, there's little more than a rubble field for the freshies to sun themselves on. Thankfully, our AG Society volunteers pitch in to dig drift fences and pit traps at new sites on the banks of the Chamberlain and Pentecost rivers.

Miraculously, in spite of the flood damage, many paperbarks still dot Moonshine Gorge, 15km south-east of Sean's sites. These silvery trees are built to survive regular flooding, and throw up snorkel-like appendages from their upper branches to help them 'breathe' while submerged. A few snaggles of reed in their branches are the only evidence of their previous underwater adventures.

Even more miraculous is that wildlife avoided being washed out of the gorge. Snorkelling volunteers working with Dr Christina Castellano, from the US-based conservation group, The Orianne Society, emerge with a bounty of red-faced and long-necked turtles. They found that 30–50 per cent of them were already captured and tagged in Christina's previous surveys here. These tough little turtles had somehow ridden out the massive flow of water that thundered through the gorges just a few months earlier. "They probably shelter under the banks," says Christina. "One day we pulled 11 animals out of this one little underwater cave."

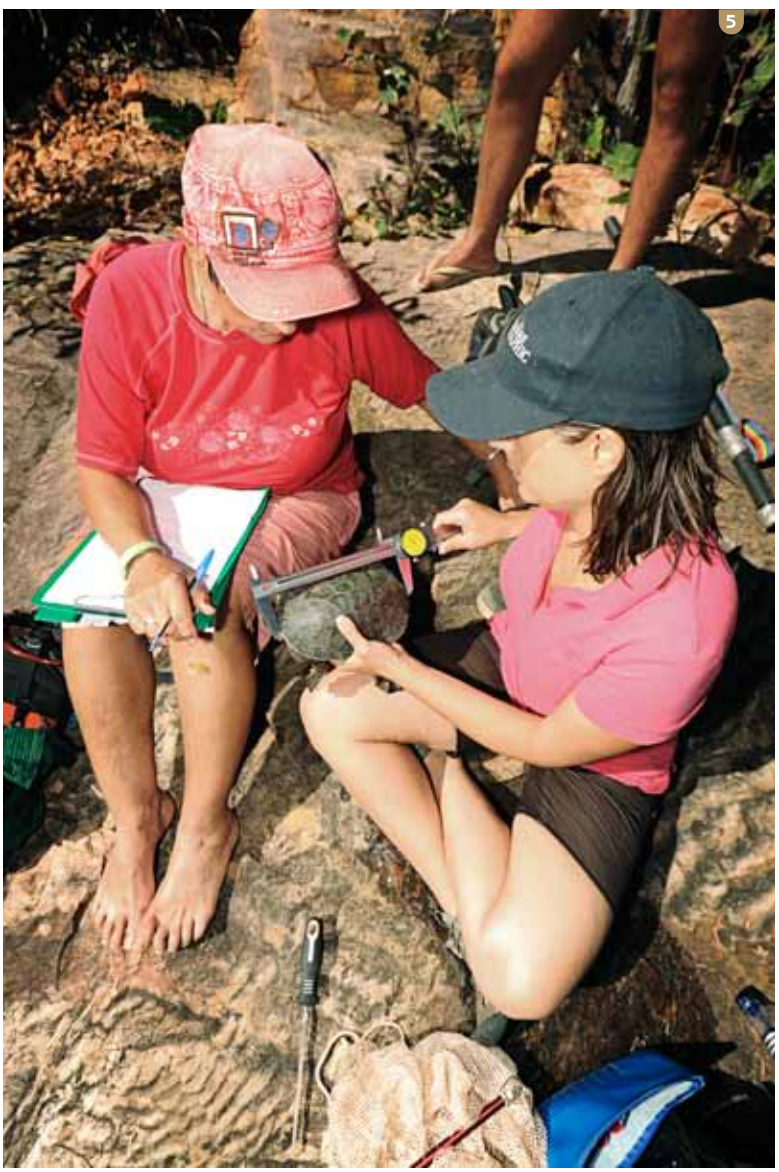
This refuge, however, brings them into close proximity to the water-breeding toad. "Freshwater turtles are opportunistic feeders," says Christina. And she suspects that the toads will prove tempting to the omnivorous turtles. Freshwater turtles are one of few animal groups that transfer nutrients between aquatic and terrestrial habitats by laying eggs on land, which are often eaten by bandicoots, rats, fish, snakes, birds and crocodiles, making them an interesting litmus test for changes in ecology.

THIS EXPEDITION is Sean's second on the cane-toad frontline. In 2004 he led the eighth AG Society Scientific Expedition on the Northern Territory's Daly River, 115km south of Darwin (AG 79). In 2006 Sean found a 90 per cent decline in yellow-spotted monitor numbers after toads swept through the area. It's one of the most significant cane-toad related declines documented in Australia so far.

"The Daly's so different now," says Sean, a Louisiana native with a soft Southern accent. "When you used to camp on the river, when you heard a rustling in the evening or just after dark, there was a good chance it was a monitor. *Continued page 104*

TOP: BEN KNAPINSKI

3 Sean Doody holds a monitor while Christina Castellano calls out measurements for volunteer Katie Schubert to record during a monitor survey on the Ord River, which borders the township of Kununurra.



4 A spiny-tailed gecko spotted by Steve Wilson sloughing off its skin on some dried spinifex.
5 Christina Castellano, at right, sizes up a long-necked turtle while volunteer Sandra Maynard acts as scribe. The file in front of Christina will be used to painlessly etch notches in specific schutes on the turtle's shell. These act as tags so researchers can recognise the turtles in future years.

3. *Varanus panoptes*; 4. STEVE WILSON / *Strophurus ciliaris*; 5. *Chelodina burrungajii*

The 2011 expedition

More than 200 species of Kimberley plants and animals were identified, recorded, tagged, studied and admired on the AG Society's 10th scientific expedition.

BIRDS

SIMON CHERRIMAN
SITES: C

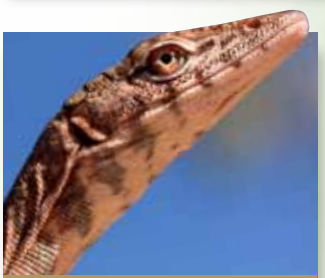
Filming for a follow-up to his documentary *A Wedged Tale*, ornithologist Simon Cherriman aimed his cameras at the region's white-bellied sea eagles. Simon also captured terns dive-bombing for fish, and the brightly coloured Gouldian finches, of which there are fewer than 2500 left in the wild.

ABOVE: *Haliaeetus leucogaster*

BIODIVERSITY SURVEY

SEAN DOODY SITES: C D H R

To capture an entire snapshot of biodiversity in the region, Sean and his team set up pitfall traps, 'camera traps' and stations to measure tracks at Branko's Hole, Saddleback Crossing, and Pigeon Hole. Camera traps have motion sensors that trigger them to take a picture when an animal wanders past. The team also cruised along a 35km stretch of the Ord River in a tinnie, surveying the banks for monitors, crocodiles, Gilbert's dragons, and golden tree snakes.



LIZARD MECHANICS

COLIN McHENRY
SITES: J

The east Kimberley boasts 10 species of monitor lizard – the largest number of predatory reptiles found coexisting in the same locale in the world. Eight of the 10 were caught by Colin, weighed, measured, gut-flushed, bite-force tested and photographed to create complex 3-D computer models of their body shape.

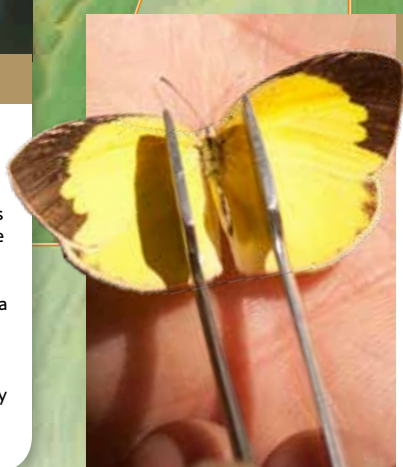
ABOVE: *Varanus glebopalma*

TURTLE TAGGING

CHRISTINA CASTELLANO
SITES: B G Q

A team of snorkelling volunteers led by Christina peered under rocks and along the riverbanks to emerge with 41 red-faced turtles at Moonshine Gorge, 40 red-faced turtles and 11 long-necked turtles at Emma Gorge, and 30 long-necked turtles at Amalia Gorge. Each was weighed, measured and tagged by filing notches into the shell, so they can be identified in future years.

ABOVE: *Chelodina burrungandjii*



BUTTERFLIES

MICHAEL BRABY
SITES: B F G H K L M

Of 85 known species of butterfly in the Kimberley, the survey turned up 52 across a total of eight 'dry' and 'wet' survey sites. Twelve of these records have led to known range extensions for species never found this far south. Of 32 butterfly–plant associations recorded at El Questro, nine showed caterpillars eating plants they have not been associated with before.

LEFT: *Eurema laeta*

TOAD FENCE

GEOFFREY KAY AND STEVE WILSON

SITES: B

The biodiversity survey's pitfall and funnel traps along the fence at Emma Gorge caught 24 species of reptile, 10 amphibians, one mammal and a total of 638 individual animals. If the fence keeps toads out of Emma Gorge, it will effectively create a control site within its boundaries, which will help experts measure the damage done by toads outside the fenced area.

ABOVE: *Planigale maculate*

FRESHWATER FISH

BRENDAN EBNER AND DAVE MORGAN

SITES: A B D E G L M N P Q

Brendan and Dave trialled their self-designed 'Baited Remote Underwater Video Stations' as a new tool for rapid surveys of freshwater fish biodiversity. Studies indicate that fish can learn to avoid eating toxic cane-toad spawn, but Sean Doody observed that cane toads were affecting crocodiles, a key predator of freshwater fish.

RIGHT: *Hephaestus jenkinsi*

MAGNIFICENT TREE FROGS

SIMON CLULOW

SITES: B G N

Forty-two individuals of this little-known species – found only in Australia's north-west – were pulled from cracks in gorge walls in a dozen night and day surveys. Twenty-nine frogs were micro-chipped to gather data on growth rates and survival, population size, movement and habitat use.

LEFT: *Litoria splendida*

LIZARD MECHANICS: STEVE WILSON; FRESHWATER FISH: BRENDAN EBNER

KIMBERLEY DREAM TEAM

Led by Sean Doody and the AG Society, our team of experts led projects studying various aspects of El Questro's wildlife.

DR SEAN DOODY
Ecologist and expedition leader

Sean has studied carpet pythons, turtles and goannas. His research of pig-nosed turtles featured in the BBC series *Life in Cold Blood*.

DR MICHAEL BRABY
Entomologist

Based at the Museum and Art Gallery of the NT in Darwin, Michael wrote *The Complete Field Guide to Butterflies of Australia*.

DR CHRISTINA CASTELLANO
Turtle ecologist

Director of US-based turtle conservation NGO The Orianne Society, Christina plans to spend six months a year in Madagascar.

SIMON CHERRIMAN
Ornithologist

Simon is a bird expert, ecological consultant, documentary filmmaker, and 2010 AG Society Young Conservationist of the Year.

SIMON CLULOW
Amphibian ecologist

At the University of Newcastle, Simon specialises in amphibians and has investigated toad-exclusion fences.

DR BRENDAN 'EBB' EBNER
Fish ecologist

Formerly at Griffith University's Australian Rivers Institute, Brendan researches conservation at James Cook University and CSIRO.

GEOFFREY KAY
Ecologist

Geoff is a researcher with the Box Gum Grassy Woodland Project at the Australian National University in Canberra.

DR COLIN McHENRY
Morphologist

Based at Monash University, Col specialises in studying the body shape and function of both living and extinct species.

DR DAVE MORGAN
Fish ecologist

Dave, a fish expert at Murdoch University in Perth, has extended the known range of many inland fish species in WA.

STEVE WILSON
Herpetologist

An information officer at the Queensland Museum, Steve is also the co-author of *A Complete Guide to the Reptiles of Australia*.

1 Dr Colin McHenry holds a monitor while research assistants Matt McCurry and Michelle Quayle aim cameras at the action.
2 Kim Hands, strategic campaign manager for NGO Stop the Toad Foundation, brought in volunteers to set up a toad fence.
3 El Questro Wilderness Park manager Micko Bass helped with access to flooded sites.

But now, not only is it not a monitor – because they're essentially gone – it's a big old cane toad." Monitors are at the top of the food chain, so their disappearance will have significant ripple effects on local ecology. By counting monitors on the riverbank by boat, Sean was able to get much better data around the Daly River than on previous surveys on foot. Here in the Kimberley, he sticks with the boat surveys as a second project, cruising along in a tinnie up the waters of the Ord River with keen-eyed volunteers aboard.

Originally from Central and South America, cane toads have spread across northern and eastern Australia since 1935, when they were imported to Queensland in an ill-advised attempt to control cane beetles (AG 44). Secreting toxins fatal to many native animals, the toads have had a significant impact on species such as monitor lizards and crocodiles. Eradication efforts by the federal government have all but been called off, so conservationists are concentrating on managing the impacts, aware of a scarcity of long-term data.

The picture may not be quite as dire as it first appears, however. The toad is yet to cause the extinction of an entire species, and studies suggest some animals are learning to avoid, safely ingest or live alongside the toad. With good land management, even severely impacted populations may partially bounce back over a few decades according to research from the University of Sydney.

Every bit of data collected will be key agrees Micko Bass, El Questro Wilderness Park manager, whose committed help with site access, despite the difficult wet season, has earned him the moniker of 'yes man'. "It's overwhelming... it's fingers in the dyke," he says. "But at least the day I walk out of here, I'll be able to hold my head high and say we had a crack – and if it doesn't work, maybe Mornington Sanctuary or somewhere else further west might learn a bit from what we've done."

COLIN MCHENRY is in his element, although his eyes barely move as he twitches an odd-looking, 3m pole, manoeuvring a small noose towards the head of a yellow-spotted monitor. As Col's arms strain to control the minuscule movements, the noose is slowly slipped over the monitor's head, then ZIP! – it's pulled tight. The lizard is rapidly measured, weighed, 'gut-flushed', and then – of all the indignities – hog-tied and photographed by six cameras, as it's pinioned on top of a large ruler. A few minutes later, while Col fondly examines a prized tub of regurgitated food produced by the gut-flushing (a process akin to stomach pumping), the unfazed lizard is released, and wanders just a few metres away, before pausing to sun itself.

Both the 3-D reconstruction of the lizard's shape and the data gleaned from its stomach contents are being used for a study looking at the link between monitor body shapes and their ecological role (see "Battle of the predators", right). One aim is to consider whether similar species will be able to step in and replace the yellow-spotted monitor if it's hit hard by the arrival of the cane toad.

"It just makes me want to cry to think of all the monitors that are going to die," says Col, an expert on biological mechanics. "[But] it's big disasters like this that let scientists learn about the way ecosystems work, and how they adapt to change."

Kimberley reptiles are still providing plenty of new fodder for scientists, says Queensland Museum herpetologist and photographer Steve Wilson, who's been kept busy signing copies of his co-authored field guide, *A Complete Guide to Reptiles of Australia*, which is wielded by many of the biologists in camp.

"It's amazing, they're not just discovering little weevil-like insects," he says.

STEVE WILSON / *Varanus panoptes* 3-D MODEL: COURTESY OF DR COLIN MCHENRY

Battle of the predators

3-D models help experts understand who will win out as the toads invade.

DR COLIN MCHENRY, of Monash University, is using complex 3-D modelling software borrowed from engineers to compare the bodies and bite force of lizards (see reconstruction, above). "You can look at what an animal looks like: its head shape, how big its arm muscles are, the shape of its teeth... and that tells you something about the role it plays within the ecosystem," he says.

Col wants to know if Gould's monitor, a relative of the yellow-spotted monitor (pictured), could move into top-predator role if the yellow-spotted is hit hard by the arrival of cane toads. Gould's monitors live high in rocky habitats, less accessible to toads, only venturing down to hunt. This may give them an edge in avoiding the toads.

And what if Gould's monitors are killed off by cane toads too? "There may just be a big empty ecological space, potentially filled by non-native animals," Col says. He hopes to create a snapshot of the capabilities of the region's major monitors, to help focus conservation efforts.

"Out here, they're still discovering things that are 2m long and can kill you."

Steve's chuffed to have just photographed a pygmy mulga, a poorly studied and highly venomous snake. "What happens if you get bitten?" asks AG Society trustee Todd Tai, when research assistant Bret Stewart snags the trap with the hissing snake inside. "Ah, you carry me to the car, you get a chopper, and we get out of here," replies Bret, chuckling, while deftly picking up the trap on the end of a stick, and casually strolling towards the car.

I'M STANDING with water dripping through my fingers and a handful of damp Chux wipes, which I'm stuffing into pitfall traps to keep the frogs moist. Geoff Kay thrusts a gnawed funnel trap at me. "I'm pretty sure that's mammal poo," he says adjusting his hat and eyeballing the brown, oval pellets inside. "That hole's pretty small and the poo's pretty big, so it could be a snake, but for obvious reasons, snake poo is normally long."

We're on a 1.3km fenceline set up across the mouth of Emma Gorge, a sandstone ravine 20km to the north-east of camp that cuts into the Cockburn Range and ends in a 200m waterfall. Originally a cattle fence, it has been turned into a toad barrier by volunteers led by Kim Hands for the not-for-profit foundation Stop the Toad. They've spent a backbreaking fortnight digging trenches to bury black shade mesh.

The toad fence is an unexpected windfall for Geoff and Steve. With the help of Newcastle University frog specialist Simon Clulow, who uses his nights to run magnificent tree frog surveys up the gorges, they industriously set up pitfall and funnel traps along both sides, using the mesh to guide in small animals, and ultimately providing a biodiversity snapshot of Emma Gorge. The spot quickly becomes a camp favourite, turning up species such as a northern spiny-tailed gecko, legless lizards, whip snakes and a planigale (a small carnivorous marsupial, likely to learn to steer clear of the toad). Checking the fenceline also turns up small colonies of the buried northern spade-foot toad that dig their way to the surface, perhaps thinking that the drip-drip-drip of wetted Chux wipes is the return of the rain.

"Out here, they're discovering things that are 2m long and can kill you."

The fence is a controversial experiment in small-scale toad exclusion, Micko Bass tells me as we sit on the porch of his cabin at the El Questro campsite. "We've drawn a line in the sand, if you like," he says. "Our initial cane-toad plan is to identify key areas of conservation on the property [such as Emma Gorge] and target those, and we think we can limit the impact."

Even with these defensive measures, a single cane toad can lay 35,000 eggs in a season, so it'll only take a few toads to populate the gorge. "But it may delay the toads for enough time for us to get a bit of a handle on stuff we don't know," says the ever-optimistic Steve.

A CURLED LEAF IS waved under my nose. "How good are your eyes?" asks Dr Michael Braby, an entomologist from the NT Museum and Art Gallery in Darwin. I carefully turn the leaf over to see what he's talking about, making out a tiny white translucent dot. "That's an egg," says Michael, as he tosses a butterfly net over his shoulder. I squint again, and even when I know where it is, it's hard to see. He gestures to my left, elaborating. "Look at her flitting around that plant," he says, as a large black and white common crow butterfly hovers around a vine. How Michael knows the gender is a mystery until he explains the age-old body language of female butterflies. "Yep, she's checking that plant out," Michael says. "See that slow flitting? That's classic pre-oviposition behaviour. She's looking for somewhere to lay her eggs."

Continued page 110

2. STEVE WILSON / *Varanus glebopalma*; 5. *Danaus petilia*

1 Geoff Kay (at centre) and Steve Wilson (at right) check traps at the toad fence.
2 A wary and lightning-fast twilight monitor suns itself on a rock.
3 Dave Morgan takes notes on fish numbers on waterproof paper during a survey at Emma Gorge.

4 Michael Braby bottles a butterfly until it can be identified, while research assistant Lauren Vanderwyck looks on.
5 Michael uses forceps to carefully examine a lesser wanderer, which he'll then release — he only pins and dries important specimens.

The thin black line. The 'toad fence', below, began life as a cattle fence cordoning off the mouth of Emma Gorge, at centre. In April, the fence was reinforced against cane toads with a lining of black shade mesh dug into the ground along its length. Its ability to stop toads remains controversial, but the 1.3km fence represents the varied efforts people are making to protect the vast and mostly pristine Kimberley.

Head for heights. After using a slingshot to get his rope over the branch of a paperbark, Simon Cherriman hauls himself up to a white-bellied sea eagle nest 10m above the ground.

With dappled sunlight falling through foliage, we trudge off along the Pentecost River with volunteers including swampy-meadow ecologist Barbara Mactaggart and retiree Tony Spurling. Stalking butterflies is the aim of the game and we're walking a tight 40x400m quadrat looking out for every flutter we can and catching the dancing insects in delicate nets. The results of the survey will be used for a study on the diversity and abundance of east Kimberley butterflies, which may be indirectly affected by the toad via intricate food web changes to vegetation. I've soon perfected the required deft wrist flick, and in only a few hours our group identifies more than 20 species and finds one possible species range extension – for a swamp tiger butterfly, which is usually found 50km nearer to the coast.

Our eyes have begun to skip over the larger objects and focus on the details of the grassy savannah and green riparian vegetation. We reckon we're doing well, but Michael is in a class of his own at this game, holding out a butterfly measuring just 14mm from wingtip to tiny wingtip for us to examine. "See that; it's the jewelled glass blue," he says, proudly. "That's the smallest butterfly in Australia."

ZIPPING DOWN FROM a high branch in a paperbark, lanky, dreadlocked, 2m-tall ornithologist and documentary maker Simon Cherriman has us wrapped around his little finger. We're 15 minutes down the road from the butterfly trapping site and, only moments ago, Simon scaled the tree, using the same kind of industrial ropes and clamps used by window cleaners on skyscrapers. He's nestled a little video camera among the branches of a white-bellied sea eagle nest. The next tense hour is spent on the other side of the Pentecost River watching the eagles circle the nest, nervous about the unfamiliar object so near their eggs.

Volunteers Esther and Wolf Weigand and I glue ourselves to our binoculars mumbling under our breaths like a race crowd, "Come on, come on, COME ON!" as one of the eagles swoops tantalisingly close to its nest, and then glides off again. "It's a fine balance between sharing and showing these birds in action and disturbing them," Simon says as he looks down the length of his 150–500mm zoom camera lens.

When it looks like the birds have spotted the video camera and aren't going to land with it there, we decide to head back and remove it for the sake of the two white eggs nestled in the twigs. It's a bit of an aborted mission, but for Simon, who's shot many hundreds of hours of bird footage during his career, it's just another day, and so he shimmies up and back down with the camera.

ON OUR LAST DAY I watch fish expert Brendan Ebner, of Griffith University in Queensland, weaving among grass tussocks, still wearing a diver's weight belt and booties. He jumps on a white butterfly with his fish net, hoping it's the rare Kimberley opal. It turns out to be a white gull, but Michael Braby still tucks it away anyway, bound for his NT collections.

Later, as we're wading around looking for turtles, Sean Doody confides that "when we did the 2004 expedition, one

The world's largest tree frog?

A night visit to Amalia Gorge delivers a fat, green bounty.

MIDWAY through the expedition Simon Clulow (right), of Newcastle University, holds up a puffed-up plastic bag with a fat, green frog inside, found during a nocturnal gorge survey. "We may have found Australia's largest individual frog," he announces. This is the largest specimen of the so-called magnificent tree frog that Simon has ever encountered, and when he checks the records later he finds it is 24.7mm larger than the typical maximum for the species.

Up until now the white-lipped tree frog has held the title of Australia's largest frog, as well as the world's largest tree frog. These frogs have females that can measure 135mm from nose to end. By the same measure the magnificent tree frog that Simon is clutching comes in at just 128.7mm – but he argues that the 205g frog is probably the heftiest yet recorded in Australia. Magnificent tree frogs are more "robustly built" than white-lipped tree frogs, he says, but information on the weight of wild frogs is scarce.

Martyn Robinson, at the Australian Museum in Sydney, agrees that if you take weight to mean 'biggest' the largest frog in the country could be a magnificent tree frog. But the only way to know for sure, he says, is to put out a call for challengers.

Litoria splendida

of the ideas was to get scientists together and foster synergies…and I remember thinking, 'I wonder if that will happen?'" Of course, it did happen, he says, and that kind of collaboration has been a key feature of this year's expedition too. Around the camp there has been talk of a joint paper listing the species in the area. Brendan and Murdoch University fish expert Dave Morgan's innovative underwater camera surveys have caught goannas, crocs and turtles on film, so Christina and Sean are discussing how they can adapt the technique themselves. A few days earlier, Simon Cherriman gave up an afternoon to scale a waterfall and help Simon Clulow determine how high magnificent tree frogs can climb. For the researchers the expedition has been a melting pot of ideas and passions.

And we've all adapted to life in the outback, as seen when a group of young scientists comes down from the road looking tired, after a long last day. "Sorry we're late, we hit a wallaby," says ornithologist Amanda Lillyman, who looks unconcerned as she grabs a vegan meal for dinner. Geoff Kay is used to the perils of driving at dusk on outback roads, and unstraps the body from the roof. "It jumped right out in front of me," he says, dragging it towards the food marquee, "but it'll make great goanna bait." I pause, considering the practicalities of the statement. "Not near dinner," I say, directing Geoff and the wallaby towards Colin McHenry's tent.

Field techniques have undeniably advanced since 1958 when journalist Joan Jacoby described her experience of a similar Kimberley expedition with eight scientists in *The Australian Women's Weekly*: taxidermy by lamplight and firing off pistols at bats in caves has been replaced by 3-D computer modelling, microchipping and underwater camera surveys. But the basics – and the thrill – still ring true. "I got into the habit of turning over every rock, every piece of tin near the homestead," Joan wrote in her article. "When our time was up we all hated leaving not just Tambrey, which we had all grown to love, but the nor'-west itself."

That connection with the Kimberley was definitely something with which we identified. Earlier in the afternoon Sean Doody and I pulled up alongside volunteers Barbara Mactaggart, Cheryl Hamance and Christel Walsh. They should have been putting up their feet and recovering from their efforts at the nearby Emma Gorge Resort. Instead they'd thrown in their plush towels, and we'd caught them checking traps along the toad fence.

Christel strolled up to our car window. "We just couldn't stay away," said the 58-year-old mother of two, shrugging. The three women cheerfully threw us a wave as we drove off and continued up the sandy fenceline, peeking in half-buried buckets and green mesh traps. AG

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1 Ornithologist and skilled climber Simon Cherriman (pictured), helps frog expert Simon Clulow determine how high magnificent tree frogs can climb.
2 Volunteers clamber their way up Amalia Gorge, 10km east of base camp, to explore and take in the spectacular waterfall.

FIND *out about how to join the next expedition and see more stunning images of this trip at* **www.australiangeographic.com.au/journal/issue105.htm**