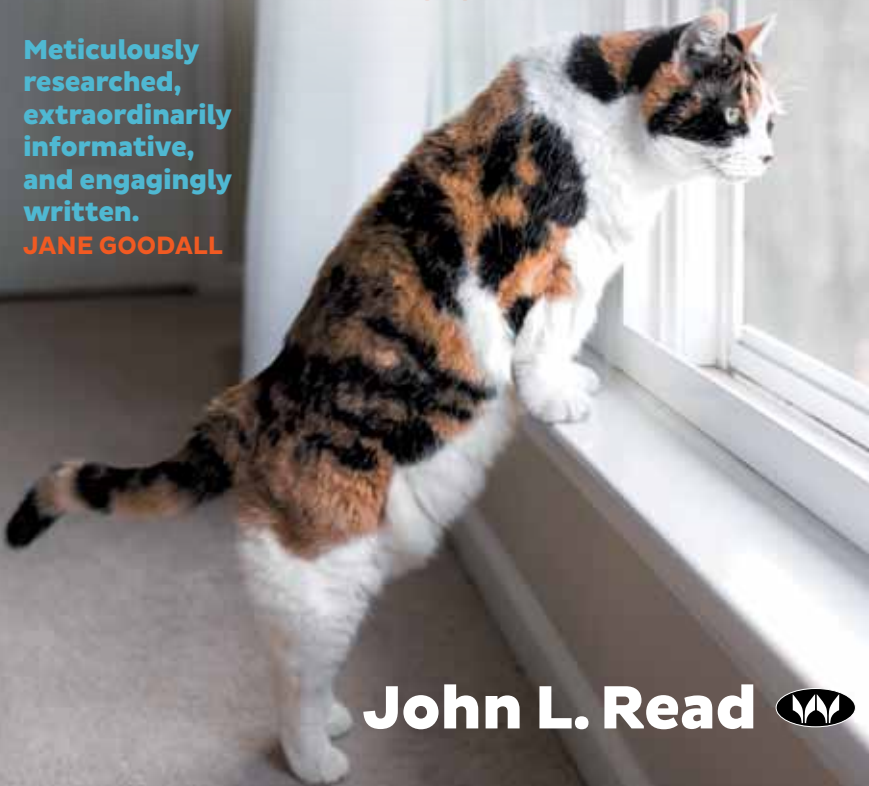


# AMONG THE PIGEONS

**Why our cats belong  
indoors**

Meticulously  
researched,  
extraordinarily  
informative,  
and engagingly  
written.

**JANE GOODALL**



**John L. Read**



Wakefield Press  
16 Rose Street  
Mile End  
South Australia 5031  
[www.wakefieldpress.com.au](http://www.wakefieldpress.com.au)

First published 2019

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Cover designed by Liz Nicholson, Wakefield Press

Edited by Julia Beaven, Wakefield Press

Typeset by Michael Deves, Wakefield Press

ISBN 978 1 74305 614 1



A catalogue record for this  
book is available from the  
National Library of Australia

  
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Wakefield Press thanks  
Coriole Vineyards for  
continued support

## Chapter 21

# N = 1

*An inconclusive trial where only one example (sample size or 'n' = 1) of a particular relationship or influence has been found.*

C2 looked every bit the archetypical cat lazing in a patch of early winter sun. Rhythmic measured breaths were the only signs of movement. Even the agitated white-plumed honeyeater announcing C2's resting place to her fledglings in the nearby eucalypt failed to rouse the sleepy cat, lying with his head resting on his foreleg. His distinctive colouration made C2 appear like he had been walking through leg-deep snow, with the white of his legs, belly and throat contrasting vividly with his tabby back and head. But there was no snow within walking distance.

A couple of hours earlier C2 had mooched past a box propped up against the wall of his aviary-type enclosure and felt an unexpected thwack on his flanks, at precisely the same time he was startled by the flash of a hidden camera. After springing away from the container, the surprised cat retreated to his shelter box at the back of the pen where he scanned indignantly for who, or what, had just photographed his shock. No one was visible, nothing looked out of order. C2 was perplexed. Then he noticed the dollop of gel on his fur, right where he had felt the slap. Instinctively he licked at the blue-stained gel tasting of fish biscuits. Recognising the distinctive taste, C2 no doubt worried he might have been duped again. It was fish-flavoured cat biscuits that had lured the

feral cat into the trap at the rubbish dump yesterday and saw him transported to this strange pen. But his fastidiousness for cleanliness overcame any fear he felt about grooming the gel on his flank. Within minutes there was barely a trace left.

Sixteen minutes to be precise. Quietly concealed within a fitted-out shipping container about 20 metres away, Sue Darby was watching and timing C2's every move. He was the second cat she had studied in this pen at an animal research facility on the outskirts of Melbourne, Australia. Yesterday's cat, C1, had provided tantalising results but not exactly what Darby had anticipated. Her focus now was on the two screens that provided unfettered observation of C2. Fortunately for me, the paired images on the screens had already been timed and processed by Darby so she could fast forward the footage, pointing out the pertinent aspects.

'Watch this,' she instructed purposefully. 'That is the last time he groomed, sixteen minutes after the hit.' As she fast-forwarded the footage half an hour or so Darby explained what I was about to observe.

'This time when he jumps down you will notice he is a bit wobbly, not like the way he was striding confidently before being hit.' Sure enough, the brown-and-white cat now appeared more measured, maybe a little tipsy, as he moseyed around, yet still casting an inquisitive eye to the roof of his enclosure where the agitated honeyeater could be heard on the tape scolding him.

Darby fast-forwarded the tape again, tracking C2's wanderings to the patch of sunlight where he lay down. 'Watch this carefully,' Darby instructed. 'There is no sign at all of distress, or of convulsion. He just goes to sleep and this time he does not wake up.'

Even in fast forward, where his initial slow movements appeared jerky, C2 barely moved for the next two hours. An occasional flick of the tail and then he rolled on his side as the tape counter ticked past three hours. At the four-hour mark a man entered the enclosure, his movements feverishly quick on the accelerated tape. Within a few seconds C2 had been carried away and Darby turned to me beaming.

‘He’s the first one,’ the passionate animal lover announced proudly, ‘a 3.3 kg male officially pronounced dead after four hours from grooming PAPP. C1 was a 3.1 kg male and he started grooming eight minutes after being squirted. He showed the same symptoms and fell asleep just like C2, but after a few hours he woke up and fully recovered.’

Frank Gigliotti, Darby’s partner, was the man who had collected C2’s carcass and who had also pored over the video of C1 being sprayed and subsequently grooming. Gigliotti determined that C1 had received a glancing blow of gel when it walked straight towards the box that had automatically squirted the cat. As a result, much of the gel had deflected off its fur and the cat had ingested a sub-lethal dose of the toxin. Gigliotti, who had years of experience conducting pen trials on different toxins and delivery mechanisms for feral pests, concluded the sensor locations would have to be as far apart as a typical cat’s rump and shoulder, to ensure cats walking side-on receive the full dose. The sensor array, housed in the unobtrusive box C1 had walked past, distinguished animals the size and shape of a cat from shorter, smaller or larger animals.

C1 and C2 were the first two cats involved in a trial of a stress-free technique for euthanasing feral cats. Trapped on nearby French Island where rangers were removing feral cats as part

of their standard work protecting penguins, C1 and C2 were destined to be euthanased with a bullet to the head if they had not entered Gigliotti and Darby's trial. Like many cities around the world, Melbourne has a glut of stray cats taken in by shelters. For every four cats taken into an animal shelter in Melbourne, three are euthanased, amounting to more than 30,000 cats a year. If successful, the grooming trap trial could mean that rather than waiting in cage traps for their euthanasia, feral cats like C1 and C2 will die peacefully in their sleep without ever being contained, or necessarily even seeing a human. The penguins on French Island will also benefit from more efficient control of their most serious threat.

Para-aminopropiophenone, understandably abbreviated to PAPP, was originally used as an antidote to cyanide poisoning in humans. However early researchers discovered that although PAPP could help convert cyanide to less toxic compounds, unfortunately it interfered with our blood. Red blood cells contain iron-rich proteins called haemoglobin that transport oxygen throughout our bodies. PAPP oxidises this haemoglobin to form methemoglobin, a very different protein unable to carry oxygen. Without its vital oxygen fuel, the central nervous system and other bodily functions slow down. Cats, like humans, become drowsy. If methemoglobin levels increase further they cause the lethargy and eventual unconsciousness exhibited by the first of the two trial cats. If the dose is sufficient, as with C2, the unconscious cat dies in its sleep.

However, if the dose is insufficient, as with C1, the cat will gradually metabolise the PAPP, regain the oxygen-carrying capacity of its blood, and recuperate without side effects. What's more, unlike more common poisons that are irreversibly fatal

if consumed, the effects of PAPP can be reversed. Methyl blue can convert the dangerous methemoglobin back to the useful haemoglobin. Administration of this reversal agent to a groggy or even unconscious pet cat that has consumed PAPP will, in theory, result in an immediate and total recovery – although some vets warn that treatment is not always so simple. Nevertheless, it's little wonder PAPP is now being researched by organisations like the Australian Invasive Animal Cooperative Research Centre as a potentially safe toxin for cat control in areas where goannas and other susceptible wildlife are not found.

Other common pharmaceuticals very toxic to cats, like the smallgoods preservative sodium nitrite and the human pain medication Tylenol, may also offer effective, targeted and, most importantly, humane control options for feral cats. Not surprisingly, given that most Australian wildlife have developed resistance, 1080 may be the toxin of choice in some cases. Unlike the oft-cited distressing response in dogs, cats poisoned by 1080 calmly succumb to the poisoning, arguably dying with far less stress and potential for pain and injury than a cat trapped and transported to a cat shelter hours later to be euthanased by lethal injection or gas.

Like the new poisons, automated 'grooming traps' are a novel technique being developed to reduce the effects of conventional feral cat control on wildlife or pets. Rather than distributing poison baits in the environment with the hope a cat may find and consume one, grooming traps only release the poison when a cat-sized animal activates the sensors. And even then, the grooming pathway provides additional protection for dogs and most other animals that typically don't groom as fastidiously as cats. This means that grooming traps can be used in places where

Large dogs chase and kill cats: it's as ingrained as cats chasing mice and birds. In an experiment just north of the Arid Recovery Reserve, two dingoes killed all seven radio-collared foxes and half of the cats in a paddock within three weeks. The last bastions of several threatened species have found refuge in remote locations where unbaited dingoes or 'camp dogs' restrict the predatory success of cats. The relic warru at Kalka, where Bronson and Jacob found the stick-nest rat tar, are largely restricted to a hill flanked by Aboriginal communities, complete with their camp dogs. Together with dingoes, these camp dogs create a hazardous environment for cats and foxes. Warru have, for centuries, avoided dingo predation by retreating to narrow crevices that keep the dogs out but present no such barrier to smaller introduced predators.

conventional baiting is not possible, or even counterproductive. Farmers can use these automated devices to control cats and maybe foxes in the knowledge that their working dogs are unlikely to activate the traps and even less likely to ingest the poison. Grooming traps also offer control of feral cats where maintenance of dingoes, coyotes or wolves is desirable.

Because grooming traps automatically reset themselves, the relentless task of driving around conservation reserves checking and resetting leg-hold and cage traps every morning of the year could one day be assigned to history. But it's not only at fenced reserves and council dumps where this targeted new technology is being welcomed. Feral cat-grooming traps provided the opportunity for me to realise one of my longest-held and elusive ambitions in the remote Queensland outback.

I can't remember concentrating so intently in my life. Both my hands were held just out from my ears with my spread fingers



slowly waving back and forwards like a mighty shear, keeping flies out of my ears without disturbing the sweat-sucking swarm that had accumulated on my hat and shirt. An earlier swipe at an annoying fly had sent all its mates into a buzzing mass around my head, eliminating any chance of me hearing birdcalls. Half an hour earlier when I parked my 4WD on the isolated stony plain, the thermometer read 42°C, even as the sun was setting. My walk up the breakaway ridge had moistened my shirt with sweat that seemed to lure every fly for miles. With the flies mostly settled, I made myself comfortable for the most anticipated wildlife experience of my life. Once I managed to work the sharp rock from under my boot there was nothing else distracting me from a quest I had waited nearly 30 years for.

At times my eyes were shut so I could focus entirely on filtering birdcalls from the background noise of wind and recalcitrant flies. But occasionally I would open my eyes to observe the three other silent statues standing nearby. The place was right; the time just about perfect. The orange-smudged western sky still provided just enough light to convince me that I would be able to see a small green bird flying past. I scanned the others to see if they had seen something, or heard a plaintive call that I had missed?

Minutes later I heard what sounded like the start of a distant willie wagtail call, drifting up from a sparsely treed ephemeral creek line way down on the barren stony plains. Steve Murphy, one of the three adjacent statues, had mentioned earlier that one of the calls we were listening for resembled the start of a willie wagtail's song. Again I looked at Murphy, rhythmically nodding his head as though processing the calls he was hearing but not yet hitting the jackpot. A minute or so later, the same bird called again but this time it was Murphy who spun around, pointing in

the direction of the barely audible song. ‘Might be,’ he whispered, ‘let’s move a bit closer.’

Retracing our steps through the dense spinifex clumps to a saddle in the ridge, we followed Murphy in the direction of the faint and intermittent call, watching every footfall to ensure we did not crack a twig or kick a stone. I was five steps behind Murphy. Katherine was behind me and Murphy’s wife Rachel behind her. I was so focused on tracking the origin of the tantalising call that it took me a while to register the finger clicking behind me. When I finally turned I saw Rachel standing her ground, beaming and beckoning us back. When we reached her she whispered confidently, ‘Two note call! Did any of you hear it?’ When we all shook our heads Rachel declared, ‘Well it must be over this side of the ridge because you were all over that side.’

We crept back over the dry rocky saddle and took up our positions, exactly where we had stood only minutes earlier. But it was darker now. The flies also thinned out in the enveloping darkness and the persistent south-westerly wind also seemed to abate. This time it felt like we were standing in a recording studio, shut off acoustically from the rest of the world, every sound amplified. ‘*Ding ding.*’

The call was as distinct and pure as if it had been heard through headphones, although the volume was turned down. Perhaps it was because I had dreamed for so long of this moment that the fragile chiming notes had an ethereal quality, like the sound of a slender stalactite being tapped by a spoon, or two droplets falling into a silent icy pool. A sense of euphoria enveloped me.

Neither Katherine nor I needed confirmation from the Murphys. Only hours before, we had first listened to a recording of the calls. Cautious to minimise the possibility that over-

enthusiastic birdwatchers may compromise initial research on this most elusive Australian bird, the hastily convened Night Parrot Recovery Team had quarantined release of the call until they had safeguarded this population. Had I not been privy to the recording, I may have assumed the faint peeping notes were the aberrant 'going to sleep' calls of a pied honeyeater or quail-thrush. Many birds make strange calls during their dawn chorus or at dusk that barely resemble their typical calls. But this diminutive call matched the recorded call now imprinted in my memory. For decades I had yearned to know and hear the elusive call of the night parrot. So many times while camped in the outback, drifting off to sleep or inexplicably waking in my swag in the darkness, I had heard unfamiliar calls and wondered if they were the night parrot. Four times I had driven to the remote outpost of Rocket Bore, four hours from Alice Springs, home of an old Aboriginal man who apparently knew the call, but my potential informant was never home when I visited.

Instinctively, perhaps inappropriately, I thumped Murphy on the shoulder. He just grinned, recognising and sharing the thrill of us joining a handful of other living birdos to finally hear the call of the night parrot. Katherine too was beaming and we gave each other a big sweaty but still silent hug, broken by Murphy's whisper. 'Three-note call.'

Neither of us heard it. Quickly we snapped back into listening mode, although this time I could hear my heart beating and the stressful anticipation had largely abated. '*Peee peee . . . Peee peee.*' Murphy held up four fingers signifying the 'four-note call', another of the night parrot calls he now recognised. This one reminded me of one of the calls of the western ground parrot. Being the closest cousin of the night parrot, I had joined researchers in the

coastal heaths of southern Western Australia years earlier to help monitor this equally bizarre species in the evenings. Informed by a detailed compilation of their various calls, birdwatchers, or more correctly listeners, were assigned to different listening posts just before dusk. Although the methodical monitoring of one of the world's most endangered parrots was an enticement, my main motivation for joining the ground parrot survey was to learn more about that even more elusive quest, the search for the night parrot, which had not been recorded calling or confirmed seen alive for over half a century. While resembling the call of a ground parrot, to my desert bird attuned ears the 'nightie's' four-note call was a similar tone to a pied honeyeater *beep*, but with the almost telephone-ring structure of a red-capped robin call. We listened some more. Another four-note call; then a minute or so later, another.

Each time they called we each pointed to the direction we thought we heard the bird, often deceived by the ventriloquial nature of the calls. Were we listening to one bird or more? Was the bird, or birds, stationary or moving? We were also keen to hear the other call described by early naturalists when the night parrot had been widely distributed in Australian deserts. I desperately wanted to hear the intriguing 'frog-like croak'. But that final wish was not to be. After a couple of minutes of silence Murphy announced confidently and surprisingly loudly, 'They've gone.'

'How did you know to listen here?' I asked Murphy, not wanting to leave the site. Many times I had sat near waterholes or mound springs and spotlighted or camped out at localities where night parrots had been historically recorded. But I had never thought to wait silently on a rocky hill.

Murphy's brief story abbreviated a decades-long hunt by many

of Australia's most eminent birdwatchers. Walter Boles, curator of birds at the Australian Museum placed the night parrot spotlight on western Queensland when he happened upon a road-killed specimen in October 1990, about 200 kilometres from the hill where we were standing. This bird was only the second confirmed record for the 20th century and discredited the widely held belief that the night parrot had followed 29 Australian mammals, mostly desert species, to extinction. It took 16 years for rangers from Diamantina National Park to find another dead specimen, this time on the ground adjacent to a barbed wire fence, only 20 or so kilometres from where we now stood.

Despite a meticulous follow-up search by talented and dedicated ornithologists, it was another seven years before scientists discovered a population. In 2013, naturalist John Young announced to the world he had photos, recordings and video footage of night parrots, the first ever taken. Even though the calls were kept a closely guarded secret, those breakthrough photographs of a live bird made headline news and reawakened my dreams. I'd pored over old drawings and less-than-convincing copies in modern bird field guides. I'd even been privy to observing, even briefly handling, the world's largest collection of night parrot specimens in the South Australian Museum. But neither revealed the intense lime green and gold colouration of Young's photo, nor the extraordinarily large eye of this enigmatic nocturnal bird.

Steve pointed to the darkening red sky. 'John Young's sighting was eight kilometres that way in a big patch of old spinifex. We only found this locality because a bird we radiotagged, still the only night parrot I have handled, flew here from his site one evening. Pretty much all we know about nighties is based on single observations and unreplicated records, which is tantalising

but problematic for a scientist. I'm always being challenged by n=1!' conceded Murphy, referring to the difficulties in drawing conclusions about his iconic study species when the sample size (or 'n') for much of his research remained singular.

I had known Murphy well before he ever heard or saw a night parrot. Back then we both dreamed about how they could be found, and discussed where, how and when to search for this most elusive of birds. A decade earlier I convinced myself that I had pipped him to our quest when I was following distinctive parrot tracks along a spinifex dune about halfway between Sydney and Perth near the Indian Pacific railway line. Having nervously inspected several priceless museum specimens, I recognised that the night parrots' short claws would leave distinctive tracks. Unlike most other birds that have three forward pointing toes opposing one backwards claw, parrots have two toes in front and two behind, leaving distinctive chromosome-like elongated X tracks. I had located two sets of tracks that fitted my impression of night parrots in this remote area that supported few rabbits and cats but several threatened species. The further I followed the tracks the more convinced I had become. But after an hour of exhilarating tracking I eventually startled a pair of ringneck parrots at the end of the tracks and my excitement rapidly evaporated.

While other night parrot tragics desperately wanted to collect a \$50,000 reward for definitive photographic proof that night parrots were not extinct, my quest had always been to hear them call to inform more searches. Steve later revealed only a handful of people had ever heard the call in real life, and few more had been privy to the recording. That single second of plaintive call rated right up at the pinnacle of my wildlife experiences, along with my first experience of a nesting leatherback turtle on a jet

black sand beach on a remote Pacific island, or the mesmerising wail of an indri in a Madagascan forest remnant, or even my first sighting of a wild bilby comically running away, tail aloft, in the Australian desert.

Ironically, given the lengths I had already taken to hear a night parrot, this was not my main motivation for the visit. The location was shrouded in secrecy in order to safeguard the parrots from overenthusiastic birdos from around the world. All I had been told a day earlier was that I was to drive five hours from Longreach in western Queensland. A large section of the remote pastoral station where we now sat was in the process of being transferred to one of Australia's largest conservation organisations. Bush Heritage Australia had lobbied and fundraised to protect the site, and Murphy wanted my help to safeguard this precious population.

Murphy, who had been intensively studying this vulnerable group of night parrots for nearly two years, considered fire the main risk. 'All the evidence suggests nighties avoid predators, seek shade, and nest within hummocks of razor-sharp spinifex. And fire destroys this invaluable cover for maybe ten or more years, depending on rainfall,' Murphy told me. 'And after fire, the threat is feral cats.'

After more than 15,000 nights of camera trapping in the area nighties had been found, Murphy had never photographed a parrot but had seen five different cats, predominantly large striped tabbies or lanky ginger toms. Like those Nolia and John T hunted at Kiwirrkurra, these cats lived independently, often hundreds of kilometres from houses or towns. Significantly, introduced foxes were strangely absent from the region although dingoes remained abundant. It was no coincidence the last remaining relict bilbies in Queensland were found not far from where we were sitting.

In his *Journey to Central Australia in search of the Night Parrot*, published in 1924, F. Lawson Whitlock stated emphatically: 'Whatever may be said to the contrary, domestic cats gone wild are accountable for the disappearance of this species.' J.N. McGilp, in a similar odyssey seven years later, consulted several locals familiar with night parrots who concluded: 'If you ask me what happened to much of our former day bird and animal life I'd say that the domestic cat gone wild was the reason.' Notes of the Horn Biological Expedition to Central Australia in 1894 noted in one of the operator rooms of the Alice Spring telegraph station 'several picture frames were covered with wings and tails of the porcupine parrot', which had been caught last summer by the telegraph station cat. Night (or porcupine) parrots then disappeared after an 'invasion' of cats.

National Park rangers had shot an incredible 3000 cats around this isolated and dwindling bilby population in the couple of years following a long-haired rat plague, which boosted cat numbers. On his laptop Murphy carried an alarming photo of a local shooters' vehicle, piled with the carcasses of about 40 cats shot in a single night.

To address the cat problem Murphy had first tried the shooters who had proven effective in the bilby habitat. But unlike the open plains where the bilbies lived, the spotlighters could not even glimpse cats in the tall spinifex country that was home to the night parrots. Cage trapping caught only goannas and crows. Trained sniffer dogs struggled to follow scent in the dry environment and work in the intense heat of the desert. And the Night Parrot Recovery Team, comprised of bird and wildlife management experts from around the country, had dismissed the use of cat baits at the site. 'No one wanted to trial poison



baits because we are all so concerned about exacerbating the cat problem if dingoes take the baits. Although they are potentially night parrot predators, we were unanimous in considering the dingo to be an ally of the nighties by helping control cats and maybe foxes, which are a greater threat, and also 'roos,' Murphy explained. Where dingoes were baited by pastoralists, kangaroo populations had exploded to unnatural and sometimes devastating numbers. Driving out of Longreach on the way to meet Murphy I was astounded by the number of dead kangaroos that had fallen victim to vehicles at night. For stretches of several kilometres you could literally hopscotch from one carcass to the next. After nightfall I couldn't drive at more than 80 km/hr due to an erratic slalom course, created by the live kangaroos along the road. These kangaroos competed with less common herbivores, like the nighties, who probably relied on small succulent plants for both food and moisture.

'Grooming traps are our best hope,' Murphy continued, 'that's why I'm so excited you're here.' Murphy had been instrumental in encouraging Bush Heritage Australia to contribute to the development of the novel technology and funding the construction of the fancy new prototype I had brought to the site.

Two years after C2 had died peacefully in the original pen trial, grooming traps, now known as Felixers, had evolved considerably. An initial investment by the conservation group Foundation for Australia's Most Endangered Species encouraged other donors and government grants to develop the technology. Now boasting carefully positioned arrays of range-finding sensors, and individual toxic doses fired at a staggering 60 metres a second, the new generation grooming traps were designed to spray a feral cat walking past up to four metres away. They also played recordings

of cats on heat and distressed prey on an audiolure program and photographed any animal that walked within range. The green dollhouse-shaped devices sprayed cats with toxin and recorded the type of audiolure playing at the time.

The morning after we heard that plaintive call on the hill, Murphy was eager to test the new Felixer at the station homestead where we were staying. First Rachel apprehensively walked in front of the beams to test they were performing as planned. She held her breath but wasn't squirted; the trap didn't fire. The display indicated she had triggered a 60-second shutdown mode, as planned whenever an animal taller than a cat walked past. This would prevent activation by people, kangaroos or even vehicles. While we were listening to the programmed audiolures a pet labrador bounded past the Felixer. Again, as programmed, the trap shut down after taking a photograph labelled as 'non-target'.

'I want to see how it fires,' said Murphy. So he folded a towel over a long-handled shovel to imitate a cat. Squatting about three metres away he pushed it quickly past the sensors at cat height. *Bang!* Before any of us could react, the towel was sporting a green blob of non-toxic gel and Murphy, a little shocked, was laughing. 'Wow, that was quick. They won't stand a chance. I'll take you to the creek line where my cameras have detected a large tabby and now a ginger tom patrolling.'

Carefully blocking the dry narrow creek beds with branches to divert the cats along a cleared path on the bank, we meticulously levelled the ground using the Felixer's built-in laser. Five metres away and out of site, a solar panel would provide the power to keep the Felixer operating for months. The five-second yowl of a cat on heat signified the Felixer was activated and ready for action.

That evening I shared with Murphy two photos taken at Venus



*A Felixer monitored by two additional cameras set along a small creek.*

*A feral cat had been photographed here approaching the recently rediscovered, incredibly rare, night parrot population on an undisclosed outback Australian location that has now become the Bush Heritage Pullen Pullen Reserve. (Photo: J. Read)*

Bay Conservation Park in South Australia, where another of the brand-new Felixers had been installed weeks earlier. A perilously small population of critically endangered woylies and bilbies were threatened by a dozen or more cats that had breached the enclosure

fence on the Venus Bay peninsula and avoided conventional trapping, shooting and even Steve Austin's cat dogs. The first photo showed a large tabby patrolling the fence line within centimetres of the infrared activation beams, visible on the photo but not to the oblivious cat. The next photo, taken two seconds later, showed the cat in mid air, with a pale patch of toxic gel clearly visible on its rump. Talya Bowden, who had been monitoring the cats, bilbies and Felixers, informed me this distinctive cat, one of her nemeses, had not been recorded on any of her camera traps since being sprayed and she assumed it had groomed and died.

The first large field trial of Felixers in and around the Arid Recovery Reserve squirted 72 feral cats in 10 weeks and only one 'non-target' kangaroo out of the hundreds of wildlife also photographed by the Felixer. Two of the cats were wearing radio collars and were found dead within hours of being sprayed. Unlikely to thoroughly groom and tolerant of 1080 toxin, the single squirted kangaroo was not at risk. None of the lizards, bilbies, boodies, rabbits or quolls that approached the Felixers were fired upon.

Murphy had responded enthusiastically to the evidence but I reminded him that the presumed dead cat at Venus Bay essentially equated to  $n=1$ . We were a long way from demonstrating that Felixers would provide a reliable and efficient control tool for feral cats in a range of hostile environments. But these early trials had convinced a host of organisations to contribute to optimising and developing Felixers, and we were steadily improving reliability and reducing costs.

Not only do Felixers offer another tool for targeting problem cats in conservation settings, they may ironically represent a lifeline to

some TNR advocates. Clowder feeders rarely restrict their feeding to just neutered and vaccinated cats. Wily stray cats that refuse to be trapped move in and perpetuate the cycle of kittens, fighting, transmission of disease, and other animal welfare issues that TNR sets out to manage. However, rapidly evolving Felixers fitted with wireless identification (WID) blockers would allow registered and tagged cats to be identified and protected from grooming traps; only non-registered cats would be sprayed. Where human disease, wildlife predation or animal cruelty issues are not considered extreme, programmed Felixers might convince authorities to allow managed clowder cats to gradually die out, hoping that immigrants or unsolicited dumped cats will be automatically and humanely euthanased.

Many suburbs and cities have now enacted laws to reduce both the impact of, and danger from, free-roaming cats. Just like dogs, these cats are now required to be registered and contained. But unlike wandering dogs that will generally approach a warden or be readily cornered, it is nearly impossible to apprehend wandering cats. Have you ever tried to 'puss, puss, puss' an unfamiliar roaming cat from its home so you can pat or hold it, let alone check its registration details? Cats are inherently wary and elusive when outside their homes. Even if they can be cage-trapped once, for their obligatory warning, most free-ranging cats are highly unlikely to be trapped again. Cat containment laws are benign, lacking any real means of enforcement. However, automated detection and recording of the registration status of a cat, without having to catch it, would open a range of opportunities. Any time a registered cat fitted with a simple radio-frequency tag approaches a Felixer the machine would automatically shut down, ensuring

pets were not sprayed. WID blockers would, for the first time, allow the control of unowned and feral cats, without affecting pets.

Cat owners controlling their pet cats will help prevent the devastating impact of domestic cats on native wildlife. From Haida Gwaii to Rome, it is still free-ranging pet cats, and deliberately fed strays or their progeny, which present the greatest risk to the public, pets and wildlife alike. We know bells and bibs are only partially useful in reducing wildlife predation. There must be other ways caring cat lovers can help.

## So, why keep cats indoors?

During the last century, global domestic cat numbers rocketed past 200 million. Hundreds of thousands of diseased, injured, malnourished or simply unwanted cats are euthanased every year by despondent animal welfare workers. Misplaced sentimentality, sometimes promoted by cat food companies, has exacerbated this situation through promoting irresponsible feeding of strays.

Ecologist and author John Read has travelled the world consulting cat experts and collating the most recent science. In *Among the Pigeons* he balances the allure of indoor cats with the animal welfare, human health and conservation issues they create when allowed to roam. But he also presents solutions, from breeding ideal indoor pet cats to development of humane tools to control feral cats.

In striking parallel to the repercussions of human-induced climate change, warnings about the damage wrought by free-ranging cats have been largely denied or overlooked. But we ignore these issues at our peril. For our own mental health and the endangered wildlife worldwide, time is running out.

John Read has given us a book that throws light on the highly controversial issue of indoor and outdoor cats. It is a book for cat lovers, for those who care about the natural world, and for doctors. I hope it will be translated into many languages and be incorporated into animal welfare and environmental curricula. **Dame Jane Goodall, DBE**

Absorbing and compelling, *Among the Pigeons* is wonderfully written and a great read – indeed should be a required read. It will dramatically change public understanding of cats and how we should best relate to them. **Professor Thomas E. Lovejoy, Virginia**

With intelligent and engaging stories, *Among the Pigeons* explores the consequences of domestic cat introductions into new ecosystems across the globe – and the important lessons necessary for a more sustainable future. **American Bird Conservancy**

John Read's book opens the curtain on the secret life of the cat. Beautifully written, well researched. **James Woodford, Australian author, environmental journalist**



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