Surprise!

Rock-wallabies found in Kalbarri National Park

The unexpected rediscovery of black-flanked rock-wallabies in Kalbarri National Park has generated excitement and a conundrum for researchers and managers. How do we best recover this tiny population from the brink of extinction?

by David Pearson

It was certainly a memorable way to start a day of work. Back in August 2015, buried in a bundle of emails, was a little gem. Mike Paxman, the ranger-in-charge at Kalbarri National Park, sent me an email titled 'Rock-wallabies spotted in gorge' with two photos taken by rock climbers attached. I opened the first photo and it was a distant image of two feral goats in a massive red overhang. I enlarged and closely scanned the photo unable to find any sign of rock-wallabies. "Funny joke, Mike", I thought. Then I opened the second photo and instantly spotted not one but two (actually three, but read on) distinctive small grey wallabies with black and white stripes along the sides of their bodies and long black-tipped tails, staring at the camera. Unmistakably, they were black-flanked rock-wallabies (*Petrogale lateralis lateralis*), a listed threatened species whose populations have declined sharply and had not been seen in Kalbarri National Park for more than 20 years.

The rediscovery of the black-flanked rock-wallaby in Kalbarri National Park was probably not due to their arrival from another site as no other populations are known to exist within 300km. Those populations are separated by unfavourable habitat and many dangers. These rock-wallabies had escaped detection because they were surviving in a remote and rugged section of the Murchison River gorge, visited only by rock climbers and intrepid canyoners.

NOT CAMERA SHY

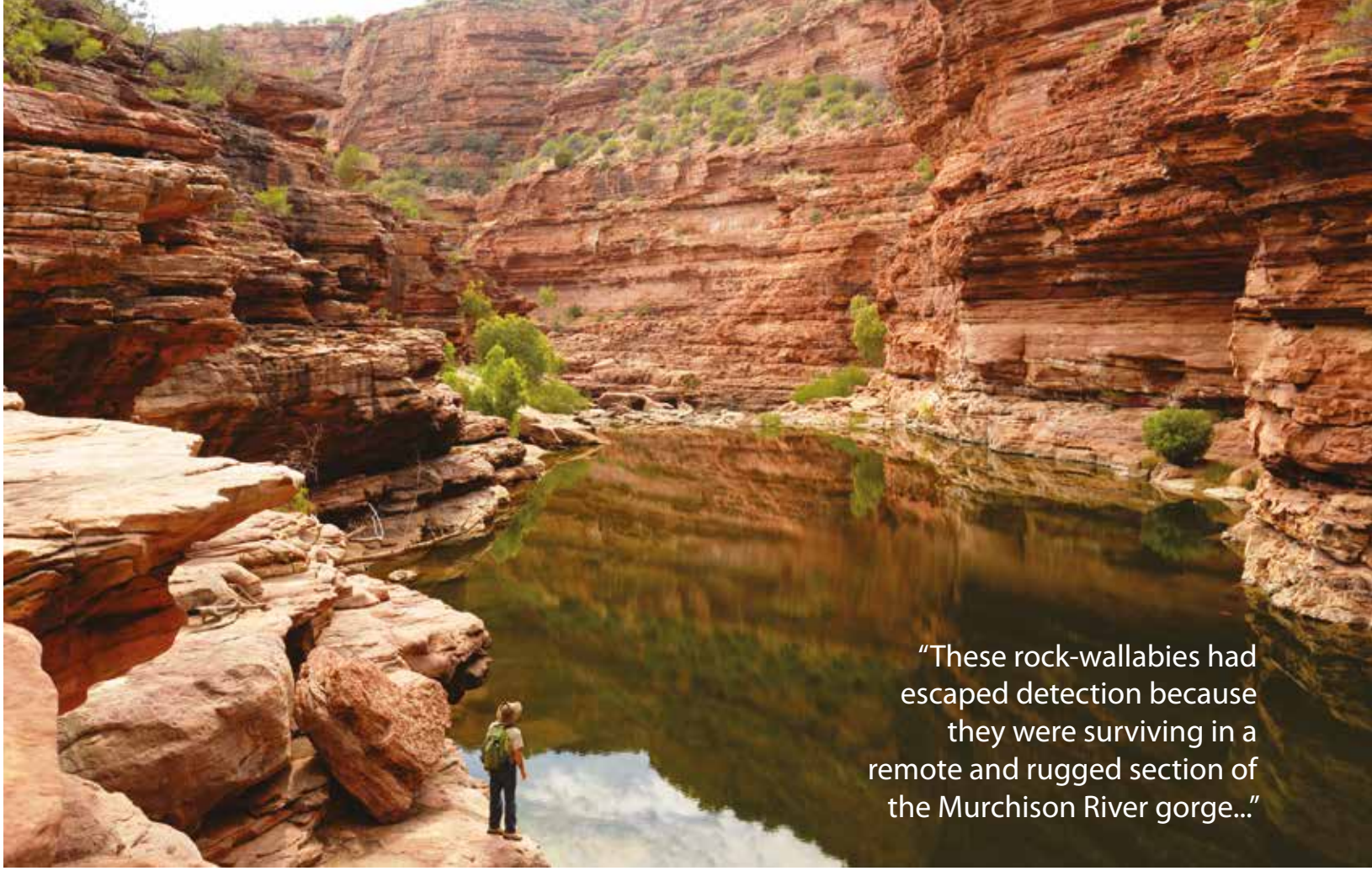
Following this exciting news, Mike clambered into the gorge and, with the assistance of rock climbers, located the site where the rock-wallabies were sighted. Here he set up a number of automated remote cameras that operate by detecting the movement of warm bodies (similar to most burglar alarm systems) which then triggers a quick burst of photographs. These cameras were attached to rocks and trees, and were left out over a number of weeks. What they revealed was astonishing – that this Kalbarri rock-wallaby 'population' appeared to be made up of just two adults and a small pouch young.

Rock-wallabies have some unusual genetic characteristics. Their strong preference for rocky habitats results in populations being isolated from one rock outcrop to the next one and over millennia this isolation has grown as the landscape has dried and more recently as native bush has been cleared. The presence of foxes and feral cats makes any attempt to re-establish ties with neighbouring rock-wallaby populations a very risky undertaking. Foxes are a serious predator of rock-wallabies and have driven many populations to extinction. The impact of feral cats is not well known, but they are believed to be a threat to the smaller female rock-wallabies and their young.

Previous page
Main A black-flanked rock-wallaby and her joey.
Inset The stunning Kalbarri National Park gorges.
Photos – David Pearson/Parks and Wildlife

Above left The photo taken by rock climber Remi Vignals that first alerted Parks and Wildlife to rock-wallabies surviving in Kalbarri National Park.
Photo – Remi Vignals

Above Remote camera images are useful for monitoring these shy animals.
Photo – Parks and Wildlife



Above Searching the rugged Murchison River Gorge for rock-wallabies.

Left Kalbarri National Park ranger-in-charge Mike Paxman rebaiting a Thomas trap.
Photos – David Pearson/Parks and Wildlife

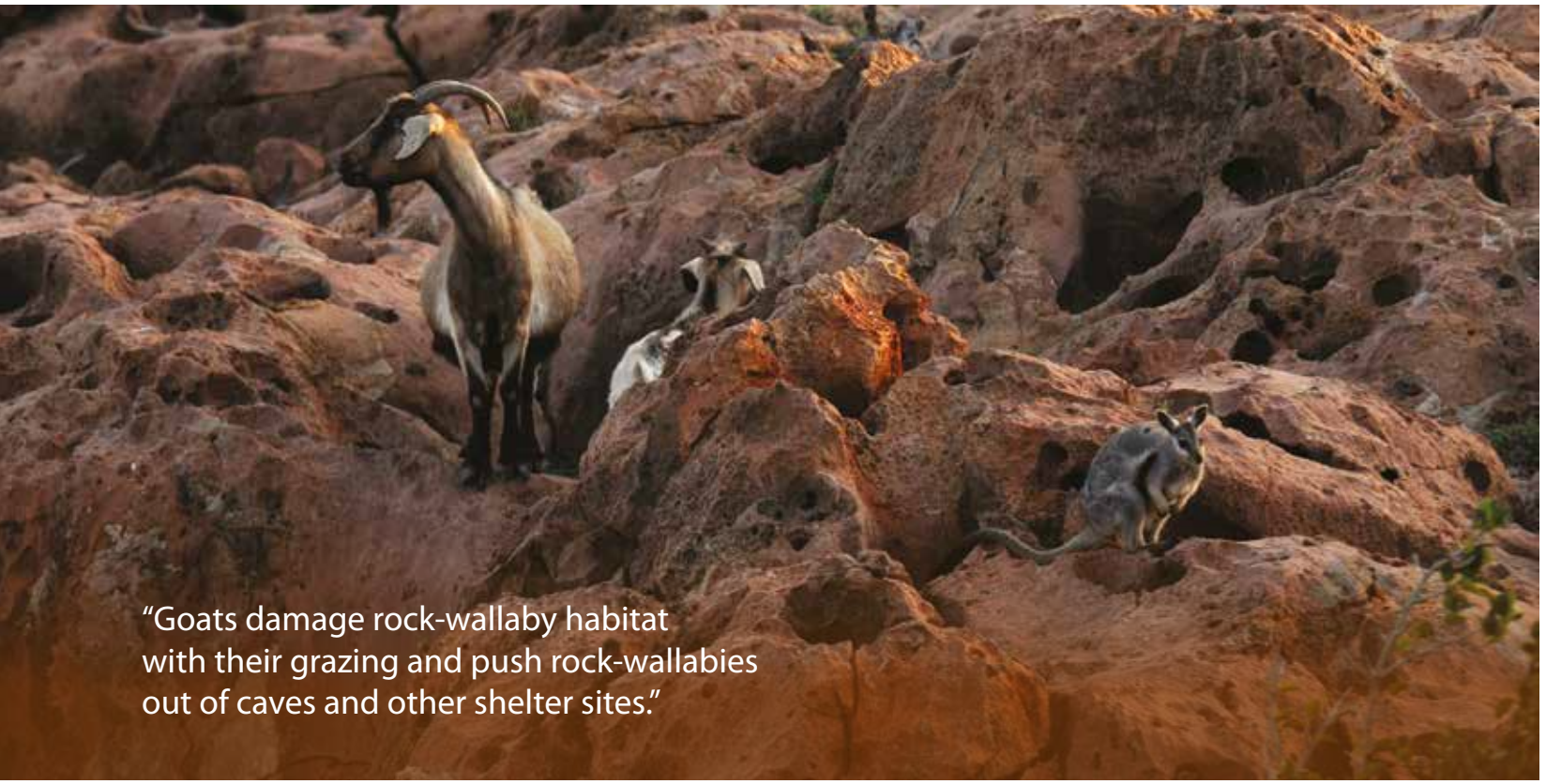
With isolation comes genetic drift as mutations and other genetic factors result in populations growing apart in their genetic make-up with no remixing between gene pools. Across the western half of Australia, black-flanked rock-wallabies have evolved from a common ancestor into an interesting array of subspecies and genetic races. The first task for Parks and Wildlife researchers was to determine where the genetic affinities of the Kalbarri rock-wallabies lay. Were they most closely related to populations in Cape Range National Park near Exmouth, the Little Sandy Desert or perhaps the Wheatbelt region? A small (pinhead) piece of ear tissue from a rock-wallaby is usually all that is needed to answer this question.

RELUCTANCE TO COOPERATE AND TAKE THE BAIT

A team from Parks and Wildlife and WWF, and volunteers travelled to Kalbarri to trap the rock-wallabies to obtain some samples and to search for any other colonies that may be surviving in remote gorges. Thomas traps were carried into the gorge, at times lowered by rope down steep sections, and then set up around the area occupied by the rock-wallabies. These traps have soft fabric sides to prevent jumping rock-wallabies hurting themselves and are baited with enticing apples. Once they stand on a treadle plate inside the trap, the door drops and the rock-wallaby is captured.

After checking the traps each morning, the team would divide up and examine other areas of the gorge. This was done on foot, with slow searching of suitable rocky habitat, looking for the distinctively shaped droppings of rock-wallabies. While old droppings were located at a number of sites, no other new rock-wallaby populations were found.

Despite a prolonged trapping effort, we were unable to catch any rock-wallabies. Frustratingly, they would watch



"Goats damage rock-wallaby habitat with their grazing and push rock-wallabies out of caves and other shelter sites."

BOOSTING BAITING

The Australian Government under its new Threatened Species Strategy recently provided $1.7 million in funding to support further integration of feral cat control with fox control under the State's wildlife recovery program *Western Shield*.

The funding will enable Parks and Wildlife to undertake feral cat baiting in the Perup Sanctuary near Manjimup, Dryandra Woodland near Narrogin, on the south coast and in Kalbarri National Park.

Species to benefit from the program include western ringtail possums, woylies, numbats, western ground parrots, Gilbert's potoroos and black-flanked rock-wallabies.

Further Australian Government funding of $250,000 will enable Parks and Wildlife to trial a modified version of *Eradicat*®, known as Hisstory, in the Kimberley.

us bait the traps, but were not tempted to venture in. We altered the bait, trying pears, horse muesli, oats, peanut butter, but still had no luck.

Fortunately, sufficient DNA for genetic testing can sometimes be extracted from the mucus around fresh droppings. The team located some squishy fresh rock-wallaby poos and sent them to rock-wallaby genetic guru Dr Mark Eldridge at the Australian Museum in Sydney. He has assisted Parks and Wildlife over many years in analysing samples and was able to compare the Kalbarri samples with those collected from other populations. For this type of work the entire genome is not examined. Rather a selection of known variable genes are assessed and differences compared between individuals and populations.

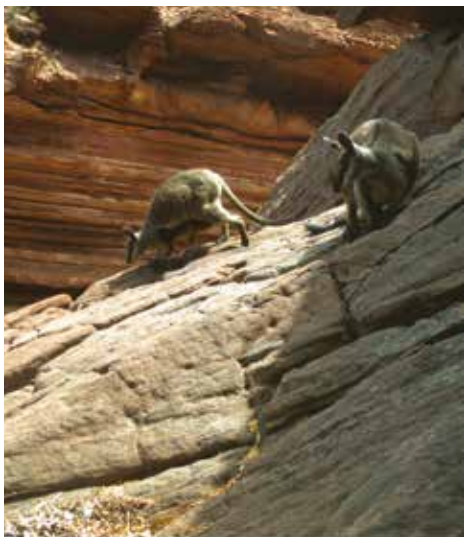
DISTINCTIVE BEASTS

Mark found that the Kalbarri rock-wallabies were genetically different from all other rock-wallaby populations although closest to those in the Little Sandy Desert. Such differences result in some challenges for managers and a need for careful consideration of options.

If these three rock-wallabies are the last left in Kalbarri National Park then they are at great risk and the loss of any one of them could result in the end of the population and the loss of their unique genetic material. But we also know that rock-wallabies have a remarkable ability to recover from very low numbers after a population has suffered a crash (often termed a 'bottleneck'). They can tolerate high levels of inbreeding and manage to recover populations from just a few individuals, but with much less genetic variation.

The Kalbarri population could be supplemented with rock-wallabies from populations elsewhere to ensure their survival, but this may come at the cost of a loss or dilution of some unique Kalbarri genetic material. To decide on the best course of action in such instances, Parks and Wildlife staff consult with experts both within the department and outside, including the rock-wallaby recovery team established to provide advice on the conservation and management of rock-wallabies.

While that process is underway, feral predator control has been stepped up and



Opposite page
The other photo taken by Remi Vignals, which shows goats and rock-wallabies living alongside each other in Kalbarri National Park.
Photo – Remi Vignals

Above A rarity for Kalbarri National Park, Australia's largest goanna was observed while searching for rock-wallabies.

Far right A black-flanked rock-wallaby.
Photos – David Pearson/Parks and Wildlife

Right Remote cameras in Kalbarri National Park have enabled land managers to monitor the activity patterns of this rock-wallaby population.
Photo – Parks and Wildlife

remote cameras will be positioned along the gorge to monitor its effectiveness. Kalbarri National Park has been identified as one of three sites in WA where the newly approved *Eradicat* bait will be used to control feral predators across a large area (see also 'Boosting baiting' on page 38). Annual control of goats will also continue using helicopter shooting. Goats damage rock-wallaby habitat with their grazing and push rock-wallabies out of caves and other shelter sites.

DECISIONS FOR THE FUTURE

Further searching of Kalbarri National Park for other remnant rock-wallaby populations is planned. If none are found, then a decision on how best to ensure the survival of the Kalbarri population will be urgently needed. As part of this process, a 'translocation plan' will be developed which outlines possible options, risks and costs. This will then be reviewed by experts outside the department including geneticists to ensure that any decisions are based on sound science and effective management techniques.

To ensure that the rock climbers do not inadvertently disturb the Kalbarri rock-wallabies, rangers have been working with the rock climbers' association to establish protocols around climbing and a new camping site away from the wallaby's habitat has been established.

The expectation for the future is that visitors to Kalbarri National Park will again be able to see these remarkable wallabies bounding effortlessly around the boulder piles at lookouts at Hawk's Head and Z Bend, as was the case several decades ago. More generally, the return of rock-wallabies will help the survival of the species, as other populations are small and still face many challenges.

David Pearson is a Parks and Wildlife principal research scientist. He can be contacted on (08) 9405 5112 or by email (david.pearson@dpaw.wa.gov.au).

David thanks the Parks and Wildlife staff from the Midwest and Swan regions and Science and Conservation division who helped with survey work, especially Mike Paxman and Anthony Desmond as welll as WWF's Merril Halley and volunteers.