Desert trackers

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Australia was one of the only developed countries in the world in which the largest bird of prey had not been tracked by satellite. That was until June 2013, when I was thrilled to capture two adult wedge-tailed eagles in arid Western Australia and fit them with GPS transmitters.

Have you ever dreamed about something you'd like to do when you grow up? Something that sounds adventurous, interesting and nearly impossible? As a young boy before the age of ten I can remember watching wedge-tailed eagles soaring high above rugged valleys of the Perth hills. They circled so high and eventually disappeared out of sight. I imagined having some way of following where they go, to track their movements and see what they did. At such a young age I'd never even heard of a GPS, let alone a satellite transmitter. But I knew that somehow, one day, I had to pursue my dream. And in early 2013, some 20 years later, that dream came true.

Satellite telemetry (tracking) has been used as an increasingly popular way of studying the movements of animals, especially birds, during the last decade. This is in part due to advances in technology which have allowed tracking devices to become lighter, have increased battery life and the capacity to achieve highly accurate location data. In the field of bird of prey (raptor) research, Platform Transmitter Terminals (PTTs) have been used widely across the globe, particularly to follow movements of migratory species like golden and bald eagles in America.

Five years ago, favouring an adventure to New Zealand to learn professional wildlife filmmaking, I turned down an opportunity to conduct satellite tracking research on Australian wedge-tails as part of a PhD proposal. Last year I was ready to pick up where I left off. I just needed somewhere to carry it out.

In the middle of Western Australia lies a vast landscape known by the indigenous Martu people as 'Matuwa'. In the 1930s, a portion of this land was settled by European pastoralists, named 'Lorna Glen' (after a permanent spring and important Martu cultural site) and grazed by sheep and cattle for 70 years. In an effort to increase their water supply, the pastoralists deepened the spring and today it runs no more. Introduced animals like cattle, sheep, foxes, cats and camels changed the environment dramatically, opening up the vegetation and contributing to the loss of a suite of native mammals.

Above: Kuyurnpa gives a loud begging call as her mother Gidjee lands on her nest with a freshly-killed rabbit

A very happy Simon prepares to return Kuyurnpa, a nine week-old eagle chick, to her nest after attaching a PTT

In an effort to restore this part of the rangelands, this 250,000 hectare property was acquired by the WA Government in 2000 and a new journey began with traditional culture and conservation the goals. Co-managed by the traditional owners and WA Department of Parks and Wildlife (DPaW), the land now sees traditional fire management supporting the reintroductions of a range of unique mammals. DPaW has successfully reintroduced five species, including the iconic bilby, whose conical diggings can now be found below acacia shrubs throughout the landscape. The Martu people practice traditional culture and their expert tracking skills help conservation managers locate and control feral cats, one of the key threats to the native mammals' return. Cats were responsible for the failure of some predator-naive species, like the rufous hare-wallaby (mala) and burrowing bettong (boodie), to establish. To help address this problem, an 1,100 hectare cat-and-dog-proof, fenced enclosure was built, and this safe haven is now allowing these mammals to increase in number. However, one native predator was found to kill some of the mammals too: the wedge-tailed eagle. The question was, how many eagles were involved, and were they having a significant impact?

To investigate the role that wedge-tailed eagles played in preying on some of these reintroduced threatened species, I began a research project in late 2011. This involved finding nests, collecting data on breeding biology and diet, and ultimately gathering as much information as possible about Lorna Glen wedge-tails on a landscape scale. I also saw it as an opportunity to fulfil my satellite tracking dream, and realised that obtaining detailed data on eagles would compliment the study perfectly. Such information would help determine how many eagles were using the enclosure as a food larder, and how often they ate threatened mammals. But then came the big question. How do you catch an eagle?

I learned from Michael Ridpath and Michael Brooker, who had researched eagles with CSIRO in the 1970s (and with whom I had been friends for several years), that eagles need to be able to run along the ground some distance to take off. I also knew from years of studying eagles that they readily land to feed on carrion (dead animals), especially kangaroos. So in March 2013 I used the same trapping tricks and made some large 'crow traps' out of tall posts and wire mesh, which measured about two metres square and two metres tall, with an open roof. Just like a big chook pen. I learned from my friends that an eagle needs a tall tree above the trap with a horizontal branch on which it can land, then drop in to feed on the carrion. Sweltering in 40 degree sun while building traps sent my mind into a hazy imagination about what it would have been like trapping eagles 40 years ago, and whether it would really be possible again now.

In June we set out on a mission to bait our traps and catch some eagles. We packed the car and drove back to Lorna Glen. When we arrived we set to work baiting our traps with road-killed kangaroo collected on the way up. After the traps were set, we focussed on setting up a large spring-loaded mist nest at an alternative trapping site. I firmly believed that adult eagles would be too savvy to be lured into a giant cage trap. We worked on preparing a flat launch area for our mist for a few hours when a call on the radio sent my heart racing. "We've just driven past your trap and there's a large, black (adult) eagle perched above it!" Allowing about an hour for the eagle to have time to 'take the bait', we nervously drove the several kilometres along the dirt road to our trap site. It was quiet on approach but, as I brought the vehicle to a halt, I noticed two adult eagles, one on the floor outside the trap and one sitting right on the kangaroo bait inside the trap! The bird was remarkably calm as we pinned it with cloth bags and removed it from the trap, and even more so after blinding it with a falconry hood. Finally we had one – an adult male wedge-tail!

After removing the eagle from the trap, we placed a hood over the bird's head so it couldn't see, which helped keep it calm. Then I fitted a satellite transmitter (called a PTT) to its back using a specially designed harness. It was an amazing feeling to release the male eagle, watch it run down the road and launch into the air like a Boeing

747 taking off at the airport, knowing I would be able to 'see' what it does from now on.

The next day we caught a second bird, this one an adult female from another area, and also fitted her with a PTT. I chose names for each eagle which were meaningful in the context of the study area: 'Wallu' for the male, which comes from the local Aboriginal word for eagle 'Wallu-wurru'; and 'Gidjee', an alternative spelling of the Gidgee tree, the most common species in which eagle nests are found in the region. Four months later I found myself clinging to the side of an eagle nest, face to face with Gidjee's beautiful, healthy nine-week-old chick. I removed 'Kuyurnpa' (Kuyu for short), which means 'little girl' in Martu language, from the nest, fitted the third PTT, and then placed her back on the nest. She was almost ready to fledge – only a week or so longer. Then, after all that flapping practice on the nest, it would be time to use those massive, feathered appendages for the first time. And take me, via a virtual satellite connection, along for the ride.

We can now follow the movements of both eagles using satellite technology. The PTTs are designed to stay on the eagles and track their movements using a tiny GPS, keeping charged with solar-panels, and transmitting the information recorded to my laptop via a satellite network. Every three days I check a website and look at a map of their movements. If you would like to read more about this eagle tracking project, and read the latest news about what the eagles are up to, visit www.wedge-tailedeagletracking.blogspot.com.au.

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At Lorna Glen, wedge-tailed eagles build nests with a commanding view over the Mulga woodland

Although two eaglets hatch, only one usually survives to fledge, provided food supply is ample. In arid Australia it is not uncommon for breeding to fail altogether.

Old adult wedge-tailed eagles, like this male, have almost entirely black plumage