

Report on a survey for Nabarleks in the Northern Territory, June/July 2007

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Introduction

During the preparation of a Recovery Plan on five species of rock-wallabies including the Nabarlek (*Petrogale concinna*), it became apparent that there was little recent information on its current distribution and conservation status. The known distribution of Nabarleks is largely based on early Museum collections and includes the north Kimberley (subspecies *monastria*); various sites in the Top End of the Northern Territory (subspecies *concinna*) including Litchfield and Kakadu National Parks; Arnhem Land, Mt Bunday, and the headwaters of the Mary and Victoria Rivers. The type specimen of *P. concinna* was collected by Stokes near the present day town of Timber Creek (NT) in 1839. There have been no further specimens collected from this area.

Sanson *et al.* (1985) undertook an ecological study of a population at Mt Borrodaile (western Arnhem Land) in the 1980s. They found Nabarleks to be common, sighting as many as 20-30 per hour of spotlighting. They studied this population during wet and dry seasons and even caught some and maintained them in the laboratory in Melbourne to determine the breeding biology. However, Sanson and his colleagues were unable to locate Nabarleks in 1976-7 at many other former collection sites, including the Pine Creek region, Mt Gardiner, Tabletop Range or the hills in the upper reaches of the Mary River (Sanson *et al.* 1985, Churchill 1997).

From 1989-1991, researcher Sue Churchill was employed by the Conservation Commission to undertake a survey for Nabarleks and other rock-dwelling mammals in the Top End of the NT (Churchill 1997). She found Nabarleks to be still present at Mt Borrodaile and frequently observed, even entering her camp. She also observed other Nabarleks at sites in Kakadu National Park (Jim Jim Falls campground), western Arnhem Land, near Litchfield National Park (Robin Falls). However, she was unable to locate any Nabarleks in the Pine Creek, Mary River and Timber Creek areas (Churchill 1997).

In July 2006, I visited a number of the sites where Churchill (1997) reported observing Nabarleks. Despite spending a week searching at a range of sites in Arnhem Land, Kakadu National Park and Robin Falls, I only observed one rock-wallaby that may have been a Nabarlek at Mt Borrodaile after two days of

daytime searching and two nights spotlighting. The other species of rock-wallaby that occurs in these areas sympatrically with the Nabarlek is the Short-eared Rock-wallaby (*Petrogale brachyotis*) and these were observed at all sites.

In an effort to clarify the conservation status of the Nabarlek in the Top End and to determine if a decline in distribution or abundance had occurred since the surveys of Churchill (1997), I asked Sue Churchill to accompany on a revisit to many of her survey sites during June-July 2007. This report summarizes this trip.

June 29 2007

Before commencing the survey, Sue Churchill and I visited the Northern Territory Museum to check some *P. concinna* and *P. brachyotis* skins for features to distinguish these two similar species apart. The curator of Reptiles and Mammals, Paul Horner showed us the dry skin collection of Nabarleks (around 6 specimens), including specimens collected from Mt Borrodaile and two collected at Mt Stapleton Station (now Litchfield National Park) by E.R. Petherick in 1951. Nabarleks are typically smaller, however *P. brachyotis* does vary remarkably in size, related to location, sex and maturity.

The best differences we could ascertain to pick Top End *P. concinna* from *P. brachyotis* were:

- *P. concinna* has a brindled back with an orange tinge with white flecks (leading to a shaggy untidy appearance; but note the comments of Ray Petherick on page 14). (Figs 1 and 3) There is no prominent white axillary patch. There is a grey-black axillary patch but it is less distinct than that of *P. brachyotis* (Fig. 4). The hind pes are uniformly coloured light grey; the tail is grey with a large brush on the end- usually grey (Fig. 6). The white jaw stripe is wider and more pronounced than that of *P. brachyotis*.
- *P. brachyotis* has a grey back with a prominent large black axillary (behind the front foreleg) patch bordered by a large and distinct white patch (Figs 2 and 3). Sometimes this white patch is bordered by another black patch (although smaller than the first black and white patches). This gives the impression of a black-white-black blaze running from the armpit of the front leg down the side to the midriff (Fig 5). The rear feet of *P. concinna* specimens were brown with darker brown to black toes; the tail was usually brown with a small terminal black brush on the last third (Fig. 6), but there was substantial variation in the colour of tails.



Figure 1: Back colouration of NT Museum specimens of *Petrogale concinna*



Figure 2: Back colouration of NTM specimens of *Petrogale brachyotis*



Figure 3: Comparison of dorsal pelage: front three *P. concinna*; rear *P. brachyotis*



Figure 4: Axillary patch and flanks of *Petrogale concinna* (NTM specimens)



Figure 5: Axillary patch and flanks of *Petrogale brachyotis* (NTM specimens)



Figure 6: Feet and tails: top *P. concinna*, bottom *P. brachyotis* (NTM specimens)

We then drove to Jabiru and picked up NLC permits from Ralph Blyth and continued on to Nimbaburr Hill, near Oenpelli arriving at dusk and camping 2 km off the main road along the Coopers Creek track (12.30581⁰ S, 133.08336⁰ E; all locations listed herein are based on the datum WGS 84). This area had been profoundly affected by Cyclone Monica with large numbers of trees brought down. A quick walk before sunset along the cliffline and another with a spotlight after dark for 1.5 hours failed to sight any macropods. We did find Euro or Black Wallaroo pellets, but found no rock-wallaby faecal pellets.

June 30 2007

We climbed slowly up Nimbaburr Hill looking for rock-wallabies or their droppings in the early morning for 2.5 hr. Ascended through the saddle at 12.30313⁰ S, 133.07828⁰ E to the top and rewarded with views over Oenpelli and surrounding escarpments. Surprised to find no rock-wallaby pellets at all despite suitable looking habitat. Echidna and either Euro (*Macropus robustus*) or Black Wallaroo (*Macropus bernardus*) pellets were scattered through the area. The hill looked like it was regularly burnt. It was relatively flat-topped with a steep scarp almost all the way around.

At 1030 hr we set off for Davidson's "Mt Borrodaile" Safari Camp arriving about two hours later. Max Davidson kindly provided some lunch; we discussed Nabarleks and viewed some photos he had taken of *P. concinna* and *P. brachyotis* along "Left Hand Billabong" on Coopers Creek. He then took us by boat to the site where he had taken the photos of the *P. concinna*. It was a low sandstone exposure (total height < 5 m) with very low, but extensive horizontal crevices.

On the way back, we observed two *P. brachyotis* in rock outcrops beside the river and nearby another rock-wallaby that was smaller and less strongly marked that we thought could be a Nabarlek. We landed and searched around this area, sighting a further half dozen *P. brachyotis*. Max then took us back to the site used by Sue Churchill during her survey work in 1990 and where I surveyed in June 2006. We set up camp amongst the rock outcrops of a large sandstone outcrop approximately 500 m south of Mt Borrodaile at 12.06099⁰ S, 132.88361⁰ E.

In the late afternoon, Sue and I sat about 100 m apart in the rock outcrop above camp with binoculars to observe rock-wallabies as they emerged from their daytime haunts. Sue heard two macropods, but did not sight any. Soon after sunset, a *P. brachyotis* moved down the outcrop to within 20 m of me. When it noticed my presence, it foot-stamped and hopped away. When hopping, *P. brachyotis* holds its tail in an upturned arc, not curled over the back like the Nabarlek (and Monjon, *Petrogale burbidgei*). A white hip stripe was prominent on this individual. Several Ghost Bats were observed foraging around this outcrop.

A short evening spotlight walk was undertaken around the base of the outcrop where we were camped (battery life on Lightforce spotlights with a 25 W globe limited to around 1.5 hours).

Start 1900 hr. 1 unidentified macropod seen in the distance on the floodplain edge

1930 hr *P. brachyotis* 12.05968⁰ S, 132.88465⁰ E

1938 hr *P. brachyotis* and Rock Ringtail (*Petropseudes dahlī*) 12.05979⁰ S, 132.88537⁰ E

1946 hr *P. brachyotis* and 2 adult *P. dahlī* 12.05934⁰ S, 132.88614⁰ E

2007 hr Turned back

2010 hr *P. brachyotis* 12.05990⁰ S, 132.88702⁰ E

2028 hr *P. brachyotis* 12.06032⁰ S, 132.88380⁰ E

2040 hr End at campsite- cool, clear evening.

July 1 2007

A feral pig was observed on the floodplain below Mt Borrodaile in the morning. We walked across towards the base of Mt Borrodaile, to a point at 12.05376⁰ S, 132.88934⁰ E, but did not climb on the rock surfaces (sacred sites). Traversed along the base of the hill looking for rock-wallaby droppings as far east as a large billabong (12.05488⁰ S, 132.89637⁰ E). Very sparse rock-wallaby droppings along this stretch and we did not sight any. The steep cliffs had limited crevice development. Near the billabong, Sue observed *Vespadelus caurinus* and *Taphozous georgianus* in a small cave.

We headed south from here through broken sandstone country away from Mt Borrodaile towards an outcrop with a spot height of 85 m (on 1: 50000 "Mt Borrodaile" sheet). The country consisted of broken sandstone with spinifex, scattered gums and Pandanus. Stopped for lunch and flushed a *P. brachyotis* (12.05978⁰ S, 132.89107⁰ E), the first one seen for the day. Continued on around the southern side of this outcrop to camp at 1415 hr and saw no further rock-wallabies.

At the campsite (12.06099⁰ S, 132.88361⁰ E) we observed the new species of *Cryptoblepharus* described by Paul Horner and known only from Mt Borrodaile. Two seen active (1415-1500 hr) on sandstone boulders, one missing its tail- several poor photos taken. Also observed *Morethia ruficauda* and another

species of *Cryptoblepharus* (coppery back with tiny black dots and larger than newly described species- it was active on dead *Calytrix* stems but dropped onto rocks and into a crevice when pursued. A bird list was also recorded for this area (see Appendix 1)

Mid-afternoon we headed out in the boat to Left Hand Billabong to look at rock-wallabies. Met guide Tom and Pierce (Ranger Training Co-ordinator at Oenpelli) and they kindly gave us a barramundi for dinner. At 12.05390° S, 132.86951° E, we observed a Nabarlek lying in a low sandstone crevice beside the billabong. We watched it for around 30 minutes from the boat and took a few photos (200 mm lens but animal in deep shade and some distance away). At various times it stood up so we could observe features of the pelage. About 30 m further downstream, two *P. brachyotis* could be observed in a cave and by moving the boat, we could compare the features of the two rock-wallaby species.



Figure 7: *Petrogale concinna* observed at Left Hand Billabong, Mt Borrodaile area



Figure 8: Another view of *Petrogale concinna* observed at Left Hand Billabong- note lack of pronounced axillary stripe



Figure 9: *Petrogale brachyotis* observed at Left Hand Billabong- note the prominent axillary stripes.

The Nabarlek lacked a prominent white axillary patch but possessed an indistinct black one. The head appeared small, short and rounded (“dainty”) compared to *P. brachyotis*. A prominent brown stripe of eye width ran from the eye forward to the snout. A brown head stripe ran from between the ears towards the snout, but did not reach it. The back was grey with a brindled appearance when it hopped. The tail was rufous-brown towards the end with a brush along the terminal third. In contrast, the *P. brachyotis* had very pronounced black and white axillary patches and rufous forelegs.

In the evening we headed out spotlighting at 2020 hr heading east from camp, around the edge of the outcrop.

2040 hr small macropod heard but not seen/ 2 x Spotted Nightjar; 12.06382° S, 132.88426° E

2100 hr 12.06535° S, 132.88601° E Few animals active; full moon; turned back to camp. Could hear a Euro or Black Wallaroo moving in a nearby creekline

2130 hr female Rock Ringtail (*P. dahl*) with large piggy-back young in *Syzygium?* tree about 50 m from the rock outcrop; 12.06328° S, 132.88439° E

2135 hr Rock Ringtail at the base of the cliff; *P. brachyotis* on top of cliff; 12.06300° S, 132.88432° E

2140 hr Rock Ringtail x 3, midway up small scarp on a ledge covered in ferns; 12.06225° S, 132.88390° E

2200 hr Back at camp.

Sue was very surprised at the low numbers of rock-wallabies (both species) that we observed at night spotlighting and flushed during the day when walking around. She commented that the numbers of both were much lower than her observations during her fieldwork at the same site in 1990.

July 2 2007

Packed up camp and returned to Max Davidson's camp. Had a coffee and shower and reported our results then set out for the Nabarlek area. Lots of recent exploration activity was apparent and we followed a road for a considerable distance hoping to get to Myra Falls, eventually arriving at a Cameco (uranium) exploration camp, situated around 6 km downstream (west) of Myra Falls. Met Gavin Otto, the Senior Project Geologist and discussed our work. The road to Myra Falls was no longer passable. He had seen rock-wallabies during helicopter survey work and called them "Nabarleks", but he was unaware that *P. brachyotis* was also in the area.

We returned towards Nabarlek and 3.8 km from the Cameco camp, stopped to investigate a rock outcrop (12.44121° S, 132.26151° E). Only a few rock-wallaby (probably *P. brachyotis*) droppings were found. Continued back towards Nabarlek into an area that Gavin had indicated they had recently pushed a gridline close to the escarpment. The area was clothed in thick smoke during burning operations being conducted from a R44 helicopter (Gavin indicated Pierce from NLC was doing this work). The fires seemed very extensive and were burning into former monsoon forest that had been impacted by Cyclone Monica (vast tree-falls) and some fires were observed burning on top of the escarpment in the sandstone heath.

We camped at the mouth of a gorge that had been lined with monsoon forest prior to Cyclone Monica; incredible numbers of trees were brought down creating a jumble of trunks (12.33596° S, 133.26296° E). Much of the area had been burnt recently.

We walked about 800 m up the gorge in the late afternoon but failed to find any droppings except those of Black Wallaroos. After dinner, headed out on a spotlight walk dinner commencing at 2030 hr. Headed south along the cliff edge. The area had been burnt.

2120 hr Black Wallaroo at base of scree slope; 12.34014° S, 132.26170° E.
Turned back to camp.

2130 hr Camp.

Heard Orange-footed Scrub-fowl and Boobook Owls calling during the night.

July 3 2007

Drove further along the outcrop and followed new gridlines to 12.33009° S, 133.26822° E. Ascended nearby outcrop as far as 12.33261° S, 133.26523° E. Great habitat for rock-wallabies with deep horizontal crevices and cliff collapses, but no sign of rock-wallaby droppings only Euro/Black Wallaroo, Echidna and Rock Ringtail.

Continued on to old mine processing plant and townsite at Nabarlek. Inspected two outcrops close to the old town at 12.29143° S, 133.32446° E- only Euro/Black Wallaroo droppings found at the first, but we did locate a few old *P. brachyotis*? droppings at 12.28919° S, 133.32657° E. The whole area had been recently burnt. Continued back towards Oenpelli, stopping to look at outcrop beside the road at 12.27830° S, 133.22985° E- a few old rock-wallaby droppings were found here.

We drove back across the East Alligator River and then to Kakadu NP Headquarters and met with Steve Wunderlich and Tida Nou about permits. Then drove down to Nourlangie Rock and walked up the Barrk Track until dark (1845 hr) almost reaching the saddle. Returned using a spotlight. At small pool high on Nourlangie Rock I was amazed to see 3 Cane Toads along with 2 *Litoria nasuta* (12.86207° S, 132.81672° E). Observed a small Death Adder (*Acanthophis praelongus*) alongside decking at the main Anbangbang Art Gallery. Back to carpark at 1940 hr and drove around to Nawurlandja (Little Nourlangie Rock). En route, saw a Children's Python (*Antaresia childreni*) at the gate on the road in (12.85672° S, 132.79594° E).

At 2000 hr left Nawurlandja Carpark and walked up onto the rock with the spotlight and to the SW and back in a loop.

2005 hr female Black Wallaroo and *P. brachyotis* (12.86139° S, 132.79326° E)

2020 hr *P. brachyotis* (12.86128° S, 132.79376° E)

2030 hr Back to carpark and started driving back towards campsite at Mulanbanbanju. Large female *Antaresia childreni* on road at 12.85928° S, 132.79556° E- about 300 m from the Nawurlandja gates.

2039 hr *Suta punctata* active crossing the road at 12.85702° S, 132.79774° E.

July 4 2007

Back up to Kakadu NP HQ to see Tida about access and a map to get into Radon Springs. Travelled down this track about 3 km when I got us bogged in a

black soil creekline. Dug for a while then called up KNP and Ian Conroy and Tanya Callanan came down and pulled us out and then escorted us into Radon. This proved to be fortuitous as the track was very overgrown and washed out as no-one had accessed the area since the previous dry season.

Left Radon Springs carpark (12.75105⁰ S, 132.90385⁰ E) and ascended a cliff to the east (as far as 12.75100⁰ S, 132.90457⁰ E). Lots of ledges and caves but only Wallaroo pellets seen. Observed chewed nuts (*Zygomys?*) in a cave. Climbed back down to creek and continued upstream. At 12.75308⁰ S, 132.90815⁰ E found fresh Rock Ringtail droppings and lots of Echidna poo.

At 12.75277⁰ S, 132.90958⁰ E we ascended out of the gorge onto ledges with spinifex; old Rock Ringtail droppings here; then climbed up to a large overhang at 12.75222⁰ S, 132.90990⁰ E with numerous shelves. Wallaroo and old *P. brachyotis* droppings on small ledges. Great rock-wallaby habitat with lots of crevices and large cliff collapse. Observed Black-banded Fruit Dove then found some fresher rock-wallaby droppings further along the ledge, but surprisingly little accumulation in caves beyond 5-10 pellets. Ascended a little further to 12.75240⁰ S, 132.91028⁰ E, but unable to proceed due to steep cliffs.

Returned to the creekline and walked up to a narrow canyon (GPS fix not possible); unable to negotiate it without swimming so tried to climb around- ran out of time and started to return towards carpark. At 12.75342⁰ S, 132.91300⁰ E (1550 hr) found a good overhang but no rock-wallaby dropping and none seen during climb around the top of the canyon. Back to carpark at 1630 hr and rang Kakadu NP HQ for permission to camp at the site overnight.

Close to sunset, we walked north along the base of the cliff as far as 12.74436⁰ S, 132.90524⁰ E. Only Wallaroo pellets observed. Located several springs emerging from the rocks along this face. Returned to camp; heard dingoes and scrub fowl calling up the Radon Springs gorge. At 2030 hr left for spotlight walk along the base of the escarpment following the same route as prior to sunset.

2040 hr male Black Wallaroo in woodland at base of scarp (12.75001⁰ S, 132.90318⁰ E)

2048 hr male Black Wallaroo moving slowly on scree slope (12.74961⁰ S, 132.90307⁰ E)

2106 hr rodent running with tail extended on scree; *Zygomys?* (12.74770⁰ S, 132.90436⁰ E)

2130 hr 12.74534⁰ S, 132.90506⁰ E turned back to camp

2150 hr Radon Springs carpark.

July 5 2007

Drove back to Jabiru and stopped in at the Kakadu NP HQ to report on our observations. Spoke to Tida and Steve about Wendy Telfer's findings. Headed off to Jim Jim Falls area arriving mid afternoon and set up camp. Drove into the old Jim Jim campground (now a day use area) on the road to Twin Falls, reaching there around 1600 hr. Walked up the Budjmi Walk to a low sandstone outcrop. Sue and I sat either side of a sandstone outcrop at 13.26312⁰ S, 132.81052⁰ E watching for rock-wallabies from 1730 hr using binoculars and a night vision scope. This was a site that Sue had observed a mixed group of *P. brachyotis* and *P. concinna* during her fieldwork in 19XX. No wallabies seen.

At 1900 hr returned to vehicle for dinner and to pick up the spotlight then walked back up onto the outcrop at 1930 hr.

1945 hr Rock Ringtail x 4- mother and half grown young on her back and another two adults about 10 m away on the face of the outcrop facing the creek (13.26313⁰ S, 132.8105⁰ E)

1954 hr small rock rat, *Zyzomys ?argurus*, seen (13.26287⁰ S, 132.81057⁰ E).

2010 hr Scrambled up hill to 13.26242⁰ S, 132.80920⁰ E. Lots of wallaroo droppings and only very occasional rock-wallaby pellets so descended back down. Spotlight waning so quick inspection of the low outcrop at the Budjmi trail lookout. A lot of fresh rock-wallaby pellets here including small ones intermingled with larger ones. The fresh dung extended off the outcrop and onto the flat country bordering the creek.

2030 hr Started heading back to carpark and then drove back to campground.

July 6 2007

Returned to the Budjmi Lookout the next morning and walked slowly around the outcrops from around 0730 hr. Sue headed north towards a promising looking stack of rocks about 500 m away and searched along the cliffline nearby. Despite good potential habitat (crevices and ledges), she found no sign of rock-wallaby droppings on the stack and only scattered ones along the base of the cliffline. Meanwhile, I searched the low outcrops around the lookout (made of coarse sandstone and in some places, conglomerate). South along this outcrop there were considerable accumulations of fresh rock-wallaby droppings, mostly *P. brachyotis*, but sometimes intermingled with smaller droppings (juvenile *P. brachyotis* or Nabarlek?). The inability to distinguish between the two species on droppings makes broadscale and rapid survey for these two species (but particularly the smaller Nabarlek) very difficult.

I reached the end of the outcrop and walked back along its base in a small creekline. Flushed a *P. brachyotis*- I did not see it but it hopped past Sue. She said it was large and emerged from rocks below the cliffline well in advance of my arrival. Returned to the vehicle then back to the campsite to pack up and say farewell to manager Greg Bell.

Roadkill *Demansia atra* (female, 16 midbody scale rows, spotted head, gut full of nematodes, ovaries small and quiescent) seen 8.7 km from campground on road back towards Cooina.

Continued on to Pine Creek for lunch and then headed north on Stuart Highway. At Hayes Creek rang Wendy Telfer to check on the sites she found Nabarleks in the Robin Falls area. She worked at a site she called "Robin Falls Apostles", but never observed Nabarleks here. She concluded that Nabarleks were present on the basis of two general pellet sizes present; the larger ones being *P. brachyotis* and the smaller rounder ones presumed to be those of Nabarleks.

We continued on to find the Apostles site. Access was via a very steep Telecom track (sealed on the first hill) 1.3 km back from the Robin Falls turnoff towards Adelaide River on Dorat Rd. Drove along the main track as it traversed a steep ridge for 3.5 km to a promising outcrop at 13.34120° S, 131.11778° E. Very steep sandstone gorge with large cliff collapses- walked around the outcrop and flushed a *P. brachyotis* at 13.34140° S, 131.11594° E. There were considerable accumulations of fresh dung in caves and crevices. At sunset we sat on either side of the gorge and watched for rock-wallabies, observing several active at last light.

Started dinner and then observed a *P. brachyotis* in the boulders beside the camp; also observed a *Pseudantechinus bilarni* in the same outcrop. Spotlight walk commencing at 2110 hr- fine, clear, no moon.

2115 hr *P. brachyotis* alongside camp

2122 hr *P. brachyotis* at 13.34182° S, 131.11712° E

2200 hr *P. brachyotis* x 2 (one a female with a large pouch young); 13.34145° S, 131.11756° E.

2220 hr *P. brachyotis* x 2; 13.33934° S, 131.11711° E
also saw a large pale *Heteronotia ?binoei*- poorly patterned back but with a strongly banded tail.

2230 hr Back to camp. Encountered a *P. brachyotis* in spear grass alongside the camp.

July 7 2007

Observed a *P. brachyotis* sunning on the cliff opposite the camp; the tail was draped between the legs and hanging over a ledge. Walked up into this area- lots of fresh *P. brachyotis* faecal pellets and occasional Euro ones. Smaller circular droppings seen at Jim Jim not apparent.

Packed up camp and drove to Robin Falls. Found a few scattered *P. brachyotis* droppings near the Falls at 13.35438⁰ S, 131.13002⁰ E.

Then drove into Darwin and dropped Sue off at the airport to catch a flight back to Sydney. I drove out to Fogg Dam to catch up with the Uni of Sydney researchers and to assist with work on cane toad susceptibility trials, staying on for July 8. I left Fogg Dam on July 9 to drive back to Kununurra. I drove via Litchfield National Park- there was insufficient time to do any survey work, but I was interested in looking at the landscape in terms of rock-wallaby habitat. At Wangi Falls, there was a display about local Aboriginal culture and I saw that Ray Petherick had prepared the display. Could this be the same E.R. Petherick that had collected Nabarleks in 1951?

I was fortunate enough to be able to track down Ray and have a chat to him about his observations on Nabarleks. He moved to the area in 1948 to work on a sawmill. He regularly observed Nabarleks and collected two for the then Curator of Mammals at the SA Museum, H. H. Finlayson. He collected a female about 10 km upstream of Wangi Falls; one about 1 km SE of the Bamboo Creek Tin Mine and another nearby. He noted that the males were more reddish on the back than the females, but they were of similar size. They were outnumbered by *P. brachyotis*. Despite spending significant time in the bush around the Litchfield consistently since 1948 (these days looking for rock art), he had not seen a Nabarlek for around 30 years. He believed that feral cats had caused their demise.

Arrived in Katherine at sunset, booked accommodation in Kununurra and then drove through the night arriving there at 2300 hr. Caught a flight home at 1050 hr the next morning. Consequently, I did not get a chance to do any survey work in the Timber Creek/ Gregory National Park area.

Acknowledgements

My thanks to Sue Churchill for making the time available to travel over and return to her former study sites and share her observations with me. Thank you to the Northern Land Council (especially Ralph Blyth), Parks Australia, the NT Parks and Wildlife Commission and Dr John Cooper for permission to access rock-wallaby populations on land under their control. Paul Horner (NT Museum)

allowed us to view rock-wallaby specimens in his care. Max Davidson and Ray were very hospitable at Mt Borrodaile and kindly loaned us a dinghy to access rock-wallaby sites. Staff at Kakadu National Park; Steve Wunderlich, Tida Nou, Ian Conroy and Tanya Callanan assisted with logistics and permits to reach survey sites.

References

Churchill, S. (1997). Habitat use, distribution and conservation status of the nabarlek, *Petrogale concinna*, and sympatric rock-dwelling mammals, in the Northern Territory. *Australian Mammalogy* **19**: 297-308.

Sanson, G.D., Nelson, J.E. and Fell, P. (1985). Ecology of *Peradorcas concinna* in Arnhemland in a wet and dry season. *Proceedings of the Ecological Society of Australia* **13**: 65-72.

Telfer, W.R., Griffiths, A.D. and Bowman, D.M.J.S. (2006). Scats can reveal the presence and habitat use of cryptic rock-dwelling macropods. *Australian Journal of Zoology* **54**: 325-334.

Appendix1 Bird list for Cooper's Creek/ Mt Borrodaile area

White-bellied Sea Eagle
Whistling Kite
Swamp Harrier
Brahminy Kite
Black Kite
Brown Goshawk
Nankeen Kestrel
Olive-backed Oriole
Great Bowerbird
Peaceful Dove
Chestnut-breasted Cuckoo
Blue-winged Kookaburra
Forest Kingfisher
Azure Kingfisher
Black-faced Cuckoo-shrike
Little Cuckoo-shrike
Northern Fantail
Restless Flycatcher
Leaden Flycatcher
Willie Wagtail
Vareigated Wren
Mistletoebird

Grey Shrike-thrush
Brown Honeyeater
Blue-faced Honeyeater
Barking Owl
Owlet Nightjar
Spotted Nightjar
Magpie Lark
Red-winged Parrot
Sulphur-crested Cockatoo
Scaly-breasted Lorikeet
Darter
Plumed Whistle Duck
Sacred Ibis
Glossy Ibis
Straw-necked Ibis
Royal Spoonbill
Black-winged Stilts
Banded Plover
Spotless Crake
Jabiru
Great Egret
Intermediate Egret
Little Egret
Radjah Shelduck
Black Duck
Pelican
Jacana
Brolga
Nankeen Night-Heron
Mangrove Heron
Green Pygmy Geese
Caspian Tern
Whiskered Tern
Pheasant Coucal
Southern Stone Curlew
Pied Heron
Magpie Geese
Rainbowbird
Purple Swamphen
Little Corella