



PALM COCKATOO NEWS

BY CHRISTINA ZDENEK

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I POINTED MY SHOTGUN MICROPHONE toward the rowdy calling and made my way through the shoulder-height tropical grass before I finally caught sight of the activity. An epic battle was about to unfold. A rival male made a direct flight toward the resident male sitting near a tree hollow. They met in mid-air, growling and wrestling until they hit the ground. The growling continued for a long five seconds, probably leaving one, if not both of them, in pain. This battle, to me, vividly represents the value of rare, high-quality nesting hollows in the ever-challenging world of Palm Cockatoos.

During my recent research I spent up to six months each year living in a 2-walled shelter-shed, called a “humpy,” adjacent to the remote rainforest in northern Australia. The purpose: to figure out how to better study Palm Cockatoos. I evaluated the efficacy of two noninvasive techniques to identify and track individual Palm Cockatoos over time, without capturing them.

VOCAL INDIVIDUALITY involves digitally recording their calls to use for sound analysis, much like a fingerprint.

PHOTO IDENTIFICATION involves taking high-resolution profile photographs of the birds’ faces to identify them, much like they do with dolphin and whale fins. The technique has also been used with other parrots such as the Blue-throated Macaw (*Ara glaucogularis*) and Hyacinth Macaw (*Anodorhynchus hyacinthinus*). See *PsittaScene* 19.2 (May 2007) and 18.4 (November 2006).

This research is particularly important because there are currently no other

working alternatives to identify individual Palm Cockatoos within the population. It is not feasible to apply coloured rings/bands to the adult birds. It is extremely time-consuming and difficult to capture them and they can easily over-stress. Plus, these birds have good memories and are very intelligent, so they may very well avoid capture areas, thereby effectively reducing the area of quality habitat. I hope my efforts not only provide an important research tool but also some well-needed insight into the Palm Cockatoo’s conservation status and unique behaviour.

So what do we gain by identifying individuals in a population? The answer has to do with the population’s age structure and the Palm Cockatoo’s life history. Because these birds are so long-lived (estimated 40-60 years; captive birds may reach 90 years), problems with recruitment can be masked within a persistent, but aging, population. For example, large, hot fires late in the dry-season burn down more trees than early dry-season cold

burns. As a result, the birds are likely losing breeding hollows because dead (but still standing) nesting trees are vulnerable to hot burns. In this grim scenario of inappropriate fire regime, feeding trees may still be available to keep the population alive for decades, while a lack of nesting trees takes a substantial toll on recruitment.

The Palm Cockatoo’s life history can exacerbate this problem. They are very slow breeders, with pairs attempting to breed once every 2.2 years on average and invariably laying just one egg per clutch. They also have low reproductive success, with one successful fledgling every 10 years on average. So if we simply monitor the number of individuals, without knowing their age or how many are breeding successfully, we only get a small part of the story. Furthermore, in determining the long-term viability of the population as a whole (i.e. their conservation status), data from individual birds is particularly important when each bird lives for so long.

PALM COCKATOO

(*Probosciger aterrimus*)



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PALM COCKATOOS ARE LARGE, BLACK parrots that can grow up to 60 cm (24 in) tall, weigh over 1 kg (2.2 lb), and are world-famous for their unique “drumming” behaviour (above). Males occasionally fashion drumsticks from live tree branches and use them to “drum” on the edge of tree hollows. This remarkable display, unique in the animal kingdom, is a fascinating example of tool-creation and use by an animal in a non-foraging context.

Palm Cockatoos are native to New Guinea, some offshore islands and Australia, where they only occur on the north eastern tip, in and around the rainforests of Cape York Peninsula. Although numbers in Cape York are thought to remain reasonably high, loss of habitat from aluminium strip-mining and degradation of habitat from inappropriate fire management are current threats to these iconic birds.

After 2 ½ years of formidable research on this elusive and remotely-located species, I have indeed been able to contribute a better understanding of applied behavioural ecology for Palm Cockatoos. I found them to be individually distinctive in vocal features of their calls, which was a good start to identifying individuals. However, in order to identify them over time using their calls, I first had to make sure that the way individual birds call does not change over time (like when they change territories, or simply grow older). While I was not able to test this question extensively, preliminary tests of vocal stability suggest that vocalisations are not stable over time. That’s the bad news. The good news is that Photo-ID of the beak and face show promise for individual identification and warrant further exploration.

In this daunting, confusing, and often frustrating process of becoming a Palm Cockatoo linguist, I discovered their scope to be more complex and extensive than most Psittacine species. There are several interesting theories as to why. It appears that their calls have a territorial and mate-attraction function – similar to songbirds – whereas, most parrots use vocalisations to coordinate their flocking, fission-fusion societies.

I also discovered that Palm Cockatoos duet! In rare, specific situations, mated pairs actually coordinate a call so precisely that only the super-refined sound analysis skills that I developed during this study could discern that it was two birds in a duet. I don’t know how they do it, but I imagine the pairs that do it well have been mated and perfecting the technique for years, maybe decades.

Although my research focused on understanding Palm Cockatoos so that we can better apply management strategies, the wider project aim is to utilise Palm Cockatoos as an umbrella species for the whole Cape York Peninsula – a truly unique place where the species of Australia mix with those of New Guinea. And while my “humpy” was not overly-luxurious, seeing epic battles, drumming males, and living 50 m (160 ft) from a rainforest was truly an experience of a lifetime.



Christina Zdenek studied Palm Cockatoos under the supervision of Professor Rob Heinsohn and Naomi Langmore from February 2009 to July 2011, as part of a Fulbright Postgraduate Fellow from the U.S. government. Her thesis was accepted for a Masters degree of research at The Australian National University.





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This pair is in the middle of a nest exchange. The female (left) has arrived to relieve the male who has been incubating all day. She'll take the night shift and the male will relieve her again in the morning.



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