Carnaby's black-cockatoos

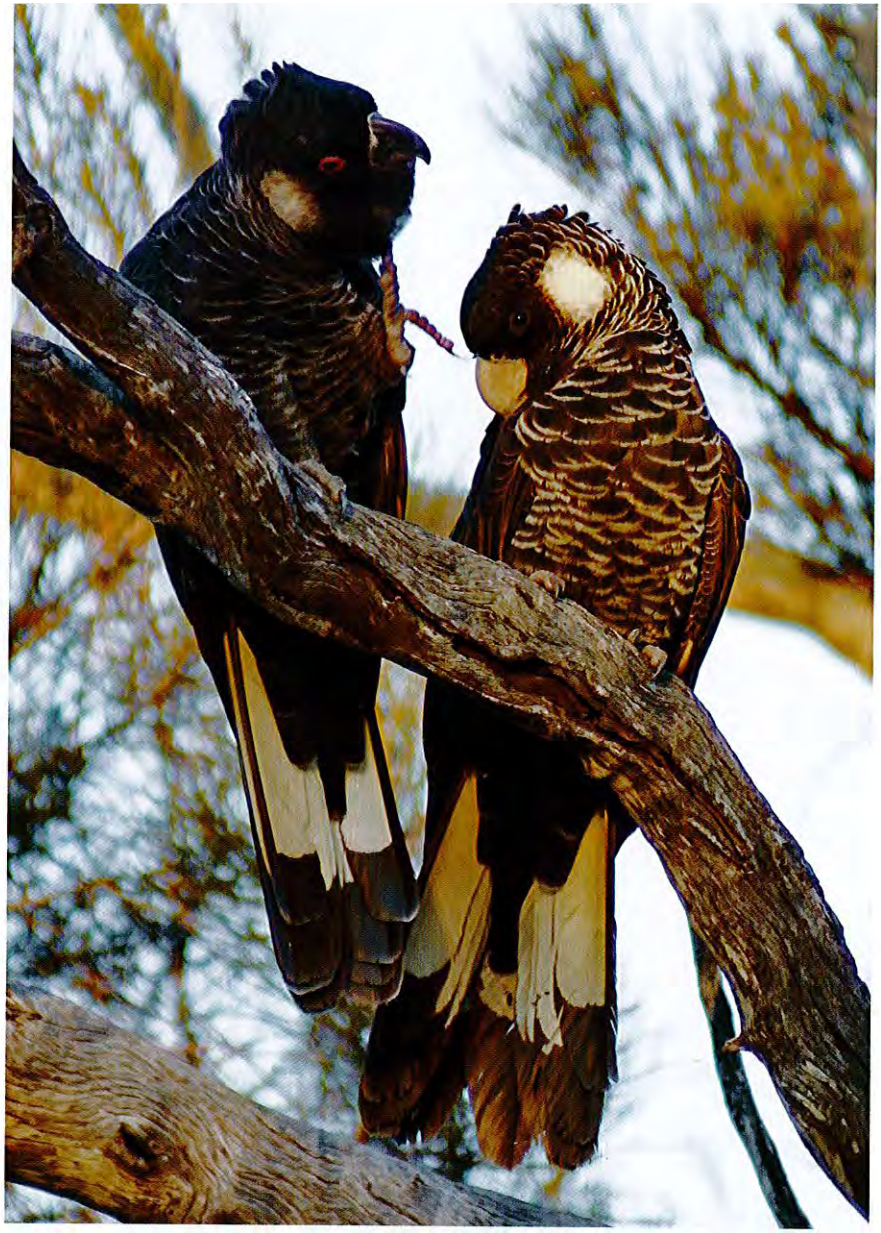
The iconic Carnaby's black-cockatoo is under threat. What is being done to save these birds and how are everyday landholders making a difference?

by Dejan Stojanovic

As black silhouettes swooping in small flocks over Perth and surrounds, the large, noisy Carnaby's black-cockatoo (*Calyptorhynchus latirostris*) is a familiar sight. This iconic bird is also a regular resident of the Western Australian Wheatbelt, but the once-common spectacle of vast flocks of thousands of these birds has become increasingly rare.

Their size, loud cry and messy feeding habits make Carnaby's conspicuous wherever they occur, but rapid decline has seen the population reduced to just half that of 50 years ago, with the species now officially listed as endangered.

The Carnaby's black-cockatoo is threatened by a combination of incremental clearing of non-breeding habitat in coastal heathlands and by degradation of its breeding habitat in the Wheatbelt. But all is not lost. Given their familiarity to most people living in the south-west, these birds attract considerable attention from various non-government organisations, community groups and the Department of Environment and Conservation (DEC). The Carnaby's Black-Cockatoo Recovery Project, run by Birds Australia in partnership with WWF-Australia, has established strong links with community groups and landholders to implement on-ground works aimed at securing habitat for these birds across their range.



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Main Female at a hollow in a wandoo tree.
Inset Cockatoos in flight.

Above Pair grooming at sunset.
Photos – Dejan Stojanovic

Natural history

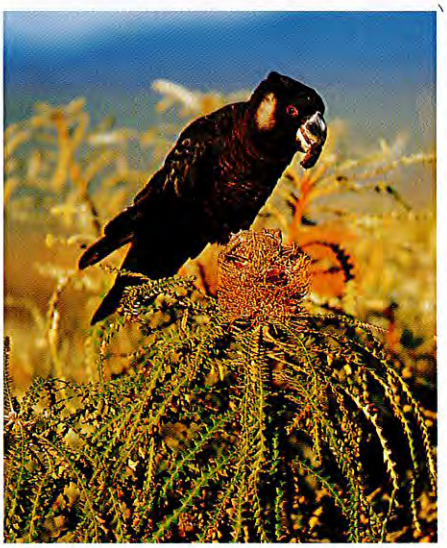
Along with the Baudin's black-cockatoo (*C. baudinii*) and the forest red-tailed black-cockatoo (*C. banksii naso*), Carnaby's black-cockatoo is endemic to the south-west of Western Australia. Although it overlaps extensively with the other two south-western species, Carnaby's black-cockatoo is more widespread and occurs in drier habitats than the others. Wandoo (*Eucalyptus wandoo*) and salmon gum (*E. salmonophloia*) woodlands are the most important breeding habitats for Carnaby's black-cockatoo, although records of breeding activities in the wetter south-west are becoming more common as the region is more intensively surveyed.

Carnaby's black-cockatoos are generally believed to undergo an annual migration from their summer breeding habitat in Wheatbelt woodlands to coastal heaths south and west of the breeding areas where they feed extensively on proteaceous plants like banksias and hakeas. The birds appear to some extent to have adapted to changing food resources and eat a variety of non-native foods. Some agricultural weeds (for example wild radish, wild geranium and double gee) have become important food resources in rural areas and exotic pine plantations on the Swan Coastal Plain support large numbers of birds.

It is not known how the spatial arrangement of food resources across landscapes influences the annual movements of cockatoos, although connectivity of habitat across migration pathways is very likely to be important. The issue of habitat connectivity is also potentially significant at a local scale and, at breeding areas, has been shown to have considerable influence on the survival of Carnaby's black-cockatoo populations.

Under threat

Early research on Carnaby's black-cockatoo in the 1970s and 1980s found that the health of breeding populations was strongly influenced by the proximity and quality of food resources to nests. Enough food growing close to a nest greatly improves fitness and survival of chicks, while populations that are forced to forage far from their nests (due to habitat modification and degradation) suffer reduced fitness of their chicks and, potentially, local extinction. Although outright clearing has largely ceased in the Wheatbelt, continued degradation of habitat fragments is threatening breeding populations. This threat is manifested through degradation of feeding habitat



Top left Coastal bushland being cleared for residential development.
Photo – Brett Dennis/Lochman Transparencies

Above left Carnaby's black-cockatoo in south-western Australia.
Photo – Bill Belson/Lochman Transparencies

Above Wandoo woodland.
Photo – Marie Lochman

and associated reduced availability of food. Severe degradation of both feeding and breeding habitat has had long-term effects on recruitment of new hollow-bearing trees which, when combined with loss of food resources, may seriously impact recovery of cockatoo populations.

Unlike the Wheatbelt, outright clearing of habitat in coastal heaths has actually accelerated due to urban development and, given the likely importance of these areas to over-wintering birds, is an increasing threat to the species. Suitable habitat for Carnaby's black-cockatoos occurs across much of the south-west and the threats to that habitat are many.

Phytophthora cinnamomi, an introduced plant pathogen responsible for vegetative dieback, is killing extensive tracts of heathland throughout the wetter regions of the south-west. Compounding this problem is salty groundwater destroying remnants of Wheatbelt woodland already browsed by inflated numbers of introduced herbivores and swamped by aggressive competitors for limited nesting hollows. Given the extent of threats to habitat across the south-west, protecting remnant vegetation is of utmost importance to the preservation of biodiversity in the region.

Gaps in knowledge

Carnaby's black-cockatoos present an interesting conservation challenge. A migratory bird, they traverse large areas during their annual cycle, crossing multiple land tenures, each with its own challenges and threats. One of the greatest barriers to their recovery is the limited current knowledge about their natural history. The bulk of research on these birds was conducted before the explosion of development in coastal cities in WA and very little recent work has been done to assess how this incremental loss of habitat is affecting the recovery of the species. This lack of understanding in a modern context is a major challenge for recovery efforts and, without urgent research, the problem is likely to persist.

Nesting primarily in drier woodlands in the east of their range, Carnaby's black-cockatoos rely on food sources within close proximity to their nests. Once the chicks are capable of flight, it is believed that family groups undertake a migration to the western and southern reaches of their range to feed in coastal heaths during the non-breeding winter months.

Presently, no data are available about the exact route of migration and it is not known whether connectivity of remnant vegetation is an important factor in their movements. Furthermore, there is only limited information about nesting site fidelity of breeding populations and no information about over-wintering site fidelity.

The serious gaps in knowledge make conservation of this species a challenge, as it is difficult to assess the importance of individual fragments of habitat. These issues are not helped by the limited data available on other aspects of their biology. For example, reliable population estimates are not available for this species and mortality rates of adults and fledglings are not known.

In December 2008, a symposium was held in Perth to discuss the challenges. These knowledge gaps and an inadequate monitoring regime were identified as major barriers to recovery efforts for the species. Given

Top Trio of Carnaby's black-cockatoos.
Photo – Dejan Stojanovic

Centre left Carnaby's black-cockatoos feeding in a bush corridor.
Photo – Jiri Lochman

Left Carnaby's black-cockatoo chick in a tree hollow.
Photo – Dejan Stojanovic

Right Fencing remnant vegetation helps to preserve habitat.

Below left Artificial hollows encourage nesting in some areas.

Below right A Carnaby's black-cockatoo chick.
Photos – Dejan Stojanovic

the limited knowledge of the ecology of the species, it is a major challenge for the recovery project and the recovery team to evaluate the effectiveness of on-ground conservation activities on populations of the cockatoos.

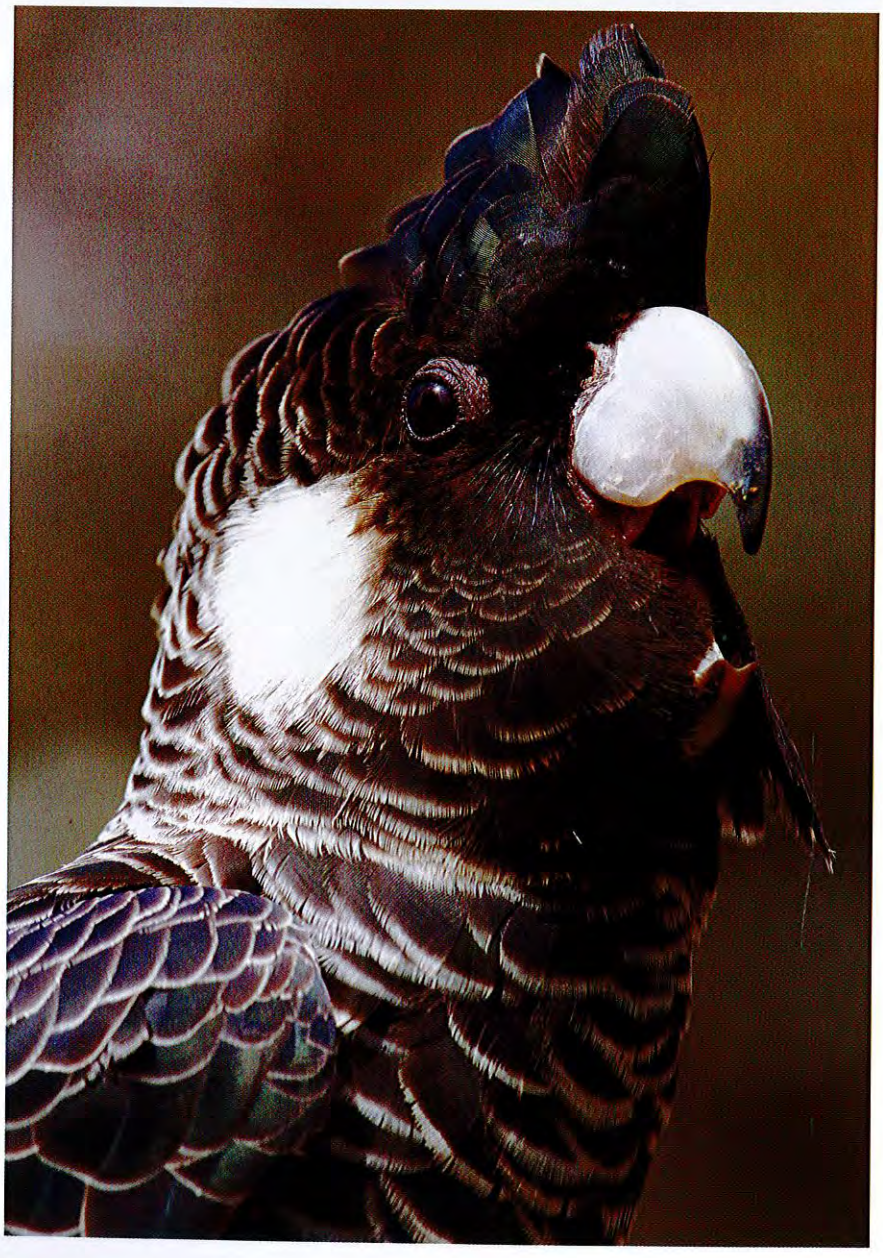
Making headway

The Carnaby's Black-Cockatoo Recovery Project has focused primarily on protecting breeding habitat in the Wheatbelt. At present, Birds Australia's Important Bird Areas (IBAs) project, has identified six IBAs for nesting cockatoos on privately owned land and these have been targeted for habitat preservation through fencing of remnant habitat and, where possible, restoration through revegetation. Historic data on the importance of proximity of foraging resources to nesting areas have directed recovery project efforts primarily to the Wheatbelt in recent years. Here, Birds Australia project staff actively work with landholders to protect bush that cockatoos use for nesting and feeding.

The recovery project protects habitat not only through on-ground work such as fencing and revegetation, but also with permanent protection of nesting habitat through conservation covenants. Covenants are important in ensuring the protection of critical remnant bush into the future and offer security that a fence alone cannot.

The most important work undertaken by recovery project staff, however, is the building of relationships with community groups and landholders. These relationships have been instrumental in empowering and inspiring people to conserve the endangered cockatoos. Without the interest and concern of the community, the recovery project would be impossible. Given that the majority of known breeding populations of Carnaby's black-cockatoo occur on private property, it is of great importance that those landholders understand the value of the birds. This is particularly important given that simply fencing and covenanting a patch of bushland does not address long-term management of that habitat.

As responsibility ultimately falls on the landowner, it is crucial that the importance of the species and habitats occurring on private property is fully conveyed to those landowners, whose passion and interest are key to the birds' preservation. Landholders and communities have formed strong relationships with Birds Australia and WWF-Australia and are instrumental in on-ground work. The links between landholders, communities and the recovery project are essential in ensuring local biota is conserved into the future.



Left Attaching a transmitter to an anaesthetised Carnaby's black-cockatoo.

Below left Female calling.
Photos – Dejan Stojanovic

Filling the gaps

In addition to on-ground work, Birds Australia and its partners are making headway in filling some of the knowledge and research gaps identified for Carnaby's black-cockatoo. In January 2009, thanks to private donations made by two members of the public with a concern for cockatoos and a desire to help, an aviary trial of various satellite and radio transmitters was initiated in partnership with Perth Zoo, Murdoch University and with the support of DEC and the Black-Cockatoo Rehabilitation Centre.

This trial is the first time that modern wildlife tracking technology has been tested on Carnaby's black-cockatoos and is intended to provide the recovery team with options for tracking wild cockatoos. This will provide data on how the species uses habitat at a landscape-scale, shedding light on the best way to prioritise future conservation efforts. Because of the strength of their beaks, tracking wild birds has not been considered feasible as sufficiently robust transmitters were not available. However, the aviary trial is testing six different transmitter designs with three different attachment methods and, at the time of writing, the Carnaby's black-cockatoos involved in the trial had largely ignored their transmitters and were showing no signs of discomfort—a very positive result.

Furthermore, the recovery team has received reports of Carnaby's black-cockatoos using canola crops as a food source. In order to better understand the extent and nature of the situation, WWF-Australia provided funding to support a masters student project looking at the spatial distribution and extent of cockatoos using canola. Preliminary data show that Carnaby's black-cockatoos have a negligible impact on canola crops and that farmer attitudes toward the

cockatoos are generally positive. This project is significant in that cockatoos have elsewhere been persecuted for their use of crops. The recovery team considered it important to gain an early understanding of the phenomenon of crop use by Carnaby's black-cockatoo and the community attitudes towards the behaviour. The results of the study will be made available once the project is completed.

The Carnaby's Black-Cockatoo Recovery Project needs support to be able to adequately address the research questions that so desperately need to be answered and the importance of private donations cannot be underestimated. The Carnaby's Black-Cockatoo Recovery Project has had a great history of generous individuals and organisations providing financial support.

The future

Birds Australia and its project partners intend to continue their efforts in the Carnaby's Black-Cockatoo Recovery Project. In the short term, the project is aimed at undertaking on-ground works at feeding habitat near nominated IBAs for cockatoos in the Wheatbelt. In the long term, Birds Australia will continue to protect and manage native habitat for cockatoos. In partnership with the recovery team, Birds Australia will also refine monitoring protocols, both to improve understanding of the life history of the birds and to better evaluate human impact on the recovery of the species.

While the full extent of habitat clearing and degradation and the many other threats to the species is uncertain, protection of habitat is a high priority for the long-term survival of the species. However, the recovery project depends on the interest and participation of the community in Carnaby's black-cockatoo conservation and there are many ways people can get involved. Among other activities, Birds Australia conducts annual monitoring of nesting birds in the Wheatbelt and volunteers are an essential part of that process. To find out how you can contribute to the recovery project, visit the Birds Australia website at www.birdsaustralia.com.au/our-projects/carnabys-black-cockatoo-recovery.html and contact the project officers.

Top left The tame cockatoo 'Harmony' helps engage the community in cockatoo rehabilitation.

Above left Taking DNA from a Carnaby's black-cockatoo chick.

Above A female in a marri tree hollow.
Photos – Dejan Stojanovic

Dejan Stojanovic is the Birds Australia cross regional project officer for the Carnaby's Black-Cockatoo Recovery Project. His interests are shorebirds, pigeons and parrots, their migration behaviour and threatened species management. He can be contacted on 0428 762 292 or by email (d.stojanovic@birdsaustralia.com.au).

Volume 24 Number 4 WINTER 2009

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Publishing credits
Executive Editor Ron Kawalilak.
Editors Samille Mitchell, Rhianna King.
Scientific/technical advice
Kevin Kenneally, Paul Jones, Keith Morris.
Design and production Natalie Jolakoski, Tiffany Taylor, Gooitzen van der Meer.
Illustration Gooitzen van der Meer.
Cartography Promaco Geodraft.
Marketing Estelle de San Miguel.
Phone (08) 9334 0296 *Fax* (08) 9334 0432.
Subscription enquiries
Phone (08) 9334 0481 or (08) 9334 0437.
Prepress and printing Lamb Print, Western Australia.
© ISSN 0815-4465

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Visit www.dec.wa.gov.au

Published by the Department of Environment and Conservation, 17 Dick Perry Avenue, Kensington, Western Australia.

Department of Environment and Conservation
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