

RECOVERY TEAM ANNUAL REPORT THREATENED SPECIES AND/OR COMMUNITIES RECOVERY TEAM		
PROGRAM INFORMATION		
Recovery Team	Carnaby's Cockatoo Recovery Team	
Reporting Period Submission date 31 March	DATE FROM: 1 January 2013	DATE TO: 31 December 2013
Current membership		
	Member	Representing
Chair	David Mitchell	DPAW, Swan Region
Exec Officer	Geoff Barrett	DPAW, Swan Region
members	Alison Doley	Community/landowner, Koobabbie, Coorow
	Rick Dawson	DPAW, Nature Protection Branch
	Ron Johnstone	WA Museum
	Brett Beecham	DPAW, Wheatbelt Region
	Manda Page / Christine Groom	DPAW Species and Communities Branch
	John Ingram	CSIRO
	Cheryl Gole / Matt Fossey	BirdLife Australia
	Stephen Davies	Murdoch University & Curtin University
	Brad Barton	DPAW, Warren Region
	Tracey Scroop	Dept. Planning
	Kath Howard	World Wide Fund for Nature
	Kim Williams	DPAW, South West Region
	Anthony Desmond	DPAW, Mid West Region
	Sarah Comer	DPAW, South Coast Region



Dates meetings were held	21st February 2013 and 15th August 2013
Highlights of achievements for the previous 12 months suitable for publication in <i>WATSNU</i> and contribution to DPAW annual report. Provide 1-2 paragraphs summarising total number of new populations located, surveys completed, list major management actions etc	Recovery Plan: - After several years and several authors, a new recovery plan for Carnaby's cockatoo was completed in 2012 and endorsed as Western Australian Wildlife Management Program No. 52. This plan has also been forwarded to the Commonwealth SEWPAC for endorsement as a Recovery Plan under the EPBC Act. It is believed that this endorsement will occur during 2013 following assessment by the Commonwealth Threatened Species Scientific Committee and a period of public comment. Great Cocky Count: - The fourth Great Cocky Count was held in April 2013, with 250 sites surveyed by over 250 volunteers, including 48 sites surveyed outside the DEC Swan Region (new roosts). We now have over 450 sites in the southwest (including 174 confirmed roosts as well as unconfirmed roosts and potential roost sites). - There is a trend towards declining numbers since 2010, although total count of roosting birds was higher in 2013 compared with 2012 (10351 vs 8026). - Funding has been secured for a 2014 GCC (Perth NRM) and Dr Hugh Finn has been appointed as the BirdLife GCC Coordinator. 2014 GCC will focus on 38 core sites in Swan Region, that have been surveyed regularly since 2010. Monitoring movements: - Christine Groom (PhD UWA) is working with Murdoch University (Kris Warren) towards a large-scale movement study for Carnaby's Cockatoos using 17g solar powered, satellite transmitters. - DEC and BirdLife Australia are continuing to band Carnaby's and have encouraged people to report and possibly photograph banded birds. BirdLife Australia projects: - Perth NRM funded the 2012 and 2103 GCCs, plant labels for nurseries that identify Carnaby's friendly plants, revegetation works aimed at improving foraging habitat near suburban roost sites and communication brochures and signage. - Caring for Our Country: 15 landholders have been successfully engaged in restoration and revegetation efforts (7 hectares) in the southern Wheatbelt (Dragon Rocks, Newdegate). - South Coast NRM, landholder information booklet, released at Albany, 16 page, includes information about Carnaby's biology and ecology, revegetation guidelines and what landholders can do. - BirdLife has provided guidelines for revegetation to SEWPac (Mat Fossey), as has DPaw (Brad Barton). World Wide Fund for Nature (WWF): - WWF has a small project aimed at habitat protection on private lands. 40 hectares have been fenced on two properties and 2,2



	hectares of revegetation have taken place. Land acquisition: - Through the development offset process, 14 land purchases have occurred, bringing a total of 9,803 hectares of Carnaby's Cockatoo habitat into the conservation estate (from private land). Restoration and improvement of habitat: - The Jandakot Banksia Woodland Restoration project is a large offset project that has restored 22 ha of banksia woodland through topsoil transfer and planted a further six hectares of Carnaby's feeding habitat (banksia woodland). Over the next three years, the project will create approximately 40 hectares of Carnaby's habitat, control weeds over approximately 800ha and fence approximately 1000ha of Carnaby's feeding habitat. - Teagan Johnston's finalised MSc thesis, looking at food availability for Carnaby's Cockatoos, is now available: Food resource availability for Carnaby's cockatoo <i>Calyptorhynchus latirostris</i> on the Swan coastal plain can be downloaded via the link below: http://ro.ecu.edu.au/theses/595/ - The number of road killed Carnaby's cockatoos is increasing. Road warning signs were designed and have been erected in some hot spots. Additional liaison with Main Roads WA to identify "black spots" where Carnaby's cockatoo are being hit by cars for signage purposes.
List of recovery actions coordinated by Recovery Team Detail under the headings below the recovery actions undertaken during the reporting period. Provide separate detail for each species/community against each action. For species/community-specific recovery teams, the generic activity types below can be replaced by the specific recovery actions from the recovery plan where appropriate. Recovery actions for 2013 were taken from Cale, B. (2003) Carnaby's black-cockatoo (<i>Calyptorhynchus latirostris</i>) Recovery Plan 2002-2012 (Western Australian Wildlife Management Program No. 36).. However, during the course of the year, a new recovery plan was produced: DEC (2012) Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>) Recovery Plan (Western Australian Wildlife Management Program No. 52), WA Department of Environment and Conservation, Kensington, WA. This annual report is structured along the six recovery action themes of the Carnaby's cockatoo Recovery Plan 2012 (WAWMP No. 52).	
14.1. Protect and Manage Important Habitat Identify, protect and manage habitat critical for survival (nesting, foraging and roosting) for Carnaby's cockatoos across their breeding and non-breeding range.	Restoration and improvement of habitat: - Draft Swan Region Fire Management Plan (DPAW) includes objectives that aim to increase the proportion of banksia woodland that is unburnt for at least 8 to 16 years. - Draft Banksia Woodland Fire Management Guidelines have been produced (DPAW Report provides ecological basis for longer burn rotations). - The Jandakot Banksia Woodland Restoration project is a large offset project that has restored 22 ha of banksia woodland through topsoil transfer and planted a further six hectares of Carnaby's cockatoo feeding habitat (banksia woodland). Over the next three years, the project will create approximately 40 hectares of Carnaby's cockatoo habitat, controlled weeds over



approximately 800ha and fence approximately 1000ha of Carnaby's cockatoo feeding habitat.

- The DEC Jandakot Banksia Woodland Restoration project is currently carrying out a number of trials to identify best practice for restoring (creating) banksia woodland in collaboration with Murdoch University, trials are underway to establish best practice for restoring banksia woodland through topsoil transfer and planting. Trials are also under way to identify dieback resistant banksia strains.
- Coomallo is a long-term Carnaby's cockatoo banding study from 1970 to present. A 26 year old Carnaby's cockatoo was identified, 20 new artificial hollows have been installed, adding to the existing 30 artificial hollows already at the site. Sacrificial posts were refreshed in 17 artificial hollows, using tuart, and wood chips were replaced. There are now 171 hollows at Coomallo (121 natural).
- Canola was established around Coomallo in 1996 and since then, Carnaby's cockatoo nestlings are more likely to be above average weight and healthy. Farmers do not have a problem with Carnaby's cockatoo eating canola (they do little damage). Could consider encouraging canola cropping near breeding sites because the benefits are so good for Carnaby's cockatoo. It was noted however, that the benefits are not so obvious in the southern Wheatbelt (Peter Mawson).
- A farmer left 2ha of canola crop unharvested and the Coomallo birds stayed an extra month before departing after the breeding season (Rick Dawson).

BirdLife Australia projects:

- Caring for Our Country: 15 landholders have been successfully engaged in restoration and revegetation efforts (7 hectares) in the southern Wheatbelt (Dragon Rocks, Nudegate).
- Galah culls at breeding locations have removed 700 birds (Rick Dawson reiterated that culling galahs is effective at freeing up nest hollows for Carnaby's cockatoo).
- BirdLife has provided guidelines for revegetation to SEWPac (Mat Fossey), as has DPaw (Brad Barton).

World Wide Fund for Nature (WWF):

- WWF has a small project aimed at habitat protection on private lands. 40 hectares have been fenced on two properties and 2,2 hectares of revegetation have taken place.

Land acquisition:

- Through the development offset process, 14 land purchases have occurred, bringing a total of 9,803 hectares of Carnaby's cockatoo habitat into the conservation estate (from private land).
- Three contiguous parcels were purchased north-east of Clackline in July, with a combined area of 177ha.
- A parcel north of Gingin – east of Boonanarring Nature Reserve – was purchased also in July, and had an area of 1205ha.



14.2. Conduct Research to Inform Management

Undertake research into the biology, ecology, and conservation management of Carnaby's cockatoo.

Findings and observations from long-term monitoring

- Rick Dawson noted that Carnaby's cockatoo appear to prefer larger artificial nest hollows (900mm x 300mm). A scientific paper is coming out describing how hollows senesce.
- Black artificial hollows on the sunny north side of trees reach temperatures of 85°C, whereas those on the south side of trees reached a maximum of 35°C. Relative humidity was similar on both sides of the tree.

Movement research:

- Christine Groom (PhD UWA) is working with Murdoch University (Kris Warren) towards a large-scale movement study for Carnaby's cockatoo using 17g solar powered, satellite transmitters. Of 11 birds fitted with transmitters at the start of the project, two are still functioning. Christine will be finishing writing up the project in 2013-14.

Population health and demographics:

- Pentosidine analysis (accumulates in the skin as bird ages Kris Warren, Murdoch University)
- Anna Le Souef (Perth Zoo) sampled 53 birds of known age, good sample but need more older birds.
- Also used birds killed by heatwave near Hopetown (n=96), so reasonable to assume it is a representative population sample.
- Had 258 samples over 18 months (Jan 2011 to Aug 2012).
- Ratio of male to female was 50:50, same as for nestlings.
- 27% were immature (<4 years old) and 73% were adult (>4 years old). Plenty of juvenile recruitment (72% birds <15 years old).
- The age pyramid is 'bottom-heavy' suggesting plenty of juveniles but increased adult mortality. This may be a problem for long-lived birds.

Publications of interest:

- Saunders, D. A., Wintle, B. A., Mawson, P. R. and Dawson, R. (2013). Egg-laying and rainfall synchrony in an endangered bird species; implications for conservation in a changing climate. *Biological Conservation* 161; 1-9.
- Groom, C., Mawson, P., Roberts, J.D. and Page, M. (2013). Tracking Carnaby's cockatoos in Western Australia. *ARGOS Forum* 77: 6-7.
- Saunders, D. A., Mawson, P. R. and Dawson, R. (Accepted 9/1/2014 for *Conservation Physiology*). One fledgling or two in the endangered Carnaby's Cockatoo (*Calyptorhynchus latirostris*) – a strategy for survival or legacy from a bygone era?
- Saunders, D. A., Mawson, P. R. and Dawson, R. (submitted to *Biological Conservation*) Long-term tree hollow use by Carnaby's Cockatoo and the fate of their nesting trees at Coomallo Creek, Western Australia 1969-2013.
- Lee, J.G.H., Finn, H.C. and Calver, M.C. (2013) Ecology of black cockatoos at a mine-site in the eastern Jarrah-Marri forest, western Australia. *Pacific Conservation Biology*, 19 (1). pp. 76-



	90. • Lee, J., Finn, H. and Calver, M. (2013) Feeding activity of threatened black cockatoos in mine-site rehabilitation in the jarrah forest of south-western Australia. Australian Journal of Zoology, 61 (2). pp. 119-131. • Teagan Johnston's finalised MSc thesis: Food resource availability for Carnaby's cockatoo <i>Calyptorhynchus latirostris</i> on the Swan coastal plain can be downloaded via the link below: http://ro.ecu.edu.au/theses/595/
14.3. Undertake Regular Monitoring Monitor population parameters, habitat, threats and status of the Carnaby's cockatoo.	Monitoring breeding populations: • Monitoring of breeding success by DEC, BirdLife Australia and Murdoch University (Kris Warren) of breeding sites has continued across five sites (including Koobabbie, Raffin's property, Campbell's and Kokanup) • At Koobabbie, there were originally 50 breeding pairs but only four pairs left in 2013. • Still don't know what poisoned the Koobabbie birds. It is likely to be the male bringing something back to the female. • Increased breeding attempts at Coomallo with 30 artificial hollows being used. • The early autumn rains in 2013 brought on breeding five weeks early (Rick Dawson). • The WA Museum has been carrying on with monitoring of breeding birds at Kataby and Bindoon for seven years now, no young birds have returned (with bands). • DEC and BirdLife Australia are continuing to band Carnaby's cockatoo and have encouraged people to report and possibly photograph banded birds. Great Cocky Count: • The Great Cocky Count, run in partnership with DEC, was held in April 2013, which was the fourth of the formal Cocky Counts (2010, 11, 12 and 13). These roost surveys are on-going and will continue to promote roost counts outside of the DEC Swan Region. • The 2013 GCC report has been released (link: https://www.google.com.au/?gws_rd=cr&ei=4pkyUqynL4-QiAed04D4Ag#q=great+cocky+count+2013) • Great Cocky Count (GCC) results: - o 250 sites surveyed, now have >450 sites in database. - o There is a trend towards declining numbers since 2010, although total count of roosting birds was higher in 2013 compared with 2012 (10351 vs 8026). - o 174 confirmed roosts. - o Funding has been secured for a 2014 GCC (Perth NRM) and Hugh Finn has been appointed as the BirdLife GCC Coordinator. - o 2014 GCC will focus on 38 core sites in Swan Region,



	that have been surveyed regularly since 2010. • The roosting birds move between roosts a lot (Christine Groom) • DPAW also carried out a summary review (Matt Williams) of the GCC data. • BirdLife is planning to review the GCC objectives, including how the data are collected and analysed.
14.4. Manage Other Impacts Monitor the impacts and implement strategies to reduce other factors detrimentally affecting Carnaby's cockatoos, and support rehabilitation programs.	Beak and Feather disease: • 'Beak and Feather' disease is now established in wild populations of forest red-tailed black cockatoos (FRTBC), it appears to be a new strain and we don't know where it came from. • RTBCs are spending more time on the Swan Coastal Plain so there is more chance of interactions with Carnaby's cockatoo. • The Perth Zoo has a new Doctorate in Veterinary Medical Science, Dr Alisa Wallace, who started in July 2013 and will work on Beak and Feather disease. Road deaths: • The road signs on Chester Pass Rd and Hassell Hwy (South Coast Highway) have not been installed and birds are still being killed on roads where grain is being spilt. • Formal contact has been made with Main Roads but there has been no action. Signs have not yet been placed at Carnaby either. • Main Roads have been approached and are aware of the issues relating to the clearing of native vegetation along roadsides, however, local Government are often not aware. • Liaison between DEC Regions and Districts and Local Government and Main Roads WA is required. Bird deaths: • Several unexplained groups of Carnaby's cockatoo deaths were reported, which may be poisoning incidents. Unclear whether poisoned birds are affected by organophosphates with birds still being analysed at Perth Zoo. • At Kensington 35 birds have been brought in that were poisoned, still don't know the source of the poison. Most potential poisons break down quickly, most likely to be a water source. Testing for organophosphites, all negative. Testing for carbonates (which causes paralysis) underway. • All dead black cockatoos brought into DPaW will be taken directly to the Perth Zoo and then to the WA Museum. • DPaW has developed guidelines for the collection of dead animals (how to bag, tag and store dead animals). • DPAW staff have continued to liaise and advise wildlife carers managing injured birds, with an aim to release suitable birds to the wild when fit.



14.5. Undertake Information and Communication Activities

Develop and distribute awareness raising and guidance materials for decision makers, establish joint management agreements and provide for improved sharing of information between agencies.

Statutory land use planning:

- The impacts on Carnaby's cockatoo habitat are increasingly being considered under the EPBC Act assessment of development. Mapping of potential feeding, roosting and breeding habitat are currently being used by land use planners in decision making and to mitigation.

Strategic Assessment:

- Black cockatoos are a very significant factor in the joint State and Commonwealth project to prepare a Strategic Assessment under the EPBC Act of development in the Perth and Peel regions. The strategic assessment is aimed at protecting Carnaby's cockatoo in the Perth and Peel regions and provides an opportunity to achieve whole of landscape and strategic outcomes for the species.
- The Strategic Assessment can be improved by information from work done by Teagan Johnstone' and Christine Groom, and the Great Cocky Count, which helps us to understand how Carnaby's cockatoo are using the landscape and how we should respond.
- How to manage Carnaby's cockatoos remain a major issue for the assessment. This includes industry assessment and land use planning, site mitigation measures and pine plantation management. The assessment is considering pine retention as a measure to protect food supply but need to consider implications for suburban water supply.
- The removal of the Gnangara, Pinjar and Yanchep pine plantations is included as a class of action in the EPBC Act Strategic Assessment of the Perth-Peel region.
- Will Stock (ECU) has estimates of productivity of pine plantations at different ages (can be used for strategic assessment).

Population Viability Analysis (PVA):

- The SEWPAC Regional Sustainability Program has funded a project to prepare a PVA for the species. Parsons Brinckerhoff are the successful tenderer.
- SEWPAC is seeking input from the recovery team for the PVA and while members of the Recovery Team expressed some concern over the possible final product, the RT acknowledged that it was a starting point and that the model will be available to others for future modifications of the PVA.
- The PVA final draft report from Parsons Brinckerhoff has been sent to SEWPAC. The report has flushed out issues of data gaps and data assumptions and identified where more data and work is required. As an initial work, acting as an impetus for further research, the PVA has been successful.
- A handout summarizing the progress and results of the SEWPAC PVA to date was prepared by Colin Yates and Matt Williams (DPaW Science).
- DPaW Science division had carried out an initial review and summary of the analysis and that review has come up with conclusions not dissimilar from the Parsons Brinckerhoff PVA in that both studies highlight adult survival as being important. So while protection and management of breeding sites is important,



	so is protection and management of foraging and roosting habitat in the Carnaby's non-breeding range. - The PVA and Strategic Assessment highlight the value of further research, including: - Urban monitor project (GIS Monitoring) - Whole of range PVA - Further Carnaby's cockatoo habitat survey (roosting, foraging and breeding). Orchardists: - Existing guidelines for fruit growers on "living with cockatoos" are being updated by DPAW and Department of Agriculture and Food to include better guidance for nut orchards (current guidelines are directed towards fruit growers), Guidelines are reasonably complete and require little updating, however, do need to be strengthened to make the point that establishing nut orchards (such as macadamias and almonds) in areas where Carnaby's Cockatoo regularly feed, means that the growers will have a problem with Carnaby's cockatoo. - Also need a consistent message to be sent to local governments to encourage them to ensure advice is provided to landholders of current and future nut and fruit orchards.
14.6. Engage with the Broader Community Engage with and involve people across the community in the conservation of Carnaby's cockatoo.	BirdLife Australia projects: - A significant amount of the Recovery Team's community involvement is delivered through the BirdLife Australia (WA) Carnaby's Cockatoo Recovery Project, which has a number of initiatives predicated on participation by private landowners in conservation of Carnaby's cockatoo on their own property, and some of the works involve volunteers travelling to Carnaby's cockatoo areas to carrying out surveys. - The BirdLife Australia State NRM project 'Conserving Black-Cockatoos on the Swan Coastal Plain (SCP, Tamara Kabat) included the creation of a Cockatoo forage and roost plant nursery label. (This label was launched in April 2013). - BirdLife newsletter Cocky Notes was produced and distributed to approximately 1700 recipients - South Coast NRM, landholder information booklet, released at Albany, 16 page, includes information about Carnaby's cockatoo biology and ecology, revegetation guidelines and what landholders can do. - The Great Cocky Count, run in partnership with DEC, was held in April 2013, which was the fourth of the formal Cocky Counts (2010, 11, 12 and 13). These roost surveys are on-going and will continue to promote roost counts outside of the DEC Swan Region. (see above) - Perth NRM funded BirdLife to carry out the 2012 and 2103 GCCs, plant labels for nurseries that identify Carnaby's cockatoo friendly plants, revegetation works aimed at improving foraging habitat near suburban roost sites and communication brochures and signage.



	• With the close of the four grant funded projects BirdLife capacity is currently reduced. Existing donation funds will be directed towards identifying knowledge gaps, in particular, seeking sightings of breeding birds. The 'Breeding Bird Survey' in 2014 will be an exercise in communication, across the species range. There will be a basic survey form aimed at identifying new breeding and feeding areas. World Wide Fund for Nature (WWF): • A bushland management workshop has been run in Gingin, noted that the bushland restoration message has reached saturation in the Gingin area (so unlikely to see further development of restoration programs in the region). This is a similar pattern elsewhere, where long-term revegetation programs have been running. 2013 Symposium and workshop outcomes: • State NRM funded, BirdLife Australia coordinated, Symposium and workshop was successfully run. Evaluation of Carnaby's cockatoo projects, identifying strengths and weaknesses. • There were 110 people at the BirdLife Australia symposium and 38 at the workshop. • The symposium theme was focussed in a way not done before, towards vegetation/habitat clearing as a threatening process in the breeding and non-breeding range. • Major themes of the workshop were landscape approaches, landholder engagement, grazing management, water and fire management. • There will be a set of proceedings from the workshop and workshop notes. Recommendations from the 2013 BirdLife Carnaby's Symposium: • We need non-breeding urban studies as well as studies at breeding sites. • Also need improved legislation. • New directions included the question of why some breeding sites succeed (e.g. Coomallo) while others fail? • An information and resources web page for Carnaby's Cockatoos has been maintained and updated: www.dec.wa.gov.au/carnabys • Carnaby's cockatoo is a charismatic visitor to the Perth metropolitan area and promotes significant public interest. Around 700 volunteers (in total) having assisted with the 2010, 2011, 2012 and 2013 Great Cocky Count roost surveys. • The recovery team members deal with many queries about the Carnaby's Cockatoo and Nature Protection Branch staff and wildlife carers also deal with injured birds. Also, the presence of Carnaby's cockatoo in areas proposed for development is of increasing interest to the community.
Recovery plans e.g.	Rewrite of the recovery plan:



recovery plans/ IRPs drafted, approved, reviewed or updated	• The new 2012 recovery plan for Carnaby's cockatoo was endorsed by the State and during 2013 was going through Commonwealth endorsement. • Draft recovery plan has been submitted for public comment through the Commonwealth process and SEWPaC have provided comments to DPaW. The next step is for DPaW Species and Communities Branch to incorporate SEWPaC changes. • Future recovery team meetings would be structured in such a way as to address the recovery actions and performance criteria in the recovery plan. • The six themes around which future recovery team meetings would be structured are (from Table 4, Section 15.1): - o Protect and manage Important Habitat - o Conduct research to inform management - o Undertake regular monitoring - o Manage other impacts - o Undertake information and communication activities - o Engage with the broader community • The recovery team should be driving the recovery prioritization process including research priorities.
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