



Murdoch
UNIVERSITY

A study of the health of wild Carnaby's cockatoo (*Calyptorhynchus latirostris*) nestlings at key breeding sites in Western Australia.

Warren KS, Dawson R, Saunders DA, Raidal S, Vitali S, Mawson P and Le Souef A



Background to the project



- Three species of black cockatoo in WA
 - Carnaby's Cockatoo, *Calyptorhynchus latirostris*
 - Baudin's Cockatoo, *Calyptorhynchus baudinii*
 - Red-Tailed Black Cockatoo, *Calyptorhynchus banksii*
- Significant declines in black cockatoo numbers noticed since 1980s
- Multiple threatening factors:
 - habitat loss & fragmentation
 - competition
 - poaching
 - vehicle strike
 - *disease ?*



HAYS Recruiting experts worldwide

WA IS BOOMING

Apply for the largest selection of career opportunities within the 'State of Excitement'. Access jobs, project updates, news and information on all of WA's major projects, with many of WA's major employers. Take your career to the next level. Visit hays.com.au or call 08 9254 4595.





Murdoch
UNIVERSITY



**FEATHER FLOATING HIGH
CAUGHT ON WINDS OF CHANGE AND TIME
WHAT NEW DAWN WILL COME?**

The challenge - conservation management of black cockatoo species across modified urban, agricultural and industrial landscapes to ensure species survival and persistence into the future.



Murdoch
UNIVERSITY



Background to the health research



Murdoch
UNIVERSITY

- Department of Parks and Wildlife performs regular nestling monitoring
 - Record nest integrity
 - Morphometric measurements
 - Leg banding
 - Nest hollow maintenance
- Prior to this research general appearance of nestling noted but no specific health screening.



Background to the health research



- Little information available on health of wild black cockatoos
- Disease can be a limiting factor in species survival
- **Need baseline health data**
 - To monitor wild populations and interpret trends
 - In case of future outbreaks
 - To manage rehabilitation and captive breeding programs effectively



Diseases of wild cockatoos

Beak and feather disease virus (BFDV)

- Widespread in free-living cockatoos and parrots (galahs, corellas)
- Reported in captive black cockatoos
- Causes deformities of beak and feathers, affects internal organs, immunosuppression
- Can cause juvenile mortality
- May contaminate nest sites for years
- No treatment (vaccine may become available)



Diseases of wild cockatoos



Beak and feather disease virus (BFDV)

- Described as a key threatening process under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- 'A process that threatens or may threaten the survival , abundance or evolutionary development of a native species or ecological community'



Diseases of wild cockatoos

BFDV – effects on other endangered bird populations

- Orange-bellied Parrot (Tasmania)
- Norfolk Island Green Parrot (Norfolk Island)
- Cape Parrot (South Africa)



Diseases of wild cockatoos

Avian polyomavirus (APV)

- Disease is mainly in nestling and young birds
- May cause subclinical disease
- Disease seems to be rare in cockatoos, but may occur when birds are concurrently infected (and immunosuppressed) with BFDV



Diseases of wild cockatoos

Adenovirus

- Disease is often subclinical
- May cause clinical disease in young birds



Diseases of wild cockatoos

Chlamydiosis (*Chlamydia psittaci*)

- Causes respiratory and gastrointestinal signs
- Can be carried without any signs
- Can be triggered by stressful event (e.g. loss of natural habitat)
- Different strains, vary in virulence



Nestling Health and Disease Screening

- Five field seasons conducted Nov-Dec 2010-2014
- 278 nestlings sampled during this period
- Tested:
 - Baseline health parameters
 - Avian blood profiles
 - Beak and feather disease virus (BFDV)
 - Avian polyomavirus (APV)
 - Adenovirus
 - *Chlamydia psittaci*



STUDY SITES

1. Coomallo Creek



Twenty-eight parrot (*Barnardius zonarius*), Coomallo Creek, 2010





STUDY SITES

1. Coomallo
Creek

2. Coorow



STUDY SITES

1. Coomallo Creek
2. Coorow
3. Southern



STUDY SITES

1. Coomallo Creek
2. Coorow
3. Southern



STUDY SITES

1. Coomallo Creek
2. Coorow
3. Southern



Fieldwork



Murdoch
UNIVERSITY



Fieldwork



Murdoch
UNIVERSITY



Fieldwork



Murdoch
UNIVERSITY



Fieldwork



Murdoch
UNIVERSITY



Fieldwork



Murdoch
UNIVERSITY



Results 2010 - 2014

Year	BFDV	APV	Adenovirus	<i>Chlamydia</i> spp.
2010	5/56	4/56	0/56	0/56
2011	0/58	5/58	0/58	9/58
2012	0/64	2/64	5/64	28/64
2013	0/45	0/45	0/45	0/45
2014	0/55	0/56	0/55	1/56
Total	5/278 (2%)	11/278 (4%)	5/278 (2%)	38/278 (14%)

Results 2010 - 2014

Year	BFDV	APV	Adenovirus	<i>Chlamydia</i> spp.
2010	5/56	4/56	0/56	0/56
2011	0/58	5/58	0/58	9/58
2012	0/64	2/64	5/64	28/64
2013	0/45	0/45	0/45	0/45
2014	0/55	0/56	0/55	1/56
Total	5/278 (2%)	11/278 (4%)	5/278 (2%)	38/278 (14%)

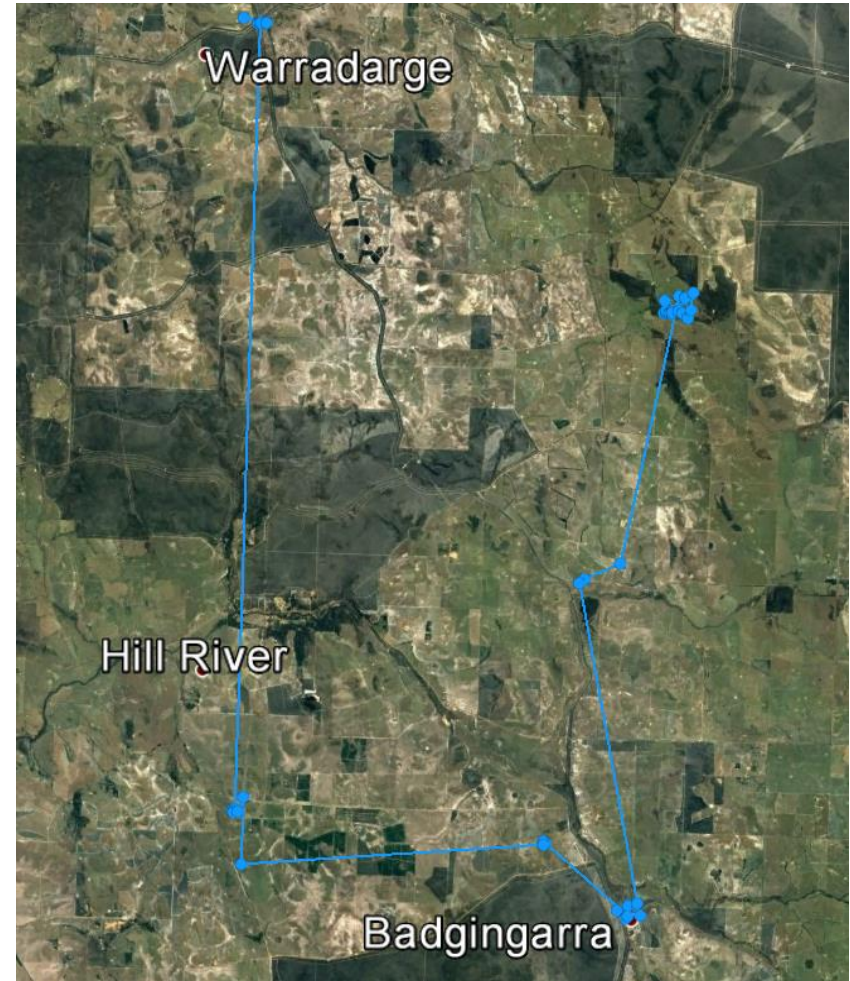
Data analysis for nestling health project

- Determine disease prevalence.
- Investigate effect of various intrinsic and environmental factors (e.g. disease status, body condition, body weight, geographic location, hollow type, year) on blood-based health indices to help evaluate the health of nestlings at breeding sites in different geographic regions.





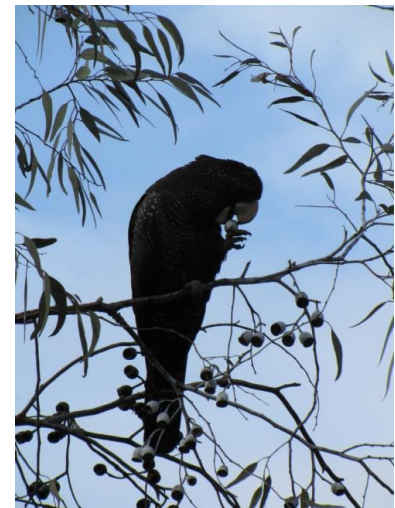
Murdoch
UNIVERSITY



Summary



- BFDV, APV, Adenovirus and Chlamydia are present in wild black cockatoo populations
- Findings are of potential concern for these species
- Black cockatoo species are being increasingly exposed to environmental stressors
- Further research is very important to help determine the clinical significance of these diseases in wild populations



Thank you



Murdoch
UNIVERSITY