

Gang-gang Cockatoo feather identification handbook

Understanding our local Gang-gang
populations through genetic
analysis



Australian
National
University

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Larissa Dann



Trevor Rix

Why feathers?

Feathers contain genetic information unique to an individual. They provide insights into the biology and ecology of birds that are challenging to sample, and in a way that is not intrusive.

This project aims to better understand the population genetics of Gang-gang Cockatoos in the region. By learning about the genetic variability of our local Gang-gangs, we can estimate their 'effective population size'. Knowing the population size of a species, and monitoring changes to this over time, can directly inform planning and implementing conservation actions.

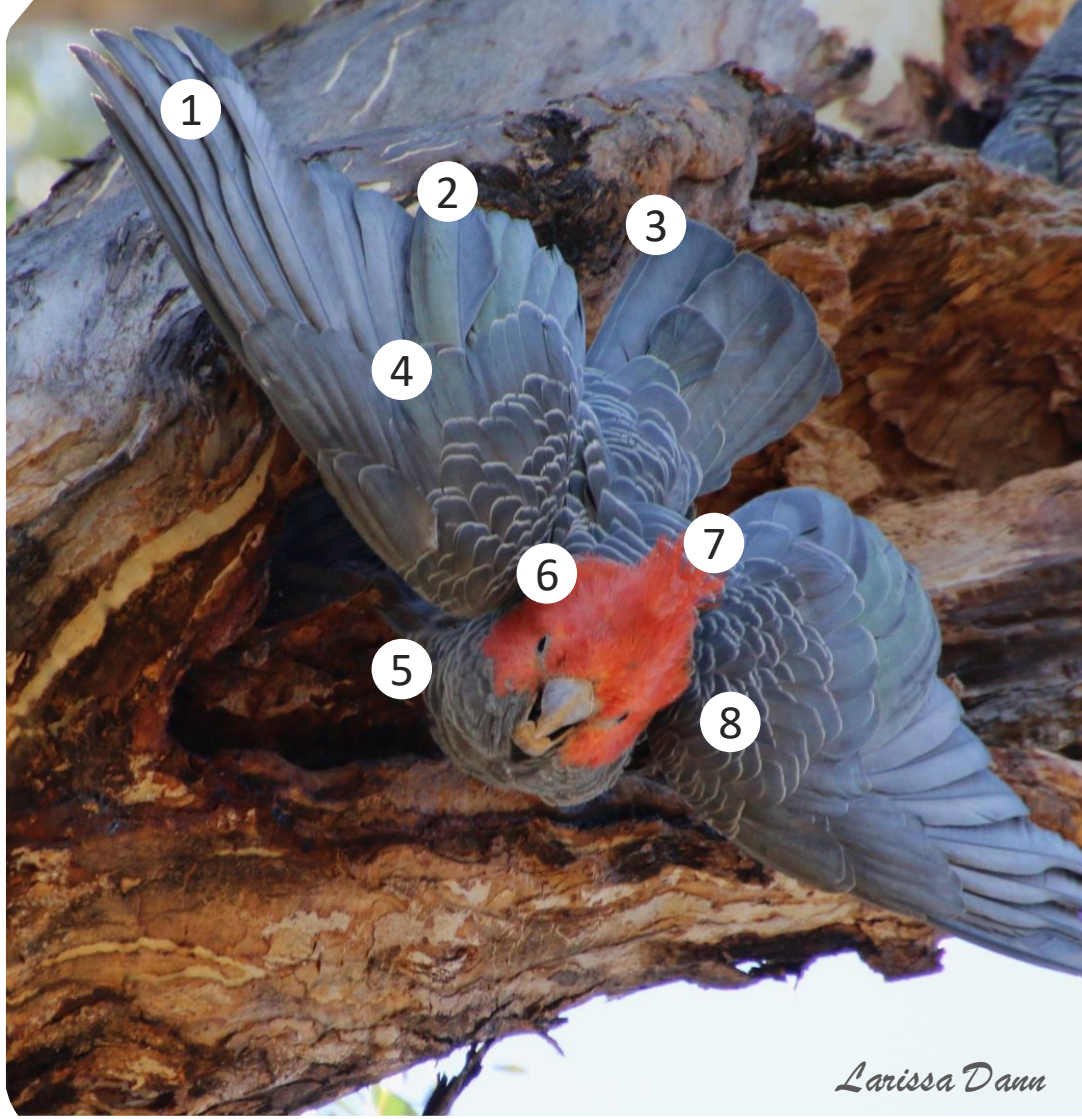
Genetic information extracted from Gang-gang feathers may also provide insights into their habitat use and mating systems across their distribution.



Tyrie Starrs

Feather types

- 1 Primary
- 2 Secondary
- 3 Tail
- 4 Coverts
- 5 Contour
- 6 Head
- 7 Crest
- 8 Lesser coverts



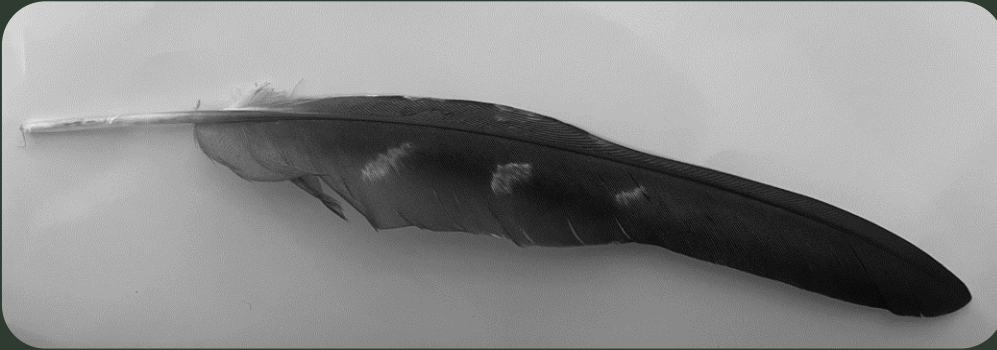
Primary feathers



Primary feathers have pointed ends.

Primary feathers from mature males (top) are grey and lack barring. Primary feathers from adult females and immature males usually have 4 bars that extend halfway down the underside of the feather.

Primary feathers



The above Primary wing feather is from a juvenile male. Note the barring.

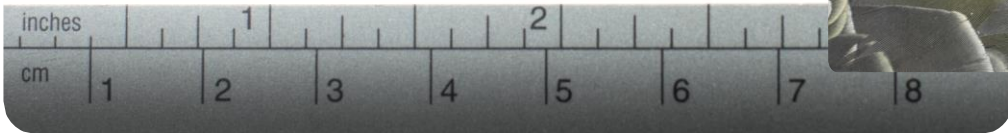
Barring on primary feathers from immature females (right) reach close to the tip of the feather.



Victorian Govt.

Secondary feathers

Secondary feathers from mature males (below) are grey with a green tinge. Female secondary feathers may have light grey or green-tinged barring.



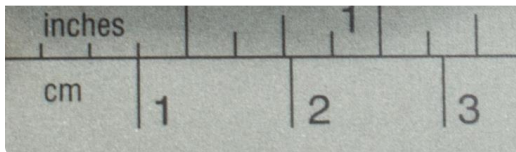
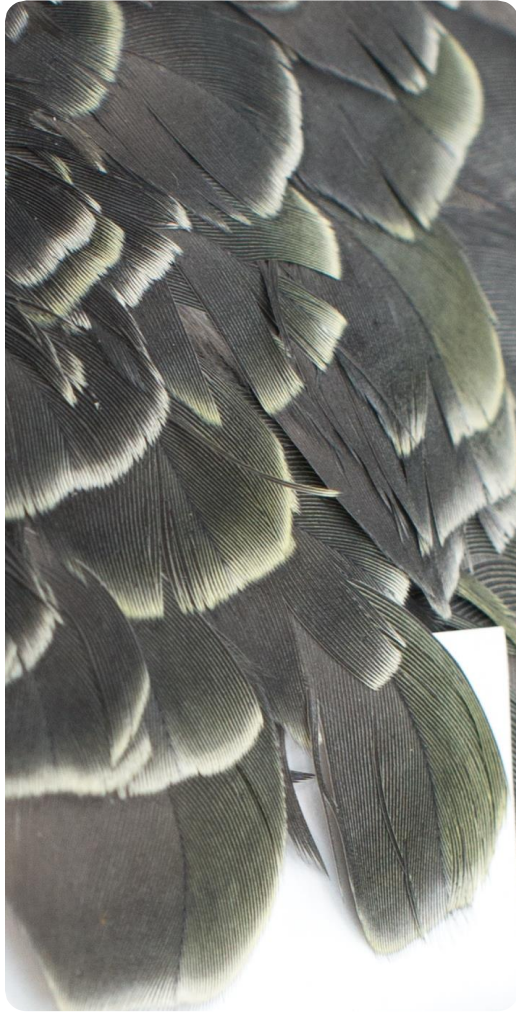
Underwing secondary



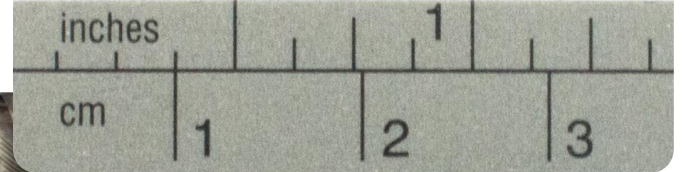
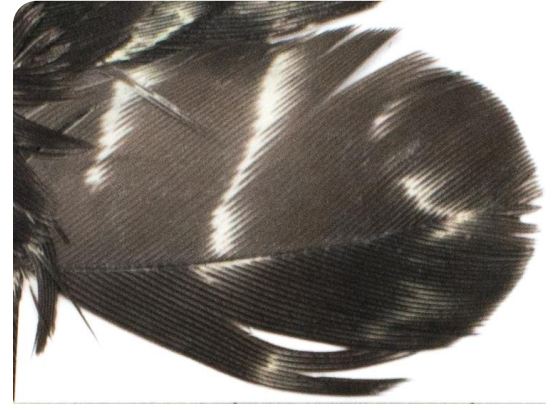
Secondary feathers from mature females (above) have 6-8 bars that extend to the end of the feather. Feathers from immature females (right) and immature males may have more than 8 bars. Secondary feathers from adult males are uniform grey but may feature up to 5 faint bars. Note, the wing on the right was found bent.



Covert feathers



Covert feathers from the top side of mature male wings (left) are grey and tinged with green. Note, feathers from females and immature males may have white/cream barring.



Underwing covert feathers (above and left) may have a combination of white and green barring.

Contour

Male chest contour feathers (below and right) are primarily grey with either a lighter grey or orange/red edge. Contour feathers from younger males have more colour than those from older males.

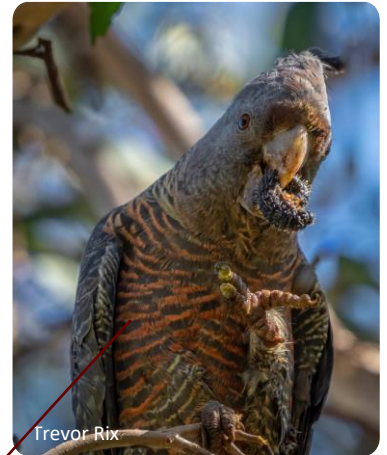


Chest contour



Female chest contour feathers (left) are barred with orange/red and yellow.

Female Gang-gangs have more colour on their chest feathers than male Gang-gangs



Crest feathers

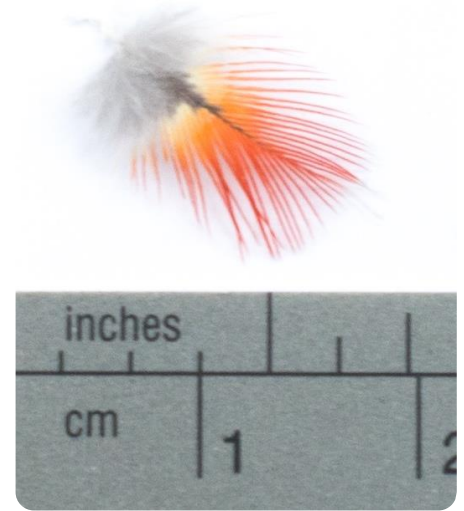


Adult male Gang-gangs have red, loosely branched crest feathers with a brown-black rachis •

Crest & head feathers



Female Gang-gang crest feathers (above) are loosely branched and uniform grey. Immature male crest feathers are also grey and may be tipped with red.



The feather above is from the head of a mature male. Female head feathers are generally grey, but they can develop red feathers as they age. Immature males have both grey and red head feathers.

Tail feathers



These tail feathers are from a juvenile male.
Note the barring.

Similar feathers



Galah secondary feathers (above) are similar to adult male Gang-gang secondary feathers. However, note the two-tone grey colour, and the absence of a green tinge.



Galah underwing covert feathers (left) are most similar to Gang-gang head feathers. However, note the pink (not red colour) and the different shape and size to Gang-gang feathers.

Similar feathers

Tawny frogmouth primary feathers (right) look similar to immature female Gang-gang primary feathers. However, note the brown colour, which is **completely absent** from Gang-gang feathers.



Cockatiel tail feathers (left) are pointed like primary Gang-gang feathers. However, note the size of the feather and that bars are grey-brown.

Tips for collection & storage

- Feathers of all sizes contain DNA!
- The better the condition of a feather, the best chance we have of extracting genetic information. Nevertheless, please collect any feather you believe to be from a Gang-gang.
- Avoid excessive handling of the end of the quill – this is where genetic information is collected from.
- Each feather should be placed in its own sealed envelope. However, if you find several feathers at the same location (that you believe to be from the same individual), they can be stored together.
- If the feather is wet, air dry at room temperature before storing in an envelope.
- On the outside of each envelope please carefully print the name of the collector, the location you collected the feather from (GPS coordinates are ideal) and the date of collection.
- Contact me at stacey.taylor@act.gov.au and I will organise collection or delivery at a time that suits you.