Rufous Scrub-birds in the Gloucester Tops





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16 March 2019 Photos: Allan Richardson, David Stowe, Rob Kyte, me

Rufous Scrub-birds

- Rare species; endangered (EPBC Act)
 - 1981 finding: 80% decrease in territories since European settlement (from 11,900 territories to 2,400 territories)
 - Further population decreases have occurred
 - Has disappeared from the lower altitude former parts of its range
- Secretive, skulking with limited flight
- Heard, but seldom seen
- Require dense understorey; deep leaf litter
- Five isolated remnant populations.
- Two sub-species.





Gloucester Tops eucalypt open woodlands habitat

The Gloucester Tops Scrub-bird study

1. Population monitoring

- Focus has been on understanding a population in known core habitat (~4km radius site, ~5,000ha).
- Spring surveys when male Scrub-bird are advertising their territories

2. Studies of individual birds

- Singing behaviour by males at their territories
- Sizes of singing areas
- A banding and radio-tracking study has commenced

What have we learnt about the Gloucester Tops population?

- 37 Scrub-bird territories identified
 - 20 with long-term occupancy
 - 17 with transitory occupancy (1-2 year periods)
- Long-term occupancy rate of ~55% was also observed for the New England NP population (M. Andren, Corella 2016)
- Territory density of 3.6 ± 0.3 territories km⁻² is the same as was found in 1981
 - This equates to 167-200 territories in the 5,000ha study area
 - At least 10% of the southern sub-species population is in the 4km radius study area

What have we learnt about the Gloucester Tops population?

- Inter-territory separations:
 - Usually at least 300m between territories (mostly >400m)
 - Shorter-term clustering of territories can occur when conditions are favourable
- It requires 6-7 years after a major fire before habitat begins to be suitable again for Rufous Scrub-birds
- Many Rufous Scrub-birds stop calling when spring conditions are dry (e.g. in 2012, 2013, 2017)
 - Do they abandon their territories or cease to advertise them?
 - Does breeding occur in a dry spring?
- Conservation considerations
 - Habitat changes under passive management
 - Future drier climatic conditions and increased probability of fires

Comparisons with Noisy Scrub-bird

	Noisy Scrub-bird	Rufous Scrub-bird
Breeds	Winter	Spring
Eggs	1	2
Incubation period	36-38 days	?
Time to fledging	~4 weeks	?
Mimicry	No	Yes
Males	 Exploded lek (→ males can hear other males) Songs vary over time Share their territory with non-calling males 	 Can't hear other calling males? Song is constant? Males may be alone in their territories?
Females	 Live in separate territories Probably visit hotshot males to mate 	• ? • ?

Behaviour of individual birds

- Males call from elevated perches (0.5-2m) and from the ground
- Female is thought to only make a soft contact call
- Size of male's singing area in the Gloucester Tops:
 - 0.5-1.3ha (1980-1981 study)
 - 0.5-1.7 ha (2014-2017 study)
- Is this the territory size?? 140.0 120.0 90.0 100.0 80.0 Vorth-South (m) 70.0 80.0 Vorth-South (m) 60.0 60.0 50.0 40.0 40.0 30.0 20.0 20.0 10.0 0.0 0.0 20.0 40.0 60.0 80.0 0.0 East-West (m) 70.0 0.0 10.0 20.0 30.0 60.0 80.0 90.0 East-West (m) RSB locations within a 0.7ha territory



Behaviour of individual birds

- Calls of males mainly are based around combinations of single syllable notes:
 - The frequency range varies
 - The number of syllables in a calling event varies
 - Can be ascending or descending
 - Also mimicry
- Using automated recording units (ARU) to study calling patterns of males at their territories (donated by BirdLife Australia Southern NSW branch)
- ARU produces sonograms = digital records of a bird's call
- Semi-automated analysis method developed



The main call ("chipping")





Monitoring the chipping call

- 1500-2000 calls/day in the breeding season!
 - Unpredictable short breaks
 - Diurnal calling only



Monitoring the chipping call

- Calling rate drops substantially in the remainder of the year (often <200 chipping calls/day)
 - It becomes unpredictable as to when the bird will call



Banding and radio-tracking

- NSW ACEC permit obtained October 2018
- Two males caught Nov-Dec 2018
 - Using the T-shaped net method developed for the Noisy Scrub-bird
- The T-net has not been effective outside of the breeding season



- Will trial various walk-in traps next visit
- Suggestions are welcome!

Banding and radio-tracking

- Two males caught: full biometrics available for the first time
- DNA analyses of feathers
- Harness design for VHF transmitter requires optimisation



- Adult males (~30g): we plan to use 1.0g ATS A1055 transmitters
- Females and juveniles:
 - Probably will weigh 20-25g?
 - Suggestions re trapping and tracking are welcome!

Breeding behaviour: some progress

- No prior Gloucester Tops records
- Two young birds seen together Jan 2019
- Nest found in same area March 2019
- Hoping the female will build in same area in late 2019
 - Opportunity for intensive study
 - Trail cameras?
 - A hide??

Rufous Scrub-bird nest, March 2019



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