Land for Wildlife and Garden for Wildlife
Central Australia Newsletter

February 2018

From the Land for Wildlife Coordinator

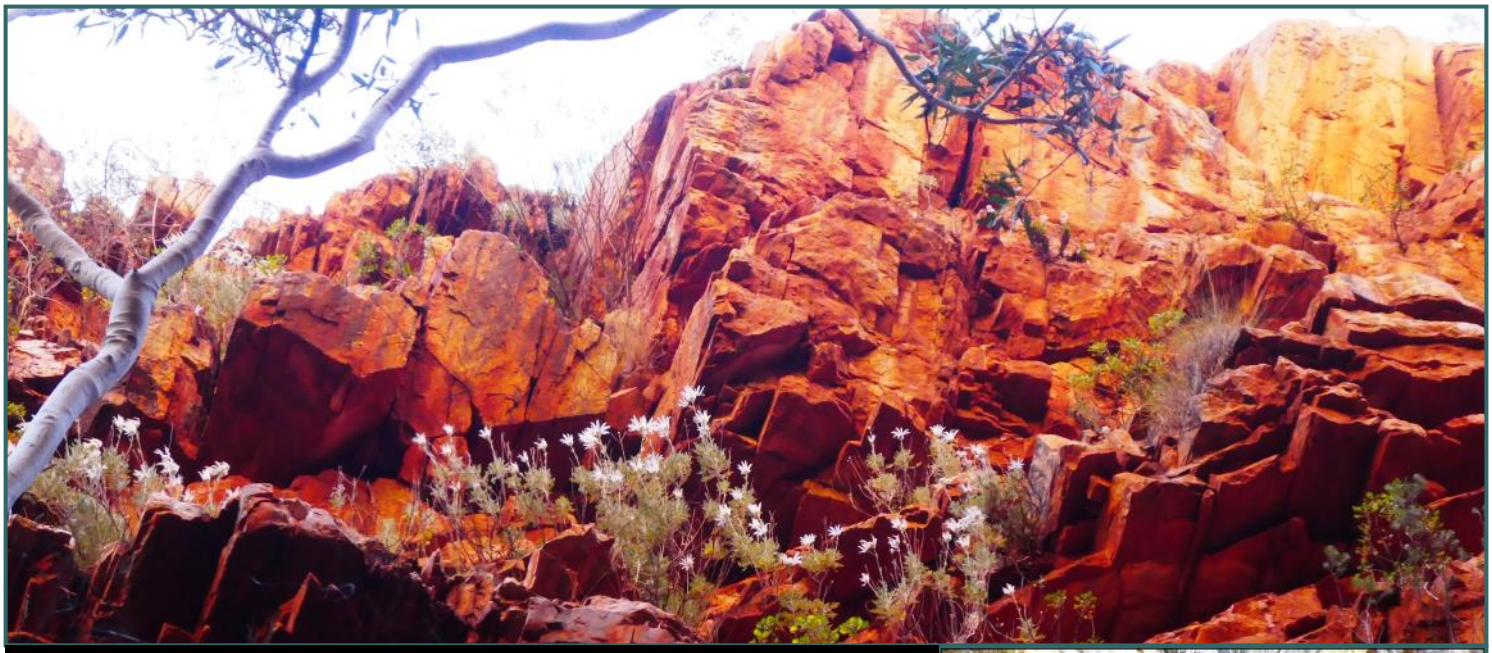
I know what you're thinking. Isn't the Land for Wildlife Coordinator on holidays? You're correct… but just because I'm on leave, that doesn't mean that you have to miss out on fun photos and informative articles now does it? Lucky for you, I got active before I went away and got a newsletter in the bank ready to roll.

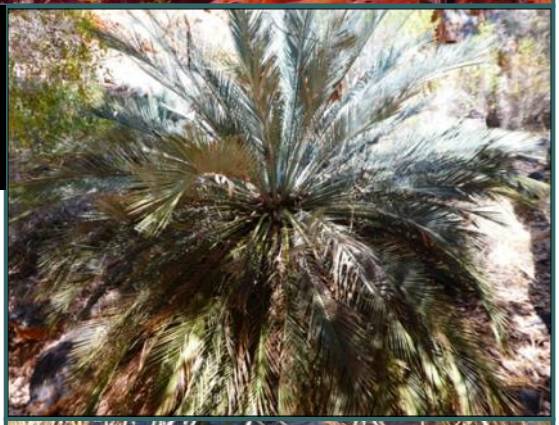
I hope that all is well in central Oz on your wildlife-friendly blocks!

The Land for Wildlife team will be away until mid-March as we take a break. If you have any urgent enquiries during that time, you can still email them through and we may be able to respond sporadically.

Central Australia's answer to the rose or hibiscus... Sturt's Desert Rose (*Gossypium sturtianum*). This lovely flower was found at Mt Zeil Wilderness Reserve. Gorgeous!

In This Issue





***Top to Bottom*: Desert Flannel-flower (*Actinotus schwarzii*) is listed as vulnerable and was found clinging to the side of the rocky walls at Standley Chasm. MacDonnell Ranges Cycad (*Macrozamia macdonnellii*) is found in abundance across the property. A Dusky Grasswren (*Amytornis purnelli*), an uncommon species, is perched on a rock to get a good view of the Land for Wildlife team. The Grey Shrike-thrush (*Colluricincla harmonica*) was found in several locations on the property and was far from shy.**

New Members

» *Standley Chasm / Angkerle Atwatye*

Standley Chasm is located 50 km west of Alice Springs CBD in Hugh. The property consists of the geological feature of Standley Chasm, a visitor centre and several walking trails. The property is held by the Iwupataka Aboriginal Land Trust, with over 300 Indigenous owners and a Board of Management comprised of six members. The property facilities are managed by Ray Prunty, who has been working hard to establish the property's reputation as a nature reserve and cultural centre.

The property is managed as a tourist destination, with Standley Chasm as a geological wonder. Standley Chasm, also known as *Angkerle Atwatye*, is named from the *Arrernte* words for 'the place (*Angkerle*) where the water was between (*Atwatye*)'. Located in the Arunta / Tanami geological region, Standley Chasm was created through folding of rock and perpendicular compression that formed stress cracks, which filled with Dolerite. Following the Alice Springs orogeny (uplift event), the Dolerite was exposed and subsequently eroded from water movement, to form the chasm.

The property also makes up part of the Larapinta Trail and so is a great place to go bushwalking! The entirety of the property is registered as an area of conservation significance with the West MacDonnell National Park to the north and west, as well as overlapping a region of botanical significance. It sits within the broad vegetation type '*Triodia* (Spinifex) open-hummock grassland with *A. aneura* tall sparse-shrubland overstorey'.

Golden-tailed Spiny Ant (*Polyrhachis ammon complex*).

During the assessment, the Land for Wildlife team observed two species of significance, which included the MacDonnell Ranges Cycad (*Macrozamia macdonnellii*) and the Desert Flannel-flower (*Actinotus schwarzii*). These species are listed as near-threatened and vulnerable (consecutively). The property has great biodiversity as it is home to over 80 species of plants, though we were only

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A River Red Gum (*Eucalyptus camaldulensis var. obtusa*) clinging to the rocky escarpment from which it germinated.

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able to access a small portion of the property due to time constraints and so there are undoubtedly more hidden floral gems among the trails and remnant vegetation.

We saw seven species of birds, a Black-tailed Monitor (*Varanus tristis*) and 11 species of invertebrates. An invertebrate we observed that spiked my interest was the Golden-tailed Spiny Ant (*Polyrhachis ammon complex*), which is distinguished from the common *Camponotus* species by the presence of two large backward facing spines on the thorax and a golden abdomen. Several populations of Black-footed Rock-wallaby (*Petrogale lateralis*) have also visited the property over the years.

If you haven't been down to *Angkerle Atwatye* for a while, we highly recommend a visit and a walk along the trails. Don't forget to look up in the chasm to see the Desert Fannel Flower!

A Snippet From Significant Trees

» Myrtle Villa's Date Palm

Following on from our new member, it is of interest to know that the name Standley Chasm is derived from Mrs Ida Standley, who was the first school teacher in Alice Springs. Ida Standley was appointed in Alice Springs in 1914, where she had arrived by horse and buggy from Adelaide. The school was located in a small building behind the police station, where she taught European children in the morning and 'half-caste' children in the afternoon. As the Ghan Railway construction teams approached Alice Springs in 1928, the half-caste children were moved to Jay Creek, close to *Angkerle Atwatye*, and Mrs Standley followed. *Angkerle Atwatye* was named in her honour by missionary Ernie Kramer, whose children had been taught by Mrs Standley.

Ida Standley lived in a two-room slab cottage known as Myrtle Villa, which was also home to the first resident sister appointed to Alice Springs, sister Jean Finlayson. The villa garden had a Date Palm (*Phoenix dactylifera*) which is now registered in the NT Register of Significant Trees for cultural reasons and is one of the oldest in the Alice Springs area, planted in 1913. In the years that followed, the cottage made way for a Mobil Service Station, which has since been demolished, leaving only the Palm as a reminder of the history of this site.

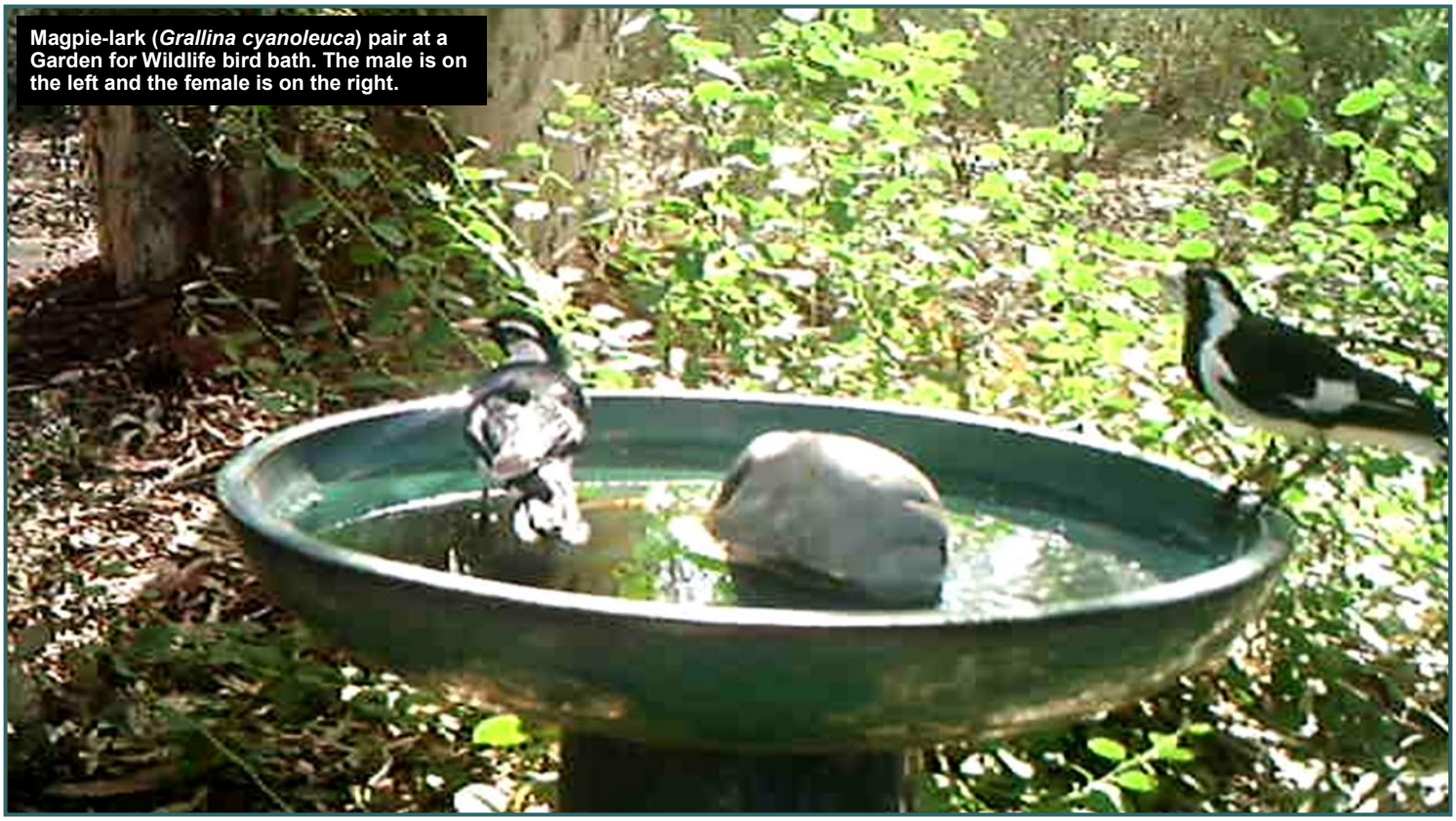
View the NT Register of Significant Trees. *The NT Register of Significant Trees was established by the National Trust NT and Greening Australia and is managed by Land for Wildlife Central Australia.*

Left*: Mrs Ida Standley at Myrtle Villa with her dog in front of a Date Palm (*Phoenix dactylifera*). *Image by Jack Laver (1922), courtesy of the State Library of South Australia.
Right:* The Date Palm that still stands today on the corner of Hartley Street and Wills Terrace. *Image by Candice Appleby.

Cassia (Senna) in Central Australia

Senna is a large genus of flowering plants in the legume family Fabaceae. The leaves of this genus are pinnate with opposite paired leaflets, inflorescences have five sepals and five yellow petals, and the fruit is a legume pod containing several seeds. They can be germinated easily from seed once a corner has been nicked to allow water to penetrate. In central Australia, there are many species, some of which are shown here. You can view and download the full Senna Identification fact sheet at the Land for Wildlife website. *Fact Sheet* ►

***Left to Right, Top Row*: Silver Cassia (*Senna artemisioides nothosubsp. artemisioides*), Desert Cassia (*Senna artemisioides subsp. filifolia*).**
***Middle Row*: Blunt-leaf Cassia (*Senna artemisioides subsp. helmsii*), Oval-leaf Cassia (*Senna artemisioides subsp. oligophylla*).**
***Bottom Row*: Dense Cassia (*Senna artemisioides nothosubsp. sturtii*), White Cassia (*Senna glutinosa subsp. pruinosa*).**



Magpie-lark (*Grallina cyanoleuca*) pair at a Garden for Wildlife bird bath. The male is on the left and the female is on the right.

Sexual Dimorphism in Birds

Many birds exhibit a difference in colouration or pattern between the two sexes, known as sexual dimorphism. One of the best known examples is the Peafowl (Phasianinae), where the female is small and dull and the male is large with a showy feather display. There are two types of sexual dimorphism: size dimorphism (where one sex is larger than the other, typically the male is the larger of the two) and plumage-colour dimorphism (where the feather colouration differs between the two sexes). Within plumage-colour dimorphism there is sesquimorphism, where two sexes have the same plumage pattern but the female has a slightly washed out colour.

Sexual dimorphism in birds has traditionally been associated with differences in social mating system, in other words a sexually selected trait. However some monogamous species are dimorphic and some polygamous species are monomorphic (no difference between male and female), which throws tradition out the window. So why are there so many socially monogamous species with striking dimorphism if mate choice doesn't matter to them? What is the deal?

Some studies find that size dimorphism is associated with variation in social mating system such as high levels of social polygamy as well as big sex differences in the provision of parental care. This therefore suggests that intra-sexual competition or social mating systems may be the most important force in the evolution of size dimorphism.

On the other hand, differences in plumage colour are associated with frequency of extra-bond paternity (which is where females copulate with males other than the chosen bonded male) or cryptic female choice (occurs when females use physical or chemical mechanisms to control whether sperm from a particular male is successful in fertilizing their eggs or not), however it isn't so simple.

Within species that have plumage colour dimorphism, the rate of extra-bond paternity and active sexual displays is due to structural colours (iridescent blues, purples and blacks) and the reflection of ultraviolet light, whereas changes in the extent of sex bias in parental care (when males care for chicks more than females or vice versa) is due to melanin-based dimorphism. In other words, iridescent males compete for successful progeny, whereas females that are merely duller than males care for young differently.

There may also be variation among species that relates to the information being relayed, differences in signalling environment or physiology. Healthy birds can produce hormones that change colouration, therefore the environment and ability to obtain food may influence dimorphism on a temporal scale. Other species may have different wing colouration that

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may influence feather wear and tear during flight. Some species simply have different patterns between sexes as a result of evolutionary loss and elaboration of characters. As always, chance may also play a role.

Rather than dimorphism being related to a trade-off between sexual selection promoting showiness (preference for bright colours with a risk of predation and suppressed immune function) and natural selection promoting crypsis (preference for dull colours to decrease predation risk), there may be other factors to consider. Furthermore, evidence suggests that plumage dimorphism may be the result of the female actively suppressing the default showy plumage in order to become cryptic, as opposed to the cryptic form being the default and showy features evolving.

This is how I see it set out from the research:

Dimorphism Expression		Specific Cues	General Cues
Size dimorphism		High levels of social polygamy Sex bias in provision of parental care	Intra-sexual competition / social mating systems
Plumage-colour dimorphism	Structural colour (iridescent blues, purples and blacks) dimorphism	Extra-bond paternity Active sexual displays	Extra-bond paternity Cryptic female choice Other factors
	Melanin-based dimorphism	Sex bias in provision of parental care	
	Carotenoid-based dimorphism	Environmental factors influencing health	

Why did I bring this all up? I was reminded recently that one of the birds we see so commonly in central Australian gardens, the Magpie-lark (*Grallina cyanoleuca*) displays sexual dimorphism. The adult male Magpie-lark has a white eyebrow and black face, while the female has an all-white face with no white eyebrow. Males and females are around the same size, though weight can vary to a greater extent for males (males: 63-118g, females: 70-94g). Young birds have a black forehead, a white eyebrow and a white throat, and they can't be distinguished at a young age.

Magpie-larks generally pair for life (though divorce is not unknown) and defend a territory together with temporal coordination of song between partners, or duets, which also helps to strengthen the pair bond. Breeding is opportunistic and occurs any time after rain in dry areas such as central Australia. Both parents incubate a clutch of eggs and care for the young, teaching them how to forage for some time after fledging.

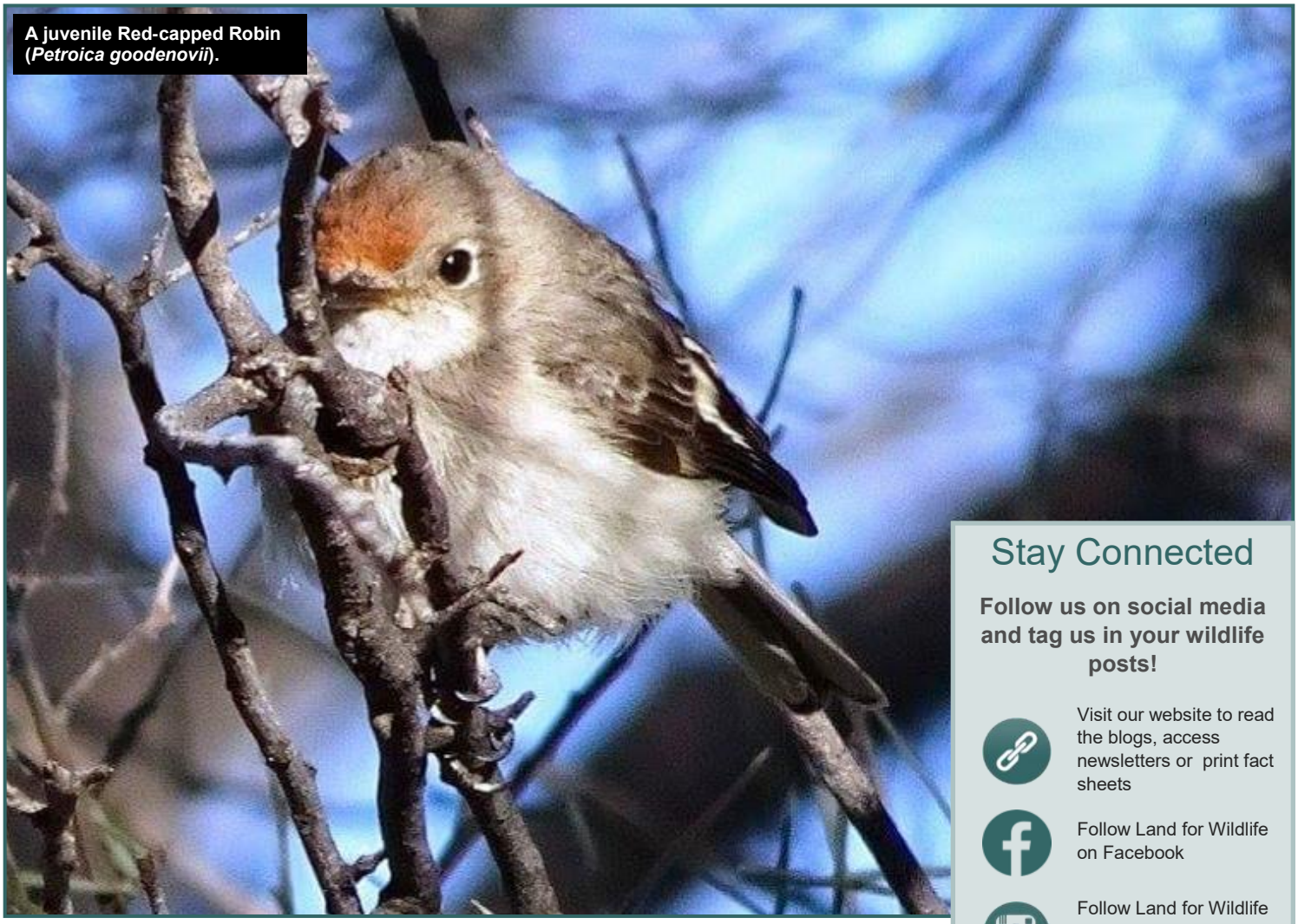
So where does this species sit with respect to dimorphism? Their size is similar between sexes so size dimorphism is unlikely. Their colours are the same, though they have different patterns. Their patterns don't seem to change with the physical environment, but are rather fixed. They are monogamous so sexually-driven dimorphism for extra-bond pairing is unnecessary. Though the level of care each sex gives to the young isn't clear – all we know is that they both take part in raising young. They have plumage dimorphism, though not in the traditional methods described. So where do they sit? I wish I had the answer. Perhaps the difference between sexes is due to loss or elaboration of patterning consistent with social signalling? Does it benefit the male, energetically-speaking, to look different to a female to avoid the chase from other males? Does the bond between a male and female need to be advertised in a clear manner to others from a distance through this patterning? Do chicks remain undifferentiated to avoid unwanted advances at a young age and save energy there? This research has raised more questions than it has answered...

Magpie-lark (*Grallina cyanoleuca*) chicks in their mud-bound nest. At this age the sexes are not differentiated.

For more information, see:

Sexual dimorphism in birds: why are there so many different forms of dimorphism? By I. P. F. Owens and I. R. Hartley (1998, Proc. R. Soc. Lond. B, 265, 397-407).

Pathways to elaboration of sexual dimorphism in bird plumage patterns by T-L. Gluckman (2014, Biological Journal of the Linnean Society, 111 (2), 262–273).



A juvenile Red-capped Robin (*Petroica goodenovii*).

Cheers,

Caragh, Candice and Bill

Do you have any stories or images to share? Get in touch! We are always looking for members to share their experiences via our social media and newsletter. Email us with your suggestions of articles or topics that you wish to hear more about.

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