

because the young were too small to reach it, V/V persevered and learnt to cling to the nest fabric, pushing head and shoulders inside to deliver food as the adults did. When the nestlings were twelve days old V/V was equalling his parents in rates of feeding and size of prey. The young fledged successfully on 31 August and V/V helped with their feeding away from the nest.

On 29 September 1980 W/R started her second clutch of three eggs in the same nest, they fledged successfully on 9 November. V/V helped assiduously throughout but none of the juveniles of the first brood was seen at the nest, although one, yellow/blue, was frequently seen in the garden.

On 1 December 1980 the first egg of a third clutch was in the nest, and again there were three eggs which hatched on 19–20 December. Nest inspection on 21 December found only one young, and when extracted for banding at seven days it was found to be a Shining Bronze Cuckoo, *Chrysococcyx lucidus*. It fledged on 10 January 1981. As before

none of the juveniles from the previous two broods was seen at the nest, and V/V helped energetically through the cycle.

The advantage to the parents was evident in the help given to feeding the young, both in the nest and after they fledged, and the advantage to the helper was in the experience gained. The helper's contribution to nest building was not meaningful, most of the effort being put into the false nest. Various suggestions have been put forward for the construction by Yellow-rumped Thornbills of a false nest. May we offer another — a practical building apprenticeship for the young.

#### REFERENCES

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5 June 1981.

#### DESCRIPTION OF THE NEWLY HATCHED WILLIE WAGTAIL *RHIPIDURA LEUCOPHRYS*

Some passerines are naked at hatching but many have a natal down (of neossoptiles), present mainly on dorsal surfaces. The patches of down do not correspond exactly with the tracts of feathers that develop later but each neossoptile is continuous with, and eventually pushed from its follicle by, an underlying teleoptile or pin-feather (Pettingill 1970 *Ornithology in Laboratory and Field*).

There are few descriptions of newly hatched Australian passerines, perhaps because ornithologists are rarely lucky enough to visit nests on the day the young hatch. This is unfortunate because morphological features of the nestling in its early stages, particularly the patterns of natal down, are potential taxonomic characters that may help elucidate generic and familial relationships among Australian songbirds.

In December 1980 I examined and described two Willie Wagtails *Rhipidura leucophrys* during their first five days in the nest. The nest was 1.3m off the ground in a small Sandalwood *Santalum lanceolatum*, growing against a house near Meandarra, south-eastern Queensland.

The nestlings had not hatched at 07:00 Eastern Standard Time on 5 December 1980 but had at 06:30 the next day (Day 0). At that time Nestling A weighed 2.7g and its tarsus (from notch at ankle-joint to base of folded toes) was 8.5 mm. Nestling B weighed 2.9 g and its tarsus was 8.0 mm long. At 06:30 on Day 4, at the last examination I made, the measurements were Nestling A: weight 9.3 g, tarsus 16.3 mm; Nestling B: weight 9.7 g, tarsus 16.0 mm.

The newly hatched Willie Wagtails had very dark red-black skin, paler on the underside. The natal down was pale brown. Rictal flanges were pale yellow-white and the buccal lining and tongue were orange. The dark grey bill had a black tip, claws were grey and the pale egg-tooth was small and inconspicuous.

Figure 1 shows schematically the down-patches of the neonate Willie Wagtail, but the diagrams are not intended to indicate the precise orientation or size of the patches nor the number of neossoptiles involved. Saunders (1956, *Bird-banding* 27: 121–128) coined the term down-patch and I follow the

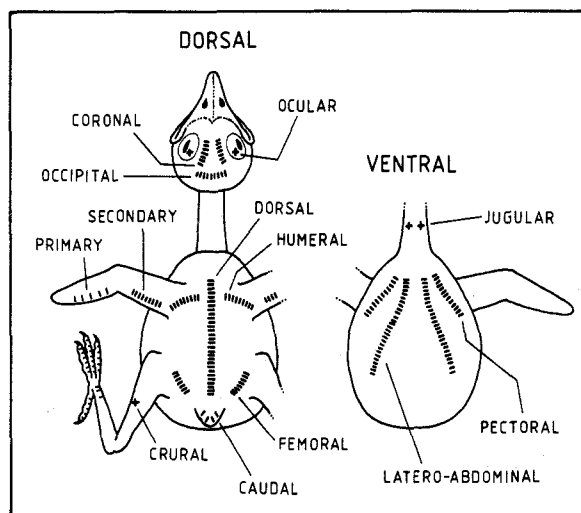


Figure 1. Down-patches of the Willie Wagtail shown schematically.

names that she used for the various patches. However, I have named the jugular and pectoral patches, which Saunders did not encounter in the North American passerines that she examined. She referred to separate lateral and abdominal patches. I assume that these are represented in Willie Wagtails by the continuous latero-abdominal patch (Fig. 1) but this could differ from those that Saunders mentioned.

The coronal, occipital, dorsal, humeral, secondary, femoral, pectoral and latero-abdominal down-patches of Willie Wagtails were dense; the others sparse and less developed. The ocular, primary, crural and jugular patches and anterior parts of the dorsal, pectoral and latero-abdominal patches, were lacking in Nestling B. In another songbird I have studied (the Grey Warbler *Gerygone igata* of New Zealand) crural and jugular down-patches were also poorly developed when present and lacking in some individuals. The absence of a particular down-patch, or part thereof, in a nestling is probably often congenital but neossoptiles may be lost by abrasion in the nest. Nestling B may have had time to lose down by abrasion because it was up to twenty-four hours old when first examined.

With eight well-developed and five less developed down-patches, neonate Willie Wagtails are particularly downy, specially on the ventral surface. Grey Warblers have eight major patches but only two minor ones. The ocular patch is less developed in the Willie Wagtail than in the Grey Warbler, but the latter lacks primary, caudal and pectoral patches and has a posterior abdominal patch rather than a long latero-abdominal one. It remains to be seen how the arrangement of natal down in Willie Wagtails compares with that of other species of *Rhipidura*.

This is a contribution of the Meandarra Ornithological Field Study Unit, University of Queensland. I thank Mr M.A. Elgar for helping me examine the nestlings and Dr D.D. Dow and Ms M.J. Whitmore for reading the manuscript.

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26 March 1981