

LEFT-FOOTEDNESS AND TOOL-USING IN THE VARIED SITTELLA *Daphoenositta chrysoptera* AND CRESTED SHRIKE-TIT *Falcunculus frontatus*

RICHARD A. NOSKE

c/- Department of Zoology, University of New England, Armidale, NSW 2351

Received 2 August, 1984

During the course of studies of eucalypt bark-foraging birds in north-eastern New South Wales, I noted that both the Varied Sittella *Daphoenositta chrysoptera* and Crested Shrike-tit *Falcunculus frontatus* regularly used their feet to hold prey items onto branches before eating them. This contrasted with treecreepers (Climacteridae), which were never seen to use their feet when handling food. Lepidopteran larvae, the most frequently observed prey item of both sittellas and shrike-tits, were first held in the bill and bashed against the branch, then pinned down by one foot (or occasionally both feet) while the bill extracted the viscera, which was then dropped or wiped on the side of the branch. In the case of beetles of 10 mm or more in length (mostly Chrysomelids and Scarabids), the elytra and possibly the head were torn off. Sittellas commonly procured single curled cylinders of bark up to 20 mm long from smooth branches or twigs, and anchored them to the perch with their feet so that the bill could be inserted. Shrike-tits were also seen to pin down leaves with their feet in order to scrape off lerps with the bill. This species uses its parrot-like bill to snip off leaves surrounding the nest (North 1906) so at times, it may use it for similar purposes when foraging.

Sittellas used the left foot significantly more often than the right to hold prey items or bark (32 and 16 times respectively, Binomial test, $p < 0.02$). The average handling period for 33 items was 20.8 (± 5.5) seconds, though this was not exclusively devoted to foot use. Interestingly, Green (1972) noted a sittella placing a strip

of bark "under its left foot". Although I observed shrike-tits using the left foot 50 times and the right 34 times, this difference was not significant (Binomial test, $p = 0.05$). Both species often transferred an item from one foot to the other, but only the first foot was counted. Rogers (1980) found that eight out of nine species of Australian parrots (Psittaciformes) were significantly left-footed, and cited evidence of left-footedness in some South American species. Rogers concluded that the degree of footedness in these birds was equivalent to the degree of handedness in humans, a result of functional asymmetry of the brain. Of course, in parrots the foot is used to bring food directly up to the mouth rather than simply holding it down to the perch.

It is noteworthy that both the sittella and shrike-tit have been recorded as "tool-users". Richards (1971) observed a shrike-tit using a twig to probe a crevice in a branch of a dead *Acacia mearnsii*; it then dropped the twig and extracted something which it ate. The bird secured the twig by flying up and breaking it off the end of a branch with its bill, then returning to its original perch. Green (1972) reported sittellas using strips of wood to probe holes from which the birds extracted grubs. Whilst I do not doubt their validity as cases of tool-using, Green's observations are unusual in that most wood-boring larvae live beneath the bark until they emerge and are thus rarely found in holes exposed to the surface (J. F. Lawrence pers. comm.; pers. obs.). Further, it seems unlikely that poking a larva with some object could force

it to move out of its hole. According to K. Thaler (pers. comm.), who was present during the first observation, the bird was initially seen vigorously probing a deep opening in a dead branch of a stringybark with its bill. It then hopped away and soon returned to the site with a strip of wood which was used to probe the opening. However, it was not certain whether the bird obtained the food from the end of the strip (when held under its foot) or directly from the opening.

As I never observed any instances of tool-using in the sittella in over 20 hours of detailed foraging observations in north-eastern New South Wales and Queensland, I suspect that such behaviour is infrequent and possibly limited to fairly small populations of this species. Similarly I have seen only one possible instance of twig-using by shrike-tits. In view of this, it is surprising that the regular and apparently widespread habit of both species of using the foot to handle prey and potential food sources has hitherto escaped the attention of ornithologists. More foraging observations of both species

would be desirable to determine the consistency of tool-using, as Chisholm (1972) suggests, but it is unlikely that accurate information of this sort can be obtained under field conditions. Aviary observations of food handling by these two species, and other members of the pachycephalid assemblage (e.g., shrike-thrushes; see Mitchell 1972), might prove useful in clarifying the role of the feet and the degree of lateralisation in the brain of passerines, as well as plasticity of foraging techniques.

REFERENCES

- Chisholm, A. H. (1972). Tool-using by birds: a commentary. *Aust. Bird Watcher* 4: 156-159.
 Green, C. (1972). Use of tool by Orange-winger Sittella. *Emu* 72: 185-186.
 Mitchell, H. (1972). Further recording of a tool-using bird. *Aust. Bird Watcher* 4: 237.
 North, A. J. (1906). Nests and Eggs of Birds found Breeding in Australia and Tasmania. Spec. Cat. No. 1. Australian Museum, Sydney.
 Richards, B. (1971). Shrike-tit using twig. *Aust. Bird Watcher* 4: 97-98.
 Rogers, L. J. (1980). Lateralisation in the avian brain. *Bird Behaviour* 2: 1-12.

Corella, 1985, 9 (2): 64-65

NOTES ON THE BIRDS RECORDED DURING A VISIT TO ISLANDS OF THE SIR JOSEPH BANKS GROUP, SOUTH AUSTRALIA

S. G. LANE

Lot 6 Fairview Road, Moonee, via Coffs Harbour, NSW 2450

Received 3 March, 1985

On 20 November 1981 accompanied by my wife, I visited Winceby (1.5 hours), Reevesby (45 minutes), Roxby (1 hour), Blyth (1 hour) and Lusby (30 minutes) Islands in the Sir Joseph Banks Group, Spencer Gulf, South Australia. Time spent on each island was far too short to complete a thorough survey, and the lunch visit to Reevesby was restricted to observations from the beach. On 21 November a visit was made to

Lipson Island in Lipson Cove; although no count was made of numbers of birds present, except penguins, species observed are included below. Ten large penguin chicks were banded during this visit. A description of Blyth Island appeared in *Corella* 8(5): 113-114 (Lane 1985).

The following are notes on the species recorded and the islands on which each occurred.