

## Natal Downs and Plumage Changes in the Noisy Scrub-bird, *Atrichornis clamosus* (Passeriformes: Atrichornithidae)

G.T. SMITH

CSIRO Division of Wildlife and Rangelands Research,  
Locked Bag No. 4, P.O. Midland, Western Australia 6056

**ABSTRACT.** The newly hatched Noisy Scrub-bird chick has 60 to 81 natal downs distributed in three paired and two single dorsal pterylae. The downs are most numerous and longest on the capital and spinal tracts. The age of the chicks when the contour feather sheaths emerge and burst on the various regions of the body is described. Males and females show no differences in the natal downs or juvenal plumage. The first moult begins when the chick is 41 to 46 days old. The first basic plumage is like the adult female plumage except that the male has a faint grey pectoral band on the upper chest. The second moult takes place during the bird's second summer, through which it attains the second basic (definitive) plumage. The males differ mainly in having a black upper pectoral band. All plumages are described. The distribution of the 840 natal downs in five paired and four single pterylae (both dorsal and ventral) in one specimen of the Superb Lyrebird is described. The differences in the natal downs and subsequent plumages between the scrub-birds and lyrebirds are discussed.

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Of the Noisy Scrub-birds (*Atrichornis clamosus*) collected in the period 1842-1889 (Whittell, 1943; Mees, 1964), only 20 specimens have survived. All were thought to be males until Campbell (1939) described a specimen from the Museum of Victoria that he considered to be a female. This was confirmed when Whittell (1942) published a description of a hitherto overlooked female in the collection of the Academy of Natural Sciences in Philadelphia. The only other published information on Noisy Scrub-bird plumages is a description of a male in first basic plumage (Serventy, 1967) and a brief description of the juvenal plumage (under the heading 'immature') by Smith (1976a). Only brief descriptions of the natal downs are available for the Rufous Scrub-bird (*A. rufescens*) (Jackson, 1921) and Superb Lyrebird (*Menura novaehollandiae*) (Kitson, 1905; Tregallas, 1921; Leach, 1921; Reilly, 1970). Those of the Albert Lyrebird (*M. alberti*) have not been recorded.

The present article describes, for the Noisy Scrub-bird, the distribution and numbers of natal downs per pteryla, the feather development of nestlings, and plumage changes from fledging to maturity. The natal down from one Superb Lyrebird is also described. The

aim is to present another body of data that may help to elucidate the relationships of the Menuridae.

### METHODS

The description of the natal down was based on two wild Noisy Scrub-bird nestlings that died at age one and five days respectively, and one six day old nestling hatched in captivity from an egg collected in the wild. An embryo approximately two to four days from hatching was examined also (the incubation period is 36-38 days; Smith & Robertson, 1976). These data were supplemented by descriptions and photographs of newly hatched chicks in the wild. For each specimen, the number of natal downs in each pteryla was counted and, for the three chicks, the length of five downs on each pteryla measured. All downs were measured in pterylae with five or fewer downs. The number of barbs in a representative sample of downs was counted. Neosoptile terminology is that of Wetherbee (1957).

Descriptions of the feather growth in the nestlings are based on descriptions from 31 individuals in the wild. The number of observations per chick ranged from one to seven, depending on the stage at which the nest was