

Growth of a Captive Nestling Masked Owl *Tyto novaehollandiae*

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Summary. Descriptions and photographs are provided of a captive dark-morph Masked Owl *Tyto novaehollandiae novaehollandiae* chick at intervals from second (mesoptile) down to fledging, in order to supplement previous limited information on age-related plumage stages in this species. Most male Masked Owls on the Australian mainland are likely to require a size 12 rather than the officially recommended size 13 leg-band, and the stated nestling period (up to 10–12 weeks) of wild Masked Owls requires critical field investigation.

Aspects of growth and development of nestling Masked Owls *Tyto novaehollandiae* were summarised by Debus (1997) and Higgins (1999). Earlier sources provided photographs, mostly in monochrome, of growth stages of chicks at 17–20 days old, an estimated 3 weeks old, at 6 weeks, at 6 days, at 9 weeks (just before fledging) (Hill 1955; Fleay 1968; Hollands 1991), and at an undetermined age at fledging (which may have occurred prematurely, when owlets still had much down: Elliott 1935). Subsequently, Todd (2006a,b) provided colour photographs of newly fledged juveniles. Being scattered through the literature, these photographs of the various subspecies do not provide a convenient, accessible age-related sequence of images for use by owl researchers. Furthermore, the existence of colour morphs in this species adds to the difficulty of ageing these birds (e.g. fledglings of the white-breasted morph have a buff breast-band: Debus 1997). The Masked Owl is one of the lesser known, more threatened Australian owls requiring further research for conservation and management (cf. Higgins 1999), and the ability to age nestlings or new fledglings may be useful in biological studies.

In 2004 the growth of a captive Masked Owl chick was monitored when the female laid a clutch of eggs in a sheltered corner of the aviary floor, rather than in the provided nest-box (which by then contained addled eggs and old food remains from a previous breeding attempt). The parent Owls were both of the dark morph of subspecies *T.n. novaehollandiae*. They originated in north-eastern New South Wales (NSW), as unreleasable injured birds (barbed-wire-fence victims) via the wildlife carers' network; they were the Beta pair of Debus (1997), subsequently housed at Yaraandoo Eco-lodge. In March 2007, the adults were at least 13 years old (cf. Debus 1997).

The owl chick, a female, was photographed by Wood at intervals from the early mesoptile downy stage (second, 'woolly' down) until fledging (Plates 11–12) before being hack-released (see Debus 1997) on the parental aviary roof at about 4 months old in late October, when the owlet was fully grown and had lost all down. Precise laying or hatching dates were not recorded, nor was the closely brooding female flushed to reveal the chick when it was small, to avoid disturbance to the Owls, but incubation was first noted in June. Although dates were not recorded, the photographic sequence supplements existing information as it shows the same individual at different stages of growth.



Captive dark-morph Masked Owl chick (nominate subspecies) at ~ 4 weeks old (above) and at ~ 5 weeks old (below), beside adult female (dark morph)



Same juvenile female Masked Owl fledgling at ~11 weeks old (left), dark-morph adult male (centre) and adult female (right). Male has an amputated right wing; adult female is crouching slightly.

Plate 12

Photo: C. Wood

The first two images (Plate 11) show the owlet at stages intermediate between those of chicks about 3 weeks old (Hill 1955; Hollands 1991) and 6 weeks old (Hill 1955; Fleay 1968). Thus, the owlet was probably about 4 weeks old in Plate 11 (above) (downy with developing mask) and 5 weeks old in Plate 11 (below) (thick down, with well-developed mask; feathers not yet visible through down). As a new fledgling in September 2004 (Plate 12), the fully grown owlet still had traces of down clinging to the tips of the feathers of the head, facial ruff and underparts, and was probably about 11 weeks old (cf. Debus 1997). When banded for release [bands supplied by the Australian Bird and Bat Banding Scheme (ABBS)], this juvenile owl weighed 690 g. A juvenile male from the previous brood at Yaraandoo, raised in the nest-box, weighed 450 g when released. Both juveniles, as for their siblings from earlier broods (Debus 1997), were darker and more heavily marked than their dark-morph parents (e.g. Plate 12).

The images of the downy chick (Plate 11) fill gaps in the previously available sequence of age-specific images, and their interpreted ages agree well with described growth stages (Table 2 of Debus 1997). Of note is the fact that the chick had buff mesoptile down (as did its earlier siblings: Debus 1997), rather than the cream down of intermediate-morph chicks of this subspecies, and apparently of dark-morph chicks of the Tasmanian subspecies *Tyto novaehollandiae castanops* (cf. text and Plate 41 of Higgins 1999).

Also of note is the appropriate band size for male Masked Owls in NSW. Although the ABBS recommended band size for this strongly size-dimorphic species is given as '13 (12)* (*varies geographically)', size 13 was too large for males. Most (20 of 21 juvenile males, one adult male and one wild immature male

in NSW) banded by Debus required a size 12 band; only one juvenile male was large enough for size 13. Nestling raptors and owls have adult-sized feet, and can be banded (and sexed if strongly size-dimorphic species), at least a week before fledging; the Owls in this study were banded at or after fledging age.

The results of this study are similar to age-related growth stages described for the Barn Owl *Tyto alba*, allowing for the slightly more rapid growth and earlier fledging of the smaller Barn Owl (nestling period 7–8 weeks, versus 8–9 weeks for the Masked Owl; cf. Higgins 1999). Detailed descriptions and photographic sequences for overseas populations of the Barn Owl, from hatchlings to fledglings (e.g. Cramp 1985; Taylor 1994; del Hoyo *et al.* 1999), suggest how Masked Owls would appear at similar or slightly (by a few days) older stages.

Limitations of this study are that laying and hatching dates were unknown, and a single captive chick on unlimited food may grow more rapidly than wild and/or multiple-chick broods. Nevertheless, the nestling period of the Masked Owl deserves further investigation, as previous estimates of nestling periods (up to 10–12 weeks: Hill 1955 in Schodde & Mason 1980; Higgins 1999) are longer than determined in captivity (8–9 weeks: Fleay 1968; Mooney in Debus 1993; Debus 1997). Hill's estimate was based on a food-stressed brood showing retarded growth after loss of the female, and on diurnal inspection of another brood that could have fledged but returned to the nest to roost by day. Similarly, an inferred nestling period of over 3 months from hatching in early May to 'fledging' in mid August (Kavanagh 1996) is inconclusive: the observation schedule could have missed earlier fledging, and other explanations are possible for begging or feeding vocalisations inside the nest-hollow in August. For instance, juveniles may return to the nest at night after fledging (Debus 1997), and food is sometimes left in the hollow after young have fledged (Hill 1955). Hence, critical field study of this aspect is required.

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