

Some Notes on the Plumage Phases of the Glossy Black-Cockatoo

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Specimens of the Glossy Black-Cockatoo *Calyptorhynchus lathamii* were examined to elucidate sex and age plumage phases. Under field conditions, adult females are the most readily recognizable form. An unbarred red subterminal tail band indicates that a bird is male and probably adult or nearly so, and some such individuals may have a few yellow head feathers. Adult females of this species and of some populations of the Red-tailed Black-Cockatoo *C. magnificus* can be distinguished by the pattern of tail colouration. Immature plumages in *C. lathamii* are characterized by brown heads and barred subterminal tail bands. Further material is required to elucidate any relationship in immature plumages between age, sex and markings such as spotting and barring.

Introduction

This article reports on an analysis of specimens of the Glossy Black-Cockatoo *Calyptorhynchus lathamii* held in Australian museums. The work was conducted in 1980 in conjunction with a field study of the species on Kangaroo Island, South Australia (Joseph 1982). The primary aim of the study was to ascertain what one can discern about the age and sex of individuals seen under field conditions. It is hoped that this article, which also contains brief comments on previously published relevant work, will provide a firmer basis for future work than is at present available.

Materials and Methods

Fifty-five specimens were examined from the collections of the South Australian Museum (SAM), Museum of Victoria (MV), Queensland Museum (QM), Australian Museum (AM) and CSIRO Division of Wildlife and Rangelands Research (CSIRO). Of these, 39 had the sex of the specimen given on the label, but only seven (four males, three females) had the gonads described; there were no data indicating how the other specimens were sexed. I noted the colour and form of markings on each specimen's head, tail, wings and underparts and any other noticeable or unusual markings.

Results

Adult Males

It has been maintained in the literature that adult male *C. lathamii* have uniformly dark brown heads always devoid of yellow markings, and a red subterminal tail band with no trans-

verse black bars (Lendon 1973; Llewellyn 1974; Readers Digest 1976; Forshaw 1977, 1981). While that description of the tail colour and pattern seems adequate, some qualification of the head colouration is warranted. Llewellyn (1974) considered that the occurrence of a single yellow feather on the head of an individual with an unbarred tail and an otherwise dark brown head made it hard to sex. I propose that it is not unusual for male *C. lathamii* to have a small number (< 10) of yellow feathers on the head and an unbarred tail band, the latter indicating that the bird is probably an adult as in the closely related Red-tailed Black-Cockatoo *C. magnificus*. Evidence supporting this is as follows:

(a) Specimens

- QM 010780, Emu Vale, SE Qld.
- SAM B25134, near Stokes Bay,
Kangaroo Island, S.A.
- SAM B7570, Western River,
Kangaroo Island, S.A.
- AM 038660, Upper Alwyn, Eccleston,
via Gosford, N.S.W.

These specimens all have unbarred tails and some yellow feathers on their heads; all are labelled male. The specimens show that this character can occur in both Kangaroo Island and mainland populations of *C. lathamii*.

(b) Field Observations

Birds with unbarred tails and some yellow feathers on the head were seen by the author on ten occasions on Kangaroo Island during 1980. At least four, possibly five, individuals appeared to be involved.

The details of the sightings of these birds are as follows:

- (i) two spots of yellow feathers below right eye; Middle River; 26 April, 2 May, 10 June (paired with a female), 14 August.
- (ii) possibly the same as (i); one spot of yellow feathers below right eye; Stokes Bay; 16 and 19 October.
- (iii) yellow feathers on both sides of head; De Mole River; 19 September (paired with a female).
- (iv) yellow feathers on left side of head; Western River; 22 September.
- (v) yellow feathers below bill on right side; Stokes Bay; 19 October.

In addition, a bird with a yellow feather below its left eye and a clear red tail and which could not be reliably distinguished from (iv), was seen at the Breakneck River on 15 August where it was paired with a female.

Adult Females

It has been maintained in the literature that adult females have extensive, though irregularly shaped, yellow markings about the head, and barred tails. Field observations of paired birds support this entirely. There are also 18 yellow-headed, barred-tailed birds in collections labelled as females but only three of which have the gonads described. An additional bird (AM 028668) in the same plumage is labelled "♂ 'is in ♀ plumage'". As it was originally in the Robert Grant Collection, some data of which are known to be incorrect (S. A. Parker, pers. comm.), the specimen has very possibly been mis-sexed as a male.

An additional character of females is that the colour on the dorsal surface of the tail is scarlet, not unlike that of adult males, while that on the ventral surface is orange with a yellow wash of varying degree. The orange is apparently always present, even in (? older) females with little or no barring in some tail feathers. Females of *C. lathami* and those of at least some populations of *C. magnificus* can be distinguished in the field by this character because in the latter (pers. obs. of eastern Australian populations), the red on the dorsal surface of the tail pales proximally into a shade of orange.

Llewellyn (1974 : 250) noted that AM B9322 (the sex of which is unlabelled but evidently female due to the extensive yellow head markings) has "no tail barring". I point out that the specimen does have three rectrices with some proximal barring, which may not be visible in the field. It is worth noting in this connection that *C. lathami* is often so unusually tame that patient field observation can reveal quite fine plumage details.

Females could be grouped into two categories (between which there is a gradation rather than a sharp distinction) with respect to their head markings. One class had a yellow crescent of feathers below the eye while the other class had considerable yellow both above and below the eye. This grouping may reflect an age difference but requires further study.

Immatures

I examined ten specimens with brown heads and barred tails for which the sex was labelled. Of these, only three, all males, had the gonads described; table I summarizes details of these specimens. At present, I consider that the wisest approach in understanding immature plumage phases of *C. lathami* must be a cautious one and that it is dictated by the lack of data accompanying most of the specimens examined. That is, there is clearly a plumage phase characterized by a brown head and a barred tail and which has varying degrees of spotting and barring. If correctly sexed, the specimens examined are sufficient to show that, *pace* Llewellyn (1974), spotting can occur in immatures of both sexes, probably more so in females. That these plumages are of immatures seems clear from my behavioural observations of such birds in the field (e.g. begging for food from adults, inefficiency in husking *Allocasuarina* cones for food). The colour and extent of spotting and barring may differ according to exact age and sex but again, further work is needed to clarify this point.

Discussion

Lendon (1973), Readers Digest (1976) and Forshaw (1977, 1981) differed in their opinions of the nature and extent of markings in immature plumages. Unfortunately, none of these authors published the basis for his remarks. For that reason and the need for caution expressed

TABLE 1

Details of sexed specimens of *C. lathami* with brown heads and barred tails.

Specimen	Sex as labelled	Notes
AM 038659	♀	Brown head with one yellow feather. No spots on wings.
AM 028669	♂	Brown head, no spots on wings. Grant Collection.
AM 042530	♂	Gonads drawn on label. No spots on wings.
QM 018193	♂	Unbarred and barred tail feathers so probably reliably sexed.
MV B 2071	♀	Three yellow spots on right wing and some on undertail-coverts.
MV R 8451	♀ juv	Yellow spots on both wings, yellow bars on undertail-coverts and on some abdomen feathers.
MV B 9567	♂	Gonads described on label. No markings on undertail-coverts. Label data: 'under lesser wing coverts lightly spotted yellow and orange'.
MV B 2072	♂	Yellow bar on undertail-coverts. Orange-red spots on underside of carpal joint.
CSIRO 12509	♂	Some tail feathers barred and some unbarred. No spotting on plumage. Label data: 'gonads not enlarged'.
AM 21227	♀	Yellow spots on head, shoulders and underparts. Bars on undertail-coverts.

above, I am reluctant to assess their views here. Similarly, Llewellyn (1974) suggested criteria by which to distinguish immature males and females based on the specimens held in the AM collection. With the exception of one point, I am also reluctant to assess his work, again for the reasons outlined above. What does require comment, however, is that only four of the specimens on which Llewellyn (*op. cit.*) based his criteria of immature males and females had their sex given on the label. One, AM 038659, although labelled simply "♀" (female), was treated without explanation as an immature male. Perhaps this weakens the strength of his suggestions.

Conclusions

The lack of adequately aged and sexed specimens of *C. lathami* was obvious in this analysis. Avicultural studies and long-term observations of individually marked birds in the field would augment the value of specimens collected in the future, with respect to establishing the duration of the various plumage phases.

For the purpose of field observations, I conclude that:

(a) birds with any tail feathers that are red and unbarred on the ventral and dorsal surfaces can reliably be diagnosed as male and probably adult unless they have more than a few yellow head feathers;

(b) birds with extensive yellow head markings can reliably be diagnosed as female regardless of presence or absence of tail barring;

(c) birds with brown heads and barred tails can at present be reliably diagnosed only as immature; inadequate knowledge of other markings that are often present prevents reliable sexing.

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