

## Age Changes in the Spines of the Spiny-cheeked Honeyeater

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One of the most distinctive features of the Spiny-cheeked Honeyeater *Acanthagenys rufogularis* is the row of spines at each side of the face from which it receives its names. It has been known for some time (e.g. Mathews 1925; Pizzey 1980) that there is a relationship between the appearance of the spines and the age of the bird. Colston *in* Hall (1974) noted that among the specimens collected by the Harold Hall Australian Expeditions "a number . . . have yellow in the moustachial streak, which seems to be a character of young birds but is also found in some apparent adults, . . . these may be first year birds." An examination of specimens in the Australian Museum collection for which the extent of skull pneumatisation has been recorded allowing determination of age allows us to provide more specific information on these age changes.

In birds with fully pneumatized skulls (adults) the spines are white (Fig. 1) while those which have not completed pneumatization have yellow and white spines (Fig. 2). In addition to dissimilarities in colour, the structure of the spines is also different. The adult spines are stiffer and thicker and their shafts proportionally longer (Fig. 3a) than those of younger birds which are pliable and easily bent. The yellow portions are small projections lining the barbs which extend from the shaft and form the distal halves of the spines (Fig. 3b). These appear to wear off as the bird grows older and the extent of yellow barbs on a spine is roughly inversely proportional to the degree of skull pneumatization. The barbs may lose their yellow colour, becoming white, but remain on the spine (Fig. 3c). These thinner spines are replaced through moult by the adult spines. This replacement begins at the gape of

the mouth and moves towards the rear of the head. Immature birds often show a mixture of adult and yellow-barbed spines. In adults, very worn young spines retaining some whitish barbs can be occasionally found under the thicker spines towards the rear of the cheek. There is no difference in colour or structure of the spines between males and females.

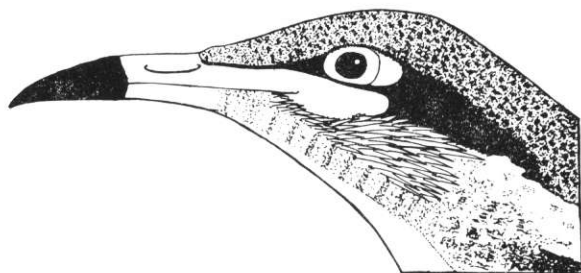


Figure 1. *Adult Spiny-cheeked Honeyeater with white stiff moustachial spines.*

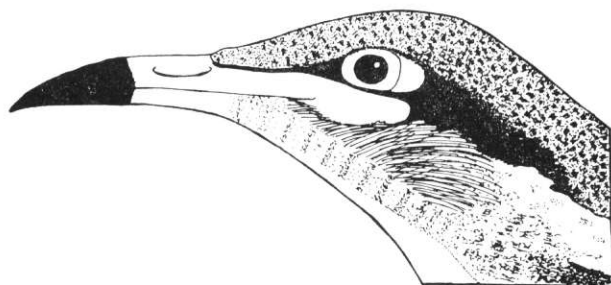


Figure 2. *Immature Spiny-cheeked Honeyeater with yellow and white pliable moustachial spines.*



Figure 3. Cheek spines of Spiny-cheeked Honeyeater.  
 a. Adult spine showing thick white shaft.  
 b. Juvenile/immature spine showing small yellow projections present on barbs when unworn.  
 c. Juvenile/immature spine showing loss of yellow projections from barbs due to wear.

Drawings by D. S. Kent.

With only a few exceptions the form of the facial spines gives a good indication of the age of individuals in this species and whether or not a female has bred. Iris colour and plumage characters corroborate age determinations made by the spine appearance (Boles and Longmore 1983).

Specimens were divided into three categories on the basis of skull condition: fully pneumatized (100%), not fully pneumatized (greater than 25%, less than 100%) and unpneumatized (less than 25%). All birds with fully pneumatized skulls ( $n = 14$ ) had adult spines; all with not fully pneumatized skulls ( $n = 6$ ) had yellow barbed spines, some with adult spines mixed in; and all but one with unpneumatized skulls ( $n = 5$ ) had the young condition. The individual which did not conform was collected in October; it had adult plumage and enlarged testes. Such advanced plumage in the presence of an unpneumatized skull may have been due to an unusual hormonal stimulus.

A compilation of all sexed specimens in the collection ( $n = 54$ ) including those for which skull condition is unknown shows that both spine types can be found throughout the year (Table 1). Assuming that the length that any particular plumage is retained is uniform, this indicates that breeding may occur at any time; the collection contains juvenile birds collected in July and in November. This makes it difficult to determine the duration of the yellow barbs before being lost by moult.

In females there is a strong correlation between the type of spines and the structure of the oviduct. Of eight females in which the condition of the oviduct had been noted, three breeding females (curled oviduct) had fully pneumatized skulls and adult spines, and four virgins (straight oviducts) had not fully pneumatized skulls and yellow barbed spines. The remaining female was not fully pneumatized and had a mixture of young and adult spines but had a curling and thickening oviduct. She appeared to be coming into breeding condition for the first time.

## References

- Boles, W. E. and N. W. Longmore (1983), 'Bird in the Hand: Spiny-cheeked Honeyeater *Acanthagenys rufogularis*', *Corella* 8: 24.
- Hall, B. P. (ed.), (1974), Birds of the Harold Hall Australian Expeditions 1962-70. Brit. Mus. (Nat. Hist.), London.
- Mathews, G. M. (1925), The Birds of Australia, vol. XII, H. F. and G. Witherby, London.
- Pizzey, G. (1980), A Field Guide to the Birds of Australia, Collins, Sydney.

TABLE 1

Monthly distribution of skull condition, spine structure and colour, and breeding condition of females of Spiny-cheeked Honeyeaters. ( ) = presence of yellow barbs; \* = curled oviduct; ' = straight oviduct. No symbol is given for females in which status is unknown.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
Fully pneumatised	2		1				2		2	2	1	
Not fully pneumatised												
Unpneumatised												(1)' coming into breeding condition for first time
Not known		(1)			1		(1)			(2)	(1)	(1)

	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
Fully pneumatised						1*	1	1*	2	1		
Not fully pneumatised						(2)''	1+(5)	(1)'				
Unpneumatised					(1)		(1)	(1)'	(1)			
Not known	(2)	(1)	2+(1)	1	(1)	(1)		1		5+(1)		1

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