

THE COLOURS OF THE SOFT PARTS OF AUSTRALIAN EGRETS

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Excluding the Reef-Heron (*Egretta sacra*) there are four species of egrets that breed in Australia; they are the Large or White (*E. alba*), the Plumed (*E. intermedia*), the Little (*E. garzetta*) and the Cattle (*Bubulcus ibis*). All, except the Cattle Egret, have entirely white plumage both in the breeding and the non-breeding states. The Cattle Egret in breeding plumage has elongated rust-brown plumes on either side of the breast, and back plumes, of a rich chestnut colour with a pinkish tinge. The lengthened head plumes and the feathers of the neck (other than those of the throat and fore-neck, which remain white) are of a rust color.

The filamentary breeding plumes of the Little, Plumed and Large Egrets differ in the three species. The Little has back and breast plumes and two narrow white feathers, five or six inches in length, extending downwards from the nape: the Plumed has back and breast plumes, those on the back extending up to five or six inches beyond the body: the Large has back plumes only and they extend about two inches beyond the tail.

Most published descriptions of the colors of the unfeathered or "soft" parts of the Australian egrets are either incomplete or misleading. An instance is to be found in Gregory M. Mathews' *Birds of Australia* (1914) in which work the colours of the soft parts of "breeding" birds of the three species described therein apply, in the main, to non-breeding birds.

Doubtless confusion has arisen because of the marked differences between the breeding and the non-breeding states, and from the fact that examples of the four species in extreme or opposite phases may be found in a mixed breeding colony. In addition, individuals showing a breeding state, both in plumage and soft parts, are to be observed far from known nesting localities. Presumably such birds, although in breeding dress, are not nesting. All these factors add to the difficulties of determining just what are the colors of the soft parts during the period of greatest breeding or sexual activity.

Some years ago H. T. Condon gave (1958) useful data on the soft parts and the plumages of egrets. Subsequently Brian Glover, when discussing (1965) the Cattle Egret in South Australia, had this to say on the matter:—

One thing that emerges from reading the literature on the egrets is the lack of precise knowledge of the colours of the unfeathered parts of the various species at different stages of their lives.

The following notes on the colours of the soft parts of egrets are based on data gathered over a number of years at colonies near Ulmarra, northern coastal New South Wales. The egrets nest at Gillett's Ridge about six miles from Ulmarra and have done so certainly as far back as 1936, but probably for many years before that time. Since 1960 they have used three separate clumps of trees, chiefly paper-barks (*Melaleuca*), growing in shallow swamps within a few hundred yards of one another. The locality is part of the extensive lower Clarence River flood-plain on which, at one time, were many lagoons, channels and swamps now considerably reduced by reclamation and flood-control schemes. One has only to refer to the writings of Sidney William Jackson in his *Catalogue of the Jacksonian Oological Collection* (1907) to realise what a haven the area was for water-birds at the turn of the century.

The breeding egrets at Gillett's Ridge have obviously built up both in numbers and species since M. T. Goddard noted (1955) six pairs of Cattle Egrets breeding among 300 pairs of Large Egrets and numbers of Little Pied and Little Black Cormorants in 1954. Visits to the colony in 1955 and 1956 by Michael Sharland are discussed in the *Emu* (1957). A survey in 1967 showed that the rookery (now in a different spot) had expanded considerably and had overflowed from the paper-bark swamp into nearby gum and she-oak trees on dry land. It was then estimated that the number of nests in use was between 1,600 and 2,000 with, perhaps, those of the Large Egret in

the majority, followed by the Plumed and then the Cattle Egret of which species there were between 250 and 300 occupied nests. Only one pair of Little Egrets was noted; in addition, Little Pied and Little Black Cormorants were nesting among the egrets in numbers.

Breeding is influenced by local conditions and there have been years when no nesting at all has taken place. In times of drought, when most of the feeding areas of the egrets are dry, the birds move to other parts. When breeding does take place the first species to start nesting seems to be the Large Egret followed by the Plumed and then the Cattle Egret and perhaps the Little whose numbers in the colony are always few. The Large Egrets favour the higher parts of the trees and normally commence building in late September or early October, though the actual time is governed by the state of the surrounding wetlands. It may be mentioned that Cattle Egrets are not so dependent on aquatic life for their food as are the other egrets because they forage largely in grassland in association with stock. Overall breeding activity in the colony may continue until late March in most years, but sometimes to the middle of April in a good season, the several species gradually dispersing as the fledgelings leave their nests.

During the 1968-9 season a check was made (by R.G.) on the breeding activities of the birds. In late October there was no indication of nesting, it being very dry at the time. About 1½" of rain in mid-November apparently triggered nesting for on December 7 it was found that about 300 Cattle Egrets, some twenty or so Large Egrets, ten Plumed Egrets and one Little Egret, but no cormorants, were then on nests. Three weeks later it was noticed that the number of nesting birds had decreased to an estimated 250 pairs of Cattle Egrets, ten pairs of Large Egrets, three pairs of Plumed Egrets and one pair of Little Egrets: in the meantime a pair of Little Pied Cormorants had joined the colony.

On January 9, 1969, the Cattle Egrets seemed to be doing well and many of their nests held chicks, but only four Large Egrets were noted and neither Plumed nor Little Egrets were present. The fall in numbers was probably due both to lack of food caused

by the dying up of the local swamps and, to some extent at least, predation by Crows (*Corvus orru*) three of which birds were seen feeding at an egrets' nest. At sunset on that particular day thirty to forty Crows roosted in trees near the colony. Cattle Egrets seem more inclined to repel marauders and have been seen to drive away Crows intent on stealing eggs or very young nestlings. In the past Sea-Eagles (*Haliaeetus leucogaster*) have been known to raid the colony.

The swamp where the egrets now breed is on private property, the owners of which are staunch conservationists. The rookery is ideal for close observation because a car can be driven to within twenty feet or so of the site and, after a while, one can walk quietly about without disturbing the birds overmuch.

In the colony there is no regular pattern of change within a species group: therefore, one may observe, at a particular time, birds coming into, in, and going out of the breeding state. Especially is this so when the colony has reached what may be termed the "middle period" of breeding activity.

It should be pointed out that the colors given in the appended table for the breeding and non-breeding states are considered by us to be the limits, or extremes, of those two opposite phases. Some colors, such as those of the irides and the facial-skin, appear to reach an intensity that may last for but a week or so during the peak of sexual activity.

REFERENCES

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Table 1. Colours of bills, legs, irides and facial-skin in *Egretta alba*, *E. intermedia*, *E. garzetta* and *Bubuleus ibis*.

Non-breeding	Breeding
EGRETTA ALBA	
<i>Legs</i> : tarsus varies from black to dark-slate; tibia sometimes black or blackish but generally lighter than tarsus and, at times, dull yellow.	legs have been recorded as black in the breeding season, though generally the tarsus is black or blackish with the upper portion merging with the red or reddish-brown of the tibia.
<i>Facial-skin</i> : yellow.	apple-green to bluish-green.
<i>Iris</i> : yellow.	red at the peak of sexual activity, otherwise yellow.
<i>Bill</i> : yellow.	black to leaden-black.
<i>Nestling</i> : bill bright yellow with black tip and black along the cutting edges; iris, yellow.	
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EGRETTA INTERMEDIA	
<i>Legs</i> : similar to <i>alba</i> (see above).	similar to <i>alba</i> (see above) but generally the red of the tibia is brighter.
<i>Facial-skin</i> : yellow.	apple-green to bluish-green, brighter than in <i>alba</i> .
<i>Iris</i> : yellow.	red at peak of sexual activity, otherwise yellow.
<i>Bill</i> : yellow, generally brighter than in <i>alba</i> .	bright orange-red to fleshy-red, becoming yellowish towards the tip.
<i>Nestling</i> : bill and iris yellow.	
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EGRETTA GARZETTA	
<i>Legs</i> : tarsus and tibia black or blackish with inner edge of tarsus either dull olive-green or dark olive-brown; toes black, sometimes (though not always) with yellow soles.	black.
<i>Facial-skin</i> : yellow.	cherry-red at peak of sexual activity, then fading though pink to yellow.
<i>Iris</i> : yellow.	red at peak of sexual activity, otherwise yellow.
<i>Bill</i> : black or blackish, with basal portion of lower mandible dull yellow.	shiny black to black.
<i>Nestling</i> : bill and iris yellow.	
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BUBULCUS IBIS.	
<i>Legs</i> : tarsus dark-slate shading to slaty-grey on tibia.	tarsus blackish with a dull red tinge; tibia flesh-pink to reddish.
<i>Facial-skin</i> : yellow.	deep fleshy-red at peak of sexual activity, changing to yellow.
<i>Iris</i> : pale-yellow.	red at peak of sexual activity, otherwise yellow.
<i>Bill</i> : yellow.	fleshy-red with yellowish tip, changing through orange to yellow.
<i>Nestling</i> : bill black, iris yellow.	