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To cite this article: R. F. Bailey (1934) New Nesting Records of Glossy Ibis, *Emu - Austral Ornithology*, 33:4, 279-291, DOI: [10.1071/MU933279](https://doi.org/10.1071/MU933279)

To link to this article: <https://doi.org/10.1071/MU933279>



Published online: 22 Dec 2016.



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New Nesting Records of Glossy Ibis

By R. F. BAILEY, R.A.O.U., Moree, N.S.W.

The Glossy Ibis (*Plegadis falcinellus*) is well distributed throughout the world. It occurs in the West Indies, Central and North America and many parts of Europe, as well as in Africa, India and Australia. The bird nests in great numbers in the swamps of Eastern Europe, Africa and India. It has reached New Zealand and has been observed in China but does not nest there. Several flocks have been noticed in swampy portions of north-west Australia where the birds feed during the day time and roost in the trees bordering the swamps at night. The bird is rare in South Australia and apparently does not nest there. It is an exceedingly rare visitor to Victoria. Some three years ago a flock of thirty was observed feeding on the Geelong Racecourse.

The recorded nestings in Australia extending over a period of thirty years are very rare and as far as I can ascertain nests have been found in three places only, viz., Yandembah, Cunnamulla and Curragundi—that is apart from the nesting sites described in this paper. I propose in this contribution, to extend the list to seven, by adding particulars of two nesting sites which I believe have not been previously recorded and to describe two new rookeries recently discovered in our Moree district. I list the nestings in their chronological order.

The first discovery that the Glossy Ibis were building in Australia was reported in 1899 by K. H. Bennett—this was on Yandembah Station in the Lachlan district of New South Wales but it is believed that only three nests were found. The rainfall for the year was excessive. In 1907, S. Robinson found three or four nests in Cunnamulla, (south-west Queensland). That year registered a normal quantity of rain. Mr. Arthur Mawhiney, R.A.O.U., informs me that the late Robert Hill, of Buttabone Station in the Warren district, advised him that Glossy Ibis built in the Castlereagh reed-beds. No particulars are available concerning the site, although the proof of the statement existed in the receipt by Mr. Mawhiney of a clutch of eggs subsequently sent to him by Mr. Hill.

In 1917 Mr. Mawhiney found deserted nests in the Curragundi rookery. A boundary rider when questioned, remembered small greenish Ibis that had occupied these nests. In response to an enquiry as to the colour of the eggs, he said that although he had not actually seen the eggs in the nests, he noticed pieces of greenish eggshells underneath the trees, which should be sufficient evidence to confirm this instance. Mr. Mawhiney was sure of the man's reliability.

During December 1921, the late Fred Morse found Glossy Ibis breeding in thousands in the Moree Watercourse, ten miles below "Curragundi" Station. The district rainfall was prolific, and double the average was officially recorded, while from September 1921 to January 1922, a period of five months, sufficient rain fell to equal the tabulated average for a normal year. Over a period of fifty years, 1894 was the only year during which the rainfall equalled the 1921 registration.

By courtesy of Mr. Sidney Morse, I was given access to his father's note book, from which I append the following extracts:—

"December 2nd, 1921. Receiving a 'phone message from Mr. S. Freeman to the effect that Glossy Ibis were daily passing his camp on the Watercourse, I hurriedly prepared for a trip there in company with F. McCallum. On arrival at our destination on Friday, we at once waded into the big Straw-neck and White Ibis Rookery previously known to me. We searched the lignums all the afternoon, in which many thousands of Ibis and a great number of Royal Spoonbills were breeding, but without success. We did not see a single Glossy.

"Next morning, December 3rd, we entered the rookery from a different quarter and the first thing that met our eyes was a dozen or so Glossies rising from the lignums. Here, at last, we successfully located the nests, about 17 in number, containing heavily-incubated eggs and young birds.

"On the following day, December 4th, we started for home. On the way, we explored a part of the Watercourse previously visited in 1920 by Dr. D'Ombraïn, R. G. Hays, Arthur Mawhiney and myself. On that occasion, we found many thousands of old unoccupied nests, but no new ones, but now every tree was a mass of bird life. Egrets of three species, Glossy Ibis, Nankeen Herons, White Ibis, Royal Spoonbills and Cormorants (small Pied and small Black) were nesting in every tree. The trees (Koobal or Gumung) were 20 to 30 feet in height; they were thickly clustered together, and were all loaded with nests containing young ready to leave, and in all stages, also partly-built fresh nests. The White Ibis were nesting in the trees in the same manner as the Herons.

"On the 9th December, in company with Arthur Mawhiney, we again visited this spot, but discovered nothing further than already noted. The number of birds breeding here was enormous and although we spent two whole days among them, we did not get to the end of the heronry either in an easterly or westerly direction. Nests of the Lesser Egret (not many in number) were placed lower down than those of the plumed. Many were not more than 7 feet from the ground. Nests were indistinguishable from those of the other species. The Glossy nests measured 11 to 15 inches across. Egg cavity 2 inches."

This rookery was visited again by Mr. Arthur Mawhiney on February 10, 1922, when he examined thousands of nests of *Plegadis*. Some contained fresh eggs, others had eggs in progressive stages of incubation, newly-hatched young, fledglings, and immature birds apparently just ready to leave the trees. Four light-green-coloured eggs appeared to be the normal clutch, odd nests contained five eggs, while one held six, which clutch was taken and sent to the collection of the late H. L. White. Mr. Mawhiney estimated that the birds had commenced "rooking" early in October—

judging by the size of the young Ibis observed when he visited the rookery on December 9. He estimated that over 5,000 Glossy Ibis were nesting in Eumo trees (Water-Willow). The nests were constructed of Eumo sticks that seemed to have been pulled or broken from green trees, the leaves being used for lining the nest.

During the progress of this 1921 rookery, the Ibis nested in company with the Great Egret (*Egretta alba*), the Little Egret (*E. garzetta*) and the Plumed (*E. intermedia*). The Herons were represented by the Nankeen (*Nycticorax caledonicus*), White-necked (*Notophoja pacifica*) and the White-fronted (*N. novae-hollandiae*), while Royal Spoonbills (*Platalea regia*) and thousands of Cormorants were also nesting. The Small Pied (*Microcarbo melanoleucus*) and the Small Black (*Phalacrocorax ater*) were the representatives of the last-named group. According to a very conservative estimate, a million birds were nesting in this colony during February, 1922, the boundaries of which, would be 1 mile in length by a quarter of a mile in width.

THE "WAYHOLME" ROOKERY

I have now to record that the Glossy Ibis were discovered nesting on November 1, 1933, at "Wayholme", a portion of the Moree Watercourse, some 60 nests being observed. Unlike the 1921 colony, which had so many grallatorial birds "rooking" together, this colony was an isolated one. No other waders were observed building at or near the site. The situation, too, was isolated and difficult to reach, and was over 20 miles distant from the 1921 Rookery.

There were two or three eggs in each of the nests, when the rookery was first noticed. Two greenish-coloured eggs were obtained by an employee, but were accidentally broken during the return journey to the homestead and thrown away.

Early in November, 1933, and just before the close of the R.A.O.U. Camp at Moree Watercourse, a number of members considered they were fortunate to observe a flock of Glossy Ibis feeding on newly-submerged ground about a quarter of a mile from the camping site. The name of *Plegadis falcinellus*, therefore, appears on the official camp list, well towards the end of the time devoted to compilation.

A week or so after the members had returned to their homes, the knowledge came to hand that Ibis were building in the Watercourse. A preliminary enquiry revealed that "they were not the *ordinary* Ibis, but *black shiny* ones", and that they were building at "Wayholme" in a deeply-submerged part of the Watercourse some 5 miles, by direct line, from the R.A.O.U. Camp Site, and possibly less than that distance from parts of the Watercourse prospected by some of the members during the camp. The situation would be 4 miles from "Talmoi" Lagoon. I communicated

with Mr. Spilsbury, the owner of the property, who very kindly gave me the domestic information for this article. Mr. Spilsbury, who was sympathetically interested in the activities of the R.A.O.U. members during their visit to Moree, kindly offered me every assistance and immediately sought to have the birds identified, as they were new to him. He knew they were Ibis, but knowing only the Strawnecked species (*Threskiornis spinicollis*) and the White Ibis (*T. molucca*), he was encouraged from the suggestion that the birds were Glossy Ibis, by the prospect of adding the habits of a new bird to his store of knowledge. To members of the Union in Moree, this was good news and the following notes were obtained by me in an effort to confirm the news.

On this occasion the birds nested in black wattle (*Acacia stenophylla*), known here as Goorli or Goorhli by the aborigines, and as swamp wattle by men on the land. These trees generally grow on low-lying, boggy, swampy ground, and, as the site was recently flooded, the swollen channels and boggiess presented greater difficulty in reaching the objective, than the ordinary wading routine necessary in Watercourse country and now familiar to our recent visiting members. The Goorhli clump was surrounded by lignum bush (*Erymophylla polyclada*), which grew very thickly and so tall that the height exceeded the lower branches of the black wattle. Tufts of cane grass reaching 4 feet 6 inches in height, also grew abundantly along the channels, and, by retarding one's movements made the site very difficult of approach. A thick belah scrub (*Casuarina lepidophloia*) on higher ground, gave good shelter on the northern side and protected the rookery from the glaring mid-day sun, while the surrounding coolibah (*Eucalyptus microtheca*) on the southern and eastern aspects offered considerable shade in the late afternoon.

Another difficulty to be negotiated arose from the fact that each tree is generally circled by numerous seedlings, which have germinated all around the parent. The Goorhli is appropriately named "Hen and Chickens" by local graziers, on this account. When these are submerged, they impede one's progress in the water and when partly-covered, the going is very treacherous, because a large quantity of debris, floating timber and rotting vegetation is collected and forms an insecure platform on the surface of the water, and serves also as a harbour for snakes and aquatic vermin of all kinds. During the Camp a car could have reached to within 50 yards of the swampy goorhli clump by an indirect journey. The arrival of flood water later, however, made motoring impossible and enlarged the channel to a stream some two hundred yards wide, with an average depth of three feet.

The depth of water at the nesting site was up to the

arm-pits of the average man and the whole of the surrounding country was submerged. This circumstance probably encouraged the birds to "rook" in this location, and soon some 60 nests were observed in the clump consisting of some 20 trees. Each nest was 10 to 12 inches across and five inches deep, was constructed of black wattle sticks and pieces of mistletoe (*Loranthus* sp.) and lined with wattle leaves and coarse grass. The structure was really a nesting platform, the central, lined portion being just deep enough to prevent rolling of the eggs. The forked branches of the trees supported each nest, except one that was completely hidden by surrounding mistletoe. A few days later the nests contained three to five light jade green eggs of dull colour and rough surface.

The arrival of a further volume of flood water later completely isolated the site for a fortnight. In order to reach the situation, Mr. Spilsbury would have had to negotiate four miles of slow plodding through flooded country which would have taxed the best-conditioned horse, so further visits had to be temporarily postponed. Even if he had reached the belah clump on higher ground, the channel at its maximum depth would have stopped his progress.

On November 18, Mr. Spilsbury rode to the rookery and elicited the information that few eggs were available. The percentage incubated was very high and all nests were occupied by feathered young. A later visit was made on November 30, when the birds were found to be fully feathered. They were sitting on and alongside the nests. Four nestlings were secured and brought to Moree for description and to enable photographs to be taken. The four young birds were very active and eager to snap up any raw meat or insects offered; flies appeared to be very acceptable to their taste. A bushrat's nest containing six young ones was found and these young provided a very popular variation in the diet. The birds soon disposed of the small rodents with evident satisfaction. Small, brown swamp frogs were quickly swallowed. The activity of the subjects and the cloudy day dulled any expectation of good photographic results. Their estimated age would be 12 days. The general colour of the young birds was glossy blue-black, the breast and abdomen dull black. No purple or rufous reflections were noticed, but these colours would probably develop in the adult bird.

The mandibles, of the characteristic sickle shape, were $2\frac{1}{4}$ inches long, cream coloured, and had a black base, black tip and central black band; the tibia and tarsus were black; there were three front toes, partially webbed, each with a single nail; and one hind toe half the size of front toes. The forehead and ear coverts were black; the iris was brown with black eye patch; the crown dirty white in each

of four birds, although two had a number of rusty-brown elongated feathers bordering the occipital and forehead boundaries of the crown. These feathers were a quarter of an inch longer than the general plumage of the crown. A long patch of white appeared on the throat of the largest bird and extended from the sub-mandibular region to the breast, while the neck marking of the other birds consisted of a small central patch of white with black bars. A few days later the sheen on the feathers was very noticeable, the birds showing green to bluish green in certain angles of light, except the largest of the four, which seemed to have developed a reddish tint on the neck and back.

On December 9 I motored to "Cooma" Station to see the birds, where they were carefully tended by the Misses Beryce and June Hinder. They were very active, being then three weeks old. They were housed next to an adult Straw-necked Ibis and went through the tremulous ceremony of appealing for food whenever the "Strawneck" approached. I noticed that the whitish area of the crown had diminished. The colour of the crown had lightened and the area was nearly covered by the growth of the forehead plumage leaving only a narrow white semi-circular patch. The bill was now $2\frac{1}{2}$ inches in length. The black base of the mandibles extended half an inch, while the central black band and tip were still visible, though the intermediate markings were different. The cream colour had now developed a reddish tinge. The breast was a dull black colour, the purplish reflections on the centre of the birds' backs were now very noticeable, while the greenish, glossy sheen was confined to the wings. The largest bird retained its long white neck patch while the other three had central patches of dirty white with three parallel black bars. Each patch was $1\frac{1}{2}$ inches in length, and the height of the birds 9 to 10 inches.

I wondered at the seemingly apparent significance of these black and white colour contrasts in the young nestlings. Are they subject to attack by predatory species? To me, there seems to be a definite attempt at camouflage. The nest is completely marked by liquid excreta, giving it a whitish appearance, while the black and white mandibles and the whitish crown against the dark area of the nape and back seem to complete a black and white colour scheme which would make observation from the air more difficult. If there should not be any significance in this apparent attempt at camouflage, it might be necessary to examine the evolution of *Plegadis* in regard to these colour contrasts. The markings may be the remaining characters of the bird's early ancestry which disappear in the month-old fledgling, the various colour phases being ultimately represented in the adult plumage as the bird's progressive efforts to adapt itself to its present habitat. In regard to the capitar

plumes, I hesitate to suggest that these elongated crown feathers might be the declining evidence of an earlier ancestral crest, because they were not present in two of the four birds examined, though it could be possible that the female did not ever have a crest. I found a difficulty in accepting this feature as a sex difference on account of my original impression that the largest bird possessing the largest neck patch was a male, whereas the remaining three with small areas of white were females. I believed this feature to be sufficient to enable the male to be distinguished from the remaining three females. The possible significance of the plumes occurred to me subsequently. The plumes had disappeared with the re-organisation of the crown feathers as described when I examined the birds at three weeks of age. This view admittedly conflicts with the speculation that the two birds with elongated plumes were males and the other two females, but I simply report the observation in the hope that it might lead to further discussion with some definite pronouncement from experienced members, at a later date.

Returning to the protection aspect of the plumage, the stealthy "Goanna" is a menace, we know, though the birds show a fine community spirit when on the defensive. A Brown Hawk (*Falco berigora*) passing over the Ibis rookery, evidently flew too close to the nestlings, for the parent birds launched an attack with great vigour and inflicted consistent punishment till the Hawk was forced right down into the swamp and left there.

On December 16 I motored to "Wayholme" and rode to the rookery with Mr. Spilsbury. On arrival at the site, I could see that wading conditions were easier. The flood water had now receded and after strapping on camera and glasses, we found that the greatest depth to be negotiated was three feet six inches to four feet, although parts of the channel were much deeper. The lowest nest observed was six feet above water level, which would give it a clearance of some four feet only during the flood.

The Australian leech (*Hirudo australis*) favoured us with constant attention while attacks by numerous types of mosquitoes made it a difficult matter to keep still when observing from the trees. A number of the lower goorhli branches touched the surface of the water and the average height of trees was 30 feet.

The birds were now a month old and all were flying quite independently. When first approached they were feeding on the shallow portions of the swamp. Some were on the trees, others were crowded on dead coolibah and a consistent clamouring for food was kept up at the approach of the parent birds. All food offered to the young birds was first regurgitated by the adults. The flight of the young birds was very confident, but they alighted with difficulty on the

goorhli branches or dead coolibah. I had under observation twelve to fourteen birds in line on one naked coolibah. Other birds arriving would alight on the necks or backs of their companions with a great display of wing flapping and "squawking" before they would succeed in getting a final footing. There seemed to be always room for the next bird to arrive even though the accommodation on the limb would appear to be taxed. Their sureness or surefootedness was remarkable as some birds would occupy a full half-minute to get settled and I did not notice any young birds give up the task and try elsewhere for a resting spot. All landed safely. The continuous noisy struggling, the unmusical request for food and the consistent fighting and pecking of the young birds proved factors that definitely made the site a very noisy location.

Photographic opportunities were missed by bad manipulation of the camera and I regret that the negatives were spoiled by a misunderstanding on my part relating to the technique of a new instrument. I secured three young birds, made skins as carefully as possible and forwarded them to the Australian Museum. The crops contained portions of small brown frogs and the gizzard contents were collected and forwarded for examination.

Little Black Cormorants (*Microcarbo melanoleucus*) were observed swimming in the channel while Pacific Herons and Nankeen Night-Herons were seen in the distance. Egrets and Spoonbills were also feeding in proximity to Ibis, but it seemed that the Ibis had full charge of their selected feeding territory and endeavoured to keep it for themselves. The ubiquitous "Greenie" (*Meliphaga penicillata*) flew backward and forward over the channel and Willie Wagtails (*Rhipidura leucophrys*) and "Scissors Grinders" (*Seisura inquieta*) were numerous and sought their insect food along the channels with great activity. The only other nest observed was that of a Yellow-tailed Tit (*Acanthiza chrysorrhoa*) and a completed, but unoccupied, nest of the Coot (*Fulica atra*). This latter structure had been the scene of an avian tragedy. The parent bird was found floating in the reeds near the nest and had been dead some days. Brolgas (*Megalornis rubicundus*) were heard trumpeting at different times during the day and the Brown Bittern (*Botaurus poiciloptilus*) boomed in the distant swamp, but we saw neither bird.

From the information obtained during the progress of the "Wayholme" rookery, I agree with Mr. Mawhiney's statement that the birds in the Glossy Ibis rookery of 1921 commenced to "rook" early in October. The young birds at "Wayholme" were judged to be one month old on my visit on December 16: therefore the beginning of the rookery may be estimated from the following conjectural table:

Time occupied in building the nest	4 days
Laying of clutch of four eggs	8 days
Incubation period	21 days
Age at period of independent flight	28 days

Total 61 days

Sixty-one days back from December 16 would give the estimated beginning of the rookery as October 16, so that the "Glossies" had commenced their nesting activities before the arrival of the R.A.O.U. members at the Moree camp.

On December 30, exactly a fortnight after my visit, the whole community of Glossy Ibis, numbering about 300, took to the air and departed for pastures new, leaving behind them a record of their domestic affairs, and their nests and feeding grounds to the invasion of hundreds of White Ibis, Spoonbills and Nankeen Night-Herons, which now have possession of the site.

Description of *Plegadis falcinellus* at one month: Head, neck and underparts dull brownish-black with only a slight indication of metallic sheen. The crown consisted of a narrow semi-circular line of white feathers which extended from eye to eye, while the throat had a conspicuous central white patch, one and a half inches in length. The colour of the nape, back, wings and tail was black as in the adult, with a greenish metallic lustre on both wings. The purplish reflections were confined to the back, rump and tail. The primaries were brilliantly lustrous in comparison with other parts of the wing. The eye was brown and the bare eye patch slaty-blue. A triangular blackish patch of rubbery skin had developed, the eye being situated within the boundaries of the apex. The base of this bare skin patch extended half an inch beyond the junction of the lower and upper mandibles. The legs and feet were dark brown, almost black. The mandible was alternately black and yellowish. A blackish band bordered the rubbery skin at the base while the blackish centre and tip left two broad yellowish crossbands. The total length was 440 mm., tail 95 mm., wing 250 mm., tarsus 75 mm., middle toe and claw 75 mm. At six weeks the whitish colour of the crown had nearly disappeared, leaving a number of small, white, irregular fleckings which were confined to the area of the crown and extended from iris to iris. The mandibles now had a uniform black appearance, the original black bands having merged into the dark yellow crossbands, completely obliterating them.

Concerning the adult birds, Mathews, in *Birds of Australia*, states that the genus *Plegadis* has a very distinct colouration, but in general structural characters it is similar to *Threskiornis spinicollis* and *T. molucca*. It is at once distinguished by the nature of the metatarsal covering. In

these two types the anterior aspect of the metatarsus is covered, similar to the posterior, with hexagonal scales, *i.e.*, the metatarsus is reticulate throughout. In *Plegadis* the metatarsus is regularly scutellated anteriorly though reticulate posteriorly.

European birds in full plumage have the top of the head glossy green; in another state, which cannot be exactly determined owing to the lack of extensive series of specimens, the head loses the deep glossy green and a dull purple is observed. All the Australian region specimens yet examined, including Celebes skins, have the head deep purple without any green gloss, otherwise they are in perfect breeding plumage. The back of the head, nape and back are also a deeper colour, while less of the purple is seen in the back colouration.

The adult birds in flight were easily recognized by the rich reddish-chesnut underneath which was beautifully reflected when caught by certain angles of sunlight.

Readers may be reminded of the intricacies of the Water-course country by remembering that the rookery when first reported could not be approached by car from the Moree side. Instead, one had to drive 32 miles to Garah, 18 to "Mookoo", thence along the Talmoi Road to "Wayholme", a distance of over 50 miles, owing to the flooding of the channel and the submerging of the tracks ordinarily followed from the Moree side. This circumstance prevented an earlier visit to the site, while a series of afternoon thunderstorms further delayed motor traffic on the black soil roads that usually demand the greatest caution when travelling after rain has fallen.

I am pleased to be able to forward these particulars, the collection of which has been prompted by the remarkable interest created by the ornithological camp held here and the desire of the owner of the property, on which the birds nested, for more knowledge. I pay my tribute to Mr. Spilsbury, whose spontaneous help in collecting information enabled me to compile these notes. I encroached upon his time with daily 'phone conversations and he made many journeys from the homestead to the nesting site to get the particulars required and to supply progressive information till the roads were trafficable and I could make the trip to the rookery in his company. I sincerely acknowledge this assistance and say with confidence that without this co-operation, these notes would not have materialized.

I regret that the local members of the R.A.O.U. were unable to serve this information on the "bill of fare" provided during the Camp-out, and to treat our visitors to an inspection of the *Plegadis* rookery which was situated practically "next door" to the camp. It is quite extraordinary that this important ornithological record could be made so soon after the departure of our friends and just

as extraordinary that the location should be so close to the selected camping site.

THE "COOMA" ROOKERY

Before I had completed my notes on the "Wayholme" rookery, another nesting record was reported from "Cooma," the property of Mr. T. C. Hinder, 22 miles from Moree. The homestead is well known to R.A.O.U. members who visited it prior to the Moree Camp-Out to inspect the numerous birds in the up-to-date aviaries, whilst Mrs. Hinder's lavish hospitality will long be remembered by the visitors. The discovery is due to the keen observation of Misses Beryce and June Hinder, who on January 10, 1934, when riding through portion of the property, noticed young "Glossies" near their nests. Miss Hinder gave me the good news, and as Mr. Mawhiney happened to be visiting Moree at the time, we formed a riding party to view the scene.

On January 13 Mr. Hinder and his daughters escorted Mr. Basil Morse, Master Ian Morse, Mr. Arthur Mawhiney and myself to the rookery, which was situated in an 800-acre paddock, completely inundated to a depth of 15 inches. Our objective lay two miles from the homestead in a westerly direction. The area was densely timbered with coolibah (*Eucalyptus microtheca*) in parts, while black wattle (*Acacia stenophylla*) was represented by two isolated clumps with single trees growing in proximity to other timber. Many open spaces separated these belts, and grew patches of coarse swamp grass in the permanent low-lying portion, whilst crops of green succulent couch grass thrived near the channels. A large area was subject to a light growth of sags 4 ft. high, but the rookery portion had to be approached through dense sags which towered above the heads of the riders. There was no lignum, cane grass, nor other tall grass growing in the paddock.

The Little Grebe (*Podiceps ruficollis*) ignored our presence, and dived in the dam in search of small pond life and nutritive greens. Grey Duck (*Anas superciliosa*) were seen swimming in open water whilst White-eyed Duck (*Nyroca australis*) and young quietly made for shelter as we came near. Grey Teal (*Querquedula gibberifrons*) were also noticed; Bald Coots (*Porphyrio melanotus*) and many old nests of that species were seen, and a single Moorhen (*Gallinula tenebrosa*) scampered into the sags as our horses moved forward. Several Pied Geese (*Anseranas semipalmata*) were in flight, and water birds were becoming very numerous. Reaching the timbered portion, we found it to be one large rookery with nests containing thousands of young birds of many kinds, and offering us such an

absorbing field of interest that we realized that our visit should have been of a week's duration, and not portion of a day. The "rooking" area selected by the birds was 200 acres in extent, and most trees contained nests or young birds. With the exception of the Reef Heron and the Bitterns (heard but not observed) practically all the *Ardeiformian* representatives of Australian bird life were present—that is those found in the district.

Nankeen Night-Herons (*Nycticorax caledonicus*) were nesting in thousands and were visible in all stages of progressive growth from newly-hatched young to grown birds moving about the trees. The immature Herons with their new striped plumage could easily be picked in flight from the adult birds accompanying them. Pacific Herons (*Notochorys pacifica*) and White-fronted Herons (*N. novæ-hollandiæ*) also nested in the coolibahs with the "Nankeens." The Little Pied Cormorant (*Microcarbo melanoleucus*) was present in superior numbers to the Little Black (*Phalacrocorax ater*). Both birds nested in a colony by themselves. Darters (*Anhinga novæ-hollandiæ*) had nests with fresh eggs and young in all stages of their downy existence. Royal Spoonbills (*Platalea regia*) and Yellow (*P. flavipes*) were breeding there; and the three Egrets—*Egretta alba*, *E. intermedia*, and *E. garzetta*—were present in large numbers. White Ibis (*Threskiornis molucca*) were nesting with the "Nankeens" and in company with Royal Spoonbills; Straw-necked Ibis (*Threskiornis spinicollis*) were seen in flight, but no nests were found. Our chief object of interest, however, (*Plegadis*), we found to have finished nesting, the young ones joining their neighbours in flight at sight of the mounted intruders. Six stick nests placed 40 or 50 ft. up in the coolibahs were observed through the glasses. Five nests were housed in one tree, which we were unable to climb. Fifteen fully-fledged young "Glossies" were counted. The adult birds chose Royal Spoonbills for company during their nesting period as they did in 1921 at "Curragundi". Nests of both birds were found in the same tree. Beryce Hinder informs me that this is the second occasion that water birds have selected this locality for nesting. Three years ago, Yellow Spoonbills built about 30 nests, which were placed in the coolibahs, but no other birds built there.

The selection of coolibah by the Glossy Ibis on this occasion is interesting, as we believed a preference for black wattle was invariably shown. Our opinion was strengthened by our new knowledge concerning the old deserted nesting sites, from information gained from the notes on the 1921 rookeries and our observation of the "Wayholme" nesting site. At "Cooma", however, the two black wattle clumps each consisted of six trees quite unprotected on the

northern side and flanked by a large open space which made the trees very accessible. It is probable that the birds found the clump too exposed, and considered the site unsuitable for nesting on this account.

Robinson in 1913 asserted that the Glossy Ibis did not always construct a nest. He observed the birds each year at Cunnamulla (south-west Queensland), since recording their nesting in 1907. He noticed that they sometimes occupied old nests of the White-fronted Heron and of the Spoon-bill. Though numerous birds were there, he found only three or four nests each season. This is a very interesting observation, though the circumstance did not come under notice during my visits to "Wayholme" and "Cooma" rookeries; neither has it been the experience of Mr. Mawhiney.

In conclusion, I must add that, in my opinion, the Glossy Ibis certainly builds in places other than those officially recorded, and in addition to the list of seven sites included in these pages. Mr. Mawhiney intends prospecting "Caid-murra" Station on the Barwon River, 25 miles from Mungindi. The Straw-necked Ibis builds there, while hundreds of "Glossies" are there at the time of writing these notes, though no nests have yet been seen in that locality.

To those interested in locating nests of the Glossy Ibis I would say that from November to March, in any secluded spot timbered with black wattle and subject to flooding, or permanently watered, would be a good prospect. The trees are known by many names—Koobal, Eumung, Goorhli, swamp wattle, black wattle, and water-willow. They generally grow in clumps and have thick, drooping foliage and twisted limbs which often reach the surface of the water. The growth of seedlings under the trees increases the density of the site.
