

The Declining Status of the Little Tern in New South Wales

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Results from a survey of the breeding status of Little Tern *Sterna albifrons* in New South Wales between 1976 and 1978 are summarised as are details of Historical data and Conservation measures. The approximate average breeding population of Little Terns has declined from 340 pairs per season in the mid-1950's to 49 pairs in 1976-77, 87 pairs in 1977-78 and 32 pairs in 1978-79. A breeding summary is presented with the location of known nest colonies in New South Wales giving Site Number, Site Location and Historical details in geographical order from North to South.

Introduction

Little Terns *Sterna albifrons* have an extensive distribution throughout the world, nesting in coastal localities in Europe, Asia, Africa, Australia, North and Central America, with some inland occurrence in southern Russia. The population of the Little Tern is suffering a decline in various parts of its range where there is conflict with man's recreational and industrial activities.

Nesting colonies are relatively small with nests being dispersed, possibly as an anti-predator mechanism. In New South Wales eggs are laid from late August to January. This paper documents the decline of the breeding population in N.S.W. over the past 20 years.

Breeding

The Little Tern is principally a coastal breeding species in N.S.W. as it is in the United Kingdom and Ireland. In other parts of the world, particularly in Europe, many are found nesting beside lakes and rivers far from the sea. Nest scrapes are invariably on sand or shingle almost completely devoid of vegetation, frequently within a few metres of high tide mark. Norman and Saunders (1969) reported that 64 colonies out of 89 in the United Kingdom, for which such information was available, were less than 5 m above high water mark. Most N.S.W. colonies for which information is available are also located below the 5 m mean high water mark. Thus the eggs can be buried by sand in strong winds, and washed away by high tides or rough seas. Little Terns show a preference for breeding areas which have little vegetation, and where traditional sites have become vegetated, nesting has ceased.

Some sites in N.S.W. are located within inlets or harbours on sandbars, or associated with artificial sandbars created during harbour dredging operations. For example irregular nesting has occurred on the gravel sides of the Kingsford-Smith Airport extensions into Botany Bay. Occasionally nests are located on the exposed shell middens of former coastal aboriginal tribes. More often however, nests are located on shingle sandbars where creeks and rivers enter the sea. The furthest known "inland" nesting site is at Corrie Island, 7 km from the entrance to Port Stephens, while a former site at Homebush Bay was 20 km from the entrance to Sydney Harbour.

Colonies in N.S.W. are relatively small, ranging from one to 50 pairs. Of 59 colonies for which details are available since 1950, five contained more than 25 pairs (8.5%) while 34 contained five or less pairs (57%) see Table 1.

TABLE 1
Colony size and number of nests

No of pairs	No of colonies
1	15
2	7
3	7
4	3
5	6
6	1
7	3
8	2
9	3
10	3
>10	9

Similar results were obtained in the United Kingdom, where of 149 colonies surveyed in 1967, only ten (6.1%) held more than 25 pairs while 64 (43%) held five or fewer pairs (Sharrock 1976).

The largest colonies recorded in N.S.W. in the period 1976-79 were of 30 nests at Wallaga Lake and 25 nests at Tilba Lake, both in December 1977. Both locations are on the South Coast of N.S.W.

Present Status

In surveys carried out since 1976 (see summary) it was found that the approximate average of the N.S.W. breeding population of Little Terns had declined from 340 pairs per season in the mid-1950's to 49 pairs in 1976-77, 87 pairs in 1977-78 and 32 pairs in 1978-79. In all seasons storms caused the failure of many nests, particularly in 1976-77 on the South Coast and in 1977-78 on the North Coast.

Human interference was found responsible for disruption of breeding at three N.S.W. locations during 1977-78: Byron Bay, where eggs were stolen; Red Rock, where off road vehicles destroyed nests and Wallaga Lake where tourist disturbed the colony.

While most of the usual breeding sites were checked at least once during the period 1976-77, not all were checked every year during the period of the survey. The possibility exists therefore that the number of breeding pairs in 1976-77 and 1977-78 could have been higher (as high as 58 and 126 respectively).

A similar decline has been described by Vincent (1978) for 19 sites in East Gippsland, Victoria.

Despite the declining number of pairs at most breeding sites in N.S.W. numerous non-breeding birds frequent the same localities, with up to 700 being recorded at Kooragang Island, Newcastle during summer (Morris 1975). A flock at Sawtell on 8 November 1976 contained 1 600 Little Terns (G. Holmes pers. comm.).

Some of these summer non-breeders could belong to the race *saundersi* (from the northwest Indian Ocean area) which is recorded as reaching the Malacca Straits in winter; a specimen has been collected at Wollongong (Condon 1975). Others may be wintering specimens of the nominate race *sinensis* from Sino-Japanese waters

(Serventy *et al* 1971). Other authors such as Lane (1977) have discussed the occurrence of these non-breeding birds in N.S.W., but their origin is still unknown. Results from banding may eventually determine their origin.

D. Gosper (pers. comm.) has found that in monthly surveys of Little Tern populations at Kooragang-Stockton (1970-72) and Ballina (irregular 1970-76, regularly 1977-79) quite large numbers of non-breeding birds are annually present on and adjacent to these estuaries from October to March-May (e.g. >600 Hunter River and >200 Richmond River). When these birds appear in spring and throughout spring/early summer all are in non-breeding (eclipse) plumage. Odd birds in *full breeding plumage* may occasionally be seen during these months, but apart from one pair which probably bred on the Hunter estuary in 1972-73, no other evidence of breeding or of breeding type birds in large numbers has been seen in either area.

The non-breeding population in these locations begins to assume breeding plumage from late January, and by about mid-April most are approaching or are in full breeding plumage. Gosper concluded that as there seems nothing to suggest that these are not the same individuals present throughout the spring and summer, the observations therefore would appear to confirm the results obtained by Lane (1978) and that the transformation to breeding plumage does not take place in these populations between January and April.

Conservation

Conservation measures for Little Terns in N.S.W. are inadequate despite being given "Protected status" under the National Parks and Wildlife Act (1974 as amended) and scheduled "endangered fauna". In the United States and Great Britain many colonies are now protected by simple fences and signs, and several are guarded by resident wardens. Such protection has often been successful, increasing both breeding success and the numbers nesting (Sharrock 1976). In 1976 under the auspices of the British Royal Society for the Protection of Birds (RSPB) and the North Wales Naturalist Trust, three colonies on holiday resort beaches of Clwyd, in Wales, were patrolled by full-time summer wardens and voluntary wardens.

Studies at these Welsh colonies found that losses due to disturbance were caused by gulls (43%), people (27%), crows/ravens (12%), unknown factors (10%), miscellaneous factors (6%), and dogs (2%). Human disturbance of the colonies was generally much greater on weekends. As a result of the survey, all surviving Welsh Tern colonies are now protected by full-time wardens and the breeding populations have increased from 25 pairs in 1969-1970, to between 48-50 pairs in 1976. The birds also produced more fledged young than when they were unguarded (Thomas and Richards 1976). There was significant predation by the large Herring Gull *Larus argentus*. It is unlikely that the much smaller Silver Gull *L. novaehollandiae* would play such a prominent role in predation of N.S.W. colonies, although there is a potential for Kelp Gulls *L. dominicanus* to develop as a predator, if its numbers increase significantly.

Guidelines for the protection and management of colonially nesting seabirds, including Little Terns, have been produced in America (Buckley 1976) and these may have application in Australia. Similarly in the United States it has been found that beaches can be managed for multiple use to the benefit of the terns. In the Cap Cod National Seashore such a programme was initiated in 1973 and all the tern colonies posted with interpretive signs. The response from the public was one of interest and praise, rather than resentment. They had ample room for fishing, camping and recreation, and the presence of the colonies added to their experience (Fisk 1978).

In the summer season of 1978-79 at Crescent Island, East Gippsland, Victoria, two signs were erected at a Little Tern colony and a picket fence placed around the nesting area. The efforts of the people involved were rewarded in that young were fledged for the first time in three seasons at this nesting site (Vincent 1979).

At the Belongil Creek colony near Byron Bay N.S.W., the site was posted with signs through the co-operation of the local people and the N.P. & W.S. of N.S.W. during 1978-79. Seven pairs of terns attempted nesting but it is considered that egg-collectors removed the eggs (J. Willows pers. comm.). This was a disappointing start to the programme.

Much could be done to protect the traditional sites in N.S.W. Those sites which occur in or near Nature Reserves (NR), Historic Sites (HS) and National Parks (N.P.) viz. Broom's Head (Angourie N.P.), Red Rock (N.P.), Hat Head (N.P.), Point Plomer (Limeburner's Creek NR), Captain Cook's Landing Place (HS), Wallaga Lake (N.P.), Nadgee (N.R.) and could be zoned to allow protection of nest sites, with Honorary Rangers being utilised to make regular patrols. Where necessary, one-strand rope fences and signs could be temporarily erected. Those sites outside the Service estate areas could be similarly protected by the combined effort of local wildlife conservation societies, honorary rangers, local government authorities, and the National Parks and Wildlife Service. The Service could provide funds for signposts and fences to protect the Little Tern colonies, particularly those within the Service estate.

Conclusions

Little Terns cannot withstand the industrial and recreational development of breeding habitat that has occurred along the N.S.W. coast. Of the 52 nesting sites detailed in the summary, ten are no longer suitable due to harbour improvements, development for industrial purposes or rutile mining. A further seven sites near major urban centres have been developed for housing estates or summer recreational purposes such as swimming and fishing.

It seems reasonable to conclude that the majority of Little Terns on the N.S.W. coast from Sept.-April are winter migrants from the Northern Hemisphere.

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References

- Buckley, P. A., and F. G. Buckley (1976), Guidelines for Protection and Management of colonially nesting seabirds. Pamphlet, US National Park Service.
- Campion, C. B. (1963), 'Banding the Little Tern', *Bird Bander*, 1: 125-132.
- Condon, H. T. (1975), Checklist of the Birds of Australia. Part 1 Non-Passerines. R.A.O.U., Melbourne.
- Fisk, H. W. (1978), Least Tern, *In Rare and Endangered Biota of Florida*, Vol. II Birds, H. W. Kale, (Ed.), University Presses of Florida, Gainesville.
- Morris, A. K. (1975), 'The Birds of Gosford, Wyong and Newcastle (County of Northumberland)', *Aust. Birds*, 9: 37-76.
- Norman, R. K., and R. Souders (1969), 'Status of the Little Terns in Great Britain and Ireland in 1967', *Brit. Birds*, 62: 4-13.
- Serventy, D. L., V. N. Serventy, and J. Warham (1971), *The Handbook of Australian Sea-Birds*. A. H. & A. W. Reed, Sydney.
- Sharrock, J. T. R. (1976), *The Atlas of Breeding Birds in Britain and Ireland*. B. T. O. and I. W. C., Berkhamstead.
- Thomas, G., and P. Richards (1976), Success for Tern Volunteers. *Birds*, (U.K.) pp. 60-61.
- Vincent, J. (1978), Report on Little Tern Breeding Colony, Lakes Entrance, Victoria and survey of East Gippsland Breeding colonies. Report to Ministry of Conservation (unpubl.).
- Vincent, J. (1979), Report on Status of Little Tern, East Gippsland, Victoria 1978-1979: Report to the Ministry of Conservation (unpubl.).

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SUMMARY

Summary of recent breeding data of all known nesting colonies of Little Terns in New South Wales, including the minimum number of breeding pairs nesting in any one season. (Giving Site Number, Site Location, Historical Details in geographical order from North to South).

"Nil" means that the site was visited but no Little Terns found nesting.

"NR" means that site may not have been visited but there were no reports of nesting.

"SNLS" Site no longer suitable.

1. Tweed Heads Southern entrance to Tweed River on sandspit: Site no longer exists due to sea wall construction. Records may relate to nearby Fingal Head. No recent records. Egg dates (Campion 1963) 7 Oct, 3 Dec.
1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

2. Kingscliff Site 1.6 km south of Kingscliff near Cudgen Creek entrance on sandspit, 50 m from and 3 m above M.H.W. Last nesting Oct. 1964. Site still suitable, no recent records.
1976-77 NR; 1977-78 NR; 1978-79 NR.

3. Pottsville Site on Cudgara Creek entrance on sandspit. Last nesting Oct. 1963. No recent records.
1976-77 NR; 1977-78 NR; 1978-79 NR.

4. Brunswick Heads Site not known, mentioned by Serventy *et al.* (1969): No recent records.
1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

5. Byron Bay Site near entrance to Belongil Creek, on sandspit. Prior to 1963, egg dates 20 Oct., 13 Nov., 27 Nov. Unconfirmed nesting between 1963-74. Four pairs nested and one runner banded 1974. After this date site mined for rutile. Nesting recommenced 1977-78 but rough seas wiped out colony. In 1978-79 egg collectors prevented nesting success.
1976-77 Nil; 1977-78 5; 1978-79 7.

6. Ballina Site on southern side of Richmond River entrance, at South Ballina, past retaining wall near dunes, 100 m from and 0.5 m above M.H.W. Last recorded nesting Dec. 1963, when 2-3 pairs. No evidence of breeding since 1970, site unsuitable due to reclamation programme that includes re-vegetating the dunes.
1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

7. Yamba Site not known. No recent records. Egg dates prior to 1963, 16 Oct., 9 Nov.
1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

8. Broom's Head Site 1 km south, possibly within the proposed extension to Angourie NP. Nesting 1974.
1976-77 3; 1977-78 NR; 1978-79 NR.

9. Wooli Site at Jones Beach south of Wooli in dunes. First nesting 1974.
1976-77 Nil; 1977-78 NR; 1978-79 1.

10. Station Creek Site on sandspit within Red Rock N.P. where Station Creek enters sea. Nesting attempted by 2-3 pairs in 1971 and 1972, but subject to human disturbance by 4 WD vehicles, and near access to beach from car park.
1976-77 Nil; 1977-78 1; 1978-79 3.

11. Red Rock Site at northern entrance to Redbank Creek. Pair observed feeding flying juveniles 1972-73. 1976-77 1; 1977-78 NR; 1978-79 1.

12. Sawtell Site at entrance to Bonville Creek on southern side, on sandspit. Access from Sawtell fairly easy. Future development of Sawtell as important growth centre makes this colony very vulnerable. Nesting 1971 and 1974. 1976-77 12; 1977-78 NR; 1978-79 NR.

13. Nambucca Heads Site on shifting sandbars south of Nambucca River entrance. Egg dates prior to 1963, 11 Dec. Three pairs nested 1965-66 and again 1974-75. 1976-77 7; 1977-78 NR; 1978-79 NR.

14. Grassy Head Site 2-3 km south of headland in dunes. 1976-77 2; 1977-78 NR; 1978-79 NR.

15. Stuart's Point Site at entrance to Macleay River on sandspit. 1976-77 Nil; 1977-78 NR; 1978-79 NR.

16. Hat Head Site located 4 km north of Hat Head, within N.P. in dunes. Nesting in 1974. 1976-77 4; 1977-78 NR; 1978-79 NR.

17. Port Macquarie Site not known. Prior to 1963, egg date 19 Jan. May refer to Queen's Head, just south of Point Plomer, 15 km north of Port Macquarie. Nesting at that locality in 1976-77 in small numbers. 1976-77 1; 1977-78 NR; 1978-79 NR.

18. Camden Haven Site not known, possibly at Dunbogan at entrance to Camden Haven River. Reclamation and sea wall construction may have ruined site. No recent records. Mentioned by Serventy *et al.* (1969). 1976-77 Nil; 1977-78 NR; 1978-79 NR.

19. Old Bar Site on north side of Manning River entrance at end of long sandspit, close to MHW. In 1964-65 c. 12 pairs nested, 1965-66 2 pairs. 1976-77 Nil; 1977-78 NR; 1978-79 NR.

20. Forster Site on eastern shore, inland from Cape Hawke, near Piper's Bay; nested on recently dredged sandspit 1976-77. Previous nesting sites nearer to Wallis Lake. Egg dates prior to 1963, 4 Oct., 12, 25 Nov. 1976-77 1-3; 1977-78 Nil; 1978-79 Nil.

21. Corrie Island Site on sandspit on southern tip of Island within Port Stephens. Previously also nested on another sandspit nearer to Hawk's Nest. Egg date at Hawk's Nest 6 Dec. Since 1970 the latter site no longer exists and the sandspit reformed on Corrie Island, about 10 pairs nested 1972-73. Proposed Nature Reserve. 1976-77 NR; 1977-78 NR; 1978-79 NR.

22. Stockton Previously reported nesting at the entrance to Hunter River on sand banks near or adjacent Smedmore and Walsh Islands. These islands and banks are now all formed through dredging into one large island, Kooragang. One sandbank near Stockton where nesting has occurred in the past is now covered with vegetation. Last recorded breeding was a pair courtship feeding Nov. 1972, and a pair feeding young Feb. 1973. 1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

23. Redhead Site on sand dunes near headland, breeding recorded between October-December prior to 1969 (Morris 1975). No recent records. 1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

24. Swansea Site near Pelican Point at entrance to Lake Macquarie. Located 10 m from and less than one metre above M.H.W. Site now vegetated over but periodic nesting could occur if dredging produced new

sites. Very vulnerable because of sheer numbers of people and dogs etc; also near Silver and Kelp Gull colonies. Last nesting attempted 1959-60 when 4 pairs nested. 1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

25. Budgewoi Site located in dunes near beach, nesting occurred in 1960's. Now residential area and it is unlikely that the area is now suitable. 1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

26. Dee Why Site on south side of lagoon entrance in dunes where Surf Clubhouse now stands. Revegetation of area has occurred. Last nesting 1947-48 when 2-3 pairs present. Site no long suitable. 1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

27. Homebush Bay Site located on sandspit in Parramatta River at Homebush, the upper reaches of Sydney Harbour, but the area is now grassed over. Last nesting 1964-65 one pair. If fenced off and the sandspit allowed to form again, the site could be suitable for future nesting. 1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

28. Botany Bay (Cooks River entrance) Site at entrance to Cooks River near the former Bonnie Doon Golf Club course, on southern bank, 50 pairs nested 1941-43, last recorded nesting 1942-43 when 2-3 pairs were present. Site destroyed to make way for Kingsford Smith Airport. Subsequently nesting was attempted at the waterworks swamp near the airport in 1959-60 when 9 pairs present. In 1958-59 and again in 1965-66 one pair nested on each occasion on the sandspit at the entrance to Cooks River. Waterworks Swamp and sandspit is now overgrown with grass. When the airport runway extensions were extended into Botany Bay in 1963 nesting took place at sites along the sandy edges. In 1963 15 pairs, 1964 11 pairs, 1967 4 pairs and 1973 5 pairs. Disturbance by fishermen and deliberate harassment by airport staff for air traffic safety reasons make this site unsuitable for the terns. In 1975-76 2 pairs nested. 1976-77 Nil; 1977-78 Nil; 1978-79 2.

29. Botany Bay (Georges River entrance) Site located at Shell Point in Woollooware Bay but area now a housing estate. Last nesting 1951-52 2 pairs. Another pair nested at nearby Gwawley Bay on a man-made sandbank in 1967 but this area is also built out. 1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

30. Boatharbour Site on sandspit near inlet adjacent to Captain Cook's Landing Place Historic Site. Regular nesting up to 1949-50 when 4-5 pairs nested each year, one pair again in 1958-59. Site now over-run by people and off-road vehicles. Given NPWS protection this site could be made suitable if fenced off. 1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

31. Bellambi Point Site either in sand dunes at Point or within fenced area belonging to Colliery. On the Point nests are sometimes amongst aboriginal shell middens. First noted in 1950's when up to 20 pairs nested. Numbers declined after 1964 but small numbers attempt to nest most years. Site very vulnerable to human interference. 1976-77 1; 1977-78 2; 1978-79 Nil.

32. Towradgi Beach Site in dunes near beach. Nesting recorded before 1950, no recent records. 1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

33. South Wollongong Beach Site in dunes near beach. In 1956-57 50 pairs nested; no records since, until 1977-78 when one pair attempted to nest. Site vulnerable

to considerable interference and predation from Silver and Kelp Gull colonies on nearby Five Islands.

1976-77 Nil; 1977-78 1; 1978-79 2.

34. Wollongong, Tom Thumb Lagoon Site was at the entrance to the lagoon where it opened to Port Kembla. It has now been reclaimed for industrial purposes and forms part of the Inner Harbour complex. Considered to be the oldest traditional nesting site in the Wollongong area. In 1955 50 pairs nested, in 1963-64 this number declined to 24 pairs, 1964-65 19 pairs. Site no longer suitable.

1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

35. Wollongong, Coal Loader This site was formed from sand and shell during dredging operations for the Port Kembla Inner Harbour complex in the early 1960's. Initially the terns found this site very suitable for nesting. Possibly those birds displaced from No. 34, but industrial usage and revegetation made this site unsuitable by the late 1960's.

1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

36. Port Kembla Site in the sand dunes backing onto the northern end of Port Kembla beach, nests being located either side of the railway line. In 1963-64 the colony size was 50+ pairs with over 80 runners and 55 adults being banded. Smaller numbers nested in 1964-65. The area is no longer suitable having been altered by sand mining and waste disposal dumps.

1976-77 SNLS; 1977-78 SNLS; 1978-79 SNLS.

37. Windang Site at entrance to Lake Illawarra in dunes area. Last known breeding in 1962-63, egg dates 14 Nov., and 5 Dec. Site now over-utilised by people and vehicles, but could be rehabilitated for the terns if fenced off.

1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

38. Lake Illawarra Site at entrance to Duck Creek on the western side of the Lake. Nesting only recorded in 1978-79.

1976-7 Nil; 1977-78 Nil; 1978-79 1.

39. Minnamurra Site at entrance to the Minnamurra River on sandy spit. Four pairs nested 1967-68, no other records.

1976-77 NR; 1977-78 Nil; 1978-79 NR.

40. Shoalhaven Heads Site on the sand-bar that links Shoalhaven Heads with Comerong Island, and usually located close to the Island. However, when the bar is closed the nesting is subject to considerable vehicle traffic and human interference. Site known for some time but little documentation. In 1965-66 small colony (less than 10 pairs) but no more records until 1976-77.

1976-77 13; 1977-78 7; 1978-79 4.

41. Lake Wollumboola Site at entrance to Lake on sandbar near Culburra. When the bar is closed vehicular traffic and human disturbance threaten any colony, also subject to storm damage. Earliest data relates to 1973-74 when 5-7 pairs nested.

1976-77 NR; 1977-78 15; 1978-79 10.

42. Lake Conjola Site at entrance to Lake on sandspit. Nesting recorded up to the early 1950's, no recent records.

1976-77 NR; 1977-78 Nil; 1978-79 NR.

43. Burrill Lake Site at entrance to Lake on sandspit. In the early 1950's colony size 12-20 pairs, egg dates prior to 1963, 9 Dec. No recent records.

1976-77 NR; 1977-78 Nil; 1978-79 Nil.

44. Tabourie Lake Site at entrance to Lake on sandspit. In the early 1950's 6-10 pairs nested. No recent records.

1976-77 NR; 1977-78 Nil; 1978-79 Nil.

45. Meroo Lake Near Bawley Point, site at entrance to Lake on sandspit. Recorded by Serventy *et al.* (1969) but no recent records. Site appears to be suitable with wide beach and plenty of shingle, whilst human interference would not be high.

1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

46. Mossy Point Site located on sandspit at northern entrance to Tomaka River. Last recorded nesting 1960-61 when 2-3 pairs nested. Site now considered unsuitable because of the human interference from the nearby Sunpatch tourist resort.

1976-77 NR; 1977-78 Nil; 1978-79 Nil.

47. Coila Lake Site at entrance to Lake on sandspit. In recent years heavy seas have washed away the sandbar. No details of nesting information available.

1976-77 NR; 1977-78 1; 1978-79 NR.

48. Tuross Lake Site at entrance to Lake on southern side. Few details available, but 6-10 pairs present 1964-65.

1976-77 NR; 1977-78 Nil; 1978-79 1.

49. Brow Lake South of Bodalla, site in the dunes between the lake and beach. Small colony, less than 10 pairs in 1966-67. No other records.

1976-77 NR; 1977-78 Nil; 1978-79 NR.

50. Wallaga Lake Site at entrance to Lake, sometimes on the beach, well to the north of the Lake, whilst at other times on the sandbar at the entrance. Usually 10-15 pairs nest annually but occasionally larger groups present. The northern side of the Lake entrance is a Wildlife Refuge and the southern side is an Aboriginal area. In December 1977 the colony was deserted because of disturbance and it is possible that these birds then moved to Tilba Lake.

1976-77 12-15; 1977-78 30; 1978-79 NR.

51. Tilba Lake Site at entrance to Lake on sandbar. No published details, only record in 1977-78.

1976-77 NR; 1977-78 25; 1978-79 NR.

52. Salt Lake Site on sandbar near entrance to Lake in the Nadgee Nature Reserve. Max 5-8 pairs attempt to nest most years but vulnerable to storm damage. Last nesting 1973-74.

1976-77 Nil; 1977-78 Nil; 1978-79 Nil.

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