

HUNTER VALLEY WETLAND BIRDS RAISE CONSERVATION ISSUES

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The last few years, particularly 1982-83, have been exciting times for ornithologists in the Newcastle area. Unusual seasonal conditions in the area, coupled with Australia wide drought have resulted in remarkable upsurges in the population of water birds frequenting the Lower Hunter estuary wetlands and have again caused focus to be turned to controversial conservation issues. Egrets have returned to nest after having ceased breeding in the area in the early 1970s, this time to establish a rookery close to a built-up area within the city boundary. The first recorded Australian sighting of the Hudsonian godwit, a North American wader, on Kooragang Island, the breeding of black swans in suburban lagoons, a visit to these same lagoons by a jabiru, and the arrival of the rare freckled duck and large flocks of glossy ibis have been just some of the highlights.

These occurrences have attracted attention Australia wide. The arrival of the godwit in early 1983 brought more than 100 bird enthusiasts to Newcastle from as far afield as Queensland, Northern Territory and Victoria, as well as other New South Wales centres, hoping to catch a glimpse of the rare visitor amongst the hosts of migratory waders on the mud and sand flats of Kooragang Island. This Island, which has been estimated to carry a population of between 10,000 and 20,000 birds, is well known to Australian naturalists. It has even attracted attention overseas because of the threat of encroaching industrialization to the wintering habitat of some 190 species, with an article in the New York Times of September 14, 1974, entitled "Australian Factory Site Would Peril Bird Migration" (Stewart, 1974).

THE LOWER HUNTER WETLANDS

The wetlands associated with the Lower Hunter River Estuary consist of estuarine sand bars and mud flats, substantial tracts of mangroves and saltwort communities, salt meadows, reed beds and brackish to freshwater swamplands with broad-leafed paper bark stands which border the Hunter River below its junction with its tributaries the Williams and Paterson Rivers near Raymond Terrace. A major feature is Kooragang Island, a substantial low-lying tract of wetland between the North and South Arms of the Hunter constituted from the former Ash, Moscheto, Dempsey, Walsh and Spectacle Islands. It is located upstream from Stockton, where the two branches link again to form the main channel of Newcastle Harbour.

The mud flats around the Island and at Fullerton Cove provide the main feeding grounds for waders, both resident and migratory, and represent one of the few such areas within New South Wales. As pointed out by Waterhouse (1981) in his book on Hunter wetlands, mud flats suitable for wading birds are relatively rare in the State, as there are very few large estuaries (the Hunter being the largest), and most are separated by unsuitable rocky headland terrain. Man's intervention has eradicated much of the suitable habitat for much of the suitable habitat for migratory visitors from Siberia, Mongolia, Korea, Japan and North America, such as the curlew, whimbrel, godwit, sandpiper, greenshank, snipe and stint. These birds use the hunter as a final refuge from the northern winter, or as a staging place on their way south to and north from Victoria and Tasmania.

Kooragang has provided breeding places for resident waders and other water birds such as swan and duck. In the late 1960s the substantial stand of mangroves close to the present site of the Stockton Bridge carried a large egret and Nankeen Night heron rookery and Gosper (1971) reported a breeding colony of 75 pairs of the large egret on Ash Island. Holmes (1970) reported that when the Stockton Bridge site heronry was visited in January of 1970, the colony contained about 200 nests each for the large egret and the night heron and about 30 nests of plumed egret. However, by 1972, the progressive destruction of mangroves in which the colony was situated resulted in the site being deserted by the birds (Van Gessel and Kendall, 1972b). Of 157 bird species recorded for Kooragang in the 1972 checklist (Van Gessel and Kendall, 1972a), 51 were found to be breeding.

The Kooragang environment has undergone drastic modification by way of man-made intervention over the years. Considerable areas of swampland have been filled in to establish factory sites. The recent use of areas of the Island for depositing silt pumped from the harbour bottom during the channel deepening project had a temporary beneficial effect in providing wet areas suitable for waders, but when this activity was cut off at the height of the 1982-83 summer

drought season, it created a crisis for the Island's bird population. The disruption of mangrove habitat and consequent destroying of the heron breeding rookery by the building of Stockton Bridge linking Kooragang with Stockton is one of the more obvious effects of man's interference.

In addition to the mangrove stands and mud flats on Kooragang and at Fullerton Cove, the wetland habitat extends south of the Hunter Estuary, bounded by the Newcastle suburbs of Shortland, Hexham, Tarro, Minmi and Wallsend, forming the 2400 hectare Hexham Swamp, which represents about half the remaining wetland country in the region. The swamp has a variety of habitats, from semi-permanent fresh water with spike rushes and paper bark stands, to reed swamps and mangrove stands, and acts as a natural soak for Hunter floodwaters. The Hexham Swamp also provides roosting, feeding and nesting sites for a substantial bird population.

Though it has not suffered to quite the same extent of drastic modification from industrial encroachment as Kooragang has, Hexham Swamp has nevertheless been subjected to considerable human interference. Ironbark Creek, a tributary of the Hunter which drains the Shortland-Wallsend swamp area, has been cut off by a flood-mitigation weir which has restricted the free movement of salt water into the swamp. The main railway line cuts through the swamp on its way north from Newcastle, and a colliery railway branch line diagonally bisects the swamp from Hexham to Minmi. A colliery plant, a dairy product factory, a small private air strip and some cleared grazing land occur within its boundary. The residential suburbs of Shortland, Wallsend and Marylands border its margin and there has been considerable swamp filling and mangrove destruction by two Newcastle City Council garbage dump sites (Lorna Street and Astra Street — see Figure 1).

One particular corner of the Hexham Swamp tucked into the outskirts of the suburb of Shortland and straddling busy Sandgate Road on the Charlestown-Sandgate bypass route, has been the permanent home of a rich bird population, despite various man-made modifications. On one side of the road is an open, reedy lagoon, partly surrounded by houses and sports fields, a lagoon with waters protected by thick stands of broad-leaved paper bark and a further open, swampy area with a few straggly mangroves. On the other side of the road, behind a few houses and buffered from the city area by a golf course, and the University of Newcastle and Newcastle College of Advanced Education bushland settings, is another swampy area with a few scattered paper bark trees (see Figure 1).

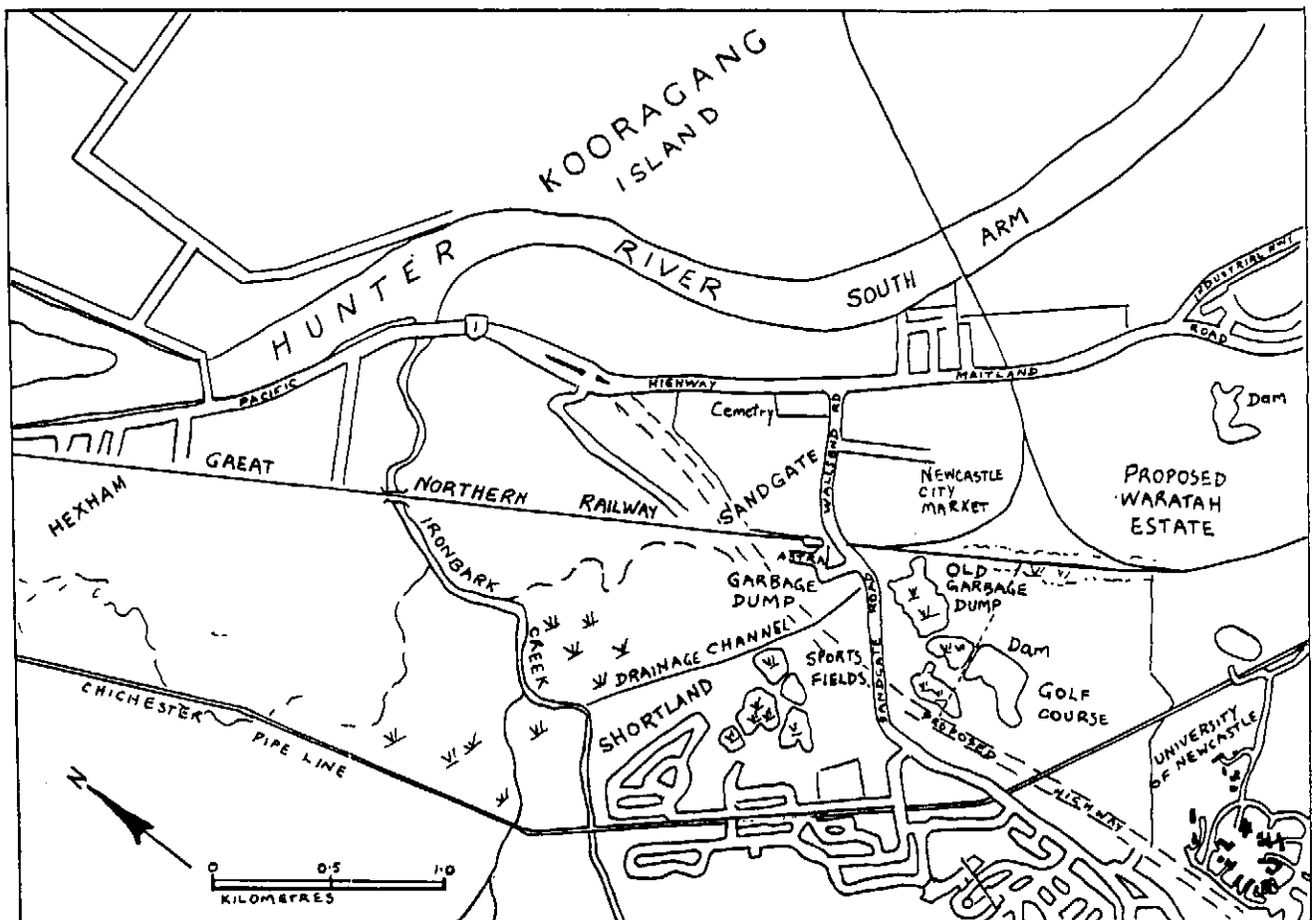


Figure 1. Relationship of Shortland swamps to the wider wetland complex of Hexham Swamp and Kooragang Island.

The two Shortland areas have suffered extensive modification over the years, one by filling with garbage and earth fill for creating sporting facilities and the other by the Newcastle City Council's Lorna Street garbage dump, which was eventually closed in the mid 1970s, and by a dam built to provide water for an adjoining golf club. A deep drainage channel has been dug to connect the old garbage dump swamp with Ironbark Creek.

The paper bark stand in the small Shortland lagoon on private land close to houses and sports fields has been the permanent roosting place for a flock of many hundreds of both white and straw-necked ibis, as well as for a few Nankeen night herons. Towards dusk, huge flocks of ibis can be seen winging their way back from the swamp, mud flats and pasture lands of the Newcastle-Maitland-Toronto area to tumble from the skies in a clacking horde onto the branches of the *Melaleuca* trees. An open lagoon adjacent to the roosting place, partly surrounded by sports fields, harbours a permanent population of eastern swamphen, dusky moorhen, coot and little grebe, with other waders as regular visitors.

Across the busy Sandgate Road, which forms part of the bypass diverting Pacific Highway traffic around the outskirts of Newcastle, are three more swampy lagoons and the golf course dam. The dam hosts a permanent population of large black, little black and little pied cormorants, which nest in the paper bark trees drowned by the dam. Nankeen night herons use the trees as roosting places while coot, swamphen, moorhen, black swan and little grebe form a resident breeding population.

Regular visitors to both areas for significant periods at varying times of the year are white-necked and white-faced heron, all four species of egrets and black-billed spoonbill, and Japanese snipe appear every year after their migratory flight south. Less frequent regulars have been Australian pelican, pied stilt and yellow billed spoonbill, while an occasional glossy ibis has arrived to stay for a day or two over the years since 1974 when I started to keep these areas under observation.

THE CONSERVATION CONTROVERSIES

The Lower Hunter Wetlands have been at the centre of environmental controversy for many years and have been subjected to numerous enquiries and reports. In 1970, a survey of the wetlands of coastal New South Wales published by the CSIRO Division of Wildlife Research (Goodrick, 1970) urged the preservation and rehabilitation of Hexham Swamp as a wildlife habitat. The New South Wales Public Works Department estimated in 1972 that the swamp provided 45 per cent of the habitat remaining for waterfowl in the Hunter and Coffey Report (1973), also stressed the value of the swamp. The National Trust (1974) followed up the Coffey recommendations by proposing that reserves be set up incorporating Kooragang Island and Fullerton Cove and that conservation zoning be provided for Hexham Swamp.

A Hexham Swamp Land Use Committee was established and in its report (Joint Committee, 1978) added support to previous recommendations by stressing the need to maintain the wetlands as wetland. The report stressed that the swamp area is vital for flood relief storage, is of national importance for wildlife, is a valuable nutrient source for fish and estuarine life and has major significance as open space for the city. The report was followed up by an Interim Development Order by the Minister for Environment and Planning to facilitate control of land use within Hexham Swamp. After being on display for public discussion during 1980, the Newcastle City Council finally adopted the order in February 1981 after intense debate.

Considerable pressure was exerted on the Council by the Chamber of Commerce and Industry with a proposal for a regional jet airport within the swamp. A significant volume of correspondence both for and against the airport concept flowed through the 'Letters to the Editor' columns of the local paper and additional pressure has been applied by proponents of routing plans for proposed new highway extensions.

The typical attitude of some Newcastle residents, who regard the swampland as useless unless it can provide space for industrial development and who have openly opposed the conservation plans, is evidenced by the following extract from a letter to the editor published in the Newcastle Morning Herald on 3 October, 1974.

"The concept of developing useless swampland into a highly productive industrial area will be shot in the arm for the economy of both Newcastle and Australia

They claim it will be a significant blow against the world's migratory bird population and have a devastating effect. Just how devastating and significant? The answer is none at all.

A look at the map of NSW coast shows there are thousands of acres of coastal swamps, lagoons, lakes and mangrove estuaries between here and the Queensland border, all eminently suitable for these birds. Pacific Highway near Kempsey detours many miles inland to bypass a gigantic swamp, full of wildlife.

What will the birds do if Kooragang is developed? Simply swim or fly, depending on their mood into these vast natural areas".



Figure 2: Large egret on nest at top of *Melaleuca*, Shortland swamp 1983



Figure 3: Cattle egret perched in *Melaleuca* in Shortland Colony 1983

A magazine feature in the Newcastle Morning Herald in March 1983 highlighted the general level of public ignorance and apathy. Swamp preservation has not been seen in the same light as saving seals or the Franklin wilderness.

"Put bluntly, it's not a trendy conservation issue: no one is singing songs about letting Ironbark Creek run free, or chaining himself to the flood gates.

The recent appearance on parts of the swamp of two unusual birds, the Hudsonian Godwit and the freckled duck, excited bird-watchers but few others. (The names don't really inspire stirring slogans do they?)"

(Beale, 1983)

Beale continued to comment on the community attitude reflected in the Herald's files by a 1969 letter to the editor which referred to the swamps where the freckled duck were found in 1983, as "a landmark Newcastle could well do without".

A vigorous local conservation body known as the Hunter Wetlands Group has been at the forefront of the campaign to conserve the wetlands area in an attempt to counter this apathy and ignorance. The group strongly questioned the viability of the proposed "Area Subject to Proposed Controls to Preserve Natural Vegetation" defined in the draft interim development order. They pointed out that the mangrove forest was rapidly deteriorating due to lack of proper tidal ventilation and that this would continue unless there was a change in Public Works Department policy of operating the Ironbark Creek floodgates (Hunter Wetlands Group, 1980). In a position paper issued in 1981 (Hunter Wetlands Group, 1981) the group again expressed concern about the area, particularly about the effect of a major highway development. They provided 6 strong arguments against it:

1. The area actually taken up by the roadway and associated construction area would be alienated from the Nature Reserve.
2. A major roadway cutting across the swamp would significantly reduce the management options open to the National Parks and Wildlife Service.
3. A roadway would obstruct or restrict surface water flow especially in times of flood and could also significantly alter the subsurface water regime.
4. Traffic noise and lights would disturb some waterbird species. Bird movements would be restricted. Considerable road kills would be inevitable with vehicles travelling in excess of 60 km per hour.
5. Chemical pollution in the form of leachates from introduced fill could significantly alter water and soil chemistry in sections of the swamp.
6. Increased public access would carry with it further habitat degradation through vandalism and littering.

DROUGHT REFUGE

The recent drought conditions have served again to highlight the conservation issues at stake. Like most other parts of Australia, the Hunter has suffered drought over the last few years, but although there have been drastic fluctuations in rainfall, effects in the Lower Hunter have not been as severe as elsewhere. As waterways inland have dried up, there has been a steady migration of water birds into the Newcastle area, which resulted in a population explosion and a resurgence of breeding.

I have kept the two small Shortland swamp areas, referred to earlier, under close observation since 1974, by visits several times a week. During that time, the water level has frequently reached low levels during long dry spells, but the swamps have never quite reached the stage of being completely without water. The section on the southern side of Sandgate Road, except for the golf course dam, was completely dry between October 1979 and May 1981, while a small deep hole of water remained in the northern sector. The good rains experienced during the autumn of 1981 saw the swamps filled to capacity but they had almost completely dried up by March 1983 after months with little or no rain. The two days of steady rain on March 17 and 18 1983 brought the water level back close to full capacity, while further heavy rain at Easter topped up the levels further and rains in mid April resulted in further filling close to the highest level I have observed since 1974.

The first sign of activity in the Shortland swamps, which was probably a reaction to drought conditions elsewhere, was the establishment in the 1978-79 breeding season of a small breeding colony of cattle egrets amongst breeding little black cormorants in broad-leafed paper bark trees at the edge of the golf links dam at the old garbage dump site.

Newcastle ornithologist, Gary Weber, reports that about 45 pairs of cattle egrets were well established in nests over water in February 1979. In January 1980 he observed that the birds had returned, and the colony had increased in size to 84 pairs, with a lone pair of little egrets successfully rearing three young. The water level was much lower than in 1979 as the effects of the long dry period were felt and many of the nests were not over water.

Following the good rains in early 1981, when both Shortland areas were filled to capacity, activity in the area intensified and shifted its focus from the golf course side to the *Melaleuca* stand on the lagoon on the opposite side of Sandgate Road. On November 19, I noted a marked increase over the usual small number of egrets feeding in the swamp weed in the open lagoon, to about 50, over half of them cattle egrets in orange breeding plumage.

Closer inspection of the paper barks in the adjacent lagoon revealed a large flock of egrets displaying behaviour which suggested that they were about to start nesting. I had previously observed old stick platform nests in the trees, but during the seven years I had been keeping the swamp under observation, no birds had used them. I found that a large number of little pied cormorants were already sitting on nests and over the next week or so, the egrets commenced to nest. The population steadily increased and by January 1982, a breeding colony of over 300 pairs was firmly established. This included all four species of egrets (large, plumed, little and cattle) in addition to the cormorants.

The colony occupied a belt of about 60 *Melaleucas* in a band about 100 metres long by 30 metres wide across a narrow sector of the lagoon, only 200 to 400 metres away from houses which border two sides of the property in which they are situated. An informant told me that a colony of egrets had started nesting in the same spot some 15 years previously, but had left when interfered with by vandals. This time, the colony successfully raised close to 100 young birds.

On an April evening in 1982, towards the end of the breeding season, the tops of the trees looked as though they were covered with snow as close to 2,000 egrets (adults and young) were joined by flocks of white ibis coming in for evening roosting. In addition to the egrets and the white ibis, large numbers of straw-necked ibis were dropping in. The cacophony of croaks, squeaks, and squawks rose to deafening proportions. The total number of birds present must have been well over 4,000.

The egrets and cormorants returned to the site on November 9 1982 and, despite the contraction of the swamp due to the long dry period, again established a thriving colony. In mid January 1983, I counted 360 nests, of which 17 little pied cormorants, 40 large egrets, 27 little egret, 28 plumed egret and 243 cattle egret nests were positively identified. Despite further drying up of the swampland, the colony continued to thrive, and raised between one and four young per nest. Data on detailed observation of 200 nests carried out by myself, with the assistance of five members of the local Bird Observers Group, are still being processed.

The rains of 1981 also caused breeding expansion in other species of water birds. In the years since 1974 I had observed a few young swamp and moorhens and an occasional brood of black ducks in the open lagoon and in the inner lagoon, which confirmed that some breeding was occurring, although it did not seem to be on a large scale. However, during the 1981-82 season, nesting activity became obvious from the banks of the lagoon, 15 moorhen nests being located. a pair of little grebes hatched five eggs within a few metres of the shore in a nest visible from the bank. On the golf links side, I observed several other pairs of grebes with young, in addition to the breeding cormorants in the cormorant rookery.

A few pairs of black swans had nested on the golf links dam for a number of seasons, but during the winter of 1982 a pair built a nest in the middle of the open lagoon in the other area and hatched three cygnets, in full view of nearby houses and another pair hatched six cygnets in the lagoon where the egrets had nested. As well as the Shortland pairs, several pairs also raised broods in the other edge of the Hexham swamp, very close to the main road at Minmi in the 1982 season. According to a report by Timms and Tarbotton (1969) fluctuating swan populations occurred in Lower Hunter locations in the late 1960s but were not breeding.

Even though the spring and summer of 1982-83 were very much drier, swamphen, moorhen and grebe again nested in the same swamps. Spurwing plover bred in the fields adjacent to the lagoons in 1981 and in 1983 a pair of black fronted dotterel established a nest and hatched young on top of a dump of gravel, close to Sandgate Road traffic on the golf course side.

The vast increase in numbers of species and individuals which had attracted attention on Kooragang Island in late 1982 also spilled over to the Shortland swamps. In addition to the usual black duck and chestnut teal, which have been in the area, substantial flocks of pink-eared, white-eyed and the very rare freckled duck appeared. In a count carried out by the Newcastle Bird Observers Group in February 1983, 73 freckled duck, regarded as the rarest duck in the world, were located. Smaller numbers of blue-billed, blue-winged shoveller and musk ducks were observed during December to January.

The white and straw-necked ibis, instead of disappearing as usual for the day about daybreak, remained around the Shortland swamps to feed and a substantial flock of over 100 glossy ibis arrived to join them. The black-billed spoon-bill population went up to around 50 specimens and a number of yellow-billed spoonbills, which had been relatively rare

visitors in previous years, took up residence. Over 50 pied stilts joined the other waders in working both areas. White-necked and white-faced heron were common. As the open lagoon on the northern side of Sandgate Road became shallower due to continued evaporation, hundred of waders came to take advantage of the food creatures which were being progressively exposed. Whiskered terns were observed flitting over the deeper water.

Hundreds of marsh, spotless and spotted crake, Japanese snipe and Siberian migrants red-necked stint and sharp-tailed sandpiper, dashed about the exposed mud, poking and prodding for food. Visiting bird-watchers who had travelled to Newcastle in the hope of catching a glimpse of the Hudsonian godwit on Kooragang and who also called at the Shortland area on their way back to town, were staggered by the uniqueness of the habitat, situated so close to human population, and by the number and variety of birds..

Altogether 49 species of water birds and waders were identified as frequenting or visiting the Shortland swamps during 1981-83, and 15 of these are known to have bred. The complete list of birds identified, with an indication of numbers and observed breeding occurrences, are given in Table 1. In addition to the water birds, more than 30 other native bird species, listed in Table 2, have been recorded.

TABLE 1
Water Birds Identified in Shortland Swamps 1981-83

Common Name	Scientific Name	Status	Numbers	Known Breeding
Coot	<i>Fulica atra</i>	P	****	X
Cormorant, Large Black	<i>Phalacrocorax carbo</i>	P	***	
Cormorant, Little Black	<i>Phalacrocorax sulcirostris</i>	P	***	X
Cormorant, Little Pied	<i>Phalacrocorax melanoleucos</i>	P	***	X
Crake, Marsh	<i>Porzana pusilla</i>	V	***	
Crake, Spotted	<i>Porzana fluminea</i>	V	***	
Crake, Spotless	<i>Porzana tabuensis</i>	V	***	
Darter	<i>Anhinga melanogaster</i>	V	*	
Dotterel, Black-fronted	<i>Charadrius melanops</i>	V	*	X
Dotterel, Red-kneed	<i>Charadrius cinctus</i>	V	*	
Duck, Black	<i>Anas superciliosa</i>	P	****	X
Duck, Blue-billed	<i>Oxyura australis</i>	V	*	
Duck, Blue-winged shoveller	<i>Anas rhyncotis</i>	V	*	
Duck, Freckled	<i>Stictometta naevosa</i>	V	***	
Duck, Maned	<i>Chenonetta jubata</i>	V	*	
Duck, Mush	<i>Biziura lobata</i>	V	*	
Duck, Pink-eared	<i>Malacorhynchus membranaceus</i>	V	**	
Duck, White-eyed	<i>Aythya australia</i>	V	**	
Egret, Cattle	<i>Ardeola ibis</i>	V	****	X
Egret, Large	<i>Egretta alba</i>	V	****	X
Egret, Little	<i>Egretta garzetta</i>	V	****	X
Egret, Plumed	<i>Egretta intermedia</i>	V	****	X
Grebe, Hoary-headed	<i>Podiceps poliocephalus</i>	V	*	
Grebe, Australian Little	<i>Podiceps novaehollandiae</i>	P	**	X
Greenshank	<i>Tringa mebularia</i>	V	**	
Gull, Silver	<i>Larus novaehollandiae</i>	P	****	
Heron, White-faced	<i>Ardea novaehollandiae</i>	V	*	
Heron, White-necked	<i>Ardea pacifica</i>	V	**	
Heron, Nankeen Night	<i>Nycticorax caledonicus</i>	P	**	
Ibis, Glossy	<i>Plegadis falcinellus</i>	V	****	
Ibis, Straw-necked	<i>Threskiornis spinicollis</i>	P	****	
Ibis, White	<i>Threskiornis molucca</i>	P	****	
Jabiru	<i>Xenorhynchus asiaticus</i>	V	*	
Moorhen, Dusky	<i>Gallinula tenebroea</i>	P	****	X
Pelican, Australian	<i>Pelecanus conspicillatus</i>	V	**	
Plover, Spurwinged	<i>Vanellus novaehollandiae</i>	P	**	X

Table 1 (continued)

Common Name	Scientific Name	Status	Numbers	Known Breeding
Sandpiper, Marsh	<i>Tringa stagnatilis</i>	V	***	
Sandpiper, Pectoral	<i>Calidris melanotos</i>	V	***	
Sandpiper, Sharp-tailed	<i>Calidris acuminata</i>	V	***	
Snipe, Japanese	<i>Gallinago hardwickii</i>	V	**	
Spoonbill, Black-billed	<i>Platalea regia</i>	V	**	
Spoonbill, Yellow-billed	<i>Platalea flavipes</i>	V	*	
Stilt, Pied	<i>Himantopus leucocephalus</i>	V	**	
Stint, Red-necked	<i>Calidris ruficollis</i>	V	****	
Swamphen, Eastern	<i>Porphyrio melanotos</i>	P	****	X
Swan, Black	<i>Cygnus atratus</i>	P	***	X
Teal, Chestnut	<i>Anas castanea</i>	P	***	
Teal, Grey	<i>Anas gibberifrons</i>	V	**	
Tern, Whiskered	<i>Chlidonias hybrida</i>	V	*	

P = semi permanent resident
V = Visitor
* 1-10
** 11-50
*** 51-100
**** 101 +

TABLE 2
Birds (Other than Water Birds) Observed at Shortland Swamps
1981-83

Compiled by author and Hunter Bird Observers Club

* Butcher Bird, Pied (<i>Craicticus nigrogularis</i>)	* Magpie, Australian (<i>Gymnothina tibicen</i>)
Chat, White-fronted (<i>Ephthianura albifrons</i>)	* Magpie-lark, Australian (<i>Grallina cyanoleuca</i>)
* Cisticola, Golden-headed (<i>Cisticola exilis</i>)	Mannikin, Chestnut-breasted (<i>Lonchura castaneothorax</i>)
Cockatoo, Sulphur-crested (<i>Cacatus galerita</i>)	Martin, Fairy (<i>Cecropis ariel</i>)
Cuckoo, Narrow-billed Bronze (<i>Chrysococcyx basalis</i>)	Martin, Tree (<i>Cecropis nigricans</i>)
Cuckoo-strike, Black-faced (<i>Coracina novaehollandiae</i>)	Needletail, White-throated (<i>Hirundapus caudacutus</i>)
Dollarbird (<i>Eurystomus orientalis</i>)	Owl, Barn (<i>Tyto alba</i>)
Eagle, White-breasted Sea (<i>Haliaeetus leucogaster</i>) (immature)	Parrot, Red-rumped (<i>Psephotus haematonotus</i>)
Eagle, Wedge-tailed (<i>Aquila audax</i>)	Pidgeon, Crested (<i>Ocyphaps lophotes</i>)
Falcon, Brown (<i>Falco berigora</i>)	Pipit, Richard's (<i>Anthus novaeseelandiae</i>)
Galah (<i>Cacatua roseicapilla</i>)	* Raven, Australian (<i>Corvus coronoides</i>)
* Grassbird, Little (<i>Megalurus gramineus</i>)	Reed-Warbler, Clamorous (<i>Acrocephalus stentoreus</i>)
Goshawk, Brown (<i>Accipter fasciatus</i>)	Rosella, Eastern (<i>Platycercus eximius</i>)
Harrier, Marsh (<i>Circus aeruginosus</i>)	Swallow, Welcome (<i>Hirundo neoxena</i>)
Kestrel, Australian (<i>Falco oenochroides</i>)	Willie Wagtail (<i>Rhipidura leucophrys</i>)
* Kingfisher, Sacred (<i>Halcyon sancta</i>)	Woodswallow, White-breasted (<i>Artamus leucorhynchus</i>)
Kite, Black-shouldered (<i>Elanus notatus</i>)	Wren, Superb Fairy (<i>Malurus cyaneus</i>)
* Kite, Whistling (<i>Haliaeetus spherurus</i>)	

* Known breeding

As the swamps dried up towards the end of February 1983, the birds gradually dispersed and very few were left by the end of February except for the egret colony and roosting ibis. However, the March rains replenished the swamps and within a few days birds began to return as weed growth re-generated. Within three days of the rain, 14 swans appeared on the open lagoon near the egret colony and on 17 April, 81 swans were counted on the golf course side. The roosting ibis population increased markedly and a separate very large group of ibis took to roosting on the golf course side. At Easter, a lone jabiru appeared in the open lagoon and spent a few hours chasing prey in the new weed growth, before flying off in the general direction of Ironbark Creek. The only previous recorded visit by a jabiru was just after the 1981 rains when a single individual spent a day in the swamp.

THE HUNTER ESTUARY AS AN ECOLOGICAL UNIT

The happenings at Kooragang and at Shortland demonstrate the need for rapid implementation of the Newcastle Local Environment Plan No.28, which was gazetted in December 1982 (N.S.W. Government Gazette No.179), as well as for revision of the plan to include the Shortland area described in this article. As Gilligan (1983) points out, one might be excused for expecting the gazettal to be hailed as a major victory, but in reality little or no change can be expected.

Although the plan supports the establishment of a Nature Reserve under the National Parks and Wildlife Service, the Service does not have the money needed to purchase the privately owned land needed to accomplish the plan. Transfer of land acquired by the Federal Government in 1962 for a local commercial airport is subject to an uncompleted study of alternative airport sites. Although the plan requests the Department of Public Works and other relevant authorities to give priority to conservation, Public Works has indicated unwillingness to change its procedures on the Ironbark Creek floodgates until private land subject to inundation has been transferred to the National Parks and Wildlife Service.

The events occurring in the Shortland swamps over the last few years, particularly the establishment of the egret rookery, make it imperative that these swamps be recognised as of high conservation value. Gilligan (1983) recommends that Zone 8 of the Rural Environment Protection (Estuarine Wetland) zone which is in general land west of the northern railway (see Figure 1) needs to be extended to include land adjacent to Ironbark Creek near its junction with the Hunter River. This would provide continuity between Hexham Swamp, Kooragang Island and Fullerton Cove. A safe wildlife corridor needs to be established from the proposed wetland area in the Waratah Estate development on the old Newcastle Abattoir site, the Shortland Swamps and Ironbark Creek (see Figure 1).

The Hexham swamp areas and especially the Shortland swamps lend themselves to providing facilities for community education on the value of wetland habitats. This could go some way to shifting the kind of apathetic and antagonistic attitudes referred to earlier, as well as providing 'open-space' recreation. Gilligan (1983) has already aired the idea of developing Ash Island and Ironbark Creek. Another embryonic idea which has received some tentative discussion by interested bodies is the development of the old Lorna Street garbage dump to provide some form of public park, with access to boardwalks and hides for observation of the bird life. Such a facility would provide for ideal recreational and educational activities under properly managed conditions.

Observations I have made of the operation of the Edward Ball Wildlife Foundation Sanctuary at Wakulla Springs, and the St Marks Wildlife Sanctuary on the Gulf of Mexico, near Tallahassee in Northern Florida, have convinced me that sanctuaries can be managed under relatively undisturbed natural conditions in such a way that wildlife can co-exist with people. At both sanctuaries, the wildlife live in perfectly natural conditions with freedom to come and go and it is the people that are managed, rather than the wildlife, as is the case in zoos and so-called 'wildlife' parks in Australia. Thousands of visitors, including recreation seekers, nature lovers and serious students pass through the sanctuaries every year. The Shortland area and places like the Ash Island end of Kooragang lend themselves very well to a similar sort of 'people managed' viewing, which in addition to providing educational and recreational facilities for Novocastrians, could also develop into an attraction to tourists.

Projects to successfully accomplish this sort of development would need the co-operation of a wide range of public bodies and private institutions. Action has already occurred in this direction since the Minister for Public Works and Ports moved in 1976 to bring together bodies other than the Public Works Department with the subsequent formation of the Kooragang Island Advisory Committee and the Hexham Swamp Committee. The wetlands problem transformed from a purely engineering exercise to convert estuary islands into an industrial complex to an embryonic conservation plan with social implications. I strongly support Gilligan's (1983) suggestion that 1983 is a ripe time for an inter-departmental team, or joint committee to be constituted to "devise and implement a dynamic management strategy for the Hunter estuary".

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POSTSCRIPT

In mid-July 1983 the Town Clerk announced through the local press that the Lorna Street garbage dump site would be re-opened because the present Astra Street site has almost reached capacity. Although referred to as the Lorna Street site access would be from Sandgate Road. It is proposed that once "the site is filled, the area will be converted for use as passive and active recreation areas with an adjacent water area".

Although the full details of the proposal are not known at the time of writing local conservation groups are worried by the threat posed to the site and hope to be able to discuss the implications of the proposal with the Council.



Figure 4: Pied stilts were occasional visitors until 1982-83 when a large flock took up summer residence.