

Birdlife at Belmont Lagoon

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Session Goals

To promote Belmont Lagoon as an IBA in north-east Lake Macquarie, sketching its history and avian habitats,

To report woodland and wetlands birds seen there recently, and to compare this profile with observations by Glenn Holmes in 1968-73, and

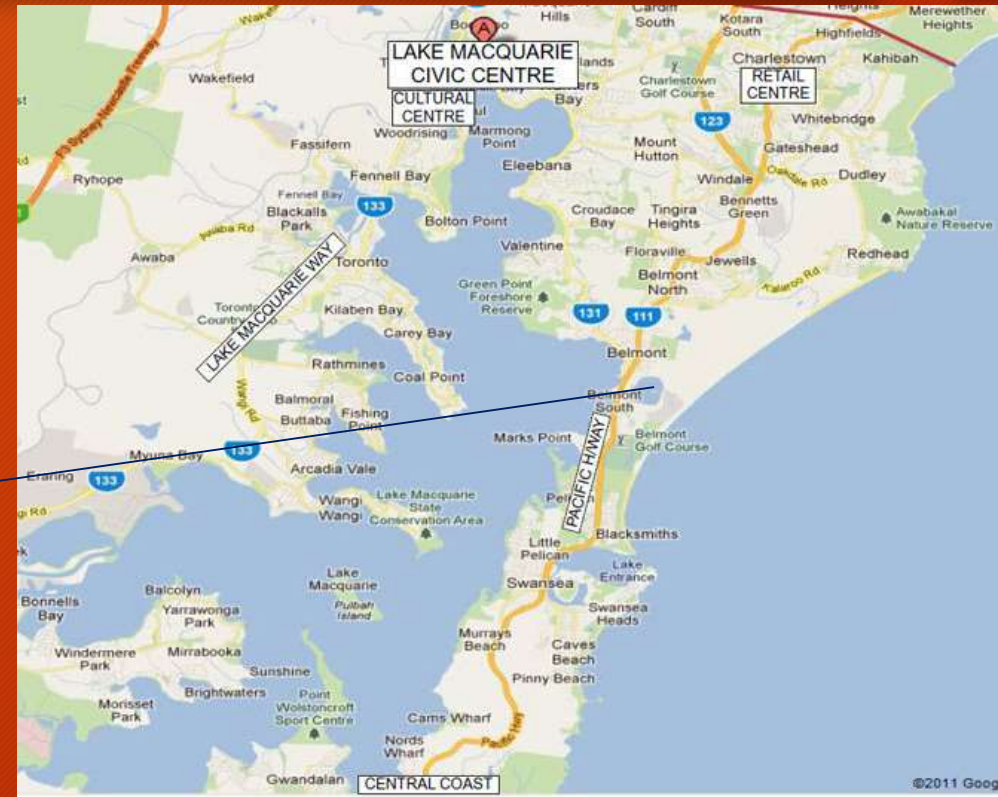
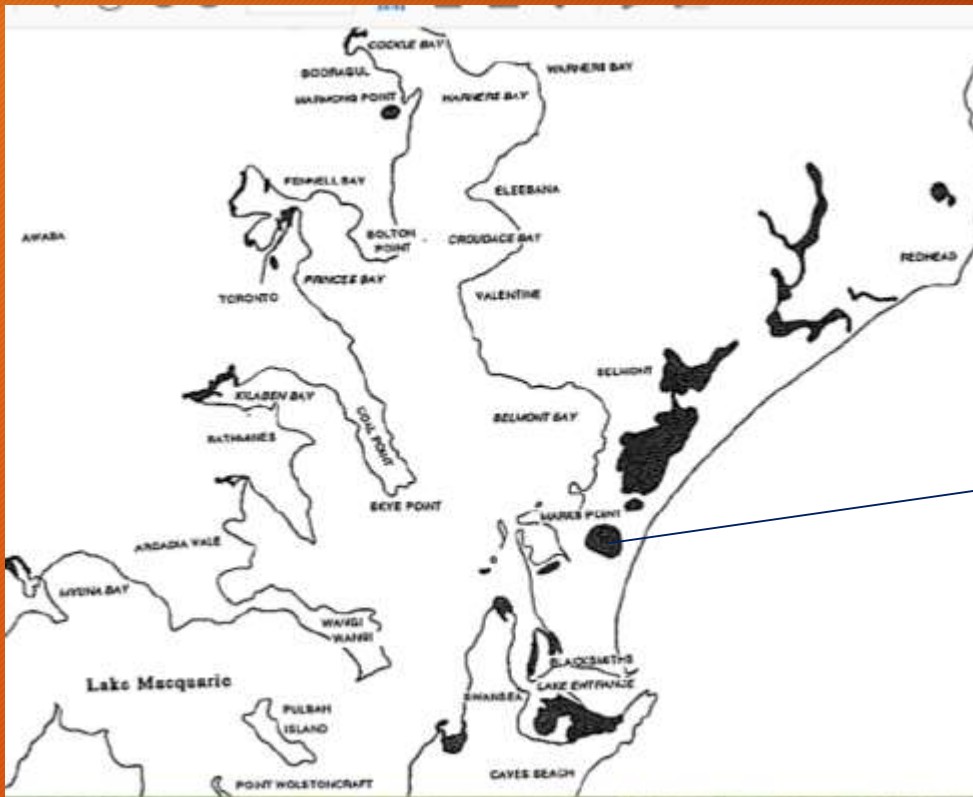
To speculate on observations in the next 10 years.

Introduction

IBA usually refers to Important Birding Area. Belmont Lagoon is not vital to the protection of threatened species like Swift Parrot or Regent Honeyeater; these tend to migrate through coastal eucalypt forests on the western side of Lake Macquarie.

But together with the adjacent Belmont Wetlands State Park, this lagoon is an *interesting* and important haven for other coastal and migratory species. It also has a unique aboriginal and European social history; the latter has strongly shaped its avian habitats and hydrology since 1942. Some relevant details are offered here but more can be found by using Google (eg. Lake Mac Libraries online).

Belmont Lagoon is the common feature on both maps. Black areas on LH map show the extensive freshwater or brackish wetlands that once fed into the lake or sea.



Wetlands of Lake Macquarie (map extracted from Winning & Gilligan 1991)

Belmont Lagoon: Aboriginal history

We acknowledge and respect the Awabakul (People of flat surface) as traditional owners and custodians of this area. Belmont Lagoon is part of their spiritual and cultural heritage; a joyful place for all children.

This Lagoon has a beautiful creation story:
The tears of the Moon. To read it,

Google: Belmont Lagoon John Maynard.

Lagoon picaninnis (artist unknown)
[1a497c67e2aa08888ec1acdb819b1988](#).



Belmont early history

1825 Belmont's first European settler, Rev. Threlkeld, was granted 10,000 acres in trust. He opened an aboriginal mission station near Belmont Lagoon.

This map dated 1938 shows Belmont Lagoon as a freshwater wetland, with a small (Cold Tea) creek draining west into the Lake.

For more info: Google: Threlkeld Belmont



Industrial effects on Belmont Lagoon and surrounding area



- 1925 BHP leased land in Belmont which included Belmont Lagoon.
- John Darling Colliery (opposite) was located in Belmont North, where Belmont Christian College is now.
- BHP started to mine coal from two shafts, 198m and 265m below the surface (1970-80).
- An air vent for one shaft was placed up the middle of the Lagoon; BHP built a dirt peninsula to access and maintain it.
- This colliery closed in 1987.
- *Google* John Darling Colliery Belmont

WW2 beach invasion threat

Cold Tea Creek (from Lake Mac) was excavated as part of an elaborate defence plan in 1942.

Later a causeway (track) with sewer pipe cut across the Lagoon. Four short pipes (red) across this causeway allow water to flow between Lagoon and canal.

Since 1942 the Lagoon has steadily changed to a saltwater wetlands, with brackish surrounds.

This has resulted in considerable changes in habitat and impacted birdlife now seen there.

Google: Belmont anti-tank ditch



Belmont Lagoon (typical winter scene)

33° 02'39"S, 151° 39'48"E

Surface area approx 40ha
Depth range: 10cm-70cm est.

Main vegetation

Swamp Oak
Broad-leaf Paperbark
Swamp Mahogany
Coast Banksia
Grey Mangrove

Crimson Bottlebrush
Swamp Paperbark
Swamp Wattle
Common Reed
Native grasses, rushes



Wind direction and intensity, and scarce food sources result in few waterbird species in winter.

Summer at the Lagoon

Slow tidal
interchange
results in
shallow
areas which
can provide
ample food
in summer.



Waterbirds seen at Belmont Lagoon and Cold Tea Canal 2015-17



Black Swan



Silver Gull



Little Black Cormorant



Little Pied Cormorant



Chestnut Teal



Great Egret



Australian Pelican



Grey Teal



Australian Wood Duck



White-faced Heron



Masked Lapwing



Pacific Black Duck



Little Egret



Intermediate Egret



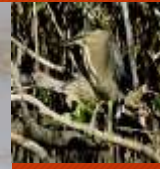
Great Cormorant



Australian White Ibis



Crested Tern



Striated Heron



Black-winged Stilt



White-bellied Sea eagle



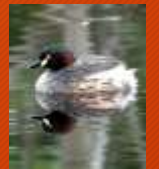
Grey Goshawk



Brown Goshawk



Black-shoulder Kite



Australasian Grebe



Pied Cormorant



Caspian Tern



Osprey



Swamp Harrier



Straw-necked Ibis



Mangrove Gerygone



Australasian Darter



Australian Pied Oystercatcher



Red-necked Avocet



Australian Reed Warbler



Royal Spoonbill



Sacred Kingfisher

Six raptor species are included here; apart from the Kite these hawk regularly.



Cooperative feeding by Pelicans 17/12/2016. First, they surround fish-fry.



Feeding Frenzy: 17/12/16. Many birds may join in;
eg. up to 400 Little Black Cormorants and 200 Silver Gulls.

Meanwhile
beside the
peninsula
another
fishing plan
unfolds.
30/7/2015



Egrets cooperate,
dancing like
courting cranes,
to herd fish-fry
into the shallows.
30/7/2015



White-bellied Sea Eagles swoop on fish in the shallow waters of Belmont Lagoon. Osprey (LHS) tend to fish in Cold Tea canal (plunging in deeper water).



7/12/2016



30/5/2016

How/has BL changed as a habitat for waterbirds?

(Aerial photos courtesy of Mandy McDonald, LMCC)



2014



1941

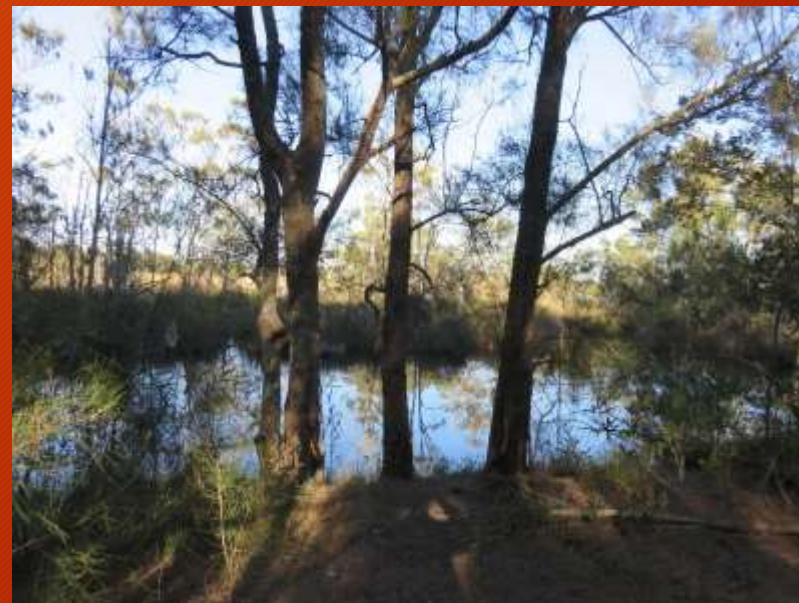
0 100 200
Meters

Saltmarsh
North &
West



Mud-flats N-E
low-tide

Mangroves
round lagoon
N perimeter
and S-E
sector



Brackish,
shallow
canals
beside
peninsula

2015-17 study of birdlife at Lagoon & surrounds (GF)

Coastal Woodlands (79 species)	RR%	Coastal Wetlands (34 species)	RR%
Eastern Whipbird	100	Silver Gull	96
Australian Magpie	100	Little Black Cormorant	93
Little Wattlebird	98	Black Swan	91
White-cheeked Honeyeater	95	Chestnut Teal	86
Australian Raven	95	Australian Pelican	84
Red-browed Finch	95	Welcome Swallow	84
Crested Pigeon	89	Little Pied Cormorant	82
Grey Fantail	89	Great Egret	68
Lewin's Honeyeater	88	Australian Wood Duck	66
Grey Butcherbird	88	Grey Teal	54
Spotted Dove	84	White faced Heron	54
Magpie-lark	84	Pacific Black Duck	52
Rainbow Lorikeet	75	Little Egret	45
White browed Scrubwren	75	Masked Lapwing	45
Bar-shouldered Dove	73	Great Cormorant	32
Striped Honeyeater	73	Striated Heron	29
Willie Wagtail	71	Crested Tern	23
Little Corella	70	Australian White Ibis	21
Brown Thornbill	68	Black-winged Stilt	18
Noisy Miner	59	White-bellied Sea Eagle	16
Brown Honeyeater	59	Royal Spoonbill	14
White-breasted Woodswallow	59	Eastern Osprey	14
Black-faced Cuckoo-shrike	54	Sacred Kingfisher	13
Yellow Thornbill	52	Pied Cormorant	9
Pied Currawong	52	Caspian Tern	9

The 2017 study results (113 species) can be compared with a list from Glenn Holmes (a young, talented birdwatcher) in 1973. He reported seeing 66 species around Belmont Lagoon in the period 1968-73.

BIRDS OF BELMONT LAGOON

BY

GLENN HOLMES

Beginning in early 1968, casual observations of birds at Belmont Lagoon have revealed 66 species. Changes in water levels were seen to directly affect some species, such as the migratory waders, which were absent when the lagoon was full. Undoubtedly the indirect effect on food availability would affect many species similarly.

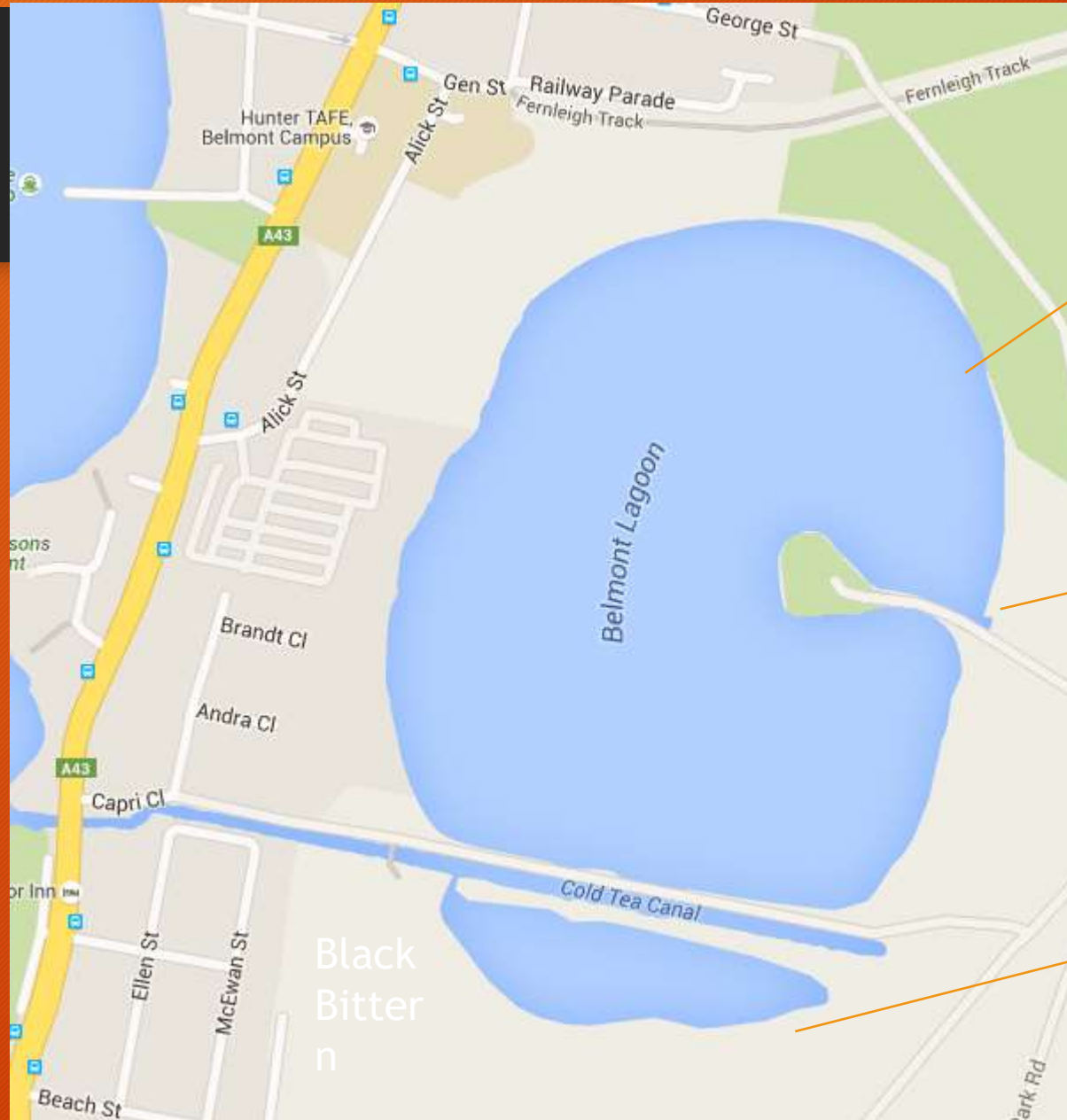
The following list, which is by no means a comprehensive account of the species present, is of birds of the lagoon itself and of the immediately adjacent reeds, marsh, and swamp forest. The more interesting species are separately annotated.

Pelican	Greenshank
Black Cormorant	Knot
Little Black Cormorant	Great Knot
Little Pied Cormorant	Sharp-tailed Sandpiper
White-faced Heron	Pectoral Sandpiper
Large Egret	Curlew Sandpiper
Little Egret	Bar-tailed Godwit
Nankeen Night-Heron	White-headed Stilt
Black Bittern	Silver Gull
Black Swan	Marsh Tern
Black Duck	Caspian Tern
Black-shouldered Kite	Little Tern
Whistling Kite	Crested Tern
White-breasted Sea-Eagle	Galah
Nankeen Kestrel	Fan-tailed Cuckoo
Peregrine Falcon	Narrow-billed Bronze-Cuckoo
Brown Quail	Golden Bronze-Cuckoo
Banded Landrail	Spine-tailed Swift
Dusky Moorhen	Kookaburra
Swamphen	Sacred Kingfisher
Coot	Dollarbird
Spur-winged Plover	Welcome Swallow
Black-fronted Dotterel	Pipit
Black-faced Cuckoo-Shrike	Tailorbird
Little Grassbird	Reed Warbler
Blue Wren	Variegated Wren
Southern Emu-Wren	Little Thornbill
Brown Thornbill	White-browed Scrub-Wren
White-faced Chat	Grey Fantail
Willie Wagtail	Eastern Whipbird
Eastern Silvereye	White-cheeked Honeyeater
Pee-wee	Dusky Wood-Swallow
Grey Butcherbird	Raven

Waterbird species reported by Holmes at the Lagoon in 1968-1973 but not seen in 2015-17.

Freshwater species	1973 GH		Saltwater species	1973 GH
Black Bittern	/		Greenshank	/
Dusky Moorhen	/		Great Knot	/
Purple Swamphen	/		Sharp-tailed Sandpiper	/
Eurasian Coot	/		Pectoral Sandpiper	/
Black-fronted Dotterel	/		Curlew Sandpiper	/
Buff-banded Rail	/		Bar-tailed Godwit	/
Nankeen Night-Heron	/		Marsh Tern	/
			Little Tern	/

The approximate locations of Holmes' 1973 sightings of some waterbirds



Knot (8)
Nov.

Bar-tailed
Godwit (39)

Banded Landrail
(Buff-banded Rail)

Great Knot

Pectoral
Sandpiper

Insights by several experienced club members on whether and where Holmes' shorebirds might still be seen in the Hunter.

Common	Likely again?	Where now?
Nankeen Night Heron	Not migratory	
Black Bittern	Not migratory	
Dusky Moorhen, Purple Swamphen, Eurasian Coot, Black-fronted Dotterel, Buff-banded Rail	Not migratory	
White-faced Chat	Not migratory	
(Common) Greenshank	Likely to still visit Belmont	Ash Island /Hexham/Tomago/Dykes
(Red) Knot	Unlikely to still visit Belmont	Sandspit/Dykes
Great Knot	Unlikely to still visit Belmont	Sandspit/Dykes
Sharp-tailed Sandpiper	Possibly could still visit Belmont	Ash Island/ Hexham/Tomago/Sandspit/Dykes (+ other wetlands)
Pectoral Sandpiper	Possibly could still visit Belmont	Ash Island /Hexham/ Tomago
Curlew Sandpiper	Unlikely to still visit Belmont	Ash Island Hexham/ Tomago / Sandspit /Dykes
Bar-tailed Godwit	Possibly could still visit Belmont	Sandspit/Dykes/Lake Mac /Port Stephens
Marsh or Whiskered Tern	Likely to still visit Belmont	Any suitable wetland (fresh or brackish). e.g. Ellalong Lagoon. Most records are from Hexham /Ash Island.
Little Tern	Likely to still visit Belmont	Lake Mac (channel), Hunter Estuary, Stockton Beach etc

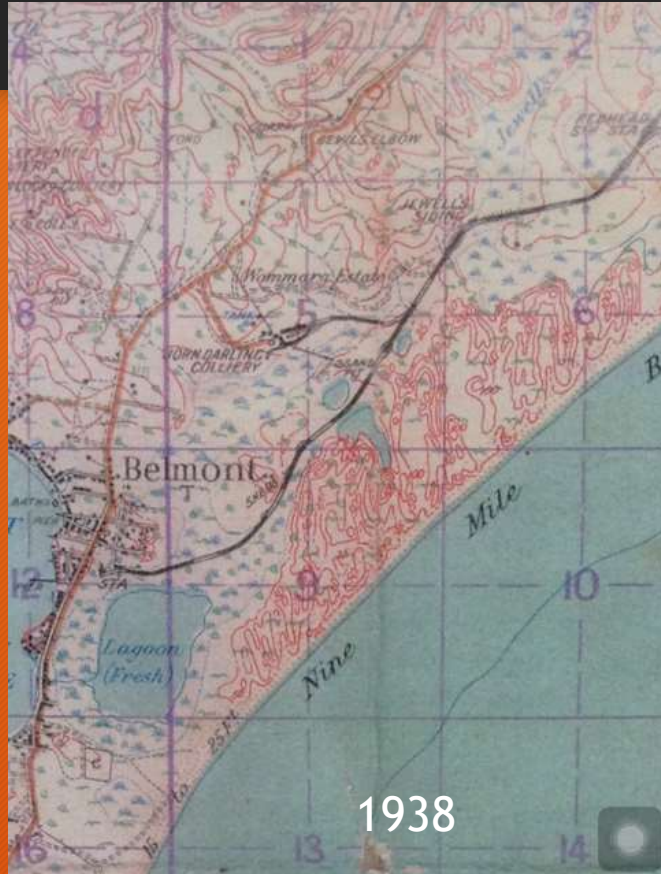
A sample of coastal woodlands and wetlands species seen at Belmont Lagoon and Cold Tea Canal from 2015-17

✓ indicates only 39/113 were recorded in 1968-73 by Holmes

red indicates species not reported by Holmes

Coastal Woodland	1973 GH	Coastal Woodlands	1973 GH	Coastal Wetlands	1973 GH
Eastern Whipbird	✓	Common Myna		Silver Gull	✓
Australian Magpie		Intermediate Egret		Little Black Cormorant	✓
Little Wattlebird		Laughing Kookaburra	✓	Black Swan	✓
White-cheeked Honeyeater	✓	Rufous Whistler		Chestnut Teal	
Australian Raven	✓	Galah	✓	Australian Pelican	✓
Red-browed Finch		Brush Bronzewing		Welcome Swallow	✓
Crested Pigeon		Eastern Koel		Little Pied Cormorant	✓
Grey Fantail	✓	Pheasant Coucal		Great Egret	✓
Lewin's Honeyeater		Eastern Rosella		Australian Wood Duck	
Grey Butcherbird	✓	Fan-tailed Cuckoo	✓	Grey Teal	
Spotted Dove		Dollarbird	✓	White faced Heron	✓
Magpie-lark	✓	Eastern Spinebill	✓	Pacific Black Duck	✓
Rainbow Lorikeet		Australasian Figbird		Little Egret	✓
White browed Scrubwren	✓	Yellow-faced Honeyeater		Masked Lapwing	✓
Bar-shouldered Dove		Brown Quail	✓	Great Cormorant	✓
Striped Honeyeater				Striated Heron	✓
Willie Wagtail	✓			Crested Tern	✓
Little Corella				Australian White Ibis	
Brown Thornbill	✓			Black-winged Stilt	✓
Noisy Miner				White-bellied Sea Eagle	✓
Brown Honeyeater				Royal Spoonbill	
White-breasted Woodswallow				Eastern Osprey	
Black-faced Cuckoo-shrike	✓			Sacred Kingfisher	✓
Yellow Thornbill	✓			Pied Cormorant	✓
Pied Currawong				Caspian Tern	✓
Superb Fairy-wren	✓			Australasian Darter	
Olive backed Oriole				Australian Reed Warbler	✓
Silvereye	✓			A. Pied Oystercatcher	
				Red-necked Avocet	

What habitat changes (in 75 years) may have affected Coastal Woodland species?



Flora changes since 1942

More flowering trees and shrubs (planted or natural regrowth)

Swamp Mahogany
Broad-leaved Paperbark
Smooth-barked Apple
Coast Tea-tree
Coast Banksia
Coral Tree

Denser foliage (canopy, mid-level heath, scrub, rushes, reeds, grasses)

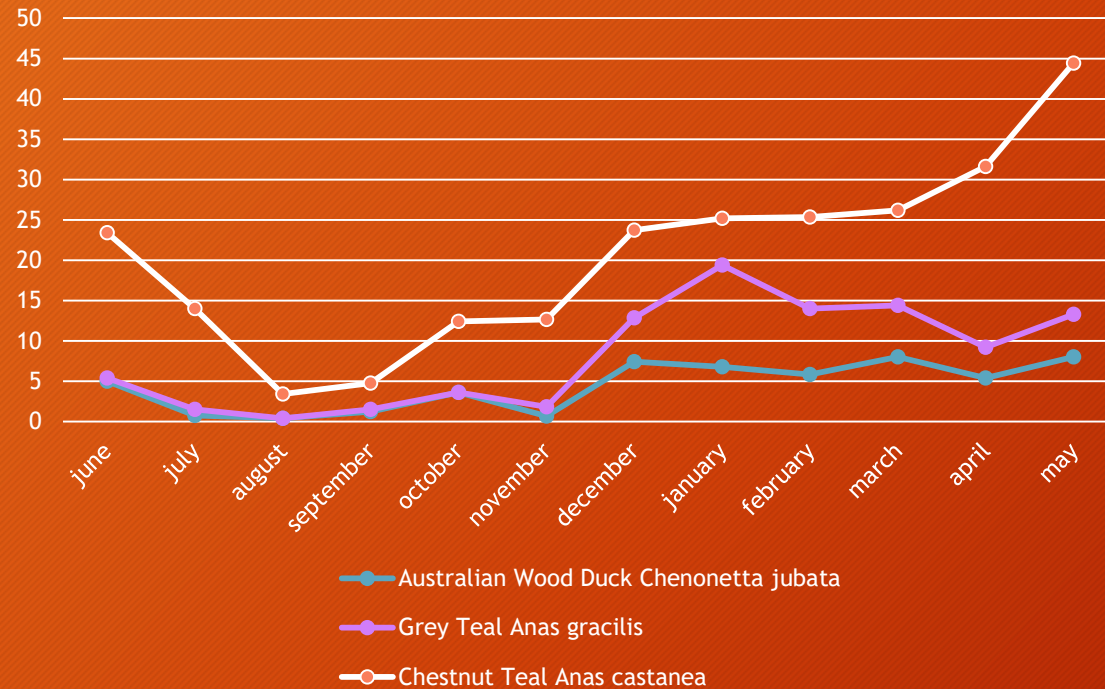
Swamp Wattle
Grey Mangrove
Crimson Bottlebrush
Swamp Paperbark
Camphor Laurel
Sweet Pittosporum
Bitou Bush
Milkwort
Native Broom
Jaragua grass
Natal grass, Juncus, Samphire
Common Reed

Taller trees & saplings (canopy)

Swamp Mahogany
Broad-leaved Paperbark
Swamp Oak
Coast Banksia



Native Ducks monthly average at Cold Tea Canal



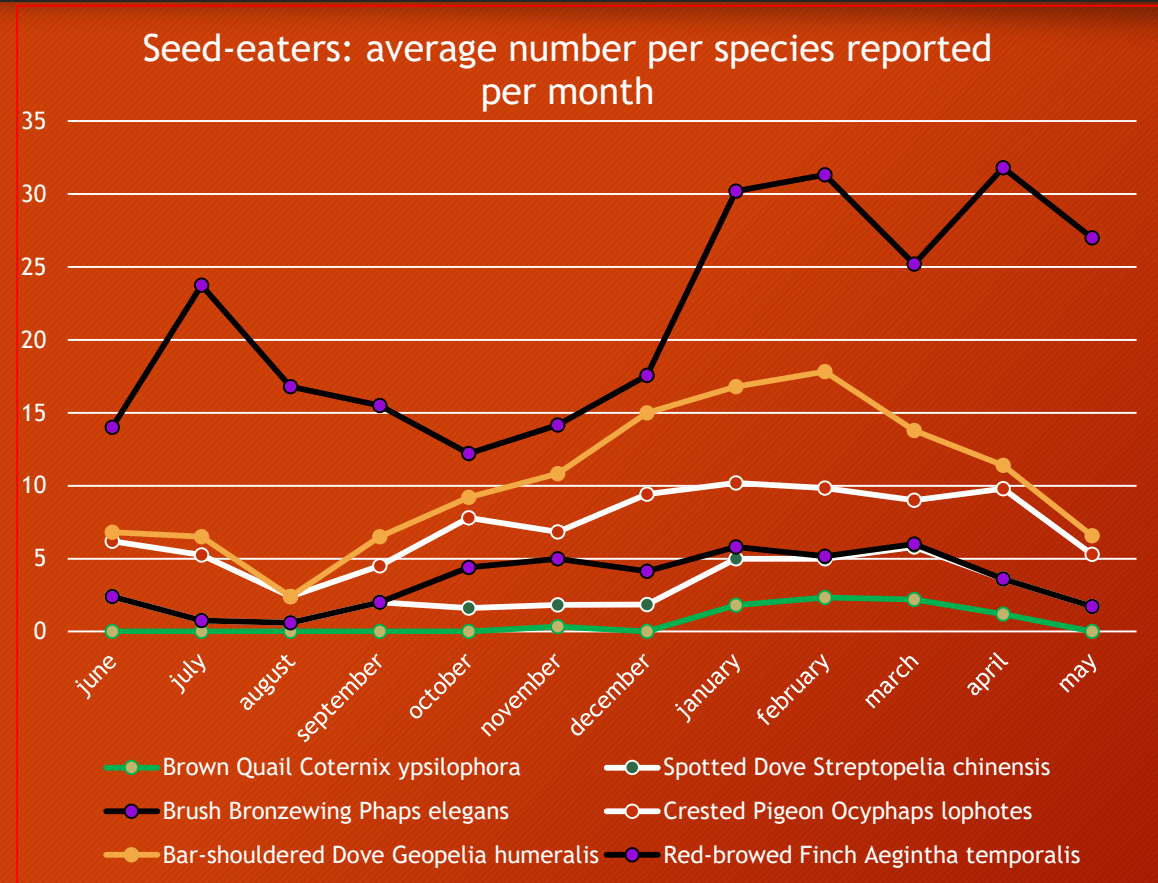
For insights into native ducks survival in saltwater habitats, see Baudinette RV, Norman FI & J Roberts (1982) Salt gland secretion in saline-acclimated Chestnut Teal, and its relevance to release programs. *Australian Journal of Zoology* 30(3) 407-415.

Some Avian-Flora coincidence (Seed-eaters)

July-August: Swamp Oak, Jaragua Grass, Sydney Green Wattle, Swamp Wattle, Sydney Golden Wattle

January-March: most native grasses (Spinifex, Themeda)

May: Natal Grass



Coastal Woodland:
Brush Bronzewing

(maybe a good
example of the
benefits of gluten-
free diet!



1792



2016

Nest in
dense
Melaleuca
scrub



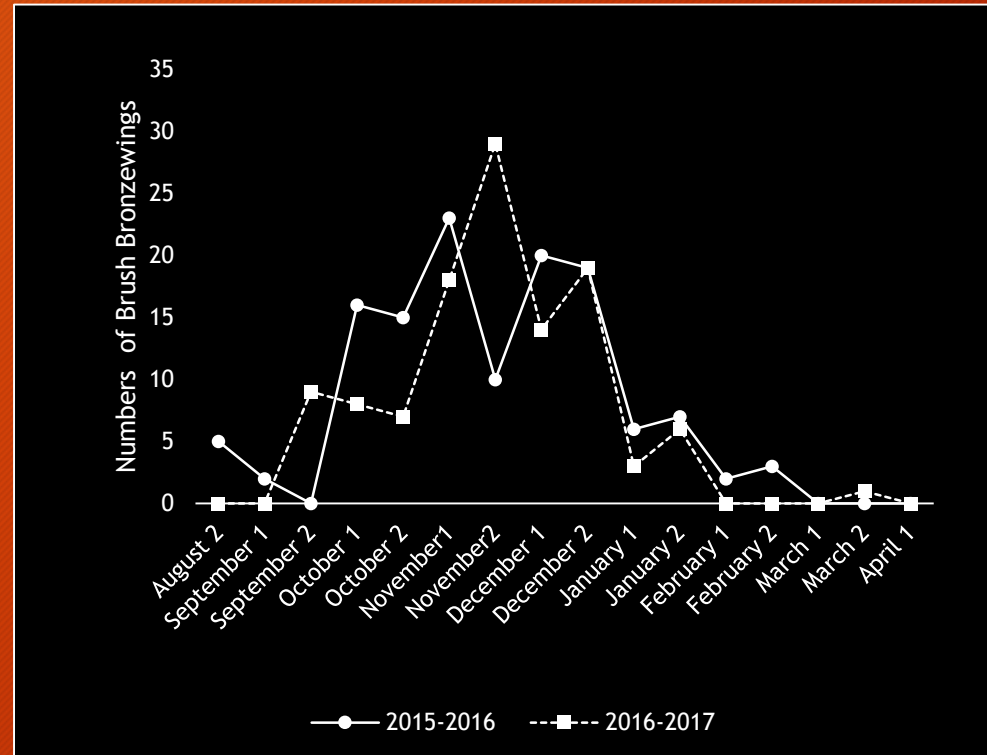
Forage
near
Acacia
scrub

Opportunities for local research on Brush Bronzewing

Where do they go in winter?

(B.Lagoon or Fernleigh Track)

- 6/6/15 (2) seen 4pm JL on FT
- 23/6/17 (1) call 8.15am GF
- 2/7/17 (1) call am JC
- 6/7/17 (1) seen 8.30am BF
- 13/7/17 (1) call 9.15am GF
- 3/8/17 (4) call, 1 seen 8.15am GF
- 10/8/17 (1) call, 1 seen 9am KW
- 14/8/17 (4) 2 calling, 2 seen FT 4pm BF



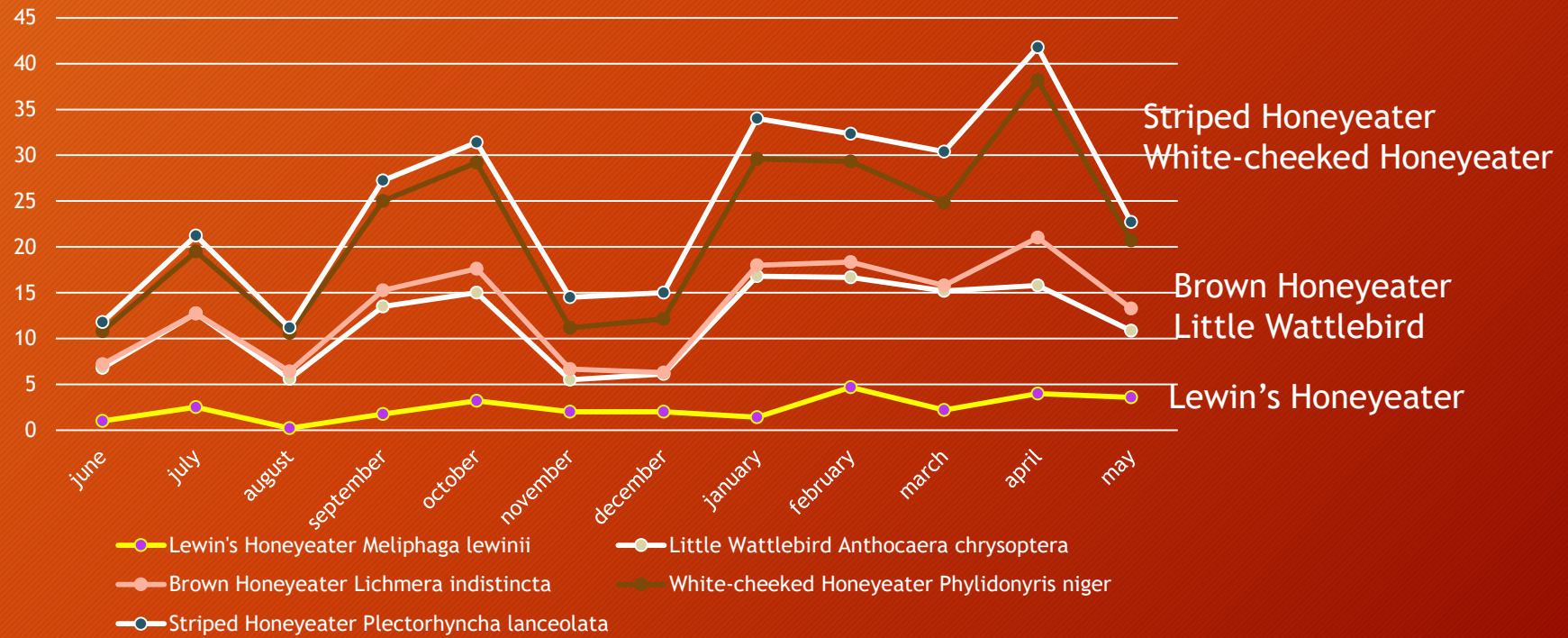
Some Avian-Floral bloom coincidence (Honey-eaters)

September-October: Coast Tea-tree, Coast Wattle, Crimson Bottlebrush, WA Wattle, Swamp Heath, Sydney Golden Wattle

January-March: Broad-leaved Paperbark, Coast Banksia, Red Bloodwood, Old Man Banksia

April-May: Swamp Mahogany

Selected Honey-eaters at BL: monthly averages

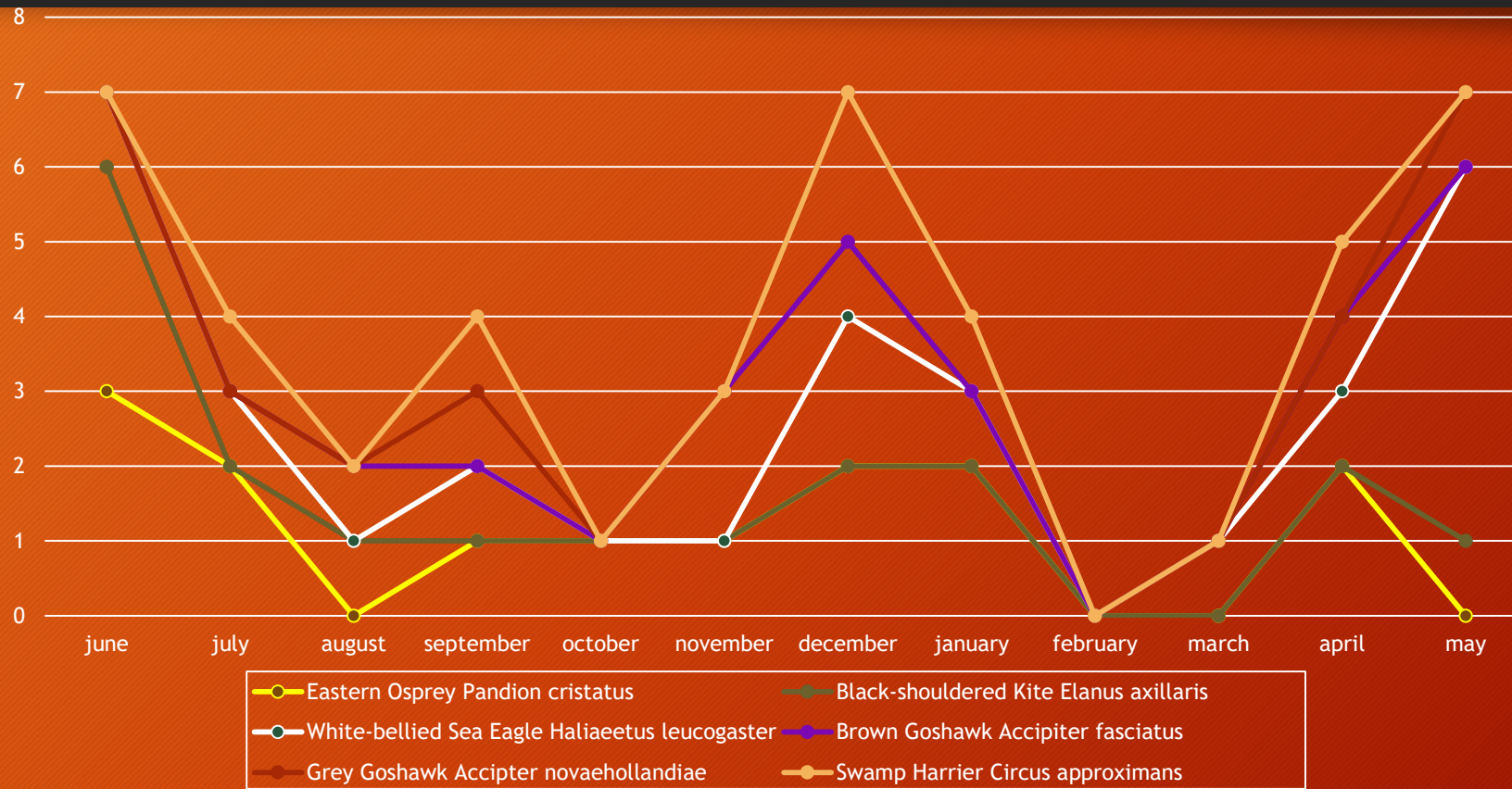


Raptor activity coincidence

September, November-January: migratory and nesting activity of other species (ducks, pigeons, doves)

April-May-June: increased fishing activity in feeding their young (WB Sea Eagle, Osprey)

Sightings per month at Belmont Lagoon



Coastal woodland aerial migrants: White-breasted Woodswallow

Belmont Lagoon

Usually arrive early August, congregate along Cold Tea Canal then disperse.



Belmont Swamp (BWSP)

- Nest in dead hollows of tall trees (eg. old melaleucas at Belmont Swamp)
- Numbers declining (limited hollows?)

Belmont Lagoon

(MR: usually last and eastern-most departure point in Hunter Region)

- 7 April 2015 (15)
- 19 May 2016 (20)
- 21 April 2017 (38)

Speculation on observations at Belmont Lagoon (to 2027)

- Continued silting-up of Lagoon (N, NE, SE areas); stable depth in Canal
- Slow growth of Grey Mangroves, Common Reed around Lagoon and Canal
- Greater seasonal use of Lagoon by migratory saltwater & shorebird species
- Steady growth of coastal woodland flora (Melaleuca, Acacia, Banksia, Callistemon)
- Steady increase in some species (seed-eaters, nectar-eaters, insectivores)
- Steady presence of some raptors (Osprey, White-bellied Sea Eagle, Grey & Brown Goshawks, Nankeen Kestrel, Swamp Harrier, Black-shouldered Kite), but probably no nesting activity
- Detection of some waterbird species listed by Holmes (1973) in adjacent areas (BWSP, Lake Mac)
- Decline in hollow-nesting species (rosellas, parrots, cockatoos, galah, kookaburra, kingfisher, WB-woodswallow, powerful owl)

Acknowledgements & References

Special thanks to:

Mandy MacDonald (LMCC) for aerial photos; Win Lambkin for historical & flora information; Diana Taafe for 1938 Belmont map;

HBOC members: Jack Adams, Tom Clarke, John Cockerell, Keith Eastwood, Belle Farley, Robert McDonald, Allan Richardson, Mick Roderick, Alan Stuart, and Mike Newman for advice and bird IDs.

Belmont. Lake Macquarie Libraries. History of John Darling Colliery.

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Holmes, G. (1973) Birds of Belmont Lagoon. *Hunter Natural History*. May: 125-126.

Lake Macquarie map: www.masarch.com.au/images/project-images/community/lake-macquarie-way-lg.jpg

Stuart, A. (2009) Early Hunter avian records. Part 1. 1901-1925 Articles in The Emu. *The Whistler*, 3, 40-51.