Eastern Australian Waterbird Aerial Survey - October 2024 Annual Summary Report

J.L. Porter[1,2], R.T. Kingsford[2], R. Francis[2]
K. Brandis[2], A. Ahern[2], Y. Tidou[2] & D. Simpson[2]

Department Climate Change, Energy the Environment & Water (NSW)[1]
Centre for Ecosystem Science, School of Biological,
Earth and Environmental Sciences, UNSW Sydney [2]

2024 Eastern Australian Waterbird Aerial Survey

Executive Summary

- The annual Eastern Australian Waterbird Aerial Survey (EAWS) began in 1983 to monitor annual continental scale changes in the distribution and abundance of waterbirds and their breeding, as well as change in the extent of wetland habitat over time. It tracks trends in more than 70 species of waterbirds.

- In 2024 (42nd survey), drier conditions continued across parts of eastern Australia (August-October) after record breaking rainfalls and flooding in preceding years. Most of Queensland and New South Wales was drought free.

- Wetland area decreased considerably from the previous year, to well below the long-term average. Some rivers and wetlands in the north including Lakes Mumbleberry & Torquinie and Lake Galilee retained water and supported large numbers of waterbirds. Paroo Overflow and Menindee Lakes, Talyawalka Lakes and Fivebough and Tuckerbill Swamps supported high numbers of waterbirds.

- All game species of ducks had abundances below their long-term averages; four of these (Grey Teal, Chestnut Teal, Black Duck and Wood Duck) were close to their long term averages. Five out of eight game species continue to show significant long-term declines. Total waterbird abundance (all species combined) decreased markedly from the previous year.

- Breeding species richness and breeding abundance, decreased steeply compared to the previous year, with breeding abundance falling by an order of magnitude for the second successive year to well below the long-term average and one of the lowest on record.

- Availability of wetland habitat is a major driver of waterbird abundance, breeding and diversity. Reductions in habitat area and persistence due to climate change, river regulation and water extraction have resulted in ongoing long-term declines particularly in the Murray-Darling Basin. Purchases and timed releases of environmental water to support breeding or habitat retention have offset some the ongoing impacts of regulation and climate change.

- There were no occurrences of any mass mortality of waterbirds (a potential indicator of avian influenza).

2024 Eastern Australian Waterbird Aerial Survey Results

1. Global warming continues to influence Australian and global climates. Record high global surface temperatures were recorded for 15 consecutive months from June 2023 to July 2024 (NOAA 2024). Australia's weather and climate continues to change with an increase in extreme heat events, longer fire seasons, more intense heavy rainfall and sea level rise (CSIRO 2024).

2. Drier conditions have continued over much of south-western and south-eastern Australia after record breaking rainfalls and flooding during 2020-2022 La Niňa events. In the south-east of Australia, there has been a decrease of around 9% in April to October rainfall since 1994, and more frequent periods of below average rainfall (CSIRO 2024).

3. There has been a decrease in stream flows at most gauges across Australia since 1970, particularly in the Murray-Darling Basin and south-east (CSIRO 2024). Stream flows were low at a large proportion of river gauge sites in October 2024, mainly in the south-east and south-west of the mainland, and north-east of Tasmania (BOM 2024a). Flows were near-median at 34% of sites in October, mainly in eastern parts of Victoria and New South Wales, and Tasmania's north (BOM 2024a). Flows were high at 19% of sites in October, in the north and east of the mainland.

4. The combined storages in the Murray–Darling Basin were 77% full. This is down from 92% at the end of October last year. Menindee Lakes storages are around 55% full, down from 75% last year (MDBA 2024). The Lachlan catchment storages remained at high levels (101%) after flooding in preceding years.

5. Most of Queensland and New South Wales were free from drought (as of November 2024); only a small portion of NSW (8.9%) was drought affected (DPI 2024). South Australian and Victorian drought maps are not currently available.

6. Despite recent La Niňa years, three major condition indices for waterbirds (total abundance, number of species breeding and wetland area) continued to show significant declines over time. If 1983 and 1984 peak years are omitted then three of four major indices still showed significant declines (OLS regression at p=0.05; variables 4th root or log transformed where appropriate and autocorrelation plots examined for serial autocorrelation; Fig. 1; Table 1). Long-term trends are more informative for predicting population status than year to year fluctuations.

7. Total waterbird abundance in 2024 (n=287,231) decreased significantly from 2023 to well below the long-term average; this was 22nd highest total in 42 years. Waterbirds were most abundant in survey bands 4 and 2 (Figs 2 and 5). Temporary desert wetlands - Lakes Mumbleberry and Torquinie in Band 8 and Lake Galilee in Band 9, again supported large numbers (though an order of magnitude less than the previous year), with more than 50,000 waterbirds combined (17% of total abundance). In Band 4, Lakes Cawndilla and Menindee were shallow and drying and supported large numbers of waterbirds (>24,000). The nearby Talyawalka Lakes system had several wetlands with shallow water and relatively large numbers of waterbirds (>13,000).

2024 Eastern Australian Waterbird Aerial Survey Results (continued)

8. Total breeding index (nests + broods) was 141 (all species combined), the second successive year of an order of magnitude decrease and well below the long-term average (Figs. 1 & 6). Breeding species' richness also decreased considerably with only 5 species recorded breeding. Two species comprised 85% of the total breeding recorded, primarily numbers of nests (Australian White Ibis 70 and Cattle Egret 50). Breeding was predominantly limited to a few locations in survey band 1 and 6 (Figs 1 and 6) and comprised mostly Cattle Egrets and White Ibis.

9. Most functional response groups (species feeding guilds) showed significant long-term declines (OLS regression at p=0.05; variables 4th root or log transformed where appropriate and autocorrelation plots examined for serial autocorrelation. Fig. 3; Table 2). Long-term changes were also observed in decadal averages of total abundance, wetland area index, breeding index and breeding species' richness (Fig. 4). Wetland area index (122,283 ha), decreased considerably from previous flood years, to well below the long-term average. Survey band 4 (Menindee and Talyawalka Lakes), retained significant habitat (27% total) and supported large numbers of waterbirds (Fig. 7). Bands 2 and 3 also contained important areas of habitat – together comprising 27% of the inundated wetland area sampled (Fig. 2). Other important habitat areas included Macquarie Marshes, Lowbidgee wetlands, Paroo Overflow Lakes, Talyawalka Creek, Menindee Lakes and Proserpine Dam and Lakes Galilee and Moondarra in the north (Fig. 5).

10. The Macquarie Marshes had less extensive flooding than the previous year and supported relatively low numbers of waterbirds and no breeding colonies were active. The Lowbidgee wetlands also had intermediate inundation extent and supported moderate numbers of waterbirds and no recorded breeding. Most wetlands in the regulated Menindee Lakes system contained some water, and several of the large Talyawalka Lakes to the east also contained water and large numbers of waterbirds. Other important wetlands included the Paroo overflow lakes (Band 5), Lake Mokoan (Band 2) and Tuckerbill and Fivebough Swamp Ramsar site (Band 3) (Fig. 7).

11. Waterbirds had 65% of their total abundance distributed across 36 wetlands, making them less spatially concentrated and more evenly spread than in many drier years. Conversely around 43% of surveyed wetlands supported no waterbirds (this includes wetlands that were dry).

12. All game species of ducks had abundances below their long-term averages; four of these (Grey Teal, Chestnut Teal, Black Duck and Wood Duck) were close to their long-term averages; the remaining species (Hardhead, Australasian Shoveler, Mountain Duck and Pink-eared Duck) were well below their long-term averages. Five out of eight species continued to show significant long-term declines (OLS regression at p=0.05; variables 4th root or log transformed where appropriate; Table 3).

2024 Eastern Australian Waterbird Aerial Survey Results (continued)

13. Waterbird indices (abundance, breeding species richness), across river basins responded to widespread drier conditions than the previous year with declines in wetland area and breeding. Overall abundance also decreased, after relatively high levels in 2023. Wetland areas decreased in the Murray-Darling Basin compared to the previous year (Fig. 8). Species relative abundances were less evenly spread compared to previous years; 10 species comprised 83% of total abundance. These species/groups were, in order of decreasing abundance: Grey Teal, Eurasian Coot, Pink-eared Duck, Pacific Black Duck, Pelicans, Black Swans, Small waders, Wood Duck, Hardhead and Great Cormorants.

14. Selected species distribution and abundances are shown in Figures 11-21; Freckled Duck, Plumed Whistling Duck and Australian Pelicans are included for comparison with game species. Map plots in these figures show 2024 distribution and trend plots show changes in abundance over time (1983-2024). Horizontal lines in trend plots indicate the long-term average.

15. Across Eastern Australia overall abundance, breeding index and breeding species richness were positively related to available habitat (wetland area index). Equally, declines in wetland area are likely to result in declines in waterbird abundance, breeding and breeding species richness (Fig. 9).

16. Several game species (Black Duck, Mountain Duck and Australasian Shoveler) showed significant declines in the number of wetland sites they occupied, indicating a potential contraction in range. This was examined by plotting the number of wetland sites each species was observed at as a proportion of the total number surveyed that year. Raw (naïve) occurrence data was then examined for trends (OLS regression at $p=0.05$; variables 4th root or log transformed where appropriate) and autocorrelation plots examined for serial autocorrelation (Fig.10).

17. There were no observations of any mass mortalities of waterbirds that might indicate impacts of avian influenza

Methods

Methods are described in detail in Braithwaite et al. (1985) and Kingsford et al. (2020) – a short description follows here. All waterbirds (including nests and broods) were counted from high-winged aircraft (e.g. Cessna 206 or 208) at 167–204 km hr^{-1} and a height of 30–46 m, within 150 m of the wetland's shoreline where waterbirds concentrated. A front-right observer (navigator) and a back-left observer independently record counts on digital audio recorders, with their combined counts making up a completed count. Counts are attributed on the recorder to a unique number for each wetland, and a geolocation (longitude, latitude), as well as the exact time of day the count commenced. All timing is synchronised to GPS time – this enables audio counts to be linked to location via a GPS track log of the flight path. The percent fullness (inundated area) of each wetland is also estimated, relative to the mapped high-water mark. Inundated areas (ha) are also estimated for wetlands which are not mapped.

Methods (continued)

An area of 2,697,000 km^2 is systematically sampled with ten survey bands 30 km in width, spaced every 2° of latitude from 38°30'S to 20°30'S. Waterbirds are counted on all waterbodies (rivers and wetlands) larger than 1 ha within survey bands; additional counts are made on an ad-hoc basis of wetlands smaller than 1 ha. This ensures information is collected across a representative sample of waterbodies (wetlands, dams, lakes, estuaries and rivers).

All waterbirds are identified to species, except those few that cannot be consistently identified to species level from the air and were grouped: small grebes (Australasian Little Grebe, Hoary Headed Grebe), small egrets (Cattle Egret, Little Egret and Intermediate Egret), terns and small and large migratory wading birds (Charadriformes). Counts of no birds are also recorded, as are dry wetlands. Waterbirds are counted singly and in groups, progressively increasing up to 1,000 individuals. Waterbird nomenclature and classification follows the IOC World Bird List (Gill et al. 2023; Appendix 1).

Three counting techniques are used: total counts, proportion counts and transect counts. For total counts, all birds are counted during a circumnavigation of the wetland, the preferred method for wetlands with large concentrations of waterbirds. For proportion counts, a proportion (usually >50%) of a large wetland with few waterbirds (e.g. large dam) is surveyed, with counts extrapolated to give total counts. For the final transect method, waterbirds are counted within 200 m-wide transects (100 m on each side of the aircraft, delineated by tape markers on each aircraft wing strut), a technique only used for braided or spatially complex large wetlands. Total estimates are formed from the relative area of the transects, compared to total area flooded. Most counts are total counts or proportion counts greater than 50%.

Acknowledgements

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We thank Sharon Ryall for help with logistics, along with staff from our collaborative agencies. We also thank Thomas Clark (Pay's Air Service), for piloting the aircraft and Chris Sanderson, Jody O'Connor (MDBA), Paul Wainwright (Landscape SA) and Shannon Dundas (NSW DPIRD) for acting as aerial observers. Thanks to our trainee observers Shelley Thompson (MDBA), Scott Henshall and Kurt Murphy (VIC GMA), David Preston and Jorge Maldonado Arciniegas (NSW DCCEEW), Dion Wait & Kai Hearne (Nari Nari Tribal Council). For data collation and quality assurance we thank: Alexander Dibnah, Amelia Jeffrey, Bradley Newman, Brendan Alting, Daphne Willemsen, Emily Gardner-Brandis, Erin Barr, Felipe Rangel Floreste, Matt Davis, Matt Smith, Nicole Malinconico, Priyanka Majumdar, Sophie Hewitt and Zoe Ford.

Cover Picture: Back Lake, Narran Lake Nature Reserve - John Porter.

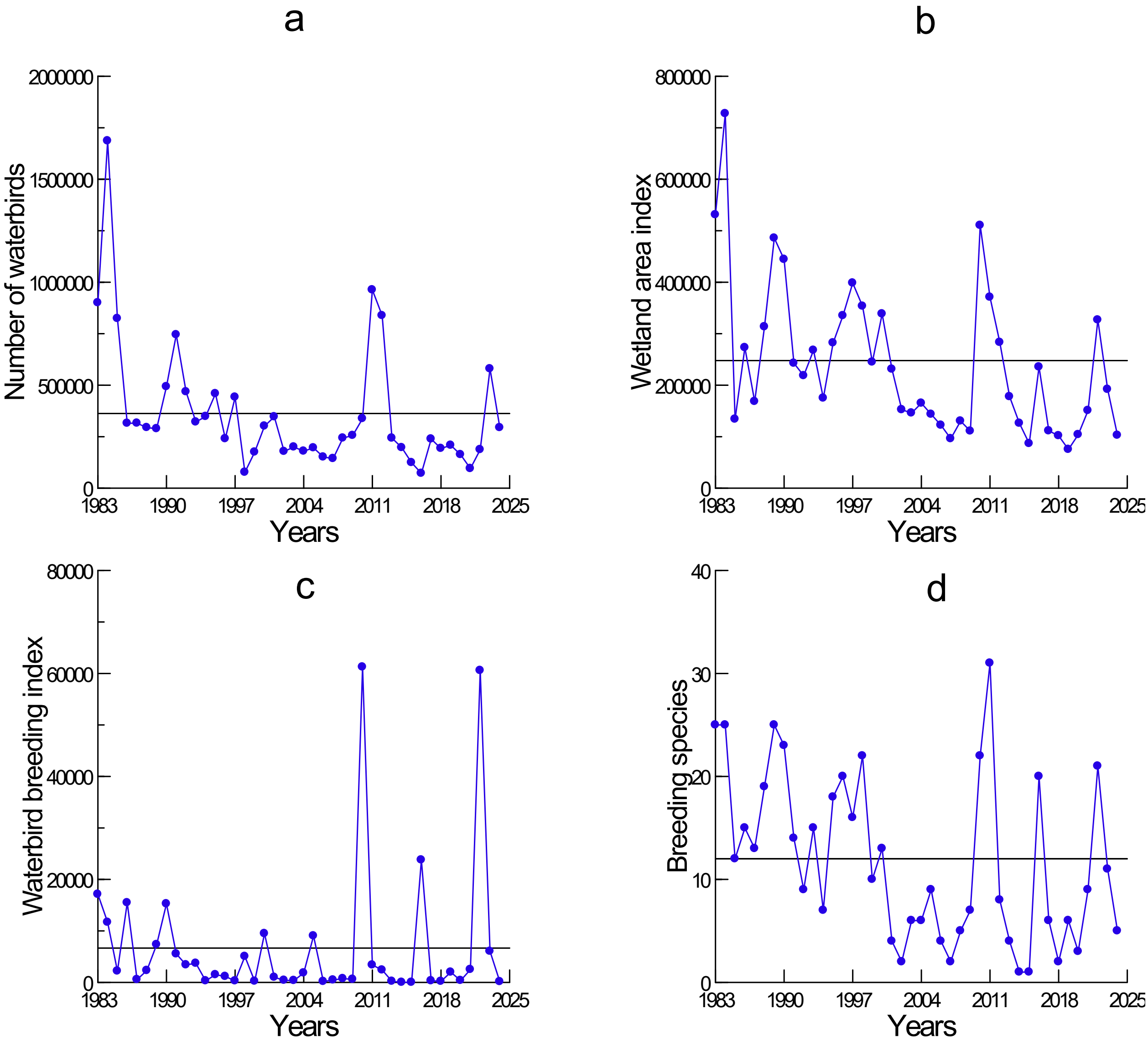


Figure 1. Changes over time in a) total abundance, b) wetland area, c) breeding and d) number of breeding species in the Eastern Australian Waterbird Aerial Survey (1983-2024); horizontal lines show long-term averages.

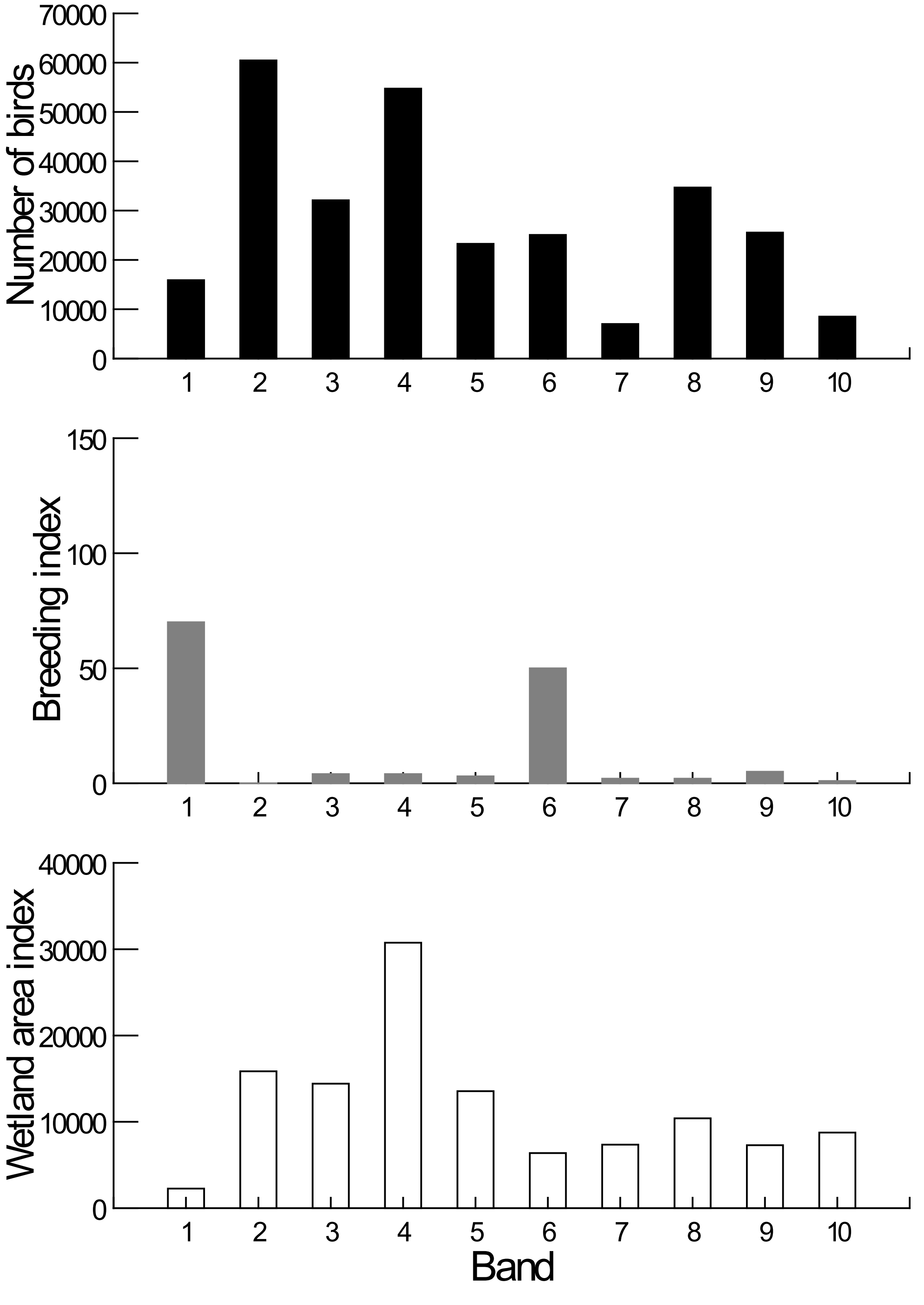


Figure 2. Distribution of waterbird abundance, breeding index and wetland area index in survey bands 1-10 (south to north respectively) of the Eastern Australian Waterbird Aerial Survey in 2024.

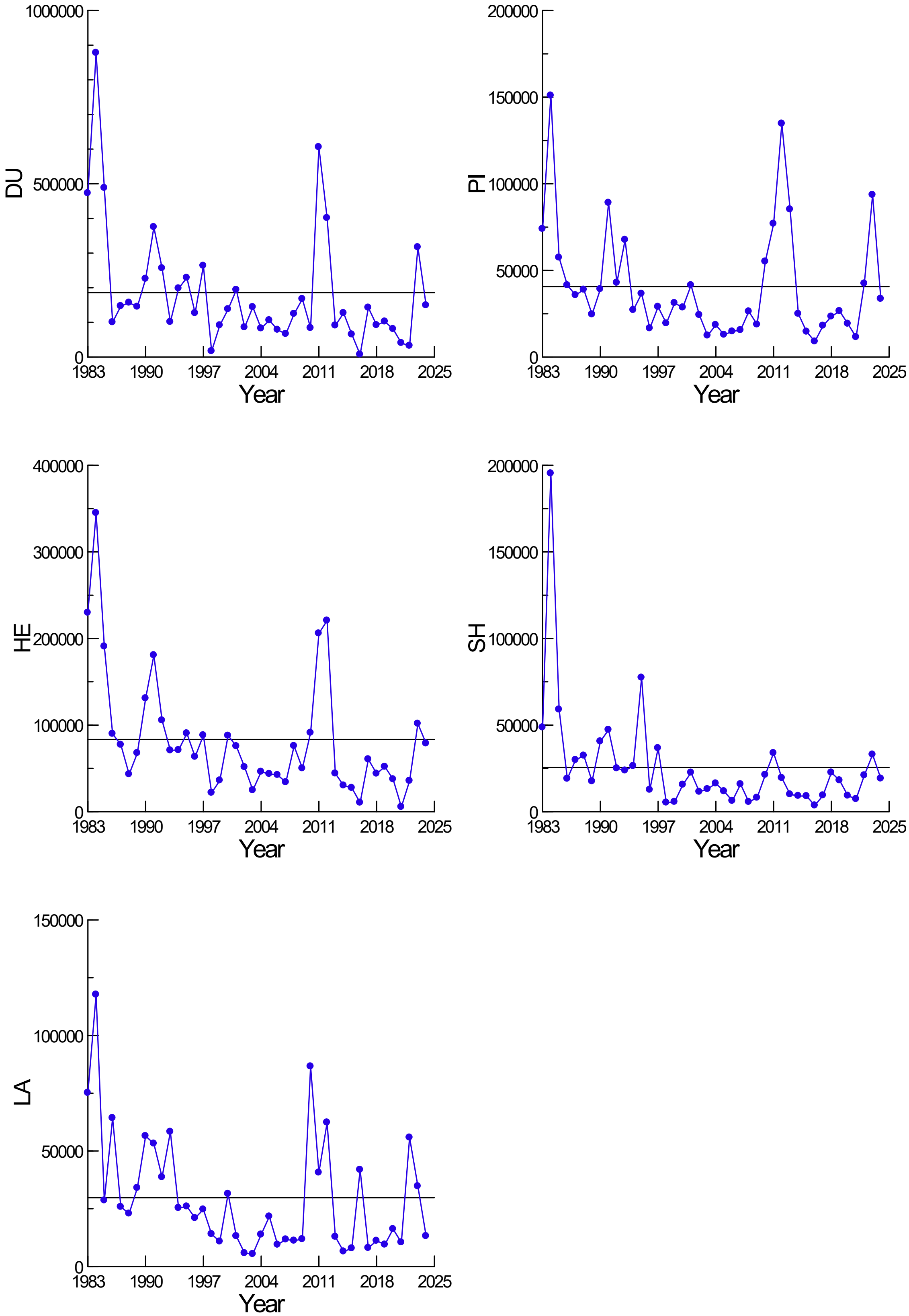


Figure 3. Changes in abundances of waterbird functional response groups (Du=ducks; Pi=piscivores; He=herbivores; Sh=shorebirds; La=large wading birds) over time in the Eastern Australian Waterbird Aerial Survey bands (1983-2024); horizontal lines show long-term averages.

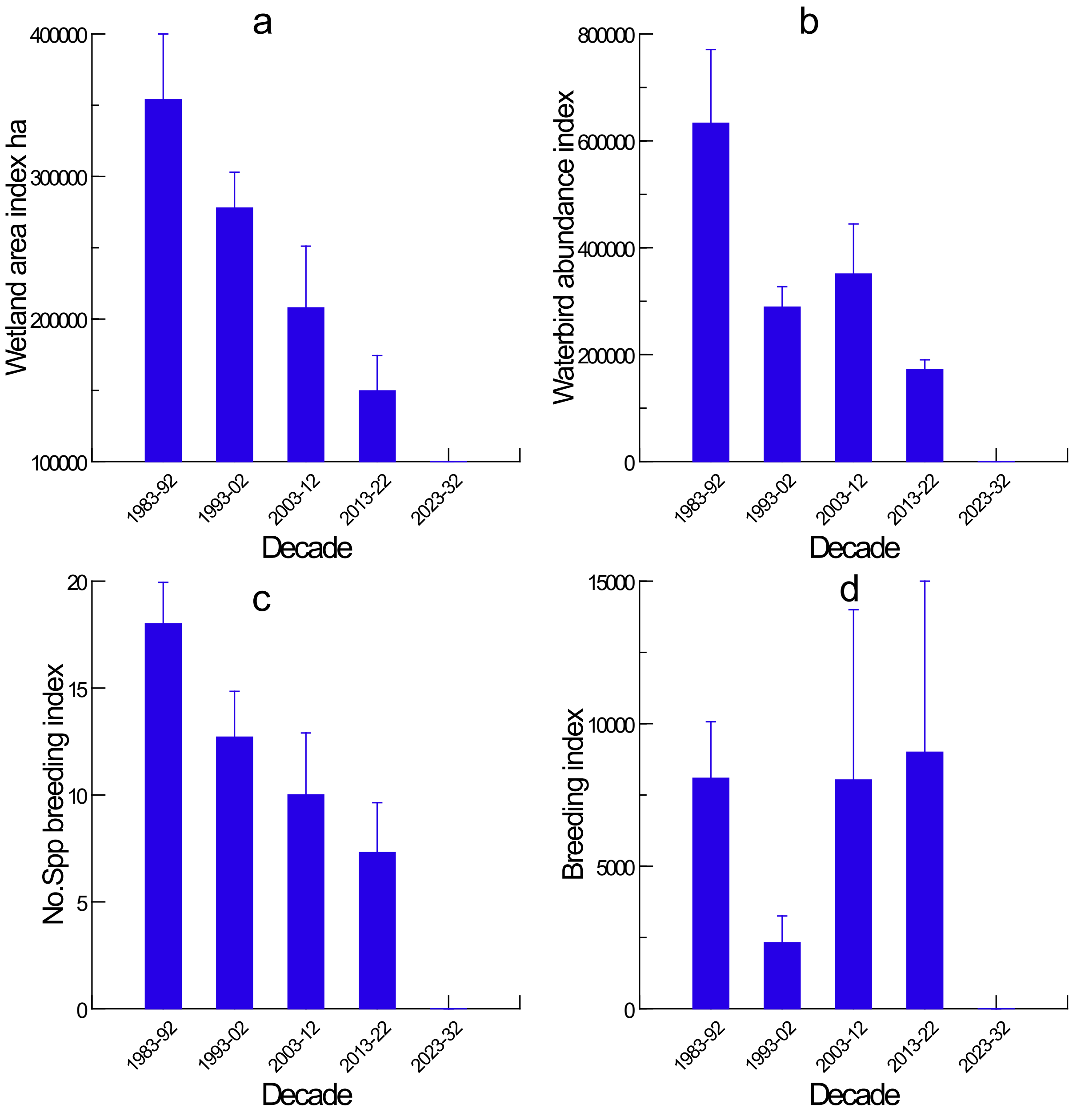


Figure 4. Decadal means of a) wetland area index, b) total abundance index, c) number of breeding species and d) breeding index in the Eastern Australian Waterbird Aerial Survey (1983-2024). Error bars are SE. The most recent decade with only two years data (2023-24) is not shown.

Table 1. Trends in total waterbird abundance index, wetland area index, breeding index and breeding species richness in the Eastern Australian Waterbird Aerial Survey (1983-2024).

Variable	Trend	Variance and significance (all years)	Trend	Variance and significance (1983-84 omitted)
Total waterbird abundance	decline	r^2=0.30, p<0.001	decline	r^2=0.21, p=0.003
Wetland area index	decline	r^2=0.27, p<0.001	decline	r^2=0.22, p=0.002
Breeding index	no trend	r^2=0.03, p=0.247	no trend	r^2=0.009, p=0.570
Breeding species richness	decline	r^2=0.21, p=0.003	decline	r^2=0.13, p=0.020

Table 2. Trends in abundances of functional response (Fx) groups, in the Eastern Australian Waterbird Aerial Survey (1983-2024).

Fx group code	name	Trend	Variance and significance (all years)	Trend	Variance and significance (1983-84 omitted)
Du	Ducks	decline	r^2=0.20, p=0.003	decline	r^2=0.13, p=0.024
He	Herbivores	decline	r^2=0.22, p=0.002	decline	r^2=0.12, p=0.026
La	Large wading birds	decline	r^2=0.19, p=0.004	decline	r^2=0.10, p=0.045
Pi	Piscivores	no trend	r^2=0.08, p=0.078	no trend	r^2=0.02, p=0.381
Sh	Shorebirds	decline	r^2=0.27, p<0.001	decline	r^2=0.19, p=0.005

Table 3. Trends in abundances of game species from the Eastern Australian Waterbird Aerial Survey (1983-2024).

Species	Trend	Variance and significance (all years)	Trend	Variance and significance (1983-84 omitted)
Pacific Black Duck	decline	r^2=0.28, p<0.001	decline	r^2=0.18, p=0.007
Australasian Shoveler	decline	r^2=0.41, p<0.001	decline	r^2=0.33, p<0.001
Chestnut Teal	no trend	r^2=0.13, p=0.468	no trend	r^2=0.001, p=0.819
Grey Teal	decline	r^2=0.24, p=0.001	decline	r^2=0.15, p=0.015
Hardhead	no trend	r^2=0.07, p=0.099	no trend	r^2=0.03, p=0.266
Mountain Duck	decline	r^2=0.33, p<0.001	decline	r^2=0.25, p=0.001
Pink-eared Duck	no trend	r^2=0.06, p=0.108	no trend	r^2=0.07, p=0.109
Australian Wood Duck	decline	r^2=0.12, p=0.025	no trend	r^2=0.03, p=0.292

2024 Total abundance index 287,231

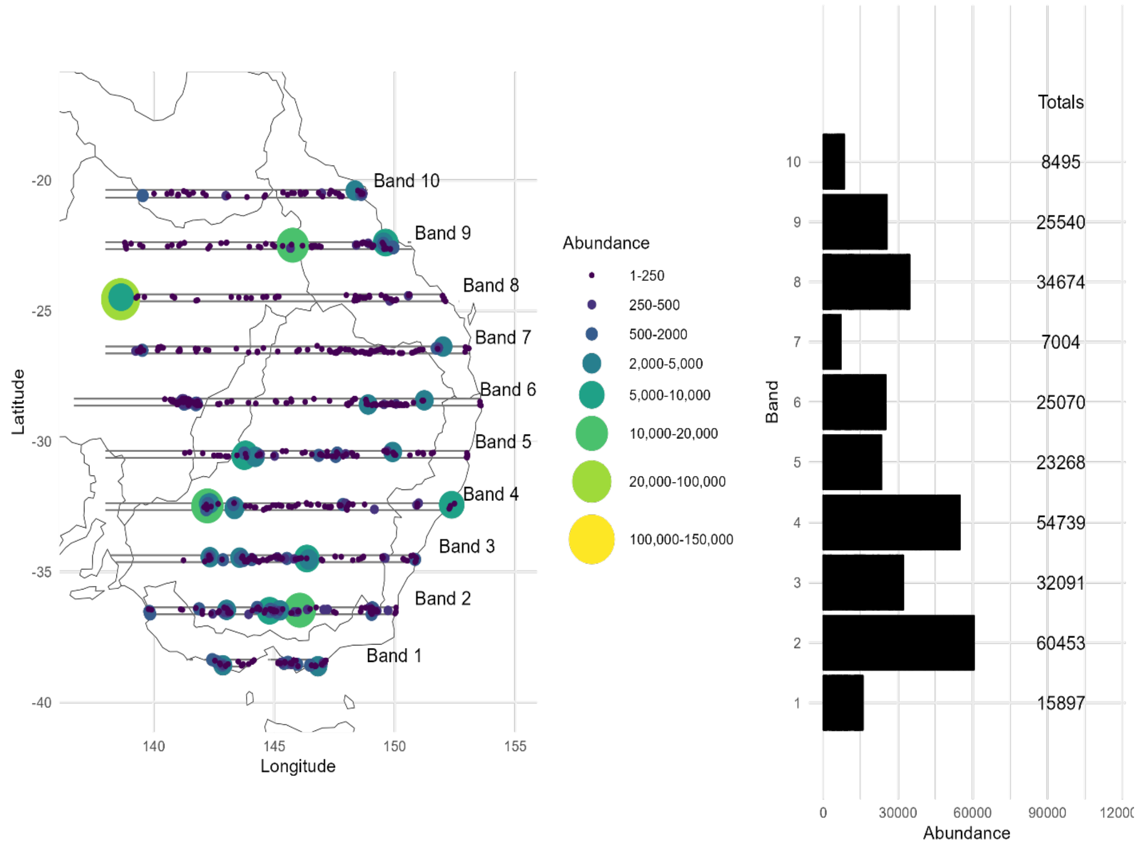


Figure 5. Distribution and abundance of waterbirds in the 2024 Eastern Australian Waterbird Aerial Survey bands. Dry wetlands and those with zero waterbirds not plotted.

2024 Breeding index – 141

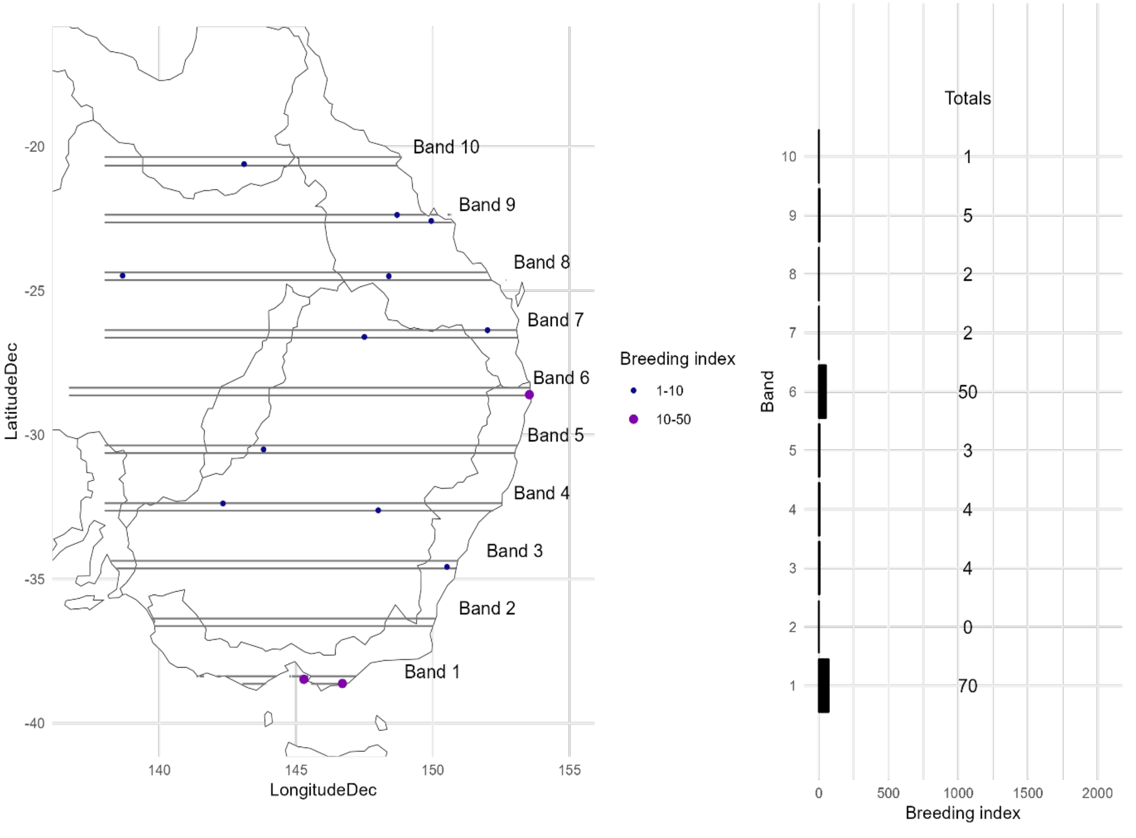


Figure 6. Distribution of waterbird breeding in the 2024 Eastern Australian Waterbird Aerial Survey bands. Only wetlands with breeding recorded are plotted.

2024 Wetland area index – 122,283 ha

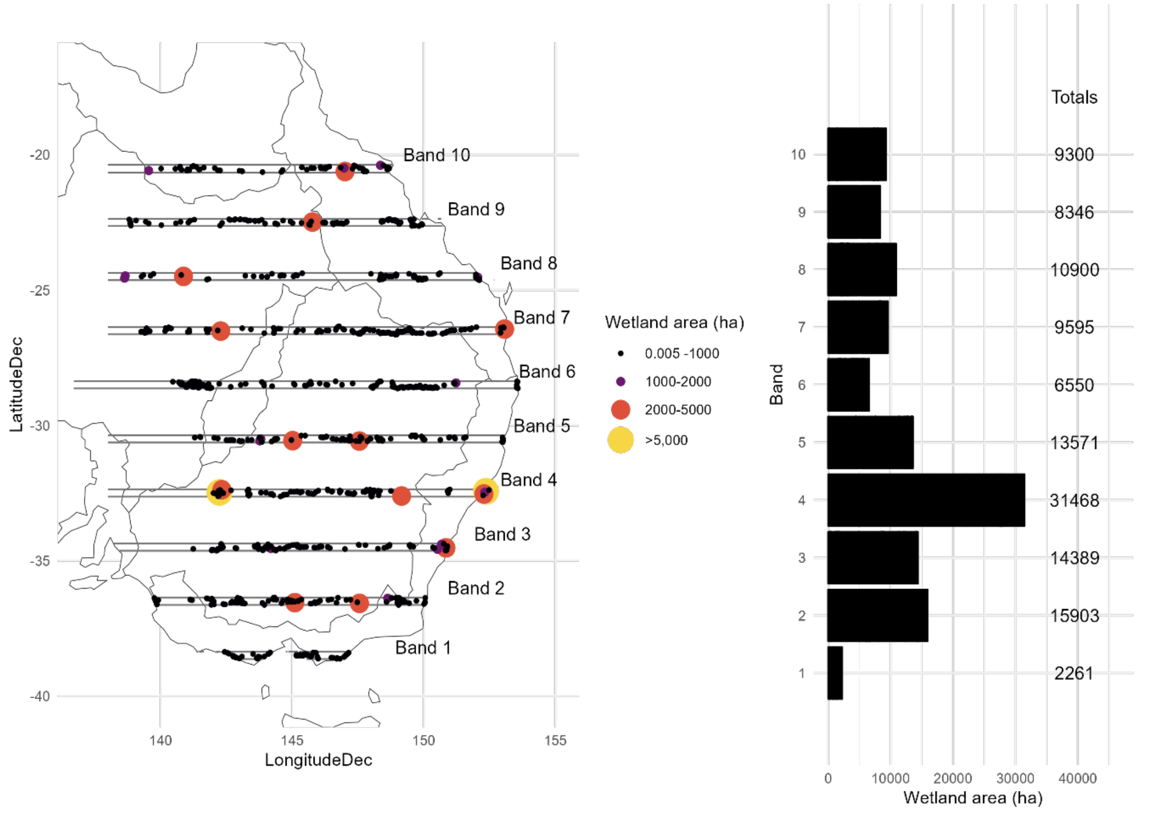


Figure 7. Distribution of wetland area in the 2024 Eastern Australian Waterbird Aerial Survey bands. All surveyed wetlands with surface water present are plotted; dry wetlands are not plotted.

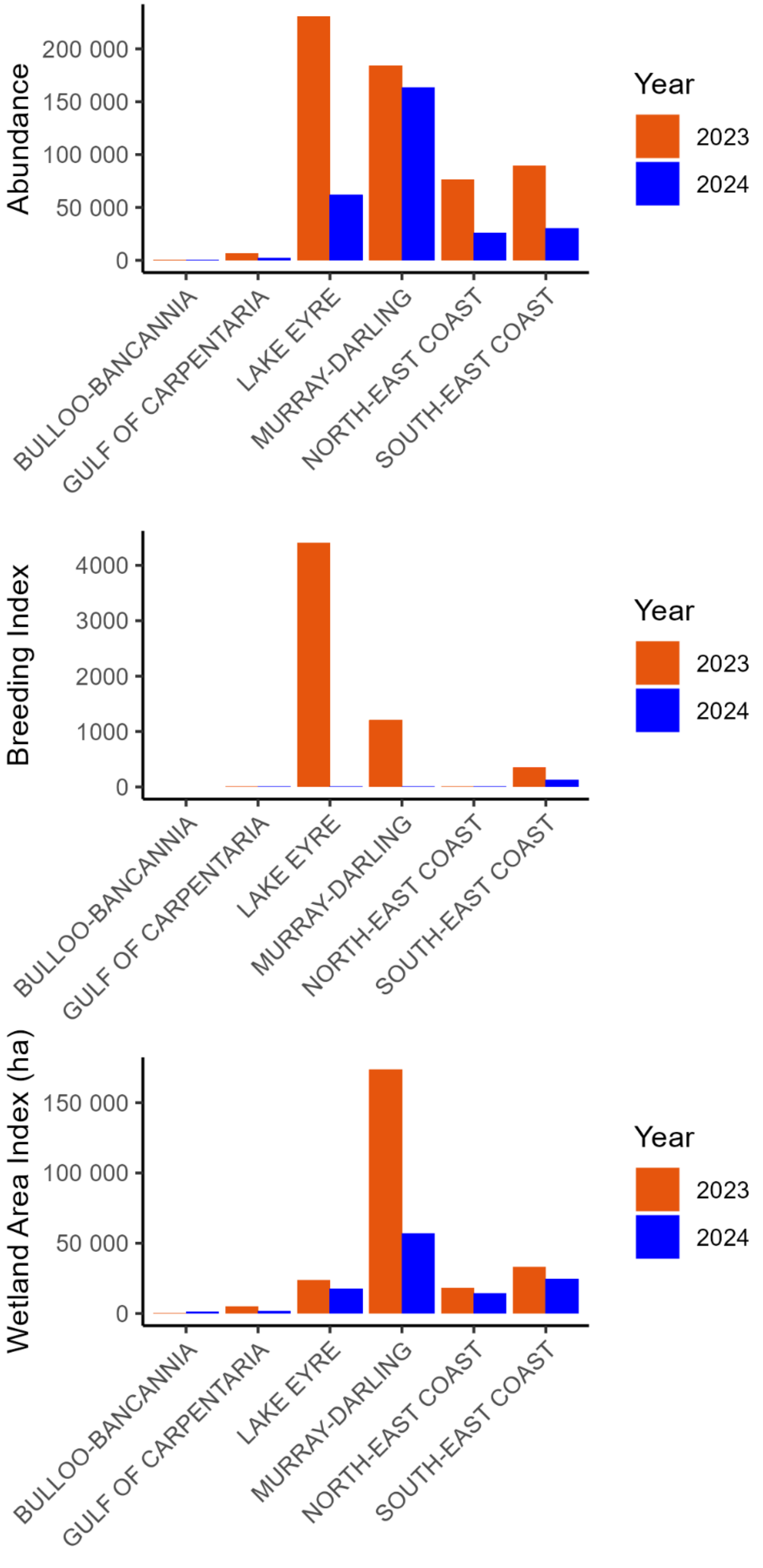


Figure 8. Comparison of waterbird abundance, breeding and wetland area indices in major river basins 2023-2024.

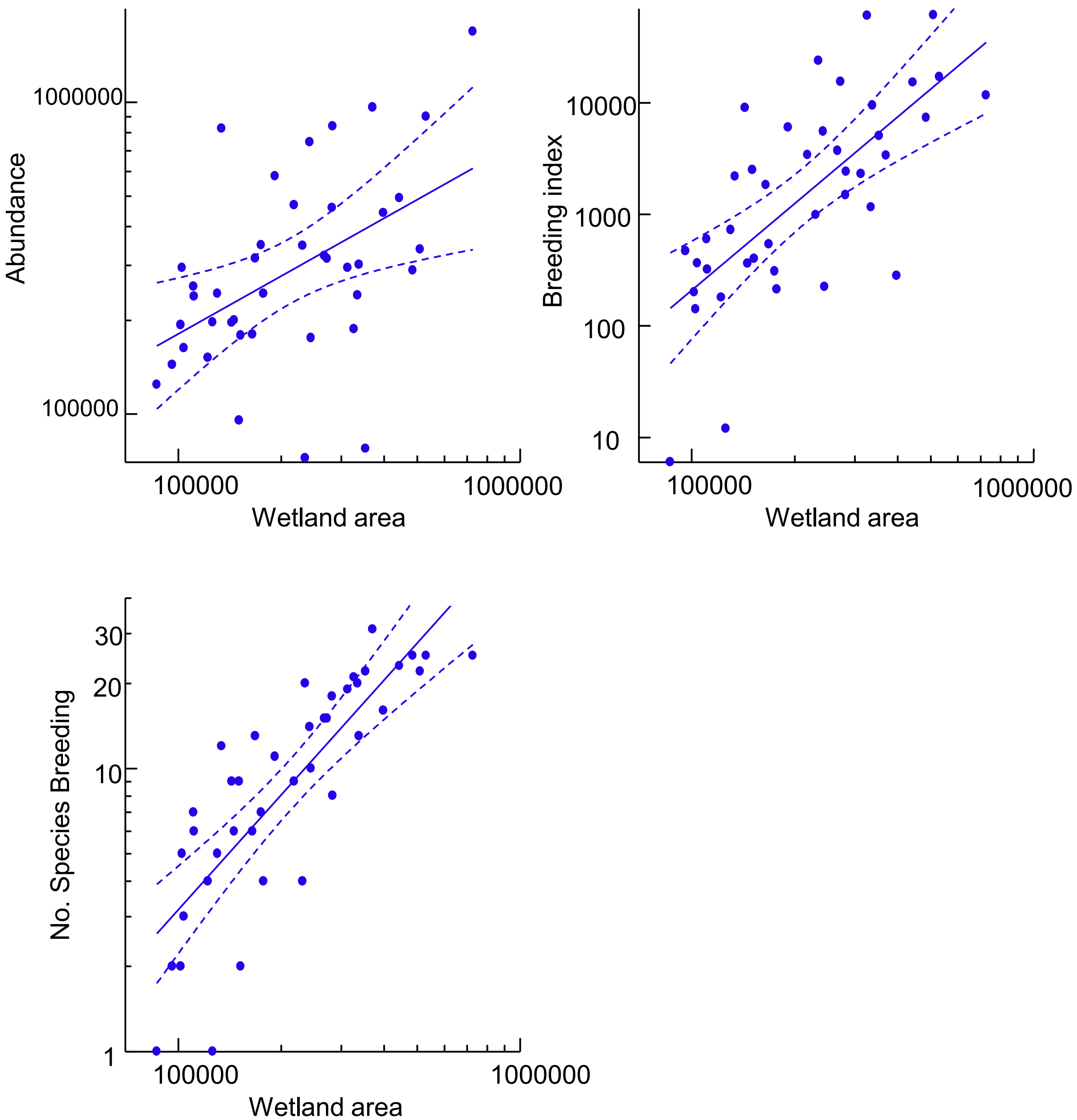


Figure 9. Significant positive interactions between abundance index, breeding index and number of breeding species with wetland area index (ha) for the Eastern Australian Waterbird Aerial Survey (1983-2024). Dashed lines are 95% confidence limits.

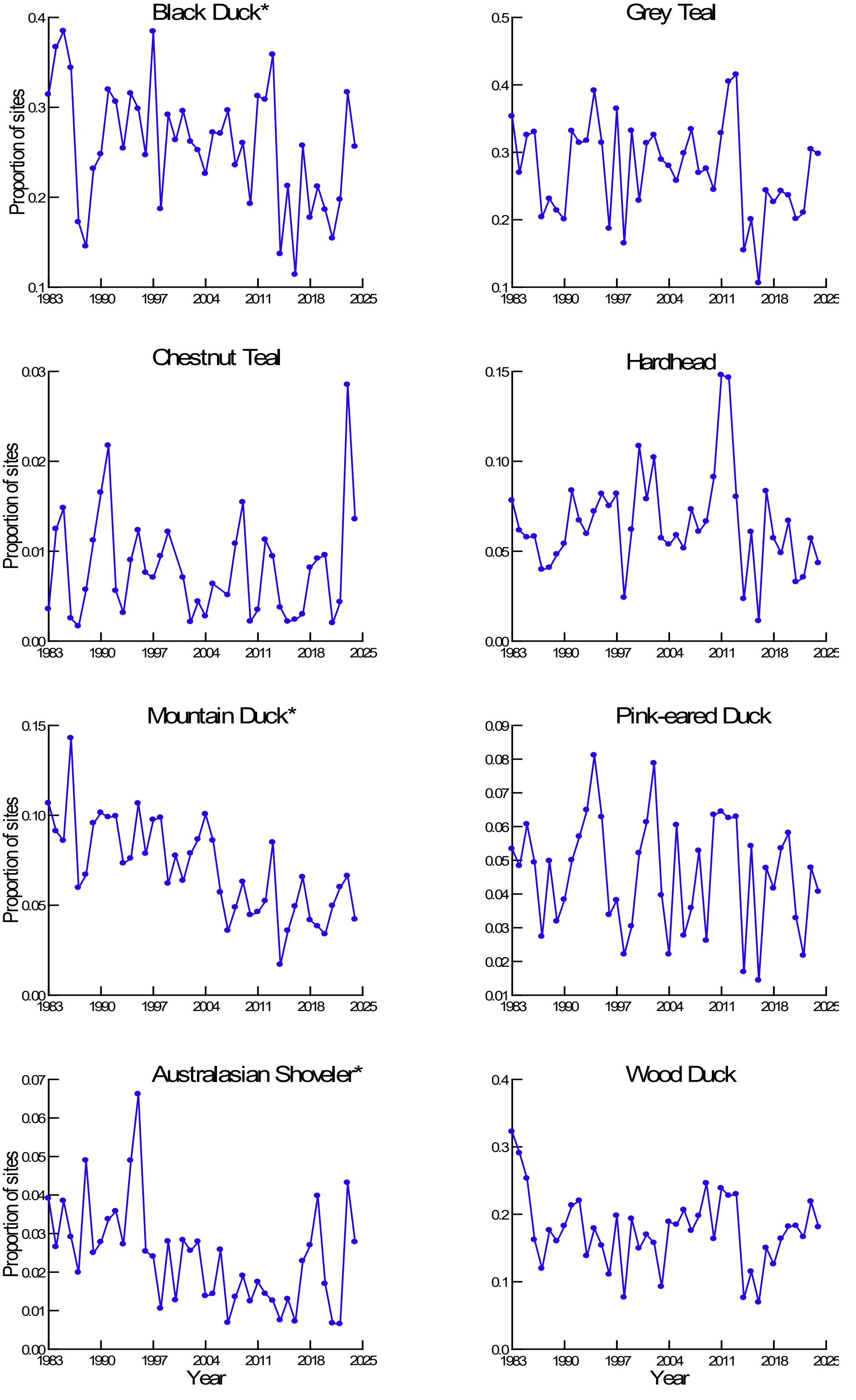


Figure 10. Proportion of wetland sites occupied for eight game species (1983-2024); asterisk indicates species with significant decline over time. Dry wetlands were excluded from analysis.

Pacific Black Duck

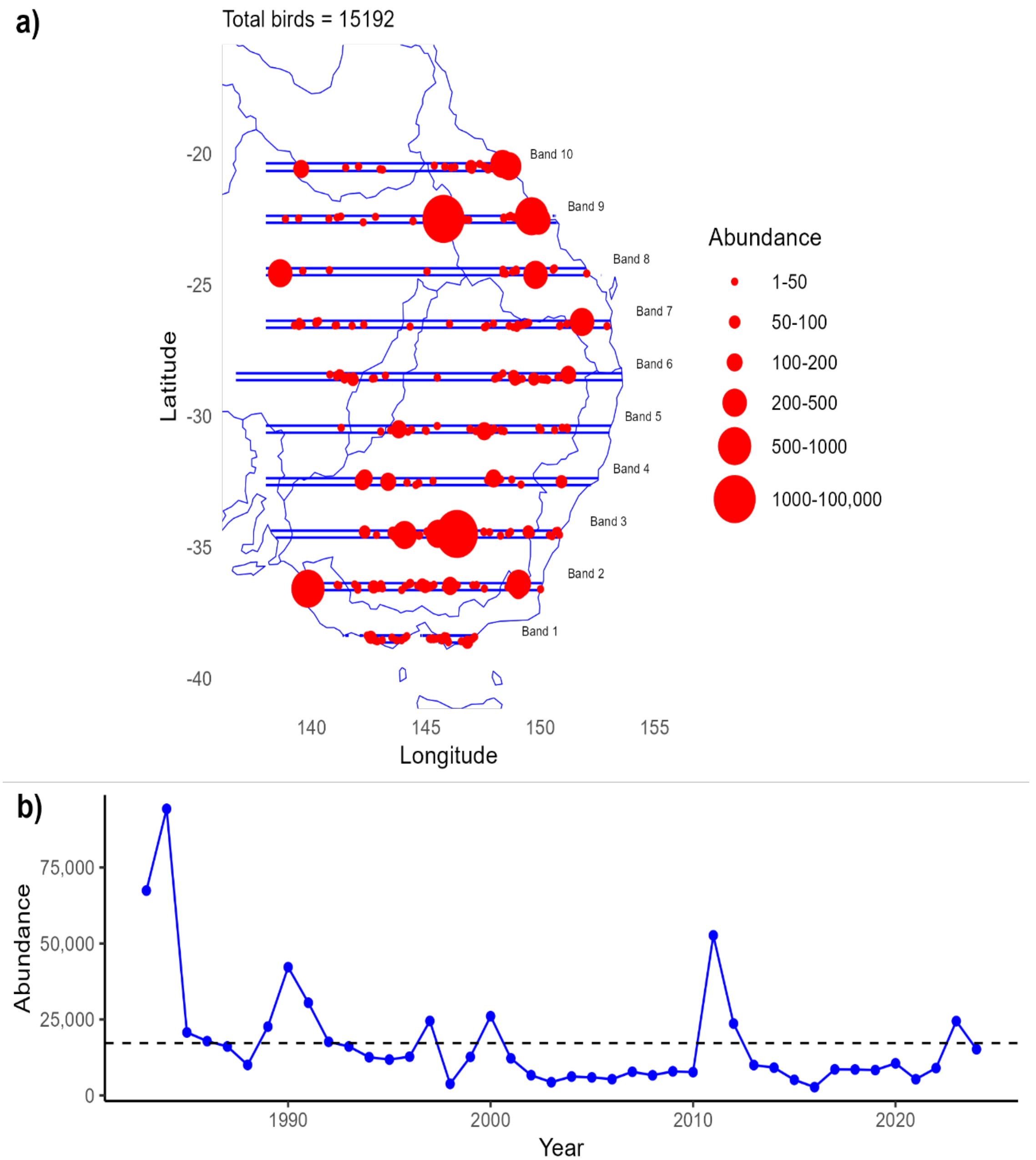


Figure 11. a) Distribution and abundance of Pacific Black Duck during the 2023 Eastern Australian Waterbird Aerial Survey. B) Changes in abundance (1983-2024); horizontal line show long-term average.

Australasian Shoveler

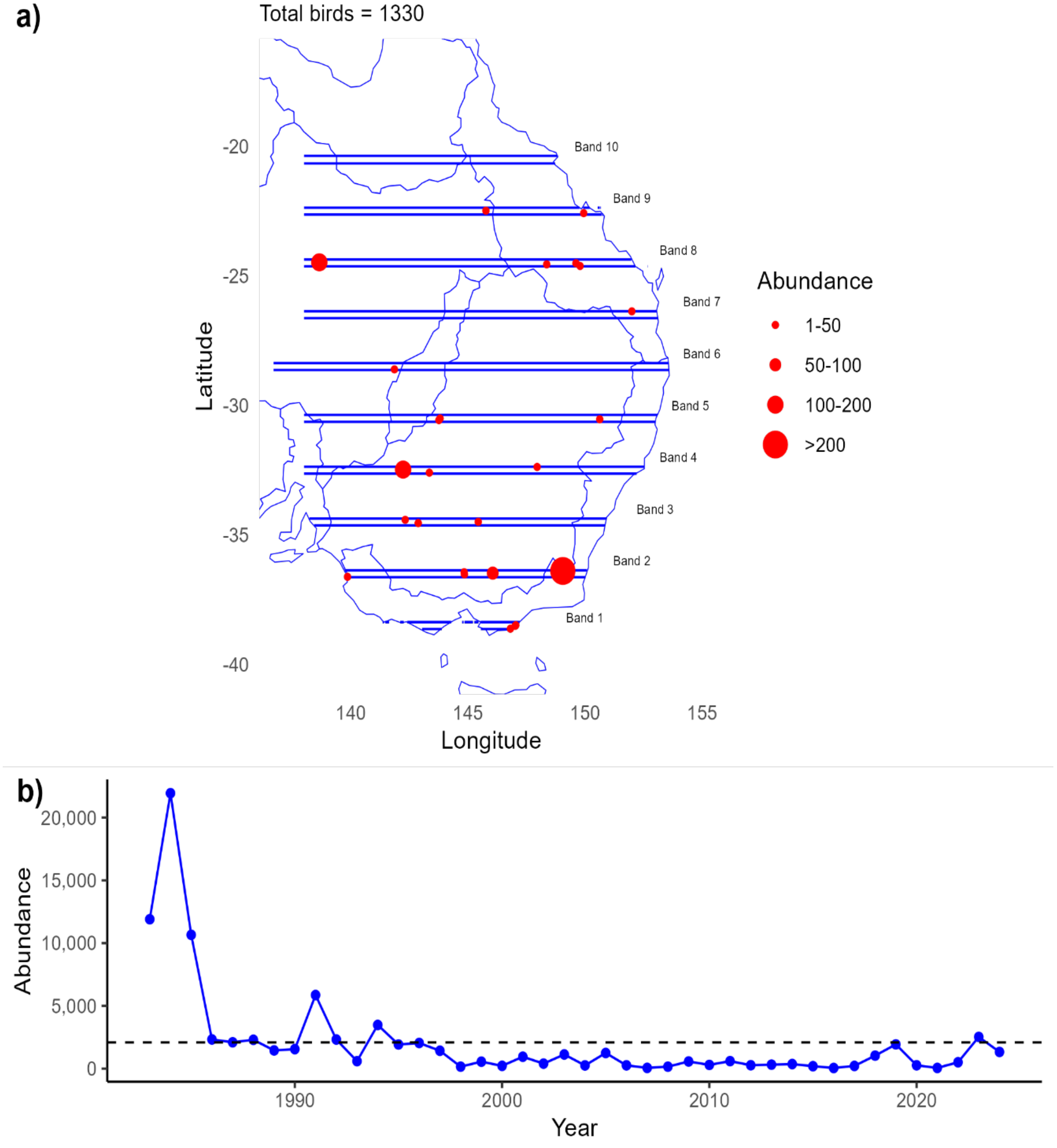
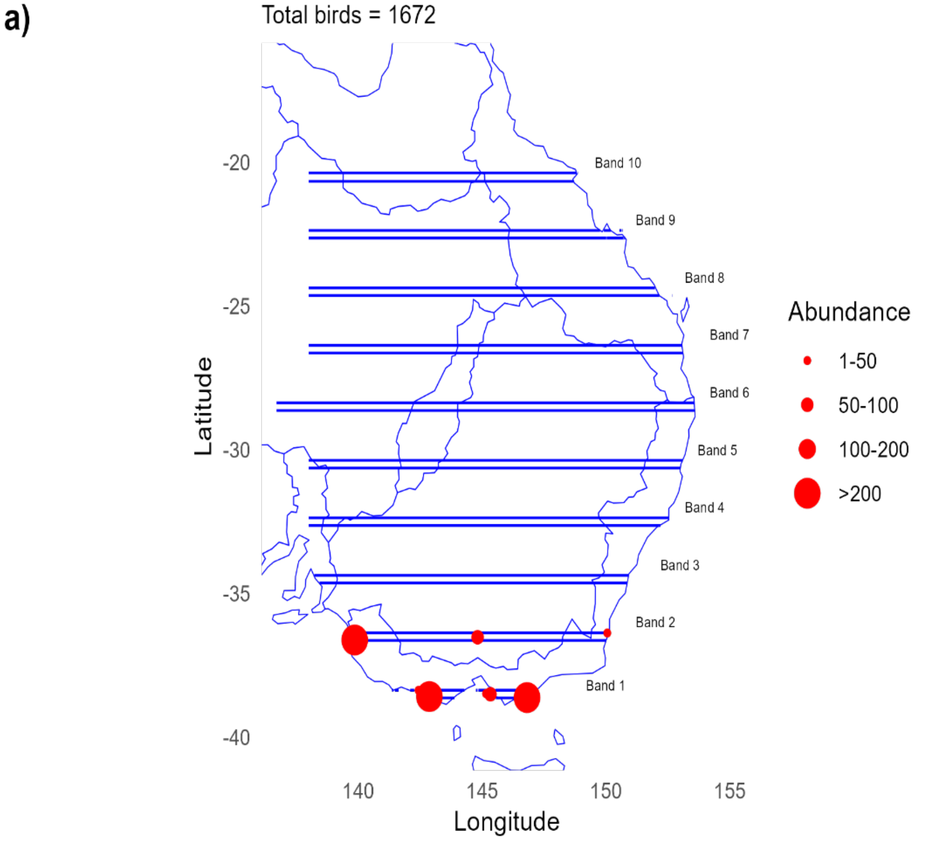


Figure 12. a) Distribution and abundance of Australasian Shoveler during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Chestnut Teal



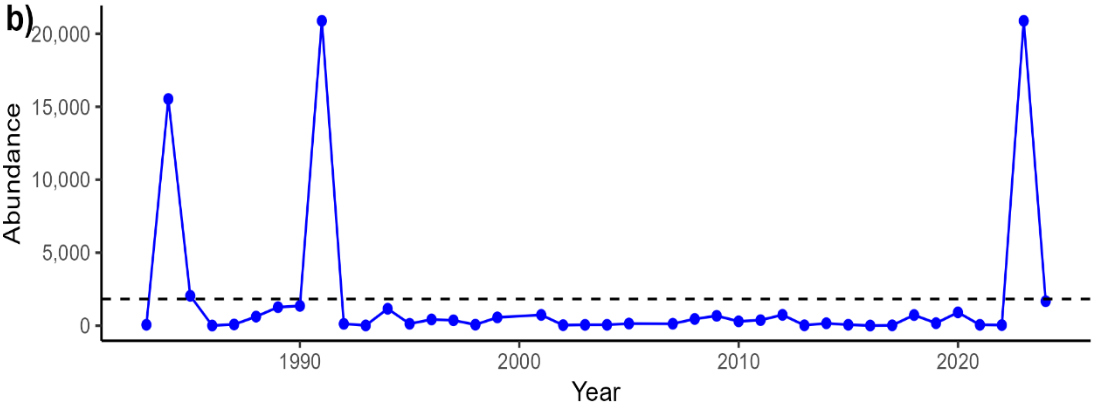


Figure 13. a) Distribution and abundance of Chestnut Teal during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Grey Teal

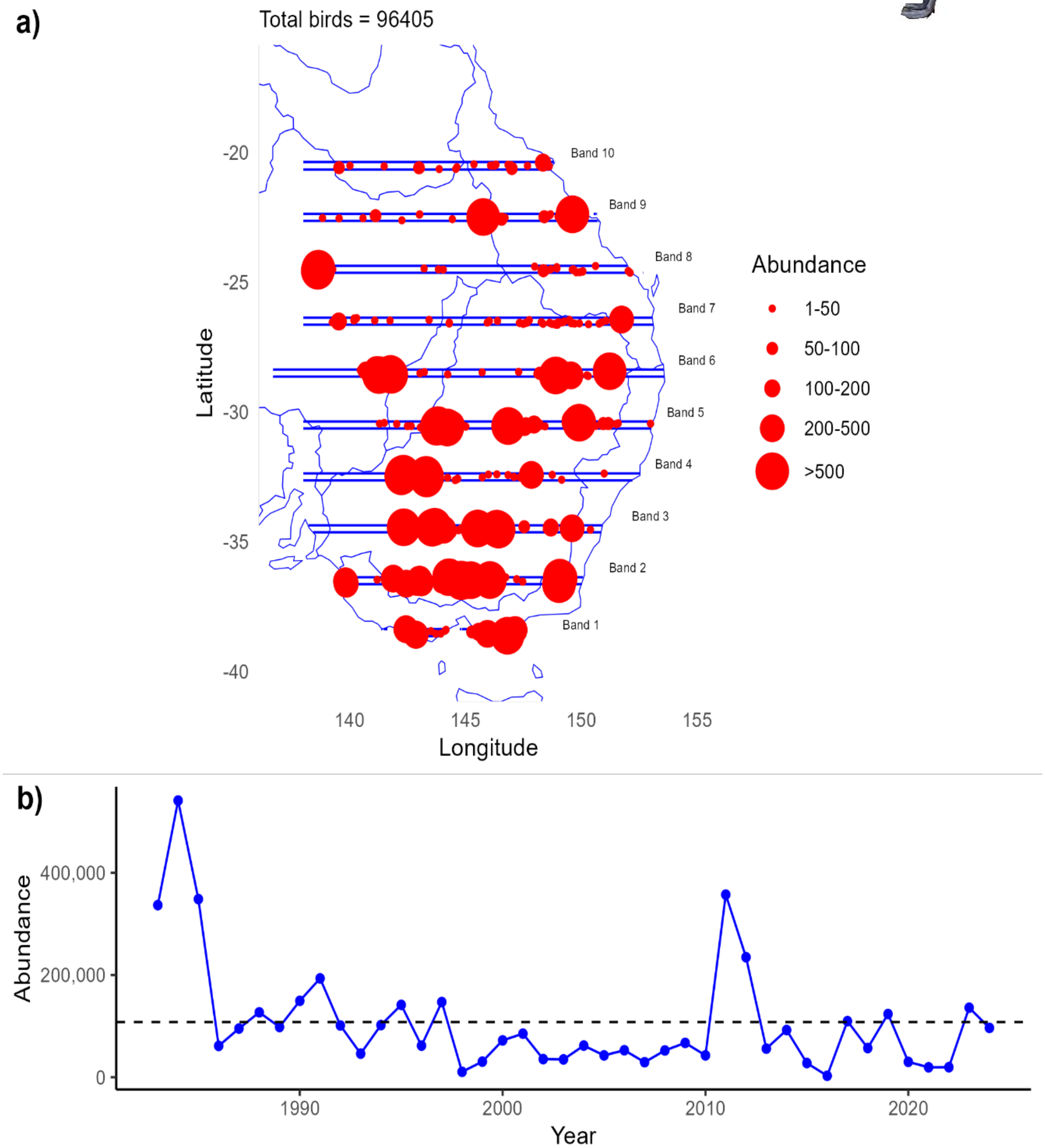


Figure 14. a) Distribution and abundance of Grey Teal during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Hardhead

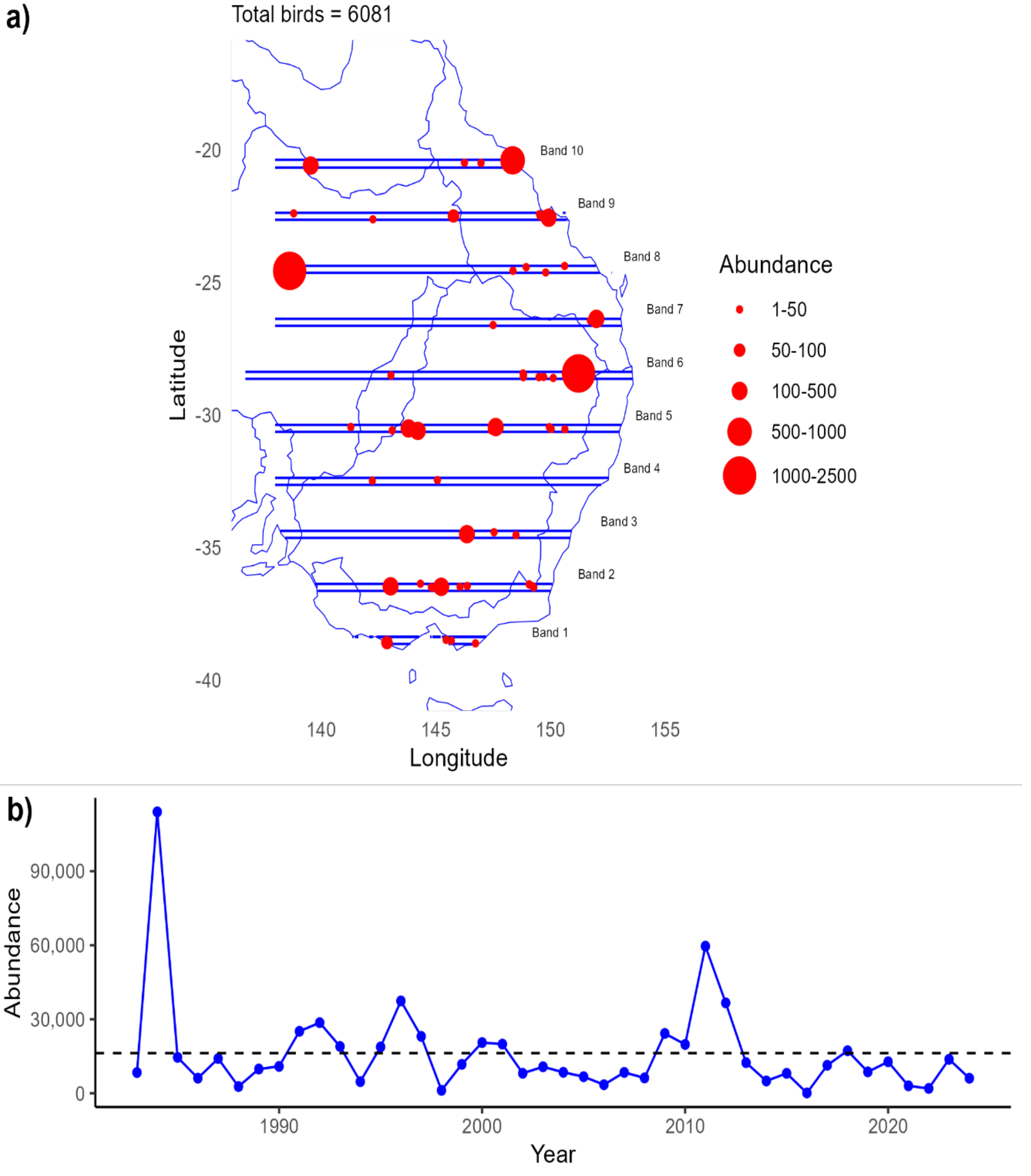
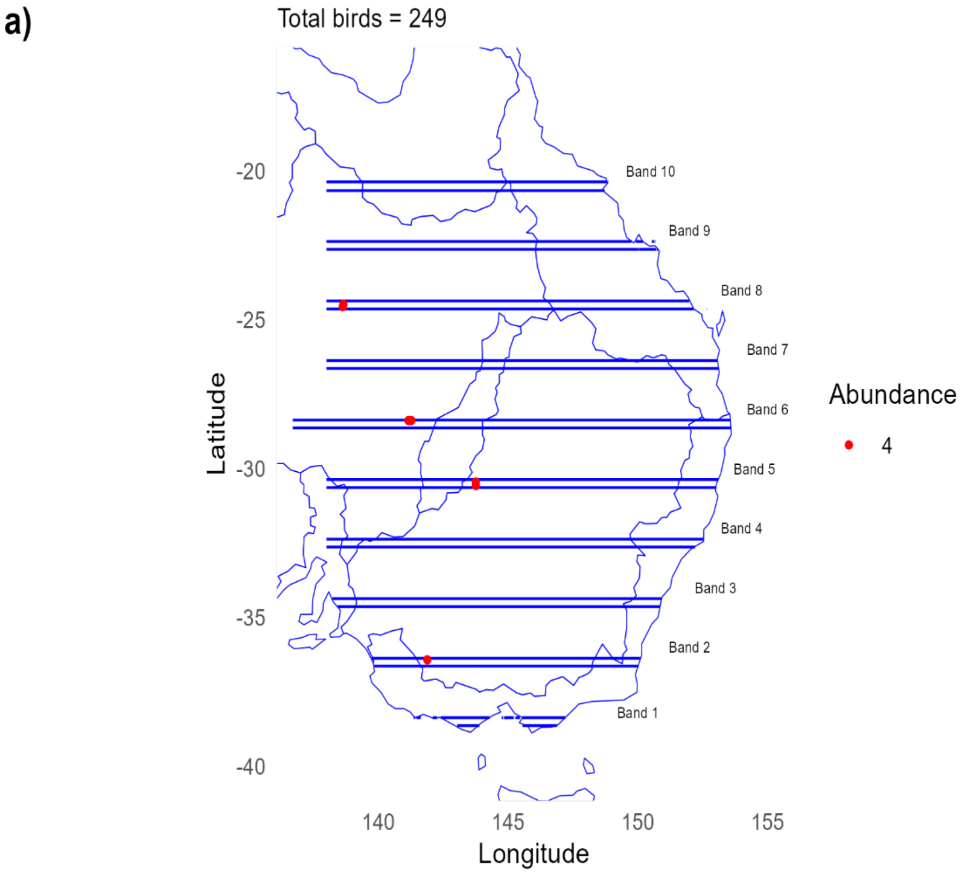


Figure 15. a) Distribution and abundance of Hardhead during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Freckled Duck



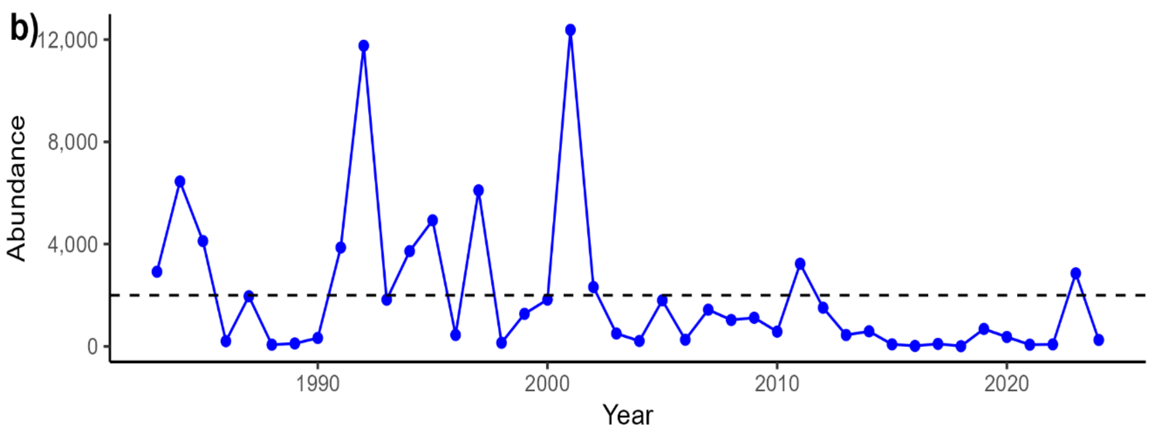


Figure 16. a) Distribution and abundance of Freckled Duck during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Australian Shelduck

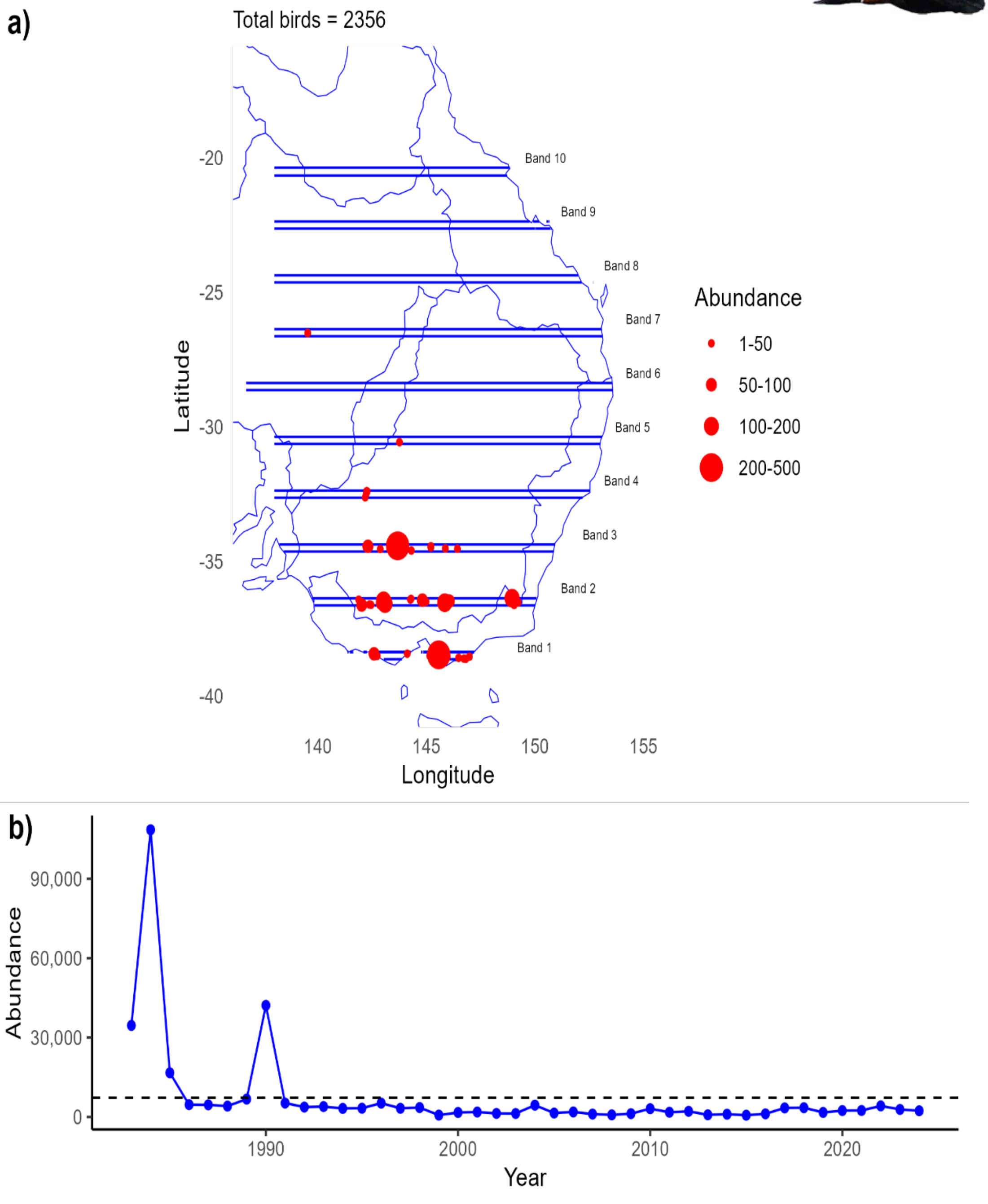
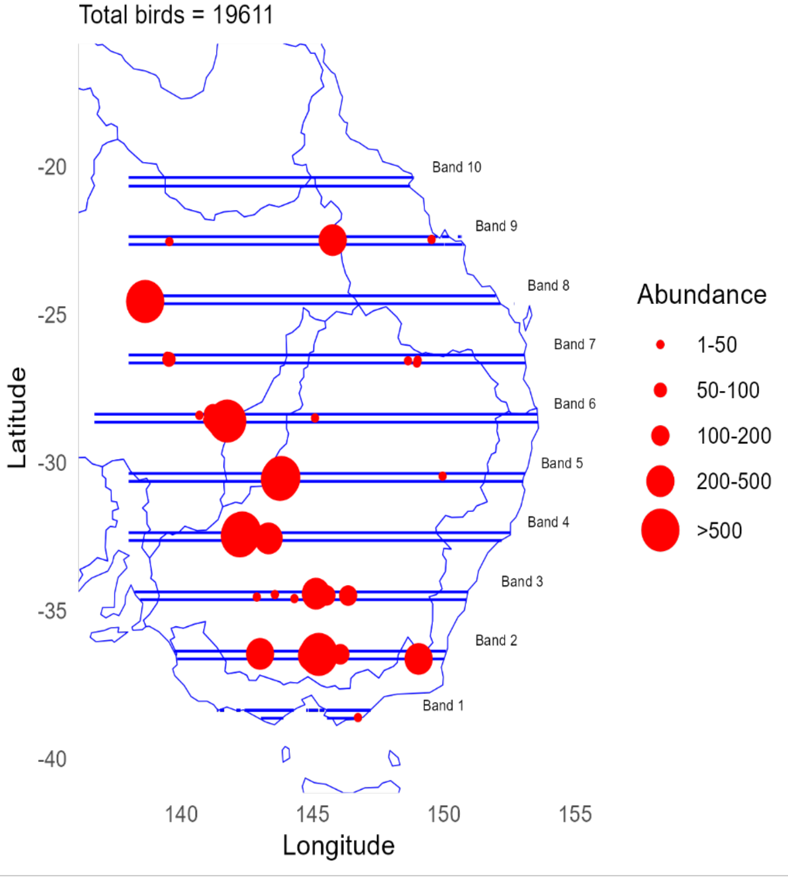


Figure 17. a) Distribution and abundance of Australian Shelduck during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Pink-eared Duck

a)



b)

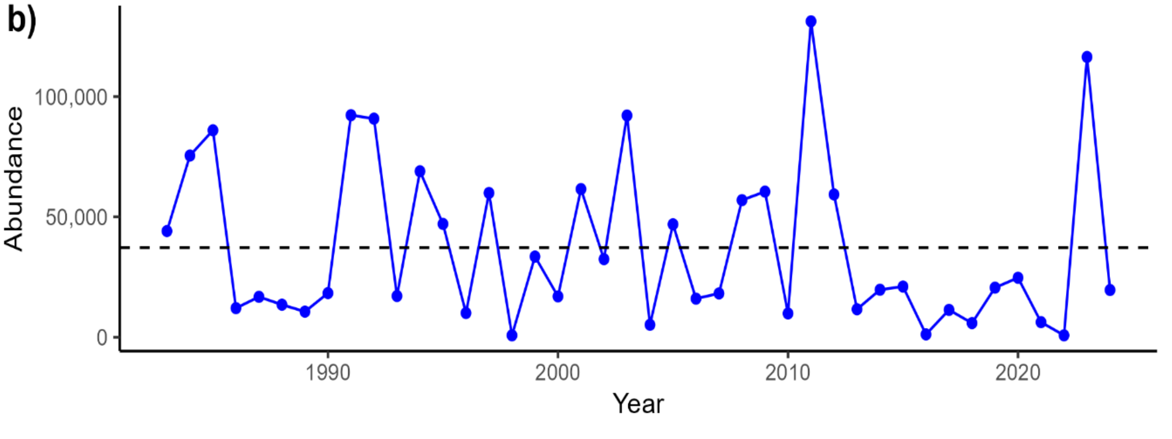


Figure 18. a) Distribution and abundance of Pink-eared Duck during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Plumed Whistling Duck

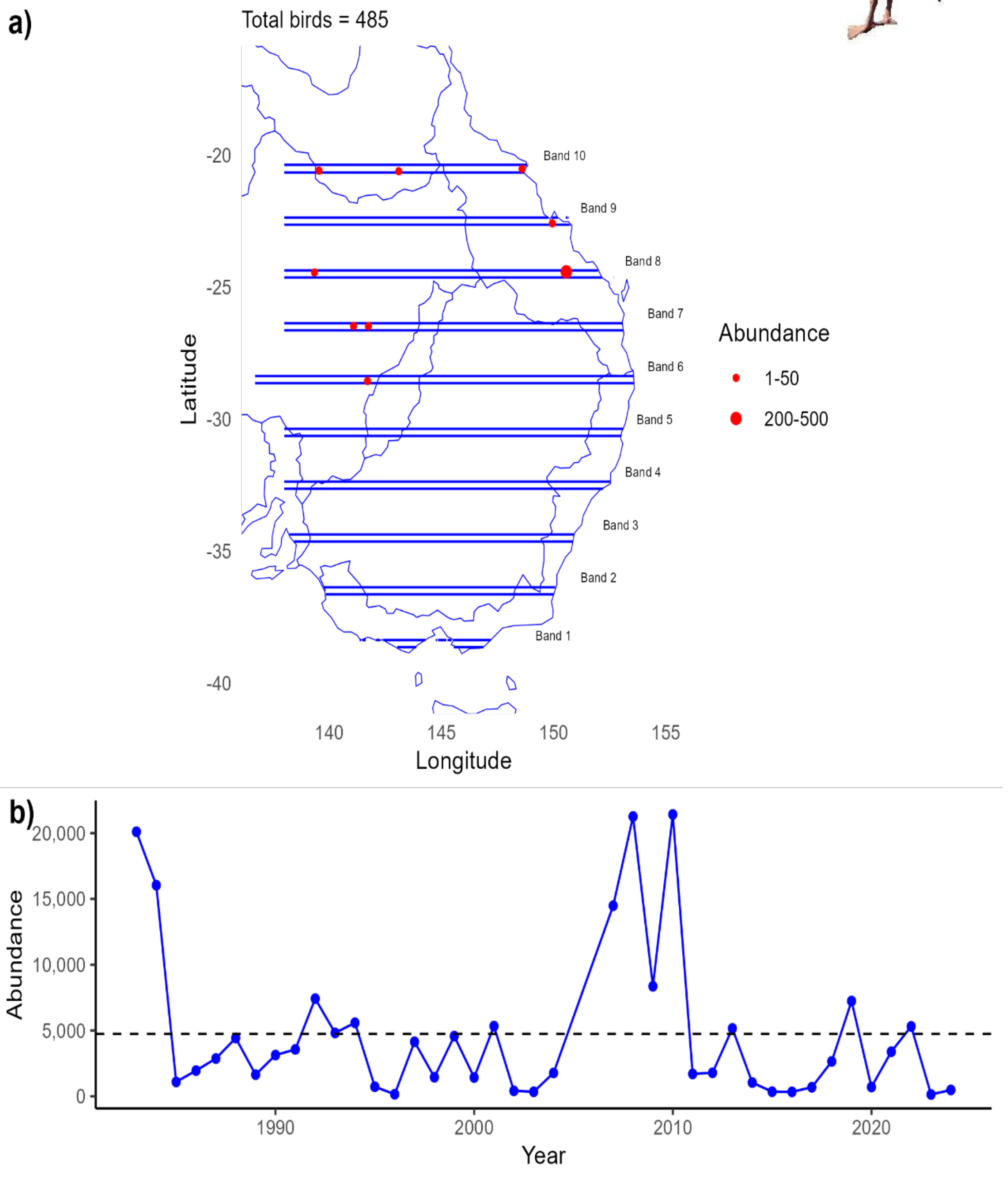


Figure 19. a) Distribution and abundance of Plumed Whistling Duck during the 2023 Eastern Australian Waterbird Aerial Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Australian Wood Duck

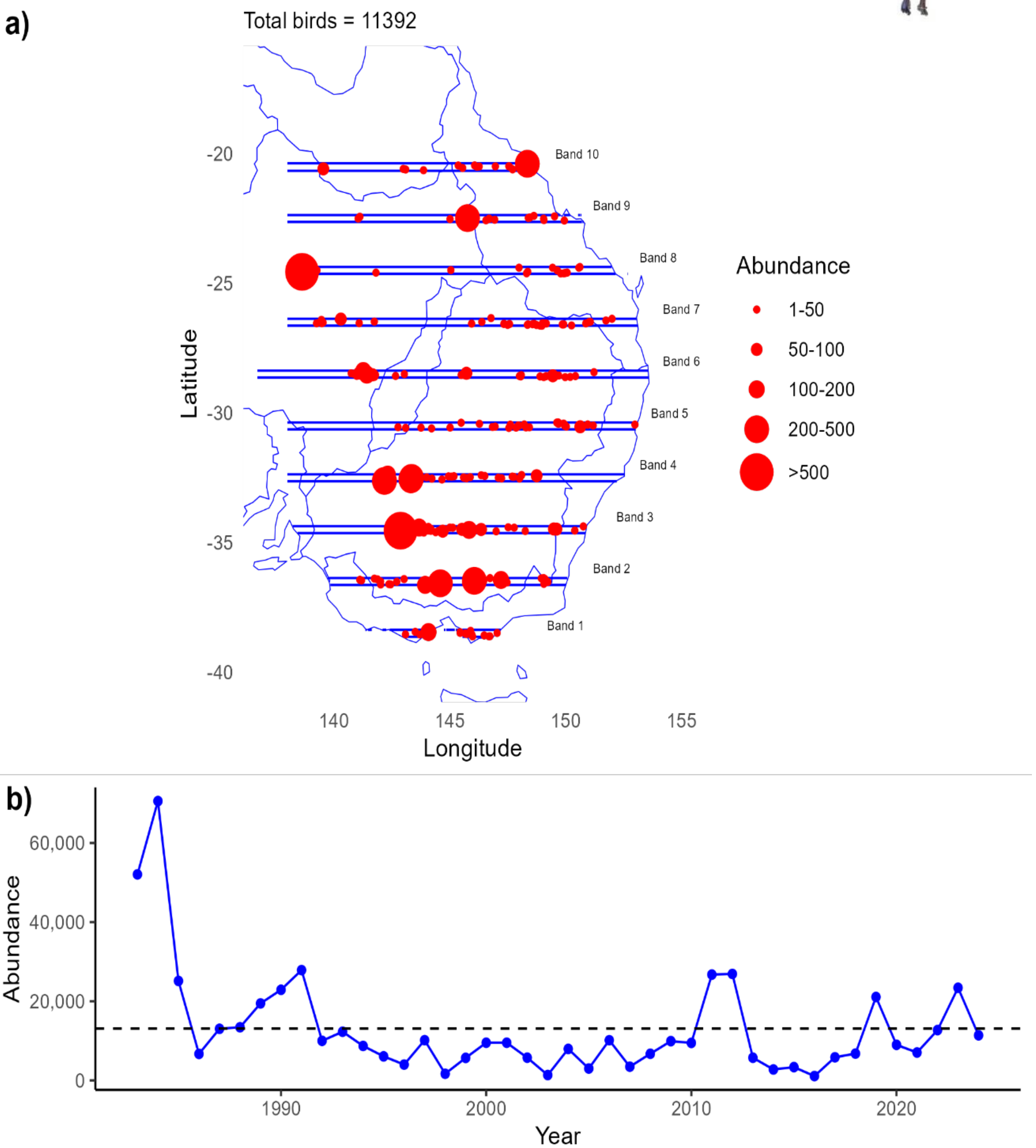


Figure 20. a) Distribution and abundance of Australian Wood Duck during the 2023 Eastern Australian Waterbird Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

Australian Pelican

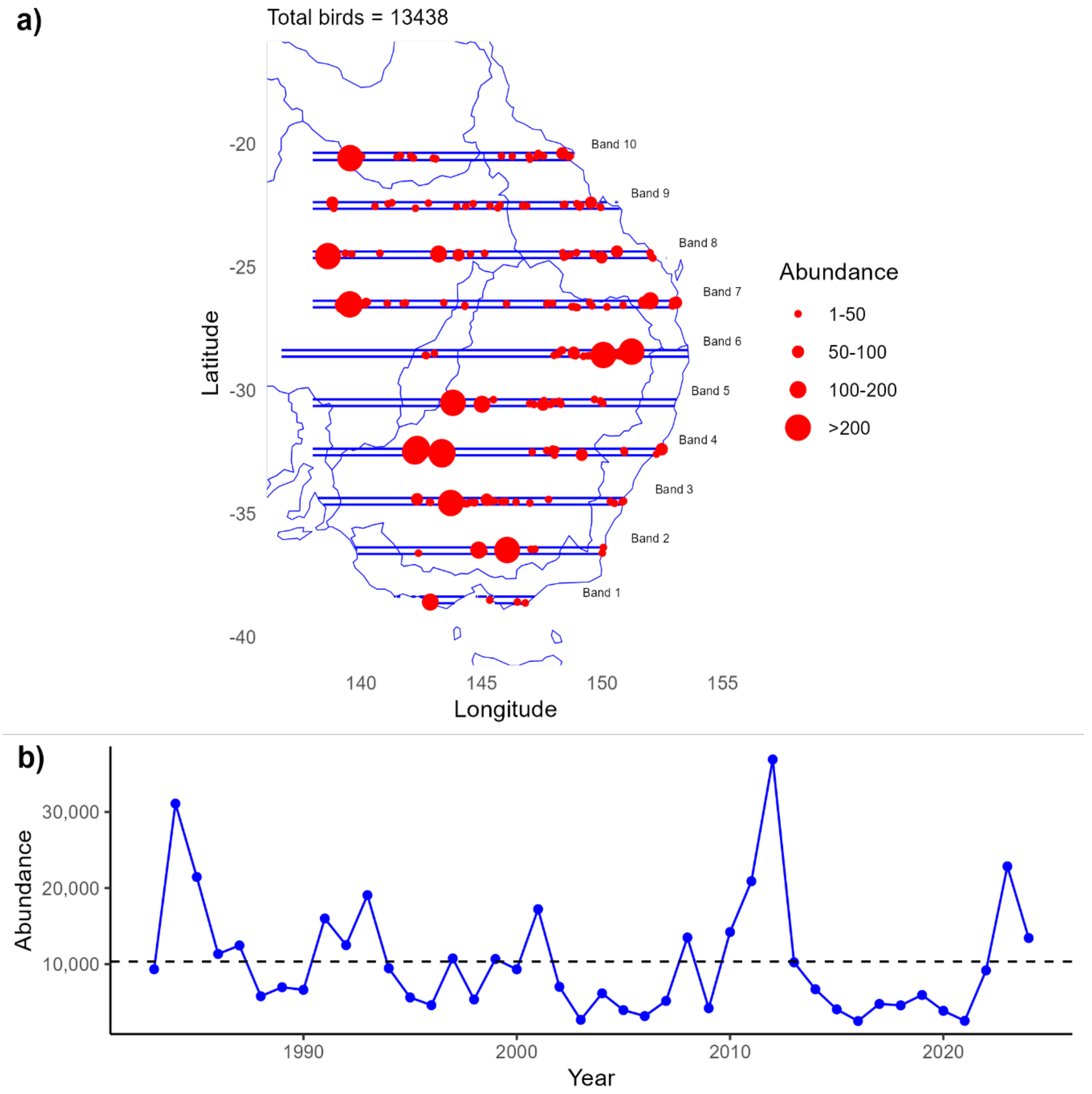


Figure 21. a) Distribution and abundance of Australian Pelican during the 2023 Eastern Australian Waterbird Survey. b) Changes in abundance (1983-2024); horizontal line show long-term average.

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Appendix 1. Waterbird species, common names and functional (Fx) groups identified during aerial survey (Gill et al. 2023).

Common Name	Fx_Group	SppCode	ScientificName
Australasian Darter	Pi	DAR	*Anhinga novaehollandiae*
Australasian Grebe	Du	ALG	*Tachybaptus novaehollandiae*
Australasian Shoveler	Du	BWS	*Spatula rhynchotis*
Australasian Swamphen	He	SHE	*Porphyrio melanotus melanotus*
Australian Pelican	Pi	PEL	*Pelecanus conspicillatus*
Australian Pied Cormorant	Pi	PCO	*Phalacrocorax varius*
Australian Pratincole	Sh	APR	*Stiltia isabella*
Australian Shelduck (Mountain Duck)	He	MNU	*Tadorna tadornoides*
Australian White Ibis	La	WHI	*Threskiornis molucca*
Banded Lapwing	Sh	BDP	*Vanellus tricolor*
Banded Stilt	Sh	BST	*Cladorhynchus leucocephalus*
Black Bittern	La	BBN	*Ixobrychus flavicollis*
Black Swan	He	BSW	*Cygnus atratus*
Black-fronted Dotterel	Sh	BFP	*Elseyornis melanops*
Black-necked Stork	La	JAB	*Ephippiorhynchus asiaticus*
Black-tailed Native-hen	He	BTN	*Tribonyx ventralis*
Brolga	La	BRL	*Antigone rubicunda*
Cape Barren Goose	He	CBG	*Cereopsis novaehollandiae*
Caspian Plover	Sh	CAP	*Charadrius asiaticus*
Caspian Tern	Pi	CST	*Hydroprogne caspia*
Chestnut Teal	Du	CTL	*Anas castanea*
Common Greenshank	Sh	GNK	*Tringa nebularia*
Cotton Pygmy Goose	Du	WPG	*Nettapus coromandelianus*
Curlew Sandpiper	Sh	CSP	*Calidris ferruginea*
Dusky Moorhen	He	MHE	*Gallinula tenebrosa*
Egrets	La	EGR	*Ardea/Egretta sp.*
Eurasian Coot	He	COT	*Fulica atra*
Freckled Duck	Du	FDU	*Stictonetta naevosa*
Glossy Ibis	La	GLI	*Plegadis falcinellus*
Great Cormorant	Pi	GRC	*Phalacrocorax carbo*
Great Crested Grebe	Pi	GCG	*Podiceps cristatus*
Great Egret	La	LGE	*Ardea alba*
Greater Crested Tern	Pi	CTN	*Thalasseus bergii*
Green Pygmy-goose	Du	GPG	*Nettapus pulchellus*
Grey Teal	Du	GTL	*Anas gracilis*
Gull-billed Tern	Pi	GBT	*Gelochelidon nilotica*
Hardhead	Du	HHD	*Aythya australis*
Intermediate Egret	La	PLE	*Ardea intermedia*
Kelp Gull	Pi	KGU	*Larus dominicanus*

Appendix 1. (Continued) Waterbird species, common names and functional (Fx) groups identified during aerial survey (Gill et al. 2023).

Common Name	Fx_Group	SppCode	ScientificName
Large Waders	Sh	LGW	*large wader sp.*
Little Black Cormorant	Pi	LBC	*Phalacrocorax sulcirostris*
Little Egret	La	LTE	*Egretta garzetta*
Little Pied Cormorant	Pi	LPC	*Microcarbo melanoleucos*
Magpie Goose	He	MPG	*Anseranas semipalmata*
Masked Lapwing	Sh	MLW	*Vanellus miles*
Nankeen Night Heron	La	NKE	*Nycticorax caledonicus*
Pacific Black Duck	Du	BDU	*Anas superciliosa*
Pied Heron	La	PIH	*Egretta picata*
Pied Stilt	Sh	WHS	*Himantopus luecocephalus*
Pink-eared Duck	Du	PED	*Malacorhynchus membranaceus*
Plumed Whistling Duck	He	GWD	*Dendrocygna eytoni*
Radjah Shelduck	Du	BKU	*Radjah radjah*
Red-necked Avocet	Sh	AVO	*Recurvirostra novaehollandiae*
Royal Spoonbill	La	RSB	*Platalea regia*
Silver Gull	Pi	SGU	*Chroicocephalus novaehollandiae*
Small Grebes	Du	GRE	*small grebe sp.*
Small Waders	Sh	SMW	*small wader sp.*
Sooty Oystercatcher	La	SOC	*Haematopus fuliginosus*
Spotted Whistling Duck	Du	SWD	*Dendrocygna guttata*
Stilt Sandpiper	Sh	LSP	*Calidris himantopus*
Straw-necked Ibis	La	SNI	*Threskiornis spinicollis*
Unidentified Godwit	Sh	GOD	*Godwit sp.*
Unidentified Tern	Pi	TRN	*Tern sp.*
Wandering Whistling Duck	Du	WWD	*Dendrocygna arcuata*
Western Cattle Egret	La	CEG	*Bubulcus ibis*
Whiskered Tern	Pi	MST	*Chlidonias hybrida*
White-faced Heron	La	WFH	*Egretta novaehollandiae*
White-necked Heron	La	WNH	*Ardea pacifica*
Wood (Maned) Duck	He	WDU	*Chenonetta jubata*
Yellow-billed Spoonbill	La	YSB	*Platalea flavipes*
Zero Count	Ze	NIL	