

# Aerial Survey of Wetland Birds in Eastern Australia - October 2017 Annual Summary Report

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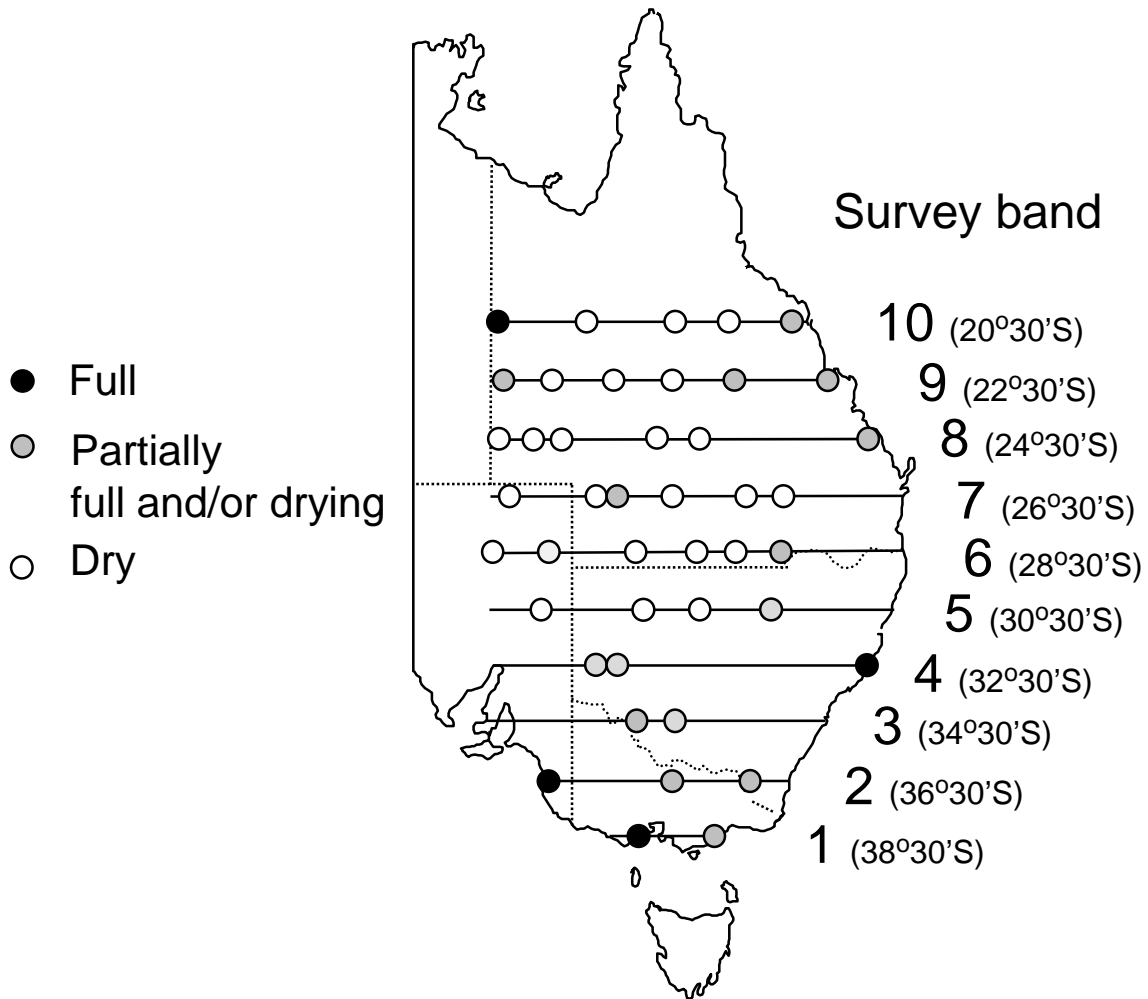
## 2017 Summary

1. Temperatures have been well-above average for Australia during 2017. Rainfall was above average for Australia as a whole for 2017, but with marked regional variation. However, rainfall has been below average in Tasmania, eastern Victoria, much of New South Wales and inland Queensland (BOM 2017). Dry conditions persisted throughout central and western Queensland, with much of the state remaining drought declared (Qld Dept of Agriculture & Fisheries 2017) (Fig.1).
2. Total waterbird abundance increased considerably from 2016 but remains well below average: the 12<sup>th</sup> lowest in 35 years. Waterbirds were concentrated in bands 2 and 9.
3. Breeding species' richness, breeding abundance, and wetland area declined sharply compared to the previous year. Despite some short term increases, there were continued long term declines in total abundance, wetland area and breeding species richness (Figs 2,3 & 6).
4. Wetland area index was well below the long term average. Most Lake Eyre and Cooper Creek wetlands were dry. Other important wetlands in the Lake Eyre Basin including the Diamantina and Georgina rivers, supported low numbers of waterbirds. Lakes Torquinnie and Mumbleberry were dry. Lake Galilee was partially flooded and supported a large number of waterbirds - almost a third of the survey total.
5. The Macquarie Marshes and Lowbidgee wetlands were partially flooded and supported low to moderate numbers of waterbirds with low breeding. Most the large lakes in the Menindee Lakes were partially filled with relatively few birds; the Tallywalka lakes system was dry (Fig. 1).
6. Waterbirds were concentrated in relatively few important sites; Lake Galilee and Band 2 supported a significant portion of the survey total (Figs 1 & 4). These two areas held almost two thirds of total waterbirds (64%) and supported high species diversity.
7. Total breeding index (all species combined) was low and well below the long term average (Fig. 5). Breeding species' richness was also low, with 6 species recorded breeding (Figs 6 to 8).
8. Most games species abundances were well below long term averages, in some cases by an order of magnitude. Grey teal was an exception with total abundance near the long term average (Figs 9 to 29).

**This survey is run by the Centre for Ecosystem Science at the University of NSW and funded by the NSW Office of Environment & Heritage, with additional funding provided by the South Australian Department of Environment, Water and Natural Resources, the Queensland Department of Environment and Heritage Protection, the Victorian Department of Environment, Land, Water & Planning, the Victorian Game Management Authority and the Department of Environment of the Australian Government.**

We thank Sharon Ryall, Terry Korn, Paul Wainwright, Andrea White, George Swann, Peter Ewin and Reece Pedler for acting as expert observers during the survey, and Benjamin Lappin of NSW National Parks and Wildlife, for piloting aircraft. We also thank Bradley Clarke-Wood, Justin McCann, Claire Sives, Diane Harshbarger and Daniel Simpson for support data management and quality assurance.

Figure 1. Wetland map 2017



**Key to wetlands from W-E, by band**

- 10 Lake Moondarra, Cloncurry River, Flinders River, Campaspe R, Burdekin R
- 9 Georgina R, Eyre Ck, Hamilton R, Diamantina R, Lake Galilee, Styx R
- 8 Mumbleberry-Torquinnie Lakes, Eyre Ck, Diamantina R, Thomson R, Barcoo R, various small coastal wetlands
- 7 Goyder Lagoon, Lake Yamma Yamma, Cooper Ck, Bulloo R, Paroo R, Warrego R
- 6 Lake Eyre, Lake Hope, Bulloo R, Paroo R, Warrego R, Balonne R,
- 5 Lake Frome, Paroo O'flow, Darling R, Macquarie Marshes
- 4 Menindee Lakes, Talywalka Lakes, Myall Lakes
- 3 Murray River Lakes, Lowbidgee wetlands
- 2 Coorong, Cooper + Mokoan Lakes, Cooma-Monaro
- 1 Curdies Inlet, Jack Smith Lake

Figure 2. Total wetland area

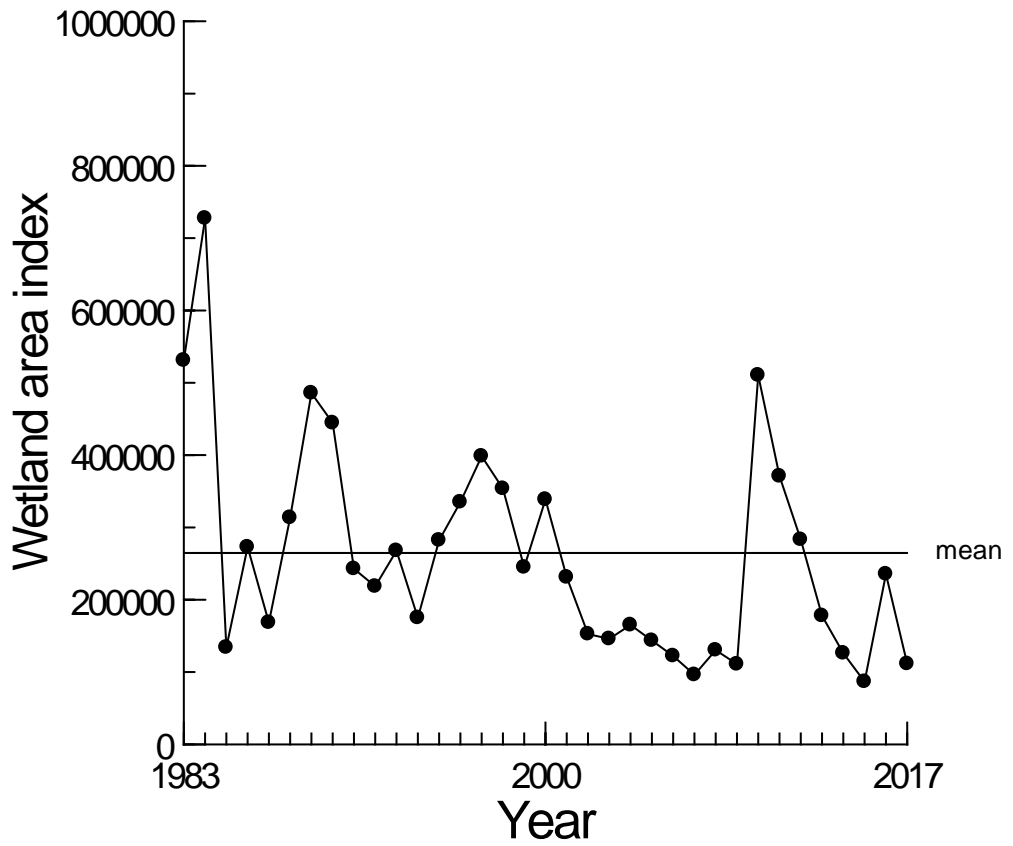


Figure 3. Total waterbirds

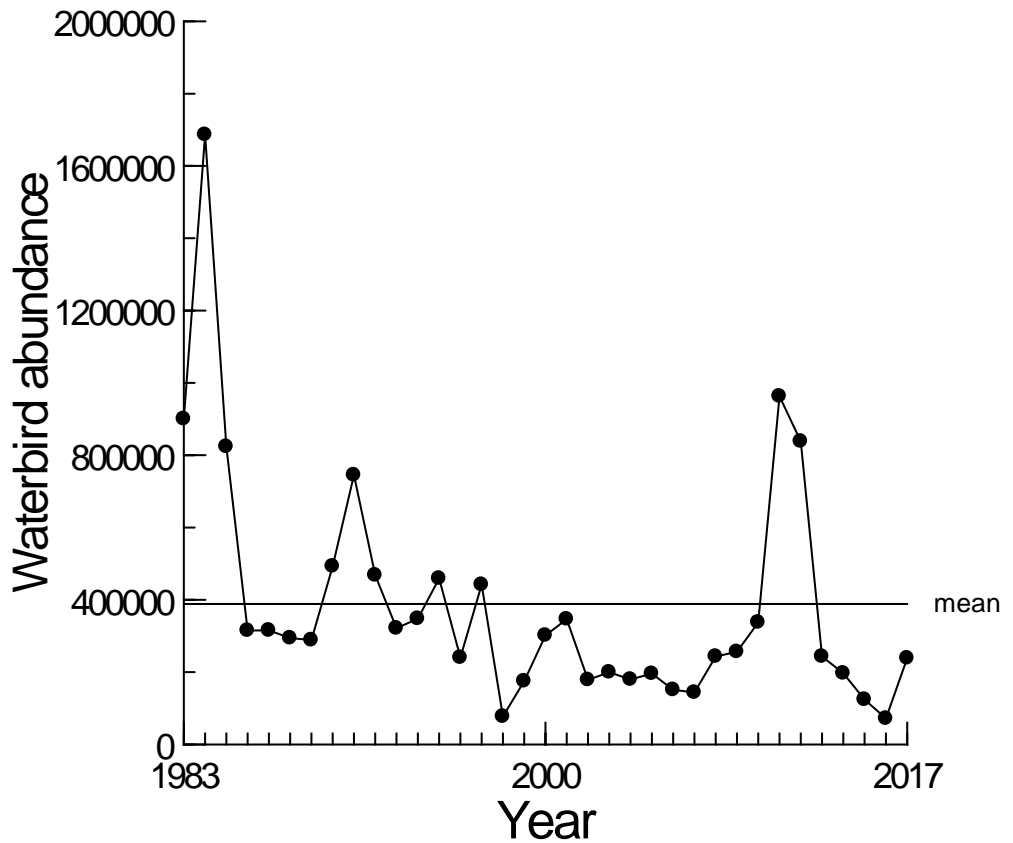
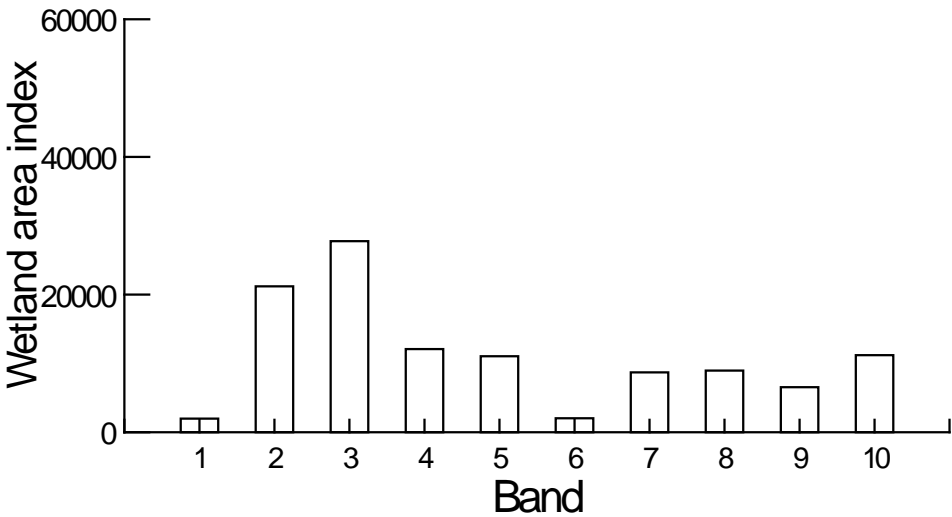
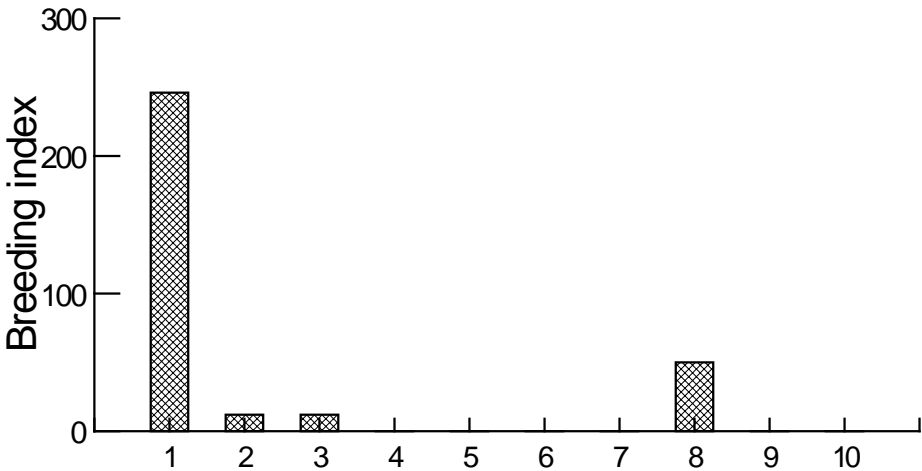
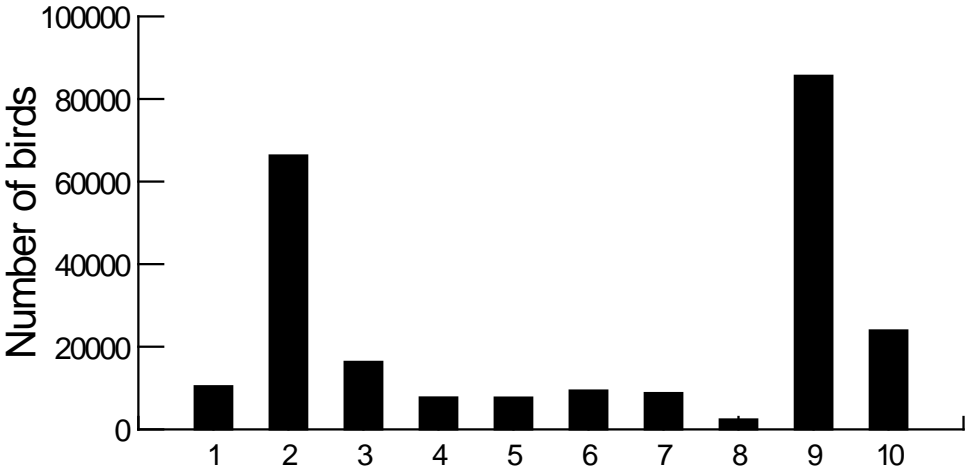


Figure 4. Band totals 2017



Scales vary on graph axes

Figure 5. Breeding index (all species)

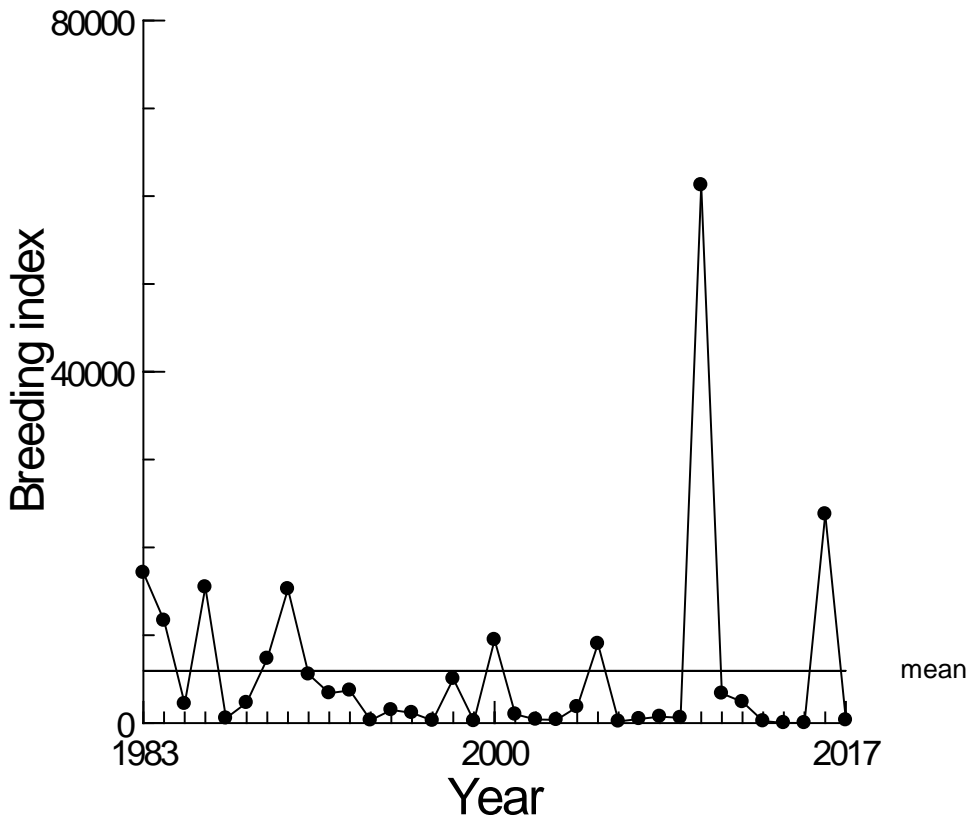


Figure 6. Number of species breeding

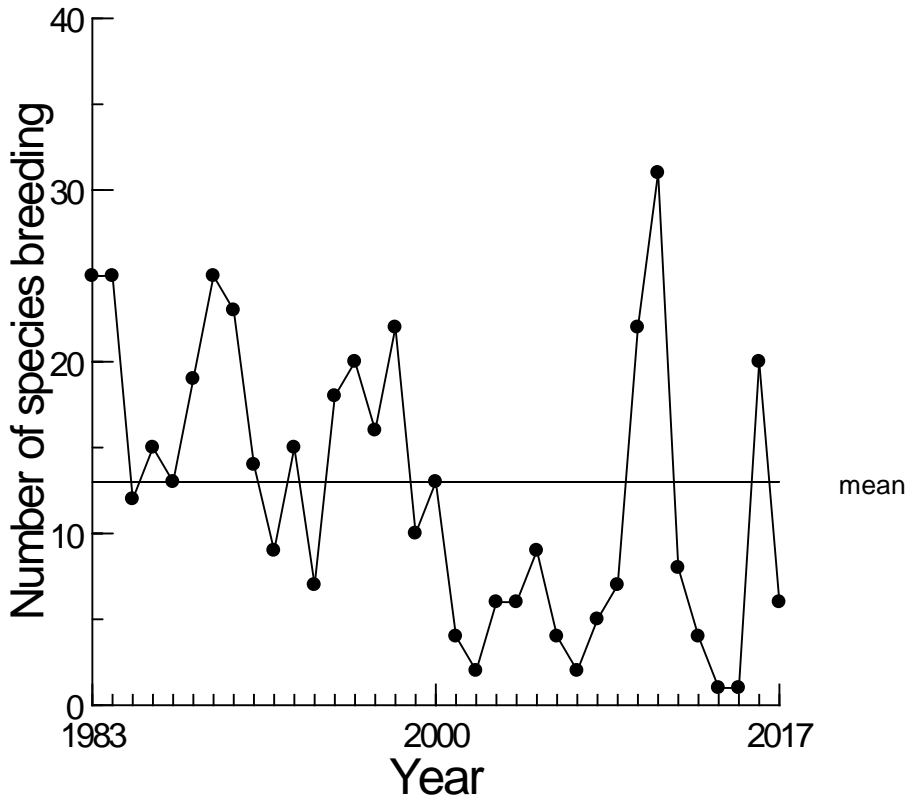
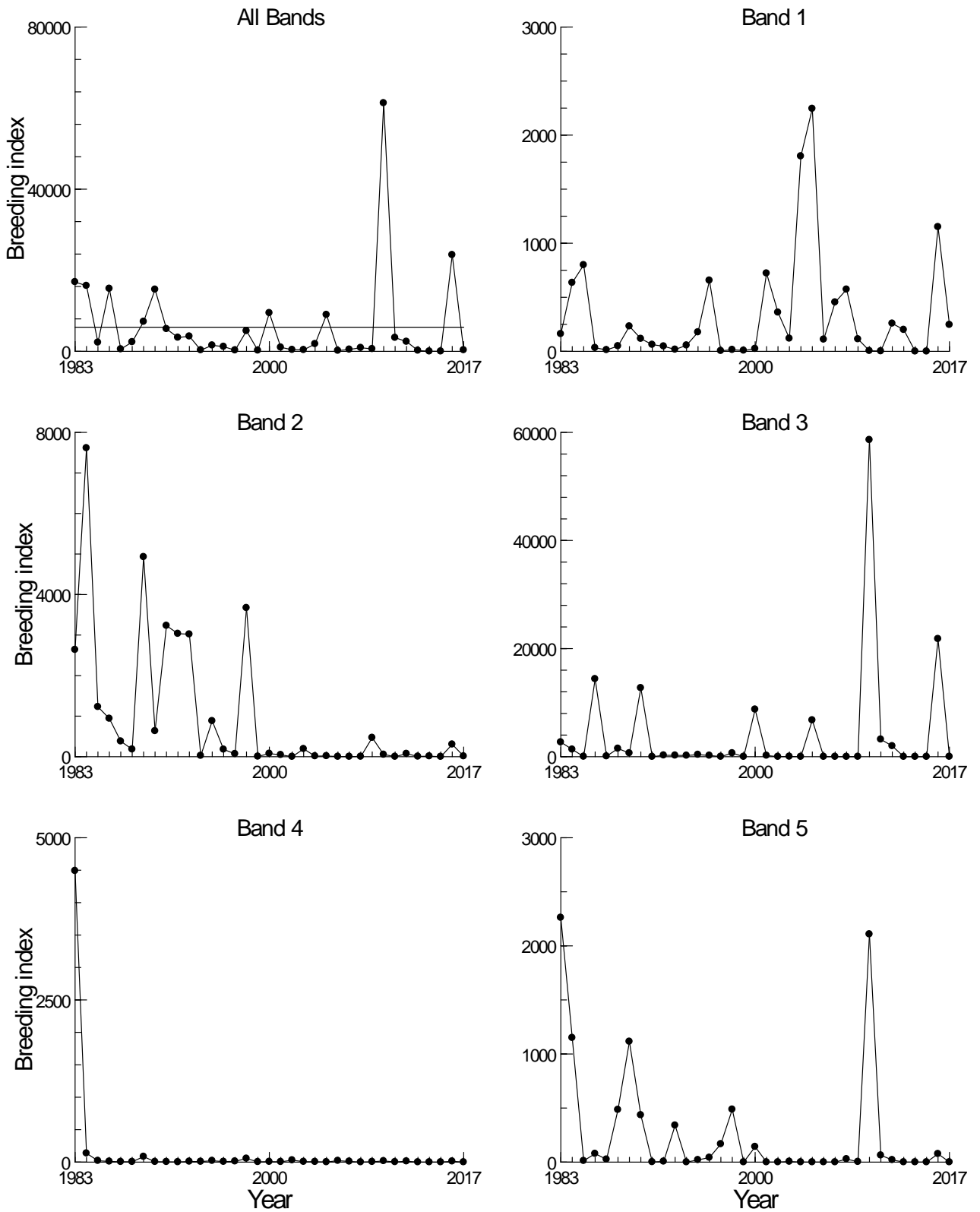
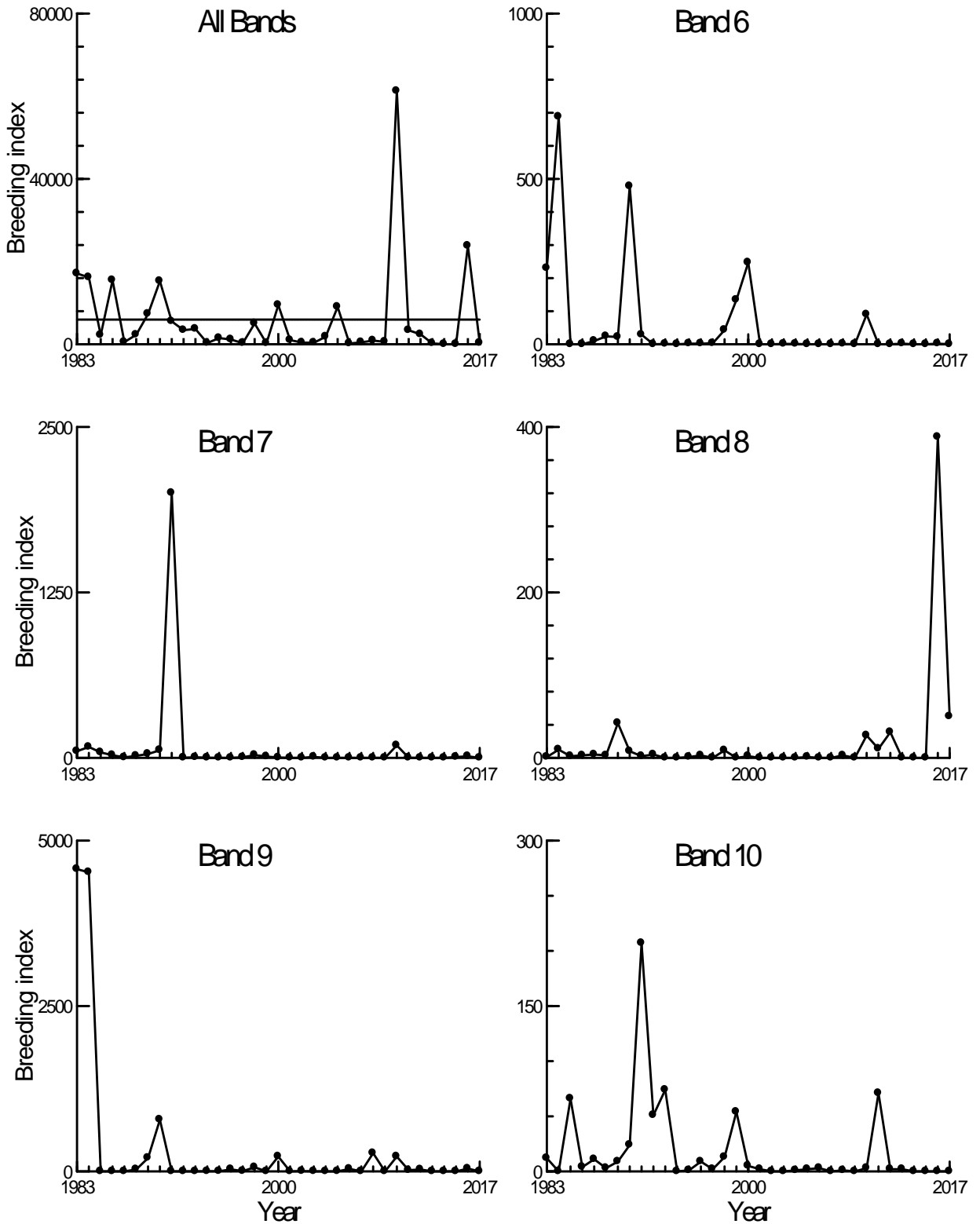


Figure 7. Breeding index (all species) Bands 1-5



Scales vary on graphs

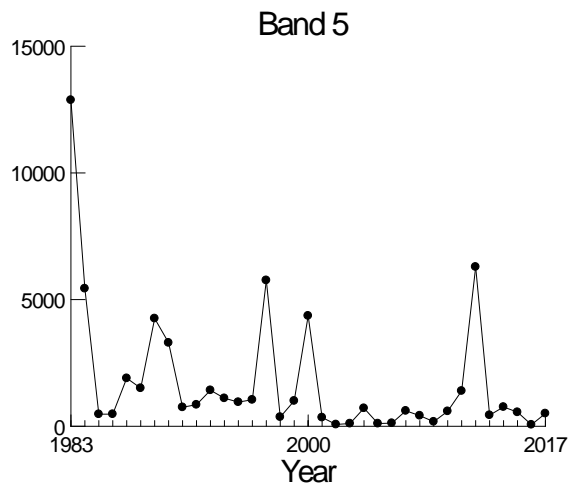
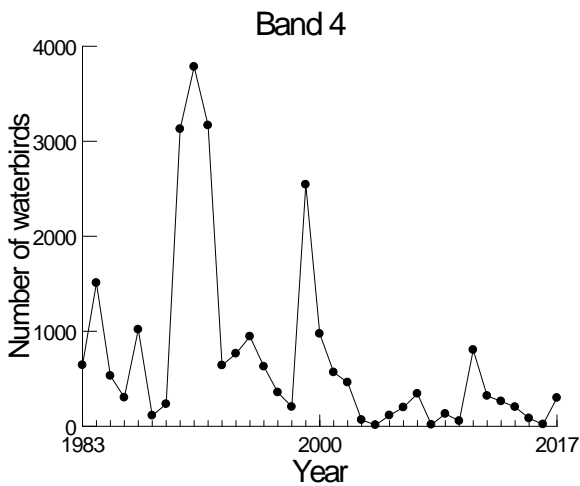
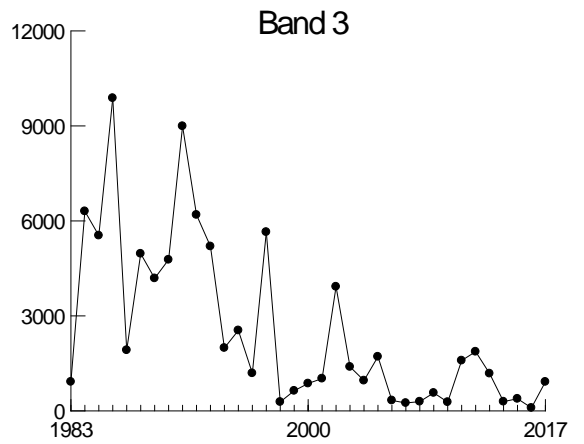
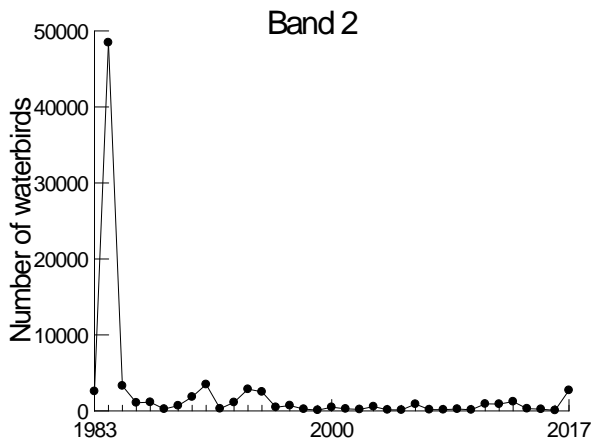
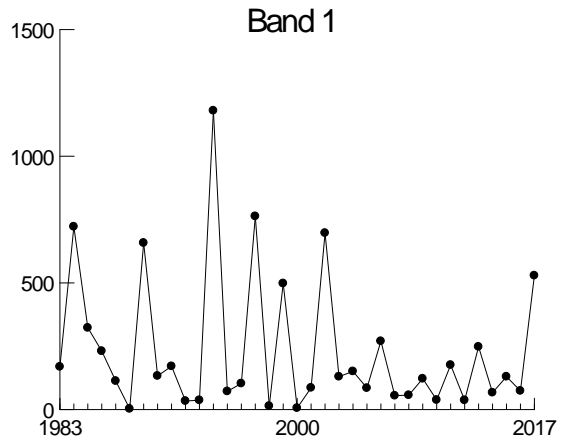
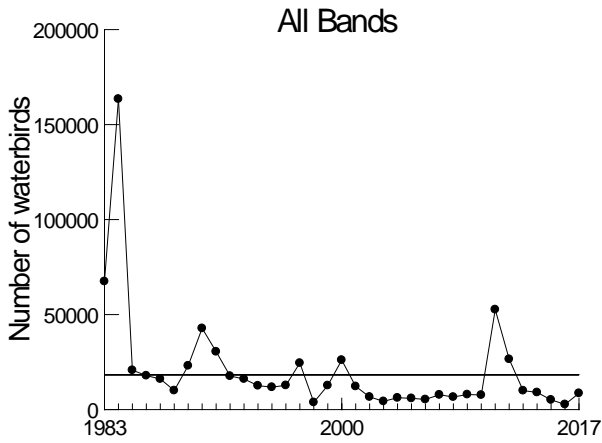
Figure 8. Breeding index (all species) Bands 6-10



Scales vary on graphs

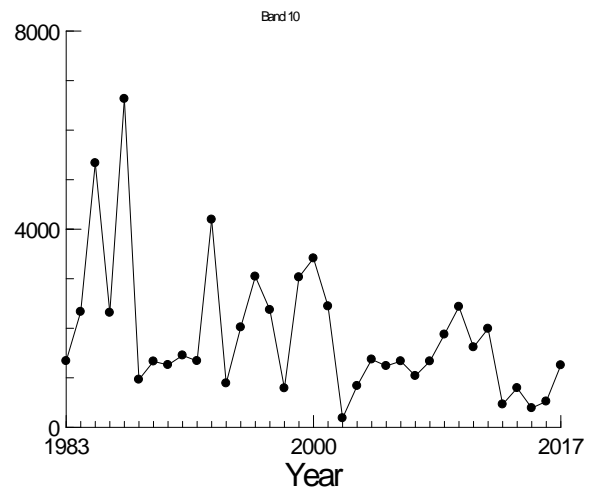
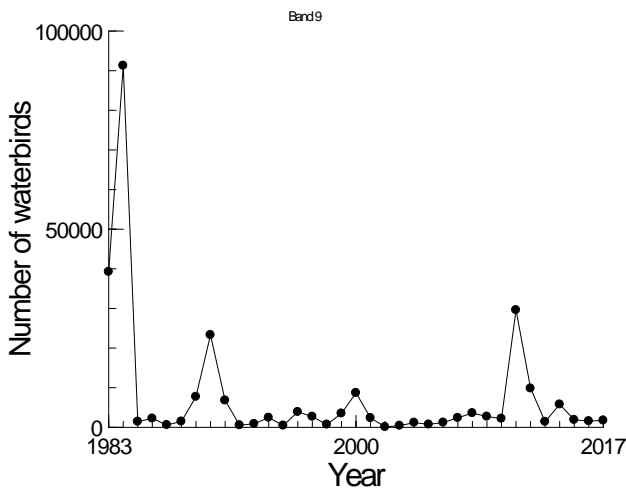
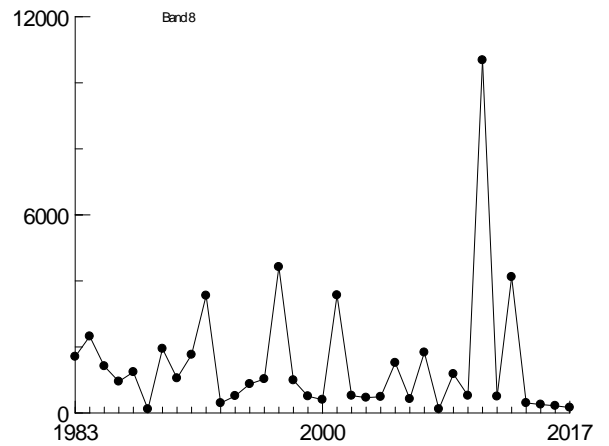
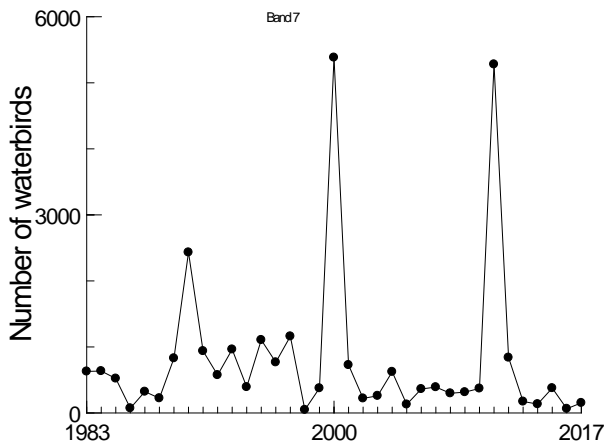
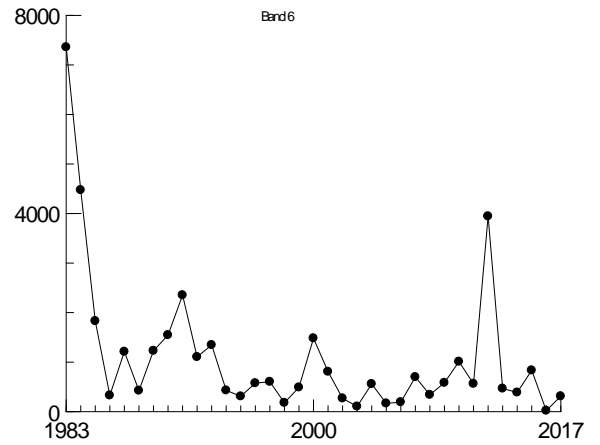
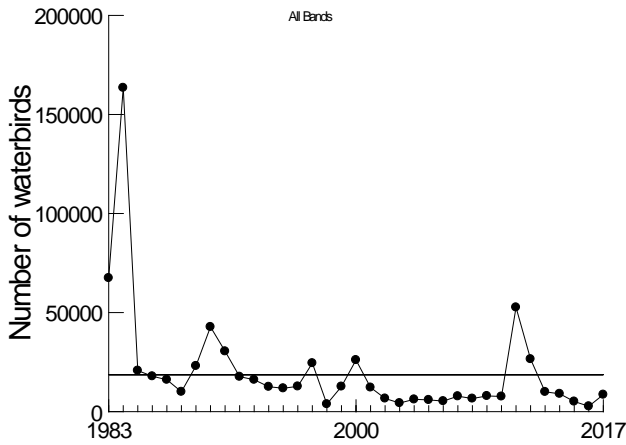


# Figure 9. Pacific black duck Bands 1-5



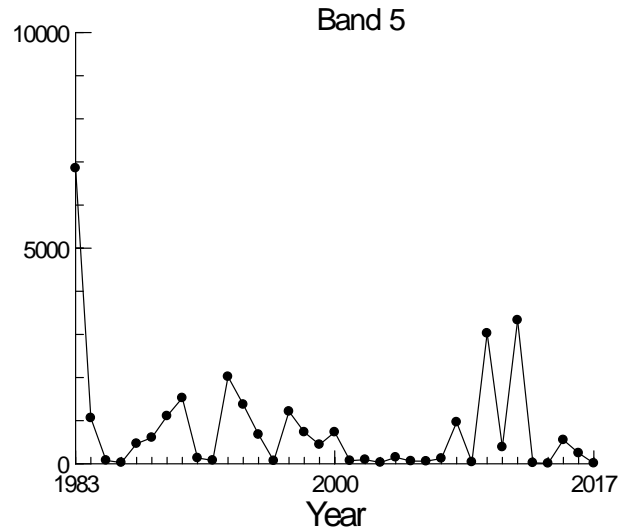
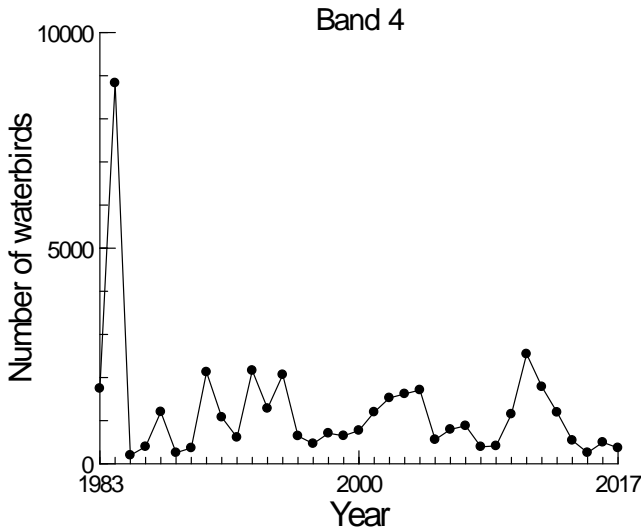
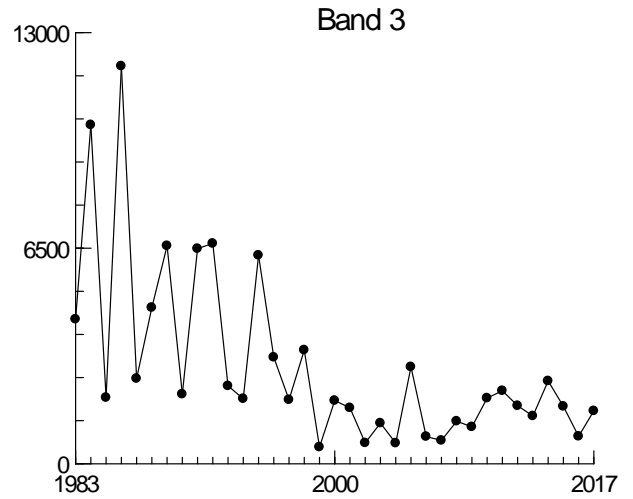
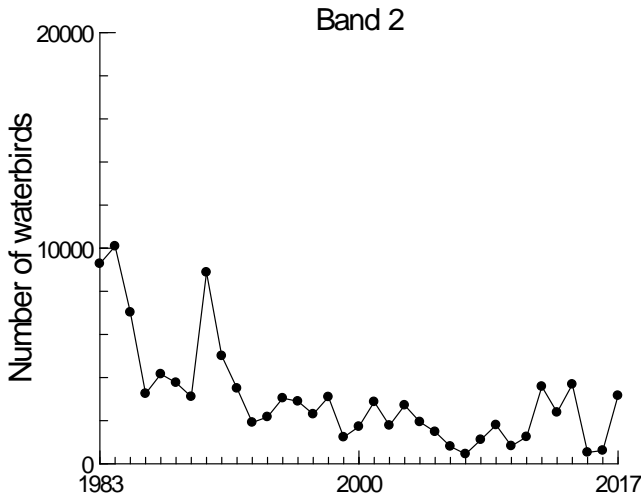
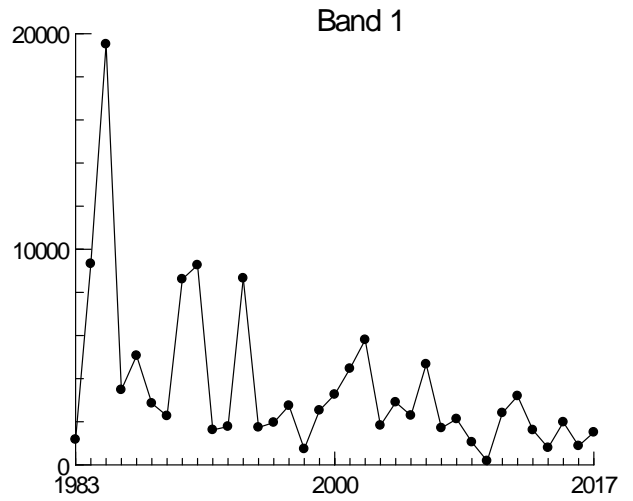
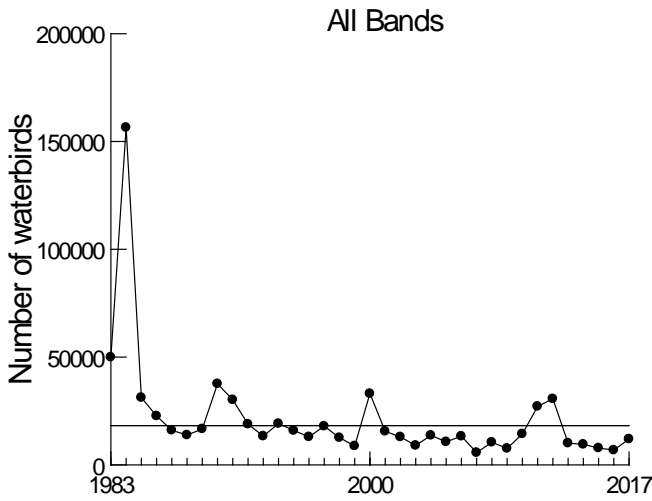
Scales vary on graphs – dashed line indicates long term average

Figure 10. Pacific black duck Bands 6-10



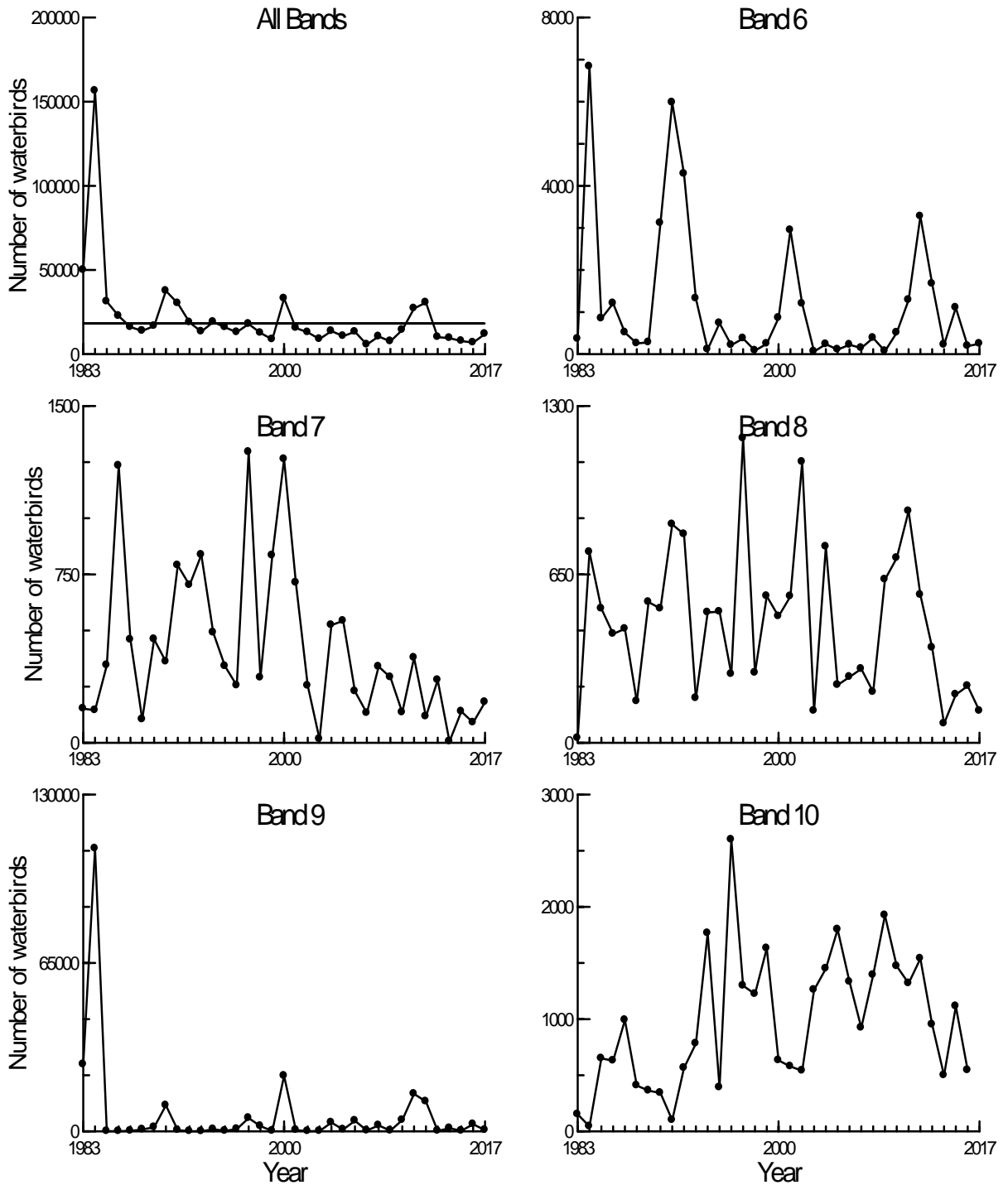
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Figure 11. Black swan Bands 1-5



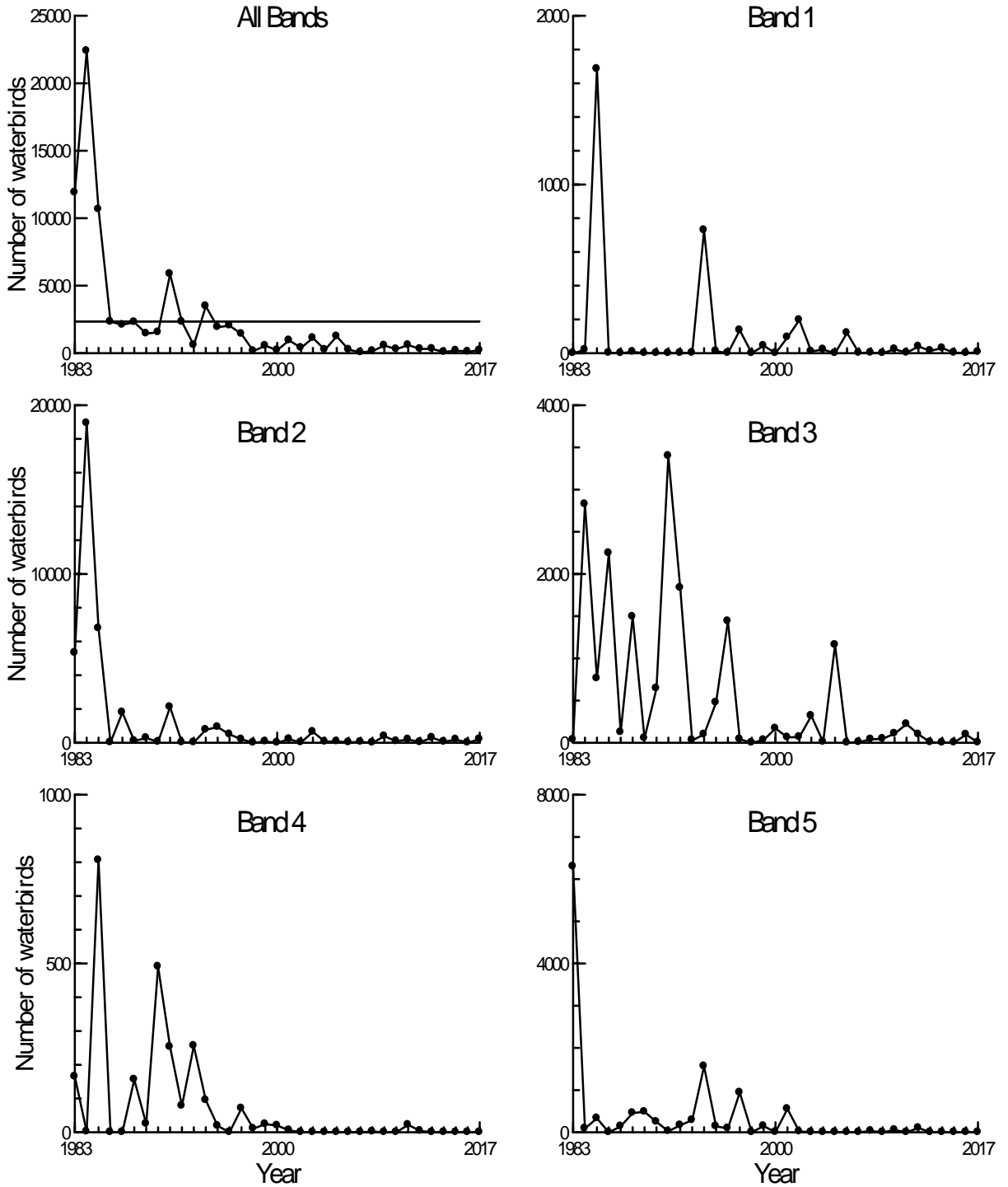
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Figure 12. Black swan Bands 6-10



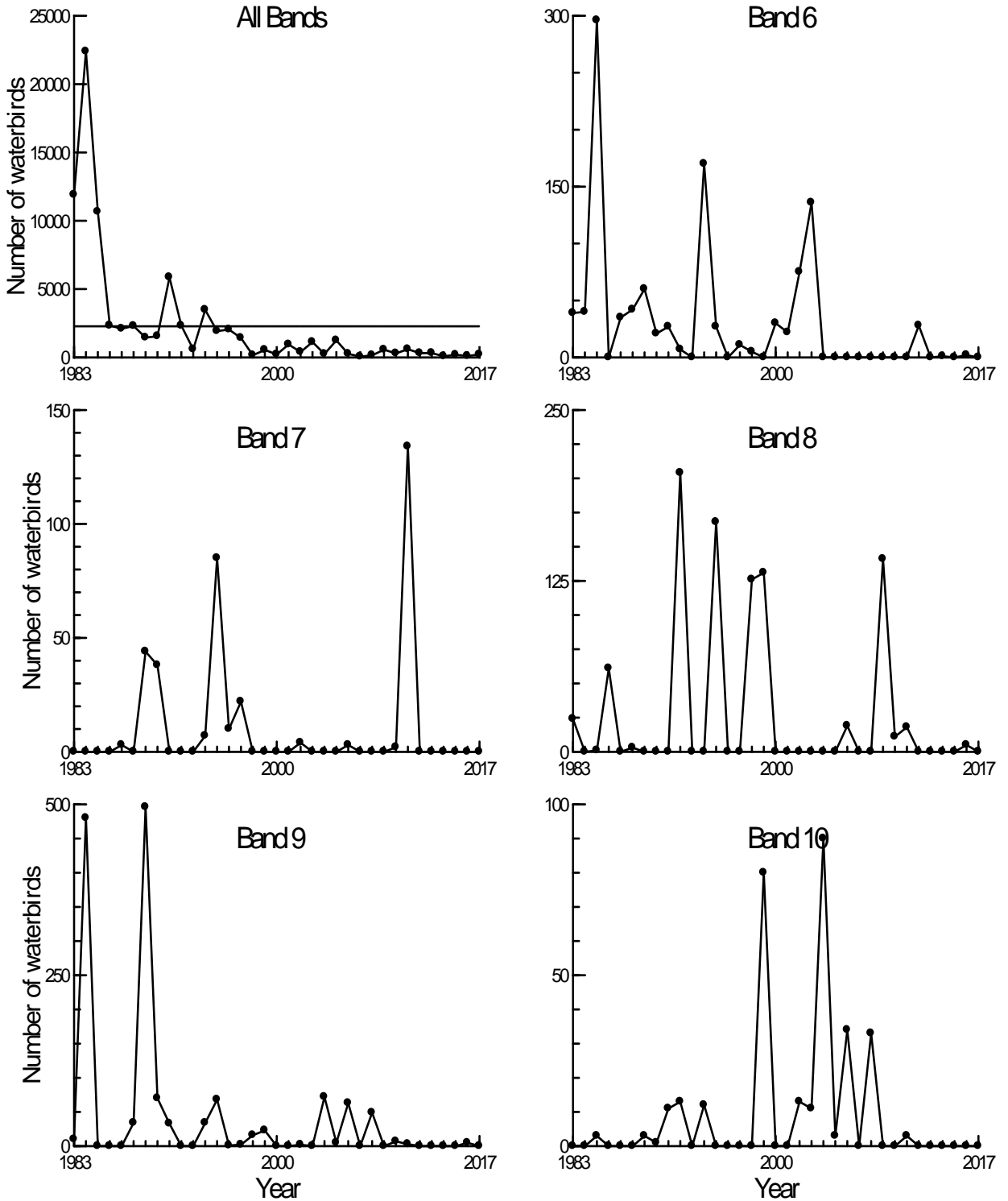
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Figure 13. Australasian shoveler Bands 1-5



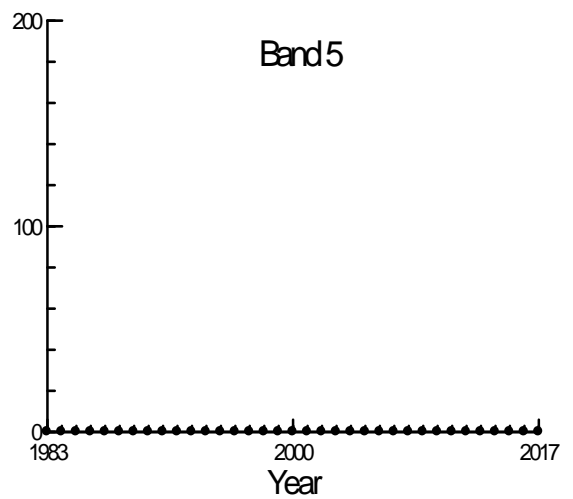
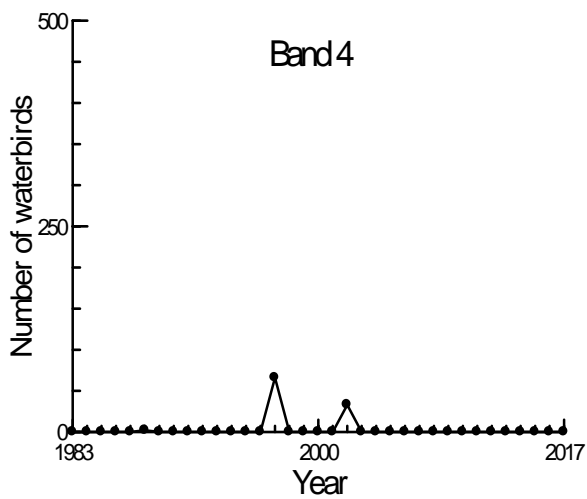
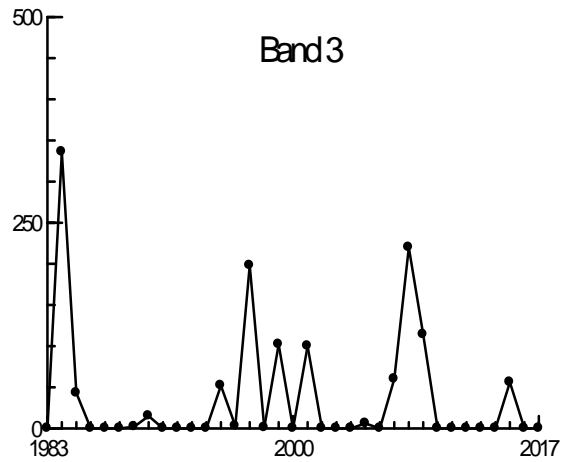
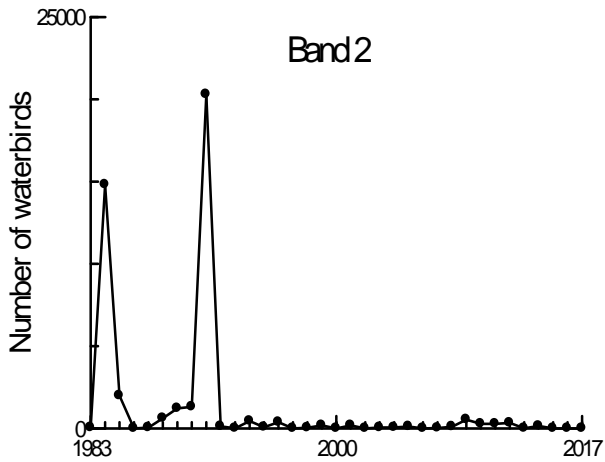
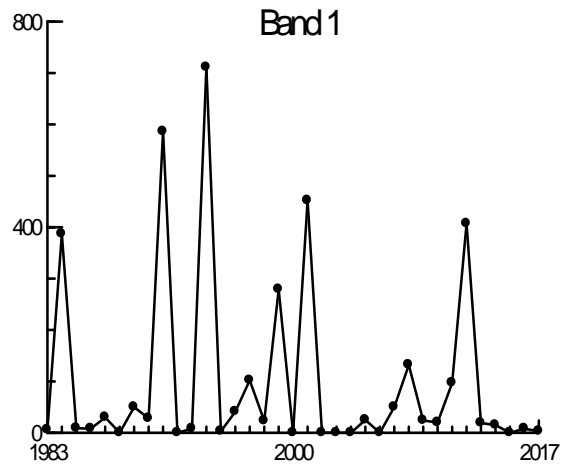
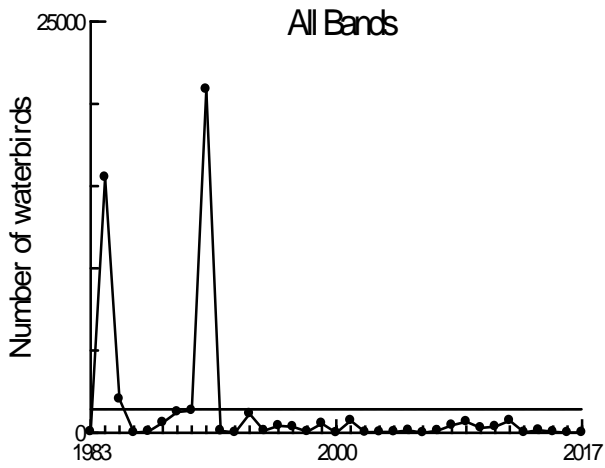
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Figure 14. Australasian shoveler Bands 6-10



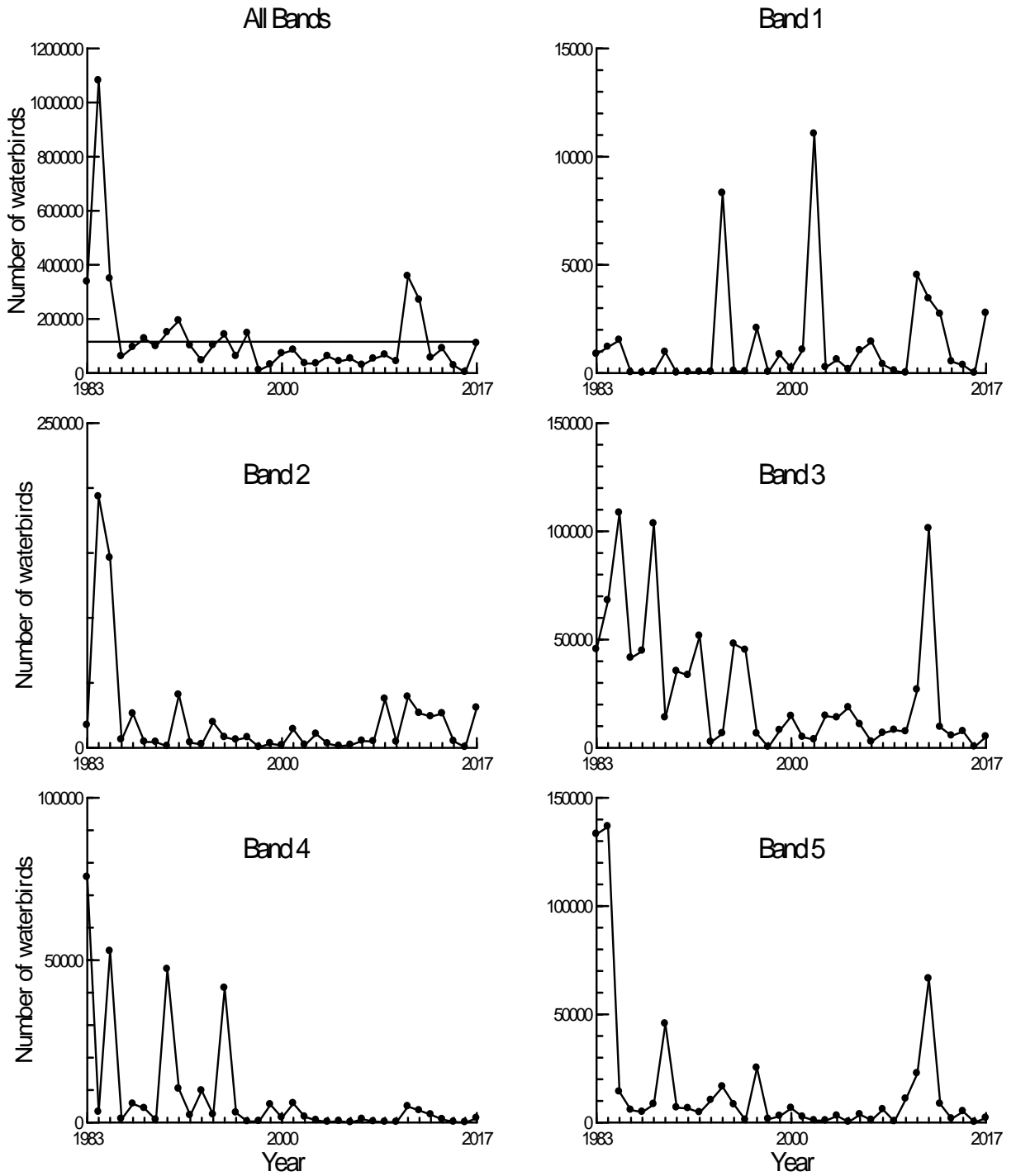
Scales vary on graphs – dashed line indicates long term average

Figure 15. Chestnut teal Bands 1-5



Scales vary on graphs – dashed line indicates long term average

Figure 16. Grey teal Bands 1-5



Scales vary on graphs – dashed line indicates long term average



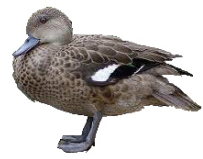
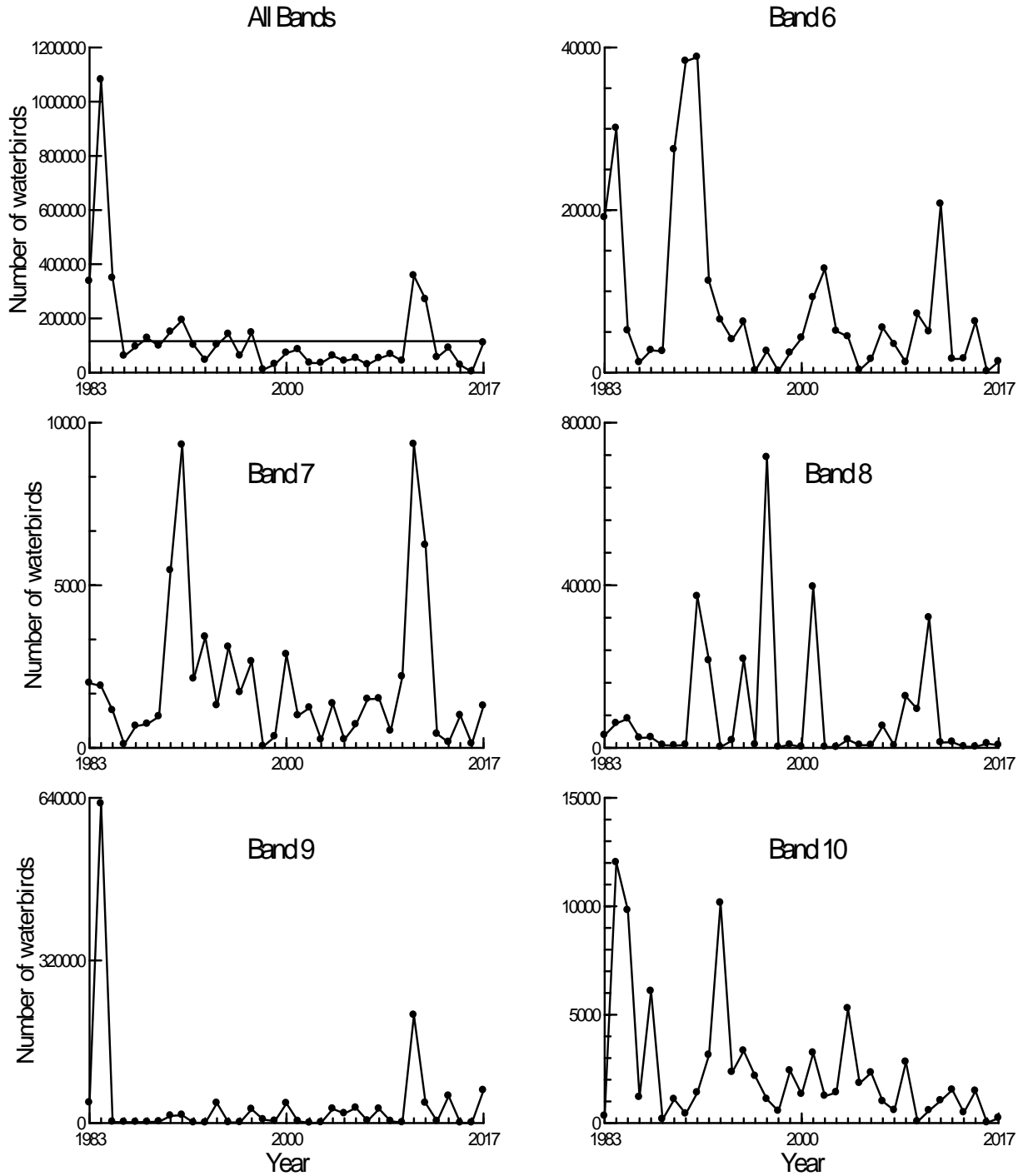
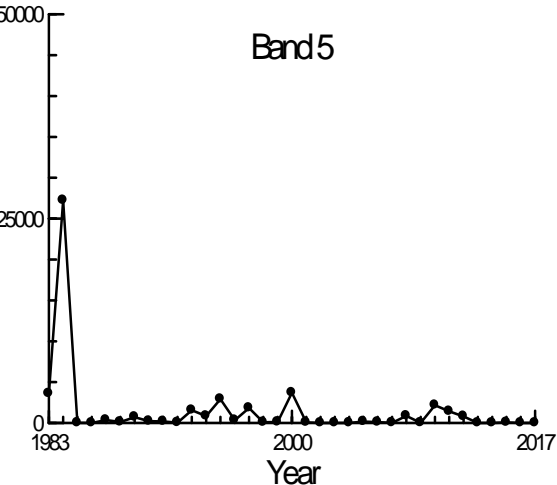
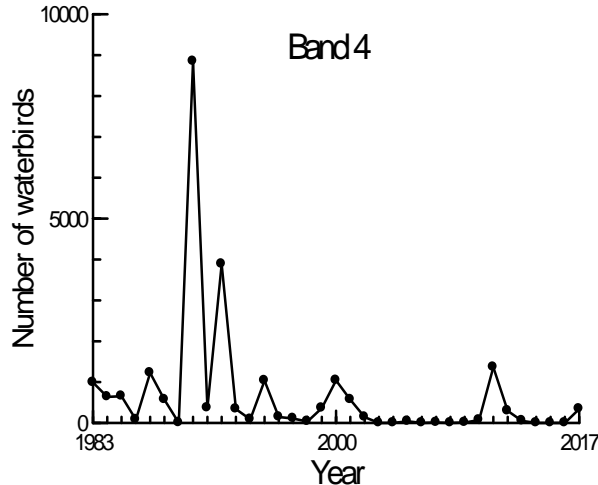
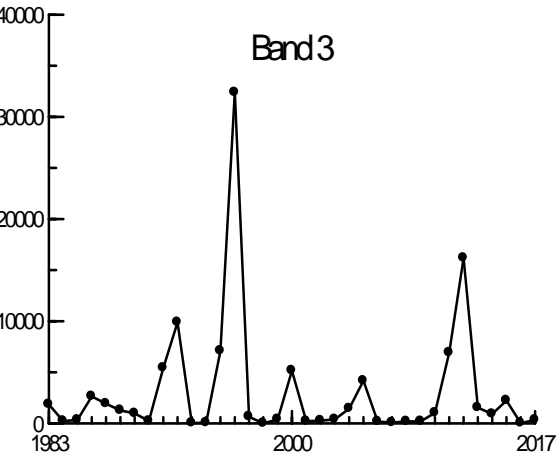
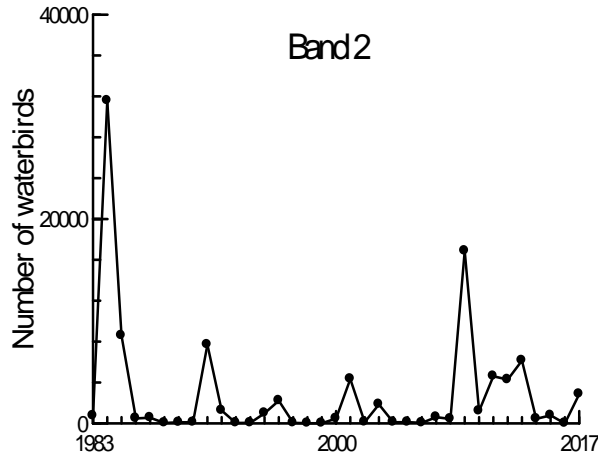
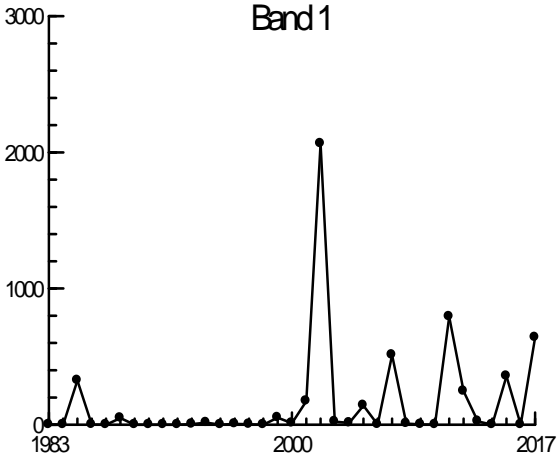
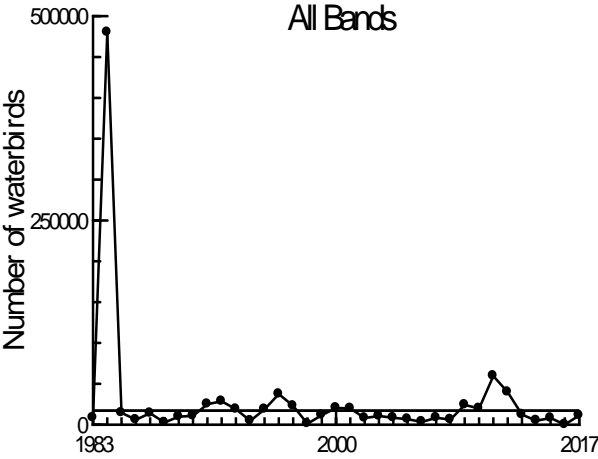


Figure 17. Grey teal Bands 6-10



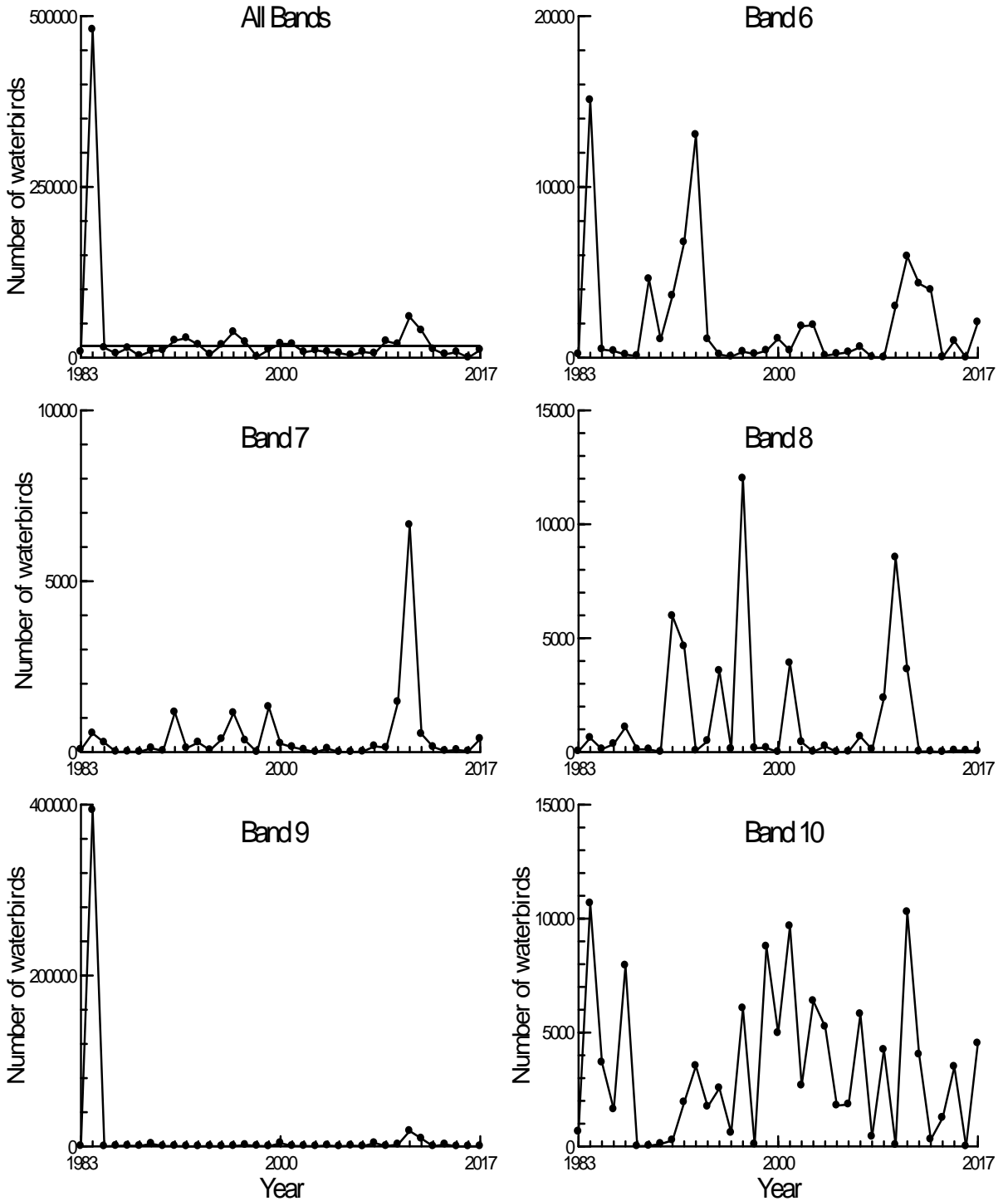
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Figure 18. Hardhead Bands 1-5



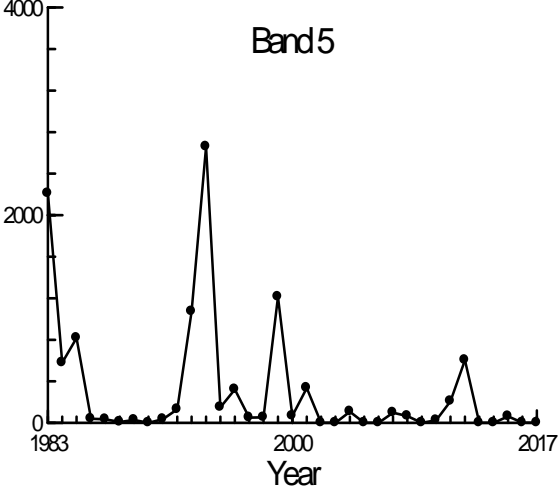
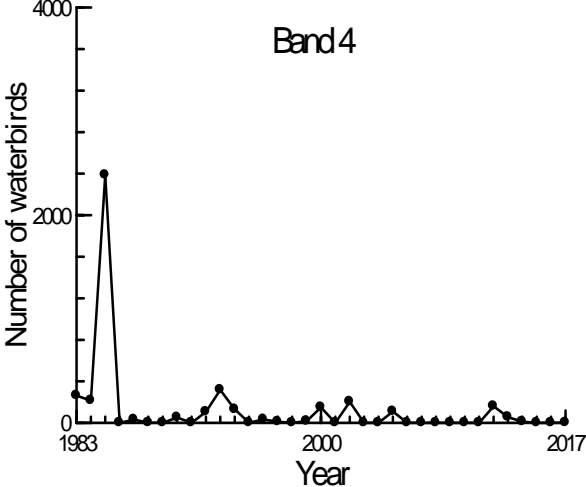
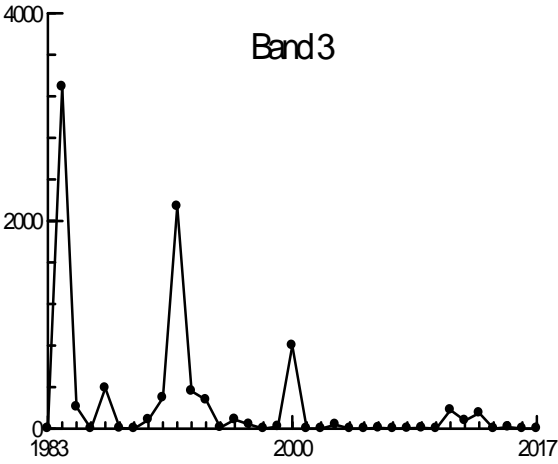
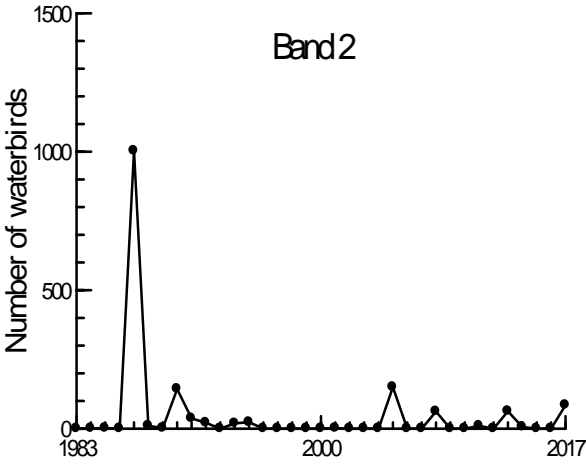
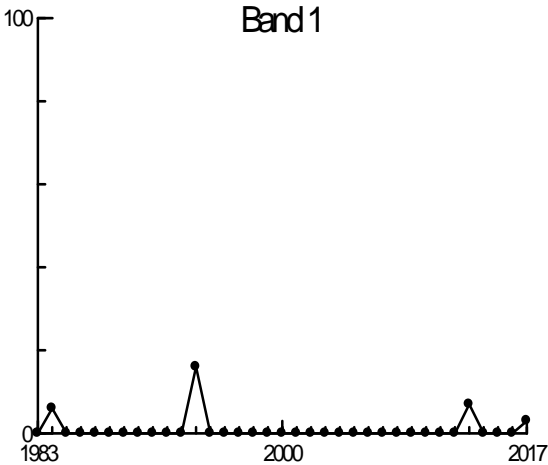
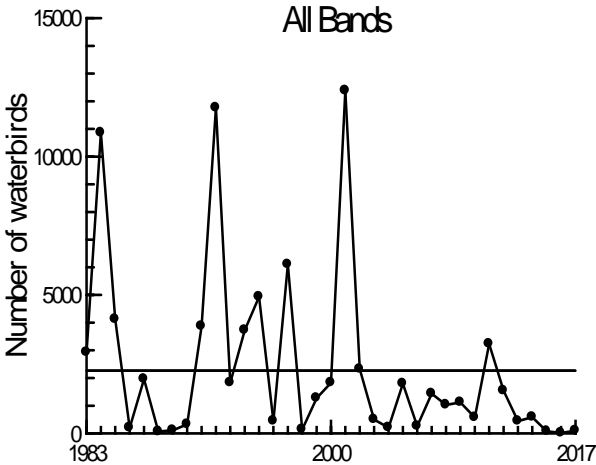
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Figure 19. Hardhead Bands 6-10



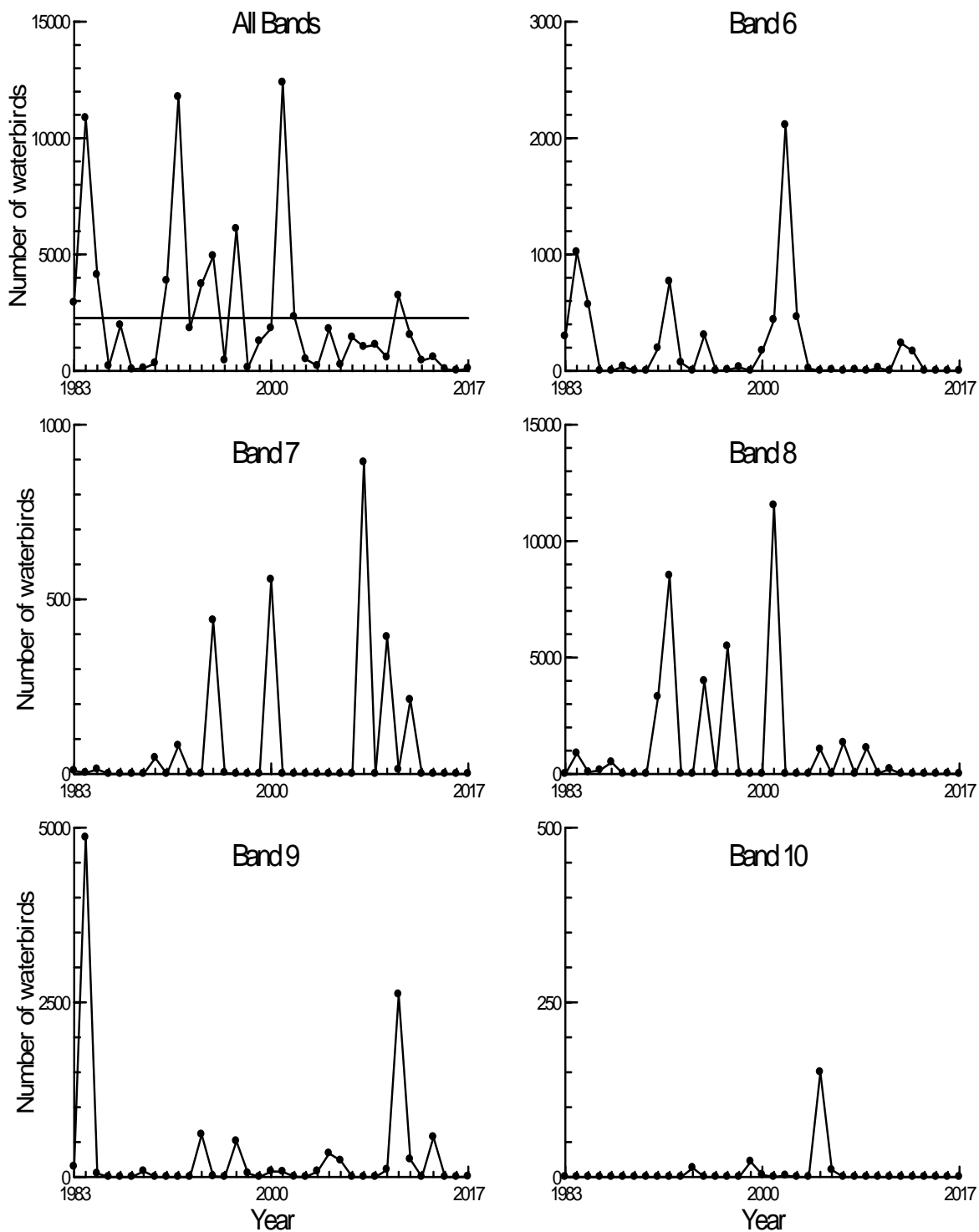
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Figure 20. Freckled duck Bands 1-5



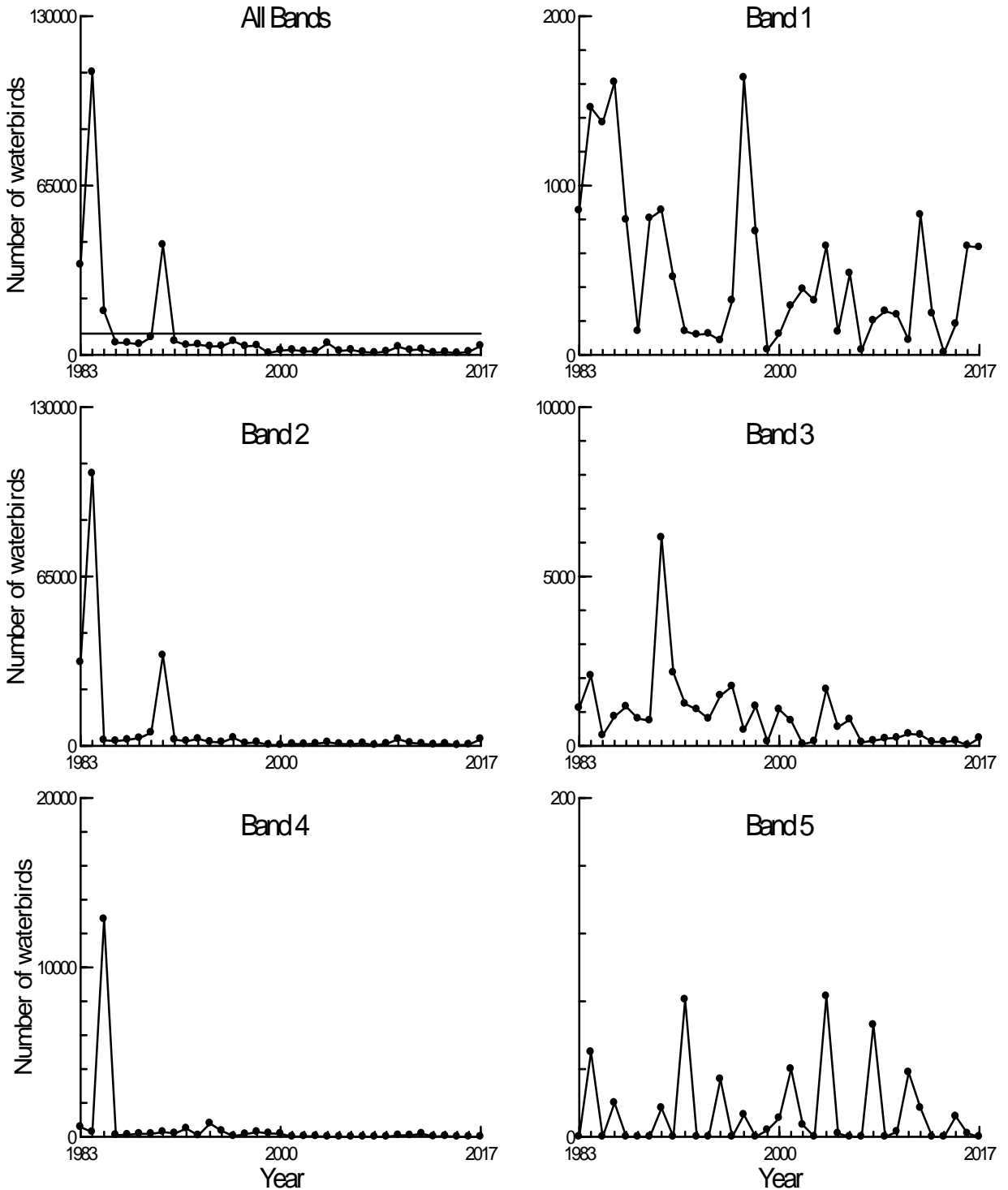
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Figure 21. Freckled duck Bands 6-10



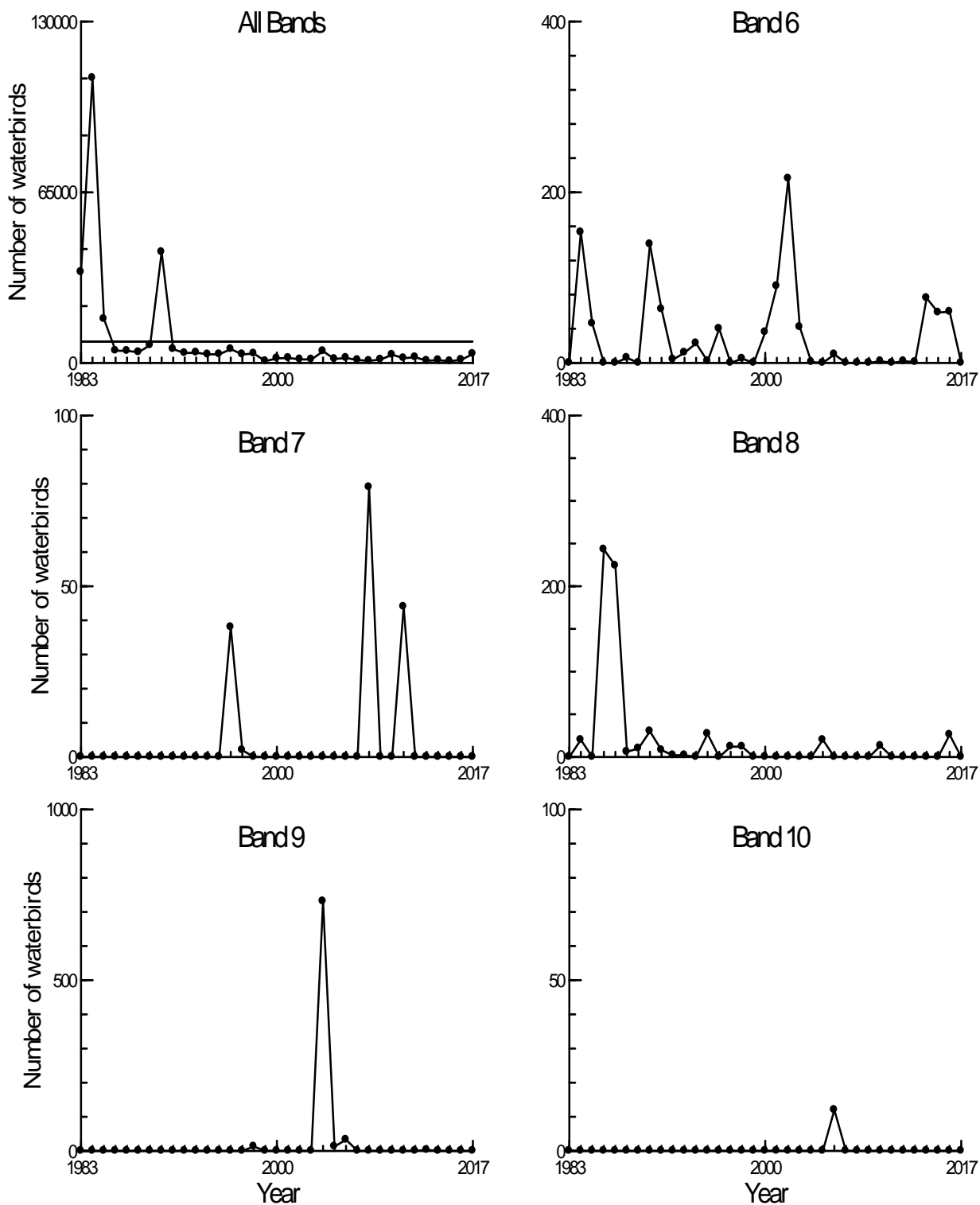
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Figure 22. Australian shelduck Bands 1-5



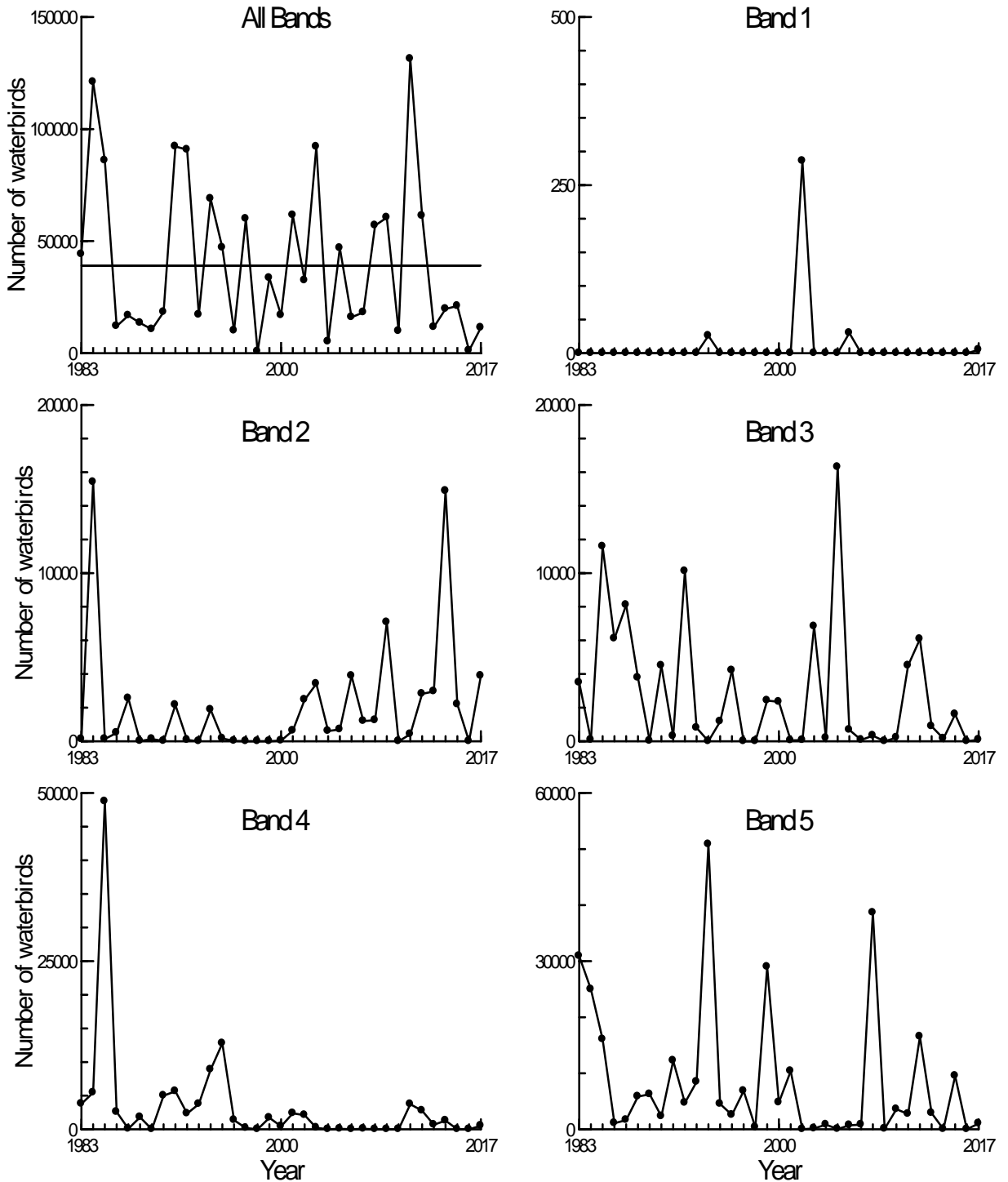
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Figure 23. Australian shelduck Bands 6-10



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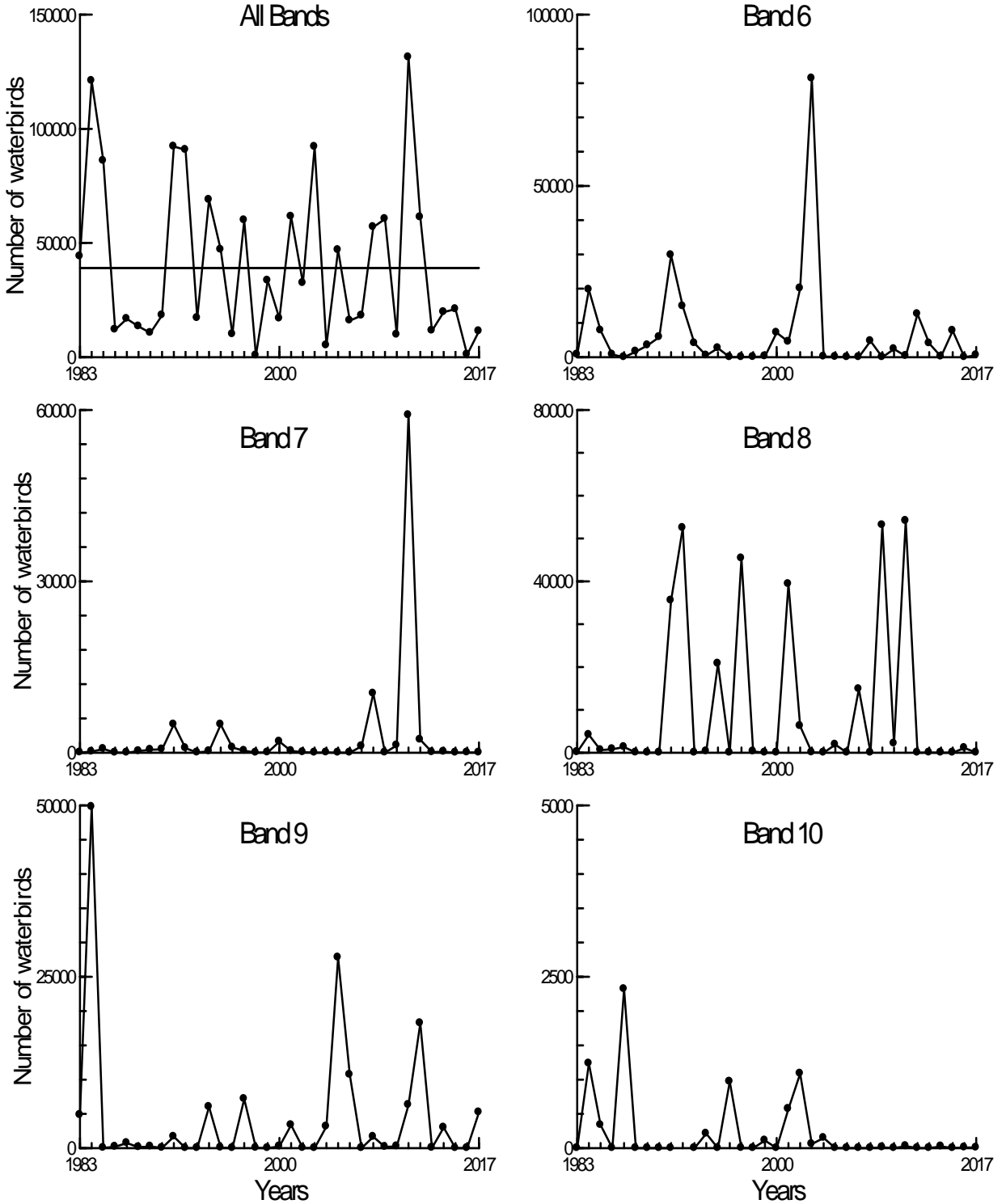
Figure 24. Pink-eared duck Bands 1-5



Scales vary on graphs – dashed line indicates long term average

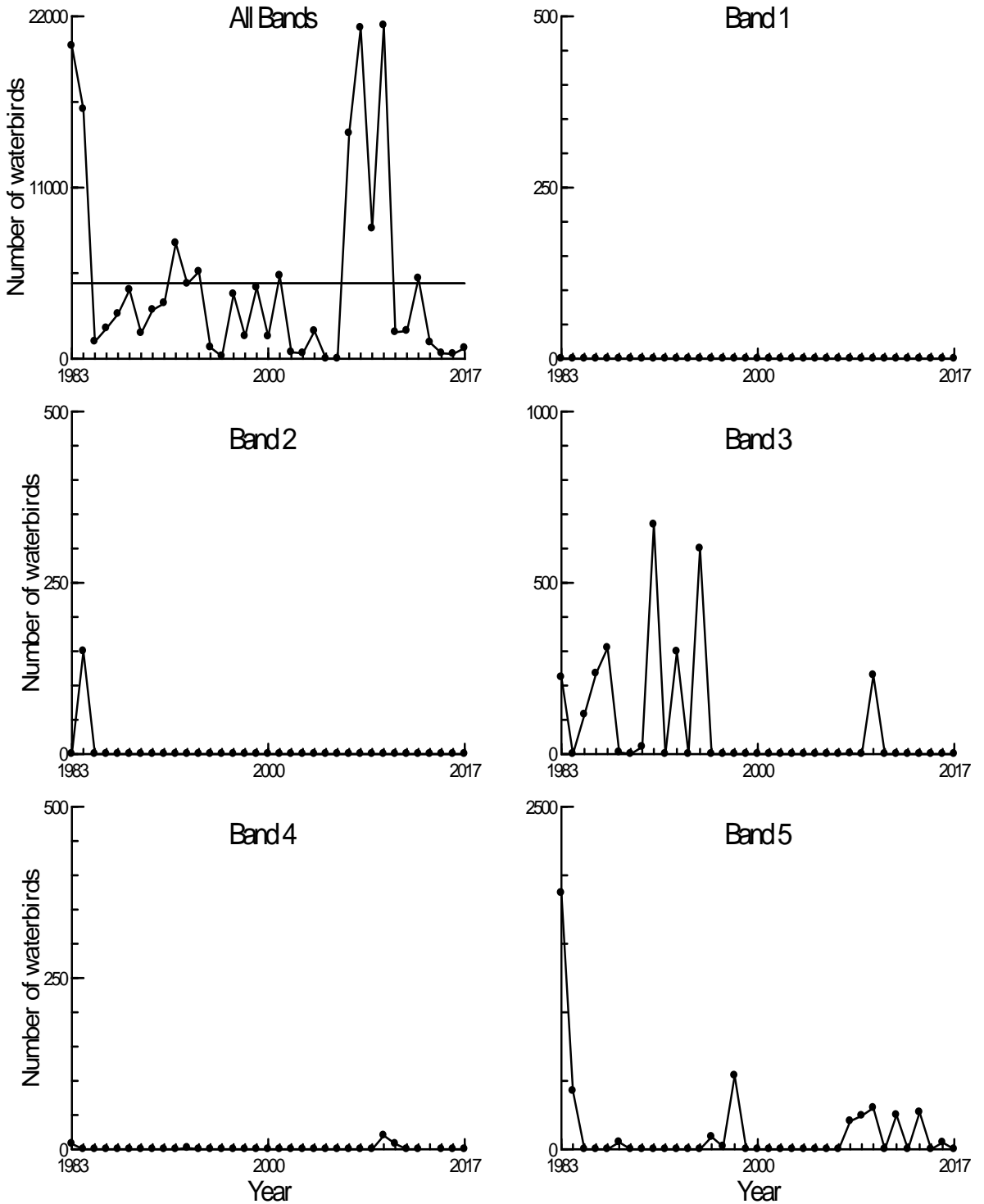


Figure 25. Pink-eared duck Bands 6-10



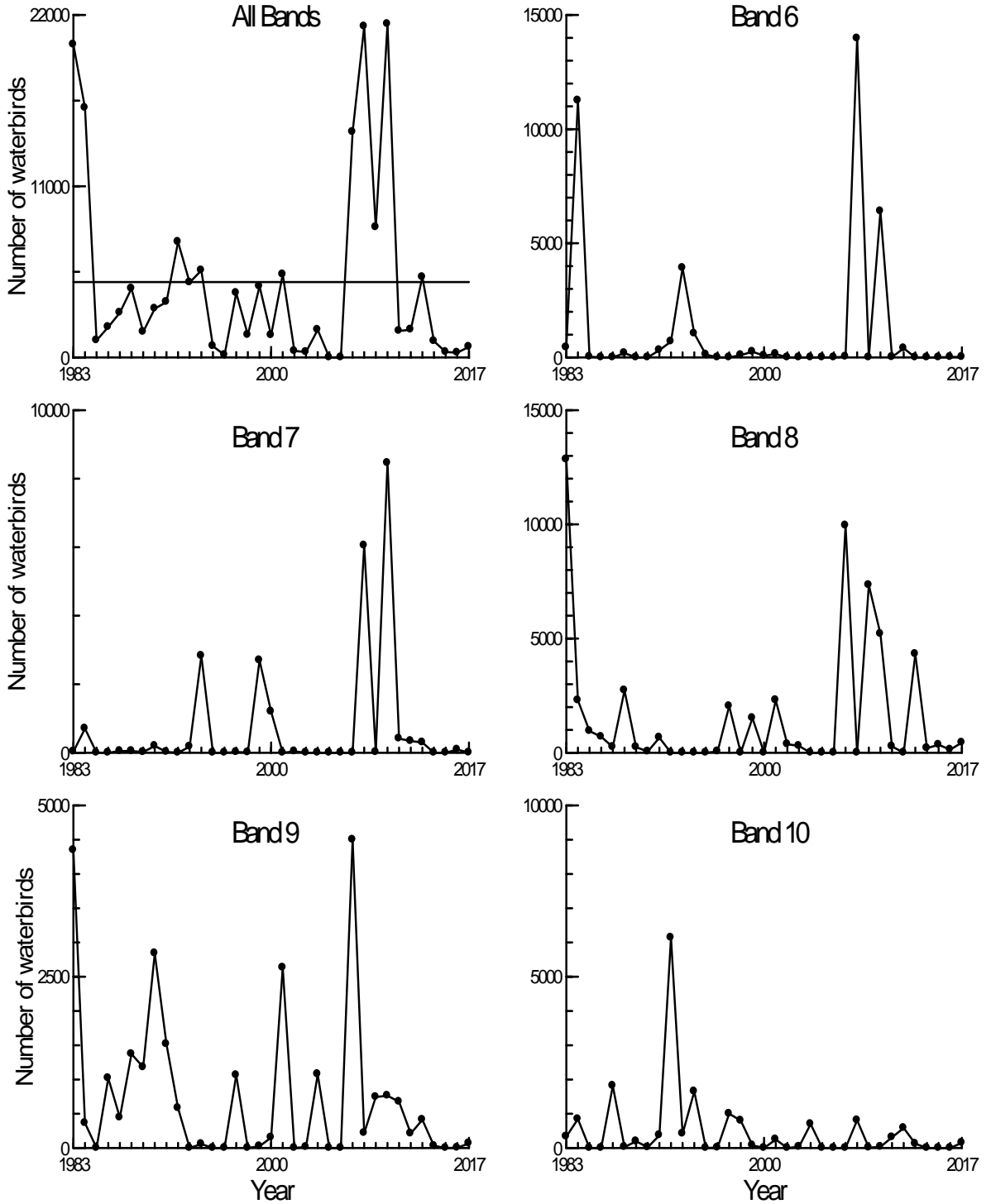
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Figure 26. Plumed whistling-duck Bands 1-5



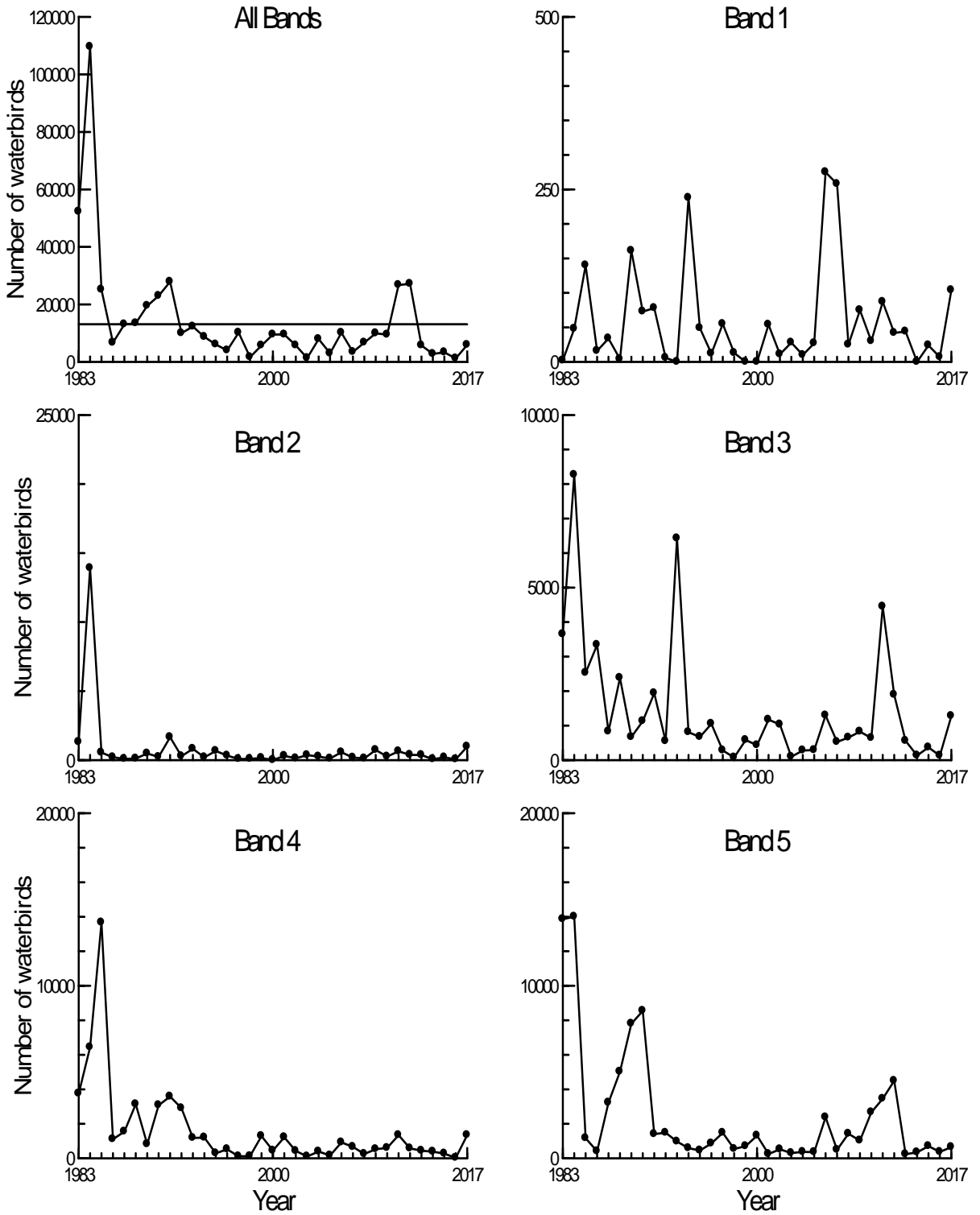
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Figure 27. Plumed whistling-duck Bands 6-10



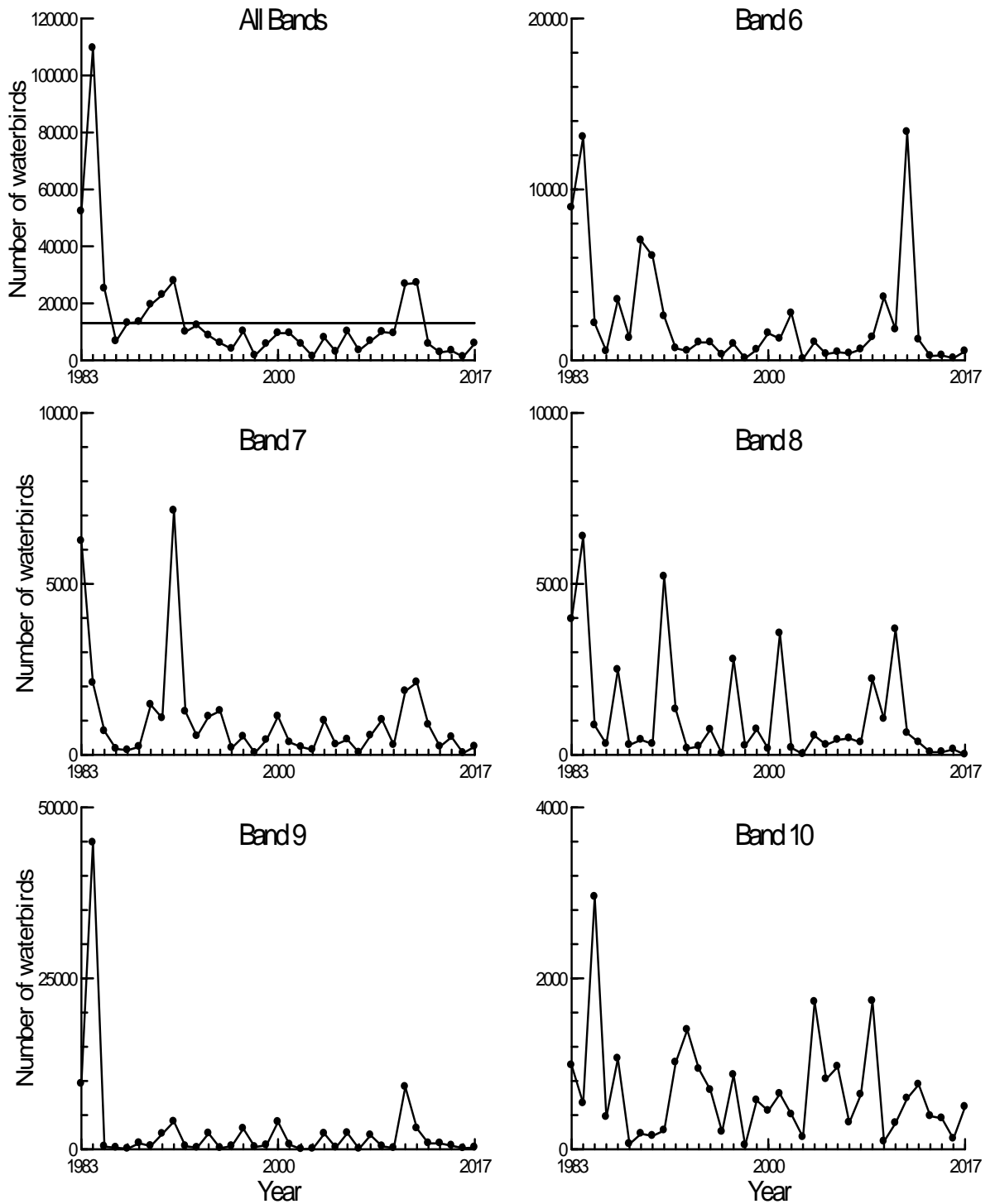
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Figure 28. Australian wood duck Bands 1-5



Scales vary on graphs – dashed line indicates long term average

Figure 29. Australian wood duck Bands 6-10



Scales vary on graphs – dashed line indicates long term average

## References

1. Bureau of Meteorology (BOM) 2017 Monthly Weather review. Australian Government. Accessed 04/12/2017 <<http://www.bom.gov.au/climate/mwr/>>
2. Queensland Government 2017 Drought declarations (Department of Agriculture and Fisheries). Accessed 04/12/2017 <<https://www.longpaddock.qld.gov.au/queenslanddroughtmonitor/queenslanddroughtreport/>>