



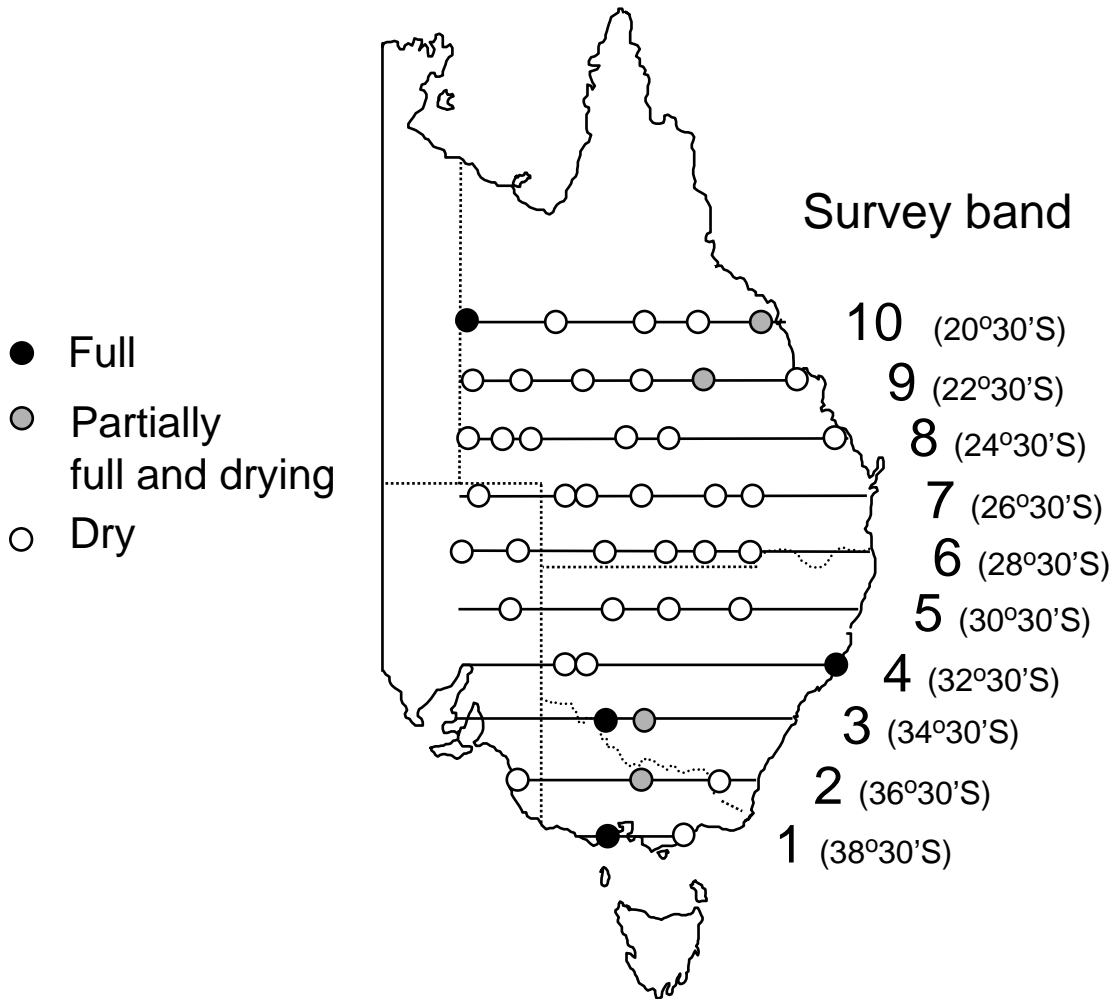
## **Aerial Survey of Wetland Birds in Eastern Australia - October 2006 Annual Summary Report**

**R.T. Kingsford, J.L. Porter & S.J. Hunter**

### **Results**

1. Severe and widespread drought continues to affect wetlands, floodplains and rivers in eastern Australia.
2. This is one of the driest years on record, with limited wetland habitat available throughout the survey area (Fig.1). The southern Coorong was dry for the first time on record. The Paroo Overflow, Bulloo Overflow, Macquarie Marshes and Menindee Lakes were dry or almost dry. Most northern rivers in the Murray-Darling Basin, Lake Eyre, Cooper Creek, Gippsland Lakes and the Diamantina River were also dry.
3. Wetland area index was the lowest on record (Fig. 2). Available wetland habitat was mostly (66%) distributed in the south (Bands 2-4). Band 2 contained 18% of total wetland area; Band 3 had 31% and Band 4 had 17% (Fig. 3).
4. Total waterbird abundance was low (second lowest on record; Fig. 3) and waterbirds were strongly clustered on a few wetlands. Two northern Queensland systems had 56% of total waterbird abundance: Lake Galilee (43%, band 9) and Lake Moondarra (13%, band 10). In band 3, Fivebough Swamp held 6% of total abundance (Fig. 4).
5. Total breeding index (all species combined) was the lowest ever recorded, and concentrated (76%) in three locations (two in Band 1 and one in Band 9) (Figs 4-6). Breeding species richness was low, with two non-game species White Ibis and Black Swan comprising most of the total (56% & 38%). Breeding within all survey bands was also very low (Figs 7 & 8).
6. Low numbers of waterbirds and breeding on key wetland systems including Macquarie Marshes extends a sequence of below average years (Figs 5 & 6). A combination of severe drought and long term effects of river regulation, continues to impact on wetland area, waterbird abundance and breeding.
7. Species at or near their lowest recorded numbers in 23 years included: Plumed whistling-Duck, Australasian shoveler, Chestnut Teal, Burdekin duck, Banded Plover, Black-necked Stork, Yellow-billed spoonbill, Royal spoonbill, Musk Duck and Blue-billed Duck (Figs 9-29).

Figure 1. Wetland map 2006



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

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

Figure 2. Total wetland area

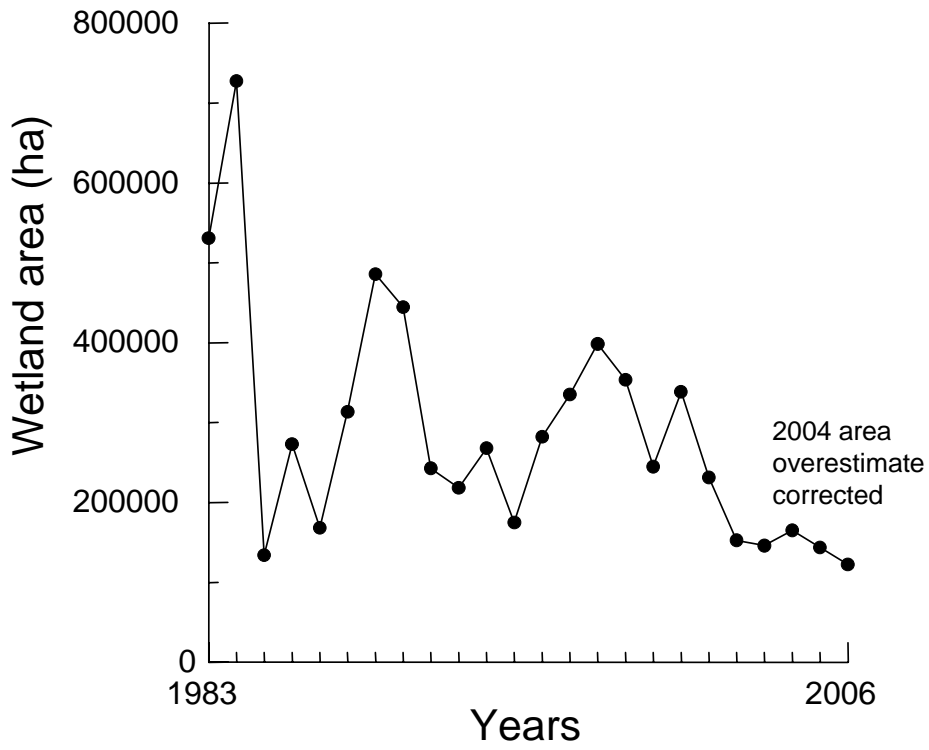


Figure 3. Total waterbirds

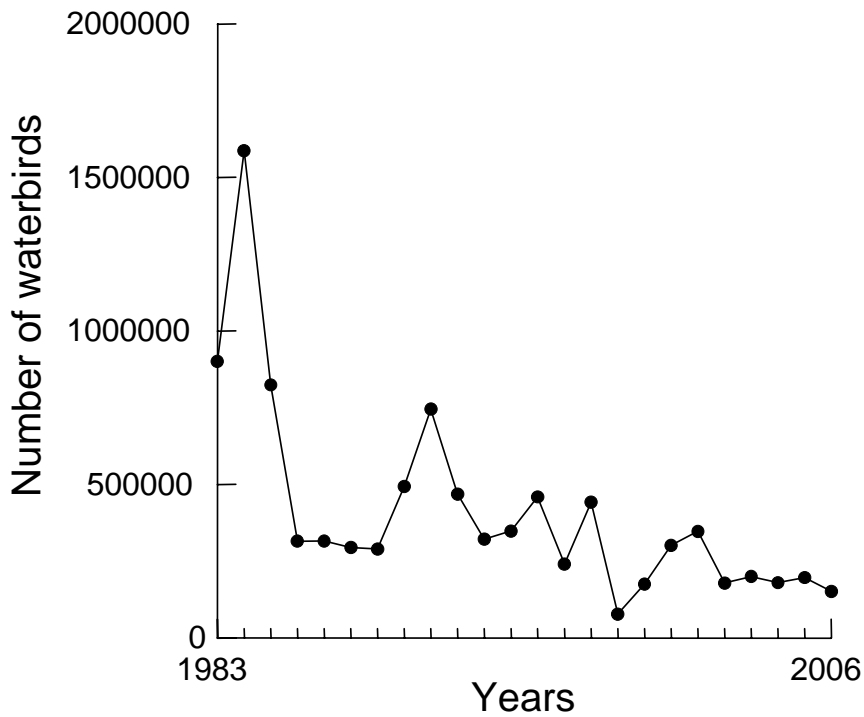
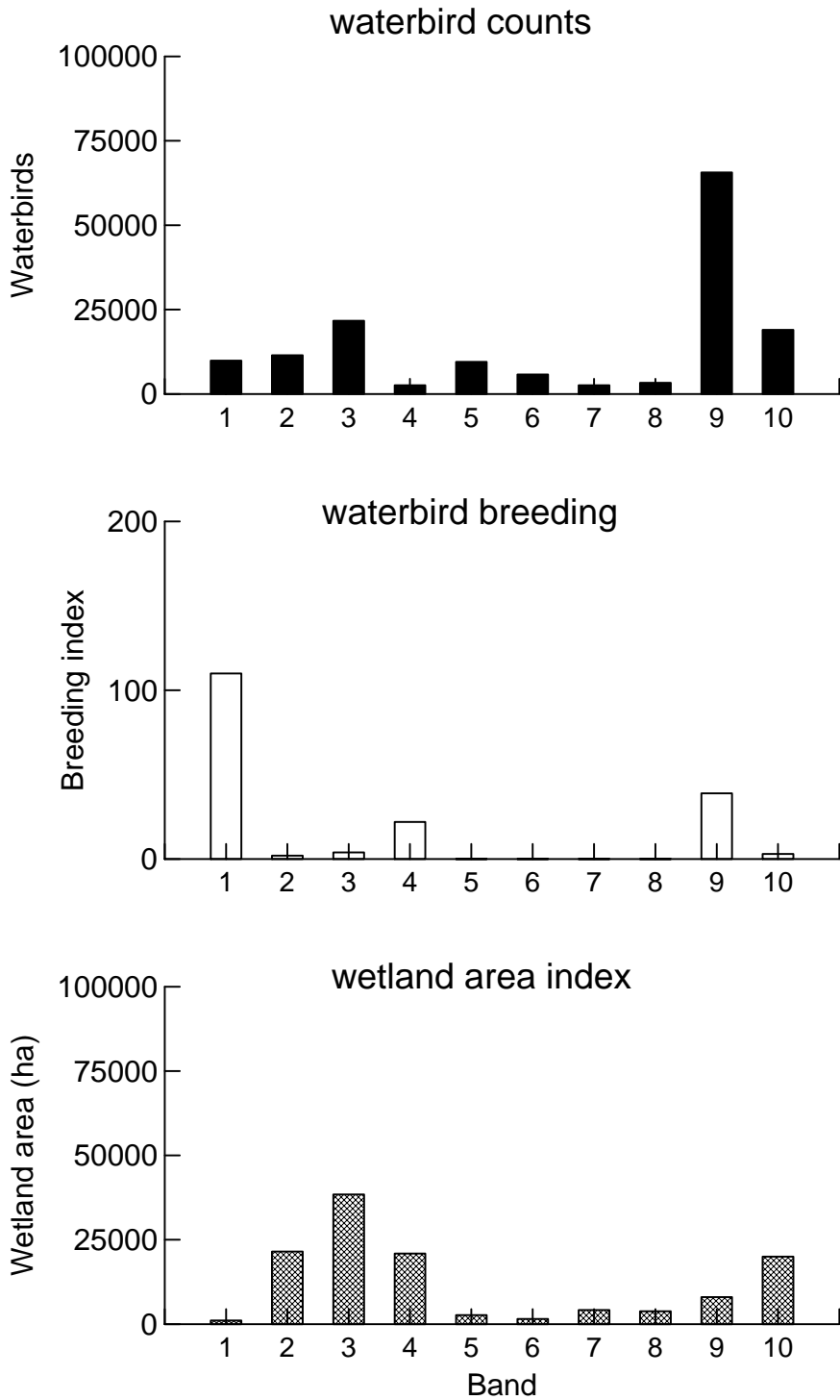


Figure 4. Band totals 2006



nb: graphs are drawn to different y axis scales

Figure 5. Breeding index (all species)

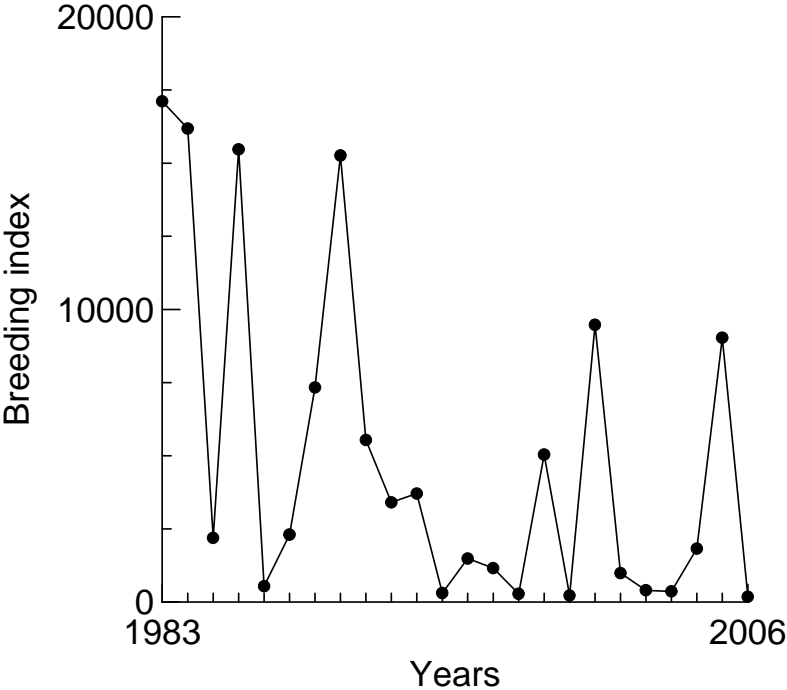
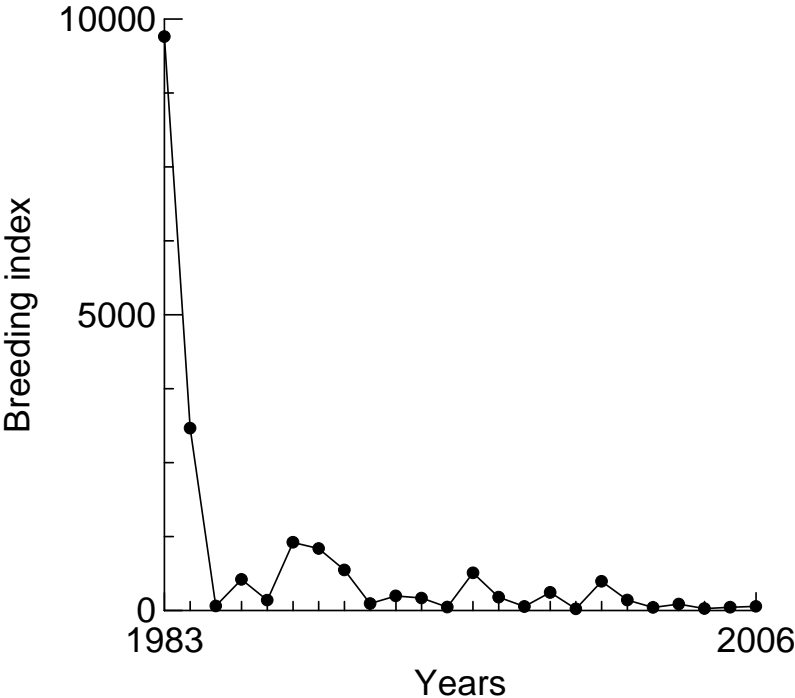
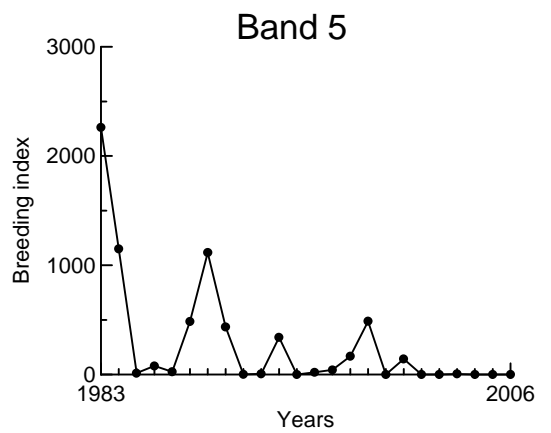
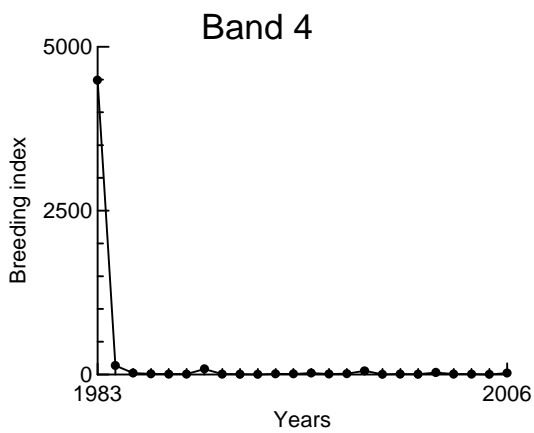
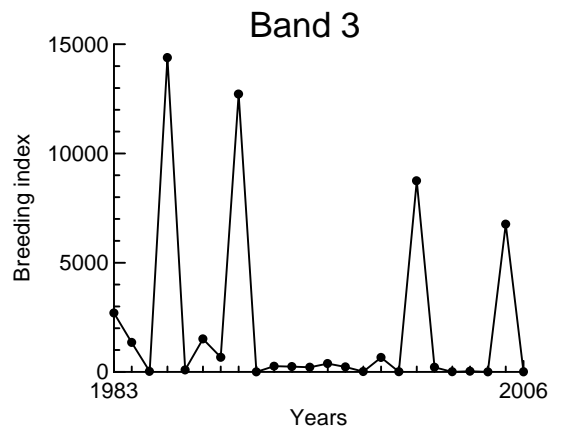
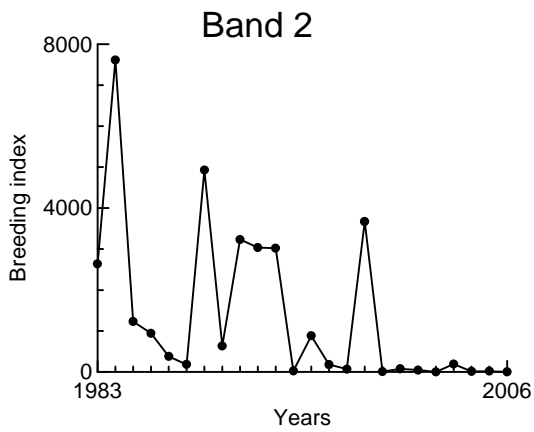
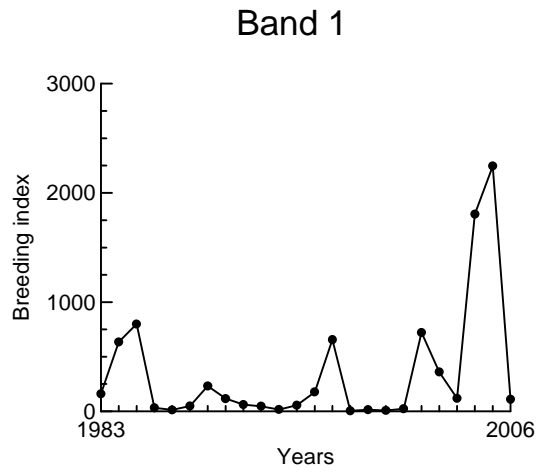
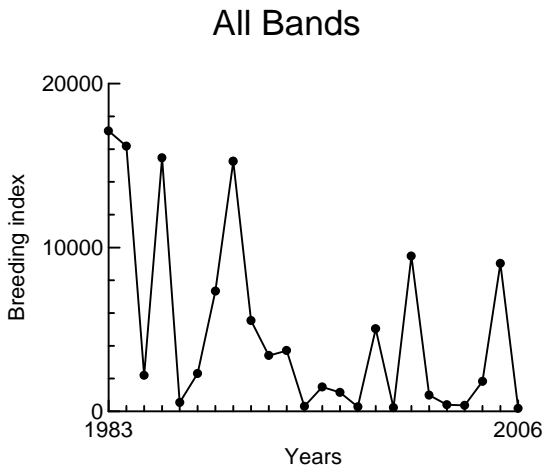


Figure 6. Black Swan breeding index



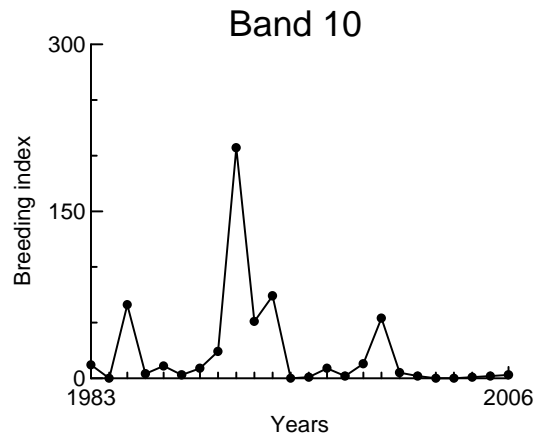
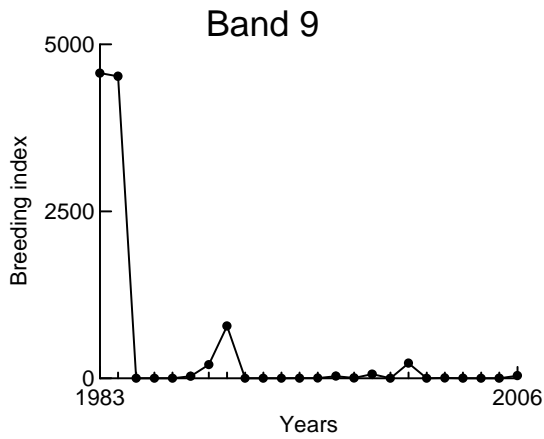
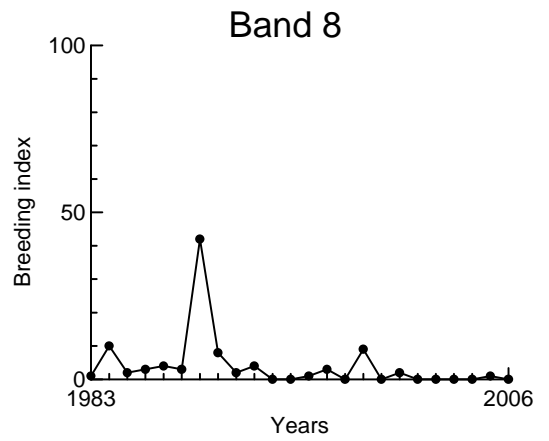
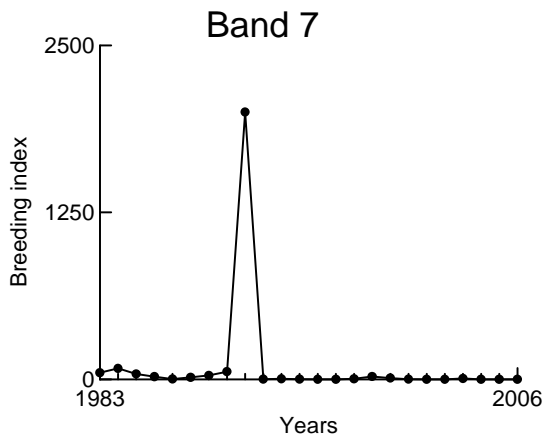
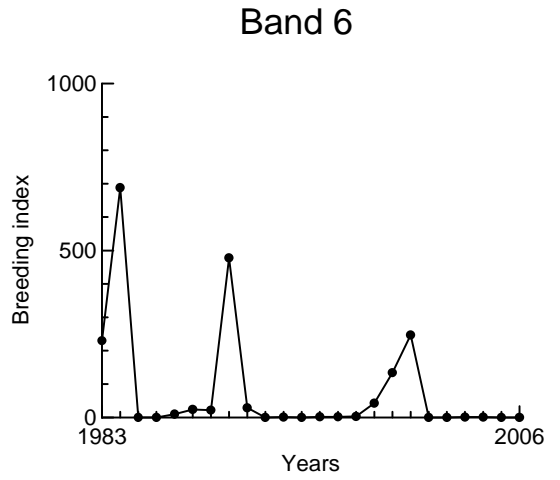
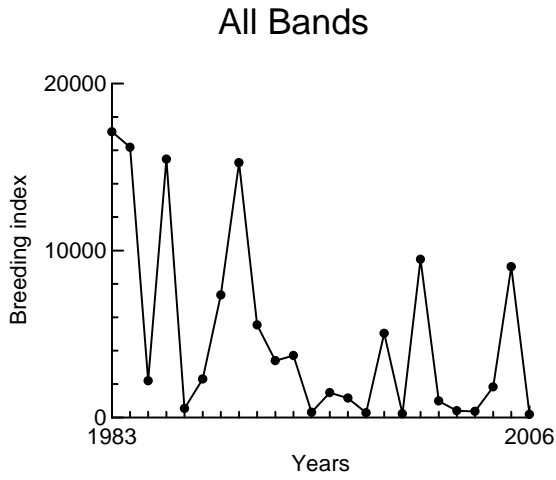
Scales vary on graphs

Figure 7. Breeding index 1-5



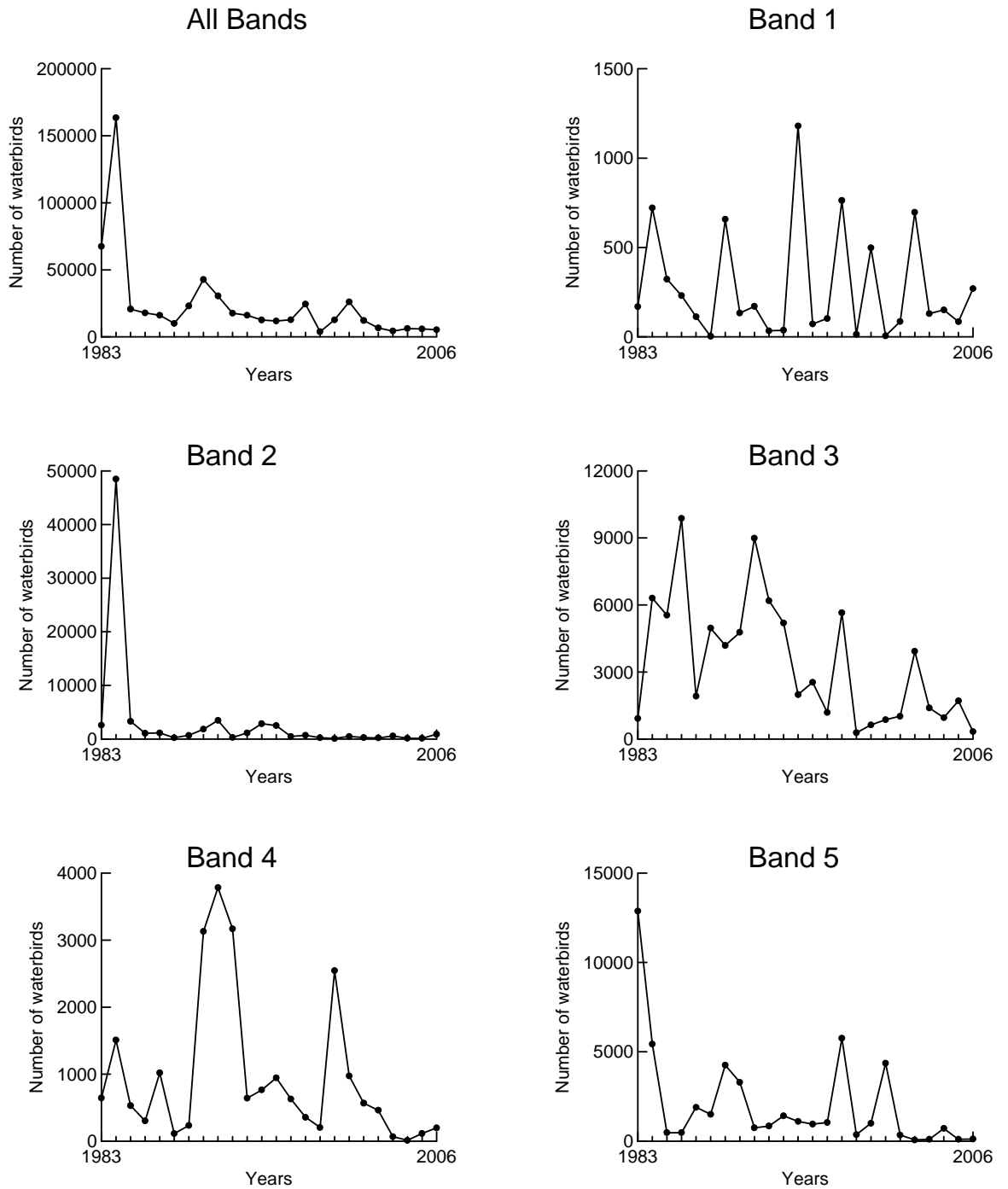
Scales vary on graphs

Figure 8. Breeding index 6-10



Scales vary on graphs

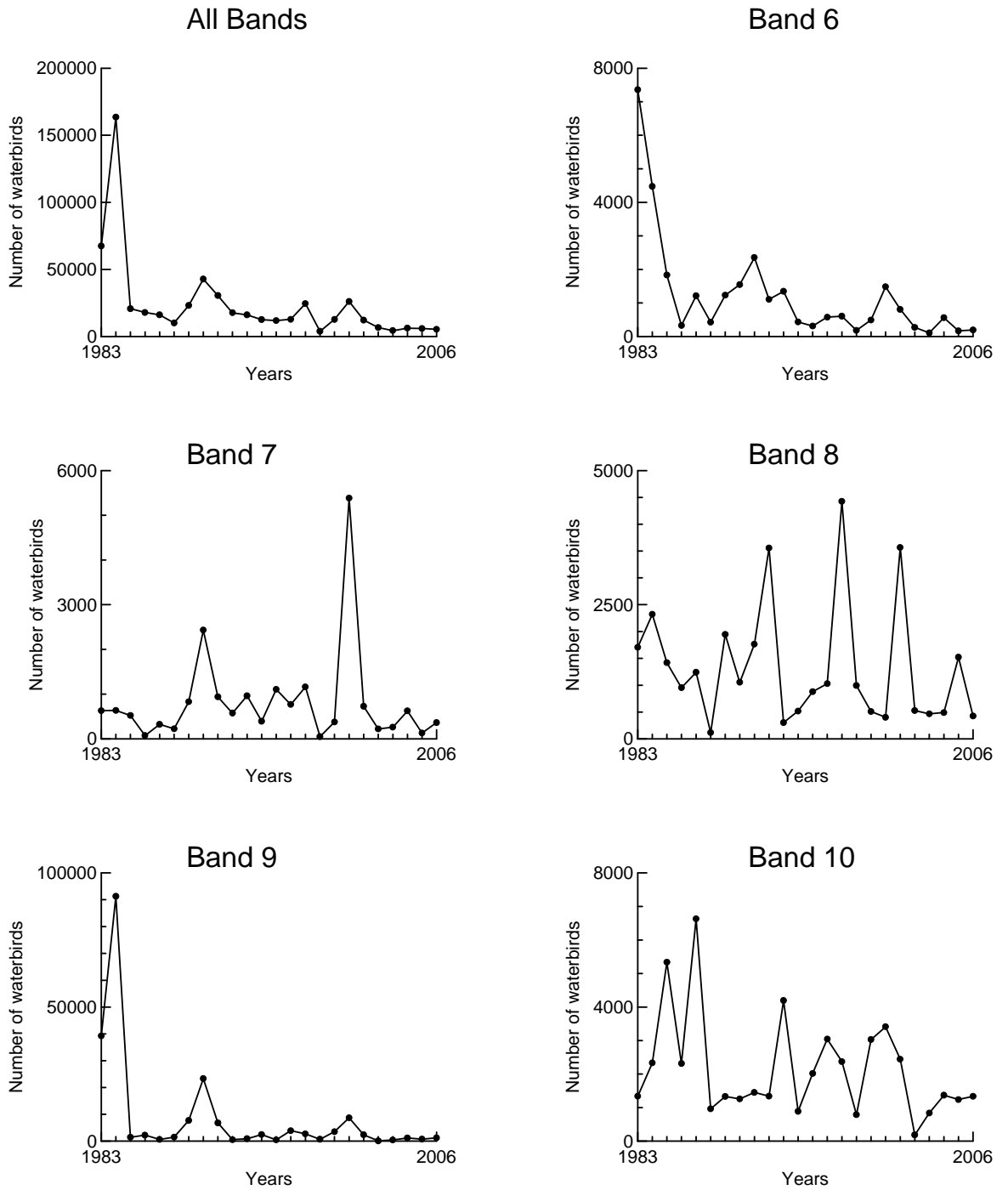
# Figure 9. Pacific black duck 1-5



Scales vary on graphs

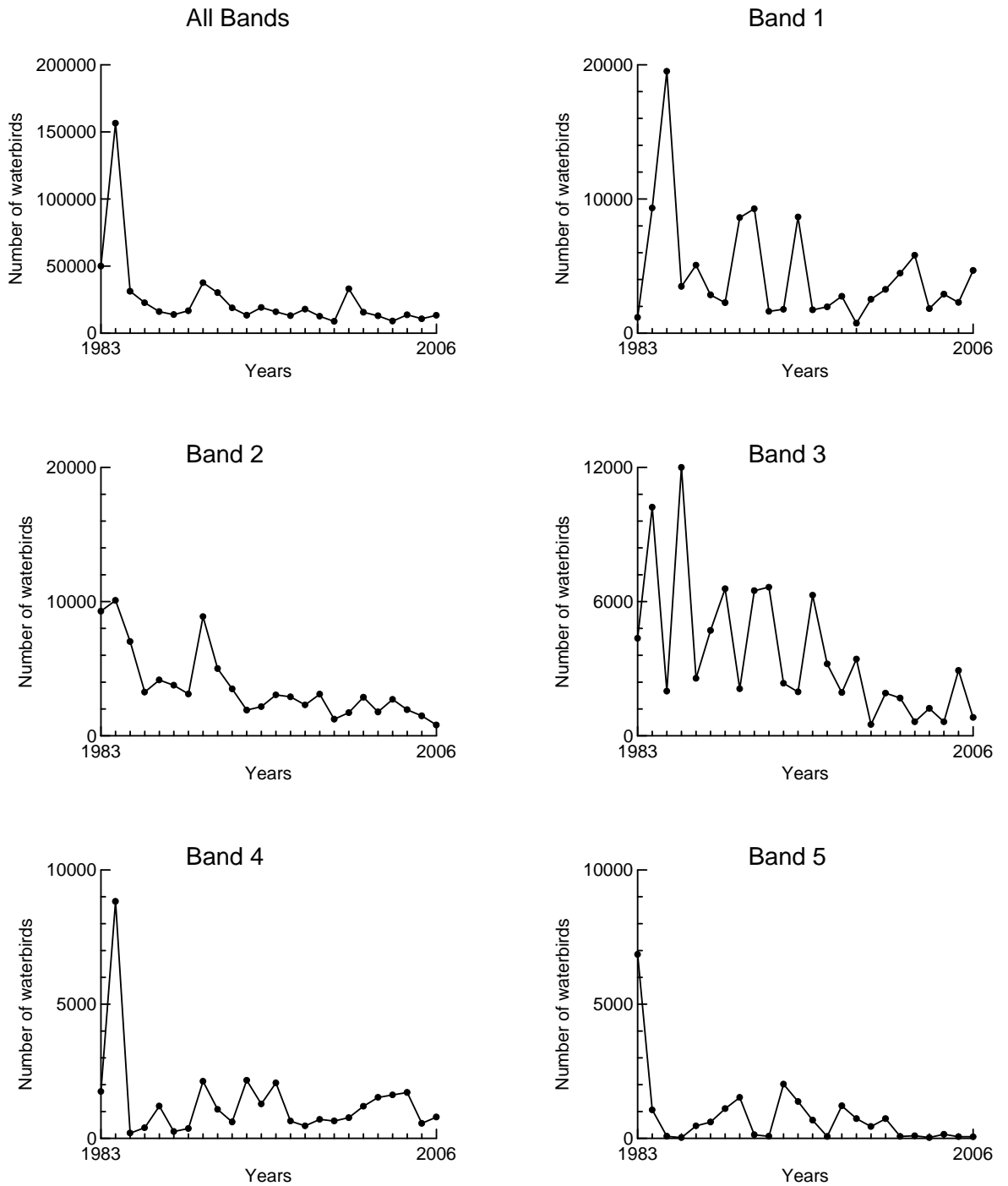


# Figure 10. Pacific black duck 6-10



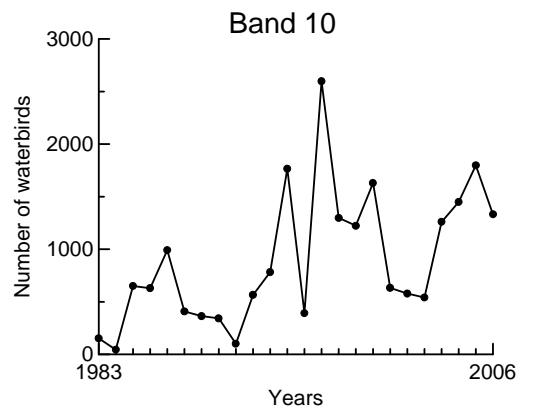
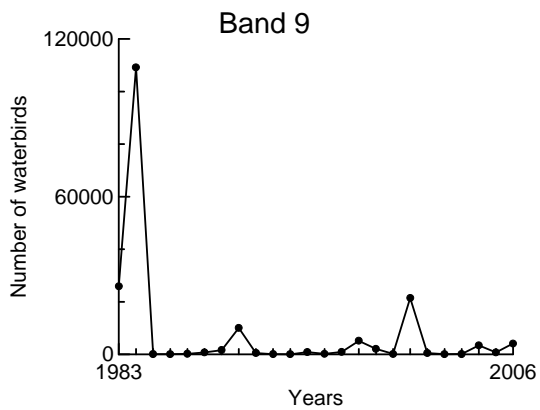
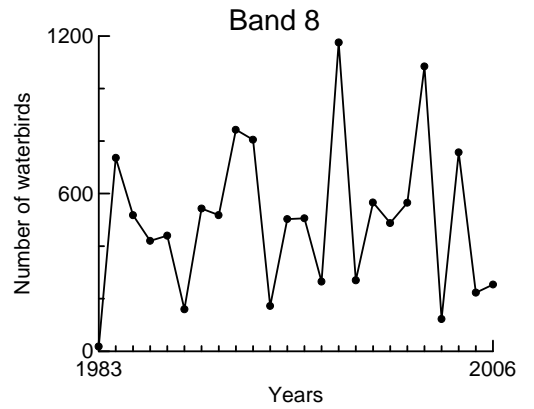
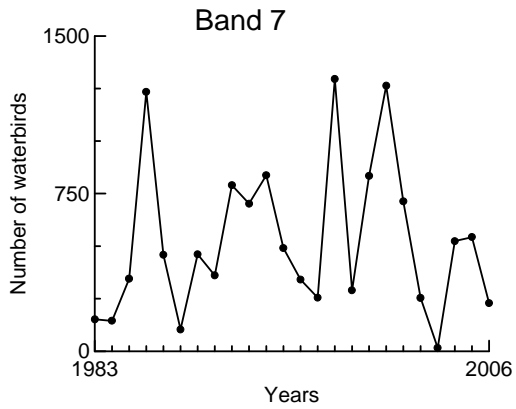
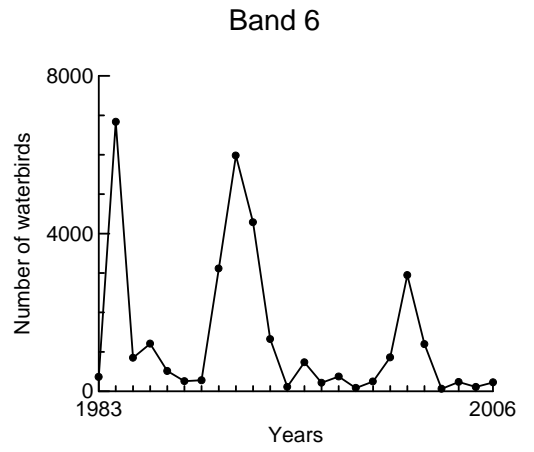
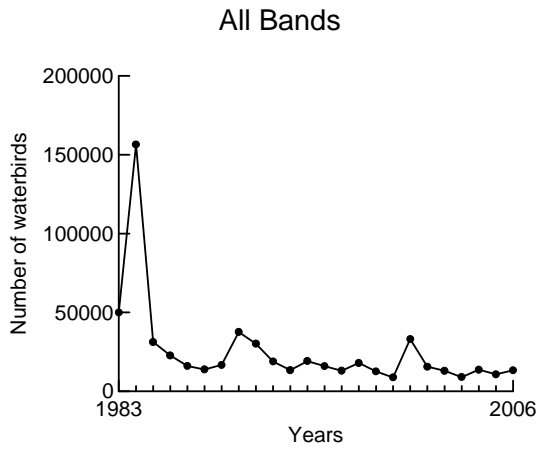
Scales vary on graphs

# Figure 11. Black swan 1-5



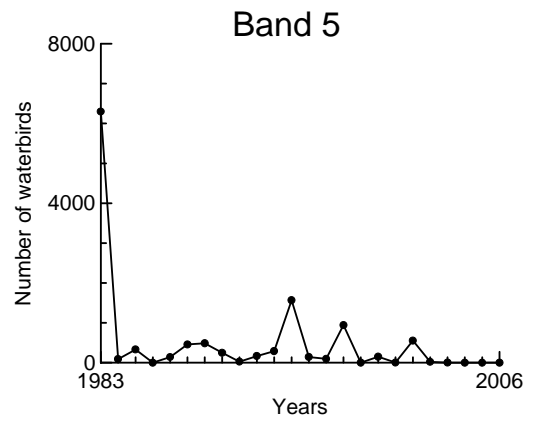
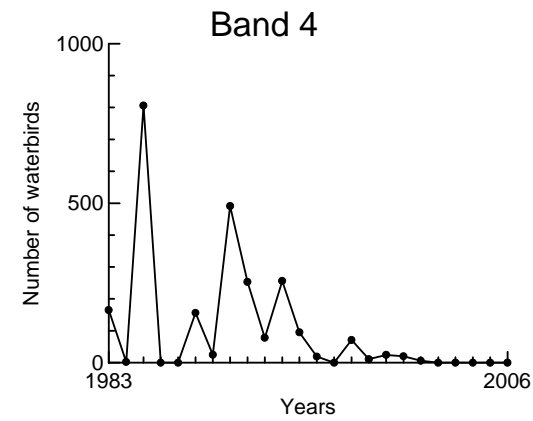
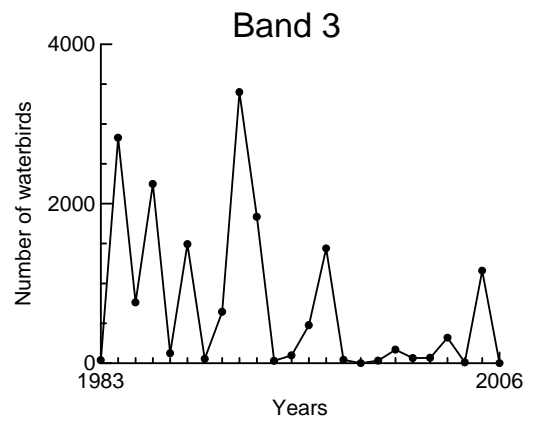
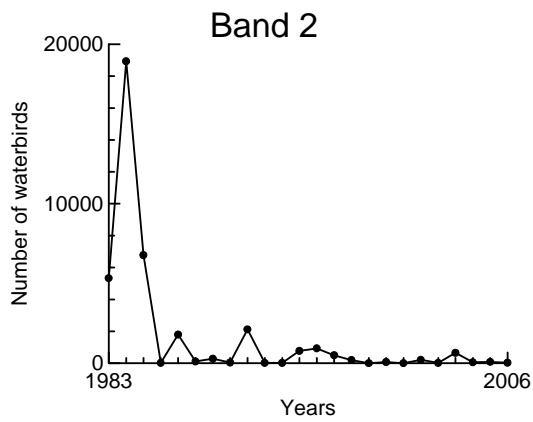
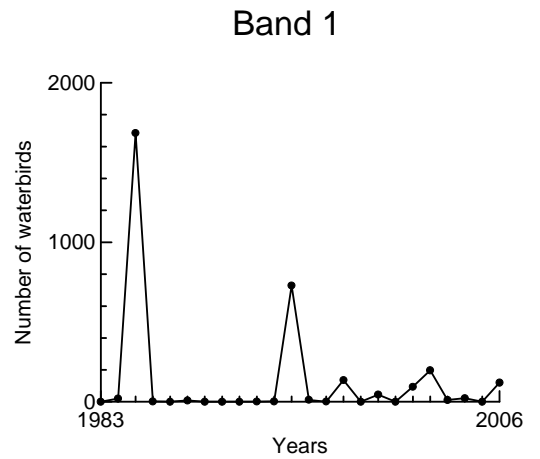
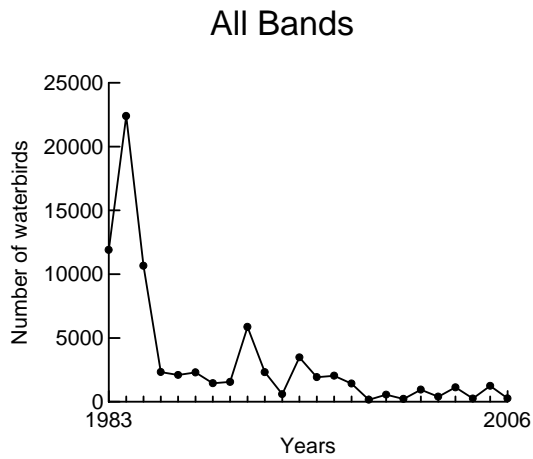
Scales vary on graphs

# Figure 12. Black swan 6-10



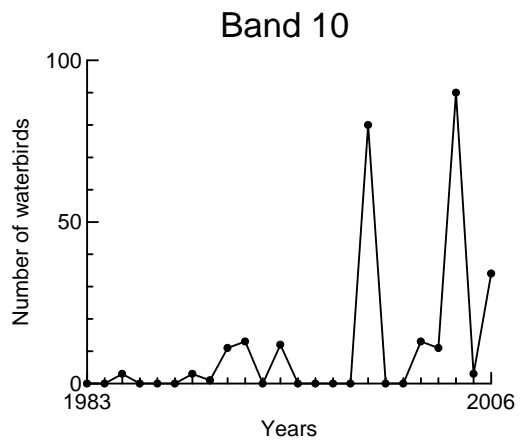
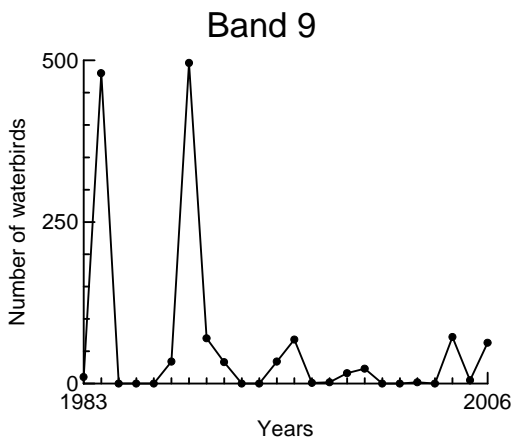
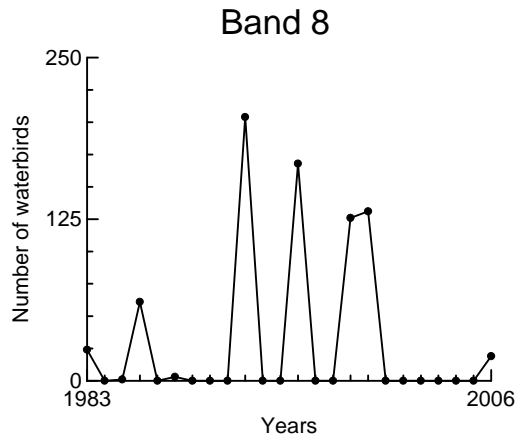
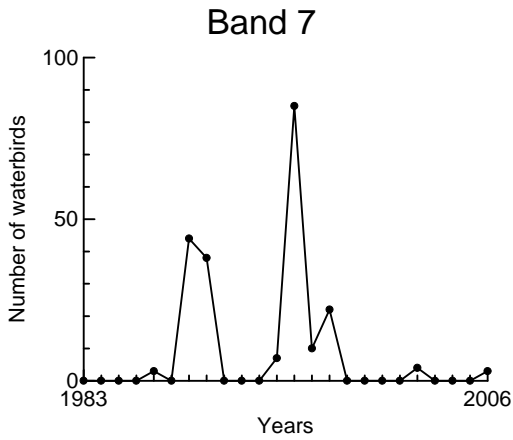
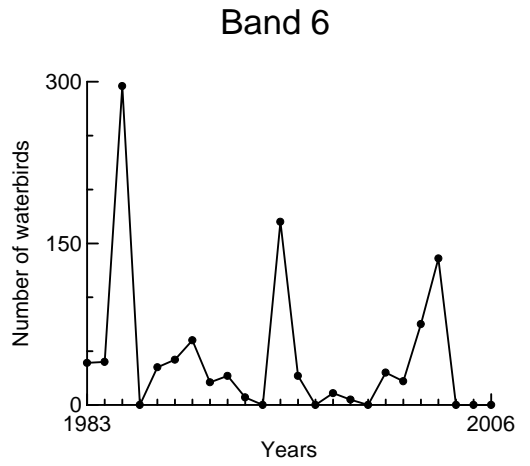
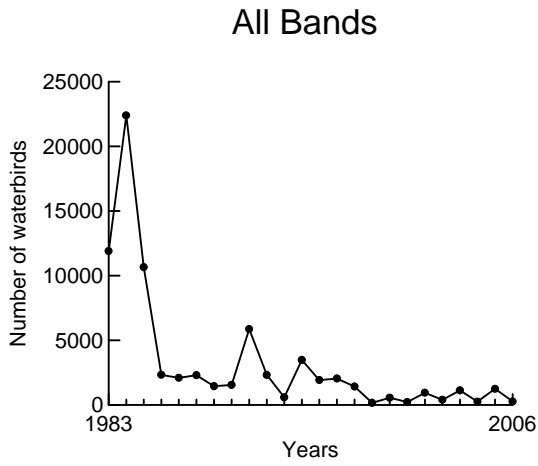
Scales vary on graphs

Figure 13. Australasian shoveler 1-5



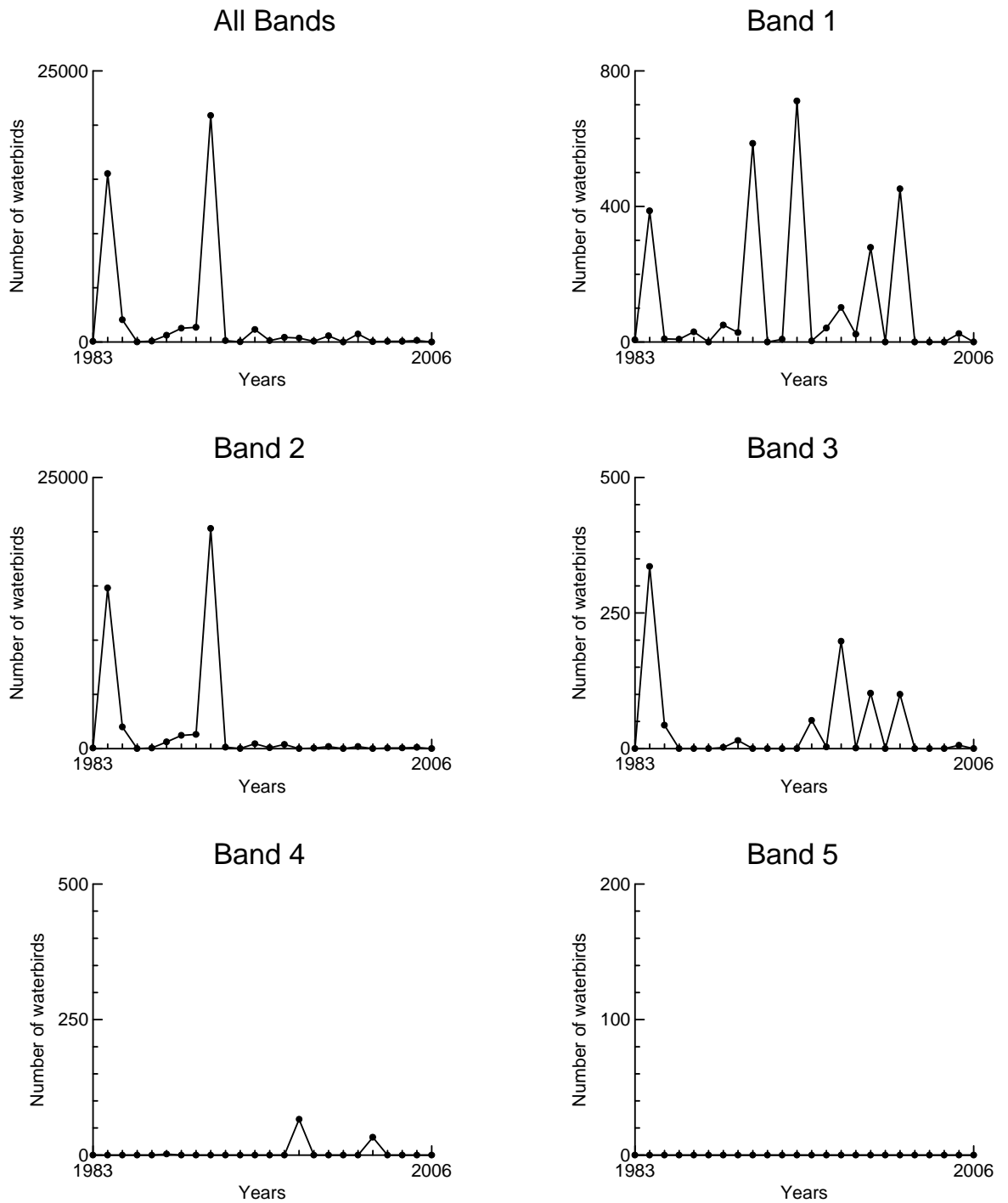
Scales vary on graphs

Figure 14. Australasian shoveler 6-10



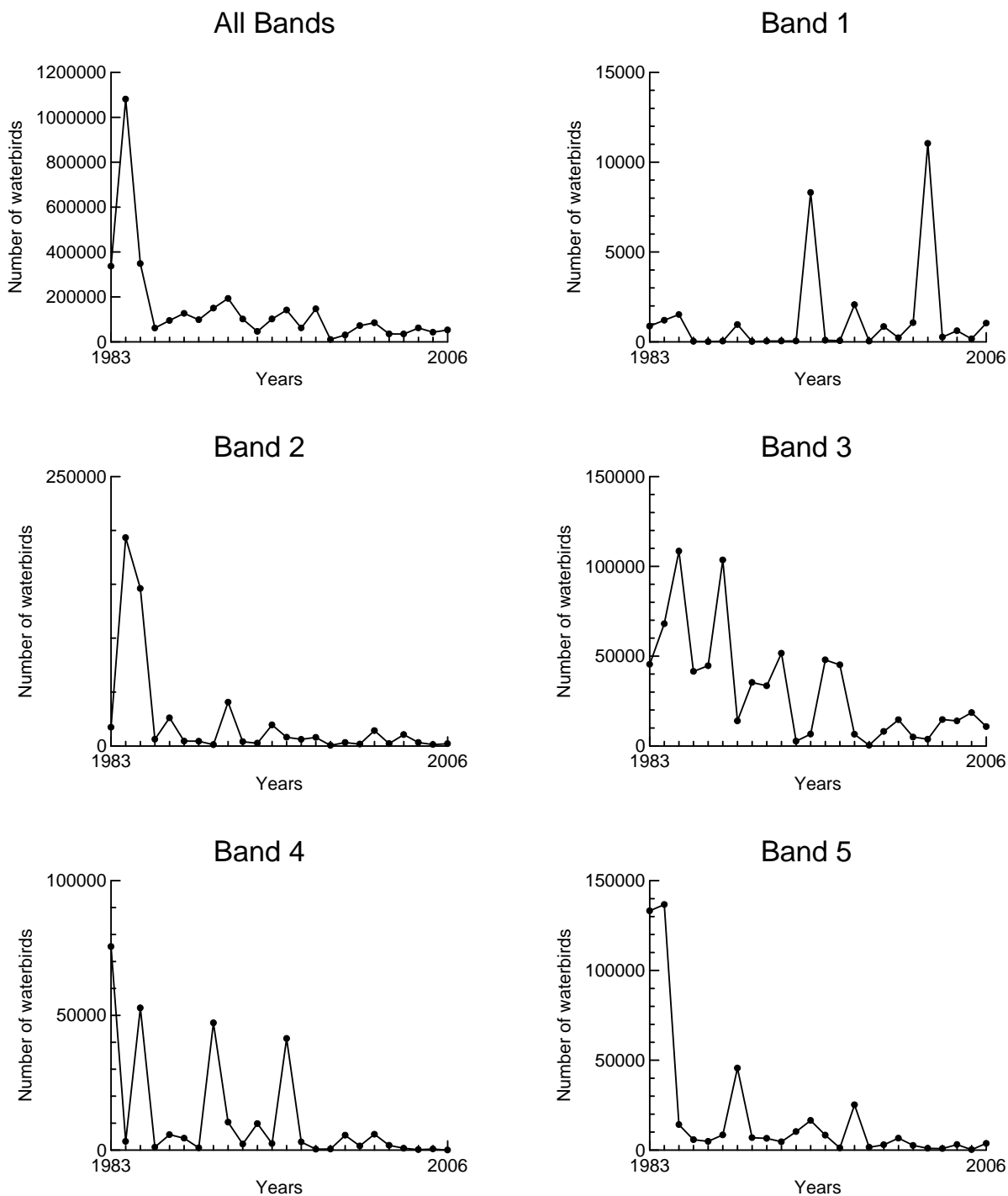
Scales vary on graphs

# Figure 15. Chestnut teal 1-5



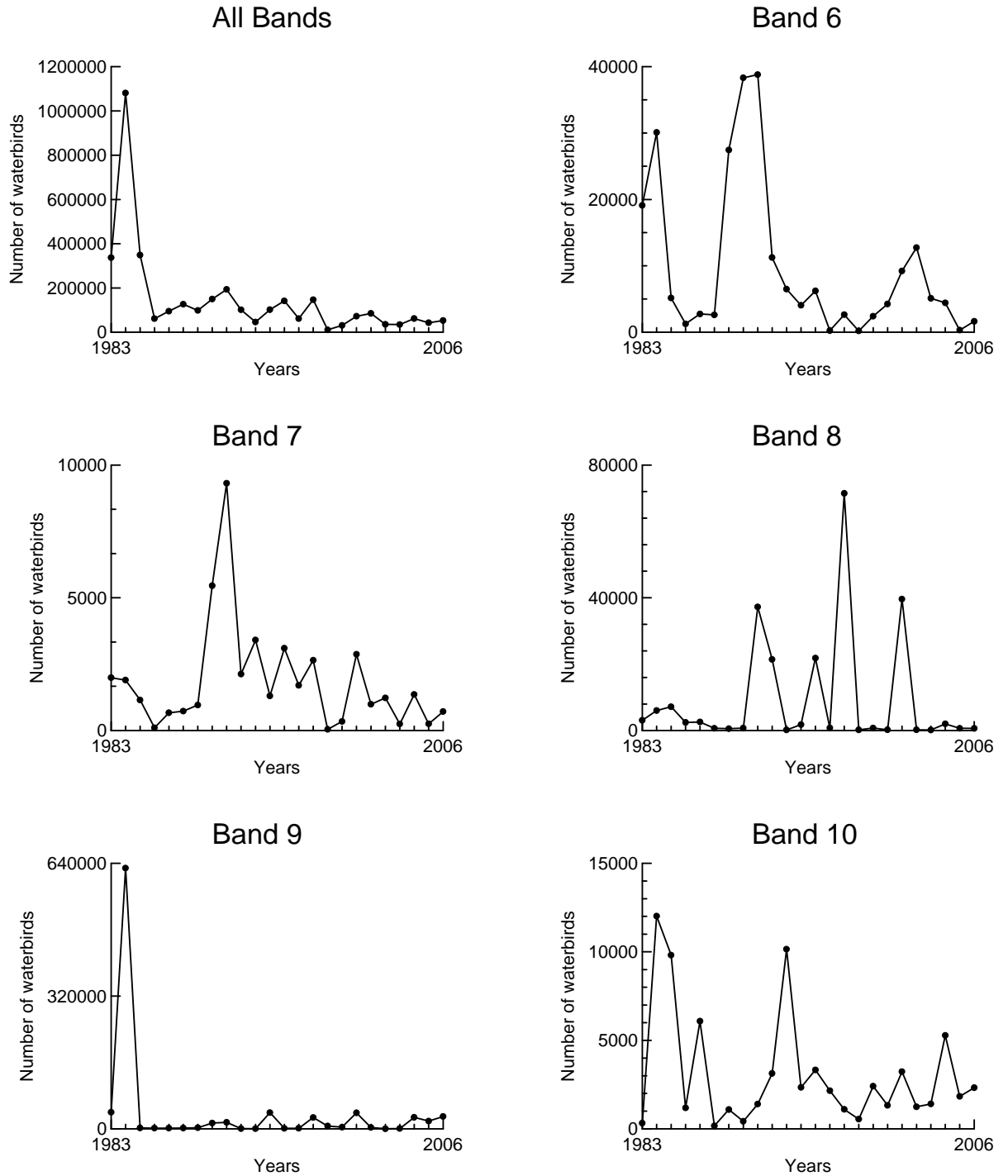
Scales vary on graphs

# Figure 16. Grey teal 1-5



Scales vary on graphs

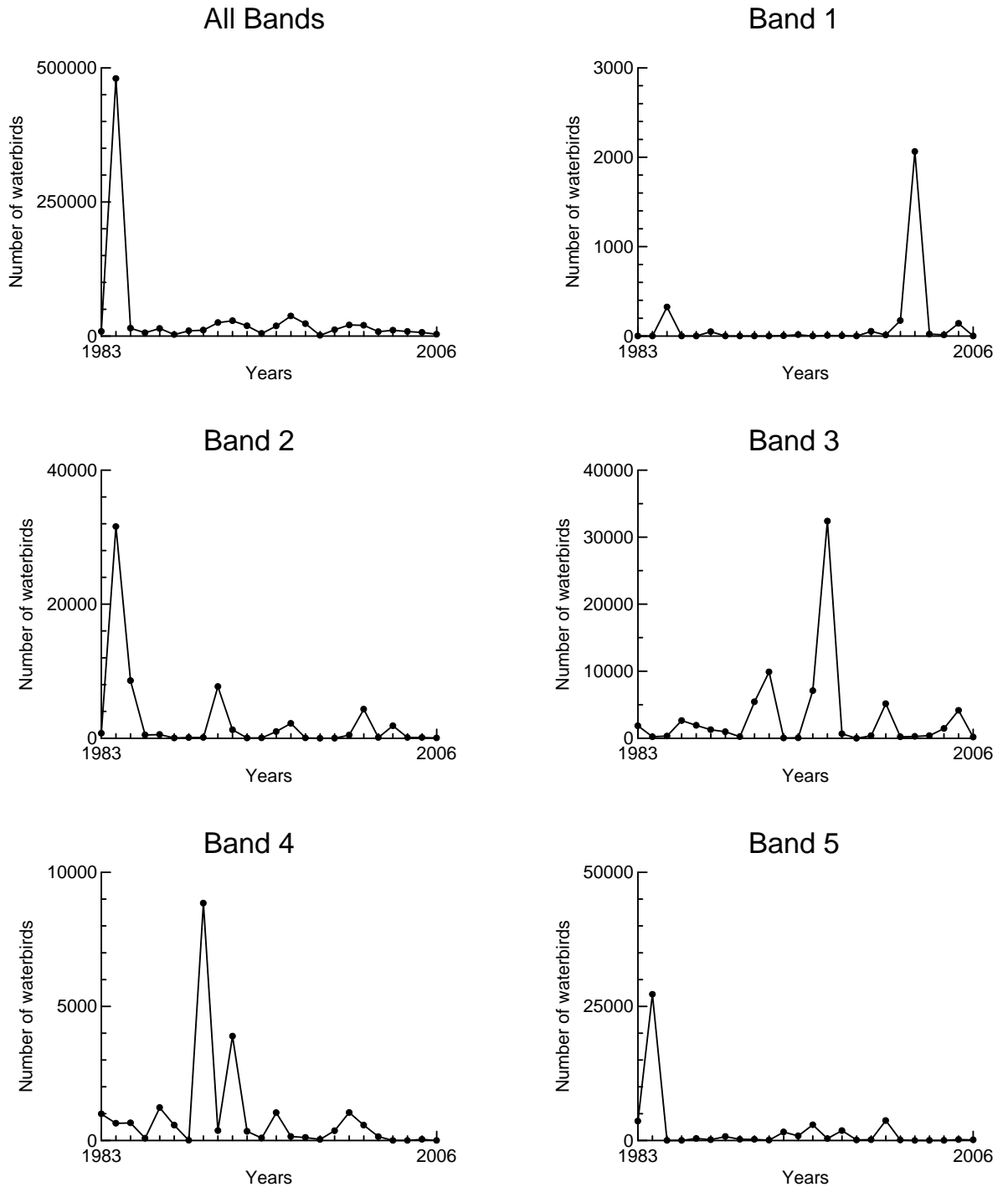
# Figure 17. Grey teal 6-10



Scales vary on graphs



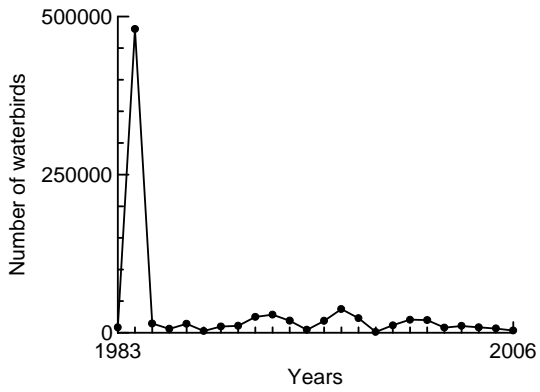
Figure 18. Hardhead 1-5



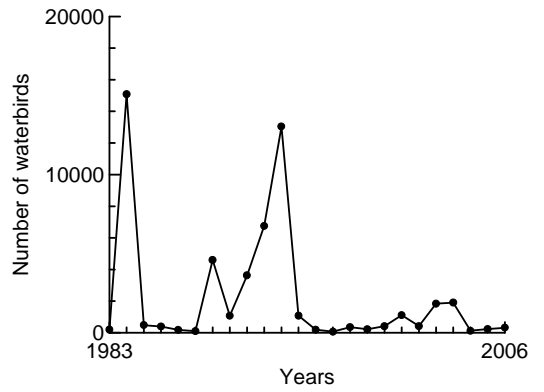
Scales vary on graphs

# Figure 19. Hardhead 6-10

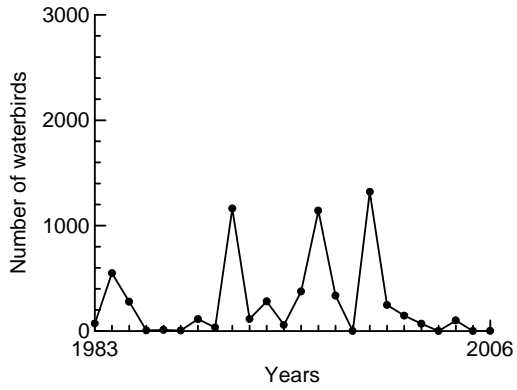
## All Bands



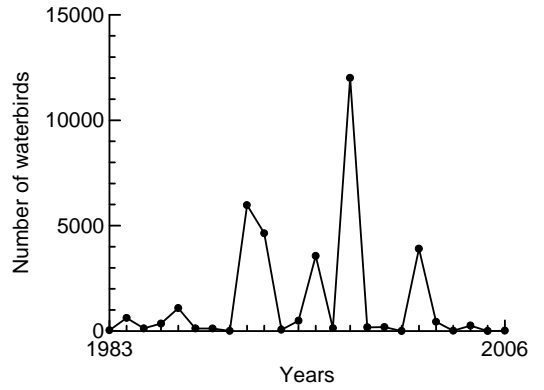
## Band 6



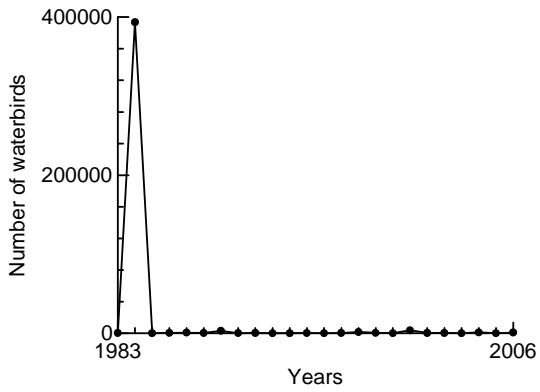
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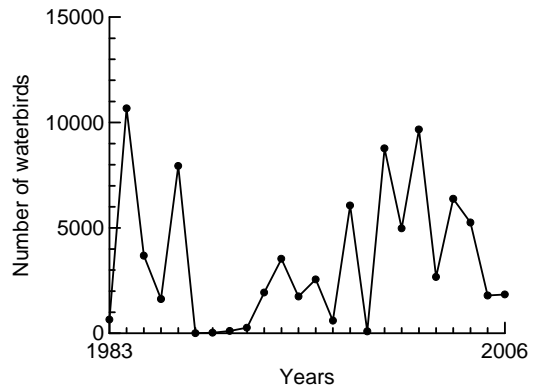
## Band 8



## Band 9

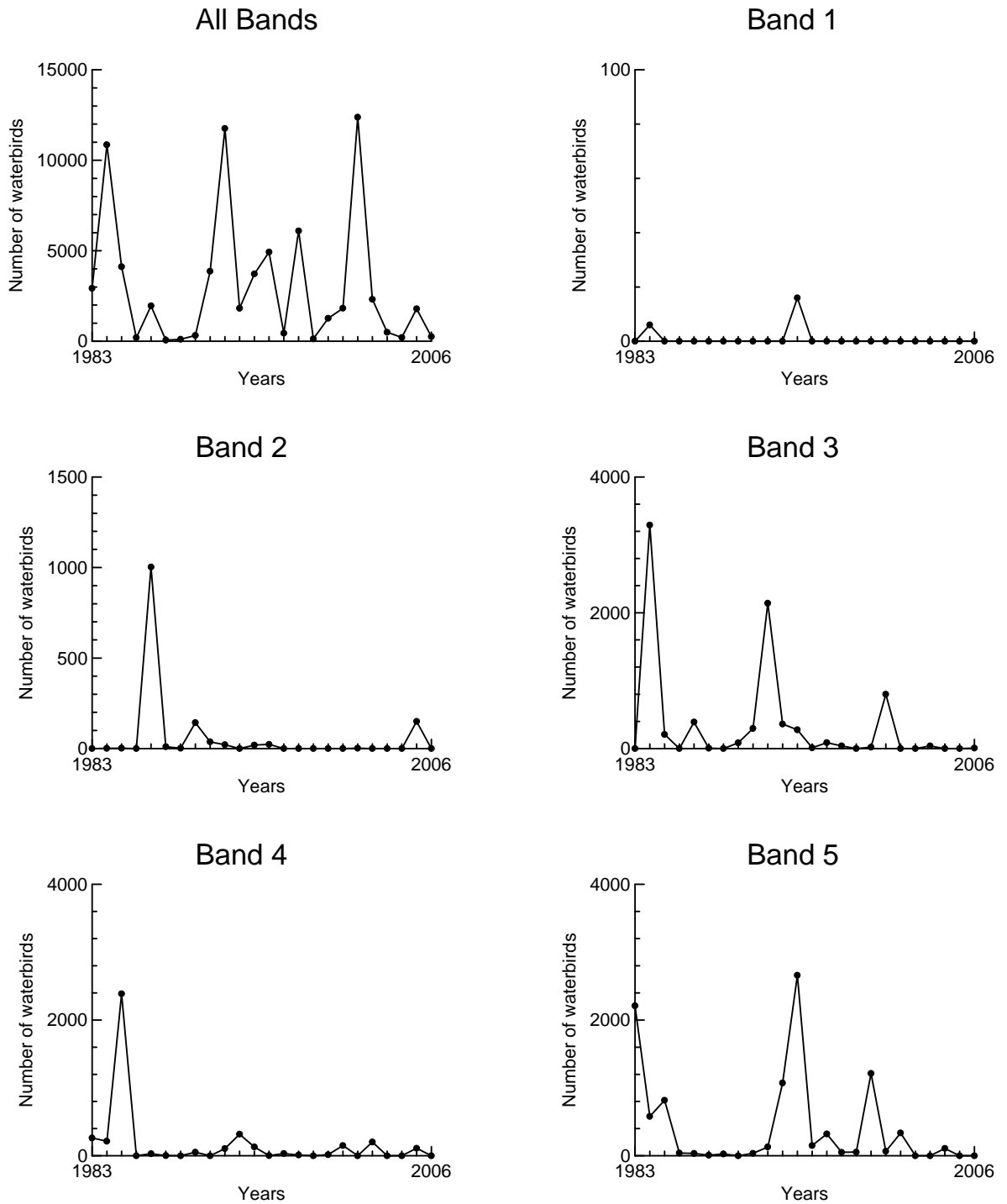


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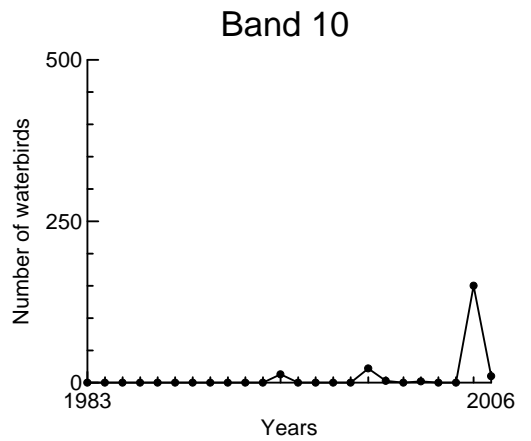
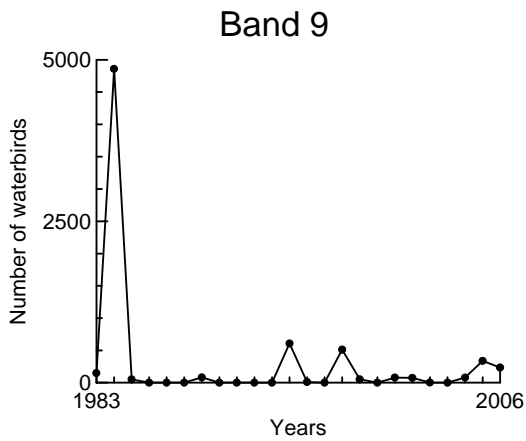
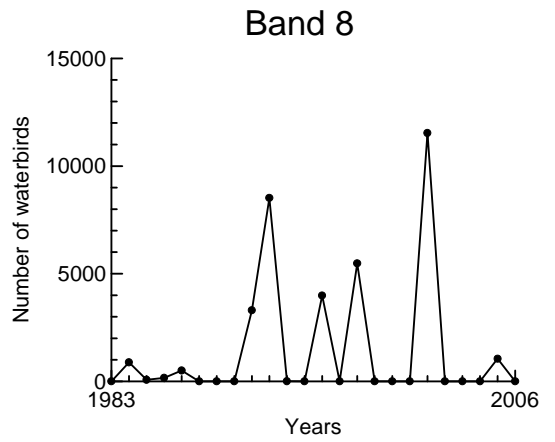
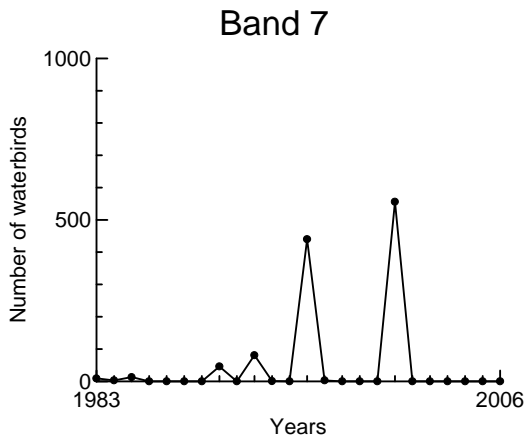
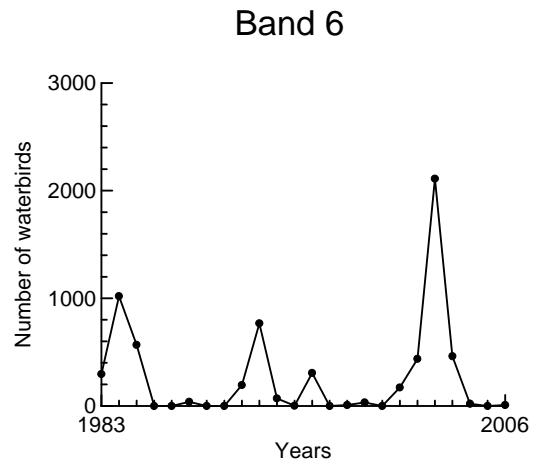
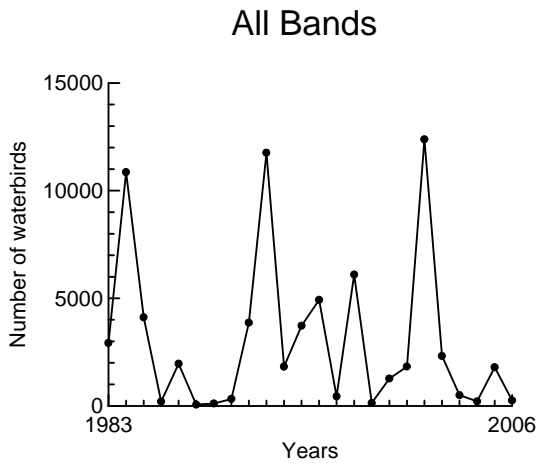
Scales vary on graphs

# Figure 20. Freckled duck 1-5



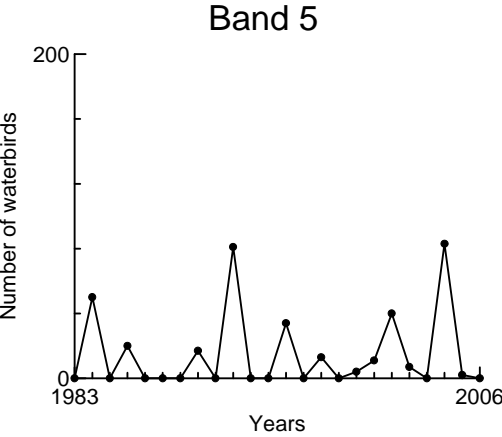
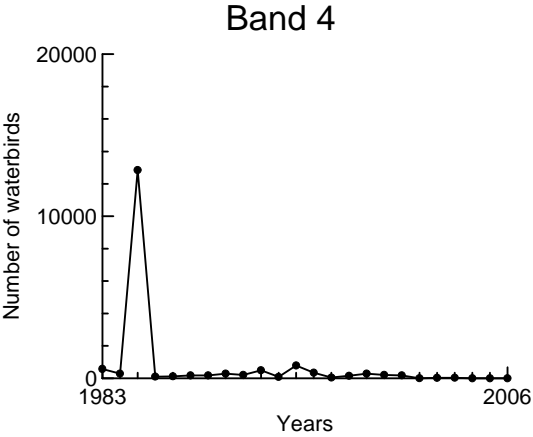
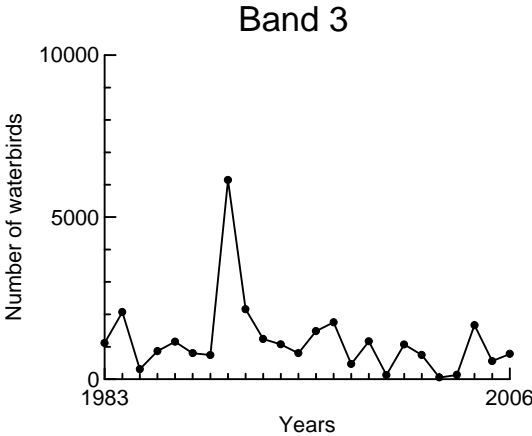
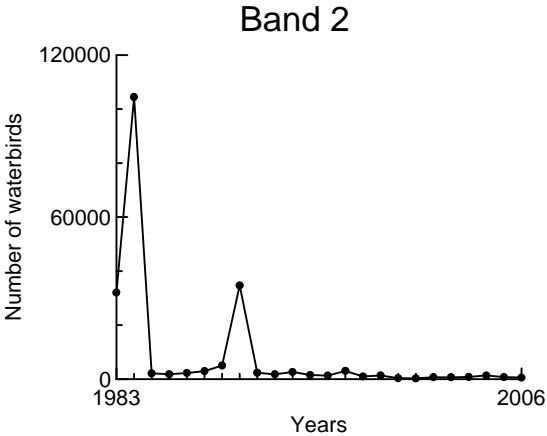
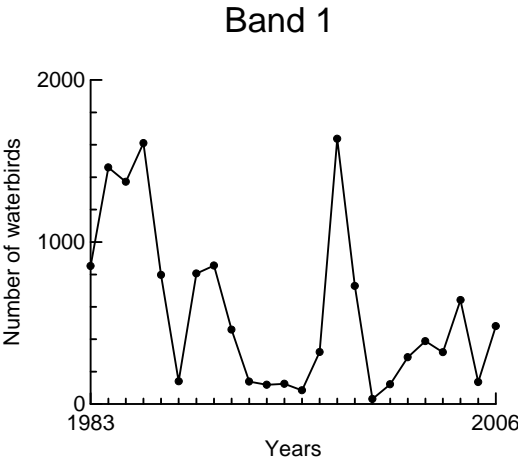
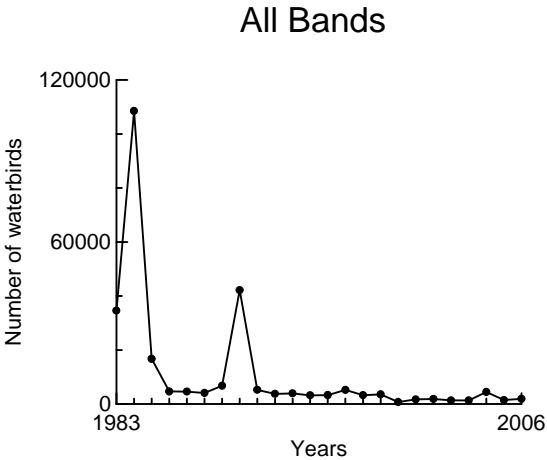
Scales vary on graphs

Figure 21. Freckled duck 6-10



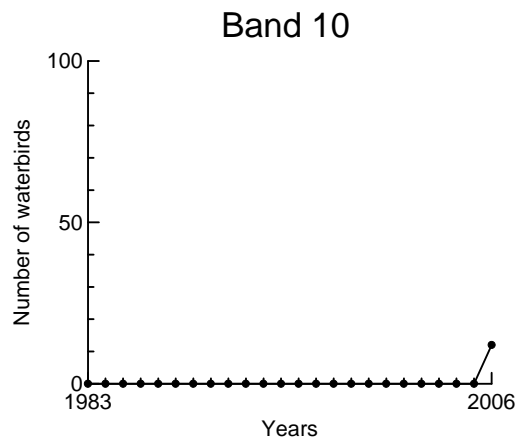
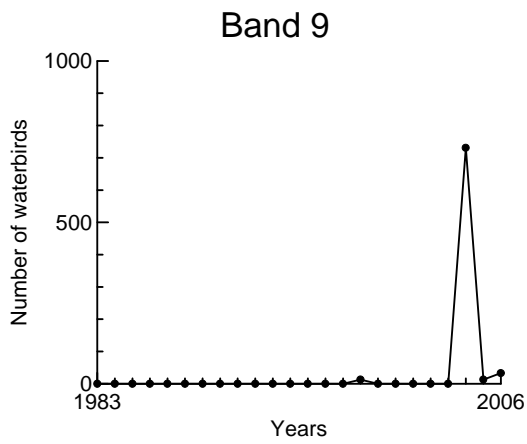
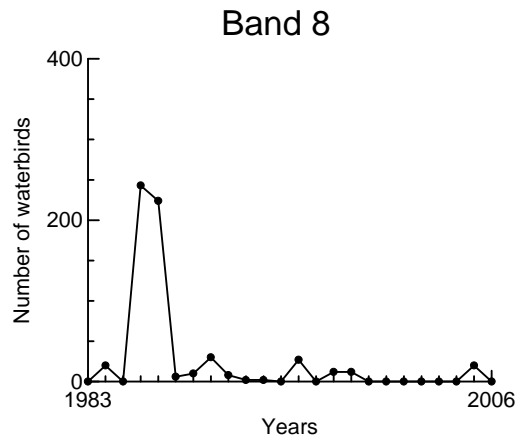
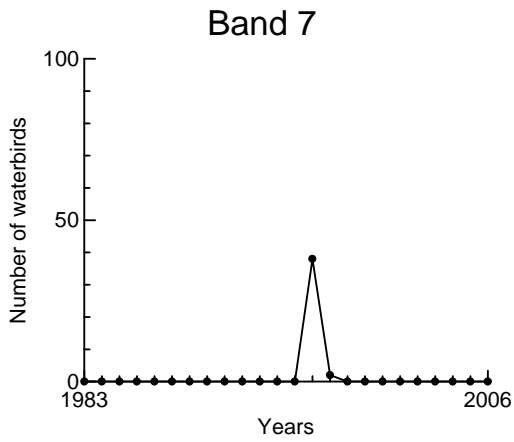
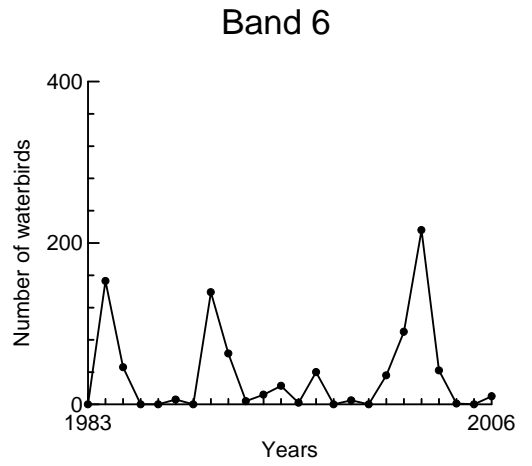
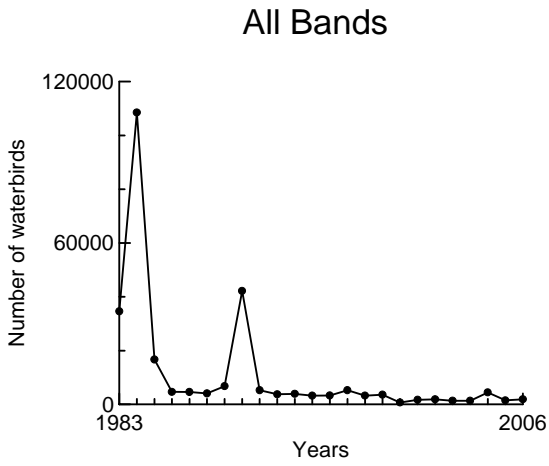
Scales vary on graphs

Figure 22. Australian shelduck 1-5



Scales vary on graphs

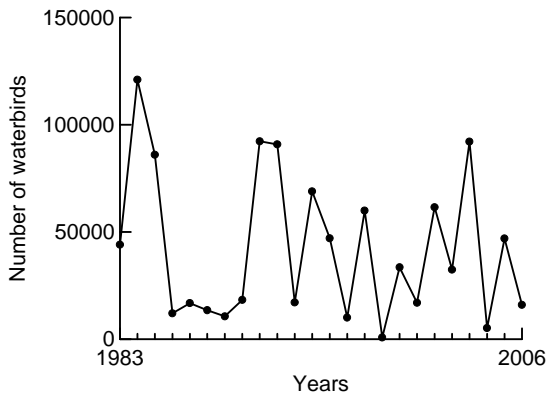
Figure 23. Australian shelduck 6-10



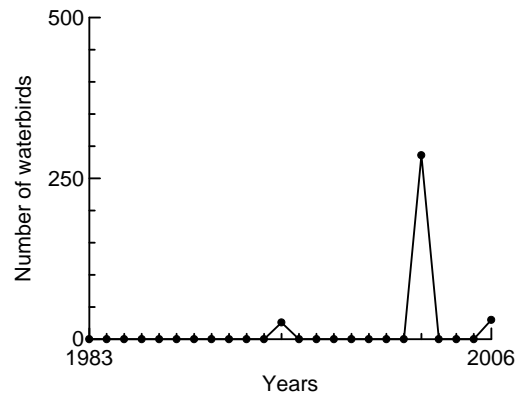
Scales vary on graphs

# Figure 24. Pink-eared duck 1-5

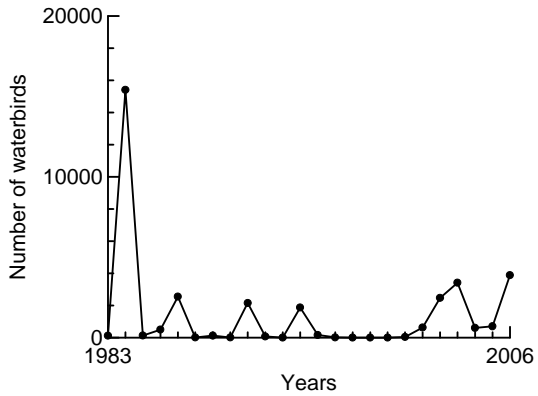
## All Bands



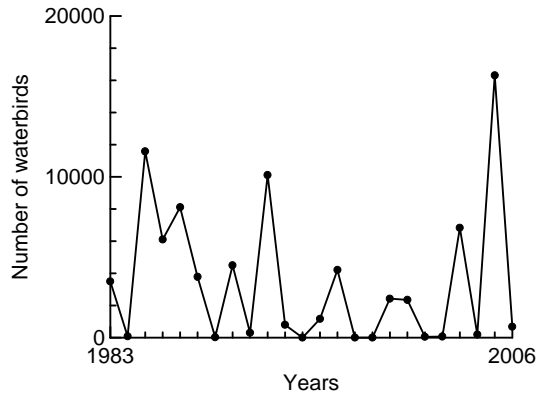
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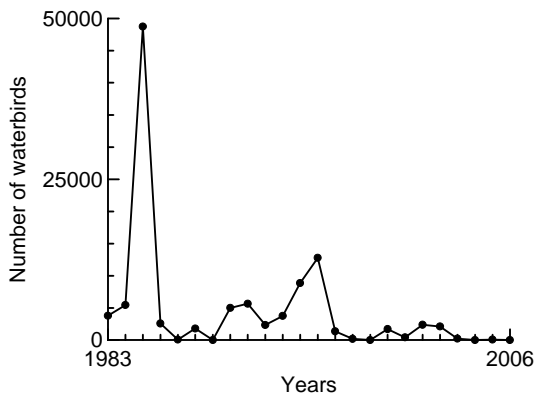
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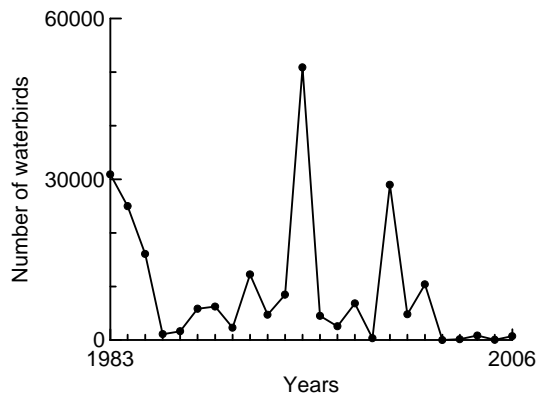
## Band 3



## Band 4

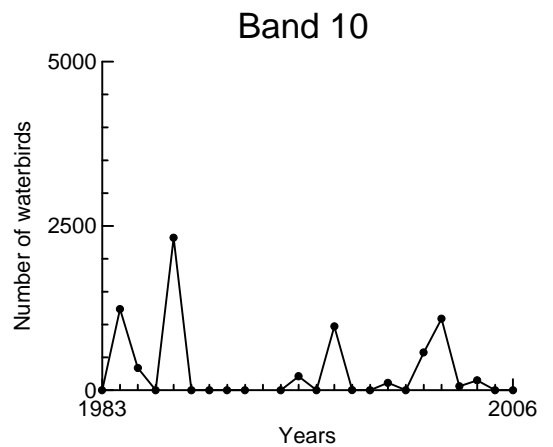
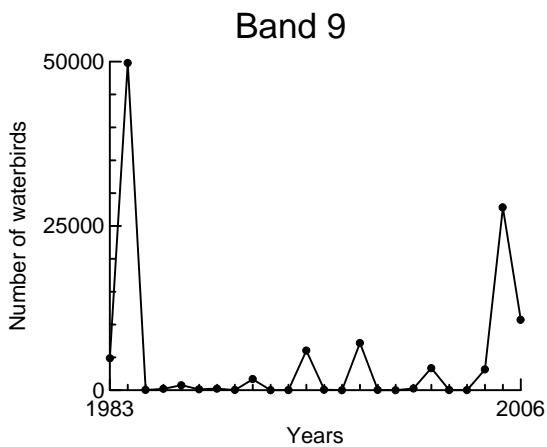
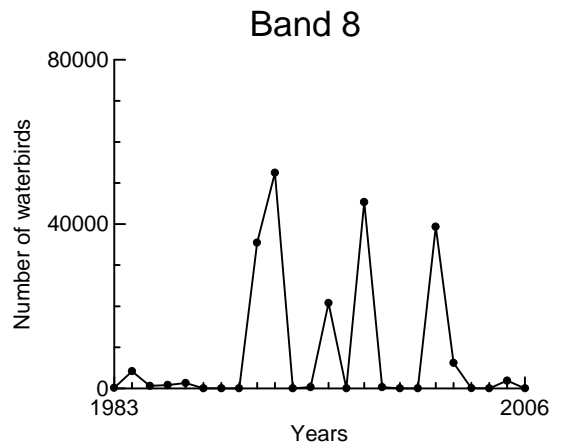
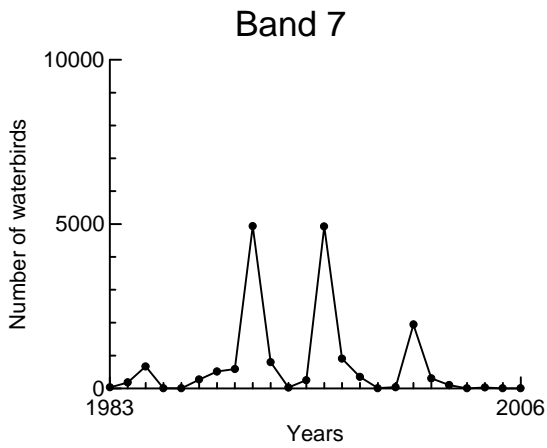
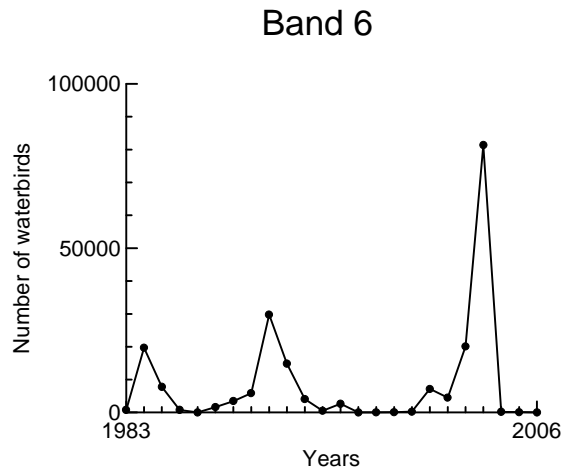
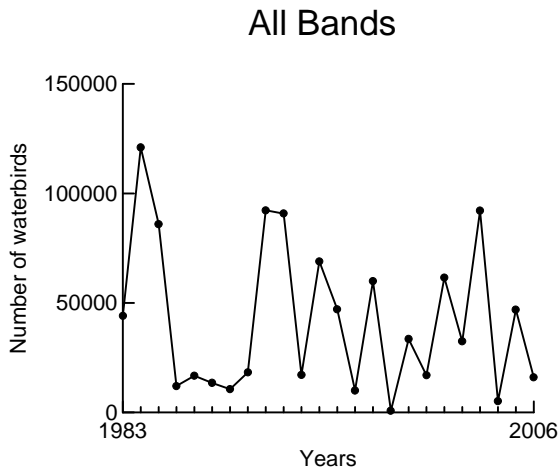


## Band 5



Scales vary on graphs

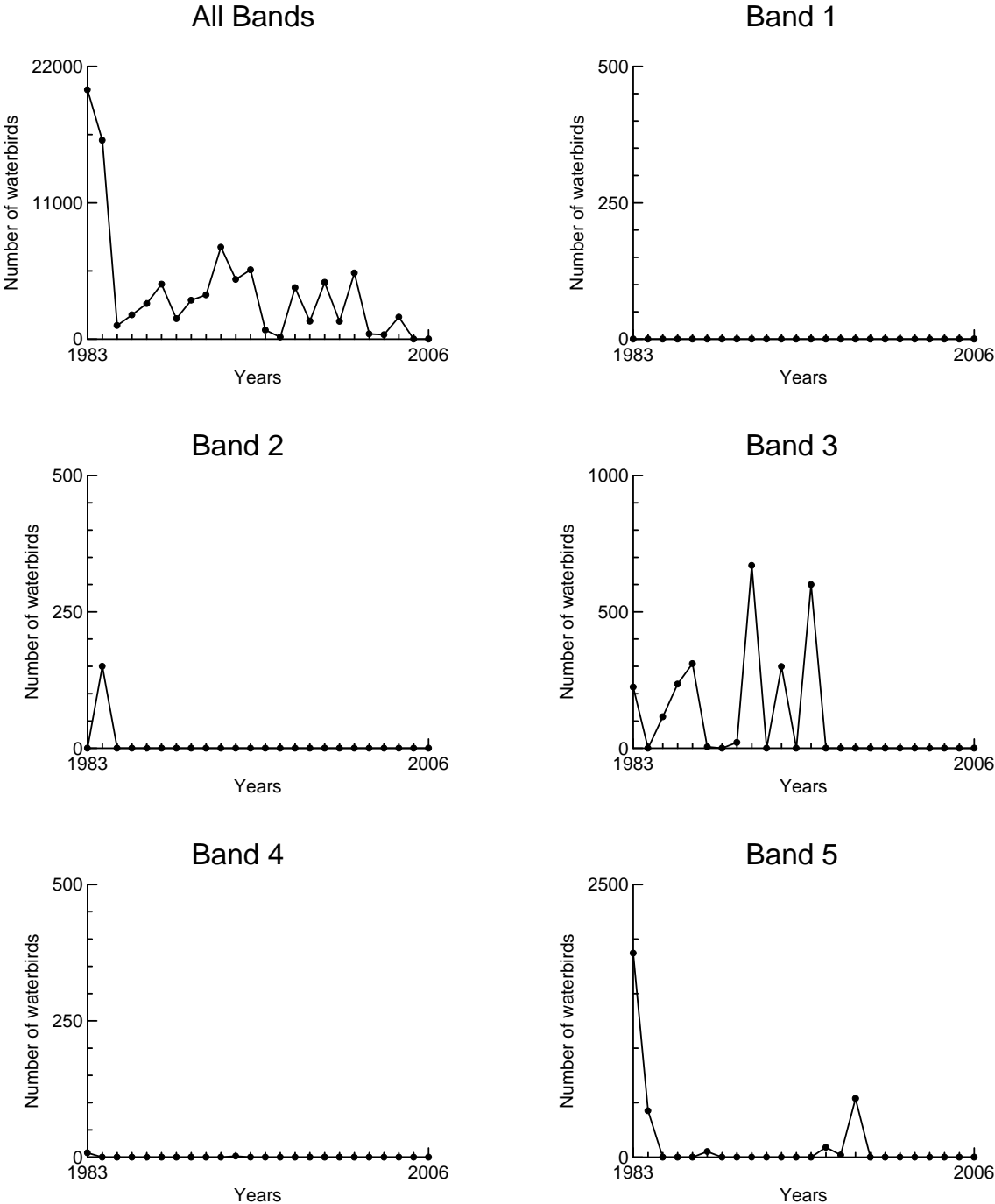
# Figure 25. Pink-eared duck 6-10



Scales vary on graphs



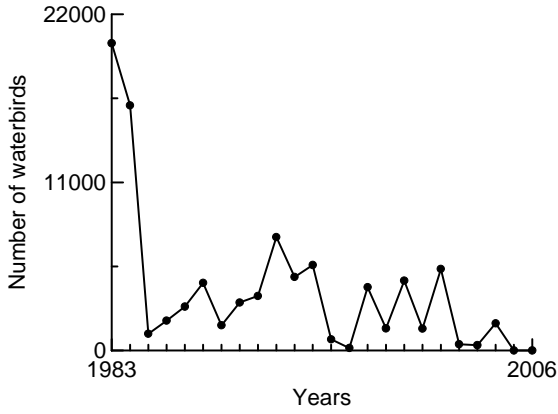
Figure 26. Plumed whistling-duck 1-5



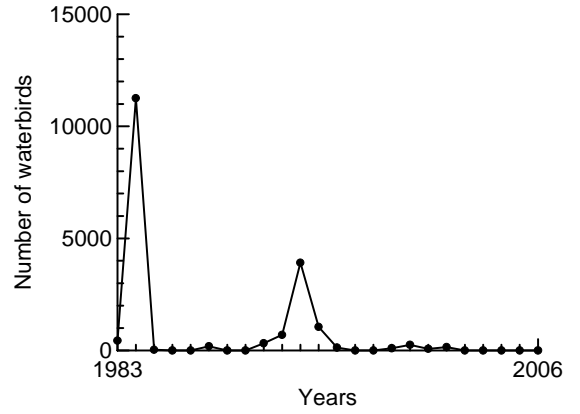
Scales vary on graphs

Figure 27. Plumed whistling-duck 6-10

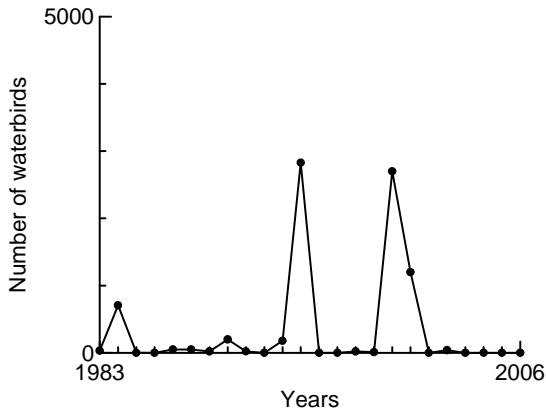
All Bands



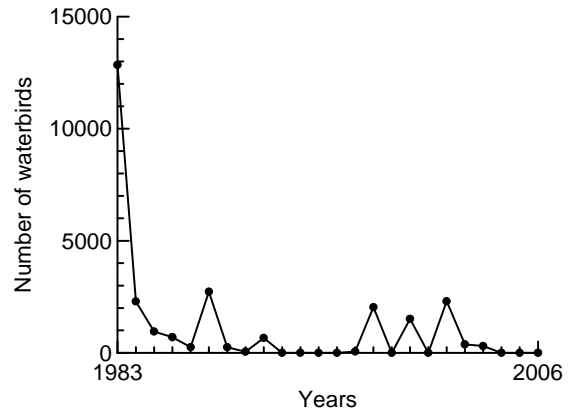
Band 6



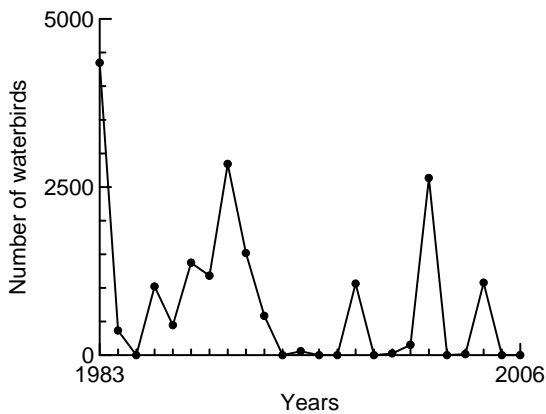
Band 7



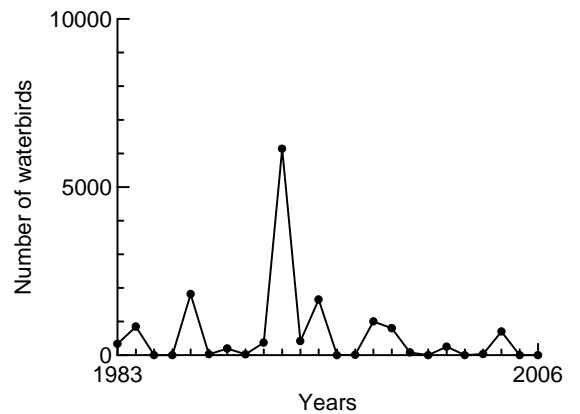
Band 8



Band 9



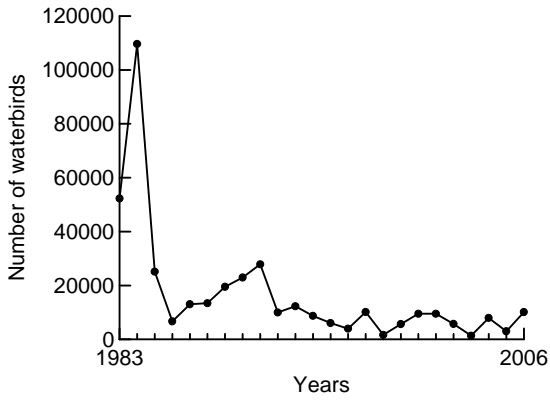
Band 10



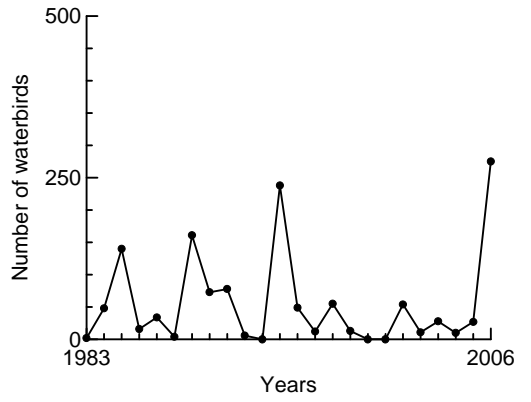
Scales vary on graphs

# Figure 28. Australian wood duck 1-5

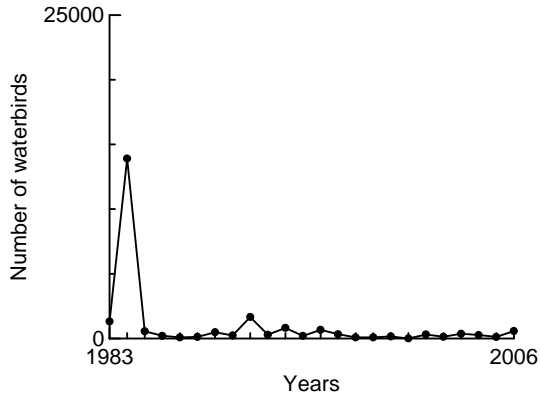
## All Bands



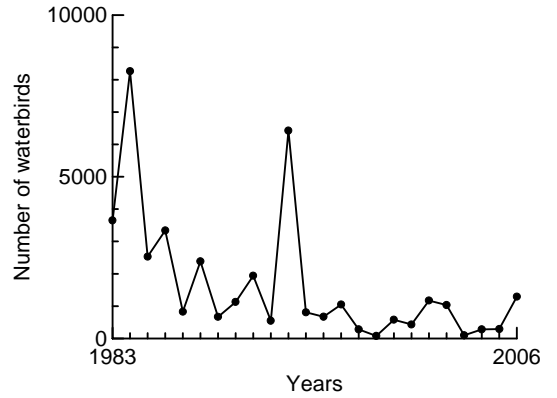
## Band 1



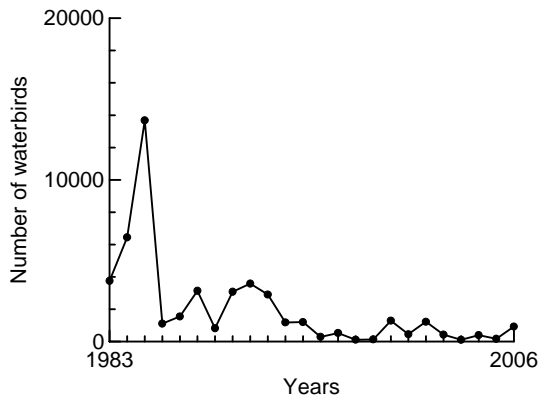
## Band 2



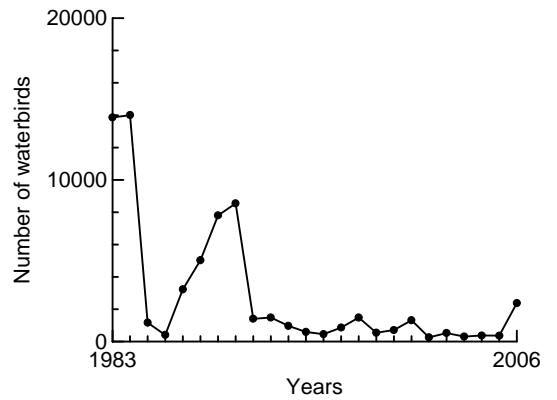
## Band 3



## Band 4

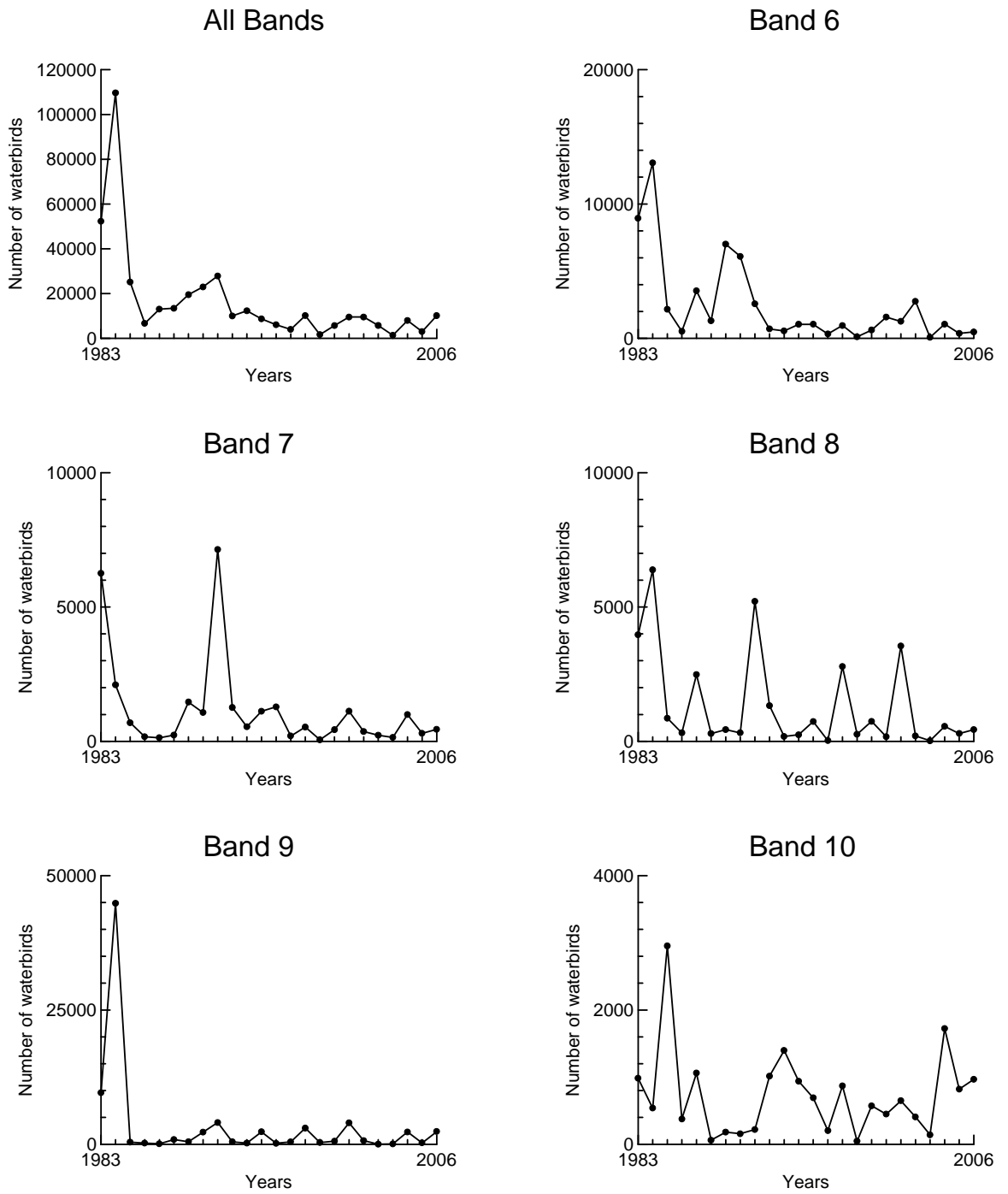


## Band 5



Scales vary on graphs

# Figure 29. Australian wood duck 6-10



Scales vary on graphs