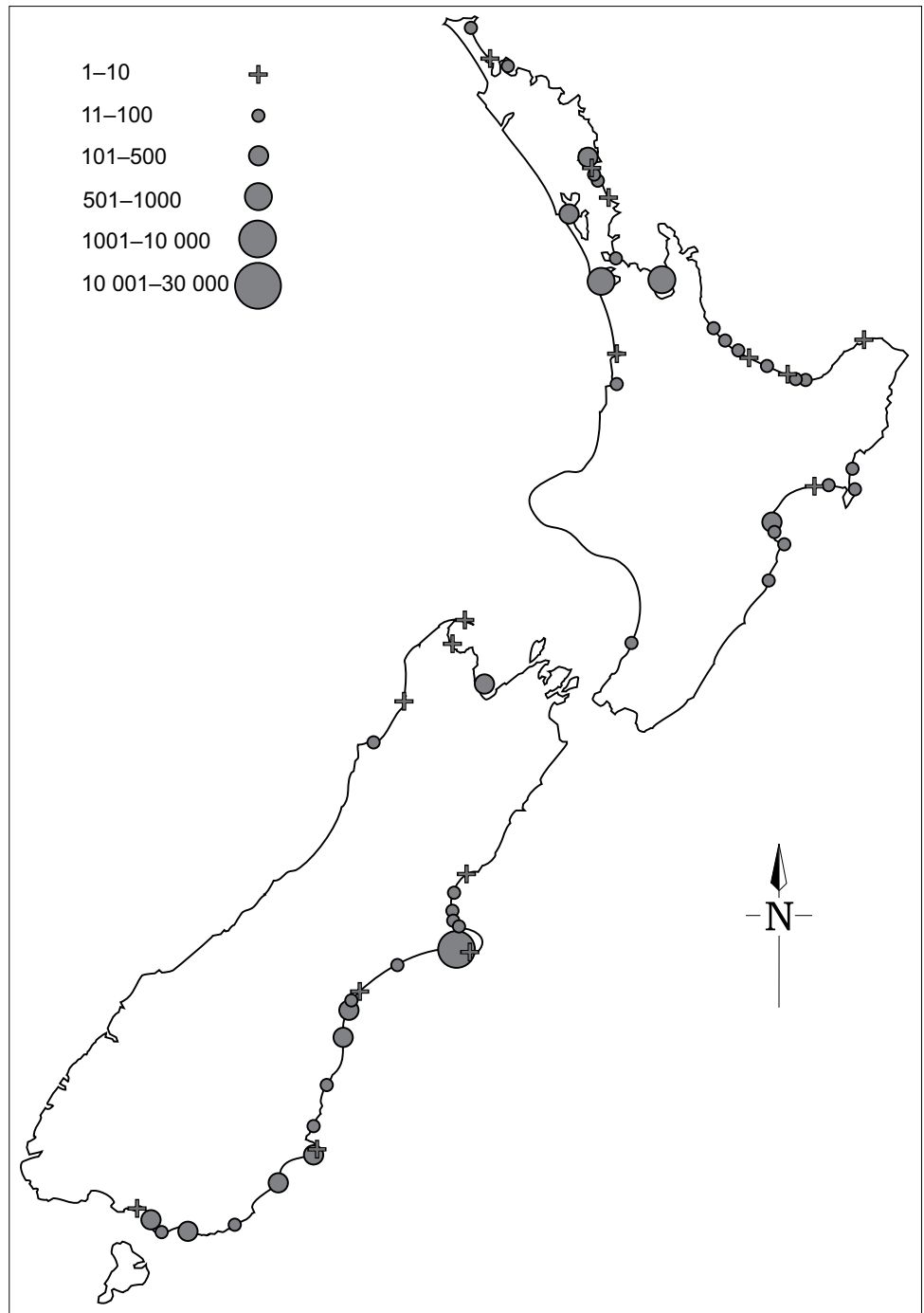


Figure 6. The distribution and abundance of pied stilts (*Himantopus himantopus leucocephalus*) in New Zealand during summer between 1994 and 2003. Only sites with more than one bird, on average, are shown.



3.3.3 Banded dotterel (*Charadrius bicinctus bicinctus*)

Total counts for banded dotterels (*Charadrius bicinctus bicinctus*) ranged from 2759 to 6296 (average 4546) in winter (Table 3; Fig. 7). Numbers have declined substantially since the previous decade (Sagar et al. 1999). A comparison of numbers counted at the same sites during the two periods indicated a decline of 16% between 1984-1994 and 1994-2003 (Table 6). There was some local variation, however, with counts increasing at Lake Ellesmere (Te Waihora) (38%) and Kaipara Harbour (39%) (Table 6). The local declines seem to have been particularly large at Ohiwa Harbour (45%), Farewell Spit (27%) and Parengarenga Harbour (83%) (Table 6). There was also a tendency for overall numbers to have decreased during the count period (Fig. 8).

During summer, 161 to 1371 (average 613) birds remained at the count sites (Table 3; Fig. 9). Seasonal counts showed interesting regional variations around the country (Table 6). The Southland region stood out by having a higher population (231%) at coastal sites during the summer than winter. Generally, however, there was a substantial decrease in numbers during summer, with less than 5% of the winter totals remaining at most sites from Farewell Spit northward. Intermediate numbers remained in the Canterbury (30%) and Hawke's Bay (32%) regions. Those sites at which a larger proportion of birds were counted in summer tended to be close to important inland breeding sites.

TABLE 6. TEN-YEAR AVERAGES OF BANDED DOTTEREL (*Charadrius bicinctus bicinctus*) COUNTS.

Data are presented for New Zealand sites where more than 100 birds on average were counted in winter between 1995 and 2003, or that had comparative data in Sagar et al. (1999) and other counts mentioned in the text. Winter counts are compared with those from the previous decade (Sagar et al. 1999); * = $P < 0.05$. n = the number of counts from which the average was calculated, SEM = standard error.

| SITE | SUMMER 1994-2003 | | | WINTER 1995-2003 | | | WINTER 1983-1994 | | |
|-----------------------------|------------------|-----|-----|------------------|-----|-----|------------------|-----|-----|
| | COUNT | SEM | n | COUNT | SEM | n | COUNT | SEM | n |
| Lake Ellesmere (Te Waihora) | 322 | 80 | 8 | 1225 | 273 | 6 | 887 | 684 | 11 |
| Farewell Spit | 41 | 9 | 10 | 756 | 42 | 9 | 1030* | 311 | 11 |
| Kaipara Harbour | 20 | 6 | 10 | 636 | 71 | 9 | 459 | 324 | 9 |
| Manukau Harbour | 7 | 3 | 10 | 540 | 73 | 9 | 642 | 220 | 11 |
| Kawhia Harbour | 1 | 1 | 9 | 331 | 49 | 9 | 347 | 150 | 11 |
| Tauranga Harbour | 43 | 40 | 6 | 289 | 95 | 6 | 334 | 276 | 11 |
| Whangarei Harbour | 19 | 3 | 10 | 272 | 43 | 9 | 290 | 176 | 11 |
| Ohiwa Harbour | 1 | 1 | 6 | 222 | 45 | 6 | 404* | 134 | 11 |
| Parengarenga Harbour | 0 | 0 | 3 | 148 | 7 | 3 | 881* | 343 | 8 |
| Aotea Harbour | 1 | 0 | 9 | 122 | 42 | 9 | | | |
| Porangahau Estuary | 16 | 2 | 7 | 114 | 14 | 8 | | | |
| Firth of Thames | 1 | 1 | 10 | 87 | 20 | 9 | | | |
| Hawke's Bay region | 39 | 8 | 7 | 121 | 12 | 8 | | | |
| Canterbury region | 421 | 75 | 8 | 1412 | 292 | 6 | | | |
| Southland region | 450 | 320 | 2 | 195 | 10 | 2 | | | |

Figure 7. The distribution and abundance of banded dotterels (*Charadrius bicinctus bicinctus*) in New Zealand during winter between 1995 and 2003. Only sites with more than one bird, on average, are shown.

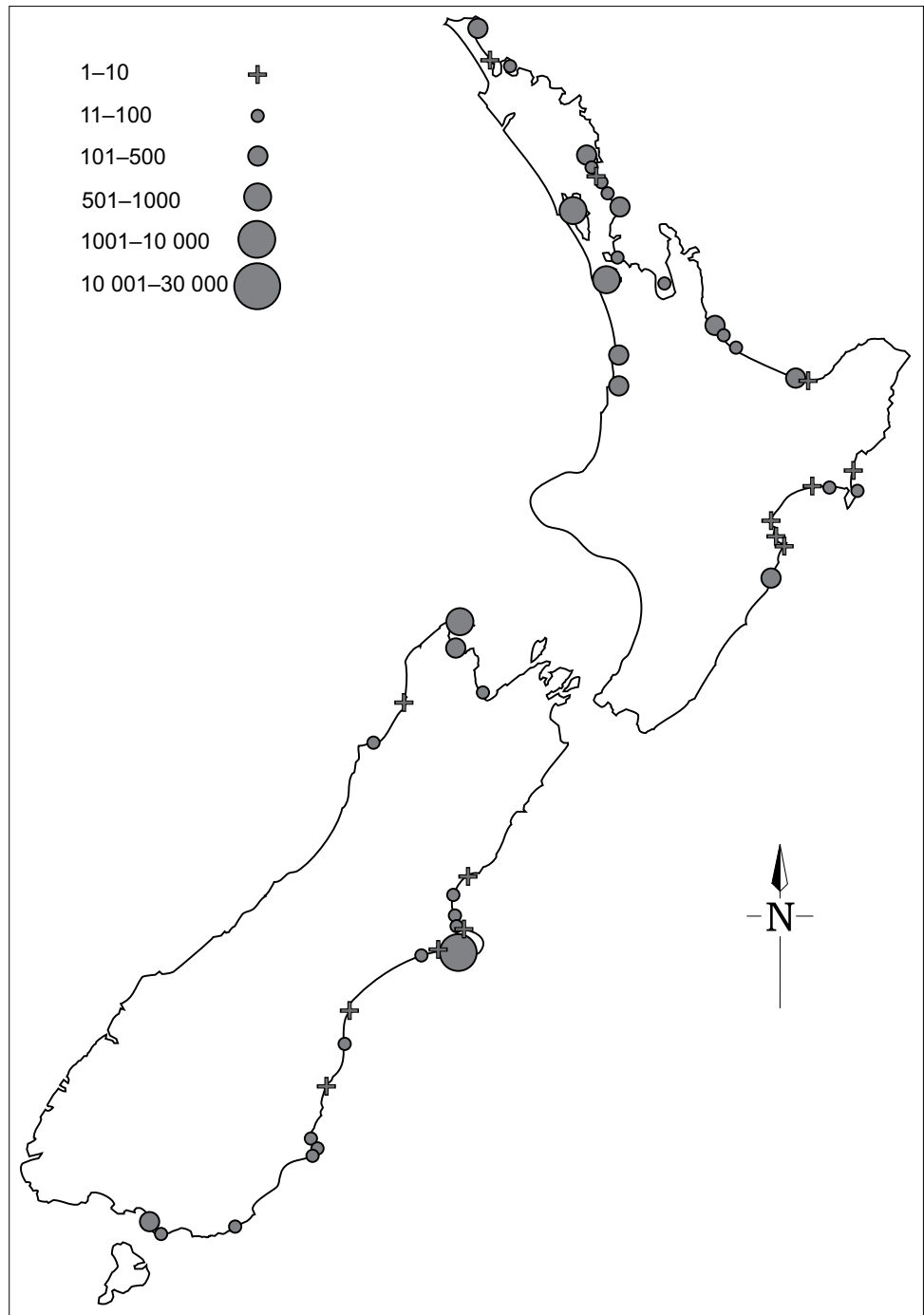


Figure 8. Population estimates for the banded dotterel (*Charadrius bicinctus bicinctus*) in New Zealand during winter between 1995 and 2003.

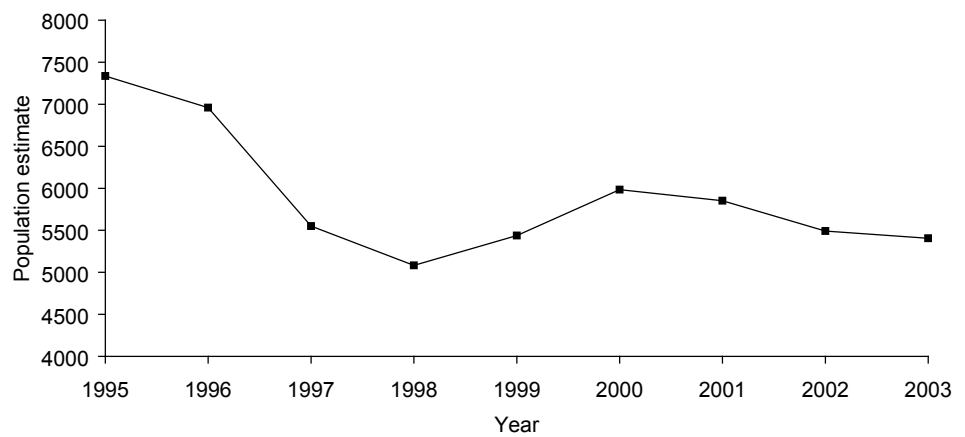
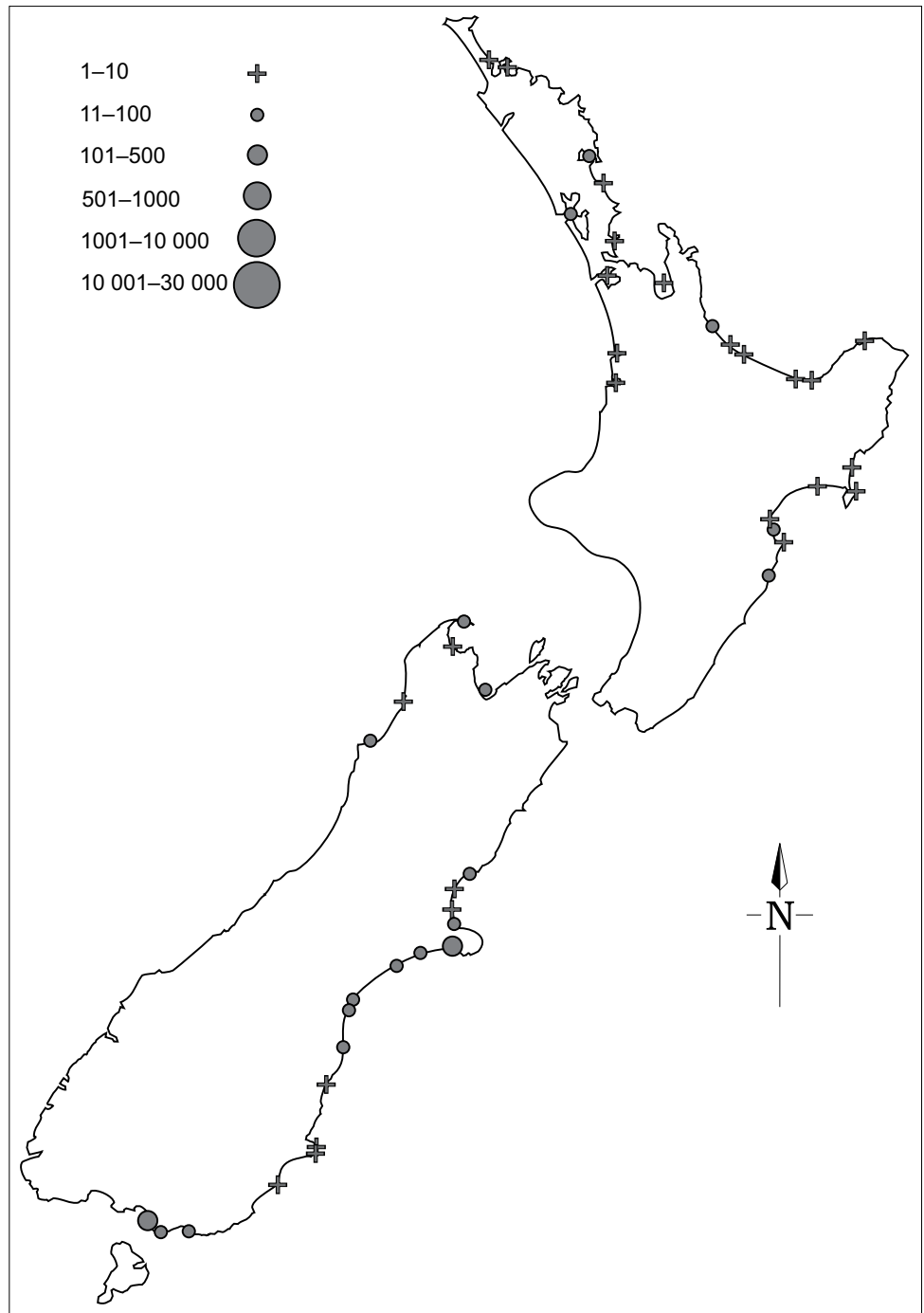


Figure 9. The distribution and abundance of banded dotterels (*Charadrius bicinctus bicinctus*) in New Zealand during summer between 1994 and 2003. Only sites with more than one bird, on average, are shown.



3.3.4 Wrybill (*Anarhynchus frontalis*)

At their winter peak, numbers of wrybills (*Anarhynchus frontalis*) varied from 3459 to 5732 (average 4481) (Table 3; Fig. 10). This considerably exceeds the numbers that were counted in the previous decade (Sagar et al. 1999), and comparison of counts from the same sites suggests a 30% increase. As in previous counts, most wrybills (84%) are found at just two sites, Manukau Harbour and the Firth of Thames, but the pattern of distribution has changed. While the number of birds occurring in the Firth of Thames has remained stable (unlike the general population trend), there has been an increase in the number occurring at Manukau Harbour (Table 7; Fig. 11), continuing the trend noted by Veitch & Habraken (1999). Since 2000, there have been more wrybills at Manukau Harbour than the Firth of Thames (Fig. 11). Numbers on the Waitemata Harbour have increased, but it is possible that it is being used, in part, as a roosting site for birds from Manukau Harbour (Riegen & Dowding 2003). Smaller populations appear to have declined at Whangarei Harbour but increased at Kaipara Harbour. Few other sites were used in winter, but some isolated sites such as the Muriwai Lagoons, Porangahau Estuary and Tasman Bay are consistently used by small numbers of wrybills, while stragglers at other sites are rare.

In summer, only about 5% of the winter totals remained; between 57 and 459 (average 177) birds were found (Table 3), mostly at the main wintering sites (Table 7). At Lake Ellesmere (Te Waihora), however, the summer population increased beyond the winter total (Table 7).

TABLE 7. TEN-YEAR AVERAGES OF WRYBILL (*Anarhynchus frontalis*) COUNTS.

Data are presented for New Zealand sites where more than 30 birds on average were counted in winter between 1995 and 2003, or that had comparative data in Sagar et al. (1999) and other counts mentioned in the text. Winter counts are compared with those from the previous decade (Sagar et al. 1999); * = $P < 0.05$. n = the number of counts from which the average was calculated, SEM = standard error.

| SITE | SUMMER 1994-2003 | | | WINTER 1995-2003 | | | WINTER 1983-1994 | | |
|-----------------------------|------------------|-----|-----|------------------|-----|-----|------------------|-----|-----|
| | COUNT | SEM | n | COUNT | SEM | n | COUNT | SEM | n |
| Firth of Thames | 54 | 10 | 10 | 2072 | 171 | 9 | 1958 | 201 | 11 |
| Manukau Harbour | 17 | 2 | 10 | 1925 | 239 | 9 | 1171* | 53 | 11 |
| Parengarenga Harbour | 0 | 0 | 2 | 192 | 40 | 3 | 137 | 20 | 7 |
| Kaipara Harbour | 43 | 21 | 10 | 157 | 18 | 9 | 115* | 20 | 11 |
| Waitemata Harbour | 0 | 0 | 4 | 131 | 96 | 4 | 14* | 3 | 6 |
| Whangarei Harbour | 6 | 5 | 10 | 81 | 15 | 9 | 136* | 27 | 11 |
| Porangahau Estuary | 3 | 3 | 7 | 68 | 18 | 8 | 56 | 5 | 9 |
| Muriwai Lagoons | 1 | 1 | 5 | 38 | 8 | 5 | | | |
| Tasman Bay | 0 | 0 | 8 | 37 | 5 | 8 | 13* | 5 | 6 |
| Houhora Harbour | 0 | 0 | 2 | 15 | 10 | 3 | 34* | 10 | 6 |
| Lake Ellesmere (Te Waihora) | 39 | 17 | 8 | 1 | 1 | 6 | | | |

Figure 10. The distribution and abundance of wrybills (*Anarhynchus frontalis*) in New Zealand during winter between 1995 and 2003. Only sites with more than one bird, on average, are shown.

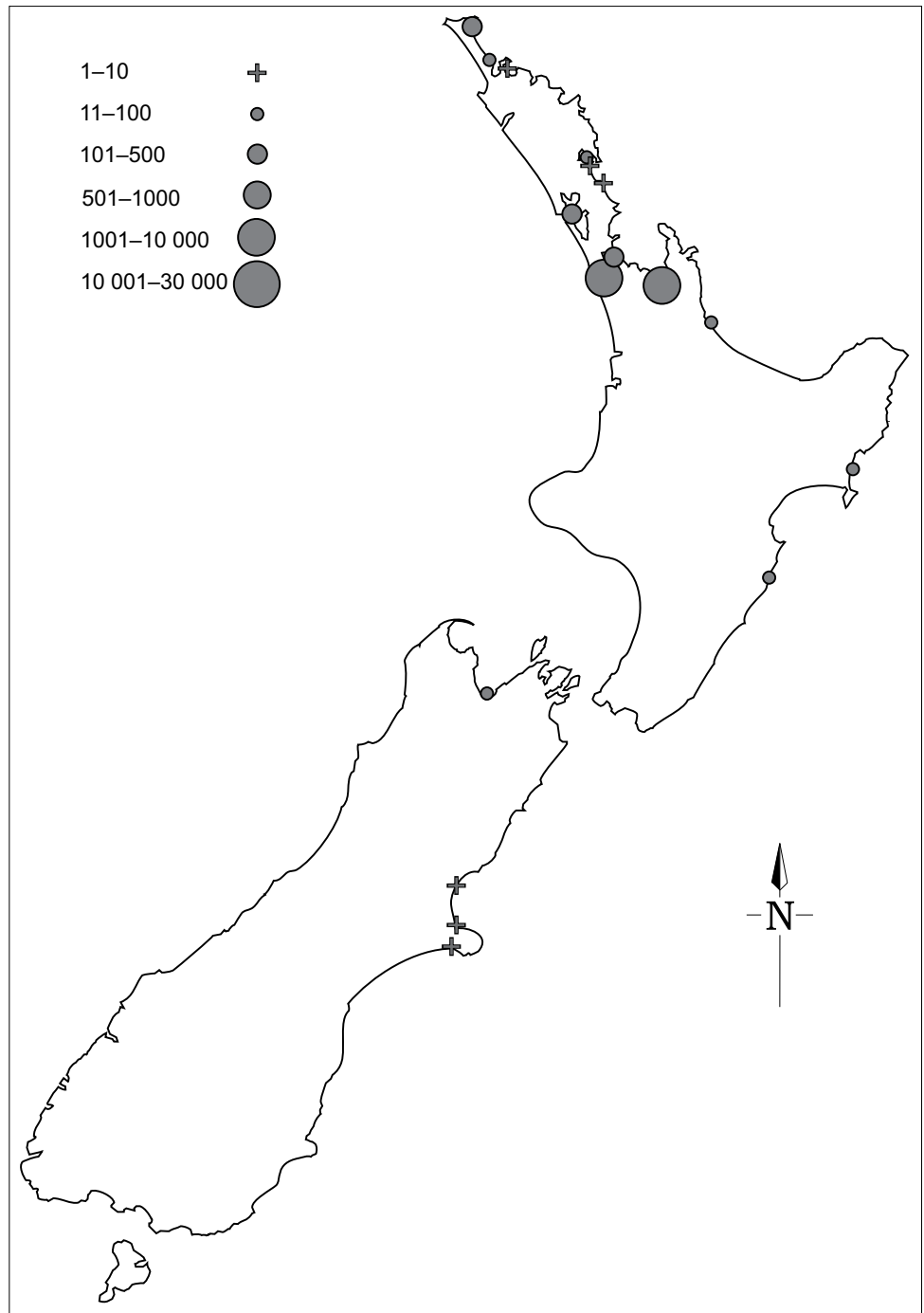
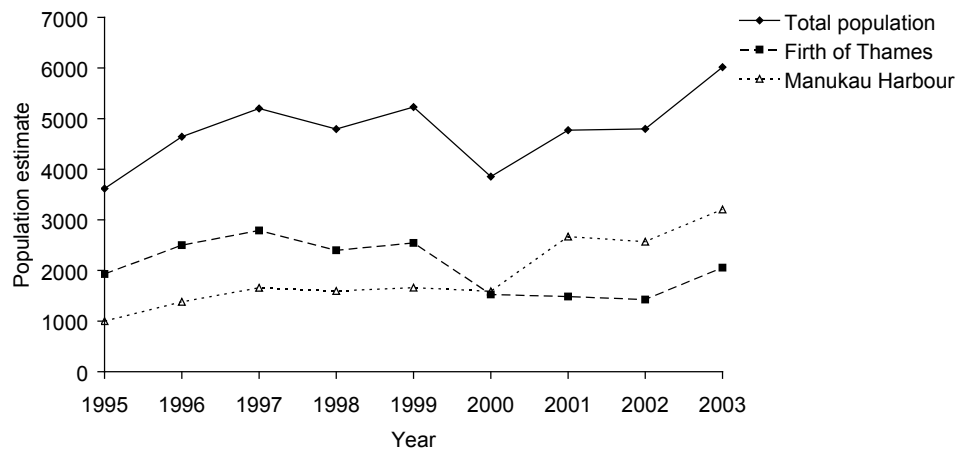


Figure 11. Population estimates for the wrybill (*Anarhynchus frontalis*) in New Zealand during winter between 1995 and 2003. Overall population estimates and counts for the Firth of Thames and Manukau Harbour are shown.



3.3.5 Variable oystercatcher (*Haematopus unicolor*)

Winter counts of variable oystercatchers (*Haematopus unicolor*) averaged 1328 birds (Table 3; Fig. 12). Summer counts were only a little lower, averaging 1009 birds, suggesting that seasonal movements are quite local. The total population estimate is similar to that from 1984–1994, but the comparison of specific sites shows that there has been a 42% increase overall (Table 8). This continues the trend reported by Sagar et al. (1999). At physically larger sites such as Tasman Bay and Ohiwa Harbour, numbers have increased further, whereas at many of the more important smaller sites, numbers have remained at similar levels or even declined (Table 8). Further investigation has suggested, however, that the populations at these smaller sites may have also increased but then spread into adjacent sites. For instance, near Waipu there are now substantial additional populations at Whangarei Harbour and Ruakaka Estuary. There are also further large populations that were not identified by Sagar et al. (1999), which may have increased in the intervening period (Table 8).

TABLE 8. TEN-YEAR AVERAGES OF VARIABLE OYSTERCATCHER (*Haematopus unicolor*) COUNTS.

Data are presented for New Zealand sites where more than 50 birds on average were counted in winter between 1995 and 2003, or that had comparative data in Sagar et al. (1999) and other counts mentioned in the text. Winter counts are compared with those from the previous decade (Sagar et al. 1999); * = $P < 0.05$. n = the number of counts from which the average was calculated, SEM = standard error.

| SITE | SUMMER 1994–2003 | | | WINTER 1995–2003 | | | WINTER 1983–1994 | | |
|---|------------------|-----|-----|------------------|-----|-----|------------------|-----|-----|
| | COUNT | SEM | n | COUNT | SEM | n | COUNT | SEM | n |
| Tasman Bay | 282 | 33 | 10 | 261 | 51 | 8 | 80* | 19 | 11 |
| Ohiwa Harbour | 68 | 22 | 6 | 179 | 36 | 6 | 82* | 41 | 11 |
| Houhora Harbour | 24 | 15 | 2 | 123 | 50 | 3 | | | |
| Waipu Cove | 97 | 11 | 10 | 112 | 23 | 9 | 126 | 32 | 11 |
| Parengarenga Harbour | 36 | 12 | 2 | 108 | 42 | 3 | | | |
| Mangawhai Harbour | 85 | 17 | 6 | 89 | 13 | 6 | 100 | 23 | 5 |
| Farewell Spit | 49 | 8 | 10 | 89 | 12 | 9 | 60* | 17 | 11 |
| Ruakaka Estuary | 57 | 10 | 10 | 88 | 19 | 9 | | | |
| Tauranga Harbour | 83 | 36 | 6 | 68 | 8 | 6 | 74 | 19 | 11 |
| Estuary of the Heathcote and Avon Rivers/Ihutai | 23 | 4 | 8 | 65 | 9 | 6 | | | |
| Whangarei Harbour | 56 | 18 | 10 | 63 | 11 | 9 | | | |
| South Otago | 61 | 0 | 1 | 63 | 0 | 1 | | | |
| Golden Bay | 53 | 12 | 10 | 59 | 8 | 8 | | | |
| Omaha | 46 | 9 | 3 | 55 | 0 | 1 | | | |
| Karamea Estuary | 39 | 0 | 1 | 55 | 0 | 1 | | | |
| Rangaunu Harbour | 15 | 9 | 2 | 54 | 12 | 3 | | | |
| Oraka Beach/Mahia Peninsula | 28 | 37 | 2 | 52 | 6 | 3 | | | |
| Little Waihi Estuary | 32 | 13 | 6 | 28 | 9 | 6 | 60* | 30 | 11 |

Figure 12. The distribution and abundance of variable oystercatchers (*Haematopus unicolor*) in New Zealand during winter between 1995 and 2003. Only sites with more than one bird, on average, are shown.

