

The logo for NABIS (New Zealand Biodiversity Assessment and Information System) features the word "NABIS" in a bold, blue, sans-serif font. To the right of the text is a stylized graphic of a magnifying glass with a black handle and a white lens, positioned over a green and white map of New Zealand.

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web mapping tool

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## Lineage – Scientific methodology

### Annual distribution of Caspian tern lineage

1. Literature sources were searched for distribution information.
  - a. Scientific papers, published texts, unpublished reports and university theses available to the expert who prepared the distributional layers.
  - b. Aquatic Sciences and Fisheries Abstracts for 1960-2009.
  - c. *OSNZ News* and *Southern Bird* for 1977–2009.
2. Other sources.
  - a. Nil.
3. Summary
  - a. An expert scientist integrated information from the literature and expert opinion, and produced hand-drawn distributional zones on a template map. These maps were then digitised and imported into a GIS software package as layers. The areas of the zones were calculated, and the layers were linked to attribute and metadata files.
  - b. The primary sources of distribution data for Caspian tern were published texts and unpublished reports.
  - c. A distribution “hotspot” for New Zealand seabirds is defined as “an area of increased abundance of a species, as considered by the expert compiling the species account”. Typical examples of hotspots include areas around breeding locations during the breeding season, regardless of the absolute size of the breeding colony, and areas that are consistently and repeatedly favoured as feeding locations.
  - d. Caspian tern is indigenous to New Zealand, with breeding pairs throughout the North and South Islands, but mainly in coastal areas in Northland, Auckland, Waikato, Bay of Plenty, Wairarapa, Nelson, Canterbury, and Southland regions (Bell & Bell 2008). In addition, birds also breed inland at Lake Rotorua and some braided riverbeds in Canterbury (Innes *et al.* 1999; Pierce 1984). A distribution hotspot is centred on these regions.

- e. Caspian terns tend to occupy their breeding sites during spring-summer, but may then undertake movements to wintering grounds up to 1150 km away (Barlow 1998). In the only detailed study of the movements of Caspian terns in New Zealand Barlow (1998) reported that adults that bred at a colony near Invercargill moved to several wintering grounds, usually to coastal sites northwards. In Canterbury, isolated pairs and family groups which bred or were reared inland, converged after breeding on coastal and inland river deltas and at coastal lagoons and lakes (Pierce 1984). However, some single birds may frequent inland lakes during winter (Pierce 1984). Outside of its normal range, 2 single birds have been reported from the Chatham Islands (Miskelly *et al.* 2006)

#### 4. References

The following sources provided useful information on the distribution of this species. This is not an exhaustive list of all references to the species.

- Barlow, M.L. (1998). Movements of Caspian terns (*Sterna caspia*) from a colony near Invercargill, New Zealand, and some notes on their behaviour. *Notornis* 45: 193-220.
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- Higgins, P.J.; Davies, S.J.J.F. (1996). *Handbook of Australian, New Zealand and Antarctic birds*. Volume 3 Oxford University Press, Melbourne. 1028p.
- Innes, J.; Whaley, K.; Owen, K. (1999). Abundance and distribution of waterbirds of the Rotorua lakes, 1985-1996. Conservation Advisory Science Notes 236. Department of Conservation, Wellington. 46p.
- Miskelly, C.M.; Bester, A.J.; Bell, M. 2006. Additions to the Chatham Islands' bird list, with further records of vagrants and colonising bird species. *Notornis*. In press.
- Pierce, R.J. (1984). Breeding success of isolated pairs of Caspian terns in Canterbury. *Notornis* 31: 185-190.
- Robertson, C.J.R.; Hyvönen, P; Fraser, M.J.; Pickard, C.R. 2007. Atlas of bird distribution in New Zealand 1999-2004. Ornithological Society of New Zealand, Wellington. 533p.
- Taylor, G.A. (2000). Action plan for seabird conservation in New Zealand. Part B: threatened seabirds. Threatened species occasional publication No. 17, Department of Conservation, Wellington. 202p.