Figure 3. Survey sites throughout New Zealand, within the known range of red katipo.

- Using pegs and twine, a set of transects no closer than 10 m apart and up to 50 m long (depending on the extent of the dune system) was marked out that reflected the range of potential habitats available in the dune system based on previous studies. Usually, these lines ran from the high-tide mark at right angles to the shoreline and headed inland. The size of the dune system determined the number of transects needed (usually at least five).
- One person familiar with the survey method spent exactly 30 min, in continuous 10-min spells per transect, searching the defined area for katipo, noting presence of female (or sub-adult female) spiders only because males, being so small, are difficult to locate. All vegetation, driftwood and other likely hiding places were searched. In smaller dune systems, 10 or 20 min total searching time sometimes proved sufficient.
- A description was made of the site sampled, noting plant species, where katipo were living, general comments on the abundance of driftwood or other features, and a physical description of the site. The grid reference of the dune system and sites within it were also noted, together with distance (in metres) from high-tide mark, density of marram and/or other vegetation, and presence of *Steatoda* or black katipo (*L. atritus*). A profile map of the dune system and where katipo were found was prepared. In most instances, photographs of the site and relevant spider species were taken to augment the written observations.

3. Results

3.1 SITES AND DISTRIBUTION OF THE KATIPO

Sean Hann, in an unpublished study of New Zealand spider collections, lists 53 localities from which *L. katipo* was collected (S. Hann, unpubl. data). Twelve of the sites that Hann listed were not surveyed because of time contraints. Of the 53 sites, 41 were re-sampled; *L. katipo* was found at only 19 (46%). Overall, *L. katipo* was found at 26 (28%) of the 90 sand-dune sites fully sampled during the present survey (Appendix 1). A further 11 sites south of Dunedin and five south of Greymouth were sampled beyond the previously recorded distribution of *L. katipo* in the south of the South Island. Contrary to some reports from the public, *L. katipo* was not found at any of these sites. *L. katipo* was found at eight of the twelve DOC coastal conservancies sampled: Northland, Auckland and Waikato Conservancies were all sampled extensively, but no red katipo were found. Meanwhile, it was to be expected that *L. katipo* would not be found in Southland Conservancy, since this lies outside the previously recorded distribution of the species. In the North Island conservancies, characteristic katipo habitat was often occupied by black katipo (*L. atritus*), sometimes in quite high numbers, e.g. Whangamata, Coromandel Peninsula (Appendix 1). Bay of Plenty Conservancy was under-sampled, but one significant population of *L. katipo* was located at Papamoa Beach (Fig. 4). The eight conservancies where *L. katipo* was recorded are equally distributed between both the North and South Islands. It may be significant that not only do all the conservancies adjacent to Cook Strait have populations of *L. katipo*, but also that they contain some of the most significant populations found, e.g. Flat Point (Fig. 5), Lake Onoke Spit (Fig. 6), Farewell Spit (Fig. 7) and Cape Campbell. Only three red katipo sites were found south of Christchurch, e.g. Kaitorete Spit (Fig. 8), with only one in Otago Conservancy. Wanganui (five sites), Wellington (five sites), and Hawke's Bay (four sites) Conservancies were found to have the most red katipo sites in the North Island. In the South Island, only Nelson (five sites) and Canterbury (four sites) Conservancies had a significant number of red katipo populations.

Figure 4. Papamoa Beach is a large swathe of protected sand-dune country east of Mt. Maunganui, Bay of Plenty. Red katipo were found here within the tangle of *Muehlenbeckia complexa,* spinifex (*Spinifex sericeus*) and sand coprosma (*Coprosma acerosa*).

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