



NEW ZEALAND BIOSECURE

Entomology Laboratory



## Profile: *Ixodes kerguelenensis* André & Colas-Belcour, 1942

**Common Name:** -

**Family:** Ixodidae

**Origin:** Indigenous



**Adult female; dorsal and ventral views**

**Geographic Distribution:** Port Hopeful, Kerguelen Island (André & Colas-Belcour, 1942); Marion Island\*, south Indian Ocean (*I. pterodromae* - Arthur, 1960a); West Bay and Laurens Peninsula, Heard Island (Arthur, 1960a); Macquarie Island and De Witt Island\*, Tasmania (*I. pterodromae* - Roberts, 1960; 1964a); Bruni Island\*, Tasmania; Encounter Bay\*, South Australia (Roberts, 1964a); Fisher Island\*, Bass Strait (Roberts, 1964b); Campbell Island, New Zealand (Wilson, 1964); Lord Howe Island\*, Australia (*I. pterodromae* - Roberts, 1970); Bird Island and South Georgia Island, South Georgia and South Sandwich Islands, South Atlantic Ocean; Possession Island, Crozet Islands, south Indian Ocean (Wilson, 1970); Ocean Island, Auckland Islands, New Zealand; Birdlings Flat, Canterbury (*I. pterodromae* - Dumbleton, 1973); Codfish Island, New Zealand (A. Heath, AgResearch, unpubl. data, 2006); Mangere Island\*, Chatham Islands (Heath, 2006); Castlepoint\*, Wairarapa; Antipodes Island, Southern Ocean (specimens held at Te Papa Tongarewa); Sinkhole Flat, The Snares; Big South Cape Island\*, Stewart Island (specimens held in NZAC).

\*Specimens collected from bird hosts - do not necessarily reflect the actual geographic distribution of the tick unless found associated with a nesting site. However, the locations for ticks found on birds such as kakapo are more reliable because of the flightless state of the host.

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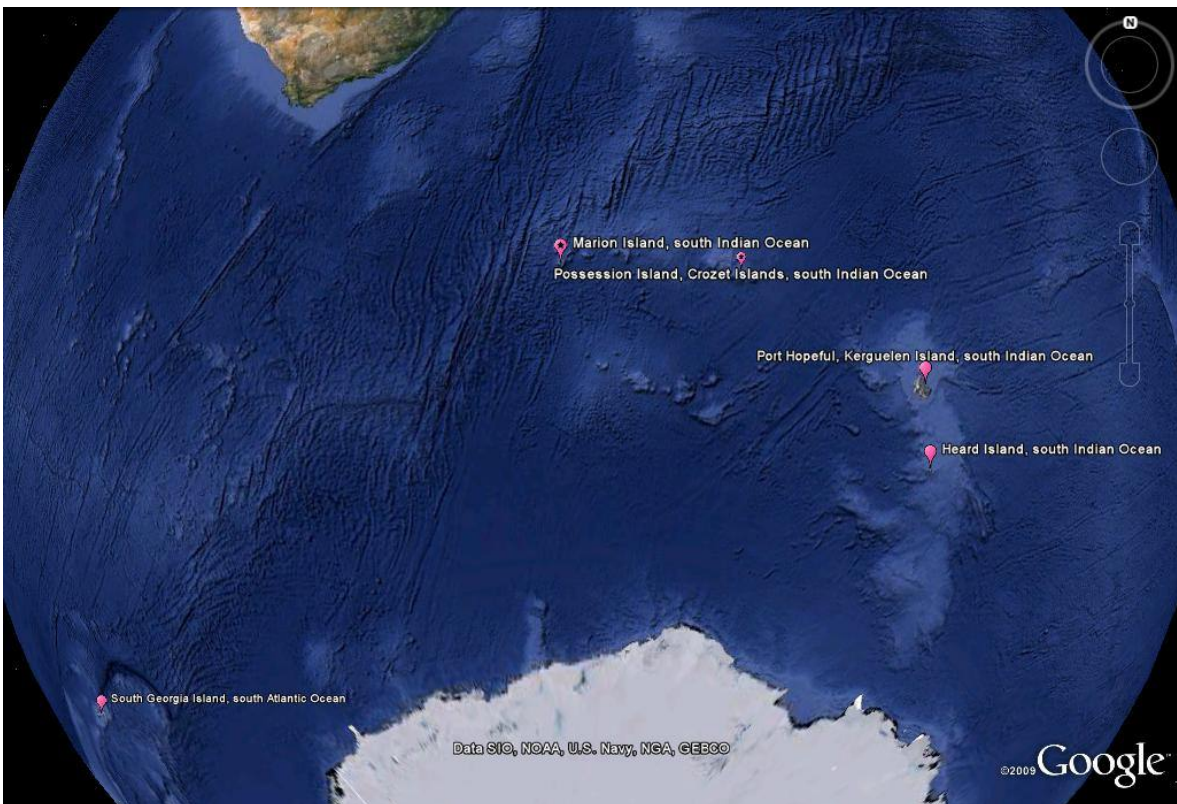
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\*Specimens collected from bird hosts (see note previous page)

**Known Hosts:** Kerguelen petrel *Lugensa brevirostris* (= *Pterodroma brevirostris*), soft-plumaged petrel *Pterodroma mollis* (Arthur, 1960a); wandering albatross *Diomedea exulans* (Roberts, 1960); short-tailed shearwater *Puffinus tenuirostris*, flesh-footed shearwater *Puffinus carneipes*, Antarctic/Dove prion *Pachyptila desolata banksi* (Roberts, 1964a); sooty shearwater *Puffinus griseus*, (Wilson, 1964); common diving-petrel *Pelecanoides urinatrix* (*I. pterodromae* - Roberts, 1970); South Georgia diving-petrel *Pelecanoides georgicus*, white-chinned petrel or cape hen *Procellaria aequinoctialis* (Wilson, 1970); (sub-antarctic diving petrel *Pelecanoides exsul* (*I. pterodromae* - Dumbleton, 1973); broad-billed prion *Pachyptila vittata*, N.Z. white-faced storm petrel *Pelagodroma marina*, Providence petrel *Pterodroma solandri* (Bishop & Heath, 1998); Kakapo *Strigops habroptila* (*I. pterodromae* - A. Heath, AgResearch, unpubl. data, 2006); fairy prion *Pachyptila turtur* (specimens held in NZAC).

Specimens have been found associated with nest material, on plants and on host birds.

**Disease Associations:** none known (Heath, 1987), however there are indications that this tick may cause tick paralysis; a single broad-billed prion chick was found to be host to 20 females and four nymphs of *I. kerguelenensis* in December 1981 (Heath, 2006). Death and paralysis has been observed within the Chatham Islands among prions with large numbers of ticks on individual birds (D. Merton, pers. com. 1982 cited in Heath, 2006).

**Taxonomy:** Holotype male. Type Locality - Port Hopeful, Kerguelen Island. Collected 10 Feb 1939. Deposited in the Pasteur Institute (André & Colas-Belcour, 1942), while Wilson (1970) reports it is held at the Museum of Natural History, Paris.

Synonymy – *Ixodes pterodromae* Arthur 1960 (Wilson, 1970; Horak *et al.*, 2002).

*I. pterodromae* holotype female. Type Locality – Marion Island, Indian Ocean. Collected 18 November 1951 by R.W. Rand. Deposited in Onderstepoort Research Station. Paratype also female (Arthur, 1960a).

*I. pterodromae* has been identified as part of the *I. auritulus* group, but Arthur (1960) concluded there was a *percavatus* group (including *I. pterodromae*) with a well defined mesodorsal spur and an *auritulus* group without one. Wilson (1970) synonymised *I. pterodromae* with *I. kerguelenensis* and commented that individuals recorded as several other species were misidentified specimens of *I. kerguelenensis*.

Uncertainty remains within the taxonomy of this group.

### **Diagnostic Characters:**

Males – anal groove converging posteriorly (Zumt, 1952). Anal groove arcuate, converging at margin (Dumbleton, 1961). Coxa I with small internal spur (Arthur, 1960b). Coxa II & III with slight internal saliences, I with external salience, II-IV with small external spurs (sometimes more salient-like), pentagonal pregenital plate between coxae II, large jugular plates between pregenital plate and coxae I, outer lateral margin usually slightly concave and extended posterolaterally, hypostome with apical notch, dentition 3/3 apically increasing to as much as 8/8, palpal article 1 simple, without spurs of female, 2&3 fused (Wilson, 1970).

Female – large porose areas slightly broader than long, auriculae broad spurs, dentition 5/5 at apex to 1/1/ at base, mostly 4/4, palpal article 1 with internal anteriorly directed spur, mesodorsal spur and slight mesoventral spur, 2&3 fused, scutum with lateral margins concave anteriorly and prominent cervical grooves, coxae I-IV with large external spurs, I-III with small internal spurs, IV with marginal salience, trochanters I-IV with large ventral spurs, I with large dorsal spur, II with small dorsal spur (Wilson, 1970). Similar to *I. percavatus* but distinguishable by cornua, porose areas and coxal armature (Arthur, 1960). Distinguishable from *Ixodes auritulus zealandicus* by having a mesodorsal spur on palpal article 2.

Nymphs – dentition 4/4 at apex to 1/1 at base, cornua rounded, well developed and extending posterolaterally, auriculae as in female, palps as in female, scutum widest slightly anterior to midlength, with prominent cervical grooves, leg armature as in female but coxal and trochanteral spurs not as sharp, anal groove bowed laterally, converging posteriorly (Wilson 1970).

Larvae – similar to nymph, auriculae weakly developed, palpal article 1 with small blunt internal spur, 2&3 fused, legs similar to nymph except none of the coxal or trochanteral spurs as well developed, anal groove incomplete anteriorly, diverging and extending to posterior body margin (Wilson, 1970).

NB. This group is particularly difficult to identify and full descriptions would need to be consulted for confident identifications of most specimens.

**Taxonomic Diagrams:** Arthur (1960a; 1960b), Roberts (1960; 1970), Wilson (1970)

**Biology:**

Predominantly a parasite of burrow-inhabiting sea birds, probably all stages use the same host species with the males restricted to the host habitat (Roberts, 1970). Collected from burrows and hosts, and a male from among plants (Dumbleton, 1973).

A female *I. pterodromae* was collected by personnel of the Smithsonian Institute in the Central Pacific from the ear of a northward-migrating sooty shearwater which had flown a distance of about 4800km. This demonstrated that ticks may potentially be widely dispersed by their avian hosts, although with little chance of establishing, e.g. temperate tick in a tropical environment (Amerson, 1968).

**Seasonality:** Collection data ex André & Colas-Belcour (1942), Arthur (1960a; 1960b), Roberts (1960; 1964a; 1964b), Wilson (1964; 1970), Dumbleton (1973), Heath (2006) and from specimens\* held at Te Papa and NZAC

Stage	J	F	M	A	M	J	J	A	S	O	N	D
<b>Females</b>	✓	✓	✓	✓			✓	✓			✓	✓
<b>Males</b>		✓	✓	✓	✓		✓					✓
<b>Nymphs</b>	✓	✓	✓	✓				✓		✓		✓
<b>Larvae</b>	✓	✓		✓								

\*Specimens labelled *I. pterodromae*

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