

## Species List of the Siphonaptera of the Outer Hebrides

### Introduction

There are 62 species of Siphonaptera (fleas) on the UK list but, according to the National Biodiversity Network Atlas, only 3 species have been recorded in the Outer Hebrides, all recent records submitted by OHBR. Fleas are unlikely to have been widely recorded, but there are probably more than three species present in the islands. The current list of species recorded in the Outer Hebrides comprises 16 taxa (14 species and 2 subspecies). This information is based on published literature, the OHBR Database and the British Fleas Database.

The earliest published records are based on specimens collected by James Waterston in 1905, who was later to become Assistant Keeper in the Department of Entomology, British Museum where he worked on the taxonomy of Mallophaga (bird lice) and Siphonaptera (Waterston 1906, Evans 1906). The next set of records are from the 1930s and are mainly based on material collected by Charles Elton on Lewis from small mammals. There was considerable interest in the populations of both the house and wood mice on St Kilda at this time, and work on these two species produced the first record of *Nosopsyllus fasciatus* (*Ceratophyllus fasciatus*) from a house mouse (*Mus domesticus*) on St Kilda (Harrisson & Moy-Thomas 1933).

Throughout the late 1950s St Kilda provided specimens of fleas from birds and small mammals, most of which were identified by the leading siphonapterists of the period. Miriam Rothschild was clearly pre-eminent, but R.S. George and Franciscus Smit, custodian of the Rothschild Flea Collection, were also involved.

Fleas have not been systematically studied in the Outer Hebrides and many of the records have resulted from specimens collected during the course of other research projects. Perhaps one of the more unusual is the record of the rabbit flea (*Spilopsyllus cuniculi*) collected from rabbits on Heiske during experiments associated with the introduction of myxomatosis (Allan & Shanks 1955, Shanks et al. 1955).

Since this period of activity only two species have been added to the list: *Palaeopsylla soricis vesperis* collected from a pygmy shrew (*Sorex minutus*) on Pabbay (Smit 1975) and *Ceratophyllus fringillae* collected from a nest box on South Uist in 2020 (OHBR database).

A bibliography accompanies this list and a more extensive list of literature relating to the natural history of the Outer Hebrides can be found on the Outer Hebrides Natural History Bibliography website (<http://www.ohbrbiblio.org.uk>)

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Species	Location	Host	Source
<i>Amalaraeus penicilliger mustelae</i> (Dale, 1878)	North Uist	Field Vole ( <i>Microtus agrestis</i> )	Waterston (1906)
<i>Ceratophyllus</i> ( <i>Ceratophyllus</i> ) <i>fringillae</i> (Walker, 1856)	South Uist	House Sparrow ( <i>Passer domesticus</i> ) or Starling ( <i>Sturnus vulgaris</i> ) nestbox	OHBR Database
<i>Ceratophyllus</i> ( <i>Ceratophyllus</i> ) <i>gallinae</i> (Schrank, 1903)	Harris Lewis North Uist South Uist St Kilda	Dunnock ( <i>Prunella modularis</i> ) Rock Dove ( <i>Columba livia</i> ) Song Thrush ( <i>Turdus philomelos</i> ) Starling ( <i>S. vulgaris</i> ) Wren ( <i>Troglodytes troglodytes</i> )	Rothschild (1952, 1958) George (1959) Rothschild Collection of Fleas, Natural History Museum, London: Ceratophyllidae
<i>Ceratophyllus</i> ( <i>Ceratophyllus</i> ) <i>vagabundus insularis</i> Rothschild, 1906	Heiske (Monachs) St Kilda	Fumlar ( <i>Fulmarus glacialis</i> ) Herring Gull ( <i>Larus argentatus</i> ) Shag ( <i>Phalacrocorax aristotelis</i> ) Puffin ( <i>Fratercula arctica</i> )	Waterston (1906) Fisher (1952) Rothschild (1952) Rothschild & Clay (1952) Rothschild Collection of Fleas, Natural History Museum, London: Ceratophyllidae
<i>Ceratophyllus</i> ( <i>Emmareus</i> ) <i>borealis</i> Rothschild, 1907	St Kilda	Gannet ( <i>Morus bassanus</i> ) Wren ( <i>T. troglodytes</i> ) Unknown	Rothschild (1907) Rothschild (1958) Rothschild & Clay (1952) George (1959) Rothschild Collection of Fleas, Natural History Museum, London: Ceratophyllidae

Species	Location	Host	Source
<i>Ceratophyllus (Emmareus) garei</i> Rothschild, 1902	St Kilda South Uist	Wren ( <i>T. troglodytes</i> ) Unknown	Rothschild (1958) George (1959) Waterston (1981)
<i>Ctenophthalmus (Ctenophthalmus) nobilis</i> (Rothschild, 1898)	Lewis	Brown Rat ( <i>Rattus norvegicus</i> ) Wood Mouse ( <i>A. sylvaticus</i> )	Scott (1915) Rothschild & Smit (1955)
<i>Ctenophthalmus (Ctenophthalmus) nobilis nobilis</i> (Rothschild, 1898)	Lewis Pabbay (Sound of Harris)	House Mouse ( <i>Mus domesticus</i> ) Wood Mouse ( <i>A. sylvaticus</i> )	Elton (1934, 1936)
<i>Ctenophthalmus (Ctenophthalmus) nobilis vulgaris</i> Smit 1955	Barra Head Harris Monachs Lewis Pabbay (Sound of Harris) St Kilda South Uist	<i>Apodemus</i> spp. Brown Rat ( <i>R. norvegicus</i> ) House Mouse ( <i>M. domesticus</i> ) Wood Mouse ( <i>A. sylvaticus</i> ) Wren ( <i>T. troglodytes</i> ) Bumblebee ( <i>Bombus</i> spp.) nest Unknown	Rothschild & Smit (1955) Smit (1955) Rothschild (1958) Boyd (1959) George (1959) Hopkins & Rothschild (1962, 1966) Waterston (1981) OHBR Database
<i>Dasypsyllus (Dasypsyllus) gallinulae gallinulae</i> (Dale, 1878)	Lewis North Uist St Kilda South Uist	Dunnock ( <i>P. modularis</i> ) Wren ( <i>T. troglodytes</i> ) Unknown	Rothschild (1952, 1958) George (1959) Waterston (1981) Rothschild Collection of Fleas, Natural History Museum, London: Ceratophyllidae
<i>Doratopsylla dasyncnema dasyncnema</i> (Rothschild, 1897)	Lewis	Wood Mouse ( <i>A. sylvaticus</i> )	Scott (1915) Elton (1936)
<i>Nosopsyllus (Nosopsyllus) fasciatus</i> (Bosc, 1800)	Lewis St Kilda South Uist	Brown Rat ( <i>R. norvegicus</i> ) House Mouse ( <i>M. domesticus</i> ) Wood Mouse ( <i>A. sylvaticus</i> ) Wren ( <i>T. troglodytes</i> )	Scott (1915) Harrison & Moy-Thomas (1933) Elton (1934, 1936) Rothschild (1958) Boyd (1959) George (1959) OHBR Database Rothschild Collection of Fleas, Natural History Museum, London: Ceratophyllidae
<i>Palaeopsylla soricis vesperis</i> Smit, 1975	Pabbay (Sound of Harris)	Pygmy Shrew ( <i>Sorex minutus</i> )	Smit (1975)
<i>Pulex (Pulex) irritans</i> Linnaeus, 1758	Lewis St Kilda	Dog ( <i>Canis familiaris</i> ) <i>Homo sapiens</i> Unknown	Evans (1906) Waterston (1906) Hopkins & Rothschild (1953)
<i>Spilopsyllus cuniculi</i> (Dale, 1878)	Heiske (Monachs) South Uist,	Mallard ( <i>Anas platyrhynchos</i> ) Rabbit ( <i>Oryctolagus cuniculus</i> )	Hopkins & Rothschild (1953) Allan & Shanks (1955) Shanks et al. (1955)
<i>Typhloceras (poppei) poppei</i> Wagner, 1903	Barra Head Lewis St Kilda South Uist	House Mouse ( <i>M. domesticus</i> ) Wood Mouse ( <i>A. sylvaticus</i> ) Wren ( <i>T. troglodytes</i> ) Bumblebee ( <i>Bombus</i> spp.) nest Unknown	Waterston (1906) Elton (1934) (1936) Rothschild (1958) Boyd (1959) George (1959) Hopkins & Rothschild (1962) Waterston (1981) OHBR Database

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