

The species of *Saemundsson* (Insecta: Phthiraptera: Philopteridae) from skuas (Aves: Stercorariidae)

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Abstract Three species of *Saemundsson* Timmermann, 1936 parasitic on skuas are recognised as valid: *Saemundsson* (*Saemundsson*) *cephalus* (Denny, 1842) on *Stercorarius parasiticus*; *S.* (*S.*) *inexpectata* Timmermann, 1951 on *Stercorarius longicaudus*; and *S.* (*S.*) *euryrhyncha* (Giebel, 1874) on *Stercorarius pomarinus* as well as on all species of *Catharacta*. The name *Saemundsson* *stresemanni* Timmermann, 1949 is proposed as a junior synonym of *S.* (*S.*) *euryrhyncha*. Measurements and illustrations to facilitate the identification of these three species of *Saemundsson* are given.

Keywords *Saemundsson*; Philopteridae; lice; new synonymy; skuas

INTRODUCTION

The genus *Saemundsson* Timmermann, 1936 includes many species and subspecies of lice parasitic on members of several avian orders, especially the Charadriiformes – waders, plovers, gulls (see Timmermann 1957). Louse collections resulting from a study on the phylogeny of skuas (Cohen et al. 1997: 186) have shown that one species of *Saemundsson* parasitises *Stercorarius pomarinus* (Temminck, 1815) and all species of *Catharacta*. Although Cohen et al. (1997) applied the name *Saemundsson* *stresemanni* Timmermann, 1949 to that species – originally described from specimens

collected on *Catharacta skua* Brünnich, 1764 – the earliest available name for those lice is *Saemundsson* *euryrhyncha* (Giebel, 1874) with *Stercorarius pomarinus* as type host. Timmermann (1957: 47) also recognised a single species of *Saemundsson* parasitising both *St. pomarinus* and *C. skua* and referred to it as *S. stresemanni*. In the literature, the name *S. euryrhyncha* has been used as a valid taxon a few times, but in all cases it was applied only to the *Saemundsson* population living on *St. pomarinus* (see synonymy below). In this paper I propose a new synonymy between *S. euryrhyncha* and *S. stresemanni*.

Further collections of *Saemundsson* from *Stercorarius longicaudus* Vieillot, 1819 have also allowed me to confirm that the host-lice association between this skua and *Saemundsson* *inexpectata* Timmermann, 1951 is correct. The third species of *Saemundsson* from skuas is *S. cephalus* (Denny, 1842), parasitic on *Stercorarius parasiticus* (Linnaeus, 1758).

I include measurements, illustrations and other data to facilitate the identification of the three *Saemundsson* species known to live on members of the family Stercorariidae. The taxonomic nomenclature of the hosts follows Cohen et al. (1997). In the synonymies, quotation marks (“ ”) are used for those binomial combinations which I regard as having been incorrectly applied by the author cited immediately after the closing quotation mark.

LIST OF ABBREVIATIONS FOR REPOSITORY INSTITUTIONS

AMSA – Australian Museum, Sydney, New South Wales, Australia.

BMNH – The Natural History Museum, London, England.

BPBM – Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.

FNHM – Natural History Museum, Tórshavn, Faroe Islands

KCEM – K.C. Emerson Entomology Museum,

Oklahoma State University, Stillwater, Oklahoma, U.S.A.

MONZ – Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand.

QVTA – Queen Victoria Museum and Art Gallery, Launceston, Tasmania, Australia.

RLCP – R.L.C. Pilgrim Collection, housed in MONZ.

USNM – United States National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A.

SYSTEMATICS

Measurements of head width, head length, total length and paramere length for the three species are given in Table 1.

Saemundssonina (Saemundssonina) cephalus

(Denny, 1842) (Fig. 1)

Docophorus cephalus Denny, 1842: 44, 81, pl. 2, fig. 8 (Type host: *Stercorarius parasiticus* (Linnaeus, 1758)).

Lectotype ♀ (designated below) in BMNH, Denny Collection, slide 52.98.a.

Docophorus pustulosus; Nitzsch (in Giebel), 1866: 363 (Type host: *Stercorarius parasiticus*). **Types** presumed lost.

Docophorus pustulosus; Giebel, 1874: 110, pl. 11, fig. 5 (ex *St. parasiticus*).

Docophorus lari magna; Piaget, 1880: 112 (Type host: *Larus atricilla* Linnaeus, 1758, in error). **Lectotype** ♂ (designated below) in BMNH, Piaget Collection, slide 541a.

Docophorus atlanticus; Kellogg, 1914: 81, fig. 1 (Type host: *Stercorarius parasiticus*). **Syntypes** ♀ in USNM, slide 42752.

Saemundssonina pustulosa; Timmermann, 1949: 10, fig. 4–6 (ex *St. parasiticus*, Iceland).

Saemundssonina cephalus; Hopkins & Clay, 1952: 330. Listed only.

Saemundssonina cephalus; Timmermann, 1957: 47 (ex *St. parasiticus*).

Saemundssonina cephalus; Hackman & Nyholm, 1968: 77 (ex *St. parasiticus*, Spitsbergen).

Saemundssonina cephalus; Emerson, 1972: 155 (ex *St. parasiticus*, North America).

Saemundssonina cephalus; Pilgrim & Palma, 1982: 22 (ex *St. parasiticus*, New Zealand).

Material examined

Ex *Stercorarius parasiticus* (Linnaeus, 1758):

Lectotype ♀ of *Docophorus cephalus* Denny, 1842 (on slide 52.98.a, designated here), 4 paralectotypes ♀, no data, (BMNH, Denny Collection slides 52.98.a–e); 3 ♂, 3 ♀, Great Yarmouth, Norfolk,

England, 2 Nov. 1905 (MONZ); 2 ♀, Vallay I., North Uist, Scotland, 5 Aug. 1909 (MONZ); 1 ♂, 1 ♀, Lincolnshire, England, 24 Sep. 1912 (MONZ); 1 ♂, 3 ♀, Hoy, Orkney Is, Scotland, 6 Aug. 1930 (KCEM); 8 ♂, 10 ♀, Plymouth, Massachusetts, U.S.A., 23 Aug. 1930 (USNM); 3 ♂, 3 ♀, Great Yarmouth, Norfolk, England, 8 Oct. 1933 (MONZ); 2 ♂, 1 ♀, same locality, 20 Oct. 1933 (MONZ); 1 ♂, 1 ♀, Aberlady Bay, East Lothian, Scotland, Sep. 1937 (MONZ); 3 ♂, 3 ♀, Bill Williams River, Arizona, U.S.A., 15 Oct. 1947 (USNM, KCEM); 1 ♂, Fair Isle, Shetland, Scotland, 18 Jul. 1951 (MONZ); 1 ♂, Native Point, N.W. Territories, Canada, 30 Jun. 1955 (KCEM); 4 ♂, 2 ♀, Cape Thompson, Alaska, U.S.A., 11 Jul. 1961 (BPBM, KCEM); 1 ♀, Kaikoura, New Zealand, 15 Nov. 1978 (MONZ); 2 ♂, Tuki Tuki Estuary, Hawkes Bay, New Zealand, Mar. 1982 (MONZ); 1 ♂, Kaitorite Spit, Canterbury, New Zealand, 8 Apr. 1984 (MONZ); 4 ♂, 3 ♀, Nólsoy, Faroe Is, 6 Jul. 1997 (FNHM, MONZ); 1 ♂, Mouth of Tay, Scotland, no date (MONZ); 2 ♂, South West Lancashire, England, no date (MONZ).

Stragglers or contaminants

Ex *Stercorarius longicaudus* Vieillot, 1819: 4 ♂, 2 ♀, North Uist, Oct. 1909 (BMNH); 1 ♂, West Greenland, Jul. 1955 (BMNH).

Note: The above seven specimens, labelled as being collected from *Stercorarius longicaudus*, could be stragglers or contaminants from *Stercorarius parasiticus*, because *S. inexpectata* is the regular species found on *St. longicaudus*. However, an alternative explanation is simple host mis-identification, if the specimens were collected from non-breeding, juvenile or immature specimens of *St. parasiticus* which were mis-identified as *St. longicaudus*. Melville (1985) discussed in detail the difficulties of distinguishing between non-breeding adults, juveniles and immatures of these two species of skuas.

Ex *Larus atricilla* Linnaeus, 1758: **Lectotype** ♂ of *Docophorus lari magna* Piaget, 1880 (on slide 541a, designated here), paralectotype ♀, no data, (BMNH, Piaget Collection slides 541a, b).

Note: In common with all other gulls of the genus *Larus*, *L. atricilla* is regularly parasitised by *Saemundssonina lari* (O. Fabricius, 1780).

Remarks

Denny's (1842) type series of *Docophorus cephalus* includes five females from *St. parasiticus* which show no significant morphological differences from

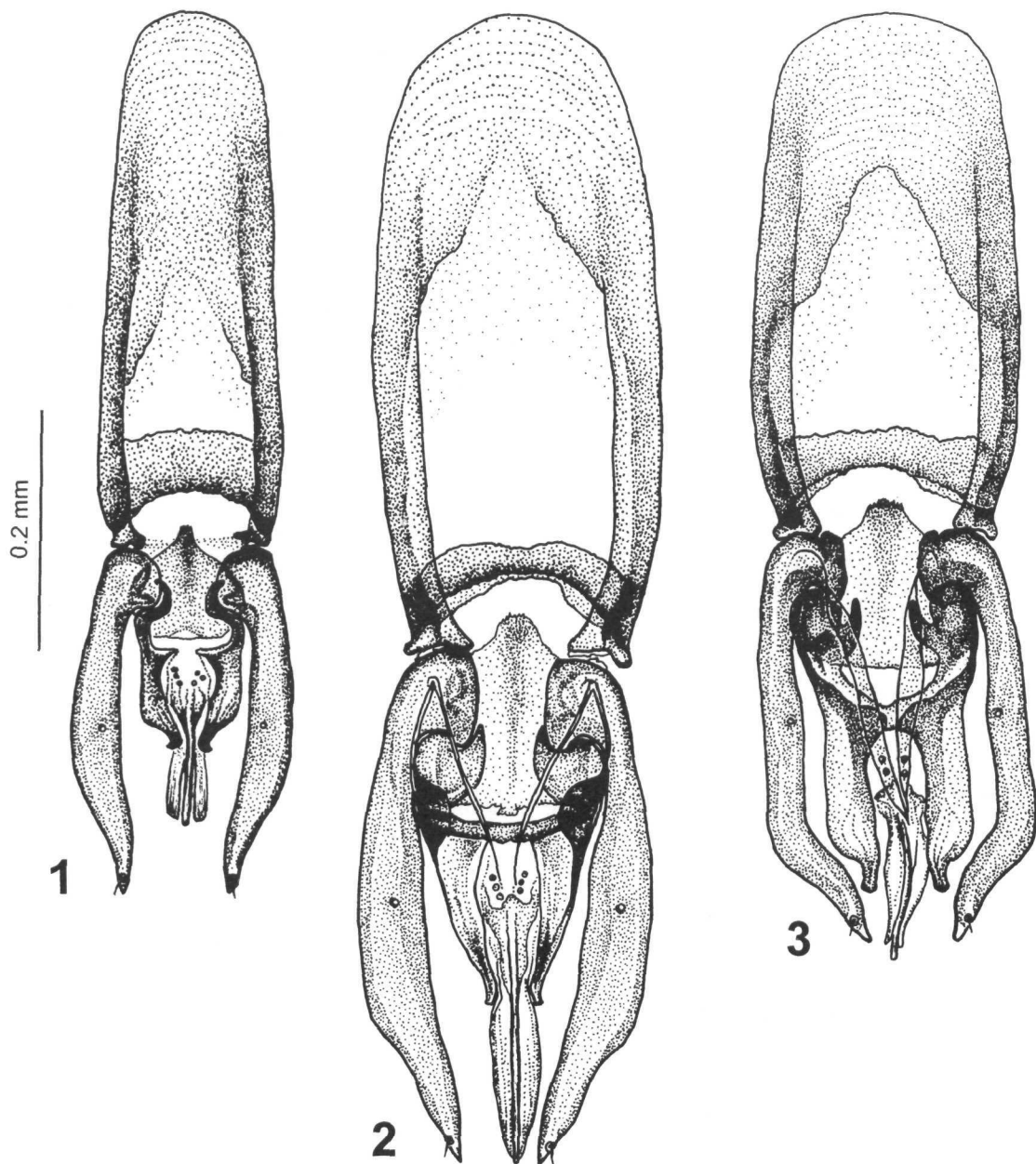


Fig. 1-3 Male genitalia: 1, *Saemundssonina* (*Saemundssonina*) *cephalus*; 2, *S. (S.) euryrhyncha*; 3, *S. (S.) inexpectata*.

all the *Saemundssonina* females collected from that host which I have examined for this paper. The type series includes a further female which I have identified as *Saemundssonina* (*S.*) *platygaster* (Denny, 1842). Furthermore, a detailed examination of the figures given by Denny (1842: pl. 2) for *D. cephalus* (fig. 8) and *D. platygaster* (fig. 5) show that these

figures, or their numbers, may have been interchanged. The shape of the heads in these figures indicates that Denny's fig. 8 corresponds to a specimen of *S. (S.) platygaster*, with expanded temporal lobes and a narrow clypeal region, while fig. 5 more closely represents *S. (S.) cephalus*, with less expanded temporal lobes and a relatively wide clypeal

region. Alternatively, considering that the type series of *Docophorus cephalus* includes two species, Denny may have inadvertently chosen the contaminant specimen of *S. (S.) platygaster* to illustrate his new species *D. cephalus*. However, since Denny (1842: 83) did not list any specimen from a *Stercorarius* host under his description of *D. platygaster*, I believe that an interchange of the figures, or their numbers, while pl. 2 was being prepared is a more likely explanation for the confusion.

***Saemundssonina (Saemundssonina) euryrhyncha* (Giebel, 1874) (Fig. 2)**

Docophorus euryrhynchus; Giebel, 1874: 112 (Type host: *Stercorarius pomarinus* (Temminck, 1815)). **Types** presumed lost.

"*Philoferus lari*"; Neumann, 1911: 19, pl. 3, fig. 2-4 (not *Pediculus lari* J.C. Fabricius, 1780) (ex *C. maccormicki* (Saunders, 1893), Cape Royds, Antarctica).

Philoferus euryrhynchus; Harrison, 1916: 93. Listed as junior synonym of "*P. pustulosus* N."

"*Philoferus pustulosus*"; Harrison, 1937: 22 (not *Docophorus pustulosus* Nitzsch, 1866) (ex *C. maccormicki*, Adelie Land, Antarctica).

Saemundssonina stresemanni; Timmermann, 1949: 13, fig. 7, 9 (Type host: *Catharacta skua* Brünnich, 1764).

Holotype ♂ in BMNH, slide 557. **New synonymy.**

Saemundssonina euryrhyncha; Hopkins & Clay, 1952: 330. Listed as "Probably a straggler".

Saemundssonina stresemanni; Hopkins & Clay, 1952: 336. Listed only.

Saemundssonina stresemanni; Timmermann, 1957: 47, fig. 19 (ex *C. skua* and *St. pomarinus*).

Saemundssonina stresemanni; Clay, 1964: 232 (ex *C. lonnbergi* Mathews, 1912, Campbell Island, New Zealand).

Saemundssonina stresemanni; Clay & Moreby, 1967: 165, fig. 162 (ex *C. maccormicki*, Antarctica).

Saemundssonina stresemanni; Watson, 1967: 74 (ex *C. lonnbergi*, Macquarie Island, Australia).

Saemundssonina stresemanni; Clay & Moreby, 1970: 220 (ex *C. lonnbergi*, Kerguelen and Heard Islands).

Saemundssonina euryrhyncha; Amerson & Emerson, 1971: 15 (ex *St. pomarinus*, Pacific Ocean).

Saemundssonina stresemanni; Schaefer & Strandtmann, 1971: 15 (ex *C. maccormicki*, Ross Island, Antarctica).

Saemundssonina stresemanni; Spellerberg, 1971: 19 (ex *C. maccormicki*, Cape Royds, Antarctica).

Saemundssonina euryrhyncha; Emerson, 1972: 156 (ex *St. pomarinus*, North America). Listed only.

Saemundssonina stresemanni; Wise, 1977: 65. Listed only.

Saemundssonina stresemanni; Pilgrim & Palma, 1982: 22 (ex *C. lonnbergi* and *C. maccormicki*, New Zealand and Antarctica).

Saemundssonina stresemanni; Mey, 1994: 41, figs 20-21 (ex *St. pomarinus*, Germany).

Saemundssonina euryrhyncha; Butler & O'Connor, 1994: 456 (ex *St. pomarinus*, Ireland).

Saemundssonina (Saemundssonina) stresemanni; Palma & Barker, 1996: 225 (ex *C. lonnbergi* and *C. maccormicki*, Australia).

Saemundssonina stresemanni; Cohen et al., 1997: 186 (ex *St. pomarinus*, *C. skua*, *C. antarctica* (Lesson, 1831), *C. chilensis* (Bonaparte, 1857), *C. hamiltoni* Hagen, 1952, *C. lonnbergi* and *C. maccormicki*).

Material examined

Ex *Stercorarius pomarinus* (Temminck, 1815): 2 ♂, 1 ♀, Firth of Forth, Scotland, Oct. 1879 (MONZ); 2 ♀, Prestonpans, East Lothian, Scotland, 23 Dec. 1879 (MONZ); 1 ♂, Fair I., Shetland Is, Scotland, 29 Oct. 1908 (MONZ); 2 ♀, Orkney Is, Scotland, 5 Nov. 1913 (MONZ); 1 ♂, 1 ♀, Pladda Lighthouse, Firth of Clyde, Scotland, 29 Dec. 1917 (MONZ); 1 ♂, 1 ♀, off Bateau, Labrador, Canada, 4 Sep. 1926 (USNM); 1 ♀, Southampton I., Canada, 1929 (USNM); 2 ♂, 1 ♀, Golovin, Alaska, U.S.A., 20 May 1931 (USNM); 1 ♂, 3 ♀, Pea I., North Carolina, U.S.A., 27 Oct. 1943 (KCEM); 1 ♂, 2 ♀, no locality, 1956 (MONZ); 1 ♂, Pacific Ocean, 2 Apr. 1964 (USNM); 3 ♂, 2 ♀, Tropical Atlantic Ocean, 11 Aug. 1964 (KCEM, USNM); 2 ♂, Cape Barren I., Tasmania, Australia, 21 Sep. 1978 (KCEM).

Ex *Catharacta skua* Brünnich, 1764: 1 ♂ (**Holotype** of *S. stresemanni*), Breiðamerkursandur, Iceland, 24-26 May 1949 (BMNH); 1 ♂, Noss, Scotland, May 1985 (MONZ); 3 ♂, 1 ♀, Foula I., Shetland Is, Scotland, May 1988 (MONZ); 5 ♂, 3 ♀, Nólsoy, Faroe Is, 10 Sep. 1997 (FNHM, MONZ).

Ex *Catharacta antarctica* (Lesson, 1831): 1 ♀, South Orkney Is, Southern Ocean, Nov. 1903 (MONZ).

Ex *Catharacta chilensis* (Bonaparte, 1857): 1 ♂, Lemaire Strait, Argentina, South Atlantic Ocean, 19 Jan. 1966 (KCEM).

Ex *Catharacta maccormicki* (Saunders, 1893): 1 ♂, 1 ♀, Adelie Land, Antarctica, 14 Jan. 1913 (AMSA); 2 ♂, 3 ♀, Cape Royds, Antarctica, 18 Dec. 1963 (RLCP); 11 ♂, 9 ♀, same locality, 1963-1966 (RLCP); 1 ♀, Possession I., Ross Sea, Antarctica, 26 Jan. 1965 (MONZ); 1 ♂, Weddell Sea, Antarctica, 12 Feb. 1966 (USNM); 1 ♀, Davis, Antarctica, 7 Feb. 1977 (RLCP); 2 ♂, 2 ♀, Cape Bird, Antarctica, 10 Oct. 1978 (RLCP); 5 ♂, 5 ♀, same locality, 4 Dec. 1978 (RLCP).

Ex *Catharacta lonnbergi* Mathews, 1912: 1 ♂, 1 ♀, Beeman Camp, Campbell I., New Zealand, 15 Oct.

1961 (BPBM); 1 ♀, Ewing I., Auckland Is, New Zealand, 1 Jan. 1963 (BPBM); 1 ♂, 1 ♀, Campbell I., New Zealand, 6 Feb. 1963 (BPBM); 2 ♂, 2 ♀, Heard I., Indian Ocean, 4 Feb. 1965 (BPBM); 1 ♂, Marion I., Indian Ocean, 1 Mar. 1966 (KCEM); 1 ♂, 1 ♀, Long I., Stewart I., New Zealand, 14 Nov. 1968 (MONZ); 1 ♀, Sinkhole Flat, Snares Is, New Zealand, 28 Dec. 1976 (MONZ); 3 ♂, 3 ♀, South East I., Chatham Is, New Zealand, 11 Feb. 1980 (MONZ); 15 ♂, 5 ♀, same locality, 18 Dec. 1980 (RLCP); 1 ♀, Sandy Bay, Enderby I., Auckland Is, New Zealand, 31 Jan. 1981 (MONZ); 12 ♂, Macquarie I., South Pacific Ocean, 27 Oct. 1984 (MONZ, QVTA); 4 ♂, Marion I., Indian Ocean, 1 Feb. 1986 (MONZ).

Ex *Catharacta hamiltoni* Hagen, 1952: 1 ♀, Gough I., South Atlantic Ocean, 27 Oct. 1972 (MONZ).

Remarks

Giebel's original description of *D. euryrhynchus* is relatively long and lacks illustrations. Although it does not characterise the species unequivocally, it undoubtedly refers to a species of the widespread, head-and-neck seabird louse genus now recognised as *Saemundssonina*. The fact that Giebel (1874) compared his new species against *D. cephalus* Denny – a species which clearly belongs to *Saemundssonina* – is further evidence that *D. euryrhynchus* also belongs to *Saemundssonina*. As the type material of *D. euryrhynchus* is no longer available, having been almost certainly destroyed during World War II (see Palma & Pilgrim 1984: 150), the application of the species epithet *euryrhynchus* to the *Saemundssonina* population living on *St. pomarinus* can be made only by association, but it is most likely to be correct because only one species of *Saemundssonina* is known from that host.

The name *Docophorus euryrhynchus* was not used as a valid taxon for almost 100 years since it was published by Giebel in 1874. Harrison's (1916) sinking of *D. euryrhynchus* as a junior synonym of *D. pustulosus*, and Hopkins & Clay's (1952) listing of *D. euryrhynchus* as a probable straggler, must have contributed to its long absence from the literature. However, *D. euryrhynchus* is certainly not a synonym of *D. pustulosus* (see above under *S. (S.) cephalus*), and the remark by Hopkins & Clay (1952) regarding the probable straggling origin of the material described by Giebel is not supported by any explanation or evidence. Despite those probable reasons for the name *D. euryrhynchus* going into oblivion for almost a century, the very small number of literature references to *Saemundssonina* lice from

St. pomarinus is puzzling. There are only five papers – excluding Giebel (1874) – recording actual specimens in a period of 125 years, and three of them have been published since 1994 (see synonymy above). Judging from the number of specimens examined from *St. pomarinus*, these lice cannot be regarded as rare, nor does *St. pomarinus* appear to be or to have been a rare species (see Furness 1987).

Considering that the types of *D. euryrhynchus* were no longer available, and that Timmermann (1949) had no specimen of *Saemundssonina* from *St. pomarinus* for comparison, his description of *S. stresemanni* as a new species from a different host species is not surprising. However, in his review of the lice from charadriiform hosts, Timmermann (1957: 47) referred to specimens of *Saemundssonina* from both *St. pomarinus* and *C. skua* as *S. stresemanni*, without mentioning the name *D. euryrhynchus*. The reason(s) for Timmermann's ignoring *D. euryrhynchus* can only be speculated upon, but the present situation where morphologically identical lice are identified and published as two different species is untenable.

Detailed study of the material listed above has shown that there are no significant morphological differences between the *Saemundssonina* population living on *St. pomarinus* and those from all the species of *Catharacta* skuas. Therefore, I propose that the name *S. stresemanni* Timmermann, 1949 be regarded as a junior synonym of *S. (S.) euryrhyncha* (Giebel, 1874).

Saemundssonina (Saemundssonina) inexpectata Timmermann, 1951 (Fig. 3)

Saemundssonina inexpectata; Timmermann, 1951: 9, fig. 1 (Type host: *Larus minutus* Pallas, 1776, in error).

Holotype ♂ in BMNH, slide 575.

Saemundssonina inexpectata; Timmermann, 1957: 44, 47, fig. 14 (ex *St. longicaudus* Vieillot, Spitsbergen).

Saemundssonina sp.; Melville, 1985: 67 (ex *St. longicaudus*, New Zealand).

Material examined

Ex *Stercorarius longicaudus* Vieillot, 1819: 1 ♀, Lapmark, Sweden, 28 Jul. 1906 (MONZ); 1 ♀, Southampton I., Canada, 1929 (USNM); 2 ♀, East Greenland, May 1937 (BMNH); 1 ♀, Point Barrow, Alaska, U.S.A., 3 Jul. 1951 (USNM); 1 ♀, Pacific Ocean, 2 Oct. 1964 (KCEM); 1 ♂, Makara Beach, Wellington, New Zealand, 28 Jan. 1983 (MONZ); 1 ♂, Peka Peka, Wellington West, New Zealand, 12 Feb. 1983 (MONZ); 2 ♂, Otaki Beach, New

Zealand, 13 Nov. 1988 (MONZ); 1 ♂ 1 ♀, NE Siberia, no date (BMNH).

Stragglers or contaminants

Ex *Larus minutus* Pallas, 1776: Holotype ♂, allotype ♀, Scarborough, England, no date (BMNH, slides 575–576).

Remarks

Timmermann (1951: 9) suspected that the true host of his new species *S. inexpectata* was not *Larus minutus* but, in the absence of other evidence, he designated that gull as the type (and only) host. However, he was aware that *L. minutus* was also host to *Saemundssonina lari* (O. Fabricius, 1780) – the species of *Saemundssonina* found on all *Larus* species – because in the same paper (Timmermann 1951: 8) he described the new subspecies *S. lari waterstoni* from lice collected on *L. minutus* from the same locality as that of *S. inexpectata*. In his review of the lice from charadriiform hosts, Timmermann (1957: 44, 47) identified the first sample of *S. inexpectata* from *St. longicaudus* and recognised this skua as its likely true host.

The new records of *S. inexpectata* from *St. longicaudus* listed above confirm beyond any doubt that this is a correct and natural host-lice association. Furthermore, the lack of new records of *S. inexpectata* from *L. minutus*, together with further records of *S. lari* from this gull in Brelih & Tovornik (1961: 105) and in the MONZ collection, clearly indicate that the type specimens of *S. inexpectata* were stragglers or contaminants on *L. minutus*.

DISCUSSION

The three species of *Saemundssonina* parasitic on skuas are very darkly pigmented and morphologically very similar – especially the females – but they are clearly distinguishable from all other species of the nominate subgenus, and among themselves, by the morphology of the male genitalia (Fig. 1–3). In fact, the identification of most species of *Saemundssonina*, from both charadriiform and procellariiform hosts, is possible only by a thorough study of the morphology of the male genitalia (e.g., Clay 1949; Timmermann 1959).

As shown in Table 1, the variability ranges of head dimensions and total length in both sexes of the three *Saemundssonina* species overlap so much that they are not useful features to separate them. Although the morphology of the male genitalia is sufficient to distinguish these three species, their dimensions, in particular the length of the parameres (see Table 1), are also sufficiently different in their ranges that they can be used in the identification of male lice.

The configuration of the ventral pigmented plates of the female terminalia is too variable within each species to be considered as a reliable character to distinguish the three species of *Saemundssonina* parasitic on skuas. Timmermann's (1949) figures of those plates for *S. cephalus* (fig. 8 as *S. pustulosa*) and *S. euryrhyncha* (fig. 9 as *S. stresemanni*) are certainly different but, in fact, they represent the extremes of two variability ranges which overlap considerably. The configuration of the terminal ventral pigmented plates in females of *S.*

Table 1 Measurements (in mm) of *Saemundssonina* species from the Stercorariidae (means; ranges in parentheses).

Species	Head width*	Head length**	Total length	Paramere length
<i>S. cephalus</i>				
17 ♂♂	0.751 (0.69–0.79)	0.749 (0.68–0.78)	2.060 (1.87–2.17)	0.276 (0.26–0.29)
11 ♀♀	0.802 (0.75–0.83)	0.792 (0.75–0.84)	2.373 (2.09–2.50)	–
<i>S. inexpectata</i>				
5 ♂♂	0.724 (0.71–0.75)	0.712 (0.70–0.73)	1.954 (1.88–2.01)	0.340 (0.33–0.35)
5 ♀♀	0.798 (0.79–0.81)	0.782 (0.77–0.81)	2.433 (2.31–2.56)	–
<i>S. euryrhyncha</i>				
21 ♂♂	0.743 (0.71–0.79)	0.733 (0.68–0.78)	2.029 (1.91–2.14)	0.405 (0.38–0.43)
22 ♀♀	0.838 (0.79–0.88)	0.791 (0.75–0.82)	2.383 (2.20–2.55)	–

* Maximum, taken at temples.

** Maximum, from hyaline margin to posterior limit of temple.

inexpectata also falls within those variability ranges.

Female-only samples are therefore extremely difficult to identify with certainty and even detailed study of their sclerites and chaetotaxy will fail to achieve reliable identifications. The identity of the host is often used as an identification aid for female-only samples, but this should be done only when there is no doubt about the accuracy of the host record; an incorrect host identity or a contamination of lice between different hosts – natural or not – will produce incorrect identifications of the lice.

Conversely, *Saemundssonina* lice have been used to identify otherwise unidentifiable skua material (Melville 1985). Since only the males of *Saemundssonina* can be accurately identified to species, at least one male must be available if lice are used for that purpose.

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