Tuhinga 15: 13–16

Designation of a lectotype for *Docophorus atlanticus* Kellogg, 1914 (Insecta: Phthiraptera: Philopteridae)

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ABSTRACT: Upon the rediscovery of seven syntypes in the collection of the United States National Museum of Natural History, a male lectotype for the louse taxon *Docophorus atlanticus* Kellogg, 1914 is designated from the syntype series. Detailed study of the rediscovered syntypes showed that two species (*Saemundssonia cephalus* (Denny, 1842) and an unidentifiable species of *Saemundssonia*) were included in the series.

KEYWORDS: *Docophorus atlanticus*, *Saemundssonia cephalus*, Phthiraptera, Philopteridae, lice, lectotype.

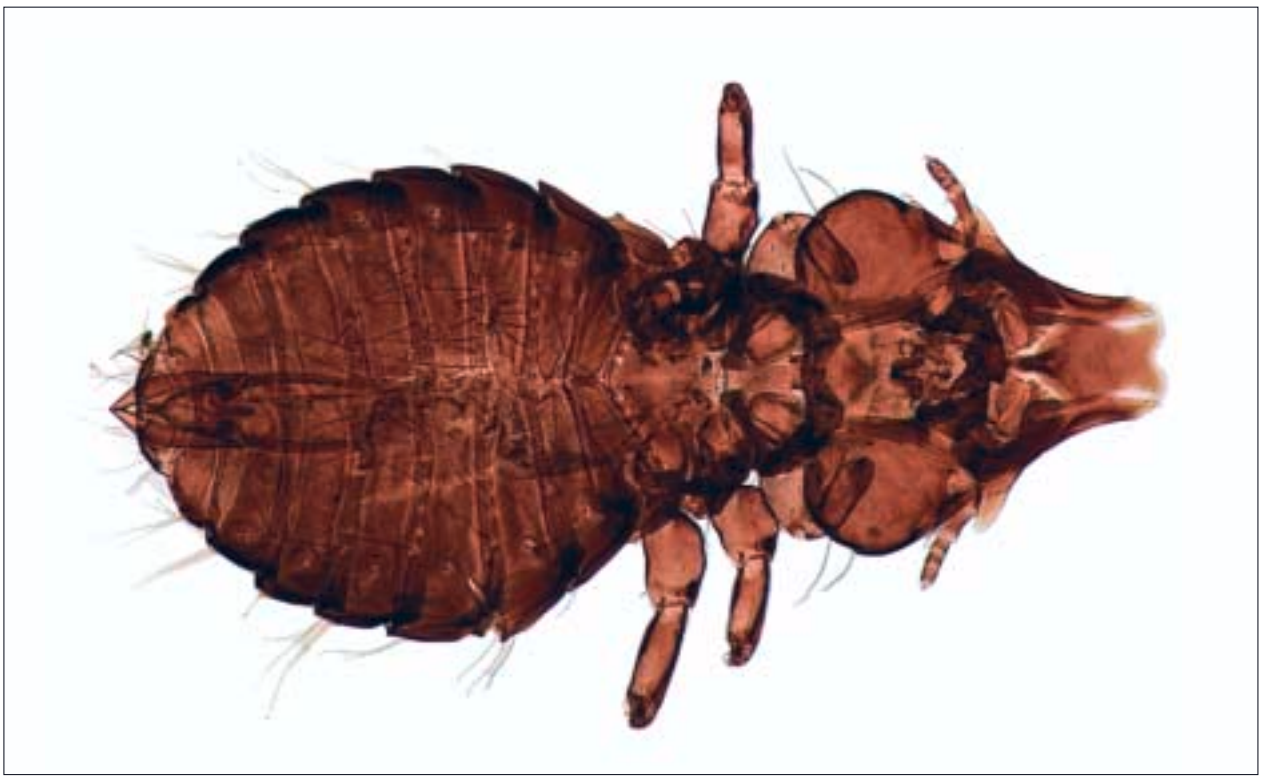

Fig. 1 Lectotype male of *Docophorus atlanticus* Kellogg, 1914 (actual length: 2.05 mm).

Introduction

Kellogg (1914: 81) described the new louse species *Docophorus atlanticus* based on an undisclosed number of male and female specimens taken from birds belonging to two species: *Stercorarius parasiticus* (Linnaeus, 1758) (as '*Stercorarius crepidatus*') and *Sterna paradisaea* Pontoppidan, 1763. Those birds had been collected in the Atlantic Ocean by Robert C. Murphy during the South Georgia Island Expedition of 1912–13. Kellogg (1914) neither designated a holotype for *D. atlanticus* nor did he give the name of any repository collection for the type series, stating only that he had received them for determination from 'Mr. Chas. Schaeffer of the Central Museum of the Brooklyn Institute of Arts and Sciences'. Today, several institutions hold collections of lice identified by Vernon L. Kellogg, and a number of papers listing them have been published (e.g. Emerson 1958, 1961; Carriker 1957).

Emerson (1961: 248) recorded five female syntypes of *Docophorus atlanticus* from the collection of the United States National Museum of Natural History in Washington (USNM), but he refrained from designating a lectotype because he could not locate any male specimen. Because of the extensive curatorial work undertaken by Ms Nancy Adams on the USNM louse collection, seven additional syntypes of *D. atlanticus* – including three males – have recently been rediscovered. My examination of the 12 specimens comprising the present type series has shown that two louse species are included among them: *Saemundssonia cephalus* (Denny, 1842) and an unidentifiable species of *Saemundssonia*.

Considering that the taxon *Docophorus atlanticus* Kellogg, 1914 has been regarded as a junior synonym of *Saemundssonia cephalus* (Denny, 1842) for over 50 years (*see* 'Discussion' below), I believe it is advisable to select a syntype male of *D. atlanticus* and designate it as the lectotype. This will prevent any future confusion regarding the identity of this taxon, and will thus maintain taxonomic stability as recommended by the International Commission on Zoological Nomenclature (1999: 83) in their *Code* (Recommendation 74A).

Material examined

I have examined 12 lice, mounted on eight slides, believed to be syntypes of *Docophorus atlanticus* Kellogg, 1914. All the lice have been remounted in Canada balsam by an unknown worker, who placed Kellogg's original labels on only four slides containing eight specimens. Among the remaining four slides, each containing one louse, two have labels written by the unknown worker, while two have no labels at all. Therefore, I recognise the eight specimens with original Kellogg's labels as syntypes of *D. atlanticus* beyond any doubt, and the remaining four lice as very likely syntypes. The data associated with these 12 specimens and my comments are given below.

Slides with original labels

1. Slide '**R.C.M. 1279**' (USNM 42752). The original label reads: '1850 Type *Doc. atlanticus* n sp Kellogg *Stercorarius crepidatus* R.C. Murphy 1279 N. Trop. Atlantic – V.L. KELLOGG STANFORD UNIVERSITY'. The words 'S. Georgia Is.' have been crossed out. This slide contains five female lice. These are syntypes of *Docophorus atlanticus* and have been recognised and listed as such by Emerson (1961: 248). I have identified these five female syntypes as *Saemundssonia cephalus* (Denny, 1842). The number '1850' was most likely added after Kellogg's (1914) paper was published because, in his description, he mentions only two numbers associated with lice from *Stercorarius crepidatus*, as follows: '(North Tropical Atlantic; R.C.M., 1279, 1298)'. The host name *Stercorarius crepidatus* Banks, 1773 is a junior synonym of *Stercorarius parasiticus*.

2. Slide '**R.C.M. 1298**'. The original label reads: '1851 *Docophorus atlanticus* n sp Kell. *Stercorarius crepidatus*. N. Trop. Atla. ♂ R.C. Murphy 1298 – V.L. KELLOGG STANFORD UNIVERSITY'. The words 'S. Georgia Is.' have been crossed out. This slide contains one male louse, which is definitely a recently rediscovered syntype of *D. atlanticus*. I have identified this male syntype as *Saemundssonia cephalus* (Denny, 1842). The number '1851' was most likely added after Kellogg's (1914) paper was published (*see* Note 1 above).

3. Slide '**R.C.M. 1398**'. The original label reads: '1852 *Docophorus atlanticus* n sp Kellogg / *Sterna hirundinacea* ♀ R.C. Murphy 1398 S. Atlantic – V.L. KELLOGG STANFORD UNIVERSITY'. The words 'S. Georgia Is.' have been crossed out. This slide contains one female louse, which is definitely a recently rediscovered syntype of *D. atlanticus*. I have identified this female syntype as *Saemundssonia* sp. The number '1852' was most likely added after Kellogg's (1914) paper was published because, in his description, he mentions only one number associated with lice from *Sterna paradisaea* [*sic* – *see* below] as follows: '(South Atlantic; R.C.M., 1398)'.

4. Slide '**R.C.M. 1398**'. The original label reads: '1853 *Docophorus atlanticus* n sp Kell. *Sterna hirundinacea* S. Georgia Is. ♀ R.C. Murphy 1398 S. Atlantic – V.L. KELLOGG STANFORD UNIVERSITY'. This slide contains one female louse, which is definitely a recently rediscovered syntype of *D. atlanticus*. I have identified this female syntype as *Saemundssonia* sp. The number '1853' was most likely added after Kellogg's (1914) paper was published (*see* Note 3 above).

The host name written on the original labels of slides 1852 and 1853 (both from sample R.C.M. 1398) is clearly *Sterna hirundinacea* Lesson, 1831 (South American tern). However, Kellogg (1914: 81) stated that sample R.C.M. 1398 was from *Sterna paradisaea* (Arctic tern). I was unable to find an explanation for this discrepancy between labels and publication, although I am convinced that the specimens I have examined that are labelled as from *Sterna hirundinacea* are the same as those Kellogg referred to in his description of *Docophorus atlanticus* as coming from *Sterna paradisaea*. My assertion is based on the exact agreement between the published details and the data – other than the host name – written on the original slide labels.

Slides without original labels

5. Two slides '**R.C.M. 1398**'. Both labels, written by an unknown worker who remounted the specimens, read: '1853 ♂ *Docophorus atlanticus* n. sp. Kell. *Sterna hirundinacea* S. Georgia Is. R.C. Murphy 1398 S. Atlantic'. These slides contain one male louse each, which I believe are part of the recently rediscovered syntype series of *D. atlanticus*. I have identified these two male syntypes as *Saemundssonia cephalus* (Denny, 1842). Both males have part of their genitalia extruded, just as depicted by Kellogg (1914: Plate 16, Fig. 1) in his only figure of *D. atlanticus*, a further indication that these two males are very likely syntypes. Since *Sterna hirundinacea* is not a natural and regular host for *Saemundssonia cephalus*, either these lice are stragglers/contaminants from *Stercorarius parasiticus*, or the person who remounted them mixed up the samples.

6. Two slides **without** labels. Each contains one female of *Saemundssonia cephalus* (Denny, 1842). Considering their identity and state of preservation, plus the fact that they were found associated with all the slides described above, these are very likely syntypes of *Docophorus atlanticus*. To that effect, I have attached two printed labels to these slides, in addition to an identification label for the louse. One label, placed on the top side, reads: '*Docophorus atlanticus* Kellogg, 1914 Paralectotype ♀ Ex *Stercorarius crepidatus* R.C.M. 1298 North Trop. Atlantic'. The other label, glued onto the reverse side, reads: 'This slide had no labels but I believe it is part of the syntype series of *Docophorus atlanticus* with data as shown on right label. R.L. Palma, Nov. 2003'.

Discussion

Kellogg (1914) obviously knew that he was dealing with lice from two different host species, but he failed to recognise the differences between the two louse taxa present in the material he examined. Admittedly, that material may not have included any male louse from *Sterna* (whichever the host species), but did include some male lice from *Stercorarius* contaminants on – or mislabelled as collected from – *Sterna*. The fact that females of the genus *Saemundssonia* are extremely difficult, if not impossible, to identify to species without accompanying males (see Palma 2000: 126) may also have contributed to Kellogg's (1914) confusion. At present, without any associated male, I am unable to identify with absolute certainty the two female syntypes from *Sterna hirundinacea* (slides 1852 and 1853).

The taxon *Docophorus atlanticus* was regarded as a valid species until 1952. Harrison (1916: 88) listed it under the genus *Philopterus* Nitzsch, 1818, giving *Sterna paradisaea* as its only host. I am not able even to speculate upon the reason(s) that prompted Harrison (1916) to omit the host *Stercorarius parasiticus* under *Philopterus atlanticus*, but his action certainly made Clay (1949: 24) include a mention of this louse in her revision of the genus *Saemundssonia* from the Sterninae (terns). Clay (1949) correctly realised that *Docophorus atlanticus* belonged to *Saemundssonia* and, aware of the fact that the species of that genus living on *Stercorarius* and *Sterna* were quite distinct, stated that the figure published by Kellogg (1914: Plate 16, Fig. 1) represented a species from *Stercorarius*, not from *Sterna*. I fully agree with Clay in this regard. Furthermore, she assumed that Kellogg's record from the latter host was due to some error. Consequently, *Saemundssonia atlantica* was listed as a junior synonym of *Saemundssonia cephalus* (Denny, 1842) – the regular species of *Saemundssonia* found on *Stercorarius parasiticus* – in the world checklist of lice published by Hopkins & Clay (1952: 329). Interestingly, these authors did the opposite to Harrison (1916) and listed *Stercorarius parasiticus* as the only host of *Saemundssonia atlantica*.

I believe it is relevant to mention here that the concept of 'type host' for any parasite is, by definition, unchangeable and cannot be disassociated from that parasite, even if it happens to be 'in error' – i.e. it is not the correct and regular host associated with the parasite in nature. If there is more than one type host given in the original description of a parasite where a holotype has not been designated, as is the case of *Docophorus atlanticus*, one of the type hosts will become the sole type host upon the subsequent designation of a lectotype. Lacking that designation, Harrison (1916) and Hopkins & Clay (1952) all failed to recognise that both *Stercorarius parasiticus* and *Sterna paradisaea* were valid type hosts of *D. atlanticus*.

Notwithstanding the confusion with its type hosts, and the lack of a designated lectotype, the status of the taxon *Docophorus atlanticus* has remained unchanged since Hopkins & Clay (1952: 329) listed it as a junior synonym of *Saemundssonia cephalus* (Denny, 1842). That status has been accepted and followed by subsequent authors who have dealt with this taxon, e.g. Emerson (1961: 248; 1972: 155), Palma (2000: 122), and Price *et al.* (2003: 233).

Designation of a lectotype

The syntype male louse (*see* Fig. 1) mounted on slide 'R.C.M. 1298', with an original Kellogg label and data as given in 'Material examined' above (Note 2), is hereby designated as the **lectotype** of *Docophorus atlanticus* Kellogg, 1914. That male fits the concept of *Saemundssonia cephalus* (Denny, 1842) and it is conspecific with the many males identified as such by Palma (2000: 122) in his revision of the species of *Saemundssonia* from skuas.

As discussed above in 'Material examined' (Note 5), it is likely that Kellogg (1914: Plate 16, Fig. 1) used one of the two males on slides 'R.C.M. 1398' to make his illustration of *Docophorus atlanticus*. Notwithstanding 'Recommendation 74B' of the International Commission on Zoological Nomenclature (1999: 83), to give preference to an illustrated specimen when designating a lectotype, it is not advisable to designate either of those males as the lectotype of *D. atlanticus* because neither is associated with the natural host of *Saemundssonia cephalus*. Furthermore, while they are very likely to be part of the syntype series, those males lack the original labels and so there is still a remote possibility that they may not be syntypes.

Acknowledgements

I am grateful to Nancy Adams (United States National Museum of Natural History, Smithsonian Institution, Washington, DC, USA) for her rediscovery and loan of the lice examined for this article. Without her keen interest in lice, this paper would not have been written. I am indebted to Phil J. Sirvid (Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand) and Vincent S. Smith (University of Glasgow, Scotland) for their critical review of the manuscript. Vincent S. Smith kindly provided the photograph of the lectotype.

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