RESURRECTION OF *CRASPEDONIRMUS ATRICOLOR* (KELLOGG) (PHTHIRAPTERA: PHILOPTERIDAE) FROM *BRACHYRAMPHUS MARMORATUM* (AVES: ALCIDAE)

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Abstract: *Craspedonirmus atricolor* (Kellogg 1896) is resurrected, redescribed, and differentiated from *C. colymbinus* (Denny) and *C. immer* Emerson. Evidence is presented that indicates *Brachyramphus marmoratum* is the true and type host. *C. atricolor* also is recorded from *B. brevirostre*.

Kellogg (1896) described *Ducophorus atricolor* from a series of specimens from 2 species of murrelets, *Synthliboramphus antiquum* (Gmelin) and *Brachyramphus marmoratum* (Gmelin), and *Ducophorus graviceps* from *Fulica americana* (infested accidentally from the next host) and a loon, *Urinaor pacificus* (now *Gavia arctica pacifica* (Lawrence)). *Craspedonirmus* was erected by Thompson (1940) for species of lice from loons (*Gaviiformes*). Included in this genus was *C. colymbinus* (Denny 1842) with 2 synonyms, *C. frontatus* (Nitzsch 1866) and *C. graviceps* (Kellogg 1896). Hopkins & Clay (1952) included *atricolor* in *Craspedonirmus* stating that the hosts (murrelets) are in error. In his revision of *Craspedonirmus* Emerson (1955) included both *graviceps* and *atricolor* as synonyms of *C. colymbinus* (Denny). Inclusion of *atricolor* was based upon examination of syntypes from *Synthliboramphus antiquum* in the Snow Entomological Museum, Lawrence, Kansas. Emerson concluded that specimens from murrelets were contaminants from loons, the host of *graviceps*. Carriker (1957) designated lectotypes for Kellogg's 2 species and reiterated Emerson's conclusions.

Dr. Clay (pers. commun.) asked me to reexamine the status of *C. atricolor*. She had received 2 specimens of *Craspedonirmus* from *Brachyramphus marmoratum* taken in Canada that differed from *C. colymbinus* (Denny) and *C. immer* Emerson. Furthermore she wondered whether a population of *Craspedonirmus* had indeed become established on murrelets. My examination of material in the Kellogg collection shows that *C. atricolor* differs from species of *Craspedonirmus* from loons. This report resurrects and redescribes *C. atricolor* (Kellogg) and designates *Brachyramphus marmoratum* as the type host.

Specimens of *Craspedonirmus* examined are housed in the following museums: Kellogg collection in the California Insect Survey (CIS), University of
California, Berkeley; Entomology Research Institute (CERl), Ottawa, Canada; Snow Entomological Museum (KU), University of Kansas, Lawrence, and British Museum (Natural History) (BMNH), London. Chaetotaxy of the head follows that of Clay (1951). Scientific names of hosts follow that of the AOU Check-list (1957). Figures were made with the aid of a microprojector.

_Craspedonirmus atricolor_ (Kellogg 1896)

Kellogg’s (1896) description and figure of _atricolor_ are essentially accurate, except for the abdominal chaetotaxy; 2 pairs of setae are present on the tergal plates of segments II–VII rather than 1 pair as shown. The following description supplements that of Kellogg.

A species of _Craspedonirmus_ having the head divided by a dorsal transverse suture. Head as in FIG. 1; trapezoid, slightly wider than long. Anterior margin of clypeus slightly concave, sides straight; hyaline margin originating at level of anterior setae 1. Sides of head between anterior setae 1 and clavi concave. Anterior seta 2, anterior ventral seta 3 and ventral submarginal setae 1 and 2 subequal in length; anterior ventral seta 3 not 2 × as long as other setae. Anterior seta 1 and anterior ventral seta 3 at same level. Clypeal suture extends posteromedially ending in a clear area containing the anterior dorsal setae. Temple rounded, each with 2 long setae separated by a short, piliform seta.

Prothorax short. Pterothorax as in FIG. 2, 2 × as wide as long; anterior margin concave, posterior margin broadly V-shaped. Anterolateral margins each with a short spiniform seta and a long piliform seta; posterolateral margins each with a long seta bordered on each side by short setae, both less than 1/5 the length of the long seta.

Abdomen elongate and elliptical. Tergal plates continuous; 2 pairs of marginal setae on segments II–VII, medial pair long, lateral pair equal in length to adjacent setae on paratergal plates. Sternal plates separate from paratergal plates; segments II–VIII each with a pair of long, marginal setae. Paratergal plates sigmoid with rounded reentrant heads (FIG. 2, 3); segments II–VII each with a prominent tongue-like extension on ventral, posteromedial margin. Segment II with a short spiniform seta; segment VIII with 4 long setae, subequal in length; segments III–VII each with 3 setae. Dorsal setae piliform, equal in length to lateral pair of setae on each respective tergal plate. Ventral and lateral setae on segments III–VI short and spiniform; long and piliform on segment VII. Body darkly pigmented (see Kellogg 1896).

Male genitalia as in FIG. 4; tips of outer prongs of forked parameres blunt and concave.

**SYSTEMATIC POSITION**

_Craspedonirmus columbiaus_ and _C. immer_ differ from _C. atricolor_ in the following characters: head as in FIG. 5; anterior margin of clypeus truncate, sides diverging. Sides of head between anterior setae 1 and clavi straight, not concave. Anterior ventral seta 3 at least 2 × as long as anterior seta 2 and ventral submarginal setae 1 and 2. Anterior seta 1 located midway between anterior seta 2 and anterior ventral seta 3. Clypeal suture extends posteromedial and then returns laterad becoming diffuse. Temples each with 3 long setae.

Posteroventral margins of pterothorax each with a long seta bordered on each side by short setae, each 1/3 the length of the long seta. Abdomen as in FIG. 6. Tergal plates each with 1 pair of setae on posteromedial margin of segments II–VII; 2 pairs of setae on segment VII. Sternal plates each with 1 pair of marginal setae in _C. immer_; each with 2 pairs in _C. columbiaus_. Paratergal plates sigmoid with rounded reentrant heads (FIG. 6); plates without tongue-like extensions on posteromedial margins of segments II–VII; plates each with 3 long, subequal setae on segments III–VII. Body moderately pigmented. Male genitalia as in FIG. 7; tips of outer prongs of forked parameres acutely pointed.

**SPECIMENS EXAMINED**

_Craspedonirmus atricolor_. From _Brachyramphus marromatus_; 63a (♀ lectotype, 6 ♀ paralectotypes), 73a (2 ♀ paralectotypes), 91a (1 ♀ paralectotype) from Bay of Monterey, Pacific Grove, California, XII.1894 in CIS; 1 ♀, 1 ♀ from Departure Bay, British Columbia, 1.I.1932 by J. A. Munro in CERl; 2 ♀, 2 ♀ from Vancouver Is., Alaska from 2 skins in BMNH (81.5.1.6131 and 60.2.23.104) collected by H. Bosch; 1 ♀ from Kuril Is., USSR from skin in BMNH (146) by H. Bosch. From _Brachyramphus brevirostris_ (Vigors): 1 ♀ from Amchitka, Aleutian Islands, Alaska from skin in BMNH (no other data) by H. Bosch. From _Synthliboramphus antiquum_ (? straggler): 2 ♀ (paralectotypes) from Monterey Bay, California (no date) in KU.

_Craspedonirmus graviceps_ (now _C. columbiaus_). From _Fulica americana_ (error: straggler): 125a (♀ lectotype). From _Urinaor pacificus_ (now _Gavia arctica pacifica_): 15a (2 ♀ paralectotypes), 250 (6 ♀, 1 ♀ paralectotypes), 251 (1 ♀ paralectotype) from Pacific Grove, California, XII.1894 in CIS.

_Craspedonirmus immer_. From _Gavia immer_; 2 ♀ paratypes (13014) from California, III.1939 and 3 ♂, 1 ♀ (12629) from Boston, Massachusetts (no date) by R. Meinertzhagen.

Although the dates on the slide labels of the lectotypes of _atricolor_ and _graviceps_ are given as 1896 and 1895 respectively, Kellogg’s catalog in CIS reveal that all specimens in type series of both species were collected in XII.1894.

**REMARKS**

Lectotypes designated by Carriker (1957) for
species in the Kellogg collection were not labeled. I have labeled the specimens of both Diplocophorus atricolor and D. gravisiceps designated by Carriker as lectotypes and Kellogg’s syntypes as paralectotypes. On remounting the slide with the male lectotype of D. atricolor I found 3 females, 1 of which is teneral, rather than only 2 females as reported by Carriker. The teneral female (allolectotype) is intact, whereas the other 2 females have their heads missing.

Carriker (1957) stated that Synthliboramphus antiquum was the true host of atricolor. I present evidence that Brachyramphus marmoratus is the true and type host and that specimens from S. antiquum are stragglers or contaminants. The lectotype slide with the male and 3 females is numbered 63a with the host listed as “murrelet sp.”. Another slide labeled in the same handwriting also numbered 63a gives the host as Brachyramphus marmoratus. Kellogg’s catalog lists host 63 as “Murrelet”. Perusal of Kellogg’s catalogs reveals that atricolor was taken only from 1 of 42 specimens of S. antiquum, whereas atricolor was recorded from 3 of 4 specimens of B. marmoratus and from 1 (host 63) of 3 specimens of “murrelet”. Based upon the evidence of the differences in the rates of incidence of atricolor on the 2 hosts, B. marmoratus appears to be the true host. Host 63 was probably this species.

The ecological niche occupied by species of Craspedonirmus on their hosts is unknown, but based upon the resemblance of their body shape to that of known head lice, one may assume that Craspedonirmus is a head louse. Saemundssonia montereyi (Kellogg 1894), recorded in Kellogg’s catalog from 41 of 42 specimens, is the head louse of S. antiquum. It seems highly unlikely that both species of head lice, S. montereyi and C. atricolor, could be successfully established on Synthliboramphus antiquum. Saemundsonia has not yet been collected from B. marmoratus (Emerson 1972), but Craspedonirmus atricolor has been taken from this host at least 3 times by Kellogg; once by J. A. Monroe in British Columbia; and from 3 skins in BMNH by H. Bosch. By secondary transfer a species of Craspedonirmus appears to have replaced Saemundsonia, the normal head louse on members of Alcidae, as the head louse of B. marmoratus.

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LITERATURE CITED


