

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

By **Bernard C. Nelson**¹

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*.

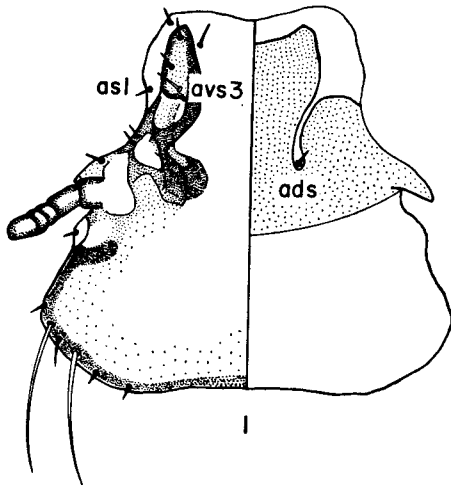
Kellogg (1896) described *Docophorus atricolor* from a series of specimens from 2 species of murrelets, *Synthliboramphus antiquum* (Gmelin) and *Brachyramphus marmoratum* (Gmelin), and *Docophorus graviceps* from *Fulica americana* (infested accidentally from the next host) and a loon, *Urinator pacificus* (now *Gavia arctica pacifica* (Lawrence)). *Craspedonirmus* was erected by Thompson (1940) for species of lice from loons (Gaviiformes). Included in his 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.

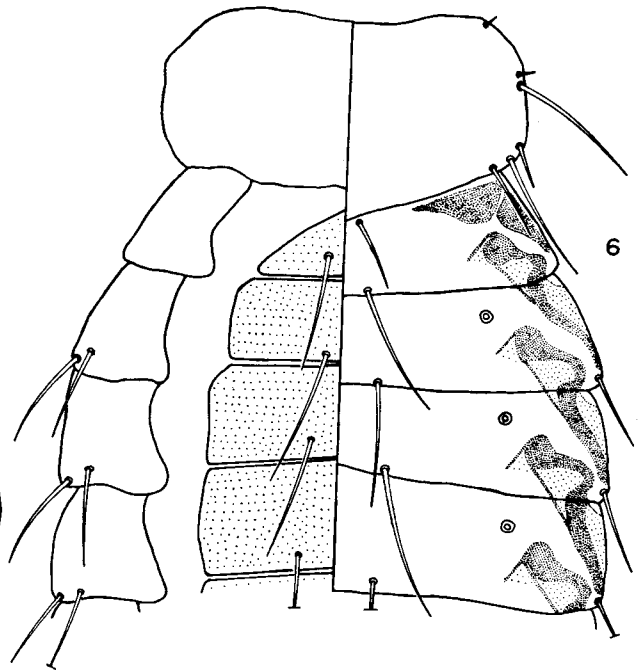
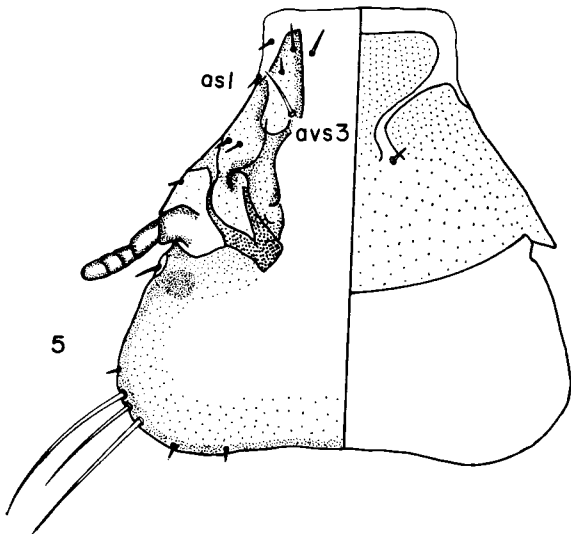
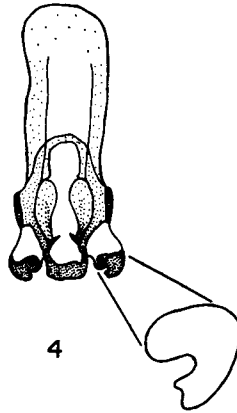
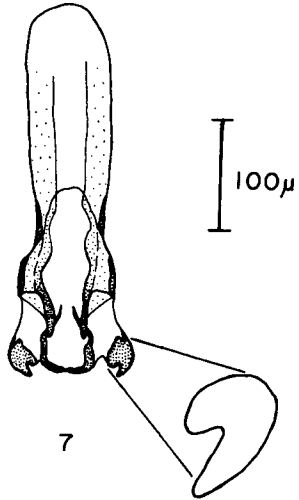
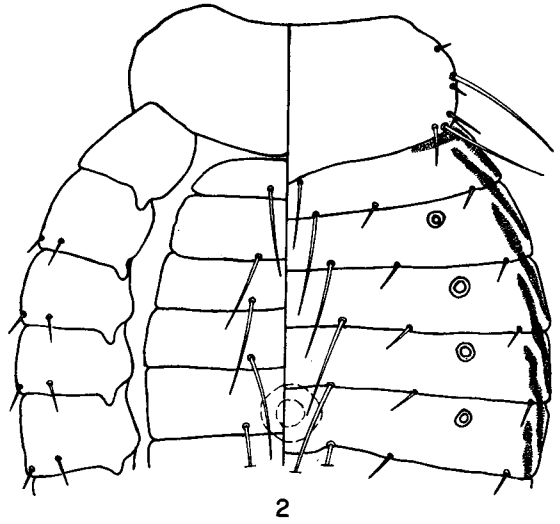
Dr. Clay (pers. commun.) asked me to reexamine the status of *C. atricolor*. She had received 2 specimens of *Craspedonirmus* from *Brachyramphus marmoratum* taken in Canada that differed from *C. colymbinus* (Denny) and *C. immer* Emerson. Furthermore she wondered whether a population of *Craspedonirmus* 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

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500 μ



California, Berkeley; Entomology Research Institute (CERI), 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.

Craspedonirmis 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 *Craspedonirmis* 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 setae 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 seta. Temples 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

Craspedonirmis colymbinus 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 posteromedially and then returns laterad becoming diffuse. Temples each with 3 long setae.

Posterolateral 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–VI and VIII; 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. colymbinus*. Paratergal plates sigmoid with rounded reentrant heads (FIG. 6); plates without tongue-like extensions on posteromedial margins of segments II–V; 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

Craspedonirmis atricolor. From *Brachyramphus marmoratum*: 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, I.II.1932 by J. A. Munro in CERI; 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 brevirostre* (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.

Craspedonirmis gravisiceps (now *C. colymbinus*). From *Fulica americana* (error: straggler): 125a (♂ lectotype). From *Urinator pacificus* (now *Gavia arctica pacifica*): 15a (2 ♀ paralectotypes), 250 (6 ♂, 1 ♀ paralectotypes), 251 (1 ♀ paralectotype) from Pacific Grove, California, XII.1894 in CIS.

Craspedonirmis 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 *gravisiceps* are given as 1896 and 1895 respectively, Kellogg's catalogs in CIS reveal that all specimens in type series of both species were collected in XII.1894.

REMARKS

Lectotypes designated by Carriker (1957) for

FIG. 1–7. Drawings show only those salient features that distinguish *C. atricolor* and *C. immer*. *Craspedonirmis atricolor*: (1) ♀ (allolectotype) head. (2) ♀ (allolectotype) pterothorax and 1st 5 abdominal segments of teneral adult. (3) ♀ paratergal pattern of fully sclerotized adult. (4) ♂ (holotype) genitalia. *Craspedonirmis immer*: (5) ♀ (paratype) head. (6) ♀ (paratype) pterothorax and 1st 4 abdominal segments of fully sclerotized adult. (7) ♂ (paratype) genitalia. Legend: ads, anterior dorsal seta; as, anterior seta; avs, anterior ventral seta.

species in the Kellogg collection were not labeled. I have labeled the specimens of both *Docophorus atricolor* and *D. graviceps* 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 marmoratum* 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 marmoratum*. 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. marmoratum* 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. marmoratum* 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. *Saemundssonina 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*. *Saemundssonina* has not yet been collected from *B. marmoratum* (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 *Saemundssonina*, the normal head louse on members of Alcidae, as the head louse of *B. marmoratum*.

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