

**New synonymies of chewing lice (Phthiraptera: Amblycera, Ischnocera)
described from the Falconiformes (Aves)**

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Abstract. Eighteen new synonymies are given for taxa of chewing lice taken from hosts in the avian order Falconiformes. *Colpocephalum* Nitzsch, 1818 is synonymized with *Falcocephalum* Tendeiro, 1989. The latter genus contained a single species which thus becomes a new combination: *Colpocephalum pricei* (Tendeiro, 1989), comb. n. Further synonymies include 12 species (*Colpocephalum turbinatum* Denny, 1842 = *C. wernecki* Orfila, 1959, syn. n.; *C. nanum* Piaget, 1890 = *C. meridionale* Pérez-Jiménez et al., 1988, syn. n.; *C. trachelioti* Price & Beer, 1963 = *C. aegyptii* Tendeiro, 1989, syn. n.; *C. ateri* Price & Beer, 1964 = *C. sinuosum* Tendeiro & Mendes, 1994, syn. n.; *C. maculatum* Piaget, 1880 = *C. chimangoi* Tendeiro & Mendes, 1994, syn. n.; *C. holzenthali* Clayton & Price, 1989 = *C. violanii* Tendeiro & Mendes, 1994, syn. n.; *Nosopon milvus* Tendeiro, 1959 = *N. aduncum* Tendeiro, 1993, syn. n.; *Laembothrion vulturis* (F., 1775) = *L. gigas* Nitzsch, 1861, syn. n.; *L. tinnunculi* (L., 1758) = *L. iberum* Pérez-Jiménez et al., 1988, syn. n.; *Craspedorrhynchus ranjhae* Ansari, 1955 = *C. pennati* Gállego, Martín Mateo & Aguirre, 1987, syn. n.; *Degeeriella rufa* (Burmeister, 1838) = *D. carrikeri* Orfila, 1959, syn. n.; *Falcolipeurus assessor* (Giebel, 1874) = *Trollipeurus kleinmachnowensis* Zlotorzycska, 1963, syn. n.), and 5 subspecies (*Colpocephalum zerafae* Ansari, 1955 = *C. zerafae biarmicus* Tendeiro, 1988, syn. n.; *C. subzerafae* Tendeiro, 1988 = *C. subzerafae exiguum* Tendeiro, 1988, syn. n.; *Nosopon lucidum* (Rudow, 1869) = *N. lucidum pyargus* Tendeiro, 1959, syn. n.; *Laembothrion vulturis* (F., 1775) = *L. vulturis danekii* Zlotorzycska, 1969, syn. n.; *Degeeriella mookerjeei* Clay, 1957 = *D. mookerjeei pilgrimi* Tendeiro, 1979, syn. n.).

INTRODUCTION

In the past few years, we have become aware of a number of synonymies among chewing lice collected from falconiform hosts. In order to facilitate the appropriate application of these names, we are proposing these synonymies herewith. A number of these synonymies are the result of descriptions of taxa based primarily on the a priori assumption by the authors of a high degree of host-lice specificity rather than on meaningful morphological differences. This practice, when incorporated into checklists of host-lice associations, overstates the number of louse taxa among related hosts. These checklists then are used as evidence to support the assumption of high host-lice specificity. Such circularity only serves to complicate the true understanding of host-lice specificity and coevolution. Descriptions of new louse taxa must be based on meaningful morphological details and supported by comparisons derived from a thorough study of related taxa. Any descriptions failing to do this should be regarded as suspect. Our classification of the avian hosts within the order Falconiformes follows the approach given by Howard & Moore (1991).

SYNONYMIES

Suborder Amblycera
Family Menoponidae

Genus *Colpocephalum* Nitzsch, 1818

Colpocephalum Nitzsch, 1818: 298. Type species: *Colpocephalum zebra* Burmeister, 1838.
Falcocephalum Tendeiro, 1989b: 150. Type species: *Falcocephalum pricei* Tendeiro, 1989. New synonymy.

The new genus *Falcocephalum* was described as monotypical for the new species, *F. pricei*, based on 2 males and 1 female supposedly off a falconet, *Microhierax e. erythrogenys* (Vigors), from the Philippines. Tendeiro (1989b) states that these type specimens are deposited in the "British Museum (Natural History)", but they cannot be located there and Dr. Luís F. Mendes, Centro de Zoologia, Lisbon, informs us that they are not in their collection either. However, even though these lice are apparently lost, it is obvious from the descriptive details of the lice that they are actually from a cuckoo and are consistent with typical *Colpocephalum* previously known from the Cuculiformes. Enough chaetotaxy differences are apparent to support recognition of the species *Colpocephalum pricei* (Tendeiro, 1989), comb. n., but a separate genus is inappropriate and unnecessary.

Colpocephalum turbinatum Denny, 1842

Colpocephalum turbinatum Denny, 1842: 198. Type host: *Columba livia* Gmelin.
Colpocephalum wernecki Orfila, 1959: 477. Nomen novum for *Colpocephalum caudatum longipes* Piaget, 1885: 125. New synonymy.

Cicchino (1982) erred in considering *C. wernecki* a nomen nudum and further compounded this error by placing it as "...un sinónimo absoluto de *C. cristatae* Price, 1968". Orfila (1959) clearly proposed *C. wernecki* as a nomen novum for *C. caudatum longipes* Piaget, 1885. Because this latter name is now a junior synonym of *C. turbinatum* (see Price & Beer, 1963: 755), *C. wernecki* also falls into synonymy with *C. turbinatum*.

Colpocephalum nanum Piaget, 1890

Colpocephalum nanum Piaget, 1890: 257. Type host: *Larus canus* L. – in error.
Colpocephalum meridionale Pérez-Jiménez et al., 1988: 197. Type host: *Buteo buteo buteo* (L.). New synonymy.

In their extensive study of the *Colpocephalum* from falconiform hosts, Price & Beer (1963) identified as *C. nanum* the samples from *Buteo buteo* and from 5 other species of *Buteo*, as well as those from 3 species of *Accipiter*. We have studied the male holotype, a male and a female paratypes, and a female non-type of *Colpocephalum meridionale* without finding any reliable feature to distinguish them from *C. nanum*. The description and the 3 figures of *C. meridionale* in Pérez-Jiménez et al. (1988) are accurate but fail to give any diagnostic character which clearly separates it from *C. nanum*. The deviations in abdominal setal counts, as referred to by these authors, also fall within the ranges for *C. nanum*. Therefore, we are confident that *C. meridionale* is no more than a junior synonym of *C. nanum*.

Colpocephalum trachelioti Price & Beer, 1963

Colpocephalum trachelioti Price & Beer, 1963: 748. Type host: *Aegyptius tracheliotus* (Forster).
Colpocephalum aegyptii Tendeiro, 1989a: 74. Type host: *Aegyptius monachus* (L.). New synonymy.

Our study of the holotype male and allotype female of *C. aegyptii* has shown that they are conspecific with *C. trachelioti*. Both lice, in spite of their poor condition and missing many setae, identify as the latter species using the keys in Price & Beer (1963). Other morphological details further confirm this identification. At the time of the description of *C. trachelioti*, Price & Beer (1963) named its type host as *Torgos tracheliotus*, and another host as *Trigonoceps occipitalis* (Burchell). However, a more recent classification of the Falconiformes by Howard & Moore (1991) lists these hosts as *Aegyptius tracheliotus* and *A. occipitalis*, immediately following *A. monachus*. The conspecificity of *Colpocephalum* lice from 3 hosts in the genus *Aegyptius* supports the placement of these host species together in the same genus and would lead us to predict that *C. trachelioti* may eventually be found on the fourth member, *A. calvus* (Scopoli). Only further collecting will show whether we are correct.

Colpocephalum ateri Price & Beer, 1964

Colpocephalum ateri Price & Beer, 1964: 1483. Type host: *Daptrius ater* Vieillot.
Colpocephalum sinuosum Tendeiro & Mendes, 1994: 138. Type host: *Milvago chimachima chimachima* (Vieillot). New synonymy.

Tendeiro & Mendes (1994) described *C. sinuosum* from a series of 13 males and 5 females taken off the type host in Brazil (Meinertzhagen #10418). They stated that their material was very close to that of *C. ibicter* (Eichler, 1954) described from *Daptrius americanus* (Boddaert) from Peru. However, since they had no material of *C. ibicter* for comparative purposes, they based the separation on reference to what Price & Beer (1963) had tentatively redescribed as "*C. ?ibicter*" from a short series of lice believed to represent this species off *D. ater* from Brazil.

A year after publishing the description of *C. ?ibicter*, Price & Beer (1964) reported that they had obtained Eichler's type series of 9 females and 5 males of *C. ibicter*. They had determined that it was a species quite distinct from what they had published as *C. ?ibicter*, so they then described the new species, *C. ateri*, for their previously incorrectly identified lice. Unfortunately, Tendeiro & Mendes (1994) had overlooked this later paper and had been unaware of the action by Price & Beer (1964). Upon examination of the entire type series of *C. sinuosum*, it is apparent that these lice are conspecific with *C. ateri*.

In addition to the type material of *C. sinuosum* referred to above, Tendeiro & Mendes (1994) also included as paratypes 2 females from another collection off a "Berlin Mus." specimen of *M. c. chimachima* from Brazil (Meinertzhagen #15737). Our study of these lice has shown that there are 2 different species represented, both being quite distinct from *C. sinuosum*. One of these is *C. maculatum* Piaget, 1880, a species previously recorded from *M. chimachima* by Price & Beer (1963: 742); the other is *C. polybori* Rudow, 1869, a species reported from *Polyborus cheriway* (Jacquin) [= *P. plancus* (Miller)] by Price & Beer (1963: 741). Obviously, neither of these specimens should be considered as a representative of *C. sinuosum*.

Colpocephalum maculatum Piaget, 1880

Colpocephalum maculatum Piaget, 1880: 516. Type host: *Polyborus plancus* (Miller).

Colpocephalum chimangoi Tendeiro & Mendes, 1994: 139. Type host: *Milvago chimango chimango* (Vieillot). New synonymy.

Price & Beer (1963) identified the *Colpocephalum* material from several different host taxa as *C. maculatum*, including 4 females and 1 male off *Milvago chimango* from Argentina and Chile. We have studied the male holotype of *C. chimangoi* from Paraguay and have concluded that it is consistent with previous material we have seen from *M. chimango* and is, therefore, conspecific with *C. maculatum*. In addition to the male holotype, Tendeiro & Mendes (1994) studied 2 females from Chile, these undoubtedly being the same specimens that Price & Beer (1963) had studied in their revision of *Colpocephalum* from the Falconiformes.

Colpocephalum holzenthali Clayton & Price, 1989

Colpocephalum holzenthali Clayton & Price, 1989: 505. Type host: *Micrastur ruficollis zonothorax* (Cabanis).

Colpocephalum violanii Tendeiro & Mendes, 1994: 140. Type host: *Micrastur ruficollis* (Vieillot). New synonymy.

The description 5 years earlier of *C. holzenthali* apparently was overlooked by Tendeiro & Mendes (1994) when they described *C. violanii* from a single male louse taken off *M. ruficollis* in Ecuador. An examination of the holotype male of *C. violanii* shows excellent agreement with *C. holzenthali* and there is no reason to consider these taxa as anything but a single species.

Colpocephalum zerafae Ansari, 1955

Colpocephalum zerafae Ansari, 1955b: 52. Type host: *Falco jugger* Gray.

Colpocephalum zerafae biarmicus Tendeiro, 1988: 86. Type host: *Falco biarmicus biarmicus* Temminck. New synonymy.

Tendeiro (1988) described *C. z. biarmicus* from a single female collected off the type host in Cape Colony, South Africa, in June 1909. We have studied this holotype and conclude that there is no reason for considering it as a taxon separate from the nominate species. The separation into 2 subspecies was based essentially on apparent differences in certain dimensions and tergal chaetotaxy of the posterior abdominal segment. The smaller total length of *C. z. biarmicus* is a function of a telescoping of the holotype body and the other dimensions are very close to or within the range for *C. zerafae*. The chaetotaxy of only a single specimen does not support subspecific separation either. It is inconceivable to us how a new louse taxon, even at the subspecific level, can be based only on a single specimen of this quality and on quite dubious character differences.

Colpocephalum subzerafae Tendeiro, 1988

Colpocephalum subzerafae Tendeiro, 1988: 88. Type host: *Falco naumanni* Fleischer.

Colpocephalum subzerafae exiguum Tendeiro, 1988: 96. Type host: *Falco biarmicus abyssinicus* Neumann. New synonymy.

We have studied the holotype male and allotype female of *C. subzerafae* and agree with Tendeiro (1988) that the material Price & Beer (1963) had considered as the single species *C. zerafae* does likely include 2 different species. An examination of lice from more hosts would be desirable to further substantiate the separation of these 2 species of *Colpocephalum* from falcons.

However, the description by Tendeiro (1988) of the subspecies *C. s. exiguum* is without justification. It is based only on a single male off the type host collected in Somaliland in February 1949. The separation of the 2 subspecies is superficial and based essentially on the smaller dimensions of *C. s. exiguum*. However, we have studied this holotype male and its smaller total length is undoubtedly associated with a telescoping of the abdomen. There is nothing of significance that will separate it from the nominate subspecies. Furthermore, it is amazing that this holotype, the only specimen representing the new subspecies, is found on a slide mounted together with 17 lice correctly identified as typical *C. zerafae*. Tendeiro (1988) offers several explanations as to how this single louse may have gotten there, but we remain skeptical about it and in total disagreement of its meriting recognition as a distinct taxon.

Nosopon milvus Tendeiro, 1959

Nosopon milvus Tendeiro, 1959: 205. Type host: *Milvus migrans migrans* (Boddaert) [also recorded from *Milvus migrans parasitus* (Daudin)].

Nosopon aduncum Tendeiro, 1993: 53. Type host: *Milvus migrans parasitus* (Daudin). New synonymy.

It is difficult to understand the reasons behind the description by Tendeiro (1993) of *N. aduncum* as a species separate from *N. milvus*. A comparison of his descriptions and the fact that these 2 *Nosopon* originated from the same host species and subspecies make the conspecificity obvious. Tendeiro (1993) published excellent photographs taken from the type specimens of both *N. milvus* and *N. aduncum* showing the relevant features of both sexes, in particular the male genitalia and the female genital chamber structures. A careful comparison of these photographs leaves no doubt that all of these lice belong to only the single species, *N. milvus*. In his text description of the male head of *N. aduncum*, in addition to several other features, Tendeiro mentions the ventral spinous postpalpal processes as being close together on the midline (see his photograph 23 of male head), but in our opinion this is a result of the pressure imposed on the specimen at the time it was slide-mounted. The latter is confirmed by the unusually wide femora of the same male shown whole in Tendeiro's photograph 24. Other apparent differences between the heads of *N. milvus* and *N. aduncum* as shown in Tendeiro's photographs 18 and 23, respectively, are also due to artifacts of preparation.

Nosopon lucidum (Rudow, 1869)

Menopon lucidum Rudow, 1869: 402. Type host: *Falco vespertinus* L.

Nosopon lucidum pyargus Tendeiro, 1959: 199. Type host: *Circus pyargus* (L.). New synonymy.

Our study of the holotype male and allotype female of *N. l. pyargus* has convinced us that they have no significant morphological differences from the nominate subspecies. The only features given by Tendeiro (1959) to separate *N. l. pyargus* from *N. l. lucidum* are several aspects of head shape that we consider to be artifacts. We have utilized a number

of other *Nosopon* specimens from both *Circus pygargus* and other *Falco* hosts to support this synonymy.

Family Laemobothriidae

Laemobothrion vulturis (F., 1775)

Pediculus vulturis F., 1775: 806. Type host: *Gyps bengalensis* (Gmelin).

Laemobothrion gigas Nitzsch (in Giebel), 1861: 518. Type host: *Neophron percnopterus* (L.). New synonymy.

Laemobothrion vulturis daneckii Zlotorzyccka, 1969: 125. Type host: *Gypaetus barbatus* (L.). New synonymy.

The name *L. gigas* was overlooked by Nelson & Price (1965) when they revised the species of falconiform *Laemobothrion*. These workers, studying 1 female and 4 males from *Neophron percnopterus* from Israel and Cape Verde Island, determined that this host carries only a single species of this genus, *L. vulturis*. With only 4 species of *Laemobothrion* distributed among falconiform hosts, there is now no reason not to consider *L. gigas* as a junior synonym of *L. vulturis*. Unfortunately, as reported by Clay & Hopkins (1960), there has been great difficulty in establishing the identity of many of the louse taxa described by Nitzsch. His practice of basing his descriptions on specimens held by earlier workers and the destruction of much of his collection in Halle have only compounded the problem. With no likelihood of ever knowing for certain what specimens Nitzsch may have based the description of *L. gigas* on, we have made the most logical decision from our experience on the genus *Laemobothrion*, placing this name as a junior synonym of *L. vulturis*.

Nelson & Price (1965) reported *L. vulturis* from 24 falconiform host species, including 2 female and 2 male lice from *Gypaetus barbatus* from Ethiopia, Arabia, and India. We agree with Nelson & Price (1965) and recognize only 4 species of *Laemobothrion* from the Falconiformes. Despite their wide ranges of hosts, there is no indication of a meaningful division of these 4 species into subspecies based on morphology. We have studied 2 male and female pairs of paratypes of *L. v. daneckii* and conclude that there are no means of recognizing them as a distinct subspecies. The description of *L. v. daneckii* is yet another instance of an author being so preoccupied with host-lice specificity that a subspecies was named solely on the basis of its host being different from the type host of the nominate taxon.

Laemobothrion tinnunculi (L., 1758)

Pediculus tinnunculi L., 1758: 612. Type host: *Falco tinnunculus* L.

Laemobothrion iberum Pérez-Jiménez et al., 1988: 196. Type host: *Buteo buteo buteo* (L.) – in error. New synonymy.

Nelson & Price (1965) identified 2 males and 2 females of *Laemobothrion* off *Buteo buteo* from Israel, together with many specimens off other *Buteo* species, as *L. maximum* (Scopoli, 1763). However, our study of the holotype and paratype males of *L. iberum* and a close examination of the accurate figures given by Pérez-Jiménez et al. (1988) in the original description show without doubt that they are *L. tinnunculi*. This species of *Laemobothrion* appears to be restricted in its known host distribution to birds of the host

genus *Falco*, having been reported from at least 14 host species (Nelson & Price, 1965; Pilgrim & Palma, 1982).

In their "Material and Methods", Pérez-Jiménez et al. (1988) state that the lice used for their research were found on captive specimens of *Buteo buteo buteo* from a recuperation center. In our opinion, it is highly likely that the types of *L. iberum* (= *L. tinnunculi*) were accidentally transferred from a specimen of an undetermined species of *Falco* onto a *Buteo b. buteo* bird by sharing the same cage or during handling by their caregivers.

Suborder Ischnocera Family Philopteridae

Craspedorrhynchus ranjhae Ansari, 1955

Craspedorrhynchus ranjhae Ansari, 1955a: 49. Type host: *Hieraetus pennatus* (Gmelin).

Craspedorrhynchus pennati Gállego et al., 1987: 55. Type host: *Hieraetus pennatus* (Gmelin). New synonymy.

Gállego et al. (1987) opted to describe the *Craspedorrhynchus* material collected from *Hieraetus pennatus* in Spain as the new species *C. pennati*, in spite of the fact that Ansari had described *C. ranjhae* in 1955 from the same host species in Pakistan. Our examination of the holotype male and the allotype female of *C. pennati* shows that the text description and the figures given by Gállego et al. are detailed and accurate. However, these authors based their new species on apparent differences between their specimens and the description plus drawings published by Ansari (1956). In our opinion, the morphological characters listed by Gállego et al. as clearly distinct between *C. pennati* and *C. ranjhae* are not significant to justify naming a new species. In particular, they failed to compare in detail the intricate morphology of the male genitalia, which are the most reliable features to separate species within the genus *Craspedorrhynchus*. Furthermore, there is no record of 2 different species of *Craspedorrhynchus* parasitizing the same host species. We conclude that *C. pennati* is no more than a junior synonym of *C. ranjhae*.

Degeeriella rufa (Burmeister, 1838)

Nirmus rufus Burmeister, 1838: 430. Type host: *Falco tinnunculus* L.

Degeeriella carrikeri Orfila, 1959: 477. Nomen novum for *Nirmus nitzschi* Giebel, 1874: 125. New synonymy.

The proposal of *D. carrikeri* as a nomen novum for *D. nitzschi* was an unnecessary activity, since Clay (1958) already considered the latter a junior synonym of *D. rufa*, which is a widely distributed species occurring on at least 24 species of the host genus *Falco*.

Degeeriella mookerjeei Clay, 1957

Degeeriella mookerjeei Clay, 1957: 342. Type host: *Pernis ptilorhynchus ruficollis* Lesson.

Degeeriella mookerjeei pilgrimi Tendeiro, 1979: 59. Type host: "Aguia indeterminata" (undetermined eagle). New synonymy.

Our study of the holotype male and 5 paratype males of *D. m. pilgrimi*, as well as our comparing them against a male paratype of *D. mookerjeei* sensu stricto, has disclosed no significant differences sufficient to justify its recognition as a separate subspecies from the

nominate form. The facts that the type host is unknown, other than some unidentified eagle, and that no females are available further confuse the matter.

Falcolipeurus assessor (Giebel, 1874)

Lipeurus assessor Giebel, 1874: 207. Type host: *Vultur gryphus* L.

Trollipeurus kleinmachnowensis Zlotorzycza, 1963: 7. Type host: *Vultur gryphus* L. New synonymy.

Zlotorzycza (1963) recognized 2 species of *Falcolipeurus* (as *Trollipeurus*) from *Vultur gryphus*, distinguishing them mainly by differences in dimensions and in head outlines. We consider these differences to fall well within the range of variability of a single species, *F. assessor*. Furthermore, in our experience, the outline of many louse heads becomes distorted during the slide mounting process (see Price & Emerson, 1966: 433) and we are confident that the differences between figures 2 and 7 in Zlotorzycza (1963) represent yet another example of such distortions. Our study of 1 female paratype of *F. kleinmachnowensis* has further confirmed our opinion that *Vultur gryphus* harbors only 1 species of *Falcolipeurus*, as is the case with all other falconiform hosts parasitized by this louse genus.

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