

Kansas Entomological Society

Vol. 40

October, 1967

Number 4

THE FEATHER MITE GENUS *LAMINALLOPTES*
(Proctophyllodidae: Alloptinae)¹WARREN T. ATYEO AND PAUL C. PETERSON²

ABSTRACT

The genus is redefined; a key to species and figures are included. New synonymies are: *Laminalloptes simplex* (Trouessart), 1885 [= *L. microphaeton* (Trouessart) as redescribed by Dubinin, 1955] and *L. minor* (Trouessart), 1885 (= *L. pseudophaeontis* Dubinin, 1955 = *Alloptes longipes* Ewing, 1911).

The species of the genus *Laminalloptes* were redescribed by Dubinin (1955). However, misinterpretations of the pertinent literature caused Dubinin to create nomenclatural confusion.

Trouessart (1885) divided the genus *Alloptes* (*s.l.*) into species groups. The males of one group ("C") were characterized by deeply cleft hysterosomal termini and included only two species, *A. dielytra* and *A. microphaeton*. The males of another group ("D") were characterized by narrow and entire hysterosomal termini and included *A. phaeontis*, *A. phaeontis* var. *minor*, *A. phaeontis* var. *simplex* plus numerous species currently retained in the genus *Alloptes* (*s.s.*). Trouessart (1899) described *Alloptes minutus*, a species resembling *A. microphaeton*, *i.e.*, the males with the terminal hysterosomae deeply cleft.

In 1955, Dubinin created the genus *Laminalloptes* and included four species: *L. phaeontis* (Fabr.), *L. microphaeton* (Trt.), *L. minutus* (Trt.) and *L. pseudophaeontis*, n. sp., and he placed Trouessart's varieties, *minor* and *simplex*, in synonymy with *L. phaeontis*. Dubinin erred because (1) there are three, not four, species in the genus, (2) Trouessart's varieties are valid species, and (3) *Alloptes microphaeton* and *A. minutus* as described by Trouessart can not be placed in the genus *Laminalloptes* as defined. These latter two species were correctly assigned to the genus *Brephosceles* by Gaud and Till (1961). In the following sections, only pertinent synonymies will be given; for more complete synonymies, see Dubinin (1955).

¹Published with the approval of the Director as Paper No. 1985, Journal Series, Nebraska Agricultural Experiment Station, and Contribution No. 276 of the Department of Entomology, University of Nebraska, Lincoln, Nebraska 68503. Supported in part by the National Science Foundation (G-14018 and GB-1620). Accepted for publication February 2, 1967.

²Department of Entomology, University of Nebraska.

Laminalloptes species are known to occur only on the three species of *Phaeton* and on two of the five species of *Fregata*. Buchholz (1869) lists *Fratercula arctica* (= *Mormon fratercula*) as a host of *L. phaetontis*, but Dubinin (1955) believes that the mites in question were *Alloptes fraterculae* Dubinin, 1952. The species of *Laminalloptes* occur indiscriminately on the species of *Phaeton* and it is common to find two mite species on one host bird. Once, on a single specimen of *Phaeton aethereus* from the Cape Verde Islands, all *Laminalloptes* species were collected.

The idiosomal chaetotaxy of the *Laminalloptes* species is dissimilar for the sexes (for chaetotaxal signatures, see Atyeo and Gaud, 1966). In both, setae d_1 and d_2 are absent, but in addition, setae l_4 , a , pae and pai are absent on the females (or at least, not observable). A second unique feature involves specific setae on tarsus II; on the dorsal surface, there is one long, middorsal solenidion (ω_1), rather than the normal complement (ω_1 and d) (see Figs. 6, 8). Of the many genera and species of feather mites examined, this is the first instance that we have found seta d wanting.

Genus *Laminalloptes* Dubinin

Alloptes (in part), Trouessart, 1885, Bull. Soc. Étud. Sci. Angers, 14:67.

Laminalloptes Dubinin, 1951, Akad. Nauk S.S.S.R., Zool. Inst. Parazitol. Sborn., 13:231. (*Nomen nudum*)

Laminalloptes Dubinin, 1953, Fauna S.S.S.R., Arachnida, 6(6):22. (*Nomen nudum*)

Laminalloptes (Dubinin, 1954, Akad. Nauk S.S.S.R., Izvestiia, ser. biol., (4):69. (*Nomen nudum*)

Laminalloptes Dubinin, 1955, Akad. Nauk S.S.S.R., Zool. Inst., Trudy, 18:266-270. Type species: *Alloptes phaetontis* Fabricius, 1775. (By original designation)

Large alloptine mites ectoparasitic on *Phaeton* and *Fregata* species. Idiosoma with heavily sclerotized shields; propodosomal shield fused with or approximate to scapular shields; epimerites I Y-shaped; legs with femora and genua partially fused; setae vi , ve , d_1 and d_2 absent (additionally, setae l_4 , a , pae and pai absent in female); seta d absent on tarsus II; seta hT absent on tibia III. *Male* with mid-ventral apodeme (longitudinal midsutural sclerite of Dubinin) formed by coalescence of pregenital apodeme and mesal portions of epimerites IIa, IV and often IVa resulting in closed coxal fields III and IV; opisthogastric region with one pair of "fringed" shields and one pair of shields bearing setae a (one or both pairs of shields may be fused); genital arch small, independent, with minute genital organ; hysterosomal lobes fused and bearing long lateral lamellae; legs IV enlarged and greatly surpassing the terminus. *Female* without prominent ventral shields; pregenital apodeme independent of epimerites; setae c_2 posterior to genital discs.

Key to the species of *Laminalloptes**Males*

1. Ventral articulations of trochanters I and II without flamelike surface fields; femora III and IV without large spines 2
- Ventral articulations of trochanters I and II with prominent flamelike surface fields; femora III and IV each with one large posteriorly directed spine; long terminal setae (d_5) with swelling *phaeontis* (Fabr.)
2. Long terminal setae with swelling; femur IV with one small posteriorly directed spine; coxal field IV with elongated, independent shield directed anteromesal from posterior articulation of trochanter IV *minor* (Trt.)
- Long terminal setae without swelling; large lateral spine between legs III and IV; coxal field IV without independent shield *simplex* (Trt.)

Females

1. Ventral articulations of trochanters I and II without flamelike surface fields 2
- Ventral articulations of trochanters I and II with flamelike surface fields *phaeontis* (Fabr.)
2. Terminal cleft of idiosoma narrow and deep *minor* (Trt.)
- Terminal cleft of idiosoma small and shallow *simplex* (Trt.)

Laminalloptes phaeontis (Fabricius)

(Figs. 1-8)

- Acarus phaeontis* Fabricius, 1775, Syst. entomol., Flensburgi, p. 815, no. 25, from *Phaeton lepturus fulvus* (= *Phaeton fulvus*).
- Gamasus phaeontis*, Fabricius, 1805, Syst. Anliat., p. 363, no. 16.
- Dermaleichus phaeontis*, Buchholz, 1869, Bemerik. Gatt. *Dermaleichus*, pp. 52-54, figs. 39-45, from *Phaeton rubicauda roseotincta* (= *P. phoenicurus*), *P. aethereus* and *Pratercula arctica* (= *Mormon fratercula*).
- Alloptes phaeontis*, Trouessart, 1885, Bull. Soc. Etud. Sci. Angers, 14:67.
- Laminalloptes phaeontis*, Dubinin, 1955, Akad. Nauk S.S.S.R., Zool. Inst., Trudy, 18:270-271, figs. 8(1, 2), 10.

In addition to the characters listed in the key to species, the males are unique in having the various ventral shields between the genital organ and adanal discs incorporated into one large, differentially sclerotized shield. To date, this is the only species of *Laminalloptes* reported from birds other than *Phaeton* (see below).

Type data. "Habitat in *Phaetonie erubescente Oceani australis*" (Fabricius, 1775, *vide* Oudemans, 1929). Location of type, unknown.

Remarks. Even if Oudemans' (1929) opinion is correct that *Phaeton lepturus fulvus* is the type host of *Laminalloptes phaeontis*, the identity of the mite is questionable from the limited information supplied by the original description. Trouessart (1885) redescribed

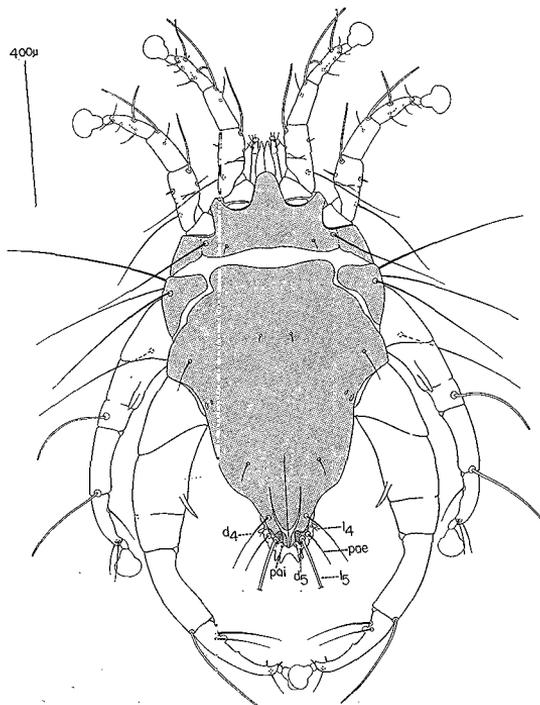


Fig. 1. *Laminalloptes phaetonis* (Fabr.) male, dorsal aspect. Note the distinguishing spines on legs III and IV.

L. phaetonis and in so doing, synonymized Buchholz's (1869) species, *Dermalichus phaetonis*; the important factor being that Buchholz's figures clearly illustrate the flamelike surface fields of the anterior epimerites. Thus, Trouessart identified *L. phaetonis* as that species

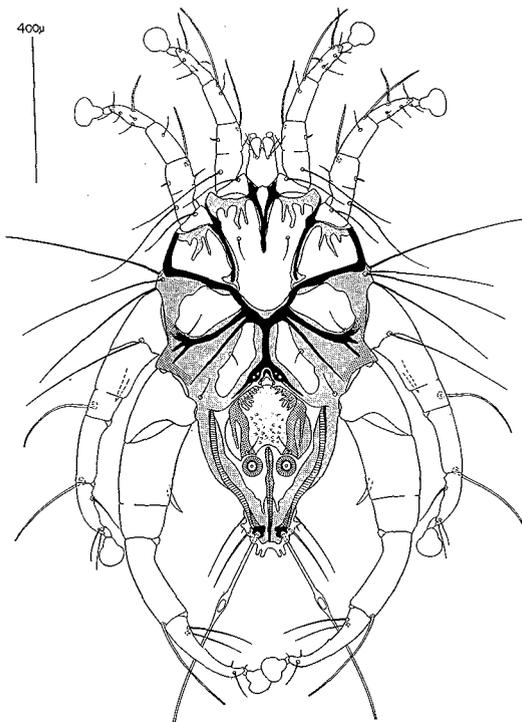
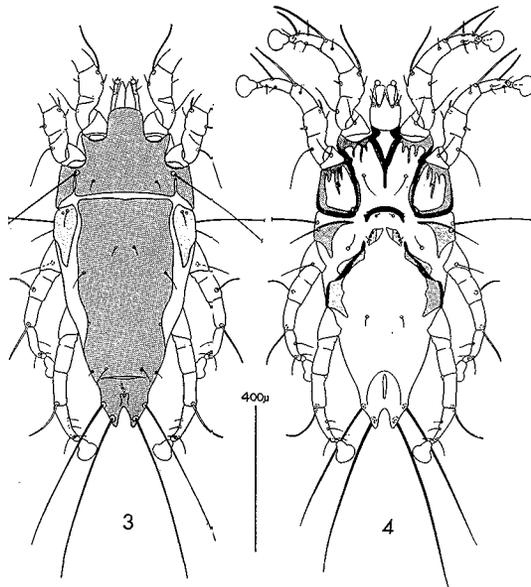


Fig. 2. *Laminalloptes phaeontis* (Fabr.) male, ventral aspect. Note the surface fields immediately posterior to the articulations of trochanters I and II.

with flamelike surface fields, a character known to be unique to this species. To substantiate this premise, we have one slide of *L. phaeontis* identified by Trouessart.



Figs. 3, 4. *Laminalloptes phaeontis* (Fabr.) female, ventral aspect. Note the surface fields immediately posterior to the articulations of trochanters I and II.

HOSTS

Pelecaniformes, Fregatae, Fregatidae

Fregata aquila (L.), 1758

Fregata minor (Gmelin), 1739

Dubinin, 1955

Present study

Pelecaniformes, Phaethontes, Phaetonidae

Phaeton aethereus L., 1758

Buchholz, 1869

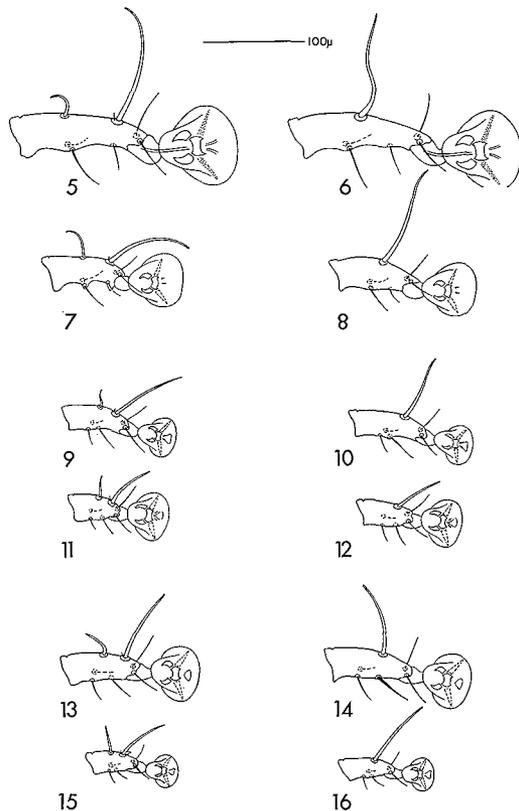
Trouessart, 1885

Gaud and Till, 1961

Present study

Present study

Phaeton lepturus Daudin, 1802



Figs. 5-16. Postaxial aspects of male tarsi I and II and female tarsi I and II: *Laminalliptes phaetonis* (5-8), *L. simplex* (9-12) and *L. minor* (13-16).

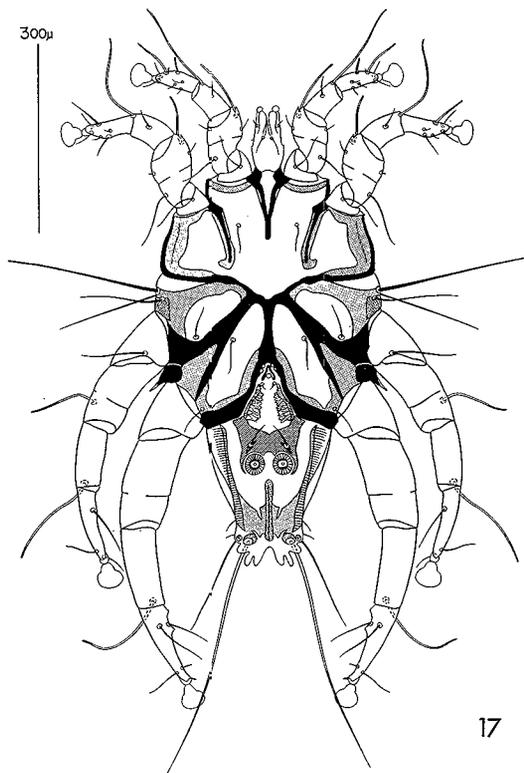
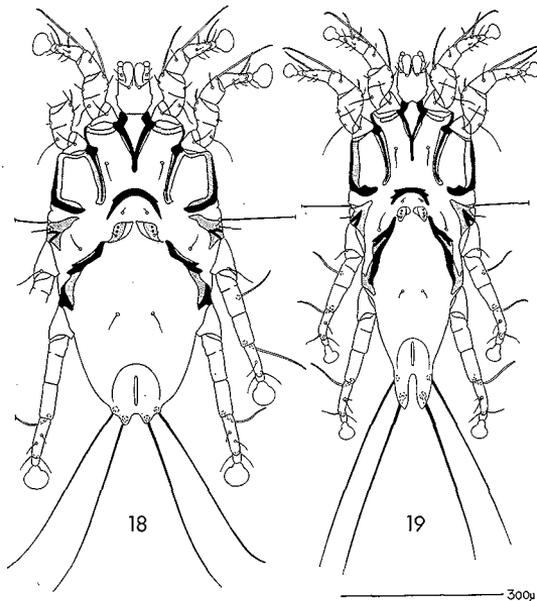


Fig. 17. *Laminalloptes simplex* (Trt.) male, ventral aspect. Note large spine between legs III and IV and that setae d_1 are simple.



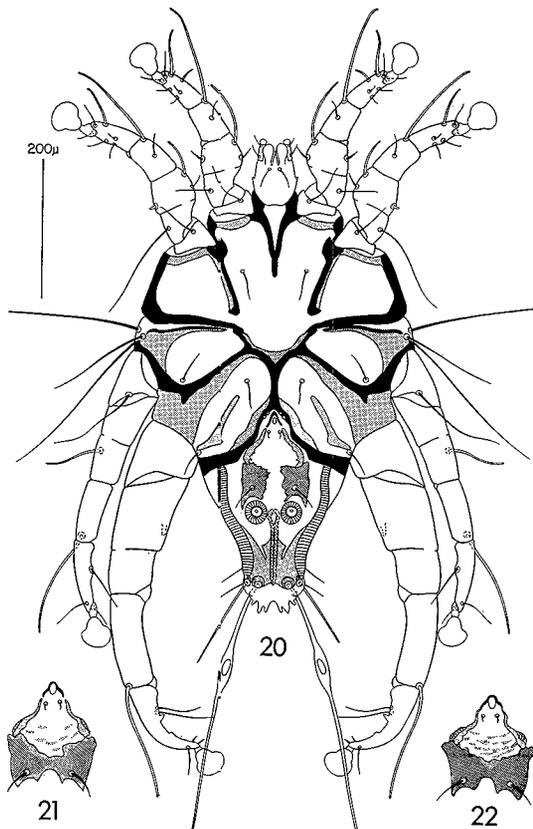
Figs. 18, 19. Ventral aspect of female of *Laminalloptes simplex* (18) and *L. minor* (19).

Phaeton lepturus catesbyi Brandt, 1840
Phaeton lepturus dorothae Mathews, 1913
Phaeton lepturus fulvus Brandt, 1840
Phaeton rubricauda Boddaert, 1783

Phaeton rubricauda roseolincta (Mathews),
 1926 (= *P. phoenicurus*)
Phaeton rubricauda rothschildi (Mathews),
 1915
Phaeton species

Dubinin, 1955
 Present study
 Oudemans, 1929
 Dubinin, 1955
 Present study
 Buchholz, 1869
 Present study

Fabricius, 1775
 Present study



Figs. 20-22. *Laminallipes minor* (Trt.) male, ventral aspect (20), opisthogastric regions showing variations of shields (21, 22).

Laminalloptes simplex (Trouessart), new status

(Figs. 9-12, 17-19)

Alloptes phaentonis var. *simplex* Trouessart, 1885, Bull. Soc. Etud. Sci. Angers, 14:67, from *Phaeton aethereus*, South Seas.

Laminalloptes microphaeton (Trouessart), Dubinin, 1955, Akad. Nauk S.S.S.R., Zool. Inst., Trudy, 18:271-273, figs. 8(3, 5), 9(2), 11.

Trouessart (1885) states that the male of this species resembles *L. minor* in size, or is a little smaller, but the long terminal setae are without swellings. Dubinin (1955) misidentified this species as *Laminalloptes microphaeton* (Trouessart), 1885, but allowing for this discrepancy, the illustrations and redescription are satisfactory.

Type data. From *Phaeton aethereus*, South Seas, with *L. phaentonis* and *L. minor*. Location of type, unknown.

Remarks. We have one slide from the Trouessart Collection from *Phaethon aethereus*, but the collection locality is the Pacific Ocean rather than the South Seas as mentioned in the description. As we do not know if Trouessart used *Ocean pacifique* and *les mers du Sud* interchangeably, we hesitate in designating this specimen as the type.

HOSTS

Pelecaniformes, Phaethontes, Phaentontidae

Phaeton aethereus L., 1758

Trouessart, 1885

Dubinin, 1955

Present study

Phaeton lepturus Daudin, 1802

Present study

Phaeton lepturus catesbyi Brandt, 1840

Dubinin, 1955

Phaeton rubricauda rothchildsi (Mathews), 1915

Present study

Phaeton species

Present study

Laminalloptes minor (Trouessart), new status

(Figs. 13-16, 20-22)

Alloptes phaentonis var. *minor* Trouessart, 1885, Bull. Soc. Etud. Sci. Angers, 14:67, from *Phaeton aethereus*, South Seas.

Alloptes longipes Ewing, 1911, Psyche, 18:41-42, Pl. 7, fig. 3, from tropic bird, Bermuda Islands. (New synonymy)

Laminalloptes pseudophaentonis Dubinin, 1955, Akad. Nauk S.S.S.R., Zool. Inst., Trudy, 18:273-274, figs. 8(4, 6), 9(1), on *Phaeton lepturus catesbyi*, Bermuda Islands. (New synonymy)

If only the ventral shields of the males are used in differentiating the species of *Laminalloptes*, this species could be confused with *L. simplex* because the sclerotization bearing the adanal setae may be in the form of either two small shields or in one transverse shield bearing both adanal setae (see Figs. 20-22).

Type data. From *Phaeton aethereus*, South Seas with *L. phaentonis* and *L. simplex*. Location of type, unknown.

HOSTS

Pelecyaniformes, Phaethontes, Phaetontidae	
<i>Phaeton aethereus</i> L., 1758	Trouessart, 1885 Present study
<i>Phaeton leplurus catesbyi</i> Brandt, 1840	Dubinin, 1955 Present study
<i>Phaeton rubricauda</i> Boddaert, 1783	Ewing, 1911 Present study
<i>Phaeton</i> species	

LITERATURE CITED

- Atyeo, W. T., and J. Gaud. 1966. The chaetotaxy of sarcoptiform feather mites (Acarina, Analgoidea). *J. Kansas Entomol. Soc.*, 39(2):337-346, figs. 1-18.
- Buchholz, R. 1869. Bemerkungen über die Arten der Gattung *Dermaleichus* Koch. Dresden, pp. 52-54, figs. 39-45.
- Dubinin, V. B. 1955. New genera and new species of feather mites (Analgesoidea). *Akad. Nauk S.S.S.R., Zool. Inst., Trudy*, 18:266-275, figs. 8-12.
- Gaud, J., and W. Till. 1961. In Zumpt, F. (ed.) The arthropod parasites of vertebrates in Africa south of the Sahara. *Publ. South African Inst. Med. Res.*, 11(L):241-242.
- Oudemans, A. C. 1929. Kritisch Historisch Overzicht der Acarologie. *Entomol. Tijdschr.*, 2:694-695.
- Trouessart, E. L. 1885. Note sur la classification des Analgésins et diagnoses d'espèces et de genres nouveaux. *Bull. Soc. Etud. Sci. Angers*, 14:63-67.
- . 1899. Diagnoses préliminaires d'espèces nouvelles d'Acariens plumicoles. Additions et corrections à la sousfamille des Analgésinés. *Bull. Soc. Etud. Sci. Angers*, 28:171.

1459 6

FOUR NEW SPECIES OF *MONOJOURBERTIA*
FROM ONE SPECIES OF BIRD
(Analgoidea: Proctophyllodidae)¹

WARREN T. ATYEO²

ABSTRACT

The new species *Monojoubertia rarisetata*, *M. latifoliata*, *M. longimentulata*, and *M. trouessarti* collected from *Pachycephalopsis poliosoma* (Muscicapidae), British New Guinea are described; *M. latifoliata* has also been collected from *P. hattamensis*, Dutch New Guinea.

Occasionally two closely related species of mites are known to occur simultaneously on a single host; this is the first instance in which four related species have been repeatedly collected from one bird species.

¹Published with the approval of the Director as paper No. 2016, Journal Series, Nebraska Agricultural Experiment Station, and Contribution No. 279 of the Department of Entomology, University of Nebraska, Lincoln, Nebraska 68503. Accepted for publication February 2, 1967.

²Professor of Entomology, Department of Entomology, University of Nebraska, Lincoln, Nebraska 68503.