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TYPE SPECIMENS OF LICE (ORDER ANOPLURA) IN THE
UNITED STATES NATIONAL MUSEUM

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It has been recommended in the Copenhagen Decisions on Zoological Nomenclature (1953) that: "All institutions maintaining zoological collections should prepare and publish lists of type material in their possession." (Recommendation 75, p. 78, par. 150.) The present paper includes the names of all the Anoplura represented by the type in the U. S. National Museum as of Dec. 31, 1956. As a rule, reference is made only to holotypes and syntypes, paratypes being mentioned only where it is necessary to clarify the data or otherwise aid in the fixing of holotypes and lectotypes. The specific name is given under the genus to which it is now assigned, with a brief comment on its present status. If host names given in the type data have been changed since the original description of the Anoplura species, the currently accepted name is placed in brackets following the original form of the name. Appended is an alphabetical listing of the specific names of the Anoplura together with their currently accepted generic names. If the generic name differs from that designated by the author of the species, the original genus is given in brackets.

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I am grateful to Dr. Henry W. Setzer of the Division of Mammals, U. S. National Museum, who checked the host names used in this paper.

Genus *Enderleinellus* Fahrenholz

Haematopinus suturalis Osborn, U. S. Dep. Agr. Div. Ent. Bull. (old series) 7, p. 27, fig. 15, 1891.

TYPE DATA: "Plentiful" on *Spermophilus franklini* [*Citellus franklini*] and *S. 13-lineatus* [*Citellus tridecemlineatus*] at Ames, Iowa.

There is one slide with eight specimens of *suturalis* in the collection with an Osborn label bearing the data "on *Spermophilus 13-lineata*, 4/24/84, Ames, Iowa." There is no determination on this label. On the opposite side, in H. E. Ewing's handwriting, is given: "Cyclophthirus [*Enderleinellus* (crossed out)] *suturalis* (Osborn)," and a sketch of the position of the specimens with one marked "♂ holotype." Osborn did not designate a holotype, and Ewing never published a lectotype selection; therefore, Ewing's label means nothing from a nomenclatural standpoint. Although there is no species determination by Osborn, it was Ewing's habit to rewrite type labels at times with a new determination or a different generic combination. It is therefore accepted that Ewing recognized these to be the type series of *suturalis*, and the male designated by Ewing as "♂ holotype" is here selected as lectotype.

PRESENT STATUS: *Enderleinellus suturalis* (Osborn), 1891.

Genus *Eulinognathus* Cummings

Eulinognathus americanus Ewing, Journ. Washington Acad. Sci., vol. 13, No 8, p. 149, 1923.

TYPE DATA: USNM 23761. Holotype female from *Ctenomys brasiliensis* (USNM 1939/3252) taken at Salade River, Paraguay.

PRESENT STATUS: As originally described.

Genus *Haematopinoides* Osborn

Haematopinoides squamosus Osborn, U. S. Dep. Agr. Div. Ent. Bull. (old series) 7, p. 28, fig. 16, 1891.

TYPE DATA: Two females from pocket or pouched gopher, *Geomys bursarius*, Ames, Iowa.

There is in the collection a slide bearing data as above, a determination label in Osborn's handwriting, and containing two syntype females. Further labels have been placed on the slide by H. E. Ewing, the type No. 24137 is given and an accessory label gives a sketch of the position of the two females with the one on the right (next to the type label) labeled as lectotype. Ewing did not publish

the lectotype selection. The specimen so designated on the slide is the better of the two and is here selected as lectotype.

PRESENT STATUS: As originally described.

Genus *Haemodipsus* Enderlein

Haemodipsus setoni Ewing, Amer. Journ. Trop. Med., vol. 4, No. 6, p. 548, 1924

TYPE DATA: USNM 23768. One female from *Lepus californicus melanotis* (USNM 123846) and two females and two nymphs from another skin (USNM 123847) of the same host subspecies, collected at Wichita, Kans., by Ernest Thompson Seton, and one male and one nymph from *Lepus c. californicus* (USNM 60907) collected at summit of Coast Range Mountains, San Diego County, Calif., by the International Boundary Commission.

All the syntype specimens listed above are in the collection under USNM 23768. None of the specimens are very well preserved. The single female from USNM 123846, although some of the legs are missing, is best preserved and is designated lectotype.

PRESENT STATUS: As originally described.

Genus *Hoplopleura* Enderlein

Hoplopleura erismata Ferris, Stanford Univ. Publ. Biol. Sci., vol 2, No. 2, p. 113, figs. 72B,E,F, 1921.

TYPE DATA. USNM 201408. Holotype female, allotype male from *Sciurus ferrugineus cinnamomeus* [*Callosciurus ferrugineus cinnamomeus*], South East Siam.

The type slide, containing a male and a female, bears the following data: "Ferris Col. 457, Type ♂ allot. ♀, *Hoplopleura erismata* n. sp., from *Sciurus ferrugineus cinnamomeus*, S. E. Siam. USNM 201408." The holotype is accepted as being the female on this slide, "type ♂ allot. ♀" as written on the slide label being a *lapsus*.

PRESENT STATUS: As originally described.

Haematopinus hesperomydis Osborn, U. S. Dep. Agr. Div. Ent. Bull. (old series) 7, p. 26, fig. 14, 1891.

TYPE DATA: Male(s) and female(s) from white-footed mouse or deer mouse, *Hesperomys leucopus* [*Peromyscus leucopus* subsp.] at Ames, Iowa.

There is in the collection one slide bearing a label on the right in Osborn's handwriting: "Haematopinus hesperomydis n. sp., from white-footed mouse, H. O. 1885." There are three male and one female syntypes on the slide; a well-preserved male is chosen lectotype and has been circled with a diamond point pencil.

PRESENT STATUS: *Hoplopleura hesperomydis* (Osborn), 1891.

Hoplopleura oryzomydis Pratt and Lane, Journ. Parasit., vol. 37, No. 2, p. 141, pl. 1, figs. 1-3.

TYPE DATA: USNM 60412. Holotype female and allotype male from *Oryzomys palustris palustris* (Harlan) No. 78, Oatland Island, Chatham County, Ga., Feb. 26, 1948. Both the holotype and allotype are in the collection.

PRESENT STATUS: As originally described.

Genus *Lemurphthirus* Bedford

Lemurphthirus verruculosus Ward, Ent. News, vol. 62, No. 6, p. 190, figs. 1, 2, 1951.

TYPE DATA: USNM 64237. Holotype female from a mouse lemur (formalin specimen), Bemangidy, Fort-Dauphin district, Tuléar Province, Madagascar, 1948, H. Hoogstraal and R. Alison.

PRESENT STATUS: As originally described.

Genus *Neohaematopinus* Mjöberg

Haematopinus antennatus Osborn, U. S. Dep. Agr. Div. Ent. Bull. (old series) 7, p. 25, fig. 13, 1891.

TYPE DATA: Collected from a fox squirrel, *Sciurus cinereus* var. *ludovicianus* [*Sciurus niger* subsp.], at Ames, Iowa.

There is in the collection a slide bearing labels as follows: Left: USNM type label, in Ewing's handwriting, "Neohaematopinus antennatus (Osborn), remounted on original slide Nov. 22, '20 by H. E. E., Type No. 24136 U.S.N.M." Right Label: In Osborn's handwriting, "H. [sphaerocephalus (crossed out)] antennatus n. sp., on Fox Squirrel, 5/1/82, S. K. Chauri 10/5/[?]." There are three female syntypes in a row on this slide. I select as lectotype the best preserved female, in the middle of the row, and have circled it with a diamond point pencil.

PRESENT STATUS: A junior homonym of *Haematopinus antennatus* Piaget, 1880. Earliest available name: *Acanthopinus sciurinus* Mjöberg, 1910, now known as *Neohaematopinus sciurinus* (Mjöberg), 1910.

Haematopinus columbianus Osborn, Canad. Ent. vol. 32, No. 7, p. 215, 1900.

TYPE DATA: Described "from a number of specimens taken from the Columbian Spermophile, *Spermophilus columbianus* [*Citellus columbianus* subsp.], at Pullman, Washington, by Prof. C. V. Piper in July, 1896. Type material in USNM."

In the collection are two slides which must be considered in lectotype selection. The first has on the left, in Ewing's handwriting, on a USNM type label: "=*Linognathoides laeviusculus* (Grube)" and on the right: "[8526, *Linognathoides montanus* (Osb.) (in Ewing's handwriting)], *Haematopinus columbianus* Osb., type material.

Type No. 5178, U. S. N. M." There are five poorly preserved females on the slide. The second slide has on the left-hand label in Osborn's handwriting: "8526 (80/13), *Haematopinus columbianus* Osb., on *Spermophilus columbianus*, Pullman, Wash., July '96, C. V. Piper," and contains eight females and six nymphs. The best preserved female on this second slide has been chosen as lectotype and has been circled with a diamond point pencil.

PRESENT STATUS: A junior synonym of *Neohaematopinus laeviusculus* (Grube), 1851.

Neohaematopinus mathesoni Rubin, Proc. Ent. Soc. Washington, vol. 48, No. 5, p. 121, figs. 1, 8, 10, 12, 1946.

TYPE DATA: USNM 57685. Holotype female from *Citellus v. couchi* (Baird) [*Citellus variegatus couchi*], at Nuevo León, Mexico, August 12, 1938, collected by H. Hoogstraal.

The holotype female bears the following host and locality data: "Citellus v. couchi, Ojo de Agua, Municipio de Galeand, N. L., Mexico, Aug. 11, 1938," (not Aug. 12). The localities are properly Municipio Galeana and Agua del Oro.

PRESENT STATUS: A junior synonym of *Neohaematopinus marmotae* Ferris, 1923, NEW SYNONYMY. One would expect *Neohaematopinus laeviusculus* (Grube) rather than *N. marmotae*, which is a normal parasite of *Marmota* and *Cynomys*, to occur on *Citellus*. However, the type and paratypes of *N. mathesoni* agree with Ferris's figures and description of *N. marmotae* and with specimens from the normal hosts.

Haematopinus montanus Osborn, U. S. Dep. Agr. Bull. 5, new. ser., p. 184, fig. 107, 1896.

TYPE DATA: On western gray squirrel, Fort Collins, Colo. (Baker).

There is in the collection a slide containing two males and two females and labeled as follows: Left label: "Linognathodes [montanus Osb. (crossed out)] laeviusculus (Grube)." Right label: "Near Ft. Collins, Colo., 9-11-92, Stannard. From Spotted grey squirrel." These labels are both in Ewing's handwriting. Although the above specimens may be type material, the absence of a label in Osborn's handwriting and the disparity in host names and the difference in what may be the collector's names do not allow them to be considered as such. Apparently no type material of *H. montanus* is in existence.

PRESENT STATUS: A junior synonym of *Neohaematopinus laeviusculus* (Grube), 1851.

Neohaematopinus patiki Rubin, Proc. Ent. Soc. Washington, vol. 48, No. 5, p. 121, figs. 2, 5, 7, 11, 1946.

TYPE DATA: USNM 57686. Holotype female, 11 paratype females, from *Citellus (Ammospermophilus)* sp., Delta, Utah, Apr. 27, 1938, Nual Walter collector. Eight paratypes are in the Cornell collection, the rest are in the U. S. National Museum (No. 57686).

The type slide is in the collection, but there are two female specimens on it and no designation as to which should be considered the holotype. Therefore, both female specimens on this slide must be considered syntypes. The female nearest the right-hand label on the slide marked "type" is here designated lectotype, and circled with a diamond point pencil.

PRESENT STATUS: A junior synonym of *Neohaematopinus laeviusculus* (Grube), 1851, NEW SYNONYMY.

Neohaematopinus traubi Rubin, Proc. Ent. Soc. Washington, vol. 48, No. 5, p. 120, figs. 3, 4, 6, 9, 13, 1946.

TYPE DATA: USNM 57684. Holotype female from *Citellus adocetus* (Merriam), Michoacan, Mexico, Aug. 3, 1941, R. Traub collector.

The holotype female bears the additional locality data: Apatzingan, Michoacan; and the date is given as "21 Aug. 1941," not Aug. 3, 1941.

PRESENT STATUS: As originally described.

Genus *Pecaroecus* Babcock and Ewing

Pecaroecus javalii Babcock and Ewing, Proc. Ent. Soc. Washington, vol. 40, No. 7, p. 199, figs. 1-3, 1938.

TYPE DATA: USNM 52758. Males, females, nymphs, and eggs from *Pecari angulatus* [*Pecari tajacu angulatus*], collared peccary, western Texas, between Juno and Pecos River, Jan. 29, 1932, O. G. Babcock collector.

In the collection are numerous specimens with the data similar to the above. Only two males and two females bear the type number (USNM 52758). A well-preserved male bearing the following data has been chosen and labeled as lectotype: Left label: "Peccary, Juno, Texas, 1-29-1932, Bishopp No. 14093"; right label: "Pecaroecus javalii Babc. & E., Type No. 52758 U. S. N. M., Long-nosed Peccary-louse, O. G. Babcock coll."

PRESENT STATUS: As originally described.

Genus *Pediculus* Linnaeus

Pediculus (Parapediculus) atelophilus Ewing, Proc. U. S. Nat. Mus., vol. 68, No. 19, p. 9, figs. 4A, 5, 1926.

TYPE DATA: USNM 28105. Holotype male from *Ateles geoffroyi* [*Ateles geoffroyi* subsp.] (gray form, or melanochir type of coloration), type locality ?.

PRESENT STATUS: Ferris (1951, Mem. Pacific Coast Ent. Soc., vol. 1, p. 273) presumes this species to be the same as *Pediculus lobatus* Fahrenholz, 1916, but does not actually synonymize it.

Pediculus (Parapediculus) chapini Ewing, Proc. U. S. Nat. Mus., vol. 68, No. 19, p. 13, text figs. 2, 4B, 5, pl. 1, figs. 3, 4, 1926.

TYPE DATA: USNM 28106. Described from males and females from *Ateles ater* [*Ateles paniscus paniscus*], locality unknown.

The only slide with the above data contains two syntype specimens, a male and a female. The male is designated lectotype.

PRESENT STATUS: Probably the same as *Pediculus atelophilus* Ewing, 1926.

Pediculus (Parapediculus) pseudohumanus Ewing, Journ. Parasit., vol. 24, No. 1, p. 23, figs. 3, 5a, 6a, 1938.

TYPE DATA: USNM 51451. Type specimens taken from a saki monkey (*Pithecia monachus*) [*Pithecia monacha* subsp.] that died at the National Zoological Park, Washington, D. C. Original home of the type host is the Upper Amazon.

There are four slides in the collection labeled essentially as above and containing (1) 4 eggs, (2) 4 nymphs, (3) 4 males, and (4) 4 females. A well-preserved female has been chosen lectotype. This female is the one farthest from the type label (i. e., farthest to the right) on the slide containing four females and has been circled with a diamond point pencil.

PRESENT STATUS: *Pediculus pseudohumanus* Ewing, 1938.

Pediculus (Paenipediculus) siniae Ewing, Proc. Biol. Soc. Washington, vol. 45, p. 117, 1932.

TYPE DATA: USNM 44327. Holotype female from chimpanzee, *Pan* sp., London Zoological Gardens.

PRESENT STATUS: A junior synonym of *Pediculus shäffi* Fahrenholz, 1910.

Genus *Phthirpediculus* Ewing

Phthirpediculus propithecii Ewing, Journ. Washington Acad. Sci., vol. 13, No. 8, p. 150, 1923.

TYPE DATA: USNM 23762. Two females and one male (on the type slide) from female skin (USNM 63352) of *Propithecus edwardsi* [*Propithecus diadema edwardsi*] taken at Ambodiasy, eastern Madagascar, and two males from male skin (USNM 63354) of same host, taken at same place.

The above syntype specimens are in the collection. A well-preserved male is chosen lectotype. The lectotype is on the type slide which bears data as in the original description and a USNM type label.

PRESENT STATUS: As originally described.

Genus *Phthirus* Leach

Phthirus gorillae Ewing, Proc. Ent. Soc. Washington, vol. 29, No. 5, p. 120, 1927.

TYPE DATA: USNM 40161. First stage nymphs and eggs from two *Gorilla beringeri* [*Gorilla gorilla beringei*] (USNM 239883, 239884), eastern Belgian Congo.

In the collection are five slides labeled "*Phthirus gorillae*." Three of the slides contain only eggs, and since Ewing described just the first stage nymph the eggs need not be considered in type selection. Of the two nymphs, one bears the following data: Left; "Type No. 40161 U. S. N. M., *Phthirus gorillae* n. sp., 1st nymph"; Right: "Belgian Congo, 1923, by Benj. Burbridge, from young gorilla, U. S. N. M. 239884." The other slide has, on the left, "*Phthirus gorillae* Ewing, 1st nym.," and, on the right, "Belgian Congo, Rec'd Jan., 1924, Benj. Burbridge, from skin of young ♂ gorilla (U. S. N. M. 239884)." Although this second specimen is not marked as a type, Ewing mentions "nymphs" in his description, making the selection of a lectotype necessary. The nymph with the type label USNM 40161 is selected as lectotype.

PRESENT STATUS: The taxonomy of the genus *Phthirus* is in a chaotic state. Ferris (1951, Mem. Pacific Coast Ent. Soc., vol. 1, p. 281) has pointed out that the description of this species merely demonstrates the occurrence of a species of *Phthirus* on the gorilla.

Genus *Polyplax* Enderlein

Polyplax alaskensis Ewing, Proc. Ent. Soc. Washington, vol. 29, No. 5, p. 118, 1927.

TYPE DATA: USNM 40159. Holotype male from *Microtus* sp. from Alaska.

PRESENT STATUS: As originally described. Figures of the holotype of *P. alaskensis* have been published elsewhere (Scanlon and Johnson, Proc. Ent. Soc. Washington, vol. 59, p. 282, fig. 3, 1957).

Polyplax dentaticornis Ewing, Proc. Biol. Soc. Washington, vol. 48, p. 207, fig. c, 1935.

TYPE DATA: USNM 44905. Holotype male and a last nymph from the skin of *Cricetulus andersoni* [*Cricetulus longicaudatus andersoni*] (USNM 172610), Shansi, China.

The holotype male and last stage nymph are on separate slides and both bear the above data.

PRESENT STATUS: Until more specimens from the type host are examined, the status of this species must remain in doubt. In the holotype, most of the paratergal plate setae are missing, and the third pair of legs is missing. The shape of the thoracic sternal plate and the fact that one seta on paratergal plate four is longer than the plate suggest that *P. dentaticornis* is closely related to *P. serrata* (Burmeister) and might be an aberrant specimen of this species. It should be noted that Ewing's figure of the third antennal segment of the holotype (loc. cit., p. 203, fig. c) pictures the apical spine as a lobe rather than a spine. This mistake was probably due to the fact that the entire head is flattened, changing normal relationships of the various parts.

Eremophthirius eroepepli Ewing, Proc. Biol. Soc. Washington, vol. 48, p. 209, fig. B, 1935.

TYPE DATA: USNM 44906. Two male and two female cotypes from *Eropeplus canus* (USNM 219711), Celebes.

The four syntype specimens are mounted in a horizontal line on a single slide, and the label bears the data given above. All the specimens are in poor condition; however, one of the two males has most of the leg segments and the majority of the paratergal plate setae are still present. I select as lectotype this male (second from the right on the slide) and have circled it with a diamond point pencil. The third antennal segment of the lectotype was figured by Ewing (fig. B). Ferris (Mem. Pacific Coast Ent. Soc. vol. 1, p. 207, 1951) presumed the host to be *Eriopeplus incanus*, which he states is now known as *Cricetulus longicaudatus*, and emended the species name of *eroepepli* to *erioepepli*. However, Ewing's description properly lists the host (USNM 219711) as *Eropeplus canus*.

PRESENT STATUS: *Polyplax eroepepli* (Ewing), 1935. This species would key to couplet 19 of Ferris' (Mem. Pacific Coast Ent. Soc., vol. 1, p. 204, 1951) key to *Polyplax* species. A redescription and figures of *eroepepli* will be published elsewhere.

Polyplax tarsomydis Ewing, Proc. Biol. Soc. Washington, vol. 48, p. 206, fig. D, 1935.

TYPE DATA: USNM 44904. Holotype male from *Tarsomys apoensis*, Mindanao, Philippine Islands.

PRESENT STATUS: As originally described.

Genus *Proenderleinellus* Ewing

Proenderleinellus africanus Ewing, Journ. Washington Acad. Sci., vol. 13, No. 8, p. 148, 1923.

TYPE DATA: USNM 23760. Holotype male from *Thryonomys gregor pusillus* [*Thryonomys gregorianus pusillus*] (USNM 184180), taken at Maji-ya-Chumvi, British East Africa.

PRESENT STATUS: A junior synonym of *Proenderleinellus calvus* (Waterston), 1917.

Genus *Prolinognathus* Ewing

Prolinognathus ferrisi Fahrenholz, Ztschr. Parasitenk., vol. 11, No. 1, p. 12, 1939.

Prolinognathus leptcephalus (Ehrenberg), Ferris, Stanford Univ. Publ. Biol. Sci., vol. 2, No. 5, p. 142, figs. 250B, 251C (*err. det.*), 1932.

TYPE DATA: USNM 184247. Holotype female from *Procavia brucei rudolfi* [*Heterohyrax syriacus rudolfi*], British East Africa.

Fahrenholz used Ferris' (1932) figures and description of "*leptcephalus*" as a basis for his name *ferrisi*, and did not see the specimens.

Ferris (Mem. Pacific Coast Ent. Soc., vol. 1, p. 251, 1951) accepted the type of *ferrisi* as being the female from *Procavia brucei rudolfi*, and stated that this specimen should be in the U. S. National Museum. There is in the collection a female with the following data on the label in Ferris' handwriting: "Ferris Col. 474, *Prolinognathus leptocephalus* (Eh.), from *Procavia brucei rudolfi*, Marsabit Road, B. E. Africa, U. S. N. M. 184247." This specimen is the holotype of *Prolinognathus ferrisi* Fahrenholz and has been so labeled.

PRESENT STATUS: As originally described.

Genus *Scipio* Cummings

Scipio longiceps Ewing, Proc. Helm. Soc. Washington, vol. 4, p. 81, fig. 29, 1937.

TYPE DATA: USNM 49919. Holotype male from *Thryonomys gregor pusillus* [*Thryonomys gregorianus pusillus*] (USNM 184180), British East Africa, Maji-ya-Chumvi.

PRESENT STATUS: A junior synonym of *Scipio aulacodi* (Neumann), 1911, NEW SYNONYMY. Ferris (Mem. Pacific Coast Ent. Soc., vol. 1, p. 154, 1951) expressed the opinion that *S. longiceps* Ewing was probably a synonym of *Scipio aulacodi* (Neumann). The holotype male of *S. longiceps* and a female with the same data as the holotype, and a second male from the same locality and host, differ in no way from Ferris' (Stanford Univ. Publ. Biol. Sci., vol. 2, No. 3, p. 170, figs. 113, 114A, B, C, 1922) description and figures of *aulacodi*. Ewing's supposed differences were due partly to the fact that the abdomen of *longiceps* holotype is telescoped and therefore smaller in relation to the length of the legs. The head is not longer than in Ferris' drawings, nor is the shape of the tarsal claws different. In Ewing's specimen the claws are more extended than in Ferris' drawings, leading to his mistaken impression. Geographically, the distribution of *aulacodi* is such that one would expect to find it in the type locality of *longiceps*. (Maji-ya-Chumvi is in southeast Kenya.)

Genus *Solenopotes* Enderlein

Linognathus panamensis Ewing, Proc. Ent. Soc. Washington, vol. 29, No. 5, p. 119, 1927.

TYPE DATA: USNM 40160. "Described from a few females which are a part of a lot of six specimens," from *Odocoileus chiriquensis* [*Odocoileus virginianus chiriquensis*] (origin, Panama), which died at National Zoological Park on Jan. 28, 1925 (USNM 240843).

There is in the collection a slide with six females, all of which are accepted as being syntypes, since there is no way of knowing which "few" females of the lot of six Ewing referred to in his original description. These syntype females are all the same species. A well-

preserved specimen has been designated lectotype and circled with a diamond point pencil.

PRESENT STATUS: *Solenopotes panamensis* (Ewing), 1927. Ferris (Stanford Univ. Publ. Biol. Sci., vol. 2, No. 5, p. 131, 1932) has placed *panamensis* as a synonym of *binipilosus* (Fahrenholz), 1916. A re-examination of Ewing's type series shows that *panamensis* is a recognizable species, differing from *binipilosus* in having the posterolateral margins of the head much more strongly convergent posteriorly and the apical lobes of the female abdomen with a short slender terminal portion as in *Solenopotes capillatus* (Enderlein), 1904, not with the apical lobes gradually constricted into long, tapering lobes. *S. panamensis* is separable from *capillatus* in that the abdominal spiracles are not protuberant, and the anterior part of the head is narrower and more elongate. There appears to be doubt as to the true hosts and geographical distribution of *binipilosus* and *panamensis*. There are specimens of *binipilosus* in the U. S. National Museum collection from "deer" from Guatemala, and from *Odocoileus* species from Arizona, Florida, and Texas. *Binipilosus* has also been recorded from *O. virginianus chiriguensis*, Panama, by Ferris (Stanford Univ. Publ. Biol. Sci., vol. 2, No. 5, p. 131, fig. 245, 1932). It is highly possible that the occurrence of *panamensis* on *Odocoileus virginianus chiriguensis* was accidental, the true host being some other ungulate with which the deer had come in contact while in the zoo.

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