

A REVISED CHECK LIST OF THE FLEAS OF BRITISH COLUMBIA*

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Harvey (1907) gave the first published account of the fleas of this province, listing six species, three of which had recently (1896-1904) been described from the Queen Charlotte Islands, B.C., by Dr. Carl F. Baker. Over the period 1902-1933 many other species from British Columbia were described by the Hon. N. Charles Rothschild and/or Dr. Dr. Karl Jordan of the Zoological Museum, Tring, Herts., England. The type series of most of these were collected in the Fraser Delta, the Okanagan Valley, the Upper Columbia River and the Rocky Mountains. Spencer (1936) presented to this Society a briefly annotated list of 61 species of fleas known to occur in British Columbia, based partly on his own extensive collections of these insects (identified by Dr. Julius Wagner of Belgrade, Yugoslavia) and partly on information received through correspondence with Dr. Jordan. Subsequent papers by Spencer, Wagner and the present writer in various journals have improved our knowledge of British Columbia fleas by adding records and descriptions of new species on one hand, and by subtracting proved synonyms on the other. In a paper entitled "The Siphonaptera of Canada" (not in print at the time of writing) the writer discusses 127 species and subspecies of fleas, of which 89 were collected within the political boundaries of British Columbia. While this paper gives all available data on the siphonapterous fauna of British Columbia as well as other provinces, up to December 31, 1946, the following account is presented here for convenience of reference, and following the useful policy of this journal of publishing lists of various groups of insects occurring within the provincial boundaries. In addition, some supplementary data and four new records are included, bring-

ing the British Columbia list up to 93 species and subspecies, of which 88 are indigenous, and five evidently introduced within historic times.

The fleas constitute a small order, Costa Lima and Hathaway (1946) recording only 1193 known species and subspecies for the World—and their list contains many synonyms! It will be seen then, that British Columbia is well endowed, supporting about one-thirteenth of the total known flea fauna. Of course, future collecting in the more remote and inaccessible parts of the World may well alter this proportion.

There are now 134 species and subspecies of fleas known from the whole of Canada. Seventy percent of these are recorded from British Columbia. This relatively extensive proportion is in part a reflection of the tremendous variety of mammal, and especially small mammal, life of the west. This again is a product of the numerous climatic and altitudinal regions of this rugged province, which, coupled with other factors, have had such a profound influence in developing the diversity of plant cover on which all animals depend, directly or indirectly. Munro and Cowan (1947) define and trace 13 terrestrial and 2 marine biotic areas, distinguished by readily demonstrable peculiarities of weather, vegetation, animal life, etc., from contiguous areas. Thus the tremendous size, range of latitude, mountainous topography and variable climatic regions of the province, as well as its recent geological history, including land connections with Asia, have brought us an enviable botanical and zoological heritage, and this exceptional richness of indigenous flora and fauna is traceable even in the lowly fleas.

The following account of the fleas of British Columbia gives all known synonyms, aside from changes in generic assignment, of the various indigenous spe-

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cies. These details are not included with the introduced species. The preferred host or hosts, where known, are indicated, and brief statements relating to the known range in British Columbia. References to biotic areas follow Munro and Cowan. Data on the "type host" (frequently not significant in any case), "type locality" and literature citations relating to original descriptions of the species are not provided, this information being readily available in one or more of the publications listed in the short bibliography at the end of this article. Host records refer to British Columbia only. Subspecific names of hosts are not included in this list.

Order SIPHONAPTERA

Family PULICIDAE

1. **Hoplopyllus glacialis lynx** (Baker)
True host: Varying hare, *Lepus americanus* group.
Recorded hosts: *Lepus americanus*, *Lynx canadensis*, *Lynx fasciatus*.
Range: General, through most of province.
 2. **Ctenocephalides canis** (Curtis) (Introduced)
True host: domestic dog (?).
Recorded hosts: domestic dogs and cats, tame rabbits, monkeys, man, *Procyon lotor*, rats, *Rattus norvegicus*, *R. rattus*.
Range: Limited records at hand from south of province, but probably widespread on dogs and cats.
 3. **Ctenocephalides felis felis** (Bouché) (Introduced)
True host: domestic cats.
Recorded hosts: same as for *C. canis*. Also *Spilogale gracilis*.
Range: Probably same as for *canis*.
 4. **Pulex irritans irritans** Linnaeus
True host: unknown; Artiodactyla (?).
Recorded hosts: man, *Rattus norvegicus*, *Odocoileus hemionus*, *Speotyto cunicularia*.
Range: Fairly general.
 5. **Xenopsylla cheopis** (Rothschild) (Introduced)
True host: domestic rats, *Rattus* spp.
Recorded hosts: *Rattus norvegicus*, *Rattus r. rattus*, *Rattus r. alexandrinus*.
Range: Confined at present to extreme southwestern mainland of province (Puget Sound lowlands).
- Family VERMIPSYLLIDAE
6. **Arctopsylla ursi** (Rothschild)
True host: grizzly bears, *Ursus* spp.
Recorded hosts: *Ursus* spp.
Range: Probably general, especially in Alplands, and northern B. C.
 7. **Chaetopsylla setosa** (Rothschild)
True hosts: various large carnivores.
Recorded hosts: *Canis latrans*, *Euarctos americanus*, *Ursus* spp., *Lynx canadensis*, *Gulo luscus*.
Range: Probably general.
Family HYSTRICHOPSYLLIDAE
 8. **Atyphloceras artius** Jordan
True host: Cricetidae.
Recorded host: *Peromyscus maniculatus*.
Range: Known only from Kelowna.
 9. **Atyphloceras multidentatus** (C. Fox)
True host: various Cricetidae.
Recorded hosts: *Spilogale gracilis*, *Peromyscus maniculatus*, *Microtus oregoni*, *Microtus townsendii*, *Rattus norvegicus*.
Range: Puget Sound Lowlands, Vancouver Island.
 10. **Hystrichopsylla dippiei** Rothschild
True host: small Rodentia.
Recorded hosts: *Sorex* sp., *Mustela vison*, *Spilogale gracilis*, *Citellus columbianus*, *Tamiasciurus hudsonicus*, *Eutamias* sp., *Peromyscus maniculatus*, *Clethrionomys gapperi*, *Microtus longicaudus*, *M. montanus*.
Range: Fairly general. Not common.
 11. **Hystrichopsylla** n. sp.
A new species, to be described from western B. C. in "Siphonaptera of Canada."
 12. **Hystrichopsylla** n. sp.
A new species, to be described from Vancouver, B. C., in "Siphonaptera of Canada."
 13. **Hystrichopsylla schefferi** Chapin
(=*H. mammoth* Chapin)
True host: mountain beaver, *Aplodontia rufa*.
Recorded hosts: *Mustela vison*, *Spilogale gracilis*.
Range: Southwest mainland.
 14. **Catallagia charlottensis** (Baker)
(=*C. molci* Hubbard)
True host: white-footed mouse, *Peromyscus maniculatus*.
Recorded hosts: *Scapanus orarius*, *Neotrichus gibbsii*, *Peromyscus maniculatus*, *Clethrionomys gapperi*, *Microtus townsendii*, *M. oregoni*, *M. pennsylvanicus*, *M. longicaudus*, *Rattus norvegicus*, *Tamiasciurus hudsonicus*.
Range: Coastal islands, and Pacific slopes, west of the Coast Range.
 15. **Catallagia decipiens** Rothschild
(=*C. moneris* Jordan)
True host: White-footed mouse, *Peromyscus maniculatus*.
Recorded hosts: *Mustela frenata*, *Citellus columbianus*, *Tamiasciurus hudsonicus*, *Peromyscus maniculatus*, *Neotoma cinerea*, *Microtus longicaudus*, *M. pennsylvanicus*, *M. montanus*, *Phenacomys intermedius*, *Clethrionomys gapperi*, *Eutamias* sp., *Thomomys talpoides*, *Ochotona princeps*.

16. **Catallagia sculleni** Hubbard
 (= *C. chamberlini* Hubbard, *C. von-boeckeri* Augustson, *C. rutherfordi* Augustson).
 True host: Cricetidae, especially *Peromyscus maniculatus*.
 Recorded hosts: *Scapanus orarius*, *Eutamias* sp., *Microtus richardsoni*, *Clethrionomys gapperi*, *Peromyscus maniculatus*.
 Range: Southern Coast Range; parts of Fraser Valley; Vancouver Island.
17. **Delctelis telegoni** (Rothschild)
 True host: Cricetidae.
 Recorded hosts: *Microtus pennsylvanicus*, *M. longicaudus*, *M. townsendii*, *M. oregoni*, *Clethrionomys gapperi*, *Peromyscus maniculatus*.
 Range: Southern part of province, from Rockies to coast. Rare.
18. **Epitedia scapani** (Wagner)
 (= *E. jordani* Hubbard, *E. stewarti* Hubbard).
 True host: White-footed mouse, *Peromyscus maniculatus*; also common on Insectivora.
 Recorded hosts: *Scapanus orarius*, *S. townsendii*, *Neurotrichus gibbsii*, *Sorex* spp., *Mustela* sp., *Microtus oregoni*, *Peromyscus maniculatus*, *Rattus norvegicus*, *Aplodontia rufa*.
 Range: Puget Sound Lowlands.
19. **Epitedia wenmanni** (Rothschild)
 (= *Ncopsylla similis* Chapin).
 True host: White-footed mouse, *Peromyscus maniculatus*.
 Recorded hosts: *Microtus pennsylvanicus*, *Peromyscus maniculatus*, *Neotoma cinerea*, *Tamiasciurus hudsonicus*.
 Range: Coast Range to Rockies, but not Pacific slopes.
20. **Neopsylla inopina** Rothschild
 True host: ground squirrel, *Citellus* spp.
 Recorded host: *Citellus columbianus*.
 Range: Southern Kootenays, through Crow's Nest Pass.
21. **Phalacropsylla allos** Wagner
 True host: woodrat, *Neotoma cinerea*.
 Recorded host: *Neotoma cinerea occidentalis*.
 Range: Probably restricted to Osoyoos-Arid biotic area.
New record: 12 miles west of Hedley, B.C., on banks of Similkameen River, 23.IV.48, coll. G. P. Holland.
22. **Meringis shannoni** (Jordan)
 True host: pocket mouse, *Perognathus* spp.
 Recorded hosts: *Perognathus parvus*, *Peromyscus maniculatus*.
 Range: Okanagan Valley, from Vernon, south to border.
23. **Micropsylla sectilis sectilis** (Jordan and Rothschild)
 (= *Micropsylla peromyscus* Dunn)
 True host: white-footed mouse, *Peromyscus maniculatus*.
 Recorded hosts: *Citellus columbianus*, *Tamiasciurus hudsonicus*, *Peromyscus maniculatus*, *Mus musculus*.
 Range: Southern B.C., east of the Coast Range.
24. **Micropsylla sectilis goodi** Hubbard
 True host: white-footed mouse, *Peromyscus maniculatus*.
 Recorded hosts: *Mustela erminea*, *Spilogale gracilis*, *Tamiasciurus douglassi*, *Microtus oregoni*, *Peromyscus maniculatus*, *Rattus norvegicus*.
 Range: Southern B.C., west of the Coast Range.
25. **Rectofrontia fraterna** (Baker)
 (= *Neopsylla hamiltoni* Dunn)
 True host: small Rodentia.
 Recorded hosts: *Martes americana*, *Tamiasciurus hudsonicus*, *Phenacomys intermedius*, *Neotoma cinerea*, *Ochotona princeps*.
 Range: Scattered over southern B.C. Rare.
26. **Trichopsylloides oregonensis** Ewing
 (= *Phancria hubbardi* Jordan)
 True host: mountain beaver, *Aplodontia rufa*.
 Recorded host: *Mustela vison*.
 Range: Puget Sound Lowlands.
27. **Corrodopsylla curvata curvata** (Rothschild)
 True host: shrew, *Sorex* spp.
 Recorded hosts: *Sorex obscurus*, *Sorex* spp.
 Range: East of Cascade Mountains.
28. **Corrodopsylla curvata obtusata** (Wagner)
 (= *Doratopsylla jellisoni* Hubbard)
 True host: shrew, *Sorex* spp.
 Recorded hosts: *Sorex* spp., *S. trowbridgii*, *S. vagrans*, *Neurotrichus gibbsii*, *Microtus oregoni*.
 Range: West of Cascades, including Vancouver Island.
29. **Callistopsyllus terinus** (Rothschild)
 (= *Callistopsyllus paraterinus* Wagner)
 True host: white-footed mouse, *Peromyscus maniculatus*.
 Recorded hosts: *Citellus columbianus*, *Peromyscus maniculatus*.
 Range: Columbia Forest.
30. **Megarhroglossus divisus divisus** (Baker)
 (= *Pulex longispinus* Baker)
 True host: squirrel, *Tamiasciurus*; woodrat, *Neotoma*.
 Recorded hosts: *Microtus longicaudus*, *Neotoma cinerea*.
 Range: Southern B.C., east of Selkirks.
31. **Megarhroglossus divisus executus** Wagner
 True host: red squirrel, *Tamiasciurus hudsonicus*.
 Recorded hosts: *Tamiasciurus hudsonicus*, *Glaucomys sabrinus*, *Peromyscus maniculatus*.
 Range: Southern B.C., Cascades to Selkirks.

32. *Megarthroglossus procus* Jordan and child
True host: Chickaree, *Tamiasciurus douglassi*.
Recorded hosts: *Spilogale gracilis*, *Tamiasciurus douglassi*, *Glaucomys sabrinus*, *Rattus norvegicus*.
Range: Coast Forest (southern mainland only).
33. *Megarthroglossus pygmaeus* Wagner
True host: probably woodrat, *Neotoma cinerea*.
Recorded host: *Neotoma cinerea*.
Range: Known only from Nicola.
34. *Megarthroglossus sicamus* Jordan and Rothschild
True host: unknown, probably woodrat, *Neotoma*.
Recorded hosts: *Canis latrans*, *Lynx fasciatus*, *Neotoma cinerea*.
Range: Probably restricted to Dry Forest biotic area.
35. *Megarthroglossus similis* Wagner
True host: probably woodrat, *Neotoma*.
Recorded host: *Neotoma cinerea*.
Range: Known only from Beaverdell.
36. *Megarthroglossus spenceri* Wagner
True host: unknown.
Recorded host: *Ochotona princeps*.
Range: Known only from Nicola.
37. *Corypsylla ornata* Fox
True host: mole, *Scapanus* spp.
Recorded hosts: *Scapanus orarius*, *S. townsendii*, *Microtus oregoni*, *M. townsendii*.
Range: Puget Sound Lowlands, north and south of Fraser River.
38. *Corypsylla jordani* Hubbard
True host: shrew-mole, *Neurotrichus gibbsii*.
Recorded host: *Neurotrichus gibbsii*.
Range: Puget Sound Lowlands. *New record*: Silver Creek, 15.III.48, coll. G. P. Holland.
39. *Corpsylloides kohlsi* (Hubbard)
(=*C. spinata* Fox)
True host: shrew, *Sorex* spp.
Recorded host: *Sorex obscurus*.
Range: Puget Sound Lowlands. *New record*: Silver Creek, 11.X.47, coll. G. P. Holland.
40. *Nearctopsylla brooksi* (Rothschild)
True host: unknown, probably *Sorex*; possibly *Mustela*.
Recorded hosts: *Mustela erminea*, *M. frenata*, *M. vison*, *Martes americana*.
Range: Widespread over province.
41. *Nearctopsylla hyrtaci* (Rothschild)
True host: shrew, *Sorex* spp.
Recorded hosts: *Sorex obscurus*, *S. cinereus*, *Mustela vison*, *M. frenata*, *Martes caurina*, *M. americana*, *Clethrionomys gapperi*.
Range: Southern half of province, including Vancouver Island.
42. *Nearctopsylla jordani* Hubbard
(=*N. hygini columbiana* Wagner)
True host: mole, *Scapanus* spp.
Recorded hosts: *Scapanus orarius*, *Neurotrichus gibbsii*.
Range: Puget Sound Lowlands.
- FAMILY CERATOPHYLLIDAE
43. *Ctenophyllus terribilis* (Rothschild)
True host: pika, *Ochotona* spp.
Recorded host: *Ochotona princeps*.
Range: Southern Alplands, and some contiguous areas. Coincident with host.
44. *Dolichopsyllus stylosus* (Baker)
True host: mountain beaver, *Aplodontia rufa*.
Recorded host: *Aplodontia rufa*.
Range: Puget Sound Lowlands.
45. *Oropsylla arctomys* (Baker)
(=*Aetheopsylla septentrionalis* Stewart and Holland)
True host: woodchuck, *Marmota monax*.
Recorded hosts: *Marmota monax*, *M. caligata*.
Range: Boreal Forest, Columbia Forest.
46. *Oropsylla idahoensis* (Baker)
(=*Ceratophyllus poeantis* Rothschild, *C. bertholfi* Fox)
True host: ground squirrel, *Citellus* spp.
Recorded hosts: *Mustela frenata*, *Citellus columbianus*, *C. lateralis*, *Ochotona princeps*.
Range: Coincident with ground squirrels in southern half of province.
47. *Thrassis acamantis* (Rothschild)
True host: yellow-bellied marmot, *Marmota flaviventris*.
Recorded hosts: *Mephitis* sp., *Marmota flaviventris*, *Citellus columbianus*, *Eutamias* sp., *Tamiasciurus hudsonicus*.
Range: Dry Forest, Cariboo Parklands.
48. *Thrassis petiolatus* (Baker)
True host: Columbia ground squirrel, *Citellus columbianus*.
Recorded hosts: *Citellus columbianus*, *Eutamias* sp., *Thomomys talpoides*.
Range: Coincident with range of *C. columbianus* from Shuswap Lake south, especially in areas at low elevation.
49. *Thrassis spenceri* Wagner
True host: Alpine marmot, *Marmota caligata* group.
Recorded hosts: *Gulo luscus*, *Ursus* sp., *Marmota monax*, *M. caligata*, *M. Vancouverensis*.
Range: Alplands and some contiguous areas.
50. *Amphalys necopinus* (Jordan)
True host: pika, *Ochotona* spp.
Recorded host: *Ochotona princeps*.
Range: Southern Alplands.
51. *Dactylopsylla comis* Jordan
True host: Pocket gopher, *Thomomys* spp.
Recorded host: *Thomomys talpoides*.
Range: Known only from Okanagan Landing.

52. **Foxella ignota recula** (Jordan and Rothschild)
True host: pocket gopher, *Thomomys* spp.
Recorded hosts: *Mustela frenata*, *Citellus columbianus*, *Thomomys talpoides*.
Range: Dry Forest.
53. **Opisocrostis tuberculatus tuberculatus** (Baker)
True host: ground squirrel, *Citellus* spp.
Recorded host: *Citellus columbianus*.
Range: Southern Kootenays, through Crow's Nest.
54. **Opisodasys keeni** (Baker)
True host: white-footed mouse, *Peromyscus maniculatus*.
Recorded hosts: *Mustela* sp., *Microtus* sp., *M. townsendii*, *Clethrionomys gapperi*, *Peromyscus maniculatus*, *Zapus* sp.
Range: Apparently general, through province.
55. **Opisodasys pseudarctomys** (Baker) (= *Ceratophyllus acasti* Rothschild)
True host: flying squirrel, *Glaucomys* spp.
Recorded hosts: *Tamiasciurus hudsonicus*, *Glaucomys sabrinus*.
Range: Scattered; southern B.C. east of Coast Range.
56. **Opisodasys vespertalis** (Jordan)
True host: flying squirrel, *Glaucomys* spp.
Recorded hosts: *Mustela* sp., *Lynx* sp., *Glaucomys sabrinus*.
Range: Dry Forest and southern Coast Forest.
57. **Orchopeas caedens caedens** (Jordan)
True host: red squirrel, *Tamiasciurus hudsonicus*.
Recorded host: *Tamiasciurus hudsonicus*.
Range: (Roughly) north of 53°.
58. **Orchopeas caedens durus** (Jordan)
True host: red squirrel, *Tamiasciurus hudsonicus*.
Recorded hosts: *Mustela frenata*, *M. erminea*, *Lynx canadensis*, *Tamiasciurus hudsonicus*, *Glaucomys sabrinus*, *Eutamias* sp.
Range: (Roughly) south of 53°.
59. **Orchopeas leucopus** (Baker) (= *Ceratophyllus aeger* Rothschild)
True host: white-footed mouse, *Peromyscus maniculatus*.
Recorded host: *Peromyscus maniculatus*.
Range: Probably northern half of province.
60. **Orchopeas nepos** (Rothschild)
True host: Chickaree, *Tamiasciurus douglassi*.
Recorded hosts: *Mustela vison*, *M. erminea*, *Spilogale gracilis*, *Tamiasciurus douglassi*, *Glaucomys sabrinus*.
Range: Coast Forest (southern mainland only).
61. **Orchopeas sexdentatus agilis** (Rothschild)
True host: woodrat, *Neotoma cinerea*.
Recorded hosts: *Mustela frenata*, *Spilogale gracilis*, *Clethrionomys gapperi*, *Neotoma cinerea*, *Ochotona princeps*, *Sylvilagus nuttalli*.
Range: Through most of province.
62. **Tarsopsylla coloradensis** (Baker) (= *Opisodasys jellisoni* Fox)
True host: squirrel, *Tamiasciurus* and *Glaucomys*.
Recorded hosts: *Martes americana*, *Tamiasciurus hudsonicus*, *Glaucomys sabrinus*.
Range: In mountains, and probably throughout much of northern part of province.
63. **Ceratophyllus adustus** Jordan
True host: unknown. A bird?
Recorded host: *Erethizon dorsatum*.
Range: Known only from Atlin.
64. **Ceratophyllus celsus celsus** Jordan
True host: bank swallow, *Riparia riparia*.
Recorded host: *Riparia riparia*.
Range: Known only from Kamloops and Okanagan Falls.
65. **Ceratophyllus diffinis** Jordan (= *C. rileyi* Liu)
True host: many birds.
Recorded hosts: *Bonassa umbellus*, *Melospiza melodia*.
Range: Probably southern half of province.
66. **Ceratophyllus garei** Rothschild (= *C. utahensis* Chapin, *C. quebecensis* Fox)
True host: ground-nesting birds.
Recorded host: *Erimaturus jamaicensis*.
Range: Probably widespread. One record available, from Kamloops.
67. **Ceratophyllus idius** Jordan and Rothschild
True host: tree swallow, *Iridoprocne bicolor*.
Recorded hosts: *Asio otus*, *Iridoprocne bicolor*.
Range: Known only from Okanagan at present.
68. **Ceratophyllus niger** Fox (= *C. niger inflexus* Jordan)
True host: various birds.
Recorded hosts: *Phalacrocorax pelagicus*, *Gallus gallus*, *Otus asio*, *Cryptoglaux acadica*, *Acridotheres cristatellus*, *Vermivora celata*, *Turdus migratorius*, *Passer domesticus*, *Tamiasciurus hudsonicus*.
Range: Common in southern half of province.
69. **Ceratophyllus petrochelidoni** Wagner
True host: cliff swallow, *Petrochelidon pyrrhonata*.
Recorded host: *Petrochelidon pyrrhonata*.
Range: Known only from Chilcotin and Kamloops.

70. **Ceratophyllus riparius** Jordan and Rothschild
True host: bank swallow, *Riparia riparia*.
Recorded host: *Riparia riparia*.
Range: Known only from Kamloops and Okanagan Valley.
71. **Dasypsyllus gallinulae perpinnatus** (Baker)
True host: Passeriformes.
Recorded hosts: *Thryomanes bewicki*, *Sphyrapicus ruber*, *Cyanocitta stelleri*, *Vermivora celata*, *Lanius borealis*, *Phoebastria melanocephala*, *Hyalocichla guttata*, *H. ustulata*, *Pipilo maculatus*, *Parus atricapillus*, *Piranga ludoviciana*, *Regulus calendula*, *Empidonax difficilis*, *Turdus migratorius*, *Junco oreganus*, *Zonotrichia coronata*, *Melospiza melodia*, *Tamiasciurus douglassi*, man.
Range: Coast Forest (west of Cascades only).
72. **Dasypsyllus stejnegeri** (Jordan)
True host: unknown. A sea bird?
Recorded host: *Hyalocichla guttata nanus*.
Range: Probably northern Coast Littoral. *New record*: Langara Island, Queen Charlottes, 20.V.47, coll. C. J. Guignet.
73. **Malareus euphorbi** (Rothschild)
True host: white-footed mouse, *Peromyscus maniculatus*.
Recorded host: *Peromyscus maniculatus*.
Range: Widespread, though rare, in southern half of province.
74. **Malareus penicilliger ssp. (dissimilis Jordan?)**
True host: Microtinae.
Recorded hosts: *Clethrionomys gapperi*, *Peromyscus maniculatus*.
Range: Northern part of province, and southern Alplands.
75. **Malareus telchinum** (Rothschild)
True host: white-footed mouse, *Peromyscus maniculatus*.
Recorded hosts: *Sorex* sp., *Citellus columbianus*, *Microtus longicaudus*, *Clethrionomys gapperi*, *Peromyscus maniculatus*.
Range: General, throughout southern half of province.
76. **Megabothris abantis** (Rothschild)
(=*Megabothris adversus* Wagner)
True host: Microtinae.
Recorded hosts: *Mustela erminea*, *M. frenata*, *Vulpes fulva*, *Citellus columbianus*, *Microtus longicaudus*, *M. pennsylvanicus*, *M. oregoni*, *Clethrionomys gapperi*, *Phenacomys intermedius*, *Synaptomys borealis*, *Peromyscus maniculatus*, *Neotoma cinerea*, *Rattus norvegicus*, *Zapus princeps*, *Z. trinotatus*, *Lepus americanus*, *Ochotona princeps*.
Range: General over province, especially in humid areas.
77. **Megabothris asio megalopolis** (Jordan)
True host: meadow mouse, *Microtus pennsylvanicus*.
Recorded host: *Microtus pennsylvanicus*.
Range: Probably occurs throughout most of province.
78. **Megabothris lucifer** (Rothschild)
True host: gray vole, *Microtus montanus*.
Recorded hosts: *Mustela frenata*, *Microtus montanus*.
Range: Dry Forest.
79. **Megabothris quirini** (Rothschild)
True host: Microtinae.
Recorded hosts: *Tamiasciurus hudsonicus*, *Microtus p. drummondii*, *Clethrionomys gapperi*, *Peromyscus maniculatus*.
Range: General, east of Coast Range.
80. **Monopsyllus ciliatus protinus** (Jordan)
True host: squirrel, *Tamiasciurus*.
Recorded hosts: *Mustela erminea*, *Martes caurina*, *Spilogale gracilis*, *Tamiasciurus douglassi*, *T. hudsonicus*, *Glaucomyx sabrinus*, *Eutamias townsendii*, *Peromyscus maniculatus*, *Lepus americanus*.
Range: Southern part of Coast Forest, including Vancouver Island.
81. **Monopsyllus eumolpi eumolpi** (Rothschild)
True host: chipmunk, *Eutamias* spp.
Recorded hosts: *Mustela frenata*, *Citellus columbianus*, *Tamiasciurus hudsonicus*, *Eutamias amoenus*, *E. minimus*, *Clethrionomys gapperi*.
Range: Throughout province, east of Coast Range.
82. **Monopsyllus vison** (Baker)
(=*Ceratophyllus lucidus* Baker)
True host: red squirrel, *Tamiasciurus hudsonicus*.
Recorded hosts: *Mustela frenata*, *Martes americana*, *Citellus columbianus*, *Tamiasciurus hudsonicus*, *Glaucomyx sabrinus*, *Ochotona princeps*.
Range: Throughout province, east of Coast Range.
83. **Monopsyllus wagneri wagneri** (Baker)
(=*Ceratophyllus peromysci* Stewart)
True host: white-footed mouse, *Peromyscus maniculatus*.
Recorded hosts: *Mustela frenata*, *Microtus longicaudus*, *Clethrionomys gapperi*, *Peromyscus maniculatus*, *Phenacomys intermedius*, *Reithrodontomys megalotis*.
Range: Southern B.C. from Cascades to Rockies.
84. **Monopsyllus wagneri ophidius** (Jordan)
True host: white-footed mouse, *Peromyscus maniculatus*.
Recorded hosts: *Sorex* sp., *Spilogale gracilis*, *Peromyscus maniculatus*.
Range: Southern B.C., from Cascades, west, including Vancouver Island.

85. *Nosopsyllus fasciatus* (Bosc d'Antic) (Introduced)
 True host: rat, *Rattus* spp.
 Recorded hosts: *Sorex* sp., *Tamiasciurus douglassi*, *Mus musculus*, *Rattus rattus*, *R. norvegicus*.
 Range: Apparently pretty well restricted to lower coastal region.
86. *Leptopsylla segnis* (Schönherr) (Introduced)
 True host: house mouse, *Mus musculus*.
 Recorded host: *Mus musculus*.
 Range: One record, from Kelowna.
87. *Peromyscopsylla hesperomys* ssp.
 A new subspecies, to be described from southern Coast Forest, in "Siphonaptera of Canada."
88. *Peromyscopsylla ravalliensis* (Dunn)
 True host: woodrat, *Neotoma cinerea*.
 Recorded hosts: *Neotoma cinerea*, *Peromyscus maniculatus*, *Ochotona princeps*.
 Range: Rare in southern part of province.
89. *Peromyscopsylla selenis* (Rothschild)
 True host: Microtinae.
 Recorded hosts: *Sorex* sp., *Mustela frenata*, *Microtus longicaudus*, *M. oregoni*, *Clethrionomys gapperi*, *Peromyscus intermedius*, *Peromyscus maniculatus*, *Eutamias* sp., *Rattus norvegicus*.
 Range: General, throughout province, especially in mountains and humid forests.
- Family ISCHINOPSYLLIDAE
90. *Eptesicopsylla vancouverensis* (Wagner)
 True host: silver-haired bat, *Lasionycteris noctivagans*.
 Recorded host: *Lasionycteris noctivagans*.
 Range: Known only from Vancouver.
91. *Myodopsylla gentilis* Jordan and Rothschild
 True host: little brown bat, *Myotis lucifugus*.
 Recorded hosts: *Myotis lucifugus*, *M. yumanensis*.
 Range: West of Selkirk.
92. *Myodopsylla insignis* (Rothschild)
 (= *Ceratopsyllus crossbyi* Baker, *Myodopsylla subulata* Chapin)
 True host: little brown bat, *Myotis lucifugus*.
 Recorded host: *Myotis* sp.
 Range: Known only from Cariboo Parklands in B.C.
93. *Myodopsylloides palposus* (Rothschild)
 (= *M. picrecci* Augustson)
 True host: big brown bat, *Eptesicus fuscus*.
 Recorded host: *Eptesicus fuscus*.
 Range: Scattered records from southwest B.C.

Erroneous Records

1. *Ceratophyllus gallinae* (Schrank)
 Recorded by Harvey, 1907, ex poultry.
 The specimens Harvey had were presumably *Ceratophyllus niger* Fox 1909, now known as the "western hen flea." *C. gallinae* is restricted to eastern North America, having been introduced from Europe.
2. *Diamanus montanus* (Baker)
 Recorded by Holland 1941 from Eagle River, B.C., ex *Gulo luscus*.
 Erroneous determination—the specimens were *Thrassius spenceri* Wagner.

ALPHABETICAL INDEX OF HOSTS

- Acridotheres cristatellus*—Crested mynah
Aplodontia rufa—Mountain beaver
Asio otus—Long-eared owl
Bonassa umbellus—Ruffed grouse
Canis latrans—Coyote
Citellus columbianus—Columbian ground squirrel
Citellus lateralis—Mantled ground squirrel
Clethrionomys gapperi—Red-backed mouse
Cryptoglaux acadica—Saw-whet owl
Empidonax difficilis—Western fly catcher
Eptesicus fuscus—Big brown bat
Erethizon dorsatum—Porcupine
Eristatura jamaicensis—Ruddy duck
Euaetios americanus—Black bear
Eutamias amoenus—Allen chipmunk
Eutamias minimus—Least chipmunk
Eutamias townsendii—Townsend chipmunk
Gallus gallus—Domestic hen
Glaucomys sabrinus—Flying squirrel
Gulo luscus—Wolverine
Hylocichla guttata—Hermit thrush
Hylocichla ustulata—Swainson thrush
Iridoprocne bicolor—Tree swallow
Junco oreganus—Oregon junco
Lasionycteris noctivagans—Silver-haired bat
Lepus americanus—Varying hare
Lynx canadensis—Canada lynx
Lynx fasciatus—Bobcat
Marmota caligata—Hoary marmot
Marmota flaviventris—Yellow-bellied marmot
Marmota monax—Woodchuck
Marmota vancouverensis—Vancouver Island marmot
Martes americana—Pine marten
Martes caurina—Vancouver Island marten
Mephitis sp.—Striped skunk
Melospiza melodia—Song sparrow
Microtus longicaudus—Long-tailed vole
Microtus montanus—Grey vole
Microtus oregoni—Creeping vole
Microtus pennsylvanicus—Meadow vole
Microtus richardsoni—Alpine water vole
Microtus townsendii—Townsend vole
Mus musculus—House mouse
Mustela erminea—Short-tailed weasel
Mustela frenata—Long-tailed weasel
Mustela vison—Mink
Myotis lucifugus—Small brown rat
Myotis yumanensis—Yuma bat
Neotoma cinerea—Woodrat
Neurotrichus gibbsii—Gibb's shrew mole
Ochotona princeps—Rocky Mountain pika
Odocoileus hemionus—Black-tailed deer
Otus asio—Screech owl

- Parus atricapillus*—Black-capped chickadee
Passer domesticus—English sparrow
Perognathus parvus—Pocket mouse
Peromyscus maniculatus—White-footed mouse
Petrochelidon pyrrhonata—Cliff swallow
Phalacrocorax pelagicus—Pelagic cormorant
Phenacomys intermedius—Lemming mouse
Pheucticus melanocephalus—Black-headed grosbeak
Pipilo maculatus—Spotted towhee
Piranga ludoviciana—Western tanager
Procyon lotor—Raccoon
Rattus norvegicus—Norway rat
Rattus rattus alexandrinus—Roof rat
Rattus rattus rattus—Black rat
Regulus calendula—Ruby-crowned kinglet
Reithrodontomys megalotis—Harvest mouse
Riparia riparia—Bank swallow
Scapanus orarius—Coast mole
Scapanus townsendii—Townsend mole
Sorex cinereus—Cinereus shrew
Sorex obscurus—Dusky shrew
Sorex trowbridgii—Trowbridge shrew
Sorex vagrans—Vagrant shrew
Speotyto cunicularia—Burrowing owl
Sphyrapicus ruber—Red-breasted sapsucker
Spilogale gracilis—Spotted skunk
Sylvilagus nuttalli—Cottontail rabbit
Synaptomys borealis—Bog lemming
Tamiasciurus douglasi—Douglas chickaree
Tamiasciurus hudsonicus—Red squirrel
Thomomys talpoides—Pocket gopher
Thryomanes bewickii—Bewick wren
Turdus migratorius—Robin
Ursus sp.—Grizzly bear
Vermivora celata—Orange-crowned warbler
Vulpes fulva—Red fox
Zapus trinotatus—Northwest coast jumping mouse
Zapus princeps—Rocky Mountain jumping mouse
Zonotrichia coronata—Golden-crowned sparrow

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NOTE ON LONGEVITY OF CERTAIN TICKS (Ixodoidea).—Among the tragedies of the flood of 1948 were the premature deaths of several dozen aged ticks. These represented the survivors of several species and stages undergoing longevity tests at the Dominion Livestock Insect Laboratory, Kamloops, B.C. Each group had been kept within unopened, cotton plugged, shell vials since they had emerged from eggs or their preceding instars. Except for brief periods, they were always kept in the dark below ground level under one of the laboratory buildings. Since observations have now come to an end, it is fitting to publish the records as they stand. *Ixodes texanus* Banks nymphs and adults, while commencing to die of senility, were 103 and 101 months old respectively. Larvae of this species had previously died at the age of 96 months. This makes a total life cycle of at least 300 months, though this period must be theoretical since these various stages may not have had the vigor to perpetuate themselves beyond a certain age. *Ixodes hearlei* Gregson adults and *Ornithodoros turicata* (Dugas) third nymphs were drowned at the ages of 80 and 100 months.—J. D. Gregson, Kamloops, B.C.

UNUSUAL RECORD OF IXODES SORICIS (Ixodoidea: Ixodidae).—An interesting new host (?) record for *Ixodes soricis* Gregson has occurred in the collection from Silver Creek, Hope, British Columbia, March 29, 1948, of a male of this tick attached to a female of its own species! The hypostome of the male (yet undescribed) was firmly embedded in the integument of an engorged female, ex *Sorex obscurus*, the site of the male's attachment being slightly laterad to the hind coxa.—J. D. Gregson, Kamloops, B.C.

ANTHAXIA PRASINA Horn (Coleoptera:Buprestidae).—*Anthaxia prasina* is recorded from California, but we can add British Columbia to its range. I found them once only, at Copper Mountain in 1930, on flowers of *Rosa nutkana*, when 35 specimens were collected: July 12-13. The stem species, *A. aeneogaster*, was common in the region, usually on various yellow flowers, but was not associated with this colony. *A. prasina* is a beautiful blue-green insect; the individuals of my series vary considerably in size, but are constant in colour and other respects.—G. Stace Smith, Creston, B.C.