

(Dom. Range Exp. Station) two men collected 1750 ticks in a single day (June 2nd). In certain deep draws leading into the south side of Chin Coulee, just west of Foremost it was possible, under ideal conditions, for each man to pick up 150-200 ticks per hour! In one spot at Verdigris Coulee, east of Milk River, a most unusual situation was found where ticks were plentiful on the bare ground of a cattle trail. Here as many as 23 were taken on a single sweep of the drag cloth. Ordinarily it was quite a reliable rule that ticks were more common on the bushes bordering stock trails, but usually not many ticks would be found on the trail itself.

Due to the unusually wet spring of 1938, many days during the tick season were completely lost. However, about thirty-five days of suitable weather were devoted to tick collecting, and during this time nearly 22,000 specimens were obtained.

NEW RECORDS OF SIPHONAPTERA FOR BRITISH COLUMBIA

by George P. Holland*

In the course of checking over part of the collection of fleas at the Kamloops Laboratory, Dominion Department of Agriculture, Division of Entomology, five species have been established as new records for British Columbia. These follow:

Xenopsylla cheopis (Roths), 1903—See details below.

Opisocrostis tuberculatus (Baker) 1904.

Taken from Columbia ground squirrel, *Citellus columbianus columbianus* (Ord.), collected at Kimberley, B. C. (May 5th, 1938, J. B. Poole) and at Waterton Lakes, Alta. (June 27th, 1938, G. P. Holland).

Neopsylla inopina Roths., 1915.

Taken from *Citellus c. columbianus* (Ord.) collected at Kimberley, May 14th, by J. B. Poole.

Rectofrontia fraterna (Baker), 1895.

From *Citellus c. columbianus* (Ord.) at Waterton Lakes National Park, on the boundary of British Columbia and Alberta, June 27th, 1938, by G. P. Holland.

Ctenophyllus terribilis Roths., 1903.

From pika, *Ochotona princeps* ssp. collected at Reno Mountain, Salmo, May 29, 1936 by T. K. Moilliet; at Mt. Dunn, North Thompson Valley, Aug. 11, 1937 by G. P. Holland; and at a rock slide five miles west of Salmon Arm, Aug. 10, 1938, by G. P. Holland.

A series of 36 fleas collected from Norway rats, *Rattus norvegicus* Erxleben, taken September 8th, 1938 at the city dump, Vancouver.

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B. C., proved to be of considerable interest upon study. The following species were found to be present:

- 23 **Nosopsyllus fasciatus** Bosc., the European rat flea.
- 4 **Ctenocephalides felis** Bouch., the imported cat flea.
- 9 **Xenopsylla cheopis** Roths., the Indian rat flea.

In view of the present possibility of plague spreading in southern British Columbia, the record of **Xenopsylla cheopis** R., is of particular interest as this species is the time-honoured carrier and transmitter of bubonic plague to man in the old world and some countries of the new. Its habit of biting avidly even when its gut may be blocked with masses of plague bacilli, and regurgitating cultures of **P. pestis** into the blood of the unfortunate host, makes it the ideal disseminator of this disease and of prime economic importance. A further specimen of this species was secured from a roof rat, **Rattus rattus alexandrinus** (Geoffroy⁹) taken September 8, 1938 in a warehouse at New Westminster, B. C.

N. fasciatus Bosc. and **C. felis** Bouch., both of which bite man readily are not so celebrated, but have been shown to transmit plague from rat to rat under laboratory conditions.

It should be noted that Wagner (Can. Ent., Sept. 1936) suspected that **N. inopina** Roths., **R. fraterna** (Baker) and **C. terribilis** Roths. would eventually be found in British Columbia as they are recorded in Alberta.

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