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Notes on the Myocoptidae of North America with Description  
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**Abstract:** Six species and two subspecies are reported from North American rodents including the new species *Sciurocoptes tamias* from the Eastern Chipmunk, *Tamias striatus*. Synonymies are given.

The first myocoptid reported in North America was *Myocoptes musculus* which Banks (1923) recorded from the house mouse at St. Paul Island, Pribilof Islands, Alaska. Later this same species was found on the same host in Mississippi by Smith (1955).

Flynn (1955) observed mange on laboratory mice infested with both *M. musculus* and *M. romboutsii* (= *Trichoecius romboutsii*). Since then the presence of *M. musculus* has been noted by various authors. Its distribution is discussed by Fain, Munting and Lukoschus (1970).

Radford (1955) described two new species of *Myocoptes*, *M. jamesoni* from *Microtus p. pennsylvanicus* collected in New York State, and *M. canadensis* from a lemming, *Dicrostomys* sp. taken in Ontario, Canada.

In 1960, Sengbusch observed mange on guinea pigs which he attributed to *M. musculus*. In reality this was probably due to another mite, *Chirodiscoidea caviae* Hirst.

It should be noted that various authors including Miller and Ward (1960), Elzinga and Rees (1964), and Drummond (1957), have reported the genus on different hosts as *Myocoptes* sp. In their publication, "Mites of Utah Mammals," Allred and Beck (1966) did not report finding any myocoptids.

During the past several years we have been carrying out research on the acarines of North American mammals and have found several species belonging to the family Myocoptidae, one of which is new and is described herein.

Several modifications have been made recently in the classification of this family. McDaniel (1968) has given family rank to the group. Fain, Munting

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and Lukoschus (1969) have accepted this new status and have proposed, in addition, several new synonymies. The genus *Neomyocoptes* Lawrence falls into synonymy with *Trichoecius* Canestrini; the names *Myocoptes jamesoni* Radford, 1955 and *M. glareoli* Samsinak, 1957, become synonyms of *Myocoptes japonensis* Radford, 1955; and *M. canadensis* Radford, 1955 is considered a subspecies of *M. japonensis*. In addition a new genus, *Sciurocoptes*, is erected for *M. sciurinus* Hennemann, 1910.

#### FAMILY MYOCOPTIDAE Gunther, 1942

##### Genus *Myocoptes* Claparède, 1869

###### 1. *Myocoptes musculus* (C. L. Koch, 1844)

This species has been recorded from many countries on the house mouse and from colonies of laboratory mice. Fain, Munting and Lukoschus (1969, and 1970) give a detailed distribution and bibliography for this species. They also report finding this mite on *Apodemus sylvaticus* in Belgium and Holland.

In North America *M. musculus* was reported for the first time on *Mus musculus* by Banks (1923). Since then it had been recorded repeatedly from this continent on the same host, especially in colonies of laboratory mice.

In Rhode Island we have found it on house mice in South Kingstown (9 Feb. 1959; Coll., J. Hammar) and on Block Island (25 Oct. 1956; Coll., K. Hyland). The latter host was one of several house mice collected in an open field during the Rhode Island Mammal Survey (Cronan and Brooks, 1962). This mite has also been taken from laboratory mice in Kingston (15 Sept. 1961). More recently we have found it on the posterior legs and venter of several *Peromyscus leucopus* from South Kingstown (October, 1968; Coll., G. Clough).

While *M. musculus* is obviously the natural host for this species its occurrence on *P. leucopus* can be easily understood because of the frequency with which this mouse invades buildings and the frequency with which *M. musculus* will leave buildings for fields and swamps. In Belgium and Holland *Apodemus sylvaticus* is the most abundant rodent and it obviously has ample opportunity to mingle with *M. musculus*, although it probably does not invade homes to the extent found in *P. leucopus*.

###### 2. *Myocoptes japonensis* Radford, 1955

*Myocoptes jamesoni* Radford, 1955; Fain et al., 1969

*Myocoptes glareoli* Samsinak, 1957; Fain et al., 1969

This species was described by Radford (1955) from a single male specimen collected on *Clethrionomys rufocanus smithii* (family Cricetidae) in Japan. In the same paper Radford described two other species, also on Cricetidae: *Myocoptes jamesoni*, known only from females collected on *Microtus pennsylv-*

*vanicus* in New York, and *Myocoptes canadensis*, represented only by the male and found on a lemming (*Dicrostomys* sp.) from Canada.

In 1957, Samsinak described a new species, *Myocoptes glareoli*, from *Clethrionomys glareolus* in Czechoslovakia.

Recently, Fain et al. have collected many myocoptids in Belgium and Holland on various Cricetidae, among them numerous *Clethrionomys glareolus*. The comparison of this material with the types of the species described by Radford have shown that there are no significant differences between *M. japonensis*, *M. jamesoni* and *M. glareoli*. They have therefore synonymized these species; in addition they consider *Myocoptes canadensis* as constituting a subspecies of *Myocoptes japonensis*.

Dr. Radford has kindly sent us types of his species.

*Myocoptes japonensis japonensis* Radford, 1955

In Rhode Island we have found numerous specimens of this subspecies on the following hosts:

1. *Clethrionomys gapperi*: Kingston, 23 Oct. 1968, Coll., G. Clough. This host has already been recorded by Fain et al. (1970). The mites were taken from the posterior legs.
2. *Microtus pennsylvanicus*: This is the type host for *Myocoptes jamesoni* Radford; the type locality is Ithaca, N. Y. This host has also been found parasitized by Fain et al. (1970) in West Kingston (R. I.), 27 Oct. 1968 (Coll., G. Clough). Other new localities in Rhode Island are Prudence Is., 12 June 1956 (Coll., W. Jones and J. Cronan); Patience Is., 13 June 1956 (Coll., J. Cronan and T. Fanning); Dutch Is., 14 June 1956 (Coll., J. Cronan, T. Fanning, K. Hyland); Charlestown, 8 Nov. 1955 (Coll., W. Jones and T. Fanning); South Kingstown, 31 Oct. 1957 (Coll., W. Jones), and 9 Nov. 1955, (Coll., T. Fanning) Narragansett, 11 July 1956 (Coll., W. Mulhearn).
3. *Marmota monax*: South Kingstown, R. I., 6 Aug. 1956. While many specimens of this host were collected during the survey conducted in Rhode Island only a single female specimen of this mite has been recorded. Probably this constitutes an accidental record.

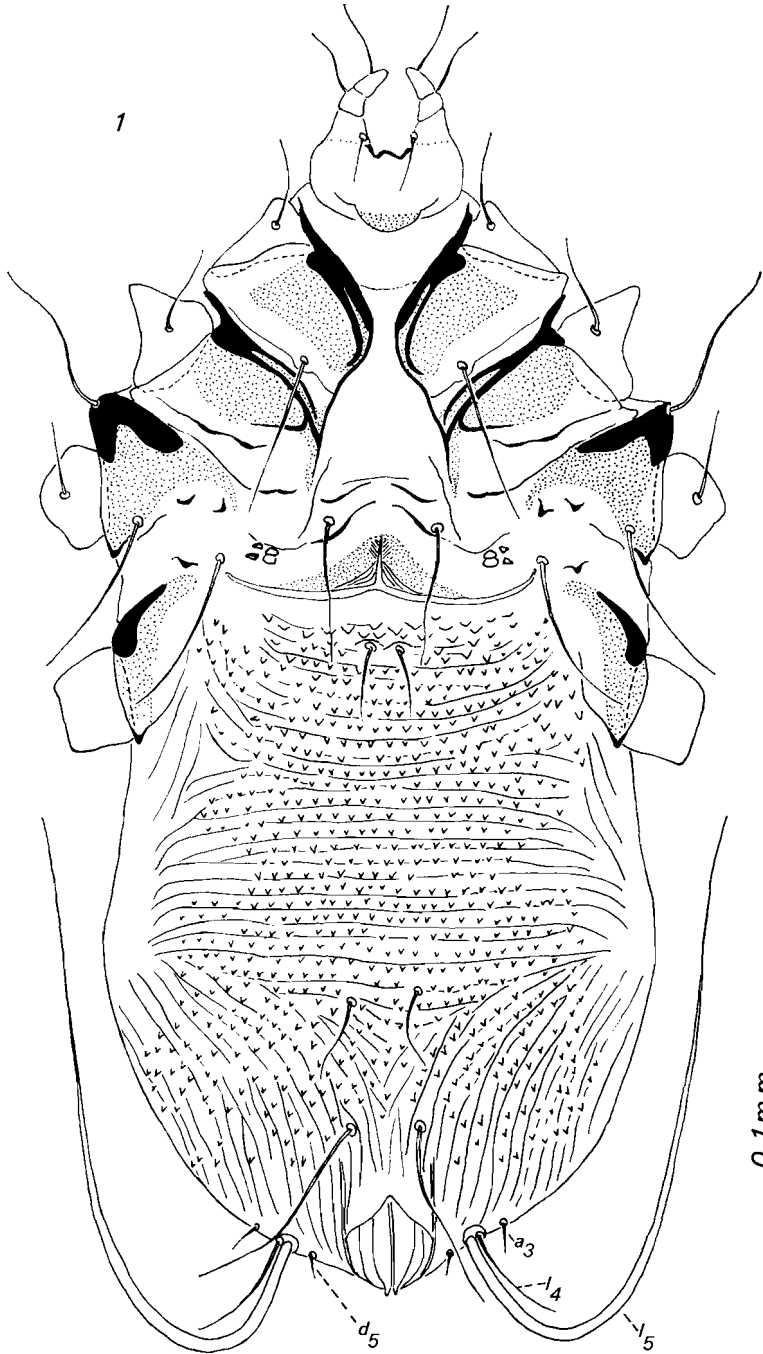
*Myocoptes japonensis canadensis* Radford, 1955

The type host of this subspecies is a lemming, *Dicrostomys* sp. Only the male was described by Radford.

Recently Fain et al. (1970) found numerous examples, both male and female, on a specimen of *Dicrostomys rubricatus* from Canada. These mites

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FIG. 1. *Myocoptes japonensis canadensis* Radford. Female, ventral view.



differ from the typical form of *Myocoptes japonensis* by several characters which are of little importance and which do not justify, in our estimation, their separation as a distinct species.

The following are the principal characters which separate *canadensis* from the typical form. In the female, (1) the form of the scales on the venter of the podosoma: in *canadensis* coxae II bear one well-formed scale and several short, wide and badly formed scales, whereas in *j. japonensis* there are habitually four to six well-formed scales on these coxae; (2) setae *a* 3 are approximately three times shorter (8 to 12  $\mu$ ) than *l* 4 (28 to 32  $\mu$ ) whereas in *j. japonensis* *a* 3 varies from being subequal to distinctly longer than *l* 4.

In the male, (1) the posterior lobes of the body are broader and more widely separated (distance 12 to 13  $\mu$ ) compared with 6 to 9  $\mu$  in the typical form; (2) the scales on coxae I and II are badly formed, short and wide, and resemble to a considerable extent cuticular folds; (3) the body is longer (270 to 285  $\mu$  instead of 215 to 276  $\mu$ ) than in the original species.

*Myocoptes japonensis japonensis* has been redescribed in a previous paper by Fain et al. (1970), and they have given the principal measurements of *M. j. canadensis*. The venter of the female of *canadensis* is figured again so as to show the form of the coxal scales (Fig. 1).

### 3. *Myocoptes squamosus* Fain, Munting and Lukoschus, 1969

This species was described from *Microtus oeconomus* in Holland. We have found two specimens (male and female) of this species on two *Microtus pennsylvanicus* from Patience Island, (13 June 1956; coll., J. Cronan) and Charlestown, (8 Nov. 1955; coll. W. Jones and T. Fanning) in Rhode Island.

Genus *Trichoecius* Canestrini, 1899

*Trichobius* Canestrini, 1897 (not *Trichobius* Townsend, 1891)

*Trichoecius* Canestrini, 1899 **Nov. nom.**

*Neomyocoptes* Lawrence, 1953; Fain et al., 1969 **Nov. syn.**

Examination of the types of *Myocoptes brevipes* Trouessart and Canestrini, 1895 (type of the genus *Trichoecius*) has shown that this species is not separable from *Myocoptes tenax* Michael, 1889. Since *Myocoptes kalrai* Radford, 1947, type of the genus *Neomyocoptes*, obviously belongs to the same genus as *M. tenax*, it is clear that *Neomyocoptes* Lawrence becomes a synonym of *Trichoecius*.

#### 1. *Trichoecius tenax* (Michael, 1889)

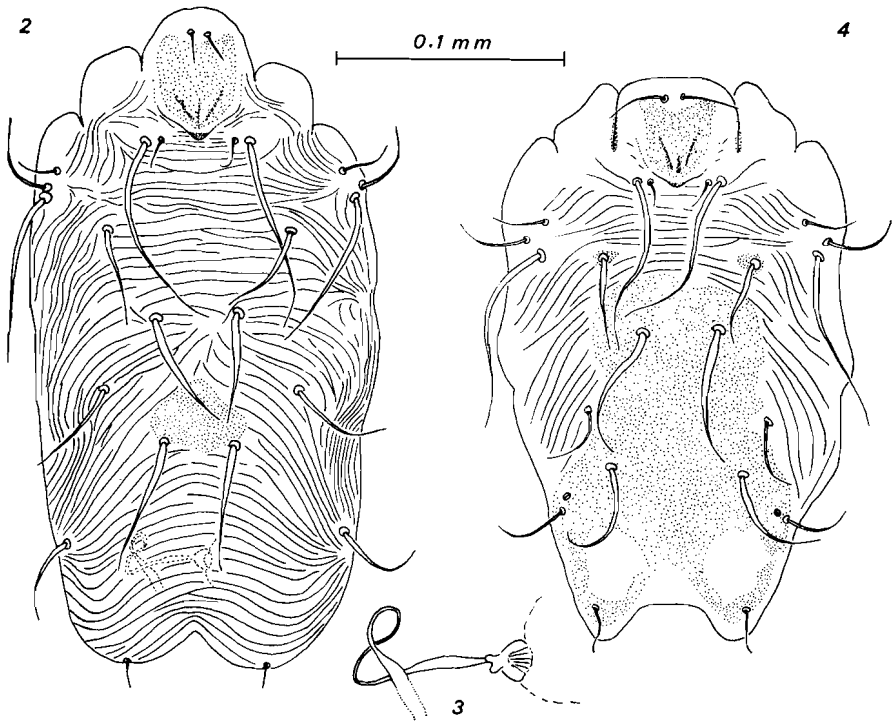
*Myocoptes tenax* Michael, 1889

*Myocoptes brevipes* Trouessart et Canestrini, 1895

*Trichoecius brevipes*, Canestrini, 1899

*Neomyocoptes tenax*, Lawrence, 1956

*Trichoecius tenax*, Fain et al., 1969



FIGS. 2-4. *Sciurocoptes tamias* n. sp. 2. Holotype female in dorsal view. 3. Bursa copulatrix. 4. Allotype male in dorsal view.

This species had not been reported previously from North America. We found females, males and nymphs of this species on several *Microtus pennsylvanicus* from two different localities in Rhode Island: Charlestown, 8 Nov. 1955 (coll. W. Jones and T. Fanning) and Patience Island in Rhode Island, 13 June 1956 (coll., J. Cronan and T. Fanning).

A new description with figures has been given by Fain et al. (1970).

2. *Trichoecius romboutsii* (van Eynhoven, 1946)

*Myocoptes romboutsii* van Eynhoven, 1946

*Trichoecius romboutsii*, Fain et al., 1969 **Nov. comb.**

This species has been reported from the laboratory mouse in U.S.A. by Flynn (1955). Dr. Flynn kindly sent us specimens for our study. A new description of this species has been given by Fain et al. (*in press*).

Genus *Sciurocoptes* Fain, Munting and Lukoschus, 1969

1. *Sciurocoptes tamias* n. sp.

FEMALE (holotype) (Fig. 2). Total length of the body, including gnathosoma, 305  $\mu$ ; maximum width 165  $\mu$  (Paratype: 359  $\mu$  long by 202  $\mu$  wide). Posterior margin distinctly incised. Cuticle striated, but striations poorly developed on the venter of the podosoma and are lacking on the dorsum in the areas covered by the two punctate shields. Propodosomal and opisthosomal shields conspicuous. The latter very small (30  $\mu$  long, 40  $\mu$  wide) and located immediately in front of setae *d* 3. In the paratype this shield is 28  $\mu$  long and 36  $\mu$  wide. Ventral surface of opisthosoma with 22–23 transverse rows of small triangular cuticular scales. Epigynium crescentic, well developed. Vulva in the shape of an inverted Y. Bursa copulatrix (Fig. 3) shorter than in *Sciurocoptes sciurinus*, beginning distally with a short fusiform portion, and consisting of two loops. All the epimera free. Legs and gnathosoma as in *sciurocoptes sciurinus*. Number of idiosomal setae as in *S. sciurinus*. Length of setae: *sc e*—80  $\mu$ , *d 1*—45  $\mu$ , *d 2*—57  $\mu$ , *d 3*—57  $\mu$ , *d 5*—210  $\mu$ , *l 5*—170  $\mu$ .

MALE (allotype) (Fig. 4). Total length including gnathosoma 261  $\mu$ ; width 160  $\mu$ . Posterior margin with a large median incision. Cuticle sparsely striated. Dorsally the propodosomal shield is similar to that of the female; hysterosomal shield large, length along the midline 120  $\mu$ , maximum width 99  $\mu$ , and minimum width 60  $\mu$ . This shield does not cover completely the posterior part of the opisthosoma which bears two lateral, bare and more or less oval areas. Male sclerite long and narrow, measuring 54  $\mu$  in the midline.

SYSTEMATIC POSITION OF *Sciurocoptes tamiias*. This species is distinguished from *S. sciurinus* by the following characters: in the female by the smaller size of the body; the relatively much smaller size of the hysterosomal shield, which is nearly vestigial; the broader area of scales on the ventral surface of the opisthosoma and the different shape of this area which is rather regularly rectangular and distinctly wider than long. In the male by the different shape of the hysterosomal shield; the much smaller size of the coxal shields; the longer size of the genital sclerite.

HOST AND LOCALITY. Two female and one male specimens were collected on the hairs of an Eastern Chipmunk, *Tamias striatus*, from an unknown locality in North America, which had died in the Antwerp Zoo, soon after its arrival (Coll., A. Fain, 7 July 1964). Holotype and allotype are in the Institut royal des Sciences naturelles de Belgique (Brussels). Remaining female in the collection of A. Fain.

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