

Notes on Arctic Canadian Diastatidae  
and Drosophilidae (Diptera),  
with the description of a new species<sup>1)</sup>

by

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During July 13 to August 11, 1980, the junior author had an opportunity to make drosophilid flies collection at Inuvik (68°22' N, 133°45' W) and Tuktoyaktuk (69°26' N, 133°03' W), Northwest Territories of Canada, in the Permafrost Expedition of Hokkaido University.

We report here the list of 16 species collected, including the description of a new species and collection records. The data on the last item are separately presented for each locality and for each collection method; banana trap (Tf), net-sweeping (S), and others (O) such as collections on fleshy fungi and tree trunks, or at cliff shelters. The faunal characteristics in biogeography and the ecological community structure will be reported elsewhere.

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**Arctic Canadian Species of Diastatidae**

**Genus *Diastata* Meigen**

1. *Diastata tenuipes* (Walker).

*D. tenuipes* (Walker), Melander, 1913. A synopsis of the Dipterous group Agromyzinae, Milichiinae, Ochthiphilinae and Geomyzinae. Jour. New York Ento. Soc., XXI, 4:290.

Collection record : Inuvik, S 1 ♀ 1 ♂, Aug. 2, 1980.

2. *Diastata eluta* Loew, 1863.

*D. eluta* Loew, 1863. Melander, 1913. A synopsis of the Dipterous group Agromyzinae, Milichiinae, Ochthiphilinae and Geomyzinae. Jour. New York Ento. Soc., XXI, 4:290.

Collection record: Inuvik, S 1 ♀, Aug. 7, 1980.

**Genus *Campichoeta* Macquart**

3. *Campichoeta griseola* (Zetterstedt), 1855.

*C. griseola* (Zetterstedt), 1855.. Diptera Scandinaviae. Disposita et descripta. Vol. 12 : sup. 3, pp. 4547.

Collection record: Inuvik, S 3 ♂♂, O 1 ♀, Aug. 2, 1980.

**Arctic Canadian Species of Drosophilidae**

**Genus *Amiota* Loew**

4. *Amiota quadrata* Takada & Toda, sp. nov. (Fig. 1).

Male & female: Body black, about 4.3mm, wings about 4.3mm in length. Arista with about six long branches on dorsally, ventral branches about four, small, fork apparently absent. Humeral one. Halteres, face, humerus and vertical cleft of wing base are milky white. Ocellar triangle black, shining, and ocellar bristles long. Front black. Postverticals minute and convergent. Second oral bristles about 1/2 of vibrissae. Clypeus black. Carina flat. Cheeks orange yellow, about 1/4 of the greatest of the eye-diameter. Anterior reclinate orbital

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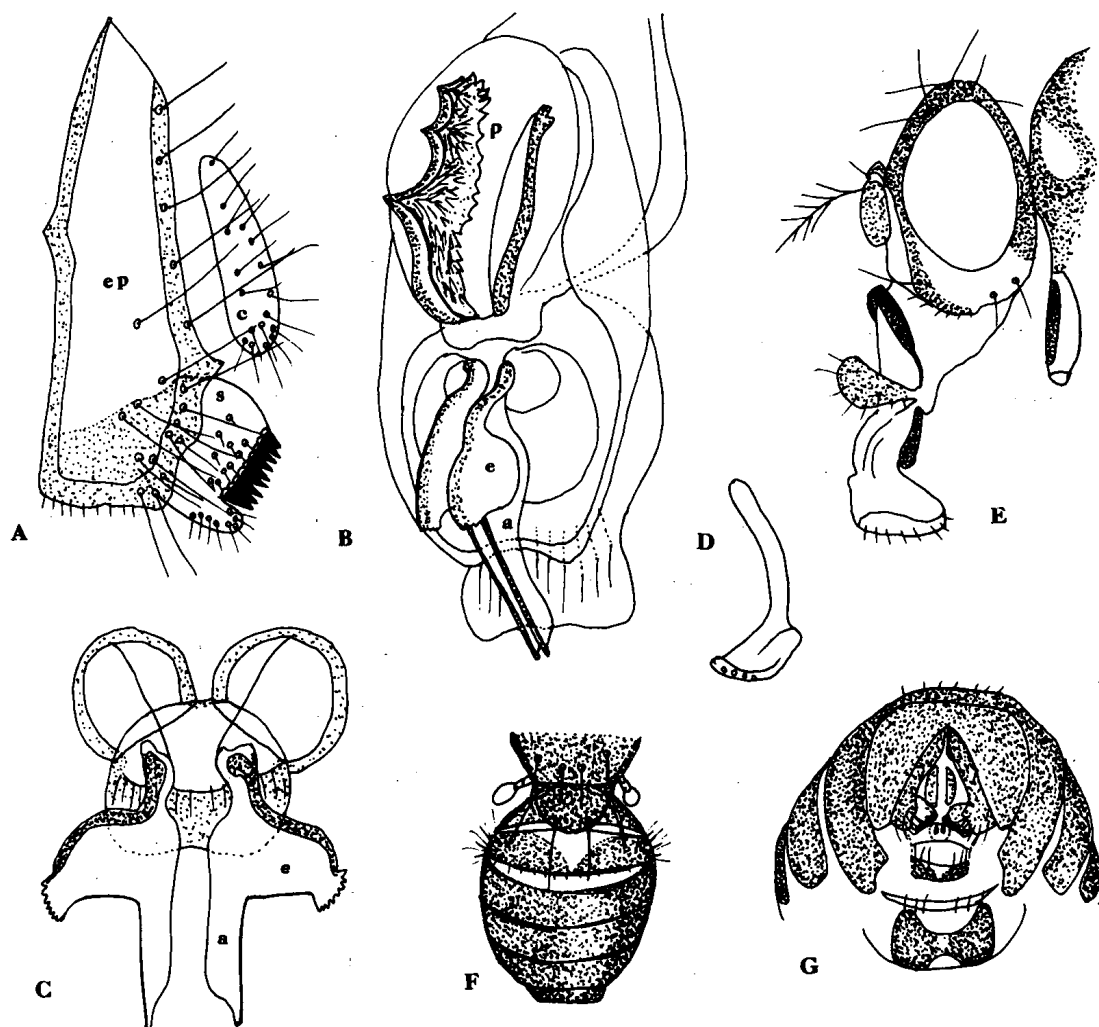


Figure 1. *Amiota quadrata* Takada & Toda sp. nov.

A, Periphallic organs. B, Phallic organs. C, Lower half of phallic organs with cover-glass. D, Ejaculatory apodeme. E, Head and mouth-part. F, Abdomen of male, dorsal aspect. G, Abdomen of male, ventral aspect. a, anterior paramere. c, cercus. e, aedeagus. ep, epandrium. p, posterior paramere. s, surstylus.

bristle about  $5/8$  of other two orbitals.

Mesonotum and scutellum shining black. Acrostichal hairs in about more than ten rows. Anterior dorsocentral bristles about half as long as posterior ones. Sterno-index about 0.9.

Legs yellowish grey, anterior surface of frontal coxae blackish brown. All femur, tibiae and tarsus greyish brown. Abdominal tergites black, except second tergite pale yellow at middle (Fig. 1, F) ; fifth abdominal sternite black (Fig. 1,

G).

Wings hyaline, veins brown ; Costal index about 2.4 ; 4V index about 2.4 ; 4c index about 1.3 ; 5x index about 1.2 ; Ac index about 3.0 and Cx index about 0.7. C3 fringe ratio about 5/9.

Periphalllic organs : Epandrium black, narrowing above, heel rectangular, toe broad, posterior margin with about 6 long hairs, toe and lower portion of epandrium with about 10 stout hairs. Cercus greyish yellow, slender. Surstylus brownish yellow, longer than broad, lower caudal corner exceedingly projected like a finger, primary teeth about 9–10, arranged in a straight row, upper teeth slightly shorter than lower teeth.

Phallic organs : Aedeagus black and broad, apically serrated, basally right-angled to be fused with anterior paramere. Anterior parameres sword-like shaped, long. Posterior paramere black and thick, bifurcate, and with three thorn-like points at outer margin, lower ones projected (Fig. 1, B).

Holotype : Male, Inuvik, July 31 to Aug. 8, 1980.

Allotype : Female, collected together with holotype.

Paratypes : Tf 21 males and 6 females, collected together with holotype.

The Holo & the Allo type-specimens are being placed in the collection of the Biological Laboratory, Sapporo University.

Distribution : Northwest Territories of Canada.

Relationships : Closely related to *A. neochungi* Takada, Beppu & Toda, 1979, in having well developed finger-like process of the surstylus and large straightened anterior parameres of phallic organs, but differs in having broad triangular aedeagus (Fig. 1, C) and large chitinized posterior parameres. And, second abdominal tergite with broad black caudal bands, concaved anteriorly of middle (first and second tergites pale yellow and with lateral caudal bands on second tergite in *A. neochungi*).

**Genus Chymomyza Czerny**

5. *Chymomyza aldrichi* Sturtevant, 1916 (Fig. 2 ; A & B).

*C. aldrichi* Sturtevant, 1916. Notes on North American Drosophilidae with descriptions of twenty-three new species. Ent. Soc. Amer. Ann. 9:325.

Collection record : Inuvik, Tf 2 ♀ ♀, 1, July 31 to Aug. 8, 1980.

6. *Chymomyza tetonensis* Wheeler, 1949 (Fig. 2 ; C & D).

*C. tetonensis* Wheeler, 1949. Taxonomic studies on the Drosophilidae. Univ. Tex. Publ. 4920 : 168-164. Hsu, 1949. The external genital apparatus of male Drosophilidae in relation to systematics. Univ. Tex. Publ. 4920 : 88.

*C. aldrichi* Sturtevant ; Wheeler, 1952, revised to new synonym for *C. tetonensis* Wheeler, 1949. The Drosophilidae of the Nearctic region, exclusive of the Genus Drosophila. Univ. Tex. Publ. 5204 : 176-177.

Collection record : Inuvik, Tf 1 ♀, 2 ♂ ♂, July 31 to Aug. 8, 1980.

Remarks : Closely related to *C. aldrichi* Sturtevant, 1916, but is without doubt a distinct species that clearly differs from in having all segments of fore tarsi brown, the latter with the basal segment only of fore tarsus dark brown, as pointed out by Wheeler, 1949, and male phallic organs and periphallic organs, for examples, cercus long and narrow, primary teeth of surstylus extraordinarily long, the latter in having cercus rather oval and primary teeth rather small, as pointed out by Hsu, 1949. And, anterior parameres of phallic organs oval, the latter has slender ones as show Fig. 2.

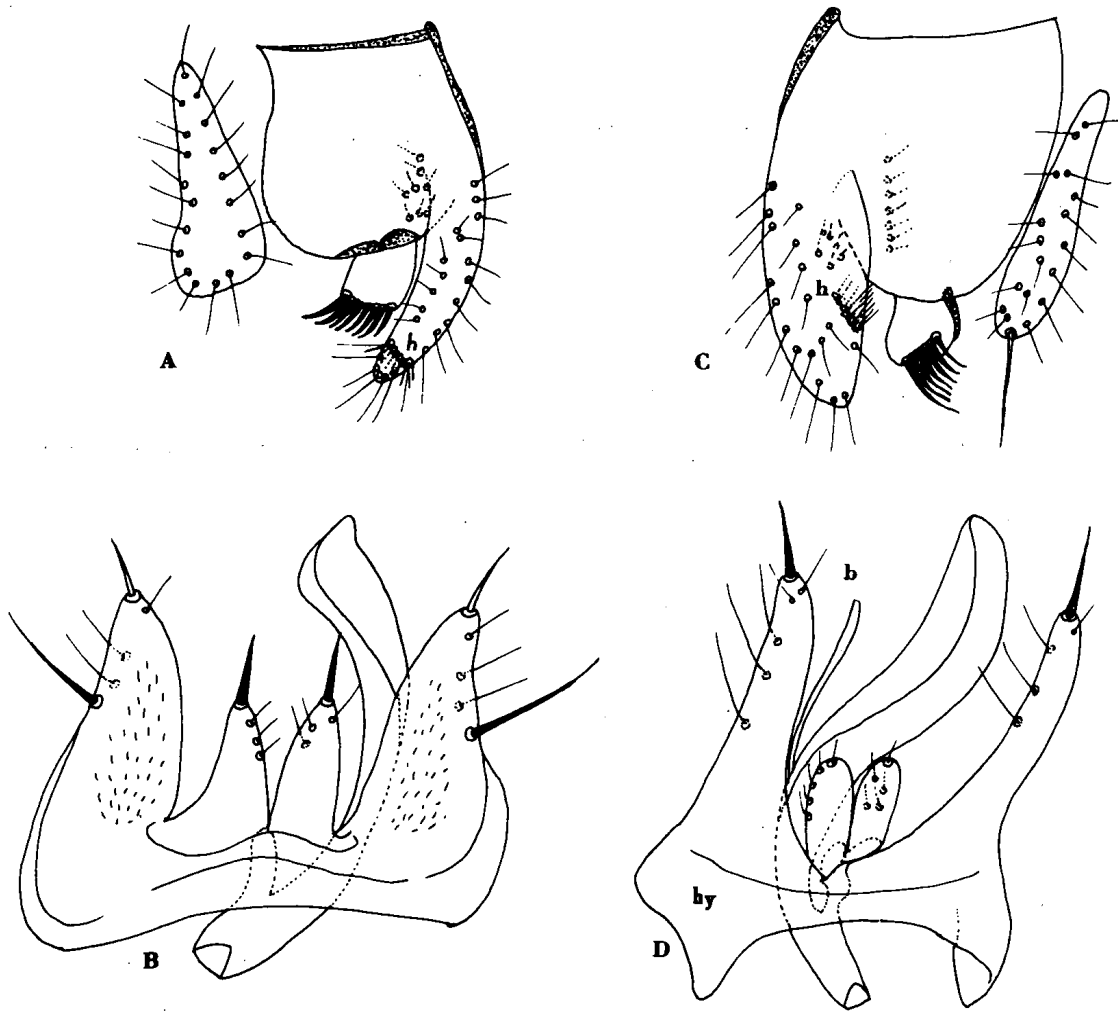
7. *Chymomyza costata* (Zetterstedt), 1838.

*C. costata* (Zetterstedt), Czerny, 1903. Über *Drosophhla costata* und *fusci-mana* Zett. (Dipt.). Zeitschr. Hym. Dipt. 3 : 200.

Collection recosd : Inuvik, Tf 54 ♀ ♀, 153 ♂ ♂, July 31 to Aug. 11, 1980.

8. *Chymomyza caudatula* Oldenberg, 1914.

*C. caudatula* Oldenberg, 1914. Beitrag zur Kenntnis der europäischen



**Figure 2.** A & B, *Chymomyza aldrichi* Sturtevant, 1916. C & D, *Chymomyza tetonensis* Wheeler, 1949. A & C, Peripheral phallic organs. B & D, Phallic organs. h, hairs of inner surface of epandrium. hy, hypandrium. b, bar connecting hypandrium to epandrium.

Drosophiliden (Dipt.). Archiv. Naturg. 80 A(2) : 14.

Collection record : Inuvik, Tf 1 ♀, July 31 to Aug. 8, 1980.

### Genus *Scaptomyza* Hardy

#### 9. *Scaptomyza montana* Wheeler, 1949.

*S. montana* Wheeler, 1949. Taxonomic studies on the Drosophilidae. Univ. Tex. Publ. 4920 : 166. Wheeler & Takada, 1966. The Nearctic and Neotropical species of *Scaptomyza* Hardy (Dipt., Drosophilidae). Univ. Tex. Publ. 6615 : 37-78.

Notes on Arctic Canadian Diastatidae and Drosophilidae (Diptera),  
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Collection record : Inuvik, S 5 ♀♀, 2 ♂♂, Aug. 7, 1980.

10. *Scaptomyza trochanterata* Collin, 1953.

*S. trochanterata* Collin, 1953. On the British species of *Scaptomyza* Hardy and *Parascaptomyza* Duda (Diptera, Drosophilidae). Ento. 86 : 150.

Collection record : Inuvik, S 2 ♀, 1 ♂, Aug. 7, 1980.

**Genus *Drosophila* Fallen**

**Subgenus *Sophophora* Sturtevant**

11. *Drosophila athabasca athabasca* Sturtevant & Dobzhansky,  
1936.

*D. athabasca athabasca* Sturtevant & Dobzhansky 1936. Observations on species related to *Drosophila affinis*, with descriptions of seven new forms. Amer. Nat. 70 : 576.

Collection record : Inuvik, Tf 420 ♀, 254 ♂, July 31 to Aug. 11, 1980 ;  
Tuktoyaktuk, Tf 5 ♀, 1 ♂, July 13 to 26, 1980.

**Subgenus *Drosophila* Fallen**

12. *Drosophila montana* Stone, Griffen & Patterson, 1941.

*D. montana* Stone, Griffen & Patterson, 1941. *Drosophila montana*, a new species of the *virilis* group. Abstracts of papers presented at the 1941 meetings of the Genetics Society of America.

Collection record : Inuvik, Tf 18 ♀♀, 25 ♂♂, July 31 to Aug. 8, 1980 ;  
Tuktoyaktuk, Tf 2 ♀♀, July 13 to 26, 1980.

13. *Drosophila borealis* Patterson, 1952.

*D. borealis* Patterson, 1952. Revision of the *montana* complex of the *virilis* species group. Univ. Tex. Publ. 5204 : 20.

Collection record : Inuvik, Tf 1 ♀, July 31 to Aug. 8, 1980.

14. *Drosophila putrida* Sturtevant, 1916.

*D. putrida* Sturtevant, 1916. Notes on North American Drosophilidae with

descriptions of twenty-three new species. Ann. Ent. Soc. Amer. 4 : 399.

Collection record : Inuvik, Tf 5 ♀♀, 6 ♂♂, July 31 to Aug. 11, 1980 ;  
Tuktoyaktuk, Tf 1 ♀, July 13 to 26, 1980.

15. *Drosophila subquinaria* Spencer, 1942.

*D. subquinaria* Spencer, 1942. New species in the *quinaria* group of the subgenus *Drosophila*. Univ. Tex. Publ. 4213 : 59-60.

Collection record : Inuvik, Tf 27 ♀♀, 37 ♂♂, O 1 ♀, 1 ♂, July 31 to Aug. 11, 1980 ; Tuktoyaktuk, Tf 1 ♀, 1 ♂, July 13 to 26, 1980.

16. *Drosophila rellima* Wheeler, 1960.

*D. rellima* Wheeler, 1960. New species of the *quinaria* group of *Drosophila* (Diptera, Drosophilidae). Southwest. Nat. 5 : 162-163.

Collection record : Inuvik, Ta 87 ♀♀, 86 ♂♂, Y 1, July 31 to Aug. 11, 1980 ; Tuktoyaktuk, Ta 10 ♀♀, 13 ♂♂, July 13 to 26, 1980.