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Notes on Arctic Canadian Diastatidae
and Drosophilidae (Diptera),
with the description of a new species¹⁾

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.

1) Contribution No. 3318 from the Inst. Low Temp. Sci. (This research was supported by Grant-in-Aid for Overseas Scientific Survey from the Ministry of Education, Japan. No. 504109.)

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 ♂♂, ♀ 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. Humerals 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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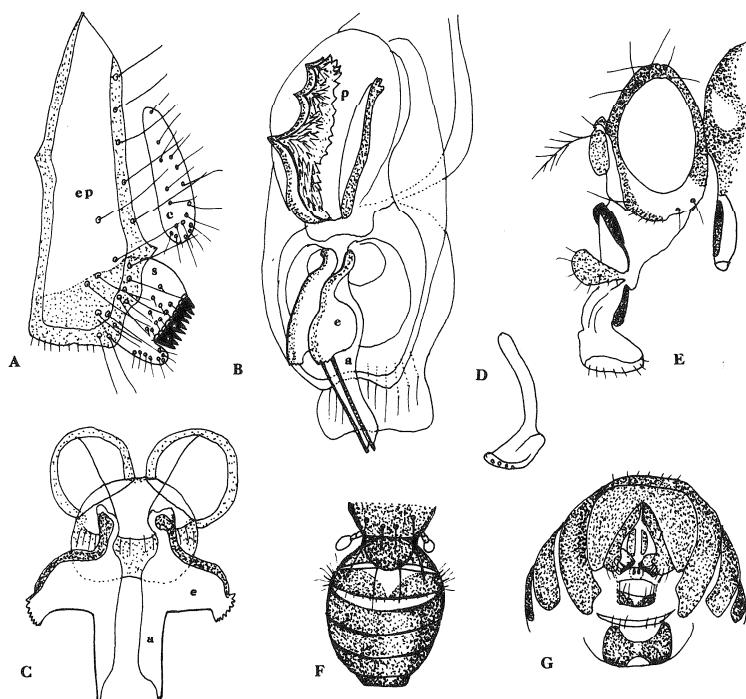


Figure 1. *Amiota quadrata* Takada & Toda sp. nov.

A, Periphallallic 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.

Periphallallic 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, ex-
clusive 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 *Drosophila costata* und *fusci-*
mana Zett. (Dipt.). Zeitschr. Hym. Dipt. 3 : 200.
Collection record : Inuvik, Tf 54 ♀♀, 153 ♂♂, July 31 to Aug. 11, 1980.
- ✓ 8. *Chymomyza caudatula* Oldenberg, 1914.
C. caudatula Oldenberg, 1914. Beitrag zur Kenntnis der europäischen

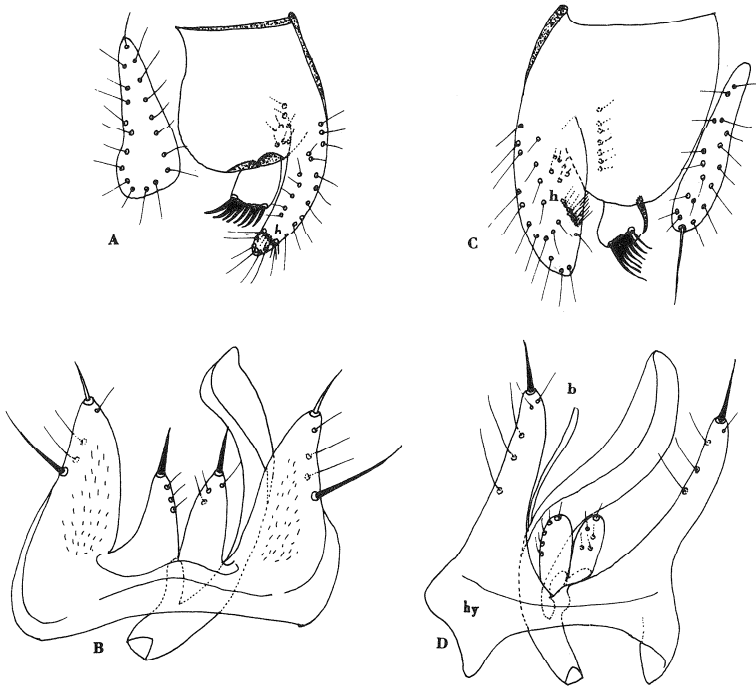


Figure 2. A & B, *Chymomyza aldrichii* Sturtevant, 1916. C & D, *Chymomyza tetonensis* Wheeler, 1949. A & C, Peripheral organs. B & D, Phallic organs. h, hairs of inner surface of epandrium. hy, hypandrium. b, bar connecting hypandrium to epandrium.

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.

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Collection record : Inuvik, S 5 ♀♀, 2 ♂♂, Aug. 7, 1980.

✓ 10. *Scaptomyza trochanterata* Collin, 1953.

S. trochanterata Collin, 1953. One of 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 ^AAug. 11, 1980 ; Tuktoyaktuk, Ta 10 ♀♀, 13 ♂♂, July 13 to 26, 1980.