

SPIDERS AND INSECTS FOUND ASSOCIATED WITH SWEET CORN WITH NOTES ON THE FOOD AND HABITS OF SOME SPECIES

V. HOMOPTERA AND SUMMARY

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HOMOPTERA

This order was represented in the field chiefly by the family *Cicadellidae*. However the determinations of this family have not been received and, rather than delay further the completion of this paper, it was decided to present the remaining species of this order. Determinations were made by Mr. J. S. Caldwell, Mr. W. D. Funkhouser, Mr. P. W. Mason and Mr. P. W. Oman.

APHIDIDAE

Aphis maidis Fitch—Ten specimens taken from July 28 to August 8.

An undetermined species of aphids was observed upon an unopened tassel attended by *Formica fusca subsericea* Say, (Hymenoptera-Formicidae). When adult Coccinellid beetles were placed in the close vicinity of the aphids, the ants immediately rushed them and knocked the beetles from the plant.

CHERMIDAE

The specimens in this family have been previously reported by Mr. J. S. Caldwell in the Chermidae of Ohio. (Ohio Biological Survey Bulletin No. 34, Vol. VI, No. 5, Jan., 1938, pp. 241 and 235).

Aphalara veaziei Patch. One specimen collected July 10.

Livia opaqua Cald. One male specimen taken July 18.

This specimen is the male holotype of the species.

CICADELLIDAE

Seventy-eight specimens were collected of this family representing an unknown number of species. Many were very abundant upon the corn plants. When, and if determinations for this group are received they will be presented in a separate paper.

DELPHACIDAE

Delphacodes sp. probably *lateralis* Van Duzee—One specimen taken July 31.

FULGORIDAE

Five specimens of this family were collected. These represented four distinct species. The accurate determinations of these can not be made as the specimens have become lost.

MEMBRACIDAE

- Atmya querci* Fitch.....One specimen taken July 6.
Campylenchia latipes Say...One specimen taken July 10.
Enchenopa binotata Say.....Three specimens collected July 11 and 12.
Micrutalis calva Say.....Two specimens collected July 10 and 11.
Similia camebis Fab.....One specimen taken July 5.

SUMMARY

This paper has presented a list of the species of insects and spiders collected within the limits of a four acre field of sweet corn. The list is far from a complete one due to lack of time to make more intensive collections and the limited collecting apparatus which could be carried, but it is a representative sample of the arthropod population of the field and is indicative of the tremendous numbers of species supported by the corn plants and the extraneous plants found in the field.

The four previous parts of this paper appeared as follows:

- Part I—Arachnida and Coleoptera. Ohio Journal of Science, Vol. 38, No. 1, May 1938, pp. 136-148.
 Part II—Ephemerida, Lepidoptera, Neuroptera, Odonata, Orthoptera, Thysanoptera, and Trichoptera. Ohio Journal of Science, Vol. 38, No. 6, Nov. 1938, pp. 311-315.
 Part III—Hymenoptera. Ohio Journal of Science, Vol. 39, No. 1, Jan. 1939, pp. 48-51.
 Part IV—Diptera and Hemiptera. Ohio Journal of Science, Vol. 39, No. 1, Jan. 1939, pp. 52-56.

Table I gives the distribution of the specimens collected among the various orders of spiders and insects.

In addition to recording the species present in the field, the following food plants and prey records were observed and collected:

ARACHNIDA

- Phidippus* sp. (immature).....Spider, *Tetragnatha laboriosa* Htz.

COLEOPTERA

- Canthon pilularius* L.....Horse manure.
Ceratomegilla fuscilabris Muls.....Plant bug, *Trigonotilus ruficornis* Geof.
 Pollen of sweet corn.
 Eggs of European Corn Borer,
Pyrausta nubilalis (Hbn.)
Chrysopus auratus Fab.....Dogbane, *Apocynum cannabinum* L.
Cicindela punctulata Oliv.....Ground beetle, *Tachys incurvus* Say (?)
Diabrotica duodecempunctata (F)...Anthers of wild rose.
 Silk of sweet corn.

- Epicauta pennsylvanica* DeG. Pollen of sweet corn.
Glisochrochilus quadrisignatus Say. . . European Corn Borer, *Pyrausta nubilalis* (Hbn.)
Tetragonoderus fasciatus Hald. Black nightshade, *Solanum nigrum* Nutt.

TABLE I

Class and Order	Families	Genera	Species	Specimens
INSECTA:				
Coleoptera	27	105	145	963
Diptera	24	47	50	114
Ephemera	1	1	1	3
Hemiptera	10	21	23	95
Homoptera	6	10*	13*	99
Hymenoptera	21	48	60	95
Lepidoptera	11	25	29	45
Neuroptera	2	2	4	10
Odonata	2	2	2	2
Orthoptera	4	8	9	26
Thysanoptera	2	2	2	2
Trichoptera	1	1	1	1
Total Insects	111	272	339	1,455
ARACHNIDA:				
Araneida	9	25	32	50
Grand Total	120	297	371	1,505

*Exclusive of Cicadellidae.

DIPTERA

- Linnaemyia* Rd. sp. Exudations from tunnel of European corn borer in stalk of sweet corn.
Protacanthus milbertii Macq. Bumble-bee, *Bombus impatiens* Cress.
 Melon bee, *Melissodes bimaculata* LeP.; stinkbug, *Euchistus variolarius* P. de B.

HEMIPTERA

- Euchistus variolarius* P. de B. Sweet corn plants (stalk).
Perillus bioculatus (Fab.) Chrysomelid larva, *Lema trilineata* Oliv.
Nabis ferus L. Plant bug, *Lygus pratensis* L.

HYMENOPTERA

- Apis mellifera* L. Tassels and pollen of sweet corn.
Bombus americanorum Fab. Tassels and pollen of sweet corn.
Bombus auricomus Robt. Tassels and pollen of sweet corn.
Dinocampus coccinellae Schrank. Reared from following three adult
 coccinellidae:
 Ceratomegilla fuscilabris Muls.
 Hippodamia convergens Guer.
 Hippodamia parenthesis Say.
Prenolepis imparis Say. Larva of European corn borer,
 Pyrausta nubilalis (Hbn.)
Sphex urnarius (Dahl.) Lepidopteron larva, *Plusia* sp.
Telenomus podisi Ashm. Reared from stinkbug eggs, prob-
 ably *Euchistus variolarius* P. de B.
Zamicrotoridea syrphicola (Ashm.) .. Syrphid larva, probably *Bacchus* sp.

LEPIDOPTERA

- Acromycta oblinata* (S. & A.) (larva). Sweet corn.
Anosia plexippus L. (larva) Milkweed.
Ceramica picta Harris (larva) Sweet corn.
Cirphis group. (larva) Sweet corn.
Diacrisia virginica Fab. (larva) Sweet corn.
Estigmene acraea Dru. (larva) Sweet corn.
Geometridae sp. (larva) Sweet corn.
Heliothis obsoleta Fab. (larva) Sweet corn, leaves and ears.
Plusia sp. (larva) Sweet corn.
Prodenia sp. (larva) Sweet corn.
Prodenia ornithogalli Gn. (larva) ... Sweet corn.
Pyralididae (Pyraustinae) sp. (larva). Sweet corn.
Pyrausta nubilalis Hbn. (larva) Sweet corn, ears and stalks.
Vanessa atlanta L. (adult) Fermenting exudations from tunnel
 of European corn borer larva in
 stalk of sweet corn.
Vanessa cardui L. (pupa) Sweet corn.

NEUROPTERA

- Chrysopidae* sp. (larva) Eggs of European corn borer
 Pyrausta nubilalis (Hbn.)