

**AN ANNOTATED LIST OF THE FULGORIDAE
(HOMOPTERA) OF INDIANA.***

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As no work had been done on the Fulgoridae in Indiana, the writer collected the insects of this group and studied them with much additional state material in order to discover what species are common to the State. This preliminary work has established the following list of 34 species and one variety of which only six have been heretofore recorded.

In this list the initials in parentheses are for the following collectors, to whom thanks are due for furnishing specimens with valuable records: J. J. Davis (J. J. D.), H. O. Deay (H. O. D.), G. E. Gould (G. E. G.), P. W. Mason (P. W. M.), B. E. Montgomery (B. E. M.), L. I. Musgrave (L. I. M.), L. F. Steiner (L. F. S.), and A. W. Trippel (A. W. T.). Records on insects taken from student collections are denoted by (P. C.) and the writer's by (R. R. H.).

The writer wishes to express his appreciation to Dr. E. D. Ball, University of Arizona, for the checking and correcting of all identifications, and to H. O. Deay, Purdue University, for his guidance in this study.

The following species are arranged according to Van Duzee's catalogue (1),¹ although Doctor Ball's nomenclature has been retained. The county is taken as the unit for collection records.

Subfamily DICTYOPHORINAE.

Scolops Schaum.

1. *Scolops sulcipes* (Say, 1825).

Collection records: Clark Co., July 8, 1932 (P. C.); Knox Co., August 30, 1929 (B. E. M.); Kosciusko Co., August 7, 1932 (G. E. G.); Lawrence Co., July 13, 20, 27, 1932 (L. I. M.), 25, 1931 (B. E. M.), August 2, 21, 1932 (L. I. M.), 21, 1930 (H. O. D.); Morgan Co., July 13, 1931 (R. R. H.); Porter Co., August 10, 22, 1931 (J. J. D.); Pulaski Co., July 24, 1932 (R. R. H.); Rush Co., July

* Contributions from the Entomological Laboratories, Purdue University. The data contained herein were compiled during the preparation of the writer's undergraduate thesis.

¹ Numbers in parentheses refer to literature cited.

18, 1932 (R. R. H.); Starke Co., July 24, 1932 (G. E. G.); St. Joseph Co., July 12, 1932 (A. W. T.); Tippecanoe Co., July 11, 13, 1932 (B. E. M.), August 21, 1932 (H. O. D.), 21, 1932 (G. E. G.), October 1, 1932 (R. R. H.); White Co., July 24, 1932 (G. E. G.).

Seasonal range: July 8–October 1.

Notes: This species was taken from sweeping the following plants: corn, dewberry, and goldenrod. Specimens were also collected in fruit orchards and from weeds along river banks. This is a new record for Indiana.

2. *Scolops pungen* (Germar, 1830).

Collection records: Kosciusko Co., August 8, 1932 (G. E. G.); Lawrence Co., July 13, 20, 27, 1932 (L. I. M.), August 1, 2, 1932 (L. I. M.), 27, 1931 (B. E. M.), 30, 1927 (L. F. S.); Morgan Co., July 14, 1931 (L. I. M.); St. Joseph Co., August 11, 1932 (A. W. T.); Tippecanoe Co., July 2, 1932 (G. E. G.), 11, 1932 (B. E. M.), 19, 20, 1932 (A. W. T.), 21, 25, 1932 (H. O. D.), August 10, 1932 (H. O. D.), 14, 1914 (J. J. D.); White Co., July 24, 1932 (G. E. G.).

Seasonal range: July 2–August 30.

Notes: Hosts from which taken: apple, asparagus, clover, corn, pine, and willow. A few specimens were taken in orchard sweepings. This species is recorded from Indiana in Van Duzee's catalogue (1).

3. *Scolops angustatus* Uhler, 1876.

Collection records: Clark Co., July 14, 1931 (P. C.); Lawrence Co., July 13, 20, 27, 1932 (L. I. M.), 25, 1931 (B. E. M.), August 2, 9, 1932 (L. I. M.), 21, 1930 (H. O. D.), 29, 1927 (L. F. S.), September 21, 1927 (L. F. S.); Rush Co., July 18, 1932 (R. R. H.).

Seasonal range: July 13–September 21.

Notes: Taken from dogwood and by sweeping fruit orchards and swamp weeds. Van Duzee (1) records this species from Indiana.

Phylloscelis Germar.

4. *Phylloscelis atra* Germar, 1839.

Collection records: Knox Co., August 8, 1929 (B. E. M.); Lawrence Co., August 29, 1927 (L. F. S.).

Notes: This is a new Indiana record.

Subfamily ACHILINAE.

Elidiptera Spinola.

5. *Elidiptera opaca* (Say, 1830).

This species was described from Indiana by Say (2); but the writer has seen no specimens which have been collected from Indiana.

Catonia Uhler.

6. *Catonia nava* Say, 1830.

Collection records: Crawford Co., September 1, 1925 (J. J. D.); Tippecanoe Co., September 26, 1931 (R. R. H.).

Notes: A single specimen was taken from sweeping weeds in a swampy wood-lot. Say (2) described this species from Indiana in 1830.

7. *Catonia pumila* Van Duzee, 1908.

Collection record: Lawrence Co., August 22, 1932 (L. I. M.).

Notes: This is a new record for Indiana.

Subfamily CIXIINAE.

Oliarus Stål.

8. *Oliarus placitus* Van Duzee, 1912.

Collection records: Jefferson Co., July 13, 1932 (P. C.); Tippecanoe Co., July 19, 1932 (A. W. T.).

Notes: The two specimens were taken from blackberry. Doctor Ball states that this determination is rather doubtful since the record is a wide departure in the distribution of a southern form. This is a new record for Indiana.

9. *Oliarus aridus* Ball, 1902.

Collection records: Owen Co., 1921 (J. J. D.).

Notes: Another doubtful determination according to Doctor Ball. This is a new record for Indiana.

10. *Oliarus humilis* (Say, 1830).

Collection records: Lawrence Co., August 13, 1932 (L. I. M.).

Notes: This is a new record for Indiana.

Pintalia Stål.

11. *Pintalia aspersa* Fowler, 1904.

Collection records: Rush Co., July 7, 1931, 18, 1932 (R. R. H.).

Notes: Two specimens were taken while at rest on young ash. Another was collected from sweeping swamp weeds. This is a new Indiana record.

Cixius Latreille.

12. *Cixius basalis* Van Duzee, 1908.

Collection records: Porter Co., September 1, 1925 (P. C.); Morgan Co., June 28, 1932 (L. I. M.), July 14, 1931 (R. R. H.); Porter Co., August 11, 1931 (J. J. D.).

Seasonal range: June 28–September 1.

Notes: This is a new Indiana record.

13. *Cixius stigmatus* (Say, 1825).

Collection records: Morgan Co., October 10, 1931 (L. I. M.); Tippecanoe Co., September 21, 1931 (P. C.), 22, 1932 (L. I. M.), October 1, 1932 (R. R. H., L. I. M.).

Notes: Taken by sweeping clover, potatoes, and roadside weeds. This is a new Indiana record.

Myndus Stål.

14. *Myndus pictifrons* Stål, 1862.

Collection records: Tippecanoe Co., July 10, 1922 (J. J. D.).

Notes: This is a new Indiana record.

Subfamily ISSINAE.

Fitchiella Van Duzee.

15. *Fitchiella robertsoni* (Fitch, 1856).

Van Duzee (1) records this species from Indiana but the writer has seen no specimens from this State.

Thionia Stål.

16. *Thionia bullata* (Say, 1830).

Collection records: Clark Co., July 12, 1931 (P. C.); Crawford Co., August 30, 1926 (J. J. D.); Lawrence Co., August 21, 1932 (L. I. M.); Morgan Co., July 14, 1931 (R. R. H.).

Notes: Taken on dogwood and from river weeds. This is a new record for Indiana.

Subfamily ACANALONIINAE.

Acanalonia Spinola.

17. *Acanalonia bivittata* (Say, 1825).

Collection records: Bartholomew Co., October 15, 1932 (H.

O. D.); Clark Co., July 22, 1931 (P. C.); Crawford Co., August 30, 1926 (J. J. D.); Knox Co., August 8, 1929 (B. E. M.); Kosciusko Co., August 7, 1932 (G. E. G.); Lawrence Co., July 13, 20, 1932 (L. I. M.), August 2, 4, 9, 21, 29, 1932 (L. I. M.), 29, 1930 (H. O. D.), September 1, 1927 (L. F. S.); Morgan Co., October 10, 21, 1931 (L. I. M.); Porter Co., August 22, 1931 (J. J. D.); St. Joseph Co., August 21, 22, 1932 (A. W. T.); Starke Co., July 24, 1932 (G. E. G.); Tippecanoe Co., June 11, 1932 (L. I. M.), July 5, 1922 (J. J. D.), 11, 1922 (P. C.), 19, 20, 1932 (A. W. T.), 22, 1932 (G. E. G.), 25, 1932 (H. O. D.), August 10, 1932 (H. O. D.), 15, 1932 (P. C.), September 7, 1932 (H. O. D.), 13, 1932 (A. W. T.), 22, 25, 28, 1931 (L. I. M.), 22, 28, 1931 (P. C.), 25, 1931 (R. R. H.), October 1, 1932 (R. R. H.).

Seasonal range: June 11–October 21.

Notes: Taken from the following plants: apple, ash, blackberry, black-eyed Susan, clover, corn, cottonwood, dewberry, goldenrod, locust, soft maple, milkweed, morning glory, and ragweed. Specimens were also swept from orchards, undergrowth in woods, and weeds in marshes. This is a new Indiana record.

- 17a. *Acanalonia bivittata* variety *rubescens* (Melichar, 1901).

Collection records: Lawrence Co., July 20, 1932 (L. I. M.), August 21, 28, 1930 (H. O. D.), 30, 1927 (L. F. S.); Tippecanoe Co., May 26, 1929 (P. C.), September 22, 1931 (L. I. M.).

Notes: Captured in codling moth bait traps and swept from marsh weeds. This is a new Indiana record.

18. *Acanalonia conica* (Say, 1830).

Collection records: Daviess Co., June 25, 1921 (J. J. D.); Knox Co., August 8, 1929 (B. E. M.); Kosciusko Co., July 24, 1932, August 7, 1932 (G. E. G.); Lawrence Co., August 9, 1932 (L. I. M.); Morgan Co., July 14, 1931 (R. R. H.); Rush Co., July 18, 1932, September 11, 1931 (R. R. H.); St. Joseph Co., July 25, 1932, August 22, 1932 (A. W. T.); Tippecanoe Co., July 11, 1922 (P. C.), 19, 1932 (B. E. M., A. W. T.), August 21, 1932 (H. O. D.).

Seasonal range: June 25–September 11.

Notes: Taken from dogwood, goldenrod, locust, and weeds along river and swamp. Say (2) described this species from Indiana in 1830.

Subfamily FLATINAE.

Ormenis Stål.19. *Ormenis pruinosa* (Say, 1830).

Collection records: Cass Co., July 1, 1932 (H. Ramsey); Crawford Co., August 30, 1926 (J. J. D.); Daviess Co., June 25, 1921 (J. J. D.); Jefferson Co., July 26, 1932 (P. C.); Knox Co., August 22, 1924 (B. E. M.); Kosciusko Co., July 21, 1932 (G. E. G.); Lawrence Co., July 20, 1932, August 2, 21, 1932 (L. I. M.), 28, 1930 (H. O. D.); Morgan Co., June 19, 1931 (L. I. M.), July 13, 1931 (R. R. H.), August 28, 1932, September 17, 28, 1932 (L. I. M.); Parke Co., August 28, 1932 (G. E. G.); Porter Co., August 11, 22, 1931 (J. J. D.); Rush Co., July 18, 1932 (R. R. H.); St. Joseph Co., July 25, 1932, August 22, 1932 (A. W. T.); Tippecanoe Co., June 11, 1932 (L. I. M.), 24, 1932, 25, 1931 (P. C.), July 10, 1932 (A. W. T., B. E. M.), 17, 1922 (P. C., P. W. M.), 19, 20, 1932 (A. W. T.), 22, 1932 (G. E. G.), 31, 1932 (H. O. D.), August 15, 1932 (P. C.), 21, 1932 (G. E. G., H. O. D.), September 22, 1931, 29, 1932 (L. I. M.), 28, 1924, October 5, 1931 (P. C.).

Seasonal range: June 11–October 18.

Notes: Taken from water beech, blackberry, corn, dogwood, hickory, mulberry, red oak, poplar, willow, and marsh weeds. This is a new record for Indiana.

20. *Ormenis venusta* Melichar, 1902.

Collection records: Lawrence Co., July 13, 1932, August 21, 1932 (L. I. M.); Morgan Co., August 28, 1932 (L. I. M.); Tippecanoe Co., November 20, 1932 (P. C.).

Seasonal range: July 13–November 20.

Notes: This is a new record for Indiana.

21. *Ormenis septentrionalis* (Spinola, 1839).

Collection records: Jefferson Co., August 8, 1932 (P. C.); Lawrence Co., August 16, 21, 1932 (L. I. M.); Pulaski Co., August 5, 1932 (R. R. H.); Rush Co., September 24, 1932 (R. R. H.); St. Joseph Co., August 22, 1932 (A. W. T.); Tippecanoe Co., June 11, 1931 (P. C.), July 17, 1922, 20, 1932 (P. C.), 20, 1932 (A. W. T.), 26, 1932 (A. W. T., B. E. M.), August 21, 1932 (H. O. D.), September 22, 1931, 25, 1932 (L. I. M.), October 3, 18, 1930 (P. C.).

Seasonal range: June 11–October 18.

Notes: Taken by sweeping ash, corn, elm, wild grape, honey locust, maple, sycamore, willow, and marsh weeds. This is a new record for Indiana.

Subfamily DERBINAЕ.

Cedusa Fowler.22. *Cedusa kedusa* McAtee, 1924.

Collection records: Kosciusko Co., July 8, 1932 (G. E. G.); Rush Co., July 13, 1932 (R. R. H.); Tippecanoe Co., July 12, 1932 (B. E. M.), 16, 23, 1932 (H. O. D.).

Notes: Taken on elm, hickory, and by sweeping swamp weeds. This is a new record for Indiana.

Amalopota Van Duzee.23. *Amalopota uhleri* Van Duzee, 1889.

Collection record: Crawford Co., August 30, 1926 (J. J. D.).

Notes: This is a new record for Indiana.

Anotia Kirby.24. *Anotia burnetii* Fitch, 1856.

Collection records: Rush Co., September 24, 1932 (R. R. H.).

Notes: Taken by sweeping weeds in moist lowlands. This is a new record for Indiana.

Apache Kirkaldy.25. *Apache degeerii* (Kirby, 1819).

Collection records: Lawrence Co., August 21, 1932 (L. I. M.); Tippecanoe Co., June 27, 1912 (J. J. D.).

Notes: Taken on maple. This is a new record for Indiana.

Otiocerus Kirby.26. *Otiocerus abbotii* Kirby, 1819.

Collection records: Tippecanoe Co., July 12, 13, 1932 (B. E. M.), 14, 1932 (H. O. D.).

Notes: Taken on hickory and maple. This is a new record for Indiana.

27. *Otiocerus coquebertii* Kirby, 1819.

Collection records: Clark Co., June 13, 1932 (B. E. M.).

Notes: This is a new record for Indiana.

Subfamily DELPHACINAE.

Stenocranus Fieber.

28. *Stenocranus dorsalis* (Fitch, 1851).
Collection records: Rush Co., July 3, 1932 (R. R. H.).
Notes: Taken by sweeping shrubs. This is a new record for Indiana.

Stobaera Stål.

29. *Stobaera tricarinata* (Say, 1825).
Collection records: Bartholomew Co., October 15, 1932 (G. E. G.); Marion Co., October 15, 1932 (H. O. D.); Morgan Co., July 13, 1931 (R. R. H.), 14, 1931 (L. I. M.), November 7, 1932 (L. I. M.); Rush Co., September 17, 1932 (R. R. H.); Tippecanoe Co., August 11, 1932 (P. C.), September 10, 1932 (H. O. D.).
Seasonal range: July 13–November 7.
Notes: Taken on clover, corn-field weeds, and river-bank weeds. This is a new record for Indiana.

Liburniella Crawford.

30. *Liburniella ornata* (Stål, 1862).
Collection records: Morgan Co., November 7, 1932 (L. I. M.); Rush Co., September 17, 1932 (R. R. H.); Tippecanoe Co., October 7, 1932 (H. O. D.), 8, 1932 (G. E. G.).
Notes: Taken from weeds in cornfield. This is a new record for Indiana.

Liburnia Stål.

31. *Liburnia puella* Van Duzee, 1894.
Collection records: Morgan Co., November 7, 1932 (L. I. M.); Rush Co., June 12, 1932 (R. R. H.).
Notes: This is a new record for Indiana.
32. *Liburnia basivitta* Van Duzee, 1909.
Collection records: Rush Co., September 24, 1932 (R. R. H.).
Notes: Swept from grass in swamp. This is a new record for Indiana.

Delphacodes Fieber.

33. *Delphacodes osborni* (Van Duzee, 1894).
Collection records: Tippecanoe Co., September, 1912 (P. C.).
Notes: This is a new record for Indiana.

Pentagramma Van Duzee.

34. *Pentagramma vittatifrons* (Uhler, 1878).
Collection records: Porter Co., September 1, 1925 (B. E. M.).
Notes: This is a new Indiana record.

REFERENCES CITED.

1. Van Duzee, E. P. Catalogue of the Hemiptera of America North of Mexico excepting the Aphididae, Coccidae, and Aleurodidae. Univ. Calif. Publ., Tech. Bul. 2: 1–902. 1917.
2. Say, Thomas. Descriptions of new North American Hemipterous insects, belonging to the first family of the section Homoptera of Latreille. Jour. Acad. Nat. Sci. Phila. 6: 235–244. 1830.

The Winter of 1933–34, and Insect Occurrence:—With the Spring season retarded well into April, we are wondering what effect the unusually severe winter just past has had upon our most obnoxious insect pests of garden and woodlands here in the East.

The Fall and the Spring Cankerworms again should prove a serious problem, judging by the number of moths about in early winter and early spring. The tent caterpillar, *Malacosoma americana*, will be a greater nuisance than it has been in many years. The little white tents between the forks of branches in orchards and along hedgerows are forming now. If people only would take advantage of the habits of these caterpillars to gather in colonies under the tents during the day, simple crushing of the contents of each tent would prevent much trouble later on.—GEO. P. ENGELHARDT, Hartsdale, N. Y.

Some interesting State Noctuid Records from the State Museum:—

- Philometra hanhami* Sm. 1 ♀ Wells, N. Y., July 30, 1916; 1 ♀ Center, N. Y. July 14, 1879 (W. W. Hill Coll.); 1 ♀ Lewis Co., N. Y. July —, 1880 (W. W. Hill Coll.).
- Bleptina medialis* Sm. Albany, N. Y., June 1882 (W. W. Hill Coll.) New to state list.
- Syngrapha divergens* Hbn. Plattsburgh, N. Y., July 21, 1893 (G. H. Hudson Coll.). First record of this genus for the state.
- Apatela lanceolaria* Grt. Newport, N. Y., May 21, 1902. New to state list.
- Eriopus floridensis* Gn. Two specimens bred from pupae, Lockport, N. Y., July 5, 1916. Probably an importation of this southern species.—A. GLENN RICHARDS, JR., Rochester, N. Y.