A List of the Host Plants of the Illinois Acanaloniidae and Flatidae (Homoptera:Fulgoroidea)[1]

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ABSTRACT

A referenced list of the host plants of the acanaloniids *Acanalonia bivittata* (Say) and *A. conica* (Say), and the flatids *Anormenis septentrionalis* (Spinola), *Metcalfa pruinosa* (Say) and *Ormenoides venusta* (Melichar), is presented.

The superfamily Fulgoroidea contains ca. 860 species in 11 families in America north of Mexico (unpubl. data); all species studied are phytophagous (61). Of these, 9 families and 150 species occur in Illinois (61). Two of the 9 families, the Acanaloniidae and Flatidae, contain species that are common in Illinois (61). The family Acanaloniidae is represented by *Acanalonia bivittata* (Say) and *A. conica* (Say), the family Flatidae by *Anormenis septentrionalis* (Spinola), *Cyarda melichari* Van Duzee, *Metcalfa pruinosa* (Say) and *Ormenoides venusta* (Melichar). All but *C. melichari* are widely distributed in the state; *C. melichari* has been collected only in Monroe and Union Counties, and is represented by 5 specimens, 1 deposited in the Illinois Natural History Survey collection, 4 in the Entomology collection, Zoology Research Museum, Southern Illinois University at Carbondale.

Little life history information has been published for the Illinois acanaloniids and flatids, the exception being that of host plants. However, host plant records are scattered throughout numerous publications. Presented here is a summary of these records, including plant species that do not occur in Illinois (Table 1); not included are those of *C. melichari,* which has been recorded from beach grasses (31), shrubs, weeds, "wild tobacco" (*Nicotiana* sp.) (35) and lantana (*Lantana camara* Linnaeus) (26). *A. bivittata* has been found on 19 species in 12 families, *A. conica* on 22 species in 18 families, *A. septentrionalis* on 41 species in 26 families, *M. pruinosa* on 85 species in 45 families, and *O. venusta* on 5 species in 4 families (Table 1).

Table 1. List of host plants of the Illinois Acanaloniidae and Flatidae[a,b]

Family PINACEAE

Juniperus chinensis Linnaeus, Mp, 5 (N).

Family LILIACEAE

Convallaria majalis Linnaeus, As, 47.
Lilium longiflorum Thunberg, Mp, 5.
Lilium tigrinum Ker, Ac, 7.

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Family GRAMINEAE

Saccharum officinarum Linnaeus, Ab, 54[c].
Sorghum halapense (Linnaeus), Mp, 13, 22.
Zea mays Linnaeus, Ab, 23; Ac, 7, 9, 13, 33, 36, 39; As, 23; Mp, 13, 17, 23, 33, 44.

Family ARACEAE

Scindapsus aureus Engler, Mp, 5 (N).

Family ZINGIBERACEAE

Alpinia speciosa Dietrich, Mp, 5 (N).

Family JUGLANDACEAE

Carya glabra (Miller), As, 62 (A).
Carya illinoensis (Wangenheim), As, 9; Mp, 9, 25; Ov, 9.
Carya sp. Mp, 9, 23, 25
Juglans nigra Linnaeus, Ab, 34 (N, A); Ac, 34 (N, A); As, 34 (N,A), 62(N, A); Mp, 34(N, A), 38; Ov, 34(A).

Family SALICACEAE

Populus deltoides Marshall, Ab, 23.
Populus sp., Mp, 23.
Salix sp., As, 23; Mp, 23.

Family BETULACEAE

Alnus glutinosa (Linnaeus), As, 9, 36, 49, 52; Mp, 9, 49.
Betula sp., Mp, 9, 25, 43, 45, 49.
Carpinus caroliniana Walter, Mp, 23.
Corylus sp., Mp, 9, 49.
Ostrya virginiana (Miller), As, 62 (A).

Family FAGACEAE

Fagus grandifolia Ehrhart, As, 62.
Quercus illicifolia Wangenheim, Mp, 10.
Quercus sp., As, 9, 23, 36, 48 (N), 49; Mp, 9, 23, 25, 49, 63.

Family ULMACEAE

Celtis laevigata Willdenow, Mp, 5.
Celtis sp., Mp, 37, 49.
Ulmus americana Linnaeus, Ab, 19; Ac, 19; Mp, 19, 24; Ov, 19.
Ulmus rubra Muhlenberg, As, 62(N, A).
Ulmus sp., As, 23; Mp, 9, 25, 37 (N), 38, 45, 49.

Family MORACEAE

Ficus carica Linnaeus, Mp, 5 (N).
Ficus lyrata Warburg, Mp, 5 (N).

Humulus sp., Ac, 3, 33.
Maclura pomifera (Rafinesque), Ac, 3, 7, 9, 32, 36, 49; Mp, 3, 55.
Morus sp., Mp, 23.

Family POLYGONACEAE

Antigonon leptopus Hooker and Arnot, Mp, 5 (N).
Coccoloba uvifera Linnaeus, Mp, 25.
Rheum raponticum Linnaeus, Mp, 9, 11, 49.

Family PHYTOLACCACEAE

Phytolacca americana Linnaeus, As, 8.

Family NYCTAGINACEAE

Bougainvillaea spectabilis Willdenow, Mp, 5 (N).

Family CHENOPODIACEAE

Beta vulgaris Linnaeus, Ac, 7, 9, 36, 49; Mp, 9, 14, 49.

Family MAGNOLIACEAE

Liriodendron tulipfera Linnaeus, As, 47.
Magnolia sp., Mp, 25.

Family ANNONACEAE

Asimina triloba (Linnaeus), Mp, 9, 49.

Family LAURACEAE

Persea americana Miller, Mp, 5 (N).
Sassafras albidum (Nuttall), Mp, 3, 9, 49.

Family RANUNCULACEAE

Clematis virginiana Linnaeus, Mp, 3.

Family THEACEAE

Stewartia sp., Mp, 25.

Family PLATANACEAE

Platanus occidentalis Linnaeus, As, 23, 62.

Family HAMAMELIDACEAE

Liquidambar styraciflua Linnaeus, As, 9, 63 (A); Mp, 9.

Family SAXIFRAGACEAE

Deutzia sp., As, 47.

Family ROSACEAE

Crataegus sp., As, 9, 25, 36, 48 (N).
Prunus myrobalana Loiseleur, Ac, 28, 29; Mp, 28, 29.
Prunus persica (Linnaeus), Ac, 28, 29; As, 47; Mp, 25, 28, 29, 46.
Prunus virginiana Linnaeus, Mp, 50.
Pyracantha crenulata Roemer, Mp, 5 (N).
Pyrus malus Linnaeus, Ab, 23; As, 47; Mp, 3, 46; Ov, 36.
Ribes grossularia Linnaeus, Mp, 11.
Ribes sp., As, 47; Mp, 9, 49, 56.
Rosa sp., As, 47.
Rubus flagellaris Willdenow, Ab, 23.
Rubus sp., Ab, 23, 52; Mp, 14, 23.

Family LEGUMINOSAE

Bauhinia variegata Linnaeus, Mp, 5 (N).
Cercis canadensis Linnaeus, As, 62 (A).
Gleditsia triacanthos Linnaeus, As, 23.
Glycine max (Linnaeus), Ab, 2.
Medicago sativa Linnaeus, Mp, 17, 44.
Melilotus officinalis Linnaeus, As, 62 (N).
Prosopis sp., Mp, 58.
Robinia pseudoacacia Linnaeus, Ac, 16; Mp, 16.
Trifolium pratense Linnaeus, Mp, 37 (N), 45, 49.
Trifolium sp., Ab, 20, 23.
Vigna sinensis (Linnaeus), Ac, 7, 9.

Family EUPHORBIACEAE

Acalypha virginica Linnaeus, Mp, 3.

Family RUTACEAE

Citrus sp., Mp, 5 (N, A), 25, 59 (N, A).
Zanthoxylum americanum Miller, As, 9, 36, 48 (N), 49; Mp, 9, 49.

Family ACERACEAE

Acer negundo Linnaeus, Mp, 14, 49.
Acer saccharinum Linnaeus, Mp, 62 (A).
Acer sp., Ab, 23; As, 23; Mp, 37 (N), 38, 45, 49.

Family BALSAMINACEAE

Impatiens balsamina Linnaeus, Ab, 40, 49.

Family AQUIFOLIACEAE

Ilex sp., Mp, 25.

Family CELASTRACEAE

Celastrus scandens Linnaeus, As, 9, 36, 48 (N), 49.

Family BUXACEAE

Buxus sp., As, 25, 47.

Family VITACEAE

Ampelopsis sp., As, 47.
Vitis sp., Ac, 3, 7, 9; As, 4, 9, 23, 36, 47, 48 (N), 49, 63; Mp, 3, 9, 36, 43, 49, 56, 63; Ov, 9.

Family TILIACEAE

Tilia sp., Ac, 18, 49; Mp, 9, 25, 49, 53.

Family MALVACEAE

Gossypium hirsutum Linnaeus, Ac, 7, 9, 12, 15; Mp, 1.
Hibiscus cannabinus Linnaeus, Mp, 5 (N).

Family VIOLACEAE

Viola sp., As, 47.

Family PASSIFLORACEAE

Carica papaya Linnaeus, Mp, 5 (N).

Family TAMARICACEAE

Tamarix articulata Vahl, Mp, 5 (N).

Family LYTHRACEAE

Punica granatum Linnaeus, Mp, 5 (N).

Family MYRTACEAE

Psidium guajava Linnaeus, Mp, 5 (N).

Family ONAGRACEAE

Oenothera biennis Linnaeus, Mp, 6.

Family CORNACEAE

Cornus drummondi Meyer, As, 48 (N).
Cornus florida Linnaeus, As, 62 (A).
Cornus sp., Ac, 23; As, 9, 36, 48 (N), 49; Mp, 23.

Family ARALIACEAE

Panax quinquefolium Linnaeus, Ac, 21; Mp, 21.

Family ERICACEAE

Kalmia sp., Mp, 25.
Rhododendron sp., Mp, 25.
Vaccinium corymbosum Linnaeus, Ab, 39, 51.
Vaccinium macrocarpon Aiton, Ab, 36, 39, 40 (N, A), 41, 42, 49.
Vaccinium sp., As, 51.

Family OLEACEAE

Jasminum grandiflorum Linnaeus, Mp, 5 (N).
Ligustrum amurense Carriere, Mp, 60 (N).
Ligustrum vulgare Linnaeus, Mp, 9, 11, 25, 38.
Ligustrum sp., Mp, 49, 56.
Fraxinus berlanderiana A. DeCandolle, Mp, 5.
Fraxinus sp., Ab, 23; As, 23; Mp, 9, 25, 49, 53.
Syringa vulgaris Linnaeus, Ac, 3, 7, 9, 32, 36, 49.

Family APOCYNACEAE

Allamanda cathartica Schrader, Mp, 5 (N).

Family ASCLEPIADACEAE

Asclepias sp., Ac, 7, 9, 49.

Family CONVOLVULACEAE

Ipomoea sp. , Ab, 23.

Family BORAGINACEAE

Ehretia anaqua (Johnson), Mp, 5.

Family LABIATAE

Nepeta cataria Linnaeus, Ac, 7, 9, 49.
Salvia sp., Mp, 57 (N, A).

Family SOLANACEAE

Solanum rostratum Dunal, Ac, 7.
Solanum tuberosum Linnaeus, Mp, 3.
Solanum sp., Mp, 5 (N).

Family BIGNONIACEAE

Anistostichus capreolata (Linnaeus), As, 9.
Campsis radicans (Linnaeus), Mp, 3.
Catalpa sp., Mp, 10.

Family CAPRIFOLIACEAE

Viburnum sp., Mp, 25.
Weigelia florida (Siebold and Zuccarini), As, 47.

Family COMPOSITAE

Ambrosia sp., Ab, 23; Ac, 7, 9, 36, 49.
Dahlia sp., Mp, 3, 30, 32, 57.
Erigeron canadensis Linnaeus, Mp, 37 (N), 45.
Galinsoga sp., As, 47.
Rudbeckia hirta Linnaeus, Ab, 23.
Solidago sp., Ab, 23, 36, 40, 48 (N), 49; Ac, 23.
Verbesina sp., As, 62.

[a]Ab = *A. bivittata,* Ac = *A. conica.* As = A., septentrionalis, Mp = *pruinosa,* Ov = *O. venusta.*
[b]N = nymph, A = adult. Most authors did not state whether the planthoppers observed and/or collected were nymphs or adults. However, we assume that most records are of adults since nymphs cannot be easily identified.

LITERATURE CITED

1. Ashmead, W.H. 1895. Notes on cotton insects found in Mississippi. Insect Life 7:320-326.
2. Balduf, W. V. 1923. The insects of soybean in Ohio. Ohio Agric. Exp. Sta. Bull. 366:147-181.
3. Chittenden, F.H. 1900. Note on two species of "lightning hoppers". U.S. Dep. Agric. Div. Entomol. (n.s.) Bull. 22:98-99.
4. Comstock. J.H. 1940. An introduction to entomology. 9th ed. Cornell Univ. Press, Ithaca, N.Y. 1064 p.
5. Dean, H.A. and J. C. Bailey. 1961. A flatid planthopper, *Metcalfa pruinosa.* J. Econ. Entomol. 54:1104-1106.
6. Dickerson, E.L. and H.B. Weiss. 1920. The insects of the evening primroses in New Jersey. J. New York Entomol. Soc. 28:32-74.
7. Doering, K.C. 1932. The genus *Acanalonia* in America north of Mexico (Homoptera). Ann. Entomol. Soc. Amer. 25:758-786.
8. Dozier, H.L. 1920. An ecological study of hammock and piney woods insects in Florida. Ann. Entomol. Soc. Amer. 13:325-380.
9. _____. 1928. The Fulgoridae or planthoppers of Mississippi, including those of possible occurrence. A taxonomic, biological, ecological, and economic study. Mississippi Agric. Exp. Sta. Tech. Bull. 14:1-152.
10. Felt, E.P. 1906. Insects affecting park and woodlawn trees. Mem. New York State Mus. 8 (2) :333-877.
11. Fitch, A. 1856. Third report on noxious and other insects of the state of New York. Trans. New York State Agric. Soc. 16:315-490.
12. Fletcher, R.K. 1937. Leafhoppers found on cotton. J. Econ. Entomol. 30:863-864.
13. Forbes, S.A. 1905. A monograph of insect injuries to Indian corn. Part II. The more important insect injuries to Indian corn. Rep. State Entomol. Illinois 23:1-273
14. _____ and C.A. Hart. 1900. The economic entomology of the sugar beet. Illinois Agric. Exp. Sta. Bull. 60:397-517.
15. Gaines, J.C. 1933. Trap collections of insects in cotton in 1932. Bull. Brooklyn Entomol. Soc. 28: 47-54.

16. Garman, H. 1915. The locust borer (*Cyllene robiniae)* and other insect enemies of the black locust. Bien. Rep. Kentucky For. 2:57-58.
17. Gates, D.E. and L.L. Peters. 1962. Insects in Kansas. Kansas Ext. Serv. 307 p.
18. Gibson, A. 1906. Basswood, or linden, insects. Annu. Rep. Entomol. Soc. Ontario 37:78-80.
19. Gibson, L. P. 1973. An annotated list of the Cicadellidae and Fulgoridae of elm. N.E. Forest Exp. Sta., Upper Darby, Pennsylvania 5 p. (U.S. Dep. Agric. For. Serv. Res. Pap. NE -278).
20. Gossard, H.A. 1892. List of Iowa clover insects and observations on some of them. Proc. Iowa Acad. Sci. 1:94-97.
21. _____. 1911. Entomological review of the year 1910. J. Econ. Entomol. 4:203-209.
22. Hayes, W.P. 1920. A preliminary list of insects of the sorghum field. Trans. Kansas Acad. Sci. 30:235-240.
23. Heaton, R.R. 1934. An annotated list of the Fulgoridae (Homoptera) of Indiana. Bull. Brooklyn Entomol. Soc. 29:107-115.
24. Hoffmann, C.H. 1942. Annotated list of elm insects in the United States. U.S. Dep. Agric. Misc. Publ. 466:1-20.
25. Johnson, W.T. andd H.H. Lyon. 1976. Insects that feed on trees and shrubs. Cornell U. Press, Ithaca N.Y. 464 p.
26. Krauss, N.L.H. 1953. Notes on insects associated with *Lantana* in Cuba. Proc. Hawaiian Entomol. Soc. 15:123-125.
27. Lugger, O. 1900. Suborder Homoptera. *In:* Bugs injurious to our cultivated plants. Minnesota Agric. Exp. Sta. Bull. 69:1-259
28. Manns, T.F. 1942. Peach yellows and little peach. Delaware Agric. Exp. Sta. Bull. 236:1-50.
29. _____ and M.M. Manns. 1935. The dissemination of peach yellows and little peach. *In*: Department of Plant Pathology. Delaware Agric. Exp. Sta. Bull. 192:40-44.
30. McDaniel, E.I. 1935. Insects infesting dahlias. Michigan Agric. Exp. Sta. Spec. Bull. 266: 58-69.
31. Metcalf, Z.P. and S.C. Bruner. 1948. Cuban flatidae with new species from adjacent regions. Ann. Entomol. Soc. Amer. 41:63-118.
32. Murtfeldt, M.E. 1887. Notes from Missouri for the season of 1886. U.S. Dep. Agric. Entomol. Bull. 13:59-65.
33. Neiswander, C.R. 1931. The sources of American corn insects. Ohio Agric. Exp. Sta. Bull. 473:5-98.
34. Nixon, P.L. and J.E. McPherson. 1977. An annotated list of phytophagous insects collected on immature black walnut trees in southern Illinois. Great Lakes Entomol. 10:211-222.
35. Osborn, H. 1926. Faunistic and ecological notes on Cuban Homoptera. Ann. Entomol. Soc. Amer. 19:335-366.
36. _____. 1938. The Fulgoridae of Ohio. Bull. Ohio Biol. Surv. 6:283-349.
37. Packard, A.S. 1890. Insects injurious to forest and shade trees. Rep. U.S. Entomol. Comm. 5:1-955.
38. Phillips, J. H. H. 1951. An annotated list of Hemiptera inhabiting sour cherry orchards in the Niagara Peninsula, Ontario. Can. Entomol. 83:194-205.
39. Phipps, C.R. 1930. Blueberry and huckleberry insects. Maine Agric. Exp. Sta. Bull. 356:107-232.
40. Scammell, H.B. 1917. *Amphiscepa bivittata* Say, in its relation to cranberry. J. Econ. Entomol. 10:552-556.
41. _____. 1917. Cranberry insect problems and suggestions for solving them. U.S. Dep. Agric. Farmers' Bull. 860:1-45.
42. Smith, J.B. 1884. Report on cranberry and hop insects. U.S. Dep. Agric. Div. Entomol. Bull. 4:9-50.
43. _____. 1899. Insects of New Jersey, a list of the species occurring in New Jersey, with notes on those of economic importance. Annu. Rep. New Jersey State Bd. Agric. Suppl. 27:1-755.
44. Smith, R.C., E.G. Kelly, G.A. Dean, H.R. Bryson, and R.L. Parker. 1943. Common insects of Kansas. Rep. Kansas State Bd. Agric. 255:1-440.

45. Southwick, E.B. 1892. Notes on local Membracidae and Fulgoridae. Science 19:357.
46. Stear, J.R. 1923. *Ormenis pruinosa* Say—a fulgorid on apple and peach. J. Econ. Entomol. 16:458.
47. Surface, H.A. 1907. A general systematic study of insects—Part III. Pennsylvania Dep. Agric. Zool. Bull. 5:69-86.
48. Swezey, O. H. 1903. Life history notes on two Fulgoridae. Ohio Natur. 3:354-356.
49. _____. 1904. A preliminary catalogue of the described species of the family Fulgoridae of North America north of Mexico. Ohio Dep. Agric. Div. Nurs. and Orch. Inspec., Bull. 3:1-48.
50. Thornberry, H.H. 1954. Preliminary report on insect transmission of eastern peach X-disease virus in Illinois. Plant Dis. Rep. 38:412-413.
51. Tomlinson, W.E., Jr., P.E. Marucci, and C.A. Doehlert. 1950. Leafhopper transmission of blueberry stunt disease. J. Econ. Entomol. 43:658-662.
52. Uhler, P.R. 1888. Order VI-Hemiptera. *In*: Kingsley, J.S. ed., The Riverside Natural History. II. Crustacea and Insects. Houghton, Mifflin and Co., N.Y. 579 p.
53. Van Duzee, E.P. 1894. A list of the Hemiptera of Buffalo and vicinity. Bull. Buffalo Soc. Natur. Sci. 5:167-204.
54. Van Zwaluwenburg, R.H. 1926. Insect enemies of sugar cane in western Mexico. J. Econ. Entomol. 19:664-669.
55. Vestal, A.G. 1913. An associational study of Illinois sand prairie. Bull. Illinois State Lab. Natur. Hist. 10:1-96.
56. Walden, B.H. 1922. The mealy flatas. Connecticut Agric. Exp. Sta. Bull. 234:189-190.
57. _____. 1927. Abundance of *Ormenis pruinosa* Say on ibota privet. Connecticut Agric. Exp. Sta. Bull. 285:267-268.
58. Ward, C.R., C.W. O'Brien, L.B. O'Brien, D.E. Foster, and E.W. Huddleston. 1977. Annotated checklist of New World insects associated with *Prosopis* (Mesquite). U.S. Dep. Agric. Tech. Bull. 1557.
59. Wene, G.P. 1950. The citrus fulgorid. Annu. Proc. Lower Rio Grande Valley Citrus and Veg. Inst. 4:90-93.
60. _____ and P.T. Riherd. 1954. Control of puss caterpiller and fulgorids attacking ornamentals during 1953. Rio Grande Valley Horticultural Society Journal. Texas Avocado Society Yearbook 1953:45-46.
61. Wilson, S.W. 1980. The planthoppers, or Fulgoroidea, of Illinois with information on the biology of selected species. Ph.D. Thesis, Southern Illinois U. at Carbondale, 446p.
62. _____ and J.E. McPherson. 1979. A preliminary report on the bionomics of Fulgoroidea on black walnut with emphasis on *Anormenis septentrionalis* (Spinola) (Homoptera). Walnut insects and diseases. Workshop Proc. U.S. Dep. Agric. For. Serv., Gen. Tech. Rep. NC-52:29-34.
63. Wirtner, P.M. 1904. A preliminary list of the Hemiptera of western Pennsylvania. Ann. Carnegie Mus. 3:183-228.