

A LIST OF THE COCCIDAE OF TIPPECANOE COUNTY AND THEIR HOSTS (HOMOPTERA)¹

JOHN M. AMOS, Lafayette, Indiana

1. *Gossyparia spuria* (Modeer, 1778) (European elm scale). On *Ulmus americana* (American elm).
2. *Phenacoccus acericola* King, 1880 (Maple phenacoccus). On *Acer saccharum* (hard maple).
3. *Phenacoccus gossypii* Town. and Ckll., 1898 (Mexican mealy bug). On *Amarantus*, *Canna*, *Chrysanthemum*, *Lantana*, *Lycopersicum esculentum* (tomato), *Nerium oleander* (oleander), *Pennisetum ruppelii* (border sage), and *Solanum melongena* (egg plant).
4. *Pseudococcus citri* (Risso, 1813) (Common or short-tailed mealy bug). On *Chrysanthemum*, *Coleus blumei* var.? (coleus), *Codiaeum* sp. (croton), *Lycopersicum esculentum* (tomato), *Nepeta glechoma* (parlor or German ivy), *Setaria glauca* (fox-tail), and *Vinea*.
5. *Pseudococcus aonidum* (Linn. 1762) (Long-tailed mealy bug). On *Euphorbia heterophylla* (poinsettia).
6. *Pseudococcus maritimus* Ehrh., 1900 (Baker's mealy bug). On *Cyperus alternifolia* (umbrella plant), and *Euphorbia heterophylla* (poinsettia).
7. *Coccus hesperidum* Linn., 1758 (Soft brown scale). On *Caria papaya* (melon papaw), *Cyperus alternifolia* (umbrella plant), *Hedera helix* var. *variegata* (variegated ivy), *Musa sapientium* (banana), *Polystichum lonchitis* (holly fern), *Ravina africana* (African jungle plant), *Strelitzia reginia* (bird of paradise), and *Vinca major*.
8. *Lecanium corni* Bouche, 1884 (European fruit lecanium). On *Acer negundo* (box elder), *Acer saccharinum* (soft maple), *Betula* sp. (ironwood), *Carya* sp. (hickory), *Cercis canadensis* (rosebud), *Liquidambar styraciflua* (sweet gum), *Platanus occidentalis* (sycamore), *Prunus serotina* (wild cherry), *Ulmus americana* (American elm), and *Vitis vinifera* (grape).
9. *Lecanium fletcheri* Ckll., 1893. On *Thuja occidentalis* (arbor vitae).
10. *Lecanium nigrofasciatum* Pergande, 1898 (Terrapin scale). On *Acer saccharum* (hard maple).
11. *Pulvinaria vitis* (Linn., 1758) (Cottony maple scale). On *Acer rubrum* (red maple), *Acer saccharinum* (soft maple), *Acer saccharum* (hard maple), *Gleditsia triacanthos* (honey locust), *Platanus occidentalis* (sycamore), *Tilia americana* (linden), *Ulmus americana* (American elm), and *Vitis vinifera* (grape).
12. *Saissetia hemisphaerica* (Targ., 1867) (Hemispherical scale).

¹ Contribution from the Department of Entomology, Purdue University. These data were obtained in the preparation of the writer's undergraduate thesis.

On *Nephrolepis exaltata* (Boston fern), *Adiantum* sp. (maiden hair fern), and *Cycas revoluta* (palm).

13. *Saissetia hemisphaerica* (Targ., 1867) (Hemispherical scale). On *Nephrolepis exaltata* (Boston fern), *Adiantum* sp. (maiden hair fern), and *Cycas revoluta* (palm).

13a. *Saissetia oleae* (Bern., 1872) (Black scale). On *Ficus australis* (rubber plant), *Ficus benjamini* (rubber plant), *Ficus utilis* (rubber plant), and *Nerium oleander* (oleander).

14. *Toumeyella liriiodendri* (Gmel., 1789) (Yellow poplar or tulip tree scale). On *Liriodendron tulipifera* (tulip tree).

15. *Kermes andrei* King, 1900. On *Quercus alba* (white oak).

16. *Kermes galliformis* Riley, 1881. On *Quercus alba* (white oak).

17. *Kermes kingii* Ckll., 1898. On *Quercus borealis* (red oak), and *Quercus imbricaria* (shingle or laurel oak).

18. *Kermes pettiti* Ehrh., 1899. On *Quercus borealis* (red oak).

19. *Kermes pubescens* Bogue, 1898 (Chestnut oak kermes). On *Quercus macrocarpa* (burr oak), and *Quercus montana* (chestnut oak).

20. *Aspidiotus abietis* (Schr., 1776) (Hemlock leaf scale). On *Tsuga canadensis* (hemlock).

21. *Aspidiotus ancyclus* (Putn., 1877) (Putnam's scale). On *Acer saccharum* (hard maple), *Betula alba* (birch), *Cornus florida* (dogwood), *Cornus stolonifera* (red osier dogwood), *Fagus glandifolia* (beech), *Prunus serotina* (wild cherry), *Tilia americana* (linden), and *Ulmus americana* (American elm).

22. *Aspidiotus cyanophylli* Sign., 1869. On *Cyperus alternifolia* (umbrella plant).

23. *Aspidiotus forbesi* Johns., 1896 (Forbers' scale). On *Prunus americana* (wild plum), *Prunus cerasus* (sour cherry).

24. *Aspidiotus hederæ* (Vall., 1829) (Ivy or oleander scale). On *Cyperus alternifolia* (umbrella plant), *Cycas revoluta* (palm), *Hedera helix* (English ivy), *Hedera helix* var. *variegata* (variegated ivy), and *Vinca major*.

25. *Aspidiotus juglans-regiæ* Comst., 1881 (English walnut scale). On *Acer saccharinum* (soft maple), *Aesculus glabra* (buckeye), *Celtis occidentalis* (hackberry), and *Tilia americana* (linden).

26. *Aspidiotus lataniæ* Sign., 1869. On *Asparagus sprengeri*, and *Phoenix* sp. (palm).

27. *Aspidiotus osborni* Newell and Ckll., 1898. On *Quercus borealis* (red oak).

28. *Aspidiotus perniciosus* Comst., 1880 (San Jose scale). On *Crataegus* sp. (haw tree), *Grossularia* sp. (currant), *Juglans nigra* (black walnut), *Maclura pomifera* (osage orange), *Prunus persica* (peach), *Prunus* sp. (plum), *Pyrus communis* (pear), *Pyrus malus* (apple), *Salix* sp. (willow), and *Vitis vinifera* (grape).

29. *Aspidiotus ulmi* Johns., 1896. On *Acer saccharinum* (soft maple), *Gymnocladus dioica* (coffee bean tree), *Robinia pseudoacacia* (black locust), and *Ulmus americana* (American elm).

30. *Aulacaspis rosæ* (Bouche, 1834) (Rose scale). On *Rosa* sp. (rose), *Rubus idæus* (red raspberry), and *Rubus occidentalis* (black raspberry).

31. *Chionaspis americana* Johns., 1896 (Scurfy elm scale). On *Benzoin odiferum* (spice bush), and *Ulmus americana* (American elm).
32. *Chionaspis caryae* Cooley, 1898. On *Carya laciniosa* (shell-bark hickory), and *Nyssa sylvatica* (black gum).
33. *Chionaspis furfura* (Fitch, 1858) (Scurfy scale). On *Juglans nigra* (black walnut), *Pyrus communis* (pear), and *Pyrus malus* (apple).
34. *Chionaspis gleditsiae* Sanders, 1903. On *Gleditsia triacanthos* (honey locust).
35. *Chionaspis ortholobis* Comst., 1881. On *Platanus occidentalis* (sycamore).
36. *Chionaspis pinifoliae* (Fitch, 1855) (Pine leaf scale). On *Picea pungens* (blue spruce), *Pinus resinosa* (red pine), *Pinus* sp. (Himalayan pine), *Pinus strobus* (white pine), and *Pinus sylvestria* (Austrian pine).
37. *Chionaspis platani* Cooley, 1899. On *Platanus occidentalis* (sycamore).
38. *Chionaspis salicis-nigrae* (Walsh, 1867) (Scurfy scale of willow). On *Populus deltoides* (Carolina poplar), and *Salix nigra* (black willow).
39. *Chrysomphalus aonidum* (Linn., 1758) (Circular scale). On *Citrous medica* var. *limon* (lemon), *Cycas revoluta* (palm), *Ficus elastica* (rubber plant), *Jasminum* sp. (jasmine), *Kentia* sp. (palm), *Pandanus* sp. (screw pine), *Phoenix* sp. (palm), and *Ravina africana* (African jungle plant).
40. *Chrysomphalus aurantii* (Mask., 1873) (California red scale). On *Citrous aurantium* (orange).
41. *Chrysomphalus dictyospermi* (Morgan, 1889) (Morgan's scale). On *Dracaena*.
42. *Chrysomphalus obscurus* (Comst., 1880) (Obscure scale). On *Carya* sp. (hickory), *Quercus alba* (white oak), *Quercus borealis* (red oak), *Quercus coccinae* (scarlet oak), *Quercus montana* (chestnut oak).
43. *Diaspis boisduvalii* Sign., 1869. On *Cattleya* sp. (orchid), *Cyperus alternifolia* (umbrella plant), *Kentia* sp., (palm), *Musa sapientium* (banana), *Ravina africana* (African jungle plant), and *Strelitzia reginia* (bird of paradise).
44. *Diaspis echinocacti cacti* Comst., 1883 (Cactus scale). On *Opuntia* sp. (cactus).
45. *Hemichionaspis aspidistrae* (Sign., 1869) (Boston fern scale). On *Nephrolepis exaltata* (Boston fern), and *Polystichum lonchitis* (holly fern).
46. *Phenacaspis spinicola* Dietz & Morrison, 1916. On *Gleditsia triacanthos* (honey locust).
47. *Lepidosaphes beckii* (Newm., 1869) (Purple scale). On *Citrous aurantium* (orange), *Citrous decumana* (grapefruit).
48. *Lepidosaphes gloverii* (Pack., 1869) (Glover's scale). On *Citrous decumana* (grapefruit).
49. *Lepidosaphes ulmi* (Linn., 1758) (Oyster shell scale). On *Acer negundo* (box elder), *Acer saccharinum* (soft maple), *Carya laciniosa* (hickory), *Cornus florida* (dogwood), *Cornus stolonifera* (red osier dogwood), *Fraxinus americana* (ash), *Juglans nigra* (black walnut), *Populus alba* (white poplar), *Populus deltoides* (Carolina poplar),

Prunus serotina (wild cherry), *Salix nigra* (black willow), *Sassafras officinale* (sassafras), *Syringa vulgaris* (lilac), and *Tilia americana* (linden).

50. *Parlatoria proteus* (Curtis) var. *pergandei* Comst., 1843 (Chaff scale). On *Citrous aurantium* (orange), and *Citrous medica* var. *limon* (lemon).

DESCRIPTIONS OF COCCIDAE HERETOFORE UNREPORTED FROM INDIANA (HOMOPTERA)¹

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1. *Pseudococcus maritimus* Ehrh., 1900 (Baker's mealy bug or the grape mealy bug). (Pl. I, Figs. 2-6).

Adult female.

Size: length 2-4 mm.; width 1.75-2 mm.

Color: Slightly covered with a whitish secretion; body, legs and antennae reddish-brown; margin with short, white filaments which become longer caudally.

Structural characteristics: Body thickly beset with long slender spines; a group of spinerets on margin of each segment in the center of which are two short stout conical spines, the caudal ones being the larger. Antennae 8-segmented and hairy; segment 8 always the longest; segments 4 and 6 subequal and shortest. Legs hairy, well developed, long and slender; a stout spine on trochanter; femur about twice as long as tibia; tarsus about one-third as long as tibia; claw short and stout; digules fine knobbed hairs. Anal lobe prominent; anal lobe spines as long as anal ring setae; anal ring large with six stout setae.

Hosts: *Euphorbia heterophylla* (poinsettia) and *Cyperus alternifolia* (umbrella plant).

2. *Aspidiotus abietis* (Schr., 1776) (Hemlock leaf scale). (Pl. I, Fig. 1).

Scale of female.

Shape: Circular; exuviae nearly central.

Size: Diameter 1.2-1.5 mm.

Color: Very dark grey, approaching black, outer edge may be lighter; exuviae yellowish orange.

Scale of male.

Shape: Length 1.5-2.1 mm., width 1.2 mm.

Color: Similar to female.

Pygidium of female: Median and second lobes well developed, rounded or slightly notched at the apex on the outer side. Third lobe small and acutely pointed. A pair of irregularly fringed plates between the median lobes; two irregularly branched plates between median and second lobe; three such plates between second and third lobes; usually

¹ Contribution from the Department of Entomology, Purdue University. These descriptions were made in the preparation of the writer's undergraduate thesis. All collections were made in the vicinity of Lafayette.