

# CHECKLIST OF NORTH AMERICAN NUT-INFESTING INSECTS AND HOST PLANTS

Charles E. Williams<sup>1</sup>  
Department of Biology  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061

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## ABSTRACT

Data on the biology and host plant relations of nut-infesting insects are widely scattered in the scientific literature. A checklist of North American nut-infesting insects and host plants is presented to provide a central source of information on this insect group. Organized alphabetically by insect taxa, the checklist contains 102 species of insects and 82 host plants. Nomenclature of listed insects and host plants follows current revisions and checklists.

Key Words: Nut-infesting insects, North American checklist, Coleoptera, Diptera, Hymenoptera, Lepidoptera, *Carya*, *Castanea*, *Corylus*, *Fagus*, *Juglans*, *Quercus*

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## INTRODUCTION

Nut-infesting insects can have significant impacts upon nut crops in both natural and managed systems. For example, predation of nuts by insects may result in economic losses (Gill 1917; Barnett et al. 1982), difficulties in the regeneration of forest trees, particularly the advance regeneration of oaks (Marquis et al. 1976; Crowe 1988), and reduction of mast for wildlife (Brezner 1960). Intense predation by insects and other animals has also been suggested as the major selective force in the evolution of mast-fruited in nut trees (Silvertown 1980). Recently, attention has focused on the role of nut-infesting insects in natural systems, particularly the influence of insect predation upon patterns of nut maturation, masting (Boucher and Sork 1979; Sork 1983) and dispersal (Sork and Boucher 1977), and the interactions of insect and vertebrate nut predators (Semel and Andersen 1988). As an aid to future studies of nut-infesting insects, I have compiled a checklist of North American nut-infesting insects and host plants. The purpose of this checklist is to provide a central source of information on the host plant relations and biology of nut-infesting insects as much of these data are widely scattered in the ecological and agricultural literature.

Host plants that produce true nuts [indehiscent, single-seeded fruits with hardened pericarps (Benson 1959)] are exclusively considered in this checklist. Important families of nut-producing trees and shrubs in North America are the Betulaceae (hazelnuts, filberts), the Fagaceae (oaks, beeches, chestnuts), and the Juglandaceae (hickories, walnuts). Non-native trees and shrubs in these families, utilized as crops in North America, are also considered. The list is organized alphabetically by insect order, family, genus and species. Scientific names of host plants and insects reflect current taxonomy. Nomenclature of native and non-native nut-bearing plants conforms to The National List of Scientific Plant Names (Soil Conservation Service 1982) and Rehder (1960) respectively (Table 1), and

<sup>1</sup> Present address: Department of Biology, Washington and Lee University, Lexington, VA 24450.

insect nomenclature complies with current checklists and revisions [Schoof 1942 (Coleoptera: Curculionidae: *Conotrachelus*); Bush 1966 (Diptera: Tephritidae: *Rhagoletis*); Gagne 1973 (Diptera: Cecidomyiidae: Cecidomyiinae); Krombein et al. 1979 (Hymenoptera); Wood 1982 (Coleoptera: Scolytidae); Brown 1983 (Lepidoptera: Tortricidae: *Melissopus*, *Cydia*); Hodges et al. 1983 (Lepidoptera); Gibson 1985 (Coleoptera: Curculionidae: Curculioninae)]. Approved common names of insects (Sutherland 1978), where appropriate, follow scientific names in brackets [ ]. Common names of host plants follow Little (1979).

Table 1. Scientific and common names of plants.

Scientific names	Common names
<i>Carya aquatica</i> (Michx. F.) Nutt.	water hickory
<i>Carya cordiformis</i> (Wangenh.) K. Koch	bitternut hickory
<i>Carya floridana</i> Sarg.	scrub hickory
<i>Carya glabra</i> (Mill.) Sweet	pignut hickory
<i>Carya illinoensis</i> (Wangenh.) K. Koch	pecan
<i>Carya laciniosa</i> (Michx. F.) Loudon	shellbark hickory
<i>Carya myristiciformis</i> (Michx. F.) Nutt.	nutmeg hickory
<i>Carya ovalis</i> (Wangenh.) Sarg.	red hickory
<i>Carya ovata</i> (Mill.) K. Koch	shagbark hickory
<i>Carya pallida</i> (Ashe) Engl. and Graebn.	sand hickory
<i>Carya texana</i> Buckley	black hickory
<i>Carya tomentosa</i> (Poir.) Nutt.	mockernut hickory
<i>Castanea dentata</i> (Marsh.) Borkh.	American chestnut
<i>Castanea mollissima</i> Blume	Chinese chestnut
<i>Castanea pumila</i> (L.) Mill.	Allegheny chinkapin
<i>Castanopsis chrysophylla</i> (Dougl. ex Hook.) A. DC	golden chinkapin
<i>Corylus americana</i> Walt.	American hazel
<i>Corylus avellana</i> L.	European filbert
<i>Corylus cornuta</i> Marsh.	beaked hazel
<i>Corylus cornuta</i> var. <i>californica</i> (A. DC) A. J. Sharp	California hazel
<i>Fagus grandifolia</i> Ehrh.	American beech
<i>Juglans ailantifolia</i> Carriere	Siebold walnut
<i>Juglans cinerea</i> L.	butternut
<i>Juglans cordiformis</i> Maxim.	heartnut
<i>Juglans hindsii</i> (Jeps.) Jeps. ex R. E. Smith	Hind's walnut
<i>Juglans major</i> (Torr.) A. Heller	Arizona walnut
<i>Juglans mandshurica</i> Maxim.	Manchurian walnut
<i>Juglans microcarpa</i> Berland.	little walnut
<i>Juglans nigra</i> L.	black walnut
<i>Juglans regia</i> L.	English walnut, Persian walnut
<i>Lithocarpus densiflorus</i> (Hook. & Arn.) Rehd.	tanoak
<i>Quercus agrifolia</i> Nee	coast live oak
<i>Quercus alba</i> L.	white oak
<i>Quercus arizonica</i> Sarg.	Arizona white oak
<i>Quercus bicolor</i> Willd.	swamp white oak
<i>Quercus chapmanii</i> Sarg.	Chapman oak
<i>Quercus chrysolepis</i> Liebm.	canyon live oak
<i>Quercus coccinea</i> Muenchh.	scarlet oak
<i>Quercus dumosa</i> Nutt.	California scrub oak
<i>Quercus durandii</i> Buckl.	Durand oak
<i>Quercus durandii</i> var. <i>breviloba</i> (Torr.) E. J. Palmer	Bigelow oak
<i>Quercus ellipsoidalis</i> E. J. Hill	northern pin oak
<i>Quercus emoryi</i> Torr.	Emory oak
<i>Quercus engelmannii</i> Greene	Engelmann oak
<i>Quercus falcata</i> Michx.	southern red oak
<i>Quercus gambelii</i> Nutt.	Gambel oak

Table 1. Scientific and common names of plants. (Continued)

Scientific names	Common names
<i>Quercus garryana</i> Dougl. ex Hook.	Oregon white oak
<i>Quercus grisea</i> Liebm.	gray oak
<i>Quercus hypoleucoides</i> A. Camus	silverleaf oak
<i>Quercus ilicifolia</i> Wangenh.	bear oak
<i>Quercus imbricaria</i> Michx.	shingle oak
<i>Quercus incana</i> Bartr.	bluejack oak
<i>Quercus kelloggii</i> Newb.	California black oak
<i>Quercus laevis</i> Walt.	turkey oak
<i>Quercus laurifolia</i> Michx.	laurel oak
<i>Quercus lobata</i> Nee	valley oak
<i>Quercus lyrata</i> Walt.	overcup oak
<i>Quercus macrocarpa</i> Michx.	bur oak
<i>Quercus marilandica</i> Muenchh.	blackjack oak
<i>Quercus michauxii</i> Nutt.	swamp chestnut oak
<i>Quercus mohriana</i> Buckl. ex Rydb.	Mohr oak
<i>Quercus muehlenbergii</i> Engelm.	chinkapin oak
<i>Quercus nigra</i> L.	water oak, possum oak
<i>Quercus nuttallii</i> E. J. Palmer	Nuttall oak
<i>Quercus oblongifolia</i> Torr.	Mexican blue oak
<i>Quercus palustris</i> Muenchh.	pin oak
<i>Quercus phellos</i> L.	willow oak
<i>Quercus prinus</i> L.	chestnut oak
<i>Quercus pungens</i> Liebm.	sandpaper oak
<i>Quercus robur</i> L.	English oak
<i>Quercus rugosa</i> Nee	netleaf oak
<i>Quercus rubra</i> L.	northern red oak
<i>Quercus sadleriana</i> Campst.	deer oak
<i>Quercus shumardii</i> Buckl.	Shumard oak
<i>Quercus shumardii</i> var. <i>texana</i> (Buckl.) Ashe	Texas oak
<i>Quercus stellata</i> Wangenh.	post oak
<i>Quercus stellata</i> var. <i>margarettae</i> (Ashe ex Small) Sarg.	sand post oak
<i>Quercus turbinella</i> Greene	turbinella oak
<i>Quercus velutina</i> Lam.	black oak
<i>Quercus virginiana</i> Mill.	live oak
<i>Quercus virginiana</i> var. <i>geminata</i> (Small) Sarg.	sand live oak
<i>Quercus wislizenii</i> A. DC	interior live oak

## COLEOPTERA

## Curculionidae

*Conotrachelus affinis* Boheman

CARYA: *C. cordiformis*, *C. tomentosa* (Brooks 1922; Schoof 1942); *C. ovata* (Brooks 1922; Schoof 1942; Beal 1952); *C. glabra* (Brooks 1922; Schoof 1942; Sork and Bourcher 1977; Sork 1983).

*C. carinifer* Casey

CASTANEA: *C. mollissima* (Payne et al. 1972); QUERCUS: *Q. nigra*, *Q. velutina* (Schoof 1942; Gibson 1964); *Q. coccinea*, *Q. gambelii*, *Q. laevis*, *Q. stellata* (Gibson 1964); *Q. alba* (Gibson 1964, 1972); *Q. rubra* (Gibson 1964, 1982).

*C. hicoriae* Schoof.

CARYA: *C. illinoensis* (Schoof 1942); *C. ovata* (Beal 1952).

- C. juglandis* LeConte [butternut curculio]  
 JUGLANS: *J. mandshurica*, *J. nigra*, *J. regia* (Britton and Kirk 1912); *J. ailantifolia*, *J. cinerea*, *J. cordiformis* (Britton and Kirk 1912; Brooks 1922).
- C. naso* LeConte  
 CASTANEA: *Castanea* spp. (Beal 1952); QUERCUS: *Q. prinus* (Brooks 1910; Schoof 1942; Beal 1952); *Q. alba* (Brooks 1910; Schoof 1942; Beal 1952; Gibson 1972; Semel and Andersen 1988); *Q. durandii*, *Q. incana*, *Q. nigra*, *Q. robur*, *Q. velutina*, *Q. virginiana* (Schoof 1942); *Q. stellata* (Schoof 1942; Beal 1952); *Q. michauxii* (Beal 1952); *Q. bicolor*, *Q. gambelii*, *Q. imbricaria*, *Q. laevis*, *Q. muehlenbergii* (Gibson 1964); *Q. macrocarpa* (Gibson 1964, 1971); *Q. rubra* (Gibson 1982).
- C. posticatus* Boheman  
 CASTANEA: *Castanea* spp. (Beal 1952); QUERCUS: *Q. prinus* (Brooks 1910; Beal 1952; Gibson 1964); *Q. falcata*, *Q. lyrata*, *Q. michauxii* (Beal 1952); *Q. stellata*, *Q. virginiana* (Beal 1952; Gibson 1964); *Q. alba* (Beal 1952; Gibson 1964, 1972); *Q. coccinea*, *Q. laevis*, *Q. muehlenbergii*, *Q. nigra* (Gibson 1964); *Q. macrocarpa* (Gibson 1964, 1971); *Q. rubra* (Beal 1952; Winston 1956; Gibson 1964, 1982; Galford 1986).
- C. retentus* (Say) [black walnut curculio]  
 JUGLANS: *J. cinerea*, *J. nigra* (Brooks 1922; Schoof 1942).
- Curculio aurivestris* Chittenden  
 QUERCUS: *Q. chrysolepis*, *Q. dumosa*, *Q. garryana* (Gibson 1969).
- C. caryae* (Horn) [pecan weevil]  
 CARYA: *C. cordiformis*, *C. glabra*, *C. tomentosa* (Hamilton 1890; Ring et al. 1987); *C. illinoensis* (Hamilton 1890; Gill 1917; Ring et al. 1987); *C. aquatica*, *C. floridana*, *C. laciniosa*, *C. myristiciformis*, *C. ovalis*, *C. ovata*, *C. pallida*, *C. texana* (Ring et al. 1987); JUGLANS: *J. regia* (Foott and Timmins 1984; Ring et al. 1987).
- C. caryatipes* (Boheman) [large chestnut weevil]  
 CASTANEA: *C. dentata*, *C. mollissima*, *C. pumila* (Gibson 1969).
- C. confusor* (Hamilton)  
 QUERCUS: *Q. bicolor*, *Q. ilicifolia*, *Q. michauxii*, *Q. muehlenbergii*, *Q. prinus* (Gibson 1969); *Q. alba* (Gibson 1969; Semel and Andersen 1988); *Q. macrocarpa* (Gibson 1971).
- C. fulvus* Chittenden  
 QUERCUS: *Q. virginiana* (Gibson 1969).
- C. humeralis* (Casey)  
 QUERCUS: *Q. falcata*, *Q. incana*, *Q. laevis*, *Q. laurifolia*, *Q. marilandica*, *Q. nigra*, *Q. palustris*, *Q. phellos*, *Q. stellata*, *Q. stellata* var. *margarettae*, *Q. velutina*, *Q. virginiana* (Gibson 1969); *Q. coccinea*, *Q. rubra* (Gibson 1977).
- C. iowensis* (Casey)  
 QUERCUS: *Q. stellata* (Gibson 1969); *Q. macrocarpa* (Gibson 1971); *Q. alba* (Gibson 1972).
- C. longidens* Chittenden  
 QUERCUS: *Q. virginiana* (Beal 1952); *Q. falcata*, *Q. marilandica*, *Q. nigra* (Beal 1952; Gibson 1969); *Q. coccinea*, *Q. incana*, *Q. laevis*, *Q. laurifolia*, *Q. palustris*, *Q. phellos*, *Q. velutina* (Gibson 1969); *Q. rubra* (Gibson 1982).

- C. longinasus* Chittenden  
QUERCUS: *Q. ellipsoidalis*, *Q. falcata* (Gibson 1985).
- C. macrodon* Chittenden  
Hosts unknown but probably *Quercus* spp. (Gibson 1969).
- C. nanulus* (Casey)  
QUERCUS: *Q. gambelii*, *Q. pungens* (Gibson 1969); *Q. durandii* (Gibson 1985).
- C. nasicus* (Say)  
QUERCUS: *Q. alba*, *Q. prinus* (Hamilton 1890); *Q. coccinea* (Hamilton 1890; Gibson 1969); *Q. imbricaria*, *Q. velutina* (Gibson 1869); *Q. rubra* (Gibson 1982).
- C. obtusus* (Blanchard) [hazelnut weevil]  
CORYLUS: *C. americana*, *C. cornuta* (Brooks and Cotton 1929; Gibson 1969).
- C. orthorhynchus* (Chittenden)  
QUERCUS: *Q. coccinea*, *Q. falcata*, *Q. ilicifolia*, *Q. imbricaria*, *Q. laurifolia*, *Q. marilandica*, *Q. nigra*, *Q. nuttallii*, *Q. palustris*, *Q. phellos*, *Q. shumardii*, *Q. stellata*, *Q. velutina*, *Q. virginiana* var. *geminata* (Gibson 1969); *Q. alba* (Gibson 1972); *Q. rubra* (Gibson 1982).
- C. pardalis* (Chittenden)  
QUERCUS: *Q. robur* (Blatchley and Leng 1916); *Q. nigra*, *Q. phellos*, *Q. shumardii* (Beal 1952); *Q. bicolor*, *Q. coccinea*, *Q. lyrata*, *Q. marilandica*, *Q. prinus*, *Q. rubra*, *Q. stellata*, *Q. velutina*, *Q. virginiana* (Beal 1952; Gibson 1969); *Q. alba* (Beal 1952; Gibson 1972; Semel and Andersen 1988); *Q. chapmani*, *Q. gambelii*, *Q. michauxii*, *Q. muehlenbergii*, *Q. palustris* (Gibson 1969); *Q. macrocarpa* (Gibson 1971).
- C. pardus* Chittenden  
QUERCUS: *Q. kelloggii* (Keen 1958); *Q. agrifolia* (Keen 1958; Gibson 1985); *Q. chrysolepis*, *Q. douglasii*, *Q. dumosa*, *Q. lobata*, *Q. robur*, *Q. wislizenii* (Gibson 1969).
- C. proboscideus* Fabricius  
CASTANEA: *C. dentata* (Brooks and Cotton 1929); QUERCUS: *Q. bicolor*, *Q. coccinea*, *Q. marilandica*, *Q. palustris*, *Q. shumardii* (Beal 1952; Gibson 1969); *Q. rubra* (Winston 1956; Gibson 1982); *Q. ellipsoidalis*, *Q. falcata*, *Q. ilicifolia*, *Q. imbricaria*, *Q. laevis*, *Q. laurifolia*, *Q. michauxii*, *Q. nigra*, *Q. phellos*, *Q. prinus*, *Q. stellata*, *Q. velutina*, *Q. virginiana* var. *geminata* (Gibson 1969); *Q. macrocarpa* (Gibson 1971); *Q. alba* (Gibson 1972).
- C. quercusgriseae* (Chittenden)  
QUERCUS: *Q. emoryi*, *Q. gambelii*, *Q. grisea*, *Q. hypoleucoides* (Gibson 1969).
- C. rubipililineus* Gibson  
QUERCUS: *Quercus* spp. (Gibson 1969).
- C. sayi* (Gyllenhal) [small chestnut weevil]  
CASTANEA: *C. dentata*, *C. mollissima*, *C. pumila* (Gibson 1969).
- C. strictus* (Casey)  
QUERCUS: *Q. bicolor*, *Q. gambelii*, *Q. lyrata*, *Q. muehlenbergii*, *Q. prinus*, *Q. rugosa*, *Q. stellata* (Gibson 1969); *Q. macrocarpa* (Gibson 1971); *Q. alba* (Gibson 1972).

*C. sulcatulus* (Casey)

QUERCUS: *Q. lyrata* (Sidney 1948); *Q. palustris* (Beal 1952; Gibson 1969); *Q. bicolor*, *Q. coccinea*, *Q. ellipsoidalis*, *Q. falcata*, *Q. gambelii*, *Q. ilicifolia*, *Q. imbricaria*, *Q. incana*, *Q. laevis*, *Q. laurifolia*, *Q. marilandica*, *Q. michauxii*, *Q. mohriana*, *Q. muehlenbergii*, *Q. nigra*, *Q. nuttallii*, *Q. phellos*, *Q. prinus*, *Q. pungens*, *Q. shumardii*, *Q. stellata*, *Q. velutina*, *Q. virginiana*, *Q. virginiana* var. *geminata* (Gibson 1969); *Q. macrocarpa* (Gibson 1971); *Q. alba* (Gibson 1972; Semel and Andersen 1988); *Q. rubra* (Gibson 1982).

*C. timidus* (Casey)

QUERCUS: *Quercus* spp. (Gibson 1969).

*C. uniformis* (LeConte) [filbert weevil]

CASTANOPSIS: *C. chrysophylla* (Gibson 1969); CORYLUS: *C. cornuta* var. *californica* (Dohanian 1944; Gibson 1969); LITHOCARPUS: *L. densiflorus* (Keen 1958; Gibson 1969); QUERCUS: *Q. agrifolia*, *Q. dumosa*, *Q. garryana*, *Q. lobata* (Keen 1958; Gibson 1969); *Q. chrysolepis*, *Q. kelloggii*, *Q. wislizenii* (Keen 1958; Brown and Eads 1965; Gibson 1969); *Q. gambelii*, *Q. sadleriana* (Gibson 1969).

*C. victoriensis* (Chittenden)

QUERCUS: *Q. laurifolia*, *Q. stellata*, *Q. velutina*, *Q. virginiana* (Gibson 1969); *Q. alba*, *Q. durandii* var. *breviloba*, *Q. marilandica* (Gibson 1977); *Q. durandii* (Gibson 1985).

*C. wenzeli* Chittenden

QUERCUS: *Quercus* spp. (Gibson 1969).

## Nitidulidae

The following fifteen species were all recorded from damaged nuts of *Castanea mollissima* by Williams and Krueger (1985):

*Amphicrossus ciliatus* (Olivier), *Carpophilus corticinus* Erichson, *C. hemipterus* (Linne), *C. lugubris* Murray, *C. sayi* Parsons, *Colopterus niger* (Say), *C. semitectus* (Say), *C. truncatus* (Randall), *Cryptarcha concinna* Melsheimer, *Eupraea rufa* (Say), *Glischrochilus fasciatus* (Olivier), *G. quadrisignatus* (Say), *G. sanguinolentus* (Olivier), *Omosita colon* (L.), *Stelidota geminata* (Say).

*Lobiopa setosa* Harold

QUERCUS: *Quercus* spp. (Dorsey et al. 1962).

*Stelidota octomaculata* (Say)

QUERCUS: *Q. rubra* (Winston 1956; Galford 1987); *Q. alba* (Galford 1987).

## Scolytidae

*Hypothenemus seriatus* (Eichhoff)

CARYA: *C. illinoensis* (Baker 1972).

## DIPTERA

## Cecidomyiidae

*Contarinia nucicola* (Osten Sacken)

CARYA: *Carya* spp. (Felt 1940).

*Dasineura glandis* Felt

QUERCUS: *Quercus* spp. (Felt 1940; Dorsey et al. 1962).

## Drosophilidae

*Chymomyza amoena* (Loew)

JUGLANS: *J. cinerea* (Grimaldi 1986); *J. nigra* (Barrett 1932; Grimaldi 1986);

QUERCUS: *Quercus* spp. (Dorsey et al. 1962); *Q. rubra* (Winston 1956).

## Tephritidae

*Rhagoletis boycei* Cresson

JUGLANS: *J. regia* (Boyce 1934); *J. major* (Bush 1966).

*R. completa* Cresson [walnut husk fly]

JUGLANS: *J. californica*, *J. hindsii* (Boyce 1934); *J. nigra*, *J. regia* (Boyce 1934; Barnett et al. 1982) *J. microcarpa* (Legner and Goeden 1987).

*R. juglandis* Cresson

JUGLANS: *J. ailantifolia*, *J. microcarpa* (Brooks 1921); *J. regia* (Brooks 1921; Boyce 1929); *J. hindsii*, *J. major* (Boyce 1929; Bush 1966).

*R. suavis* (Loew)

JUGLANS: *J. ailantifolia*, *J. cinerea*, *J. nigra*, *J. regia* (Brooks 1921).

## HYMENOPTERA

## Cynipidae

*Amphibolips gainesi* Bassett

QUERCUS: *Q. laurifolia* (Bassett 1900); *Q. marilandica* (Beutenmuller 1913; Weld 1922).

*A. quercusfuliginosa* (Ashmead)

QUERCUS: *Q. laurifolia* (Weld 1922); *Q. phellos* (Weld 1922; Beal 1952).

*A. quercusjuglans* (Osten Sacken)

QUERCUS: *Q. ilicifolia* (Beutenmuller 1913; Felt 1940); *Q. coccinea*; *Q. rubra*, *Q. velutina* (Beutenmuller 1913; Weld 1922); *Q. incana* (Weld 1922); *Q. falcata* (Felt 1940).

*Andricus aldobalani* Weld

QUERCUS: *Q. douglasii*, *Q. dumosa*, *Q. lobata* (Weld 1926).

*A. chrysobalani* Weld

QUERCUS: *Q. chrysolepis* (Weld 1926).

*A. costatus* Weld

QUERCUS: *Q. gambelii*, *Q. turbinella* (Weld 1944). Weld also listed *Q. undulata* Torr. as a host. This species is now considered part of a complex and is not a valid taxon (Tucker 1961).

*A. incertus* Bassett

QUERCUS: *Q. bicolor* (Weld 1922).

*A. prescottii* Weld

QUERCUS: *Q. turbinella* (Weld 1952); *Q. arizonica*, *Q. gambelii*, *Q. oblongifolia*, *Q. rugosa* (Krombein et al. 1979).

*Callirhytis balanacea* Weld

QUERCUS: *Q. palustris* (Weld 1944).

*C. balanaspis* Weld

QUERCUS: *Q. marilandica* (Weld 1922).

*C. balanella* Weld

QUERCUS: *Q. emoryi* (Weld 1957).

*C. balanoides* Weld

QUERCUS: *Q. velutina* (Weld 1922).

- C. balanopsis* Weld  
QUERCUS: *Q. marilandica* (Weld 1922).
- C. balanosa* Weld  
QUERCUS: *Q. coccinea* (Weld 1922).
- C. carmelensis* Weld  
QUERCUS: *Q. agrifolia*, *Q. wislizenii* (Weld 1922); *Q. kelloggii* (Krombein et al. 1979).
- C. cistella* Weld  
QUERCUS: *Q. emoryi*, *Q. hypoleuroides* (Weld 1952).
- C. corrugis* Bassett  
QUERCUS: *Q. palustris*, *Q. rubra*, *Q. velutina* (Weld 1952).
- C. electrea* Weld  
QUERCUS: *Q. prinus* (Weld 1944).
- C. fruticola* Ashmead  
QUERCUS: *Q. marilandica* (Weld 1922); *Q. ilicifolia*, *Q. velutina* (Krombein et al. 1979).
- C. fructuosa* Weld  
QUERCUS: *Q. coccinea*, *Q. shumardii* var. *texana* (Weld 1922); *Q. rubra* (Weld 1922; Gibson 1982).
- C. glandulus* (Beutenmuller)  
QUERCUS: *Q. bicolor*, *Q. prinoides* (Beutenmuller 1913); *Q. macrocarpa*, *Q. prinus* (Beutenmuller 1913; Felt 1940); *Q. michauxii*, *Q. muehlenbergii*, (Felt 1940); *Q. alba* (Felt 1940; Gibson 1972);
- C. hopkinsi* Weld  
QUERCUS: *Q. imbricaria* (Weld 1952).
- C. lapillula* Weld  
QUERCUS: *Q. bicolor* (Weld 1922).
- C. middletoni* Weld  
QUERCUS: *Q. phellos* (Weld 1922).
- C. milleri* Weld  
QUERCUS: *Q. agrifolia*, *Q. kelloggii*, *Q. wislizenii* (Weld 1922).
- C. perditor* Bassett  
QUERCUS: *Q. ilicifolia* (Bassett 1900; Felt 1940).
- C. petrina* Weld  
QUERCUS: *Q. hypoleuroides* (Weld 1922).
- C. petrosa* Weld  
QUERCUS: *Q. incana* (Weld 1922).
- C. quercusoperator* (Osten Sacken)  
QUERCUS: *Q. rubra* (Gibson 1982); *Q. coccinea*, *Q. falcata*, *Q. ilicifolia*, *Q. rubra*, *Q. velutina* (Felt 1940).
- Disholcaspis pedunculoides* Weld  
QUERCUS: *Q. arizonica*, *Q. oblongifolia*, *Q. turbinella* (Weld 1926).
- Eumayria eldoradensis* (Beutenmuller)  
QUERCUS: *Q. agrifolia* (Beutenmuller 1913; Weld 1922; Keen 1958); *Q. wislizenii* (Weld 1922); *Q. kelloggii* (Weld 1922; Keen 1958).
- Loxaulus trizonalis* Weld  
QUERCUS: *Q. chrysolepis* (Weld 1926).
- Neuroterus cupulae* Kinsey  
QUERCUS: *Q. lobata* (Kinsey 1922a).



*N. varians* Kinsey

QUERCUS: *Q. douglasii* (Kinsey 1922b); *Q. lobata* (Kinsey 1922b; Felt 1940).

## LEPIDOPTERA

## Blastobasidae

*Moodna ostrinella* (Clemens)

QUERCUS: *Q. alba*, *Q. nigra* (Sidney 1948; Beal 1952).

*Valentinia glandulella* (Riley)

CARYA: *Carya* spp. (Baker 1972); CASTANEA: *Castanea* spp. (Baker 1972); *C. mollissima* (J. R. Galford unpublished); QUERCUS: *Q. falcata*, *Q. nigra*, *Q. palustris* (Sidney 1948); *Q. coccinea*, *Q. lyrata*, *Q. marilandica*, *Q. phellos*, *Q. stellata*, *Q. velutina*, *Q. virginiana* (Beal 1952); *Q. alba* (Beal 1952; Gibson 1972; Galford 1986); *Q. prinus* (Beal 1952; Galford 1986); *Q. rubra* (Winston 1956; Gibson 1982; Galford 1986); *Q. kelloggii* (Keen 1958).

## Pyralidae

*Acrobasis nuxvorella* Neunzig [pecan nut casebearer]

CARYA: *C. illinoensis* (Bilting 1926; Neunzig 1972; Payne et al. 1979.)

*Amyelois transitella* (Walker) [navel orangeworm]

JUGLANS: *J. regia* (Michelbacher and Ortega 1958; Barnett et al. 1982).

*Cadra cautella* (Walker) [almond moth]

QUERCUS: *Q. phellos* (Sidney 1948; Beal 1952).

## Tortricidae

*Archips argyrospila* Walker [fruittree leafroller]

JUGLANS: *J. nigra* (Gill 1913); *J. regia* (Essig 1926; Michelbacher and Ortega 1958).

*Cydia caryana* (Fitch) [hickory shuckworm]

CARYA: *C. illinoensis* (Gill 1917; Brison 1974); *C. glabra*, *C. ovata*, *C. tomentosa* (Beal 1952).

*C. latiferreana* (Wlsm.) [filbertworm]

CASTANEA: *Castanea* sp. (Dohanian 1940); CASTANOPSIS: *C. chrysophylla* (Keen 1958); CORYLUS: *Corylus americana*, *C. avellana*, *C. cornuta* (Dohanian 1940); FAGUS: *F. grandifolia* (Baker 1972); JUGLANS: *J. regia* (Barrett 1932; Michelbacher and Hitchcock 1955); *Juglans* sp. (Dohanian 1940); LITHOCARPUS: *L. densiflorus* (Keen 1958); QUERCUS: *Q. garryana* (Dohanian 1940); *Q. prinus* (Sidney 1948); *Q. falcata* (Beal 1952; Vozzo 1984); *Q. marilandica*, *Q. stellata* (Beal 1952); *Q. alba* (Beal 1952; Gibson 1972); *Q. rubra* (Winston 1956; Marquis et al. 1976; Gibson 1982); *Q. macrocarpa* (Gibson 1971); *Q. nigra* (Vozzo 1984); *Q. velutina* (Peacock et al. 1988).

*C. pomonella* (L.) [codling moth]

JUGLANS: *J. regia* (Boyce 1935).

*Gretchena biangulana* Wlsm.

JUGLANS: *J. californica* (Barrett 1932).

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