Glossary

Acuminat e—gradually tapering to a sharp point.
Ambrosia—mycelium cultured in galleries as food by 17 species in the families Scolytidae and Platypodidae.
Ampulla, ampullae—a blisterlike structure on abdominal segments of larvae of some members of Cerambycidae.
Antenna, antennae—a segmented sensory appendage borne one on each side of the head.
Arcuate—arched or bowlike.
Arista—a large dorsal bristle on the apical antennal segment of members of Diptera.
Asperate—roughened; surface roughenings of tiny dotlike elevations are termed asperites.
Attenuate—gradually tapering apically.
Bark scar—a healed-over injury in the bark.
Biordinal crochets—crochets on the proleg of a uniserial circle of two lengths, alternating.
Biplicate—having comblike teeth on the side of the antennal segments.
Biramous—having two branches.
Bispinose—armed with two spines.
Bote—a tree trunk once it has grown to large pole timber or saw timber size.
Bristle—a stiff hair, usually short and blunt.
Brood—all individuals that hatch from eggs of one parent or series of parents and normally mature about the same time.
Cambium—a thin layer of meristematic cells between the bark and wood that gives rise to new phloem and xylem cells.
Canker—a localized necrotic lesion of the bark and cambium and sometimes the wood.
Carina, carinæ—an elevated ridge or keel.
Caudal—pertaining to the rear end of the insect body.
Cell—(1) the closed area bounded by veins in an insect wing, (2) a nest, chamber, or compartment.
Cephalad—toward or in direction of the head.
Cercus, cerci—an appendage (generally paired) of the tenth abdominal segment, usually slender and segmented.
Cervical shield—a hardened plate on the prothorax of caterpillars just behind the head.
Chaetotaxy—arrangement and nomenclature of the setae on the insect.
Chlorosis—an abnormal yellowing of foliage.
Chorion—the outer shell or covering of an insect egg.
Ciliate—fringed with a row of parallel hairs.
Clavate—clubbed, usually toward the tip.
Concurrate—a pupa having all appendages and body parts concealed by a thickened, usually cylindrical case.
Cocoon—a covering composed of silk, other viscid fiber, and debris constructed by larva for protection of pupa.
Coleretal—viscid secretion during oviposition by an accessory gland connected to the oviduct.
Concentric—circles or spheres, one within another.
Coppice—reproduction from sprouts arising from stools, rootstocks, or stumps.
Costa, costae—the thickened anterior vein or margin of an insect’s wing.
Coxa, coxae—the basal segment of the insect’s leg.
Cradle—a small chamber or niche along the gallery where the immature stages of some members of Scolytidae and Platypodidae develop.
Cremaster—the apex of the last abdominal segment, often with spined hooks.
Crenulate—evenly rounded and rather deeply curved.
Crochets—the curved spines or hooks on the prolegs of caterpillars and on the cremaster of pupae.
Cuprous—coppery, metallic copper red.
Diameter at breast height—diameter of a tree at 1.37 m above ground.
Deciduous—having leaves that fall at the end of a growing season.
Declivity—the sloping rear end of the elytra of members of Coleoptera, especially in the Scolytidae family.
Decumbent—bending downward.
Defect—a blemish or imperfection in wood such as a hole, a bark pocket, decay, or stain.
Diflexed—abruptly bent downward.
Degraded—a reduction in quality and grade caused by defects in the wood.
Dentate—toothed.
Denticulate—set with little teeth (denticles) or notches.
Depressed—flattened down as if pressed.
Dieback—progressive dying from the extremity of part of the plant.
Discal—a large median cell in the wing extending from the base to the center.
Distal—toward the free end of any appendage.
Dorsum—the upper surface of the insect body, referring to the dorsal surface.
Eclosion—emergence of the adult from the pupa or the act of the larva hatching from the egg.
Ellipsoidal—oblong-oval, ends equally rounded.
Elytron, elytra—hard or leathery forewings of beetles that usually meet in a straight line down the middle of the dorsum.
Emarginate—notched.
Entomogenous—growing in or on an insect.
Excrement—waste products eliminated by an insect mainly from digestion.
Exudation—a discharge of sap, gum, and fine frass from minute openings.
Exurate—a type of pupa in which the legs and wings are free from the body.
Exuvium, exuviae—the cast skin of larvae at metamorphosis.
Falcate—convexly curved.
Fascia—a transverse band, usually crossing forewings.
Femur, femora—the upper part or thigh of the insect leg.
Fibrous—consisting of or including long, narrow pieces or fibers of wood.
Filiform—threadlike.
Flagging—conspicuous dead twigs and branches with the foliage still present and discolored.
Forceps—hook- or pincerlike processes terminating the abdomen.
Frass—wood fragments mixed with excrement produced by insect larvae.
Frons—the upper anterior portion of the head.
Funicle—the slender stalk portion of the antenna.
Fuscous—a mixture of black and red.
Gall—an abnormal growth or swelling of plant tissue caused by insects or other external stimuli.
Gallery—a long narrow passage, chewed in the bark, cambium, and/or wood by a tunneling larva.
Gena, genae—part of the head below the eyes.
Generation—the time required to complete the life cycle of an insect.
Genitalia—sexual organs and associated structures.
Girdle—a cut in the living phloem or xylem or both, which encircles a stem, branch, or root.
Glabrous—smooth, without hairs.
Globose—nearly spherical, globular.
Granular—small chips or grains of wood, as in insect frass with a grainy texture.
Gregarious—living close together, but not social.
Grub—an insect larva; usually the larva of Coleoptera and some members of Hymenoptera.
Gumnosis—formation of gummy exudates, often in masses.
Haltere—a small filament on each side of the thorax representing the hind wings in Diptera.
Heartwood—the nonliving inner core of wood, usually darker than sapwood.
Hibernaculum, hibernacula—silken-trash shelter in which a larva hibernates.
Hibernation—a period of inactivity occurring during seasonal low temperatures.
Hooklet—minute black, hook-shaped mouthpart in larvae of the order Diptera.
Ihyaline—transparent or nearly so.
Incubation—the hatching period of an egg.
Infection—the establishment of a parasite in a host plant.
Infestation—borer attacks usually occurring in numbers.
Inquiline—an insect living habitually as a guest in the nest of another insect.
Instar—the period or stage between molts in a larva, usually numbered.
Larva, larvae—a young insect that hatches from the egg and differs fundamentally in form from the adult.
Lenticel—a lens-shaped cortical pore on the stem; serves for the exchange of gases.
Life cycle—the time between fertilization of an insect egg and the death of the individual adult that proceeds from that egg.
Lunule—a crescent-shaped mark around the eye.
Maggot—a legless larva of the order Diptera.
Mandibles—the first pair of jaws of insects, usually stout and toothlike.
Marginate—having an elevated margin with a flat border.
Mesothorax—middle segment of the thorax.
Midrib—the central vein of a leaf.
Mimic—the resemblance of one animal to another that is not closely related.
Molt—to shed the outer skin to accommodate growth of the body.
Monogamous—a union where a female is fertilized by one male only.
Mycelium—the threadlike vegetative part of fungi.
Mycetangia—pouchlike structures on insect bodies for storing fungi as in members of Scolytidae and Platypodidae.
Nuptial chamber—a cavellike opening made by bark beetles in the inner bark beneath the entrance hole and from which the egg tunnels originate.
Ocellus, ocelli—lateral simple eyes of insects.
Ochreous—yellowish with a slight tinge of brown.
Opaque—without surface luster; not transparent.
Ornamental—a plant grown for its esthetic qualities.
Ovipositor—a tubular structure at the rear end of a female insect, used to deposit eggs on or in a suitable material.
Palpus, pulpi—a jointed sensory appendage of the mouth.
Parasite—an organism living in or on, and nourished by, another living organism, which is injured or killed.
Pathogen—an organism that causes a disease.
Pectinate—comblike; even processes on the antennae like the teeth of a comb.
Pheromone—an insect-produced chemical that stimulates a specific reaction by the receiving individuals; i.e., sex attractants.
Phloem—inner bark; tissue concerned with translocation of foodstuffs.
Pinaculum, pinacula—an enlarged seta-bearing papilla forming a flat plate.
Pith fleck—a small discolored spot, mark, or streak of mineral, gummy, or pithlike tissue embedded in the xylem.
Pinnate—feathery.
Pole—a young tree 10.2 cm in diameter at breast height (dbh) and up to 20.3 or 30.5 cm in dbh.
Polygamy—the condition of a single male having three or more female mates.
Predator—any animal that preys on (kills and eats) other animals.
Proboscis—any extended mouth structure in members of Diptera and Lepidoptera.
Proleg—an appendage that serves the purpose of a leg, as with the abdominal legs of caterpillars and sawflies.
Promonotum—the upper surface of the prothorax.
Prosternum—the forebreast between the forelegs.
Prothoracic shield—a hardened darkened plate extending transversely across the first thoracic segment.
Prothorax—the first thoracic segment; it bears the first pair of legs but no wings.
Pubescence—short, fine, soft hairs.
Punctate—set with small puncture-like impressions.
Pupa, pupae—the resting stage of an insect intermediate between the larva and adult stages.
Puparium, puparia—the thickened, hardened, barrel-like larval skin within which the pupa is formed in Diptera.
Recumbent—lying down; reclining.
Resistance—qualities possessed by a plant that function to minimize damage by insects.
Rachis, rachises—extension of the petiole bearing the leaflets in compound leaves.
Reticulate—covered with a network of raised lines.
Rufous—brilliant reddish yellow.
Rugose—wrinkled.
Sapling—a young tree less than 10.2 cm in diameter at breast height.
Sapwood—living outer layers of wood, usually light in color.
Saw—a median pair of flattened plates of the ovipositor.
Sawlog—a log of suitable size (generally 30.5 cm in diameter at the small end) and quality for sawing into lumber.
Sawtimber—trees of size and quality to yield sawlogs.
Scale—flattened and modified hairs, as on wings of members of Lepidoptera.
Seedling—a young tree grown from seed, up to the sapling stage.
Serpentine—winding or turning one way then the other.
Serrate—notched like the teeth of a saw.
Serrulate—finely serrated; with minute teeth or notches.
Seta, setae—bristlelike hair.
Sheath—a structure enclosing the saw in sawflies.
Shelterbelt—a strip of trees or shrubs maintained to provide shelter from wind.
Shoot—any young, tender, succulent, current-year, aerial outgrowth from a plant.
Silviculture—the art and science of growing and tending forest tree crops.
Sinuate—wavy.

Spine—a large seta or thornlike process.
Spinule—a minute pointed spine.
Spiracles—breathing pores located along sides of the insect body.
Stemma, stemmata—simple eyes of larva.
Sternum—the ventral part of a body segment.
Stool—a living stump (usually willow or poplar) maintained in nursery beds to produce cuttings.
Striae—parallel, fine, longitudinal, impressed lines as on the elytra of members of Coleoptera.
Sulcate—deeply grooved.
Symbiosis—coexistence of different species without disadvantage to either and often with mutual benefit.
Tarsus, tarsi—the insect foot; the outermost jointed division of the leg.
Teneral—newly transformed adult not entirely hardened or fully colored.
Tergite—the dorsal part of a segment.
Termen—the outer margin of a wing.
Tibia, tibiae—a single-segmented division of the insect leg between the femur and the tarsus.
Tridente—three-toothed.
Truncate—cut off squarely at the tip.
Tubercle—a small rounded projection from the surface sometimes bearing setae.
Uniordinal crochets—crochets on the proleg that are uniform in length and in a single series circle.
Vector—a carrier of a disease-producing organism.
Venter—the undersurface of the abdomen.
Vertex—the top of the head.
Vestiture—the surface covering of insects such as hairs or scales.
Windthrow—uprooting of trees by the wind.
Xylem—the principal strengthening and water-conducting tissue of branches, stems, and roots.
Diagnostic Host Index

This index should enable foresters and others not trained in entomology to identify many of the borers that cause injury to broadleaf trees and shrubs. The index serves in lieu of keys to borers and their damage and provides a means of narrowing the search for the identity of a borer observed on a particular host. Using this index involves the following steps:

1. Identifying the host tree or shrub,
2. Determining the part or parts that are injured,
3. Consulting the habit groups to see which one most closely describes the insect,
4. Referring to the text pages on which insects in the selected habit group are discussed and illustrated to decide which description best fits the insect and/or its injury.

Plant parts on shrubs are designated like those of trees, with trunk indicating the main stem, and the difference between twigs and small branches versus large branches based on relative size. The habit group refers to the characteristics of the larva or adults, the type of injury caused, or the particular habits exhibited by various borer groups.

The following 16 habit groups are described and used:

Beetle, ambrosia—adult small, compact, cylindrical, with head largely hidden beneath thorax; larva white, legless, usually C-shaped, in frass-free gallery in xylem.

Beetle, bark—adult small, compact, cylindrical, with head largely hidden beneath thorax; larva white, legless, C-shaped, in frass-packed gallery in cambium region.

Beetle, false powderpost—adult elongate, cylindrical, with head largely hidden beneath thorax, with rasplike pronotum; larva white, C-shaped, with thoracic legs, in gallery filled with powderyfrass in xylem.

Beetle, timber—adult elongate, subcylindrical, with deflected narrow head; larva elongate, cylindrical, with taillike structure, in mostly frass-free gallery deep in xylem.

Borer, clearwing—larva white, pink, or brown, elliptical spiracles, with thoracic legs and abdominal prolegs, in frass-free gallery in phloem and/or sapwood.

Borer, flatheaded—larva white, elongate, slender, legless, with or without thoracic segments enlarged and flattened, in long, narrow, winding gallery in phloem and/or xylem.

Borer, roundheaded—larva white, fleshy, cylindrical, with or without thoracic legs and abdominal ampullae, in large frass-free or frass-packed gallery in phloem and xylem.

Carpenterworm—larva pink to white, with thoracic legs and abdominal prolegs, strong mandibles, disagreeable goatlike odor, in large, mostly frass-free gallery in phloem and xylem.

Caterpillar—larva variable in color and size, cylindrical, 13 body segments, with thoracic legs and fleshy abdominal prolegs, usually in frass-free gallery in shoots and phloem and/or xylem of roots and stems.

Gallformer—larva white to brown, size and form variable, gallery with or without frass, in galls.

Girdler/bruner, flatheaded—larva white, thoracic segments enlarged and flattened, narrow frass-packed gallery, xylem of stem severed leaving phloem intact, which usually breaks.

Girdler/bruner, roundheaded—larva white, fleshy, cylindrical, frass-free or frass-packed gallery, xylem of stem severed leaving phloem intact, which usually breaks; in a few species, the adult girdles the stem from the outside.

Hornfall—larva white, cylindrical, slightly S-shaped, abdomen ending in hornlike projection, in frass-packed gallery in xylem.

Miner, cambium—larva white, long, slender, legless, headless, with hooklike mouthparts, in long, narrow, frass-packed mine in cambium region.

Satyr—larva yellowish white to purplish green, curved to S-shaped, cylindrical, with small thoracic legs, in frass-packed gallery, usually in tender shoots and stems.

Weevil—larva white, subcylindrical, fleshy, C-shaped, legless, in gallery containing some
dark frass in shoots, stems, or under bark.
(For additional details on habit groups, see
the introductory text at the beginning of each
order and family).

**Acacia**
Twigs, small branches
غربل، بروجر، مستعرض
Oncideres rhodosticta 329
Trunk, large branches
Beetle, ambrosia
Xyleborus dispar 564
Borer, flatheaded
*Chrysobothris merkeli* 273

**Alder**
Buds, shoots, petioles
Caterpillars
*Acabodes zeae* 209
Epinotia nitella 151
Twigs, small branches
غربل، بروجر، مستعرض
*Xyletrecbus quadrinaculatus* 457
Trunk, large branches
Beetles, ambrosia
Trypodendron betulae 556
Xyleborus dispars 564
Xyloterinus politus 551
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*Aphidius aspercolis* 527
Borers, clearwing
*Paranthrene asiliennis* 40
*Synanthedon callicifloris* 97
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*Agrius pennis* 232
*Chrysobothrus malii* 270
*Episopaceris cogitans* 262
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Caterpillar
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**Alder, black**
Trunk, large branches
Borer, roundheaded
*Supera obliqua* 359

**Alder, Italian**
Trunk, large branches
Borer, flatheaded
*Agrius buriei* 230

**Alder, mountain**
Trunk, large branches
Borer, flatheaded
*Agrius buriei* 230

**Alder, Oregon**
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**Alder, speckled**
Trunk, large branches
Borers, flatheaded
*Agrius pennis* 232
*Episopaceris cogitans* 262
Roots, root collar
Caterpillar
*Siberosis argenteomaculatus* 6

**Alder, white**
Trunk, large branches
Borer, flatheaded
*Agrius buriei* 230
Beele, bark
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**Alkali blite**
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*Meligus confurt* 288
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Borer, clearwing
Synanthedon exitiosa 59

Roots, root collar
Borer, clearwing
Synanthedon exitiosa 59
Borer, roundheaded
Prionus californicus 393

American cranberrybush
Trunk, large branches
Borer, clearwing
Synanthedon exitiosa 59

Antelope brush
Twigs, small branches
Pruner/girdler, roundheaded
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Caterpillars
Grapholitha molesta 160
Grapholitha packardi 162
Ostrinia nubilalis 189
Papaipema nebris 202
Spilonota ocellana 147

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Beetles, false powderpost
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Melaglus conferus 288
Xylobiota basilaris 286
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Obera ocellata 383
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Hylesinus californicus 517

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Trunk, large branches
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Podocera syringae 30

Ash, white
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   Prionoxystus robiniae 112
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   Caterpillar
   Elasmopalpus lignosellus 184

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   Borer, roundheaded
   Megacyllene nocii solci 448

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Borer, clearwing  
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_Comadia bertoldi_ 133  
Caterpillar  
_Hepialus californicus_ 10  
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Carpenterworm  
_Comadia bertoldi_ 133  
Caterpillar  
_Hepialus californicus_ 10

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_Xylosandrus compactus_ 569  
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_Xylopterus nauticus_ 463  
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Borer, roundheaded  
_Pristotis californicus_ 393

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Beetle, ambrosia  
_Xylosandrus compactus_ 569  
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Beetles, ambrosia  
_Platythus compositus_ 578  
_Platythus quadricentatus_ 581  
_Xylosandrus crassiusculus_ 575  
_Xylopterus politus_ 551  
Caterpillar  
_Eucosma magnoliella_ 172

**Magnolia, southern**  
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Caterpillar  
_Eucosma magnoliella_ 172

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Caterpillar  
_Hypospyla grandella_ 182  
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Borer, flatheaded  _Chrysothrips mali_ 270

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Beetle, ambrosia  
_Xylosandrus compactus_ 569  
Trunk, large branches  
Borer, roundheaded  
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_Episimus tyrus_ 164  
_Obrusia ochrasciella_ 13  
_Pappiliperna nebris_ 202  
_Proteotera ascalana_ 143  
_Proteotera crescentana_ 142  
_Proteotera moffitiana_ 145  
_Proteotera willingen_ 137  
Sawfly  
_Caulocampus acericans_ 585

Twigs, small branches  
Beetles, ambrosia  
_Cortlythus punctatissimus_ 543  
_Xyleborus sayi_ 565  
Beetles, false powderpost  
_Amplicerus bicaudatus_ 284  
_Melagias conferus_ 288  
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_Zenzeria pyrina_ 127  
Caterpillars  
_Proteotera ascalana_ 143  
_Proteotera crescentana_ 142  
_Proteotera willingen_ 137  
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_Anelaphus villosus_ 431  
_Xylopterus quadrimagularis_ 457  
Trunk, large branches  
Beetles, ambrosia  
_Cortlythus columbianus_ 541  
_Monarthrum fasciatum_ 548  
_Monarthrum mali_ 546
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<tr>
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<tbody>
<tr>
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<td>Xyleborinus saxeseni</td>
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<td>Xyleborus ferrugineus</td>
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<tr>
<td>Xyleborus xylographus</td>
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<tr>
<td>Xyloterinus politus</td>
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**Beetle, bark**

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**Borers, clearwing**

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<tbody>
<tr>
<td>Synanthedon acerni</td>
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<tr>
<td>Synanthedon acerubri</td>
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**Borers, flatheaded**

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<tr>
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<tr>
<td>Agrilus politus</td>
<td><em>Agrilus politus</em></td>
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<tr>
<td>Chrysobothris femorata</td>
<td><em>Chrysobothris femorata</em></td>
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<tr>
<td>Chrysobothris mali</td>
<td><em>Chrysobothris mali</em></td>
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<tr>
<td>Tectania conopina</td>
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**Borers, roundheaded**

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<tr>
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<tr>
<td>Glycyphus speciosus</td>
<td><em>Glycyphus speciosus</em></td>
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<tr>
<td>Neoclytus acuminatus</td>
<td><em>Neoclytus acuminatus</em></td>
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<tr>
<td>Parandra brunnea</td>
<td><em>Parandra brunnea</em></td>
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<tr>
<td>Saperda lateralis</td>
<td><em>Saperda lateralis</em></td>
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<tr>
<td>Strophiona nitens</td>
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<tr>
<td>Synaptaea guexi</td>
<td><em>Synaptaea guexi</em></td>
<td>316</td>
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<tr>
<td>Xylotrechus aceris</td>
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**Carpenterworm**

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<tbody>
<tr>
<td>Zeuzera pyrina</td>
<td><em>Zeuzera pyrina</em></td>
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**Hornits**

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<tr>
<td>Tremex columba</td>
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<tr>
<td>Xiphydra maculata</td>
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**Miner, cambium**

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<tr>
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**Weevil**

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<td>Conotrachelus anthaglypticus</td>
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**Roots, root collar**

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<tr>
<td>Borers, roundheaded</td>
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<td>388</td>
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**Caterpillars**

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<tr>
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<tbody>
<tr>
<td>Sthenoptis argenteomaculatus</td>
<td><em>Sthenoptis argenteomaculatus</em></td>
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<td>Sthenoptis thule</td>
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**Miner, cambium**

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<tr>
<td>Phytobia setosa</td>
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**Maple, bigleaf**

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<td>Buds, shoots, petioles</td>
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**Proteotera aesculana**

<table>
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<tbody>
<tr>
<td>Twigs, small branches</td>
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</table>

**Caterpillar**

<table>
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<tr>
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**Maple, black**

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**Obrussa ochrefasciella**

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**Agrilus politus**

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<tr>
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**Maple, dwarf**

<table>
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<tr>
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**Xylosandrus compactus**

<table>
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<tr>
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**Maple, mountain**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Roots, root collar</td>
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**Sthenoptis thule**

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<tr>
<td>Trunk, large branches</td>
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**Gaulocampus acericanus**

<table>
<thead>
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<tr>
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**Maple, Norway**

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<th>Common Name</th>
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**Sawfly**

<table>
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<tr>
<td>Gaulacampus acericanus</td>
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**Maple, red**

<table>
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<th>Common Name</th>
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<tbody>
<tr>
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<td><em>Buds, shoots, petioles</em></td>
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**Epismus tyris**

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<td>Twigs, small branches</td>
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**Proteotera aesculana**

<table>
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<tr>
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**Corythius punctatissimus**

<table>
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**Xylosandrus compactus**

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**Corythius columbiae**

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Borers, clearwing
- *Synantbedon acerni* 68
  *Synantbedon acerrubri* 70
- Borer, flatheaded
  *Agrilus masculinus* 252
  *Borer, roundheaded
  *Xylotrechus aceris* 454
- Horntail
  *Xyphia sp.* 600
- Miner, cambium
  *Phytobia setosa* 621
- Roots, root collar
- Caterpillar
  *Sthenoptis thule* 8
  *Phytobia setosa* 621
- *Maple, Rocky Mountain*
  - Trunk, large branches
  - Caterpillar
    *Eupinus tyria* 164
    *Proteoterae alpina* 143
    *Proteoterae moffatiana* 145
- Twigs, small branches
  - Caterpillar
    *Proteoterae alpina* 143
  - Trunk, large branches
    *Beetle, ambrosia*
    *Corymbia columbiana* 511
    *Borer, clearwing
    *Synantbedon acerni* 68
    *Horntail
    *Xyphia sp.* 600
  - *Maple, southern sugar*
    - Buds, shoots, petioles
    - Caterpillar
      *Obrusia ochracea* 13
  - *Maple, striped*
    - Trunk, large branches
    - Caterpillar
      *Agrilus politus* 229
- Roots, root collar
  - Caterpillar
  - *Sthenoptis thule* 8
- *Maple, sugar*
  - Buds, shoots, petioles
    - Caterpillar
      *Obrusia ochracea* 13
      *Proteoterae alpina* 143
      *Proteoterae moffatiana* 145
    - Sawfly
      *Caecilius acericanus* 585
    - Twigs, small branches
      *Beetle, ambrosia*
      *Corymbia punctalis* 513
    - *Xyleborus* 565
    - Trunk, large branches
    - Caterpillar
      *Synantbedon acerni* 68
      *Synantbedon acerrubri* 70
    - Borer, flatheaded
      *Agrilus masculinus* 252
    - Borer, roundheaded
      *Dryobius serotinus* 438
      *Glycyotera speciosus* 451
      *Xylotrechus aceris* 454
    - Horntail
      *Xyphia sp.* 600
    - Miner, cambium
      *Phytobia setosa* 621
- *Mesquite*
  - Twigs, small branches
    - Caterpillar
      *Carmenta prosopis* 110
      *Girdlers/pruners, roundheaded
      *Oncideres pastulatus* 326
      *Oncideres rhodosticta* 329
    - Trunk, large branches
    - Borer, flatheaded
      *Chrysobothris gemma* 273
      *Chrysobothris merkeli* 273
    - Borer, roundheaded
      *Achelous melanopus serrulatus* 398
      *Calla* 409
      *Megacyllene robusta* 450
      *Stenocorax lobigerus* 402
    - Roots, root collar
    - Borer, roundheaded
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**Anelas protensis** 416
**Calluna rimoso** 409

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- Twigs, small branches
  - Borer, clearwing
    - *Carmenta prosopis* 110
  - Girdlers/pruners, roundheaded
    - *Oncideres pustulatus* 326
    - *Oncideres rhodosticta* 329
- Trunk, large branches
  - Borer, flatheaded
    - *Chrysobothris merkelli* 273
  - Borers, roundheaded
    - *Calluna rimoso* 409
    - *Megacyllene robusta* 450

Roots, root collar
- Borer, roundheaded
  - *Calluna rimoso* 409

Mesquite, western honey
- Twigs, small branches
  - Girdler/pruner, roundheaded
    - *Oncideres pustulatus* 326

*Mimosa*
- Twigs, small branches
  - Borer, clearwing
    - *Carmenta prosopis* 110
    - Girdler/pruner, roundheaded
    - *Oncideres rhodosticta* 329

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- Beetles, ambrosia
  - *Monarthrum fasciatum* 548
  - *Xyleborinus saxesent* 566
  - *Xyleborus affinis* 560

*Mistletoe*
- Trunk, large branches
  - Borer, clearwing
    - *Carmenta phoanendri* 108

Mountain-ash, American
- Trunk, large branches
  - Beetle, bark
    - *Scolytus rugulosus* 506
  - Borers, clearwing
    - *Podosesia syringae* 30
    - *Synanthedon scitula* 65
  - Borer, flatheaded
    - *Chrysobothris feronata* 267

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- *Saperda candida* 346
  - Caterpillar
    - *Eucosmophora semifuneralis* 169

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- Buds, shoots, petioles
  - Caterpillar
    - *Spilonota ocellata* 147
- Twigs, small branches
  - Beetles, ambrosia
    - *Corthylus punctatissimus* 543
    - *Xyleborus sayi* 565
- Trunk, large branches
  - Borer, clearwing
    - *Synanthedon rhododendri* 75

Mountain-mahogany
- Twigs, small branches
  - Beetle, ambrosia
    - *Corthylus punctatissimus* 543
- Trunk, large branches
  - Borer, roundheaded
    - *Neoelytus acuminatus* 464

*Mulberry*
- Twigs, small branches
  - Beetle, false powderpost
    - *Xylobiops basilaris* 286
  - Borer, roundheaded
    - *Oberea tri punctata* 374
- Trunk, large branches
  - Beetle, bark
    - *Plecopterus frontalis* 524
  - Beetles, false powderpost
    - *Xylobiops basilaris* 286
  - Borers, roundheaded
    - *Dorcaschema alternatum* 321
    - *Dorcaschema wildii* 318
    - *Neoptychoidea trilineata* 314
    - Caterpillar
    - *Eucosmophora semifuneralis* 169

*Mulberry, red*
- Trunk, large branches
  - Beetle, bark
    - *Plecopterus frontalis* 524
  - Borers, roundheaded
    - *Dorcaschema alternatum* 321
    - *Dorcaschema wildii* 318

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Parelophidion incertum 435
Mulberry, weevil
Trunk, large branches
Borer, roundheaded
Dorcaschema alternatum 321

Nannyberry
Buds, shoots, petioles
Sawfly
Janus binaculatus 611

Nectarine
Buds, shoots, petioles
Caterpillars
Anarsia lineatella 22
Grapholita molesta 160
Twigs, small branches
Caterpillars
Anarsia lineatella 22
Grapholita molesta 160
Trunk, large branches
Beetle, ambrosia
Xyleborus dispar 564
Beetle, bark
Scolytus rugulosus 506
Borer, clearwing
Symnantbedon exitiosa 59
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Common and Scientific Names of Host Plants

acacia
- Acacia spp.
  - *A. altissima* (Mill.) Swingle

alder
- black
- Italian
- mountain
- Oregon
- speckled
- white

alkali willow

American cranberrybush
- antelope brush

apple

apricot

Arizona cypress

arrowwood

ash
- black
- Carolina
- European
- green
- Oregon
- white

aspen
- bigtooth
- European
- quaking
  (see also poplar)
  (see also cottonwood)

Australian pine

avocado

azalea

baccharis
- eastern
  - seepwillow (mulefat)

baldercypress

basswood
- American
  (see also linden)

bayberry

beech
- American

birch
- gray

- *A. glutinosa* (L.) Gaertn.
- *A. cordata* Desf.
- *A. tenuifolia* Nutt.
- *A. sp.*
- *A. rugosa* (Du Roi) Spreng.
- *A. tomentosa* Moench.
- *Saeda fruticosa* (L.) Forsk.
- *Prunus dulcis* (Miller) D.A. Webb
- *Viburnum trilobum* Marsh.
- *Persea americana* Mill.
- *Taxodium distichum* (L.) Rich.
- *Tilia americana* (L.)
- *Myrica pensylvanica* Lois.
- *Fagus sp.*
- *Fagus grandifolia* Ehrh.
- *Betula sp.*
- *Betula populifolia* Marsh.
paper
river
sweet
western paper
white
yellow
blackhead
blackberry
blackgum
(see also black tupelo)
blackhaw
blueberry
blue paloverde
Boston ivy, Japanese ivy
boxelder
box-thorn
boysenberry (loganberry)
buckeye
California
Ohio
burdock
bursera
butternut
buttonbush
California boxelder

camphor-tree
catalpa
catchaw
ceanothus
blueblossom
cedar
eastern redcedar
Spanish
cherry
black
mahaleb
sour
wild
chestnut
American
chokecherry
coralbean

Betula papyrifera Marsh.
Betula nigra L.
Betula lenta L.
Betula papyrifera
var. communata (Regel) Fern.
Betula sp.
Betula alleghaniensis Britton
Pithecellobium spp.
Rubus sp.
Nyssa sylvatica Marsh.
Viburnum prunifolium L.
Vaccinium spp.
Cercidium floridum Benth. ex Gray
Parthenocissus tricuspidata
(Siebold & Zucc.) Planchon
Acer negundo L.
Lycium sp.
Rubus loganobaccus L.H. Bailey
Aesculus spp.
Aesculus californica (Spach.) Nutt.
Aesculus glabra Willd.
Arctium spp.
Bursaria spp.
Juglans cinerea L.
Cephalanthus occidentalis L.

Acer negundo ssp. californicum
(Torr. & Gray) Wesmael
Cinnamomum camphora (L.) J.S. Presl
Catalpa spp.
Acacia greggii Gray
Ceanothus spp.
Ceanothus thyrsiflorus Eschsch.
Juniperus virginiana L.
Cedrela odorata L.
Prunus spp.
Prunus serotina Ehrh.
Prunus mahaleb L.
Prunus cerasus L.
Prunus spp.
Castanea spp.
Castanea dentata (Marsh.) Borkh.
Prunus virginiana L.
Erythrina fusca Lour.
corn  \( \text{Zea mays L.} \)
cotoneaster  \( \text{Pyracantha coccinea Roem.} \)
cottonwood  \( \text{Populus spp.} \)
  black  \( \text{Populus trichocarpa Torr. & Gray} \)
  eastern  \( \text{Populus deltoides} \text{ Barr. ex Marsh.} \)
  Fremont  \( \text{Populus fremontii} \text{ Wats.} \)
  lanceleaf  \( \text{Populus acuminata} \text{ Rydb.} \)
  narrowleaf  \( \text{Populus angustifolia} \text{ James} \)
  plains  \( \text{Populus deltoides} \text{ var. occidentalis} \text{ Rydb.} \)
  swamp  \( \text{Populus heterophylla} \text{ L.} \)
(see also: poplar and aspen)
coyote brush  \( \text{Baccharis pilularis} \text{ DC.} \)
crabapple  \( \text{Malus sylvestris} \text{ (L.) Mill.} \)
currant  \( \text{Ribes spp.} \)
dewberry  \( \text{Rubus spp.} \)
dogwood  \( \text{Cornus spp.} \)
  red-osier  \( \text{Cornus stolonifera} \text{ Michx.} \)

debney  \( \text{Pithecellobium} \text{ spp.} \)
edebney  \( \text{Pithecellobium flexicaule} \text{ (Benth.)} \)
edebney  \( \text{Cost.} \)
elder  \( \text{Sambucus spp.} \)
  American  \( \text{Sambucus canadensis} \text{ L.} \)
  blackbead  \( \text{Sambucus sp.} \)
  blue  \( \text{Sambucus cerulea} \text{ Raf.} \)
  European  \( \text{Sambucus nigra} \text{ L.} \)
  Pacific red  \( \text{Sambucus callicarpa} \text{ Greene} \)
elm  \( \text{Ulmus spp.} \)
  American  \( \text{Ulmus americana} \text{ L.} \)
  cedar  \( \text{Ulmus crassifolia} \text{ Nutt.} \)
  English  \( \text{Ulmus procera} \text{ Salisb.} \)
  slippery  \( \text{Ulmus rubra} \text{ Nutl.} \)
enyo  \( \text{Eucalyptus spp.} \)
enyo  \( \text{Eucalyptus blakelyi} \text{ Maiden} \)
enyo  \( \text{Eucalyptus globulus} \text{ Labill.} \)
enyo  \( \text{Eucalyptus viminalis} \text{ Benth.} \)
enyo  \( \text{Eucalyptus cladocalyx} \text{ F. Muell.} \)
fig  \( \text{Ficus spp.} \)
fringetree  \( \text{Chionanthus virginicus} \text{ L.} \)
giant rugweed  \( \text{Ambrosia trifida} \text{ L.} \)
gingko  \( \text{Gingko biloba} \text{ L.} \)
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>goldenrod</td>
<td>Solidago spp.</td>
</tr>
<tr>
<td>golden shower</td>
<td>Cassia fistula L.</td>
</tr>
<tr>
<td>gooseberry</td>
<td>Ribes spp.</td>
</tr>
<tr>
<td>grape</td>
<td>Vitis spp.</td>
</tr>
<tr>
<td>greasewood</td>
<td>Sarcobatus sp.</td>
</tr>
<tr>
<td>black</td>
<td>Sarcobatus vermiculatus (Hook.) Torrey</td>
</tr>
<tr>
<td>great leucaena</td>
<td>Leucaena fulviflora (Schlecht.) Benth.</td>
</tr>
<tr>
<td>guajillo</td>
<td>Acacia berlandieri Benh.</td>
</tr>
<tr>
<td>gumbo-limbo</td>
<td>Bursaria simaruba (L.) Sarg.</td>
</tr>
<tr>
<td>hackberry</td>
<td>Celtis spp.</td>
</tr>
<tr>
<td>netleaf</td>
<td>Celtis reticulata Torr.</td>
</tr>
<tr>
<td>hawthorn</td>
<td>Crataegus spp.</td>
</tr>
<tr>
<td>cockspur</td>
<td>Crataegus crus-galli L.</td>
</tr>
<tr>
<td>pear</td>
<td>Crataegus cisticolor (Flrsh.) Medic.</td>
</tr>
<tr>
<td>hazel (hazelnut)</td>
<td>Corylus spp.</td>
</tr>
<tr>
<td>hemlock</td>
<td>Tsuga spp.</td>
</tr>
<tr>
<td>hickory</td>
<td>Carya spp.</td>
</tr>
<tr>
<td>bitternut</td>
<td>Carya cordiformis (Wangen.) Koch</td>
</tr>
<tr>
<td>mockernut</td>
<td>Carya tomentosa (Poir.) Nutt.</td>
</tr>
<tr>
<td>pignut</td>
<td>Carya glabra (Mill.) Sweet</td>
</tr>
<tr>
<td>shagbark</td>
<td>Carya ovata (Mill.) Koch</td>
</tr>
<tr>
<td>water</td>
<td>Carya aquatica (Michx.) Nutt.</td>
</tr>
<tr>
<td></td>
<td>(see also pecan)</td>
</tr>
<tr>
<td>holly</td>
<td>Ilex spp.</td>
</tr>
<tr>
<td>American</td>
<td>Ilex opaca Ait.</td>
</tr>
<tr>
<td>honeylocust</td>
<td>Glechoma triacanthos L.</td>
</tr>
<tr>
<td>hop</td>
<td>Humulus lupulus L.</td>
</tr>
<tr>
<td>hop hornbeam</td>
<td>Ostrya spp.</td>
</tr>
<tr>
<td>eastern</td>
<td>Ostrya virginiana (Mill.) Koch</td>
</tr>
<tr>
<td>hornbeam</td>
<td>Carpinus sp.</td>
</tr>
<tr>
<td>American</td>
<td>Carpinus caroliniana Walt.</td>
</tr>
<tr>
<td>horsebean</td>
<td>Parkinsonia aculeata L.</td>
</tr>
<tr>
<td>horsechestnut</td>
<td>Aesculus spp.</td>
</tr>
<tr>
<td>(see buckeye)</td>
<td></td>
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<tr>
<td>huisache</td>
<td>Acacia farnesiana (L.) Willd.</td>
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<tr>
<td></td>
<td>(see smokethorn)</td>
</tr>
<tr>
<td>Jerusalem-thorn</td>
<td>Parkinsonia aculeata L.</td>
</tr>
<tr>
<td>kapok</td>
<td>Ceiba pentandra (L.) Gaertner</td>
</tr>
<tr>
<td>larch</td>
<td>Larix spp.</td>
</tr>
</tbody>
</table>
laurel (mountain-laurel)
laurelcherry
Carolina headplant
lilac
linden
European
(see also basswood)
lindheimer mimosa
locust
black
New Mexico
loquat
lupine

Madrone
maple
bigleaf
black
Florida mountain
Norway planetree
red
Rocky Mountain silver
southern sugar
(see Florida maple)
striped
sugar
mazzard (sweet cherry)
mesquite
honey
western honey

Mimosa
Robinia

Mimosa lindheimeri Gray

Arbutus spp.

Arbutus menziesii

Arbutus unedo

Arbutus unedo L.

Arctostaphylos uva-ursi

Arctostaphylos uva-ursi Vaccmer

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Arctostaphylo
Morus spp.
Morus rubra L.
Morus alba L.

Viburnum lantago L.

Prunus persica var. nucipersica
(Suckow) C. Schneider

Physocarpus opulifolius (L.) Maxim.

Quercus spp.
Quercus arizonica Sarg.
Quercus ilicifolia Wangenh.
Quercus velutina Lam.
Quercus marilandica Muenchh.
Quercus kelloggii Newb.
Quercus dumosa Nutt.
Quercus chrysolepis Liebm.
Quercus falcata var. pagodifolia Ell.
Quercus prinus L.
Quercus muehlenbergii Engl.
Quercus agrifolia Nee
Quercus dunnii Kellogg
Quercus emoryi Torr.
Quercus engelmannii Greene
Quercus gambeli Nutt.
Quercus wislizeni A. DC.
Quercus laurifolia Michx.
Quercus virginiana Mill.
Quercus oblongifolia Torr.
Quercus rubra L.
Quercus mitchellii Palmer
Quercus garryana Doug., ex Hook.
Quercus lyrata Walt.
Quercusologie A. Camus
Quercus sp.
Quercus shumardii Bucld.
Quercus hypoleucoides A. Camus
Quercus facata Michx.
Quercus micbauxii Nutt.
Quercus bicolor Willd.
Quercus laevis Walt.
Quercus nigra L.
white
willow
olive
orange (sweet)
Osage-orange

**paperbark-tree**
(bottlebrush or cajeput-tree)

**paulownia**

**peach**

**peanut**

**pear**

**pecan**
(see also hickory)

**penstemon**

**peppertree (California)**

**persimmon**

**common**

Japanese

photinia

**pigeon plum**

pine

plum

beach

Chickasaw

Chinese

garden

wild

**poison ivy**

**poison oak**

**pomegranate**

poplar

**balsam**

Lombardy

white (silver)
(see also aspen
and cottonwood

**privet**

pyracantha

**quince**

**raspberry**

*Quercus alba* L.

*Quercus phellos* L.

*Olea europaea* L.

*Citrus sinensis* (L.) Osbeck

*Machura pumfera* (Rafl.) Schneid.

*Melaleuca quinquemervia* (Cav.) S.T. Blake

*Paulownia tomentosa* (Thunb.) Sieb. & Zucc. ex Steud.

*Prunus persica* Batsch.

*Arachis hypogaea* L.

*Pyrus communis* L.

*Carya illinoensis* (Wangenh.) K. Koch

*Penstemon* spp.

*Schinus molle* L.

*Diospyros* spp.

*Diospyros virginiana* L.

*Diospyros kaki* L.

*Heteromeles* spp.

*Coccocloa diversifolia* Jacq.

*Pinus* spp.

*Prunus* spp.

*Prunus maritima* Marshall

*Prunus angustifolia* Marshall

*Prunus* sp.

*Prunus domestica* L.

*Prunus* sp.

*Toxicodendron radicans* (L.) Kuntze

*Toxicodendron diversilobum* (Torrey & A. Gray) E. Greene

*Punica granatum* L.

*Populus* spp.

*Populus balsamifera* L.

*Populus nigra* var. *italica* Muenchh.

*Populus alba* L.

*Ligustrum* spp.

*Pyracantha* spp.

*Cydonia oblonga* Miller

*Rubus* spp.
redbay
redbud
eastern
rhododendron
rose
rush bebbia

**Saltbush**
- fourwing
- Gardner
- Parry
- shadscale

sassafras
seagrape
serviceberry
downy
western
smoketree
sneezeweed
sourwood
Spanish cedar
spicebush
spruce
sugarberry
(see also hackberry)

sumac
- smooth (common)
- poison-sumac
sweetfern
sweetgum
sweetleaf
sycamore
Arizona
California

**thistle**
tupelo
water
black
(see also blackgum)

**viburnum**
Virginia creeper

Persea borbonia (L.) Spreng.
Cercis spp.
Cercis canadensis L.
Rhododendron spp.
Rosa spp.
Bebbia juncea (P.H. Timberlake)

Atriplex sp.
Atriplex canescens (Pursh.) Nutt.
Atriplex gardneri (Moq.) D. Dietr.
Atriplex parryi Wats.
Atriplex confertifolia
(Torr. & Frem.)
Sassafras albidum (Nutt.) Nees
Coccoloba uvifera (L.) L.
Amelanchier spp.
Amelanchier arborea (Michx.) Fern.
Amelanchier alnifolia (Nutt.) Nutt.
Dalea spissa Gray
Helenium sp.
Oxydendrum arboreum (L.) DC.
Cedrela odorata L.
Lindera benzoin (L.) Blume
Picea spp.
Celtis laevigata Willd.

Rhus spp.
Rhus glabra L.
Rhus vernix L.
Comptonia peregrina (L.) J.M. Coulter
Liquidambar styraciflua L.
Symphocotis tinctoria (L.) L’Her.
Platanus occidentalis L.
Platanus wrightii Wats.
Platanus racemosa Nutt.

Carduus spp.
Nyssa spp.
Nyssa aquatica L.
Nyssa sylvatica Marsh.

Viburnum spp.
Parthenocissus quinquefolia
L. Planch.
walnut
  black  Juglans nigra L.
  English  Juglans regia L.
  Japanese  Juglans sieboldiana Maxim.
willow
  acute leaf  Salix spp.
  arroyo  Salix lasiolepis Benth.
  black  Salix nigra Marsh.
  Bonpland  Salix bonplandiana H.B.K.
  crack  Salix fragilis L.
  European yellow  Salix sp.
  golden leaf  Salix sp.
  laurel leaf  Salix pentandra Lorbeerweide
  meadow  Salix petiolaris J.E. Sm.
  Pacific  Salix lasiolepis Benth.
  sandbar (coyote)  Salix exigua (Nutt.)
  Scouler  Salix scouleri库raa Barrett ex Hook.
  weeping  Salix babylonica L.
  wisteria  Wisteria spp.
  witch-hazel  Hamamelis virginiana L.

yellow-poplar  Liriodendron tulipifera L.

Zelkova
  Zelkova sp.
  Japanese  Zelkova serrata (Thunb.) Makino


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