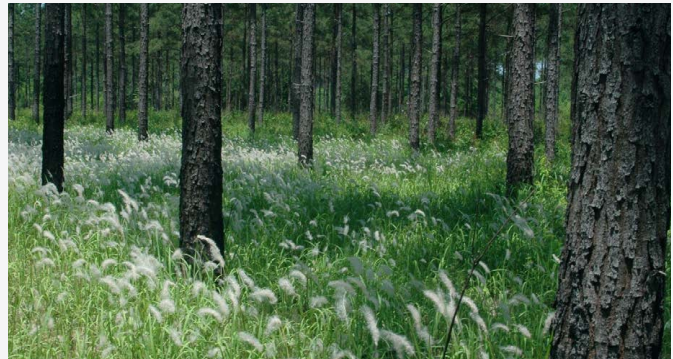




Invasive Insects, Plants, and Pathogens of Concern in Arkansas



This booklet serves as an efficient guide to the invasive species of concern in Arkansas.

If you have a suspected sighting of any of the pests listed, please contact any of the agencies listed below.

Arkansas Department of Agriculture
Forestry Division (501) 225-1598

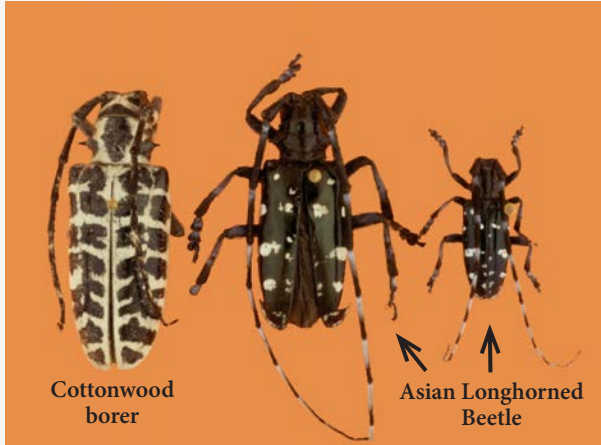
USDA-APHIS-PPQ - (501) 324-5258



This field guide was revised by Arkansas Department of Agriculture and Jake Bodart. Originally prepared by Soo-Hoon (Sam) Kim. Funds provided from CAPS CORE - Pest Detection Cooperative Agreement.



Asian Longhorned Beetle



Cottonwood borer

Asian Longhorned Beetle

Anoplophora glabripennis

Signs & Symptoms

Bark cracks, branch dieback, tree mortality. Oval to round pits in bark for egg niche. During summer months sap may flow from egg niches. Round exit holes 3/8" in diameter. Accumulation of saw dust around base of tree.

Identification

Adult - 1 to 1.5" in length, with long, white and black banded antennae. Body jet black with mottled white spots and may have blue color on feet. Active June - October.

Hosts

Maples species (*Acer* spp.). Other hosts include birch, elm, golden raintree, sycamore, horsechestnut/buckeye, katsura, mimosa, mountain ash, poplar, and willow.



Information gathered from USDA Pest Alert 2015. FS NA-PR-01-99

Photos (Clockwise from top): Cottonwood borer vs. ALB - G. J. Lenhard, LSU, Bugwood.org.; ALB larvae - J. Boggs, Bugwood.org.; ALB exit hole - J. Boggs, Bugwood.org, Front: (Clockwise from top): ALB adult - J. Boggs, Bugwood.org; ALB adult - M. Bohne, Bugwood.org; ALB oviposition site - D. Herms, OSU, Buwood.org



Emerald Ash Borer



Agrilus planipennis

Signs & Symptoms

Top 1/3 of tree begins to die off. Epicormic sprouts grow from roots and trunk. Leaves often larger than normal. Bark splitting with galleries under bark. Distinct serpentine (s-shaped) galleries with D-shaped exit hole. Increased woodpecker activity.

Identification

Adult - bright metallic green, 1/2 inch long, purple abdominal segments under wings.

Larvae - Flat in appearance, creamy white, legless, bell-shaped body segments.

Hosts

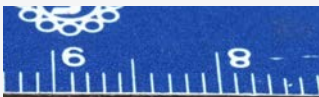
Ash species (*Fraxinus* spp.) and white fringe tree (*Chionanthus virginicus*).

Information gathered from M. Wilson and E. Rebeck 2005. MSU Ext Bul E-2938.

Photos (Clockwise from top left): EAB Damage - D Herms, OSU, Bugwood.org; EAB emergence hole - K. R. Law, USDA-APHIS/PPQ, Bugwood.org; EAB larvae - Chandler Barton, Ark. Forestry Comm., EAB larval gallery - Chandler Barton, Ark. Forestry Comm. Front: D. Cappaert, MSU, Bugwood.org



Sirex noctilio



Sirex noctilio

Signs & Symptoms

Wilting of foliage after initial attack. Foliage changes color from green > yellow > red. Resin beads or resin flow at egg laying site. Round exit holes 1/8 to 3/8 inch wide.

Identification

Adult - 0.5 to 1.5 inch long. Body dark metallic blue or black; abdomen of males black with middle segments orange. Legs reddish-yellow; feet (tarsi) black; males with black hind legs.

Larvae - Creamy white in color, legless, have a dark spine at end of abdomen.

Hosts

Primarily pine species (*Pinus* spp.), but can infest other conifers such as fir (*Abies*) and spruce (*Picea*).

Information gathered from D. A. Haugen and E. R. Hoebeke. 2005. NA-PR-07-05; Massachusetts Introduced Pests Outreach Project, Sirex Woodwasp. 2014.

Photos (Clockwise from top left): Female - S. Valley, ODA, Bugwood.org; Male - S. Valley, ODA, Bugwood.org; Emergence Hole - D. R. Lance, USDA-APHIS-PPQ, Bugwood.org; Larva - W. M. Ciesia, FHMI, Bugwood.org; Front: V. Klasmer, INTA, Bugwood.org



Gypsy Moth



Lymantria dispar

Signs & Symptoms

Visible egg masses. Larval feeding defoliates trees within the forest. Excrement from larvae covers ground below canopy. During high infestation, larvae seen crawling everywhere.

Identification

Adult - Males are grayish brown with dark markings and feathery antennae. Females are white with black markings and thin black antennae. Females larger in size and cannot fly.

Larvae - Bodies are hairy. Five pairs of blue dots followed by six pairs of red dots on the back.

Hosts

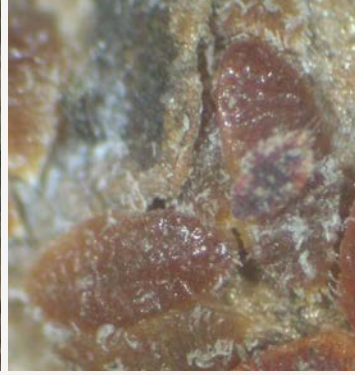
A wide variety of preferred hosts, including: alder, aspen, birch, oak, beech, cedar, hemlock, pine, chestnut, and spruce.

Information gathered from G. A. Hoover. 2000.PSU Ext. TS-20.

Photos (Clockwise from top left): Male (left) Female (right) - USDA-APHIS-PPQ, Bugwood.org;

Female laying eggs - SD. Herms, OSU, Bugwood.org; Defoliation - LM. Nageleisen, DSF,

Bugwood.org; Front: Larva - E. Akulov, RRIPQ, Bugwood.org



Crape Myrtle Bark Scale



Acanthococcus lagerstroemiae

Signs & Symptoms

Bark has a black appearance. This coloration occurs from sooty mold growing on the honey dew secreted from the Crape myrtle bark scale.

Identification

Adults - Approx. 2 mm in length with a white to gray felt cover. Pink eggs or crawler life stages may be present under adults.

Hosts

Crape myrtle.

Information gathered from Dr. James Robbins et. al. 2016. UA Ext. FSA7086.

Photos from Dr. James Robbins (Clockwise from top left): Severe infestation of CMBS; Crape myrtle with CMBS and sooty black mold; Crape myrtle with black appearance from CMBS. Front: Adult CMBS; Adult CMBS; Adult CMBS; Adult CMBS with crawler life stage present.



Brown Marmorated Stink Bug



Halyomorpha halys

Signs & Symptoms

Feeding damage causes small necrotic regions on the fruit and foliage of many plants. Damage to the fruit can include water-soaked lesions, cat-facing, or prematurely aborted fruit.

Identification

Adults - Shield shaped, Alternating dark and light bands of the antennae and the edges of the abdomen.

Nymph - Alternating dark and light bands on antennae and legs.

Hosts

This pest can damage a wide variety of hosts including: tree fruit, small fruit, legumes, and deciduous trees. Potential to feed on ornamentals and weeds.

Information gathered from D. T. Johnson and A. Lynn-Miller. 2013. UA Ext. FSA7080.
Photos (Clockwise from top left): Damage -T. Leskey et al., OPM 23: 197-244; Nymphs - G. Bernon, USDA-APHIS-PPQ, Bugwood.org; Nymphs -D.R. Lance, USDA-APHIS-PPQ, Bugwood.org; Front: Nymph - S. Ellis, Bugwood.org; Adult — S. Valley, ODA, Bugwood.org



Sakhalin Pine Sawyer



Monochamus saltuarius

Signs & Symptoms

Round emergence holes, oviposition scars, and feeding on the bark by adults. Larval galleries in xylem packed with frass and shredded wood. U-shaped pupal chambers.

Identification

Adults predominantly black with numerous yellowish and white spots. Legs and first antennal segment covered partly with grey spots.

Hosts

Variety of hosts: larch spp., Japanese cedar, fir spp., pine spp.

Information gathered from Exotic Wood Borer/Bark Beetle reference guide. CAPS.

Photos (Clockwise from top left): Adult — G. Csoka, Hungary Forest Research Institute, Bugwood.org; Damage — G. Csoka, Hungary Forest Research Institute, Bugwood.org; Adult — M. Jure, University of Ljubljana, Bugwood.org; Front: Adult - G. Csoka, Hungary Forest Research Institute, Bugwood.org;



Oak Splendor Beetle



Agrilus biguttatus

Signs & Symptoms

D-shaped exit holes on bark. Zigzag frass-filled galleries in inner bark. 1st instar have staircase pattern. Dark cracks and discoloration of bark and cambial tissue over galleries. Twig and branch dieback, thinned crowns, and tree mortality. Increased woodpecker activity.

Identification

Adults are slender and metallic green with several white spots. Two white spots on the interior margin of the wing cover (elytra) are a key characteristic.

Hosts

Primary oak species, but can attack beech and chestnut species.

Information gathered from

http://www.ipm.msu.edu/uploads/files/Forecasting_invasion_risks/oakSplendorBeetle.pdf

Photos (Clockwise from top left): Adult - S. Valley, OR Dept Ag. ugwood.org; Larvae - V. Meshkova, UR1FFM, Bugwood.org; 1st instar galleries - LM. Nageleisen, DSF, Bugwood.org; Front: Adult-N. Wright, FLDACS, Bugwood.org;



Tremex Wood Wasp



Tremex fuscicornis

Signs & Symptoms

Wilting of foliage after initial attack. Resin beads or resin flow at egg laying site. Round exit holes 1/8 to 3/8 inch wide. Branch/crown dieback and reduced growth.

Identification

Adult - Males are all black with brown wings. Females are orange-yellow with black stripes on the abdomen.

Larvae - Creamy white in color, legless, have a dark spine at end of abdomen.

Hosts

Can attack wide a variety including the following species: poplar, elm, beech, willow, maple, oak, and other deciduous trees.



Information gathered from USUA-APHIS.2011.New Pest Response Guidelines: Tremex Wood Wasp (*Tremex fuscicornis* (F.)).

Photos (Clockwise from top left): Adult female - Morand; Adult male - D. Roustide; Larvae - D. Roustide; Front: Adult female and male - D. Roustide; All pictures are from http://www.galerie-insecte.org/galerie/tremex_fuscicornis.html



Thousand Cankers Disease



Geosmithia morbida & *Pityophthorous juglandis*

Signs & Symptoms

An early sign of disease is yellowing leaves progressing to brown wilting leaves and then branch mortality. Development of cankers along the phloem under the bark. Presence of cracking bark, dark colored stain on the bark, and numerous tiny exit holes by the walnut twig beetle.

Spread

This disease is locally spread by the walnut twig beetle, *Pityophthorous juglandis*.

Hosts

Primarily found on black walnut (*Juglans nigra*), but canker formation can be observed in other walnut species.

Information gathered from <http://www.fs.fed.us/foresthealth/fhm/sp/tcd/tcd.shtml>

Photos (Clockwise from top left): Canker development - C. Utiey, CSUE, Bugwood.org; Walnut twig beetle - W. Cranshaw, CSU, Bugwood.org; Walnut twig beetle - S. Valley, ODA, Bugwood.org; Cankers - N. Tisserat, CSU, Bugwood.org; Front: Damaged trees - N. Tisserat, CSU, Bugwood.org



Sudden Oak Death



Phytophthora ramorum

Signs & Symptoms

Bark - Development of cankers on the trunk of main stem with reddish to black discoloration and oozing of sap.

Leads to crown dieback and ultimately tree death.

Foliage - Development of grey to brown lesions on the leaf. Margins of lesions are indistinct. Leads to twig dieback.

Transmission

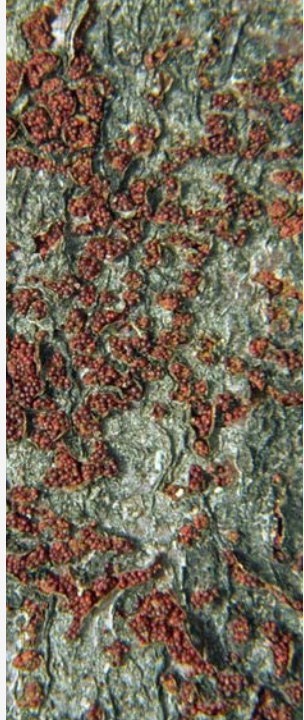
Although not found on the east coast, can be transmitted to the east through infected ornamental trees and plants.

Hosts

Wide variety of hosts including many oak species, grand fir, horsechestnut, *Camellia* spp., *Viburnum* spp., *Rhododendron* spp., huckleberry, big leaf maple, and Douglas fir.

Information gathered from <http://www.fs.fed.us/foresthealth/fhm/sp/sod/sod.shtml>

Photos (Clockwise from top left): Canker development - J. O'Brien, USDA FS, Bugwood.org; Canker staining, - J. O'Brien, USDA FS, Bugwood.org; Leaf symptoms -J.W. Lotz, FDACS, Bugwood.org; Front: Damaged trees - J. O'Brien, USDA FS, Bugwood.org



Beech Bark Disease



Cryptococcus fagisuga & *Nectria coccinea* var. *faginata*
(also *N. galligena*)

Signs & Symptoms

White woolly appearance on bark (scale insect). Oozing, blackened spots are early symptoms of *Nectria* infection. Crater-like scars or cankers. Thinning crown.

Spread

Scale insect - waxy secretions around body. Yellow, elliptical, and 1 mm at maturity.

Fungus - reproductive fruiting bodies, or perithecia, are small clusters of red spheres; mature in fall. Reproductive fruiting bodies are white cushions of spores found in mid-summer.

Hosts

American beech (*Fagus grandifolia*).

Information gathered from D. Houston and J. O'Brien. 1983. USDA FS FIDL 75.

Photos (Clockwise from top left): Scale insect - J. O'Brien, USDA FS, Bugwood.org; Scale insect (waxy covering) - J. O'Brien, USDA FS, Bugwood.org; Canker - J. O'Brien, USDA FS, Bugwood.org; Canker development - J. O'Brien, USDA FS, Bugwood.org Front: Fungus fruit bodies - A. Kunica, NFC, Bugwood.org; Scars - USDA-FS-NCRS, USDA-FS, Bugwood; Tree mortality - J. O'Brien, USDA FS, Bugwood.org



Oak Wilt



Ceratocystis fagacearum

Signs & Symptoms

Common in northern Arkansas. Leaves throughout the crown dull or bronze, progressing from outer sections to mid-vein of leaf. Bark splits revealing small patches of decay or fungal mats on the trunk and branches.

Transmission

Sap beetles feed in fungal mats and vector disease. Root grafts transmit disease to neighboring trees. Within tree, pathogen moves through xylem vessels.

Hosts

All species of oak (*Quercus* spp.), red oaks more susceptible.

Information gathered from C. Rexrode and D. Brown. 1983. USDA FS FIDL 29. Phylus (Clockwise from top left): Leaf symptoms - R. F. Billings, TFS, Bugwood.org; fungal mat under bark - MDNR, MDNR, Bugwood.org; Bark splitting - NCFCS, Bugwood.org; Leaf symptoms - D. W. French, UMN, Front: Damaged trees - J. O'Brien, USDA FS. Bugwood.org



Laurel Wilt Disease



Raffaelea lanricola & *Xyleborus glabratus*

Signs & Symptoms

Wilting crowns with discolored and stunted foliage. Wilted leaves stay on tree after dying. Toothpick shape protrusion from beetle entry hole. Black stain in sapwood originating from the beetle gallery.

Transmission

Redbay ambrosia beetle (brown, 1/16" and cylindrical) transports fungal spores between trees. Flight is June - October, with multiple generations per year.

Hosts

Preferred host, redbay (*Persea borbonia*), not common in Arkansas. Alternative hosts: Sassafras (*Sassafras albidum*), spicebush, and pondberry.

Information gathered from <https://www.fs.fed.us/research/invasive-species/insects/red-bay-ambrosia-beetle.php> Photos (Clockwise from top left): Redbay ambrosia beetle - M. C. Thomas, FDACS, Bugwood.org; Wilted leaves - A. Mayfield, USDA FS, Bugwood.org; Frass tubes - J. Johnson, GFC, Bugwood.org; Sapwood streaking - A. Mayfield, USDA FS, Bugwood.org; Front: Damaged trees - C. Bates, GFC, Bugwood.org





Pine Witches' Broom Phytoplasma



Candidatus Phytoplasma pini

Signs & Symptoms

Pine - yellowing, dwarfing/stunting, twisted needles (forms dense ball-like structure), and prolific branching (forms witches' broom).

Spruce - shoot/needle malformation and stunted growth.

Fir and Hemlock - Witches' broom and needle discoloration.

Transmission

Insect vectors or by grafting. Can also be spread from infected propagative plant material.

Hosts

Wide variety of hosts: pine spp., spruce, fir, hemlock, and cypress.

Information gathered from http://caps.ceris.purdue.edu/webfm_send/2169

Photos (Clockwise from top left): All pictures taken by Juan Bibiloni Pou and used with permission from <http://mundani-garden.blogspot.com/2011/07/candidatus-phytoplasma-pini-it-makes.html>



White/Scots Pine Blister Rust



Cronartium faccidum

Signs & Symptoms

This disease causes yellowish, necrotic spots on the needles. Chlorosis and necrosis of the infection site, yellowing and premature defoliation, branch death, bark discoloration, cankers and deformed lesions (acecia). Excessive resin exudation seen in the lesions.

Transmission

Insect vectors and by wind.

Hosts

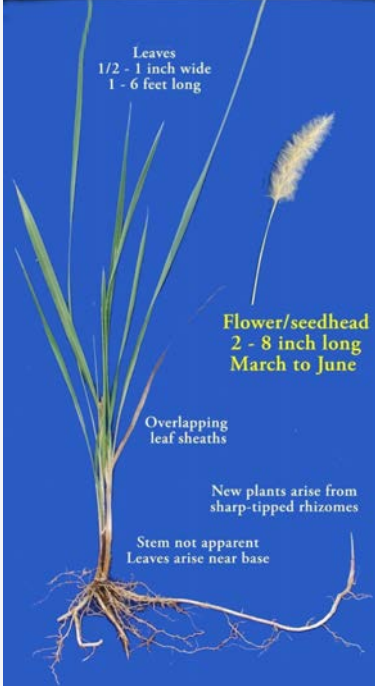
Wide variety of host including many pine spp.
Alternative hosts include: *Ribes* spp., *Asclepias* spp., *Melampyrum* spp., *Paeonia* spp., *Pedicularis* spp., and *Vincetoxicum* spp.

Information gathered from http://caps.ceris.perdue.edu/webfm_send/650;

<http://www.cabi.org/isc/datasheet/16154>. Photos (Clockwise from top left): Disease on alternative host — M. Deml, www.biolin.cz/en; Close up of telial columns — M. Deml, www.biolin.cz/en; Acecia — O. Zincha, www.biolin.cz/en; Front: Acecia I. Cech, BFW



Cogongrass



Imperata cylindrica

Identification

Cylindrical in shape. Reaches up to 6 feet in height. Leaves are 1/2- 1 inch wide and up to 6 feet long. Leaves are yellowish-green in color with the white midrib off center. Production of fluffy, white, plume-like seed heads in the spring.

Dispersal

Dispersal by rhizomes of existing plants and seeds.

Damage

Can be an agriculture pest. Allelopathic, stunts growth of neighboring plants by producing chemicals in the soil. Addition of fuel for forest fires.

Notes

Cogongrass includes ornamental Japanese Bloodgrass and Red Baron. These are all prohibited in Arkansas.

Information gathered from <http://www.cogongrass.org>, and Jennings et. al. UA ex FSA2126. Photos (Clockwise from top left): Cogongrass - C. Evans, IWAP, Bugwood.org; Cogongrass seedhead - M. Atwater, WCU Inc., Bugwood.org; Cogongrass roots - C. Barger, UGA, Bugwood.org; Front: Cogongrass - C. Evans, IWAP, Bugwood.org



Chinese Privet



Ligustrum sinense

Identification

Thicket forming evergreen shrub to 30 feet. Leaves are ovate to elliptic, thin and opposite. Flowers are white to cream forming a panicle. Fruit are dense drupes, green in summer, dark purple when ripe.

Dispersal

Colonize by root sprouts and seed dispersal by wild life.

Damage

Aggressive, shade tolerant, forms dense thickets, and overtakes habitat for native flora and fauna.

Information gathered from James Miller et. AL., A field guide for the identification of invasive plants in southern forests, USDA-FS SRS_119.. Photos (Clockwise from top left: Privet- James H. Miller & Ted Bodner, IWAP, Bugwood.org; Privet fruit - Paul Shell, Ark. State Plant Board; Privet ornamental - Paul Shell, Ark. State Plant Board; Front: Privet - Paul Shell, Ark. State Plant Board.



Water Hyacinth



Eichhornia crassipes

Identification

Floating water weed with waxy, dark green, rounded leaves with swollen, spongy, bulbous leaf stalks. Roots are fibrous and dark purple to black in color. Flowers have 6 lavender-blue petals with one bright yellow, blue-bordered central oval spot.

Dispersal

Fast growing and reproduces vegetatively with new rosettes growing from the stolons of the mother plant. Also by seed dispersal.

Damage

Rapid growth overtakes habitat for native flora and fauna of wetlands.

Information gathered from <http://plants.ifas.ufl.edu/node/141>

Photos (Clockwise from top left): Water Hyacinth - Paul Shell, Ark. State Plant Board; Water Hyacinth - L.J. Mehrhoff, UCONN, Bugwood.org; Flower - L.J. Mehrhoff, UCONN, Bugwood.org; Front: Water Hyacinth - Paul Shell, Ark. State Plant Board



Purple Loosestrife



Lythrum salicaria

Identification

Erect. Stems square shaped, Leaves narrow with rounded base and are angled oppositely along stem. Purple flowers with 5-6 petals and a yellow center. Can be found along waterways or other wetland habitats.

Dispersal

Seed dispersal, but also vegetatively spread by root stock.

Damage

Rapid growth overtakes habitat for native flora and fauna.

Information gathered from Wilson et al. 2004. FHTET-2004-12. 78p.

Photos (Clockwise from top left): Purple loosestrife - Paul Shell, Ark. State Plant Board; Flower - L.J. Mehrhoff, UCONN, Bugwood.org; Stem - R. Routledge, Sault College, Bugwood.org; Front: Purple loosestrife - Paul Shell, Ark. State Plant Board



Giant Salvinia / Karibaweed



Salvinia molesta

Identification

Aquatic floating fern with green to brown oblong shaped leaves. Mature plants grow into each other forming large mats. Surface of the leaf has cylindrical "hairs" that look like egg beaters.

Dispersal

Humans (boats, other water crafts, commercial purchase, etc.) and naturally through moving bodies of water.

Damage

Rapid growth overtakes habitat for native flora and fauna. Can clog irrigation and drinking water lines as well as damage hydroelectric plants.

Information gathered from USDA-APHIS Pest Alert. APHIS 81-35-006.

Photos (Clockwise from top left): Cylindrical hairs - R. Videki, DK, Bugwood.org; Plant - L.J. Mehrhoff, UCONN, Bugwood.org; Plant mat - T. Evans, GSMNP, Bugwood.org; Front: Infestation - T.D. Center, USDA-ARS. Bugwood.org



Tropical Soda Apple



Solanum viarum

Identification

Upright, thorny shrub armed with long straight barbs along main portion. Leaves resemble oak leaves with tiny white recurved petals. Fruit resemble small watermelon - round, mottled green then ripens to yellow in color. Can grow 6 feet tall and wide.

Dispersal

Seed dispersal by animals and seed contaminated hay, sod, potting media, manure, etc.

Damage

Can prevent movement through area and restrict wildlife grazing. Displaces native plants, disrupts ecosystem, and can serve as host for viruses infecting crops.

Information gathered from J. Miller. 2003. Gen. Tech. Rep. SRS-62, and Top Ten Invasive Species of Concern in Arkansas, Univ. of Ark. Division of Ag, and Ark. State Plant Board. Photos (Clockwise from top left): Thorns on plant - J. W. Everest, AU, Bugwood.org; Leaf - K. A. Rawlins, UG, Bugwood.org; Fruit and Flowers - C. T. Bryson, USDA-ARS Bugwood.org; Front: Infestation - J. J. Mullahey, UF, Bugwood.org



Callery Pear / Bradford Pear



Pyrus calleryana

Identification

Deciduous tree up to 60 feet tall. Leaves glossy and ovate with long petiole. Flowers are 5-petaled, white, and in large clusters. Produces small pear fruits.

Dispersal

Can colonize by root sprouts, hybridizes with other callery pear varieties, and seed dispersal by wild life.

Damage

Forms dense thickets, partial shade tolerance, and overtakes habitat for native flora and fauna. Tree often splits during wind and ice storms due to branches forking from trunk at narrow angles.



Information gathered from James Miller et. Al., A field guide for the identification of invasive plants in southern forests, USDA-FS SRS_119.. Photos (Clockwise from top left): Callery pear fruit - Paul Shell, Ark. State Plant Board; Callery Pear flower - Paul Shell, Ark. State Plant Board; Front: Callery pear- Paul Shell, Ark. State Plant Board.



Chinaberry



Melia azedarach

Identification

Deciduous tree up to 50ft tall. Reddish, purplish bark. Leaves alternate, long-petioled, 2-3 times compound, up to 1.5ft long, pungent odor when crushed, dark green above and lighter below, margins serrate. Flowers small, fragrant with 5 lilac petals, stalks of stamens united into dark purple tube. Yellow-yellowish green fruit with thin fleshy globes.

Dispersal

Root sprouts and seed dispersal.

Damage

Shade out other species by prolific reproduction, leaf litter from tree causes increase in soil alkalinity, and reduces plant diversity in the area.



Information gathered from A. Richard and V. Ramey. UF-IFAS Pub# SP 431. 2007. Photos (Clockwise from top left): Flowers - C. Evans, IWAP, Bugwood.org; Leaf - J.

H. Miller, USFS, Bugwood.org; Fruit - R. F. Billings, TFS, Bugwood.org; Front: Mature tree - C. McCormick, UF, Bugwood.org



Paulownia / Princess tree



Paulownia tometosa

Identification

Medium sized tree (30-60 ft). Can be mistaken for calalpa tree. Leaves: large broad oval to heart-shaped, arranged opposite on stem, hairy on both sides. Twigs: stout, brown, and speckled with white dots. Flowers: large, fragrant, and light violet-pink. Forms in clusters, tubular corollas ending in 5 unequal lobes. Fruit: egg-shaped capsules, green in the summer to dark brown by winter.

Dispersal

Root sprouts and seed dispersal.

Damage

Reduces plant diversity in the area and shades out other species.

Information gathered from NPS-USFWS. 2010, Plant invaders of Mid-Atlantic Natural Areas; Southeast exotic pest plant council invasive plant manual, Bugwood.org. Photos (Clockwise from top left): Foliage - PDCNR, Bugwood.org; Flower & Foliage J. R. Allison, GDNR, Bugwood.org; Flower - L. J. Mehrhoff, UC, Bugwood.org; Fruit - R. Videki, DK, Bugwood.org; Front: Mature tree - T. Davis Sydnor, OSU, Bugwood.org



Tree of Heaven



Ailanthus altissima

Identification

Up to 80 feet tall. Leaves can be up to 3 feet long, pinnately compound leaves with circular glands under leaflet base. Flowers are yellow-green and form a large terminal cluster up to 20 in. Female trees produce wing shaped fruit with twisted tips.

Dispersal

Root sprouts and seed dispersal.

Damage

Vigorous growth, shade intolerant, and allelopathic.



Information gathered from Miller et. al., USDA-FS-SRS-119, Invasive plants in southern forests. Photos (Clockwise from top left): Flower - J. Samanek, SPA, Bugwood.org; Seed - C. Barger, UGA, Bugwood.org; Foliage - J. H. Miller, USFS, Bugwood.org; Front: Mature tree - L. J. Mehrhoff, UC, OSU, Bugwood.org



Kudzu



Pueraria montana

Identification

Climbing or trailing vine, herbaceous to semiwoody, and fast growing (can extend 30-100ft, up to 30 vines can grow from one plant). Leaves - alternate and compound leaves with three leaflets (maybe lobed). Flowers - around 1/2 inch long, purple, upright in clusters. Seeds - around 10 seeds in a brown, hairy, flattened seed pod.

Dispersal

Seed dispersal, rhizomes, sending out runners, and vines can root at nodes forming new plants.

Damage

Prolific reproduction, shade out other species. Can girdle trees and weight of plant can break trees.

Information gathered from NPS-USFWS. 2010, Plant invaders of Mid-Atlantic Natural Areas; and Miller et. al., USDA-FS-SRS-119, Invasive plants in southern forests. Photos (Clockwise from top left): Leaves - L. J. Mehrhoff, UC, Bugwood.org; Flower - L. J. Mehrhoff, UC, Bugwood.org; Seed - L. J. Mehrhoff, UC, Bugwood.org; Front: Mature tree - L. J. Mehrhoff, UC, Bugwood.org



Lespedeza



Lespedeza cuneata

Identification

Perennial plant 2 - 5.5ft in height, stems are woody and fibrous. Leaves - divided into three smaller leaflets, oblong and pointed, covered with densely flattened hairs. Flowers - creamy white to pale yellow with purple spot, can be in clusters at the upper end of leaves. Seeds - tiny, yellow - light brown, bean shaped.

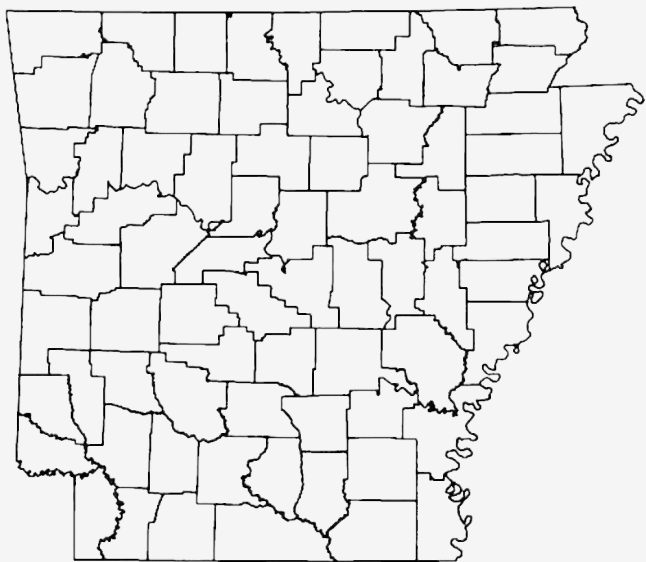
Dispersal

Seed dispersal by wildlife.

Damage

Creates extensive seed bank. Out-competes and displaces native plants.

Information gathered from NPS-USFWS. 2010, Plant invaders of Mid-Atlantic Natural Areas. Photos (Clockwise from top left): Flower - L. J. Mehrhoff, UC, Bugwood.org; Foliage - B. Ackley, OSU, Bugwood.org; Seed - B. Ackley, OSU, Bugwood.org; Front: Mature tree - .J. M. Randall, TNC, Bugwood.org



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