



United States Department of Agriculture
US Forest Service
Natural Resource Manager (NRM)



FSVeg Common Stand Exam User Guide Chewing Insects (Category 13)

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(13-001) GRASSHOPPER

There are two families of grasshoppers: the short-horned grasshoppers (*Acrididae*) and the long-horned grasshoppers (*Tettigonidae*).

(13-002) SHORT-HORN GRASSHOPPERS

Species: *Acrididae*

Description: Ordinarily, they are not very injurious to trees, but they may be seriously damaging during outbreaks. Young trees are particularly vulnerable. Adults are distinguished by their short filiform, or three-jointed, clubbed antennae; short and inconspicuous ovipositors.

(13-003) BLACK CUTWORM

Species: *Agrotis ipsilon*

Host: Almost any plant can be attacked in the seedling stage

Injury: Seedlings are girdled at the soil line, and stands may be significantly reduced in some cases.

Description: Full-grown cutworm larvae are 1.5 to 2 inches long. Coloration will vary, but all tend to be stout-bodied caterpillars with four sets of prolegs. They have the tendency to curl into a ball when disturbed.

Figure 1: Cutworm feeding, photo by Dale Brown, UGA



(13-004) PALAU COCONUT BEETLE

Species: *Brontispa palauensis*
Range: Pacific Islands including Hawaii

(13-005) CLEARWINGED GRASSHOPPER

Species: *Camnula pellucida*
Host: Ponderosa pine
Description: Adult is about 12 mm long. It is yellow to brown; the front wings are blotched with large brown spots; and the hindwings are clear or pellucid.

(13-006) CICADAS

Species: *Cicadidae*
Description: Adults are stocky, heavy-bodied insects with large compound eyes and membranous wings; and some reach a length of 50 mm. Cicadas often damage twigs so severely that their terminal portions die.

(13-007) EURYTOMIDS

Species: *Eurytoma spp.*
Host: Jack pine, Coulter pine, Jeffery pine, ponderosa pine, Scotch pine
Description: Many members of this family form falls in the stems of plants; some are parasites of gall-forming insects; a few are egg parasites; others are parasites of various tree-infesting insects. Adults are usually black and the abdomen is rounded or oval and somewhat compressed.

(13-008) CUTWORMS

Species: *Euxoa excellens*
Host: Incense cedar, white fir, ponderosa pine, Jeffery pine, sugar pine

<u>Range:</u>	Oregon, California, Colorado
<u>Injury:</u>	It can kill large numbers of natural and nursery-grown seedlings. Larvae feed in the spring on the young seedlings, damaging the cotyledons and cutting off the stems.
<u>Description:</u>	Full-grown larvae are about 40 mm long and have a pale brown head and grayish white body dotted with brown tubercles.

(13-009) WHITEFRINGED BEETLES

<u>Species:</u>	<i>Graphognathus spp.</i>
<u>Host:</u>	Pecan, poplar, hawthorn
<u>Range:</u>	Southern states
<u>Injury:</u>	The adults feed on the foliage, but most of the damage results from larval feeding on the roots.
<u>Description:</u>	The adult female is dark gray and about 21 mm long. The body is densely covered with short pale hairs. The forewings are fused together on the inner margins, and the hindwings are rudimentary, thus the beetle cannot fly.

(13-010) PALES WEEVIL

<u>Species:</u>	<i>Hylobius pales</i>
<u>Host:</u>	Shortleaf pine, longleaf pine, red pine, eastern white pine, Scotch pine, loblolly pine, Virginia pine
<u>Secondary host:</u>	Spruce, fir, hemlock, juniper, larch, balsam fir, eastern redcedar, Douglas-fir, cedar
<u>Range:</u>	Eastern and southern states went to the Great Plains

Injury:

Adult weevils usually feed on the aboveground bark tissue of the stems of seedlings. Feeding below the root collar also occurs, especially on planted seedlings that have loosely packed roots. Bark is eaten down to the wood. When feeding is light, small (1/8 in), isolated patches of bark are removed. Whitish, crystallized resin forms over the wounds, giving the seedling a sugary appearance. When feeding is heavy, large patches of bark are removed. This may girdle and kill the seedling. If girdling occurs quickly, no resin forms in the wound, and the stem wood appears dry and bare. When weevils are numerous, the seedling will be completely stripped, leaving a bare curled stem surrounded at the base by a pile of detached needles. Feeding on the pitch-eating weevil is similar to that of pales weevil.

On saplings and larger trees, feeding is restricted to the bark on twigs near the ends of branches. The twigs may be girdled and when the needles die, the branches have red tips, or flags. This type of injury is common trees growing in or around harvested areas and on seedlings and saplings under bark beetle-killed trees. Sometimes feeding on branch tips is so heavy that all buds are killed, resulting in the death of the tree. The same type of feeding injury may occur in Christmas tree plantations. Pales weevil can be a persistent problem in Christmas tree plantations where annual cropping of trees continually provides breeding places for weevils, in other plantations, the attraction, and the resultant problem, ceases within 1 or 2 years when the old stumps and root systems have deteriorated.

Figure 2: Life stages: adult, egg, larva, pupa

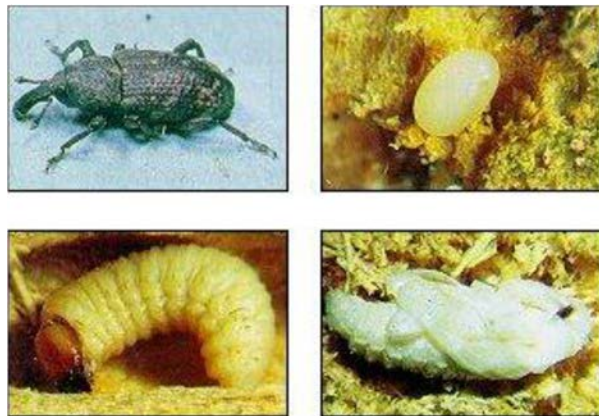


Figure 3: Distribution of pales weevil



Figure 4: Feeding damage



(13-012) PERIODICAL CICADA

<u>Species:</u>	<i>Magicicada septendecim</i>
<u>Host:</u>	Oak, hickory, honey, locust, and dogwood
<u>Secondary host:</u>	Ash, sweetgum, sycamore, black walnut
<u>Range:</u>	Eastern states
<u>Injury:</u>	The female uses her saw-like ovipositor to lay eggs in the bark of branches. The most serious damage is found on young transplanted trees in nurseries and orchards. Females lay eggs in pockets in the bark during April and May. When the eggs hatch, nymphs fall and enter the ground, feeding on roots.

Description: The adults are about 1½ inches long. The female is completely black on top, while the male has four to five abdominal segments that are orange-brown on top. The nymph cast skin may be used for identification.

(13-013) MIGRATORY GRASSHOPPER

Species: *Melanoplus sanguinipes*

Host: Ponderosa pine

Range: Central California

Description: Adult is about two mm long and reddish brown with a distinct patch of black on the neck or collar.

(13-014) VALLEY GRASSHOPPER

Species: *Oedaleonotus enigma*

Host: Pine plantation, sagebrush

Range: California, Nevada, Oregon, Washington, Idaho

Description: Adult is large, colorful spurthroated grasshopper

(13-015) STRAWBERRY ROOT WEEVIL

Species: *Otiorhynchus ovatus*

Host: Juniper, Englemann spruce, blue spruce, fir, hemlock

Range: Oregon

Injury: Feeding on the larvae cause serious injury to seedlings and young transplants in plantations and nurseries. The larvae feed on roots, weakening or killing small trees.

Description: Larvae are whitish, C-shaped, and about 8 mm long when full grown. The adults do not have functional wings and cannot fly. There are no males, reproduction occurs asexually.

(13-017) PANDANUS BEETLE

Species: *Oxycephala pandani*
Range: Pacific Islands including Hawaii

(13-018) SPAETH PANDANUS BEETLE

Species: *Oxycephala spaethi*
Range: Pacific Islands including Hawaii

(13-019) AGAMEMNON BUTTERFLY

Species: *Papilio agememnon*
Range: Pacific Islands including Hawaii

(13-020) NORTHERN PITCH TWIG MOTH

Species: *Petrova albicapitana*
Host: Jack pine
Secondary host: Scotch pine, lodgepole pine
Range: Range of jack pine, including Idaho, Montana, Washington, and east to the Atlantic coast
Injury: Young pines from 1 to 5 feet tall are attacked. Smaller ones are not attacked and taller ones are rarely injured. Larvae feed singly under masses of pitch, some of which may be up to 1½ inch in diameter, generally at internodes or forks. As they develop feeding may be extended to almost the pith. When attacks occur at the base of a growing terminal, the shoot may be girdled and killed, or the terminal may survive as a weakened, crooked trunk.
Description: The adult is reddish brown with grayish patches on the forewings, and has a wingspread of 16 to 23 mm.

(13-021) PONDEROSA PINE TIP MOTH

<u>Species:</u>	<i>Rhyacionia zozana</i>
<u>Host:</u>	Ponderosa pine
<u>Secondary host:</u>	Jeffrey pine, lodgepole pine, sugar pine, digger pine
<u>Range:</u>	California, Oregon, Washington
<u>Injury:</u>	It is most damaging to open grown seedlings and saplings less than 6 feet tall. Repeated heavy attacks retard growth.
<u>Description:</u>	Adults have a wing expanse of 20 mm. The forewings are irregularly banded gray and white on the inner two-thirds and are brick-red on the outer third. The hindwings are grayish brown. The larvae are orange and attain a length of 12 to 15 mm. The pupae are formed in touch, brownish cocoons usually fastened near the base of the tree.

(13-022) PINE NEEDLE WEEVIL

<u>Species:</u>	<i>Scythropus spp.</i>
<u>Host:</u>	Ponderosa pine, lodgepole pine, knobcone pine, Jeffrey pine, western white pine, Monterey pine, digger pine, Douglas-fir
<u>Range:</u>	Western states
<u>Injury:</u>	Adults feed on needles during the spring and early summer, and usually eat chunks out of needle edges and may cause needle death.
<u>Description:</u>	Adults are broad-nosed and scale-covered. They are a metallic blue-green, gold, brass, or bronze colored and about 1/4 th inch long. Weevils can invest shoots, roots, twigs, or needles. Wood-chip cocoons are made in the phloem and pith of shoots.

(13-023) COCONUT LONGHORNED GRASSHOPPER

<u>Species:</u>	<i>Segestes unicolor</i>
<u>Range:</u>	Pacific Islands including Hawaii

(13-024) CLOVER ROOT CURCULIO

<u>Species:</u>	<i>Sitona hispidulus</i>
<u>Host:</u>	Clover, legumes, seedlings
<u>Range:</u>	Humboldt Nursery, throughout United States
<u>Injury:</u>	Beetles feed by cutting small notches in the margins of leaves and consume leaf buds. The grubs feed on the roots, causing more severe injuries. Nodules and small roots are entirely eaten, larger roots are severed, and taproots are tunneled.
<u>Description:</u>	Adult weevil is 3-5 mm long, shiny black or dark brown on top and ash gray on the underside. Small coopery or grayish scales on the back form three distinct stripes. The wing covers are deeply etched with parallel lines and minute spots; the beak is short, curved, and thick.

(13-025) (Thrips madroni)

<u>Species:</u>	<i>Thrips madroni</i>
<u>Host:</u>	Pacific madrone and California laurel
<u>Range:</u>	Oregon, California, Utah
<u>Description:</u>	Narrow winged

(13-026) ASH PLANT BUG

<u>Species:</u>	<i>Tropidosteptes amoenus</i>
<u>Host:</u>	Ash
<u>Range:</u>	Lake States
<u>Injury:</u>	Usually attacks seedlings
<u>Description:</u>	The adults are 2 to 9 mm long, and are usually fragile. The antennae and beak are each four segmented, with the second segment of the beak longer than the head.

(13-027) SHORT-HORNED GRASSHOPPER

<u>Species:</u>	<i>Valanga nigricornis</i>
<u>Range:</u>	Pacific Islands including Hawaii

(13-028) PITCH-EATING WEEVIL

<u>Species:</u>	<i>Pachylobius picivorus</i>
<u>Host:</u>	Shortleaf pine, longleaf pine, Loblolly pine
<u>Range:</u>	Throughout the eastern states, but mostly in the south
<u>Injury:</u>	Adult weevils feed on the tender bark of seedlings, twigs, or larger trees. Small, irregular feeding patches in the bark are characteristic of weevil damage. Heavy feeding may girdle the stem, causing wilting or death. Feeding below the root collar and on the roots is common.
<u>Description:</u>	Adult weevils are oblong, robust, black to reddish brown, and about ½ inch long. The wing covers have small, scattered patches of dark yellowish hairs.

(13-029) DEODAR WEEVIL

<u>Species:</u>	<i>Pissodes nemorensis</i>
<u>Host:</u>	Shortleaf and loblolly pine
<u>Range:</u>	Southern states north to Pennsylvania
<u>Injury:</u>	During the fall, weevil larvae feed on the inner bark of leaders, lateral branches, and stems of small trees. Infestations usually remain unnoticed until the following January, when infested branches begin to turn brown. Small trees may be girdled and killed.

(13-030) ADANA TIP MOTH

<u>Species:</u>	<i>Rhyacionia adana</i>
<u>Host:</u>	Red pine, jack pine, Scots pine
<u>Range:</u>	Massachusetts, Pennsylvania, Virginia, Michigan, Wisconsin

Injury:

Attacks seedlings and saplings usually under three feet tall. It mines the current year's shoots. It attacks the lower half of trees up to 25 feet tall. Eggs are laid just above the needle sheath. Newly hatched larvae spin silken cases between two old needles just above the needle sheath; they then enter the needles and mine toward the tip. After new needle growth has started, larvae enter and mine developing shoots. Several larvae may inhabit a single shoot, moving towards the buds and causing shoot death.