

# Introduction to Bud, Shoot, Branch, and Terminal Insects

## Damaged tips and branches

The insects presented in this section are those that feed only within or on buds, shoots, or branches (table 1). These include insects primarily in the orders Lepidoptera (moths and butterflies) and Coleoptera (beetles). Bark beetles and twig beetles that are found in twigs and branches are presented in the Introduction to Bark Beetles entry. Aphids, scales, and midges that feed on shoots and branches are presented in the Introduction to Sap-Sucking Insects, Gall Formers, and Mites entry.

### General Features—

- Twig-boring insects often mine out the pith or center of developing shoots.
- Resin may or may not be present.
- Pitch mass-forming insects feed protected within the soft pitch mass.
- The most serious damage, stunting, forked tops, or multiple leaders occurs to sapling conifer trees when the main stem or leader is affected.
- These insects can be important in young, intensively managed stands or replanted forested areas.

**Table 1.** Common insects that damage buds, shoots, branches, and terminals.

Insect	Host	Symptom
Pine tip moth	Pines	Hollowed out shoots often with undeveloped or partially developed needles
Juniper twig pruner (discussed in the Wood Borers section)	Junipers	Branch dieback; hollowed out twigs
Pitch moths	Pinyon pine and ponderosa pine	Large, irregular pitch masses
Pitch nodule moth	Pinyon pine	Flagging and nodules of pitch at small branch/twig intersections
Western spruce budworm (discussed in the Defoliators section)	Spruce, white fir, and Douglas-fir	Early instar larvae mine in buds
Terminal weevils	Spruce and lodgepole pine	Dying leader; often with a shepherd's crook
Twig beetles (discussed in the Bark Beetles section)	Pines and Douglas-fir	Tiny holes; tip or branch flagging