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Insect Pests of Trees and Shrubs

Cooperative Extension, South Dakota State University

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Insect Pests of Trees and Shrubs
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Shrubs and shade trees in full foliage are objects of beauty and should be protected from the ravages of insects. This circular does not attempt to describe all insect pests that may occur on trees and shrubs but rather singles out some of the more important ones that are troublesome in South Dakota. Information on pests not covered may be obtained from your County Extension Agent or by writing to the authors at South Dakota State University, Brookings.

The insects described are divided into groups depending upon their feeding habits. These groups include the sucking insects, which feed on various plant juices by sucking mouthparts; the leaf-chewing insects which have chewing mouthparts and feed on leaves; the insects attacking branches and trunks and those groups of insects and mites which cause various odd-shaped formations on plants known as galls (gall producers).

**SUCKING INSECTS**

**Aphids or Plant Lice**

**Appearance.** A number of species or kinds of aphids attack trees and shrubs. They are globular, soft-bodied insects with color varying from greens, reds, and yellows to blacks. Seldom do they ever get larger than one-eighth inch long. Aphids known as woolly aphids are often not noticed because of the dense, cotton-like masses which cover their bodies. Trees infested with woolly aphids have what appears to be masses of cotton on leaves, twigs and branches.

**Type of damage.** Heavier infestations on plants cause distortion or curling leaves. Many aphids secrete an objectionable liquid, or honey-dew. This honey-dew is particularly noticeable on elm trees during summer; oftentimes the trees appear to be “weeping.” Dark molds known as sooty molds often accompany the honey-dew on the leaves.

**Plants attacked.** Nearly all plants are subject to attack by aphids.

**Leafhoppers**

**Appearance.** Leafhoppers are small but very active insects. Most appear greenish to brownish. Immature leafhoppers or nymphs run rapidly sideways on the leaves when disturbed.

**Type of damage.** These pests feed on the undersides of leaves, causing them to turn yellow or brown and dry up. Often this damage appears first on leaf margins and then extends to the mid-rib.

**Plants attacked.** Nearly all plants are subject to attack by leafhoppers.

**Scales**

**Appearance.** Scales on twigs, branches and trunks vary much in appearance. All give a “crusted” appearance to the affected plant portions. Many times the color of the scales blend into the color of the twig or branches so that only a close inspection will reveal their presence. The actual insects are underneath the scales which protect them. Some scales on coniferous trees attack the needles. Pine needle scale does this.

**Type of damage.** Heavier infestations of scales cause leaves to turn yellowish or reddish; eventually, tree branches may die. The bark oftentimes cracks, appearing to dry up while on the branches.

**Plants attacked.** Oyster-shell Scale. Ash, poplar, elm, lilac, maple, rose, apple, and many other shade trees and ornamental plants; San Jose Scale. Apple, crab, hawthorn; Scurfy Scale. Elm, ash, aspen, maple, willow and cottonwood; European Elm Scale. Elm; Pine needle Scale. Pine, spruce and occasionally firs.
**Lace Bugs**

**Appearance.** These insects are small, approximately one-eighth inch long, and usually are gray, brown or black. The wings have a lace-like pattern, the reason for the insect's common name.

**Type of damage.** Lace bugs feed on the undersides of leaves, sucking sap. Where heavy feeding occurs, leaves appear stippled, pale yellow, or bleached. Oftentimes the undersides are spotted with a dark, gummy material.

**Plants attacked.** Oak, sycamore, rhododendron, hawthorn, azalea.

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**Spider Mites**

**Appearance.** Spider mites are very small and difficult to see without a magnifying lens. They appear as tiny moving specks on the undersides of leaves. When infestations are severe, parts of the plants may become covered with webbing spun by the mites.

**Type of damage.** Leaves develop a yellowed, speckled color and in severe cases may appear bronzed or rusty. Spider mites develop very rapidly and produce many generations during the warmer periods of summer.

**Plants attacked.** Nearly all plants may be attacked by spider mites.

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**Control of Sucking Insects**

Aphids, leafhoppers, and lace bugs can be controlled using an “all-purpose” spray mixed by adding 2 pounds 50% methoxychlor and 4 pounds of 25% malathion wettable powder to 100 gallons of water. For smaller quantities of spray, mix 2 level tablespoons of 50% methoxychlor and 4 tablespoons of the 25% malathion to each gallon of water. This mixture will control most of the leaf-feeding insects. Wettable powders are less likely to injure foliage than emulsion sprays. Spruce trees are especially sensitive to oils and injury frequently occurs.

Other insecticides recommended for control of sucking insects include: malathion and Cygon. Use these insecticides according to label directions.

The various scales are difficult to control by insecticides when they are inside their protective covering. Dormant oil sprays may be applied to the plants before buds open in the spring. A number of oil preparations are available for this purpose. Follow the manufacturer's directions and precautions for best results. Scales can be best controlled when the young stages or “crawlers” leave the old scale to move to a new location. The timing of this spray is important. A way to judge the time correctly is to cut off a portion of the infested twig early in the spring and place it in a container, such as a bottle. Leave container outdoors and check regularly for any sign of life. As soon as activity is noted, spray with any of the insecticides mentioned. Where spider mite problems develop, a spray of malathion or Cygon may be used. There are also a number of good acaricides or miticides such as: Genite, Kelthane, Tedion, Chlorobenzilate, Dimite, Aramite, and others. Use as directed on the label for the trees or shrubs involved.

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Figure 3. Some common scales.

Figure 4. Pine needle scale.

Figure 5. Lace bugs.
Leaf-Chewing Insects

Flea Beetles

Appearance. Flea beetles are very small with a metallic color of blue, green or black. Their hind legs are fitted for jumping and they jump much like fleas when disturbed.

Type of damage. These beetles are of minor importance although they eat small “pin-holes” in the leaves of trees and shrubs.

Plants attacked. Many of the deciduous trees and shrubs.

Leaf Beetles

Appearance. The Elm Leaf beetle is a very common pest of elm trees in South Dakota. The adult beetle is about one-fourth inch long, yellowish to olive-green with a black, sometimes indistinct, stripe along the margin of the wing covers. Eyes are black and the antennae and legs yellowish. Larvae when full grown are one-half inch long and dull yellow with two black stripes down the back. Both adults and larvae may severely skeletonize a tree.

The Cottonwood Leaf Beetle is easily recognized by the black spots on its yellow wing covers. The adult is one-fourth to one-third inch in length. Larvae on first hatching are dark black in color, becoming progressively lighter as they grow and moult.

These leaf beetles attack cottonwood, poplar and willow. They often are regarded as South Dakota’s number one enemy of poplar and willow.

The Spotted Willow Leaf Beetle is somewhat similar to the Cottonwood Leaf Beetle and frequently the two may be found feeding together. This beetle is deep black beneath and the background color of some individuals is red instead of yellow. The wing covers are marked with rows of square or transverse black spots. Its size is three-sixteenth to one-third of an inch long. Larvae are similar in appearance to that of the Cottonwood Leaf Beetle.

Type of damage. The leaf beetles are notorious for amount of leaf feeding and “skeletonizing” of foliage they do. Producing several generations a year, they can cause widespread damage from early spring until fall.

Plants attacked. Elm Leaf Beetle, elm; Spotted Willow Leaf Beetle, willow, poplar, and cottonwood.

Cutworms

Appearance. A number of species of cutworms may be found feeding on shrubs and trees. Many of them feed at night and hide by day. Cutworms are usually a dingy to shiny, grayish-black.

Type of damage. Leaves of plants attacked by cutworms appear ragged. When cutworms are numerous, serious defoliation can take place. On seedling trees, climbing cutworms may eat the bark of the small twigs and stems as well as the leaves.

Plants attacked. Nearly all plants are subject to attack by cutworms.

Cankerworms

Appearance. There are two species of cankerworms in South Dakota. One attacks shrubs and trees in the spring and is known as the Spring Cankerworm. The other attacks in the fall and is known as the Fall Cankerworm. The larvae are similar in appearance and habits, often called “measuring-worms” because they loop their bodies when moving about. Larvae are about 1 inch long and brown to brownish-green.

Type of damage. Larvae damage trees by eating the leaves, sometimes completely “stripping” the tree.

Plants attacked. Primarily elm, although other shade trees as well as fruit trees are attacked.

Fall Webworm

Appearance. The presence of these worms is made conspicuous by the gray webs that enclose the tip of branches. The webworms, which are about 1 inch long, pale yellow with black spots, feed entirely within the web.

Type of damage. Webworms are not usually considered a serious pest. The portion of the branch within the web usually becomes defoliated. The webbing becomes unsightly on trees that are affected.

Plants attacked. Cottonwood, poplar, aspen, willow, oak, and several shrubs.

Tent Caterpillars

Appearance. The two species of tent caterpillars are of importance in South Dakota. The Eastern Tent Caterpillar constructs a silk-en tent in the crotch of a tree. The caterpillars are dark gray or
Tussock Moth

Appearance. The tussock moth larvae are easily recognized by their prominent color and markings. Four tufts of short, white, erect hairs are very noticeable on the back. Two bright red spots are present on the back towards the rear end. Two long tufts of black hair project from the head, one on each side.

Type of damage. Damage is caused from larvae defoliating the tree.

Plants attacked. Almost all fruit and shade trees.

Spiny Elm Caterpillar

Appearance. The full-grown caterpillar is approximately 2 inches long and is black, with a row of red dots down the middle of the back. The most prominent feature of the larvae are the heavy, branched, black spines.

Type of damage. Often this caterpillar becomes locally abundant in groves and shelterbelts. Serious injury can result when the larvae devour the foliage.

Plants attacked. Elm, willow, poplar, and hackberry trees.

Walnut Caterpillar

Appearance. Full grown larvae are approximately 2 inches long, black, and covered with long, gray hairs. Younger larvae are different in appearance, from brick-red to dark red brown in color with pale yellowish-gray stripes running lengthwise.

Type of damage. Larvae are very serious defoliators of host trees, and when abundant, completely strip the trees.

Plants attacked. Walnut and hickory trees.

Yellow-Necked Caterpillar

Appearance. The caterpillars reach a length of 2 inches when fully grown and have a very noticeable yellow spot just behind the head. The body of the caterpillar has yellow stripes running lengthwise. The larvae have a tendency to congregate in crotches and on larger branches of the tree.

Type of damage. Often this caterpillar becomes locally abundant in groves and shelterbelts. Serious injury can result when the larvae devour the foliage.

Plants attacked. Birch, basswood, cherry, elm, apple, hawthorn, oak, and other deciduous trees.

Hornworms

Appearance. The various hornworms that feed upon trees and shrubs are among the largest caterpillars. Hornworms are usually black with a white line along the side. These caterpillars congregate in the "tent" during adverse weather or while resting although they may feed beyond the confines of the tent. The Forest Tent Caterpillar does not make a silken tent but the larvae live and feed together. The larvae have a row of diamond or oval-shaped white spots down the midline of the back.

Type of damage. Tent caterpillars are serious defoliators of shade trees. The larvae are very active and do a large amount of feeding.

Plants attacked. Many deciduous shade trees, some fruit trees.
greenish, often marked with white, and all specimens either have a horn or eye-like structure on the back near the posterior end. Adults are the large moths known as hawk moths.

**Type of damage.** Larvae consume a lot of vegetation because of their size. When they become abundant, serious defoliation occurs to host plants.

**Plants attacked.** Ash, cottonwood, willow, and a number of shrubs.

**Cecropia Moth**

**Appearance.** The larvae of this moth attain a length of from 3 to 4 inches when fully grown. It is dull bluish-green, and has six rows of tubercles on its body. The tubercles are red, yellow and blue. The moth is a handsome specimen, with wing spread up to 6 inches. Each wing bears near its center a crescent-shaped white spot bordered with red.

**Type of damage.** This moth rarely occurs in sufficient numbers to cause much damage. Each larva consumes a large amount of food in its lifetime.

**Plants attacked.** Most all trees and shrubs.

**Sawflies**

**Appearance.** Two species of sawflies are commonly troublesome to shade trees. The Elm Sawfly larvae are 2 inches long and pale yellowish-white with a black stripe down the middle of the back and a row of black dots on each side of the body. The Ash Sawfly larvae are about three-fourths inch long and a dingy white with a shiny black head and dark legs. There are a few spotted or striped sawfly larvae that feed on pines.

**Type of damage.** Larvae feed on leaves and needles, causing defoliation of the affected tree. The Elm Sawfly adult causes some damage by girdling twigs.

**Plants attacked.** Ash, elm, pines.

**Leaf Miners**

**Appearance.** There are many leaf miners attacking various conifers, deciduous trees and shrubs.

**Type of damage.** Larvae feed on the foliage and some years are numerous enough to cause considerable damage.

**Plants attacked.** Mostly all conifers and deciduous trees.

**Bagworms**

**Appearance.** Bagworms form the conspicuous, spindle-shaped cocoons or cases comprised of bits of dead leaves or needles. Young larvae or worm spin a silken bag around themselves and they carry this bag with them. As the larvae grow, the bag becomes larger, until time of pupation, when the full-sized cocoon is made.

**Type of damage.** Larvae feed on the foliage and some years are numerous enough to cause considerable damage.

**Plants attacked.** Mostly all conifers and deciduous trees.

**Control of Leaf-Chewing Insects**

The "all purpose" spray mixture as described under control of sucking insects will give satisfactory control of chewing insects. In addition, Carbaryl (Sevin), using 1.25 pounds of 80% wettable powder

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**Figure 9. Eastern tent caterpillar: (A) adult moth, (B) egg mass in twig, (C) individual egg, (D) larva, (E) pupa, (F) cocoon.**

**Figure 10 and 11. Tussock moth larva (left); Spiny elm caterpillar (right).**

**Figure 12. Cecropia moth (left) and larva (right).**
to 100 gallons of water, will give effective control.

A biological control for cankerworm which is now available is Bacillus thuringiensis (Thuricide). Apply the 90TS formulation at the rate of 1 quart per acre by air or 1 quart of the 90TS in each 50 gallons of water.

INSECTS ATTACKING STEMS, BRANCHES, AND TRUNKS

Midwestern Pine Tip Moth
Appearance. Pine trees infested by this pest show damaged terminal growths. The terminal buds turn brown and show evidence of tunnelling by the larvae. The larvae feed on buds and new shoots. The larvae are yellowish with a brown head and smooth body and average nearly one-half inch long.

Type of damage. Terminal buds turn brown and show larvae tunnels.

Plants attacked. Nearly all of the two- and three-needle pines.

Pitch Moth
Appearance. Full grown larvae range in size from three-fourths to 1 inch in length. They are light brown with darker-colored heads and a series of black dots along the sides of the body.

Type of damage. Trees that are infested show large, irregular patches of pitch which oozes from the borer holes.

Plants attacked. Scotch, Austrian, Ponderosa, Red, and Jack Pines that are 2 inches in diameter or larger.

Cottonwood Borer
Appearance. Full-grown larvae (the borer stage) attain a length of nearly 2 inches, are white or yellowish with a brown head. The bodies have distinct segments. Adults are black and white mottled beetles from 1 1/2 to 2 inches in length. The antennae or “feelers” are as long as the body.

Type of damage. Larvae attack the tree mainly at the base or just below the ground level. This borer often weakens the tree so that it breaks over in a strong wind. This insect can cause considerable damage in shelterbelt plantings.

Plants attacked. Cottonwoods, poplars, and willows.

Elm Borer
Appearance. Adult beetles are approximately one-half inch in length and are greyish-brown, marked with brick-red bands and dark spots. Mature larvae are 1 to 1 1/2 inches long and white. The thorax is quite wide and the abdomen tapers toward the posterior end.

Type of damage. This borer attacks trees that are in a weakened condition. Symptoms of this borer’s attacks are the thinning of foliage at the top and by dead limbs scattered throughout the tree.

Plant attacked. Elm.

Poplar and Willow Borer
Appearance. The adults are snout beetles, having the long snout characteristic of weevils. The beetles are approximately one-third inch long and are dark brown, mottled with gray. Mature larvae are white, footless grubs about one-half inch long.

Type of damage. Trees infested with this borer show irregular swellings on the branches or trunks. Branches often become so weakened that they die or else become blown down by storms. Dark-brown frass mixed with small splinters often extrudes from the borer holes where it was pushed by the larvae.

Plants attacked. Poplars, willows, alders, and red birch.

Bronze Birch Borer
Appearance. The adult beetles are black with an olive-bronze luster. They are approximately from seven-sixteenth to one-half inch in length, slender and somewhat cylindrical in shape. The full-grown larva is cream-white, flattened, without legs and three-fourths of an inch long. A large, flattened segment can be found immediately behind the head.

Type of damage. The larvae seem to prefer feeding in the sapwood just under the bark. Oftentimes the bark becomes loosened by their feeding. Small, rounded exit holes in the bark where adults have emerged are often a good sign of infestation. Trees infested may die a branch at a time or the entire top of the tree may become dead. This borer is a serious pest of birch and its activities—plus drought—have killed the majority of birch trees in eastern South Dakota.

Plant attacked. Birch.

Carpenterworm
Appearance. The adult is a very large moth, with a wing span up to 3 inches across. The moths are a mottled gray with some darker markings. Larvae vary in size from 1 to 2 inches in length, depending upon age. Their color is white with a very dark-brown head. The body is covered with many prominent, raised portions which are dark brown. The presence of legs on the thorax, the region just behind the head, distinguishes them from beetle borers.
control them. Keeping trees vigorous helps to prevent borer attacks. In most instances, weakened trees are most susceptible. To protect young trees, wrap the bark. This prevents injury or sunscald, which often serve as entry points for the borer.

Remove and burn severely infested trees before May 1. If only certain portions of the tree are infested, these affected limbs and branches should be cut out and destroyed.

Type of damage. Infested trees have large burrows running through the wood. Sawdust is forced through an occasional opening in the bark. These sawdust-like borings at the base of the tree or clinging to the crevices of the bark are the tell-tale sign of an infestation by this tree borer. Larvae feed mainly in the sapwood although third-year larvae enter into the heartwood. The burrows of the insect in the trunk will sometimes reach 1 to 1½ inches in diameter. Serious infestations cause much limb breakage in strong winds and may eventually kill the tree.

Plants attacked. American elm, soft maple, burr oak, poplar, but primarily green ash.

Ash Tree Borer

Appearance. The adult is a clear-winged moth with wing span of approximately 1 inch. The caterpillar or borer is creamv white and about three-fourths inch long when fully grown.

Type of damage. Larvae bore into young trees near the base, weakening the trees so that they may break off in the wind. Upon lilacs the borers tunnel under the bark and into the wood, weakening the stems or girdling them and causing the foliage to wilt.

Plants attacked. Ash and lilac.

Bark Beetles

Appearance. Larvae are white and legless. They feed on the inner bark and the outside of the wood. Infested trees show galleries on the outside surface of the wood when the bark is removed. Adults are small, brown to reddish beetles, about one-eighth inch in length. Two important bark beetles in the state are the smaller European elm bark beetle and the native elm bark beetle. Both are carriers of Dutch elm disease although the European beetle seems to be most important.

Type of damage. Bark beetles attack different trees. Some attack healthy trees. Others, such as the elm bark beetles, attack trees already weakened from other causes. Several of the bark beetles that attack conifers are very destructive to mature trees. The Black Hills Beetle and the Western Pine Beetle are responsible for the loss of many conifers.

Plants attacked. Elm, hickory, oak, larch, and many of the conifers.

Control of Insects Attacking Stems, Branches, and Trunks

Tree borers are among the most difficult insect pests to control. When these insects work on the inside of the tree, insecticides will not control them. Keeping trees vigorous helps to prevent borer attacks. In most instances, weakened trees are most susceptible. To protect young trees, wrap the bark. This prevents injury or sunscald, which often serve as entry points for the borer.

Remove and burn severely infested trees before May 1. If only certain portions of the tree are infested, these affected limbs and branches should be cut out and destroyed.

Adult borers while emerging from the trees in the spring, can be controlled with 2.5% sprays of DDT. For the bronze birch borer, two sprays give satisfactory control. Apply the first spray around June 1 in the southern part of the state, around June 10 in the middle area, and around June 25 in the northern regions. Apply a second spray of DDT 3 weeks later.

A paint, prepared by mixing 1 pound of paradichlorobenzene in one part of soluble pine oil to which 2 quarts of water are added, will give some control of the borers inside the tree. Several commercial mixtures containing paradichlorobenzene (PDB) are available. Follow label recommendations on application. Apply these paints on a warm day in early spring. Do not allow much liquid to run down the trunk and into the root zone.

Another measure, which may be impractical unless just a few trees are involved, is to inject carbon di-
sulphide into the borer holes to kill feeding borers. The holes must be plugged with putty or caulk following treatment. Take care to keep the material away from fires or sparks as it is highly inflammable. A squirt oil can works as a gadget to apply the carbon disulphide.

The pine tip moths are rather difficult to control with insecticides. Timing of applications are critical and coverage of all terminals and buds must be complete. Several sprays are usually necessary starting when the new needles of the pine are about one-half the length of the old needles and again 2 weeks later. Cygon can be used to control this insect. Use this material as directed by the label.

Pitch moths repeatedly infest the same trees. Thus, it is suggested that "brood" trees be removed. If ornamental trees are infested, the larvae can be removed and the wounds treated with a wound dressing. The insecticides spray used for controlling borers will also be effective against pitch moth. Bark beetle control depends on both sanitation and spraying. Sanitation includes removal of all dead trees and bark, pruning, and removal of all dead branches and removal of fallen logs. Burn the removed wood. Fertilize and water ornamental plants when necessary to maintain them in a healthy and vigorous condition.

Dormant sprays of DDT or methoxychlor have been used successfully in bark beetle control programs. Both of these insecticides may cause undesirable side effects, especially when used at the heavier dosages required for dormant sprays to be effective. (Research has shown that DDT may kill birds and methoxychlor is toxic to fish, use both materials with caution around streams or other bodies of water.) Bidrin, a systemic, organic phosphorus insecticide is now registered for bark beetle control. This material is highly toxic and must be applied by specially trained crews. The timing of applications so that effective insecticides life coincides with adult beetle emergence is very important. Before starting a bark beetle control program, check with your local county Extension agent for the latest insecticide recommendations.

**GALL PRODUCERS**

Some insects and mites, their near relatives, produce gall formations on trees and shrubs. Some galls are very striking while others are less conspicuous. The insect or mite lives inside the gall. Galls may be found on leaves, stems, twigs, branches and trunks. Galls are formed by substances produced by the mite or insect which causes the living cells to grow abnormally. Damage by gall-formers to trees and shrubs is hard to determine. Many gall producers lack importance from an economical standpoint. Authorities estimate 1500 kinds or species of gall producers that attack plants. Since the number of galls is so large, only a few of the common types will be discussed.

**Leaf-Stem Galls**

**Appearance.** Galls appear as an enlargement on the leaf stem of the tree or shrub. An example of this type is the poplar leaf-stem gall which occurs on cottonwood and poplar and enlarges the stem at the base of the leaf.

**Plants attacked.** Most of the deciduous trees and shrubs.

**Leaf Galls**

**Appearance.** Gall formations vary on the leaves. Some are wart-like, others tube-like, some cone-like. The size of the galls vary as much as the shape. Many of the leaf galls have received common names because of their appearance such as nipple galls, flash galls, tube galls and the like. An example of a leaf gall is the nipple gall of hackberry which is shaped much like a nipple of a mammary gland.

**Plants attacked.** Nearly all plants are subject to leaf galls of one kind or another.

**Bud Galls**

**Appearance.** There are many deformities or galls which start from the bud. They will vary from an aborted bud to a large swelling in that area. Bud galls may form many different shapes.

**Type of damage.** Bud galls prevent buds from developing or developing normally. They sometimes affect the growth processes of the plant.

**Plants attacked.** Conifers, deciduous trees, and shrubs.

**Branch or Trunk Galls**

**Appearance.** These galls appear as deformities on the trunks or branches of the tree. They may

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**Figure 16. Poplar leaf stem gall.**
insecticide must be accurately timed. Also, the type of organism producing the gall must be properly identified so specific control recommendations can be made. Thus, it will be necessary to confer with your county Extension agent, nurserymen, or Extension entomologist for proper identification on control recommendations.

**USE CARE IN APPLYING AND STORING INSECTICIDES**

All insecticides are poisonous and should be handled accordingly. Do not smoke or eat while spraying. Follow any precautions that are listed on the labels. Wash exposed areas of the skin with soap and water following application of the insecticide. Spray materials should be stored out of the way of children and plainly marked.

Control of Gall-Producers

Although galls are unsightly, seldom are the infestations of sufficient magnitude as to require control measures.

Since the organisms producing galls are well protected, sprays of insecticide must be accurately timed. Also, the type of organism producing the gall must be properly identified so specific control recommendations can be made. Thus, it will be necessary to confer with your county Extension agent, nurserymen, or Extension entomologist for proper identification on control recommendations.

**Cone Galls**

Appearance. Cone galls appear as cone-like swellings on spruce and juniper. One has to look closely to find these because in many cases they might be taken for cones at first glance.

Type of damage. Although the cone galls are not too damaging to the trees, they are unsightly and detract from the appearance of trees used as ornamentals.

Plants attacked. Spruce and juniper.