



# Managing Insect Pests of Cacti

## and Other Succulents in Water-Efficient Landscapes

**C**acti and other succulents—as well as other native plants that require little moisture—make excellent landscape ornamentals (Table 1). They are generally low-maintenance plants because few have insect pests that commonly attack them.

However, some species and varieties can be prone to pests in certain Texas landscapes. If you are considering planting succulents, check similar plants in your area for pests. If you see insects or if the plants look unsightly, there is a good chance that the pests will move to similar plants planted nearby.

Even if the plants are pest free, new pests can arrive over time. One exotic pest, the cactus moth (*Cactoblastis cactorium*), is expected to spread into Texas from the southeastern United States. When established, this pest will make it more difficult to grow cacti in landscapes.

**Table 1.** Water-efficient ornamental plants native to Texas

WaterWise plants <sup>1</sup>	Red yucca ( <i>Hesperaloe parviflora</i> )
	Adam's needle yucca ( <i>Yucca filamentosa</i> )
	Soft-tip yucca ( <i>Yucca gloriosa</i> )
	Pendula yucca ( <i>Yucca recurviflora</i> )
	Texas sage ( <i>Leucophyllum frutescens</i> )
Cactus varieties <sup>2</sup>	Prickly pear ( <i>Opuntia</i> sp.)
	Wild variety in southern Texas ( <i>O. lindheimeri</i> )
	Wild variety in Trans-Pecos region and northern Texas ( <i>O. phaeacantha</i> )
	"Cow-tongue" variety
	Purple prickly pear ( <i>O. violacea</i> )
Cacti, agaves, yuccas and other succulents <sup>3</sup>	Cactus family (Cactaceae)
	Texas prickly pear ( <i>Opuntia lindheimeri</i> ; some varieties are spineless)
	Agave family (Agavaceae; agave, century plant, <i>agave</i> species)
	Sotol ( <i>Dasylirion</i> sp.)
	Red yucca ( <i>Hesperaloe parviflora</i> )
	Yucca, Spanish dagger, izote, soyate ( <i>Yucca</i> sp.)
	Soaptree yucca ( <i>Y. elata</i> )
	Pale-leaf yucca ( <i>Y. pallida</i> )
	Twisted-leaf yucca ( <i>Y. rupicola</i> )
	Trecul yucca ( <i>Y. treculeana</i> )
	Century plant ( <i>Agave havardiana</i> )
	Lechuguilla ( <i>Agave lechuguilla</i> )

<sup>1</sup>Source: Texas Nursery and Landscape Association, *Best of Texas Landscape Guide*, 2nd ed. (Austin: Author, 2007).

<sup>2</sup>Source: S. Wasowski and A. Wasowski, *Native Texas Plants Landscaping Region by Region* (Houston: Gulf Publishing, 1991).

<sup>3</sup>Source: D. Tull and G. O. Miller, *A Field Guide to Wildflowers, Trees, and Shrubs of Texas*. *Texas Monthly Field Guide Series* (Houston: Gulf Publishing, 1991).

## Identifying insect pests of cacti and other succulents

Many insects that do not harm plants can be found on succulents. Beetles, bees and wasps frequent open flowers and help pollinate plants. Occasionally, you may see small bagworms on agave, but these insects likely wandered off their host plant and may not be feeding. Sharpshooters (Cicadellidae) often occur on agave or century plants, although they do not appear to damage the plants. Spiders nest among cactus pads and use the plants' structure to anchor their webs.

Some insects, however, use succulent plants for food, causing damage through their mouthparts and saliva. Understanding how they feed can help you diagnose pest problems, even when the insects are not present.

**Sucking insects** insert long, slender mouthparts like a hypodermic needle into plant tissue. They suck out plant sap while injecting their saliva, which further digests the plant tissue. Symptoms of feeding damage include spotting and discolored blotching of the leaf surface or cactus pads (the spines on cacti are the leaves).

Several species of "true bugs" (Hemiptera) commonly infest landscape prickly pear cactus. These species include the following leaf-footed bugs (Hemiptera: Coreidae):

- *Leptoglossis* species (Fig. 1)
- *Narnia* species (Fig. 2), which look like *Leptoglossis* but lack the widened leg segment (tarsus) on the hind legs of adults. *Narnia* are common in western Texas on prickly pear fruit.
- *Chelinidae vittiger* (Fig. 3), which have antennae that are triangular in cross section. *C. vittiger* are common on prickly pear in central and west Texas.



**Figure 1.** A leaf-footed bug (possibly *Leptoglossis* species) on prickly pear cactus.



**Figure 2.** *Narnia* species on prickly pear cactus.



**Figure 3.** *Chelinidae vittiger* nymph on prickly pear cactus.



Adult leaf-footed bugs are tan and about  $\frac{3}{4}$  inch long. Only the adult stages have fully developed wings, which allow them to fly to nearby hosts.

Leaf-footed bugs spend the winter as adults hiding among plant debris or in cracks and crevices. They produce several generations per year. Young nymphs gather and feed together as they develop through stages, called instars. Both nymphal developmental stages and adults can produce large, pale blotches  $\frac{1}{4}$  to  $\frac{1}{2}$  inch in diameter on cactus pads.

Another true bug, *Hesperolabops gelastop* (Fig. 4), also infests cacti. Adults are small, fast-moving bugs with reddish heads and gray wings with white stripes along the sides. The eyes look as if they are on projections or stalks on each side of the head. The blotches caused by their feeding are smaller than those of the other sucking insects mentioned.

On yucca, particularly “soft” yucca, there are several species of the true bug *Halticotoma* (Hemiptera: Miridae) in Texas (Fig. 5). Adults are small (less than  $\frac{1}{4}$  inch) and oval-shaped, but appear flattened when viewed from the top. The head and pronotum (the segment behind the head) are reddish, and the wings are dark gray.

These adult insects can be found in groups (aggregates) on the upper leaf surface of yucca. They move rapidly when disturbed. Immature stages, which lack fully developed wings, can also be present.

As with other Hemiptera, *Halticotoma* feeding removes the green chlorophyll from leaves, producing small, pale spots or blotches on leaf surfaces. These spots are good indicators that true bug species are feeding on a plant.

Texas sage in the landscape can be damaged by the lantana lace bug, *Teleonemia scrupulosa* (Tingidae; Fig. 6). Damaged leaves appear speckled with pale (chlorotic) spots. Heavily infested shrubs may be defoliated and decline in health. Adult and developing stages reside on the undersurface of leaves and leave dark specks from their waste.



**Figure 4.** *Hesperolabops gelastop* on prickly pear cactus.



**Figure 5.** *Halticotoma* (Miridae) species on yucca.



**Figure 6.** Lantana lace bug, *Teleonemia scrupulosa*, on Texas sage.



Adults are brown, less than ¼ inch long, and have fully developed wings; immature stages (nymphs) have spines projecting from their bodies.

**Scale insects** have six legs and appear insect-like only in the “crawler” stage that hatches from the egg. It is the crawler stage that spreads the infestation to the new plant growth and nearby host plants by hitching a ride on animals such as birds, or on clothing—or even by being blown by the wind.

Once the crawlers settle down, they insert their sucking mouthparts into plant tissue and begin feeding. They generally no longer move and slowly develop to the adult stage. In some species, winged six-legged males emerge to mate with females.

Several species of scale insects commonly infest prickly pear cacti. The most famous is the cochineal scale, *Dactylopius coccus* (Maraudidae, Fig. 7). This scale was used by Native Americans to make a crimson dye that was used to paint missionary buildings and color fabrics, particularly in the San Antonio area, and was exported by early settlers.

Cochineal scales are coated by white wax filament that can make cacti look unsightly. When the scales are crushed, a red fluid exudes from their bodies.

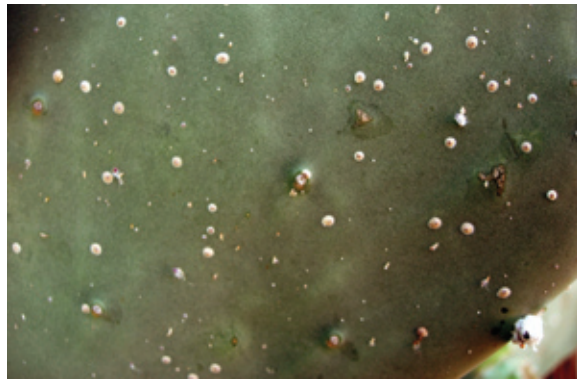
Oyster shell, or nipple, scales (Fig. 8) are armored scales (Hemiptera: Diaspididae). Adult females appear as round or oval white spots with raised areas on or off the centers. Males can be elongate and white. Their presence is unsightly, and high numbers can stress plants. Even when killed, however, dead scales will remain on the cactus pads.

**Chewing insects** have mouthparts that physically remove tissue from their host plant. Native to Texas are several long-horned beetles (Cerambycidae). Adults feed on the outside of cactus pads, and their larvae feed inside. Damaged pads appear ragged and irregular in shape.

Adults of the most common Texas species, *Moneilema* (probably *armatum*), are black and about 1 inch long. They do not fly (Fig. 9).



**Figure 7.** Cochineal scale (*Dactylopius coccus*) on prickly pear cactus.



**Figure 8.** Oyster shell, or nipple, scales on prickly pear cactus.



**Figure 9.** Long-horned beetle (Cerambycid; *Moneilema*, probably *armatum*) on prickly pear cactus.

These beetles have spines on the first segment behind the head (the pronotum).

There is also a mottled species of the long-horned beetle (*M. blapsides*) from the sand dunes in the Rio Grande Valley.

The agave, or sisal, weevil, *Scyphophorus acupunctatus* (Curculionidae; Fig. 10), can kill landscape yucca and agave. Although native to the American Southwest, it has been introduced into the plant trade and shipped to such locations as Hawaii, Australia, East Africa and throughout Texas.

The adult is solid black, about 1 inch long, and has the snout typical of weevils. It feeds on leaves and stems. Females bore tunnels into the plants and lay eggs. The larvae, or grubs (Fig. 11), bore into the base of the plant and feed on the roots and crown before leaving to pupate.

Larval infestations are associated with bacterial plant diseases (pathogens), such as *Erwinia* sp., that are carried by the insect. Infested plants die from the bottom up, with the lowest leaves turning brown and dying first. The disease progresses slowly up the plant, so that the top leaves die last.

No species of moths or butterflies (Lepidoptera) are known to be major pests of succulents. One may even be considered economically beneficial: A species of skipper butterfly, *Aegiale hesperiatius*, feeds on the *Yucca tequilan* plants that are grown in Mexico to make tequila. Also called Maguey worms, these caterpillars have traditionally been harvested and put into bottles of mescal.

However, the cactus moth (*Cactoblastis cactorium*; Fig. 12) may become a major pest as it migrates into Texas (see the Cactus Moth Detection and Monitoring Network Web site at <http://www.gri.msstate.edu/research/cmdmn/>). An invading species, this moth is found in Australia, South Africa, the Dominican Republic, Puerto Rico, and recently Florida and Alabama.

Cactus moth caterpillars have alternating bands of orange and black. The caterpillars, or moth larvae, feed together while mining



**Figure 10.** Adult agave, or sisal, weevil (Curculionidae; *Scyphophorus acupunctatus*) on yucca.



**Figure 11.** Larva of agave weevil.



**Figure 12.** Cactus moth (*Cactoblastis cactorium*) on prickly pear cactus in Australia.



through cactus pads, causing blotchy areas filled with waste. If you see a caterpillar that may be a cactus moth caterpillar, please notify a local official of the Texas AgriLife Extension Service, Texas Department of Agriculture, or the U.S. Department of Agriculture.

## ***Managing pests in your landscape***

When selecting succulents to plant in your landscape, inspect them carefully for insects or insect damage. Pests are often transplanted to areas outside of their normal range by hitching a ride on or in host plants.

Keep an eye on newly planted succulents over the first two years for pests such as agave weevils, which can develop slowly inside the plants.

Practice proper horticultural methods to keep your landscape plants healthy. Do not overwater or allow improper soil conditions, which can contribute to plant stress. Almost any plant grown under adverse conditions can become vulnerable to insect pests or diseases.

Monitor your plants regularly and inspect them for signs of pest damage. Larger landscape plantings of cacti or yucca are more likely to be infested over time. Once an infestation begins, eliminating it can be a challenge. Smaller plantings or individual plants that have chronic pest problems can simply be removed and destroyed.

Insecticides are not an option for some insect pests of succulents. For example, they would be inappropriate for large native stands of cacti harboring long-horned beetles. Insecticides also will not eliminate sisal weevil larvae living inside plants and are only used to protect healthy ones.

Furthermore, in areas with widespread infestations of scale insects or the mobile true bug species, insecticides only temporarily suppress the insects before they return from surrounding areas. In such cases, you can either eliminate the host plants, at least

temporarily where feasible, or learn to tolerate insects in your landscape.

Although insecticide products may not list cactus, yucca or succulents on the label, those listing “ornamental plants” or a similar descriptor can be used in the landscape. These products contain such ingredients as acephate, carbaryl, dimethoate, horticultural oil, insecticidal soap, dinotefuran, imidacloprid, or pyrethroids (bifenthrin, cypermethrin, fluvalinate, permethrin, lambda-cyhalothrin and others).

Few product labels, if any, will list the specific insect pests discussed here, but some may list more general terms for these pests, such as “beetles,” “bugs,” “caterpillars” or “scale insects.”

When you use a new insecticide product for the first time, spray only a few plants or part of a larger plant to make sure the insecticide is not toxic to the plant. Symptoms of toxicity include discoloration or burning on edges, tips of leaves and growing points.

Because little research has been conducted on best practices for insecticidal use on Texas landscape succulents, the Texas AgriLife Extension Service cannot ensure the effects or effectiveness of any treatments applied.

To reduce the damage from high populations of true bugs or the crawler stages of scale insects, you can apply systemic insecticide products, such as those containing dinotefuran or imidacloprid, before the time of year that these insects usually occur (see Texas AgriLife Extension publication L-5479, *Florida Wax Scales: Control Measures in Texas for Hollies*, available through the AgriLife Bookstore, at <http://AgriLifeBookstore.org>).

## ***References and further reading***

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**For more information about Texas landscape insects, visit:** <http://insects.tamu.edu> and <http://LandscapeIPM.tamu.edu>

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