



Arizona Forest Health Alert

OYSTER SHELL SCALE CRAWLERS EMERGING IN NORTHERN AND CENTRAL ARIZONA



May 2021



Adult OSS. Photo by Colorado State University Extension

Oystershell scale crawlers will hatch in early June in northern and central Arizona. This is the time for homeowners with infested trees to most efficiently treat the pest.

The Arizona Department of Forestry and Fire Management and USDA Forest Service, Forest Health Protection in Flagstaff are reporting that the crawler stage of the oystershell scale (OSS) (*Lepidosaphes ulmi*) will emerge on aspen in early-June. Begin monitoring for crawler emergence by Memorial Day weekend. Most crawlers will emerge over a brief 2-3 week period. The crawler stage of OSS is the period of development when they are most vulnerable to treatments that can reduce their population and impacts.

WHY DO WE CARE?

Populations of OSS have increased across northern and central Arizona, leading to greater impacts in both urban and wildland settings (Figure 1). Oystershell scales damage host trees by inserting their piercing sucking mouthparts into the bark to suck fluids from the tree. This can lead to branch mortality or whole tree death if the infestation is severe. OSS damage may also weaken hosts plants which may become more susceptible to pathogens. Although aspen appears to be the preferred host of OSS, this insect may also affect poplars, willow, ash, lilac, and other tree and shrub species with thin bark. This is a persistent insect that will continue to infest the same hosts, and potentially nearby hosts, year after year.

SIGNS OF ACTIVITY

Up close, the scale resembles the shell of an oyster. From a distance, large groups of scales may appear as dark or gray patches against the white trunk of an aspen (Figures 1, 2). Newly emerged OSS crawlers can be difficult to identify. They look like tiny yellow-orange specks on the tree trunk and branch surfaces (Figure 3). Using a high-powered hand lens can help with crawler identification. As crawlers hatch and emerge from beneath the old mother scale they will crawl up the tree trunk in search of a new feeding spot or can be wind-blown to a nearby host.

WHAT TO LOOK FOR



Fig. 1 OSS infestation on a small aspen. Note dark patch on white aspen trunk caused by severe scale infestation.



Fig. 2 Severely infested aspen (right) next to an unaffected aspen (left).

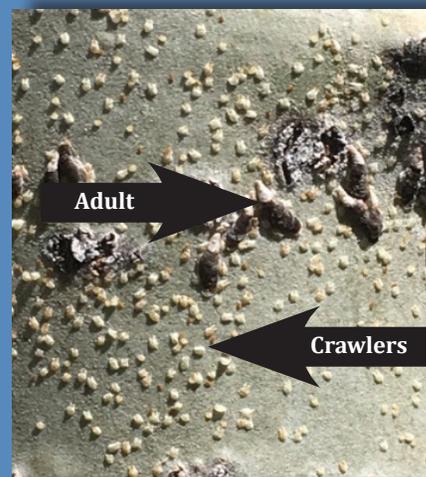


Fig. 3 Close up of adult scales among many tiny yellowish-white crawlers.

Photos by the USDA Forest Service

Once they settle and begin to feed, the armored scale or shell begins to harden. After the outer shell hardens the scale is protected and less susceptible to treatments including the use of contact pesticides.

WHAT ELSE COULD IT BE?

There are other scales that occur on aspen, but none that will look similar to OSS. However, there are non-insect agents that cause damage which resembles OSS damage, namely cankers. A variety of fungal pathogens cause canker formation on aspen. From a distance, cankers may appear as darkened patches that may be confused with oystershell scale. Cankers generally colonize stressed or injured trees through wounds or dead branch stubs. A few common aspen cankers that might be confused with OSS include: *Cytospora* canker (*Cytospora* spp.) (Figure 4), hypoxylon (*Entoleuca mammatum*) (Figure 5) and sooty bark canker (*Encoelia pruinosa*) (Figure 6).



Fig. 4 Orange fruiting bodies emerging from pimple-like structures caused by *Cytospora* spp.



Fig. 5 White and black stromata of *E. mammatum*. Note the dark, roughened bark caused by the pathogen.



Fig. 6 Alternating white and black barber pole pattern characteristic of sooty bark canker.

WHAT CAN YOU DO?

A variety of treatments are recommended for OSS mitigation. The most benign treatments include physical removal of OSS adults and crawlers (Figure 7), summer season horticultural oils, insect growth regulators (pyriproxifen), or even a strong jet of water from a garden hose may be used to displace and kill the fragile crawlers. Remember to check the entire tree trunk and branches for infested patches. Several more persistent contact pesticides and one systemic insecticide (dinotefuran) are also recommended for armored scales and may be needed to treat severe infestations. Adult scales can be removed anytime of the year; however, the crawler stage is most vulnerable and treatments during this time increase effectiveness. Old scales will remain on the bark after treatments. Remove scales from an infested area to monitor emergence the following year to determine if additional treatments are needed. For more information on treatment methods see the Colorado State University Extension, Oystershell Scale Fact Sheet No. 5.513 (<https://extension.colostate.edu/topic-areas/insects/oystershell-scale-5-513/>).



Fig. 7 Physical removal of scales. Photo courtesy of Colorado State University Extension.

For further information about this insect or other forest health concerns, contact Aly McAlexander, Forest Health Specialist, at (602) 771-1415 or amcalexander@dffm.az.gov.

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