LOUISIANA
PLANT HEALTH
MANAGEMENT
Solving Plant Health Problems Caused by Biotic and Abiotic Stresses
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Ball Moss (*Tillandsia recurvata*)

Ball moss is neither a parasite nor a pathogen. It is an epiphyte and belongs to family Bromeliaceae which consists of semitropical and tropical plant species including pineapple and Spanish moss. Ball moss or an air plant is not true moss but rather it is a small flowering plant (Figure 1). Ball moss is sustained by absorbing nutrients from water vapor and the surrounding environment. It does not derive nutrients or water from the host to which it is attached with the help of holdfasts (pseudo-roots). Holdfasts are not true roots, but short, strong projections used for attachment to any substrate (Figure 2). These structures may penetrate the outer bark but never invade the cambium layer of trees (Figure 3).

Although ball moss prefers to grow on deciduous trees with rough bark, it has been reported on numerous trees and shrubs, including Bradford pear, crape myrtle, elm, holly, magnolia, maple, live oak, pecan, pine, sycamore, walnut and willow in urban landscapes. It can attach itself to any inanimate surface including fences, utility poles and cables, traffic lights and other physical structures (Figure 4).

Figure 1. A mature ball moss plant.

Figure 2. A new ball moss plant with holdfasts.

Figure 3. Ball moss plant holdfasts (pseudo-roots) slightly penetrated the outer bark of a branch for attachment.

Extending from Georgia to Arizona and Mexico, ball moss thrives in high humidity and low intensity sunlight environments. Unlike loose, fibrous Spanish moss also in the Bromeliaceae family, ball moss grows in a compact shape of a ball ranging in size from a golf ball to a soccer ball. The clustering or clumping of several individual ball moss plants due to its sympodial branching pattern creates a “ball” shape.

Ball moss leaves are narrow and grayish green, with pointed tips that curve outward from the center of the ball. It gets its moss-like appearance from the specialized trichomes present on the leaves (Figure 5). These trichomes are responsible for absorbing water and nutrients directly from the environment. Flower buds on mature ball moss plants emerge from leaf axils in May, and lavender color flowers (Figure 6) emerge on long pedicels in June. Ball moss is thought to be self-pollinated, and after fertilization, fruit remains dormant

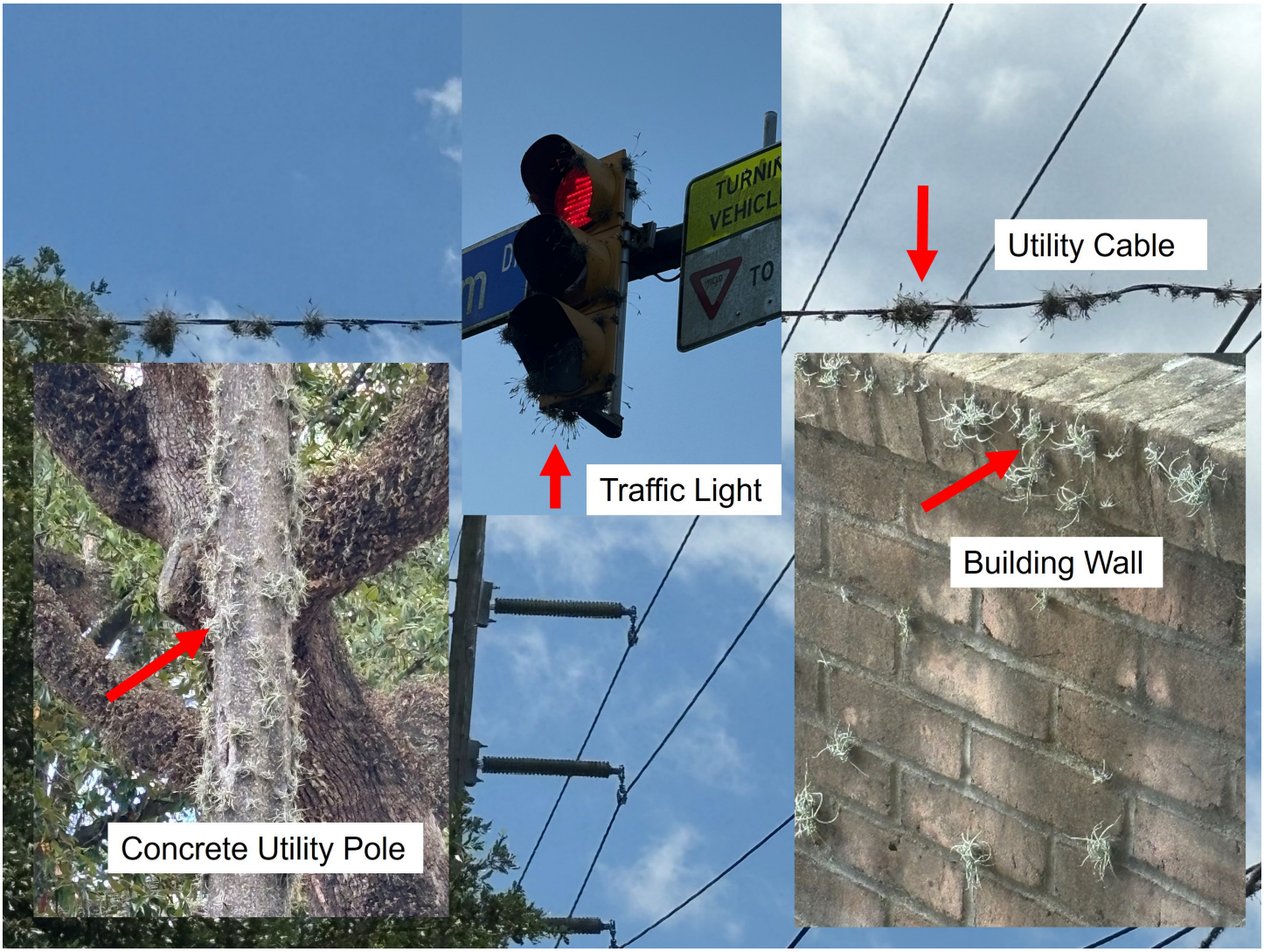

Figure 4. Ball moss plants growing on a variety of non-tree surfaces, including a concrete utility pole, a utility cable, an outside building wall and a traffic light signal.

Figure 5. Trichomes on a ball moss leaf can absorb water and nutrients from the environment.

Figure 6. Lavendar colored ball moss flower.

Figure 7. Young ball moss attached to outside of a building wall.

Figure 8. The crape myrtle tree on the left is heavily infested with ball moss on the Louisiana State University campus.

for several months. The brown fruit capsule splits open in early February and releases the seeds. Ball moss spreads to new locations via wind-dispersed seeds (Figure 7) and movement of small vegetative parts of the plant.

Ball moss may colonize both healthy and stressed trees, but it is more visible on stressed trees. Heavy infestation of ball moss may cause small twigs or limbs to break off trees. It also may stress the host indirectly by restricting the surface area for new sprouts or growth. Ball moss may alter the morphology of the host by restricting water and nutrient uptake. A research study conducted by a team of scientists in semiarid zones of Mexico established that the mature reproductive ball moss plants altered (injured) the vascular bundles of mesquite trees affecting both water flux and conductivity resulting in death of branches. Another study reported that tight adhering of the holdfasts of the ball moss plant could girdle small branches on heavily infested live oak trees leading to restricted bark enlargement resulting in reduced phloem transportation.

Management of ball moss generally is not required, particularly if trees or shrubs are lightly infested. However, ball moss coverage of more than 75% will require removal of the moss (Figure 8).

Although labor intensive, hand picking is the most effective method to remove ball moss from lightly infested small trees or shrubs. Pruning twigs and branches covered with ball moss may restore the affected trees. Chemical control of ball moss also is possible. Retired LSU professor Gordon Holcomb conducted spray trials with baking soda (sodium bicarbonate) on live oak, crape myrtle, juniper and flowering cherry resulted in death of ball moss. Both 2.5% and 5% baking soda sprays effectively killed ball moss plants within three to five days. Chemical burn injury at both concentrations of baking soda was observed on crape myrtle and flowering cherry leaves while no injury was observed on juniper and live oak leaves during these trials. Baking soda sprays may be programmed from January to February before the new flush emerges to avoid leaf burn injury of the host plant. If later application is necessary, it is recommended to spray prior to flowering in June to help reduce seed set and dispersal. Copper-containing fungicides provide adequate control as well. Excessive use of copper-con¬taining products may cause injury to the host plant, understory plants and the surfaces of physical structures.

If chemical control is warranted, choose a product that is labeled for ball moss control. Read the label carefully to apply the recommended dose and follow other directions to use the product. For control of ball moss on larger trees consult a local licensed arborist who specializes in pest control. Good cultural practices that promote vigorously growing healthy trees with dense canopies also are recommended.

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