Lichens and Other Things That Grow on Trees

Lichens are composite organisms made up of a fungus and usually a green alga, or sometimes a cyanobacterium. Many different species of fungi and different species of algae may combine into a number of different shapes and colors of lichens. They can be found in rainforests, on the arctic tundra, and in deserts. They can be found growing on rocks, trees, soil, and even roofs.

Fungi are characterized as organisms that lack chlorophyll and thus cannot carry out photosynthesis. Think molds, mildew, mushrooms and yeasts. Algae, on the other hand do contain chlorophyll and can convert carbon dioxide from the air into carbohydrates, but unlike higher plants, they do not have leaves, stems or roots.

When this complex association is formed, the alga produces the carbohydrates needed for life for both partners, and the fungus surround the alga protecting it and helping to capture and retain water. The resulting lichen may then take on shapes, forms, colors and characteristics different from either of the two partners.

Most of the lichens seen growing on rocks are flat, thin growths that sometimes can be mistaken for patches of paint, and they can be many different colors. Growths on tree limbs and trunks tend to look like flat wavy leaves, highly-branched fine hair-like bunches or any of many different shapes and colors as well.

Lichens need sunlight, but not necessarily full sun. They are not only able to tolerate extreme ranges of temperature, but also can survive being severely desiccated and then recover when wetted again. Lichens can be very long-lived. They are epiphytes, meaning they obtain all of their requirements from rain and the air and get no nutrition or water from the substrate on which they are growing. When growing on rocks, however, they may decompose small amounts of rock in an extremely slow process which can be the beginnings of converting rocks into soil. Their presence on tree trunks or limbs does not harm the tree in any way. When viewed close-up, some of them can be quite beautiful and interesting, and I think add character to our oak trees.

Speaking of epiphytes, the common ball moss found usually on the lower limbs of trees is another plant that does not get any nourishment or water from the tree. It likes areas with low sunlight, protected from the wind and areas of high humidity, which is why it is frequently found on the lower limbs of oak trees. Many people see the ball moss growing on dead or dying lower limbs and assume the ball moss killed the limb, but this is a mistake of assigning cause and effect. Lower limbs of big trees are so shaded from the sun that the lower limbs frequently die from lack of sunlight, just as all of the limbs close to the ground when the tree was a sapling died as the tree matured.

Once you see ball moss growing on fence wires and telephone wires it is easier to understand that the plant does not get anything from the tree limb except a place to grow. Ball moss is not actually a moss, but a flowering plant. Spanish moss, its cousin, and some other bromeliads are also epiphytes.

Mistletoe, on the other hand, is not an epiphyte, but what is classified as a hemi-parasite. Mistletoe grows a root-like structure called a haustorium directly into the limb of a tree and absorbs water and some minerals from the host tree. However, it is also capable of making its own carbohydrates by photosynthesis, so it is not totally dependent on the host for all of its nutrients.

Mistletoe has smooth, opposite, leathery, evergreen leaves. Male and female flowers are produced on different plants and the female produces white to translucent berries. The plant is poisonous to humans if eaten, but birds seem to like the berries, and then participate in dispersing the seeds.

While mistletoe can damage a limb to the point of killing the limb, it would be a very unusual event for the parasite to kill a whole tree. Just cutting off the green part will not necessarily kill the mistletoe; but cutting the limb off some distance from it will. (Don't forget to immediately paint an oak limb)

Just a note to my readers in or near Kerrville, I will resume the "1 on 1 with a Naturalist" sessions at Riverside Nature Center on Fridays from 10 to 12 beginning May 21. Hope to see you there.

Until next time…

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