

Under the Oaks

Newsletter of the Arboretum at Memphis Botanic Garden

Volume 7

Free Teachers Conservation Workshop Focuses on Forestry

All educators should be aware of the TN Teachers Conservation Workshop, a week-long and free workshop open to teachers interested in including more environmental topics in their curriculum. This workshop is offered by the Tennessee Forestry Association. The course is designed to emphasize forestry and natural resources. Course dates are July 17-22 at Pickwick Landing State Park. Lodging and meals are included!

Course credit can be obtained through the workshop. For more information call Lisa at **615.883.3832** or e-mail llynn@tnforestry.com.

To find information on the web, visit:

[http://www.tnforestry.com/Educational/Teacher's Conservation Workshop/#tcw_what](http://www.tnforestry.com/Educational/Teacher's_Conservation_Workshop/#tcw_what). Hurry, spaces fill quickly!

MEET THE PEANUT BUTTER TREE

By Jenny Sabatier, Shelby County Master Gardener

Clerodendrum trichotomum, commonly known as Harlequin Glorybower, is a charming small tree or large shrub that is not widely grown in our area. Once encountered in its flowering or seed bearing season it is hard to forget. The lovely white, fragrant flowers have a jasmine-like appearance, and are clustered in long-stalked cymes six to nine inches across. The fruit, a pea-sized drupe, colored a bright metallic blue, is held in a red, five-lobed calyx. Often the flowers, which start to bloom in July, continue on into fall, when the fruits develop, giving the tree a splendid profusion of colors and shapes.

But wait, there's more. Rub one of the leaves and sniff. You will get a good whiff of peanut butter. Thus its other common name, "peanut butter tree." Oddly, there are garden writers who find the scent unpleasant. Another complaint is that the tree doesn't branch low enough, but that isn't always the case, as you can see for yourself by Googling *Clerodendrum trichotomum* and clicking on mobot.org, which has loads of pictures. Also, the tree does sucker; but growing it in a large pot should solve that problem. The pot could be sunk in the ground in winter to prevent its freezing.

This tree is native to Japan and China, grows in zone 7 to 9, and is from 10 to 20 feet high at maturity. It likes full sun, well-drained soil, and, if planted in the ground, should be watered during a drought. A nice specimen can be seen at the Memphis Botanic Garden, in the northeast corner of the sculpture garden.

Made for Each Other

by Charity Novick

So many organisms have an incredibly close relationship with a tree. Some of these organisms cannot live without the tree, and some trees really benefit from their relationships. You may have heard of symbiotic organisms, where both benefit from growing with each other, and parasitic organisms, in which case one organism is benefiting while the host is harmed. Another type of relationship is commensalism, benefiting one organism and neither harming nor benefiting the host. This article describes examples of the non-harmful relationships.

Common in our southern communities is the commensalist relationship between the Oak Apple Gall Wasp (*Amphibolips confluenta*) and oak trees. The wasp benefits while the tree is only slightly distressed. You've seen those strange growths on the oaks, they come in many shapes and sizes, and they are actually made of tree cells! In part of its strange life-cycle, a female wasp will inject an egg into the mid-rib of a leaf

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after climbing up the oak. The oak forms a sort of "blister" around the hatching and growing larva. A chemical reaction makes the leaf turn into a special protective shelter for the non-stinging wasp. Once the adult wasp chews its way out of the gall, the tree heals itself by popping the gall off and sealing up the leaf.

Whether you love the Mimosa's fragrant flowers or disapprove of its foreign nature, the mimosa girdler beetle (found in more southwestern states), definitely appreciates the mimosa, and the mimosa, in turn, benefits from the beetle. Their symbiotic relationship involves this little beetle chewing a perfect ring around a thin branch of the mimosa to kill the branch. It deposits eggs into the dying branch so that when the eggs hatch, the larva can chew on the delicious dead pith. This girdler beetle only lays its eggs on the mimosa and the girdled mimosas can live twice as long as a non-girdled mimosa. Scientists are still unsure of the reason.

In addition to these unique examples of beneficial relationships, we know that many plants rely on pollination or seed dispersal through special adaptations of animals. Living together for thousands of years, many plants and animals have co-evolved to match each other's needs. Trees and animals may also depend on each other in other ways for protection, transportation, and shelter. The finely-tuned balance of nature is so clearly evident through these surprising interconnections.

Test your knowledge of beneficial partnerships with the quiz below:

This organism has evolved with its host tree since the time of the dinosaurs in a symbiotic relationship.

1. These organisms live perched on their host tree in a commensalist relationship since they do not provide anything for nor rob the tree of any nourishment.
2. This organism attaches itself to the roots of trees and assists the host in absorbing nutrients from soil, while this organism benefits at the same time.
3. This organism is in a symbiotic relationship with its host tree by dispersing the seeds, while receiving shelter and food.

a. fungi b. beetle c. squirrel d. epiphytes

Answers: 1.b; 2.d; 3. a; 4. c

BUMBLEBEES AS POLLINATORS

By Jenny Sabatier, Shelby County Master Gardener

Although we are right to be concerned about the demise of untold numbers of honey bees in recent years, we do have other bees that can pollinate the flowers of various trees and other plants. Our native

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bumblebee, with its longer tongue, can secure pollen from certain flowers the honey bee cannot reach. The bumblebee's entire body is covered with soft hair, and the back legs have stiff hairs used to transport the pollen. One of its ways to obtain pollen is called 'buzz pollination'. The bumblebee places its thorax close to the anthers of the flower and vibrates its flight muscles to shake pollen from the anthers.

Bumblebees are social insects that live in holes in the ground or on the ground in tall grass or other vegetation. They are not normally aggressive, but will sting to protect themselves and their nests. Their stingers are not barbed like honey bees', so they can sting more than once. Most of the local bumblebees are yellow and black, often in bands, but some are solid black.

Some of the trees that bumblebees pollinate are persimmons, loquats, apples, apricots, cherries, plums, peaches, pears, almonds, bush fruits, including blueberries, raspberries, blackberries, cranberries, and many vegetable crops. They are used commercially to pollinate tomatoes in greenhouses. In the home garden, they pollinate not only tomatoes, but also okra, squash, beans, and other vegetables. They are the only species that pollinate red clover.

Carpenter bees resemble bumblebees, but are a bit smaller, and, while the thorax is hairy, the abdomen is a shiny black. The males have a white spot on their heads. They are not as versatile pollinators as bumblebees, but do pollinate passion fruits, brazil nuts, rose hips, and some beans and peas. The male stays by the nest and buzzes intruders to protect it, but cannot do harm, as he has no stinger. The female can sting to protect herself or her nest, but is not aggressive otherwise. They drill holes in wood to protect their eggs and can do damage to homes and outbuildings. They don't make the nests in painted wood, preferring older, unfinished wooden surfaces.

Can you match the answers below?

- | | |
|---|-----------------------------------|
| 1. These bees use 'buzz' pollination. | a. In unpainted wood of buildings |
| 2. Carpenter bee nests are found here. | b. Male carpenter bees |
| 3. These bees have no stingers. | c. In the ground |
| 4. Bumblebee nests are found in this place. | d. Bumblebees |

Answers

1. d, 2. a, 3. b, 4. c