

# Sourwood

By Paul Rothman, Department for Natural Resources,  
in collaboration with Dr. Tammy Horn



## An experiment in apiforestation



**TOP:** This bee garden is located on James River Coal mine site near the community of Hazard in Perry County.

**ABOVE:** Dr. Tammy Horn (right) stands with Elaine Holcombe at a bee workshop on the James River Coal mine site.

Photos by Paul Rothman

Bees have existed for millions of years and thrived in the eastern Kentucky mountain region until they were nearly demolished by mites in the 1980s. Dr. Tammy Horn, who has studied bees for more than a decade, is bringing bee colonies back to Appalachia.

Dr. Horn first contacted the Department for Natural Resources (DNR) several years ago to find out what types of tree species coal companies were planting on surface mines, and more importantly if they were “pollinator-friendly” trees. Historically black locust, and more recently, various Appalachian hardwood species (such as tulip poplars, white oak, red oak, white ash and red maple) are being planted on surface mined lands as a result of the Energy and Environment Cabinet’s Kentucky Reforestation Initiative, which began in 1995.

Dr. Horn, who had believed that trees simply would not grow well on mine sites, was pleasantly surprised after visiting a successful reforestation research area that was being conducted by the University of Kentucky on surface mines. After that, she began working with a number of coal companies in an effort to include bee-loving tree species like sourwoods

in their reclamation activities.

“Her work is becoming very popular with members of the coal industry and the regulatory community, and she has established a number of bee yards on various mine sites throughout the Kentucky coalfields,” said Carl Campbell, commissioner of the DNR.

Dr. Horn has even coined a new term—*Apiforestation*—which is the planting of pollinator-friendly flowers and trees on surface mine sites.

“In forestry circles, sourwoods are not very highly prized because they have very little timber value,” said Dr. Horn. “But beekeepers know sourwood for one of the finest honeys the U.S. produces, so there’s only one place you can get it.”

Sourwood also blooms in the summer and early fall when little else does.

Before Dr. Horn could effectively communicate with the mining industry, she had to familiarize herself with federal and state coal mining laws. In 1977, the federal government passed the Primacy Act where coal companies in the United States are required to reclaim mined lands to “approximate original contour,” or AOC, in an effort to restore the topography

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*Bee workshop participants get a close-up look at the hives located on the James River Coal mine near Hazard.* Photo by Paul Rothman

## Sourwood: an experiment in apiforestation

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that originally existed. Because this standard can be difficult to achieve, some coal companies attempt to develop commercial ventures thus giving them the ability to create a more gentle terrain.

While successful recreation centers, shopping centers and residential communities have been built on former surface mine sites, sometimes these sites are located in isolated areas and are not commercially viable. With the help of the Kentucky Reforestation Initiative and the University of Kentucky, coal companies have the ability to use reforestation techniques that result in forests with long-term commercial value.

“While the department fully appreciates a property owner’s right to pick the post-mining land use they desire, DNR promotes reforestation as the land use of choice,” said Campbell. “Dr. Horn’s work complements our reforestation initiative very nicely.”

Today, because of the work of Dr. Horn and the coal companies, sourwood trees are at the center of a new reclamation project in eastern Kentucky.

“Through our relationship with Dr. Horn it became very obvious that there was opportunity for a commercial beekeeping industry if coal companies were to include bee friendly trees such as sourwoods and basswoods,” said Campbell.

During reclamation efforts to re-estab-

lish the diversity of Appalachian forests, coal companies such as International Coal Group, LLC Hazard and James River Coal agreed to plant sourwoods and other bee-friendly plants in an effort to help establish the commercial honey bee industry on their mine sites.

In 2007 Dr. Horn, assisted by Tom Webster and Mark Lee at Kentucky State University and Sean Clark at Berea College, placed hives on a research plot located on the Big Elk Mine in Breathitt County. Within weeks she had bees on Big Elk Mine and the University of Kentucky’s Robinson Forest. Consequently, bees at the Big Elk Mine gathered more pollen in less time than the other bees.

These efforts require more than tree planting and coal companies. It also requires the involvement of beekeepers like Edwin and Elaine Holcombe from Shelbyville, Tenn. The Holcombes have worked with and provided funding to Dr. Horn in her coal mine bee research projects. Eastern Kentucky Environmental Research Institute, now in its fourth year, is using the Holcombe’s gifts of money and bees to further research the benefits of proper reforestation and water quality. If more trees are planted, then water quality improves.

From these endeavors came the Lost Mountain Honey Project established in 2008, which subsequently evolved into the

Coal County Beeworks cooperative.

To date, the relationship between Dr. Horn and the coal industry has resulted in:

- Thirty beehives at International Coal Group and 10 hives on James River Coal.
- Approximately 4,000 sourwood trees have been planted.
- Numerous workshops have been held for science teachers, beginner bee keepers, instructions on hive building and presentations on the Appalachian Regional Reforestation Initiative.
- Radio and TV interviews and one film shoot.

“In order for the colonial status of Appalachia to change, the unique mesophytic forests that existed prior to development, logging and mining needs to be re-established so that folks can become beekeepers, honey producers, queen rearers and scientists, as promoted by the Coal Country Beeworks cooperative,” said Dr. Horn.

The “apiforestation initiative” supplements surface mining reclamation by promoting other industries in addition to the timber industry. Focusing on sourwoods as a marketing ploy means that Appalachia can compete in the honey market without having to compete with the clover fields in the Dakotas, or the citrus fields in Florida and California, or the tupelo swamps in Florida and Mississippi.

Turns out that sourwood is not really sour at all, but rather a pretty sweet deal for all involved. Sourwood accommodates the Energy and Environment Cabinet’s ongoing reforestation initiative to plant more Appalachian tree species on surface mined lands during reclamation, helps the industry meet their reclamation requirements and satisfies a unique niche that will provide long-term benefits to the environment and the community.

*See the ad on Page 4 announcing the Appalachian Regional Reforestation Initiative (ARRI) conference in August 2009. ARRI advocates using a technique known as the Forestry Reclamation Approach to plant trees on reclaimed coal mined lands.*