Horticultural News and Research Important to American Gardeners

HONEYBEE DEATHS REMAIN A MYSTERY

Despite the extensive report published by the U.S. Department of Agriculture (USDA) in May investigating colony collapse disorder (CCD), researchers are still baffled by the large-scale death of honeybees throughout the United States. Commercial beekeepers typically expect an annual loss of about 15 percent of honeybees, but for the past six years, that number has risen to an average of 30 percent. Because bees pollinate many agricultural crops, this loss could mean smaller harvests and a drastic increase in prices of fruits, nuts, and vegetables.

Agricultural Research Service geneticist Tom Rinderer, right, and beekeeping cooperator Steve Bernard, inspect colonies of honeybees to better understand colony collapse disorder.

"Currently, the survivorship of honeybee colonies is too low for us to be confident in our ability to meet the pollination demands of U.S. agricultural crops," the USDA report states.

The USDA investigated potential causes of CCD including viruses, pathogens, exposure to pesticides, and the overworking of commercial bees. But the diagnosis is not a simple one, since the disorder is most likely the result of a combination of stressors.

The report urges gardening as an effective means of supporting local honeybee populations. Kim Eierman, an environmental horticulturist who lectures about beekeeping at public gardens in New York City, advises including a diversity of plants and using pesticides as little as possible. By adopting a few new gardening practices, Eierman says, "you can help bees on your own property while maintaining a beautiful landscape."

For more information about CCD, visit *www.thrall.org/bees*.

CENTURY-OLD MONITORING PROGRAM YIELDS NEW PLANT ECOLOGY DISCOVERIES

In 1906, researchers at University of Arizona began recording the life cycles of individual plants in permanent research plots at Tumamoc Hill near Tuscon. The original researchers had no intention of the project lasting longer than five years, but year after year, they came back to record another data set, as did their successors. Now, more than a century later, it is the world's longest-running study that monitors plant communities.

Susana Rodriguez-Buritica, the lead coordinator of the research, says the monitoring program started because at the time, there were a lot of questions about long-term behaviors of plant communities. "This data helped move ecology along," Rodriguez-Buritica says.

In the mid-20th century, ecologists believed that if left untouched, plant communities progressed towards a perfectly balanced ecosystem. Observations at Tumamoc Hill showed that "the plots were not synchronized like you'd expect," says Rodriguez-Buritica. "Each one was behaving in its own unpredictable way." The recorded data have also revealed climate and other changes in the Sonoran Desert and allowed scientists to estimate life spans for long-living desert perennials.

Now, all the data has been digitized and made available online to plant ecologists interested in how desert plants are affected by 100 years of varying environmental conditions. This has also allowed the existing data to be analyzed more efficiently. Although there are no official findings yet, the data reveals great fluctuations in species diversity over the years due to environmental conditions, and recently, that species diversity has plummeted. Rodriguez-Buritica and her colleagues hope that

Research on the vegetation on Tumamoc Hill in Arizona has continued for more than 100 years, providing new insight into plant ecology in the American Southwest.

LEFT: COURTESY OF SCOTT BAUER, USDA AGRICULTURAL RESEARCH SERVICE; BUGWOOD.ORG. RIGHT: COURTESY OF LARRY VENABLE