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What's growing on
at the Garden!

‘PARASITE LOST’: BOTANIST DISCOVERS UNUSUAL PLANT MISSING SINCE 1985

(ST. LOUIS): Intensive field research and herbarium study leads the Missouri Botanical Garden in St. Louis to describe as many as 100 plant species a year that are new to science. The discovery of an entirely new genus is significantly rarer. Dr. George Yatskievych, scientist and curator in the Garden’s Science and Conservation Division, has successfully recovered and is studying such an undescribed genus: an unusual parasitic flowering plant that has lost its chlorophyll and depends entirely on its host tree for nutrients and water. Only one specimen of this “parasite lost” existed prior to Yatskievych’s research, found over 20 years ago and not seen since.

In 1985, Dr. Wayt Thomas of the New York Botanical Garden had a chance encounter with a single specimen while collecting other plants in the Mexican state of Guerrero. The odd, orange-brown, fleshy-stemmed plant had a pinecone-shaped dense cluster of flowers. The late Dr. Larry Heckard of the University of California, a leading North American expert on parasitic plants, examined the specimen but was unable to identify even its plant family. Parasitic plants are extremely hard to study as pressed specimens, as they become brown and distorted during the drying process. Thus, the plant remained unidentified for more than 20 years, before eventually making its way through the scientific community to the Missouri Botanical Garden.

As a Garden botanist, Yatskievych has performed taxonomic research on families of parasitic plants for the Flora of Missouri Project and the Flora of North America. Among these, the unknown specimen appeared closest in floral features to others in the family Orobanchaceae. Orobanchaceae are all parasitic on the roots of host plants. Although some of the genera are green and appear “normal” until their root connections are revealed, others have completely lost their ability to

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ADD ONE: Parasitic plant

photosynthesize and appear as fungus-like, non-green plants with succulent stems and small, scale-like leaves.

“The Orobanchaceae that I have worked with are almost otherworldly in appearance,” said Yatskievych. “I’ve always been interested in plants that don’t fit the preconceived notion of what plants should be. The specimen collected by Dr. Thomas was so unusual that I had to see for myself what it looked like alive.”

During June of 2006, Yatskievych traveled to the Sierra Madre del Sur of western Mexico, northwest of Acapulco, to return to the general area of the original collection. He and local researchers spent several days conducting intensive field searches before successfully rediscovering the plant, becoming the first botanists to see the species in more than two decades. They fully documented the plant for future scientific study through photographs and collection samples. Yatskievych’s second visit to the area in 2007 added further information on the ecology of the new genus and the identity of its host species (*Hedyosmum mexicanum*, a species in the Chloranthaceae family of flowering plants). It also confirmed that the undescribed parasitic plant is rare and imperiled in nature.

“The region where the plant grows is changing rapidly, as the abundant forests gradually are being logged for timber and the slopes burned to become pastures and crop fields,” observed Yatskievych. “In another decade or two, we might never have succeeded in relocating this undescribed genus in the field.”

The “parasite lost” was not the only species found on the journey. The group also documented a number of other plant and animal species during the trip, including an unknown caterpillar that researchers in Mexico hope to study further.

Results of Yatskievych’s research on the undescribed genus of the Orobanchaceae family are currently being compiled for publication in a scientific journal later this year, at which time the plant will be officially identified by its new name.

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The Missouri Botanical Garden’s mission is “to discover and share knowledge about plants and their environment, in order to preserve and enrich life.” Today, 149 years after opening, the Missouri Botanical Garden is a National Historic Landmark and a center for science, conservation, education and horticultural display.