

“MYSTERY OF THE MICCOSUKEE GOOSEBERRY”

More Questions than Answers

By Susan H. Young

Nearly everyone’s heard of the red-cockaded woodpecker and the swallow-tailed kite. But what about their neighbor, one of the rarest plants on Earth- the Miccosukee gooseberry?

Why is this odd little spiky shrub federally threatened? (Only a few hundred exist, huddled in two tiny colonies in SC and FL) Other gooseberry species are quite common out West. What pollinated its flowers during the Pleistocene era, when it flourished? Only bumblebees pollinate it now. Was it ALKALI bees at one time? Or specialized ants? Does anything eat its sour fruit? Do those spiny berries hide a medicinal secret? (Other berry-producers, like the saw-palmetto, provide valuable treatments for humans.) Why do these rare plants even persist? Most other relics from 10,000 years ago are extinct.

Why do they thrive only in unusual alkaline “sinks”? Was the gooseberry dependent on one specific (now extinct) pollinator? –Or seed disperser? (The Carolina Parakeet?!) Both of the shrubs’ existing colonies are close to large cities, perilously close. They’re at risk from sprawl, hurricanes, pollution disasters, etc. If the groundwater becomes polluted, or the alkalinity disperses, what will happen to the gooseberry? Will it go extinct before we can discover its secrets?

Can erosion and silt from nearby rivers affect it adversely? The SC population is permanently protected, but the Florida plants are on private land. Their protection is only voluntary. A nearby interstate and encroachment from Tallahassee provide so many opportunities for accidental destruction. (Several other endangered species of plants and animals still live there as well.)

This gooseberry is such an “oddball” adaptive plant. Its niche is very location-specific. For example, its leaves emerge in autumn, and it stands bare in the summer! It takes advantage of the winter sun, when there is no canopy of hardwood leaves. This shrub blooms in April, thriving on the calcium and alkaline provided by the chalky marble limestone. (The plant’s Latin family name, “*Saxifragaceae*”, means “breaking rocks”.) However, these porous layers and the nearby lakes and streams act as “sinks”. They trap sediments, over-nutrients, and non-point-source pollution from stormwater. The gooseberry also grows a relatively short distance inland from saltwater. As the result of hurricanes or humans, saltwater intrusion could migrate there too.

Speaking of migrations, do any animals, birds or even insects still travel between the SC and Florida colonies? (It would be a great advantage for providing genetic diversity.)

The ecosystem around Lake Miccosukee (Jefferson County: Florida panhandle) provides critical habitat for the largest population of the endangered red-cockaded woodpecker. Other rare animals as varied as the SE shrew, Cooper’s hawk, swallow-tailed kite (another raptor), Florida pine snake, the bald eagle, and a striped newt struggle to survive there. The mud sunfish, another ancient rare “oddball”, may be a surviving relic of the Pleistocene era! The gooseberry isn’t the only rare plant there, either. The Florida mountain-mint, Turk’s-cap lily, Mexican tear-thumb, and karst pond xyris all grow there. These plants crave calcium, so they’re called calcicoles. The mountain-mint also grows in the SC location (Steven’s Creek Heritage Preserve, McCormick County.) Unusual mountain wildflowers also seek refuge on the SC site, miles south of their

brethren. Imagine seeing trilliums (lance-leaved, nodding, and faded), false-rue anemone, spring beauty, green violets and Dutchman's breeches growing just north of Augusta! Other uncommon denizens including the yellow cucumber tree and the (state-endangered) Webster's salamander live in this unique little cove. They're a stone's throw away from the huge Thurmond (Clark's Hill) lake and dam. Both gooseberry populations are in forest-managed areas.

Is "fire suppression" suppressing the gooseberry? So many coastal plants are fire-dependent. Does this berry-producer NEED an occasional fire, like the blackberry does? The shrub is under fire suppression in both its colonies. A "mechanical reduction" of overstory would NOT supply the heat and chemical changes provided only by fire. (Ask a chemistry teacher or forester.)

Yet another problem faces this little shrub: it will transplant, but does not reproduce in those locations! (Hence the curiosity about its pollinators and seed-dispersers. Perhaps its seeds had to pass through a Giant Sloth's gut in order to sprout in the wild?)

Since it is not considered a "commercially viable" plant, few funds are available for its continuing study. Yet so many tropical or coastal plants hold great medicinal value. For example, quinine comes from the (tropical) cinchona's bark. Hot peppers provide capsiacin (capsicum) for arthritis relief. Not to mention that this shrub holds a specific niche in its fragile ecosystem (basic-mesic forest.) Together, the gooseberry and its neighbors help preserve the genetic diversity essential to our planet.

Through floods, fire, frost and hurricanes, for over 10,000 years this spiky little shrub has persisted. WHY? HOW? What can we do to further support its habitat?

"The ecology of woodland herbs is understudied, but many evolved in situations where disturbances to woodlands were greater than they are today, and far more complex and diversified." –Paul Catling, Dept. of Biology, Univ. of Ottawa

FOR MORE INFORMATION: www.nwf.org, www.scwf.org, www.endangered.fws.gov, www.dnr.state.sc.us, www.1000friendsofflorida.org.

"A Guide to the Wildflowers of South Carolina" (Rayner and Porcher)

SC Native Plant Society, Florida Native Plant Society, SC Heritage Trust Program (Stevens Creek), SC Wildlife Federation, Clemson Herbarium.