Backyard Gems

Ted C. MacRae

Englemann Woods Natural Area, Franklin Co., Missouri.

I’ve been fortunate to have the chance to travel far and wide in my searches for insects—from the Gypsum Hills of the Great Plains and Sky Islands of the desert southwest to the subtropical riparian woodlands of the Lower Rio Grande Valley, tropical thorn forests of southern Mexico and veld of southern Africa. No matter how far I travel, however, I’m always happy to return to the Missouri Ozarks. It is here where I cut my entomological teeth so many years ago, and though I’ve now scrabbled around these ancient hills for more than three decades it continues to satisfy my thirst for natural history. Though not nearly as expansive as the Great Plains, there are nevertheless innumerable nooks and crannies nestled in the Ozarks, and I find myself constantly torn between looking for new spots (it would take several lifetimes to find them all) and going back to old favorites. Living in the northeastern “foothills” in the outskirts of St. Louis provides an ideal vantage for exploration; however, sometimes I am truly amazed at the natural history gems that can be found within a stone’s throw from my house. Some examples I’ve featured previously include Shaw Nature Reserve, home to a hotspot of the one-spotted tiger beetle, Castlewood State Park, where I found a gorgeously reddish population of the eastern big sand tiger beetle, and Victoria Glades Natural Area, site of the very first new species (and perhaps also the most beautiful) that I ever collected.

Today I found another such area—Englemann Woods Natural Area, and at only 5 miles from my doorstep it is the closest natural gem that I have yet encountered. One of the last old-growth forests in the state, its deep loess deposits on dolomite bedrock overlooking the Missouri River valley support rich, mesic forests on the moister north and east facing slopes and dry-mesic forests on the drier west-facing slopes dissected by rich, wet-mesic forests with their hundreds-of-years-old trees—a remarkable forest of white oak, ash, basswood and maple in an area dominated by monotonous second-growth oak/hickory forests.

It is not, however, the 200-year-old trees that will bring me back to this spot, but rather the understory on the north and east-facing slopes. Here occur some of the richest stands of eastern hornbeam (*Ostrya virginiana*) that I have ever seen. This diminutive forest understory inhabitant is not particularly rare in Missouri, but as it prefers rather moist upland situations it is not commonly encountered in the dry-mesic forests that dominate much of the Ozarks. Stands of this tree, a member of the birch family (Betulaceae) are easy to spot in winter due to their habit of holding onto their dried canopy of tawny-brown leaves (see photo below).

Why am I so interested in this plant? It is the primary host of the jewel beetle species *Agrilus champlaini*. Unlike most other members of the genus, this species breeds in living trees rather than dead wood, their larvae creating characteristic swellings (galls, if you will) on the twigs and stems as they spiral around under the bark feeding on the cambium tissues before entering the wood to pupate and emerge as adults in spring. This species is known in Missouri from just two specimens, both collected by me way back in the 1980s as they emerged from galls that I had collected during the winter at two locations much further away from St. Louis. The presence of this rich stand of hornbeam just 5 miles from my home gives me the opportunity to not only search the area more thoroughly to look for the presence of galls from which I might rear additional specimens, but also to look for adults on their hosts during spring and...

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Steep north-facing slopes border the Missouri River valley. Rich stands of eastern hornbeam (*Ostrya virginiana*) dominate the north- and east-slope understory.

(possibly, hopefully) succeed in photographing them alive.

Another “draw” for me is the restoration work that has begun on some of the west-facing slopes in the areas. Pre-settlement Missouri was a far less wooded place than it is today, as evidenced by the richly descriptive writings penned by Henry Schoolcraft during his horseback journey through the Ozarks in the early 1800’s. At the interface between the great deciduous forests to the east and the expansive grasslands to the west, the forests of Missouri were historically a shifting mosaic of savanna and woodland mediated by fire. Relatively drier west-facing slopes were more prone to the occurrence of these fires, resulting in open woodlands with more diverse herbaceous and shrub layers. At the far extreme these habitats are most properly called “xeric dolomite/limestone prairie” but nearly universally referred to by Missourians as “glades”—islands of prairie in a sea of forest! I have sampled glades extensively in Missouri over the years, and they are perhaps my favorite of all Missouri habitats. However, it is not future glades or savannas that have me excited about Englemann Woods but rather the availability of freshly dead wood for jewel beetles and longhorned beetles resulting from the selective logging that has taken place as a first step towards restoration of such habitats on these west-slopes. The downed trees on these slopes and subsequent mortality of some still standing trees that is likely to result from the sudden exposure of their shade adapted trunks to full sun are likely to serve as a sink for these beetles for several years to come. I will want to use all the tools at my disposal for sampling them while I have this opportunity—beating, attraction to ultraviolet lights, and fermenting bait traps being the primary ones. It looks like I’d better stock up on molasses and cheap beer!
Craggly, old Eastern red-cedars (Juniperus virginiana) cling tenaciously to the towering dolomite bluffs.

This tree may pre-date Eurpoean settlement.

Eastern red-cedar (Juniperus virginiana) is native to Missouri, but in our time it has become a major, invasive pest tree. The suppression of fire that came with settlement also freed this tree from a major constraining influence on its establishment in various habitats around the state, primarily dolomite/limestone glades. Nowadays most former glade habitats, unless actively managed to prevent it, have become choked with stands of this tree, resulting in shading out of the sun-loving plants that historically occurred much more commonly in the state. Untold dollars are spent each year by landscape managers on mechanical removal and controlled burns to remove red-cedar and prevent its reestablishment in these habitats. There is one habitat in Missouri, however, in which eastern red-cedar has reigned supreme for centuries or possibly millenia: dolomite/limestone bluff faces.

With little more than a crack in the rock to serve as a toehold, red-cedars thrive where no other tree can, growing slowly, their gnarled trunks contorted and branches twisted by exposure to sun and wind and chronic lack of moisture. Some of the oldest trees in Missouri are red-cedars living on bluffs, with the oldest example reported coming from Missouri at an incredible 750–800 years old. There is something awe-inspiring about seeing a living organism that existed in my home state before there were roads and cars and guns. These ancient trees are now an easy drive from my house (though a rather strenuous 300-ft bushwhacking ascent to reach the bluff tops)—they seem ironically vulnerable now after having endured for so long against the forces of nature. For me, they
will serve as a spiritual draw—a reason to return to this place again regardless of what success I might have at finding insects in the coming months.

Nels Holmberg is the 2013 Lifetime Achievement Award Winner

George Van Brunt

Nels Holmberg, WGNSS member since 1996, retired in 1998 so that he could accompany Fr. Sullivan on his weekly botany walks and learn to identify Missouri plants. In the time since then, Nels has become quite an expert at plant identification, especially identification of bryophytes. We are not giving him this award for his expertise in plant identification, but for what he has done with his expertise.

Nels has conducted an extensive sampling regimen on 147 acres of the Dana Brown Woods section of Shaw Nature Reserve to develop a plant list and observe changes due to prescribed burning and invasive species control programs. This work resulted in a list of 565 vascular plant species that is part of the biodiversity database for SNR. His data on vegetation changes are being analyzed in concert with another ecologist/statistician and will result in one or more publications in a restoration ecology journal in coming years.

Nels began collecting specimens for the Missouri Botanical Garden herbarium in 1998. Currently his official count is 2,930 but, due to a backlog, the actual count is close to 4,000 specimens. Included in the 4,000 specimens are nine bryophyte state records, seven from Missouri, one from Oklahoma, and one from Illinois, and nearly 400 county bryophyte records. This work has resulted five publications co-authored with the late Carl Darigo and John Atwood.

Nels is conducting or has conducted bryophyte surveys at Meramec State Park, Morris State Park, Onondaga Cave State Park, Hickory Canyon Natural Area, Taum Sauk Mountain State Park, and Hawn State Park. He has also conducted numerous plant surveys for the Missouri Department of Conservation and other public and private entities.

Photos by Rex Hill.