

By Erika Rowe

Elusive

ORCHIDS

What are the odds of finding Minnesota's tiniest orchid?

Minnesota has a handful of native plant species with mythic qualities: Elusive, rare, revered, endangered, or so specific in their habitat requirements, they are not likely to be seen. Bog adder's-mouth orchid (*Malaxis paludosa*) encompasses all of these qualities. It has proven to be one of the most challenging orchid species to find, partly because of its rarity, but also because it is easily overlooked.

The orchid is small in stature and has a chameleonlike ability to blend into the vegetation and mossy hummocks within its forested swamp habitat. Often, the only sign of the orchid's presence is its delicate inflorescence—rising a scant 5 to 10 centimeters above the moss. Adding to its elusiveness, populations tend to be sparse, often fewer than 10 plants at a site and rarely more than 20.

I did not have much hope of finding this inconspicuous orchid during my summer search for rare plants and native plant communities for the Minnesota County Biological Survey. As an ecologist with the Department of Natural Resources preparing for the 2005 field research season, I put the bog adder's-mouth



on my search list of targeted rare plant species. But I didn't plan to spend much time looking for it, given its reputation of being nearly impossible to find.

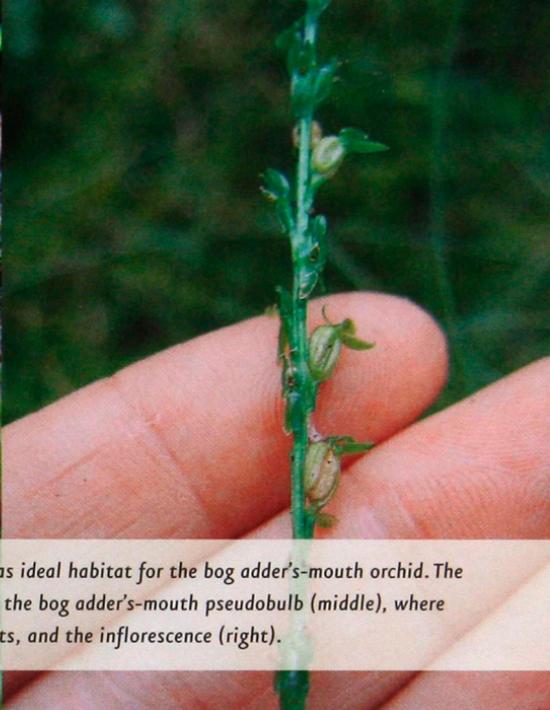
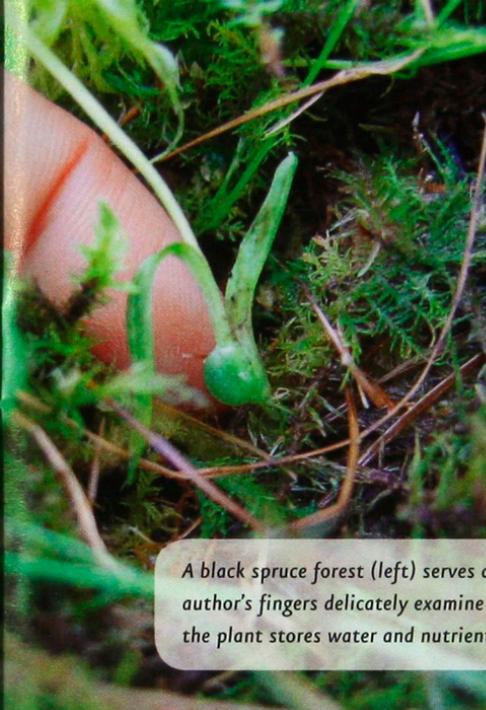
Minnesota is the only state in the lower 48 in which bog adder's-mouth has been found. This circumboreal species, one occurring throughout far northern latitudes, has also been found in scattered locations in Alaska, Canada, Asia, and Europe. In central and northern Europe, it is considered less rare, although it is believed to be declining, primarily because of wetland drainage and peat mining.

By most accounts, bog adder's-mouth was unknown in North America until 1905 when H.L. Lyon collected a specimen somewhere near New York Mills in Otter Tail County. Four more discoveries of bog adder's-mouth sites occurred between 1915

and 1934 in Hubbard and Clearwater counties. Nearly 50 years passed before the next discovery of a new population in Beltrami County in 1981. Another site was found in Beltrami County in 2000.

Three of these original seven Minnesota sites of the bog adder's-mouth have not been found again, despite extensive searches. Many factors, such as a lack of reproduction or loss of habitat, could have led to their demise.

Wild Orchid Chase. When Tim Whitfeld, an MCBS plant ecologist surveying nearby Clearwater County, told me that he was going to spend a few days looking for bog adder's-mouth, I was amazed at his ambition. Several botanists called his plan a "wild goose chase," and one offered a sarcastic "good luck!" But he wasn't dis-



A black spruce forest (left) serves as ideal habitat for the bog adder's-mouth orchid. The author's fingers delicately examine the bog adder's-mouth pseudobulb (middle), where the plant stores water and nutrients, and the inflorescence (right).

suaded; instead he recruited DNR botanist Welby Smith and ecologist Michael Lee to help relocate a known population of bog adder's-mouth.

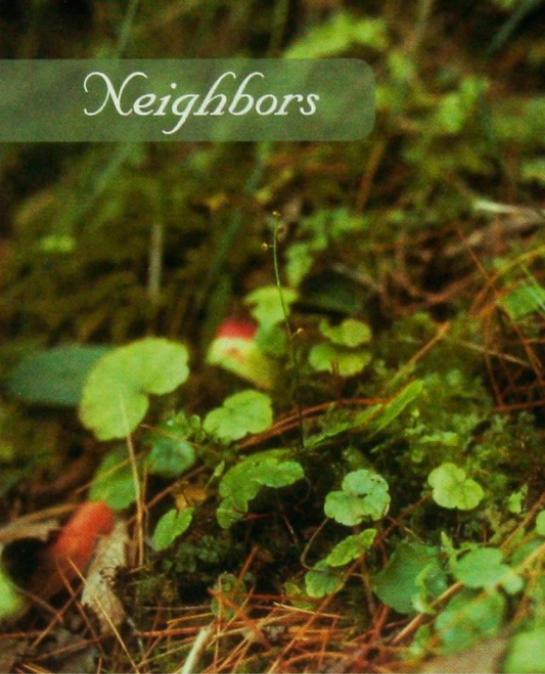
I decided to tag along with the hope that once I'd seen the real thing, I would be more prepared to hunt for new populations of bog adder's-mouth on my own. Photographs and herbarium specimens can only go so far in conveying how tiny and difficult this particular orchid is to see. At the very least, I knew that seeing the bog adder's-mouth in the wild would spark inspiration and excitement. But first we needed to find them again.

On a warm, cloudless day in early August in Clearwater County, the four of us set out for a black spruce swamp. For many people, the word *swamp* conjures images of an inhospitable place, where only mosquitoes thrive and bottomless muck awaits

anyone who dares set foot within this realm. Though mosquitoes certainly may gather there in numbers unimaginable, black spruce swamps can be magical places—rich with the scent of sphagnum moss and serenely cool on a hot summer's day. They provide habitat for many interesting animals and plants, including bog adder's-mouth.

Once we arrived, we didn't have to hike far within the swamp to where the orchids were reported to be. We began inspecting the sun-dappled mossy ground immediately. The search was a slow process, as one might imagine, but time slipped by quickly as my anticipation grew. I found myself scanning every inch of the sphagnum-covered hummocks, being mindful of where each foot was placed for fear of stepping on the one bog adder's-mouth orchid that we might have overlooked.

Neighbors



Naked bishop's cap (*Mitella nuda*)



Green adder's-mouth (*Malaxis unifolia*)

Being familiar with the common plants of a community is essential when searching for rare plants. When something differs slightly in texture or color, it's much easier to notice. I was the one who noticed the first orchid, just different enough from the typical vegetation that it caught my glance.

Before I called out to the others, I stooped down for a closer look. I tried to control my excitement as I yelled for Welby Smith to come over and confirm what I already suspected was a bog adder's-mouth orchid. "Yes, that's it!" he said.

I couldn't believe how incredibly tiny the flowers were and how well the orchid blended in with its surroundings—it was almost the exact same shade of green as the sphagnum moss. After the first orchid, we found it somewhat easier to see the other scattered individuals nearby, 12 total.

Neighbors. The following day in Becker County, using an aerial photograph of a tamarack swamp, I located a small area dominated by black spruce. It seemed to have the right characteristics for bog adder's-mouth habitat, and I set out hiking. After an hour and a half of slogging through wet, hummocky terrain, my initial confidence was wearing thin. I began to wonder whether this long, arduous hike was to be worth the exertion.

Several plants repeatedly caught my peripheral glance. Two such plants were the delicate flowering stems of naked bishop's-cap (*Mitella nuda*) and round-leaved sundew (*Drosera rotundifolia*). But then I spotted green adder's-mouth (*Malaxis unifolia*) and small northern bog-orchid (*Platanthera obtusata*). The presence of these latter two orchids indicated that I was



Round-leaved sundew (*Drosera rotundifolia*)



Small northern bog-orchid (*Platanthera obtusata*)

in the right habitat for bog adder's-mouth. I decided to walk over and take a closer look to make sure that they were the orchids I thought they were. Then something else caught my eye.

Just above the sphagnum moss, I spotted four bog adder's-mouth orchids clustered together. Shocked, I stood there for what seemed like several minutes, all the while contemplating the actuality of having found a new population of bog adder's-mouth orchids. I eventually came to my senses and proceeded to find 10 more plants within two acres.

By the end of the field season, Michael Lee and I had discovered five new populations of bog adder's-mouth, all in Becker County.

The 2006 field season proved equally fortunate, as we found four more locations in Becker County and one in Hubbard County. Tim Whitfeld also found another in

Hubbard. These new records have extended the known range of bog adder's-mouth and nearly tripled the known records in Minnesota to 17 locations.

As the Minnesota County Biological Survey expands farther north and east in upcoming field seasons, we hope to find more bog adder's-mouth populations, expanding their known range. Maybe I'll be a part of those future searches for this most elusive of orchids in Minnesota. After all, now I know what I'm looking for. 

 www.dnr.state.mn.us/volunteer

Bog adder's-mouth botany

To learn more about orchids, read the book *Orchids of Minnesota* by DNR botanist Welby Smith, available from libraries. For information on the Minnesota County Biological Survey, see www.dnr.state.mn.us/ecological_services/mcbs.