

THE AMERICAN BIOLOGY TEACHER



About Our Cover

The cover photo is of a Purple Pitcher Plant (*Sarracenia purpurea*) surrounded by sphagnum moss (*Sphagnum* spp.). It was taken at bog in central Wisconsin

Bogs are unique wetlands that often develop in glacial depressions with poor drainage. The lack of water outflow allows for acidic compounds to build up, selecting for species that are able to tolerate low pH habitats, such as sphagnum moss and tamarack trees (*Larix laricina*). Carnivorous plants, including the Venus flytraps (*Dionaea muscipula*), Sundews (*Drosera* spp.), and Pitcher plants (*Sarracenia* spp.), are common bog autotrophs that evolved to catch small animals as a way survive in the nitrogen-poor bog soils.

Of the eleven species of Pitcher Plants found in North America, the Purple Pitcher Plant (*S. purpurea*) is the only one found in the Northern latitudes. The leaves of these plants form hollow tubes that collect rainwater, and sweet-smelling nectar produced in the leaves attracts arthropods like bees. As arthropods walk down the leaves, small hair-like structures (some of which are visible in the shiny parts of the leaf) prevent them from turning around and walking up. As a result, they end up walking down toward the bottom, eventually reaching a slippery part of the leaf where they fall into the water and drown. Weak enzymes produced by the plant, as well as commensal decomposers in the water, break down the arthropods, releasing the nitrogen for the plant to use.

Bob Remedi, Ed.D., faculty member at College of Lake County in Grayslake IL, took the photo with a hand-held using a Canon 7D Mark II and an EF100mm f/2.8L macro lens. The exposure was 1/400 second at f/13 with an ISO of 400.

Contents


Feature Article

- Evaluation of Cost Savings and Perceptions of an Open Textbook in a Community College Science Course
Matthew R. Fisher 410
Available online at <https://www.nabt.org/ABT-Online-Current-Issue>
- Making the Science Classroom a Place for Wonder
Jason Niedermeyer 416


Research on Learning

- The Art of Referencing as an Often Overlooked Aspect of Scientific Literacy: Study of a Classroom Intervention
Susan J. Rehorek, Nicole J. Dafeo 423

Inquiry & Investigations

- BIONICS: An Out-of-School Day at the Zoo  429
Michaela Marth, Franz X. Bogner
- A Laboratory Activity to Engage College Students in Habitat Suitability Analysis to Teach Conservation, Ecology, and Evolution
Janet F. Stomberg, Morgan R. Walder, Rebekka Darner 438
- How to Use Taxonomic Principles in a Non-Scientific Setting to Teach Hierarchical Thinking
Susan J. Rehorek, Mark A. Shotwell 446

Tips, Tricks & Techniques

- An Inexpensive, Open -Source Mini-Centrifuge
How to build a "homemade" mini-centrifuge for use in a teaching lab
Zachary WareJoncas, Chris Stewart, John Giannini 451
- Using Open -Source Data in Correlative Species Distribution Modeling of Marine Species  457
Carlos A. Morales-Ramirez, Pearlyn Y. Pang

Departments

- From the President • Teaching: Complex, Challenging, Inspiring, Endlessly Interesting, and Always Vital • Elizabeth Cowles 407
- Letters to the Editor 409
- Book Reviews • Amanda L. Glaze, Department Editor 464
- Classroom Materials & Media Reviews • Remy Dou, Department Editor 468