

THE AMERICAN BIOLOGY TEACHER



About Our Cover

The photograph on the cover is of *Trillium recurvatum*, commonly known as the prairie trillium or the wake-robin. Despite the word *prairie* in the common name, this member of the lily family does not grow in prairies. Instead, it is a spring ephemeral, growing and blooming in the understory of hardwood forests, before the canopy leaves out. Plants in this genus produce underground rhizomes; their “stem” is actually a scape, and their “leaves” are actually bracts. The specific epithet *recurvatum* refers to the fact that the sepals are curved down, away from the flower as it matures.

With rich burgundy flowers and mottled green leaves, this beautiful plant is one of the first signs of spring, with the common name “wake-robin” indicating that it blooms before the robins return to nest. It can be found in both mesic and floodplain forests from Texas to the upper Midwest, and east as far as North Carolina and Pennsylvania.

This photograph was taken in a secondary-growth oak–hickory forest in Lake County, Illinois, using a Canon 100mm f2.8L lens, on a Canon 7d Mark II set at f5.6, 1/500 second and ISO 400. The aperture of 5.6 was chosen to put the back leaf slightly out of focus to allow for the magazine header. This is Bob Remedi’s ninth *ABT* cover since his debut in the October 2012 issue. Bob teaches environmental biology, anatomy and physiology, and classes for new faculty at the College of Lake County.

Contents

Feature Article

Planting a Native Pollinator Garden Impacts the Ecological Literacy of Undergraduate Students

Using a hands-on activity across undergraduate majors to improve botanical literacy and to increase awareness of pollinator biodiversity

Carrie N. Wells, Melissa Hatley, Jane Walsh 210
Available online at <https://www.nabt.org/ABT-Online-Current-Issue>

Plant-Derived Drug Discovery in an Introductory Biology Laboratory Course

Sparkling interest and enthusiasm in first-year undergraduate students through hands-on, inquiry-based laboratory activities
Tatiana Kuzmenko, Ashwarya Sharma, Demian A. Willette. 214

Inquiry & Investigation

Authentic Research Investigations of a Controversial Question: Can Plants Learn?

Using a modern controversial subject to allow high school biology students to hone their theoretical and experimental skills through an open-ended research experience

Jessica Shin, Étienne Serbe, Gregory J. Gage. 222

Making Decisions with Data: Comparing Sun Leaves to Shade Leaves with a *t*-Test

Providing students the opportunity to collect and analyze data so that they can make inferences and use the data as evidence

Robert A. Cooper. 229

Using Digitized Museum Collections to Investigate Population Variation in Plants

Supporting students in noticing, questioning, and investigating variation in wild populations

Candice Guy-Gaytán, Cynthia Scholl, Elizabeth Leger 235

Is That Minnow in Your Bait Bucket an Invasive Species? An Inquiry-Based Activity for Teaching Taxonomy in College-Level Courses

Tackling the challenge of student motivation to learn organism classification and identification

Robert J. Mooney, Benjamin E. Martin, M. Jake Vander Zanden 240

Ease into Climate Change Instruction through Ocean Acidification

Engaging students in understanding the effect of anthropogenic CO₂ on the acidification of the ocean and oceanic food web through the use of a series of NGSS-aligned investigations

David C. Owens, Susanne Rafolt, Erin M. Arneson. 247

Investigating Ecological Disturbance in Streams

Using four simple experiments to help students conduct inquiry around the theme of disturbance in stream ecosystems

Patrick M. Edwards, Megan Colley, Angie Shroufe 254

Secrets of the Hibernators: Investigating Metabolism, Bone Structure & the Impacts of Climate Warming

Providing students with a student-centered, self-guided kit with accessible research data and an experimental model for exploring how temperature can affect metabolism

Michael D. Viney, Gregory L. Florant, Andrew C. Warnock, Courtney M. Butler,
Seth W. Donahue, Julie A. Maertens. 265

Tips, Tricks & Techniques

Using Crayfish Burrows to Illustrate Simple Ecological Field Techniques

Illustrating ecological concepts, sampling techniques, and behavioral biology through an engaging field activity

Sean M. Hartzell, Thomas S. Klinger. 270

Departments

Guest Commentary • *Reflections of a Citizen Scientist Educator* • Brad Williamson 209

Book Reviews • Amanda L. Glaze-Crampes, Department Editor 275

Classroom Materials & Media Review • Jeffrey Sack, Department Editor 279

Buyers' Guide (BG) 280

RECOMMENDED
FOR AP Biology

the BioClub
RECOMMENDATION