

PEDDIE

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C H R O N I C L E





Into the



Woods

Campus Ecology: Boots Replace Bunsen Burners in New Hands-on Science Class

■ BY BOB GIBSON ■

In the fall of 1992, a young governor from Arkansas had just been elected president, public use of the World-Wide Web was just beginning and Walter Annenberg's \$100 million gift to Peddie was still six months in the future. That fall saw the first academic use of Peddie Woods when a senior named Owen Dodge '92 worked there to carve out the Peddie Nature Trail under the supervision of then-science teacher Ned Bean.

But not until the fall of 1999 did the science department start working on the *second* academic use of Peddie Woods. Frustrated at the nobly-conceived but increasingly fragmented "integrated science" program for its ninth-graders, the department wrestled with how to implement a radical new venture — making use of Peddie

Woods, Peddie Lake and the surrounding area as the basis for a new freshman science course, one that would cover much of the same material as before but which would be hands-on, project-oriented, and focused on real-life issues concerning the woods and the lake.

As a result of those labors, the new

Campus Ecology course made its debut this fall as the required science course for all freshmen. From the outset, students knew that this was going to be a different kind of course: Boots were required gear, high-tech field-testing equipment replaced the conventional test tubes and Bunsen burners, and significant amounts

of class time were spent outdoors. Most importantly, however, none of the field studies that the students carried out had results that were *known* in advance: Every measurement they performed in the woods or in the waters of the lake was an original investigation of one aspect of the campus ecosystem.

During the fall term, for example, forest surveys were carried out in order to determine what, exactly, was growing in the woods, and water-quality surveys of the lake and its

Freshman students collect data. ▼



Notes from Peddie Woods

■ By Aly McKnight ■

Soil Sampling

The campus ecologists are currently studying the ecology of soil and are collecting and analyzing soil samples at many locations around the Peddie campus. They have discovered through their sampling work that soil samples from different collection sites actually look different, have different particle size compositions, and contain different amounts of moisture. Like much of their ecological work this year, this activity is helping them prepare for their spring trips to other ecosystems around New Jersey. For example, the group of campus ecologists studying the Pine Barrens ecosystem will discover that the soil there is very sandy. From their studies of soil in class, these students will know that sandy soil drains water very quickly, leaving little at the surface for the plants. When they then conduct vegetation surveys in the Pine Barrens, they shouldn't be surprised to discover that most plants living there are specially adapted to dry conditions, even though the Pine Barrens receives as much rainfall as neighboring regions in New Jersey.

Bird Watching

Students are learning to identify some of the local birds both by sight and by sound. The students have become surprisingly adept at identifying common birds by their songs; other teachers have reported that birds singing outside their classroom windows have frequently sparked impromptu identification discussions among the freshmen! We have conducted several informal bird surveys around campus using binoculars to aid in identification. The students have discovered that they share their environment with a wide variety of avian neighbors. When the campus ecologists leave campus to study other New Jersey ecosystems later in the spring, they will be well equipped to identify and record all of the new bird species they discover.

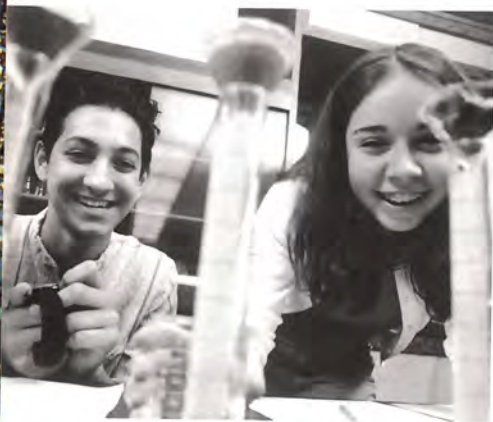
The New Bridge

We have been working on improving the nature trail since the Campus Ecology course began. The latest addition to the trail is a small bridge, designed by Kelsey Sullivan and made entirely of salvaged lumber. The pressure treated beams were perfect for the job and had been discarded by a local builder. Our next goal is to improve the section of the trail that crosses the small marsh. Right now, students have to pick their way over rickety pallets strewn across the trail, but eventually we hope to be able to put in some kind of boardwalk - perhaps even a marsh overlook with an interpretive sign!

The Springhouse

When Kelsey and I were installing the new bridge, we had to cut a short access trail from the back athletic fields to the bridge site, so that we could carry in the bridge pieces. While making the new path, we uncovered a small concrete springhouse buried in the undergrowth. The men who built the springhouse for the farm across the stream inscribed into the hardening cement their names, the date (1929), and their reason for building the structure. The inscription also mentions the farmer's son, who "has the distinction of being the only person in the area to own and operate his own aeroplane." A neat bit of local history to share with the students!

Teacher Aly McKnight on the nature trail. ▶



▲ Katie Rose Merriman and Keanan Mehra in the science lab.





◀ Students examine the spring house.

feeder streams were conducted in order to find out what lurks in those waters. In both cases, the data were only part of the investigation; students were also asked to extrapolate their forest surveys to form hypotheses about the future 'succession' of forest growth, and the water studies became what will be the 'baseline' dataset for future years' Campus Ecology investigations of the health of the aquatic ecosystems at Peddie.

Of course, students did spend *some* time indoors. Classroom lessons covered the basic material that underlay the investigations and, in some cases, provided controlled examples of the kinds of measurements the students would later make in the field. In addition, developing the students' powers of observation was an important goal. For a time during the fall term, two of the second-floor classrooms in the Caspersen Science Building looked like veritable forests after samples of 20 different plant species were brought inside for the students to sketch and learn how to identify. As a physicist by training, I cannot to this day tell the difference between a Red Oak and a Scarlet Oak. I am delighted, however, to know that all of the freshman students are not only able to do so but also have become, in a few short months, the 'local experts' on the plants, animals and physical features of campus ecosystems.

After a great deal of field work in the fall, the course turned its attention during the winter to the natural history of the area, a time of the year when outdoor field work with students needs to be curtailed anyway. Winter studies in Campus Ecol-

ogy concentrated on 'situating' the New Jersey region in geological time as well as on determining the natural and man-made factors that influenced the area's environment, climate and topography. The course returned outdoors during the spring term and focused on the course's 'capstone' experience, an off-campus trip to allow the students to compare what they have learned about the Peddie ecosystem to one that is different, yet recognizable: the Jersey Shore, the Pine Barrens or the Delaware Water Gap.

From the outset, the faculty involved in the planning and execution of the Campus Ecology course have been keenly aware of being blessed by a confluence of institutional distinctions, each of which is both enormously beneficial yet rare within the universe of independent schools. First, the four faculty members responsible for developing and teaching the course - Allison Warner, Alyson McKnight, Julie Veremey '90 and lead teacher Denise Nadeau '92 - are veritable fountains of creativity, energy, professionalism and dedication. They bring to the table a wide variety of background preparations and interests, and their talents, tenacity and teamwork have made the project successful.

Second, Peddie has long been a school that encourages and supports the development of new curricular ideas. Beginning more than a quarter-century ago, the legacy of innovation in the classroom built by courses such as Honors Chemistry & Physics, A.P. Humanities, American Studies, Science and Human Values, and The Principio Project is being continued and extended by Campus Ecology.

Third, an area as beautiful as the Peddie Woods and Peddie Lake is a rare campus jewel that is vastly under-appreciated at Peddie. Not only do they serve as buffers against encroaching Jersey suburbia, but they are also uniquely well-suited to the kinds of environmental studies that take place in Campus Ecology. I would consider a budding science curriculum fortunate to have any one of these three

advantages, but the combination of them is extraordinary. The proof of the pudding, as the proverb goes, is in the eating. The work that students have turned in on topics such as forest succession has been thoughtful and sophisticated, far beyond what is seen even in senior-level courses. And, in spite of the burden of trying to be "way cool" at all times, the students find that the course is getting to them as well.

For example, one Campus Ecology teacher remarked recently in a *Peddie Link* article of overhearing a heated debate between two freshman students over tree species identification - during a moment on the sidelines at a soccer game! As both an educator and a parent of a ninth grader, I could not be happier that my daughter is experiencing this course. And professionally, the opportunity to craft an exciting, hands-on and original curriculum for our students has been a challenge that we have relished this year in the science department. I trust that Peddie's freshman class is enjoying the course as much as we are.

Science Chair and Community Service Director Nick Guilbert holds degrees from Wesleyan University (B.A.) and North Carolina State (M.S.) and has taught physics at Peddie since 1984. He and his wife, Ellen, have three children, including their daughter, Hannah '04, who is taking the Campus Ecology course.



Teacher Julie Veremey '90 demonstrates soil sampling. ▶