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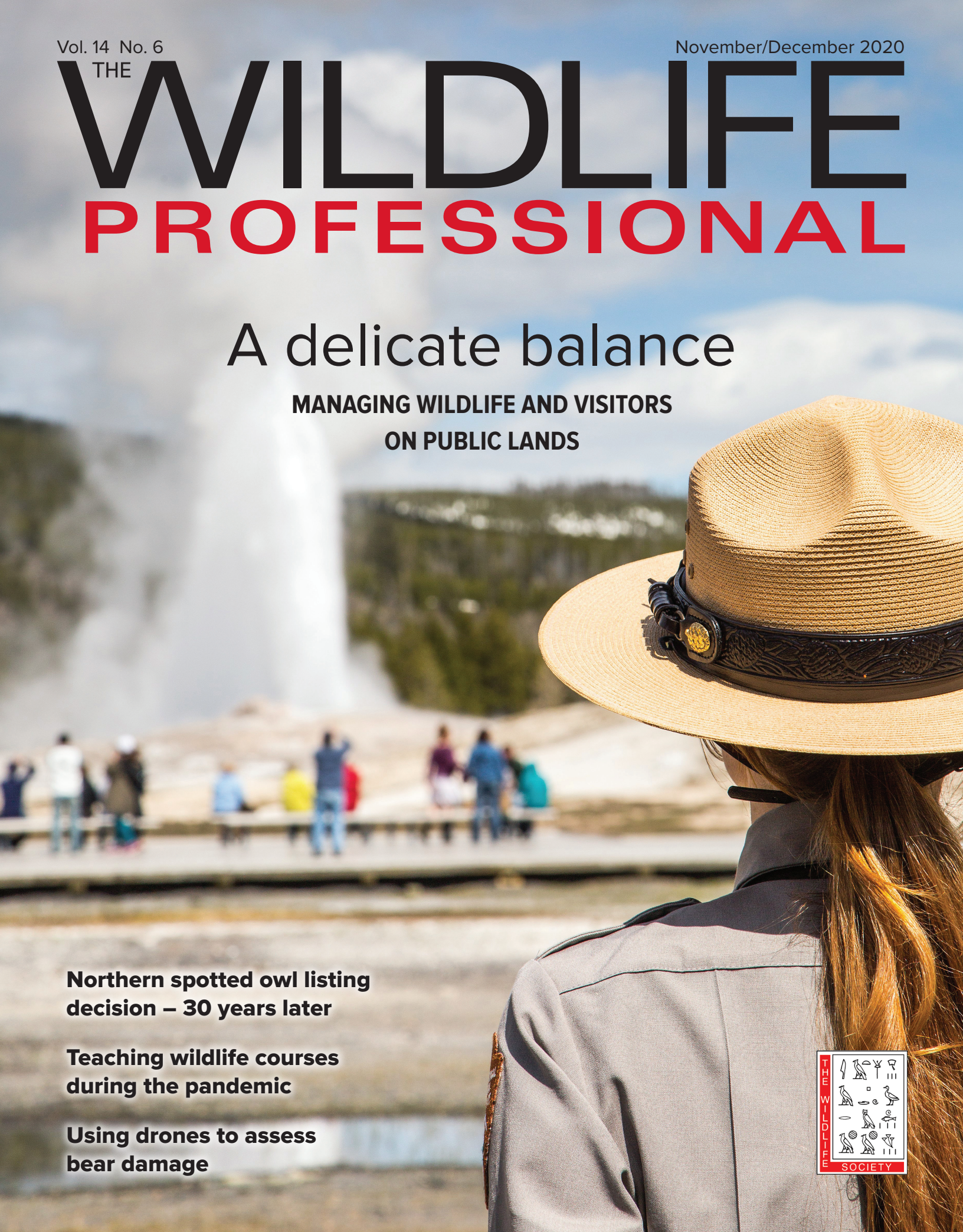
THE WILDLIFE PROFESSIONAL

A delicate balance

MANAGING WILDLIFE AND VISITORS ON PUBLIC LANDS

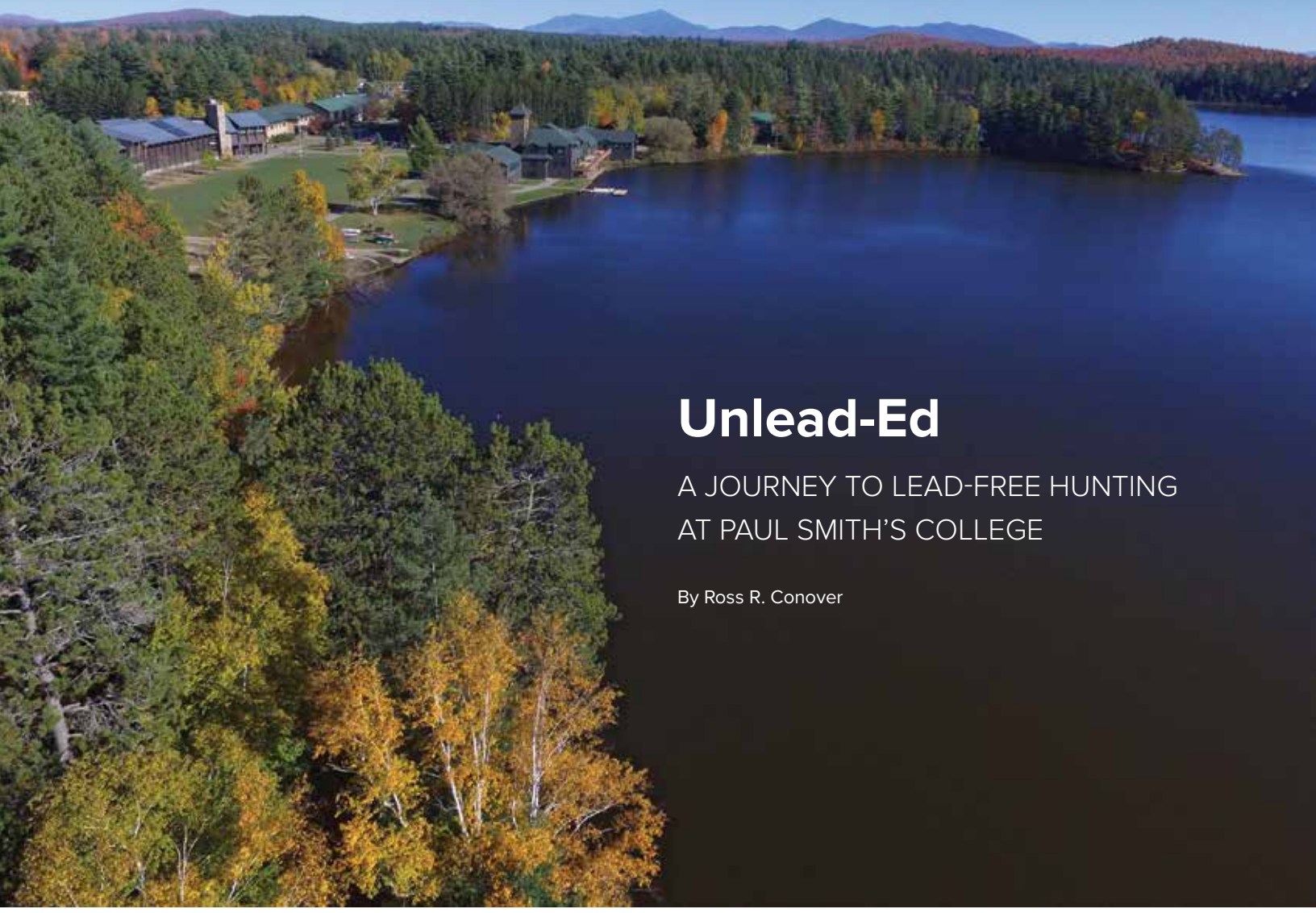


Northern spotted owl listing decision – 30 years later

Teaching wildlife courses during the pandemic

Using drones to assess bear damage

THE WILDLIFE SOCIETY



Unlead-Ed

A JOURNEY TO LEAD-FREE HUNTING AT PAUL SMITH'S COLLEGE

By Ross R. Conover

Courtesy of Paul Smith's College

▲ **Paul Smith's College is a small, rural college in the Adirondack Mountains of northern New York, located on the shore of Lower St. Regis Lake, that emphasizes hands-on learning in the environmental sciences.**

I failed to make the connection for far too long. In elementary school during the 1980s, my teachers warned me to count to 10 to let the lead clear out before drinking from the water fountain. As an adult, I routinely pumped unleaded gasoline. I read the lead-related health warnings on my ammunition boxes and guffawed at the movie *Tommy Boy* when Rob Lowe asked Chris Farley if he ate paint chips as a kid. I even conducted public outreach on the indirect but lethal effects of lead ammunition on California condors (*Gymnogyps californianus*). Despite all these clues, however, I still failed to connect the dots between lead ammunition and environmental and human health.

My initial enlightenment arrived at age 23 when a friend castigated me for having a box of lead ammunition in my house. The sudden, sweeping connection hit me like a bison stampede. How did I not see this sooner?

Even though I was acutely aware of the risks to condors, I realized, my lack of formal education as a wildlife undergraduate on the dangers of lead had diminished my ability to apply it elsewhere. It became clear to me that spreading this knowledge to undergraduates was paramount to equip students to make society aware.

Cutting through cognitive dissonance

Humanity has long struggled with making the transition from scientific understanding to societal reform. We saw it with the resistance to accepting the dangers of things like nicotine, asbestos and DDT. I was no exception. Change for me did not occur overnight, but it did come.

I tried to lead by example. I forfeited my lead-based ammunition to the local police station and replaced it with solid copper. Although it was harder to do and strained some relationships, I also began politely declining gifts of venison from friends who had hunted the deer using lead ammunition.

As any science educator knows, presenting overwhelming evidence on a controversial topic does not put an end to students holding on to beliefs to the contrary. Objectively confronting such topics, however, can create teachable moments, and these can translate into quality conversations beyond the classroom. Those conversations eventually can lead to understanding and acceptance.

As I added new lessons in the classroom on the hazards of lead ammunition, they stirred mixed emotions among the students. Most responses were positive, though. The topic invoked passion, participation and critical thought, I discovered. Skeptical students raised many good points. They pointed to cost, hunting traditions, ballistics, existing ammunition caches and damage to firearm rifling, all of which deserved to be addressed.

Making the connection

To maximize interest and minimize conflict, I found the best approach was to incorporate multiple relevant topics into lesson plans using an array of learning strategies. Outdoor discussions associated with hands-on wildlife activities, readings, examinations, independent research, presentations and other classroom activities all had their benefits.

I found I could most effectively capture student interest by connecting them to the lesson, so I introduced many different topics. Public health issues related to lead pipes and drinking water. Cost, ballistics and kill power. Phytoextraction and the food web. Heavy metal movement through soil horizons and watersheds. Hazards to law enforcement officials by discharging lead ammunition in firing ranges.

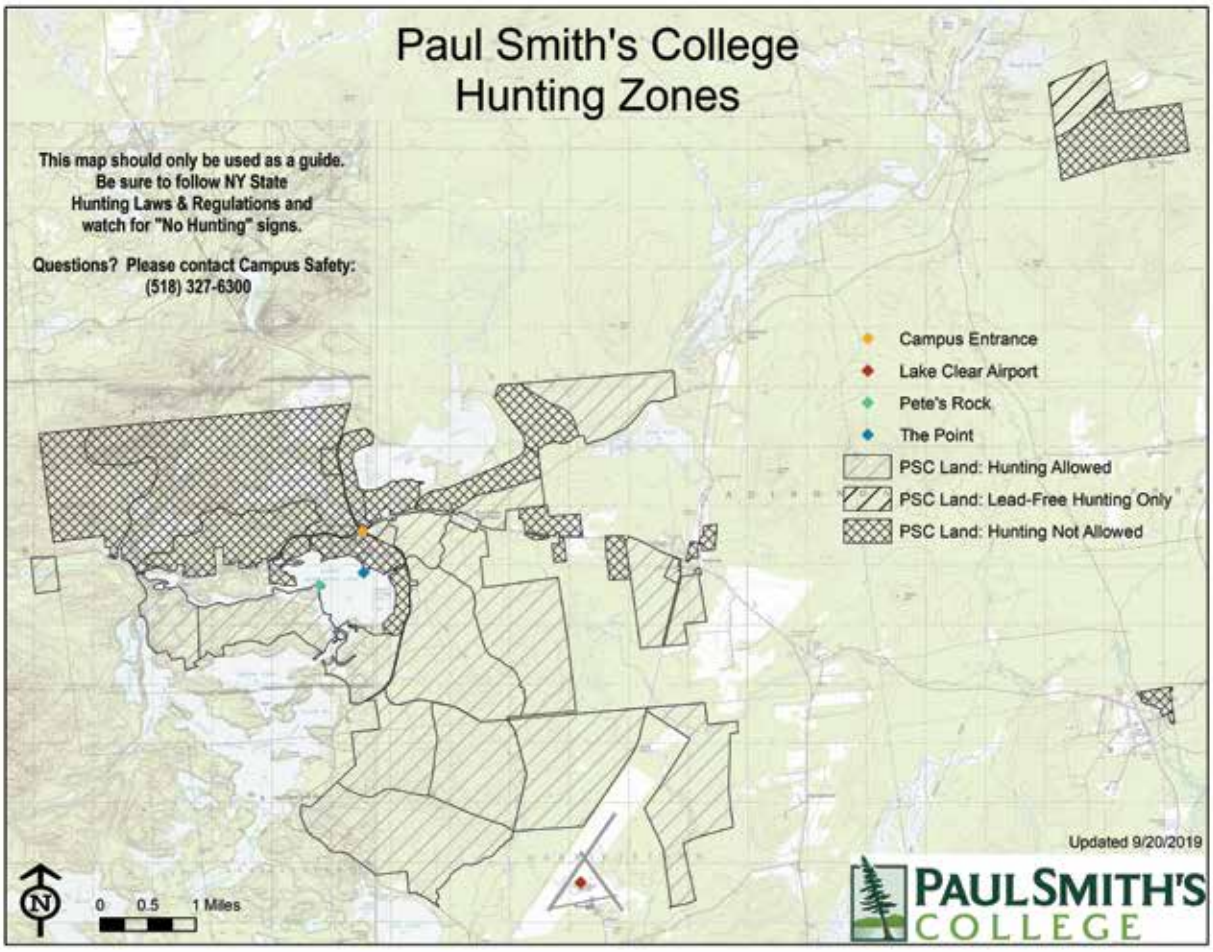
Credit: Ross Conover

▲ **Discussions amid an outdoor, hands-on learning activity at Paul Smith's College were particularly effective in capturing student interest and stimulating critical thought about lead poisoning.**

Students learned about how lead bullets fragment and disperse throughout a deer's body post-impact by inspecting radiographed images of lead-shot animals, gut piles and venison packages. We discussed threats to scavengers. We calculated the percentage of a penny's weight that would constitute lead poisoning based on their own weight. Students learned that lead sinkers are the primary cause of mortality in common loons (*Gavia immer*) in Adirondack mountain lakes. They studied bioaccumulation in fish. They learned about the release of lead from a pregnant woman's bones into her fetus.

Students also read TWS's position statement on hunting with lead ammunition, and they conducted literature searches to understand how this information was synthesized. This spurred analytical comparisons with nonscientific articles in hunting magazines and social media.

These efforts were soon rewarded. More and more students began excitedly telling me about their projects on lead poisoning in other classes, how they switched to copper and how they convinced family and friends to do the same. Ex-students wrote me apologetically for their previous dismissiveness and told me they now hunted with non-lead ammunition. Some had written their state and federal representatives to advocate for a non-lead ammunition policy. A few even took it upon themselves to shoot both lead and copper at the firing range, bringing me the shattered fragments of their lead bullets to compare with the still solid copper bullets as a classroom demonstration.



Credit: Melanie Johnson

This map, which includes information on the environmental and human health effects of using lead ammunition, is distributed to everyone who hunts on Paul Smith's College's lands. The map designates lead-free hunting zones and conservation easements.

These successes motivated my desire to escalate awareness to a broader audience. After moving to Paul Smith's College in 2015, I suspected I had found a sufficiently receptive community.

From proposal to policy

Paul Smith's College is a small, rural institution nestled in the Adirondack Mountains. It has an exceptionally outdoor-oriented student body and emphasizes hands-on environmental science education. The college owns almost 14,000 acres, of which approximately 7,500 acres are open for hunting by the college community.

Upon polling my wildlife management classes, I discovered over two thirds of my students were avid hunters and almost none had any knowledge of the effects of lead ammunition on wildlife or human health. Two years after my arrival, a veritable army had formed of students who were well educated on the topic. They included members of both the college's Fish and Game Club and TWS student chapter — students who were essential to building support for non-lead ammunition among their peers.

At one of our president's brown bag meetings for faculty and staff, I proposed that the college consider a lead-free ammunition policy. I felt it was supported by the college's mission statement to "advocate on issues that improve our planet and the lives of the people that inhabit it." To my surprise, though, the feedback was largely averse, driven by the same misconceptions I had encountered among my students. I needed a new pathway.

I disseminated a document to the college community that both educated and offered an objective, cost-benefit analysis. The proposal offered a research-based outline of the history of lead use and regulation, human-health effects of lead exposure, wildlife conservation and lead ammunition, non-lead ammunition alternatives and suggestions for policy implementation.

When I presented the proposal to our natural sciences and forestry departments, I received unanimous support from both. The department chairs eagerly assisted in finalizing the proposed policy to prepare it for a vote by the administrative cabinet. Within just weeks of being submitted,

the official policy, which "prohibits the use of lead ammunition for hunting on Paul Smith's College lands," was approved on the first attempt.

Keeping it up

Policy changes rarely occur without opposition, though, and this effort was no exception. The policy was approved in summer 2019, but by fall it was facing backlash from students who felt they had not been an integral part of the process. With the arrival of new students who had not yet been educated on the effects of lead, a student-led movement to overturn the policy began growing within the Fish and Game Club. They decided to have an official vote to determine future action.

I attended the club's meeting to explain the health consequences of lead ammunition to humans, wildlife and the environment. After my opening presentation, a discussion took place. Several TWS student members involved in both clubs emerged as well-educated and convincing advocates. By the end of the meeting, the lead-free policy had unanimous support.

The incident revealed, however, that to maintain support across an ever-changing student body, education must continue. As a result, a collaborative effort among natural science faculty led to the creation of a webpage, www.paulsmiths.edu/leadfree, to share educational resources, available seminars on the topic and a revised hunting map.

We held a weekday seminar that had excellent attendance. A crowd of about 150 people turned out — mostly college students, but some local residents showed up, too. A question and answer session allowed community members to discuss their concerns or their support for the policy.

We amended the college's traditional hunting map to delineate hunting zones that are lead-free under the college's policy and those held in a conservation easement — most of the college's land, actually — that fall under state law and hence do not exclude lead ammunition. The back of the map, under the title "Hunting is great, but could you make it better?" includes information related to the health effects of lead ammunition.

Just one step

Since adherence to the policy is primarily voluntary, its success depends on awareness, but it has led many in our hunting community to switch to solid copper ammunition.

The positive feedback has been overwhelming, and the community at Paul Smith's College is now very aware of the environmental and human health effects from using lead ammunition. While the policy has gained considerable support across campus, it is forever dependent on community awareness, so continuing education is critical.

Our efforts at Paul Smith's College are just one small step in the grander scheme of getting the lead out of ammunition and out of the environment. The experience is an excellent example, however, of the potential to make policy changes based on the transformation of classroom activities into community actions. ■

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