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Using an educational kit she developed to help educate kids about Black Hills Bryophytes, visiting Botanist Mary Zimmerman helps Lead-Deadwood Elementary fourth grade student Sophia DeMangus decide whether this formation is moss or lichen. Pioneer photo by Jaci Conrad Pearson

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Great green globs of ... moss, or lichen? By Jaci Conrad Pearson Black Hills Pioneer

DEADWOOD — Kids growing up in the Black Hills are bound to come across “mossy” looking stuff in area forests and because of its potentially rather unique appearance are more than likely drawn to it. For that matter, adults probably question it too. Ever wonder what that green, gold, yellow or black substance growing on rocks, trees and

just about everything else in the forest is? An uneducated guess, which is what most would make, is that it's simply moss.

But Lead-Deadwood Elementary fourth grade students recently learned all that is green and slimy is not moss.

It could also be lichen, according to visiting botanist Mary Zimmerman who taught the kids a thing or two about telling the difference between moss and lichen as part of a South Dakota Game, Fish and Parks Wildlife Diversity Program grant she secured to study Bryophytes.

Knowing the difference between the two formations is quite a unique and indispensable tool in this part of the country.

Many people often confuse moss and lichen, but these life forms are quite different. Though often found in the same type of environmental conditions, mosses and lichens possess quite different physical structures and have different methods of survival.

Moss is a plant form. Lichen consists of a combination of fungus and algae, neither of which are plants. Both moss and lichens are nonvascular organisms, however, which means they do not have internal transfer and support tissues.

Mosses provide elemental plant life for areas that may not be habitable for more sophisticated types of plants. Lichens often inhabit areas that are inhospitable to other organisms. They can live in desert sand, on bare rock, on dead wood or animal bones and rusty metal. Lichens are the survivors of the planet. All they require is air, light, moisture and freedom from competitors.

Children learned the difference between moss and lichen. They learned their growth habits — moss being mats, turfs and cushions. Lichen being leaf-like, tree-like or crust-like.

They also learned that different rocks and areas have different forms of moss and lichen.

“Elegan Sunburst Lichen is kind of a sign saying, ‘birds and packrats are here,’” Zimmerman explained.

After one student asked if eating moss would poison them, Zimmerman shared that George Washington and his starving troops at Valley Forge ate rock tripe, which is lichens.

Asked about one of the oddest moss varieties she's ever seen, she replied “Love Electrified, Cat's Tail.”

She also mentioned a curious slime mold that can be seen in the forest one day as bubbly yellow and the next in a different location it has moved to and turned brown.

“I thought it was interesting how she talked about the yellow slime molds,” said fourth grade student Sophia DeMangus. “That was really cool. I'm pretty sure I've seen one of them.”

They were also able to hold samples and begin learning to identify a few different forms, using boxes containing moss and lichens Zimmerman has collected.

Lead-Deadwood Elementary fourth grade teacher Lisa Rantapaa said that while it was great that the kids were exposed to the difference between moss and lichens, she like the way science and social studies were tied together.

"Mary has challenged the kids to go out in the community and find what she's talking about," Rantapaa said. "Our social studies curriculum in fourth grade is South Dakota, so getting those connections with our area and being able to have a person from the community come in and have that partnership in the school is important, too."

The focus areas of Zimmerman's grant secured in 2012 rotate year by year from research to education to monitoring. This year, she focused on education, taking lessons and kits containing moss and lichen samples to Northern Hills classrooms.

Thus far, Zimmerman has collected more than 2,000 unique local moss and lichen records in her data base.

"More than 300 species of bryophytes exist here and I have made 234 collections," Zimmerman said.

Also as part of her educational efforts for 2013, Zimmerman has conducted advanced workshops on the Outdoor Campus for Adults in Rapid City, entitled Black Hills Bryophytes, as well as visiting classrooms in Kyle. She is also compiling a Guide to Species on the Trail for the Outdoor Campus.

In 2014, she will move on to monitoring. One idea that already comes to mind is monitoring lichen growing on headstones in cemeteries, as some of the most historic stones in Deadwood, contained at St. Ambrose Cemetery, will soon undergo cleaning.

Zimmerman, a 30-year Artist in Schools educator whose art consists largely of drawing and print making of botanical subjects, said that she was attracted to the botanical formations because of their visual aesthetics, then she became familiar with the science of them.

"With the artwork of them, I picked a unique subject," Zimmerman said. "They are not things people come across. They are obscure and fragile. I've always been interested in their patterns and where they grow. The pattern and tapestry of them is very beautiful."

Zimmerman said that if students don't take away anything else from her lessons, she wants them to understand this.

"The fragility of the natural habitat," Zimmerman said. "That applies to a gamut of plants and animal environments. Plants and animals cooperate and compete. If we destroy something in nature, it's not just one thing we destroy. The ecosystem is one big puzzle and we can't put it back together once it's destroyed. It's too intricate. My idea, since I have a passion about lichens in this case, is also to share with kids and open their eyes, so whether they see a skunk or a wildflower, they see it in a more multifaceted way. Awareness."