

Black Hills Bryophytes Workshop

Final Report

13 May 2013

Mary Zimmerman

The workshop 'Black Hills Bryophytes, an Introduction to Bryology' was presented by Peter Nelson, PhD candidate and Mary Zimmerman at the GF&P Outdoor Campus West May 10-12, 2013 (2 classroom days and 1 field day) with a total of 18 hours of instruction.

The workshop was advertised through:

- SDGF&P Outdoor Campus West
- The Norbeck Society
- FaceBook
- The Great Plains Native Plant Society
- Contacts in biology departments at BHSU, Oglala Lakota College, and other networks

It became evident early on in the registration process that the workshop would easily fill. Indeed, many were turned down - more than enough people to overfill the class again. We ultimately accepted 14 students, and when one cancelled and another failed to show, the class size was a perfect 12. All but one (a retired Rapid City Schools teacher) were professionals - botanists, plant ecologists, a hydrologist, and a wildlife biologist. Of the professionals, four were with the National Park Service, 5 were from the Forest Service and 2 were college professors. The group was great and the room at the Outdoor Campus west was perfect! The evaluations say it all (see below).



Workshop participants at work in the classroom. This was a demanding workshop and they really worked hard.

Participants received:

- Instruction on how to use a microscope
- Introduction to Bryophyte Biology and Ecology
- Overview of Bryophyte Morphology and Anatomy
- Demonstration of dissecting techniques
- Hands-on dissection of leaves
- Analysis of microscopic characteristic
- Using keys to determine genus and species
- Hands-on Study of 10 Common Bryophyte Genera of the Black Hills using real specimens:
Polytrichum, Encalypta, Grimmia, Orthotrichum, Dicranum,
Syntrichia, Bryum, Plagiomnium, Eurhynchiastrum, Hypnum
- Learning about 18 easy Black Hills species that can mostly be identified on sight:
Sphagnum squarrosum, *Polytrichum commune*, *Polytrichum Juniperinum*,
Polytrichum piliferum, *Funaria hygrometrica*, *Grimmia longirostris*,
Dicranum polysetum, *Syntrichia ruralis*, *Abietinella abietina*, *Thuidium
delicatulum*, *Climacium dendroides*, *Hedwigia ciliata*, *Ptilium crista-castrensis*,
Hylocomium splendens, *Rhytidiadelphus triquetrus*, *Pleurozium schreberi*,
Plagiomnium cuspidatum, *Rhytidium rugosum*
- Sharpening tools of visual perception by diagramming the morphology of certain plants.
- Summary of Prior Work on Bryophytes of the Black Hills
- 'Extra Credit' Collections for examination by advanced students
- Identifying finds in the field
- Real-life review of material covered in the classroom days



Peter Nelson providing instruction in the field... note the 2 participants on either side of him checking out the bryos.

Follow-up for the workshop will be ongoing since they all wish to keep in touch. Participants are being provided with many links to useful websites and access to the PowerPoints. At their request, we are also setting up an email group so they can continue to communicate with each other and myself and Peter Nelson.

The budget was more or less adhered to with slightly less spent on mileage and more than was anticipated spent on classroom materials.

Participant Evaluations

Black Hills Bryophytes, an Introduction to Bryology

May 10-12, 2013, Outdoor Campus West, Rapid City

Instructors Peter Nelson and Mary Zimmerman

On a scale from 1 (poor) - 10 (excellent), please rate the instructors':

- command of the subject **9.8**

Excellent instructors - expert and self taught expert

- clarity of explanations **9.5**
- sensitivity to the response of the class **9.9**

Did not talk 'down their nose'

- apparent enjoyment of teaching **9.8**

**Very apparent both instructors have a PASSIONATE interest in subject!!
They liked working together**

What did you like most?

Keying out specimens

Breaking up micro work with power point - did not feel rushed to get thru packets

Exposure to keys and terminology

I think the field trip... of the classroom part, easy ID summaries

Whole course - very excited about applying my new skills

Bryo stuff

The hands on ID techniques

Looking at mosses under microscopes and drawing

Fascinating

Intro to microscopic examination and common species

What did you like least?

The easy to identify species weren't always so easy to identify

Not having another day in microscope work which is what I struggled with the most

Cross-sections!

Keying was most difficult

The frustration with sectioning leaves

Dissecting - only because obtaining a perfect cross-section was so elusive

No hot water for tea
I had a hard time making cross-sections
My lack of skill in making cross-sections
Headache from microscopes

What suggestions can you make to improve the course or the way it is taught?
The way it is taught is good. I appreciate the enthusiasm
Perhaps key some specimens as large group to cover base definitions before
breaking into teams or as individuals

PowerPoint display needs to be larger
Would have liked to see some sphagnum samples
I think a group keying exercise or two would make it easier to see that everyone is
on the
same page – would also be able to deal with troublesome couplets as they
come up.

More keying on macro characteristics
Good balance of theory and laboratory time
Frustration level would be a little less if dissection techniques were explained
a bit more at the beginning, at least for those who don't do it a lot. Would be
helpful to have a written summary of common species/ genera.

Was the material:

Too thin/ too deep/ just right 100%
Any deeper may have lost the non-botany types (like me!)

Too little/ too much 10%/ just right 90%
Good balance of scientific terms/explanations and breakdown into more
layman terms by both instructors and class 'professional' students

General Comments

Sharps container for razor blades and broken slides and cover slips
Liked the fact that 1 day in field is available
Good facility – class very well done
Thanks for offering the course
Overwhelming at first, but more success/facility as days progressed
Great presentation of complex material with focus on gaining ID skills
Thank you!
Starting folks off on FNA is a bit of a baptism by fire – other user-friendly resources
for

genus level ID could be
explored
I liked the PowerPoints and pictures, I also like interspersing
Excellent!
A good introduction to a complex subject.