

Permit 2014-017

Response Summary:

Name:

Tony Miller

Department or Organization:

The University of Akron Biology Department

Email Address:

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Are you requesting renewal of a previously approved permit application?

No

Type of activities at The University of Akron Field Station and Bath Nature Preserve
Research

Title of project or class name and course number:

Microtopographic Effects on Sphagnum Regeneration

Date/Dates requested:

October to November 2014 and March 2016

Number of people in group:

1-4

I am requesting permission to use a Research Area.

No

I am requesting permission to use a Sensitive Area.

Yes

I am requesting permission to use areas outside of the designated Research or Sensitive Areas.

No

I would like to use the Martin Center for Field Studies and Environmental Education for this
prop...

Yes

Will the activity involve destructive sampling/collecting?

Yes

Which Sensitive Areas?

Bath Pond

Tamarack Bog / Wetland

Please indicate any preparation or set-up you will need in the Martin Center for Field Studies an...

I will need lab space for construction of hummocks.

Please explain how the material will be collected (including equipment), and an estimate of how m...

Collection of two Sphagnum species, palustre and girgensohnii. Initially, in the Fall, I will need to collect one-half gallon of each species. In the Spring, I will need an additional one-half gallon of each species.

Provide a brief description of (1) your proposed activities, (2) goals, and (3) impacts of your u...

The Tamarack Bog, a peatland at the Bath Nature Preserve, is currently being restored. In peatland restoration, Sphagnum has been shown to be a crucial genus. Currently, the presence of Sphagnum is low and needs to be expanded for the purpose of continuing the peat formation process. If the hydrological conditions are restored, Sphagnum may be able to regenerate; however, the restoration process usually requires human intervention to achieve a successful restoration project. For this purpose, I would like to conduct field manipulations in the Tamarack Bog. The field manipulations will utilize construction of artificial microtopography. In peatlands, the microtopography interspersions help provide suitable microhabitat conditions for certain species. The two types of microtopographies I would like to observe are hummocks and lawns. A hummock is an area which is raised above the surface of a peatland. Peatlands typically have a water table depth at, or near the surface, of the peatland. Hummocks allow for drier conditions and more specialized plants since they are elevated above the surface. Lawns are areas of a peatland which are at the surface of the water table. Lawns are therefore wetter than the hummocks and also can provide suitable microhabitats for different plants. The Sphagnum genus has many species which are specific to either hollows or hummocks, as well as some species which are found equally between the two microhabitats. Two of the species in the Tamarack Bog, Sphagnum palustre and Sphagnum girgensohnii, are more often found on elevated surfaces of the Tamarack Bog.

I propose to construct artificial hummocks using donor peat, biodegradable flower pots, and burlap. The donor peat will first be sterilized before introducing it into the Tamarack Bog. Then, I can plant Sphagnum diaspores collected from the Bath Pond Margin and observe the effects of the microtopographic interspersions. I plan to begin this experiment with one trial in the fall and one trial in the spring. I believe interspersions of microtopography will help us to better understand Sphagnum regeneration in the Tamarack Bog. For future use, this will help us to better utilize Sphagnum collected from a donor location, and it will help us encourage a quicker rate of Sphagnum reestablishment in the Tamarack Bog.

There will be impacts upon the Bath Pond Margin, as I intend to use this location for collection of the two Sphagnum species. However, each Sphagnum shoot collected provides three to four 2.5cm diaspores for the purpose of planting in the Tamarack Bog. Furthermore, the Sphagnum in the Bath Pond Margin is well established. Collection will not damage the community of Sphagnum in this area. Furthermore, the Tamarack Bog is a location where we hope to

encourage Sphagnum growth, and it would be best to collect the Sphagnum from similar microhabitats which are found in the Bath Pond Margin. The Sphagnum in the Bath Pond Margin, like the Tamarack Bog, is mostly found on hummocks.

By checking this box, I agree to the above terms and state that all of the above information is c...
I agree