



Vegetation and Soils Vital Sign Monitoring Arctic Inventory and Monitoring Network Progress Report, December 2011

David Swanson,
National Park Service
4175 Geist Rd
Fairbanks, AK 99709

Abstract

In FY2011 the Arctic Inventory and Monitoring Network (ARCN) completed a draft monitoring protocol for the vegetation and soils vital sign, and began implementation of the protocol by sampling 103 plots at 5 “nodes” (sampling localities with clusters of plots). This brings the total number of nodes sampled to date to 8, out of approximately 25 anticipated.

Introduction

An important component of the ARCN Vegetation and Soils Vital Sign monitoring program is monitoring of permanent plots at selected sites across the Network, known as “nodes”. Details of the sampling design are given in the draft protocol (Swanson and Neitlich, 2011). In 2009 and 2010 we comprehensively tested the proposed protocol on 55 plots at 3 nodes and reported on our experience in two progress reports (Swanson, 2010a and b). In 2011 we began implementation of the protocol with a full-time crew in the field.

Sampling

Fieldwork in 2011 focused on the western part of the Noatak National Preserve (NOAT), accessible by aircraft charter from Kotzebue. Prior to fieldwork, 3 potential node locations identified previously were eliminated: Igisukruk Mountains and Kelly Ranger Station (due to private property) and Lower Nakolik (due to an uncertain landing site). Five nodes were sampled: Asik, Copter Peak, Kagvik Creek, Noatak Grand Canyon, and Wrench Creek. A total of 103 plots were sampled. Swanson accompanied the crew of 3 for the first 2 nodes, and the crew completed the remaining 3 nodes. The crew consisted of an experienced vascular botanist crew leader, a nonvascular botanist, and a soil scientist. Sampling was successful and generated baseline monitoring data. Details about campsites, access to transect locations, etc. are stored in the project data base. A few lessons learned are as follows.

1. The waterproof camera cover obtained for photos in wet weather (especially pole photos, when the camera is very exposed) worked reasonably well. However, the remote switch for the pole photos stopped working about half way through the field season. Later examination revealed that the mini-plug adapter had broken off at the camera body. Our response will be to bring spares of this part in the future.

2. We brought 3 Inspired energy Li batteries, one 10.8 V one to use with the Trimble GPS directly and 3 14.4 V ones to use via car adapters with the cameras and data recorders. DS

kept the Li batteries topped off using two 24W solar panels through the first two nodes and the crew was able to sample the third node on that stored power. The crew topped off the batteries during their break in Kotzebue and made it through the final two nodes without solar charging. However, I wouldn't leave the solar panels behind in the future unless the crew had more excess battery capacity than they did.

3. The crew had a close call with a bear on a plot at the Asik node. A sow with 2 cubs accidentally approached the crew while they were sampling on a brushy plot. The encounter was very close and the sow made a bluff charge at the crew before hustling the cubs away. This is the second time a node crew has had a close encounter while sampling a plot. Our usual procedure is to make deliberate loud noise while traveling but not while stationary on a plot. The crew started making noise periodically while working on plot (if there was any restriction of visibility) after this incident, and I recommend this as standard procedure in the future.

4. The crew felt that the point data forms should be unique to each transect but not each day as in previous years. This reduces the work needed to document unknowns and to produce the choice lists in the field. I made this change in the form at the first node in the field, and the revised forms were used successfully for the rest of the summer. My experience with appending the data to the database showed that reduced number of point forms also saved some data processing time in the post-season.

5. The crew of 3 with average weight of just over 100 lbs had plenty of excess capacity when shuttled with two trips using a Cessna 206 on wheels. By sending back the packraft before the final node (where it wasn't needed) they were able to return from the final node in one trip and saved the project over \$1000. The limitation was bulk not weight. Some additional space/weight could be saved by packing small tents and perhaps leaving out the solar panels. However, in the future we should still generally plan for two trips to be safe.

Conclusion

This season's experience yielded no significant changes to the protocol, logistics, or personnel plan for node sampling. The 2011 data have all been appended to the project database, and plans are for a similar effort in 2012.

References

- Swanson, D. 2010a. Vegetation and Soils Monitoring Protocol Testing, Arctic Inventory and Monitoring Network, Progress Report, March 2010.
<http://science.nature.nps.gov/im/units/arcn/index.cfm?rq=12&vsid=24>
- Swanson, D. 2010b. Vegetation and Soils Monitoring Protocol Testing, Arctic Inventory and Monitoring Network, Progress Report, December 2010.
<http://science.nature.nps.gov/im/units/arcn/index.cfm?rq=12&vsid=24>
- Swanson, D. K. and P. Neitlich. 2011. Terrestrial vegetation monitoring protocol for the Arctic Alaska Network: Establishment, sampling, and analysis of permanent monitoring plots. Natural Resource Report NPS/XXXX/NRR—20XX/XXX. National Park Service, Fort Collins, Colorado. (in preparation)