Alaska Region I&M - Biotic Inventories Project Update

FY 2012

PROJECT SUMMARY

The vast acreages of Alaska's National Wildlife Refuges are some of the most pristine ecosystems in the world, yet their large size precludes intimate knowledge of the vegetation and arthropod communities which provide the foundational elements of the system. As the NWRS in Alaska embarks on a new inventory and monitoring initiative, biotic inventories are one of the first steps needed to develop a monitoring program for climate and other anthropogenic and natural changes. Such inventories are essential to guide efficient and effective selection of surrogate species. Baseline ecological data provide the foundation for modeling relationships to develop a conservation design under the SHC framework.

Although all refuges have some inventory data, there is a lack of consistency in the taxa addressed and protocols used across the region, such that data do not lend themselves to aggregation at larger spatial scales. Most of Alaska's vegetation communities have never been classified in a manner that would assist understanding of plant distributions, community associations, natural spatial variation, and directional shifts in community composition. In addition, baseline inventories can also help to explain phenomena observed on other surveys such as shifts in ungulate populations.

OBJECTIVES

The fundamental objective for vegetation surveys is to define terrestrial plant communities within the Alaska NWRS. This will enable us to leverage data and expertise with surrounding land management agencies, establish a baseline for future monitoring, and provide a common language for describing plant communities on Refuges. Alternative actions will be developed in the fall and winter of 2012-13, and will be consistent with surveying all Refuges within four years.

A second fundamental objective of inventories is to document the biodiversity of Alaska NWRS terrestrial plant and invertebrate communities. This effort will facilitate monitoring the distribution of defoliators and other insect pests that can dramatically affect refuge vegetation communities and wildlife forage species. Some species may prove to be good surrogate species for monitoring ecosystem diversity or health. It will also improve early detection of novel insect and plant assemblages, including insect pests and invasive species.

SURVEY DESIGN

Our Fairbanks Refuge botanist, biometrician and data manager will lead a team of technical experts to develop a survey design that will meet both fiscal and time constraints. Internal and external peer review will be solicited to ensure scientific integrity.

ACCOMPLISHMENTS

In FY12 we funded two projects that will help lay the foundation for vegetation and arthropod inventories. First, we contributed to the Statewide Digital Mapping Initiative which is collecting data to develop a digital elevation model throughout Alaska. This multi-partner project is fulfilling a long time geospatial data need for Alaska that is fundamental to designing vegetation surveys and applying them across broader landscape scales. While the Refuge I&M initiative can only support a small portion of this multimillion dollar project, our contributions are helping to direct early efforts toward refuge lands.

Second, we entered into a collaborative effort with the University of Alaska Fairbanks Museum to develop a DNA barcode library for Alaska arthropods. Dr. Derek Sikes will oversee this project which will greatly minimize the time and expertise required to identify terrestrial invertebrates. Such information will enhance our understanding of Alaska's native biodiversity, provide a baseline for assessing spatial variability and temporal change, and contribute to knowledge and documentation of the world's faunal diversity.

In addition, we assisted the completion of a pilot project for the Circumboreal Vegetation Mapping initiative - a project initiated by the CAFF Flora Working Group for an international vegetation inventory and classification.

DATA MANAGEMENT

Metadata standards will use requirements identified by the Alaska Data Integration working group to promote data discovery and sharing. Once analyzed, all current and future final products will be available to the public.

PARTNERS

The elevation mapping project is a statewide partnership with USGS leading data acquisition for numerous state and federal partners. LCCs have expressed a need for these data to augment their current research projects. We are working with NPS and BLM to ensure compatibility of vegetation data across jurisdictional boundaries.

CURRENT STATUS

An inventory team is developing protocols for vegetation and arthropod inventories across refuge lands in Alaska. A botanist has been hired to assist in the design, implementation and analysis of vegetation inventory data. Protocols and sampling design will be refined in the winter of 2012-13 and field tested in the spring of 2013. Data collection will proceed through the summer of 2013.

MORE INFORMATION

Find current information about the project on our SharePoint site open to DOI employees:

https://fishnet.fws.doi.net/regions/7/nwrs/im/SitePages/Home.aspx

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