Title: Develop Invasive Plant Distribution Maps for Glacier National Park

Contact: Dawn LaFleur, GNP

Principle Investigators: Dr. Bruce Maxwell, Dr. Lisa Rew, MSU

Purpose and Need: Montana State University has developed an Invasive Plant Prioritization Framework (IPPF) that will ultimately help land managers prioritize weed treatment strategies. This tool provides a formal mechanism for land managers to prioritize invasive plant populations for management. This predictive model would be very helpful since managers do not have sufficient resources to manage all of the non-native invasive plant species that occur in our areas. With the increased potential of invasion by non-native plants as a result of climatic changes, a risk assessment tool such as the IPPF will be extremely beneficial for prioritizing weed treatment strategies most effectively in Glacier.

As land managers we are challenged with managing non-native invasive plants with limited resources. MSU's model aims to help land managers ultimately prioritize invasive plant populations for management by determining where they are most likely to be, and then how they are likely to spread. Glacier National Park would like the opportunity to work with MSU utilizing the Invasive Plant Prioritization Framework (IPPF) to determine current non-native populations and where they are most likely to spread in the future. With continued limited resources, this tool will assist Glacier to more effectively proritize areas for invasive plant management.

Methods: This framework was designed as a tool to help land managers prioritize treatment strategies based on subsamples of the landscape. A subsample of the landscape can be surveyed and the data collected can be used to populate statistical models to provide predictions of the probability of occurrence of the target species across the whole area of interest.

Objectives: 1) Since the model accuracy depends on the quality of the initial data, a data collection protocol and sampling scheme will be developed with MSU according to what data the IPPF needs to accurately predict probabilities of occurrence and spread. MSU will assist Glacier with developing a survey technique that provides the correct data to create probability of occurrence maps for specific invasive non-native plants. 2) MSU will come to Glacier to train staff on survey techniques for collecting the necessary data at selected sites that will serve as the subsample areas for the framework model. Glacier technicians will then collect the necessary data in the selected subsample areas. 3) The data then collected will be used to determine predicted probabilities of occurrence. Probability of occurrence maps will be developed for various invasive non-native species found throughout Glacier National Park. 4) Once the maps are developed, areas with high probabilities will be ground-truthed for existing invasive plant populations and management strategies for effective treatment will be determined.

Cost: $35,000/yr x 3 yrs = $105,000