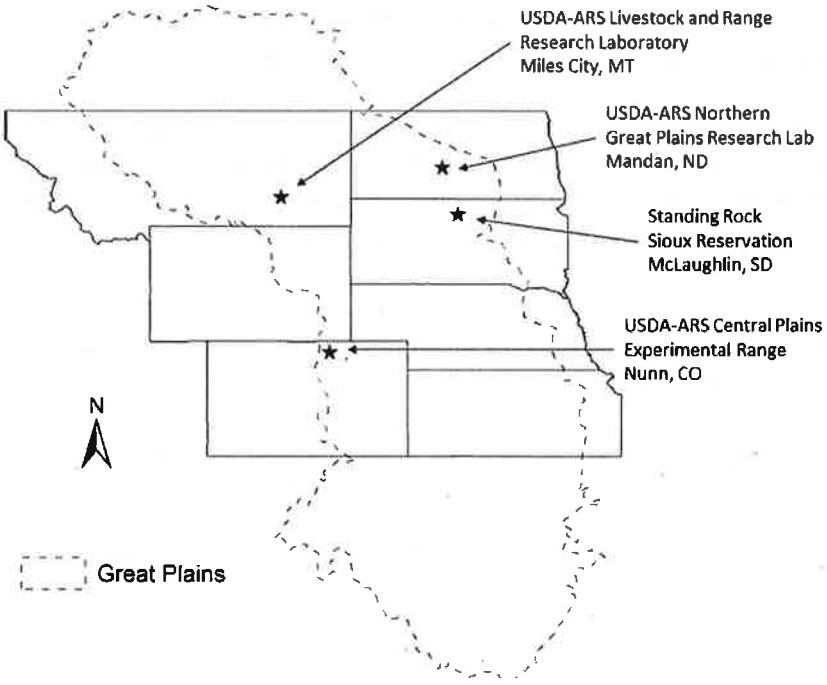
Evaluating plant biodiversity measurements and exotic species detection in National Resources Inventory Sampling protocols using examples from the Northern Great Plains of the USA

David Toledo, ARS

There is growing concerns about the threat of native plant biodiversity loss and exotic species invasions on key ecological functions and processes across the Northern Great Plains of the US. However, knowledge about the accuracy of indicators used to evaluate plant species richness and presence of exotic species is limited.



In this study we collected plant biodiversity and exotic species richness data from 4 sites in the Northern Great Plains using the Modified Whitaker (MW) and Natural Resources Inventory (NRI) methods to evaluate accuracy and precision around indicators generated from these methods.
NRI protocols underestimated both total plant species richness and exotic species richness compared with the MW approach. NRI also underestimated the number of species with less than 1% canopy foliar cover.

This indicates that changes are needed in NRI method protocols to adequately detect overall species richness and any species with reduced canopy foliar cover, especially exotic species with the potential to invade a site. Land managers will benefit from accurate species richness assessments and the ability to detect potentially invasive species during early stages of invasion.

Toledo, D., Sanderson, M.A., Johnson, H.A., Reeves, J.L., Derner, J.D., Vermeire, L.T., Hendrickson, J.R. 2014. Evaluating plant biodiversity measurements and exotic species detection in National Resources Inventory Sampling protocols using examples from the Northern Great Plains of the USA. Ecological Indicators. 46:149-155.

http://www.sciencedirect.com/science/article/pii/S1470160X14002738