Minimizing the Impact of Invasive Plants in the Kickapoo Valley

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Justification and Outcome

Invasive plants negatively impact both natural and managed ecosystems that are common in the Kickapoo Valley (Pimental et al. 2000). In forests, invasive shrubs have been shown to reduce forest regeneration by 15-30% as well as reduce or eliminate the presence of native animals and plants (Hartman and McCarthy 2008; Schmidt and Whelan 1999). This can occur in a relatively short timescale as irreversible changes to forests have been documented in as little as ten years after invasion (Hartman and McCarthy 2008). Some invasive species also threaten human health as they can increase other pest populations such as deer ticks (e.g. Japanese barberry) and the pathogen that causes Lyme disease (Williams et al. 2009). While impacts are species and habitat specific, the additive effect of multiple invasions to forests are causing major reductions in forest health.

These impacts can be avoided by preventing establishment in the Kickapoo Valley and eradicating populations before they become widespread. Resources are available to aid in reporting and communication of new reports (Crall et al. 2012), but lack of detection limits Wisconsin's ability to prevent these impacts (Wisconsin Invasive Species Council 2013). Private woodlands are of prime concern, as management of invasive plants is limited due to a lack of knowledge of invasive species (Crosset 2011). As a result few properties manage invasive plants, causing these to be sources for additional spread, impacting both private and public forests. As 68% of Wisconsin forests are privately owned, engaging private land owners to detect and control invasive species is a critical need that this project proposes to fill.

While limited invasive plant control effort is occurring on private woodlands, interest exists as research by Crosset (2011) suggested that land owners were willing to manage invasive plants, but lack the knowledge to do so. We propose to offer assistance to select private woodland land owners in the Kickapoo Valley by surveying lands for invasive plants and providing resources to help prioritize and facilitate management. Information gathered from these and other surveys will be used to develop tools to assist in invasive species monitoring and management efforts throughout the entire valley. Specific outcomes of this project aim to minimize the spread and impact of invasive plants in the Kickapoo Valley by interacting with woodland owners and creating novel resources that are specific to the Valley and extending this information through existing networks.

Proposed Work

We propose to work with Southwest Badger R C & D to survey private woodlands in the Kickapoo Valley for invasive plants. Results will be summarized and provided to land owners to help them overcome existing obstacles that prevent management. In addition, invasive species prioritization maps for the Kickapoo Valley will be developed to guide future efforts. We propose to also hold workshops in collaboration with the Kickapoo Valley Reserve to present results to the public and train attendees on how to best utilize resources developed. This research builds on previous work (Crall et al. 2013), and will be leveraged with the Hatch Grant from the

College of Agriculture and Life Sciences at UW-Madison; a project that is developing statewide modeling of invasive species in Wisconsin and their potential for spread under future climate scenarios. Efforts from the Wisconsin First Detector's Network will also be leveraged for the workshop as this statewide network conducts education and outreach on invasive plant detection. By working with the Kickapoo Valley Reserve to extend information it ensures our ability to benefit from the existing networks present in the area. Our three main objectives are to:

Objective 1: Survey privately owned woodlands in the Kickapoo Valley, providing key resources needed to facilitate invasive species management.

- Outcome 1.1: Provide resources and a prioritized list of activities for land owners to conduct to minimize impact and spread on 50 private woodlands.

Objective 2: Develop habitat suitability models for invasive species of concern to the Kickapoo Valley.

- Outcome 2.1: Create at least 10 high resolution (30 m) predictive maps of suitable habitat for invasive species of concern in the Kickapoo Valley.

Objective 3: Train citizens in the Kickapoo Valley about invasive species of concern and how to use resources to aid in management.

- Outcome 3.1: Increase knowledge, intent, and management of invasive species management on their land or land they work/volunteer on.