Waterton Lakes National Park
Non-native Plant Program:
A Glimpse at the Past and a look to the Future

Robert Sissons and David Musto
Waterton Lakes National Park
Outline

- Introduction to Waterton Lakes National Park
- Brief summary of work done in the past – how it all began.
- How successful have we been over the past few decades?
- Our ideas and concepts for moving the program forward
Historical:

- Knapweed first recorded in the Park in 1968.
- Active management began in the 1970s. Staff assigned their own stretch of road to control and they did what they could.
- In 1980 Alberta developed a Knapweed Management Plan and Waterton strongly encouraged participation.

Alberta Knapweed Control Program

Eradicate
Diffuse & Spotted
Knapweed
in 1980

Purpose

The potential threat posed by diffuse and spotted knapweed to Alberta rangelands makes it imperative to eradicate these weeds whilst it is still economically and physically feasible. The objective of this program is to seek out and destroy every infestation.
Historical

- By 1980 – knapweed estimated to cover 30 ha in the Park vs. 300 ha in Alberta
Historical

- First non-native plant management plan in 1990
  - Developed for all mountain Parks
  - At this time there were 66 species of non-native plants recorded for Waterton
  - More dedicated resources to non-native plant control – 4 summer students
Historical

- In 2000 first Waterton specific plan was developed
  - Included extensive consultation with neighbours and stakeholders
  - Integrated management: chemical, mechanical, biocontrol
- In 2003 – review of 2000 plan and additional recommendations.
  - Increased monitoring, focus efforts on small infestations, implement
Historical

- In 2008 – Increased effort and prioritization on implementing the 2003 Plan.
  - Requirement for reporting on the State of the Park’s Ecological Integrity with non-natives as one indicator.
- In 2010 - Increased resources dedicated to non-native plant control efforts – summer crew of 15 staff
Results

- 131 random infestations re-visited and all park roads surveyed at least twice (hwy 5 and 6 three times):
  - Results - decreasing cover and density but an increased spread in area of priority species.

- Broad ocular survey of the Blakiston Fan (2008, 2013):
  - Results suggest steady populations of *lupinus* spp., a significant drop in cover of *eriogonum* spp. and a significant increase in spotted knapweed.
Currently

- Of the 1018 species of plants found in Waterton, 115 are non-native species (2012 vascular plant list)
- Two more non-native species added in 2013
  - field scabious – *knautia arvense*
  - yellow hawkweed – *hieracium piloselloides*
- 51 species have been actively controlled
Future – Surveillance (EDRR)

- Use the current distribution of species to inform on where to prioritize surveillance.
- Determine the characteristics used by each species for dispersal (seed weight, dispersal mechanism, plant height)
- Determine habitat that is susceptible to invasion by each species
- Combine in a model to create a prioritization of areas to survey (Tamme et al. 2014 Ecology)
- Can weight species according to their rank (potential for impact)
Monitoring

- Continue road monitoring in conjunction with control work
- Need to include reporting on status of non-natives away from roads
- HOW?
Monitoring

- Spatially balanced random sample of the 1ha plots Theobald et al. 2007
- Benefit from this design is the ability to adapt with changing resources
- Goal is to report on 100 plots in a five year period
- Will measure native and non-native species density
Conclusion

- Will look to implement more restoration post non-native management – seeding with natives.

- Increase our prevention program – compost and soil salvage

- Learn and adapt
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