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

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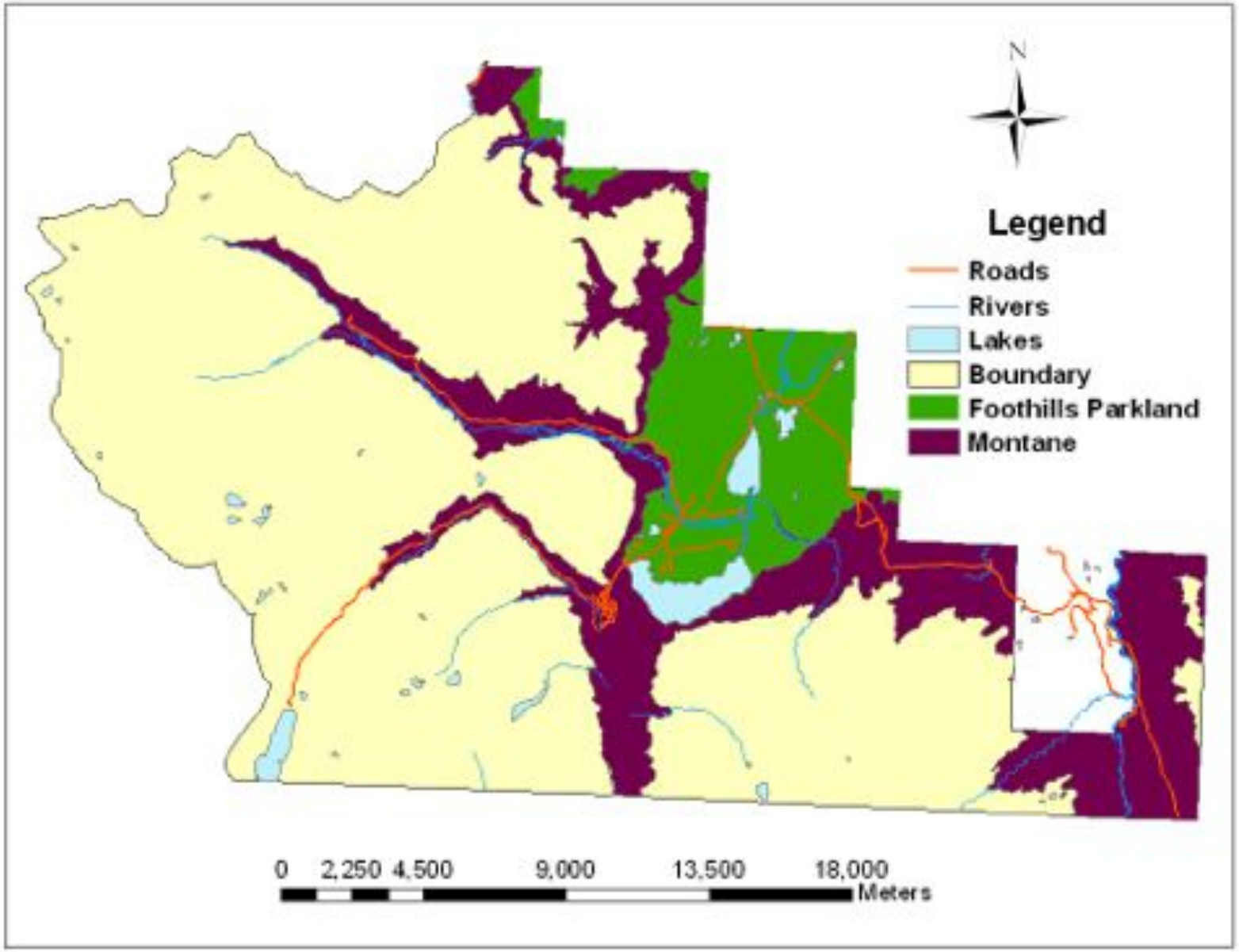
Waterton Lakes National Park

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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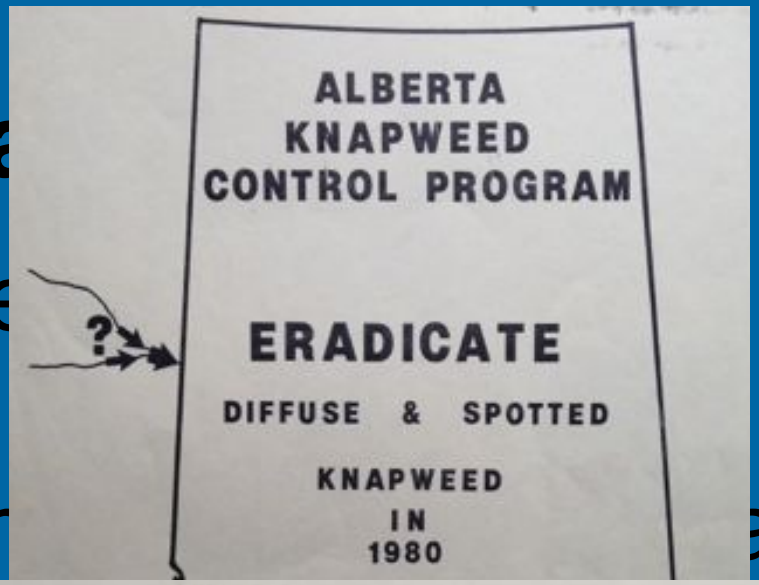
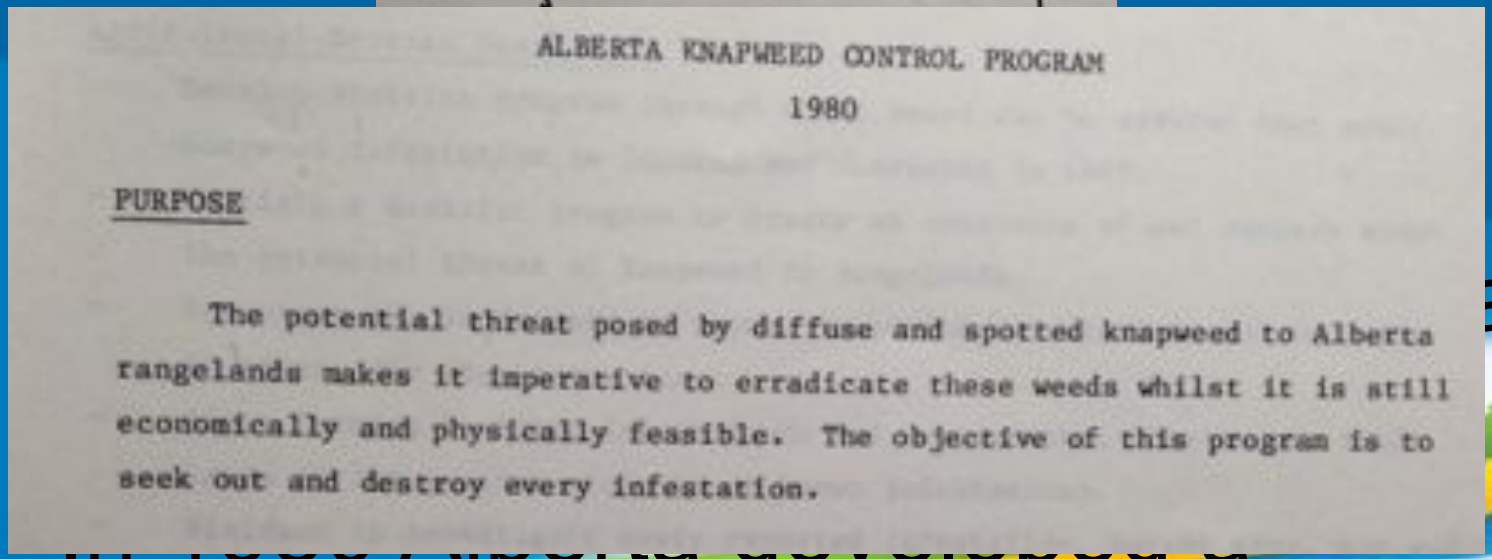
Historica

- Knapwe in the Park in 1968
- Active r an in the





ALBERTA KNAPWEED CONTROL PROGRAM

1980

PURPOSE

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

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- In 1980 Alberta developed a Knapweed Management Plan
  - Waterton strongly encouraged to

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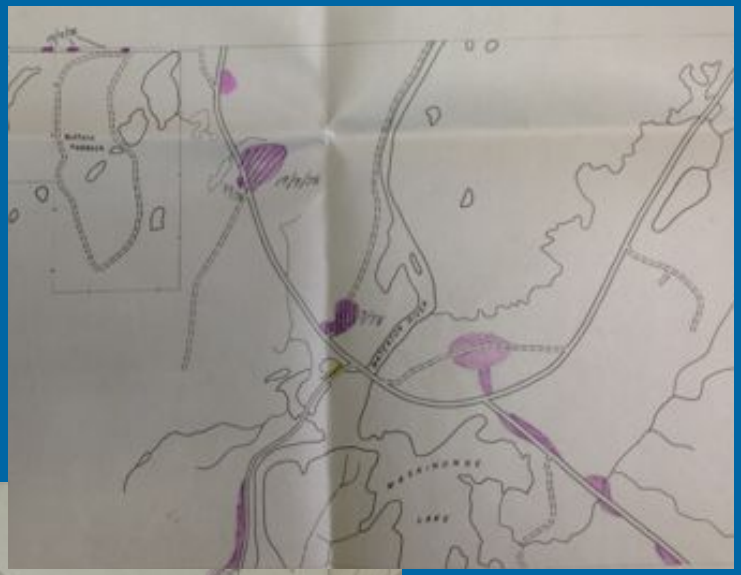
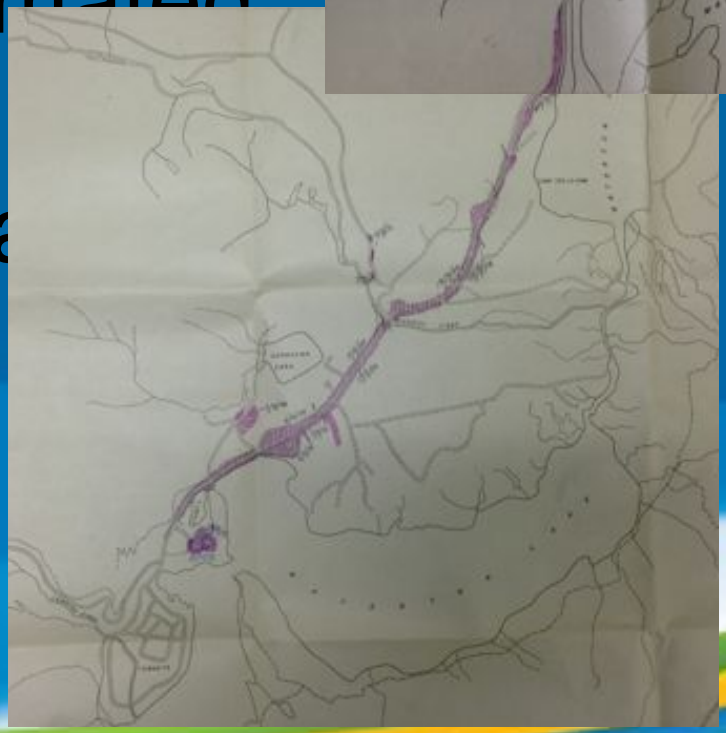
Historical

- By 1980 – knapweed estimated to cover 30 ha Park vs. 300 ha 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

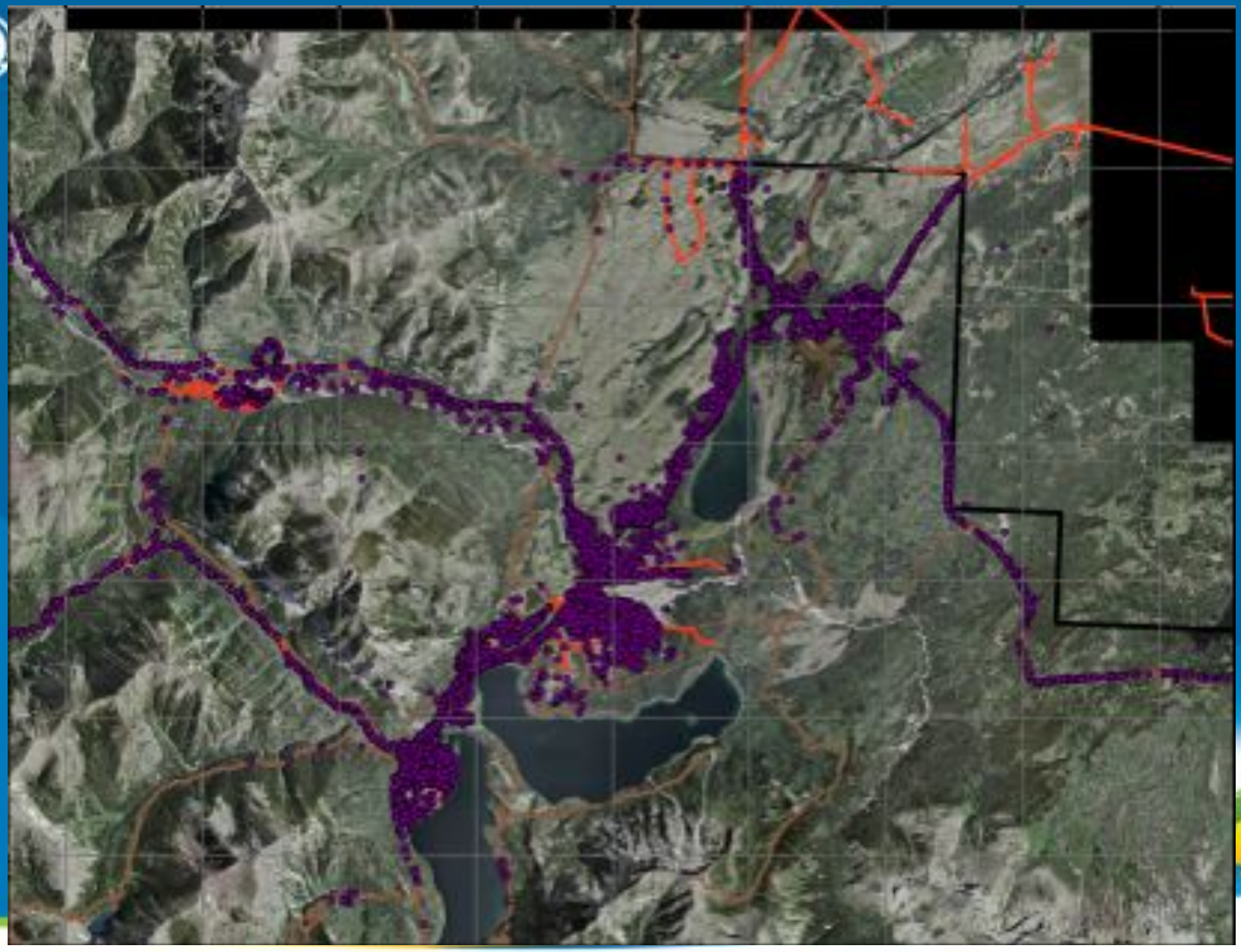
- 131 random infestations re-visited and all park roads surveyed at least twice (hwy 5 and 6 three times):
  - Results - decreasing cover and density but an increased spread in area of priority species.

- 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.

Knapweed - 2014

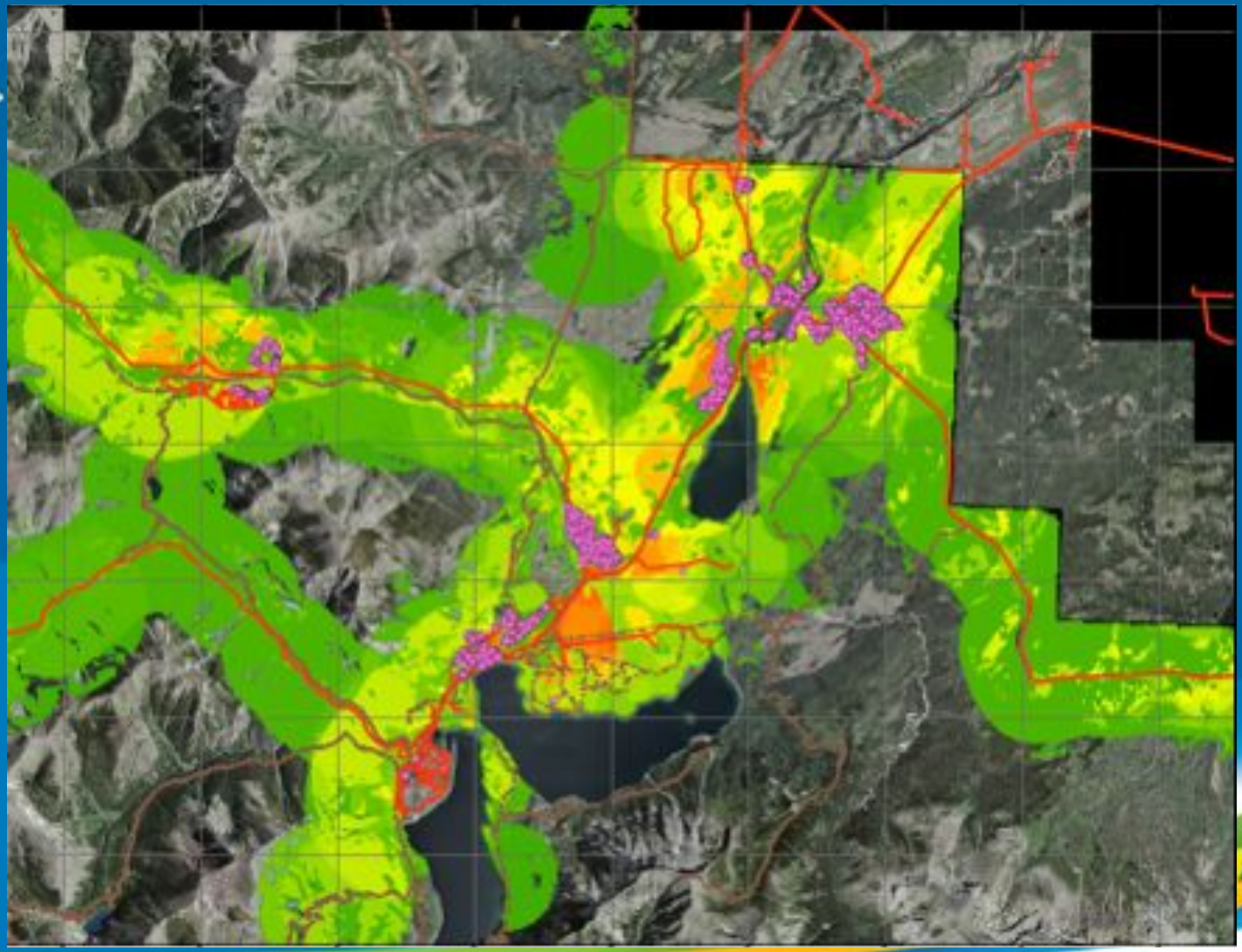
Currently

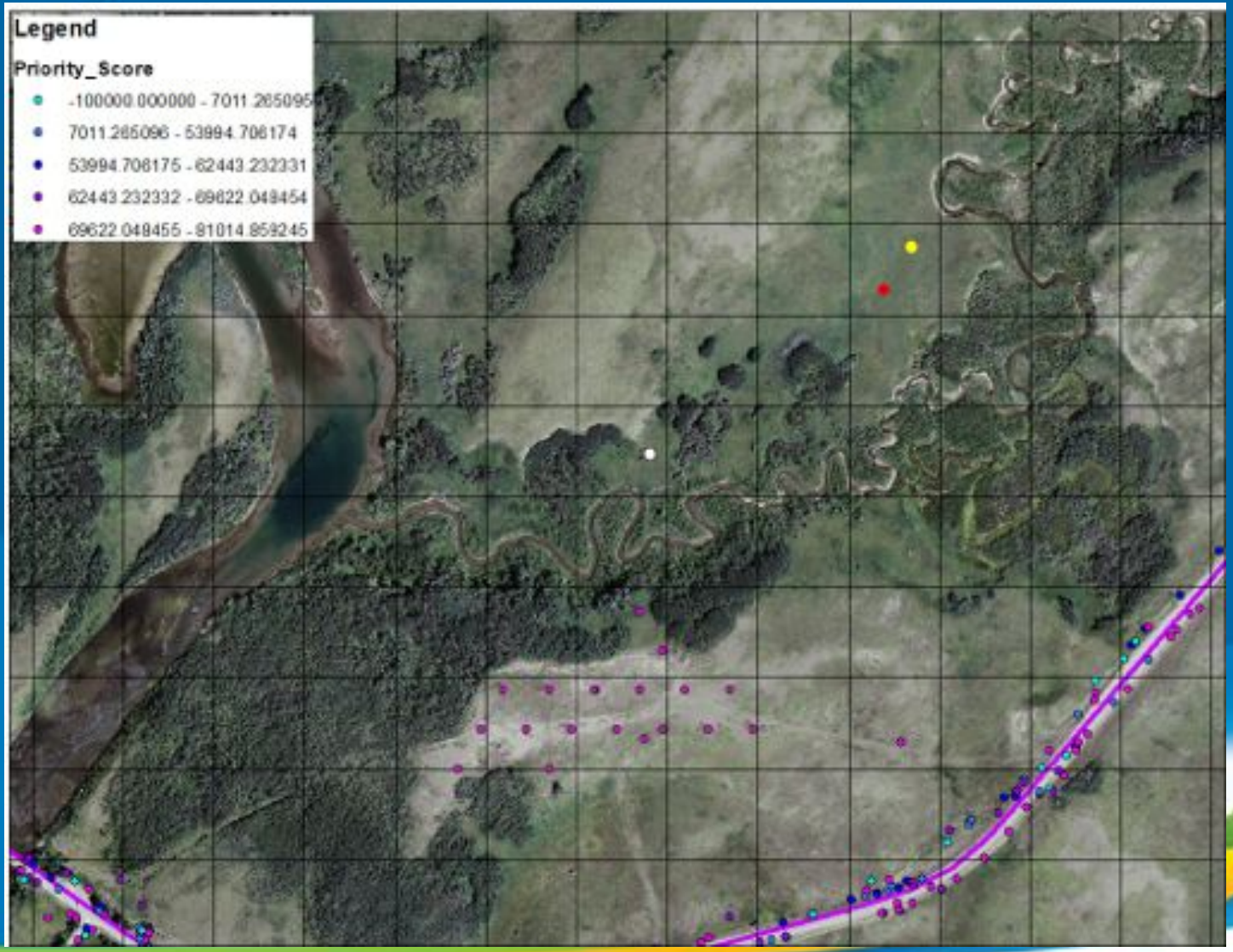
- Of the 1018 species of plants found in Waterton, 115 are non-native species (2012 vascular plant list)
- Two more non-native species added in 2013
  - field scabious – *knautia arvense*
  - yellow hawkweed – *hieracium pilosselloides*
- 51 species have been actively



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

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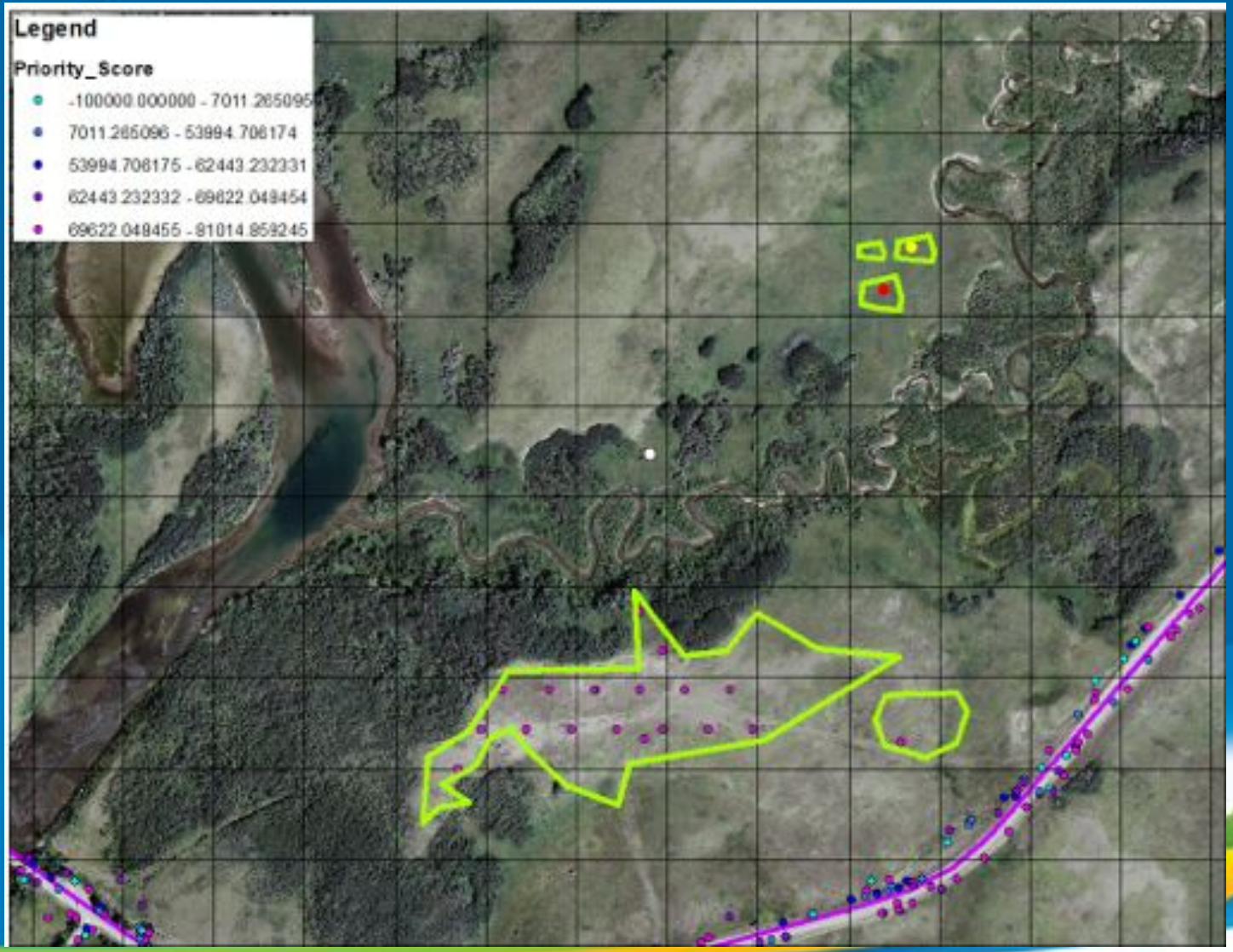
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Monitoring

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

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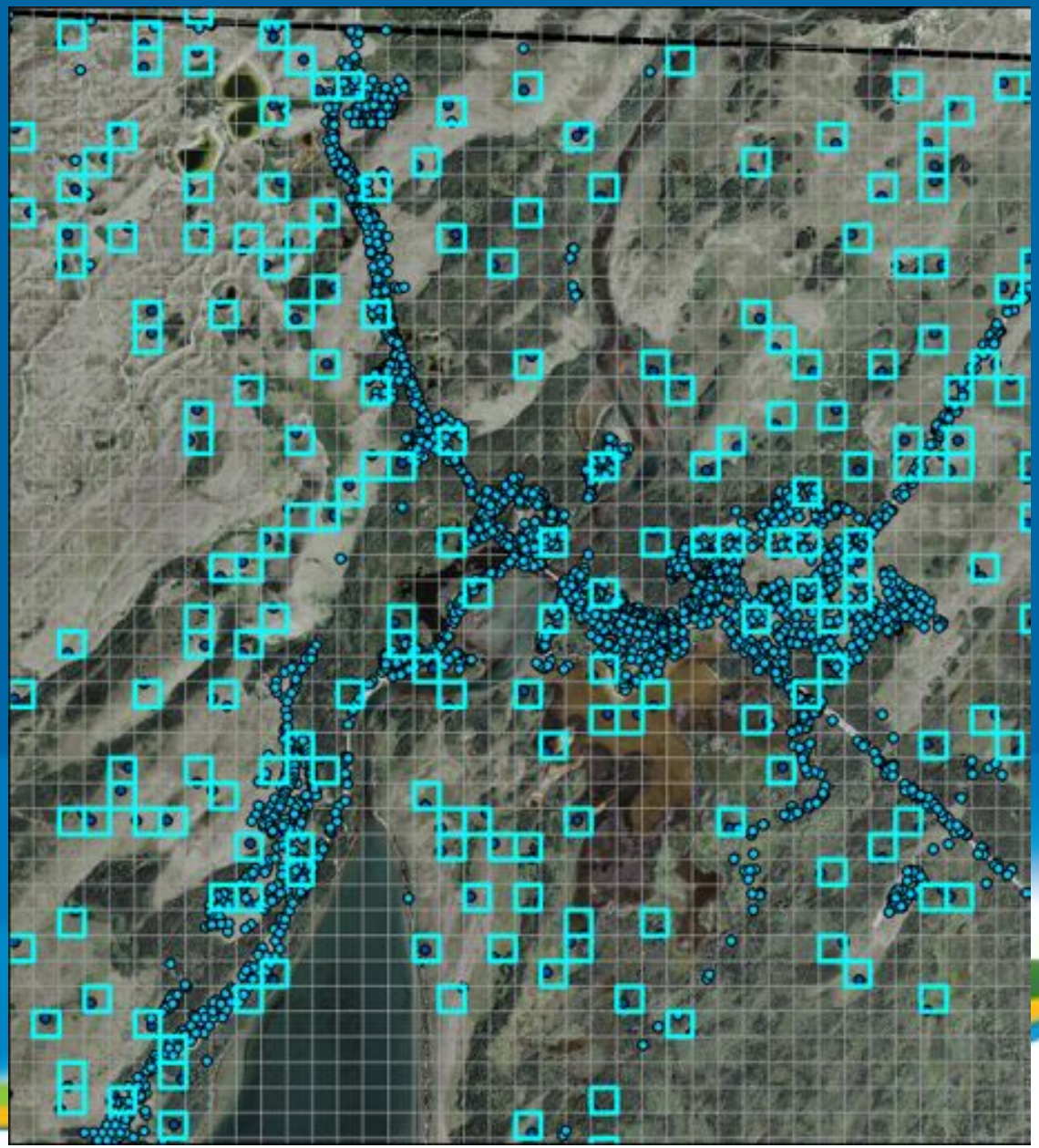
Monitoring

- 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

Acknowledgements

- Weed/restoration crew members & supervisors who are out there in all kinds of weather
- Edwin Knox – operational supervisor of non-native plant program 2007 - 2012
- Monitoring technicians: Sean LeMoine, Queenie Gray, Colleen Curran, Sophie LaRocque, Helena Mahoney
- Glacier National Park: Dawn LaFleur, Joyce Lapp, Rebecca Lawrence & reveg crew, nursery staff
- Southwest Alberta Cooperative Weed Management Area members

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