Grasslands National Park
Invasive Plant Management Plan
Nathan Young, Resource Management Officer
Overview

• Invasive Plant Management Plan for 2020-2024

• 3 program components
  • Control
  • Early detection
  • Prevention

• Focus on prioritization
Grasslands National Park
Is the invasive species present?

- **NO**
  - **Is prevention feasible?**
    - **YES**
      - Prevention
        - Prevent dispersal
        - Manage seed sources
        - Education
    - **NO**
      - Early Detection
        - Surveillance
        - Database of IAP populations in GNP and surrounding ecosystem

- **YES**
  - Eradicate/Contain
    - Hand pulling
    - Mowing
    - Fire / grazing
    - Biological control
    - Herbicide

- **NO**
  - Prioritize dispersal vectors
    - Prioritize populations

Long-term Management (through other programs)
- Grazing
- Fire
- Restoration

Start here

Prioritize surveillance locations
Is the invasive species present?

- YES
- NO

- Early Detection
  - Surveillance
    - Database of IAP populations in GNP and surrounding ecosystem
    - Prioritize surveillance locations

- Prevention
  - Prevent dispersal
  - Manage seed sources
  - Education

- Long-term Management (through other programs)
  - Grazing
  - Fire
  - Restoration

Is prevention feasible?

- YES
  - Prevent dispersal
    - Manage seed sources
    - Education

Is eradication or containment feasible?

- YES
  - Hand pulling
  - Mowing
  - Fire / grazing
  - Biological control
  - Herbicide

- NO
  - Prioritize dispersal vectors
  - Prioritize populations

Prioritize populations
Invasive Plant Populations

Includes:
- Absinthe wormwood
- Canada thistle
- Common burdock
- Downy & Japanese brome
- Leafy spurge
- Field bindweed
Prioritize based on…

1) Species impact
2) Area at risk
3) Local population size
4) Park-wide distribution
5) Likelihood of spread
1) Species impact
2) Area at risk
3) Local population size
4) Park-wide distribution
5) Likelihood of spread

**Very high**
- Leafy spurge
- Spotted knapweed
- Salt cedar
- Crested wheatgrass
- Smooth brome
- Yellow sweet clover

**High**
- White sweet clover
- Yellow star-thistle
- Diffuse knapweed
- Absinthe wormwood
- Russian knapweed
- Quack grass
- Yellow toadflax
- Canada thistle
- Dalmation toadflax

**Moderate**
- Scentless chamomile
- Field bindweed
- Night-flowering catchfly
- Black henbane
- Oxeye daisy
- Downy brome
- African rue
- Japanese brome
- Bull thistle
- Common burdock
- Baby’s breath
- Common crupina

**Low**
- Perennial sow-thistle
- Dame’s rocket
- Hemp nettle
- Green foxtail
- Purple loosestrife
- Hoary allysium
- Hoary cress
- Narrow-leaved hawksbeard
- Cow-cockle
- Kochia
- Common tansy
- Persian darnel
1) Species impact
2) Area at risk
3) Local population size
4) Park-wide distribution
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2) Area at risk
3) Local population size
4) Park-wide distribution
5) Likelihood of spread

Corridors & hubs:
- Public roads
- Operational roads
- Hiking trails
- Waterways
- Campgrounds
- Yardsites
Prioritize based on…

1) Species impact → 30 points
2) Area at risk → 15 points
3) Local population size → 20 points
4) Park-wide distribution → 20 points
5) Likelihood of spread → 15 points
Species impact

High
- White sweet clover
- Yellow star-thistle
- Diffuse knapweed
- Absinthe wormwood
- Russian knapweed
- Quack grass
- Yellow toadflax
- Canada thistle
- Dalmation toadflax

Low
- Perennial sow-thistle
- Dame’s rocket
- Hemp nettle
- Green foxtail
- Purple loosestrife
- Hoary allysum
- Hoary cress
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<th>Impact</th>
<th>Number</th>
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<tr>
<td>Very high</td>
<td>30</td>
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<tr>
<td>High</td>
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</tr>
<tr>
<td>Moderate</td>
<td>14</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
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Area at risk

Level 5 - 15
Level 4 - 12
Level 3 - 9
Level 2 - 6
Level 1 - 3
Invasive Plant Populations
Spring

Species: 16
Abundance: 20
Distribution: 20
Location: 7
Corridors: 13
TOTAL: 76

Species: 16
Abundance: 13
Distribution: 0
Location: 14
Corridors: 5
TOTAL: 48
Limitations

• Widespread IAP
  • e.g. cultivated fields

• Data deficiencies
Early Detection
- Surveillance
- Database of IAP populations in GNP and surrounding ecosystem

Is the invasive species present?
- NO: Prevent dispersal
  - Manage seed sources
  - Education
- YES: Is prevention feasible?
  - NO: Is eradication or containment feasible?
    - NO: Prioritize dispersal vectors
      - Prioritize populations
    - YES: Eradicate/Contain
      - Hand pulling
      - Mowing
      - Fire / grazing
      - Biological control
      - Herbicide
  - YES: Prioritize surveillance locations

Long-term Management (through other programs)
- Grazing
- Fire
- Restoration
Prevention / Early Detection

- Corridors:
  - roads
  - trails
  - rivers
  - yards

- Vectors:
  - cars
  - people
  - wildlife
  - wind
  - water
Prioritize based on...

- Carrying capacity
- Which species are being transported
- Where are they ending up
- Where are they coming from

Determine priority
### Priority vectors

#### High risk
- Visitor passenger vehicles
- Imported earth materials
- Imported seed mixes
- Staff / local passenger vehicles
- Graders
- Imported livestock feed
- Imported livestock
- Backcountry hikers
- Off-trail ATVs

#### Moderate risk
- Wildlife
- Horses
- Local livestock feed
- Mowers
- Imported horse feed
- Frenchman river
- Fire equipment
- Bison feed
- Wind
Priority vectors

High risk

Visitor passenger vehicles
Imported earth materials
Imported seed mixes
Staff / local passenger vehicles
Graders
Imported livestock feed
Imported livestock
Backcountry hikers
Off-trail ATVs

- Messaging in visitor guides
- Improved washing infrastructure
- Develop best practices / guidelines
- Quarantine and inspection
Priority vectors

Wildlife  
Horses  
Local livestock feed  
Mowers  
Imported horse feed  
Frenchman river  
Fire equipment  
Bison feed  
Wind

Targeted surveys
Priority vectors

- Wildlife
- Horses
- Local livestock feed
- Mowers
- Imported horse feed
- Frenchman river
- Fire equipment
- Bison feed
- Wind
Summary

• Integration of multiple strategies
  • Prevention
  • Early Detection
  • Eradicate / Contain
  • Manage / Restore
Is the invasive species present?

- **YES**
  - Continue with further steps for eradication or containment.

- **NO**
  - Proceed with surveillance.

Is prevention feasible?

- **YES**
  - Implement prevention strategies:
    - Prevent dispersal
    - Manage seed sources
    - Education

- **NO**
  - Continue with early detection.

Is eradication or containment feasible?

- **YES**
  - Choose eradication or containment methods:
    - Hand pulling
    - Mowing
    - Fire / grazing
    - Biological control
    - Herbicide

- **NO**
  - Prioritize dispersal vectors.

Start here:

- Database of IAP populations in GNP and surrounding ecosystem
- Prioritize surveillance locations
- Prioritize populations

Long-term Management (through other programs):

- Grazing
- Fire
- Restoration

Prevent dispersal

Management seed sources

Education
Summary

• Integration of multiple strategies
  • Prevention
  • Early Detection
  • Eradicate / Contain
  • Manage / Restore

• Base decisions on risk assessment
  • Cost-effective
  • Less biased
  • Documented
Questions