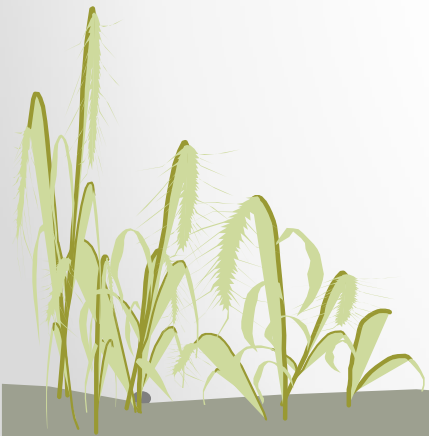


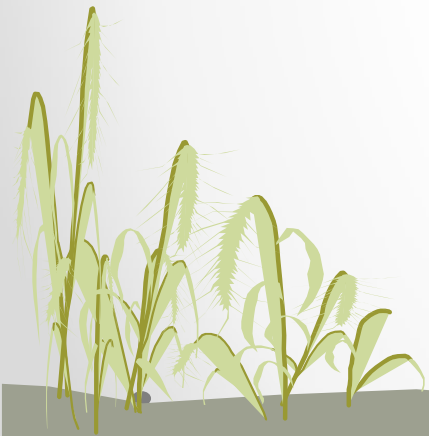
Invasive Species

Josh Sorenson
Jonah Energy LLC



What is

- an Invasive Species
- Adaptive Management



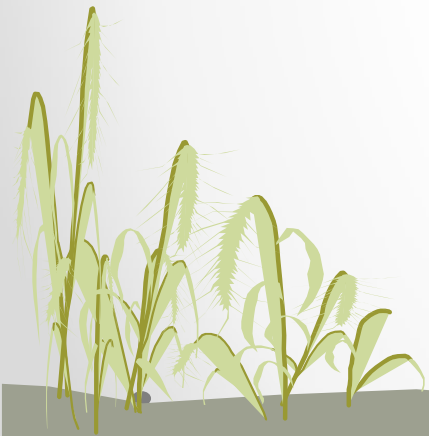




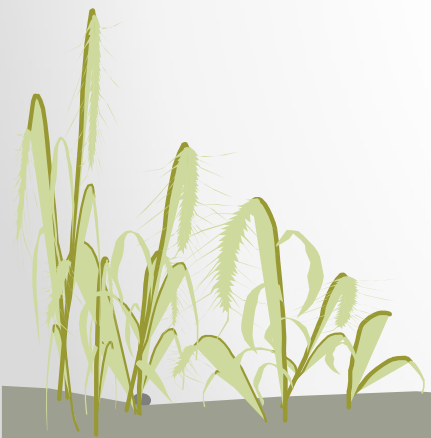


Today...an Invasive Species

- Defined by State Statute
- Plants and animals considered detrimental to the health or welfare of the state of Wyoming due to their ability to
 - Aggressively invade native plant communities and/or agricultural crops
 - Be injurious or poisonous to livestock
 - Carry disease or parasites
 - Negatively impact management of agricultural and/or natural systems



Canada Thistle

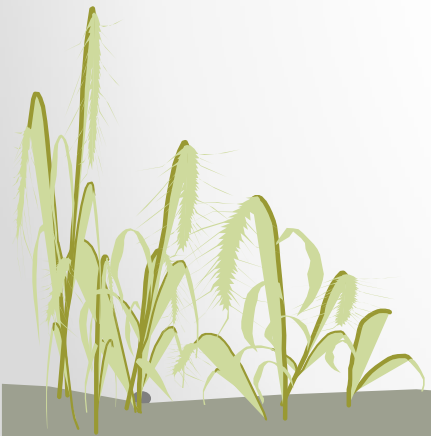




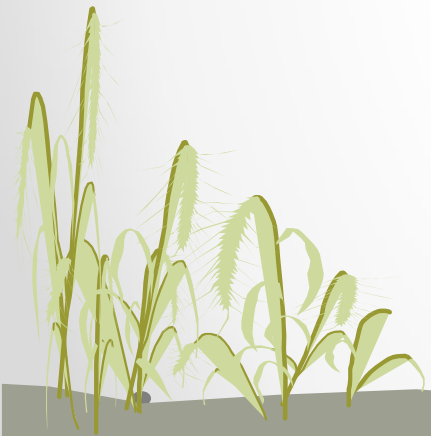
Musk Thistle



Black Henbane



Cheatgrass – Designated by Sublette County



Adaptive Management

- Propose change
- Regulatory Response – “we need to complete the adaptive management process before we can evaluate your request”
- Stonewalled



Adaptive Management

USDI – National Training Center

- Adaptive management [is a decision process that] promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true meaning is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders.



Adaptive Management Summarized

a process in which practitioners test hypothesis and adjust behavior, decisions, and actions based on experience and actual change to reach a desired result



Adaptive Management

- Adjust my approach to initiate change
- Current practices do not allow us to reach desired result
- Come prepared with Manual and/or Handbook direction as well as statements from the ROD



Adaptive Management

My Understanding

- If the desired outcome is not achieved – ADJUST



Adaptive Management of Invasive Species

- IPM – Integrated Pest Management
 - use of multiple methods to control weeds
- Prevention
- Education
- Treatment



Prevention



- Clean equipment prior to entering field
- Wyoming Weed & Pest Council
 - Play, Clean, Go
 - Clean, Work, Clean, Go



Prevention



- Work with seed suppliers
- Test seed – review
 - Seed tests are not a guarantee
- Plant clean, high quality seed



Education



- Initially – statement from EHS
- Yearly Presentation
 - Employees
 - contractors
- Hand out ID books
 - With PICTURES
- Bribes

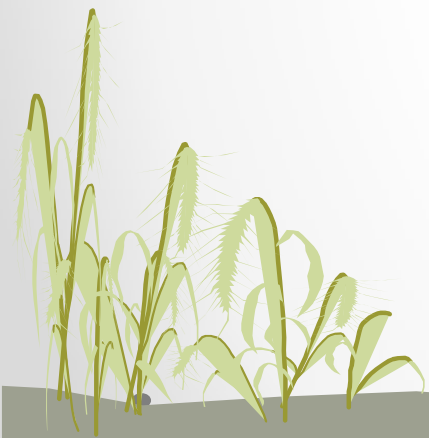


- An obnoxious plant growing everywhere
- Dr. Seuss Humpty Dumpty purple flowered weed all over the place



Treatment

- Mechanical
- Chemical
- Biological



Black Henbane



- Medium taproot, reproduces by seed only
- Mechanical Treatment
 - Remove and bag plant





Musk Thistle

- Near surface Taproot/Reproduces by seed only
- Mechanical and Chemical
- Dig up plant
- Remove flowers
- Can be sprayed



Chemical



- Designated Species
 - Canada Thistle
 - Knapweed
 - Toadflax
- Really bad ones – Cheatgrass
- Bareground control
- Annual weeds – Rare
 - Maybe 20 locations



Canada Thistle



- Extensive/Creeping Root System/Reproduces by seed and creeping root
- Herbicide
 - Tordon 22K – BLM Lands
 - Everywhere else - Milestone



Biological – Minimize bare ground



Rocky Mt. Bee Plant



Prasser & Hild 2016
Curran et al 2019

Cheatgrass



- Reproduces by seed – but there can be boatloads
- Requires Adaptive Management





Mechanical

Grid location with crews

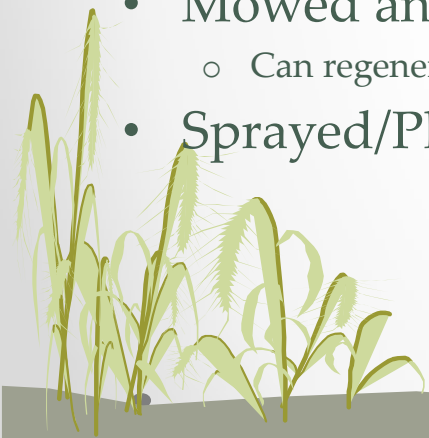
- 3 years on new locations
- 5 years older locations

Hand pull

Monitor year to year

Treatments

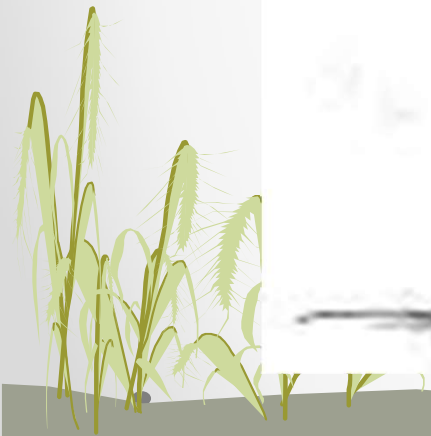
- Sprayed – Spring and Fall
 - Label says 12 oz/acre
 - Way less on BLM lands
- Hand pulled
 - Time intensive
- Mowed and sprayed
- Mowed and Vacuumed
 - Can regenerate seed to height at which it was cut
- Sprayed/Plowed/Replanted



Currently

- Emphasize prevention of new establishments
 - Test all seed lots for designated species and cheatgrass
 - Grid new locations with crews
- Hand pull isolated plants – anything larger than a small patch is sprayed
- Spray in the fall
- Minimize bare ground
- Monitor all locations
- Established Infestations– containment
 - Spray every few years





Adaptive Management Uses

- Seed mix
- Soil Management
- Invasive treatments
- Monitoring



Cheatgrass

- Adjustments are still needed
- Continually look for alternatives/improvements
- Taking baby steps toward a desired outcome...is better than not trying.



Thank You

