



# Cheat Grass Invasion

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What it means for Nevada's wildlife



# Origin

- There still is debate on how the species was first introduced into the US
- Most likely as contamination in seed and grains from Europe
- The species may have been discarded along the railroads
- It was purposely introduced at least once into the western US as a forage alternative to the overgrazed ranges in the late 19<sup>th</sup> century

# In the US

- Widely distributed in the US, below 2200m in elevation.
- From xeric to mesic conditions
- It requires large quantities of sunlight
- The best conditions for development are in open grasslands and the foothills of the western US



<http://plants.usda.gov/maps/large/BR/BRTE.png>

# Phenology

- Cheatgrass is a self pollinating winter annual
- Germinates during the fall
- Juveniles remain dormant during the winter, resuming function in the late winter or early spring.
- Seeds mature by late spring or early summer and quickly fall to the ground,
  - Transported by wind or water

# The Success

- Ecology:
  - Flowering early in the season
  - Fire Adaptation
  - After fire:
    - Rapid utilization of the remaining available
    - Rapid extend roots



# Engineering

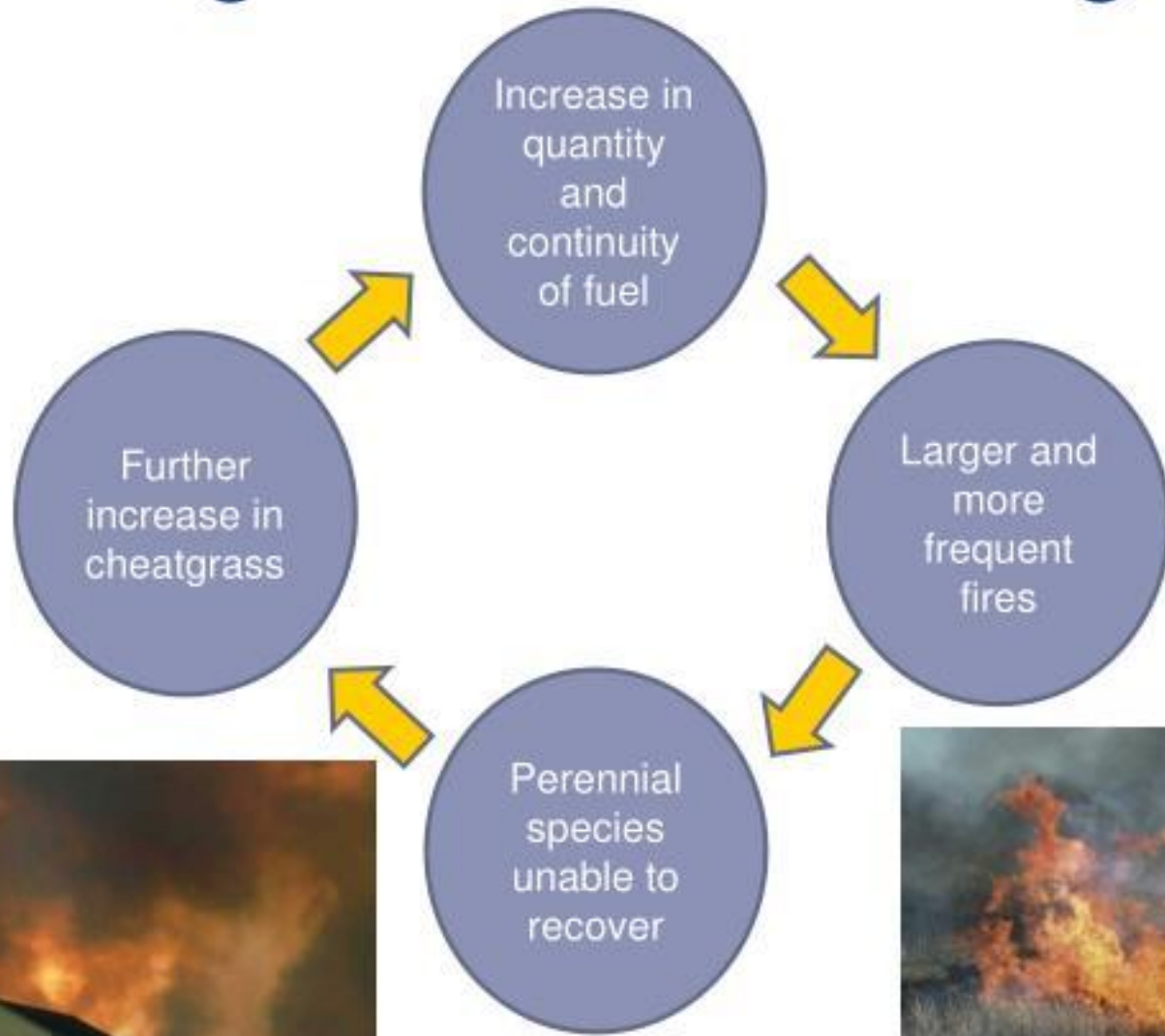


- Invasive SPP can increase their success by modifying the environment to favor their long term survival
- Cheatgrass modifies the fire cycle by the accumulation of fine fuel
- Fire not only affects community composition
  - modifies growing conditions
  - community dynamics by reducing competition and increasing nutrient availability

# Management

- The most important aspect of the cheatgrass invasion is that once it becomes established, it is very difficult to eradicate .
- Therefore, cheatgrass management and control options are very limited.
- In legal terms, it is no longer considered an invasive species.

# Cheatgrass Alters Fire Regimes







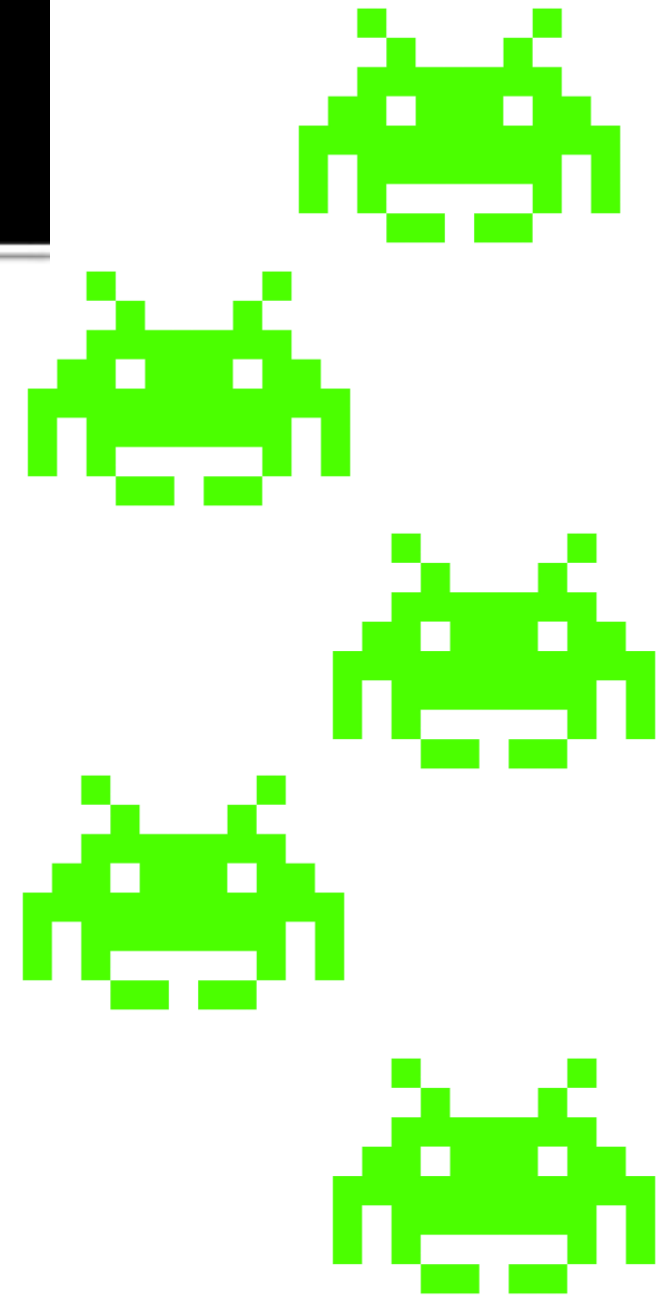
A site in the Mormon Mountains of Clark County Nevada. This area burned 17 years prior to the photo being taken. Poor recovery of native species indicates natural succession has been altered.



- Reduces the amount of palatable forage on the landscape.
- Reduces cover of large perennial plant species.
- Can alter the amount of available nutrients in the soil, and the time of year nutrients are available.
- Alters soil texture. Wildfire can change the soil surface.
- Alters the seed bank through repeated burning.
- Shallow root system changes water infiltration rates

# The future of the Invasion

- Environmental change could play an important role in the future of the cheatgrass invasion
  - increased N deposition from anthropogenic sources may open new areas for the invasion of cheatgrass and other invasive species
  - increase in frequency and intensity of disturbances : new opportunities for the establishment and spread of cheatgrass.



# Climate Change

- Climate change is expected to modify temperature and precipitation regimens. In the case of the expected changes in precipitation, these not only include changes in the overall amount of precipitation but also in the timing of rains.

# Control and Restoration



- Restoration/Revegetation is critical to successful long term control of Cheatgrass
- Treatments could include a combination of the following practices:
  - Cultural management (land stewardship)
  - Herbicide Treatments
  - Biological control: fungal, insect, livestock
  - Revegetation/Restoration techniques