

# *Mecinus* / Toadflax Research 2009



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# *Mecinus janthinus*



- From Europe
- First released in North America in 1991
- Adults emerge in spring
- Feed on leaves
- Lay eggs individually in holes in stem
- Plant forms callous over the sealed oviposition site



# *Mecinus janthinus*

- Eggs hatch after ~ 1 Week
- Create 1 – 3 cm long mines
- Stem swells around larvae
- Pupate in stem in fall
- Overwinter as adults in stems (mortality)
- In outbreak situations have found > 100 larvae in a single stem



# Projects

- 1) Monitoring Dalmatian toadflax and plant community composition at historical sites
- 2) Releasing *M. janthinus* from WA
- 3) Revisiting sites of weevil establishment from earlier projects - throughout Montana
- 4) Conducting basic research on the significance of variation in secondary metabolism (volatile compounds) of Dalmatian and yellow toadflax (+ their hybrids).





# Revisiting sites

# Watershed scale

- 1) 4 sites received 250 – 750 insects at 8 or more release locations per site
- 2) Transect pairs established; 0.10 m<sup>2</sup> quadrats
- 3) Plant community data, insect damaged stems collected and dissected
- 4) Last monitored in 2006 - Schat (2008)
- 5) Revisited all 4 sites for data collection in 2009
- 6) Coxcy Gulch data presented

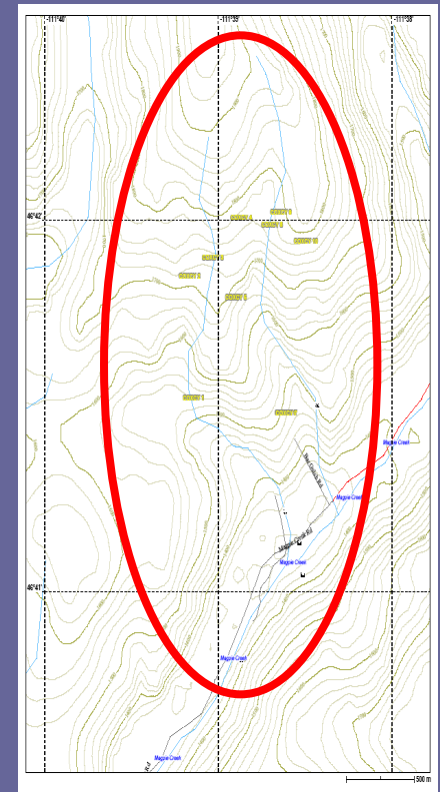
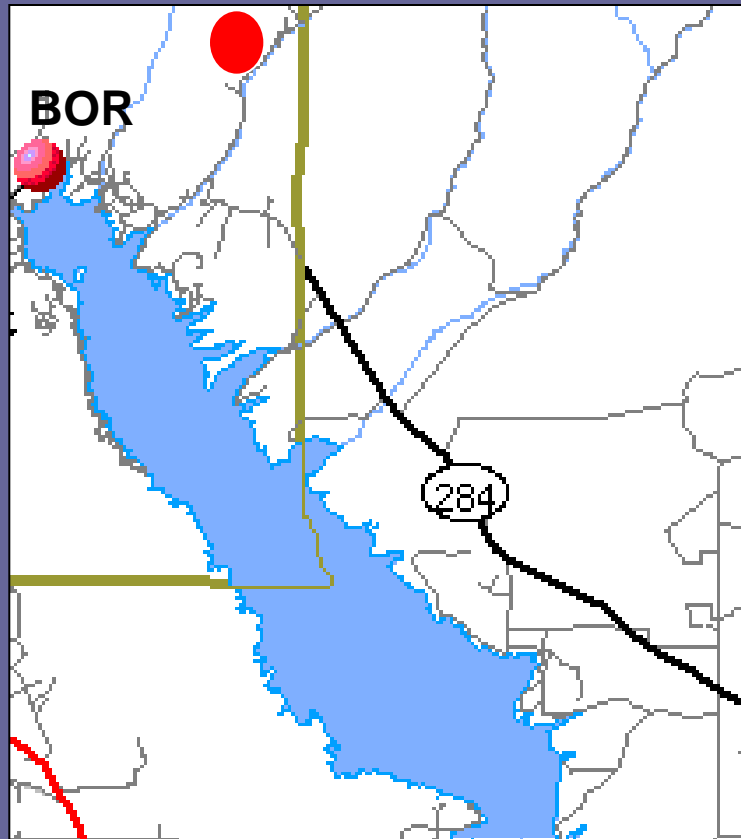


# Coxcy Gulch – near Helena



# Coxcy Gulch

- Helena National Forest
- Post burn area; steep rolling topography

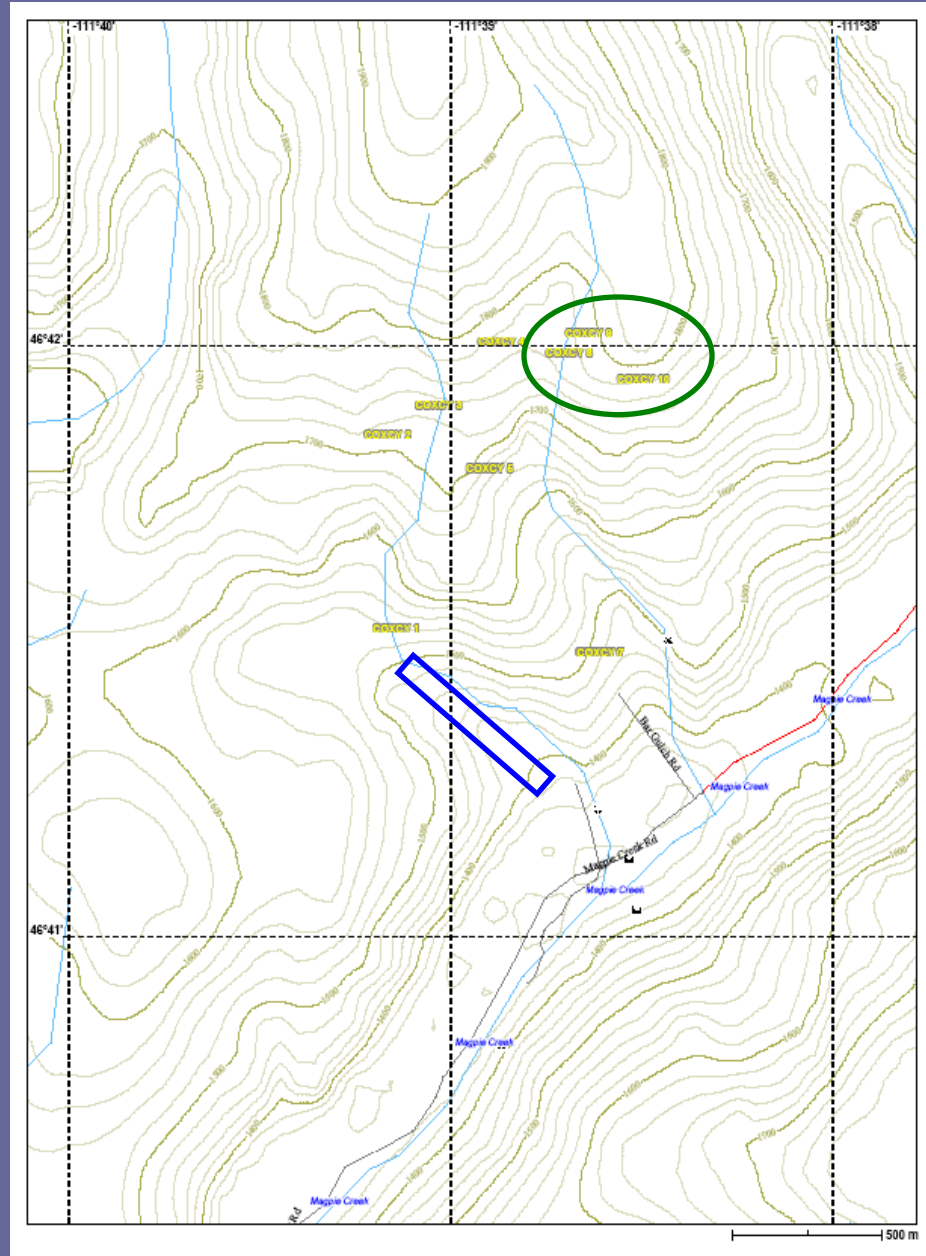


# Coxcy Gulch – transect 5B

- Last monitored in 2006
- Initial impact limited



# Coxcy Gulch - 2009



# Population Increase & Spread

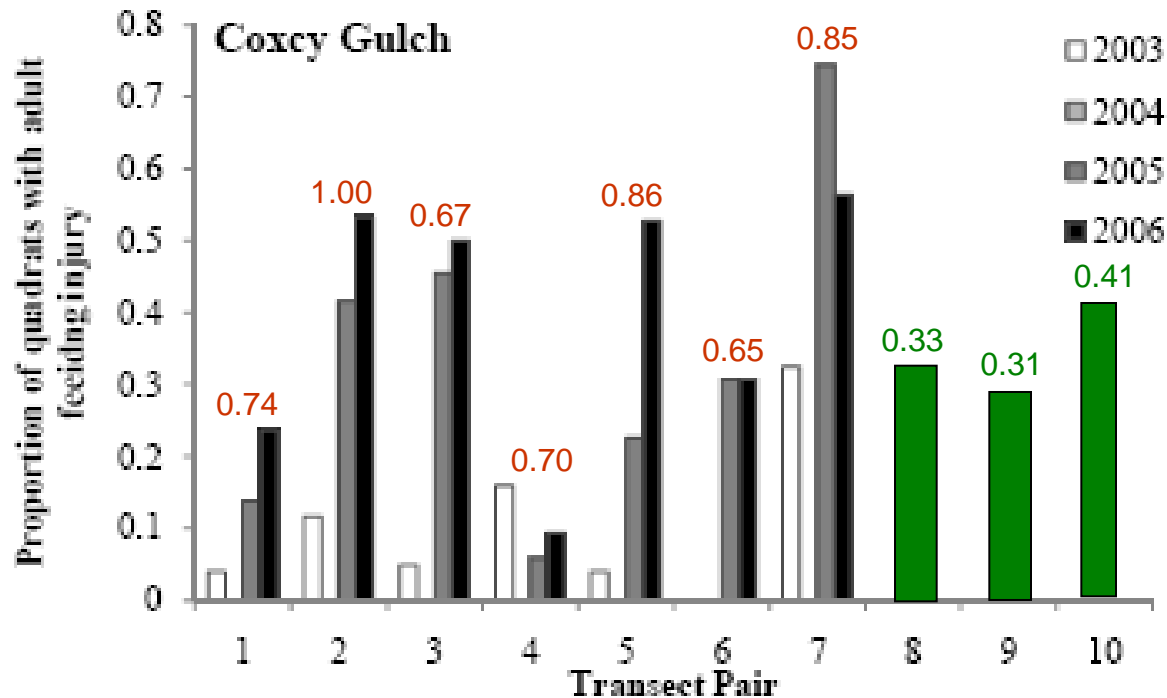
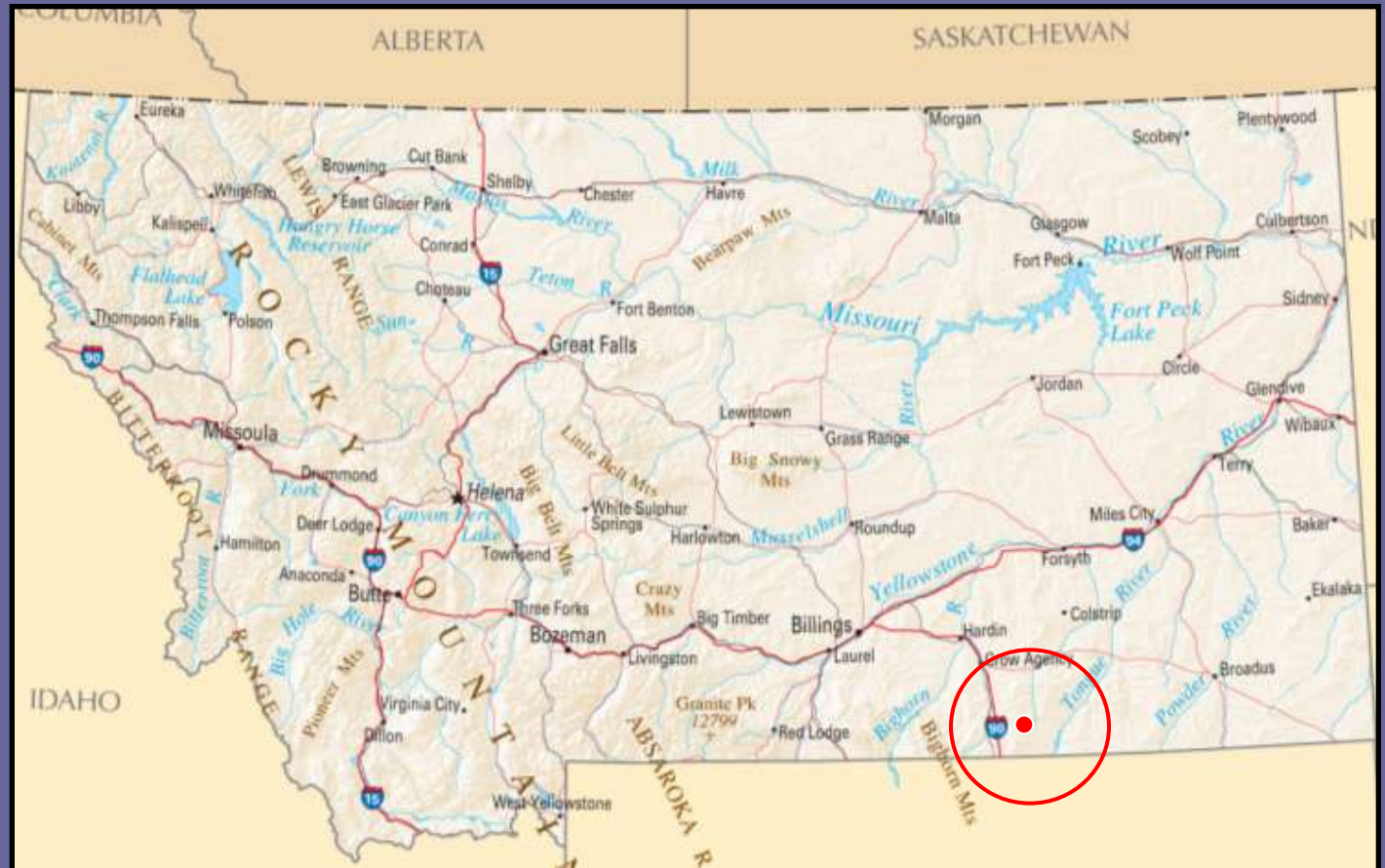


Figure 16 Coxcy Gulch: Proportion of quadrats per transect pair containing *Linaria dalmatica* with *Mecinus janthinus* adult feeding injury, 2003-2006. The three transect pairs on the far right (8, 9, and 10) were control transects.

Adapted from Schat (2008)

# Owl Creek – near Lodge Grass





# Owl Creek

- near Lodge Grass
- small initial release
- 250 insects in 2003 (from a historic site)
- last visited in 2006
- limited numbers (rare adult damage)
  
- monitoring comparison
- in 2004, 50% damaged stems
- in 2009, > 95% damaged stems
- most stems heavily damaged
- population spread throughout infestation

# Many thanks to:

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