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Massasaugas and Prescribed Fire



Threats

- ▶ Habitat loss
- ▶ Fragmentation
- ▶ Road mortality
- ▶ Persecution
- ▶ Collection
- ▶ Disease
- ▶ Management



Photo courtesy of J. McGowan-Stinski



Photo by K. Kucher



Photo by R. Seigel

Burn research

- ▶ *Durbian 2001*: 21% mortality (n=?)
- ▶ *Durbian & Lenhoff 2001*: pre-burn mowing may be beneficial.
- ▶ *Durbian et al. 2006*: no pre-burn mowing; 50% burn mortality (n=2); predation risk.
- ▶ *Dovčiak et al. 2013*: importance of microhabitat; increased #s in burn unit; plant diversity.
- ▶ *Cross et al. 2015*: 40% mortality (n=5); brush piles; overwintering sites.

Other research

▶ Populations

- Survivorship varies geographically
- Sensitive to changes in adult survival

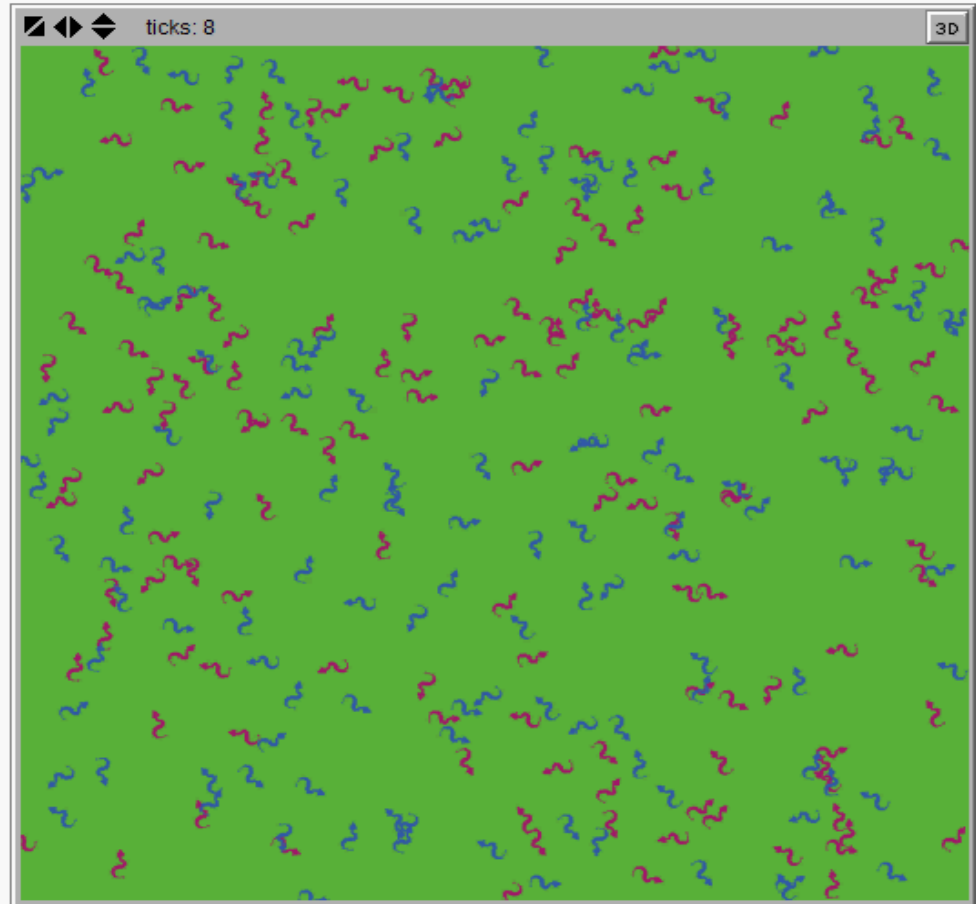
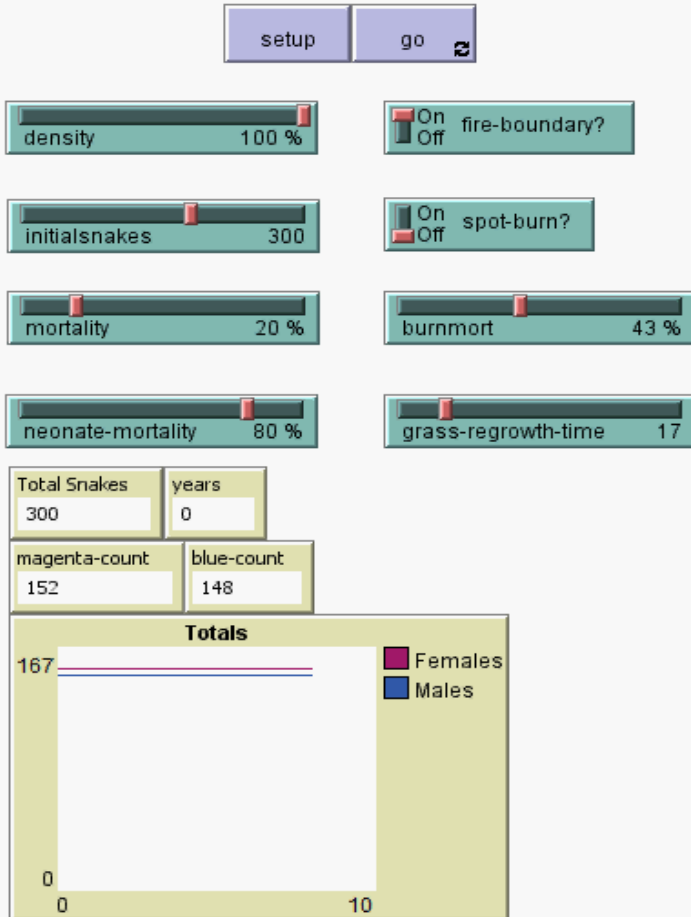
▶ Habitat

- Importance of microhabitat
- Connectivity

Future research: How to minimize impacts?


- ▶ Fire:
 - Timing
 - Frequency
 - Type
- ▶ Detailed understanding of requirements & responses to disturbance.
- ▶ Ability to repatriate restored habitats
- ▶ Changes in prey density
- ▶ “Varies Geographically” – more studies
- ▶ Manager surveys

Agent-based modeling



Bridge the gap

“The considerable effort and resources involved in improving habitat for declining or threatened species, such as the eastern massasauga rattlesnake, justify an adaptive approach to habitat management, one in which management interventions are conducted at a scale which corresponds to massasauga selection patterns.”



▶ Species



▶ Ecosystem

