SNAKES ON A PLAIN

(Population Demography of Eastern Massasauga Rattlesnakes in Relation to Habitat Management)

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Eastern Massasauga Rattlesnakes (EMRs)

http://mnfi.anr.msu.edu/emr/

- **Only VENEMOUS snake in Michigan**
- **Important in ecosystems as prey and predators/pest control**
- **Currently a candidate for listing under the U.S. Endangered Species Act**
  - **State Species of Special Concern in MI**
  - **Threatened or Endangered elsewhere**
- **Declines mainly due to wetland habitat loss and alteration**

http://www.dec.ny.gov/animals/7154.html

Massasaugas & Habitat Management

- **Invasive plants may create dense monocultures/ unsuitable habitats**
- **Management efforts (prescribed burns) may cause direct or indirect mortality of individuals**

- **Population-level responses to habitat management and restoration are poorly understood**

Past EMR Research at PCCI

- **2011 & 2012: Mark-recapture surveys led by Yu Man Lee of the Michigan Natural Features Inventory (MNFI)**
  - **32 individuals captured & marked (n=18 females, 9 males).**
- **More data needed to determine and monitor population status and trends, especially in response to management.**

Objectives

- **Estimate EMR population size at PCCI**
- **Assess the impact of recent habitat management activities (mainly prescribed burns) on PCCI EMR populations**

Methods

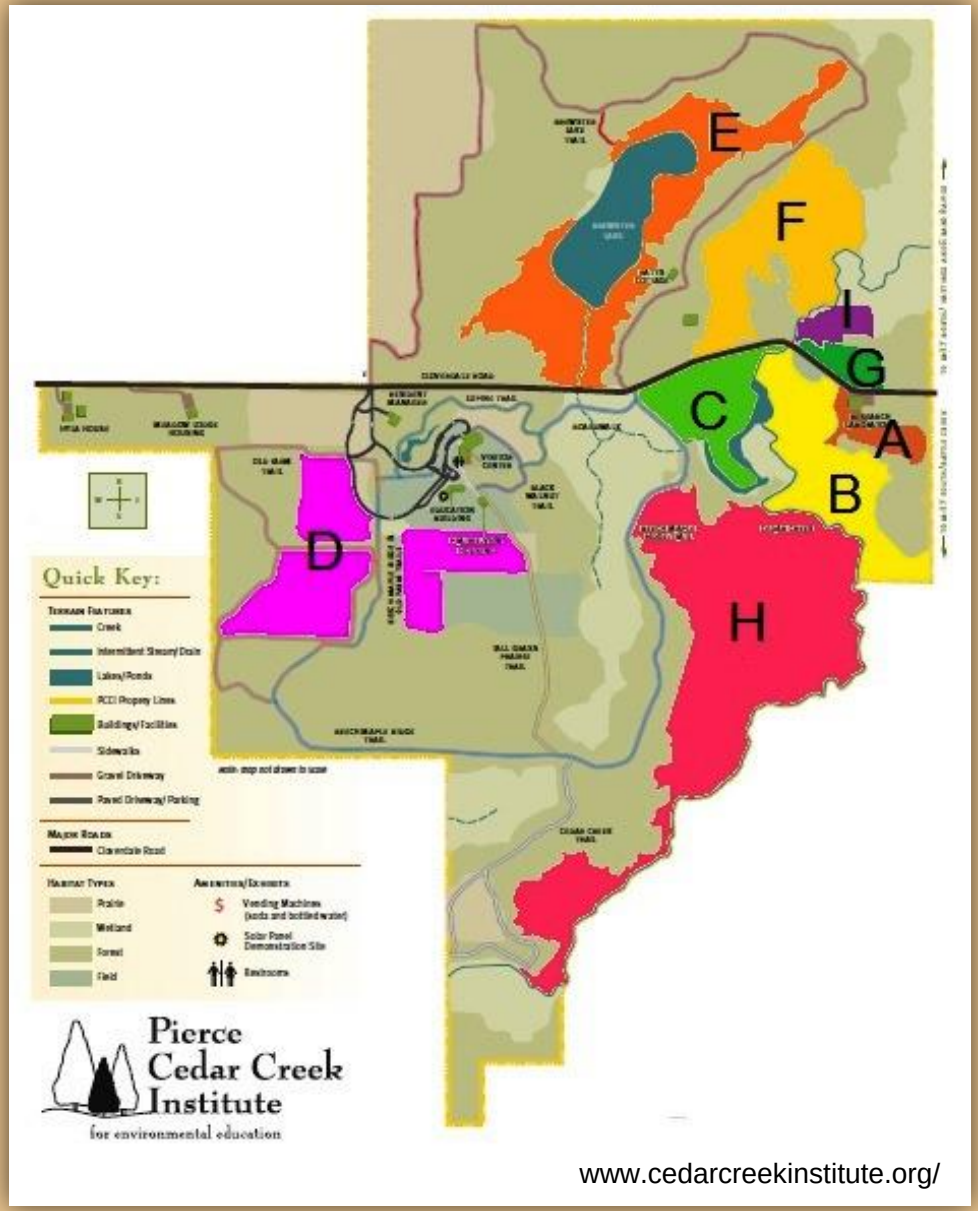
- Conducted visual encounter surveys (similar to MNFI)
  - May 7 – Present
  - 9 survey units based on habitat type
- Recorded environmental, habitat, and spatial data where snakes were found
- Determined body length, mass, saddle description, rattle count, sex, and reproductive condition of EMRs
- Individually marked snakes using PIT tags and nail polish on rattles
- Collected blood samples for future genetic analyses

Preliminary Results

- To date, captured and/or re-sighted 49 EMRs
  - Includes 36 individuals:
    - 28 new captures
    - 8 recaptures from previous years
  - 8 Male
  - 28 Female
    - 17 gravid
- Approximately 7 snakes found in recently burned (Fall 2012) habitat

Where Were the Snakes Found?

- Unit A – 5
- Unit B – 14
- Unit C – 2
- Unit D – 1
- Unit E – 5
- Unit F – 16
- Unit G – 3
- Unit H – 1
- Unit I – 2



To Be Continued…

- **Estimate population size, survival, and population growth rate based on mark-recapture data**

- **Use GIS to determine spatial distribution of snakes in relation to managed vs. unmanaged habitats**