

HABITAT USE BY THREATENED WESTERN HOGNOSE SNAKES (*Heterodon nasicus*) IN ILLINOIS

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BACKGROUND

Heterodon nasicus:

- Small bodied, non-venomous colubrid
- Range from N Mexico to Montana, with relict population in IL
- Habitat specialist of short-grass and sand prairies
- Endangered in Iowa, threatened in Illinois



STUDY SITE:

- Thomson-Fulton Sand Prairie Nature Preserve (Carroll & Whiteside Co., IL)
- Abuts Mississippi river on W side, agriculture land on E side
- Habitat to threatened Western hognose snakes, box turtles and Blanding's turtles
- Managed through planned burns and tree removal

METHODS

FIELD METHODS:

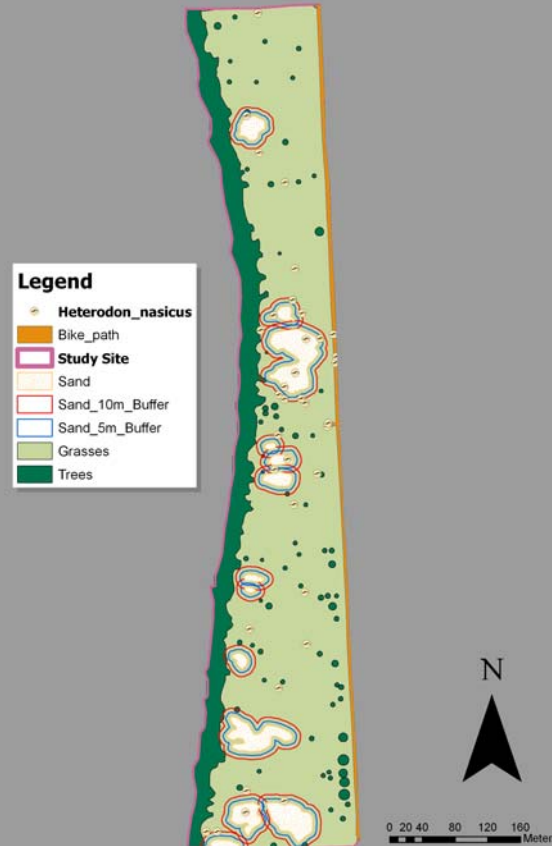
- Transects of study site walked annually in May/June from 1998-2006
- GPS locations of *Heterodon nasicus* individuals recorded

GIS METHODS:

- 2005 orthophotos downloaded from Illinois GIS data clearinghouse website
- Tree, sand, grass, and bike path features digitized based on field observations and pixel values
- All data projected in NAD 1983 UTM Zone 15N
- Locations of *Heterodon nasicus* individuals analyzed in vector and raster formats

RESULTS

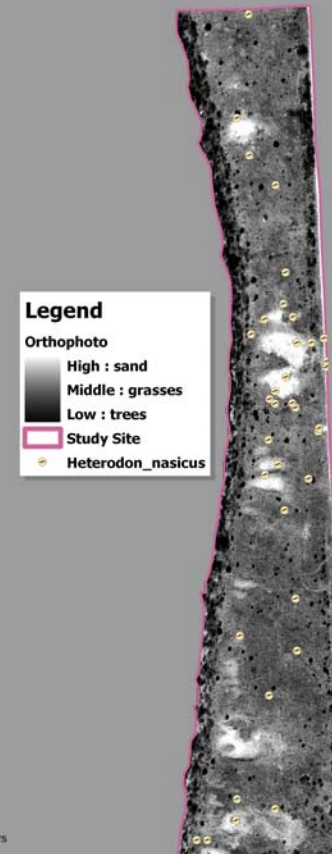
VECTOR ANALYSIS:



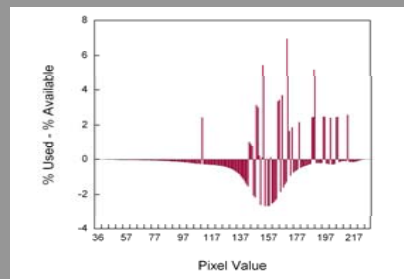
Percentage features used versus available:

Site Feature	% Study Area	% <i>H. nasicus</i> Found
Grasses	74 %	76 %
Trees	18 %	0 %
Sand	6 %	19 %
Bike path	3 %	5 %
Sand 5 m Buffer	11 %	27 %
Sand 10 m Buffer	18 %	38 %
Study site	100 %	100 %

RASTER ANALYSIS:



Pixel values used versus available:



CONCLUSIONS

VECTOR ANALYSIS:

- Individuals found in grass and bike path about as frequently as available
- Individuals found in sand patches more frequently than available
- Individuals found in tree patches less frequently than available

RASTER ANALYSIS:

- Roughly normal distribution of available pixels with median at ~155
- Roughly normal distribution of used pixels with slightly higher median
- Largest differences between used and available for high pixel values

OVERALL: *Heterodon nasicus* was found most frequently in sand and sparse vegetation.

FUTURE DIRECTIONS

QUESTIONS:

- Does *Heterodon nasicus* select for sand and sparse vegetation?
- Is the observation an artifact due to survey methods? (i.e. individuals easier to spot in sand and sparse vegetation)
- How do the following life history traits affect habitat use?
 - Prey availability
 - Vulnerability to predators
 - Ability to burrow underground
 - Ability to thermoregulate



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