

HABITAT USE AND MOVEMENT PATTERNS OF THE EASTERN MASSASAUGA IN WISCONSIN

Richard S. King¹

King, Richard S. 1999. Habitat Use and Movement Patterns of the Eastern Massasauga in Wisconsin. Abstract in "Second International Symposium and Workshop on the Conservation of the Eastern Massasauga Rattlesnake, *Sistrurus catenatus catenatus*: population and habitat management issues in urban, bog, prairie and forested ecosystems". (B. Johnson and M. Wright, editors.) Toronto Zoo, Toronto, Ontario.

ABSTRACT

Field studies were conducted in Juneau and Monroe Counties Wisconsin during 1994, 1995, and 1996 to investigate the habitat use and movement patterns of the eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*). Twelve adult and 32 neonate snakes were located and fitted with radio transmitters. Gravid females moved less than other adult cohorts. The mean distance traveled between locations was significantly ($P \leq 0.05$) larger for males (159.9 ± 39.9 m) ($\bar{x} \pm SE$) followed by gravid females (35.9 ± 15.4 m), neonates (30.5 ± 4.7 m), and non-gravid females (29.1 ± 5.7 m). Homorange estimates (100% Minimum Convex Polygon) showed a different trend with males having the largest homorange (161.5 ± 169.4 ha) followed by non-gravid females (6.7 ± 3.3 ha), gravid females (2.8 ± 2.3), and neonates (2.3 ± 1.8). Discrepancies between homorange estimates and mean distance moved data are explained by seasonal shifts in the habitat used by gravid females and neonates. All cohorts hibernated in wetlands. All gravid females migrated to upland sites shortly after emerging from hibernation. Males and non-gravid females did not exhibit this behavior. Post parturition, both neonates and formerly gravid females migrated back to wetlands to hibernate. This migration is represented in the range length or maximum distance between any two locations data where gravid females (653.3 ± 457.5 m) traveled more than non-gravid females (224.5 ± 154.7 m) and neonates (50.7 ± 15.3 m), but less than males ($1,331.3 \pm 919.2$ m). Habitat use differed significantly ($P \leq 0.05$) among the cohorts. Tree canopy cover, the distance to the nearest tree canopy gap, and percent moss ground cover were all significantly ($P \leq 0.05$) less for gravid females. Maximum shrub height and percent cover of bare soil at each location were significantly ($P \leq 0.05$) higher for gravid females. Seven (21.9%) of the neonates survived to their first hibernation. Four adults (33.3%) died during hibernation. Three adults were killed by unknown predators (25.0%) and one gravid female (8.3%) was found dead with no apparent signs of predation.

¹Necedah National Wildlife Refuge, W7996 20th St. W, Necedah, WI, 54646-7531, U.S.A. E-mail: richard_s_king@mail.fws.gov