

35 Years on the Northern Frontier: Temporal and Spatial Population Trends of the Western Rattlesnake

Marcus Atkins

Supervisor: Karl Larsen

Periodic assessments on the status of wildlife populations rely on the best available science, however, long-term datasets that utilize historical, comparative data are limited. Robust historical comparisons allow for the quantification of long-term impacts and can help prevent the phenomenon of shifting baselines. This study represents the first comparison of long-term population changes of Western Rattlesnakes (*Crotalus o. oreganus*) in Canada. Temporal comparisons are being conducted through a rigorous mark-recapture study to compare and assess baseline demographic data, morphometric data, female reproduction, and diet with a detailed dataset from the 1980s. Since the historical data was collected, the study site has diverged into a 'natural experiment' of contrasting land-use patterns; half within the boundaries of a provincial park and half within an active cattle ranch. Spatial comparisons between sites aim to determine how long-term, divergent land management regimes influence populations over time. Preliminary data suggests snakes occupying ranchlands are both longer ($P=0.034$) and heavier ($P=0.055$) than snakes within the 'protected area'. Continuing research in following field seasons will continue with mark-recapture at den sites, monitor reproductive success in females, assess habitat selection and quality between sites, and use radio telemetry to increase our understanding of daily landscape use.