

## Autumnal Energetics and Habitat Selection of the Red Crossbill (*Loxia curvirostra*) in Algonquin Provincial Park, Ontario

Julie Simard<sup>1</sup>, Ian Thompson<sup>2</sup>, and Rodger Titman<sup>1</sup>

1. Department of Natural Resource Sciences, McGill University, Macdonald Campus, 21 111 Lakeshore, Ste. Anne de Bellevue, QC H9X 3V9 [jsimar1@po-box.mcgill.ca](mailto:jsimar1@po-box.mcgill.ca)
2. Canadian Forest Service, 1219 Queen Street East, Sault Ste. Marie, ON P6A 5M7

Red crossbills (*Loxia curvirostra*) are finches with uniquely crossed beaks for acquiring seeds from conifer cones. They occur in southern boreal forests and in the Great Lakes-St. Lawrence and Acadian forest regions (Cadman et al. 1987, Erskine 1992), where they are most common in pine-dominated habitats, particularly white pine (*Pinus strobus*) forests (Benkman 1987 a,b, Lawrence 1949). Red crossbills were observed in Algonquin Provincial Park in September and October 1998. Because of high seed intake rates due to plentiful white pine cones, birds were able to meet daily energetic requirements while foraging for only 7% of the day. The appearance of fledglings suggested that breeding had taken place. Energy costs were estimated in order to determine pine seed requirements for reproductive activities. Fledged young were energy costly to parents, but the nestling period was also crucial in terms of overall energy required. Surveys were also conducted to determine use of interior and roadside stands of mixed-low (40% pine); mixed-high (40-70% pine); and pinery (>70% pine) types. Red crossbills did not use mixed-low stands, and used mixed roadside buffer strips almost twice as much as any other stand category. They foraged more in roadside buffers than interior stands, but only if buffers were mixed ( $p=0.07$ ,  $n=23$ ). There was no significant difference in crossbill numbers between pineries and mixed-high stands ( $p=0.30$ ,  $n=23$ ). Our data also showed a weak but significant positive relationship between number of cones and number of crossbills in a given stand ( $r=0.35$ ,  $p=0.097$ ,  $n=23$ ). Thus, we speculate that in years of cone abundance, a threshold of available seeds is surpassed in various stand types such that crossbills can successfully meet their daily energy needs with little time actually spent foraging.

### References:

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