
QUANTIFYING THE PREDATOR-PREY RELATIONSHIP: LESSONS LEARNED FROM A MULTIPLE-PREY, WOLF-HYBRID ZONE IN ALGONQUIN PARK, ONTARIO, CANADA

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We studied winter kill rates and prey selection in an eastern wolf/moose/white-tailed deer system in Algonquin Park, Ontario Canada. Eastern wolves (*Canis lycaon*) are a distinct species, known to hybridize with both gray wolves and eastern coyotes, resulting in genetic variation within the study area. Deer in Algonquin are seasonally migratory, and accessibility of deer shifts significantly over winter. Some wolf packs migrate off territory to forage on deer, while others remain on territory, relying on moose. Our objectives were to 1) identify factors influencing variation in prey use, and 2) compare methodologies for quantifying prey use in a multiple prey system. We used fine scale GPS collar data to identify kill sites, and calculated relative use of moose and deer for each pack using several measures, including prey biomass/wolf/day, days/kill/pack and a newly developed method of time spent at kill sites from GPS data. We also conducted stable isotope analysis to compare with field collected prey-use data. Variation in prey use among wolf packs was most influenced by accessibility to deer, vulnerability of moose, and genetic admixture, and mediated by winter progression. Methodological comparisons showed that prey biomass/wolf/day tended to overestimate large prey items, while days/kill/pack overestimated the importance of small prey. Stable isotope results were inconsistent, revealing some possible weaknesses of this approach. We found wide variation in kill rates and relative prey use with winter progression, and spatial variation in age-specific predation associated with differences in hunter harvest pressure.