

**Abstract:**

Understanding the conditions that facilitate top predator effects upon mesopredators and prey is critical for predicting where these effects will be significant. Intraguild predation (IGP) and the ecology of fear are hypotheses used to describe the effects of top predators upon mesopredators and prey species, but make different assumptions about organismal space use. The IGP hypothesis predicts that mesopredator resource acquisition and risk are positively correlated, creating a fitness deficit. But if shared prey also avoid a top predator, then mesopredators may not have to choose between risk and reward. Prey life history may be a critical predictor of how shared prey respond to predation and may mediate mesopredator suppression. We used hierarchical models of species distribution and abundance to test expectations of IGP using two separate triangular relationships between a large carnivore, smaller intraguild carnivore, and shared mammalian prey with different life histories. Following IGP, we expected that a larger carnivore would suppress a smaller carnivore if the shared prey species did not spatially avoid the large carnivore at broad scales. If prey were fearful over broad scales, we expected less evidence of mesopredator suppression. We tested these theoretical hypotheses using remote camera detections across a large spatial extent. Lagomorphs did not appear to avoid coyotes, and fox detection probability was lower as coyote abundance increased. In contrast, white-tailed deer appeared to avoid areas of increased wolf use, and coyote detection probability was not reduced at sites where wolves occurred. These findings suggest that mesopredator suppression by larger carnivores may depend upon the behavior of shared prey, specifically the spatial scale at which they perceive risk. We further discuss how extrinsic environmental factors may contribute to mesopredator suppression.

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