

VULNERABILITY OF PREY STIMULATES ATTACKS BY JAYS AND SHRIKES ON ADULT BIRDS

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The ability of predators to kill prey depends on the ease of capture and handling, and therefore the issue of prey *vulnerability* becomes paramount. Temple (1987) revealed a direct relationship between the difficulty of prey capture and the proportion of "substandard individuals" in the predator's diet. Ullrich (1971) found that such individuals were more common in the diet when shrikes fed on birds than when they ate mice. Small avian predators such as jays and shrikes tend to ignore *healthy* adult birds under ordinary conditions because of the challenge of capture. However, predatory behavior appears to be stimulated by circumstances that render such birds vulnerable to attack (e.g., Balda 1965). A recent field incident I witnessed, in conjunction with a survey of similar published observations, shed further light on predation by jays and shrikes on adult birds.

On 27 May 1991, I was collecting Plain Titmice (*Parus inornatus*) near the south shore of Shasta Lake, Shasta County, California, as part of a study of geographic variation in this species. I heard a titmouse giving "pee too" calls from approximately 15–20 ft up in a live oak tree near camp (Backbone Ridge, 1200 feet, 3 miles north and 7 miles east of Project City) and shot the bird. It fluttered slightly and soon stopped moving, but remained suspended from a limb by its toes. After 5 minutes of my unsuccessfully trying to knock the bird from the tree, it again began moving. Suddenly, a Scrub Jay (*Aphelocoma coerulescens*) swooped in from a nearby oak and seized the vulnerable titmouse. The jay perched in the oak for approximately 30 seconds, then easily flew off with its prey. The probable mate of the titmouse had been chattering excitedly nearby but became silent when the jay arrived.

Jays commonly rob the nests of other passerine birds, preying on both eggs and young (Dawson 1923, Bent 1946, Ouellet 1970). Adult individuals are more difficult to capture because of their greater size, mobility, and experience, making them less vulnerable to predation by jays. Thus, there are few records of such predation on healthy mature passerines (e.g., Johnson and Johnson 1976, Ehrlich and McLaughlin 1988, Carmen in press). Most reports of jay predation on adult birds involve prey that were injured and unable to escape (Ouellet 1970, Curry 1990), weakened by severe snow conditions (Roth 1971, Carothers et al. 1972), or behaving in a vulnerable manner (e.g., dust bathing, Master 1979). Immature birds that are capable of flight also become susceptible if incapacitated (e.g., Ehrlich and McLaughlin 1988).

Prey vulnerability likewise seems to stimulate predation by shrikes on birds. Johnson (1949) reported a field incident in which a Loggerhead Shrike (*Lanius ludovicianus*) stole a Savannah Sparrow (*Passerculus sandwichensis*) seconds after it was shot and hit the ground, and Stewart (1990) witnessed a shrike seize and impale an immature Grasshopper Sparrow (*Ammodramus savannarum*) immediately after it was hit by a truck. Other instances involve adult birds that were feigning injury (Balda 1965), attending nests (Cade 1967), or vulnerable in an open area (Ingold and Ingold 1987).

The foregoing observations of predation by jays and shrikes on adult birds collectively underscore the probable role of prey *vulnerability* in specific attacks. Harsh weather (e.g., low temperatures, heavy snow, prolonged drought) may increase the vulnerability of such prey and further stimulate predatory behavior of jays and shrikes (Roth 1971, Carothers et al. 1972, Mays 1988). Because such encounters are circumstantial and random, however, they probably constitute an inconsequential part of the feeding behavior and diet of these opportunistic predators.

NOTES

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