

FIRST DOCUMENTATION OF A FLORIDA SCRUB-JAY (*Aphelocoma coerulescens*) KILLING A BAT

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Florida Scrub-Jays (*Aphelocoma coerulescens*; hereafter scrub-jays) are endemic to Florida scrub habitats. They are year-round residents with a diverse, but opportunistic diet of insects and other arthropods, various small vertebrates, and some plant materials. Scrub-jays forage primarily on the ground and because they are not particularly nimble fliers, swiftly flying prey are rarely taken (Woolfenden and Fitzpatrick 1984). The winter diet is dominated by acorns of native scrub oaks, which are cached in the thousands during the late summer and fall (Woolfenden and Fitzpatrick 1996), but can include a great variety of other, primarily animal, foods.

Fewer than 20 species of vertebrates have been documented as prey of scrub-jays (Woolfenden and Fitzpatrick 1996) suggesting that, with a few prominent exceptions such as lizards and tree frogs, such items may infrequently occur in the scrub-jay diet. Scrub-jays are regularly observed capturing common lizards, frogs, and various invertebrates and seasonally these items may make up a substantial portion of their normal diet. Opportunistic predation upon snakes has been reported. Bowman (2003) observed apparent cooperative predation on an approximately 0.5 m long snake (*Coluber constrictor*) by a mated pair of scrub-jays. Scrub-jays also have been observed preying on other birds' nests (Deaner 2010, Woolfenden and Fitzpatrick 1984). When led to nests containing eggs, scrub-jays either broke open and ate the eggs immediately, or carried them off whole for caching (Woolfenden and Fitzpatrick 1984). Predation of adult birds has rarely been observed. McGinity (1997) watched a scrub-jay attack and subdue a Common Ground-Dove (*Columbina passerina*) that appeared to be performing a typical nest-distraction display. Curry (1990) described how a scrub-jay attacked and killed an adult Northern Mockingbird (*Mimus polyglottos*) approximately half its own weight, and fed on its brain and other nearby tissues before abandoning the body.

There appear to be no published records of scrub-jay predation on small mammals except for passing comments that they kill mice with stabs to the neck (Woolfenden and Fitzpatrick 1996). Here I recount the first observation of an attack by an adult male scrub-jay on a bat.

Just after 0800 EST on 21 March 2009 at Archbold Biological Station in Venus, FL, I was searching for the nest in the territory of one of our banded breeding pairs. The habitat was overgrown, including various scrub oak species (*Quercus spp.*) with an understory of saw palmetto (*Serenoa repens*) and over-story of slash pine (*Pinus elliotti*). The female was not present, presumably on a nest, and I was following the male. The scrub-jay suddenly squawked and dove to a location out of view behind some palmettos to the trunk of a large slash pine about 1.5m in front of me. The bird then dropped onto the ground at the base of the tree within the palmettos. I heard barely audible, high pitched screeching sounds and substantial crashing in the immediate vegetation. I eased closer and saw that the jay had a bat pinned on its back to the ground. The bat tried to bite defensively, but the bird began repeatedly striking at the bat's head and neck. The bat attempted to cover itself with its wings but after a few more strikes by the jay its defense became less coordinated. The scrub-jay grabbed the bat and shook it several

times, repositioned itself and continued the attack on the head of the bat. Once the bat was largely inert, the jay stood facing and astride the bat, and made multiple heavy strikes directly into the face and skull, similar to the action used to open acorns. After 3-4 strikes I heard the skull bones crack several times. The bat appeared lifeless within a minute and a half of the initial contact. The jay struggled to take off with the bat held in its bill, but once airborne quickly flew too far for me to follow in the dense understory. I assume, based on the direction of travel and the fact that the male returned to my location within 10 minutes that he likely cached the bat or delivered it to the female at the nest which I later found about 200 m away, in the same direction. While I did not observe the bird feeding on the bat directly, the aggressive attack and method of kill suggest that predation is the likely explanation. Both Curry (1990) and McGinity (1997) described similar attack methods during their observations of predation on adult birds and Woolfenden and Fitzpatrick (1996) note this approach to handling larger vertebrate prey.

Because of the difficulty in handling relatively large vertebrate prey and few direct observations despite years of intense monitoring, small mammals likely represent no more than a very small percentage of the scrub-jay diet. However, a small mammal could provide a substantial energetic payoff and thus scrub-jays are likely to prey on them opportunistically.

The specific identity of the bat is unknown, but the tree roost and coloration suggest the evening bat (*Nycticeius humeralis*) as a likely candidate. The bat's pelage appeared reddish-brown overall, contrasting with the dark brown bare skin of the wings, face, and ears. Several other species of bats are common at Archbold. This observation suggests that any of them roosting in the open could be considered potential prey items for an alert scrub-jay.

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