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Nest parasitism by cowbirds on Buff-breasted Flycatchers, with comments on nest-site selection.—The Buff-breasted Flycatcher (*Empidonax fulvifrons*) is a small flycatcher of the Mexican highlands which regularly breeds in limited numbers in the mountains of southeastern Arizona and southwestern New Mexico. Few details of its life history have been published. Nest parasitism by cowbirds has not been reported for this species. In the course of a general life history investigation of this flycatcher, we established that Brown-headed Cowbirds (*Molothrus ater*) and probably Bronzed Cowbirds (*M. aeneus*) parasitize the nest of this species.

On 5 July 1982, Bowers collected a recently abandoned Buff-breasted Flycatcher nest in Garden Canyon, Huachuca Mountains, Cochise Co., Arizona. In the nest were a small, unmarked, off-white flycatcher egg and a larger, heavily spotted Brown-headed Cowbird egg. Both eggs broke when the nest was taken, but identifiable pieces of shell were recovered. The nest and egg fragments are now in the University of Arizona collection (UA 14390).

On 11 June 1982, Bowers watched a female Bronzed Cowbird make two attempts to sit on a Buff-breasted Flycatcher nest in Sawmill Canyon, also in the Huachuca Mountains. The attempts failed due to the location of the nest in the fork of a horizontal branch. The upper branch of the fork passed directly over the top of the nest. The space between the two branches was so small that only a bird as small as a Buff-breasted Flycatcher (about 8 g) could fit on the nest.

We found 29 nests of *E. fulvifrons* in the 4 years of this study. The fate of the contents of six of these nests is unknown. Of the remaining 23 nests, young fledged from 9 unparasitized nests, while no young fledged from 14 other nests. Four unsuccessful nests were not parasitized, one was parasitized and the contents of the remaining nine unsuccessful nests were not seen.

The failed parasitism attempts observed by Bowers suggest that choice of nest-site can affect the reproductive success of a pair of birds in a way not normally considered by researchers. All but 8 of the 29 nests discovered in this study had a branch passing within 5 cm of the top of the nest. Earlier studies of the Buff-breasted Flycatcher also noted the tendency to build under overhangs (Willard, *Condor* 25:189–194, 1923; Brandt, *Arizona and Its Bird Life*, Bird Research Foundation, Cleveland, Ohio, 1951). In addition, nesting under overhangs has been described for other small birds such as Calliope Hummingbirds (*Stellula calliope*) (Bent, U.S. Natl. Mus. Bull. 176:420–429, 1940) and Broad-tailed Hummingbirds (*Selasphorus platycercus*) (Calder, *Ecology* 54:127–134, 1973). Most early reports suggested that the overhang serves simply as a rain umbrella (Bent 1940). Calder (1973), however, emphasized the importance of the overhang as protection at night against loss of radiation heat from the incubating bird. For birds as small as hummingbirds or perhaps this flycatcher, the shelter helps maintain the birds within tolerable energetic limits (Calder 1973; Calder, Natl. Geogr. Soc. Resear. Rept. 13:145–169, 1981). Our observations indicate a third advantage of having a protective structure over the nest. The overhang can physically prevent a nest parasite from reaching the nest of a smaller host species.

Normally, the loss of a few nests to parasitism may not adversely affect the continued existence of the host population as a whole (Mayfield, *Am. Birds* 31:107–113, 1977). In areas where the host population is small, however, losses due to parasitism can be quite detrimental (Kelly and DeCapita, *Wilson Bull.* 94:363–365, 1982). In Arizona, Buff-breasted Flycatcher populations are extremely small (18 pairs in 1982, 9 pairs in 1983, this study), while cowbird populations have recently increased (Monson and Phillips, *Annotated Checklist of the Birds of Arizona*, Univ. Arizona Press, Tucson, Arizona, 1981). Thus, the con-

tinued presence of Buff-breasted Flycatchers in southeastern Arizona could be partially dependent on the relative inaccessibility of their nests due to overhanging structures.

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Sandhill Crane incubates a Canada Goose egg.—I have previously reported on inter- (Littlefield, *Wilson Bull.* 91:323, 1979) and intraspecific egg dumping (Littlefield, *Auk* 98: 631, 1981) in Sandhill Crane (*Grus canadensis tabida*) nests. Except in one nest, which contained one Canvasback (*Aythya valisineria*) egg and two crane eggs, none of the dumped eggs was being incubated.

On 23 April 1982, a Sandhill Crane nest was located 72 km SSE of Burns, Harney Co., Oregon, on Malheur National Wildlife Refuge (NWR). Upon discovery, the male crane was incubating a Canada Goose (*Branta canadensis*) egg (84.7 × 56.2 mm). Also present in the nest bowl were traces of goose down. The nest was typical of Sandhill Cranes and had the following measurements: nest diameter—105 cm; bowl diameter—39 cm; bowl depth—6.6 cm; and nest height above water—20.6 cm. Surrounding vegetation and nest composition was hardstem bulrush (*Scirpus acutus*), and the water depth was 17.4 cm. The goose egg appeared fertile and was estimated to have been incubated about 20 days (see Westerskov, *J. Wildl. Manage.* 14:56–67, 1950). While the nest was being examined the crane pair performed distraction behavior within 6 m of the nest. Upon reexamination on 1 May 1982, the egg had been destroyed by an unknown predator. At this time I removed all nesting material in an effort to locate crane egg shell fragments; however, none was located.

Sandhill Cranes are normally intolerant of close approach to their nests by other avian species (pers. obs.). How incubation of the goose egg began is unknown, but there are at least three possibilities. (1) Perhaps both crane and goose eggs were in the nest, but the crane eggs were removed by a predator, leaving the goose egg. Coyotes (*Canis latrans*) have often been seen on Malheur NWR removing eggs intact before consuming them at upland sites (pers. obs.). (2) The crane eggs were removed by a predator and the Canada Goose deposited her egg before the crane pair returned to the nest; or (3) although unlikely, the cranes took over the nest after the goose laid her first egg. This would account for the few down feathers present in the nest bowl.

There are several records of Canada Goose eggs being deposited in Sandhill Crane nests (Littlefield 1979; W. Radke, pers. comm.); however, I know of no other record of a goose egg being incubated by a Sandhill Crane pair.

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