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Wilson Bull., 108(2), 1996, pp. 374-377

Nest adoption by Monk Parakeets.—Monk Parakeets (*Myiopsitta monachus*) are unusual, being the only non-cavity nesting psittacines. Rather than using tree holes, burrows, or crevices as other parrots typically do, they build large domed nests of twigs (Forshaw 1989). Their nests often include several compartments, each with a separate entrance, and several nests may be built in the same tree or in neighboring trees. Monk Parakeets are non-migratory and use their nests year-round for roosting as well as for breeding. Nests typically are built in trees, as well as on a variety of man-made structures (windmill towers, utility

poles, sign posts, etc.). One sub-species, *M. monachus luchsii*, builds stick nests on cliffs (Lanning 1991).

During a visit to southern Buenos Aires Province, Argentina, Humphrey and Peterson (1978) noted an association between nests of the Firewood Gatherer (*Anumbius anumbi*) and those of Monk Parakeets. They found that parakeets frequently used *Anumbius* nests as a foundation on which to build their own nests. From Humphrey and Peterson's observations, it is not clear whether or not the nests added to by parakeets had been abandoned by their original builders. In the resulting duplex nests, twigs added by the parakeets frequently engulfed the original nest, but the nest cavities were separated by a double wall, and the parakeets built and used a separate entrance tunnel.

Here, I report a similar association found during a study of Monk Parakeets in Entre Ríos Province, Argentina. A large proportion of Monk Parakeet nests were found to be remodeled nests of the Brown Cacholote (*Pseudoseisura lophotes*). The occasional adoption of Brown Cacholote nests by Monk Parakeets has been previously noted (Nores and Nores 1994); I show that adopted nests are widely used by Monk Parakeets and suggest that the association may provide a clue to understanding the evolution of the Monk Parakeet's domed nest.

Study area and methods.—During the austral spring/summers of 1993–94 and 1994–95, I studied the breeding behavior of Monk Parakeets on a portion of Estancia Santa Ana de Carpinchorí, a cattle ranch in northern Entre Ríos Province, Argentina. Parts of the ranch have been cleared, but much of it retains its native savannah woodland vegetation, which is dominated by three xerophytic trees: *Acacia caven*, *Prosopis affinis* and *Prosopis nigra*. I monitored the occupancy and breeding activity of all nests that were found on 1000 ha of uncleared land and that were accessible with a 7-m ladder. The locations of all nests in the study area were mapped, and for each one I measured (or estimated, in the case of very isolated nests) the distance to the nearest neighboring nest. The height to the center of each nest was measured as well. Only nests that were occupied (used either for roosting or breeding) by parakeets for at least a portion of the study are discussed here. All nests were scored as being either original Monk Parakeet nests or adopted Brown Cacholote nests that had been remodeled by parakeets. This determination was made by visual inspection of the twigs used in a nest's construction. Adopted nests are recognizable because a portion (generally the back and/or underside) of the nest comprises twigs of more variable and greater thickness than those used by parakeets (see Results).

Results and discussion.—Monk Parakeets were observed to construct nests using thorn twigs clipped from nearby *A. caven*, *P. affinis*, and *P. nigra* trees (usually <100 m from nest site). Twigs from other species of trees, or picked up from the ground, were used <1% of the time (JRE, unpubl. data). Parakeets consistently used the terminal ends of twigs for nest-building and occasionally used twigs stolen from nearby parakeet nests. Brown Cacholotes, on the other hand, use a variety of types and sizes of twigs (Nores and Nores 1994), resulting in a nest that, though similar in shape and size to that of the Monk Parakeet, is readily distinguishable because of the nesting materials employed in its construction. To document this difference in sizes of twigs used by the two species, I measured the mid-twig diameters of 100 randomly chosen twigs/nest from three cacholote nests and three parakeet nests. The variance and median did not vary significantly among nests within each species, so data were pooled within each species for the analyses presented here. Variance in twig diameter is much higher in cacholote nests than in nests built by Monk Parakeets (*F*-test: $F = 5.67$, $df = 299$, $P \ll 0.0001$), and twigs used by the parakeets are significantly thinner (Mann-Whitney *U* test: $Z = -14.55$, $P = 0.0001$, $N = 600$).

In the course of the two field seasons, I monitored a total of 39 accessible and occupied Monk Parakeet nests, some of which were occupied during both years. Of these 39 nests, 20 (51%) were originally cacholote nests that had been adopted and remodeled to varying

TABLE 1
NEST AND NEST-SITE CHARACTERISTICS OF MONK PARAKEETS AT ESTANCIA SANTA ANA DE
CARPINCHORÍ, ENTRE RÍOS PROVINCE, ARGENTINA

Original builder	Number (% total)	Mean nest height ($\bar{x} \pm SE$)	Mean nearest neighbor dist. ($\bar{x} \pm SE$)	Number used for breeding
<i>M. monachus</i>	19 (48.7)	5.32 (± 0.3)	39.2 (± 16.2)	11
<i>P. lophotes</i>	20 (51.3)	4.5 (± 0.3)	150.8 (± 46.6)	1

extents by Monk Parakeets. This is likely to be a conservative estimate, since extensive remodeling of a cacholote nest by the parakeets could eventually engulf its foundation, leading me to score some adopted nests as originally being parakeet nests. Parakeets appeared to adopt nests that had been abandoned by their original owners and had begun to fall apart, creating an opening in the nest chamber. In their study of Brown Cacholote nesting behavior, Nores and Nores (pers. comm.) also found that monk parakeets usually moved into abandoned Brown Cacholote nests (8 of the 9 cases they observed). When remodeling cacholote nests, parakeets add twigs to the roof and around the entrance. For the six nests that I found in early stages of remodeling, parakeets had built a new entrance tunnel; however, Nores and Nores (pers. comm.) found that in eight of the nine cases of nest adoption they observed, the parakeets used the cacholote nest's original entrance. Unlike the nest association found by Humphrey and Peterson (1978) in which Monk Parakeets used *Anumbius* nests as foundations upon which to build their own nesting compartment, parakeets adopting cacholote nests always re-used the original nest's chamber.

The main site characteristics, nest height and nearest-neighbor distance and whether or not the nest was used for breeding, are summarized in Table 1. The heights of nests built by Monk Parakeets and cacholote nests adopted by parakeets did not differ significantly (Mann-Whitney *U* test: $Z = -1.548$, $N = 39$, $P = 0.12$). Adopted nests were more isolated, as reflected by their significantly longer nearest-neighbor distances (Mann-Whitney *U* test: $Z = -2.757$, $N = 39$, $P < 0.01$). Breeding attempts occurred in 12 nests, and most (92%) of these were in nests originally built by parakeets themselves. This significant preference ($\chi^2 = 12.82$, $df = 1$, $P < 0.005$) for breeding in non-adopted nests is probably due to the fact that these nests were more likely to be in colonies (a colony was defined as groups of nests with nearest-neighbor distances of less than 100 m). In the single case in which a breeding attempt took place in an adopted nest, the nest had been enlarged and contained two compartments, both of which were occupied.

The Monk Parakeet's willingness to adopt and remodel the nests of another species is particularly interesting in light of the fact that the Monk Parakeet is the only parrot species that builds a nest that is completely dissociated from a cavity. Nest adoption may originally have arisen in this species' ancestor as an alternative nesting strategy used by pairs unable to find or successfully compete for nesting cavities. The adoption behavior may have preceded the evolution of more complex nest-building behavior. The ability to construct a nest would then have emancipated them from a dependence on cavities or other species' nests for breeding. By giving pairs flexibility in choosing nest sites, nest-construction may in turn have facilitated the strong tendency of Monk Parakeets to breed colonially.

Acknowledgments.—During the preparation of this paper, I was supported by Princeton University and an NSF pre-doctoral fellowship. I thank the Ortíz Basualdo family and the employees of Estancia Santa Ana de Carpinchorí for their hospitality and logistical support

in the field. K. Harms assisted in the collection of field data, and P. Grant, K. Harms, and H. Horn made helpful comments on early drafts of the manuscript. I also thank D. Lanning for comments on the manuscript, as well as A. Nores and M. Nores for allowing me to include unpublished data.

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Wilson Bull., 108(2), 1996, pp. 377–378

Vermilion Flycatcher and Black Phoebe feeding on fish.—We describe our observations of two species of flycatchers, the Vermilion Flycatcher (*Pyrocephalus rubinus*) and the Black Phoebe (*Sayornis nigricans*) feeding on fish. Observations of Black Phoebes capturing fish have been noted as unusual (Bent 1942, Lawson 1975), and this is the first account of a Vermilion Flycatcher feeding on fish (Bent 1942, Terres 1980).

We made these observations at the Hassayampa River Rest Area approximately 6 km southeast of Wickenburg, Maricopa County, Arizona. On 2 Dec. 1993, we observed an adult male Vermilion Flycatcher eating a small fish. The flycatcher was first observed perched in a mesquite tree (*Prosopis velutina*) approximately 12 m from the Hassayampa River. With binoculars we could clearly see the distal half of a fish protruding from the flycatcher's bill. It was unknown if the flycatcher captured or scavenged the fish. Vermilion Flycatchers most commonly feed by hawking for insects, but occasionally they land on the ground to feed on terrestrial invertebrates (Bent 1942, Terres 1980, Ehrlich et al. 1988, Rosenberg et al. 1991).

Andrews returned to the area on 4 Dec. 1993 and observed an adult male vermilion Flycatcher on a small mesquite tree branch 2.5 m directly over the water. After several min of observation, the flycatcher flew down, breaking the surface of the water. It then hovered just above the water for several seconds before again darting into the water. The bird hovered then darted into the water two more times. All four attempts were unsuccessful. It then returned to the same mesquite branch above the water. The depth of the water at this location was approximately 12 cm. Suspecting that the flycatcher may have been diving into the water after insects, we looked for insects or other aquatic invertebrates. No insects were observed in or over the water in the area where the flycatcher was hunting. Several large schools of longfin dace (*Agosia chrysogaster*), an abundant native fish of the family Cyprinidae, were observed at the site where the flycatcher had been hovering and diving. Attempts to photograph the flycatcher's feeding behavior were unsuccessful.