

NESTING BEHAVIOR AND AFFINITIES OF MONK
PARAKEETS OF SOUTHERN BUENOS AIRES
PROVINCE, ARGENTINA

PHILIP S. HUMPHREY AND ROGER TORY PETERSON

The Monk Parakeet (*Myiopsitta monachus*) is an abundant bird in much of Argentina from Mendoza, Río Negro, La Pampa, and Buenos Aires provinces north into Uruguay, Paraguay, southeastern Brazil, Mato Grosso, and southern Bolivia. These noisy and highly social parakeets are of interest because of their nest building habits, unique in the family Psittacidae. Nests of Monk Parakeets are usually multi-chambered structures involving several pairs of birds. We encountered the Monk Parakeet in the southern "panhandle" of Buenos Aires province nesting in a manner very different from the typical nesting behavior for the species.

On 26 October 1960 we drove from Bahía San Blas (southern Buenos Aires province) to Viedma, passing through the communities of José C. Casás and Cardenal Cagliero. We saw small numbers of Monk Parakeets along a short stretch of road between these towns. We collected a few specimens, noted what we thought might be nests on the tops of telephone poles, and hurried on to Viedma. These birds were smaller and less yellow than specimens we had collected near Chascomus in northern Buenos Aires province. Two days later we made further observations of these parakeets.

Buenos Aires province has its southernmost extension in the form of a narrow panhandle of dry, semidesert country along the Atlantic coast. The southern two thirds of this panhandle, that is, the part south of the Río Colorado, is a region of thorny scrub vegetation and occasional large depressions that look like gleaming white lakes but are actually great expanses of dry lake beds. This part of Buenos Aires province is in the phytogeographical province termed Monté by Solbrig (1976:10-12) and others.

During the 2 days that we studied the parakeets in southern Buenos Aires province we found the birds 21 km southwest of Casás in a limited area along 2.3 km of the road. There were 35 telephone poles along this stretch of road; 9 of these had bulky stick nests between the crossbars at the top. Some of these nests were occupied by Firewood Gatherers (*Anumbius anumbi*) or were abandoned nests of this furnariid. Three of the nests were very much enlarged and consisted in part of freshly-added, large, thorny branchlets.

There were at least 18 parakeets in this small area. Birds were seen often in pairs or in flocks of from 3 to 5, and once, 9. At one time or another

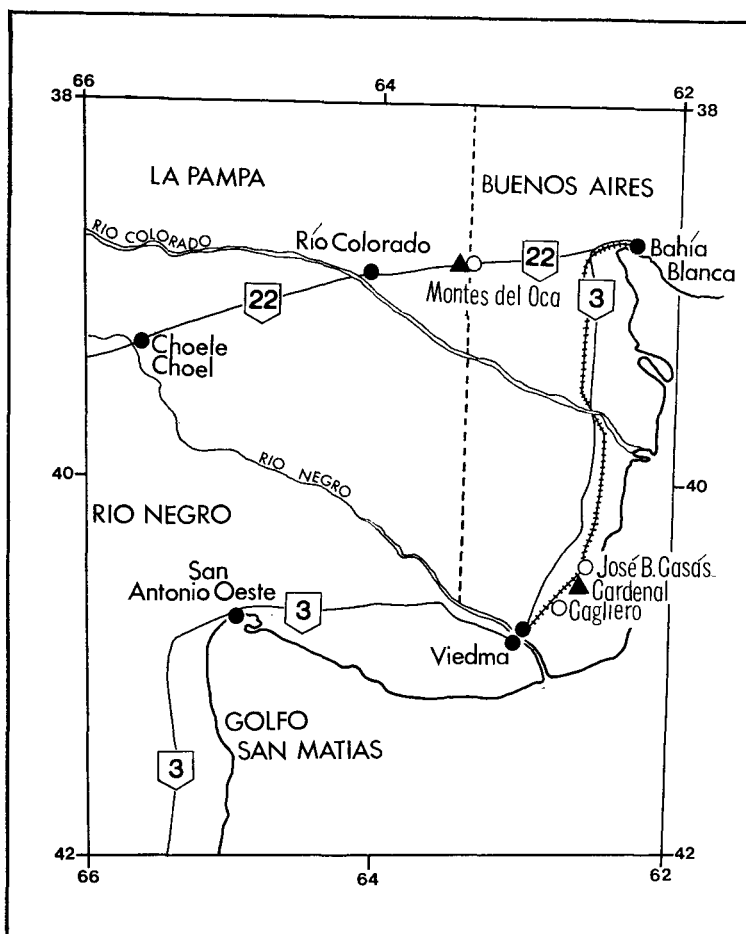


FIG. 1. Map showing southeastern Buenos Aires province and adjacent Río Negro and La Pampa provinces. Localities at which Monk Parakeets were observed are marked by triangles.

we saw parakeets climbing about and peering into each of the 9 nests. The birds never moved far from the telephone lines and seemed to show considerable interest in large, nest-like structures on several of the telephone poles.

We thought there might be some relationship between the abundance of *Anumbius* nests and the local distribution of parakeets. A 26 km long census of *Anumbius* nests per kilometer of telephone poles (15 poles per km) revealed that they varied in abundance from 1 nest per 6 km to as many as

7 nests per km. The parakeets occurred in an area of average abundance of *Anumbius* nests (between 3 and 4 per km). Although there were *Anumbius* nests located in low thorn trees we saw no indication that the parakeets showed any interest in them.

Typical nests of the Monk Parakeet are multi-chambered structures involving sometimes as many as a hundred pairs of birds (Naumburg 1930:128). The fact that in southern Buenos Aires province the parakeets were attracted to *Anumbius* nests aroused our curiosity and led us to investigate these structures.

We climbed 3 telephone poles to bring down nests for closer examination. Each telephone pole was an old, rusty railroad rail with 2 wooden crossbars bearing insulators for the wires. The lower crossbar was approximately 6 m from the ground. All of the nests rested on the lower crossbar to one side of the pole and more or less filled the space between the crossbars.

The first 2 nests were old-appearing structures made of dried sticks. Each *Anumbius* nest was a bulky structure composed of fairly brittle dead twigs lacking large thorns. We felt that the nest material could have been collected from the ground litter. At the center of each nest was a small cavity approximately 15 cm in diameter; this was reached by a short entrance tunnel from one side. The total distance from the entrance to the inner wall of the nest cavity was approximately 40 cm. The nest cavity had a messy lining of dirty tufts of wool and other matter, including objects which looked like dried fox scats.

The third nest was much larger (approximately 50 × 70 cm) and was made mostly of fresh thorn branches which appeared to have been chewed off recently, presumably by a parakeet. These branches had new leaves sprouting from them. The branches were 20 to 40 cm in length and had long, sharp thorns. We later examined some of the thorny shrubs in the area and noted that the tips of many of the branches had been chewed off. The nest cavity contained a single Monk Parakeet egg. Further examination of this nest revealed that it was actually a double structure consisting of an *Anumbius* nest at one end and a parakeet nest at the other. The parakeet nest, however, engulfed the *Anumbius* nest, leaving no doubt that *Anumbius* had built the original nest. Part of the *Anumbius* end of the double structure was devoid of long, fresh, thorny branch-tips. The *Anumbius* and parakeet nests each had its own separate inner cavity and entrance tunnel. There was a double wall separating the nest cavities, and the entrance tunnels were at opposite ends of the duplex structure. The entrance to the parakeet's nest was to the north, forming the mouth of the roughly retort-shaped structure; the tunnel giving access to the *Anumbius* nest was at the south end and opened towards the west.

The inside diameter of the entrance tunnel of the parakeet's nest was approximately 10 cm and the distance from the entrance to the inner wall of the nest cavity was approximately 35 to 40 cm. The outside diameter of the nest at the entrance was approximately 25 cm. The nest chamber was 18 cm in diameter and was devoid of any lining although the stems of branches forming the chamber were in part divested of bark and seemed slightly smaller in diameter than those used for the outside of the nest.

Another nest constructed largely of green vegetation appeared to be about the same size as the one we took down and examined in detail. Its entrance, however, opened to the north.

Of the 9 nests around which we noted parakeet activity, 3 had had fresh plant material added to them and had been transformed into duplex structures comprising an original *Anumbius* nest more or less enveloped by an added parakeet nest. Various individuals or groups of parakeets were seen to visit only 9 nests. Parakeets were never seen at nests on telephone poles further north or south along the road.

On 28 October Peterson set up a blind approximately 11 m from an *Anumbius* nest and spent 2 h in it. The nest had not been added to by the parakeets but their interest in it and in the other *Anumbius* nests leads us to believe that building activities may have been about to begin.

Soon after the blind had been erected 2 parakeets arrived, and shortly afterwards a third. They first perched on wires near the nest where they showed obvious signs that they were aware of the blind, then 2 of the birds flew to a perch behind the nest. From time to time a parakeet's head would appear from behind the nest as if to study the situation. After several minutes all 3 birds flew off; they (presumably the same 3) returned 10 min later to perch about 2 m from the nest.

With sidestepping motions the birds moved along the wires to the nest, calling and "talking" a great deal in the process. Once at the nest one bird quickly entered while another went to the other side of the nest where he was hidden from sight. The walls of the nest were thin and Peterson could see the parakeet moving about within the nest cavity as if fiddling with the interior. This bird spent a long time in the nest before reappearing, at which point all 3 birds flew away. This routine was repeated several times during the 2 h Peterson spent in the blind. During this time Peterson did not observe any material being added to the nest nor did he see an *Anumbius* at the nest.

TAXONOMIC NOTES

There are 3 races of *Myiopsitta monachus* known from Argentina: *Myiopsitta m. monachus* from northern and northeastern Buenos Aires province,

TABLE 1
WEIGHTS OF MONK PARAKEETS FROM 3 LOCALITIES IN ARGENTINA

	Males			Females				
	N	Min.	Mean	Max.	N	Min.	Mean	Max.
Buenos Aires Province								
Casás	7	93.1	99.1	115.5	5	92.7	98.9	109.8
Chascomus	4	124.4	128.4	131.4	12	110.0	120.6	129.9
Entre Ríos Province	7	113.0	122.0	133.0	9	112.5	116.6	122.4

Córdoba, southern Santa Fé, Entre Ríos, and also Uruguay; *M. m. cotorra* from southern Misiones, northern Corrientes, Chaco, Formosa, eastern Salta, and also Paraguay, the Mato Grosso, and southeastern Bolivia; and *M. m. catita* from western and northwestern Argentina from Jujuy south to northern Mendoza, southern San Luis, and north-central La Pampa.

In 1960 Gazari (1967:451) found Monk Parakeets in the vicinity of Choele Choele, Río Negro, and saw 3 nests in willows. He also saw them along the valley of the Río Negro between Choele Choele and General Conesa and found 15 more nests. In addition he saw the species along the Río Colorado west to Fortín Uno but found no nests. In February 1961 Humphrey saw 2 *Myiopsitta* sitting on a telephone wire in southeastern La Pampa province between the town of Río Colorado and the border between the provinces of La Pampa and Buenos Aires.

Monk Parakeets in the southern panhandle of Buenos Aires province, northeastern Río Negro, and adjacent northeastern La Pampa province are about 600 km south of the known ranges for *catita* and nominate *monachus*. What then are the affinities of these southern parakeets?

Our specimens from Casás are about 20 to 30 g lighter in weight (Table 1) than specimens of *monachus* from Chascomus (Buenos Aires province) and Entre Ríos province, and have smaller bills and shorter wings. In addition, the abdomen is less yellowish and the dorsum duller green. The tails of the southern birds probably are shorter, but wear makes this difficult to determine. The Casás specimens are intermediate in wing (Table 2) and tail length between *catita* and nominate *monachus*, but indistinguishable from *catita* in plumage coloration. Therefore, we believe that Monk Parakeets from southernmost Buenos Aires province and the adjacent areas of southeastern La Pampa and northeastern Río Negro are *Myiopsitta m. catita*.

The range of *catita* appears to be within or mostly within the Monté region as characterized by Solbrig (1976:10-12) from the valley of the Río Negro north. The other forms of *Myiopsitta* also appear to be related to phyto-

TABLE 2
WING MEASUREMENTS (MM) OF MONK PARAKEETS*

	Males				Females			
	N	Min.	Mean	Max.	N	Min.	Mean	Max.
<i>cotorra</i>	20	132	136	142	18	127	134	140
<i>monacha</i>	23	135	148	154	33	140	147	158
<i>catita</i>	9	132	135	139	9	129	137	141
Casás specimens	7	133	140	144	5	132	137	141

* Specimens of *cotorra* from Brazil, Paraguay, Argentina (Formosa, Salta); *monacha* from Brazil, Uruguay, Argentina (Santa Fé, northern Buenos Aires, Entre Ríos); *catita* from Argentina (Tucumán, Santiago del Estero, Mendoza, San Luis).

geographical regions, i.e., nominate *monachus* in the Pampa region and *cotorra* in the Chaco (see map in Solbrig 1976:11).

DISCUSSION

In much of its range, the Monk Parakeet occurs in local populations numbering in the hundreds or even thousands, and builds large nests occupied by more than one pair of birds. There is considerable variation in size of nests and in kind of nest site selected. Moreover, the nest building habits of Monk Parakeets not only are adaptable to the availability of appropriate nest sites, but also are responsive to persecution. Finally, other species of birds and at least one species of mammal frequently are associated with parakeet nests. In spite of the economic importance of Monk Parakeets in Argentina (and elsewhere), there is little published information on their nesting habits.

The Monk Parakeet population near Casás is the only one known in which duplex nesting occurs with *Anumbius*. What are the characteristics of southern Buenos Aires province and of the parakeets themselves that might account for their unusual nesting habits in the vicinity of Casás?

The vegetation in much of southern Buenos Aires province south of the Río Colorado is principally scattered thorny shrubs and low thorny trees, most of which did not appear to be promising nesting sites for parakeets. Nevertheless, some of the taller trees might have provided appropriate sites. The only sites used, however, were the crossbars of telephone poles 6 m above the ground. None of the trees in the vicinity provide stable nest sites that high above the ground. We suspect that possibly marginal conditions along the southern and southeastern edge of the range of the Monk Parakeet might well affect the nesting behavior of the species.

In localities in the United States such as North Carolina where "numerous individuals, pairs, and large flocks have been observed" (Simpson and Ruiz 1974:171), the records suggest occupancy of nests by single pairs of parakeets or small numbers of pairs. "Breeding pairs, with typical bulky nests located in silos and on utility or telephone poles, have been observed in Barnardsville, with two nests in 1972 and two in 1973, and in West Asheville, with two nests in 1972 and one in 1973" (Simpson and Ruiz 1974:171). Bull (1973:504) notes that "two (once as many as six) pairs seem to be the maximum . . ." in the United States. Gochfeld (1973:264) states that "two to four pairs is the usual number in the New York area." However, Roscoe et al. (1974:21) reported a Long Island nest that housed 7 pairs. We hypothesize that "pioneer" Monk Parakeets in the U.S. start nesting activities in the northern hemisphere fall (austral spring) and that upon subsequent adjustment of their nesting cycles to the northern hemisphere seasons, they develop family colonies that build nests occupied by larger numbers of pairs.

Throughout their range, Monk Parakeets show wide variation in selection of nest sites. In part this variability is related to the availability of suitable trees and in part it is in response to relentless persecution of the parakeets, particularly in Buenos Aires province but also in other parts of their range. Earlier descriptions of the nesting habits of Monk Parakeets in Buenos Aires province mentioned that the preferred nest sites were in tala (*Celtis spinosa*) trees (Daguerre 1936:281; Orfila 1937:379-380; Dabbene 1918:112).

Daguerre (1936:282) found 3 colonies of Monk Parakeets on Isla Martín García, all of which had built their nests at great heights in eucalyptus trees. Two years earlier, one of the colonies had nested in the lower branches, which had been cut, the nests dumped, and the young removed. As a result, the parakeets renested higher in the eucalyptus where the nest could be destroyed only by cutting down the tree. Daguerre learned of a similar instance in Dolores (Buenos Aires province) where the parakeets, nesting in the low branches of tala trees, had had their nests burned out and subsequently began nesting high in eucalyptus trees. The fact that Monk Parakeets continue to persist in Argentina in spite of the determined efforts of the government to reduce by various means (including netting, fire, dumping of nests, poison) their depredations on corn and other crops, reflects the adaptability or flexibility of their nesting habits.

In southern Buenos Aires province, the habit of nesting on telephone poles instead of in the branches of the low trees in the Monté vegetation may be related both to the shortage of appropriate nesting sites and to the nesting habits of *Anumbius*.

Gibson (1880:5) noted of Monk Parakeets that "the new nests consist only of two chambers, the porch and nest proper, and are built and inhabited by

a single pair of birds. These become gradually added to, till plenty of them come to weigh perhaps a quarter of a ton each and are of a bulk enough to fill a large cart. Thorny tala twigs (no branches), firmly interlaced, form the only material . . ." Dabbene (1918:112) stated that Monk Parakeets nest colonially, building at first a single nest to which others are attached so that altogether they form an enormous mass of interlaced sticks of more than 1.5 m in height and the same in width suspended from the topmost branches of tala trees.

Apparently, the multiple or colonial nest of Monk Parakeets starts off with a single nest which forms a nucleus for—and a stimulus for—the construction of additional nests attached to it. In short, the colony does not start collectively to build a multiple nest; instead, it requires the initial stimulus of a first nest. We suspect that in the southern panhandle of Buenos Aires province, the bulky stick nests of *Anumbius* are surrogate first parakeet nests around which there is room only to attach a second nest. The only 3 parakeet nests we saw in southern Buenos Aires province were in association with *Anumbius* nests.

In other parts of their range, Monk Parakeets have nesting associates, principally a teal (*Anas flavirostris*), tree ducks (*Dendrocygna*) (Friedmann 1927:177), and an arboreal opossum. But these and possibly other species are associated with the parakeet nests secondarily rather than having been the initial stimuli for their construction.

The only other instance known where the parakeets build their nests in association with the nest of another species was mentioned by Naumburg (1930:128) who commented that "infrequently, the construction of new brood-chambers begins at the top, the structure being built downward from the bottom of the jabiru stork's (*Jabiru mycteria*) nest, which forms a roof over all."

SUMMARY

A small colony of Monk Parakeets (*Myiopsitta monachus catita*) was found in the Monté region of the southern panhandle of Buenos Aires province near José S. Casás in October 1960. The parakeets constructed nests on telephone poles in association with the nests of Firewood Gatherers (*Anumbius annumbi*). Each duplex nest consisted of an *Anumbius* nest to which parakeets added a nest of their own; the latter included a separate nest cavity and entrance tunnel constructed of freshly cut thorny branchlets. The *Anumbius* nests appeared to provide the stimulus for nest building by the Monk Parakeet.

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LITERATURE CITED

- BULL, J. 1973. Exotic birds in the New York City area. *Wilson Bull.* 85:501-505.
- DABBENE, R. 1918. Sobre una curiosa costumbre de nidificación del "pato barcino chico" *Nettion flavirostre* (Vieillot). *Hornero* 1:111-114.
- DAGUERRE, J. B. 1936. Sobre nidificación de aves de la Prov. de Buenos Aires. *Hornero* 6:280-288.
- FRIEDMANN, H. 1927. Notes on some Argentina birds. *Bull. Mus. Comp. Zool.* 68:139-236.
- GAZARI, R. R. 1967. Notas sobre algunas aves no señaladas o poco conocidas al sur del Río Colorado. *Hornero* 10:451-454.
- GIBSON, E. 1880. Ornithological notes from the neighborhood of Cape San Antonio, Buenos Ayres . . . *Ibis* 4 (4th series):1-38.
- GOCHFELD, M. 1973. Ecologic aspects of ectopic populations of Monk Parakeets (*Myiopsitta monachus*) and possible agricultural consequences. *J. Agric. Univ. P. R.* 57:262-270.
- NAUMBURG, E. M. B. 1930. The birds of Matto Grosso, Brazil, a report on the birds secured by the Roosevelt-Rondon Expedition. *Bull. Am. Mus. Nat. Hist.* 69:1-432.
- ORFILA, R. N. 1937. Los psittaciformes argentinos. *Hornero* 6:365-382.
- ROSCOE, D. E., J. B. ZEH AND W. B. STONE. 1974. Monk Parakeets—unwanted immigrants. *Anim. Kingdom* 77(1):20-24.
- SIMPSON, M. B., JR. AND R. C. RUIZ. 1974. Monk Parakeets breeding in Buncombe County, North Carolina. *Wilson Bull.* 86:171-172.
- SOLBRIG, O. T. 1976. The origin and floristic affinities of the South American temperate desert and semidesert regions. *In* *Evolution of Desert Biota* (David W. Goodall, ed.), Univ. of Texas Press, Austin.

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