

SEASONAL FLOCK SIZES OF NATURALIZED MITRED PARAKEETS (*ARATINGA MITRATA*) IN LONG BEACH, CALIFORNIA

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Flocks of naturalized parrots and parakeets are today a common sight in much of suburban southern California (Garrett 1986, Johnston and Garrett 1994). Hardy (1973) reported six species to be commonly encountered, and today that list includes at least 10 species (Garrett 1997, Johnston and Garrett 1994). One of the well-established and common species is the Mitred Parakeet or Conure, *Aratinga mitrata* (Garrett 1997, pers. obs.). There is little detailed information available on this species, even in its native range in the subtropical zone east of the Andes from central Peru south to northwestern Argentina (Forshaw 1989). We present here information on the seasonal variation in flock size of Mitred Parakeets in Long Beach from 1988 to 1995; their food habits are considered elsewhere (Garrett et al. 1997).

METHODS

Our study area was largely within a 4-mile radius of California State University, Long Beach (CSULB), in east Long Beach, Los Angeles Co., and included the campus and parts of the Los Altos and Belmont Shore sections of the city. Mitred Parakeets have been present in this area since before 1980 (pers. obs.). Early accounts were of a small group of perhaps only four to eight individuals, and the population stayed at this level for several years, until a flock of 15 was sighted at CSULB in December 1987 (pers. obs.). Our more detailed observations were made from 2 January 1988 until 16 December 1995 with a few additional observations being made in November 1996. Observations were made largely on an opportunistic basis, with data recorded on flock size, time of day, direction of flight or, if perched, the type of tree the flock was utilizing and if the tree was also a food source. A total of 422 separate encounters were recorded on field data sheets and transferred to Microsoft Excel spreadsheets for analysis.

RESULTS

The maximum Mitred Parakeet flock size per year ranged from a low of 25 individuals in 1988 to a high of 42 in 1994 (Figure 1). Flocks of 40 to 50 individuals were observed at CSULB on two occasions in November and December 1996 (Collins pers. obs.), but the parakeets were moving back and forth between several *Eucalyptus* trees, and exact flock sizes could not be determined. The largest flocks were consistently observed in mid-winter, when all of the parakeets appeared to be traveling in a single flock. The annual mean flock size was substantially lower (Figure 1), ranging from 9.6 individuals in 1993 to 20.7 in 1991. These lower values reflect the fact that

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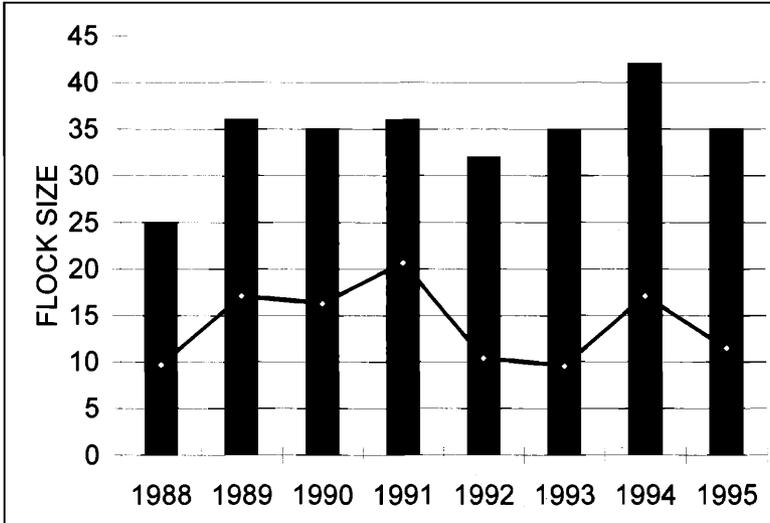


Figure 1. Annual maximum flock size (dark bars) and annual mean flock size (solid line) of Mitred Parakeets in Long Beach, California, 1988–1995.

small flocks may be encountered at all times of the year and that there is a pronounced seasonal change in flock size. Flocks reached their largest size from November to February (Figure 2). By March and April smaller and smaller groups of parakeets were observed. This trend continued until mid-summer, July and August, when there were regular sightings of groups of fewer than five individuals (Figure 2). In these cases it seemed to be one or two pairs loosely accompanied by single individuals that may have represented fledged young. By early fall, the parakeets appeared to aggregate into ever larger groups, reaching peak sizes for the year in mid-winter (Figure 2).

DISCUSSION

The results of this study show that there has been a dramatic increase in the population of Mitred Parakeets in the east Long Beach area over the past 15+ years. Since these observations are of unmarked birds it was not possible to determine actual rates of recruitment or dispersal. Although no nests have been observed, it seems logical to assume that most, if not all, of the observed increases are due to reproduction and recruitment of young into the flock. Unique rasping calls heard from some members of the flock during late fall may have been from fledged young, as noted in *Amazona* flocks by Mabb (1997a, b). Collins observed a copulating pair of these parakeets CSULB in March 1990. The near stability of the flock at a maximum of approximately 35 birds for five years (Figure 1) suggested that some dispersal was occurring. Reports by other observers of Mitred Para-

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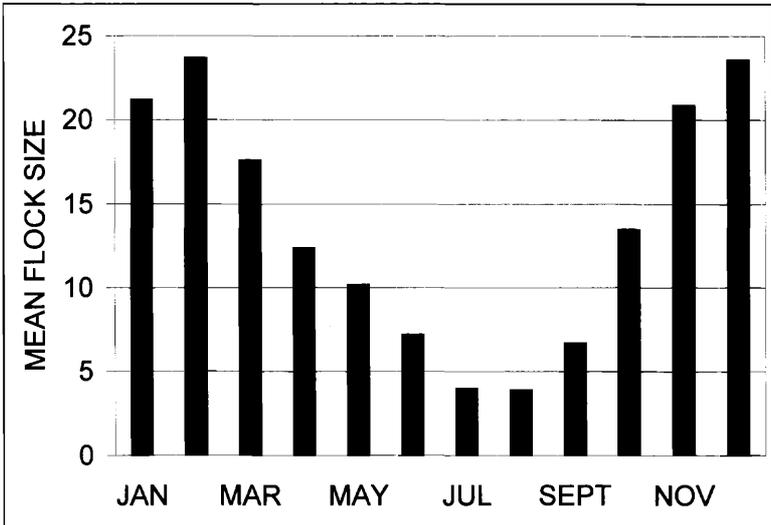


Figure 2. Monthly mean flock size of Mitred Parakeets in Long Beach, California, 1988–1995.

keet groups in areas not far from our study area, e.g., Lakewood Mall, but outside the expected daily foraging range of our study group, tended to support this idea. Details are lacking, however, and dispersal from natal areas and the formation of new flocks remains a topic for future study. Mitred Parakeet flocks have also been reported from such nearby (> 10 miles away) areas as Norwalk, Garden Grove, Cerritos and San Pedro (Garrett 1997, pers. comm.).

A seasonal change in daytime flock size, like that documented here, has also been noted for *Amazona* parrots in the San Gabriel Valley (Froke 1981, Mabb 1997a). These changes have been attributed to reproduction (Froke 1981, Mabb 1997b); large nocturnal roosts are maintained throughout the year (Mabb 1997a). In native environments parrots often form multispecies flocks (Forshaw 1989, Chapman et al. 1989). Large communal roosts may serve as information centers (Ward and Zahavi 1973). The information-center hypothesis suggests that birds congregate in larger groups to facilitate the exchange of information between group members, particularly when food resources are low or clumped and when such information would be most valuable. In Costa Rica, parrot flocks, away from large communal roosts, were smaller than expected during the time of food limitation (Chapman et al. 1989). These authors thought that rapid depletion of smaller clumped resources tended to counter the advantages of larger flocks and resulted in the smaller flocks they observed (Chapman et al. 1989). Some of the foods eaten by Mitred Conures in the Long Beach area, such as *Eucalyptus*, although patchily distributed, are quite abundant and not easily depleted. This would tend to promote the larger flock sizes we observed. It

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would be worthwhile, however, to determine if the larger flocks are maintained throughout the day, particularly when they feed on less abundant and potentially depletable food sources.

A majority of the observations reported in this study were made on the CSULB campus where the parakeets made extensive use of the several species of *Eucalyptus* trees planted as ornamentals. They made particular use of *E. sideroxylon* var. *rosea*, which provided a flower and nectar source during the winter months. Observations were also made at a favorite roosting place in a group of approximately 20 palms (*Trithrinax* sp.) near the junction of Ocean Blvd. and Livingston Blvd. in the Belmont Shore area. Kares observed the parakeets leaving this roost between 06:00 and 06:30 shortly after sunrise; they were frequently observed feeding on *Eucalyptus* flowers and nectar at CSULB within about an hour of this time.

Beyond this, the daily movements of these parakeets were not followed and clearly would be worth further study. The impression we got from our observations was that they did not stay at any one foraging location for long, usually less than 30 minutes, before moving on to other spots up to a mile or more away. Their movements were highly variable from year to year, presumably relating to localized food abundances. For example, the parakeets were frequently observed on the upper campus of CSULB during the winters of 1989–90 and 1990–91 when ornamental fig trees (*Ficus nitida retusa*) were fruiting. The parakeets have rarely utilized these same trees since then, probably because of low fruit production resulting from extensive pruning. Similarly, large flocks of these parakeets were observed in the CSULB *Eucalyptus* trees in the late fall of 1996 but rarely during the rest of the winter of 1996–1997. Again, this was presumably due to a shift in the availability of localized food sources and changes in the parakeets' daily foraging patterns to utilize them.

Nearly all of the food sources of these Mitred Parakeets were exotic trees planted in the area, mostly as ornamentals (Garrett et al. 1997). Accordingly, not much foraging competition between these parakeets and native bird species would be expected. Froke (1981) similarly felt that interspecific competition was not a significant factor in his nearby study area. The few interspecific interactions we observed were mostly between the parakeets and American Crows, *Corvus brachyrhynchos*, another species rapidly increasing in the southern California urban environment (pers. obs.). In each case the crow was the aggressor, often chasing parakeets from tree to tree.

The spread of naturalized parrots and parakeets in southern California is viewed with some apprehension, as some species have the potential to be serious agricultural pests. Studies of these free-ranging birds are still in their infancy and much more remains to be learned about the dynamics of these increasing populations.

Note added in proof: A flock of ca. 40 Mitred Parakeets was seen in the study area on 28 September 1997.

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