

# FOOD ITEMS OF NATURALIZED PARROTS IN SOUTHERN CALIFORNIA

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The increasing establishment of parrots in southern California, with populations now exceeding 2500 individuals in the greater Los Angeles area alone (Garrett 1997), suggests that impacts of these non-native species on food resources could become substantial. Although largely confined to highly modified urban and suburban habitats dominated by non-native flora, the several naturalized parrot taxa nevertheless may damage ornamental and commercial fruit trees and possibly compete with native bird species for food. Such concerns have led us to compile data on food use of parrots in the greater Los Angeles region of southern California, data we gathered while conducting research reported by Garrett (1997), Mabb (1997a, b), and Collins and Kares (1997).

Published data on parrot food items in California are few. Froke (1981) compiled food data for three *Amazona* species in the San Gabriel Valley. Particularly important items in his study included fruits, seeds, or flowers of the English Walnut (*Juglans regia*), Sweet Gum (*Liquidambar styraciflua*), Camphor (*Cinnamomum camphora*), Blue Gum (*Eucalyptus globulus*), juniper (*Juniperus* spp.), Western Sycamore (*Platanus racemosa*), and Pecan (*Carya illinoensis*). Arrowood (1981) listed some food items of "Canary-winged Parakeets" (*Brotogeris versicolurus/chiriri*) in southern Los Angeles County and San Francisco. The data we present are the first to include the complete taxonomic range of parrots naturalized in southern California; we provide data for nine species (no recent data were available for the Canary-winged Parakeet, *Brotogeris versicolurus* sensu stricto, which is marginally established in the region).

## METHODS

Foraging observations were ours, or reported to Garrett by numerous observers during his general surveys of the status and distribution of parrots in the greater Los Angeles area (Garrett 1997). Foraging observations are skewed toward the most abundant species (e.g., *Amazona viridigenalis*) or those residing in the most intensively studied areas (e.g., the San Gabriel Valley). The data are presented in the form of a matrix of food items and parrot species; because of uneven regional and taxonomic effort, we do not present quantitative data on food use but rather rank the usage of each item in four categories: no use noted, one to four observations, five to ten (or more) observations, and important or regularly used food sources, usually with >10 observations or >25% of all foraging observations of that species.

## RESULTS AND DISCUSSION

Table 1 shows the usage of food items for nine established parrot species in the greater Los Angeles region. The number of food items (excluding those at feeders) detected per species (Table 2) varies from three (Yellow-headed Parrot) and six (Red-masked and Blue-crowned parakeets) to 21 (Lilac-crowned Parrot), 24 (Red-crowned Parrot), and 32 (Mitre Parakeet; Figure 1), with a mean of 13.6 items per species. These numbers should not be interpreted as dietary breadths, as they appear to correlate mainly with the frequency with which the species is observed (which, in turn, depends largely on the parrot species' abundance). Dietary overlaps are great, and considerably more study, incorporating seasonal variation, is required to detect the ways in which parrot species might differ in resource utilization. More study is also needed to determine the degree of resource specialization by naturalized parrots in southern California. For example, Yellow-chevrons Parakeets (*Brotogeris chiriri*) predictably exploit the seeds (borne in large



Figure 1. Mitred Parakeet, *Aratinga mitrata*, feeding on fruits of *Myoporum laetum* in lower Zuma Canyon, Malibu, Los Angeles County, 24 September 1994.

Photo by Kimball L. Garrett

**Table 1** Parrot Food Items in the Greater Los Angeles Region<sup>a</sup>

Food	PK	NN	AA	AM	AE	BC	AF	AO	AV
Fruits/seeds									
Sycamore/plane tree	**	**		***	*		***		***
<i>Platanus</i> spp.									
Fig <i>Ficus</i> spp.				**			***		***
Sweet Gum		*		*			***		***
<i>Liquidambar styraciflua</i>									
Walnut <i>Juglans regia</i>	*			*		*	**	*	**
Oak <i>Quercus</i> spp.	*	*		*			**		**
Pecan <i>Carya illinoensis</i>							***		***
Apricot							***		***
<i>Prunus armeniaca</i>									
Magnolia	*	*		**			*		*
<i>Magnolia grandiflora</i>									
Chinaberry	*						*		**
<i>Melia azedarach</i>									
Catalina Cherry	*		*	*		*			*
<i>Prunus ilicifolia</i> ssp. <i>lyonii</i>									
Palms Araceae				*		*	*		*
Olive <i>Olea europaea</i>				*			*	*	*
Silk-floss Tree						***			
<i>Chorisia speciosa</i>									
Brazilian Pepper <i>Schinus</i> spp.			**	*					
Myoporum				**	*				
<i>Myoporum laetum</i>									
Redwood	*					**			
<i>Sequoia sempervirens</i>									
Cotoneaster			*	*	*				
<i>Cotoneaster</i> spp.									
Pine <i>Pinus</i> spp.				*			*		*
Sunflower		*	*	*					
<i>Helianthus</i> spp.									
Carob	*						*		*
<i>Ceratonia siliqua</i>									
Orchid tree	*						*		*
<i>Bauhinia</i> spp.									
Hackberry <i>Celtis</i> spp.				*	*				
Apple <i>Malus</i> spp.				*			*		
Cypress <i>Cupressus</i> spp.		*		*					
Camphor tree	*			*					
<i>Cinnamomum camphora</i>									
Carrotwood				*					*
<i>Cupaniopsis anacardioides</i>									
Chinese Elm	*					*			
<i>Ulmus parviflora</i>									
Alder <i>Alnus</i> spp.									*
Almond									*
<i>Prunus amygdalus</i>									
Ash <i>Fraxinus</i> spp.				*					
Avocado							*		
<i>Persea americana</i>									
Birch <i>Betula</i> spp.									*
Black locust				*					
<i>Robinia pseudoacacia</i>									
Bottlebrush									*
<i>Callistemon</i> spp.									

**Table 1** (Continued)

Food	PK	NN	AA	AM	AE	BC	AF	AO	AV
Coffeeberry									*
<i>Rhamnus</i> spp.									
Golden Arborvitae									*
<i>Thuja</i> spp.									
Juniper <i>Juniperus</i> spp.				*					
Kumquat				*					
<i>Fortunella</i> spp.									
Loquat				*					
<i>Eriobotrya japonica</i>									
Mimosa				*					
<i>Albizia julibrissan</i>									
Mulberry <i>Morus</i> spp.							*		
Norfolk Island "pine"				*					
<i>Araucaria heterophylla</i>									
Orange <i>Citrus sinensis</i>							*		
Peach <i>Prunus persica</i>				*					
Persimmon			*						
<i>Diospyros</i> spp.									
Pomegranate						*			
<i>Punica granatum</i>									
Primrose tree				*					
<i>Lagunaria pattersonii</i>									
Silver maple	*								
<i>Acer saccharinum</i>									
Tulip tree								*	
<i>Liriodendron tulipifera</i>									
Flowers/nectar									
Eucalyptus	*	*	*	*	*	*	**		***
<i>Eucalyptus</i> spp.									
Jacaranda						**	**		**
<i>Jacaranda acutifolia</i>									
Red Ironbark				***		***			
<i>Eucalyptus</i>									
Coral tree	*			*		*			
<i>Erythrina</i> spp.									
Lemon-scented Gum				*					*
<i>Eucalyptus citriodora</i>									
Acacia <i>Acacia</i> spp.							*		
Cape Honeysuckle					*				
<i>Tecomera capensis</i>									
Feeders									
Wildbird seed mix	**	*		*	*	**			
Sunflower (feeder)	*	*			*				
Peanuts (feeder)	*	*							
Corn		*							

<sup>a</sup>Within each category food items are listed by decreasing degree of use.

Key to parrot species: PK, *Psittacula krameri* (Rose-ringed Parakeet); AA, *Aratinga acuticaudata* (Blue-crowned Parakeet); AM, *A. mitrata* (Mitre Parakeet); AE, *A. erythrogastris* (Red-masked Parakeet); NN, *Nandayus nenday* (Black-hooded Parakeet); BC, *Brotogeris chiriri* (Yellow-chevroned Parakeet); AF, *Amazona finschi* (Lilac-crowned Parrot); AV, *A. viridigenalis* (Red-crowned Parrot); AO, *A. oratrix* (Yellow-headed Parrot).

Degree of usage: [blank], no usage detected; \*, one to four observations; \*\*, five to ten (+) observations; \*\*\*, important food item, usually with >10 observations or >25% of all foraging observations for that species.

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**Table 2** Number of Foods Recorded for Naturalized Parrots in Greater Los Angeles<sup>a</sup>

Parrot	Number of foods
<i>Psittacula krameri</i> <sup>b</sup>	14
<i>Nandayus nenday</i> <sup>b</sup>	7
<i>Aratinga acuticaudata</i> <sup>b</sup>	6
<i>Aratinga mitrata</i> <sup>b</sup>	32
<i>Aratinga erythrogenys</i> <sup>b</sup>	6
<i>Brotogeris chiriri</i> <sup>b</sup>	11
<i>Amazona finschi</i>	21
<i>Amazona viridigenalis</i>	24
<i>Amazona oratrix</i>	3

<sup>a</sup>Not including items at feeders.

<sup>b</sup>Also noted at seed feeders.

Pods) of the Silk-floss Tree (*Chorisia speciosa*; Figure 2), but the degree to which their survival in the region depends on this common ornamental tree is unknown.

The mean number of parrot species using a particular food item (excluding seeds at feeders) was 2.2. For this calculation all *Eucalyptus* were treated as one food item, though specialization within that genus likely (e.g., some parrots using the nectar-rich red flowers of *E. ficifolia*, others chewing the unopened flower capsules of *E. globosus* or other species). Especially important food sources for naturalized parrots in southern California identified in this study include *Eucalyptus* spp., walnut (*Juglans regia*), sycamore (*Platanus racemosa*, but probably also exotic plane trees, *Platanus × acerifolia*), oak (*Quercus* spp.), Sweet Gum (*Liquidambar styraciflua*), Magnolia (*Magnolia grandiflora*) olive (*Olea europaea*), and various palms (Araceae). Seed provided at feeders is a frequent food item of the small and medium-sized species (*Brotogeris*, most *Aratinga*, *Nandayus*, *Psittacula*), but not of *Amazona* parrots.

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### LITERATURE CITED

Arrowood, P. C. 1981. Importation and status of Canary-winged Parakeets (*Brotogeris versicolorus* [sic] P. L. S. Muller) in California, in Conservation of New World Parrots (R. F. Pasquier, ed.), pp. 425–429. ICBP Tech. Publ. 1.

Collins, C. T., and L. M. Kares. 1997. Seasonal flock sizes of naturalized Mitred Parakeets (*Aratinga mitrata*) in Long Beach, California. *W. Birds* 28:218–222.



Figure 2. Yellow-chevroned Parakeet, *Brotogeris chiriri*, at seed pods of Silk-floss Tree, *Chorisia speciosa*, in Exposition Park, Los Angeles, 6 April 1989.

*Photo by Kimball L. Garrett*

Froke, J. B. 1981. Populations, movements, foraging and nesting of feral *Amazona* parrots in southern California. M.S. thesis, Humboldt State University, Arcata, CA.

Garrett, K. L. 1997. Population status and distribution of naturalized parrots in southern California. *W. Birds* 28:181-195.

Mabb, K. T. 1997a. Roosting behavior of naturalized parrots in the San Gabriel Valley, California. *W. Birds* 28:202-208.

Mabb, K. T. 1997b. Nesting behavior of *Amazona* parrots and Rose-ringed Parakeets in the San Gabriel Valley, California. *W. Birds* 28:209-217.

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