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FIRST ACCOUNT OF A NESTING POPULATION OF MONK PARAKEETS, *MYIOPSITTA MONACHUS*, WITH NODULE-SHAPED BILL LESIONS IN KATEHAKI, ATHENS, GREECE[1]

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Abstract. A population of Monk Parakeets is herein documented for the first time in Greece. These birds were found nesting in Parko Scholis Chorofylakis Dimotiko, Katehaki, Athens, a location likely where the population founders' originated from an existing zoological garden. Characteristics of the population (21 birds) were its high site fidelity, earlier fledging date (no later than 12 June 2010), and higher than average number of fledglings per pair (1.9 per pair) than reported for populations elsewhere. Also of importance was the presence of bill lesions on adult individuals who were feeding fledglings. Disease in naturalized parrot populations is not well documented. Monk Parakeet incidence and pattern of disease is important to define their role as disease reservoirs in new areas and likewise, how they, themselves, are impacted by existing avian disease in host ecosystems.

Key words: bird disease, Greek birds, Monk Parakeet, non-native birds, parrots, urban birds

PRIMER REGISTRO DE ANIDACION DE LA COTORRA ARGENTINA EN GRECIA, INCLUYENDO INDIVIDUOS CON LESIONES EN EL PICO

Resumen. Documentamos por primera vez la presencia de una población de cotorras argentinas (Myiopsitta monachus) en Grecia. Las aves fueron encontradas anidando en Parko Scholis Chorofylakis Dimotiko, Katehaki, Atenas, localidad de origen de los fundadores de la población desde un parque zoológico. La población (21 individuos) se caracteriza por una marcada filopatría, una fecha más temprana de abandono del nido (antes del 12 de junio 2010) y un mayor número de pollos

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por pareja (1.9) que en otras poblaciones. También documentamos la presencia de lesiones en el pico de los individuos adultos que alimentaban a los volantones. Las enfermedades en poblaciones naturalizadas de loros no están bien documentadas. La incidencia de cotorras argentinas y enfermedades asociadas son importantes para determinar su papel como reservorios de patógenos en áreas nuevas, así como evaluar el impacto sobre ellas mismas de las enfermedades aviares en los ecosistemas colonizados.

Palabras clave: enfermedad aviar, aves griegas, cotorra argentina, aves exóticas,

INTRODUCTION

The Monk Parakeet (*Miyopsitta monachus* Boddaert 1783) is among the most geographically widespread naturalized parrot worldwide. Occurring in more than five European countries (Diederik and Erik 2009), no populations have heretofore been reported for Greece. However, in 2010 a small population was found by the author in Athens, Greece, and reported here are characteristics of this colony. Monk Parakeet Monk Parakeet

METHODS

The population of Monk Parakeets was located in Parko Scholis Chorofylakis Dimotiko, (park center, latitude 37°59'21.46"N, longitude 23°46'14.73"E; Google Inc. 2010), planted with mostly mature, 12 to 20 m Aleppo pine (*Pinus halepensis*) creating a 75% closed canopy (Fig. 1). The dimensions of the forested park were approximately 237 m along its Mesogeion Boulevard northern border, 190 m along its Trikalon Street western border, 130 m along an access road on the southern border, and 315 m along an unnamed paved road on the eastern boarder (Google Inc. 2010). Monk Parakeet observations were opportunistically collected by walking the park's formal pathways for half-days on June 8, 12, 19, 25 and July 12, 2010 usually between 11:00 – 16:00 or 14:00 – 18:00. A Canon GL-2 video camera with a 2.2x telephoto filter and a Canon digital still camera were used to document the observations and provide enhanced viewing opportunities. During the observation days, daytime temperatures were about 32º and evening temperatures about 24º C. There was no precipitation after 15 June. Wind speed was low, approximately 1 Beaufort (1-5 km/hr).

RESULTS

HABITAT.

The surrounding area was heavily urbanized with multi-story buildings. Trees surrounding the park included dozens of Mediterranean redbud tree (*Cercis siliquastrum*) planted along Mesogeion Boulevard, mature fruiting Eucalyptus (*Eucalyptis spp.*), and Ironwood trees (*Casuarina spp.*) to the south of the park. The Parko Scholis Chorofylakis Dimotiko contained a small zoological garden (Fig. 1) with well

FIGURE 1. Aleppo pine forest at the zoological garden within the Parko Scholis Chorofylakis Dimotiko. Monk Parakeet nest structures were present in these trees.

maintained multi-enclosure aviaries housing other parrots, including Monk Parakeets. One of the latter captives had bill lesions, identical to some of the wild parakeets, and game birds. The presence of Monk Parakeets in the aviary indicates that the zoological garden may be the source of the founders of the wild population. There was also a tub of water for a pony that was accessible to the wild Monk Parakeets at any time of the day. During my observations the wild Monk Parakeets did not land upon the zoological garden aviaries nor did they detectably communicate with the captive Monk Parakeets.

The city of Athens, Greece, experiences a Mediterranean climate with cool rainy winters and very hot, dry summers (Founda et al. 2004). Monk Parakeets tolerate temperate climates very well (Weathers and Caccamise 1975, Hyman and Pruett-Jones 1995). However, summertime temperatures in Athens can be extreme, commonly reaching 40º C or higher (Founda et al. 2004), with a highest temperature of 48º C on 10 July 1977 (Sarantopoulos 1977) and <10 mm of rain in each of the months of June - September (Mean monthly precipitation Athens, Greece 2009). Weathers and Caccamise (1975) showed that Monk Parakeets rapidly lost weight if deprived of water and concluded that Monk Parakeets are appropriately adapted to colonizing most habitats except for waterless deserts. The summertime climate in Athens is similar to a waterless desert and, therefore, Monk Parakeets at this location may be more dependent upon artificial sources of water, such as from the in-park zoological garden, potentially slowing their dispersal away from the Parko Scholis Chorofylakis Dimotiko. This may help to explain the clumped pattern of nest placement exclusively around the zoological garden. Monk Parakeet nest structures were no more than 200 m from any other nesting structure and from the zoological garden within the Parko Scholis Chorofylakis Dimotiko. This nest placement (dispersal pattern) was much denser than the dispersal distances of between 300 m and 1230 m in their native Argentinean habitat (Martin and Bucher 1993). Surrounding urban parks <1000 m away from the Parko Scholis Chorofylakis Dimotiko had similar vegetation structure (Aleppo Pine) and abundant natural food (pine seeds, figs, weed seeds), but they did not have a water source. The presence of water at the zoological garden may well contribute to the concentration of nests and persistence of population members at the zoological garden in the Parko Scholis Chorofylakis Dimotiko. However, in Chicago, Illinois, U.S.A., where rainfall is more evenly distributed throughout the year, naturalized Monk Parakeets also build nest structures in an aggregated distribution (Hyman and Pruett-Jones 1995). Thus, other factors may be responsible for the low dispersal tendencies, namely, release site fidelity.

Monk Parakeets, compared to other parrot species, do not normally disperse far from their natal locations (Martin and Bucher 1993). Several naturalized populations of parrots in the Hawaiian Islands exhibit remarkable fidelity to the location from which they were released (Author pers. obs., Runde and Pitt 2008), thus the strong trend of the Katehaki Monk Parakeet population to nest very close to one another may be based upon this tendency. The choice to cluster nest structures around the in-park zoological garden may also be related to the lower tree density in that portion of the park. This tree spacing allows nest-occupying parakeets better visibility and predator escape.

PARAKEET ACTIVITY.

Monk Parakeet activities during the observation periods included tree and ground foraging, feeding fledglings and roosting in park trees. There was a marked absence of nest structure maintenance; only one pair, on one occasion, flew to a nest carrying nest material. Monk Parakeets foraged on a diverse array of plants: they were seen frequently foraging on the seeds of open Aleppo pine cones; 12 were seen foraging on mature, unripe fig fruit from a wild Capri fig tree (*Ficus carica*); and two fed upon dry Mediterranean red-bud tree legumes. Monk Parakeets also frequently foraged on weed seeds in the park under pine trees in groups of four to eight birds. Feral Rock Pigeon (*Columba livia*) also ground-foraged in these same locations.

POPULATION AND NESTING.

Fledgling Monk Parakeets were identifiable due to their shorter central retricies, begging

behaviors, and white eye-ring (Hyman and Pruett-Jones 1995). While perched in an ironwood tree, a single adult fed three fledglings, another adult parakeet in a pine tree fed two fledglings, another pair fed one fledgling at the nest structure in a pine tree as another fledgling looked out from the chamber entrance and two adults with nodule-shaped lesions at the base of the bill (Fig. 2) fed two fledglings in a pine tree. The nodule-shaped lesions present on the two parakeets were pink and red colored, smooth, and clustered around the base of the bill at the gape (Fig. 2). The number of fledglings per pair out of four pairs in this population was above the average number of 1.5 fledglings per pair reported from wild-reproducing Monk Parakeets in Argentina (Navarro et al. 1992). In Chicago, the first date of fledging was on 2 July (Hyman and Pruett-Jones 1995). In this Athenian population, flock-flying fledglings were present from 12 June and possibly earlier, since flighted fledglings were present at the start of the observation period.

I estimated a minimum of 21 Monk Parakeets in the population by counting all birds seen or heard at one time so as to avoid duplicate counts. It was likely that there were more than 21 parakeets in the entire population. There were nine different nest structures, each in a different Aleppo pine. One or two adult parakeets flew to each nest structure. All nest structures had one entrance, though one nesting structure had two. Among other populations 1-2 parakeets at each nest entrance has been reported (see Martella 1985, Navarro et al. 1992, Hyman and Pruett-Jones 1995) but in contrast the Parko Scholis Chorofylakis Dimotiko structures had low number of nest chambers. Within a group of 12 active nests, in Spain, there were nest structures with two, three, and up to eight chambers (entrances) (Nores 2009) and in Chicago from one to seven chambers with usually an average of 1.8 active chambers per nesting structure (Hyman and Pruett-Jones 1995). Explanations for the smaller nest structure sizes in the Parko Scholis Chorofylakis Dimotiko may be due to the smaller size or growth complexity of park Aleppo pine host trees. Monk Parakeets in Barcelona, Spain, strongly favored the construction of nesting structures in the tallest *Phoenix* spp. palms even when there were Aleppo pines present (Sol et al. 1997). It may be possible that Aleppo pines in this park are not as suitable for construction of large, multi-chambered nest structures based upon this preference. Alternatively, Monk Parakeets may only add additional chambers to a nesting structure after the population becomes larger, when suitable nesting trees become less available (Author speculation).

FIGURE 2. A wild adult Monk Parakeet, photographed in Athens, showing nodule-like pink lesions at the base of the bill.

INDICATIONS OF DISEASE.

One pair feeding fledglings had multiple-clustered swollen pink and red-colored nodule-shaped lesions at the base of their bills indicating chronic illness. These symptoms are often a sign of avian pox (Pawar et al. 2010). Their close proximity to a wide variety of captive domesticated and wild-caught bird species in the zoological garden aviaries and/or close contact with areas where Rock Pigeons ground-forage might have increased avian pox exposure and/or facilitated inter-species transmission (Pawar et al. 2010). Monk Parakeets also come in close contact with feral Rock Pigeons in other urban areas (Nores 2009), adding broader relevance to this finding. Species present in the

zoological garden aviaries included but were not limited to: Indian Peafowl (*Pavo cristatus*), domestic chickens (*Gallus gallus domesticus*), Rock Partridge (*Alectoris graeca*), Burrowing Parrot (*Cyanoliseus patagonus*), Rose-ringed Parakeet (*Psittacula krameri manillensis/ borealis*), Cockatiel (*Nymphicus hollandicus*); Monk Parakeet, and Peach-faced Lovebird (*Agapornis roseicollis*). One Monk Parakeet in the aviary exhibited similar nodule-shaped lesions at the base of the bill identical to what wild individuals had. Since only Monk Parakeets (caged and wild) were seen to have such bill lesions out of all the other captive bird species it is conceivable that the ailment might be specific to parrots.

As well, psitticine beak and feather disease (PBFD) is important to consider when encountering parrots that have skin, bill or feather abnormalities; skin abnormalities around the bill can be the first signs of PBFD (Ortiz-Catredral et al. 2010). PBFD is endemic to parrots and has been found in approximately 40 captive and wild parrot species (Ortiz-Catredral et al. 2010). Wild Australasian and African species are most commonly infected but the traffic in wild – caught parrots in the pet bird trade have led to the proliferation of the disease in parrot species from most geographic regions (Ortiz-Catredral et. al 2010). The virus causes weight loss, keratin structure defects (bill, feathers) (Kock et al. 2010) and the destruction of lymph material resulting in immune system suppression (Ritchie et al. 2003). The cause of death is usually by secondary infection (Ritchie et al. 2003), though wild birds would probably succumb to predators or starvation first. That said, the wild and captive Monk Parakeets with the bill lesions were in perfect plumage, had no abnormalities to the bill itself, and appeared to be at normal weight and activity levels. Nonetheless, the presence of pox-like nodules/lesions in an adult reproducing pair allude to their ability to potentially serve as a reservoir for disease in this locality, though further investigation is required to confirm the disease agent causing the nodules/lesions.

DISCUSSION

Potential water and food resources may limit Katehaki Athens Monk Parakeet geographic distribution to urban parks as in Spain (Sol et al. 1997). Nonetheless, they are successfully reproducing and if the trend continues, their numbers will likely increase in the future. This population of Monk Parakeets, a significant new record for Greece, provides a unique opportunity to study the population growth and pattern of range expansion of a species from its release point. Additionally, this study is, to the author's knowledge, one of the first documenting potential chronic disease in reproducing, naturalized Monk Parakeets.

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