

# Booking.com®: a fake mega arboreal termitaria as an unusual nesting site for the Peach-fronted parakeet, *Eupsittula aurea* (Psittacidae)

**Franco Leandro Souza**

Universidade Federal de Mato Grosso do Sul  
Centro de Ciências Biológicas e da Saúde  
CEP 79070-900, Campo Grande – MS, Brasil  
cariama007@gmail.com

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## Resumo

**Booking.com®: um falso mega-termitário arbóreo como local incomum para nidificação do periquito-rei, *Eupsittula aurea* (Psittacidae).** Áreas urbanas transformam as paisagens naturais em habitats desafiadores para diversas espécies, por meio da eliminação e/ou substituição de recursos nativos, tais como cavidades naturais para espécies que nidificam em ocos. Este artigo descreve um sistema de refrigeração como um local incomum para a nidificação do periquito-rei *Eupsittula aurea*, na região Centro-Oeste do Brasil. Embora a nidificação não tenha sido efetiva, a escolha do local pode ser um reflexo das alterações ambientais que ocorrem no Cerrado.

**Palavras-chave:** Cerrado; Ecologia urbana; Nidificação; Periquito-rei; Termitário

## Abstract

Urban areas turn natural landscapes into challenging habitats for many species, by eliminating and/or replacing native resources, such as natural cavities for hollow-nesting species. This article describes a refrigeration system as an unusual nesting site for the Peach-fronted parakeet, *Eupsittula aurea*, in the Central-West of Brazil. Although nesting has not come into effect, site selection may reflect environmental changes occurring in the Cerrado.

**Key words:** Cerrado; Nesting; Peach-fronted parakeet; Termite; Urban ecology

Urbanization is a dynamic process that leads to severe landscape modification (biotic and abiotic changes) and, as consequence, biodiversity loss and species turnover (SILVA et al., 2016). Urban development can promote biotic homogenization, where few species (non-native and native ones) adapt to urban and suburban conditions and become locally abundant

and widely distributed (ARONSON et al., 2014). So, urban areas turn natural landscapes into challenging habitats for species by eliminating and/or replacing native resources. Among such resources, cavities in hills and tree trunks are significant habitat structures for hollow-nesting species (DAVIS et al., 2014).

The Cerrado is a biodiversity hotspot where significant threats have been detected due to land conversion for agriculture and pasture as well as urban expansion (KLINK; MACHADO, 2005). Cerrado harbors a relatively high diversity of Psittacidae species, including the Peach-fronted parakeet, *Eupsittula aurea*. This species is found throughout most of central, southeastern, and northeastern Brazil (COLLAR, 1997), and it is seemingly well-adapted to urban areas where several food sources are available (PARANHOS et al., 2009). However, foraging in anthropic landscapes may affect reproductive success, because it is hard to find optimal nesting sites in urban areas (SANCHEZ-MARTINEZ; RENTON, 2009). The Peach-fronted parakeet nests almost exclusively in arboreal (Figure 1A) or epigeal termitaria (termites nests) (COLLAR,

1997; PARANHOS et al., 2008), suggesting a commensal association between birds and termites (SAZIMA; D'ANGELO, 2015; VASCONCELOS et al., 2015). This article describes a refrigeration system as an unusual nesting site for the Peach-fronted parakeet in an urban area.

The observation took place on the morning of May 8, 2016, in a street located at a central district of Campo Grande, Mato Grosso do Sul, Brazil (coordinates: 20°26'47.8"S; 54°35'28.1"W). The evaporative refrigeration system, which is usually employed in commercial settings, was about 1 m<sup>2</sup>, 0.5 m wide; it was positioned around 4 m above the floor, and at least 5 holes made by parakeets were observed, 4 in the frontal area and 1 in the side area (Figure 1B).

FIGURE 1: A typical arboreal termitaria (A); a Peach-fronted parakeet, *Eupsittula aurea*, exploring a fake mega-arboreal termitaria (a refrigeration system) in Campo Grande, Brazil (B); notice the four holes in the "termitaria" and a parakeet almost completely inside it (the tail is visible); the folded cellulose pads that regulate heat exchanges in the evaporative cooling process (C) resemble the arboreal termitaria (D) in terms of design and robustness. Source: Author's private collection.



The evaporative cooling process uses porous material such as folded cellulose pads as the main component to regulate heat exchange (TINÔCO et al., 2002). In a raw inspection, such cellulose pads resemble arboreal termitaria walls in terms of design and robustness (Figure 1C, D). The equipment's height, as well as its width, length, and material, may led the parakeets to regard it as a fake mega-arboreal termitaria.

This urban fake arboreal termitaria had around 500 L, it was almost 4 times larger than a natural arboreal terminaria reported as a nesting site for parakeets (BRIGHTSMITH, 2000; SANCHEZ-MARTINEZ; RENTON, 2009). Although a termitaria volume is not usually a good predictor of parakeet nesting site selection, in anthropic landscapes these structures are larger than in preserved environments (SANCHEZ-MARTINEZ; RENTON, 2009). Also, vegetation and habitat around arboreal termitaria may influence the parakeet's nesting site selection (BRIGHTSMITH, 2000; SANCHEZ-MARTINEZ; RENTON, 2009). Thus, the presence of termitaria in a given area is not enough to safeguard the reproduction of parakeets, because most of them do not provide good nesting conditions, such as protection against predators and favorable microclimatic features within these structures (NOIROT; DARLINGTON, 2000). In anthropic landscapes, such as cities, the number of exotic trees can be twice bigger than that of native species (SANTOS et al., 2010) and it has not been reported whether such alien flora can supply the physical structure required by an arboreal termites community. Therefore, termitaria density tend be smaller than that in natural landscapes and artificial structures functionally similar to natural termitaria (like the refrigeration system) may draw parakeet's attention as potential nesting sites.

The refrigeration system was turned off and the parakeets leaved the area after one week of observation and returned one month later. So, it seems that the "termitaria" was not as adequate as we might imagine at a first glance, since nesting has not come into effect and reproductive success has not been observed. Species living in urban areas experience natural selection due to novelties derived from anthropic landscapes (WINCHELL et al., 2016). It is an intriguing question

whether this fake arboreal termitaria attracts only naive visitors or the birds explore it on a regular basis. This report of Peach-fronted parakeets' nesting site selection may reflect environmental changes occurring in the Cerrado.

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