TROPICAL KINGBIRD (TYRANNUS MELANCHOLICUS) FEEDING A FLEDGLING WITH BLUE PASSIONFLOWER (PASSIFLORA CAERULEA) FRUIT

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ABSTRACT.- The Tropical Kingbird (Tyrannus melancholichus) feeds mostly on flying insects, but it can also supply its diet with other arthropods, fruits, and even small vertebrates. Despite being one of the most common birds in the Neotropics, knowledge about its foraging behavior is scarce. In December 2020, we observed and videotaped an adult feeding a fledgling with pulp and seeds of Blue Passionflower (Passiflora caerulea) in Ranchos, northeastern Buenos Aires province, Argentina. The whole event lasted 3:37 min. This is the first time that this foraging and breeding behavior is reported for the Tropical Kingbird.

KEYWORDS: frugivory, Ranchos, seed dispersal, Tyrannidae

RESUMEN.- SUIRIRÍ REAL (TYRANNUS MELANCHOLICUS) ALIMENTANDO UN VOLANTÓN CON FRUTO DE Pasionaria (PASSIFLORA CAERULEA). El Suirirí Real (Tyrannus melancholichus) se alimenta principalmente de insectos que captura en vuelo, aunque puede suplementar su dieta con otros artrópodos, frutos e incluso pequeños vertebrados. A pesar de ser una de las aves más comunes del Neotrópico, los estudios sobre su comportamiento de forrajeo son escasos. En diciembre de 2020, observamos y grabamos en video a un adulto alimentando a un volátil con pulpa y semillas de frutos de Pasionaria (Passiflora caerulea) en Ranchos, noreste de la provincia de Buenos Aires, Argentina. El evento duró 3:37 minutos. Esta es la primera vez que se registra este comportamiento de forrajeo y alimentación en el Suirirí Real.

Knowledge about the ecology of Neotropical birds is still scarce, particularly that related to foraging behavior (Stutchbury and Morton 2008). Although numerous studies have contributed with information on the ecology of Neotropical birds in the last decade (Stotz et al. 1996, Reboreda et al. 2019, Michel et al. 2020), this information is still limited compared with the data compiled about birds in temperate regions (Lees et al. 2020).

The Tropical Kingbird (Tyrannus melancholichus) is a common and widespread species in the Neotropics, ranging from southern North America to Argentina (Ridgely and Tudor 1989). It is found in a great variety of habitats including forest edges, open forests and even human-modified landscapes, from deserts to wet lowlands and at altitudes of more than 3000 masl (Stouffer et al. 2020). Both the northernmost and southernmost populations are migratory; the populations from Argentina migrate north during the southern winter after breeding (Stouffer et al. 2020). The Tropical Kingbird is mainly insectivorous and it is one of the most specialized flycatchers, foraging by sallying large insects (Fitzpatrick 1980, Mathura et al. 2005, Jahn et al. 2010). Like other members of the family Tyrannidae, it often supplements its diet with fruits (Moermond and Denslow 1985, Palacio et al. 2017) and more rarely with vertebrates, such as fish (González-Oreja and Jiménez-Moreno 2018) and lizards (Ramírez-Fernández et al. 2019). Even though the Tropical Kingbird is a common, abundant, and conspicuous species in the Neotropics, its foraging ecology and diet remain poorly studied (Stouffer et al. 2020).

In this paper, we present the first record of fruit consumption by a Tropical Kingbird fledgling. In particular, we report observations of a Tropical Kingbird adult feeding a fledgling with a Blue Passionflower (Passiflora caerulea) fruit in northeastern Buenos Aires province, Argentina. We also provide detailed information about the foraging behavior observed, including fruit consumption rates and fruit-handling behavior.

Observations were made with a Sony HDR-CX440 handycam on 29 December 2020, at 7:08 h in the backyard of a house in Ranchos, Buenos Aires, Ar-
gentina (35°30'W, 58°19'S). The record was made in an urban, highly modified area on the outskirts of the town. The plant was located on a fence, and it was 4 m long and 2 m high; it bore 118 ripe fruits, 40 of which were pecked. One Tropical Kingbird adult arrived at the plant, it pecked one fruit and ingested some pulp and seeds (Fig. 1a). Sixteen seconds later, the first fledgling arrived begging (Fig. 1b) and it was fed by the adult seven times (Fig. 1c), while at the same time the adult also consumed pulp and seeds (Fig. 1d). Seeds could be clearly identified in the videos as oval shapes covered by red arils. Both the adult and the fledgling ingested the whole seeds, and in no case did the fledgling feed on its own. The adult pecked the same fruit an average of 2.14 ± 1.12 times per feeding bout (i.e., a sequence of pecking, extracting seeds, and swallowing), spending an average of 7.00 ± 5.34 s per bout (range = 2–12 s, n = 8). In contrast, the adult always pecked the fruit only once when feeding the fledgling (except on one occasion when it pecked the fruit twice), spending an average of 6.25 ± 3.01 s per bout (range = 2–16 s, n = 8). At 2:13 min, another fledgling arrived, but the Tropical Kingbird did not feed it, and after the second fledgling jumped next to the parent, both left. The adult came back after a few seconds and pecked a fruit by making a sally-hover maneuver. Again, it did not feed the first fledgling and left immediately. Finally, the fledgling also flew away a few seconds later. The adult extracted an average of 2.33 ± 1.66 seeds covered by the pulp (range = 1–5 seeds, n = 9) in each peck, and the number of pecks was strongly correlated with the feeding bout duration (r = 0.96, n = 8, P < 0.01). These observations were restricted to those cases where seeds could be clearly identified. Overall, the whole sequence lasted 3:37 min.

Although the Tropical Kingbird is a typically insectivorous tyrant species, the role of fruits in its diet may be more important than previously thought, as several studies have reported occasional fruit consumption by this species (e.g., Francisco and Galetti 2001, Wütterich et al. 2001, Krügel et al. 2006, Allen-spach and Dias 2012, Palacio 2017), highlighting the need for further studies focusing on its diet. Our record also shows that fruits are consumed not only by adults but also by fledglings. Moreover, the fruit-handling technique used, in which the seeds are ingested whole, suggests the Tropical Kingbird could be a legitimate seed disperser (Palacio et al. 2017). In addition to attracting fruit-eating birds by offering fleshy fruits (Palacio 2019), the Blue Passionflower also attracts arthropods that may be also important prey for birds.

Figure 1. Tropical Kingbird (Tyrannus melancholicus) feeding a fledgling with Blue Passionflower (Passiflora caerulea) fruit. (a) Adult pecking a Blue Passionflower fruit. The arrow indicates the pecked fruit that was behind some leaves. (b) Fledgling begging to the arriving adult. (c) Adult feeding the fledgling. (d) Adult with pulp and seeds in the bill (circle).
In particular, the Gulf Fritillary Butterfly (Agraulis vanillae), a specialist herbivore of Blue Passionflower (Simonetti and Devoto 2018), is a prey for the Tropical Kingbird (Pinheiro 1996, D. Zaffignani pers. obs.). Therefore, the Blue Passionflower is an important species providing not only direct (i.e., fruits), but also potentially indirect food resources (i.e., insects). Overall, the migratory status of the Tropical Kingbird, coupled with the consumption of a common native plant of both natural and human-modified habitats, suggests that this species could be a key neglected seed dispersal vector in the Neotropics.

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