

## OUTSTANDING LONGEVITY RECORD DATA FOR THE STREAKED XENOPS (*XENOPS RUTILANS* TEMMINCK, 1821) IN THE BRAZILIAN ATLANTIC FOREST

Arthur Angelo Bispo & Pedro Scherer Neto

Neotropical Institute: Research and Conservation, PO Box 19009, Zip Code 81531-980 – Curitiba, Paraná, Brazil. *E-mail*: bispo@institutoneotropical.org

**Dados de longevidade do Bico-virado-carijó (*Xenops rutilans* Temminck, 1821) na Mata Atlântica Brasileira.**

**Key words:** Streaked Xenops, *Xenops rutilans*, Brazilian Atlantic forest, Furnariidae, longevity.

### INTRODUCTION

The longevity of tropical birds is poorly known or sometimes even unknown. The main problem, however, is that long term surveys are needed to obtain this kind of information. Although such surveys can provide important results such as changes in community composition due to habitat disturbance (i.e., Magnuson 1990, Turner *et al.* 2003, Lindenmayer & Likens 2009), they often lack long-term funding and thus sometimes do not persist (Lindenmayer & Likens 2009). Another difficulty of measuring longevity is that monitoring programs must be efficient not only to monitor communities or populations, but also to get data from individuals. The knowledge about longevity can be important for the development of conservation strategies, in particular for species occurring in disturbed habitats. Studies in Brazil to get this kind of information are scarce, and

only two studies present these data explicitly (i.e., Lopes *et al.* 1980, Pereira *et al.* 1992). Nevertheless, these works focused on another purpose, i.e., the epidemiology information of bird viruses, but consequently yielded data on the longevity of some captured individuals. Herewith, we contribute to this kind of natural history information presenting an outstanding longevity record for the Streaked Xenops (*Xenops rutilans*) from the Mata Atlântica in Brazil.

### METHODS

In a fragmented landscape of the Brazilian Atlantic forest in Paraná State, Brazil (Fig. 1), we implemented a long term survey in 1991. Capture sites were located in the Vila Rica do Espírito Santo State Park (VR). This is the larger patch in the study area (Fig. 1) with 354 ha, and is connected to a smaller remnant forest at Guajuvira Farm (GF, 24 ha) by a tight

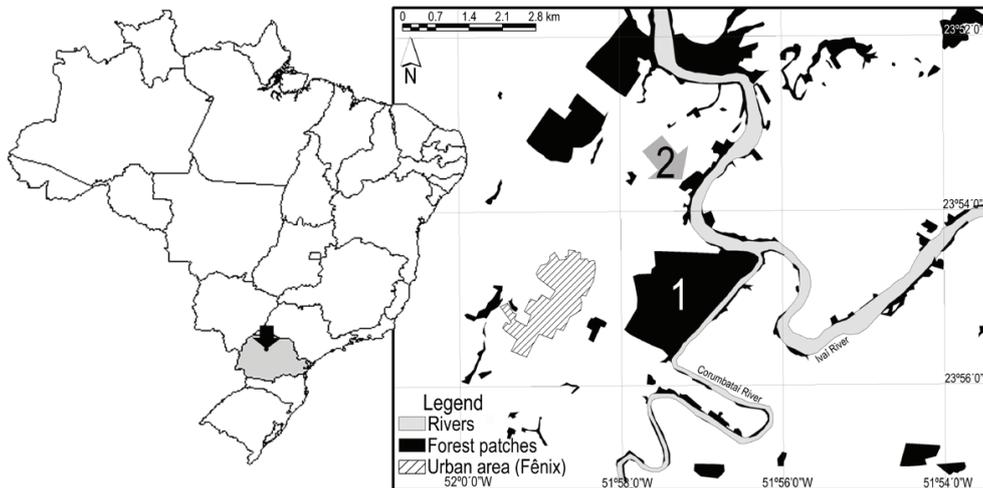


FIG. 1. Study area in Parana State, Brazil (left) and configuration of the landscape (right): 01 - indicates the Vila Rica do Espírito Santo State Park; 02 - indicates the Reserve in the Guajuivira Park.

and discontinuous corridor formed by a riparian forest, 2.7 km distant from VR. These two patches were regularly sampled during the 15 years of the capture program, with a total of 45 field expeditions randomly distributed in time at different sampling points. The usual method in long-term ecological studies to obtain data from individuals is capture-mark-recapture (Bibby *et al.* 2000). During each capture session, we used at least 10 mist nets (2.5 x 12 m, 36 mm mesh) in a linear configuration that remained open for four days (8 h per day).

## RESULTS

During the whole period/length of the survey, we captured two individuals of the Streaked Xenops. Using bird banding, we could identify one recapture after more than ten years. An adult individual with unknown sex first captured on 10 May 1996 in VR was recaptured on 30 May 2006 at GF, resulting in a longevity period of at least of 3674 days (Fig. 2). In general, this species was rare at

VR, being recorded only in 23 field expeditions, i.e., less than half (40.35%) of all surveys. In the surroundings of VR, the Streaked Xenops was recorded only on six expeditions in the patch within Guajuivira Farm (GF). Only three captures of two individuals occurred there, the aforementioned marked and recaptured individual, and a second individual, marked in April 2003 but never recaptured.

## DISCUSSION

So far, data on the longevity of the Streaked Xenops have been unknown but were presented for a few other species of the family Furnariidae from different locations in the Brazilian Atlantic forest. Based on capture-recapture data, the longevity recorded for another genus member, the Plain Xenops (*Xenops minutus*), was in Casa Grande, Salesópolis, São Paulo state, 1367 days (Lopes *et al.* 1980) and 421 days from the same locality (Pereira *et al.* 1992), respectively (Fig. 2). Thus, the Streaked Xenops individual recaptured

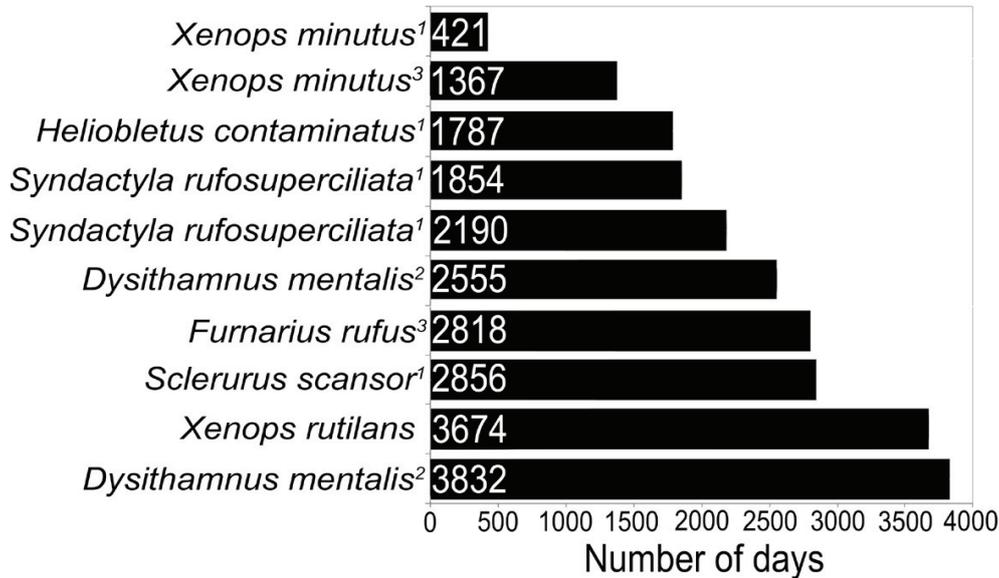


FIG. 2. Longevity (number of days) of some Passeriformes compared to the Streaked Xenops. Data of other species obtained from: 1. Pereira *et al.* (1992); 2. Snow & Lill (1974); 3. Lopes *et al.* 1980.

by us has the highest longevity (ever) described for a species from the genus *Xenops* (Fig. 2). Another species also reported by Pereira *et al.* (1992) from Casa Grande, Salesópolis, São Paulo state, the Sharp-billed Treehunter (*Heliobletus contaminatus*), was recaptured after 1787 days. The species of the family Furnariidae with the highest longevity described are the Rufous-breasted Leaf-tosser (*Sclerurus scansor*), with 2856 days (Pereira *et al.* 1992), and the Rufous Hornero (*Furnarius rufus*), with 2818 days (Lopes *et al.* 1980) (Fig. 2). Based on our data, the observed longevity of the Streaked Xenops is in accordance with the body size–longevity correlation presented by Lindstedt & Calder (1976), who demonstrated an equation that allows an estimated longevity of 6.83 years ( $\pm 6.2$  years) for a 12-g bird body mass (approximate weight based on Dunning 2008).

Despite this anecdotal observation based on one individual only, we suppose that - in

view of the long period of time between capture and recapture and the distance between the different locations of captures - the presence and arrangement of patches in the studied landscape may have favored the persistence of this individual. Snow & Lill (1974) reported a similar observation for the Plain Antvireo (*Dysithamnus mentalis*) that was recaptured after 3467 days, but only 100 m away from the original capture site in the same habitat patch.

#### ACKNOWLEDGMENTS

We appreciate the cooperation of the whole field work team, and Paulo De Marco Jr. and Henning Steinicke for manuscript revision and suggestions. This research was supported during the period of 2002 to 2003 by the project “Vila Rica State Park and the biodiversity conservation in the Parana – Mater Natura/FEMA”, and for 2006 field expeditions by the project “Developing natural tech-

niques and low cost for recovery of forest cover of the small farms – Embrapa Florestas (Macroprogram 2).”

## REFERENCES

- Bibby, C., M. Jones, & S. Marsden. 2000. Expedition field techniques: bird surveys. BirdLife International, Cambridge, UK.
- Dunning, J. B. 2008. CRC handbook of avian body masses. 2<sup>nd</sup> ed. CRC Press, Boca Raton, Florida, USA.
- Lindenmayer, D. B., & G. E. Likens. 2009. Adaptive monitoring: a new paradigm for long-term research and monitoring. *Trends Ecol. Evol.* 24: 482–486.
- Lindstedt, S. L., & W. A. Calder. 1976. Body size and longevity in birds. *Condor* 78: 91–94.
- Lord, J. M., & D. A. Norton. 1990. Scale and the spatial concept of fragmentation. *Conserv. Biol.* 4: 197–202.
- Magnuson, J. J. 1990. Long-term ecological research and the invisible present. *BioScience* 40: 495–501.
- Pereira, L. E., L. T. M. Souza, T. L. M. Coimbra, I. M. Rocco, E. S. Nassar, & D. M. Souza. 1992. Studies on wild birds from the region of the Atlantic Forest, Brazil. I. Longevity records observed in captured birds of the State of São Paulo. *Cienc. Cult.* 44: 167–171.
- Snow, D. W., & A. Lill. 1974. Longevity records for some Neotropical land birds. *Condor* 76: 262–267.
- Turner, M. G., S. L. Collins, A. L. Lugo, J. J. Magnuson, T. S. Rupp, & F. J. Swanson. 2003. Disturbance dynamics and ecological response: the contribution of long-term ecological research. *BioScience* 53: 46–56.

*Accepted 3 July 2012.*