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Biogeographical implications of *Hemitriccus striaticollis* (Lafresnaye 1853) records on coastal vegetations from Northeastern Brazil

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RESUMO. Implicações biogeográficas do registro de *Hemitriccus striaticollis* (Lafresnaye 1853) em vegetações costeiras do nordeste brasileiro. *Hemitriccus striaticollis* é uma espécie associada à vegetação de savana do Brasil central, com registros de ocorrência em vegetações abertas e semi-abertas na Amazônia. Na costa do nordeste brasileiro, é documentada a ocorrência dessa espécie na costa da Bahia e, recentemente, na região costeira dos estados de Sergipe e Paraíba. Os registros de *H. striaticollis* no nordeste brasileiro indicam associações com vegetação de restinga e/ou tabuleiro, e, portanto, demonstra ocorrência disjunta com a distribuição do Brasil central, possivelmente relacionada com histórias de expansão e retração de savanas no nordeste brasileiro.

PALAVRAS-CHAVE. Biogeografia, caatinga, cerrado, floresta Atlântica, restinga, tabuleiro.

Stripe-necked Tood-Tyrant, *Hemitriccus striaticollis* (Lafresnaye, 1853), is a species associated to savanna vegetation from central Brazil, with occurrence in east-central Amazonia, at the open and semi-open vegetation, and recorded as isolated populations in western Amazonia, at the campinas habitats (Ridgely & Tudor 1994, Poletto & Aleixo 2005) (Fig. 1). In the eastern of Northeastern Brazil, it is documented in coastal Bahia state (Ridgely & Tudor 1994) and, recently, in coastal Sergipe (Sousa 2009) and north coast from Paraíba state (Fig. 1, 2), Mataraca city (6º 29’30”S, 34º 58’30”W) (Araujo et al. 2010). Another occurrence citation of *H. striaticollis* in the north coast from Paraíba is in Action Plan of the Guaribas Biological Reserve, Mamanguape city, written by Antônio Claudio Almeida and Dante Teixeira in 1995.

Due to latitudinal extent and topography variation in the Atlantic coast from Northeastern Brazil, different natural types of vegetation of Atlantic Forest occurs due to influence of a wide climate variation. The restingas and tabuleiros are instances of natural type of this vegetation. Restingas are distributed over beach sands deposits aged from Quaternary; however the tabuleiro vegetation occurs on the Tertiary Barreiras formation (Andrade-Lima 1960, Oliveira-Filho & Carvalho 1993, Thomas & Barbosa 2008).

Between 30-100 m above sea level, layers of alluvial sand and clay on the Barreiras formation can range from 70-120 m thick. The predominant vegetation type on the forest formation is represented by rainforest near the coast and seasonal forest further inland. However, in areas with poorer soils, sandy patches of open savanna vegetation can be found (Thomas & Barbosa 2008), and are referred to here as tabuleiro vegetation. Although the Barreiras formation takes place along the coast from Rio de Janeiro to Pará, has wider reaches (reaching 30-100 km or more in width) from Rio Doce (Espírito Santo) to Rio Pardo (Bahia), Sergipe to Maceio (Alagoas) and Recife (Pernambuco) in Rio Grande do Norte. In transition from Barreiras formation to the coast or there is a limit with sea or with quaternary sand sediments, where they support the restinga vegetation (Schobbenhaus et al. 2000, Dominguez et al. 2000, Thomas & Barbosa 2008). The records of *H. striaticollis* from Eastern part in Northeastern Brazil are associated to tabuleiro e restinga vegetations (eg. Sousa 2009, Araujo et al. 2010), therefore, demonstrating the occurrence of disjunctions of the distribution core in central Brazil (Fig. 1).

Both vegetation types occurs savanna and forest formations. Open restingas and open tabuleiros have the same physiognomy and many species in common (Thomas & Barbosa 2008). In the North coast from Paraíba, where there are records of *H. striaticollis*, restingas forms a closed canopy, usually resulting in a short forest with many small trees (4-10m) and, moving away from the sea, the physiognomy gives greater protection of soil and understory against wind, which helps in enriching the soil with organic matter and increased capacity for water storage (Oliveira-Filho & Carvalho 1993). In Mataraca city, there is an industrial mining activity at the dunes areas. Due to cuts in soil related to this activity, it can be observed the alternation of vegetation type associated with sediment on Barreiras formation (Fig. 3).

In Northeastern Brazil, the vast majority of savanna patches (tabuleiros), which are normally on Barreiras formation in a narrow sediment layer (Fig. 3), was replaced by sugarcane monocultures (Oliveira-Filho & Carvalho 1993). According to Andrade Lima (1960), tabuleiros savanna patches can be considered as disjunctions from cerrado, because it is characterized by the presence of tree and shrub species scattered or grouped, typical of the savannas from central Brazil, and a grass cover (Andrade Lima 1960, Oliveira-Filho & Carvalho 1993).

The flora from restingas is admittedly composed by species from other vegetation types, with influences varying according to geographic region (Rizzini 1979). In Northeastern Brazil, the restingas vegetation is composed by typical species from Atlantic forest and caatinga (Andrade Lima 1960). Recently, genera of vegetal species of caatinga
Figure 1. Distribution of *Hemitriccus striaticollis* (*Ridgely et al.* 2005, *Ridgely & Tudor* 2009). Black points correspond to the records on the coast from Sergipe (*Sousa* 2009) and Paraiba (Fig. 2).

Figure 2. *Hemitriccus striaticollis* specimen captured in the Mataraca city, Paraiba (Photo: Arnaldo Honorato Vieira-Filho).
dominium have been appointed, from molecular data, as originally diversified in the Miocene/Pliocene (Pennington et al. 2004, Pennington et al. 2006). Expansions of vegetal formation associated with these species also have been cited during Pleistocene (Pennington & Prado 2000, Pennington et al. 2006).

The records of *H. striaticollis* associated with tabuleiros vegetation can be an evidence of savanna disjunctions between East from Northeastern and central Brazil, as suggested by Andrade Lima (1960). Therefore, there is a suggestive hypothesis that dry forest and savannas were extensive formations in northeastern Brazil during the Neogene Period, because the tabuleiros vegetation found on oldest sediment, compared to restinga vegetation, and diversification of caatinga species dating this period.

A later climatic dynamism with intervals of dry and wet periods, as demonstrated for the past 210,000 years in northeastern (Wang et al. 2004), may have been responsible for rainforest expansions and retractions in northeastern Brazil (Santos et al. 2007, Carnaval & Bates 2007), as well as savannas and dry forests, shaping the distributions of these formations and colonizing the Quaternary deposits of dunes were the restingsas are.

Discussions about Quaternary climatic dynamic on rainforest have been the focus of several investigations in northeastern Brazil (eg. Andrade Lima 1960, Prance 1987, Tabarelli & Santos 2004, Carnaval & Bates 2007, Santos et al. 2007). However, it cannot be mentioned even when the focus corresponds to the tabuleiros vegetation. Although much still has to be discovered about the influence of climate change in past times in the rainforests, there is a wide gap about knowledge related to the savannas and dry forests from Northeastern Brazil. Recommend, therefore, investment in inventories of several biological groups, as well as phylogeographic studies to assist in discussions of biogeographic history of these formations.

The dominium Northeast Atlantic is the most endangered of all the Atlantic Forest (Ribeiro et al. 2009), with the presence of few and small fragments of natural formations. As with the tabuleiros and restingas, threats of such environments can impair the latest information sources of this history. Besides sugarcane monoculture, land speculation is a current threat to the remaining tabuleiros and restingsas from Northeastern Brazil.

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**LITERATURE CITED**


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