INTRODUCTION

The agile snouted tree frogs are typically small sand dune habitat frogs. Snouted tree frogs of the Genus *Scinax* is formed of 111 species, distributed through Mexico, South America and the Caribbean (Duellman & Wiens, 1992; Frost, 2013). In Brazil 90 *Scinax* species are known, and they occur at all the country’s eco-regions (Segalla et al., 2012). The agile snouted tree frog (*Scinax agilis* Cruz & Peixoto, 1983) is included in the *Scinax catharinae* (Faivovich et al., 2005) group and its type locality is Ibiriba (19° 14’ S; 39° 55’ W) at the city of Linhares, on the south-eastern state of Espírito Santo. Its distribution was recently expanded to the states of Bahia (Peixoto, 2003), Alagoas (Toledo, 2005) and Sergipe (Passos et al., 2012), but remains with major distributional gaps.

The agile snouted tree frog (Fig. 1) is typically found on the coastal sand dune ecosystem, locally known as “restinga”. It is found either at open areas as well as inside forests and dense scrub, and usually on bromeliads (Cruz & Peixoto, 1983; Toledo, 2005; Juncá, 2006). The species is listed as Least Concern at the IUCN Red List assessment, mainly as a result of its distribution extension. This assumes there is a large population, however its main ecosystem and associated habitats are under severe threats, via deforestation (Peixoto & Pimenta, 2004), which may cause some concern. At this study we present new distribution localities and cities at one of the most representative restinga system along the species distribution, and also look at the habitat use and activity of a few subpopulations on the north coast of the state of Bahia, Brazil.
MATERIALS AND METHODS

The study took place from June 2010 until August 2013. We sampled the intended sites every two months on a regular basis. Six localities on the north coast of Bahia were sampled: Busca Vida (-12.863831, -38.262675) a locality in the city of Camaçari; Imbassai (-12.483250, -37.958667) in the city of Mata de São João; Massarandupió (-12.315722, -37.832139), in the city of Entre Rios; Baixio (-12.105083, -37.697639), in the city Esplanada; Barra de Itariri (-11.950278, -37.611917), in the city Conde; and Costa Azul (-11.664167, -37.483611) in the city Jandaíra (Fig. 2); the entire coast line encompasses an extension of about 220 km.

At each of these sample units, four vegetation type habitats were thoroughly surveyed: beach vegetation; flooded river plain; scrub vegetation; and sand dune dry forest. The four habitat types were surveyed simultaneously, when surveyors applied a visual search survey at a 500 m belt transect. The survey seasons covered all daylight periods and seasons all along the three years. A day cycle started at 6 am for the first survey and ended at the last, or sixth survey of the same year at 6 pm (six cycles per year). During the third and last year, night surveys were also applied following the same procedures, from 7 pm to 9 pm. The overall survey effort covered 1,728 hours. We sampled specimens for taxonomic confirmation and reference, under the national environmental licensing program authorization MMA-ICMBIO / SISBIO nº 23355-2. Sampled specimens were deposited at the Herpetological Reference Collection at the Centre for Ecology and Conservation of Animals (CHECOA) at the Universidade Católica do Salvador. We also collected distributional data from literature for comparison purposes.

RESULTS

We recorded 1,163 adult *S. agilis* at the six localities (Fig. 2). The animals were found inhabiting the four different habitat types at the restinga ecosystem: temporary and permanently flooded river plains (n=608), dry forest (n=446), scrub vegetation (n=69) and beach vegetation (n=40).

The agile snouted tree frog also used differently the available microhabitats. We detected the frogs on bromeliads (n=529), on macrophyte vegetation (n=300), scrub vegetation (n=128), leaf litter (n=86), suspended branches (n=68), moving in temporary ponds (n=32) and on bare sand soil (n=20). We also recorded cases of communal microhabitat use. We found animals sharing the same bromeliads. Over 15 individuals used the same plant at the locality of Costa Azul and over 17 at the locality of Busca Vida.

Animals were mostly found active during daytime. Over 62 % of the sightings and records were made between 12:00 and 6 pm, and 32% from 6 am to noon. During night surveys only 5.4 % records were observed at the same sites. Although the beach habitat type showed very low frog frequency, most of the sightings occurred at the night surveys, with 72.5 %. The scrub vegetation on the other side had 52.1 % of the records from 2 pm to 6 pm, most then, during the day (Fig. 3).

All six localities represent new records for the species on the north coast of Bahia: Busca Vida, Imbassai, Massarandupió, Baixio, Barra de Itariri and Costa Azul. Together they include another six municipalities into the species distribution, all of them on the coast, and filling a 212 kilometers distributional gap, from Praia do Forte, Mata de São João, Bahia (Juncá, 2006) to Areia Branca, Sergipe (Passos et al., 2012) (Table 1).

DISCUSSION

The activity patterns of *S. agilis* showed that the species is rather more active during the day. However it is more commonly found at sites where humidity and shade is higher. It was particularly found at the temporary or permanent flooded river plains. The soil humidity and type seems to be the major factors shaping the frogs’ communities’ structures (Bastazini et al., 2007), which was also observed at the studied localities. Barreto et al. (2012) found a similar result for the marsh frog (*Pseudopaludicola* sp. (aff. falcipes)) at the same localities, and they also
pointed out the flooded plains as a kind of nursery, where frogs tend to use during the breeding season, suggesting they are fundamental to retain those subpopulations. All of the aforementioned aspects reinforce the importance of maintaining the river plains and other water bodies aiming the restinga conservation.

We found that *S. agilis* a daytime forager, however it will have low levels of night activity in disturbed locations. When we compared the previous year’s daytime and night activities we found that the amount of hours were notably higher during the day (n=140) in comparison to night foraging (n=62). It was possible to detect the agile snouted tree frog inhabiting seven different microhabitat types at the sampled restinga formations. According to Eterovick et al. (2010), the variety of habitat use by adult frogs may represent their response to several local selective pressures. These would be caused by other species, the environmental structure or even disturbance. Nevertheless the most important and far higher frequented microhabitat for the species were the bromeliads (45.5 %). These plants were mainly represented by the genus *Hohenbergia* spp. They are locally known as tank bromeliad as a result of their architecture promoting the maintenance of large amounts of water, even during dryer periods. These plants were very abundant at the study localities (Cagliatti-Carvalho et al., 2008). Along with scrub, herbaceous and macrophyte vegetation, and also suspended branches above water bodies these vegetation types formed 88.1 % of the entire microhabitats records. This possibly suggests a strong association of the agile snouted tree frog to plant community composition, and not just their abundance. However, bromeliads and macrophytes (especially the elongated ones) are commonly used for shaping gardens at hotels, resorts, golf courts and residential areas at the studied localities. All of these may shed light on understanding the reasons for the maintenance of some of the subpopulation, given the plants are frequently present in gardens, even in urbanized landscapes.

The alarming habitat loss in the region, especially when it comes to restinga habitats is a main and worrying threat to any amphibian population (Tinôco et al., 2008). When suppression comes into place, bromeliads, macrophytes and scrub are the main lost vegetation, even on law permanent protected zones and this may seriously affect the agile snouted tree frog on the north coast of Bahia. The new geographic distribution data for *S. agilis* confirms the species are endemic to restinga habitats. These new records add important information to its contiguous distribution on the coastal regions of the Brazilian states of Espírito Santo, Bahia, Sergipe e Alagoas. The presumed species endemism and severe habitat threats call attention to the need for conservation action to preserve these populations as well as other restinga restricted species.
We thank the ever-ready Herpetofauna of the North Coast of Bahia Project crewmembers for the surveys. Many thanks to the contributors and interns at the Centro de Ecologia e Conservação Animal for all the volunteer support during fieldwork. Our special thanks to the Herpetofauna Foundation (EU); Reptile Technologies (EU); Amphibian Ark (US); the Lacerta Consultoria, Projetos e Assessoria Ambiental Ltd.; to the Instituto da Mata Org.; the Floresta Sustentável Project and the Garcia D’ávila Foundation; to the APA do Litoral Norte Management Council; the Condominion Busca Vida; the Fazenda Natural Ltd.; the Fazenda Milagres Guest House; the Reserva Imbassaí Ltd; to all the municipalities at the north coast of Bahia City Halls. We thank all the before mentioned institutions, city halls, orgs, companies for the support, logistics, accommodation, land use and field equipment throughout the study. Many special thanks to the people on those territories, especially at Massarandupiú, Praia do Forte, Imbassaí, Busca Vida and Mata de Sao Joao. This study contributes to the proposed actions at the National Plan for the Conservation of the Northeast Atlantic Forest Endangered Amphibians and Reptiles (Plano de Ação Nacional para Conservação dos Répteis e Anfíbios Ameaçados de Extinção da Mata Atlântica Nordestina – PAN-NE/RAN/ICMBio). Finally, we thank anonymous reviewers for comments on an earlier version of the manuscript.

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