

## Rhinonyssidae (Acari: Gamasida) in Ardeidae (Aves: Pelicaniformes) in Brazil

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The order of Pelecaniformes is composed of families Ardeidae (Leach, 1820), Theressiornithidae (Poche, 1904), and Pelecanidae (Rafinesque, 1891) (CRBRO, 2011). The family Ardeidae gathers more than 60 species of herons, egrets and bitterns being one of the largest and more representative with characteristics adapted to wetlands (Sick, 1997). In the State of Rio Grande do Sul, 13 species are recorded *Botaurus pinnatus* (Wagler, 1829), *Ixobrychus involucris* (Vieillot, 1823), *Nycticorax nycticorax* (Linnaeus, 1758), *Butorides striata* (Linnaeus, 1758), *Bubulcus ibis* (Linnaeus, 1758), *Ardea cocoi* Linnaeus, 1766, *Egretta thula* (Molina, 1782), *Syrigma sibilatrix* (Temminck, 1824), *Ixobrychus exilis* (Gmelin, 1789), *Tigrisoma lineatum* (Boddaert, 1783), *Nyctanassa violacea* (Linnaeus, 1758), *Egretta caerulea* (Linnaeus, 1758), and *Ardea alba* Linnaeus, 1758 (Bencke et al., 2010).

Nasal mites are endoparasites that inhabit the respiratory system of birds. They can be found mainly in the membrane lining nasal turbinates. They can also be found in the anterior portion of the nostrils, larynx, trachea, lungs, conjunctival and air sacs (Amaral and Rebouças, 1974a). The Ardeidae are commonly parasitized by species of nasal mites that make up the genus *Tinaminyssus* Strandtmann and Wharton, 1958 (Rhinonyssidae) (Breguetova, 1950 *apud* Pence, 1975; Zumpt and Till, 1955 *apud* Pence, 1972; Fain, 1956 *apud* Pence, 1972; Pence, 1972; Amaral and Rebouças, 1974b). In this context, the study aimed to report the occurrence of nasal mites from birds of the family Ardeidae in Brazil, contributing to the knowledge of biodiversity of the nasal mites in this country.

The species of birds examined were *Tigrisoma lineatum*, *Nycticorax nycticorax*, *Ixobrychus involucris*, *Butorides striata*, *Bubulcus ibis*, *Ardea alba*, *Ardea cocoi*, *Syrigma sibilatrix*, and *Egretta thula*, a total of 30 birds from the municipalities of Pelotas, Rio Grande and Capão do Leão, in the State of Rio Grande do Sul. The animals were donated, after death, by Núcleo de Reabilitação da Fauna Silvestre and Centro de Triagem de Animais Silvestres of Universidade Federal de Pelotas (NURFS-CETAS/UFPel). For collecting the mites, a cut was made from one of the nostrils until reaching the external orifice of the correspondent ear, repeating the process on the opposite side. Next, the nasal turbinates were cut lengthwise and the top of the head was bent backwards until it forms a right angle with the lower part (Fain, 1957 *apud* Amaral and Rebouças, 1974a). After

the cavity was washed with water jet through a 150 µm sieve, and the resulting content, as well as the nasal cavity, were examined under a stereomicroscope.

The mites were fixed in ethanol 70° GL and clarified in lactophenol, and mounted on a slide with a coverslip in Hoyer's. The identification was based on morphological characteristics according to Pence (1972) and Pence (1975). The parameters evaluated were prevalence and mean intensity according to Bush et al. (1997). The specimens were deposited in the Arthropoda Collection of the Laboratory of Parasitology for Wild Animals of Biology Institute, Federal University of Pelotas (nº 444-467).

The prevalence was 23% of the total number of birds examined. The species positive for mites were *Nycticorax nycticorax*, *Butorides striata*, *Bubulcus ibis*, *Syrigma sibilatrix*, and *Egretta thula*. The mites were identified as belonging to *Tinaminyssus* (Gamasida: Rhinonyssidae), and two species, *Tinaminyssus* sp. and *Tinaminyssus belopolskii* Breguetova, 1950, were found (Table 1).

*Tinaminyssus belopolskii* was described in Russia in *Ardea cinerea* (Linnaeus, 1758) (Breguetova, 1950 *apud* Pence, 1975), other Ardeidae reported for this nasal mite were *Egretta caerulea* (Linnaeus, 1758), *Butorides virescens* (Linnaeus, 1758), *Egretta thula* (Molina, 1782), and *Egretta tricolor* (Stadius Müller, PL, 1776), in the State of Louisiana, United States of America (Pence, 1972). *Tinaminyssus bubulci* Zumpt and Till, 1955 was reported in *Bubulcus ibis* (Linnaeus, 1758) in Central Africa (Zumpt and Till, 1955 *apud* Pence, 1972) and in North America (Pence, 1972). *Tinaminyssus ixobrychi* Fain, 1956 was reported in Africa in *Ixobrychus minutus* (Linnaeus, 1766) (Fain, 1956 *apud* Pence, 1972). *Tinaminyssus neoixobrychi* Pence, 1972 was reported in *Ixobrychus exilis* (Gmelin, JF, 1789), in North America (Pence, 1972). In Brazil, *Tinaminyssus belopolskii* was reported for the first time by Amaral and Rebouças (1974b), in the State of São Paulo, parasitizing heron species of the genus *Ardea*, but their species were not identified by the authors of the paper.

The Ardeidae *Butorides striata*, *Bubulcus ibis*, *Syrigma sibilatrix* and *Egretta thula* are recorded as new hosts for *Tinaminyssus belopolskii*, in Brazil, and *Nycticorax nycticorax* is a new host for *Tinaminyssus* sp.. This report extends the geographic distribution of *T.*

**Table 1** - Rhinonyssidae in Ardeidae in Brazil, their incidence, mean intensity, and sex ratio, respectively.

Host examined	Nasal mite	Incidence	Mean intensity	Female/Male
<i>Tigrisoma lineatum</i>	-	0/1	-	-
<i>Ixobrychus involucris</i>	-	0/4	-	-
<i>Nycticorax nycticorax</i>	<i>Tinaminyssus</i> sp.	1/1	5	4/1
<i>Butorides striata</i>	<i>Tinaminyssus belopolskii</i>	1/4	2	2/0
<i>Bubulcus ibis</i>	<i>Tinaminyssus belopolskii</i>	1/4	1	1/0
<i>Ardea alba</i>	-	0/4	-	-
<i>Ardea cocoi</i>	-	0/4	-	-
<i>Syrigma sibilatrix</i>	<i>Tinaminyssus belopolskii</i>	2/4	1	2/0
<i>Egretta thula</i>	<i>Tinaminyssus belopolskii</i>	2/4	12.5	2.5/1

*belopolskii* to the State of Rio Grande do Sul, it is therefore the southernmost record of this species.

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