

## First record of the nasal mite *Rallinyssus caudistigmus* Strandtmann (Acari: Rhinonyssidae) from Argentina

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### First record of the nasal mite *Rallinyssus caudistigmus* Strandtmann (Acari: Rhinonyssidae) from Argentina

**RESUMEN.** Durante el estudio de la parasitofauna de la gallareta de ligas rojas *Fulica armillata* del Lago Mari Menuco en el noroeste de la Patagonia argentina, se encontraron ejemplares de ácaros nasales pertenecientes a *Rallinyssus caudistigmus*. Este es el registro más austral de *R. caudistigmus* en *F. armillata* como nuevo hospedador.

**PALABRAS CLAVE.** Ácaros Rhinonyssidae. Aves. Rallidae. Argentina.

**ABSTRACT.** During an examination of the parasite fauna of the Red-gartered Coot *Fulica armillata* from the Mari Menuco lake in the Northwestern Argentinean Patagonia, nasal mite specimens belonging to *Rallinyssus caudistigmus* were found. This is the southernmost record of *R. caudistigmus* in *F. armillata* as a new host.

**KEY WORDS.** Rhinonyssidae. Birds. Rallidae. Argentina.

The most diverse group of nasal mites is the Rhinonyssidae (Mesostigmata), members of which include only blood sucking species living on the mucosa of bird nasal turbinates (Fain, 1994). Rhinonyssid genera vary in their degree of host specificity, some genera being restricted to one host family and others are found in different orders (Pence, 1973). Among the most host-specific rhinonyssids, *Larinyssus* Strandtmann species parasitize gulls and terns (Laridae); *Rallinyssus* Strandtmann species parasitize rails (Rallidae); and *Rhinoecius* Cooreman species parasitize owls (Strigiformes) (Knee *et al.*, 2008).

While the genus *Rallinyssus* is cosmopolitan in distribution, and host specificity seems fairly well pronounced (Pence & Young, 1979), in Argentina, none of the species of this genus have been reported so far. The aim of the present study was to report a new locality as well as a new host for the occurrence of the nasal mite *Rallinyssus caudistigmus*.

During a parasitological survey of patagonian

aquatic birds from the Mari Menuco lake in the Confluencia department of the Neuquen province in Northwestern Argentinean Patagonia, seven Red-gartered Coots *Fulica armillata* (Gruiformes: Rallidae) were examined (Neuquen hunting permit number 127/14 dated 02/28/14 File 4351-001461713). The interior of the nasal cavities was washed and the contents and mucosa examined under a stereomicroscope. Six females and one deutonymph of *Rallinyssus caudistigmus* Strandtmann were collected from two *F. armillata*, preserved in 70% ethanol, cleared in Nesbitt solution and then mounted in Hoyer's medium for identification.

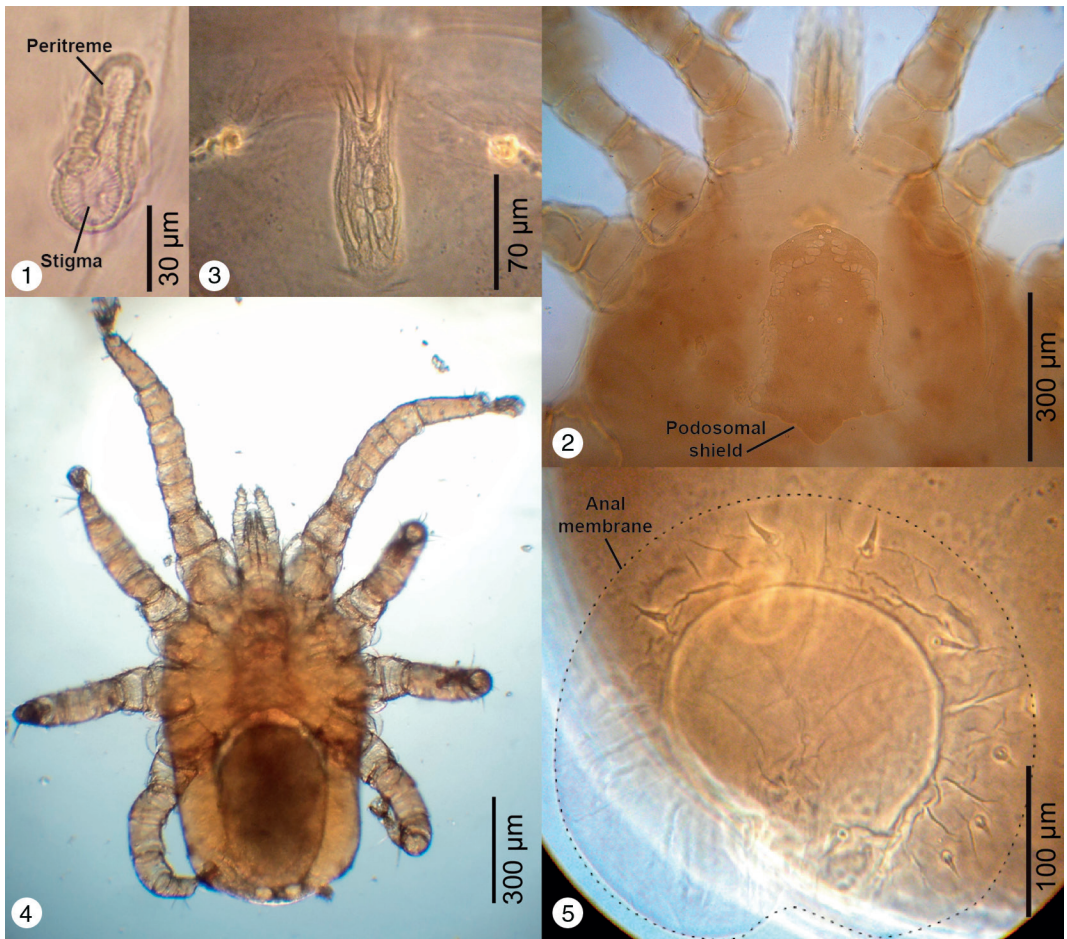
Members of the genus *Rallinyssus* are recognized easily by the presence of a short peritreme located dorsally at the posterior end of the body (Fig. 1). In the adults the dorsum has a podosomal shield exhibiting varying degrees of sclerotizations (Fig. 2). The gnathosoma shows four pair of ventral setae but has not a deutosternal groove. Epistoma can end anteriorly in a strongly arched and toothed margin. Chelicerae are well

developed with two strong chelae nearly a fifth of the total length. Tritosternum and metasternal setae are absent. Sternal and genital plates are present in the female (Fig. 3). The anal plate is large. The anal pore can be surrounded by a large circular membrane. The cribrum is present on the posterior margin of the anal plate. This genus is nearly always hosted by members of the family Rallidae of the order Gruiformes.

*Rallinyssus caudistigmus* (Fig. 4) has always the anal circular membrane present (Fig. 5) and the female podosomal plate is well developed, distinctly longer than wide (Fig. 3). There are two pairs of setae on the anterior half of the podosomal plate and a pair of setae posterior to this plate separated by a convexity. All specimens studied fit with the diagnosis of *R. caudistigmus*.

The genus *Rallinyssus* belongs to the subfamily

Rhinonyssinae and was created by Strandtmann (1948) while describing specimens of *R. caudistigmus* found in the American coot *Fulica americana* and the king rail *Rallus elegans*. Later, Fain (1956) described *Rallinyssus congolensis* and *Rallinyssuslimnocaracis* both hosted by the black crane *Limnocolax flavirostra*. *Rallinyssus caudistigmus* was again found in the red-knobbed Coot *Fulica cristata* from South Africa (Fain, 1959). Subsequently, a fourth species of *Rallinyssus* was described as *R. strandtmanni* from a male found in the common moorhen (*Gallinulachloropus*) in France (Gretillat, 1960). Thereafter Fain described *R. gallinulae*, again from the same bird species from Belgium and created the new genus *Rallinyssoides* including *R. congolensis* and *R. limnocolacis* in it, based on the anus without a large circular membrane (Fain, 1960). The first described species of the



**Figs. 1-5.** *Rallinyssus caudistigmus* Strandtmann. 1, peritreme; 2, podosomal shield; 3, female genital shield; 4, female, dorsal view; 5, anal membrane.

genus for South America was *Rallinyssus trappi* which was included in the genus *Rallinyssoides* found in the saracura-sanà *Pardirallus nigricans* in Brazil (Amaral, 1962). *Rallinyssus limnocoracis* was again found in the ruddy-breasted crake *Porzana f. fusca* from Malaya (Fain & Nadchatram, 1962). *Rallinyssus verheyeni* was described afterwards in Belgium, in the water rail *Rallus aquaticus* (Fain, 1963). *Rallinyssoides* was later synonymized with *Rallinyssus* (Wilson, 1965). In the same work hosted by pacific birds were described *R. amauroornis* from the white-breasted waterhen *Amaurornis phoenicurus chinensis* in Taiwan, *R. cychramus* from the crake *Porzana* unknown species and the little crake *Porzana parva*, and *R. rallus* from the slated-breasted rail *Rallus pectoralis* both in New Guinea. *Rallinyssus gallinulae* was also found in the purple gallinule *Porphyrio poliocephalus melanopterus* in New Guinea (Wilson, 1965) and in the buff-banded rail *Hypotaenidia philippensis* in Australia (Domrow, 1965). *Rallinyssus amauroornis* was also found later in Philippines, in the white-browed crake *Amaurornis cinerea* (Wilson, 1966). In this same work, also in the Philippines, *R. porzanae* from the spotless crake (filipina) *Zapornia tabuensis filipina*, and *R. rallinae* from the slaty-legged crake *Rallina eurozonoides eurozonoides* (Wilson, 1966) were described. In an important study of the nasal mites of Queensland birds, *R. congolensis* was synonymized with *R. porzanae* and *R. gallinulae* with *R. rallus* (Domrow, 1969). However, this last synonymy was later unsupported due to the character fixity of the podosomal plate of these species (Pence, 1972). Later *R. gallinulae* was found again in the purple gallinule *Porphyrio poliocephalus* in the Caspian Sea (Butenko, 1976). *Rallinyssus caudistigmus* was also found in *Gallinula chloropus* in Austria (Sixl, 1972), in the virginia rail *Rallus limicola* in USA (Pence, 1972), in the eurasian coot *Fulica atra* in Rumania (Feider & Mironescu, 1973) and in the Caspian Sea (Butenko, 1976), in the indian moorhen *Gallinula chloropus indica* from Japan (Kadosaka *et al.*, 1987). *Rallinyssus caspicus* was described in the common moorhen *Gallinula chloropus* in the Caspian Sea (Butenko, 1976). The only contradictions about the regular hosting relationship between *Rallinyssus* and Ralliforms, appear for the specimens of *Rhinonyssus rhinoletrum* found in the coot *Fulica* unspecified species from Thailand (Strandtmann, 1956) and in the American coot *Fulica americana* in USA (Pence, 1972) and *Sternostoma fulicae* found in *Fulica atra*

in Belgium (Fain & Bafort, 1963) and in the Caspian Sea (Butenko, 1976). *Rallinyssus verheyeni* was also found in *R. limicola* and *R. elegans* from USA (Pence, 1972). The last described *Rallinyssus* is *R. sorae* collected in the carolina crake *Porzana carolina* in USA (Pence & Young, 1979). In Canada, *R. caudistigmus* was again found in the american coot *Fulica americana* (Pence, 1975).

We report here for the first time, a new host *F. armillata* for *R. caudistigmus* in the Argentine Northwestern Patagonia. Besides the fidelity of the genus *Rallinyssus* to the Family Rallidae, the nasal mite *R. caudistigmus* most frequently parasitizes members of the genus *Fulica*. These results could be related to the posterior diversification of the genus *Fulica* to a parasitization event of a *Fulica* ancestor by this mite. This is supported by the different parasitized *Fulica* species and the cosmopolitan distribution of *R. caudistigmus*. While only four species of *Fulica* have been found with *R. caudistigmus*, the possibility exists that the lack of records of these mites in the remaining seven species of *Fulica* (Birdlife international, 2016) would result from the lack of surveys.

This is the southernmost record of *R. caudistigmus*, corroborating its cosmopolitan distribution.

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