Neotrop. Helminthol., 6(1), 2012
© 2012 Asociación Peruana de Helmintología e Invertebrados Afines (APHIA)
ISSN: 2218-6425 impreso / ISSN: 1995-1043 on line

aphia
ASOCIACIÓN PERUANA DE HELMINTOLOGÍA E INVERTEBRADOS AFINES

RESEARCH NOTE / NOTA CIENTÍFICA

THE FIRST RECORDS OF MITES OF THE GENUS *NEHARPYRHYNCHUS* (ACARIFORMES: HARPIRHYNCHIDAE) FROM BIRDS IN PERU

PRIMEROS REGISTROS DE ACAROS DEL GENERO *NEHARPYRHYNCHUS* (ACARIFORMES: HARPIRHYNCHIDAE) EN AVES DEL PERU

Ivan Literák[1*], Andre V. Bochkov[2], Jorge Cárdenas-Callirgos[3] and Miroslav Čapek[4]

[1]Department of Biology and Wildlife Diseases, Faculty of Veterinary Hygiene and Ecology, University of Veterinary and Pharmaceutical Sciences, Palackého 1-3, 612 42 Brno, Czech Republic, E-mail: literaki@vfu.cz
[2]Zoological Institute, Russian Academy of Sciences, Universitetskaya Embankment 1, 199034 Saint Petersburg, Russia, E-mail: prostigmata@zin.ru
[3]Laboratorio de Invertebrados, Museo de Historia Natural, Facultad de Ciencias Biológicas, Universidad Ricardo Palma, Av. Benavides 54440, Lima 33, Perú, E-mail: jmcardenasc@gmail.com
[4]Institute of Vertebrate Biology, Academy of Sciences of the Czech Republic, v. v. i., Květná 8, 603 65 Brno, Czech Republic, E-mail: capek@ivb.cz

Suggested citation: Literák, I, Bochkov, AV, Cárdenas-Callirgos, J & Čapek, M. 2012. The first records of mites of the genus *Neharpyrhynchus* (Acariformes: Harpirhynchidae) from birds in Peru. Neotropical Helminthology, vol. 6, nº1, pp. 109 - 114.

Abstract

Two mite species of the genus *Neharpyrhynchus* (Acariformes: Harpirhynchidae) were recorded on wild birds in Peru: *Neharpyrhynchus trochilinus* from *Amazilia lacteal*, and *A. chionogaster* (both Apodiformes: Trochilidae) and *Neharpyrhynchus tangara* from *Thraupis episcopus* (Passeriformers: Thraupidae). Records from *A. chionogaster* and *T. episcopus* represent new host-parasite associations. Mites of this genus were found in Peru for the first time.

Key words: *Amazilia* – birds – Ectoparasites – mites – *Neharpyrhynchus* –*Thraupis.*

Resumen

Dos especies de ácaros del género *Neharpyrhynchus* (Acariformes: Harpirhynchidae) fueron registrados en aves silvestres del Perú: *Neharpyrhynchus trochilinus* ex *Amazilia lactea* y *A. chionogaster* (ambos Apodiformes: Trochilidae) y *Neharpyrhynchus tangara* ex *Thraupis episcopus* (Passeriformes: Thraupidae). Los registros en *A. chionogaster* y *T. episcopus* representan nuevas asociaciones huesped - parásito. Los ácaros de este género fueron reportados por primera vez para el Perú.

Palabras clave: Acaros –*Amazilia* – aves – Ectoparasitos –*Neharpyrhynchus* –*Thraupis.*

INTRODUCTION

Mites of the family Harpirhynchidae (Acariformes: Cheyletoidea) are permanent mono- or oligoxenous parasites of birds and snakes of the superfamily Colubroidea (mites of the subfamily Ophioptinae) (Bochkov *et al*., 1999). The harpirhynchid genus *Neharpyrhynchus* Fain (Acariformes: Harpirhynchidae) includes 14 species recorded from passerine birds (Passeriformes) mostly in the Holarctic Region and only four species are known from Neotropical passerines: *N. baile* Bochkov, Literak and Capek, 2007 from *Turdus leucomelas* Viellot, 1818 (Passeriformes: Turdidae) (Bochkov *et al*. 2007), *N. chlorospingus* Bochkov and Literak, 2011 from *Chlorospingus pileatus* Salvin, 1865 (Passeriformes: Emberizidae), *N. mironovi* Bochkov and Literak, 2011 from *Dacnis cayana* (Linnaeus, 1766) and *N. tangara* Bochkov and Literak, 2011 from *Tangara cayana* (Linnaeus, 1766) (Passeriformes: Thraupidae) (Bochkov & Literak, 2011). Additionally, one species *N. trochilinus* (Fain, 1972) is associated with South American hummingbirds (Apodiformes: Trochilidae) (Bochkov & Literak, 2011). Mites of this genus occur relatively rarely (Martinu *et al*., 2008) and until now there were no data on their occurrence on birds in Peru. In this contribution we provide new host and locality records for two *Neharpyrhynchus* species collected on wild birds in Peru in summer 2011.

MATERIAL AND METHODS

Mist nets were used to trap wild birds in Peru in summer 2011. Birds trapped were subjected to naked eye examination for the presence of neharpyrhynchid mites which are usually localized at the base of feathers on head (Martinu *et al*., 2008; Bochkov & Literak, 2011). The mites were removed using a tweezer and preserved in 96 % ethyl alcohol. After examination, all the birds were released back into the wild as quickly as possible to minimize disturbance. Four study sites were as follows: Refugio de Vida Silvestre Los Pantanos de Villa, Lima, 12°13´S, 76°59W, at the see level, 50 birds of 10 species were examined from 19 to 22 July 2011) (i); Centro URKU, Tarapoto, 06°27´S, 76°21´W, 410 m a.s.l., 39 birds of 21 species were examined from 8 to 10 August 2011 (ii); Reserva Nacional Allpahuayo Mishana, Iquitos, 03º58'S, 73º25'W, 134 m a.s.l., 40 birds of 16 species were examined from 13 to 16 August 2011 (iii); and Cascay, Huanuco, 09º50'S, 76º08'W, 1845 m a.s.l., 104 birds of 18 species were examined from 20 to 23 August 2011(iv). A total of 233 birds of 57 species were examined (Table 1).

Mites were cleared in lactophenol and mounted in Hoyer's medium. Specimens were studied using a Leica microscope under Nomarsky interference-contrast-phase (DIC) optics. The scientific names of birds follow the checklist of Clements *et al*. (2011). Voucher specimens were deposited in collections in the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (ZISP) and in the Museo de Historia Natural, Universidad Ricardo Palma, Lima, Peru (MHN).

RESULTS AND DISCUSSION

Neharpyrhynchus trochilinus (Fain, 1972)

Material examined. 20 females (ZISP AVB 2011-3011-001, # 1-20, numbers in collection of ZISP) from *Amazilia lactea* (Lesson, 1932) [new location], PERU: San Martin Department, San Martin Province, Tarapoto, Centro URKU (06°27´ S, 76°21), 8 August 2011, coll. I. Literak (field number TR23); 14 females (ZISP AVB 2011-3011-002, # 1-14) from *Amazilia chionogaster* (Tschudi, 1846) [new host, new location], PERU: Huanuco Department, Huanuco Province, Churubamba, Cascay (09º50' S, 76º80' W), 21 August 2011, coll. I.

Literak (field number HU40); 3 females (ZISP AVB 2011-3011-003, # 1-3) with the same data, coll. I. Literak (field number HU54); 11 females (ZISP AVB 2011-3011-004, # 1-11) from the same host and locality, 22 August 2011, col. I. Literak (field number HU61); 8 females (ZISP AVB 2011-3011-005, # 1-8), with the same data, coll. I. Literak (field number HU71). Most specimens are deposited in the ZISP, five vouchers are deposited in the MHN.

Prevalences. *N. trochilinus* was recorded on one (50%) of the two specimens of *Amazilia lactea* and on four (21%) of 19 specimens of *Amazilia chionogaster* examined.

This species was described from an undetermined hummingbird originated from South America and died in the Antwerp Zoo, Belgium (Fain, 1972). Later, *N. trochilinus* was recorded on other South American hummingbird *Chrysolampis mosquitus* (Linnaeus, 1758) which also died in the Antwerp Zoo (Fain, 1995). Recently *N. trochilinus* has been reported on *A. lactea* from Brazil, *Panterpe insignis* Cabanis and Heine, 1860 and *Eugenes fulgens* (Swainson, 1827), both from Costa Rica (Bochkov & Literak, 2011).

Neharpyrhynchus tangara Bochkov and Literak, 2011
(Figure 1)

Material examined. 18 females (ZISP AVB 2011-3011-006, # 1-18) from *Thraupis episcopus* (Linnaeus, 1766) (Passeriformes:

Figure 1. Mites *Neharpyrhynchus tangara* (Bochkov and Literak, 2011) at the bases of feather shafts around an ear aperture of a bird host, *Thraupis episcopus* (Thraupidae) showing females, eggs, embryos and exuviae (photo by Zuzana Literáková).

Thraupidae) [new host, new location], PERU: Huanuco Department, Huanuco Province, Churubamba, Cascay (09º50' S, 76º80' W), 22 August 2011, coll. I. Literak (field number HU64); 20 females (ZISP AVB 2011-3011-007, # 1-20) with the same data, coll. I. Literak (field number HU65); 16 females (ZISP AVB 2011-3011-008, # 1-16) with the same data, coll. I. Literak (field number HU72). Most specimens are deposited in the ZISP and five vouchers are deposited in the MHN.

Prevalence. *N. tangara* was recorded on three (16%) of the 19 specimens of *Thraupis episcopus* examined.

This species has recently been described from *T. cayana* (Passeriformes: Thraupidae) from Brazil (Bochkov and Literak, 2011).

The most of the Neotropical parasites of birds are poorly known and more research is needed to better understand their diversity and life histories.

ACKNOWLEDGEMENTS

We thank Martina Literáková, Zuzana Literáková, Lizzie Ortiz Cam, Henry Gonzales Pinedo, Joel Vasquez Bardales, Kember Mejia Carhuanca, Rosario Ignacia Flores y Vilar, Karen Shane Verde Guerra, Leonel Arnold Trujillo Rodriguez, Marco Durand Torres, Helen Catay Carrillo and Kelma Miraval Valdivia for their cooperation in the field. A special thanks goes to Daniel Valle Basto from Refugio de Vida Silvestre Los Pantanos de Villa, Lima for a permission to work in the wetland reserve. The field work in the other locations was covered by a permission from responsible Peruvian authorities licensed for Lic. Mercedes Gonzales de la Cruz (MHN). The study was supported in part by the Grant Agency of the Academy of Sciences of the Czech Republic (grant IAA601690901) and by the Ministry of Education, Youth and Sports of the Czech Republic (grant LC06073).

Table 1. A list of birds examined (PV, Refugio de Vida Silvestre Los Pantanos de Villa, Lima; TR, Centro URKU, Tarapoto; IQ, Reserva Nacional Allpahuayo Mishana, Iquitos; HU, Cascay, Huanuco).

Family/Species	No. of birds examined or No. of birds parasitized/examined	Locations
Columbidae		
Columbina cruziana (Prévost, 1842)	2	HU
Columbina minuta (Linnaeus, 1766)	7	HU
Leptotila rufaxilla (Richard and Bernard, 1792)	3	IQ
Leptotila verreauxi Bonaparte, 1855	1	HU
Trochilidae		
Amazilia amazilia (Lesson, 1826)	1	PV
Amazilia fimbriata (Gmelin, 1788)	1	IQ
Amazilia chionogaster (Tschudi, 1846)	4/19	HU
Amazilia lactea (Lesson, 1832)	1/2	TR
Doryfera johannae (Bourcier, 1847)	1	TR
Glaucis hirsutus (Gmelin, 1788)	5	TR (2), IQ (3)
Phaethornis atrimentalis Lawrence, 1858	4	TR
Phaethornis superciliosus (Linnaeus, 1766	10	TR (5), IQ (5)
Thalurania furcata (Gmelin, 1788)	1	IQ
Threnetes leucurus (Linnaeus, 1766)	3	TR

(Continued Table 1)

Family/Species	No. of birds examined or No. of birds parasitized/examined	Locations
Cuculidae		
Crotophaga ani Linneaus, 1758	4	HU
Ardeidae		
Butorides striata (Linnaeus, 1766)	2	PV
Ixobrychus exilis (Gmelin, 1789)	2	PV
Laridae		
Larus belcheri Vigors, 1829	1	PV
Bucconidae		
Bucco macrodactylus (Spix, 1824)	1	TR
Falconidae		
Falco sparverius Linnaeus, 1758	2	PV (1), HU (1)
Furnariidae		
Dendrocincla fuliginosa (Vieillot, 1818)	3	IQ
Glyphorynchus spirurus (Vieillot, 1819)	5	IQ
Phleocryptes melanops (Vieillot, 1817)	9	PV
Thamnophilidae		
Thamnophilus schistaceus (d´Orbigny, 1835)	2	TR
Tyrannidae		
Elaenia spectabilis Pelzeln, 1868	1	TR
Leptopogon amaurocephalus Tschudi, 1846	1	TR
Mionectes oleagineus (Lichtenstein, 1823)	7	TR (1), IQ (6)
Pitangus lictor (Lichtenstein, 1823)	1	IQ
Pitangus sulphuratus (Linnaeus, 1766)	1	TR
Sayornis nigricans (Swainson, 1827)	3	HU
Tachuris rubrigastra (Vieillot, 1817)	23	PV
Todirostrum cinereum (Linnaeus, 1766)	1	HU
Tolmomyias flaviventris (Wied, 1831)	1	TR
Tyrannus melancholicus Viellot, 1819	2	HU
Pipridae		
Lepidothrix coronata (Spix, 1825)	4	IQ
Machaeropterus pyrocephalus (Sclater, 1852)	3	TR (2), IQ (1)
Manacus manacus Linnaeus, 1766)	1	IQ
Pipra fasciicauda Helmayr, 1906	2	TR
Tityridae		
Pachyramphus polychopterus (Vieillot, 1818)	4	TR (2), IQ (2)
Vireonidae		
Vireo olivaceus (Linnaeus, 1766)	2	TR
Hirundinidae		
Pygochelidon cyanoleuca (Viellot, 1817)	2	HU
Troglodytidae		
Campylorhynchus fasciatus (Swainson, 1837)	6	HU
Troglodytes aedon Vieillot, 1808	7	PV
Polioptilidae		
Ramphocaenus melanurus Vieillo, 1819	1	TR
Turdidae		
Turdus ignobilis Sclater, 1857	2	TR (1), HU (1)
Thraupidae		
Oryzoborus angolensis (Linnaeus, 1766)	3	IQ
Ramphocelus carbo (Pallas, 1764)	1	IQ
Tachyphonus luctuosus d´Orbigny and Lafresnaye, 1847	1	TR
Thraupis episcopus (Linnaeus, 1766)	3/19	HU

(Continued Table 1)

Family/Species	No. of birds examined or No. of birds parasitized/examined	Locations
Emberizidae		
Zonotrichia capensis (Müller, 1776)	5	HU
Diglossa sittoides (d´Orbigny and Lafresnaye, 1838)	3	HU
Sicalis luteola (d´Orbigny and Lafresnaye, 1837)	2	PV
Sporophila nigricollis Vieillot, 1823)	9	HU
Sporophila telasco (Lesson, 1828)	2	PV
Tiaris obscurus (d´Orbigny and Lafresnaye, 1837)	3	TR
Cardinalidae		
Pheucticus chrysogaster (Lesson, 1832)	5	HU
Fringillidae		
Carduellis magellanica (Vieillot, 1805)	14	HU
Total	**8/233**	

BIBLIOGRAPHIC REFERENCES

Bochkov, AV & Literak, I. 2011. *Mites of the genus Neharpyrhynchus Fain (Acariformes, Harpirhynchidae) from Neotropical birds*. ZooKeys, vol. 89, pp. 15–31.

Bochkov, AV, Mironov, SV & Fain, A. 1999. *Phylogeny and host parasite relationships of the mite family Harpirhynchidae (Acari: Prostigmata)*. Acarina, vol. 7, pp. 69–87.

Bochkov, AV, Literak, I & Capek, M. 2007. *Neharpyrhynchus baile n. sp. (Prostigmata: Harpirhynchidae) parasitizing Turdus leucomelas Vieillot (Aves: Turdidae) from Brazil*. International Journal of Acarology, vol. 33, pp. 35–39.

Clements, JF, Schulenberg, TS, Iliff, MJ, Sulivan, BL, Wood, CL & Robertson, D. 2011. *The Clements checklist of birds of the world: Version 6.6*. (http://www.birds.cornell.edu/clementschecklist/downloadable-clements-checklist, accessed 29 January, 2012).

Fain, A. 1972. *Notes sur les families Cheyletidae et Harpyrhynchidae productrices de gales chez les oiseaux ou les mammiferes*. Acta Zoologica et Pathologica Antverpiensia, vol. 56, pp. 37–60.

Fain, A. 1995. *New observations on the Harpirhynchidae Dubinin, 1957 (Acari: Prostigmata). II. On some new or little-known taxa in the Harpirhynchinae*. Bulletin de I'lnstitut Royal des Sciences Naturelles de Belgique, Entomologie, vol. 65, pp. 73–100.

Martinu, J, Dusbabek, F & Literak, I. 2008. *A review of mites of the genus Neharpyrhynchus Fain (Acari: Harpirhynchidae) – ectoparasites of wild birds, including description of four new species*. International Journal of Acarology, vol. 34, pp. 197–209.

Received December 11, 2011.
Accepted January 28, 2012.

Correspondence to author/ Autor para correspondencia:

Ivan Literák
Department of Biology and Wildlife Diseases, Faculty of Veterinary Hygiene and Ecology, University of Veterinary and Pharmaceutical Sciences, Palackého 1-3, 612 42 Brno, Czech Republic
Tel.: +420 541 562 630
Fax: +420 541 562 631

E-mail/ correo electrónico:
literaki@vfu.cz