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A review of the *zumpti* species group of the genus *Harpyrhynchoides* (Acariformes: Harpirhynchidae)—ectoparasites of passerines

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Abstract

The *zumpti* species group of the genus *Harpyrhynchoides* (Harpirhynchidae), parasites of passerines, is revised. A key to the species of this group is provided and data on host associations and geographic distribution of its constituent species are summarized. This group includes six previously recognized species: *Harpyrhynchoides alaudinus* Bochkov, 2000, *H. brevis* (Ewing, 1911) **comb. nov.**, *H. heatherae* Bochkov and Galloway, 2013, *H. rubeculinus* (Cherny and Sixl, 1971), *H. vulgaris* Bochkov and Galloway, 2004, and *H. zumpti* (Fain, 1972). Three species from North American passerines are described as new: *H. setophaga* **sp. nov.** from *Setophaga ruticilla* (Parulidae), *H. xanthocephalus* **sp. nov.** from *Xanthocephalus xanthocephalus* (Icteridae), and *H. spizella* **sp. nov.** from *Spizella passerina* (Emberizidae). Additionally, *H. brevis* is redescribed based on samples from *Coccothraustes vespertinus* (type host) and *Loxia curvirostra* (Passeriformes: Fringillidae) from North America. *Harpyrhynchoides kirgizorum* Fain *et al.* 1999 **syn. nov.** is synonymized with *H. zumpti*.

Key words: Acari, ectoparasites, mites, passerine birds, systematics

Introduction

Mites of the family Harpirhynchidae Dubinin (Acariformes: Cheyletoidea) are permanent parasites of neognathous birds and snakes of the superfamily Colubroidea (Fajfer 2012; Skoracki *et al.* 2012). The genus *Harpyrhynchoides* Fain, 1972 includes 40 species and is the most species-rich genus of the family (Fain 1994; Fain *et al.* 1999; Bochkov & Galloway 2004, 2013; Bochkov & OConnor 2013). Among species of this genus, birds of the order Passeriformes are hosts for *Harpyrhynchoides parazumpti* Fain *et al.* 1999 from *Corvus monedula* (Linnaeus) (Corvidae) and for the *zumpti* species group (see diagnostic characters below) established by Bochkov & Galloway (2004), i.e. *Harpyrhynchoides alaudinus* Bochkov, 2000, *H. heatherae* Bochkov and Galloway, 2013, *H. kirgizorum* Fain *et al.*, 1999, *H. rubeculinus* (Cherny and Sixl, 1971), *H. vulgaris* Bochkov and Galloway, 2004, and *H. zumpti* (Fain, 1972). The identification of species belonging to this group is relatively difficult because of high morphological similarity among them. An additional problem in the systematics of this group was very brief original description of *Harpirhynchus brevis* Ewing, 1911. According to Moss (1979), this species is associated with many North American passerines (recorded from 25 species). Unfortunately, Moss (1979) did not provide its redescription, and the original description by Ewing (1911) is so poor that both Fain (1995) and Skoracki *et al.* (2012) considered it as a *species inquirenda*. Thus, there was a potential risk that another species of the *zumpti* group could be a junior synonym of *H. brevis*.

Examination of the large amount of material gathered by the late acarologist Dr. W.W. Moss (USA) and presently deposited at the Acarological collection of the Ohio State University (Columbus, USA), and new collections (Fain *et al.* 1999; Bochkov 2000; Bochkov & Galloway 2001, 2004, 2013; Bochkov & Literak 2008) allowed us to revise the *zumpti* species group. A key to the species of this group is provided, and data on its host

4. Lateral folds of vulva very short, not even close to reaching posterior margin of idiosoma 6
 - Lateral folds of vulva very long, reaching posterior margin of idiosoma 5
 5. Palpalae *l''G* 2 times as long as *dF*. Setae *h2* 130–170 long *H. alaudinus* Bochkov, 2000
 - Palpalae *l''G* 1.3 times longer than *dF*. Setae *h2* 40–50 long *H. spizella* **sp. nov.**
 6. Palpalae *l''G* subequal to or at most 1.5 times longer than *dF* 7
 - Palpalae *l''G* 1.7–2 times longer than *dF* *H. heatherae* Bochkov and Galloway, 2013.
 7. Setae *h2* 100–135 long 8
 - Setae *h2* 50–80 long *H. zumpti* (Fain, 1972)
 8. Body, including gnathosoma, 370–400 long. Palpalae *l''G* 1.1–1.3 times longer than *dF*
 *H. vulgaris* Bochkov and Galloway, 2004
 - Body, including gnathosoma, 320–340 long. Palpalae *l''G* 1.4 times longer than *dF* *H. xanthocephalus* **sp. nov.**

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