



Conference Abstract

Spatial distribution of feather mites (Astigmata: Analgoidea) on the plumage of passerine birds from the territory of South Dobrudzha, Bulgaria

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Abstract

Feather mites (Astigmata: Pterolichoidea, Analgoidea) are permanent ectosymbionts of birds, found from all avian orders except Rheiformes (Stefan et al. 2015). The feather mites' spatial distribution on the plumage depends on the morphology and structure of the feathers, aerodynamic and frictional forces, the life cycle and social behavior of the hosts, as well as environmental factors such as temperature and humidity (Dubinin 1951; Fernández-González et al. 2015). Depending on the location of the feather mites on the host's body, a variety of morphological, physiological and behavioral adaptations are observed, which allow several feather mite species to coexist on the same bird (Dabert and Mironov 1999; Proctor 2003; Mestre et al. 2011). Studies dedicated to the spatial distribution of feather mites on the plumage of birds are relatively scarce. Such data is largely missing also for the territory of Bulgaria. Therefore, the aim of this paper is to present the results of the first specialized study of their spatial distribution on the plumage of passerines in Bulgaria.

379 birds belonging to 47 species of the order Passeriformes were examined in the period 2005–2007. As a result, the locations of 76,000 specimens (including both adults and nymphal stages) of feather mites of 54 species were determined. The distribution on the plumage of each species of bird was presented by generalized schemes.

Feather mites were not found on the outermost primary feathers (P10), which are smaller than others primaries and do not offer enough resources. Feather mites located on the wing and tail feathers were mainly observed on the medial part of the feather, close to the rachis, and hence on the feather barbs. Feather mites preferred the wider parts of the primary feathers. On the secondary feathers, the mites were located predominantly in the middle third, on either side of the rachis. We examined if feather mites were symmetrically distributed on both wings using samples from those birds represented by numerous individuals (*Passer montanus* (L., 1758), *Acrocephalus arundinaceus* (L., 1758), *Panurus biarmicus* (L., 1758), *Cyanistes caeruleus* (L., 1758), *Fringilla coelebs* L., 1758). In this analysis, χ^2 -test confirmed no difference in the location of the feather mites on the feathers of both wings of the respective hosts and symmetry.

Mites, such as *Proctophyllodes pinnatus* (Nitzsch, 1818) and *Mesalgoides megnini* (Oudemans, 1937) (on *Chloris chloris* (L., 1758)), *Proctophyllodes stylifer* (Buchholz, 1869) and *Ptronyssoides parinus* (Koch, 1841) (on *Cyanistes caeruleus*), *Pterodectes rutilus* Robin, 1868 and *Scutulanyssus hirundicola* Mironov, 1985 (on *Hirundo rustica* L., 1758), can coexist on the feathers of their respective hosts. Probably the different body size or trophology of these mite species reduced the competition between them.

We found *Trouessartia crucifera* Gaud, 1957 and *T. appendiculata* (Berlese, 1886) on the secondary feathers of *Hirundo rustica*, but never together. The competition for resources between these two mite species is probably stronger.

Feather mites respond to bird molting mainly by moving to adjacent feathers (Dubinin 1951). We monitored the spatial distribution of *Proctophyllodes balati* on the wing feathers during the molting of *Panurus biarmicus*.

Keywords

feather mites, spatial distribution, passerine birds, South Dobrudzha, Bulgaria

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