

Louse Flies on Birds of Baja California

Authors: José L. Tella, Ricardo Rodríguez-Estrella, and Guillermo Blanco

Source: Journal of Wildlife Diseases, 36(1) : 154-156

Published By: Wildlife Disease Association

URL: <https://doi.org/10.7589/0090-3558-36.1.154>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Louse Flies on Birds of Baja California

José L. Tella,^{1,2,4} Ricardo Rodríguez-Estrella,³ and Guillermo Blanco² ¹ Department of Applied Biology, Estación Biológica de Doñana, C.S.I.C., Avda. Ma Luisa s/n, E-41013 Sevilla, Spain; ² Department of Biology, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 0W0 Canada; ³ Centro de Investigaciones Biológicas del Noroeste, Km 1 Carretera S. Juan de la Costa, El Comitán. Apdo. Postal 128. La Paz 23000 B.C.S. México; ⁴ Corresponding author (e-mail: tella@ebd.csic.es).

ABSTRACT: Louse flies were collected from 401 birds of 32 species captured in autumn of 1996 in Baja California Sur (México). Only one louse fly species (*Microlynychia pusilla*) was found. It occurred in four of the 164 common ground doves (*Columbina passerina*) collected. This is a new host species for this louse fly.

Key words: Hippoboscidae, louse flies on birds, *Microlynychia pusilla*, new host record survey.

Little is known on the effects of louse flies on birds (Tella et al., 1995; Tompkins et al., 1996; Saino et al., 1998), and on the host specificity and distribution of louse flies on avian hosts (see Tella et al., 1998a). Herein, we present the results of the first survey for louse flies in different species of birds of Baja California Sur México where there is but a single previous study on louse flies of California quail (*Callipepla californica*) (Linas and Jiménez, 1996).

The study was conducted in the vicinity of La Paz (Baja California Sur, México; 24°20'N, 110°20'W) between 15 November and 9 December 1996. The study area has sarcocaulous scrub vegetation, with low precipitation (150.6 mm of rain annually), and with an annual mean temperature between 22.1 and 23.4 C (Rodríguez-Estrella et al., 1998). We attempted to capture as many different bird species as possible for a survey on plasma carotenoids (see Tella et al., 1998b), hematozoa, and ectoparasites in birds. Most bird species were captured by using non-selective mist-nets, so number and diversity of birds sampled reflect the bird community present in the area (for surveys based on point counts, see Rodríguez-Estrella, 1997). However, raptors (Families Cathartidae, Accipitridae, and Falconidae) and waterbirds (Families Threskiornitidae and Charadriidae) were selectively captured using

baited nets, mist-nets, and bal-chatri traps. Birds were visually examined for louse flies (e.g., Young et al., 1993; Tella et al., 1998a) just after capture by blowing the feathers of the whole body. Although birds were handled during 10–15 min, all flies were detected and captured by hand during the first few minutes of manipulation.

Four hundred one adult birds of 32 species and 15 families were examined for louse flies (Table 1). Only 4 (2%) of 164 common ground doves (*Columbina passerina*) were found parasitized by louse flies. Three birds had one fly and one bird had two flies; all birds were males. None of the other bird species examined by us (Table 1) were parasitized by louse flies. Flies were stored in 70% ethyl alcohol and later identified as *Microlynychia pusilla*, following the descriptions of Bequaert (1955) and Maa (1969). One specimen was deposited at the Entomological Collection of the Centro de Investigaciones Biológicas del Noroeste (La Paz, Baja California Sur, México; accession number CIB 99-I).

The common ground dove is a new host species for *M. pusilla*. The absence of previous records of *M. pusilla* in this species is probably related to the small number of individuals previously examined ($n = 3$; McClure, 1984). Other Hippoboscidae species, e.g., *Crataerina melbae* (Tella et al., 1998a) seem to be closely tied to a host. However, we cannot relate a high host specificity to *M. pusilla*. Although *M. pusilla* is mainly a parasite of the Columbidae, it has been reported on 19 genera of birds (Maa, 1969; McClure, 1984), including five bird species surveyed by us (*C. californica*, *Zenaida macroura*, *Zenaida asiatica*, *Carpodacus mexicanus* and *Passer domesticus*). Moreover, Linas and

TABLE 1. Number of sampled birds grouped by species and family.

Family	Species	<i>n</i>
Threskiornithidae	<i>Plegadis chihi</i>	2
Cathartidae	<i>Cathartes aura</i>	13
Charadriidae	<i>Charadrius semipalmatus</i>	2
	<i>Calidris mauri</i>	15
Accipitridae	<i>Parabuteo unicinctus</i>	2
Falconidae	<i>Falco sparverius</i>	68
Phasianidae	<i>Callipepla californica</i>	7
Columbidae	<i>Zenaida macroura</i>	1
	<i>Zenaida asiatica</i>	2
	<i>Columbina passerina</i>	164
Picidae	<i>Melanerpes uropygialis</i>	4
	<i>Colaptes auratus</i>	1
	<i>Picoides scalaris</i>	1
Tyrannidae	<i>Pyrocephalus rubinus</i>	1
	<i>Empidonax difficilis</i>	1
Troglodytidae	<i>Campylorhynchus brunneicapillus</i>	13
Muscicapidae	<i>Polioptila melanura</i>	1
	<i>Catharus guttatus</i>	1
Mimidae	<i>Toxostoma cinereum</i>	2
	<i>Mimus polyglottos</i>	1
Emberizidae	<i>Pheucticus ludovicianus</i>	1
	<i>Cardinalis cardinalis</i>	3
	<i>Cardinalis sinuatus</i>	5
	<i>Pipilo chlorurus</i>	5
	<i>Pipilo fuscus</i>	1
	<i>Chondestes grammacus</i>	15
	<i>Zonotrichia leucophrys</i>	52
	<i>Spizella breweri</i>	3
	<i>Vermivora celata</i>	4
	<i>Geothlypis trichas</i>	1
Fringillidae	<i>Carpodacus mexicanus</i>	4
Passeridae	<i>Passer domesticus</i>	6

Jiménez (1996) reported *M. pusilla* on 30% ($n = 30$) of California quail captured from November–December 1992 in our study area.

The overall prevalence of louse flies reported in this study (1%, $n = 401$ birds) is much lower than in other studies (e.g., 19%, $n = 301$, Whitman and Wilson, 1992; 17%, $n = 382$, Young et al., 1993; 57%, $n = 364$, Tella et al., 1998a). McClure (1984) found 4% of birds captured in November–December ($n = 3,946$) infected by louse flies in southern California, this prevalence being significantly higher than the reported by us (χ^2 with Yates correction = 6.71, 1 df, $P < 0.01$). These differences may be attributed to the composition of each bird community, to the bird species captured,

and/or to the climatic conditions of each study area, since weather influences the abundance of louse flies (Young et al., 1993; Senar et al., 1994).

We are grateful to F. Hiraldo, M. G. Forero, J. J. Negro, and M. C. Blázquez for their help during the field work, and to M. L. Jiménez and M. Carles-Tolrà for independently identifying the louse fly species. CIBNOR and Consejo Nacional de Ciencia y Tecnología (Project 1749P-N) provided financial support. J. L. Tella and G. Blanco were supported by both pre-doctoral and post-doctoral grants from the Spanish MEC.

LITERATURE CITED

BEQUAERT, J. C. 1955. The Hippoboscidae or louse-flies (Diptera) of mammals and birds. Part II.

- Taxonomy, evolution and revision of American genera and species. *Entomologica Americana* 34/35/36: 1–611.
- LLINAS, J., AND M. L. JIMÉNEZ. 1996. First record of a louse fly, *Stilbometopa impressa* (Bigot), and new host for *Microlynchia pusilla* (Speiser) (Hippoboscidae) from the Cape Region, Baja California Sur, México. *Journal of Wildlife Diseases* 32: 338–339.
- MAA, T. C. 1969. Notes on the Hippoboscidae (Diptera). Pacific insects. Monograph 6, Entomology Department, Bernice P. Bishop Museum, Honolulu, Hawaii, 260 pp.
- MCCLURE, H. E. 1984. The occurrence of hippoboscid flies on some species of birds in southern California. *Journal of Field Ornithology* 55: 230–240.
- RODRÍGUEZ-ESTRELLA, R. 1997. Factores que condicionan la distribución y abundancia de las aves terrestres en el desierto xerófilo de Baja California Sur, México: el efecto de los cambios en el hábitat por actividad humana. Ph.D. Thesis, Universidad Autónoma de Madrid, Madrid, Spain, 355 pp.
- , J. A. DONÁZAR, AND F. HIRALDO. 1998. Raptors as indicators of environmental change in the scrub habitat of Baja California Sur, México. *Conservation Biology* 12: 921–925.
- SAINO, N., S. CALZA, AND A. P. MOLLER. 1998. Effects of a dipteran ectoparasite on immune response and growth trade-offs in barn swallow, *Hirundo rustica*, nestlings. *Oikos* 81: 217–228.
- SENAR, J. C., J. L. COPETE, J. DOMENECH, AND G. VON WALTER. 1994. Prevalence of louse-flies (Diptera, Hippoboscidae) parasiting a cardueline finch and its effect on body condition. *Ardea* 82: 157–160.
- TELLA, J. L., C. GORTÁZAR, A. GAJÓN, AND J. J. OSÁCAR. 1995. Apparent lack of effects of a high louse-fly infestation (Diptera, Hippoboscidae) on adult colonial Alpine swifts. *Ardea* 83: 435–439.
- , A. GAJÓN, C. GOTÁZAR, AND J. J. OSÁCAR. 1998a. High host specificity of *Crataerina melbae* (Diptera: Hippoboscidae) in a mixed colony of birds. *The Journal of Parasitology* 84: 1980–200.
- , NEGRO, J. J., RODRÍGUEZ-ESTRELLA, R., BLANCO, G., FORERO, M. G., BLÁZQUEZ, M. C., AND F. HIRALDO. 1998b. A comparison of spectrophotometry and color charts for evaluating total plasma carotenoids in wild birds. *Physiological Zoology* 71: 708–711.
- TOMPKINS, D. M., T. JONES, AND D. H. CLAYTON. 1996. Effect of vertically transmitted ectoparasites on the reproductive success of Swifts (*Apus apus*). *Functional Ecology* 10: 733–740.
- WHITMAN, J. S., AND N. WILSON. 1992. Incidence of louse-flies (Hippoboscidae) in some Alaskan birds. *North American Bird Bander* 17: 65–68.
- YOUNG, K. E., A. B. FRANKLIN, AND J. P. WARD. 1993. Infestation of Northern spotted owls by hippoboscid (Diptera) flies in Northwestern California. *Journal of Wildlife Diseases* 29: 278–283.

Received for publication 20 April 1999.