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Ectoparasites of Ring-necked Pheasants in Nebraska

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ABSTRACT: In 1971, 1983 and 1984, ectoparasites were identified on 61 ring-necked pheasants (*Phasianus colchicus*) from Nebraska. Birds were collected throughout the state from 11 of 93 counties. Four species of chewing lice (Mallophaga) were collected: *Lipeurus maculosus*, *Goniodes colchici*, *Lagopoecus colchicus* and *Amyrsidea megalosoma*. One species of analgid mite, *Megninia* sp. was collected. Apparently, this species is new and undescribed. The four mallophagan species have not been reported from Nebraska.

Key words: Acari, ectoparasites, Mallophaga, ring-necked pheasant, *Phasianus colchicus*, chewing lice, mites, survey.

Ectoparasites on pheasants (*Phasianus colchicus*) have been examined in North Dakota (Richards, 1966), South Dakota (Parikh, 1972), and Iowa (Roslien, 1966). Knowledge of the host-parasite relationships in pheasants is important in the management of healthy populations. Although chewing lice and feather mites found on pheasants are not known to serve as vectors for disease agents or to be pathogenic themselves, other species are intermediate hosts for cestodes and filarial worms (McClure and Ratanaworabhan, 1972) and some oribatid mites are intermediate hosts for anoplocephalid tapeworms (Stunkard, 1940). Thus, the present study examined the ectoparasites of pheasants in Nebraska and was in conjunction with another study on the endoparasites of pheasants (Greiner, 1972).

Ring-necked pheasants were collected from Box Butte (7), Sheridan (5), Cherry (5), Perkins (5), Phelps (9), Sherman (5), Lancaster (9) and Thurston (5) counties in Nebraska during October 1971 (Fig. 1). Some samples were also collected in Lancaster (5), Sherman (3), Blaine (1), Fillmore (1) and Washington (1) counties in November 1983 and 1984 (Fig. 1). After collection, each pheasant was sealed in a plastic bag and immediately placed on ice to prevent the escape of the ectoparasites.

Each pheasant skin was washed in soapy water to remove the lice and mites. Washings were strained through a U.S. standard number 16, pore size 1.91 mm and U.S. standard number 120, pore size 0.12 mm screens (Fisher Scientific, Chicago, Illinois 60143, USA) successively. The first screening eliminated useless debris, while the smaller screening captured the ectoparasites. The number 120 screen was rinsed with water into a glass tray, viewed under a dissecting microscope, and individuals removed with a dissecting needle. Legs of each bird were examined for scaly leg mites (Knemidocoptidae), and quills of primary feathers were examined for quill mites (Syringophilidae).

Ectoparasites were fixed in alcohol-formalin-acetic acid (AFA) (Meyer and Olsen, 1980) and scored in 70% ethanol. Some were mounted with CMCP-10 (Master's Chemical Company, Des Plaines, Illinois 60018, USA). The remainder were mounted in either Permount (Fisher Scientific) or Canada balsam (Fisher Scientific). Lice were identified by K. C. Emerson. Representative specimens of ectoparasites were deposited in the H. W. Manter Laboratory of Parasitology (University of Nebraska State Museum, Lincoln, Nebraska 68508 USA; accession numbers were 19999 for *G. colchici*, 19998 for *L. maculosus*, 20000 for *A. megalosoma*, 19997 for *L. colchicus* and 19996 for the *Megninia* sp.).

Four species of chewing lice (Mallophaga) were identified as *Lipeurus maculosus*, *Goniodes colchici*, *Lagopoecus colchicus* and *Amyrsidea megalosoma*. Two mites were also collected, *Megninia* sp. and an unidentified free-living species (Orbatidae). Table 1 separates these between 1971 and 1983–1984. Although the intensity of

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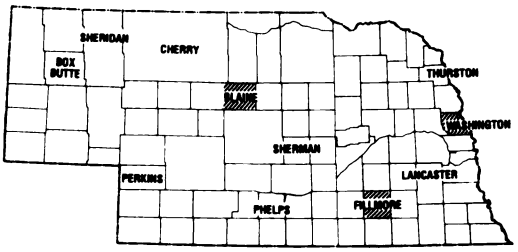


FIGURE 1. Nebraska counties from which ring-necked pheasants were collected for ectoparasite survey. Crosshatching indicates counties where only 1 pheasant was collected.

infection varied across the state, greater variations were observed between birds within the same collection area.

All four of the species of lice we found on pheasants are listed as common ectoparasites on gallinaceous birds (Becklund, 1964). *Goniodes colchici, Lagopoecus colchicus* and *Lipeurus maculosus* are identified as common species found on pheasants (Emerson, 1951). Records now indicate that *Amyrsidea megalosoma* is established on native gallinaceous birds in at least part of the established range of the ring-necked pheasant (Emerson, 1961). Surprisingly, in our current study and that of Parikh (1972) in eastern South Dakota there were no lice species in common. Mallophaga were not reported on the pheasants in North Dakota (Richards, 1966). In Iowa, *L. maculosus* and *G. colchici* were found on the ring-necked pheasant (Roslien, 1966). *Amyrsidea megalosoma* were found on pheasants collected in Illinois, Rhode Island, New Hampshire and New Jersey (Emerson, 1961).

The *Megninia* sp. we recovered from pheasants is believed to be a new species in the family Analgidae (W. T. Atyeo, pers. comm.). In eastern South Dakota, four species of mites were reported: *Megninia ginglymura, Trombicula alfreddugesi, Epidermoptes phasianus* and *Cryptostigmata* sp. (Parikh, 1972). *Epidermoptes phasianus* was initially described from a pheasant in South Dakota (McDaniel and Parikh, 1969). Mites were not reported on the pheasants in Iowa (Roslien, 1966). In North Dakota, *Ornithonyssus sylviarum* was found (Richards, 1966). Becklund (1964) lists *Megninia columbae, M. cubitalis* and *M. gallinulae* as being found on gallinaceous birds. Orbatid mites were seen in the 1971 collection.

While this study does not confirm the same findings as other regional studies, especially for mites, it is the first to document the known ectoparasites of ring-necked pheasants from Nebraska. One species of mite (*Megninia* sp.) and one species of louse (*Lagopoecus colchicus*) were the first to be documented in this region.

The authors thank W. T. Atyeo, University of Georgia, for identifying the *Megninia* sp.; William Wren, University of North Dakota for identifying the orbatid mite and K. C. Emerson, Sanibel, Florida, for identifying the lice. The authors also thank Pat McFadden, Curt Kremke and Eric Lee for their contribu-

TABLE 1. Prevalence and intensity of ectoparasites in Nebraska ring-necked pheasants in 1971 (n = 50) and 1983–1984 (n = 11).

Parasite	Prevalence (%)		Intensity ($\bar{x}$ ± SE)	
	1971	1983–1984	1971	1983–1984
Lipeurus maculosus	42	54	4.13 ± 1.48	4.83 ± 1.25
Gonoides colchici	16	18	6.80 ± 3.79	1.50 ± 0.50
Lagopoecus colchicus	60[a]	36	3.97 ± 0.87	3.00 ± 0.91
Amyrsidea megalosoma	—[a]	64	—	14.71 ± 3.37
Megninia sp.	74	100	21.16 ± 5.92	64.82 ± 11.44
Orbatid mite	10	0	1.20 ± 0.20	—

[a] *Amyrsidea megalosoma* was not separated from *Lagopoecus colchicus* in the 1971 collection.

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tions to the study and William Baxter, Nebraska Game and Parks Commission, for the 1971 collection of pheasants, Liz Huff for proof reading, and Jan Duensing and Margo Ems for typing and correcting the manuscript.

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