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SOME INTERNAL AND EXTERNAL PARASITES OF THE REDWINGED BLACKBIRD, *AGELAIUS PHOENICEUS* *PHOENICEUS* L., FROM CENTRAL OHIO; INCLUDING DESCRIPTIONS OF THREE NEW FEATHER MITES^{1, 2}

GERHARD R. SPORY

Department of Zoology and Entomology, The Ohio State University, Columbus 10³

ABSTRACT

From sixty-one redwinged blackbirds that were collected and examined between 1962 and 1963, eighteen species of parasites were recovered. Seven species of parasites represent new host records. These are: the trematode *Conspicuum icteridorum*; the feather mites *Strelkoviacarus critesi* sp. n., *Mesalges johnstoni* sp. n., *Proctophyllodes egglestoni* sp. n., *Dermoglyphus* sp.; the nasal mite *Speleognathus* sp.; and the mallophagan *Machaerilaemus laticarpus*. Cited is a table containing previous published and unpublished records of parasites taken from redwinged blackbirds.

During the summer and autumn of 1962 and spring of 1963 a study was made of the internal and external parasites of the redwinged blackbird, *Agelaius p. phoeniceus*, from central Ohio. Sixty-one birds were collected from The Ohio State University farm pond area in Franklin County, Ohio, and the Delaware Reservoir Wildlife Area, Delaware County, Ohio.

The procedure used in capturing redwings and collecting their parasites can be found in my Master's thesis (Spory, 1963).

The following list presents the parasites found in this study, including descriptions for three new feather mites.

Acanthocephala

Order Archiacanthocephala

Family Gigantorhynchus

Mediorhynchus grandis Van Cleave, 1916.

A single worm was found in the intestine of each of two birds of the 61 examined. Other hosts for this parasite have been reported by Van Cleave (1947).

Cestoda

Order Cyclophyllidea

Family Dilepididae

Anonchotaenia globata von Linstow, 1879.

Thirty-three birds were found to harbor this parasite. The site of attachment was the digestive tract from anterior duodenum to the middle of the large intestine. As many as 21 tapeworms were recovered from a single host. A host list for this species is given by Rausch and Morgan (1947).

¹Derived from a thesis submitted to the Graduate School in partial fulfillment of the requirements for the degree Master of Science, The Ohio State University, Columbus, Ohio.

²Manuscript received August 24, 1963

³Present address: Box 238, Deer Park L. I., N. Y.

Trematoda

Order Digenea

Family Dicrocoeliidae

Conspicuum icteridorum Denton and Byrd, 1951.

This trematode was recovered from the gall bladder of 27 birds. The life history of *C. icteridorum* was determined by Patten (1952) and a host list given by Denton and Byrd (1951).

Arachnida

Order Acari

Family Rhinonyssidae

Paraneonyssus icteridius Strandtmann and Furman, 1956.

Three specimens were collected from one redwing. A host list for this nasal mite is given by Strandtmann and Furman (1956).

Family Rhinonyssidae

Sternostoma sp.

One bird was found to harbor a single specimen in its trachea.

Family Laelaptidae

Ornithonyssus sylviarum Canestrini and Fanzago, 1877.

Three birds were infected with this blood sucking mite. Its life cycle is given in Baker, et al. (1956).

Family Ixodidae

Haemaphysalis leporispalustris Packard, 1869.

H. leporispalustris, commonly referred to as the "rabbit tick," has been reported from over 65 different species of birds (Bishopp and Trembley, 1945). In this study it was found on five redwings. The life cycle of this tick has been determined by Hooker et al. (1912).

Family Ereyenetidae

Speleognathus sp.

This mite was recovered from the nasal cavities of one bird.

Family Epidermoptidae

Strelkoviacarus critesi sp. n. (figs. 1, 2)

Male (holotype).—Idiosoma 234 μ in length along median line. Width 165 μ at level of coxa II.

Dorsum. Propodosomal shield small, about one fourth the length of idiosoma, bearing one pair vertical setae. Two pairs scapular setae lateral to shield. Opisthosomal shield wide, rounded anteriorly, about one fourth the length of idiosoma. Two pairs of setae lateral to opisthosomal shield. Three pairs of dorsal opisthosomal setae present.

Venter. Coxal apodemes I, II free, III and IV fused. Coxal setae 1, 3, 4 present. Genital aperture between coxae III and IV. Genital papillae reduced; two pairs of genital setae present. Aedeagus short. Anus at posterior body margin; small weakly sclerotized adanal disc on each side. One pair anal setae present. Shield lateral to each adanal disc carries three setae at posterior margin, two almost as long as body. Two pairs of sub-equal setae on lateral edge of adanal shield.

Legs I, II normal; bearing ventral process on tibiae and small lateral process on femur I. Leg III thicker than leg IV. Tarsus of leg III with dorsal claw-like process. Ambulacra equal on all legs.

Gnathosoma large, palps and chelicerae broad.

Female (allotype).—Idiosoma 302 μ (247–302 μ) in length along median line. Width 181 μ (154–187 μ) at level of coxa II.

Dorsum. Propodosomal shield similar to male. Paired opisthosomal shields present, less than one fourth body length and reaching to posterior margin. Three pairs of opisthosomal setae present.

Venter. Coxal apodemes I fused; with crosspiece connecting them at middle. Apodeme

II free; III, IV fused. Coxal setae 1, 3, 4 present. Genital orifice between apodemes I. Two pairs of genital setae present. Anal aperture large, near posterior end of body. Two pairs of adanal setae present. Each pigmented conical projection lateral to anus with two mediolateral setae. Two pairs of strong subequal setae about two thirds length of body at posterior of projections.

Legs I, II bearing analgesid-type ventral processes on tibiae I and II. Small lateral

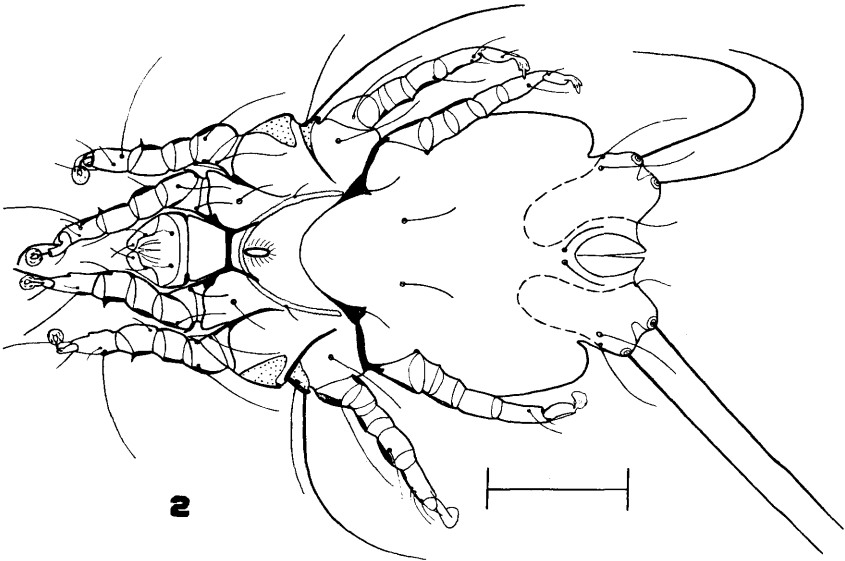
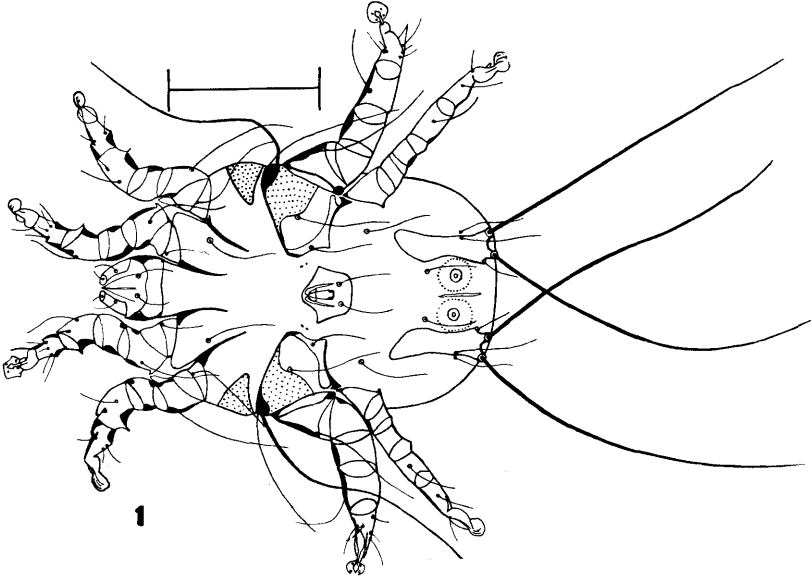


FIGURE 1. *Strelkoviacarus critesi* sp. n., male, ventral view, (scale—100 μ).

FIGURE 2. *Strelkoviacarus critesi* sp. n., female, ventral view, (scale—100 μ).

process on femur I. Leg III slightly thicker than leg IV. Ambulacra of legs I, II equal; III smaller than IV.

Gnathosoma same as male.

Remarks: Specimens found in this study are similar to the only other named species, *S. quadratus* (Haller). In the figure given by Dubinin (1953), *S. quadratus* has two pairs of short ventral setae on the posterior protuberances of the female which are more medial than in *S. critesi*. The propodosomal shield is triangular in form with broadly rounded postero-lateral angles in both sexes of *S. quadratus*; and, according to Dubinin's figure, bears two pairs of scapular setae. The propodosomal shield of *S. critesi* is triangular in form but narrower in width and more acutely rounded on the postero-lateral margin. The opisthosomal shields are absent in *S. quadratus* but present in *S. critesi*. The male of *S. quadratus* lacks shields lateral to each anal disc and the medio-lateral setae which are found on these shields in *S. critesi*. The sternal apodeme anterior to the copulatory organ in the male found on *S. quadratus* is lacking on *S. critesi*.

The holotype was collected from a redwinged blackbird on October 27, 1961 by Dr. M. Giltz in Castalia, Ohio. The allotype was collected from a male redwing on September 29, 1962, by the author at the Delaware collecting site. The holotype and allotype will be deposited with the United States National Museum. Paratypes, one male, four females and one nymph collected by M. Giltz, October 27, 1961, will be deposited with the Institute of Acarology, Ohio Agricultural Experiment Station, Wooster, Ohio. *S. critesi* was recovered from four redwinged blackbirds. The species name was chosen in honor of Dr. John L. Crites, The Ohio State University, Columbus, Ohio.

Family Knemidocoptidae

Knemidocoptes sp.

Mites of this genus are the cause of a disease which is commonly known as scaly leg. Dr. A. Fain (personal communication) has seen specimens of this mite and indicates that they are smaller and that its dorsum is more scaly than *K. mutans mutans*; and that their appearance is similar to *K. mutans jamaicensis* (Turk) which has been described from *Turdus* sp., a thrush. Dr. Fain believes that definite conclusions could not be reached without first comparing these specimens to those from type hosts. Four birds harbored this mite.

Family Analgesidae

Mesalges johnstoni sp. n. (figs. 3, 4).

Male (holotype).—Idiosoma 296 μ (287–323 μ) in length along median line. Width 214 μ (201–266 μ) at level of coxa II. Length of major lobes 86 μ (85–96 μ) from distal end to median line.

Dorsum. Propodosomal shield bearing vertical, internal and external scapular setae. Large hysterosomal shield present, bearing three pairs of setae.

Venter. Coxal apodemes I free; II, III fused; IV free. Coxal setae 1, 2, 4 present. Genital sclerite forming inverted "U." Genital aperture between coxae IV. Reduced genital papillae and two pairs of genital setae present. Aedeagus short, the ventral hook less than length of posterior genital setae. Anal field delimited anteriorly by semicircular sclerite. Two pairs adanal setae and well developed adanal disc present. Two pairs subequal lateral caudal setae flanking major lobes. Major lobes with seta-bearing medial and lateral minor lobes.

Legs I, II normal, bearing typical analgesid ventral processes on tarsi I, II; tibiae I, II and genu II. Legs III hypertrophied, extending beyond tips of major lobe. Tibiae III with distal ventral spur reaching about middle of tarsus III. Leg IV short, reaching end of idiosoma. Tarsi IV with acute antero-lateral and postero-lateral spurs and blunt ventral spur. Ambulacra equally developed on all legs.

Gnathosoma with typical analgesid characters.

Female (allotype).—Idiosoma 329 μ (287–332 μ) in length along median line. Width 217 μ (166–217 μ) at level of coxa II.

Dorsum. Propodosomal shield similar in outline to male, bearing vertical, internal and external scapular setae. Hysterosomal shield not reaching as far laterally or posteriorly as in male; bearing five setal pairs; one pair setae lateral, about two thirds distance from anterior end.

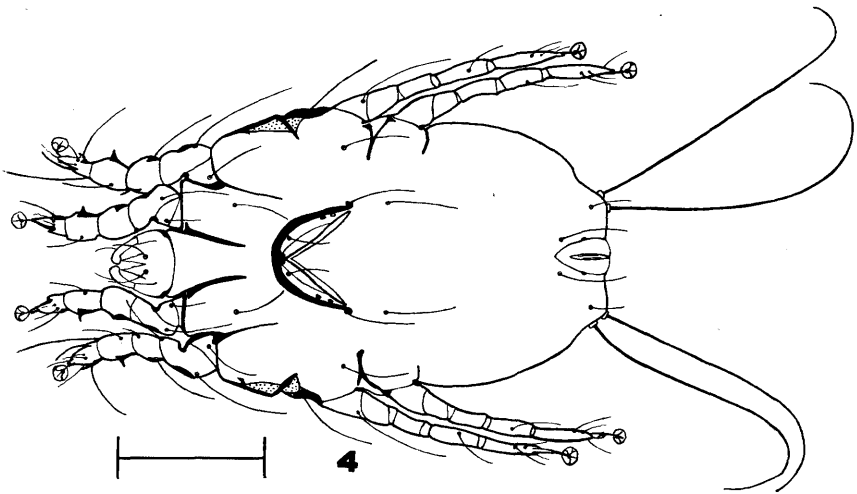
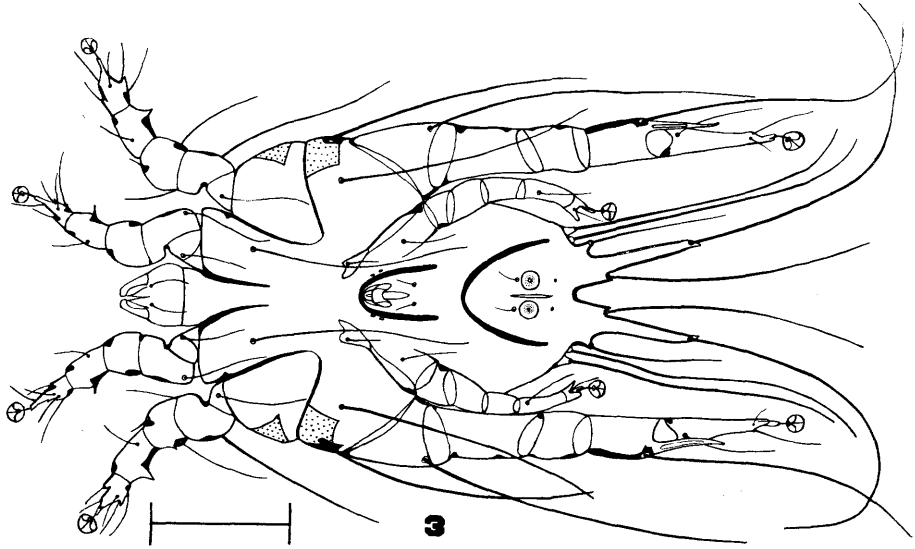


FIGURE 3. *Mesalges johnstoni* sp. n., male, ventral view, (scale—100 μ).
FIGURE 4. *Mesalges johnstoni* sp. n., female, ventral view, (scale—100 μ).

Venter. Coxal apodemes I, II, III and IV free. Genital sclerite forming inverted "U." Genital aperture between coxae II and III. Genital discs reduced. Two pairs genital setae present. Posterior margin of anus bounded by one pair setae and one pair papillae. Two pairs of long, subequal, latero-caudal setae present.

Legs I, II thinner than those of male; bearing ventral processes on tarsi I, II; tibiae I, II; genu II. Legs III, IV subequal, thin. Ambulacra of all legs as in male.

Gnathosoma of the analgesid type.

Remarks: Specimens found in this study resemble *M. oscinum* Koch. Bonnet (1924) gives a brief but not very detailed description of this species. Gaud in Zumpt (1961) produced better drawings of *M. oscinum* but a description was lacking. Both Bonnet and Gaud illustrate the fusion of apodemes I in the male. The apodemes I of *M. johnstoni* are free. Major lobes are short in *M. oscinum* and two pairs of distinctly unequal lateral caudal setae are present. The lobes of *M. johnstoni* are long and its lateral caudal setae subequal in length.

This feather mite was recovered from 18 redwings in this study. The holotype and allotype were recovered from a male bird on August 4, 1962, at the Delaware collecting site. The type specimens will be deposited with the United States National Museum. The paratypes, eight males and two females collected on July 24, 1962; four females collected on October 29, 1962, from the same site as type specimen plus four males collected on March 15, 1963, at the Columbus site will be deposited with the Institute of Acarology, Wooster. The species name was chosen in honor of Donald E. Johnston, Curator, Institute of Acarology, Wooster, Ohio.

Family Dermoglyphidae

Dermoglyphus sp.

Two birds were found to harbor parasites of this genus.

Family Proctophyllodidae

Proctophyllodes egglestoni sp n. (figs. 5, 6, 7, 8)

Male (holotype).—Idiosoma 241 μ (241–265 μ) in length along median line. Width 133 μ (127–151 μ) at level of coxa II.

Dorsum. Propodosomal shield bearing internal, external scapular setae. Hysterosomal shield large, bearing six pairs of minute setae.

Venter. Coxal apodemes I fused along midline; II, III, IV free. Coxal setae 1, 3, 4 present. Genital shield roughly "A" shaped, carrying two pairs of setae. Genital discs present. Aedeagus short, awl shaped, swelling slightly, narrowing before reaching first pair genital setae; second pair genital setae stronger than first. Genital shield widening at level of second pair of genital setae; narrowing posteriorly and gripping posterior margin of adanal discs. Anterior one half of shield forms inverted heart shaped arch, clasping base of aedeagus. Caudal leaflets fairly short, 34 μ (31–41 μ); together not as wide as body at posterior margin. Two pairs of caudal setae, lateral longest.

Legs I, II without ventral process. Legs III, IV equal. Tibia IV with small, rounded ventral spur reaching about middle of tarsus IV. Ambulacra equally developed on all legs.

Gnathosoma with typical analgesid characters.

Female (allotype).—Idiosoma 326 μ (317–332 μ) in length along median line, excluding caudal process. Width 178 μ (157–178 μ) at level of coxa II.

Dorsum. Propodosomal shield similar to male, bearing internal, external scapular setae. Hysterosomal shield large, pigmented laterally, sometimes anteriorly; bearing five pairs of minute setae. Posterior margin of hysterosomal shield irregularly convex. Caudal process strong. Anterior margin of dorsal shield more strongly concave medially than laterally, covering caudal process. One pair setae between the two shields.

Venter. Coxal apodemes I fused; II, III, IV free. Coxal setae 1, 3, 4 present. Genital sclerite forms shallow inverted "U." Genital aperture between coxae II, III. Genital discs reduced; two pairs genital setae present. Anus posterior, flanked by two pairs of anal setae.

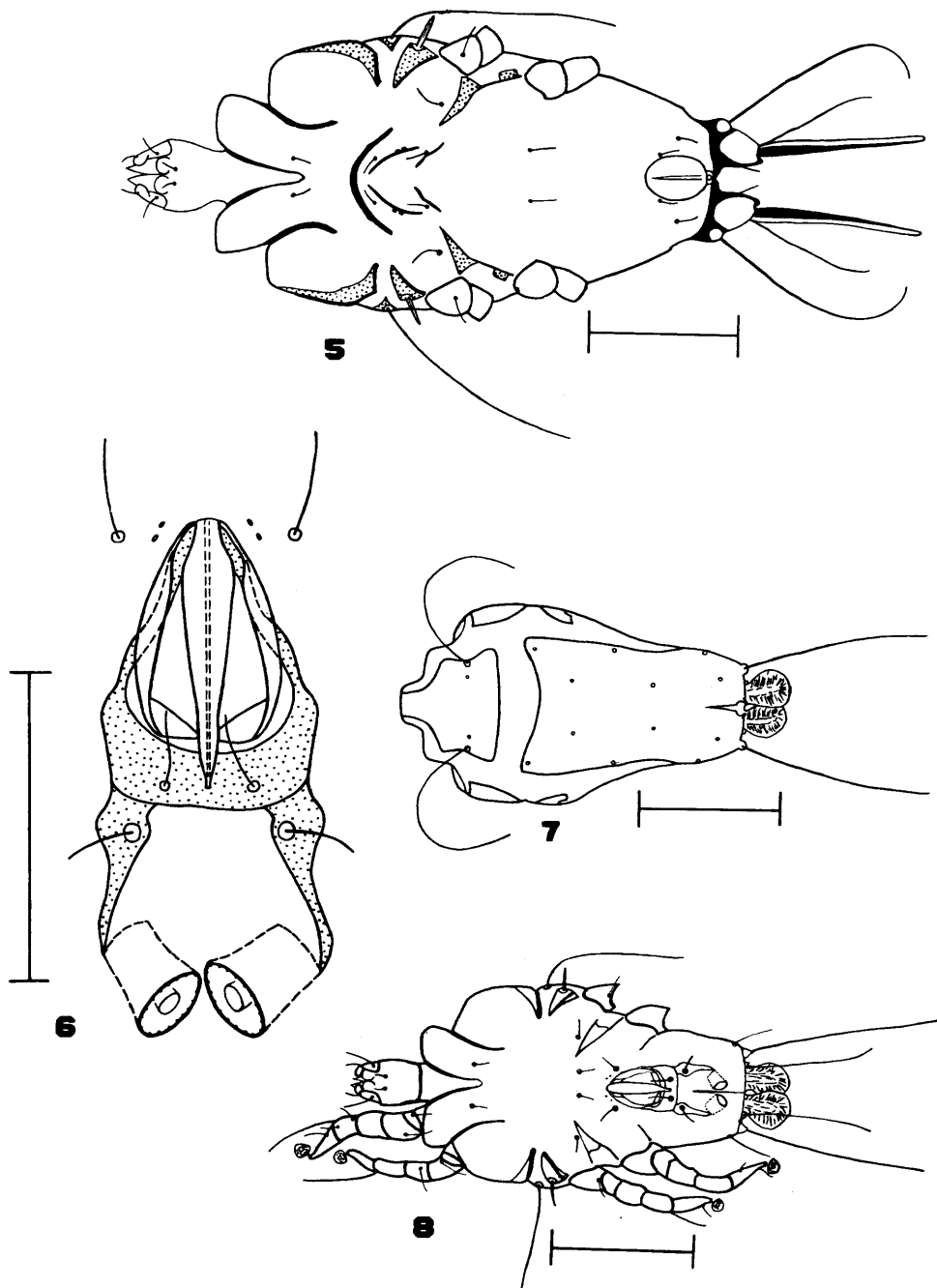


FIGURE 5. *Proctophyllodes egglestoni* sp. n., female, ventral view, (scale—100 μ).
 FIGURE 6. *Proctophyllodes egglestoni* sp. n., male genitalia, (scale—50 μ).
 FIGURE 7. *Proctophyllodes egglestoni* sp. n., male, dorsal view, (scale—100 μ).
 FIGURE 8. *Proctophyllodes egglestoni* sp. n., male, ventral view, (scale—100- μ).

Legs lightly pigmented; I, II without ventral process. Legs III, IV equal. Ambulacra equally developed on all legs.

Gnathosoma as in male.

Remarks: *P. egglestoni* closely resembles *P. profusus* Robin, 1877 which Dr. W. T. Atyeo (personal communication) indicates is a synonym of *P. pinnatus pinnatus* Nitsch, 1818 as given by Fritsch (1962). The male of *P. egglestoni* differs from *P. profusus* in having shorter caudal leaflets and second pair of genital setae slightly stronger than first. The aedeagus of *P. profusus* is awl shaped its entire length and the genital shield does not extend anteriorly to clasp the aedeagus. In *P. egglestoni* the aedeagus swells slightly before ending. In the female the hysterosomal shield of *P. profusus* is straight and its dorsal shield covers the caudal appendage and is strongly concave over its entire margin.

The holotype was recovered from a male redwinged blackbird, on March 15, 1963, at The Ohio State University collecting site. The allotype was recovered from a female redwing on October 14, 1962, at the Delaware site. These specimens are conspecific with a male and a female in W. T. Atyeo's collection from the redwing, *Agelaius p. phoeniceus*, in Nebraska.

Type specimens will be deposited with the United States National Museum. The paratypes, four females, one male collected on October 19, 1962, and four females collected on September 17, 1962, at the Delaware site, as well as one male collected on March 13, four males on March 15 and one male on March 29, 1963 at The Ohio State Univ. site, will be deposited with the Institute of Acarology, Wooster, Ohio. Additional specimens of this species will also be deposited with the Institute. Nineteen birds were found to harbor this feather mite. The species name was chosen in honor of Professor H. R. Eggleston, Marietta College, Marietta, Ohio.

Family Oripodidae

Gymnobates sp.

The occurrence of one specimen of *Gymnobates* sp. on the external body surface of the redwing was presumably accidental since this mite is a soil dweller.

Insecta

Order Mallophaga

Family Menoponidae

Machaerilaemus laticorpus Carriker, 1903.

Five birds were parasitized by this species. Geist (1928) and Emerson (1947) list hosts for *M. laticorpus*.

Family Menoponidae

Menacanthus sp.

Only one redwing harbored lice from this genus. All specimens recovered were juveniles.

Family Menoponidae

Myrsidea sp.

Two birds were infected with these lice. Only one adult specimen, a male, was recovered. It could not be identified. Dr. K. C. Emerson has seen this specimen and indicates that it may be a new species.

Family Philopteridae

Philopterus agelaii Osborn, 1896.

Seven birds were found to harbor this mallophagan.

Family Philopteridae

Brüelia ornatissima Giebel, 1874.

Five of 61 redwings were infected with these lice. A host list for this species is given by Peters (1936).

TABLE 1

Some published and unpublished records of parasites taken from the redwinged blackbird,
exclusive of present study

Parasite	Published and unpublished records	State
Acanthocephala		
Metacanthocephala		
<i>Mediorhynchus grandis</i>	Van Cleave (1947)	Ohio
<i>Mediorhynchus robustus</i>	Van Cleave (1947)	Ohio
Platyhelminthes		
Cestoda		
<i>Anonchotaenia globata</i>	Rausch and Morgan (1947)	Ohio
Trematoda		
<i>Gigantobilharzia gyrauli</i>	Brackett (1940)	Wisconsin
(from— <i>Agelaius phoeniceus</i> <i>arctolegus</i>)		
<i>Plagiorchis noblei</i>	Park (1936)	California
(from— <i>Agelaius phoeniceus</i> <i>californicus</i>)		
Arthropoda		
Acari		
<i>Paraneonyssus icteridius</i>	Strandtmann and Furman (1956)	Texas, California
<i>Sternostoma strandtmanni</i>	Furman (1957)	California
<i>Dermanyssus brevis</i>	Peters (1936)	Maryland
<i>Bdellonyssus bursa</i>	Peters (1936)	Florida, South Carolina
	Starks (1951)	Oklahoma
Arachnida		
<i>Ornithonyssus sylviarum</i>	Peters (1936) Starks (1951)	New Hampshire Oklahoma
<i>Ixodes brunneus</i>	Bishopp and Trembley (1945)	_____
<i>Haemaphysalis chordeilis</i>	Bishopp and Trembley (1945)	_____
<i>Haemaphysalis leporispalustris</i>	Peters (1936)	Delaware, South Carolina
	Bishopp and Trembley (1945)	_____
<i>Dermacentor variabilis</i>	Peters (1936)	South Carolina
<i>Amblyomma maculatum</i>	Bishopp and Trembley (1945)	_____
<i>Neochelytiella</i> sp.	Starks (1951)	Oklahoma
<i>Knemidocoptes</i> sp.	Olive and Schultz (1952)	Arkansas
<i>Syringophilus elongatus</i>	Ewing (1911)	_____
<i>Analges passerinus</i>	Ewing (1911)	Iowa?
Insecta		
<i>Menacanthus spinosum</i>	Starks (1951)	Oklahoma
<i>Myrsidea americana</i>	Peters (1936)	Florida, South Carolina
	Starks (1951)	Oklahoma
<i>Myrsidea quadrimaculata</i>	Geist (1930)	Ohio
Insecta		
<i>Philoapterus agelaii</i>	Kellogg (1896) Geist (1930) Starks (1951) Malcomson (1960)	Kansas Ohio Oklahoma
	Geist (1930)	_____
<i>Philoapterus subflavescens</i>	Peters (1936)	Ohio Florida, South Carolina, Massachusetts
	Starks (1951)	Oklahoma
<i>Docophorus communis</i>	Barber (1921)	Michigan
<i>Degeeriella illustris</i>	Kellogg (1896) Geist (1930) Peters (1936) Starks (1951) Malcomson (1960)	Kansas Ohio Florida Oklahoma

SUMMARY

Seven species of parasites found in this study represent new host records for redwinged blackbirds. They are the trematode *Conspicuum icteridorum*, the feather mites *Strelkoviacarus critesi* sp. n., *Mesalges johnstoni* sp. n., *Proctophyllodes egglestoni* sp. n., *Dermoglyphus* sp., the nasal mite *Speleognathus* sp. and the mallophagan *Machaerilaemus laticorpus*. Four new state records for Ohio are *Paraneonyssus icteridius*, *Sternostoma* sp., *Knemidocoptes* sp., and *Menacanthus* sp.

Table 1 contains records of some of the published and unpublished parasites found on the redwinged blackbird, exclusive of present study.

ACKNOWLEDGEMENTS

I am very grateful to Dr. John L. Crites under whose direction this work was completed. Sincere appreciation is extended to Mr. Donald E. Johnston, Curator, Institute of Acarology, Wooster, Ohio, for help in identification of the mites found in this study; for suggestions and aid in writing the descriptions of three feather mites; and, for use of several specimens of *Strelkoviacarus critesi* sp. n. from his collection as holotype and paratype. I am indebted to Dr. K. C. Emerson, Smithsonian Institute, Washington, for checking the Mallophaga that were recovered; Dr. W. T. Atyeo, The University of Nebraska, for loan of slides of *Proctophyllodes egglestoni* sp. n. and for confirming it as being a new species; Dr. A. Fain, Institute de Médecine, Antwerp, for checking the mite *Knemidocoptes* sp.; and to Dr. Charles A. Triplehorn, Curator, Museum of Entomology, The Ohio State University, for loan of slides from the R. M. Geist Mallophaga collection.

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