

EXTERNAL PARASITES COLLECTED FROM
BANDED BIRDS

BY HAROLD S. PETERS

Division of Insects Affecting Man and Animals
United States Bureau of Entomology

ONE of the interesting and important phases of bird-banding is the study of the external parasites found on many birds. Banders are giving increasing attention to the study and collection of the lice, flies, ticks, and mites which may be present on the birds they handle. Since most of these parasites must be detrimental to their host, a knowledge of their presence and abundance may enable us to explain some of the peculiar records obtained in banding.

In connection with the writer's work on insects and related forms affecting birds many external parasites have been sent in by banders during the past four or five years. In many cases valuable information concerning abundance and distribution accompanied the specimens. From this material the following list of 54 species of parasites, taken from 75 species of birds, has been compiled. No attempt has been made to indicate the number of individual birds which were examined and found parasitized, as the data from different banders could hardly be compared, owing to individual differences in the method and thoroughness of examination. It is sometimes very difficult to find these parasites on live birds, owing to the small size and rapid movement of some as well as to the natural nervousness of the bird in the hand. They may be picked from the bird with a pair of small tweezers or forceps.

On practically every bird there are one or more species of external parasites. It is possible to find several different kinds of lice on any bird species. Two kinds of birdflies are commonly found on passerine birds. One or two species of ticks may be found on ground-feeding birds. Mites are found on most bird species. It is very important to examine the entire body of the bird, as different groups of parasites are found on different parts of the bird's body.

Parasites found most commonly on birds are the lice, or Mallophaga, of which 41 species are here recorded from banded birds. The lice have biting mouth parts, feed on parts of the feathers and scales of the skin, and cause much irritation by their sharp claws. Different genera of lice are found on different parts of the bird. Lice of the genus *Philopterus* are slow,

clumsy forms found on the feathers of the head, neck, and throat. Those of the genus *Degeeriella* are found on the breast and back feathers. Lice of the genera *Menacanthus*, *Myrsidea*, and *Ricinus* are all rapid-running forms found among the breast and back feathers. The same species of lice are often found on closely related birds. Thus on many passerine birds *Degeeriella vulgata*, *Menacanthus chrysophæum*, *Myrsidea incerta*, and *Philopterus subflavescens* may be found. It will be noted that these four lice are reported on many species of birds in this list.

The bird flies, belonging to the family Hippoboscidae of the order Diptera, have sucking mouth parts and feed on the blood of many different kinds of birds. They are represented by only three species in this list. Two species are recorded from many passerine birds; the small bird fly, *Ornithoica confluens*, from 22 species of birds, and the large bird fly, *Ornithomyia avicularia*, from 23 species. They are often very difficult to capture, as they fly quickly from the feathers when the bird is picked up.

In the material received the ticks are represented by only two species. The common rabbit tick, *Hæmaphysalis leporis-palustris*, was found on 15 kinds of birds, principally the ground feeders. Since ticks have sucking mouth parts, they may transmit blood-borne diseases such as tularemia, commonly carried by the rabbit tick. *Ixodes brunneus*, which feeds only on birds, was found on nine species.

The mites are very common on birds but are frequently overlooked because of their small size. The feather mites, *Analgæ*, *Analgopsis*, and *Proctophyllodes*, are found on the wing feathers as well as on the breast and back feathers. The northern fowl mite, *Liponyssus sylviarum*, has been found on 11 species of birds and the common chicken mite, *Dermanyssus gallinæ*, on three. These two mites are very injurious to domestic poultry and may be spread by wild birds. Three species of chiggers, *Trombicula*, are recorded. Birds are probably a factor in the distribution of the common chigger affecting man, and suffer from its attack.

Probably the most important groups of external parasites are the bird flies, the ticks, and the mites. They all suck blood, and in addition to the damage done directly to their hosts by feeding they may act as disease-carriers. Many of the members of these groups move from one bird to another, whereas the lice remain on the body of one host throughout their life. The complete life cycle of many of these parasites, especially that of the bird flies and feather mites, is not known, and banders may be able to assist in extending our knowledge of this subject.

This list of parasites from banded birds has been made up mainly from specimens sent in by banders in the eastern part of the United States. Their assistance and interest are gratefully acknowledged, and the writer wishes to thank them for their help in his study of these ectoparasites. Those banders whose material has been used in this list are as follows:

1. Austin Ornithological Research Station, North Eastham, Mass.
2. Baldwin Bird Research Laboratory, Gates Mills, Ohio.
3. Mrs. M. V. Beals, Elmhurst, Long Island, N. Y.
4. O. M. Bryens, McMillan, Mich.
5. F. M. Carroll, New Orleans, La.
6. Mrs. W. H. Edwards, Fairhope, Ala.
7. E. C. Hoffman, Lakewood, Ohio.
8. Miss G. C. Meleney, Oak Bluffs, Mass., and (8a) White Plains, N. Y.
9. Mrs. M. M. Nice, Columbus, Ohio.
10. H. S. Peters, Silver Spring, Md.
11. L. O. Shelley, East Westmoreland, N. H.
12. D. Smiley, Jr., Mohonk Lake, N. Y.
13. W. P. Smith, Wells River, Vt.
14. P. A. Stewart, Leetonia, Ohio.
15. W. B. Taber, Jr., Kansas, Ill.
16. I. R. Tomkins, Savannah, Ga.
17. Mrs. K. B. Wetherbee, Worcester, Mass., and Pomfret, Conn.
- 18a. W. P. Wharton, Groton, Mass., and (18b) Summerville, S. C.
19. C. L. Whittle, Peterboro, N. H.

LIST OF HOSTS AND THE PARASITES COLLECTED FROM EACH.¹

Eastern Brown Pelican, *Pelecanus occidentalis occidentalis* (Linn.).

(L) *Tetrophthalmus titan* Piaget, 6

Little Blue Heron, *Florida Ceryle ceryle* Linn.

(F) *Lynchia ardea* (McQ.), 6

Turkey Vulture, *Cathartes aura septentrionalis* Wied.

(L) *Ferrisia kelloggi* (Osborn), 15

Black Vulture, *Coragyps atratus atratus* (Meyer).

(L) *Cuculiphilus alternatum* (Osborn), 6

(L) *Esthiopterum marginale* (Osborn), 6

(L) *Ferrisia kelloggi* (Osborn), 6

Eastern Bobwhite, *Colinus virginianus virginianus* (Linn.).

(L) *Goniodes ortygis* Denny, 9

King Rail, *Rallus elegans elegans* Audubon.

(L) *Pseudomenopon tridens* (Nitzsch), 6

(L) *Rallicola bisetosa* (Piaget), 6

White-rumped Sandpiper, *Pisobia fuscicollis* (Vieillot).

(L) *Actornithophilus minus* (Kellogg & Chapman), 1

(L) *Degeeriella actophila* (Kell. & Chap.), 1

(L) *Degeeriella complexiva* (Kell. & Chap.), 1

¹The writer wishes to acknowledge the assistance of the following specialists who determined the material in this list: flies by Dr. J. M. Aldrich of the National Museum; ticks by Dr. F. C. Bishop of the Bureau of Entomology; and mites by Dr. H. E. Ewing of the Bureau of Entomology. The lice were determined by the writer. The lice are designated by (L), the flies by (F), the ticks by (T), and the mites by (M). The numbers following the names of the parasites refer to the individual banders as listed above, and also indicate the localities where the collections were made.

- Red-backed Sandpiper, *Pelidna alpina sakhalina* (Vieillot).
 (L) *Actornithophilus minus* (Kell. & Chap.), 1
 (L) *Degeeriella actophila* (Kell. & Chap.), 1
 (L) *Degeeriella complexiva* (Kell. & Chap.), 1
 (L) *Philopterus* sp., 1
- Herring Gull, *Larus argentatus smithsonianus* Coues.
 (L) *Philopterus gonothorax* (Giebel), 1
- Laughing Gull, *Larus atricilla* Linn.
 (L) *Philopterus gonothorax* (Giebel), 5
- Least Tern, *Sterna antillarum antillarum* (Lesson).
 (L) *Degeeriella* sp., 5
 (L) *Philopterus melanocephalus* (Nitzsch), 5
- Royal Tern, *Thalasseus maximus maximus* (Boddaert).
 (L) *Philopterus melanocephalus* (Nitzsch), 16
- Black Skimmer, *Rynchops nigra nigra* Linn.
 (L) *Philopterus* sp., 5
 (L) *Philopterus elongatus* (Piaget), 5
- Eastern Mourning Dove, *Zenaidura macroura carolinensis* (Linn.).
 (L) *Columbicola columbae* (Linn.), 2, 15
- Chimney Swift, *Chaetura pelagica* (Linn.).
 (L) *Dennyus dubius* (Kell.), 1, 12, 14
- Northern Downy Woodpecker, *Dryobates pubescens medianus* (Swainson).
 (L) *Philopterus californiensis* (Kell.), 2
 (F) *Ornithoica confluens* Say, 11
- Northern Crested Flycatcher, *Myiarchus crinitus boreus* (Bangs).
 (M) *Liponyssus sylviarum* (C. & F.), 6
- Eastern Phoebe, *Sayornis phoebe* (Latham).
 (M) *Liponyssus sylviarum* (C. & F.), 14
- Prairie Horned Lark, *Otocoris alpestris praticola* Henshaw.
 (L) *Philopterus subflavescens* (Geof.), 4
- Tree Swallow, *Iridoprocne bicolor* (Vieillot).
 (L) *Degeeriella longa* (Kell.), 4
 (L) *Myrsidea dissimilis* (Kell.), 4
 (L) *Philopterus domesticus* (Kell.), 4
- Barn Swallow, *Hirundo erythrogaster* Boddaert.
 (M) *Dermanyssus gallinae* (Degeer), 4, 8
 (M) *Liponyssus sylviarum* (C. & F.), 13, 14
- Purple Martin, *Progne subis subis* Linn.
 (L) *Myrsidea dissimilis* (Kell.), 4
 (M) *Dermanyssus gallinae* (Degeer), 6
- Northern Blue Jay, *Cyanocitta cristata cristata* (Linn.).
 (L) *Menacanthus persignatus* (Kell.), 6
 (L) *Myrsidea funerea* (Kell. & Chap.), 6
 (L) *Philopterus cristata* Malcomson, 6, 18b
 (F) *Ornithoica confluens* Say, 10
- Black-capped Chickadee, *Penthestes atricapillus atricapillus* Linn.
 (L) *Kicinus* sp., 2
 (F) *Ornithoica confluens* Say, 8
- Tufted Titmouse, *Baeolophus bicolor* (Linn.).
 (L) *Myrsidea incerta* (Kell.), 18b
- White-breasted Nuthatch, *Sitta carolinensis carolinensis* Latham.
 (F) *Ornithoica confluens* Say, 11
 (F) *Ornithomyia avicularia* Linn. 11
- Eastern House Wren, *Troglodytes aedon aedon* Vieillot.
 (M) *Dermanyssus gallinae* (Degeer), 17
 (M) *Liponyssus sylviarum* (C. & F.), 14

- Carolina Wren, *Thryothorus ludovicianus ludovicianus* Latham.
(T) *Hæmaphysalis leporis-palustris* Packard, 18b
- Eastern Mockingbird, *Mimus polyglottos polyglottos* (Linn.).
(L) *Degeeriella eustigma* (Kell.), 6, 18b
(L) *Myrsidea incerta* (Kell.) 6
- Catbird, *Dumetella carolinensis* (Linn.).
(L) *Myrsidea incerta* (Kell.), 2, 3, 8a, 13 18b
(F) *Ornithomyia avicularia* Linn., 13, 17, 18a
(T) *Hæmaphysalis leporis-palustris* Packard, 18a
(T) *Ixodes brunneus* Koch, 17, 18b
- Brown Thrasher, *Toxostoma rufum* (Linn.).
(L) *Myrsidea incerta* (Kell.), 3, 6, 15, 18b
(L) *Philopterus subflavescens* (Geof.), 18b
(F) *Ornithomyia avicularia* Linn., 3
(T) *Hæmaphysalis leporis-palustris* Packard, 18b
(M) *Analgopsis* sp., 2
(M) *Liponyssus sylviarum* (C. & F.), 6
(M) *Trombicula* sp., 6
- Eastern Robin, *Turdus migratorius migratorius* Linn.
(L) *Menacanthus chrysophæum* (Kell.), 3
(F) *Ornithoica confluens* Say, 12, 18a
(F) *Ornithomyia avicularia* Linn., 12, 14, 18a
(T) *Ixodes brunneus* Koch, 18 b
(M) *Liponyssus sylviarum* (C. & F.), 12, 14
- Wood Thrush, *Hylocichla mustelina* (Gmelin).
(L) *Myrsidea incerta* (Kell.), 3
- Eastern Hermit Thrush, *Hylocichla guttata faxoni* Bangs & Penard.
(L) *Degeeriella eustigma* (Kell.), 3
(L) *Myrsidea incerta* (Kell.), 3
(T) *Hæmaphysalis leporis-palustris* Packard, 6, 18a, 18b
(T) *Ixodes brunneus* Koch, 18b
(M) *Trombicula whartoni* Ewing, 18b
- Olive-backed Thrush, *Hylocichla ustulata swainsoni* (Tschudi).
(L) *Myrsidea incerta* (Kell.), 3
(T) *Hæmaphysalis leporis-palustris* Packard, 18a
- Veery, *Hylocichla fuscescens fuscescens* (Stephens).
(F) *Ornithoica confluens* Say, 17
(F) *Ornithomyia avicularia* Linn., 3, 17
- Eastern Bluebird, *Sialia sialis sialis* (Linn.).
(L) *Philopterus sialis* (Osborn), 2
- Eastern Ruby-crowned Kinglet, *Corthylio calendula calendula* (Linn.).
(F) *Ornithoica confluens* Say, 18b
- Starling, *Sturnus vulgaris vulgaris* Linn.
(L) *Degeeriella nebulosa* (Burmeister), 10
(L) *Menacanthus spinosum* (Piaget), 3, 14
- Red-eyed Vireo, *Vireo olivaceus* (Linn.).
(L) *Philopterus subflavescens* (Geof.), 6
(L) *Ricinus* sp., 6
- Black and White Warbler, *Mniotilta varia* (Linn.).
(F) *Ornithoica confluens* Say, 18a
- Magnolia Warbler, *Dendroica magnolia* (Wilson).
(L) *Myrsidea incerta* (Kell.), 18a
- Cape May Warbler, *Dendroica tigrina* (Gmelin).
(L) *Myrsidea incerta* (Kell.), 3

- Myrtle Warbler, *Dendroica coronata* (Linn.).
 (L) *Degeeriella vulgata* (Kell.), 3
 (F) *Ornithoica confluens* Say, 11
 (F) *Ornithomyia avicularia* Linn., 3
- Chestnut-sided Warbler, *Dendroica pensylvanica* (Linn.).
 (L) *Myrsidea incerta* (Kell.), 3
- Oven-bird, *Seiurus aurocapillus* (Linn.).
 (L) *Menacanthus chrysophæum* (Kell.), 3, 12
 (T) *Hemaphysalis leporis-palustris* Packard, 18a
- Northern Water-Thrush, *Seiurus noveboracensis noveboracensis* (Gmelin).
 (L) *Menacanthus* sp., 3
 (F) *Ornithoica confluens* Say, 11
 (F) *Ornithomyia avicularia* Linn., 11
- Northern Yellow-throat, *Geothlypis trichas brachidactyla* (Swainson).
 (L) *Ricinus pallens* (Kell.), 3
 (F) *Ornithomyia avicularia* Linn., 11
- Eastern Meadowlark, *Sturnella magna magna* (Linn.).
 (L) *Menacanthus chrysophæum* (Kell.) 18b
- Eastern Redwing Blackbird, *Agelaius phœniceus phœniceus* Linn.
 (L) *Philoptyerus subflavescens* (Geof.) 18a
 (F) *Ornithomyia avicularia* Linn., 17
- Baltimore Oriole, *Icterus galbula* (Linn.).
 (F) *Ornithomyia avicularia* Linn., 17
- Rusty Blackbird, *Euphagus carolinus* (Muller).
 (L) *Myrsidea* sp., 14
- Purple Grackle, *Quiscalus quiscula quiscula* (Linn.).
 (F) *Ornithoica confluens* Say, 8
 (F) *Ornithomyia avicularia* Linn., 8
- Florida Grackle, *Quiscalus quiscula aglæus* Baird.
 (M) *Liponyssus sylviarum* (C. & F.), 6
- Bronzed Grackle, *Quiscalus quiscula cæneus* Ridgway.
 (L) *Menacanthus chrysophæum* Kell., 7, 15
- Eastern Cowbird, *Molothrus ater ater* (Boddaert).
 (F) *Ornithoica confluens* Say, 8, 19
 (F) *Ornithomyia avicularia* Linn., 4, 8, 18a, 19
 (T) *Hemaphysalis leporis-palustris* Packard, 4
 (M) *Liponyssus sylviarum* (C. & F.), 18a
- Scarlet Tanager, *Piranga erythromelas* Vieillot.
 (F) *Ornithomyia avicularia* Linn., 12
- Eastern Cardinal, *Richmondia cardinalis cardinalis* (Linn.).
 (L) *Myrsidea incerta* (Kell.), 6, 10
 (L) *Philoptyerus subflavescens* (Geof.), 18b
- Eastern Purple Finch, *Carpodacus purpureus purpureus* (Gmelin).
 (L) *Degeeriella vulgata* (Kell.), 13
 (F) *Ornithomyia avicularia* Linn., 19
- Eastern Goldfinch, *Spinus tristis tristis* (Linn.).
 (T) *Hemaphysalis leporis-palustris* Packard, 18b
- Red-eyed Towhee, *Pipilo erythrophthalmus erythrophthalmus* (Linn.).
 (L) *Machærilæmus mæstum* (Kell. & Chap.), 3, 11, 18b
 (L) *Myrsidea melanorum* (Kell.), 3, 18b
 (F) *Ornithoica confluens* Say, 3, 8
 (F) *Ornithomyia avicularia* Linn., 8, 12
 (T) *Hemaphysalis leporis-palustris* Packard, 18b
 (T) *Ixodes brunneus* Koch, 18b
- White-eyed Towhee, *Pipilo erythrophthalmus alleni* Coues.
 (F) *Ornithoica confluens* Say, 18b

- Eastern Savannah Sparrow, *Passerculus sandwichensis savanna* (Wilson).
 (L) *Ricinus* sp., 4
 (F) *Ornithoica confluens* Say, 9
 (F) *Ornithomyia avicularia* Linn., 4, 17
 (T) *Hæmaphysalis leporis-palustris* Packard, 18a
- Eastern Vesper Sparrow, *Poæcetes gramineus gramineus* (Gmelin).
 (L) *Macherilæmus mæstum* (Kell. & Chap.), 4
 (F) *Ornithomyia avicularia* Linn., 4
- Slate-colored Junco, *Junco hyemalis hyemalis* (Linn.).
 (L) *Degeeriella vulgata* (Kell.), 3, 9, 10, 11, 12
 (L) *Menacanthus chrysophæum* (Kell.), 11
 (L) *Philoater subflavescens* (Geof.), 1, 2, 10, 11
 (L) *Ricinus* sp., 10
 (F) *Ornithoica confluens* Say, 3, 10, 19
 (F) *Ornithomyia avicularia* Linn., 12, 19
 - (T) *Hæmaphysalis leporis-palustris* Packard, 2
- Eastern Tree Sparrow, *Spizella arborea arborea* (Wilson).
 (L) *Degeeriella vulgata* (Kell.), 14
 (L) *Ricinus* sp., 12
 (M) *Analgopsis* sp., 2
- Eastern Chipping Sparrow, *Spizella passerina passerina* (Bechstein).
 (L) *Philoater subflavescens* (Geof.), 2
 (L) *Ricinus* sp., 2
 (F) *Ornithoica confluens* Say, 3, 11, 19
 (F) *Ornithomyia avicularia* Linn., 4, 8, 11, 19
 - (T) *Ixodes brunneus* Koch, 18b
 (M) *Analgopsis* sp., 2
 (M) *Liponyssus sylviarum* (C. & F.), 11
- Eastern Field Sparrow, *Spizella pusilla pusilla* (Wilson).
 (L) *Philoater subflavescens* (Geof.), 2
 (F) *Ornithoica confluens* Say, 2, 14
 (F) *Ornithomyia avicularia* Linn., 14
 - (T) *Ixodes brunneus* Koch, 18b
- White-crowned Sparrow, *Zonotrichia leucophrys leucophrys* (Forster).
 (L) *Myrsidea incerta* (Kell.), 13
 (L) *Philoater subflavescens* (Geof.), 14
- White-throated Sparrow, *Zonotrichia albicollis* (Gmelin).
 (L) *Degeeriella vulgata* (Kell.), 3, 18b
 (L) *Macherilæmus mæstum* (Kell. & Chap.), 18b
 (L) *Myrsidea incerta* (Kell.), 18b
 (L) *Ricinus* sp., 2
 (F) *Ornithoica confluens* Say, 3
 (F) *Ornithomyia avicularia* Linn., 3, 12, 13, 17, 19
 - (T) *Hæmaphysalis leporis-palustris* Packard, 18a, 18b
 - (T) *Ixodes brunneus* Koch, 18b
 (M) *Liponyssus sylviarum* (C. & F.), 1
- Eastern Fox Sparrow, *Passerella iliaca iliaca* (Merrem).
 (L) *Degeeriella vulgata* (Kell.), 3, 18b
 (L) *Menacanthus chrysophæum* (Kell.), 3, 13
 (L) *Myrsidea incerta* (Kell.), 3, 12
 (L) *Philoater subflavescens* (Geof.), 1
 - (T) *Hæmaphysalis leporis-palustris* (Packard), 1
 (M) *Proctophylloides* sp., 18b
- Lincoln's Sparrow, *Melospiza lincolni lincolni* (Audubon).
 (F) *Ornithoica confluens* Say, 11, 12

- Swamp Sparrow, *Melospiza georgiana* (Latham).
 (L) *Menacanthus chrysophæum* (Kell.), 11
 (F) *Ornithoica confluens* Say, 11
 (F) *Ornithomyia avicularia* Linn., 11
 (T) *Hæmaphysalis leporis-palustris* Packard, 18b
- Eastern Song Sparrow, *Melospiza melodia melodia* (Wilson).
 (L) *Degeeriella vulgata* (Kell.), 2
 (L) *Menacanthus chrysophæum* (Kell.), 2, 3, 7, 11, 12, 17, 18b, 19
 (L) *Ricinus melospizæ* (McG.), 2, 7
 (F) *Ornithoica confluens* Say, 2, 8, 11, 14, 17, 18a, 19.
 (F) *Ornithomyia avicularia* Linn., 2, 8, 9, 11, 12, 14, 17, 18a, 19
 (T) *Hæmaphysalis leporis-palustris* Packard, 2, 17, 18a, 18b
 (T) *Ixodes brunneus* Koch, 17, 18a
 (M) *Analges* sp., 2
 (M) *Liponyssus sylviarum* (C. & F.), 8
 (M) *Trombicula bisignata* Ewing, 18a
- Eastern Snow Bunting, *Plectrophenax nivalis nivalis* (Linn.).
 (L) *Menacanthus chrysophæum* (Kell.), 4
 (L) *Philopterus subflavescens* (Geof.), 4
 (L) *Ricinus* sp., 4

The writer is very anxious to obtain parasites from hosts not listed as well as other parasites from the birds listed above. It is hoped that banders will assist in enlarging this list and help to increase our knowledge of the abundance and distribution of the various ectoparasites, as well as the damage caused to their hosts.

All external parasites may be picked from the bird with a pair of small tweezers and placed in a small vial of 70 per cent alcohol for killing and preservation. Complete data should be given with each vial, such as host, band-number, locality, name of collector, and any other interesting data. In a previous paper² the writer gave a general discussion of the various groups of parasites found on birds. It may be consulted for further information. The Bureau of Entomology will be glad to assist in any problems relating to external parasites at any time.³

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³Specimens and mail should be addressed directly to Mr. H. S. Peters, Bureau of Entomology, Washington, D. C., in order to facilitate and hasten replies. Mr. Peters will send small vials of preservative to banders willing to collect and send him specimens for identification and for the collection of the Bureau of Entomology. *The Editor.*