

FURTHER RECORDS OF MALLOPHAGA FROM BRITISH COLUMBIA BIRDS

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In the Proceedings of the Entomological Society of British Columbia **44**, Feb. 16, 1948, I published "Some Records of Mallophaga" off birds of this Province, from a list I had been holding since 1933 at the request of Prof. A. W. Baker of the Ontario Agricultural College, pending the production of his contemplated monograph of the lice of Canadian Birds. Since then I have accumulated some 700 collections of Mallophaga which Miss Theresa Clay of the British Museum has graciously consented to name in small lots.

The 1948 list followed the arrangement of birds as given in "Birds of Western Canada," 1926, by P. A. Taverner (1) who used The American Ornithologists Union "Check List of North American Birds," 3rd Edition, 1910, with the supplements of 1912, 1920 and 1923, as published in the "Auk."

Meanwhile, Munro and Cowan published in 1947, "A Review of the Bird Fauna of British Columbia" (2) which adopted the arrangement of the 1931 edition of the American Ornithologists Check List and the 19th and 20th Supplements to it but without any revised A.O.U. Check List numbers; also, in many cases the systematic relationship of the birds, some synonymy, and names of authors, had been changed.

This present list of Mallophaga, therefore, follows Taverner's 1931 A.O.U. numbers and Ordinal and Family arrangements but uses Munro and Cowan's revised scientific names of species and authorities.

The nomenclature of the Mallophaga is from "A Check List of the Genera and Species of Mallophaga" by Hopkins and Clay (3), truly a prodigious and painstaking piece of

work. Harrison (4) in 1916 considered 9 families and 56 genera: thirty-six years later, Hopkins and Clay list 10 families and 200 genera, no less than 98 genera being in the one family Philopteridae.

A few records below are from birds taken in Manitoba and a couple, like the peacock and an exotic pheasant, are from birds in Stanley Park Zoological Gardens, Vancouver. The birds from Manitoba occur in this province but I do not happen to have collections from local specimens.

An asterisk to the left of a bird's name indicates that the louse from it is a new host record.

Unless otherwise indicated, all of the lice were determined by Miss Theresa Clay; those determined by Dr. K. C. Emerson of Oklahoma, Prof. A. W. Baker of Ontario and Dr. R. A. Ward of Gonzaga University, Spokane, Washington, are indicated by initials to the right of each specific name. My cordial thanks are extended to these specialists, especially to Miss Clay who bore the brunt of the burden. I am very grateful also to the collectors below, for their contributions.

KEY TO COLLECTORS

- C.H.B.—Dr. C. H. Bastin, Vancouver
 E.R.B.—E. R. Buckell, Salmon Arm.
 D.C.—The late Donald Cameron, Kamloops
 R.A.C.—The late R. A. Cumming, Vancouver
 I. McT. C.—Professor Ian McT. Cowan, Vancouver
 J.F.S.-F.—J. F. Stanwell-Fletcher
 C.J.G.—Charles J. Guiguet, Victoria
 L.J.—Leo Jobin, William Lake
 H.M.L.—Hamilton Laing, Comox
 G.J.M.—G. J. Mitchell, student
 P.W.M.—Patrick Martin, Kamloops
 W.S.M.—The late W. S. Maguire, New Westminster
 K.R.—Kenneth Racey, Vancouver
 J.W.—The late J. Wynne, Enderby
 M.Y.W.—Prof. M. Y. Williams, Vancouver
 R.W.—R. Webb, student

MALLOPHAGA AND HOSTS

- Actornithophilus lari** (Packard, 1870)
 **Larus glaucescens* Naumann, Glaucous-winged gull. Eighteen records, Langara Is., Bella Bella, Comox, Vancouver area. C.H.B., C.J.C., K.R., G. J. S. January to May, 1932 to 1947.
- Actornithophilus ochraceus** (Nitzsch), 1818
 **Charadrius vociferus* (Linn.) Killdeer Plover. Iona Is. 19 March 1933. C.H.B.
- Actornithophilus totani** (Schrank), 1803
 **Totanus melanoleucus* (Gmelin), Greater Yellow-legs. Lulu Is., Vancouver, 19 April 1932. K.R.; Goose Is., 23 July 1948. P.W.N.
 **Totanus flavipes* (Gmelin), Lesser Yellow-legs. Enderby, 25 July 1949, J.W.; Kamloops, 25 Aug. 1935, M.Y.W.; Spider Is., 28 July 1948, P.W.M.
- Actornithophilus umbrinus** (Burmeister), 1838
 **Steganopus tricolor* Vieillot, Wilson Phalarope. Armstrong, 28 May 1950. J.W.; Stum lake, Cariboo. 1 Aug. 1950. G.J.M.
 **Erolia melanotos* (Vieillot), Pectoral Sandpiper. Five records, Iona Is., March, April, 1933, C.H.B. and Lulu Is., Vancouver, 30 Aug. 1941. K.R.
Erolia minutilla (Vieillot), Least Sandpiper. Grindrod, 7 Aug. 1951. J.W.; Kamloops, 31 Aug. 1934. G.J.S.
- Actornithophilus Ferris**, 1916. Sp. indet.
Capella gallinago (Linn.), Wilson Snipe. Five records, Nov. to Jan. 1953, 1954, Vancouver area. G.J.S.
- Amyrsidea phaeostoma** (Nitzsch), 1866.
 Det.: K. C. Emerson
Pavo cristatus (Linn.) Peacock. Stanley Park, Vancouver, 15 Oct. 1949. G.J.S.
- Anatoecus cygni** Subsp. (Denny) 1842, Det.: K. C. Emerson.
 **Cygnus buccinator* Richardson, Trumpeter Swan. Qualicum Beach, 15 Feb. 1946. G.J.S.
- Austromenopon transversum** (Denny), 1842.
 **Larus glaucescens* Naumann, Glaucous-winged Gull. Bella Bella, 19 March 1933. C.H.B.
- Austromenopon** Bedford, 1939. Sp. Being described by Timmermann.
Ereunetes mauri Cabanis, Western Sandpiper. Goose Is., 10 July 1948. C.J.G.
Larus californicus Lawrence California gull, Chilcotin. 19 Oct. 1951, L.J. *Uria aalge* Pontoppidan (*U. Troille*), Common Murre, Vancouver, 6 Feb. 1950. G.J.S.
- Carduiceps meinertzhageni** Timmerman.
 Recent.
Erolia alpina (Linn.), Dunlin, Red-backed Sandpiper. Lulu Is., Vancouver, 18 Nov. 1953. R. Webb. G.J.S.
- Carduiceps zonarius** (Nitzsch), 1866.
 **Calidris canutus* (Linn.), Knot. Churchill, Manitoba, 17 June 1947. M.Y.W.
Erolia melanotos (Vieillot), Pectoral Sandpiper. Lulu Is., Vancouver, 30 Aug. 1941. K.R. Five records, Iona Is. C.H.B.
Erolia minutilla (Vieillot), Least Sandpiper. Grindrod, 7 Aug. 1951. J.W.; Kamloops, 3 Aug. 1934. C.J.S.
 **Ereunetes mauri* Cabanis, Western Sandpiper. Sea Is., Vancouver, 7 May 1949, K.R.; Vancouver, 4 May 1953. G.J.S., A.W.B.
- Coloceras piageti** (Johnston and Harrison), 1912.
 **Columba fasciata* Say, Band-tailed Pigeon. Tofino, 26 Aug. 1926. G.J.S.
- Colpocephalum flavescens** (Haan), 1829.
 **Aquila chrysaetos* (Linn.), Golden-eagle. Blue River, 3 Sept. 1938, S. Keyes; Trinity Valley, 2 Oct. 1946. J.G.; Jasper, Alta., 23 Dec. 1944. I.McT.C.
Haliaeetus leucocephalus Linn., Bald Eagle. Kamloops, 9 Dec. 1933. G.J.S.; Merritt, 21 Aug. 1934. D.C.; Vancouver, March 1937. C.J.G.; Vancouver, 13 April 1938. G.J.S.; Nanoose, Jan. 1941. H.L.; Graham Is. 6 Aug. 1947. C.J.G.; Courtenay, 21 Feb. 1956. G.J.S.
- Colpocephalum impressum** Rudow, 1866.
 **Accipiter cooperi* (Bonaparte), Cooper's Hawk. Lulu Is., Vancouver, 22 April 1932. R.A.C.; Kastberg Cr., 7 Aug. 1938. J.F.S.-F.; Vancouver, 23 Nov. 1953. G.J.S.
 **Accipiter gentilis* (Linn.), Goshawk. Nine records, Vernon, Kamloops, Enderby, Keithley Cr., 70-Mile, Comox, 1953 to 1947. E.R.B., J.G., H.M.L., C.H.S., G.J.S., J.W., M.Y.W.
- Colpocephalum kelloggi** Osborne, 1902. Sp. indet.
Cathartes aura (Linn.), Turkey Vulture. Cowichan Lake, 16 May 1940. I.McT.C.; Abbotsford, 2 Oct. 1943. W.S.M.; Courtenay, 25 May 1952. K.R.
- Columbicola baculoides** (Paine), 1912. K.C.E.
Zenadura macrura (Linn.), Mourning Dove. Kamloops, 6 Aug. 1934. G.J.S.
- Columbicola columbae** (Linn.), 1758.
Columba fasciata Say, Band-tailed Pigeon. Ten records, Vancouver area, Comox, Tofino, 1926 to 1943.
Columba livia domestica Domestic Pigeon and vars. Vancouver area.
- Craspedorrhynchus dilatatus** (Rudow), 1869.
Buteo lagopus (Pontoppidan), Rough-legged Hawk. Alta Lake, 11 Nov. 1944. K.R.; Fraser Valley, 21 Oct. 1952. G.J.S.
- Craspedorrhynchus haematopus** (Scopoli), 1763.
Accipiter gentilis (Linn.), Goshawk. Vernon, 1 Nov. 1947. J.G.
- Craspedorrhynchus halioti** (Osborn), 1896.
Haliaeetus leucocephalus (Linn.), Bald Eagle. Graham Island, 6 Aug. 1947. C.J.G.
- Craspedorrhynchus nisi** (Denny), 1842.
 **Accipiter cooperi* (Bonaparte), Cooper's Hawk. Vancouver, 23 Nov. 1953. G.J.S.
- Craspedorrhynchus platystomus** (Burmeister), 1838.
 **Buteo swainsoni* (Bonaparte), Swainson's Hawk. Hilliers, Qualicum Beach, 28 May 1950. J.W.
- Cuculotogaster heterographus** (Nitzsch) 1866.
 **Phasianus subsp.*, Reeves Pheasant. Stanley Park, Vancouver, 18 Feb. 1951. G.J.S.
- Cuculophilus alternatus** (Osborn), 1902.
Cathartes aura (Linn.), Turkey Vulture. Abbotsford, 2 Oct. 1943. W.S.M.

- Cummingsiella ambigua** (Burm.) 1838.
Capella gallinavo (Linn.), Wilson Snipe. Five collections, Vancouver, Nov. 1953 to Jan. 1954. G.J.S.
- Cummingsiella longirostricola** (Wilson), 1937.
Numenius americanus (Bechstein) Long-billed Curlew. Dog Creek, 15 June 1934. K.R.; White Lake, Okanagan Falls, 1 June 1941. I.McT.C.; Armstrong, 13 June 1948. J.W.; Hulcan, N. Okanagan, 5 June 1949. J.W.
- Dennyus spiniger** Ewing, 1930. Det. K. C. Emerson.
Nephoecetes niger (Gmelin), Northern Black Swift. Vancouver, 7 Aug. 1935. R.A.C. This is the first Canadian record and the second world record: known hitherto from the single female type specimen from Seattle, Wash., now in the U.S. National Museum. Vancouver, 6 Sept. 1931. R.A.C. This single specimen was named by A. W. Baker and published in my 1948 list as *Dennyus truncatus* Olfers. Vancouver, 28 June and 30 June 1955. Adults, eggs, nymphs. G.J.S. Vancouver, 7 June 1956. One adult, one nymph from 10 birds. G.J.S.
- Eureum spenceri** Emerson and Pratt, 1955. Det. K.C.E.
Nephoecetes niger (Gmelin), Black Swift. Types: Holotype male, New Denver, May/June 1941. James Hatter. Allotype female, Vancouver, Nov. 1931. G.J.S. Paratype , New Denver, May/June, 1941. J. Hatter. Vancouver, 19 May 1955. Three adults, many eggs about to hatch and a few hatched, from 14 birds. G.J.S. Grindrod, 6 June 1954, two adults, J. Wynne.
- Falcolipeurus marginalis** (Osborn), 1902.
Cathartes aura (Linn.), Turkey Vulture. Abbotsford, 2 Oct. 1943. W.S.M.
- Goniodes colchici** Denny, 1842. Det. K.C.E.
Phasianus subsp. Pheasants. Kamloops, 6 Aug. 1934. D.C.; Vernon, 18 Oct. 1943. G.J.S.
- Goniodes lagopi** (Linn.), 1758. Det. K.C.E.
Lagopus mutus rupestris Gmelin, Rock Ptarmigan. Fort Churchill, Man., 18 Dec. 1952. C. E. Law.
- Goniodes pavonis** (Linn.), 1758. Det. G.J.S. and K.C.E.
Pavo cristatus Linn., Peacock. Stanley Park, Vancouver, 15 Oct. 1949. G.J.S.
- Goniodes stefani** Clay and Hopkins (= *Mammilatus* Rudow)
Lophortyx californica (Shaw and Nodder), California quail. South Vancouver, 23 April 1933. C. H. Brooks; Vancouver, 4 Feb. 1936, and 23 Jan. 1951. G.J.S.
- Hohorstiella frontalis** Carricker, 1949. Det. R. A. Ward.
Columba fasciata Say, Band-tailed Pigeon. Lulu Is. Vancouver, no date, 1929. R.A.C.
- Kurodaia cryptostigmatia** (Nitzsch), 1861.
Otus asio kennicotti (Elliott), Screech Owl. Vancouver, 21 March, 14 April 1932. R.A.C.
- Kurodaia haliaeti** (Denny), 1842.
Pandion haliaetus (Linn.), Osprey. Kamloops, 9 Aug. 1935. S. Keyes; Vancouver, 25 March, 1940. G.J.S.
- Kurodaia** Uchida, 1926, sp.
Buteo swainsoni (Bonaparte) Swainson's Hawk. Hilliers, 28 May 1950. J.W.
- Kurodaia** sp.
Cryptoglaux junerea richardsoni (Bonaparte). Little Boreal Owl. Blue River, 25 Jan. 1955. O. French.
- Kurodaia** sp.
Cryptoglaux acadica (Gmelin), Saw-Whet Owl. Grindrod, 3 March 1951. J.W.
- Kurodaia** sp.
Bubo virginianus (Gmelin), Great Horned Owl. Vancouver, 13 Feb. 1948. G.J.S.
- Laemobothrion canalense** Eichler, 1942.
Cathartes aura (Linn.), Turkey vulture. Courtenay, 25 May 1952. K.R.
- Laemobothrion maximum** (Scopoli), 1763.
Buteo swainsoni Bonaparte, Swainson's Hawk. Armstrong, 28 May 1950. J. Wynne; Lumby, 13 May 1948. J. Grant; Red Deer, Alta, 4 May 1938. I. McT. Cowan.
- Laemobothrion tinnunculi** (Linn.), 1758.
Falco sparverius (Linn.), Sparrow Hawk. Comox, 11 May 1939. H.M.L.
Falco columbarius (Linn.), Pigeon Hawk. Williams Lake, 10 May 1948. I.McT.C.
- Laemobothrion Nitzsch**, 1818. Sp.
Haliaeetus leucocephalus (Linn.), Bald Eagle. Graham Is., 6 Aug. 1947. C.J.G.
- Lagopoecus affinis** (Children), 1836. Det. K.C.E.
probably *Lagopus lagopus* (Linn.), Willow Ptarmigan. Fort Churchill, Man., Spring, 1953. C. E. Law No. 134.
- Lagopoecus colchicus** Emerson, 1949. Det. K.C.E.
Phasianus colchicus Gmelin, Ring-necked Pheasant. Vancouver, 3 Feb. 1955. G.J.S. *Phasianus* subsp. Formosan White Pheasant. Pheasant Hatchery, Vancouver, 26 Feb. 1951. G.J.S.
- Lagopoecus gambeli** Emerson, 1949.
Lophortyx californica (Shaw and Nodder), California Quail. Three records, Vancouver, 1933. C.H.B.; 1936, 1951. G.J.S.
- Lipeurus caponis** (Linn.), 1758. Det. K.C.E.
Gallus domesticus. Hen. Vancouver, Feb. 1944. G.J.S.
- Lipeurus maculosus** Clav, 1938. Det. K.C.E.
Phasianus colchicus Gmelin, Ring-necked Pheasant. Lytton, 1 Sept. 1931. G.J.S.; Cloverdale, 5 Nov. 1932. G.J.S.; Cloverdale, 26 Nov. 1932. G.J.S.; Vernon, 18 Oct. 1943. G.J.S.; Vancouver, 3 Feb. 1955. G.J.S.
- Lunaceps actophilus** (Kellogg and Chapman), 1899.
Eyolia alpina (Linn.). Dunlin, Red-backed Sandpiper. Lulu Is., Vancouver, 18 Nov. 1953. R. Webb; Vernon, Jan. 1935. E.R.B.
- Lunaceps drosti** Timmermann. Recent species.
Calidris canutus (Linn.), Knot or Red-breasted Plover. Churchill, Man., 17 June 1947. M.Y.W.

- Lunaceps numenii** (Denny), 1842.
**Numenius americanus* (Bechstein), Long-billed Curlew. Armstrong, 13 June 1948. J.W.
- Lunaceps phaeopi** (Denny), 1842.
**Phaeopus hudsonicus* (Latham), Hudsonian Curlew. Lulu Is., Vancouver, 30 April 1941. I.McT.C.
- Menacanthus stramineus** (Nitzsch), 1818.
Det. K.C.E.
Gallus domesticus, Common hen. Vancouver, 15 March 1929; Feb. 1944. G.J.S.
- Menopon gallinae** (Linn.), 1758. Det. K.C.E.
Gallus domesticus, Common hen. Vancouver, Feb. 1944. G.J.S.
- Nosopon lucidum** (Rudow), 1869.
**Falco sparverius* (Linn.), Sparrow Hawk. Vancouver, 22 April 1936. G.J.S.
**Accipiter striatus velox* (Wilson), Sharp-shinned Hawk. Vancouver, 16 Dec. 1953. G.J.S.
- Ornithobius** Denny, 1842. Sp. Det. K.C.E.
Cygnus buccinator Richardson, Trumpeter Swan. Vancouver, Feb. 1949. G.J.S.
- Perineus ? grandis** (Piaget), 1880.
**Stercorarius pomarinus* (Temminck), Pomarine Jaeger. Goose Is. Banks, Q.C. Is., 27 July 1948. P.W.M.
- Piagetiella peralis** (Leidy), 1878. K.C.E.
Pelecanus erythrorhynchos Gmelin, White Pelican. Pelican Lake, Cariboo, August 1946. G.J.S.
- Quadriceps carrikeri** Hopkins and Timmerman. Recent.
Catoptrophorus semipalmatus (Gmelin), Willet. Lake Kerchoff, Cypress Hills, Sask., 10 Aug. 1926. M.Y.W.
- Quadriceps connexus** (Kellogg and Mann), 1912.
Lobipes lobatus (Linn.), Northern Phalarope. Kamloops, 21 Aug. 1934. G.J.S.; Goose Is., May 1948. P.W.M.
- Quadriceps falcigerus** (Peters), 1931.
Totanus flavipes (Gmelin), Lesser Yellow-legs. Kamloops, 25 Aug. 1935. M.Y.W.; Spider Is., 28 July 1948. P.W.M.; Enderby, 25 July 1949. J.W.
- Quadriceps fimbriatus** (Giebel), 1866.
Steganopus tricolor Vieillot, Wilson Phalarope. Stum Lake, Cariboo, 1 Aug. 1950. G. J. Mitchell; Armstrong, 28 May 1950. J.W.
- Quadriceps hiaticulae boophilus** (Kellogg), 1896.
**Charadrius vociferus* (Linn.), Kildeer Plover. Iona Is., 19 March 1933. C.H.B.
- Quadriceps nigrolimbatus** (Mjoberg), 1910.
**Limnodromus griseus* (Gmelin), Dowitcher. Iona Is., 9 April 1932. C.H.B.; Goose Is., 23 July 1948. C.J.G.
- Quadriceps normifer** (Grube), 1851.
Stercorarius longicaudus (Vieillot), Long-tailed Jaeger. Churchill, Man., 4 July 1947 and July 1948. M.Y.W., G.J.S.
Stercorarius parasiticus (Linn.), Parasitic Jaeger. Churchill, Man., 4 July 1947. M.Y.W.; Goose Is., 14 Aug. 1948. C.J.G.
- Quadriceps obliquus** (Mjoberg), 1910.
Uria aalge (Pontoppidan) (Uria troille), Common Murre. Vancouver, 6 Feb. 1950. G.J.S.
- Quadriceps ornatus ornatus** (Grube), 1851.
Larus canus Linn., Short-billed Gull. Vancouver, 17 Jan. 1948. G.J.S. Five other records, Vancouver area and Victoria, 1932 to 1941. C.H.B., I.McT.C. and G.J.S.
- Quadriceps ornatus** (Grube), 1851.
Larus glaucescens Naumann, Glaucous-winged Gull. Bella Bella, 18 March 1933. C.H.B.
- Quadriceps sellatus** (Burmeister), 1838.
Sterna hirundo (Linn.), Common Tern. Vernon, Sept. 1934. E.R.B.
- Quadriceps similis** (Giebel), 1866.
**Totanus melanoleucus* (Gmelin), Greater Yellow-legs. Lulu Is., Vancouver, 19 April 1932. K.R.; Goose Is., 23 July 1948. P.W.M.
- Quadriceps stillaeopolaris** Timmermann. Recent name.
Stercorarius pomarinus (Temminck), Pomarine Jaeger. Goose Is. Banks, 27 July 1948. P.W.M.
- Rallicola** sp. Det. K.C.E.
Porzana carolina (Linn.), Sora Rail. Watson Lake, 20 July 1949. G.J.S.
- Rhynonirmus scolopacis** (Denny), 1842.
Capella gallinago (Linn.), Wilson Snipe. Vancouver, 12 Nov. 1953. G.J.S.
- Saemundssonina calva** (Kellogg), 1896.
Uria aalge (Pontoppidan) (Uria troille), Common Murre. Vancouver, 6 Feb. 1950. G.J.S.
- Saemundssonina cephalus** (Denny), 1842.
Stercorarius parasiticus (Linn.), Parasitic Jaeger. Churchill, Man., 4 July 1947. M.Y.W.
- Saemundssonina kratachvili** Balat. Recent name.
Capella gallinago (Linn.), Wilson Snipe. Vancouver, 12 Nov. 1953. G.J.S.
- Saemundssonina laria** (O. Fabricius), 1870.
Larus argentatus (Pontoppidan), Herring Gull. Enderby, 12 Nov. 1951. J.W.
Larus californicus (Lawrence), California Gull. Riske Creek, Chilcotin, 28 Sept. 1951. L.J.
Larus canus brachyrhynchos Richardson. Short-billed Gull. Iona Is., 5 Feb. 1933. C.H.B.
Larus glaucescens Naumann. Glaucous-winged Gull. Vancouver, 9 Jan. 1948. K.R.
Larus hyperboreus (Gunnerus), Glaucous Gull. 15 April 1932. R.A.C.
Larus philadelphia (Ord), Bonaparte Gull. Vernon, Sept. 1934. E.R.B.; Sea Island, 8 May 1942. R.A.C.
- Saemundssonina lockleyi** Clay, 1949.
**Sterna paradisaea* Pontoppidan, Arctic Tern. Aklavik, N.W.T., 5 July 1947. I.McT.C.
- Saemundssonina montereyi** (Kellogg), 1896.
Synthliboramphus antiquus (Gmelin), Ancient Murrelet. Vancouver, 17 Nov. 1947. G.J.S.
- Saemundssonina naumanni** (Giebel), 1874.
Squatarola squatarola (Linn.), Black-bellied Plover. Vernon, 1 Jan. 1935. E.R.B.

- Saemundssonina platygaster** (Denny), 1842.
**Totanus flavipes* (Gmelin), Lesser Yellow-legs. Kamloops, 25 Aug. 1935. M.Y.W. and G.J.S.
- Saemundssonina s. scolopacisphaeopodis** (Schränk, 1803).
**Phaeobus* (*Numenius*) *hudsonicus* (Latham), Hudsonian Curlew. Lulu Is., Vancouver, 30 April 1941. I.McT.C. and G.J.S.
- Saemundssonina scolopacisphaeopodis humeralis** (Denny), 1842.
**Numenius americanus* (Bechstein), Long billed Curlew. White Lake, 1 June 1941. I.McT.C.
- Saemundssonina stresemanni** Timmerman, 1949.
**Stercorarius pomarinus* (Timminck), Pomarine Jaeger. Goose Is. Banks, 27 July 1948. P.W.M.
Catharacta skua Brunnich, Skua. Goose Island Banks, July 1949. I.McT.C.
- Saemundssonina tringae** ? subsp. (O. Fabricius), 1870.
Erolia alpina (Linn.), Dunlin, Red-backed Sandpiper. Lulu Is., Vancouver, 18 Nov. 1953. R.W. and G.J.S.
**Limnodromus griseus* (Gmelin), Dowitcher. Iona Is., 9 April 1932. C.H.B.
**Eureunetes mauri* Cabanis, Western Sandpiper. Goose Is., 10 July 1948. C.J.G.; Sea Is., Vancouver, 7 May 1949. K.R.
- Saemundssonina** Timmermann, 1935. sp.
Erolia melanotos (Vieillot), Pectoral Sandpiper. Iona Is., Vancouver, 19 March 1933. C.H.B.
- Strigiphilus ceblebrachys** (Denny), 1842.
Nyctea scandiaca (Linn.), Snowy Owl. Lumby, 24 Nov. 1946. J.G. Six other records, Vancouver area and Kamloops, 1929 to 1945, various collectors.
- Strigiphilus cursor** (Burmeister), 1838.
Asio flammeus (Pontoppidan), Short-eared Owl. Vancouver, 10 Feb. 1947. G.J.S.
**Asio otus* (Linn.), Long-eared Owl. Huntingdon, 18 Nov. 1952. G.J.S.
- Strigiphilus ocellatus** (Rudow), 1870.
Bubo virginianus (Gmelin), Great Horned Owl. Vancouver, 14 Nov. 1947. G.J.S. Eleven other records from Coast to Dry Belt, 1933 to 1950, various collectors.
- Strigiphilus otus** Emerson 1955. PARATYPES, 4 slides.
Otus asio (Linn.), Screech Owl. Vancouver, 21 March 1932. R. A. Cumming; Vancouver, 10 Nov. 1948. G.J.S. Three slides.
- Strigiphilus speotyti** (Osborn), 1896.
Speotyto cunicularia (Molina), Burrowing Owl. Kamloops, 26 July 1936. M.Y.W. and 2 July 1934. G.J.S.
- Strigiphilus syrnii** (Packard), 1873.
**Syrinx occidentalis* (Xanthus), Spotted Owl. Vedder Crossing, Oct. 1940. I.McT.C. and G.J.S.
- Strigiphilus Mjoberg**, 1910. sp. ? *crenulatus* (Giebel), 1874.
Surnia ulula (Linn.), Hawk Owl. Williams Lake, 1 March 1944. L.J.

HOST LIST WITH PARASITES

Order PYGOPODES, Diving Birds

- Synthliboramphus antiquus** (Gmelin), Ancient Murrelet.
Saemundssonina montereyi (Kellogg).
Uria aalge (Pontoppidan), Common Murre. *Auromenopon* Bedford, 1939, species being described.
Quadriceps obliquus (Mjoberg).
Saemundssonina calva (Kellogg).

Order LONGIPENNIS, Long-winged Swimmers

- Catharacta skua** Brunnich, Skua.
Saemundssonina stresemanni Timmermann.
Stercorarius pomarinus (Timminck), Pomarine Jaeger.
Perineus ? grandis (Piaget).
Quadriceps stellaepolaris Timmermann.
Saemundssonina stresemanni Timmermann.
Stercorarius parasiticus (Linn.), Parasitic Jaeger.
Quadriceps normifer (Grube).
Saemundssonina cephalus (Denny).
Stercorarius leopicaudus Vieillot, Long-tailed Jaeger.
Quadriceps normifer (Grube).
Larus hyperboreus (Gunnerus), Glaucous Gull.
Saemundssonina lari (O. Fabricius).
Larus glaucescens Naumann, Glaucous-winged Gull.
Actornithophilus lari (Packard).
Auromenopon transversum (Denny).
Quadriceps ornatus (Grube).
Saemundssonina lari (O. Fabricius).
Larus argentatus (Pontoppidan), Herring Gull.
Saemundssonina lari (O. Fabricius).
Larus californicus (Lawrence), California Gull.
Auromenopon Bedford, 1939. Sp. being described.
Saemundssonina lari (O. Fabricius).
Larus canus Linn., Short-billed Gull.
Quadriceps ornatus ornatus (Grube).
Saemundssonina lari (O. Fabricius).
Larus philadelphia (Ord.), Bonaparte Gull.
Saemundssonina lari (O. Fabricius).
Sterna hirundo (Linn.), Common Tern.
Quadriceps sellatus (Burmeister).
Sterna paradisaea Pontoppidan, Arctic Tern.
Saemundssonina lockleyi Clay.

Order ANSERES, Lamellirostral Swimmers

- Cygnus buccinator** Richardson, Trumpeter Swan.
Anastoeus cygni subsp. (Denny).
Ornithobius Denny, sp.

Order PALUDICOLAE, Marsh Birds

- Porzana carolina** (Linn.), Sora Rail.
Rallicola sp. Female.

Order LIMICOLAE, Shore Birds

- Lobipes lobatus** (Linn.), Northern Phalarope.
Quadriceps connexus (Kellogg and Mann).

- Steganopus tricolor** Vieillot, Wilson
Phalarope.
Actornithophilus umbrinus (Burmeister).
Quadriceps fimbriatus (Giebel).
- Capella gallinago** (Linn.), Wilson Snipe.
Actornithophilus Ferris, Sp. indet.
Cummingsiella ambigua (Burmeister).
Rhynonirmus scolopacis (Denny).
Saemundssonina kratchvili Balat.
- Limnodromus griseus** (Gmelin), Dowitcher.
Quadriceps nigrolimbatus (Mjoberg).
Saemundssonina tringae ? subsp. (O. Fabricius).
- Calidris canutus** (Linn.), Knot or Red-breasted Plover.
Carduiceps zonarius (Nitzsch).
Luniceps drosti Timmerman.
- Erolia melanotos** (Vieillot), Pectoral Sandpiper.
Actornithophilus umbrinus (Burmeister).
Carduiceps zonarius (Nitzsch).
Saemundssonina Timm. sp. indet.
- Erolia minutilla** Vieillot, Least Sandpiper.
Actornithophilus umbrinus (Burmeister).
- Erolia alpina** (Linn.), Dunlin, Red-backed Sandpiper.
Carduiceps meinertzbageni Timmermann.
Luniceps actophilus (Kellogg and Chapman).
Saemundssonina tringae ? subsp. (O. Fabricius).
- Ereunetes mauri** Cabanis, Western Sandpiper.
Astromenopon Bedford. Sp. being described.
Carduiceps zonarius (Nitzsch).
Saemundssonina tringae ? subsp. (O. Fabricius).
- Totanus melanoleucus** (Gmelin), Greater Yellow-legs.
Actornithophilus totani (Schränk).
Quadriceps similis (Giebel).
- Totanus flavipes** (Gmelin), Lesser Yellow-legs.
Actornithophilus totani (Schränk).
Quadriceps falcigerus (Peters).
Saemundssonina platygaster (Denny).
- Catoptrophorus semipalmatus** (Gmelin), Willet.
Quadriceps carrickeri Hopkins and Timmermann.
- Numenius americanus** (Bechstein), Long-billed Curlew.
Cummingsiella longirostricola (Wilson).
Luniceps numenii (Denny).
Saemundssonina scolapacisphaeopodis humeralis (Denny).
- Phaeopus hudsonicus** (Latham), Hudsonian Curlew.
Luniceps phaeopi (Denny).
Saemundssonina s. scolapacisphaeopodis (Schränk).
- Squatarola squatarola** (Linn.), Black-bellied Plover.
Saemundssonina naumanni (Giebel).
- Charadrius vociferus** (Linn.), Killdeer Plover.
Actornithophilus ochraceus Nitzsch.
Quadriceps hiaticulae boeophilus (Kellogg).
- Order GALLINAE, Gallinaceous Birds
- Gallus domesticus** (L.), Common hen.
Lipeurus caponis (Linn.).
Menacanthus stramineus (Nitzsch).
Menopon gallinae (Linn.).
- Lophortyx californica** (Shaw and Nodder), California Quail.
Goniodes stefani Clay and Hopkins.
Lagopoecus gambeli Emerson.
- Phasianus colchicus** Gmelin, and subspp., Ring-necked Pheasant.
Cuculogaster heterographus (Nitzsch).
Goniodes colchici Denny.
Lagopoecus colchicus Emerson.
Lipeurus caponis (Linn.).
Lipeurus maculosus Clay.
- Lagopus mutus rupestris** Gmelin, Rock Ptarmigan.
Goniodes lagopi (Linn.).
- Lagopus lagopus** (Linn.), Willow Ptarmigan.
Lagopoecus affinis (Children).
- Pavo cristatus** (Linn.) Peacock.
Amyrisidea phaeostoma Nitzsch.
Goniodes pavonis (Linn.).
- Order COLUMBAE, Pigeons and Doves
- Columba fasciata** Say, Band-tailed Pigeon.
Columbicola columbae (Linn.).
Coloceras (Goniodes) piageti J. & H.
Hoborstiella frontalis Carricker.
- Columba** var. Domestic and Carrier Pigeons.
Columbicola columbae (Linn.).
- Zenadura macrura** (Linn.), Mourning Dove.
Columbicola baculoides (Paine).
- Order RAPTORES, Birds of Prey
- Cathartes aura** (Linn.), Turkey Vulture.
Colpocephalum kelloggi Osborn.
Cuculipbilus alternatus (Osborn).
Falcolipeurus marginalis (Osborn).
Laemobothrion canalense Eichler.
- Accipiter striatus velox** (Wilson), Sharp-shinned Hawk.
Nosopon lucidum (Rudow).
- Accipiter cooperi** (Bonaparte), Cooper's Hawk.
Colpocephalum impressum Rudow.
Craspedorrhynchus nisi (Denny).
- Accipiter gentilis** (Linn.), Goshawk.
Colpocephalum impressum Rudow.
Craspedorrhynchus baematopus (Scopoli).
- Buteo swainsoni** (Bonaparte), Swainson's Hawk.
Craspedorrhynchus platysomus (Burmeister).
Kurodaia Uchida, 1926. sp. indet.
Laemobothrion maximum (Scopoli).
- Buteo lagopus** (Pontoppidan), Rough-legged Hawk.
Craspedorrhynchus dilatatus (Rudow).
- Aquila chrysaetos** (Linn.), Golden Eagle.
Colpocephalum flavescens (Haan).
- Haliaeetus leucocephalus** Linn., Bald Eagle.
Colpocephalum flavescens (Haan).
Craspedorrhynchus balieti (Osborn).
Laemobothrion sp.
- Falco columbarius** (Linn.), Pigeon Hawk.
Laemobothrion tinnunculi (Linn.).
- Falco sparverius** (Linn.), Sparrow Hawk.
Laemobothrion tinnunculi (Linn.).
Nosopon lucidum (Rudow).
- Pandion haliaetus** (Linn.), Osprey.
Kurodaia haliaeti (Denny).

- Asio otus** (Linn.), Longeared Owl.
Strigiphilus cursor (Burmeister).
Asio flammeus (Pontoppidan), Short-eared Owl.
Strigiphilus cursor (Burmeister).
Strix occidentalis (Xanthus), Spotted Owl.
Strigiphilus syrnii (Packard).
Cryptoglaux funerea richardsoni (Bonaparte), Little Boreal Owl.
Kurodaia sp. indet.
Cryptoglaux acadica (Gmelin), Saw-Whet Owl.
Kurodaia sp. indet.
Otus asio kennicotti (Elliott), Screech Owl.
Kurodaia cryptostigmata (Nitzsch).
Strigiphilus otus Emerson.
Bubo virginianus (Gmelin), Great Horned Owl.
Kurodaia sp.
Strigiphilus oculus (Rudow).
Nyctea scandiaca (Linn.), Snowy Owl.
Strigiphilus ceblebrachys (Denny).
Surnia ulula (Linn.), Hawk Owl.
Strigiphilus ? crenulatus (Giebel).
Speotyto cunicularia (Molina), Burrowing Owl.
Strigiphilus speotyti (Osborn).

Order MACROCHIRES, Nightjars,
 Swifts, Hummingbirds

- Nephoecetes niger** (Gmelin), Northern Black Swift.
Dennyus spiniger Ewing.
Eureum spenceri Emerson and Pratt.

Additional Records, received after the previous list.

MALLOPHAGA AND HOSTS

- Austroripon alpinum** Zimmermann, 1954.
Erolia alpina (Linn.), Dunlin, Red-backed Sandpiper. Vancouver, 18 Nov. 1953. R.W. and G.J.S.
Austroripon nigropleurum (Denny), 1842.
Synthliboramphus antiquus (Gmelin), Ancient Murrelet. Vancouver, 17 Nov. 1947. G.J.S.
Bruelia Keler, 1936. Sp.
Ixoreus naevius (Gmelin), Varied Thrush. Vancouver, 13 Feb. 1943 and 18 Feb. 1949. G.J.S.
Degeeriella d. discocephalus (Burmeister) 1838.
Haliaeetus leucocephalus (Linn), Bald-headed Eagle. Univ. Campus, Vancouver, March, 1937. C.J.G. and G.J.S.
Degeeriella fulva (Giebel), 1874.
Buteo jamaicensis (Gmelin), Red-tailed Hawk. Grindrod, 1 May 1949. J.W.
Buteo lagopus (Pontoppidan), Rough-legged Hawk. Fraser Valley, 21 Oct. 1952. G.J.S.
Degeeriella fusca (Denny), 1842.
Circus cyaneus (Linn), Marsh Hawk. Fraser Valley, 21 Oct. 1952. G.J.S.
Degeeriella regalis regalis (Giebel), 1866.
Buteo swainsoni (Bonaparte), Swainson's Hawk. Red Deer, Alta., 4 May 1938; Hillier, 28 May 1950. J.W.
Degeeriella rufa carruthi Emerson. Recent.
Falco sparverius (Linn), Sparrow Hawk.

- Univ. Campus, Vancouver, 22 April 1936. G.J.S.
Degeeriella rufa rufa (Burmeister), 1838.
Falco peregrinus Tunstall, Peregrine Falcon. Vancouver, 3 May 1936. K.R. and G.J.S.
Falcolipeurus Bedford, 1931.
Haliaeetus leucocephalus (Linn), Bald-headed Eagle. Kamloops, 9 Dec. 1933 (Per S. Keyes). G.J.S.
Laemobothrion Nitzsch, 1818 Sp. indet.
Buteo jamaicensis (Gmelin), Red-tailed Hawk. Armstrong, 6 Nov. 1947. J. Grant.
Philopterus Nitzsch, 1818, Sp. indet.
Hylocichla ustulata (Nuttall), Olive-backed Thrush. Vancouver, 24 May 1952. R.A.C.
Philopterus sp.
Ixoreus naevius (Gmelin), Varied Thrush. Vancouver, 13 Dec. 1945. G.J.S.
Philopterus ? sialii (Osborn), 1896.
Sialia mexicana Swainson, Western Bluebird. Grindrod, 17 May 1950. J.W.
Quadriceps Clay & Meinertzhagen, 1939. Sp. Indet.
Brachyramphus marmoratus (Gmelin), Marbled Murrelet. Vancouver, 17 Nov. 1947. G.J.S.
Quadriceps sp.
Synthliboramphus antiquus (Gmelin), Ancient Murrelet. Vancouver, 17 Nov. 1947. G.J.S.
Saemundssonina Timmermann, 1935.
Fratricula corniculata (Naumann), Horned Puffin. Paul Is., Alaska, 14 Aug. 1946. G.C.C.

HOST LISTS WITH PARASITES

- Order PYGOPODES, Diving birds
Fratricula corniculata (Naumann), Horned Puffin.
Saemundssonina sp.
Synthliboramphus antiquus (Gmelin), Ancient Murrelet.
Austroripon nigropleurum (Denny).
Quadriceps sp.
Brachyramphus marmoratus (Gmelin), Marbled Murrelet.
Quadriceps sp.
 Order LIMICOLAE, Shorebirds
Erolia alpina (Linn), Dunlin, Red-backed Sandpiper.
Austroripon alpinum Timmermann.
 Order RAPTORES, Birds of prey
Circus cyaneus (Linn), Marsh Hawk.
Degeeriella fusca (Denny).
Buteo jamaicensis (Gmelin), Red-tailed Hawk.
Degeeriella fulva (Giebel).
Laemobothrion sp.
Buteo swainsoni (Bonaparte), Swainson's Hawk.
Degeeriella regalis regalis (Giebel).
Buteo lagopus (Pontoppidan), Rough-legged Hawk.
Degeeriella fulva (Giebel).
Haliaeetus leucocephalus (Linn), Bald-headed Eagle.
Falcolipeurus sp.
Falco peregrinus Tunstall, Peregrine Falcon.
Degeeriella rufa rufa (Burmeister), 1838.
Falco sparverius (Linn), Sparrow Hawk.
Degeeriella rufa carruthi Emerson.

Order PASSERES, Perching Birds
Hylocichla ustulata (Nuttall), Olive-backed Thrush.
Philopterus sp.

Ixoreus naevius (Gmelin), Varied Thrush.
Bruelia sp.
Philopterus sp.
Sialia mexicana Swainson, Western Bluebird.
Philopterus ? *sialii* (Osborn).

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4. Harrison, Launcelot. 1916 The Genera and Species of Mallophaga. Parasitol. 9(1).
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ANNOTATED LIST OF FOREST INSECTS OF BRITISH COLUMBIA PART V — *DIORYCTRIA* SPP. (PYRALIDAE)¹

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Snout moths of the genus *Dioryctria* (includes *Pinipestis*) are an important, although rather imperfectly known group of conifer pests. Their larvae attack cones, foliage, and the bark and outer wood of twigs or trunks. Larvae of most *Dioryctria* are drab and of uniform coloration. Some species have pigmented pinacula giving a spotted appearance; others have broad, and in some instances, obscure stripes. All members of the genus have a prominent, pale-coloured, black-ringed pinaculum above each spiracle on A₈, and an even more prominent, similarly marked pinaculum on the side of T₂. *Dioryctria* spp. over-winter in the larval stage; most of the boring species pupate in a silk-lined cell within the host plant tissue. Excepting *D. abietella* D. & S. which emerges in the spring, adults emerge during midsummer.

D. auranticella (Grote). *Pinus ponderosa* (cones and staminate flowers); Southern Interior. During 1949 to 1954, was in epidemic proportions through much of the Okanagan Valley; as many as 80 per cent of the

cones from some sample trees were infested. Usually cones that have been attacked by this borer do not open. Infested cones have small, round, clean exit holes. Often several larvae feed in a cone leaving it a mere shell. This insect pupates in a silk-lined cell in the cone. **Larva:** length, 1 inch; head, reddish-brown and black; prothoracic shield and legs, black; body, blackish to dirty light brown, may be reddish tinge on thorax; suranal plate, anal prolegs, and circular spot on eighth abdominal segment, pale tan, the latter with narrow black border; brownish about setal bases.

D. sp. nr. **auranticella**. *Pinus ponderosa* (cones); Southern Interior; much less common than *auranticella*; habits similar to *D. auranticella*. **Larva:** $\frac{3}{4}$ inch; reddish-brown head; prothoracic shield, suranal shield and sides of anal prolegs pale tan; body flesh-coloured; subdorsal-supraspiracular stripe dark grey; pinacula not pigmented.

D. abietella D. & S. In the cones of *Pseudotsuga menziesii*, *Picea engelmanni*, *Abies lasiocarpa*, *Pinus ponderosa*, *Pinus contorta* (and from *Cronartium* gall on branch), *Pinus monticola* (from