

- Cyanocitta stelleri stelleri** (Gmelin), Steller's Jay.
Degeeriella deficiens Piaget
Philopterus subflavescens Geoff.
- Pica pica hudsonia** (Sabine), Magpie.
Degeeriella biocellata Piaget
Philopterus picae Denny
- Corvus brachyrhynchos hesperis** Ridgway, Western Crow.
Myrsiodes subaequalis Lyonet
- Penthestes gambeli grinnelli** Van Rossem, Short-tailed Mountain Chickadee.
Philopterus rutteri Kell.
- Bombycilla garrula pallidiceps** Reichenow, Bohemian Waxwing.
Philopterus subflavescens Geoff.
- Lanius excubitor invictus** Grinnell, Northern Shrike.
Philopterus subflavescens Geoff.
- Agelaius phoeniceus caurinus** Ridgway, Northwestern Red-winged Blackbird.
Philopterus agelaii Osb.
- Hesperiphona vespertina brooksi** Grinnell, Evening Grosbeak.
Philopterus subflavescens Geoff.
- Pinicola enucleator alascensis** Ridgway, Alaska Pine Grosbeak.
Philopterus subflavescens Geoff.
- Junco oreganus oreganus** (Townsend), Oregon Junco.
Ricinus diffusus Kell.

KEY TO COLLECTORS

I. McT. C.	Jan McTaggart Cowan
R. A. C.	(the late) R. A. Cummings
J. A. M.	J. A. Munro
E. E. P.	Ernest E. Peden
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NOTES ON SOME DERMESTIDAE OF BRITISH COLUMBIA (Coleoptera)

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During the last 16 years in the dry belt of this province, I have collected all the Dermestidae I could lay hands on, but so far have obtained only 13 identified, and 2 unidentified species belonging to the Megatomini. The late Kenneth Auden, a most assiduous beetle collector, also obtained only 15 species so these few may be fairly representative. Over 700 species have been named in this family and Leng lists 123 for America north of Mexico, so further collecting may reveal several more for British Columbia.

The numbers in which they occur at any one time in the dry belt, vary greatly. The best sources for adults of small species are flowers such as choke cherry, wild spiraea, death camas, and water hemlock, and for adults and larvae of larger species, the hides of sheep that have died on the ranges during the winter, and any carrion.

Dermestes marmoratus Say, our largest species, may be found under animal re-

mains on the ranges and under sheep skins that shepherds have left lying about. Both adults and larvae are most readily found in such situations although any dry carrion attracts them.

From the standpoint of numbers and ease of collecting, two species head the list, *Dermestes talpinus* Mann. and *Dermestes signatus* Lec. These come to carrion after the first wave of carrion-beetles and *marmoratus* has passed and the carcasses are drying and not so smelly.

Dermestes frischii Kug. is not common but generally occurs singly or in small numbers on carcasses that have been well picked over by bears and coyotes.

I have never taken *D. maculatus* DeGeer 1774 (= *vulpinus* Fabr. 1781) out of doors. The large series in our collections was reared from a dried wolf carcass stored in the laboratory pending cleaning up. The larvae from the dried wolf scattered in all directions, invading three

adjacent rooms where they pupated in all manner of concealed places, some even wandering between the drawers of insect cabinets where they chewed out pupation chambers in the woodwork of the drawers. The infestation in the wolf apparently arose from adults that escaped from the beetle room where this species is maintained in large numbers for cleaning skeletons and skulls. The culture was imported originally from California and has been maintained in a large tin cage for several years. The species is apparently not native to this province and has not yet become established in the dry belt.

Dermestes lardarius Linn. the larder beetle, is best collected under old bacon rind or an old ham bone to which they generally arrive in pairs. In the same way, a male and female often arrive during the night to the bread box into which a freshly baked loaf has been put and has fermented or soured a little in the heat. I once reared a few adults from the bodies of dried insects in the laboratory at Kamloops where the larvae had become established naturally—a rather unusual occurrence.

Attagenus piceus Olivier, the black carpet beetle, occurs most freely under old horse or cow skeletons which are nearly dry and from which everything but shreds of tendons has been picked. Stragglers occasionally come into the cabin on the ranges in late summer and may be found on window frames. I once reared a small series from each of the following: a supply of casein from Australia; trash, consisting chiefly of particles of wool that occurred between rather widely laid floor boards in a public dance hall in the dry belt; an old insect collection in the Kamloops laboratory.

Anthrenus scrophulariae (Linn.), the notorious buffalo carpet beetle of eastern North America, apparently does not occur in this province yet. What I formerly considered to be this species turns out to be *A. pimpinellae* Fabricius, designated by Hinton as var. *occidens* Casey. In 1942 I published a note on *Laelius* sp. as a parasite of *A. scrophulariae* (Ent. Soc. of B.C. Proc. 39, 1942) from beetle material sent in

from Princeton. The beetles were identified for me by the late Mr. Ralph Hopping and are so labelled in my collections, but Mr. Hopping did not have the good fortune, as I have had, to be able to consult Hinton's work and these beetles, also, turn out to be *A. pimpinellae* var. *occidens* Casey.

I have a large series of *A. pimpinellae* collected in the dry belt from Kamloops to the Chilcotin, occurring freely on flowers of yarrow and on wild, short spiraea on the ranges but never on hawthorn blossoms, on which adults of *A. scrophulariae* are sometimes so abundant in Ontario. Although adults of *pimpinellae* are so common, I have not been able to find out where the larvae develop. The one record of larvae in trash from a home in Princeton, is the only instance I have of its kind; certainly it is not a household pest as is *scrophulariae*. Full grown larvae of *pimpinellae* are armed with evenly but thinly distributed stout, black, dorsal bristles and lack the long caudal brush of brown hairs that is characteristic of larvae of *scrophulariae*. When working on the fauna of recently abandoned birds' nests, I have frequently come across dermestid larvae but have not yet reared any to adults; it is possible that they may be those of *pimpinellae*.

Anthrenus verbasci (Linn.), the varied carpet beetle, first obtained as larvae in homes in Vancouver in 1936 and reared through to adults, has become the most troublesome household pest in the lower Fraser valley and up the coast as far as Powell River. Once established in a house, the larvae are extremely hard to eradicate unless by cyanide fumigation and even then there is no guarantee that they will not turn up again next year. One householder informed me that larvae reappeared only three months after fumigation, which would seem to indicate that cyanide does not kill the eggs. For years I have examined hawthorn and spiraea blossoms each spring but have never found *verbasci* adults out of doors on these or on any other flowers. In mid-May, 1947, however, two citizens who had consulted

me about the control of these larvae, found adults out of doors and called me up to report it; one picked 13 beetles off a white blanket which she had washed and hung out to dry and the other found several on tulip and pyrethrum flowers in her next-door neighbor's garden. The adults apparently feed on white garden flowers and fly into homes to lay eggs. They breed also in feathers of discarded birds' nests for I found several larvae in a humming bird's nest which had been given me in September; the larvae were almost full grown so they must have been in the nest for several months.

That adults of *A. verbasci* do not require pollen or nectar from flowers in order to mature their eggs, is proved by the fact that I have reared a strong culture in a glass-topped tin box for 11 years, starting from the first few larvae that I received in 1936. It was from these larvae that I identified the species (which was new to me). They were fed on crushed Purina Fox Chow biscuits and generation after generation has developed in that box ever since, with food being renewed whenever necessary. For one six-month period they were fed wheat grains and for another similar period, oat grains, and apparently thrived on the change. If wheat and oat grains are nicked with a knife, all the starchy contents are soon consumed. One small larva, supplied one nicked grain of wheat, gradually ate its way into the grain as into a cave, leaving a semi-circular wall of frass and cast skins behind it. Generations seem to overlap, but one wave of adults appears in March to April and a second in September to November. In one experiment some 50 beetles of both sexes were removed from this tin shortly after emergence and were placed in a similar tin on 14th March, without any food. They mated and laid eggs plentifully and gradually died. Some eggs shrivelled but most hatched and by 15th May a large brood of larvae was active in the box and had consumed the bodies of all but five of their parents without, however, having eaten the shrivelled unhatched eggs.

This means that an infestation of *A. verbasci* in a home, can maintain itself indefinitely without the adults having to fly outside to feed on flowers. Screening of windows to keep beetles out of a house would seem a hopeless task because few screens have frames sufficiently tightly fitting.

The larvae of *A. verbasci* are highly resistant to DDT powder. A number of them placed without food in a tin which had the poison dusted on the bottom, walked over it for two weeks without any of them dying and finally the lot died of starvation. A five per cent solution of DDT in Varsol (a cleaning fluid put out by the Imperial Oil Co.), sprayed on the backs of larvae seemed to have no effect on them for some hours but by next day they had become paralyzed and incapable of moving around although the legs twitched spasmodically. Some remained for 13 days in this condition before dying. However, those hit with spray on the under side of the body, died in a few hours.

A few grains of hexachlorocyclohexane (666) of 13 per cent gamma isomer content, in the same type of tin as employed with DDT powder, killed all larvae in 48 hours, apparently by fumigation.

The infestation is definitely spreading in greater Vancouver and it is difficult to see what factors will ultimately level it off.

Adults of *Orphilus niger* (Rossi) are best obtained in the Dry Belt off flowers of choke cherry; I have no idea what the larvae feed on.

Megatoma (*Perimegatoma*) *vespulae* Milliren used to be a pest in our insect, bird or mammal collections at the University from 1931 onwards until 1943, when I sprayed the outside of all our cabinets with five per cent DDT in Varsol about the third week in May. The spray has been repeated each year since, and the infestation has now died out. In rearing experiments with this species I find that larvae placed singly in tin salve boxes with a variety of foods including dead insects, invariably shrivel up and die even after

six months of captivity. On the other hand I have reared them in bulk with a mass of dried insects, and they developed into beetles. As soon as adults emerge they should be removed from a culture if specimens for pinning are desired, otherwise the ensuing larvae eat the bodies of their dead parents, as do those of *A. verbasci*. All my pinned specimens were reared in the laboratory in Vancouver with the exception of one beetle which occurred on a window of the Dominion Entomological Laboratory in Kamloops. I have never captured it out of doors in the dry belt although I suspect that it came to the University originally from Upper Hat Creek where I was working in 1931 and whence I brought down much dried, pinned material, which, I think, became infested during the process of drying before the specimens were pinned away into

boxes. Milliron, who described this species in 1939 from Minnesota, obtained his material from an old demonstration nest of the wasp, *Vespula arenaria*. However, I have put both adults and larvae into a glass jar containing a nest of *Vespula* which contained an abundance of wasp larval faeces and dried larvae and pupae but was not able to establish a colony in this medium. Neither will larvae develop on Fox Chow dust which has proved so successful for *A. verbasci*. The bodies of dried grasshoppers, fat moths and especially dried marine crustacea, are excellent food for this *P. vespulae*.

In addition to these listed above, I have a few specimens only of each of two further species of *Dermestidae*, near *Megatomia*, but have not been able to get them identified as yet.

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THE CLAY-COLOURED WEEVIL, *BRACHYRHINUS SINGULARIS*, IN WEST POINT GREY, VANCOUVER. (Coleoptera: Curculionidae).—The clay-coloured weevil, *Brachyrhinus singularis* (L.) first reported in this Province from Victoria by Mr. Harry Andison (*Ent. Soc. B.C. Proc.* 38, 1942) appeared in West Point Grey in October 1944, when one specimen was captured in my house. The next year, four beetles were taken on the kitchen and pantry windows, also in October. Now in the spring of 1944 I had first noticed holes eaten out of the leaves of purple iris bordering the sidewalk alongside the house and in 1945 the holes had noticeably increased until many leaves showed extensive damage: on both occasions the plants were inspected by daylight but no insects could be found on them. In the first week of May 1945, the irises were examined at night with a flashlight, at intervals from 8 o'clock onwards and several weevils were found chewing holes in the leaves. By 9 o'clock they had increased in numbers and remained fairly constant for the next half hour, so the worst infested portion of the bed, a strip some 35 feet alongside the house, was carefully swept with a net and many weevils were taken; a further strip of some 105 feet alongside the garden fence where the irises were but little damaged, yielded about a dozen more. In all, 131 clay-coloured weevils, 2 strawberry-root weevils (*Brachyrhinus ovatus* (L.) and 4 others (sp. indet.) were collected

from off the iris leaves.

Apparently this sweeping removed practically all the beetles because in October 1946, only one iris leaf was found to have been recently damaged and no beetles could be located.

During the first week in May, 1947, the iris plants in these two beds and other clumps inside the garden walls, which hitherto had not been touched, showed signs of being attacked. Sweeping at 9 p.m. on May 10th yielded 23 beetles, and no subsequent damage occurred.

The garden contains a considerable range of annuals and perennials but only irises seem to be attacked and, of several varieties of these, the purple is most susceptible. The weevils apparently range widely since one was taken in May, on a limb of a sweet cherry tree, 25 feet from the trunk and 6 feet off the ground, so their damage will probably soon extend to other plants besides iris. Andison (loc. cit.) records them as extensively injuring laurel leaves in Victoria. There are no laurels in my garden but for several years I have noticed the lower leaves of several laurel bushes in the next block, to be extensively damaged: it is therefore very likely that this same insect is concerned and that its distribution in West Point Grey is far more extensive than is at present realized.—G. J. Spencer, Department of Zoology, University of British Columbia.