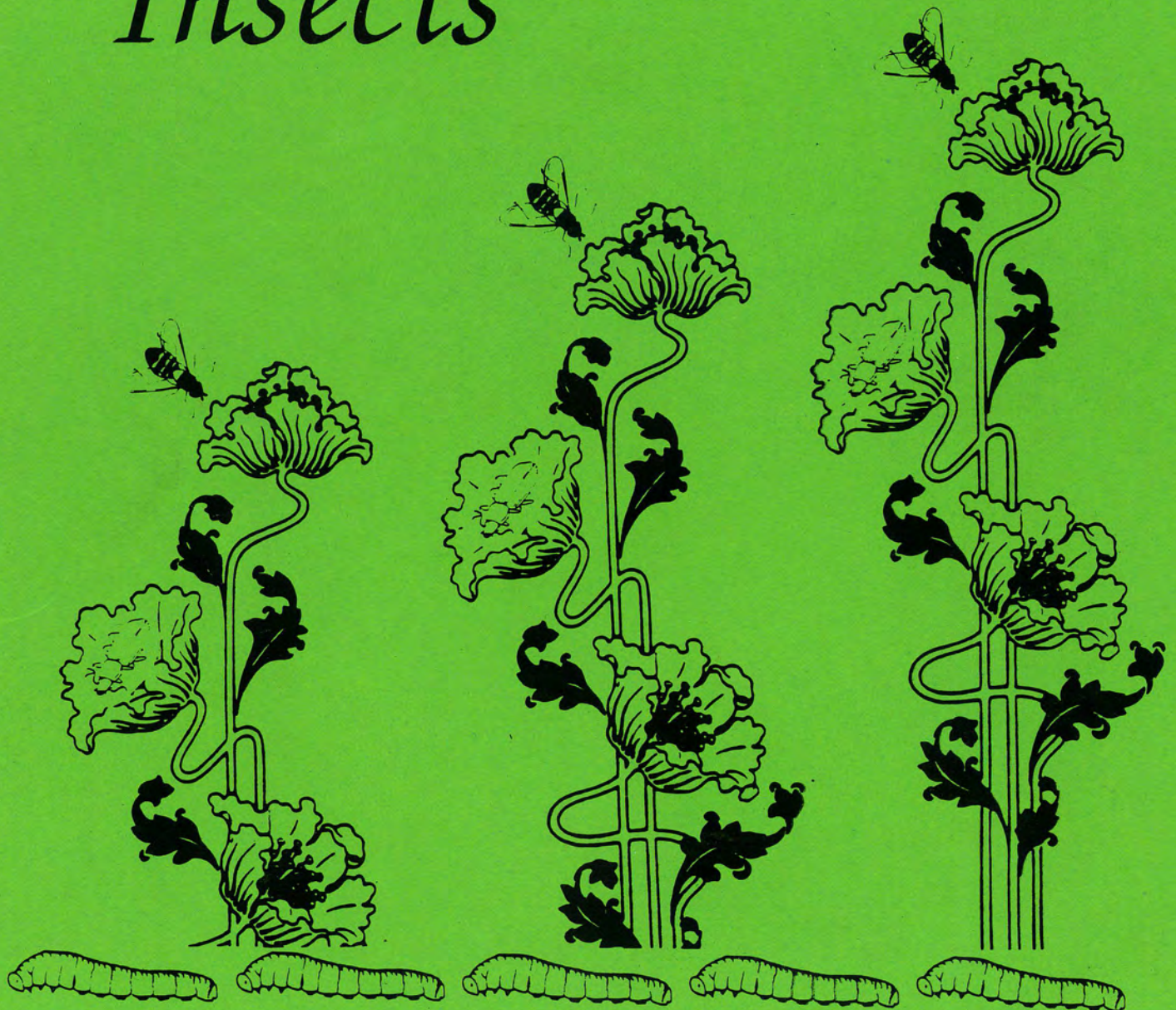


# *Yukon Garden Insects*



## **YUKON GARDEN INSECTS**

The following pamphlet is designed to aid the Yukon gardener in determining whether an insect is friend or foe.

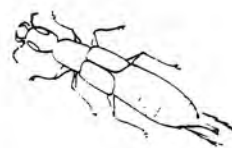
The insects drawn here are the ones contained in the insect wall display at the Agriculture Branch office in Whitehorse. The text includes some physical descriptions to augment the simplistic sketches. They are not meant to be taken too seriously in identification. Since the drawings and the agricultural office display are of locally captured insects, there is a chance a person without a microscope could match their insects with the ones on display in the agricultural office and learn the correct identification. However, complete identification often requires a compound microscope and measures like the dissection of genitalia and several years worth of practice to work your way through hundreds of determinations. Hopefully these drawings and descriptions will serve as a beginning to the understanding of the insect life in your garden. The final page includes some information that may be helpful in pest control without poisons.

This project was coordinated by the Agriculture Branch office in Whitehorse. The insect display in the second floor Tutshi Building office, (Second Avenue and Wood Street), was collected and identified by Kathy Piwovar who created this handbook from that display. Kathy is a biologist with several years experience identifying insects and working on soil viability projects. Hopefully the information in this pamphlet will be useful. It is the intention of the Agriculture Branch to update the information as required. If anyone has comments on the publication, please contact the Agriculture Branch office at 667-5838.

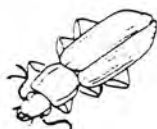
*On with the season!*

**ROVE BEETLE** *Staphylinidae* These beetles live on shores, on carrion, in manure, on fungi, on flowers, under bark and in soil. No species are harmful; rove beetles may be considered beneficial for feeding on other insects.

These insects are small dark and long. The last abdominal segment is elongated.



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**WOODLAND GROUND BEETLE** probably *Bothriopterus oblongonotatus* These beetles are active at night. During the day they occur under moist rotten logs or on wet ground. Adults and larvae are omnivorous or predaceous and often feed on dead or dying insects.

**OVAL LEAF BEETLE** *Chrysomelidae* probably *Eumolpinae* Larvae live in soil and feed on roots. Adults feed on living plants.

These beetles are yellowish brown with black patterns on their backs.



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**LONG-HORNED BEETLE** *Cerambycidae* Larvae eat wood of trees and some feed on roots. Some adults eat nothing, those that do feed generally do so on flowers, bark, leaves, pine needles and cones, sap, fruit, roots and fungi. These are larger brown winged beetles.

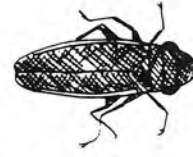
**ROBBER FLY/ BEE CATCHER** *Asilidae* probably *Lasiopogon* sp. These flies are predaceous and will attack other flies, bees and wasps, grasshoppers etc. Larvae live in soil or in wood and may feed on beetle larvae and other immature insects.

One set of wings and a long abdomen with white stripes characterize these diptera.



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**LEAFHOPPER *Jassinæ*** These insects feed on plant sap, destroy cells, plug vessels and transmit viruses. They come in many sizes and colors.



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**RED TURNIP BEETLE** probably *Entomoscelis americana* Both larvae and adults feed on seedlings, leaves, stems, flowers of seed pods of turnips, radishes and many other plants. These insects are red with black patterns on their backs.

**THRIPS *Thripidae*** Most thrips feed on flowers, leaves, buds and fruit. Many species are serious pests of crops. These are very tiny dark insects.



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**PARASITIC WASP *Braconidae*** The larvae are internal parasites of other insects. Adults drink nectar. These wasps reduce the number of plant eating insects. These are very tiny wasps with two sets of wings and a narrow waist between thorax and abdomen.

**FLOWER FLIES *Syrphidae*** Adults are important pollinators. Larvae are frequent predators of aphids, other homopterans and thrips. These flies have one set of wings and a patterned abdomen.



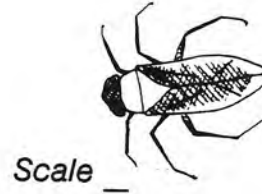
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**PLANT BUGS *Miridae*** Most species feed on plant juices and many are serious pests. These are somewhat flattened and often reddish brown.

LEAFHOPPERS *Jassinæ* These insects are plant pests due to feeding on plant sap, destroying cells, plugging vessels and transmitting viruses.



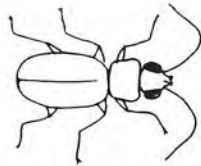
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GALL MIDGE *Cecidomyiidae* Adults cause plant galls. Habits of larvae vary. These are small hunched back flies with one set of wings.

HOUSE FLY/ STABLE FLY *Muscidae* Adults often bite and transmit diseases. Larvae breed in decaying plant material or manure. All flies have one set of wings.



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MINUTE GROUND BEETLE *Carabidae* probably *Bembidion* sp. Adults and larvae feed on dead and dying insects (omnivorous and predaceous). These are tiny dark beetles.

FLY PUPAE *Diptera* pupae This is the stage in a flies life cycle between larvae (maggots) and flying adults. Pupae are often found in soil or rotting organic matter. These are often reddish brown and comparatively featureless.



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RUST FLY *Psilidae* probably *Psilia* sp. Larvae feed on stems and roots. These flies often have reddish orange thorax and head.

ROOT MAGGOT FLY *Anthomyiidae* probably *Alliopsis* sp. Larvae live in roots, stems, and leaves of various plants living and decaying.



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TACHINA FLY *Tachinidae* Larvae are parasitic on other insects. Adults are found near flowers and honeydew (secreted by aphids). These insects have one set of wings and a large bulbous body.

HALICTID BEES/ SWEAT BEES *Halictidae* This bee nests in the ground and can be important in pollination. These insects have two sets of wings and are narrow between abdomen and thorax.



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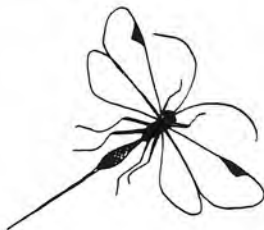
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WINGED ANT *Formicinae* The most substantial problem with ants is their habit of protecting, herding and transporting to new host plants of aphids. These ants have elbowed antennae and a node between the thorax and abdomen.

HORNETS/ YELLOW JACKETS *Vespidae* These wasps are valuable pollinators and feed on nectar, ripe fruit and insect pieces.



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ICHNEUMON WASP *Ichneumonidae* These wasps are parasitic on the larvae of caterpillars, beetles and other wasps. Many are valuable in the control of noxious insects. This variety has a long thin ovipositor.

**ROVE BEETLE LARVAE** *Staphylinidae* These larvae are carnivorous and predacious.



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**GROUND BEETLE LARVAE** *Carabidae* These larvae are carnivorous and live in the soil, in the grass, under debris or dead bark.

**BROCOLLI MAGGOT** *Cyclorrhapha* Some larvae mine between leaf surfaces, tunnel into various roots or feed within developing fruit. There are no legs on this diptera pupae.



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**NYMPH PLANT BUGS** *Miridae* Most of these insects feed on plant juices and many are serious pests. They are usually flat and light in color.

**CUTWORMS** *Noctuidae* These caterpillars are foliage feeders. They usually have three sets of legs and four sets of crochets on their abdomen.



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**SAWFLY LARVA** *Tenthredinidae* Many broad leaf trees, shrubs and ferns are attacked by members of this group.

PARASITIC WASPS *Pteromalidae* Larvae are parasites of many insects including crop pests.



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PLUME MOTH *Pterophoridae* Larvae are stem borers and leaf rollers.

These moths have very distinctive long thin wings, legs, and bodies.

WATER BOATMAN *Callicorixa alaskensis* These insects feed on small organisms both plant and animal (algae and mosquito larvae).

These bugs have 9-10 stripes on the pronotum (upper back).



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CASEBEARER MOTHS *Coleophoridae* These caterpillars are known as leaf miners and case bearers. They feed on leaves flowers fruits and seeds of various plants.

APHIDS/ PLANT LICE *Aphididae* Many aphids weaken plants by sap removal. They cause the plant and leaves to wilt and turn yellow.



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Many Yukon gardeners are in need of pest control methods at the same time they are becoming increasingly wary of pesticides and their harmful side effects. The following is some information on pest control methods that may be of value in some situations.

First of all, there is a toll-free pesticide information line available through Agriculture Canada: 1-800-267-6315

The following types of information about pesticides are available:

- chemical and trade names
- a brief description of precautionary measures and action required in case of problems
- a list of side effects and action to be taken in each case
- a brief description of possible alternatives, including non-pesticides
- a list of people to contact for more information

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Several companies advertise biological control agents for dealing with pests. The predators or parasites are shipped in bran, attached to cards or shipped in cotton. The following are addresses for several companies dealing in biological control agents. Catalogues, order forms, and information can be obtained from:

Applied Bio-nomics Ltd.	Safers	Bryan Johnsons
P.O. Box 2637	465 Milner Ave.	Non-toxic Pest Control
Sidney, B.C.	Unit 1	492 Camden Place
V8L 4C1	Scarborough, Ont.	Winnipeg, Man.
604-656-2123	M1B 2K4	R3G 2V7
	1-800-387-5306	204-772-3048

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The following is a condensed version of an article written by Linda Gilkeson PhD entomologist for Applied Bio-Nomics. The original article appeared in the April 1989 issue of Cognition.

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Pest management should be the goal of a gardener rather than pest eradication. Nine out of ten insects around a garden are beneficial. To protect and attract these native beneficial insects and mites is possibly the most effective, easiest and cheapest pest

management method for a garden.

The first step in enticing this beneficial menagerie into your garden is to stop using pesticides. The next step is to plant and lay out the garden so that it encourages predators and increases their number from year to year. Beneficial flies and wasps can be attracted with flowering plants such as mint family herbs (lemon balm, pennyroyal, thyme), carrot family plants (dill, parsley), and cabbage family plants (radishes, mustard, broccoli), that have been allowed to bolt.

Companion planting should be viewed as a way to attract natural enemies rather than a way of repelling pests.

Experiment with insect resistant varieties. Purple cabbages are less attractive to butterflies than the green varieties for example.

Sticky yellow traps, made of Tanglefoot spread on bright yellow cardboard, plastic or wood attract cabbage butterflies, winged aphids, and some other pests.

Hand picking of leaves works for leaf miners in spinach and chard (burn or bury leaves at the bottom of the compost heap). Biocontrols include ladybeetles but not praying mantis which eat any insect they catch, beneficial or not. Aphid midges can help control aphid problems. *Bacillus thuringiensis* or Bt (Thuricide, Dipel) is an insect infecting bacteria used on leaf eating worms and caterpillars. When an insect eats a sprayed leaf the Bt spores germinate and grow inside the gut until they infect the blood.

The least toxic spray of all is a strong stream of water from a garden hose. This is very effective against aphids. Water with a small amount of pure soap (Ivory) or a commercial insecticidal soap, such as Safers, will knock back aphids and a variety of other insects. Another spray with a long history is nicotine water-made by soaking cigarette butts in water to make a toxic tea to spray on the plants to control leaf chewing species. Rotenone is a favourite insecticide but is very toxic at the time of application. The advantage is that it breaks down in a few days and is not passed on or concentrated in the food web. It is, however, lethal to birds fish and pigs. If you use rotenone, which is very effective on leaf chewing beetles and caterpillars, use the wettable powder formulation, rather than the dust because less active ingredients are needed to cover the same area and there is less risk of breathing in the dust.

Diatomaceous earth (DE) is a white powder of crushed marine diatoms that fragment into sharp pieces capable of scratching the protective waxy layer on insects. The insects dry out, lose water, and die. Since this is a physical rather than a chemical control it is very safe but is not recommended because it kills any insect good or bad. With care, it could be used selectively, such as around the roots of cabbage plants to deter cabbage maggots or to control insects that invade houses.



