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Four Seasons Environmental Centre

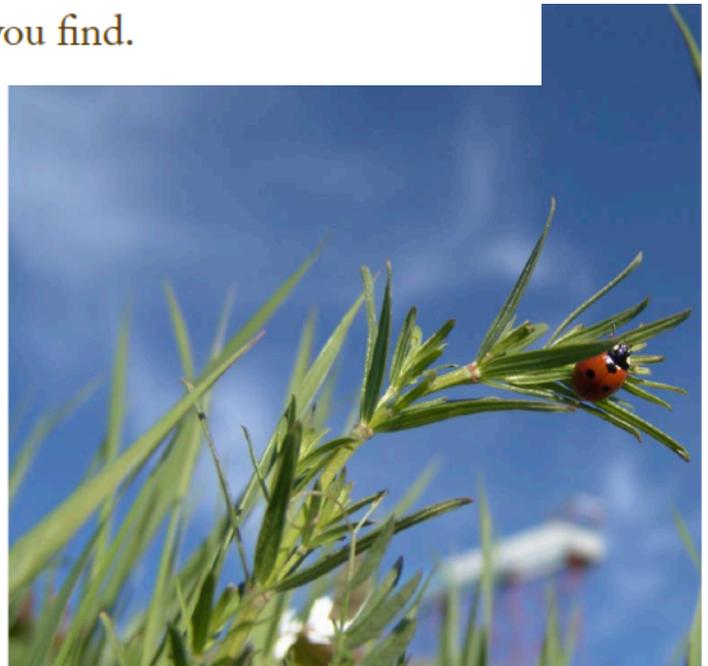


Invertebrates

Introduction

The invertebrates of Alberta and Camrose are an underappreciated natural wonder. Invertebrates are important to the ecosystem, as predators, prey and pollinators. They are also an easily accessible source for anyone who wants to explore the diversity of our area. All one has to do is take a close look in their own back yard. Although you have to look closer, once you know where to look, you will believe that these tiny critters are part of the most diverse group of organisms on the planet.

In the Camrose creek valley, the riparian areas of the stream offer vast habitats for insects and other invertebrates. A drop of pond water will contain zooplankton, a jar of water may host larval forms of dragonflies or diving beetles, and along the shores you may encounter butterflies and other larger insects. The number of habitats is endless, so keep an eye open and you may be amazed with what you find.



More information on Invertebrates

Of all animals described by science, only 5% are vertebrates, or those that possess a backbone. The other 95% are invertebrates, or those that do not have a backbone. Invertebrates are a very diverse group, containing members from the Rotifera (Rotifers), Mollusca (Snails, clams and slugs), Annelida (earthworms and leeches) and Arthropoda (spiders, insects and shrimp)¹, many of which can be found in the Camrose area. (LISTS).

We don't know how many invertebrates are found in the diverse habitats of Alberta. Due to their size and the overshadowing of larger organisms, these relatively small creatures are often overlooked. Many have yet to be studied thoroughly enough to determine accurate ranges, number of species and their ecological significance. In Alberta alone, there are approximately 20,000 insect species alone, making them the best documented class. There are also close to 80 mollusk species, 5 families of annelids, and countless other invertebrates. We can separate these invertebrate classes based on their size, large ones

being macroinvertebrates (those that are visible to the naked eye) and microinvertebrates (those that require magnification to see).

Approximately 500 species of invertebrates can be found in the aspen parkland region of Alberta, there are here, but because of the lack of research done on this group in this area, this number is likely much larger. Publications such as *Butterflies of Alberta* suggest that about 100 species of butterflies might be encountered in this area. Other publications, such as the *Damselflies of Alberta*, *Tiger Beetles of Alberta*, and *Bugs of Alberta*, show that 17 Damselfly species, 10 Tiger Beetle species, and 76 other bug species can be found in the aspen parkland region that is home to Camrose.

In Stoney Creek, a few species of microinvertebrates may be found which originate from Driedmeat Lake. These representatives are the Rotifers (Zooplankton), Copepods, and Cladocerans (water fleas). The macroinvertebrates are much more diverse and easier to view and study. A sample of them includes the Giant Diving Beetle, the Six-Spotted Fishing spider, the Four Spotted Skimmer and the Canadian Tiger Swallowtail.

To view the microinvertebrates of the area, you need a microscope, or at least a magnifying glass to view the large representatives. Therefore, identification and viewing of these invertebrates is reserved for

the dedicated observer. Macroinvertebrates are much larger which makes them easier to find and identify. A magnifying glass is still a useful tool to see details of an invertebrate's body. The majority of the macroinvertebrates are arthropods, so it is valuable to know the general characteristics of this diverse phylum.

All arthropods have a segmented, hard exoskeleton with jointed appendages. Insects all have three pairs of legs, while spiders have four and crustaceans can have three or more, with centipedes and millipedes having up to 200+ legs. The arthropods can be terrestrial or aquatic, or both, so their habitats vary, but this also means that you can find them just about anywhere. To give you an idea of a few of the invertebrates that are found in our area, we'll describe some general characteristics, their habitats and how you can find them.

The Macroinvertebrates

The majority of these invertebrates are from the class Insecta, the first belonging to the true fly order, Dipterans, and family Chironomidae, the midge. These are small two-winged flies, closely related to mosquitoes, but these flies don't bite. Their larvae look like long, skinny maggots, but this changes as they develop into their pupal stage, which resembles mosquitoes. They are long brownish tubes with white frilled gills that draw oxygen from the atmosphere above the water's surface. The adults are much like mosquitoes with feathery antennae. These flies are hearty individuals and can tolerate a vast array of conditions and environments. As long as there is an adequate food supply, they can survive in clean or polluted waters, on rocky, muddy, or sandy bottoms, in rivers or ponds. They are mostly found close to shore on or near shoals where blue-green algae, their primary food source, is most abundant².



The next arthropod is among the fastest and oldest species of insects. With a wingspan of up to 50mm, the Four Spotted Skimmer Dragonfly, *Libellula quadrimaculata* is one of the most fascinating insects in both of its life stages. The Four Spotted Skimmer can be found throughout Alberta, but is common to slow moving streams, ponds, or bogs. The larval and adult stages are both very active predators. The larvae are large, stout ambush predators that rely on camouflage to creep up on prey. Then they grasp their prey with their lightning fast extendable labium³. This modified lower lip is used for grasping prey such as other aquatic invertebrates and even small fish. The larvae will shed their exoskeleton 10 or more times before climbing up onto vegetation to emerge as an adult⁴. The adult skimmer is a surface hunter, hence its name. It flies close to the water's surface, then skims for prey on or just above the surface. The skimmers have long flattened bodies and are grayish green in color. The four spotted skimmer actually has ten black spots in total on its wings, but the four on the tips of its wings provide the characteristics for its name.

The next fascinating arthropod comes from the most diverse order of insects: Coleoptera, the beetles, which alone boasts about 250,000 described species. The aquatic predacious diving beetle *Dytiscus alanskanus* can measure between 20 and 40mm and can be found throughout Alberta among vegetation in ponds, sloughs and slow moving streams⁴. Its larval stage, known as the water tiger is as vicious a predator as the adult form; both are known to take small fish as well as other invertebrates. Both the larvae and the adult must surface to breathe atmospheric air. When they come up to the surface, their rear end breaks the surface tension of the water and a cavity underneath their wing covers trap air which they take down with them when they dive to search for



Four Spotted Skimmer Dragonfly, Libellula



aquatic predacious diving beetle Dytiscus alaskanus

prey. As the bubble gets smaller, the concentration of oxygen actually increases as carbon dioxide and nitrogen diffuse out, increasing the foraging time for the beetle⁵. Large hairs (setae) and well-developed rear legs make the predacious diving beetle a very quick swimmer, which is a must for evading predators and catching prey such as small minnows and tadpoles. These beetles can be caught in a pond net, but you have to be quick or else they can disappear in the muddy bottom of the pond. They can also be found in Camrose far away from water in the late fall as they fly around looking for places to overwinter.

The next arthropod, the Canadian Tiger Swallowtail, *Papilio canadensis*, is one of the prettiest specimens present in our area, belonging to the order Lepidoptera, the butterflies. With its large black and yellow wings and the hint of blue and orange on its tail, it looks like it belongs in the tropics, although it can be found all across Canada. This Alberta native can have a wingspan up to 10 cm³, and it also has a small fragile tail that extends from the rear of each wing. These tails fall off easily when grabbed, which saves the rest of the wing and the butterfly when a predator is after it³. This insect has a long proboscis that it uses to feed on nectar. Hairs on its body also collect pollen while feeding that helps to pollinate the flowers from which it feeds. The swallowtails are the only butterflies that flutter their wings while they feed, perhaps to confuse predators into thinking it is just part of a plant, moving in the wind. They can be found around poplar bluffs where they first emerge and where they will mate and lay eggs at the end of their flight season, which lasts



Canadian Tiger Swallowtail, Papilio canadensis

from May to August³. Males of this species like to gather and patrol streams, forest edges and hilltops in search of a mate, and will often form groups around puddles where they can drink mineral rich water. Their caterpillar stage is large and green with a fake snake head to ward off predators. In order to catch one of these, a good bug net is needed and care must be taken when handling the butterfly because the colors on the wing are actually tiny scales and can rub off when handled, disabling the butterfly's flight.

The next arthropod is not an insect. From the order Aranea, spiders differ from all the above insects by having eight legs. A common spider found in riparian areas such as the Stoney Creek valley is the Six Spotted Fishing spider, *Dolomedes triton*. These spiders hunt on and below the water's surface. They can walk on top of the water like a water strider, as well as climb down vegetation and hunt underwater while breathing air trapped on the hairs of their body³ The females of this species are larger than the males⁴. They can usually be found along the edge of ponds and streams around vegetation where they prefer to hunt. They usually eat other invertebrates, but will also take small fish³, 2000). These spiders are part of the nursery-web family, that is they don't use their webs for trapping food. Before spiderlings begin to emerge from the egg sac that the female carries, she fastens it to terrestrial vegetation where they can safely develop until they emerge⁴. Like most spiders, mating is a sad story for the male, as he is usually used as a post copulatory meal.

Six Spotted Fishing spider, Dolomedes triton.



freshwater shrimp, Gammarus lacustris

The Microinvertebrates

Despite their small size, microinvertebrates are crucial to ecosystems, both as primary consumers, and prey for both invertebrates and vertebrates. With their small size (between 1-5mm), you would need a microscope to see anything more than just a tiny brown speck, but if you fill a jar with pond or creek water, you are bound to come across several different kinds of microinvertebrates. Collectively all the aquatic invertebrates between 2 and 15 mm are classified as zooplankton.

The first and largest member of our local zooplankton community is a small crustacean, the freshwater shrimp, *Gammarus lacustris*. These shrimp measure around 15 mm and can sometimes be found in large numbers in clean standing waters or shallow areas of ponds, lakes and slow streams⁴. Their bodies are laterally compressed, taller than they are wide, and they have 11 pairs of legs: 2 for grasping, 5 for walking, 3 for swimming and 1 for eating. They are semi transparent, so their color depends on what they have been eating². They are bottom feeders that will scavenge on anything from dead animal matter to leaf litter, but their primary food is plant material and algae, so they usually have a slight greenish tinge. They can also be brown to red depending on the mud in which their food particles are ingested. They may also appear orange when they are carrying eggs². These tiny crustaceans can be easily caught with a pond net and viewed in a glass jar.

The next microinvertebrate is much smaller, measuring only 2mm, which is still on the large side. The water fleas, *Daphnia pulex*, are tiny transparent filter feeders found in small still water bodies. Like most zooplankton, they strain out mostly plant matter and detritus. They have an interesting life cycle. Starting in the spring, only females in the population will reproduce by a process known as parthenogenesis, which means the eggs don't need to be fertilized in order to develop. Once this cycle repeats several times and when the population is large enough, usually by mid summer, a different type of egg is produced, that when not fertilized, will develop into a male (Clifford, 1992).

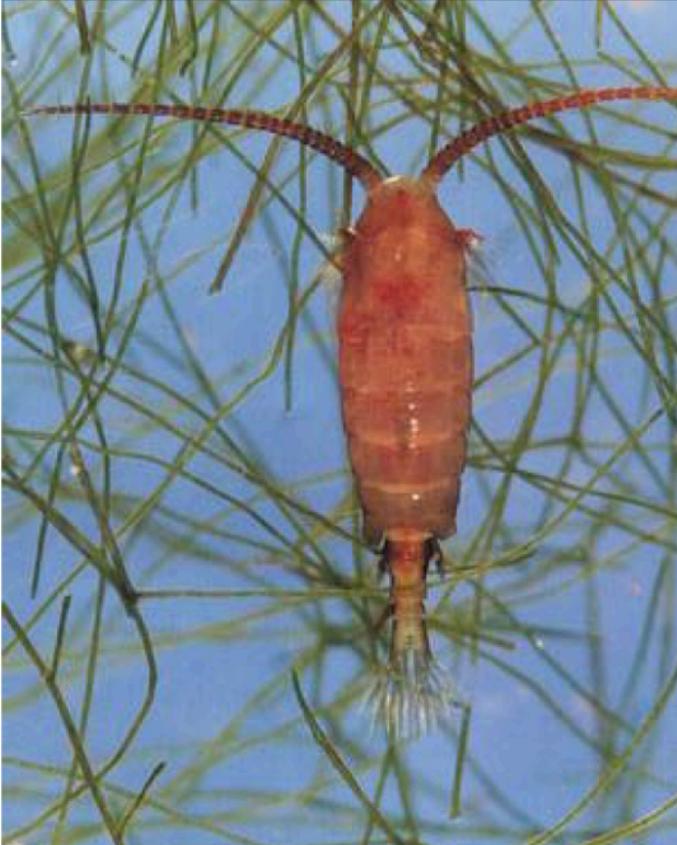
Copepods are the next largest species of zooplankton. The species *Diaptomus sicilis* are most abundant in Driedmeat Lake, and may also be found in Stoney Creek. Like the water fleas, they are filter feeders that feed on plant matter and detritus⁴.

The smallest zooplankton are the Rotifers, *Hexarthra* spp. These are also called wheel animals because of the way they feed. At the top of their body, there is a ring of hairs that beat in a wavelike pattern, making the effect of a turning wheel. These hairs strain out microscopic plant matter, bacteria and plankton⁴.

is a project of the Camrose Rot:



water fleas, *Daphnia pulex*



Diaptomus sicilis



Rotifers, *Hexarthra* spp

History and Developments

In the past, mosquitoes and flies were deemed to be pests. Camrose was the first municipality to use an insecticidal fog control system. Composed of 5 parts diesel fuel to one part chlorane DDT, the mixture was heated up and the smoke worked to keep the pests down. Since then the use of DDT has been linked to detrimental effects on the ecosystem, multiplying its effect as it works its way up the food chain. There have been numerous studies that show that raptor and waterfowl breeding success is greatly affected by organochlorines and DDT and their use has been banned since 1970 ⁶.

Insecticides can have a number of effects; the most noticeable ones are the direct effects, where the insecticide directly affects the species in question, either poisoned, or impairing their reproductive capabilities⁷. The other large effect is indirect, where habitats or food resources are affected, depleting a productive environment. This commonly happens when invertebrates are removed from an ecosystem that depends on them as a primary food source⁶. Animals such as fish, and amphibians are largely affected, as they prey, to some degree, on invertebrates for food.

There are a number of insect control methods that are not harmful to the environment, such as integrated pest management (IPM) and biological control. IPM involves limiting the loss of a crop, while minimizing the effects on the surrounding environment and those organisms that depend on it⁵. This means that a deep knowledge of the particular pest is needed. Their breeding times and habits, natural predators, and their ecological role are all factors that must be considered in IPM. Biological control is controlling a pest with the introduction of a natural predator, or a predator

that will target only the pest, and not harm the crops⁵. This also involves a deep knowledge of both insects because the introduction of a new species may work to rid a crop of a particular pest, but can also lead to outbreaks of the introduced insect in other environments where it could become invasive to native species.



An advanced mosquito-fly control program is carried out each summer by the public works department. Above is the "fogging machine" in operation. The 45-gallon capacity combustion equipment has been mounted on a jeep. The mixture used, made up of five parts diesel fuel to one part Chlordane DDT, is put through a heating unit and distributed from the back of the machine in the form of a heavy fog over lanes, parks and the Victoria Park golf course.

Bugs of the Aspen Parkland

Scientific

Antheraea polyphemus

Hyalophora comlumbia

Smerinthus cerysii

Pachysphinx modesta

Hemaris diffinis

Hyles gallii

Arctica caja

Lophocampa maculata

Gnophaela vermiculata

Ctenucha virginica

Malacosoma disstria

Catocala relictata

Catocala unijaga

Campaea perlata

Carabus nemoralis

Calosoma calidern

Pterostichus menaricus

Nicrophorus sp.

Creophilus maxillosus

Common

Polyphemus Moth (Lepidoptera)

Columbian Silk Moth

One Eyed Sphinx

Big Poplar Sphinx

Snowberry Clearwing

Galium Sphinx

Garden tiger moth

Spotted Tassock Moth

Police Car Moth

Virginia Ctenucha

Forest Tent Caterpillar Moth

White Underwing

Once Married Underwing

Pale Beauty

Purple Rimmed Carabus (Coleoptera)

Fiery Hunter

Sidewalk Carabid

Burrying Beetle

Hairy Rove Beetle



Bugs of the Aspen Parkland Part 2

Scientific

Common

<i>Phyllophaga</i> spp.	May Beetle
<i>Ctenicera resplendens</i>	Resplendant Click Beetle
<i>Ctenicera aeripennis</i>	Sapphire Winged Click Beetle
<i>Glischrochilus quadrisignatus</i>	Beer Beetle
<i>Lytta nuttali</i>	Nuttal's Blister Beetle
<i>Coccinella septempunctata</i>	Seven Spot Ladybug
<i>Adalia bipunctata</i>	Two Spot Ladybug
<i>Hippodamia tredecimpunctata</i>	Thirteen Spot Ladybug
<i>Otiorhynchus ovatus</i>	Strawberry Root Weevil
<i>Formica</i> spp.	Wood Ant (Hymenoptera)
<i>Camponatus</i> spp.	Carpenter Ant
<i>Bombus nevadensis</i>	Nevada Bumblebee
<i>Sirex cyaneus</i>	Blue Horntail
<i>Vespula maculata</i>	Bald Faced Hornet
<i>Vespula</i> spp.	Yellow Jacket
<i>Ammophila</i> spp.	Threadwaisted Wasp
Family Pompilidae	Spider Wasp
Family Syrphidae	Hover Fly (Diptera)
<i>Hybomitra</i> spp.	Horse Fly
<i>Laphria</i> spp.	Robber Fly
<i>Tipula</i> spp.	Giant Crane Fly
<i>Chrysopa</i> spp.	Green Lacewing (Neuroptera)
<i>Brachynemurus abdominalis</i>	Snap Trap Antlion
<i>Chlorochroa sayi</i>	Big Green Stinkbug (Hemiptera)
<i>Callicorixa audeni</i>	Auden's Water Boatman
<i>Limnoporus dissortis</i>	Kayak Pond Skater
<i>Notonecta undulata</i>	Common Backswimmer
<i>Lethocerus americanus</i>	Giant Water Bug
<i>Cosmopepla bimaculata</i>	Wee Harlequin Bug
<i>Dissosteira carolina</i>	Road Duster Orthoptera
<i>Arphia conspersa</i>	Red Winged Grasshopper
<i>Pteronarcys californica</i>	Giant Stonefly Plecoptera

Bugs of the Aspen Parkland Part 3

Scientific

Common

<i>Aeshna interrupta</i>	Variable Darner Odonata
<i>Ophigonphus severus</i>	Pale Snaketail
<i>Leucorrhinia hudsonica</i>	Hudsonian Whiteface
<i>Libellula quadrimaculata</i>	Four Spotted Skimmer
<i>Sympetrum internum</i>	Cherryfaced Meadowhawk
<i>Sympetrum danae</i>	Black Meadowhawk
Family Isotomuridae	Snow Flea (Siphonaptura)
<i>Acilius</i> spp.	Acilius Diving Beetle (Coleoptera)
<i>Colymbetes sculptilis</i>	Mid Sized Diving Beetle
<i>Dytiscus</i> spp.	Giant Diving Beetle
<i>Gyrinus</i> spp.	Whirligig Beetle
<i>Hydrochara obtusa</i>	Obtuse Water Scavenger (Beetle)
<i>Lithobius</i> spp.	Garden Centipede (Myriapoda)
Order Julida	Garden Millipede
<i>Phalangium opilio</i>	Harvestman (Aranea)
<i>Pardosa</i> spp.	This Legged Wolf Spider
<i>Phidippus borealis</i>	Boreal Jumping Spider
<i>Araneus</i> spp.	Orb Weaver
<i>Tetragnatha</i> spp.	Long Jawed Orb Weaver
<i>Dolomedes triton</i>	Six Spotted Fishing Spider
<i>Misumena vatia</i>	Goldenrod Crab Spider
<i>Misumena vatia</i>	Goldenrod Crab Spider
<i>Dolomedes triton</i>	Six Spotted Fishing Spider



Butterflies of the Aspen Parkland

Scientific Name	Common Name
<i>Amblyscirtes vialis</i>	Roadside Skipper
<i>Hesperia comma assiniboia</i>	Common branded skipper
<i>Hesperia nevada</i>	Nevada skipper
<i>Hesperia uncas</i>	Uncas Skipper
<i>Oarisma garita</i>	Garita skipper
<i>Polites draco</i>	Draco skipper
<i>Polites mystic</i>	Long Dash Skipper
<i>Polites peckius</i>	Peck's skipper
<i>Polites themistocles</i>	Tawny edged skipper
<i>Thymelicus lineola</i>	European skipper
<i>Carterocephalus palaemon</i>	arctic skipper
<i>Epargyreus clarus</i>	Silverspotted skipper
<i>Erynis afranius</i>	Afranius duskywing
<i>Erynnis icelus</i>	Dreamy duskywing
<i>Erynnis persius</i>	Persius duskywing
<i>Pyrgus centaureae</i>	Grizzled skipper
<i>Pyrgus communis</i>	Chackered skipper
<i>Thorybes pylades</i>	Northern cloudywing
<i>parnassius smintheus</i>	Smintheus parnassian
<i>Papilio machaon dodi</i>	Old world swallowtail
<i>Papilio zelicaon</i>	Anise swallowtail
<i>Papilio pterourus canadensis</i>	Canadian tiger swallowtail
<i>Pieris oleracea</i>	Mustard white



Scientific Name**Common Name**

<i>Pieris rapae</i>	Cabbage butterfly
<i>Poutia occidentalis</i>	Western white
<i>Pontia protodice</i>	Checkered white
<i>Euchloe ausonides</i>	Large marble
<i>Euchloe creusa</i>	Northern marble
<i>Euchloe olympia</i>	Olympia marble
<i>Colias christina</i>	Christina sulphur
<i>Colias eurytheme</i>	alfalfa butterfly
<i>Colias gigantea</i>	Giant sulphur
<i>Colias interior</i>	Pink edged sulphur
<i>Colias philodice</i>	Clouded sulphur
<i>Zerene cesonia</i>	Dogface
<i>Lycaena Epidemia darcas</i>	Dorcas copper
<i>Lycaena Epidemia helloides</i>	Purplish copper
<i>Lycaena Epidemia mariposa</i>	Mariposa copper
<i>Lycaena gaeides dione</i>	Great gray copper
<i>Lycaena Hyllolycaena hyllus</i>	Bronze copper
<i>Lycaena Lycaena phlaeas</i>	Little copper
<i>Harkenclenus titus</i>	Coral hairstreak
<i>Incisalia Deciduphagus augustinus</i>	Brown elfin
<i>Incisalia Deciduphagus polia</i>	Hoary elfin
<i>Incisalia Incisalia eryphon</i>	White pine elfin
<i>Incisalia Incisalia niphon</i>	Eastern pine elfin
<i>Mitoura spinetorum</i>	Thicket hairstreak



Butterflies of the Aspen Parkland

Part 3

Scientific Name

Common Name

<i>Satyrrium liparops</i>	Striped hairstreak
<i>Celastrina ladon lucia</i>	Spring azure
<i>Everes amyntula</i>	Western tailed blue
<i>Glaucopsyche lygdamus</i>	Silvery blue
<i>Lycaeides idas</i>	Northern bue
<i>Lycaeides melissa</i>	Melissa blue
<i>Plebejus Agriades risticus</i>	Rustic blue
<i>Plebejus Icaricia acmon</i>	Acron blue
<i>Plebejus Icaricia icarioides</i>	Icarioides blue
<i>Plebejus Plebejus saepiolus</i>	Greenish blue
<i>Plebejus Vacciniina optilete</i>	Cranberry blue
<i>Aglais milberti</i>	Milbert's tortoise shell
<i>Nymphalis antiopa</i>	Mourning cloak
<i>Nymphalis californica</i>	California tortoise shell
<i>Nymphalis vanalbum</i>	Compton's tortoise shell
<i>Polygonia faunus</i>	Green comma
<i>Polugonia gracilis</i>	Hoary comma
<i>Polygonia interrogationis</i>	Question mark
<i>Polygonia progne</i>	Gray comma
<i>Polugonia satyrus</i>	Satyr anglewing
<i>Polugonia zephyrus</i>	Zephyr
<i>Vanessa annabella</i>	Westcoast lady
<i>Vanessa atalanta</i>	Red admiral
<i>Vanessa cardui</i>	Painted lady

Butterflies of the Aspen Parkland Part 4

Scientific Name	Common Name
<i>vanessa virginiensis</i>	American painted lady
<i>Boloria astorte</i>	Astarte fritillary
<i>Boloria bellona</i>	Meadow fritillary
<i>Boloria chariclea</i>	Purple fritillary
<i>Boloria eunomia</i>	Bog fritillary
<i>Boloria freija</i>	Freija fritillary
<i>Boloria frigga</i>	Frigga fritillary
<i>Boloria selene</i>	Silver bordered fritillary
<i>Euptoieta claudia</i>	Variegated fritillary
<i>Speyeria aphrodite manitoba</i>	Aphrodite fritillary
<i>Speyeria atlantis hollandi</i>	Altantas fritillary
<i>Speyeria electa lais</i>	Northwestern fritillary
<i>Speyeria callippe</i>	Callippe fritillary
<i>Speyeria cybele</i>	Great spangled fritillary
<i>Speyeria edwardsii</i>	Edward's fritillary
<i>Speyeria hydaspae</i>	Hydaspe fritillary
<i>Speyeria mormonia</i>	Mormon fritillary
<i>Speyeria zerene</i>	Zerene fritillary
<i>Choridryus acastus</i>	Acastus checkerspot
<i>Choridryus gorgone</i>	Gorgone checkerspot
<i>Choridryus palla</i>	Northern checkerspot

Butterflies of the Aspen Parkland

Scientific Name

Common Name

<i>Euphydryas anicia</i>	Anicia checkerspot
<i>Euphydryas gilletti</i>	Gillett's checkerspot
<i>Phycoides batesii</i>	Tawny crescent
<i>Phycoides cocyta</i>	Northern pearl crescent
<i>Phycoides pulchella</i>	Feild crescent
<i>Phycoides tharos</i>	Pearl crescent
<i>Limenitis Basilarchia archippus</i>	Viceroy
<i>Limenitis Basilarchia arthemis</i>	White admiral
<i>Satyrodes eurydice</i>	Eyed brown
<i>Cercyonis oetus</i>	Dark wood nymph
<i>Cercyonis peyla</i>	Common wood nymph
<i>Coenonympha incarnata</i>	Incarnate ringlet
<i>Erebia disa</i>	Disa alpine
<i>Erebia discodalis</i>	Red disked alpine
<i>Erebia episodea</i>	Common alpine
<i>Oeneis alberta</i>	Alberta arctic
<i>Oeneis chryxus</i>	Chryxus arctic
<i>Oeneis jutta</i>	Jutta arctic
<i>Oeneis macounii</i>	Mavoun's arctic
<i>Oeneis uhleri</i>	Uhler's arctic
<i>Danaus plexippus</i>	Monarch



Damselflies of Alberta

Scientific Name	Common Name
<i>Lestes dryas</i>	Emerald Spreadwing
<i>Lestes disjunctus</i>	Common Spreadwing
<i>Lestes unguiculatus</i>	Lyre-tipped Spreadwing
<i>Lestes congener</i>	Spotted Spreadwing
<i>Coenagrion angulatum</i>	Prairie Bluet
<i>Coenagrion resolutum</i>	Taiga Bluet
<i>Coenagrion interrogatum</i>	Subarctic Bluet
<i>Enallagma boreale</i>	Boreal Bluet
<i>Enallagma cyathigerum</i>	Northern Bluet
<i>Enallagma hageni</i>	Hagens Bluet
<i>Enallagma ebrium</i>	Marsh Bluet
<i>Enallagma clausum</i>	Alkali Bluet
<i>Enallagma carunculatum</i>	Tule Bluet
<i>Ischnura damula</i>	Plains Forktail
<i>Amphiagrion abbreviatum</i>	Western Red Damsel
<i>Nahelennia irese</i>	Sedge Sprite

Tiger Beetles (tb) of the Aspen Parkland

Scientific

Common

Cicindela nebraskana

Black Bellied tb

Cicindela longilabris

Long Lipped tb

Cicindela repanda

Bronzed tb

Cicindela duodecimguttata

Twelve-spot tb

Cicindela hirticollis

Beach tb

Cicindela limata

Sandy tb

Cicindela limbalis

Claybank tb

Cicindela purpurea

Cowpath tb

Cicindela lengi

Blowout tb

Cicindela tranquebarica

Oblique tb