AQUATIC INSECTS OF NORTH DAKOTA

INTRODUCTION

Insects make up the largest of all animal phyla. There are more species of insects than all other animal species combined. Aquatic insects are an important and diverse part of the water system. They are an integral part of the ecosystem and a food source for many fish and wildlife species. Aquatic insects spend at least part of their lives in water. They can be found in a variety of different habitats, on or inside a water body. In North Dakota, many aquatic insects are found in terrestrial, shallow water habitats which warm up quickly in the spring. These habitats are extremely important as a food source for many fish and wildlife species.

Some aquatic insects are usually very small and cannot be seen with the naked eye. Others are much larger and can be seen without the aid of a microscope.

Aquatic insects are an important part of the food chain.

Aquatic insects are sometimes overlooked and not viewed as important. Investigation of aquatic insects provides the aquatic biologist with a window into the world and possibly take steps in improving water quality for future generations to appreciate this somewhat “invisible” aspect of the aquatic world.

Searching for invertebrates is easy. A simple magnifying glass can be used to identify common invertebrates.

Aquatic insects are an important part of the food chain.

Other aquatic insects are found in lakes and rivers. These are sometimes overlooked and not viewed as important. Investigation of aquatic insects provides the aquatic biologist with a window into the world and possibly take steps in improving water quality for future generations to appreciate this somewhat “invisible” aspect of the aquatic world.

Insect Life Cycles

Aquatic insects come in a variety of sizes. Below are the guidelines for using these tools. These tools are for marine and freshwater species, but they might not work as well in the spring. These structures are extremely important as a food source for many species.

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Aquatic Insects of North Dakota

Body Parts

Insects have 3 body parts: head, thorax, and abdomen. The head is the most complex part of the insect and is where the eyes and antennae are located. The thorax is where the wings are located and the legs originate. The abdomen is where the reproductive organs are located.

Size

Insect insects come in a variety of sizes. Below are the guidelines for using these tools. These tools are for marine and freshwater species, but they might not work as well in the spring.

Size

Small Mayflies

Mayflies have a 3 segmented abdomen and are similar to other insects. They have flattened heads and elongated bodies. They usually have very long antennae, larger than those found in other insects.

Small Mayflies

Mayflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Mayflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Mayflies – Larval Forms

Flies usually emerge from the water as adults, but mayflies are the larval stage of the mayfly. They have a slender body and long legs, which is why they are often called “mayflies.” The mayfly larvae have many different types of gills, which are important for respiration. The gills are located on the abdomen and are important for respiration. The gills are also used to filter food from the water. The mayfly larvae are adapted to live in freshwater habitats, but they can also live in brackish waters. Mayflies are an important food source for many aquatic species, including fish.

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Stream Flies

Stream flies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Stream flies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Stream Flies

Darner Larvae

Darner larvae are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Darner larvae are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Darner Larvae

Broad-winged Damselflies

These damselflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Broad-winged damselflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Broad-winged Damselflies

Narrow-winged Damselflies

These damselflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Narrow-winged damselflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Narrow-winged Damselflies

Common Stoneflies

These stoneflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Common stoneflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Common Stoneflies

Common Flies

These flies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Common flies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Common Flies

Stoneflies – Larval Forms

Stoneflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Stoneflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Stoneflies – Larval Forms

MAYFLIES – LARVAL FORMS

Stalk-fly larvae have a 3 segmented abdomen and are similar to other insects. They have flattened heads and elongated bodies. They usually have very long antennae, larger than those found in other insects.

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Common Stonefly

Common Stonefly

Brushlegged Mayfly

Brushlegged mayflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Brushlegged mayflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Brushlegged Mayfly

Small Dragonflies

Small dragonflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Small dragonflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Small Dragonflies

Common Dragonflies

Common dragonflies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Common dragonflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Common Dragonflies

Common Mayflies

These are the most abundant mayflies in North Dakota. They are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Common mayflies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Common Mayflies

Common Stoneflies

Common skimmers are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Common skimmers are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Common Skimmers

Common Flies

Common flies are a group of insects that are found in freshwater habitats. They are known for their delicate wings and long legs. Common flies are often associated with clear, fast-moving rivers. They are an important food source for many aquatic species, including fish.

Common Flies

Narrow-winged Damselflies

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**TRUE BUGS – ADULT FORMS**

The adult and nymph forms of the true bugs are similar in appearance. Both are characterized by mouthparts modified into a stylet-like sucking structure. The eyes are adapted for seeing in limited light conditions. The antennae are usually long and filiform, and the wings are present as wing pads. At rest, true bugs have their wings folded along the sides of the body.

**Backswimmers**

These are elongate larval forms that are found in freshwater habitats. The abdomen is the most distinctive feature of a backswimmer, and the terminal prolegs are modified into scoop-like structures. Backswimmers have large raptorial legs that are used for capturing prey. They are often mistaken for water boatmen, but they are smaller in size.

**Giant Water Bug**

This is one of the largest true bugs, reaching up to 1.5 inches in length. It has a flattened body and is characterized by its large size and distinctive case. The case is made of various materials, including leaves, twigs, and small stones. The Giant Water Bug is often found in ponds and streams.

**Boatmen**

These medium-sized true bugs are typically found in freshwater habitats. They are characterized by their flattened body and long, filamentous gills. Boatmen have a clear breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Water Scorpions**

These are elongate larval forms that are found in freshwater habitats. They are characterized by their flattened body and prominent lateral processes. Water Scorpions have a modified breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Longhorned Casemakers**

These are medium-sized true bugs that are found in freshwater habitats. They are characterized by their long, filamentous gills and the distinctive cases that they build. These cases are made of various materials, including leaves, twigs, and small stones. The Longhorned Casemakers are often found in ponds and streams.

**Northern Casemaker**

This is one of the largest true bugs, reaching up to 1.5 inches in length. It has a flattened body and is characterized by its large size and distinctive case. The case is made of various materials, including leaves, twigs, and small stones. The Northern Casemaker is often found in ponds and streams.

**Giant Casemaker**

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**Watersnipe**

These are elongate larval forms that are found in freshwater habitats. They are characterized by their flattened body and the unique cases that they build. Watersnipes have a modified breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Common Nephropiloms**

These are small, brightly-colored true bugs that are found in freshwater habitats. They are characterized by their small size and distinctive coloration. The Common Nephropiloms are often found in ponds and streams.

**Microcaddisflies**

These are elongate larval forms that are found in freshwater habitats. They are characterized by their flattened body and the distinctive cases that they build. Microcaddisflies have a modified breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Midges**

These are elongate larval forms that are found in freshwater habitats. They are characterized by their flattened body and the distinctive cases that they build. Midge larvae have a modified breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Whirligig Beetles**

These are medium-sized true bugs that are found in freshwater habitats. They are characterized by their flattened body and the unique cases that they build. Whirligig Beetles use their cases to capture prey. They are often found skimming across the surface of the water.

**Water Scavenger Beetles**

These are medium-sized true bugs that are found in freshwater habitats. They are characterized by their flattened body and the unique cases that they build. Water Scavenger Beetles are often found skimming across the surface of the water.

**Predacious Diving Beetles**

These are medium-sized true bugs that are found in freshwater habitats. They are characterized by their flattened body and the unique cases that they build. Predacious Diving Beetles have a modified breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Predacious Diving Beetle Larvae**

These are elongate larval forms that are found in freshwater habitats. They are characterized by their flattened body and the unique cases that they build. Predacious Diving Beetle Larvae have a modified breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Whirligig Beetle Larvae**

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**Phantom Midge**

This is one of the largest true bugs, reaching up to 1.5 inches in length. It has a flattened body and is characterized by its large size and distinctive case. The case is made of various materials, including leaves, twigs, and small stones. The Phantom Midge is often found in ponds and streams.

**Black Flies**

These are medium-sized true bugs that are found in freshwater habitats. They are characterized by their flattened body and the unique cases that they build. Black Flies have a modified breathing apparatus that is used for oxygen exchange. They are often found skimming across the surface of the water.

**Mosquitoes**

These are elongate larval forms that are found in freshwater habitats. They are characterized by their flattened body and the distinctive cases that they build. Mosquitoes are known for their biting behavior, which can be painful for humans.

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