

Non-Native & Invasive species *In Nunavut*

In 2010 the Canadian Endangered Species Conservation Council (CESCC) identified 17 species not normally found in Nunavut.

These are called “non-native species”. Some of these plants and animals can become an “invasive species”, which represents a potential major concern for the future health of the Arctic.

What is a *non-native species*?

A non-native species is defined as an organism that is not normally found in a region. They are introduced by human activities, which can be intentional (e.g. species introduced to control a pest species), accidental (e.g. shipping and ballast water exchange), or environmental (e.g. changes in climate leading to wildlife movements). An example of a non-native species in Nunavut is the European Starling (*Sturnus vulgaris*), which was introduced to North America from Europe intentionally by humans.

What is an *invasive species*?

Not all non-native species are considered invasive. This term is reserved for species that do so well in their new habitat that they end up causing harm to the environment, other species, human health, or economic activity (ISAC, 2006). An example of an invasive species in southern Canada is the Zebra Mussel (*Dreissena polymorpha*), which was introduced to North America by ships releasing their ballast water. The Zebra mussel reproduces quickly and establishes large colonies on any hard surface. In this way they take over habitat occupied by native species, reducing the availability of food for other species, and also attaching themselves in great numbers to boats and other infrastructure in the water. (Benson and Raikow, 2010).



Species: Field Sow Thistle (*Sonchus arvensis*)

Impact: The Field Sow Thistle grows quickly, easily and when there are many of them they can reduce the water resources available to other plants. They have the potential to decrease native plant diversity by competing for space and water.

Introduction pathway: Accidently introduced from Europe into North America in a containment of agricultural crop seed. This plant has been able to spread long distances across Canada because the seeds can travel far in the wind.



Species: The European Starling (*Sturnus vulgaris*)

Impact: The European Starling can displace native bird species by taking over nesting sites and competing for food.

Introduction pathway: Introduced intentionally to North America from Europe. These birds then dispersed naturally into Canada through migration.

Why should you be concerned about invasive species?

When invasive species are introduced and survive, their populations can increase rapidly because there are no natural predators. Invasive species may feed on native species, compete for food and space, as well as expose native species to new parasites and disease. Invasive species are now widely recognized as a leading cause of endangerment and/or extinction of native species (Lassuy and Lewis, 2010).

* There are currently no known species in Nunavut that can be classified as aquatic or terrestrial invasive species.

How can you help?

Report

Have you seen a different plant, animal or insect in Nunavut?

Everything you can do to help us identify these species is important. Report the **location** where you observed the species (GPS Coordinates are very helpful) and provide a **detailed description** of the plant, animal, or insect. If possible **take a photo**.

Remember that not all non-native species are considered invasive. If you see an unknown plant or animal, it is very important to report it.

Do not take any extreme actions; the first step is reporting the species so that territorial and federal agencies can respond appropriately. We will report our findings back to you and information about the species you have observed.



Share

Keep yourself informed and educate others about non-native and invasive species. Let them know what to do if they see an unknown or uncommon species.

Report a species to your local Conservation Officer.

For More Information or if your CO is not available please contact:

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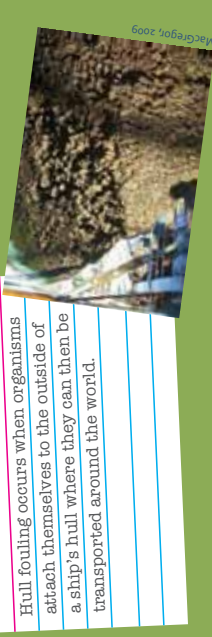
How might invasive species get into Nunavut?

Species are transported throughout the world by human activities, like shipping, which allows species to move further distances and over barriers that they could not do on their own. Nunavut remains very remote compared to the rest of Canada and so the lack of major road systems, infrequent shipping and cold climate has limited their introduction and survival.

However, as climate change alters Arctic ecosystems, it creates conditions that are more favorable to the survival and reproduction of non-native species. It also enables greater human activity and development, which gives potential invasive species more opportunities to establish themselves. (Lassuy and Lewis, 2010).

Pathways of introduction for invasive species into Nunavut

★ Ballast water exchange and hull fouling have the greatest potential for introducing invasive species into the aquatic ecosystems of Nunavut. Ballast water is used to stabilize ships. It is pumped aboard ships from different ports around the world and often exchanged far from the region it was obtained. This water can contain species that are not native, and may establish themselves locally.



Hull fouling occurs when organisms attach themselves to the outside of a ship's hull where they can then be transported around the world.

★ Seeds, insects and even small mammals can be transported around the world through the shipping of grocery produce, lumber, construction supplies, and packing materials, even dirt from someone's footwear can contain plant seeds (IASC, 2010).

★ As climate continues to change in the Arctic, many terrestrial and aquatic plants and animals will move further north looking for the food and habitat they desire. These wildlife movements are not a threat when it comes to invasive species, but it is important to note that some species, (especially rare or threatened ones) may not survive the transition. Others may do well, like flying insects, which are already increasing in number in some areas of Nunavut. (IASC, 2010).

Wildlife movements are often referred to as "range extensions" where a species expands the area they can live in when the habitat and climate is favorable for them.



The Migratory Grasshopper (*Meianoplus sanguinipes*) is a winged insect that is widely distributed across Canada and is one example of a species that may expand its range into Nunavut.

Non-Native Species in Nunavut

As of 2011, there are 17 species known to be non-native in Nunavut, these are listed below and are all terrestrial species. Please note that it is not currently known what the potential is for any of these species to become invasive and to what extent. Two species, the stinging and the sow thistle are described in more detail below.

SCIENTIFIC NAME	COMMON NAME	ORGANISM TYPE
<i>Carum carvi</i>	Wild Caraway	Flowering Plant
<i>Taraxacum officinale</i>	Common Dandelion	Flowering Plant
<i>Sonchus arvensis</i>	Field Sow Thistle	Flowering Plant
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Flowering Plant
<i>Thlaspi arvense</i>	Field Pennycress	Flowering Plant
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	Flowering Plant
<i>Barbarea vulgaris</i>	Yellow Rocket	Flowering Plant
<i>Amaranthus retroflexus</i>	Green Amaranth	Flowering Plant
<i>Hordeum vulgare</i>	Common Barley	Flowering Plant
<i>Puccinellia distans</i>	Spreading Alkali Grass	Flowering Plant
<i>Vicia cracca</i>	Tufted Vetch	Flowering Plant
<i>Papaver somniferum</i>	Opium Poppy	Flowering Plant
<i>Plantago major</i>	Common Plantain	Flowering Plant
<i>Polygonum aviculare</i>	Prostrate Knotweed	Flowering Plant
<i>Pieris rapae</i>	Cabbage White	Butterfly
<i>Sturnus vulgaris</i>	European Starling	Passerine Bird
<i>Passer domesticus</i>	House Sparrow	Passerine Bird

*Species photo references available upon request. Images are not to scale.

Potential Invasive Species in Nunavut

As trade and shipping continues to increase, some aquatic invasive species known to commonly foul ship hulls and ballast waters, like the Chinese Mitten Crab, are more likely to arrive at ports around Nunavut.

A recent report commissioned by Fisheries and Oceans Canada identified a number of potential aquatic invasive species, mainly for the Hudson Bay region. The table below lists only those species considered as "High Risk" to Nunavut and they are found in freshwater & marine environments.

SCIENTIFIC NAME	COMMON NAME	ORGANISM TYPE
<i>Osmerus mordax</i>	Rainbow Smelt	Fish
<i>Gymnocephalus cernuus</i>	Ruffe	Fish
<i>Caprella mutica</i>	Skeleton Shrimp	Crustacean
<i>Chelicorophium curvispinum</i>	Data unavailable	Crustacean
<i>Dikerogammarus villosus</i>	Killer Shrimp	Crustacean
<i>Gmelinoides fasciatus</i>	Data unavailable	Crustacean
<i>Pontogammarus robustoides</i>	Data unavailable	Crustacean
<i>Eriocheir sinensis</i>	Chinese Mitten Crab	Crustacean
<i>Hemimysis anomala</i>	Data unavailable	Crustacean
<i>Balanus improvisus</i>	Acorn Barnacle	Crustacean
<i>Corbicula fluminea</i>	Asian Clam	Mollusc
<i>Dreissena bugensi</i>	Quagga Mussel	Mollusc
<i>Bythotrephes longimanus</i>	Spiny Water Flea	Zooplankton
<i>Cercopagis pengo</i>	Fishhook Water Flea	Zooplankton
<i>Eubosmina maritima</i>	Data unavailable	Zooplankton
<i>Marenzelleria cf. viridis</i>	Data unavailable	Worm
<i>Marenzelleria cf. wireni</i>	Data unavailable	Worm
<i>Cordylophora caspia</i>	Freshwater Hydroid	Hydrozoa
<i>Coscinodiscus wailesii</i>	Data unavailable	Phytoplankton
<i>Odontella sinensis</i>	Data unavailable	Phytoplankton
<i>Prorocentrum minimum</i>	Data unavailable	Phytoplankton
<i>Codium fragile ssp. tomentosoides</i>	Oyster Thief	Algae
<i>Glugea hertwigi</i>	Data unavailable	Protozoa
<i>Amphiphila foliacea</i>	Data unavailable	Parasite

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