

EXOTIC SPECIES:

Plants, animals and micro-organisms existing in habitats beyond their natural distribution. Their introduction is usually caused by humans or human activities but most do not become invasive. Exotic species are also referred to as introduced, non-native, alien and non-indigenous species.

INVASIVE ALIEN SPECIES:

Harmful exotic species whose introduction or spread threatens the environment, economy, or society, including human health.

PATHWAYS OF INTRODUCTION:

The activity, most commonly human, that provides the opportunity for species to establish in new habitats.

THREATS:

The potential negative outcomes to a habitat or species after the introduction of an exotic species. Threats include biodiversity loss, introduction of predators, and loss of food source.

BIODIVERSITY:

The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

For More Information:



Department of Environment and Conservation
Wildlife Division
Endangered Species and Biodiversity
Phone: (709) 637-2026
www.gov.nl.ca/



Botanical Gardens of Memorial University
Memorial University of Newfoundland and Labrador
Phone: (709) 737-8590
www.mun.ca/botgarden

Canadian Biodiversity Network
www.cbin.ec.gc.ca

Wild Species 2005
www.wildspecies.ca

IAS Concepts, Terms & Context, CAB
http://www.cabi.org/ias_ctc.asp?Heading=Terms

IUCN 100 of the World's Worst Invasive Alien Species
www.issg.org/database

Environment Canada, Invasive Alien Partnership Program: http://www.cbin.ec.gc.ca/issues/ias_iaspp.cfm

Funding Provided By:



Cabbage White, S. Pardy Moores

Exotic and Invasive Alien Species in Newfoundland and Labrador

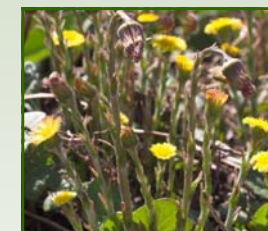
Exotic and Invasive Alien Species in Newfoundland and Labrador

Newfoundland and Labrador is home to tens of thousands of animals, plants, and other organisms. Together, these species create the unique environment and diverse habitats of the province.

However, intentionally or accidentally, exotic species have been introduced to the province. While most exotics may have little or no impact on local ecosystems, some species may become invasive.



Snowshoe Hare
J. Brazil



Coltsfoot
J. Brazil

The most significant threat to an ecosystem following the introduction of an invasive alien species is the loss of native biodiversity. There is a direct relationship between an ecosystem's biodiversity and its ability to respond and adapt to change. Therefore, any change in ecosystem dynamics, including the loss of species, may ultimately cause a decrease in the system's stability.

Continued sustainable use of our natural resources requires us to maintain biodiversity. Changes made to ecosystems by invasive alien species could potentially lead to negative social, cultural, and economic impacts.



Red Squirrel
J. Brazil



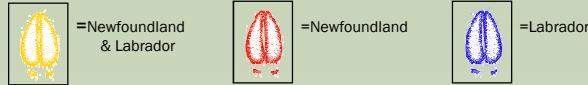
Meadow (Canada) Thistle
MUN Botanical Gardens



Starling, M. Rodrigues-Wright

Some Exotic Species Found in Newfoundland and Labrador

Where in the province they have been introduced



Vertebrates

Deer Mouse	Muskox
Eastern Chipmunk	Norway Rat
Green Frog	Northern Bank Vole
House Mouse	Rock Dove
House Sparrow	Ruffed Grouse
Lake Whitefish	Southern Red-Backed Vole
Masked Shrew	Spruce Grouse
Mink	Wood Frog
Mink Frog	American Toad
Moose	Snowshoe Hare
Red Squirrel	

Invertebrates

Birch Leaf-Mining Sawfly	Fir Coneworm
Cabbage White	Long Horned Beetles
Butterfly	Multicolored Asian Lady Beetle
Centipedes	Water Scavenger Beetle
European Earwig	
European Skipper	

Plants

Black Knapweed	St. John's Wort
Canada Thistle	Wild Chervil
Goutweed	Colts Foot
Purple Loosestrife	Yellow Iris
Japanese Knotweed	Sea Buckthorn

How To Prevent the Introduction Of Exotic Species

Always check with the appropriate Newfoundland and Labrador government agencies to ensure that a permit is not required to import the species that you are transporting.

Three most common pathways of introduction:

Trade

- Purchases or the packing materials could be harmful to the native environment. For example, the brown spruce longhorn beetle arrived in Nova Scotia from Europe or Asia on wooden packing materials used in exporting goods.

- Purchases of living things or their by-products, from out of the province may lead to unintentional introductions of invasive alien species. Several of the exotic lady bug species present in the province were introduced intentionally as biological controls. These exotic species may out compete native species

- Whenever possible buy local plants and pets and always ask for the source of your purchase.

Travel

- Species can travel along with you when you travel into or around the province.

- Think about what might be hitching a ride on your vehicle, boat or even your shoes. Take the time to rinse off recreation vehicles, automobiles, and outdoor equipment. The movement of recreational vehicles through the Great Lakes has contributed to the spread of the Zebra Mussel around that region.

Tourism

- Do not bring home living souvenirs—even seemingly harmless gifts such as fruits and plants may be or carry potentially harmful invasive insects and disease.



Purple loosestrife
J. Brazil

Green Frog
J. Brazil

Learn

- Know the law. Current provincial legislation prohibits the introduction of any wild animal without prior permission.
- Become familiar with local species so you know what is native and what may be an exotic.

Inform

- Educate others about the potential threats associated with introducing non-native species.
- Notify Wildlife Officials of potentially new introductions to an area.

Monitor

- Be on the lookout for non-native species.
- Participate in local and community monitoring projects, such as the Butterfly Monitoring Program (www.env.gov.nl.ca/env/wildlife/biodiversity/biodiversitymon.htm) and the Eyes Across the Province Program (www.mun.ca/botgarden)

Examples of Invasive Alien Species in Newfoundland and Labrador

Species Balsam Woolly Adelgid, *Adelges piceae* Ratz

Introduced 1910

Where First introduced to Nova Scotia but spread accidentally through the import of infected plants.

Threats Can kill balsam fir trees, which may lead to habitat destruction.



Balsam Woolly Adelgid, Wikipedia

Species Mink, *Mustela vison*

Introduced 1935-1937

Where St. John's and Springdale, for the development of fur farming, escapees established themselves in the wild.

Followed by an intentional release of 31 animals by the government in 1948

Threats Very strong competitor, can have large impact on prey populations, including bird, rabbits and aquatic life.



American Mink, E. Schuettler

Species Brown Trout, *Salmo trutta*

Introduced 1884, stocking continued until the late 1930's

Where Avalon Peninsula, NL

Threats Out competes native Brook Trout for habitat, and has the potential to negatively impact native salmon populations through competition and intermixing.



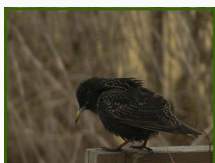
Brown Trout, Government of Newfoundland and Labrador

Species Starling, *Sturnus vulgaris*

Introduced 1890

Where New York City and spread all over North America

Threats Displaces native birds by taking over nesting sites.



Starling, M. Rodrigues-Wright