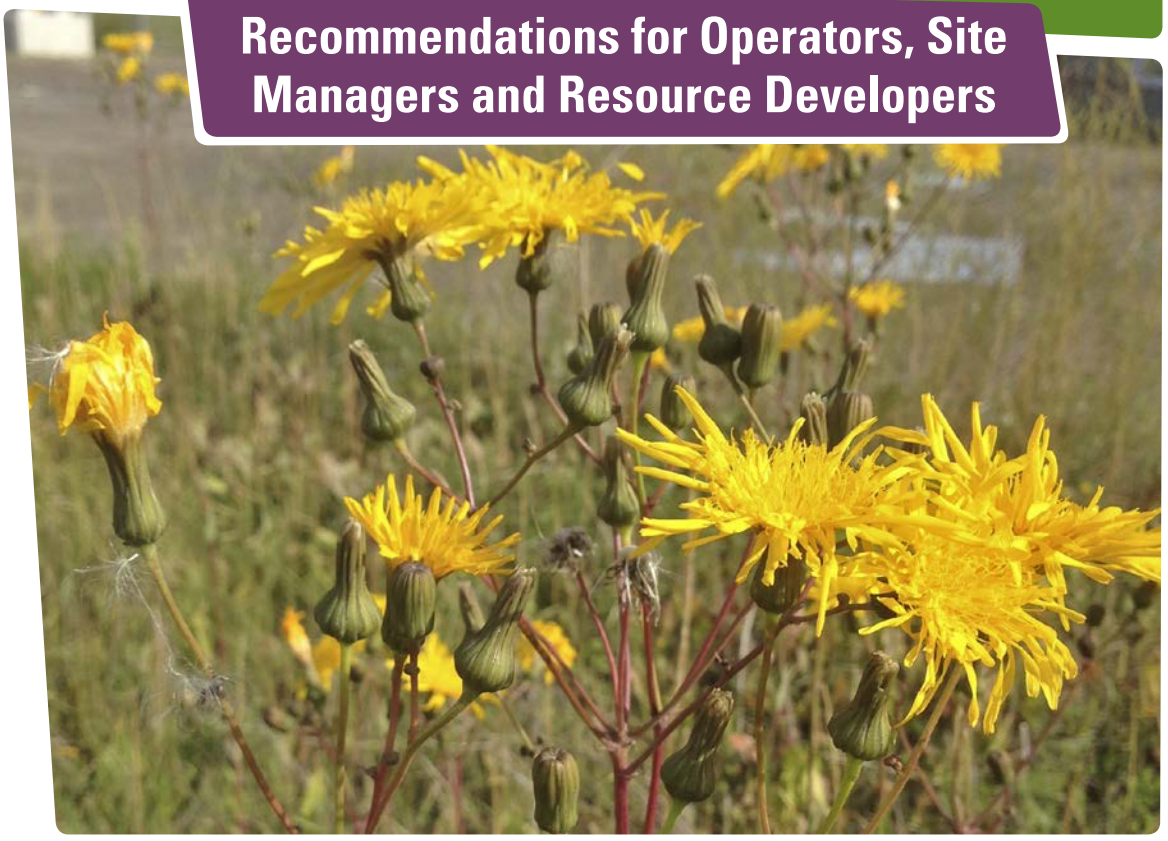
INVASIVE SPECIES MANAGEMENT IN YUKON

Keeping Yukon Natural

Recommendations for Operators, Site Managers and Resource Developers



In Yukon, perennial sowthistle has rapidly been expanding along highway corridors and other disturbed areas.
Photo: Andrea Altherr

What's the problem?

Invasive species are non-native species that have the potential to cause undesirable or detrimental impacts on people, animals, or the ecosystem. These species often reproduce quickly and are very persistent. Most non-native species introduced into the Yukon will not become invasive due to their inability to adapt to the cold climate and nutrient poor soils. However, invasive species that do become established often excel in these conditions due to their ability to outcompete boreal species. Changing climatic conditions in the North such as warmer winters and wetter summers may further increase the extent and rate of spread of invasive species.

Disturbances created through mining, exploration, construction, and forestry practices create environments for invasive species to thrive. Often these activities involve removal of top soil and native vegetation. Equipment used during mineral and forestry operations can be carriers of invasive species. When contaminated equipment arrives on site, seeds can fall to the newly exposed soil and have the opportunity to become established. Natural boreal vegetation is often slow to grow back in these exposed areas due to climatic conditions and poor soil nutrient regimes. In the absence of native plants, invasive species will move into a site and form monocultures. Once invasive species are established on site they are extremely difficult to remove which can increase the cost of reclamation and closure activities.

Best practices for operators, site manager and resource developers

As a site manager or equipment operator, pre-planning and mitigation are essential to stopping invasive species from being

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established on site. A major objective for all site activities should be to avoid the introduction and spread of invasive species. Prevention is the most cost-effective method of invasive species management. This includes:

- ensure all equipment that comes onto site is clean;
- clean equipment before operating in new areas;
  - Inspect tires, tracks, wheel wells and blades for plant parts and seeds
  - Apply same requirements to contractors carrying out clearing or brushing activities
- avoid unnecessary new disturbances and soil compaction;
- source fill or aggregates from borrow pits that are not contaminated with invasive species;
- replant large bare areas and cleared slopes as soon as possible;
  - Use native seed for all revegetation activities. Chosen species should reflect the site-specific conditions
- order certified invasive free seed (Canada No. 1). YISC can provide operators with a list of invasive species; and
- learn to recognize invasive species and report infestations.

Ensure all equipment that comes onto site is clean.

Seeds can stay viable for a long time, check your source of gravel and fill for presence of invasive species. Photo: Greg Brunner

Two examples of high-risk invasive species to be aware of on your site

Perennial sowthistle

Sonchus arvensis

Perennial sowthistle is a tall (1.5 metre) plant with small, dandelion-like flowers that grow in clusters. It has a deep root system that makes removal by hand extremely difficult. Thousands of light fluffy seeds can be produced by one plant, allowing perennial sowthistle to easily colonize new areas. Perennial sowthistle can severely reduce yields of agricultural crops and inhibits germination of native vegetation, reducing forage sources for Yukon wildlife. Spread of perennial sowthistle can be reduced by ensuring maintenance and excavating equipment is thoroughly cleaned before moving sites and avoiding mowing of areas when seeds are mature.

New stands of tufted bird vetch should be removed immediately as the plant will spread and take over new areas very quickly. Photo: Andrea Altherr

Tufted bird vetch

Vicia cracca

Tufted bird vetch is a long climbing or trailing vine-like pea plant. The leaves have charismatic tendrils and deep purple-to-blue flowers that form a seed pod when mature. Tufted bird vetch is extremely aggressive, readily taking over in natural and disturbed areas by climbing atop and shading out native vegetation. It can reproduce through root fragments and can be transported in trimming machinery and other large equipment. Repeated low trimming in early spring, hand pulling, and herbicide application before the plants reach flowering stage are effective treatment methods.

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Recommendations for Off-road Vehicle Operators

Narrowleaf hawksbeard is one of Yukon's most prevalent invasive species and has a negative effect on Yukon's agriculture. Photo: Andrea Altherr

What's the problem?

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As an off-road vehicle (ORV) operator you are able to access remote and pristine areas of Yukon with relative ease and potentially bring non-native plants on your trip. Seeds and plant parts can easily be transported in the chassis and tires of your ORV. While vegetation and soil damage from ORVs can often be reversed over several years, invasive plants are difficult to eradicate once they become established. Invasive species frequently spread beyond trails and roadways once they become established in one location. Plant species most likely to be transported by ORVs are those with small seeds that are gravity or wind-dispersed, have high seed production, and form persistent seed banks.

Understanding the sensitivity of different ecosystems is an important step in preventing the introduction and spread of invasive plant species in these areas. Soils in alpine areas are typically shallow and vegetation growth is slow because of low moisture, cold temperatures, and short growing seasons. Wetlands are very sensitive to disturbance and ruts form quickly when wheels contact water-saturated ground. These ruts and exposed soil create the perfect habitat for invasive plant species to get established. Effects of ORVs can be drastic and long-lasting in these environments.

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Recommendations for Off-road Vehicle Operators

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Best practices for ORV operators

- Follow Play Clean Go principles found on *www.yukoninvasives.com*.
- Before heading back to the shop, inspect your vehicle and gear. When available, use a power washer or air compressor to remove any dirt, plants, seeds, or bugs. If these are not available, use a brush or other hand tool to knock off dirt clods and plant debris.
- Stay on designated and existing trails to avoid disturbing soil and damaging sensitive habitats, especially in wetlands and in alpine areas.
- If possible, do not drive through wetlands; go around if there is another existing trail option. If the only option is through the wetland, avoid widening the trail to minimize ground cover damage.
- If you do get stuck, use a winch to extricate your vehicle instead of accelerating out of mud holes. This reduces rutting and reduces potential places for invasive plants to establish.
- Cross only at established points in creeks and streams. Cross slowly to prevent streambank erosion and creation of new places for invasive plants to establish.
- Reduce travel when soil is wet or muddy to reduce damage to the ground – ruts can lead to permafrost degradation and also provide microsites for colonization of invasive plant species.
- Stay on hard-surfaced trails where possible.
- Follow local regulations regarding authorized ORV use of trails.

Come clean – before leaving home, take some time to inspect and remove dirt, plants, and bugs from clothing, boots, gear, and vehicles.

Sweetclover is widely spread throughout the Yukon. Avoid driving through weedy areas and check your gear for plant parts. Photo: Andrea Altherr

Two examples of species easily transported by ORVs

Crested wheat grass

Agropyron pectiniforme

Crested wheat grass is an attractive bunchgrass with flattened seed heads that resemble a comb or fish scales. It has an extensive root system and is commonly seen in gravelly, dry areas such as gravel pits or exposed ditches and roadsides. ORV users can prevent spread of crested wheat grass in staging areas by ensuring they do not drive through patches when seed heads are present and cleaning mud and other debris from machines prior to moving to new sites.

Crested wheat grass is fast growing and can aggressively outcompete native grasses for moisture and nutrient resources. It can form monocultures and prevent shrub establishment. Photo: Stefan Gottermann, YG

Narrowleaf hawksbeard

Crepis tectorum

Narrowleaf hawksbeard is a tall annual plant with small, dandelion-like flower heads. It will readily colonize gravelly disturbed areas such as staging areas, roads, right of ways, and river banks. Each plant is capable of producing over 40,000 seeds which spread easily through wind dispersal. Once established, narrowleaf hawksbeard can form highly dense patches, which displaces native plants. The seeds can adhere to clothing, shoes, and tires. ORV users should avoid travelling through narrowleaf hawksbeard patches and take care to clean clothing and vehicles before entering and leaving the backcountry.

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Recommendations for Hikers, Bikers, and Horse Riders

Spotted knapweed is not widely distributed in Yukon, but early control is necessary to limit the spread of this invasive species. Photo: Andrea Altherr

What's the problem?

Invasive species are non-native plants that have the potential to cause undesirable or detrimental impacts on people, animals, or the ecosystem. These plants often reproduce quickly and are very persistent. Most non-native species introduced into the Yukon will not become invasive due to their inability to adapt to the cold climate and soil poor nutrient conditions. However, invasive species that do become established often excel in these conditions due to their ability to outcompete boreal species. A high presence of invasive species can lead to loss of habitat for rare and endangered species. Changing climatic conditions in the North such as warmer winters and wetter summers may further increase the extent and rate of spread of invasive species.

Backcountry recreation is a key pathway for introduction and spread of invasive species. Boots, equipment, and domestic animals may carry noxious weeds. Introduction of these plants may be harmful to humans, damage native habitat, and create poor feeding conditions for wildlife. Not only do invasive species damage natural habitats, their spread can cause negative social impacts such as destruction of native scenery. Backcountry users should strive to maintain the natural environmental conditions they encounter. Disturbances create an ideal environment for invasive species to become established in the backcountry.

Best practices for hikers, bikers, and horse riders

Protecting Yukon wilderness from invasive species can start with a few simple considerations that have lasting effects. This includes:

- learn to identify invasive plants so you can help protect our beautiful backcountry;

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- inspect and clean off boots, gear, clothing, and pets before you go on your trip. Clean off any dirt or plant parts after your backcountry trip;
- check your camp or recreation site for weed species. Take a few minutes to hand pull weeds that have not gone to seed;
- report new sighting of weeds on trails, especially in remote areas;
- use existing trails and avoid travelling through wet, sensitive areas where possible. Minimize compaction and creation of bare spots where weeds can establish; and
- for horsepackers, pack in weed-free feed and avoid grazing animals in infested areas.

Play Clean Go – Give invasive species the brush off!

Use the boot brush and bike brush stands at trailheads to clean your equipment! Photo: Andrea Altherr

Two examples of invasive species to look for in the backcountry

Spotted knapweed

Centaurea stoebe

Spotted knapweed is a hardy, perennial plant with purple flowers and a stout taproot. It is a highly competitive plant that can form dense patches in overgrazed areas. Spotted knapweed is unpalatable to livestock, and will only be grazed when more desirable species are not available. It suppresses growth of native species through allelopathy where chemicals are released through the root system that inhibits germination and slows growth of native seedlings. A single plant will produce thousands of seeds per year. Once a seedbank is established it can take many years to eradicate. Small infestations can be pulled or mowed once per year after they have bolted, but before they flower. Larger infestations can be plowed under in the spring. Repeated control applications will be necessary to control populations.

A single sweetclover plant can produce 300,000 seeds which remain viable in the soil or under water for many years. Photo: Andrea Altherr

Sweetclover

Melilotus alba, Melilotus officinalis

Sweetclover is a tall, branched plant with showy white or yellow flowers. It is often seen forming dense and continuous clusters in the ditches along Yukon roadsides. Recently sweetclover has been spreading to river gravel bars. Recreational canoeists may now encounter this species on paddling trips. Infestations of sweetclover can reduce the amount of suitable camping locations along the river, and make camping spots less scenic for users. Paddlers and boaters can help slow the spread of sweetclover along river systems by spending a few minutes pulling the plant before it reaches flowering stage. If there are no flowers or seeds present the pulled stalks can be left on the gravel bars, or burned in a contained fire pit. Sweetclover should not be pulled when the plant has gone to seed as this will aid in dispersal of the seeds.

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Recommendations for Guides, Mushers and Outfitters

Alsike clover, either in hay or pasture form can be poisonous to horses. It can trigger a severe skin reaction and prolonged exposure to the clover may lead to liver cirrhosis. Photo: Andrea Altherr

What's the problem?

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Invasive species spread quickly, diminishing Yukon's backcountry areas and detract from the pristine wilderness clients expect when they book trips to the Yukon. Horse manure, outfitting equipment, and straw can serve as primary sources for invasive species introduction. Some invasive species may introduce pests and diseases to native wildlife. Once established, invasive species can persist in areas such as horse corrals after outfitting operations cease.

Best practices for commercial guides, horse packers, outfitters, and mushers

As a professional, you can serve a key role in early detection and prevention of invasive species in the backcountry by:

- picking up a copy of the *Yukon Invaders* brochure and carry with you in the backcountry;
- learning to identify the invasive species in your area. Report changes in location or presence of invasive species;

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- carrying tools for cleaning seeds out of hooves, saddles, and packs;
- cleaning all equipment of seeds and plant parts before leaving the staging area;
- making an effort to manage weedy species around horse corrals before the plants go to seed;
- not allowing horses to graze in weed infested areas;
- if possible, using native or weed free hay for feed and weed free straw for bedding of horses and sled dogs; and
- providing clients with waders, boots and other equipment rather than bringing their own. Alternatively, making sure clients gear is clean before heading out.

Maintaining clean, weed-free equipment is critical for preserving Yukon's backcountry areas.

Alfalfa may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Photo: Andrea Altherr

Two invasive species to look for around outfitting concessions

Alsike clover

Trifolium hybridum

Alsike clover is a fast growing, short lived perennial clover. It has leaflets in pairs of threes and a flower head that varies from pink to white. Alsike clover is quickly becoming more abundant in the Yukon, moving north along roadsides and disturbed areas. It is commonly used for hay, forage, and green manure. Clovers are very difficult to remove once established, therefore prevention is key in keeping alsike clover out of pastures. Inspect feed and straw for presence of unwanted species. Clover seedlings are easy to distinguish and should be removed in early spring. Seeding and fertilization of native grass species around disturbed areas will deter alsike clover establishment.

Narrowleaf hawksbeard is one of the widest spread invasive plants in Yukon.

Narrowleaf hawkbeard

Crepis tectorum

Narrowleaf hawksbeard is a tall annual plant with dandelion like flower heads. It will readily colonize gravelly disturbed areas such as staging areas, roads, right of ways, and river banks. Each plant is capable of producing over 40,000 seeds which spread easily through wind dispersal. Once established Narrowleaf hawksbeard can form highly dense patches which displaces native plants. The seeds can adhere to clothing, shoes, and hoofs. Backcountry users should avoid travelling through narrowleaf hawksbeard patches and take care to clean clothing, pets, and equipment before entering and leaving the backcountry.

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Recommendations for Gardeners

Large infestations of the common tansy displace native vegetation and may be toxic to grazing animals. Photo: Andrea Altherr

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Some non-native garden ornamentals introduced to Yukon become a problem when they escape out of the garden and into nearby greenbelts and forested areas. Many garden ornamentals that have been introduced in Yukon arrive without the insects and diseases that keep them under check in their place of origin. Without biological controls these plants may spread vigorously and push out native species, leading to a reduction in biodiversity. Invasive species can also have a negative effect when they form large monocultures and are unpalatable to wildlife. Displacing native species through introduction of invasive species has the potential to harm native pollinators. Many boreal pollinators have evolved symbiotic lifecycle relationships with specific native species and rely on one another to complete their lifecycles.

Best practices for gardeners

- Download a copy of the Yukon *Grow Me Instead* booklet for a list of non-aggressive growing plants for your garden.

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- Know what you grow!
- Watch your garden carefully for unwanted plants. Detecting and removing plants when they first emerge can limit their persistence and spread. Simple hand pulling may be an effective method for removal. Covering perennial or grass species with mulch or heavy plastic will help to deplete energy stored in roots and prevent germination the following year.
- Consider growing native plants! Native species can be a beautiful addition to your front yard. They are low maintenance and don't require large amounts of water, amended soil, or fertilizer to thrive. See the *Grow Me Instead* brochure for how to collect seeds.
- Dispose of invasive plants and soil responsibly. Don't throw unwanted plants or soil onto greenbelts. This is a perfect opportunity for colonies to become established in forests.
- Avoid composting invasive species. Many seeds are not destroyed by heat and are capable of germinating elsewhere when the compost is spread.
- Invasive plants should be disposed of at the landfill.
- Avoid transplanting southern species unless you know they are not invasive.
- Early detection is a critical step to stopping the spread of invasive plants. If you notice a plant that spreads aggressively, report it to the Yukon Invasive Species Council.

Choose your garden plants carefully. Once established, invasive species are very difficult to remove.

Before buying seed mixes, read labels to determine if invasive species are present. Use wildflower seed mixes with caution.

Two examples of invasive species to look for in your garden

Common tansy

Tanacetum vulgare

Common tansy is a perennial plant with yellow button-like flowers. Tansy is commonly used as a hardy garden plant. Infestations have been encountered along roadways, streambanks, and pastures and many other sunny, well-drained locations. Tansy has the ability to quickly become invasive due to its high seed production and long-term seed viability; seeds can persist in the soil for up to 25 years. To eradicate common tansy, focus on controlling the spread of seeds by mowing the plant once yearly before seed production begins in July. Tansy can be pulled by hand when the plants are small, however gloves should be worn to limit skin irritations. Repeated management over several years will be needed.

Butter and eggs has been found in most Yukon communities, primarily from intentional garden plantings.
Photo: Andrea Altherr

Butter and eggs, toadflax

Linaria vulgaris

Butter and eggs is a showy, perennial garden plant that has been aggressively spreading into areas such as roadsides and disturbed gravel paths. This plant has attractive and distinct yellow and off-white flowers which bloom in early to mid-summer. It often forms colonies in lawns and disturbed areas from its creeping root system which produces new shoots. Butter and eggs is mildly toxic to wildlife and is highly competitive for soil moisture. Hand pulling can be effective when the plant is in seedling stage before the root system develops.

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Recommendations for Garden Centres and Landscapers

Oxeye Daisy escapes from ornamental plantings and will reduce the crop value in hay fields. Photo: Andrea Altherr

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The potential for a horticultural plant to become invasive is often not considered when importing plants for commercial sale or landscaping. Horticulture has been identified as one of the main pathways for introduction of invasive species. These plants can quickly spread out from the garden or public areas into natural forested areas. With a changing climate more plants may become aggressive growers. Displacing native species through introduction of invasive species has the potential to harm native pollinators and reduce biodiversity. Many boreal pollinators have evolved symbiotic lifecycle relationships with specific native species and rely on one another to complete their lifecycles.

Best practices for garden centres and landscapers

The most cost effective and efficient response in invasive species management is prevention at the garden centre. Garden centres and landscapers can play a pivotal role by educating customers and providing and promoting varieties that are not aggressive growers.

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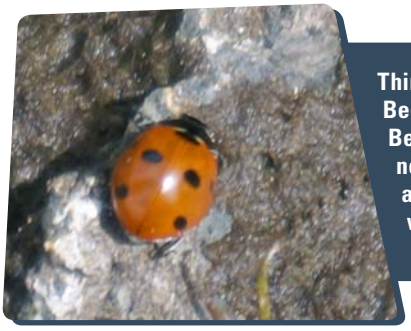
What can I do as a business owner?

- learn about plants that are less likely to invade natural areas;
- use Yukon's *Grow Me Instead* guide as a reference.
- grow, purchase, and promote recommended alternatives to invasive plants;
- label non-invasive plant stock;
- sell soil that is certified weed free and sterilized;
- work with stakeholders to identify existing and new invasive plant species;
- as a landscaper avoid leaving bare soil patches, as these areas are prone to invasive species establishment;
- reseed areas using native seed species that reflect the site-specific conditions; and
- don't dispose soil and plants into natural areas.

Garden centres and landscapers can play a pivotal role by providing and promoting varieties that are not invasive.



Think about introducing Lady Beetles. Unfortunately, Lady Beetles available in stores are non-native species which act aggressively and compete with native species. Photo: Carmen Wong

Two high risk invasive species to avoid in your business

Oxeye daisy

Leucanthemum vulgare

Oxeye daisy seeds may be sold in garden centres as a "wildflower mix" and the plant is popular with gardeners due to its vibrant, colourful appearance. Oxeye daisy tolerates a wide range of environmental conditions, has high drought tolerance and can be found in fields, roadways, open forests, and disturbed areas. Oxeye daisy is inedible to livestock and alters pasture productivity by forming large colonies and displacing native grass vegetation. Garden centres can help limit the spread of oxeye daisy by being aware of the contents of imported wildflower mixes or promoting wildflower mixes that incorporate non-invasive daisies.

Caragana has the ability to escape cultivation and will spread into adjacent forested areas. Photo: Andrea Altherr

Caragana

Caragana arborescens

Caragana is a perennial, woody shrub that can grow up to four metres tall. It is commonly planted as a hedgerow or windbreak, and is tolerant to drought and poor soil nutrients. Caragana has fragrant, bright yellow flowers that develop into long, bean-shaped pods containing many seeds. When seeds mature they explode open, ejecting the seeds away from the parent shrub. Patches of caragana can encroach into woodlands and forest edges, shading out tree saplings and forming dense monocultures. Prevention of caragana spread is essential. Machine brushing and mulching of caragana will help to reduce the size of infestations, however many years of control may be needed to reduce the spread of seeds.

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Recommendations for Farmers and Rural Property Owners

Creeping thistle is a deep-rooted perennial plant with purple flowers and dark green, spiny leaves. Photo: Andrea Altherr

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Preventing the establishment of invasive species can have many direct benefits for Yukon farmers. In southern Canada invasive species are one of the biggest threats to the economy and productivity of farming businesses as their presence leads to a direct reduction in crop yields. Invasive species crowd out and outcompete crop plants, consuming nutrients and water resources that have been allocated to crops, ultimately increasing resource consumption and production costs.

Many invasive species will form stands of monocultures in pastures and rangelands. These monocultures lead to a reduction in the variety of feed available. Livestock will often avoid patches of invasive species, as many species are unpalatable or toxic, increasing grazing pressure on forage crops.

Best practices for farmers and rural property owners

Creating a weed management plan and reacting quickly to new infestations is

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essential in limiting the spread of invasive species. Farmers can limit the spread and establishment of invasive species on rangeland and pastures through a wide range of prevention and suppression techniques.

PREVENTION

- Weeds can only exist if there is space for them. Sow seeds at a higher rate to limit the amount of space available for weeds to establish.
- Aim to shade and crowd out young weed seedling through crop rotation, maintaining good soil fertilization, and appropriate soil moisture conditions.
- If possible employ rotational grazing to avoid overgrazing. Overgrazing leads to soil compaction and creation of bare surfaces. These areas are ideal habitats for weeds to invade.

EARLY DETECTION AND REMOVAL

- Regular monitoring inspections for the presence of undesirable species is critical in preventing establishment of weed patches.
- Take advantage of YISC's Walk Your Field Program. We can help identify invasive species and design a management plan for controlling weeds.

CONTROL

- Be a good neighbour. Controlling invasive plants in fence rows and ditches can reduce the spread into nearby rangelands and pastures.
- Contact the Yukon Agriculture Branch for information on species-specific management techniques: agriculture@gov.yk.ca or call 867.667.5838

Prevention is the most cost-effective way of dealing with weeds!

Perennial sow-thistle is found along road sides and can rapidly move into farm fields where it reduces crop and forage quality. Photo: Andrea Altherr

Two examples of invasive species to look for in your field

Creeping thistle

Cirsium arvense

Left unchecked this plant can grow up to 1.5 metres in height and will form extensive clonal colonies from underground root systems. Creeping thistle is commonly found along roadsides, in cultivated fields and pastures, and other disturbed areas. Thickets of thistle crowd out forage grasses, easily outcompeting the grasses for water and soil nutrients, reducing crop yield productivity. Management of creping thistle is most effective when completed prior to the plant flowering. Regular cutting and tilling can help wear down plant energy reserves and limit population growth, but are not likely to eliminate infestations completely.

Narrowleaf Hawksbeard is a prolific seed producer that, once established, is hard to remove. Photo: Andrea Altherr

Narrowleaf Hawksbeard

Crepis tectorum

Narrowleaf hawksbeard is a tall annual plant with dandelion-like flower heads. It will readily colonize disturbed areas such as corrals, watering stations, and overgrazed fields. Each plant is capable of producing over 40,000 seeds which spread easily through wind dispersal. Once established, narrowleaf hawksbeard can form highly dense patches which displaces native plants. The seeds can adhere to clothing, shoes, and tires. Farmers can prevent establishment of narrowleaf hawksbeard by removing plants from high-use areas before they form colonies and limiting the amount of grazing in a single area.

Keeping Yukon Natural

Report invasive species to info@yukoninvasives.com OR use the reporting form at www.yukoninvasive.com OR submit your observation to www.iNaturalist.org

Email: info@yukoninvasives.com
Web Site: www.yukoninvasives.com
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YISC
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INVASIVE SPECIES MANAGEMENT IN YUKON

Keeping Yukon Natural

Recommendations for Boaters and Anglers

Studies indicate that mussels can survive in Yukon waters. Photo: R. Westbrooks, U.S.Geological Survey, www.Bugwood.org

What's the problem?

Did you know invasive species can be transported to a new lake or river on your boat? Organisms like zebra mussels, spiny water flea, and aquatic plants may be tagging along for the ride as you move from lake to lake. These species can be transferred in surface water moved by your boat through the bilge, motor, live well, and transom wells. Currently, there are very few aquatic invasive species in Yukon. As recreational boating increases in Yukon, chances of transportation and introduction of aquatic invasive species from locations in southern Canada will also likely increase.

The introduction of aquatic invasive species across North America has severe economic impacts, costing millions of dollars every year to repair the damage done. Invasive species can damage major infrastructure by clogging pipelines and fouling drinking water facilities. Invasive species also reduce the biodiversity and population of native species in the water bodies they are introduced into. They can degrade or completely destroy native food chains and fish habitat through increased predation, parasitism, and competition for food and nutrient resources.

Best practices for boaters and anglers

Don't let invaders in your boat, think Clean-Drain-Dry!

- Check out the aquatic invasive species section on the website of Environment Yukon.
- Don't move live fish or other species from one water body to another without a permit. It is illegal.
- Never release fish, plants, or other aquatic organisms from your aquarium into open waters or sewers.

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MARCH 2019

Recommendations for Boaters and Anglers

Yukon contains many areas of natural wilderness, and by caring and doing our part, the ecological integrity of the territory can be maintained.

CLEAN

- Before leaving a water body inspect and remove plants and animals from your boat motor, anchor, trailer, and equipment including life vests and ropes.
- Clean your boat and all angling equipment with freshwater, power washing equipment is preferable.
- Wash the mud from hip waders before leaving the waterbody.
- Avoid using felt soled waders. Aquatic organisms cling to felt material very well and can easily be transferred to another waterbody. If possible, freeze wading boots solid prior to future use.

STOP AQUATIC HITCHHIKERS!™
Be A Good Steward.
Clean. Drain. Dry.
StopAquaticHitchhikers.org

DRAIN

- Drain water from the motor, bilge, and wells on land.

DRY

- Let your boat and equipment dry completely in the sun or use a sponge to remove all remaining water from the inside of your craft.

Pull the plug! Make sure it is out when you transport your watercraft!

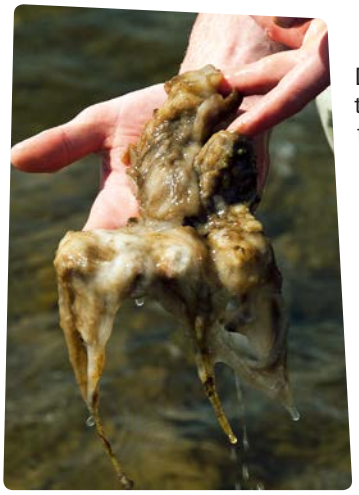
Avoid transporting aquatic invasive species around by cleaning your watercraft.

Two high risk invasive species to watch for in Yukon waterbodies

Zebra Mussels

Dreissena polymorpha

Zebra mussels are small, fingernail sized mussels native to the Caspian Sea region of Asia. Zebra mussels were introduced to North America through ballast waters of shipping boats and are now considered one of the most damaging invasive species introduced to Canada. The mussels have spread rapidly through the Great Lakes and have been reported as far west as Winnipeg and northern Manitoba. These freshwater mussels can easily attach themselves to boats, equipment, vegetation, and other organisms. Newly introduced mussels are extremely difficult to detect as they are only a few millimetres in size. The risk of zebra mussels spreading to Yukon is real: 2 out of 5 boats entering Yukon come from jurisdictions already with mussels.



Didymo algae is a freshwater diatom that can form massive blooms with the potential to impact fish habitat and fisheries. Photo: YG

Didymo/Rock Snot

Didymosphenia geminata

Didymo is a freshwater algae that is commonly found in creeks and streams. Surveys have detected didymo in almost all Yukon watersheds, however it is unclear if didymo is a native or introduced species. It can be brown, yellow, or white and when handled feels like rough wool. Didymo grows in clumps and ropes, smothering rocks and vegetation in the stream bottom. Once established it can form massive blooms on stream beds altering freshwater ecology. High concentrations of didymo can negatively impact stream vegetation, freshwater invertebrates, fish habitat and food chain interactions. Felt-soled waders, fishing gear, boots, and boats are ideal carriers for didymo to spread. Anglers, boaters, kayakers, and canoeists can help mitigate the spread of didymo in the Yukon by cleaning, draining and drying their gear before moving to a new waterbody and avoiding using felt-soled wading boots.

Report sightings of aquatic invasive species to Yukon Government Fisheries: fisheries@gov.yk.ca

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