

**Town of Annapolis Royal  
POLICY**

<b>TITLE:</b> Invasive Alien Species	
<b>POLICY NO.:</b> 2023-03	<b>SUPERSEDES:</b> #2021-01, #2011-3
<b>EFFECTIVE DATE:</b> February 16, 2023	<b>APPROVED BY COUNCIL MOTION:</b> #C2023-02-15-09

### **Background**

In May 2008, the Town of Annapolis Royal approached the Clean Annapolis River Project (CARP) to propose ways in which the Town might incorporate invasive alien species (IAS) into its long-term planning. Specifically, the Town requested some input on IAS policy to consider for its “Green Plan”.

Canadian municipal plans incorporating IAS policy are either rare or difficult to find. Ways in which the Town might approach IAS in a proactive, yet conservative manner in its “Green Plan” include the following four measures: Identification, Better Management Practices (BMP), Public Outreach and Education and Long-Term Management. Each measure is described in more detail below.

### **Elements**

1. **Identification**
  - a. Public – Identification of areas that have been colonized by IAS
  - b. Private – Determination of extent of colonization on privately owned land within the town through a plant-watch type initiative
  - c. Town staff, community members and visitors are encouraged to document known or suspected invasive species using the iNaturalist ap, <<https://inaturalist.ca/>>. Guidance on use of this app will be hosted on the CARP website.
  
2. **Better Management Practices (BMP)**
  - a. CARP has developed a set of BMP for locally problematic terrestrial invasive plants (Appendix A). These should be used by the Town employees:
    - i. Proper disposal of invasive plant material by double bagging, drying or burning (e.g. not composting).
    - ii. No planting of alien invasives on town property (this requires a list of known invasives – available from CARP).
    - iii. Encouraging native species by removing known invasives.
  - b. Work with private sector to adopt the appropriate BMP for home and small business owners.

### 3. Public Outreach and Education

- a. General mandate for education of public in order to facilitate the removal of, the prevention and timely reporting of spread, and of any invasive species by making information available on the Town website and making a list of IAS information available on the CARP website.
- b. Information session/mail out/publication for people to able to identify the most common/problematic species and general best management practices as identified in the above section (including an annual presentation to Town staff, and the Public Works Dept., and quarterly updates in the Town newsletter).
- c. Signage around a marsh, wharf, and other public areas, detailing how to spot them, the damage they do to the natural ecosystem and what to do if any are found on people's property (reach visitors to areas, promoting stewardship) –Begin incorporating aquatic invasive species into planning.

### 4. Long Term Management

- a. General mandate for control/eradication of plants on town property (i.e. marsh).
- b. Gradual increase to target multiple species.
- c. A database of efforts made to control/eradicate invasive species established (e.g. Volunteer monitoring programs like “Plant Patrol NS” to alert Town to new occurrences, and maintain update records/databases).
- d. Mandate for tourism and trail development: only native species planted for ornamentals to avoid loss of plants (wasted dollars and effort). Possibly consider native-only gardens on Town property (interesting from public outreach perspective too), and native-only plantings in the marsh.
- e. Investigate the pathways/vectors of transportation and spread and effort made to reduce that.
- f. Form long-term partnerships with community groups (e.g. CARP, naturalists, skate park advocates, etc.) to assist with management activities.

### Repeal and Replace

1. Policy # 2021-01, the Policy on Invasive Alien Species, is repealed.

**THIS IS TO CERTIFY** that this policy was duly passed by a majority vote of the whole Council at a duly called Council meeting held on the 15 day of February 2023.

**GIVEN** under the hand of the CAO and under the seal of The Town of Annapolis Royal the 16 day of February 2023.

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Sandi Millett-Campbell  
Chief Administrative Officer

## **Resources**

### **Invasive Species Centre (Canada)**

<https://www.invasivespeciescentre.ca/>

### **Nova Scotia Invasive Species Council**

<https://nsinvasives.ca/>

### **Alien Invasive Species Guide, Nova Scotia**

<https://www.merseytobeatic.ca/projects-invasive-species.php>

## **Government**

<https://www.canada.ca/en/services/environment/wildlife-plants-species/invasive-species.html>

[https://novascotia.ca/natr/biodiversity/pdf/Biodiversity\\_AlienSpecies\\_Apr25.pdf](https://novascotia.ca/natr/biodiversity/pdf/Biodiversity_AlienSpecies_Apr25.pdf)

## **Aquatic Invasive Species**

<http://www.invasivespeciesinfo.gov/international/canada.shtml>

<https://novascotia.ca/fish/sportfishing/resource-management/ais/>

<https://www.annapolisriver.ca/ais>

**Appendix A**  
**Invasive Alien Species**

**Autumn Olive (*Elaeagnus umbellata*)**

**PHYSICAL DESCRIPTION:**

**Form** – shrub or small tree

**Height** – 6 m

**Leaves** – long, thin

**Flowers** – white, honeysuckle like

**Fruit** – drupe, green when unripe transitioning to red when ripe

**Blooms in** – March to July

**Other Features** – resembles invasive honeysuckles

**Likely to be found** – old fields, roadsides, forest edges

**Important management considerations** – tends to re-sprout vigorously if cut

**Canada Thistle (*Cirsium arvense*)**

**PHYSICAL DESCRIPTION:**

**Form** – erect, branched stem

**Height** – 0.3m to 1.5m

**Leaves** – simple, alternate, lace-shaped, deeply lobed, spiny, may clasp stem

**Flowers** – generally in clusters, purple or pink colour

**Fruit** – small, dry, single-seeded (up to 4cm long), feathery structure attached to seed base

**Blooms in** – June through October

**Other Features** – extensive, creeping roots

**Likely to be found** – meadows, fields, crops, waste areas

**NOTE** – Thistles may be difficult to distinguish from one another – if you're not sure, ask for help

**Important management considerations** – covered in spines, handle with care

**Chinese Mystery Snail (*Cipangopaludina chinensis*)**

**PHYSICAL DESCRIPTION:**

**Form** – snail

**Size** – up to 6 cm

**Other Features** – large, rounded shell

**Likely to be found** – slow moving water bodies

**Common Buckthorn (*Rhamnus cathartica*)**

**PHYSICAL DESCRIPTION:**

**Form** – shrub or small tree

**Height** – up to 7m

**Leaves** – simple, alternate, oval, finely toothed

**Flowers** – in clusters, greenish-yellow colour, small regular flowers, 4 petals

**Fruit** – berries, red turning to black when ripe, each with 3-4 seeds

**Blooms in** – spring through fall

**Other Features** – may have small spines at twig tips; keeps foliage, flowers, and berries longer than most native shrubs (long growing season)

**Likely to be found** – open woods, wetlands, gardens, and yards

**Common Reed (*Phragmites australis*)**

**PHYSICAL DESCRIPTION:**

**Form** – very tall, usually in dense, single species stands

**Height** – can exceed 5m

**Leaves** – simple, long, narrow, smooth, wide (up to 4cm)

**Flowers** – in plume like spikes (up to 30cm long), purple colour (changing to grey in late summer), individual flowers have long silky hairs

**Fruit** – flower heads look fluffy as seeds within mature

**Blooms in** – late July and August

**Other Features** – extensive, creeping roots

**Likely to be found** – wetland fringes, including salt marshes

**NOTE** – There is also a native Common Reed, and they may be difficult to distinguish

**Eurasian Water-Milfoil (*Myriophyllum spicatum*)**

**PHYSICAL DESCRIPTION:**

**Form** – upright (deeper water), trailing (shallow water)

**Height** – stems up to 2.5m

**Leaves** – whorled, feathery

**Flowers** – clusters of red bud like flowers

**Fruit** – small green seedpods

**Blooms in** – June to October

**Other Features** – resembles native milfoil species

**Likely to be found** – slow moving waterbodies, more common in shallow water (1-3 m)

**Important management considerations** – can regrow from fragments, unless fragments contained physical removal may cause new plants to spout downstream

**Emerald Ash Borer (*Agrilus planipennis*)**

**PHYSICAL DESCRIPTION:**

**Form** – beetle

**Size** – Adults 8-14 mm

**Other Features** – adults have elongated bodies and a metallic green colour; may be detected by presence of D shaped bore holes in host trees

**Likely to be found** – ash trees

**Important management considerations** – transport of wood products (especially ash) out of infected areas

**European Fire Ant (*Myrmica rubra*)**

**PHYSICAL DESCRIPTION:**

**Form** – ant

**Size** – workers are 2-6 mm, queens can be as large as 25 mm in length

**Other Features** – two small segments or nodes between the thorax and abdomen, and a two-segmented club at the end of each antenna

**Likely to be found** – gardens, roadsides, moist irrigated soils, rotting stumps or logs  
**Important management considerations** – aggressive with painful bite; can be spread by moving infested materials

**Garlic Mustard (*Alliaria petiolata*)**

**PHYSICAL DESCRIPTION:**

**Form** – first year plant is a rosette, second year plant is an erect stem

**Height** – 0.6m to 1.05m

**Leaves** – simple, alternate, triangular, serrated (toothed)

**Flowers** – in clusters, white colour, small regular flowers, 4 petals in cross shape

**Fruit** – oblong pod (up to 10cm long) containing seeds

**Blooms in** – spring, plants dead by late June

**Other Features** – crushed stem and leaves have garlic odour

**Likely to be found** – shady forest understories

**NOTE** – On the first-year rosette, leaves are more kidney shaped, and round-toothed (less serrate) than those on the second year plant

**Important management considerations** – can have allelopathic effect, especially in areas with long establishment

**Giant Hogweed (*Heracleum mantegazzianum*)**

**PHYSICAL DESCRIPTION:**

**Form** – erect stem

**Height** – up to 5m

**Leaves** – shiny, large, deeply serrated like a jagged saw edge

**Flowers** – white

**Fruit** – tan seed

**Blooms in** – June -and July

**Other Features** – resembles native cow parsnip

**Likely to be found** – disturbed places with moist soil, vacant lots, waste areas, riverbanks, along roadways, agricultural lands

**Important management considerations** – take great caution around this plant; Skin contact with the sap in the presence of UV light (such as sunlight) can cause swelling, itching, and blistering that lasts for months; If the sap gets into your eyes, it can cause permanent blindness; do not bushhog, as this can aerosolize the sap

**Glossy Buckthorn (*Rhamnus frangula*)**

**PHYSICAL DESCRIPTION:**

**Form** – shrub or small tree

**Height** – up to 7m

**Leaves** – simple, alternate, oval, smooth

**Flowers** – in clusters, greenish-yellow colour, small regular flowers, 5 petals

**Fruit** – berries, red turning to black when ripe, each with 3-4 seeds

**Blooms in** – spring through fall

**Other Features** – keeps foliage, flowers, and berries longer than most native shrubs (long growing season)

**Likely to be found** – open woods, wetlands, gardens, and yards

**Important management considerations** – seeds persist in the soil for many years

**Goutweed (*Aegopodium podagraria*)**

**PHYSICAL DESCRIPTION:**

**Form** – low growing groundcover

**Height** – up to 30 cm

**Leaves** – trifoliate, serrated

**Flowers** – white flat topped

**Fruit** – small green seedpods

**Blooms in** – May to July

**Other Features** – superficially resembles native poison ivy

**Likely to be found** – gardens, forest edges, waste places

**Important management considerations** – new plants able to grow from root fragments

**Hemlock Woolly Adelgid (*Adelges tsugae*)**

**PHYSICAL DESCRIPTION:**

**Form** – tiny aphid, forming woolly sacs

**Size** – adults are less than 1.4 cm, eggs are 0.2 mm wide

**Other Features** – forms woolly sacs on branches of host trees

**Likely to be found** – hemlock trees

**Important management considerations** – potential to transport from one site to another via clothing, pets, etc.

**Himalayan Balsam (*Impatiens glandulifera*)**

**PHYSICAL DESCRIPTION:**

**Form** – erect stem

**Height** – up to 3m

**Leaves** – serrated

**Flowers** – light to dark pink, resembling lips

**Fruit** – seed pod

**Blooms in** – June to November

**Other Features** – leaves more deeply serrated than leaves of native jewelweed

**Likely to be found** – moist shady places

**Japanese Knotweed (*Polygonum cuspidatum*)**

**PHYSICAL DESCRIPTION:**

**Form** – upright, usually in clumps (shrublike)

**Height** – may be taller than 3m

**Leaves** – large, simple, alternate, smooth, oval with pointed tip

**Flowers** – in linear clusters, greenish-white colour, very small

**Fruit** – small, winged, containing tiny, triangular seeds

**Blooms in** – August and September

**Other Features** – very extensive, creeping roots; large, hollow stems with pronounced nodes; resembles bamboo.

**Likely to be found** – riparian areas, ditches, yards

**Important management considerations** – new plants able to grow from root fragments

**Multiflora Rose (*Rosa multiflora*)****PHYSICAL DESCRIPTION:**

**Form** – shrub, forms dense thickets, arching stems

**Height** – generally forms a 1m to 2m thicket, but can climb trees, attaining great heights

**Leaves** – compound, alternate, finely toothed, 5-11 leaflets (generally 7 or 9)

**Flowers** – in clusters, white colour, small regular flowers, 5 petals

**Fruit** – rose hips, small, red, remaining on plant through winter

**Blooms in** – June and July

**Other Features** – can be distinguished from native roses by fringed bracts at base of each leaf stalk, and by arching stems

**Likely to be found** – open woods, gardens, fields, many habitats

**Important management considerations** – sharp thorns oriented inwards

**Oriental Bittersweet (*Celastrus orbiculatus*)****PHYSICAL DESCRIPTION:**

**Form** – woody vine or trailing shrub

**Height** – can reach heights of over 18m

**Leaves** – simple, alternate, roundish, slightly toothed

**Flowers** – small and in clusters with 5 petals

**Fruit** – yellow when mature, opening up to 3 red seed pods

**Blooms in** – spring or early summer

**Other Features** – roots typically bright orange

**Likely to be found** – forests, fields, habitat edges, coastal areas

**Important management considerations** – heavy infestations may destabilize trees

**Purple Loosestrife (*Lythrum salicaria*)****PHYSICAL DESCRIPTION:**

**Form** – upright, stout, branched stem

**Height** – 0.5m to 1.5m

**Leaves** – simple, opposite, or in whorls of 3, smooth, no stalks, downy

**Flowers** – in spikes, magenta colour, small regular flowers, 5-7 petals

**Fruit** – small capsule (6mm long) containing many dark seeds

**Blooms in** – July through September (and later)

**Other Features** – stems feel square, whole plant usually covered in downy hairs, may have many stems (up to 50) on one plant

**Likely to be found:** wetlands, ditches, gardens

**Wild Parsnip (*Pastinaca sativa*)****PHYSICAL DESCRIPTION –**

**Form** – erect stem

**Height** – up to 1.5 m

**Leaves** – alternate, serrated

**Flowers** – Yellow, flat topped

**Fruit** – tan seed

**Blooms in** – primarily July and August. Blooms possible outside this range



**Other Features** – wild form of cultivated parsnip

**Likely to be found** – fields, roadsides, forest edges

**Important management considerations** – contact with skin can cause painful blistering; Caution must be taken if burning an area containing Wild Parsnip. Burning could release sap into the air, potentially causing severe reactions to people downwind

**Scotch Broom** (*Cytisus scoparius*)

**PHYSICAL DESCRIPTION:**

**Form** – stiff, bushy, usually in clumps

**Height** – 2m to 3m

**Leaves** – small, lower have 3 leaflets, upper may be simple

**Flowers** – bright yellow colour, regular, pea-like

**Fruit** – pod (4-5 cm long) with long hairs along seam

**Blooms in** – June and July

**Other Features** – up to 3500 seeds explode out of each seed pod when ripe, and can survive in the soil for decades!

**Likely to be found** – open woods, gardens, disturbed areas

**Important management considerations** – higher plant mortality when cut in bloom

## **Appendix B** **Noxious Weeds**

A noxious weed is any plant species identified by federal, provincial, or municipal governments that cause concern for public health, agriculture, recreation, wildlife, and property. Noxious weeds persist and spread widely, like invasive species, which is why many noxious weeds are also classified as invasive species.

### **Thorn Apple (*Datura stramonium*)**

#### **PHYSICAL DESCRIPTION:**

**Form** - erect stem

**Height** - 1 - 1.5 m

**Leaves** - soft, irregularly undulated, toothed

**Flowers** - fragrant flowers, white to creamy violet

**Fruit** - seeds dark grey to brown

**Blooms in** - July - October

**Other Features** - egg-shaped seed capsules, walnut-sized, covered in spines or smooth

**Likely to be found** - roadsides, agricultural lands, disturbed areas, riverbanks, waste areas

**Important management considerations** - weed aggressively competes with crops and/or pastures. All parts of the plant are poisonous, causing concern for livestock, pets, and human health and safety. Symptoms of ingestion may include intense thirst, difficulty with speech and swallowing, vomiting and diarrhea, fever, confusion, hallucinations, delirium, dilated pupils, seizures, coma, and death. Flower fragrance can cause respiratory irritation, headaches, nausea and light-headedness. Eye contact with the sap may cause dilated pupils and temporary blindness

### **Tansy Ragwort (*Senecio jacobaea*)**

#### **PHYSICAL DESCRIPTION:**

**Form** - several erect stems branching outward near the top

**Height** - 1.2 m

**Leaves** - blunt-toothed lobes, ragged, ruffled appearance

**Flowers** - flat-topped yellow clusters, daisy-like formation

**Fruit** - ribbed seeds

**Blooms in** - June - October

**Other Features** - biennial or short-lived perennial, seeds can be viable for up to 15 years

**Likely to be found** - open spaces, disturbed areas, fields, and clear-cut forest zones

**Important management considerations** - this may cause serious illnesses such as liver damage or death in livestock from being cut and accidentally tangled in hay consumed. It may irritate the skin if contact is directly on the skin

### **Marsh Hedge Nettle (*Stachys palustris*)**

#### **PHYSICAL DESCRIPTION:**

**Form** - erect stems

**Height** - 0.2 - 1 m

**Leaves** - stalkless or on short petioles, lanceolate to elliptic in shape, up to 0.15 m

**Flowers** - composed of whorls of flowers in axils of upper leaves becoming spike-like in a rose-purple colour in groupings of 6 to 10

**Fruit** - dark brown seeds and ovoid angled 3 ways

**Blooms in** - late June - September

**Other Features** - stems light green, sometimes purplish, with hairs directed downward

**Likely to be found** - dense patches in poorly drained field areas, along margins of water-courses, roadsides, waste places

**Important management considerations** - extremely tolerant to management practices, livestock deters from consuming this species

### Field Bindweed (*Convolvulus arvensis*)

#### **PHYSICAL DESCRIPTION:**

**Form** - trailing plant

**Height** - stems 1.5 m+

**Leaves** - split into two lobes, pointed or rounded arrow-shaped, light green when young blue-green when mature

**Flowers** - white to pale pink, trumpet-shaped flowers

**Fruit** - egg-shaped pods with seeds coarsely roughened with dense tubercles. Greyish-brown or orange to black

**Blooms in** - late June until frost

**Other Features** - can resemble wild buckwheat during the seedling phase and flowers resemble morning glory on a smaller scale. Seeds germinate throughout the growing season, with peaks in mid-spring through early summer

**Likely to be found** - cultivated land, grain fields, pastures, orchards, meadows, in tangled mats on ground level or trees and shrubs

**Important management considerations** - it will trail along plants, choking them and depriving them of nutrition. The plant will break through plastic and fabric barriers carrying diseases such as tomato spotted wilt, potato X disease, and vaccinium false bottom disease

### Leafy Spurge (*Euphorbia esula*)

#### **PHYSICAL DESCRIPTION:**

**Form** - erect stem

**Height** - 1 m

**Leaves** - alternate, long, narrow leaves with smooth edges bluish-green in colour, turning yellow or reddish-orange in late summer

**Flowers** - small green-yellow flowers comprised of 2 heart-shaped leaf-like bracts with no sepals and petals

**Fruit** - seeds, smooth, oblong, and gray-brown

**Blooms in** - late May

**Likely to be found** - roadsides, grasslands, open fields, and disturbed areas

**Important management considerations** - displaces native vegetation, and biodiversity and threatens natural habitats. Toxic to humans and the milky latex from the stem can cause skin irritation upon contact. It can result in excessive salivation, vomiting, colic, and diarrhea in livestock from consumption

**White Cockle (*Lychnis alba*)****PHYSICAL DESCRIPTION:**

**Form** - erect stem

**Height** - 1 m

**Leaves** - broadest near the top, hairy on both sides, lower leaves are petiolate, upper leaves are sessile

**Flowers** - fragrant white, forming on individual stalks in a branched inflorescence

**Fruit** - seeds kidney shaped, greyish orange covered in tiny bumps

**Blooms in** - July - August

**Other Features** - rosette of leaves in the first year, produces flower stems in the second

**Likely to be found** - pastures, roadsides, waste areas - primarily found on the northwestern side of Nova Scotia

**Important management considerations** - resistant to herbicides and affects mainly alfalfa, clover, and small grain crops

**Wild Parsnip (*Pastinaca sativa*)****PHYSICAL DESCRIPTION:**

**Form** - erect stem

**Height** - 1.5 - 2 m

**Leaves** - arranged in stem in pairs with saw-toothed edges shaped like a mitten

**Flowers** - yellow flowers in large umbrella-shaped clusters

**Fruit** - seeds; flat, winged circles

**Blooms in** - June - October

**Other Features** - can regrow from root fragments left behind

**Likely to be found** - fields, meadows, riverbanks, shorelines, forest edges, roadsides, and railways

**Important management considerations** - sap from the plant can irritate skin from mild burning to severe blistering and burning sensations. It can cause blindness when in contact with the eyes. It is recommended to avoid burning the plant

**Yellow Nutsedge (*Cyperus esculentus*)****PHYSICAL DESCRIPTION:**

**Form** - erect stems

**Height** - 0.3 - 0.9 m

**Leaves** - stiff, grass-like leaves arranged in three vertical rows and yellowish green.

Smooth/shiny upper surface, creased into a V-shape along the central vein

**Flowers** - yellowish spikelet at the ends of flowering stems

**Fruit** - seeds, straw-colored to golden brown

**Blooms in** - July - September

**Other Features** - most leaves grow from the base and reach or extend to the length of the stem.

**Likely to be found** - riverbanks, ditches, irrigated cropland - present in Kings, Annapolis, and Halifax counties

**Important management considerations** - High reproductive capacity, competitive with native species. Difficult to control and threatens crop yields such as potatoes

**Wild Chervil (*Anthriscus sylvestris*)****PHYSICAL DESCRIPTION:**

**Form** - erect stem

**Height** - 0.3 - 1.5 m

**Leaves** - resemble fern-like leaves, nearly hairless except underneath and divided into multiple leaflets

**Flowers** - white umbrella-like clusters at the end of stems with 5 petals

**Fruit** - seeds, green in appearance, then turn shiny dark brown when mature

**Blooms in** - late May - July

**Other Features** - stems are hollow branched and covered in tiny hairs.

**Likely to be found** - ditches, woodlot edges, pasture, fence lines, hedgerows, dykes, and streak banks

**Important management considerations** - plant can carry yellow fleck virus affecting carrots, celery, and parsnips - a growing concern for agriculture. Difficult to control due to vast and deep root systems. Repeated mowing can deplete root reserves. Awareness and identification of seeds are essential due to importation from Europe

**Velvetleaf (*Abutilon theophrasti*)****PHYSICAL DESCRIPTION:**

**Form** - erect stem

**Height** - 1 - 2 m+

**Leaves** - round or heart-shaped with pointed tips, and growing alternate from one another attached to thick, long stems

**Flowers** - yellow to orange with 5 petals in single or small clusters

**Fruit** - seeds in a circular bunch of 12 to 15 seedpods, green turning dark brown to black at maturity

**Blooms in** - July - October, germinates in spring

**Other Features** - a stout stem with soft hairs, distinct odour when crushed, leaves soft to the touch like velvet

**Likely to be found** - farms, disturbed, annually tilled and waste areas

**Important management considerations** - Can harbour several diseases and pests that affect corn, cotton, soybeans, etc. It will need to be dug up or pulled annually to avoid seed germination, as infestations can increase by as much as 70% in the first year of establishment. Critical to identify as early as possible to prevent further spread