

ALGONQUIN PARK

# JUNIOR RANGER PROGRAM

**INVASIVE SPECIES PREVENTION**

**FREE  
ACTIVITY  
BOOKLET**



# How to Become a JUNIOR RANGER

A Junior Ranger is an Algonquin Provincial Park visitor who is interested in serving as an Algonquin Park ambassador by discovering aspects of Algonquin's natural and cultural heritage through completing fun activities in this booklet.

By completing these activities, you will discover and be better able to appreciate Algonquin Park, while exploring the importance of protecting Algonquin Park from exotic and invasive species. Along the way, you'll have fun learning about the Park, gain a tremendous sense of accomplishment, and the opportunity to become a Junior Ranger.

## How does it work?

- 1) Complete any 6 (or more) activities in this booklet.
- 2) With an adult's help check your answers in the back of the booklet; see page 15.
- 3) If you wish, bring your completed booklet (with the certificate page filled in) to the Algonquin Visitor Centre (at km 43) during regular business hours (9am - 5pm). The Park staff will inspect your work, and if you've successfully completed the required number of activities, you'll be deemed an Algonquin Park Junior Ranger and awarded the colourful seal for your certificate.
- 4) If you can't make it back to the Visitor Centre, no problem. Have an adult compare your answers to the ones on page 15, then colour the official seal on your own. Any adult can certify you as an Algonquin Park Junior Ranger if you have completed the work.

## Brought to you by:



**The Friends of Algonquin Park**  
For People Passionate About Algonquin Park



**Invasive Species Centre**  
Catalyst for Research and Response



*In cooperation with:*  
**Ontario Parks**  
Nearby and Natural

On the cover (from left to right): Smallmouth Bass, Northern Pike, Zebra Mussel, Asian Long-horned Beetle, Rusty Crayfish and Common Reed (*Phragmites*) looking to hitchhike to Algonquin Park. *Illustration by Charles Weiss.*



# SMALL CREATURES, BIG POTENTIAL PROBLEMS

Many species that get transported by people are very small in size. These small exotic species can cause big problems for places like Algonquin Park. Ontario's invasive species can cause three types of harm.

These three types are:

- environmental
- economic
- human health

Using the legend to the right, decode the main impact of the following invasive species based upon the most common symbol used.

## Legend

Economic Harm = 

Environmental Harm = 

Human Health Harm = 

### 1. Zebra Mussel



Main Impact

\_\_\_\_\_

### 2. Giant Hogweed



Main Impact

\_\_\_\_\_

### 3. Dog-strangling Vine



Main Impact

\_\_\_\_\_

## DID YOU KNOW?

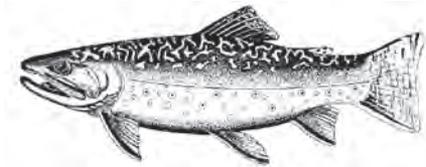
- Ontario has more than 440 species of invasive plants that cause harm to the environment, economy, or human health. This is the highest number recorded in any province in Canada.
- According to the *Vascular Plant Checklist*, Algonquin Park has 1,089 plant species including 283 (or about 1/4) that are considered exotic (not naturally found here). Fortunately, only a very few are considered invasive in Algonquin Park and have the potential to cause serious harm to the Park environment.



## 2 NATIVE, EXOTIC OR INVASIVE?

Native species are plants or animals naturally found in our area, such as Algonquin Park. Exotic species come from other countries or regions when they are moved on purpose or by accident. While here, some exotic species cause harm, or have the potential to cause harm, and are then called invasive species. Both exotic and invasive species are undesirable in Algonquin Park, but the effects of invasive species can be much more damaging to the Park's ecosystem.

In this activity, read (or have an adult help read) the story of the particular species found in the Algonquin Park area. Then determine in an Algonquin Park context, if the species is native, exotic, or invasive.



### 1. Brook Trout (*Salvelinus fontinalis*)

I am a fish found in Algonquin Park's clear cold waters. I have disappeared from much of where I traditionally lived because of pollution, the introduction of exotic fish species, and over-harvesting.

Algonquin Park with its many pristine cold clear lakes and rivers provides a great place to call home.

In Algonquin Park, I would be considered a(n) *native, exotic, or invasive* species. Circle your best choice.

### 2. European Starling (*Sturnus vulgaris*)

Humans brought about 100 of my species to North America starting in 1890. Today, my species, European Starling, numbers more than 200 million in North America. I can be found in Algonquin Park, but not in large numbers because of the Park's forested habitat. In other areas, I could be called invasive for taking over cavities needed by other birds for nesting, but in Algonquin I'm not a problem at the current time.



In Algonquin Park, I would be considered a(n) *native, exotic, or invasive* species. Circle your best choice.



# WHAT'S THE DIFFERENCE?

## 3. Giant Hogweed (*Heracleum mantegazzianum*)

I am a plant in the carrot family and I normally grow in Europe and Asia. Since my arrival in North America I have spread to Ontario (but not Algonquin Park yet). If you touch my sap, I can cause skin irritations, burns, and even blindness if you touch your eyes.



If I arrive in Algonquin Park, I would be considered a(n) *native*, *exotic*, or *invasive* species. Circle your best choice.



## 4. Orange Hawkweed (*Pilosella urantiaca*)

I am a beautiful orange flower in the sunflower family. I arrived in Algonquin Park many years ago and today I am common along most roads in the Park. I am not known to do any harm, and my nectar is desired by many butterflies.

In Algonquin Park, I would be considered a(n) *native*, *exotic*, or *invasive* species. Circle your best choice.

## 5. Rusty Crayfish (*Orconectes rusticus*)

My parents got dumped in Algonquin Park's Lake Travers from an angler illegally using my species as bait. Since then my brothers and sisters and I have taken over the lake and nearly eliminated the native crayfish population.



In Algonquin Park, I would be considered a(n) *native*, *exotic*, or *invasive* species. Circle your best choice.



## 6. Bullfrog (*Rana catesbeiana*)

I live in Algonquin Park's ponds and lakes where I primarily eat insects. I avoid predators like Great Blue Herons who try to eat me. People have moved me outside my natural range (like Ontario) to places such as British Columbia and California, where I eat other native frogs for food.

In Algonquin Park, I would be considered a(n) *native*, *exotic*, or *invasive* species. Circle your best choice.



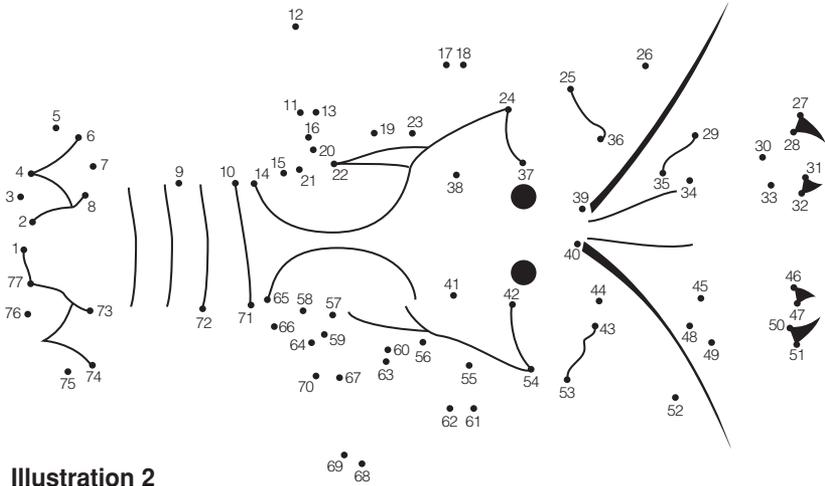
# 3 IDENTIFY THE INVADERS

Connect the dots in the proper order to reveal hidden exotic or invasive species.

## Illustration 1

I am a crustacean (similar to a shrimp or lobster) who was introduced into a lake in the north east part of Algonquin Park. I likely arrived illegally in an angler's bait bucket.

Who am I? \_\_\_\_\_



## Illustration 2

I am a species who has not yet arrived in Algonquin Park.

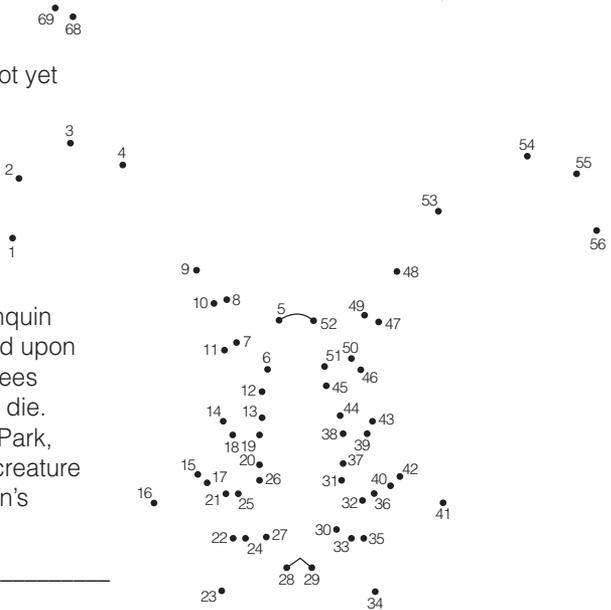
I normally live in Asia, but arrived in North America in 1996 and have been found

living as close as Vaughan (Toronto), Ontario. If I arrive in Algonquin

Park, my offspring will feed upon Algonquin Park's maple trees causing large numbers to die.

If I get transported to the Park, I would be known as the creature who tried to ruin Algonquin's amazing fall colour.

Who am I? \_\_\_\_\_





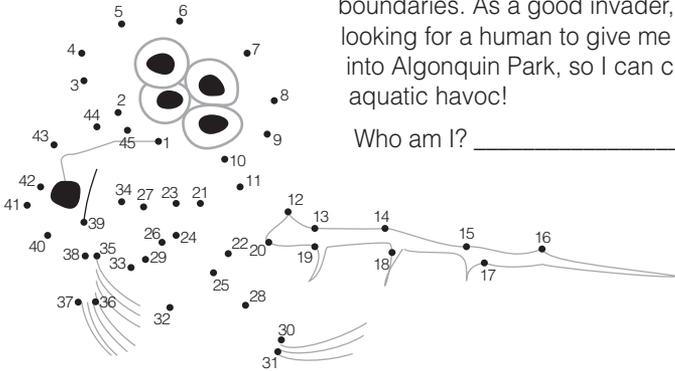
# IDENTIFY THE INVADERS

## Illustration 3

I am a small aquatic predator, about 1 cm long when fully grown, that was introduced to North America in 1982 when I was discovered in Lake Ontario. I was likely transported by an ocean going ship from Europe or Asia. Since then I have been transported by humans throughout eastern North America by the movement of boats, water in bait buckets, and other objects that come in contact with contaminated water. My body has “spines” and barbs that make me hard to eat by predators such as fish. The fact that I live in water and that I’m small like a “flea” gives me a portion of my name. My siblings and I are highly invasive and cause changes to aquatic food webs when we arrive. I am not yet established in Algonquin Park, but I am found

in many lakes just outside the Park’s boundaries. As a good invader, I am just looking for a human to give me a ride into Algonquin Park, so I can create aquatic havoc!

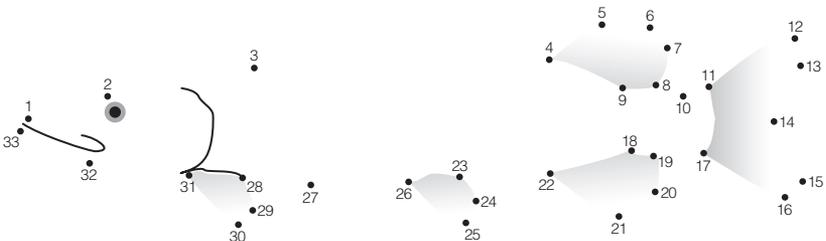
Who am I? \_\_\_\_\_



## Illustration 4

I am a species who has been helped over water control dams in Algonquin Park. When I arrive in a lake I use my large sharp teeth to eat trout (and other fish species), allowing me to grow to an enormous size and invade into other connecting waterbodies.

Who am I? \_\_\_\_\_





# FIND THE HIDDEN HITCH HIKERS

Circle the unwanted species camouflaged (hidden) in the grid of letters below.

P E T D S S S R A P L S H F R P O H A N C E W A S X E L  
 P Y N I E Y S S U Y H S E E B B R E G H W S H E I R K I  
 L I Y I L E I A M S U R K H E E L E R O A O I L R V I V  
 P K N J V A W E B R T N A E P F W O X A T N T F E K P R  
 D U S E N G D T G H A Y C G R E N C P S E C E R X W N E  
 P T R C S I N N O C T H C E M I G C F I R A N E W U R H  
 R D A P S H I I T N B U T R C I H H W A S R O T O B E C  
 R R E E L R O U L A K A O W A E T A M N O H S A O P H D  
 P A A E E E N O R G W E A M S Y T E A L L T E W D M T L  
 Y S I W W R L K T K N S S T L E F D S O D N S Y W I R I  
 E B O N E G D O O B T A N E R L L I E N I A Y N A R O W  
 B L O T B I O O O I E U R C N E A F S G E D N I S H N A  
 F I T G S O H H N S T E H T S A F M E H R O D P P S S V  
 X U L E D H W G T B E E T S S U P F S O T O R S U D E I  
 B M A N S N D S L N S S U L R G P A T R R W O K Q E A A  
 I S Y I D I U I M T A M T V E M O Y J N O G M M S R L N  
 E F F J S P G O N E A I O R U D D D L E W O E N P Y A I  
 G R K E K H N U R R L U G K I S B G D D N D J R T D M N  
 P H A G T D T K B L N T L J B F J K M B A D E Z U O P F  
 H S N O R T H E R N S N A K E H E A D E F S K U U O R L  
 E E N I V U Z D U K T I B G O R F N A E P O R U E L E U  
 D E E W K W A H E G N A R O X D C R C T J E J O Q B Y E  
 G A R L I C M U S T A R D S U R I V E L I N T S E W L N  
 E M E R A L D A S H B O R E R K D U O E P F Z C B X C Z  
 L I O F L I M R E T A W N A I S A R U E I V O O F S I A  
 Y X G J K D E L P A M Y A W R O N E A R T H W O R M S V  
 T W F N D S A N J R G I L C G A U C M S O K Z J N C J T  
 V Y Q U A G G A M U S S E L R T L O Y X H E N C I P F Q

Words to find:

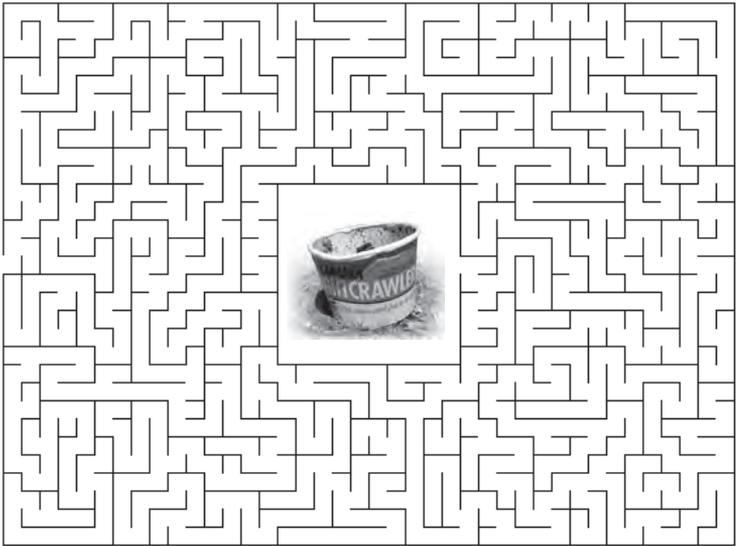
- |                          |                        |                    |                     |
|--------------------------|------------------------|--------------------|---------------------|
| Asian Carp               | Earthworms             | Northern Pike      | Rusty Crayfish      |
| Asian Long-horned Beetle | Emerald Ash Borer      | Northern Snakehead | Sea Lamprey         |
| Avian Influenza          | Eurasian Water Milfoil | Norway Maple       | Sirex Woodwasp      |
| Beech Bark Disease       | European Frog-bit      | Orange Hawkweed    | Smallmouth Bass     |
| Bloody Red Shrimp        | Fanwort                | Phragmites         | Spiny Water Flea    |
| Butternut Canker         | Fishhook Water Flea    | Pine Shoot Beetle  | Water Chestnut      |
| Chestnut Blight          | Flowering Rush         | Purple Loosestrife | Water Soldier       |
| Chronic Wasting Disease  | Garlic Mustard         | Quagga Mussel      | West Nile Virus     |
| Dog-strangling Vine      | Giant Hogweed          | Rainbow Smelt      | White Nose Syndrome |
| Dogwood Anthracnose      | Japanese Knotweed      | Round Goby         | Wild Chervil        |
|                          | Kudzu Vine             | Rudd               | Zebra Mussel        |
|                          | Lyme Disease           | Ruffe              |                     |



# 5 WORM WARS

Earthworms are not native to Algonquin Park and in fact there are no native earthworms in Ontario. The good news is if you dig in Algonquin Park's soil you will have a hard time finding worms, but not everywhere. Worms are becoming increasingly common in Algonquin Park, brought into the Park through their use as bait for fishing and through the transport of soil. Help stop the spread of worms that have been shown to damage native soil communities, hardwood forests, wildflowers, plus increase soil compaction and erosion.

In this activity, an open container of worms has been left unattended. Help the Ranger get to the worms through the maze before the 'crawlers' escape.



## DID YOU KNOW?

There are currently 19 species of worms found in Ontario and many have been identified as being highly invasive.

### If you use worms as bait...

- Don't release worms into the ecosystem
- Dispose of unwanted worms in the trash

### Surprised to find out worms can be damaging?

Learn more about the effects of invasive earthworms at:

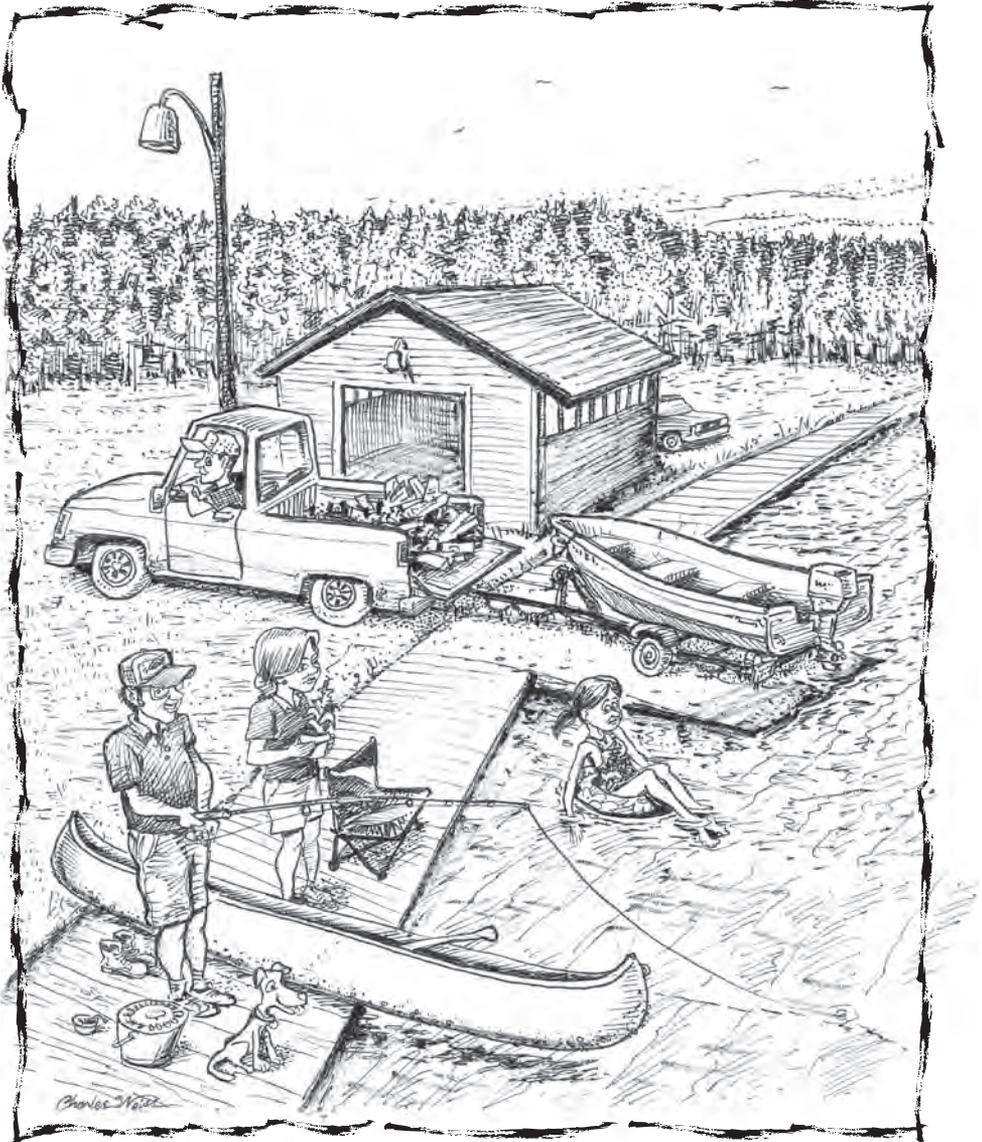
[www.algonquinpark.on.ca/ranger](http://www.algonquinpark.on.ca/ranger)





# 6 PATHWAY TO PROBLEMS - SPOT THE INVADERS

After colouring this image of a typical Algonquin Park Backcountry Access Point, circle the locations where invasive species could be (or are) hiding.





# DON'T BE FOOLED BY THEIR DISGUISE

Native species and invasive species can look very similar. Using the clues below, find the invasive species hiding among the native ones. Of the 5 insects shown below, 3 insects are native, and 2 are invasive. Below are some clues to help identify the suspects.

## Clues

Of the two species of beetle with the long antennae (longer than their body), one is native and one is a serious threat to Algonquin Park. The invasive species is black with up to 20 larger white spots on its wing covers (back) and a more visible alternating black and white banding on its antennae. The invasive species is called the **Asian Longhorned Beetle**. The **White-spotted Pine Sawyer**, a native species, is the only species with a single large white dot on the thorax (the section between the head and body) is common in Algonquin Park and regularly fools people on the lookout for invaders!

Of the 3 insects remaining to be identified, 2 of the 3 with short antennae are native. Of the 3 insects with short antennae, the one with spots and small head is a **Six-spotted Tiger Beetle** and is native to much of Ontario.

Of the remaining 2 insects with short antennae, the one with the small head and large abdomen (body) is a ground beetle that feeds upon caterpillars and is known as the **Caterpillar Hunter**.

The last insect is a highly invasive beetle known as the **Emerald Ash Borer** that has killed hundreds of thousands of trees in southern Ontario where its range is currently expanding. When this species arrives in Algonquin Park, the Park's ash trees are expected to be killed.

*Want to learn more about similar looking species?  
Head to [www.algonquinpark.on.ca/ranger](http://www.algonquinpark.on.ca/ranger)*

## Name of Suspect

1



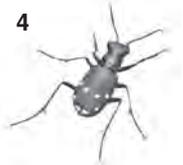
2



3



4



5

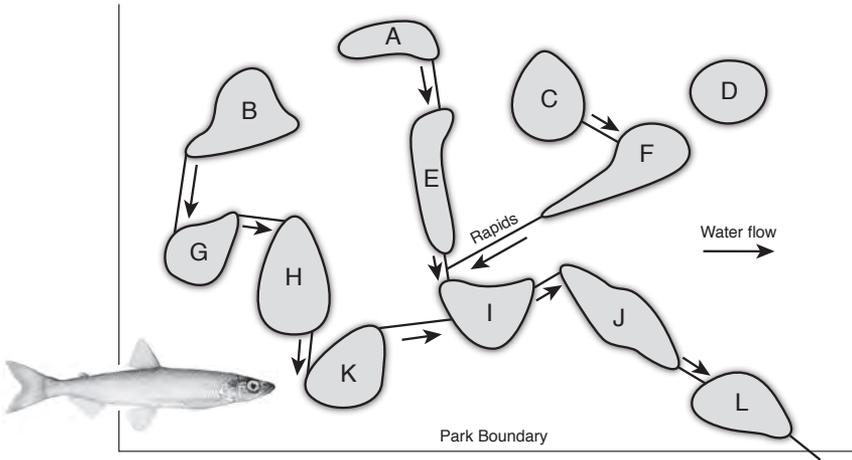




# A HUGE BAIT BUCKET DISASTER!

Algonquin Park is home to over 2,400 named lakes plus many more rivers and creeks. The Park's lakes are fed by rainfall and groundwater and serve as the headwaters of 19 river systems that flow from the Park's high elevation to lower areas outside Algonquin.

On the fictional map below, start at "Lake A" and mark the route that a drop of water would take by following the arrows through the rivers as the water flows toward the boundary of Algonquin Park.



Now imagine that an angler illegally dumps their bait bucket containing invasive fish such as Rainbow Smelt into "Lake H" near the Park Boundary after a day of fishing. Follow the arrows downstream, colouring the lakes that Rainbow Smelt can expand into without encountering physical barriers such as rapids. Don't forget that Rainbow Smelt can also move upstream against the current!

1. List the lakes that can potentially become inhabited by invasive Rainbow Smelt.

2. Which lakes might avoid becoming invaded because of the rapids?

3. Which lake is the only one that will avoid the invasion of Rainbow Smelt because of the park's geography?

4. Using the Canoe Routes Map, how many lakes could potentially be affected by the introduction of Rainbow Smelt into Tim Lake?



# A HUGE BAIT BUCKET DISASTER!

## A Big Threat to Algonquin Park

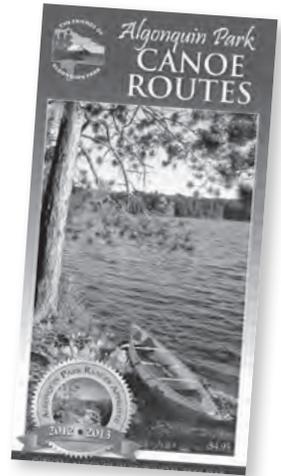
One of the greatest threats to Algonquin Park's lakes and rivers is the moving of live baitfish from one lake to another. This transfer of fish happens when anglers use minnows as bait when fishing. The introduction of exotic fish into Algonquin's waterbodies changes the whole aquatic ecosystem and puts Algonquin's aquatic health in danger. As a result, the possession and use of live baitfish in Algonquin Park is illegal. Each year, despite this ban, Conservation Officers and Park Wardens charge careless anglers with possession and use of live baitfish.



## Not So Unrealistic...

The adjacent map and activity may be fictional, but it is based upon real events. In 2009, a Park visitor reported and photographed a Rainbow Smelt in Tim Lake near the Tim River Access Point (#2). As in the activity to the left, Rainbow Smelt are highly invasive and this simple introduction could drastically alter Algonquin's aquatic communities.

Visit the Algonquin Park Canoe Routes Map online at [www.algonquinpark.on.ca/cr](http://www.algonquinpark.on.ca/cr) and plot the possible spread of invasive Rainbow Smelt beyond Tim Lake in Algonquin Park. This real life example has very scary biological implications for Algonquin Park as Rainbow Smelt could potentially access many pristine lakes in the Park's backcountry.



This real life example goes to show how one careless and in this case, illegal act, can forever change the ecology of Algonquin Park.





# 10 THE UNWANTED POSTER

Select one of the invasive species prevention messages below, and then design and colour a poster (on the backside of this page) to encourage Algonquin Park visitors to keep invasive species out of the Park. Don't forget to include your prevention message in your poster!

## Possible Prevention Messages

- Keep Our Waters Great, Don't Dump Your Bait
- Don't Pack A Pest
- Slow Their Spread, By Boat and Tread
- Drain Your Boat - Stop the Spread
- Invasive HitchHikers - No Free Rides
- Don't Move Firewood
- Firewood - Buy It Where You Burn It
- Contain Your Crawlers

Once you have completed your "UnWanted Poster" bring it to the Algonquin Park Visitor Centre and add it to the "Keep Invasive Species Out of Algonquin Park" exhibit. This Park visitor-generated exhibit will be on display until December 31, 2014.

**LEARN MORE...**



## No Pets Please!

Algonquin Park is no place for your unwanted pet. Each year, pets such as fish, reptiles, birds, dogs, cats and other species get released in Algonquin Park by owners who believe Algonquin Park is a great place for an unwanted pet. The truth is that your pet won't find food, survive the cold harsh winters and the Park's numerous predators. Releasing exotic creatures in Algonquin Park is not only illegal, it puts the Park's health at risk, and ensures certain death for your pet.

# KEEP INVASIVE SPECIES OUT OF ALGONQUIN PARK



Invasive  
Species  
Centre

Name: \_\_\_\_\_  
City/Town: \_\_\_\_\_





# CHECK YOUR ANSWERS

## Activity 1: Small Creatures, Big Potential Problems

Main impacts:

1. Zebra Mussel = economic harm
2. Giant Hogweed = human health harm
3. Dog-strangling Vine = environmental harm

## Activity 2: Native, Exotic or Invasive: What's the Difference?

What is the species classified as in Algonquin Park?

1. Brook Trout = native
2. European Starling = exotic
3. Giant Hogweed = invasive
4. Orange Hawkweed = exotic
5. Rusty Crayfish = invasive
6. Bullfrog = native

## Activity 3: Identify the Invaders

1. Rusty Crayfish
2. Asian Long-horned Beetle
3. Spiny Water Flea
4. Northern Pike

## Activity 6: Pathways to Problems - Spot the Invaders

In this scene, invasive species could be hiding on/in:

- firewood in the back of the truck
- the canoe and/or paddle
- the dog (such as seeds or insects)
- the worm container
- either the potted plant or in the plant's soil being held by the adult female
- the motor boat, its engine, or even the boat trailer
- the inflatable water toy
- the bait bucket
- the treads of the boots
- the fishing equipment

## Activity 7: Don't Be Fooled By Their Disguise

1. Caterpillar Hunter
2. Asian Long-horned Beetle
3. Emerald Ash Borer
4. Six-spotted Tiger Beetle
5. White-spotted Pine Sawyer

## Activity 8: A Huge Bait Bucket Disaster!

1. Lakes K, I, J, L (all downstream), plus lakes G, B, E, A, F, C (upstream)
2. Lakes F and C
3. Lake D
4. Rainbow Smelt introduced into just Tim Lake can potentially affect hundreds of lakes covering about one-quarter of Algonquin Park's land area.

## Activity 9: Forest Foes

1. Emerald Ash Borer
2. Asian Long-horned Beetle
3. Pine Shoot Beetle
4. Sirex Woodwasp
5. Mountain Pine Beetle
6. Beech Bark Disease
7. Butternut Canker
8. Chestnut Blight

Mystery Message: Don't Move Firewood!



# DISCOVER MORE ABOUT INVASIVE SPECIES PREVENTION

**More Junior Ranger Related Fun** - Visit the Algonquin Park Junior Ranger Webpage ([www.algonquinpark.on.ca/ranger](http://www.algonquinpark.on.ca/ranger)) for videos and more information about Algonquin Park's natural and cultural history. Past Junior Ranger Activity Booklets designed for youth can also be downloaded.



## **Ontario's Invading Species Awareness Program**

- Gain more information about the latest threats from invasive species in Ontario, distribution maps, educator resources, and ways to prevent the spread of invasive species. Visit [www.invasivespecies.com](http://www.invasivespecies.com) for details.

**The Raven Talks About Fish and Lakes** - Read a compilation of issues from The Raven, the original Park newsletter published from 1960 to 2009, to discover how humans have intentionally and inadvertently altered Algonquin's aquatic ecosystems. This series of easy-to-read articles is available from Park Gates, Access Points, plus The Friends of Algonquin Bookstores at the Visitor Centre, Logging Museum and online.



**Interpretive Walking Trails** - Head out for a hike on one of the Park's self-guided interpretive trails. Trails with guide books that touch on related content include: Peck Lake Trail (at km 19.2), Two Rivers Trail (at km 31.0), and Big Pines Trail (km 40.3).

**Visit the Invasive Species Centre Website** - Learn more about the ecological and economic threats of aquatic and terrestrial invasive species and what research is taking place in Ontario to minimize the introduction and spread of non-native species. Visit <http://www.invasivespeciescentre.ca>

**Use a Mobile Boat Wash Station** - Bringing a motor boat, kayak, or canoe to Algonquin Park? Use a mobile boat wash station to clean your watercraft of potential invasive hitchhikers. Locations vary during the open water season so check [www.algonquinpark.on.ca](http://www.algonquinpark.on.ca) for dates, times, and locations prior to your next visit.



Invasive  
Species  
Centre



Algonquin Park

# JUNIOR RANGER

This certifies that

\_\_\_\_\_

has been deputized as an Algonquin Park Junior Ranger  
to serve as an Algonquin Park ambassador by discovering  
and sharing all aspects of Algonquin Park's  
natural and cultural heritage with others.



Approved by

Jay Nichols

Date \_\_\_\_\_

Algonquin Park Superintendent

# You Can Help Keep Invasive Species Out of Algonquin Park

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1. **Don't use live baitfish in Algonquin Park** - The use and possession of live baitfish (minnows) in Algonquin Park is illegal. The potential transfer of any fish species can cause great harm to Algonquin Park's pristine aquatic ecosystems that evolved over thousands of years. For more information see Activity 8.
2. **Inspect, clean, and drain your watercraft between uses** - Watercraft, such as boats, canoes, and kayaks can hold standing water which allows species to move between water bodies.
  - a) When you remove your boat from the water, inspect, then clean your boat, motor and trailer of plant or animal material, dispose of this plant or animal material in a garbage can.
  - b) Drain water from your boat including that stored in the motor, bilge, live wells, and other compartments.
  - c) Pressure wash your boat with water (hot water is best) or allow your boat to dry in the hot sun for at least 5 days before moving to a new lake or river.
3. **Don't move firewood** - Transporting firewood is a serious threat to Algonquin Park's ecological integrity. Wood can host diseases, seeds, and invasive species that could threaten Algonquin's vast forests. Buy firewood where you burn it.
4. **Trash your worms** - Moving earthworms can introduce these species to areas where worms are not native. If you use worms as bait for fishing, deposit unused earthworms in the garbage when they are no longer needed. Don't release them into the soil (see Activity 5).
5. **No fishing around dams** - Algonquin Park has no fishing areas above and below human-built water control dams. This "no fishing" zone helps to prevent the movement and accidental release of potentially invasive fish species either upstream or down (see Activity 8).
6. **Prevent hitch hikers** - Remove seeds, soil, or other material that could hide invasive species before traveling. This includes on you, your pets, and recreational equipment like bikes, hiking boots, and other camping gear. To see where invasive species could be hiding complete Activity 6.
7. **Early detection of invasive species** - Learn what invasive species threaten Ontario and report invasive species sightings to the Invading Species Hotline 1-800-563-7711. Early detection can prevent the spread of these species that cause environmental, human health and economic harm (see Activity 1).



**THE FRIENDS OF ALGONQUIN PARK**  
Box 248, Whitney, ON K0J 2M0  
Phone: (613) 637-2828 • Fax: (613) 637-2138  
[www.algonquinpark.on.ca](http://www.algonquinpark.on.ca)