



Ontario Envirothon

New Teacher Package

October 2014

ONTARIO ENVIROTHON ADVISOR PACKAGE

Thank you for becoming an Ontario Envirothon Advisor. The continued support and involvement of schools across Ontario makes the Ontario Envirothon a continued success - thank you for being a part of our network! The following package of information has been put together to ensure the success of your team at the Ontario Envirothon Competitions. Never hesitate to contact Forests Ontario staff at 1.877.646.1193 or envirothon@forestsontario.ca with any questions or concerns regarding the Ontario Envirothon.

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1. INTRODUCTION

The Ontario Envirothon is part of the larger North American Envirothon program – one of over 50 programs that take place across North America. The Ontario Envirothon celebrated its 20th year in the spring of 2014 and celebrated growing from 10 schools originally in 1994 participating to over 150 teams taking part annually across the province.

The program is broken down into Regional Competitions that take place across Ontario and then an Ontario Envirothon Championship that sees the winner from each region come together to compete for the provincial title. Winners of the Ontario Envirothon Championship represent the province at the North American Envirothon Championship that takes place in the summer. Students have the opportunity to win unique prizes and scholarships at all levels along the way.

2. SUMMARY

The Regional Envirothon Competitions take place across the province in March or April of every year. Some Regional Competitions may offer workshops throughout the year in the fall and winter to help prepare for the competition, so please check with your regional coordinator. Prior to this event teams have taken part in field days and workshops, and had the opportunity to review the Envirothon resource material. The purpose of the competition is to provide Envirothon participants with the opportunity to test their knowledge in an interactive manner, and to meet other participants in their region. Each Envirothon team consists of 5 youths in grades 9 through 12 and they work together to complete the tasks of the Competition. Please note that the references to timing outlined below refer to a typical Regional Competition. Regional events may vary, so please confirm specific details with your Regional Coordinator.

The Regional Competition consists of:

- **Four eco-stations** focused on the Envirothon core topics (Forestry, Soils, Aquatics, and Wildlife): Teams rotate through the various stations and are given approximately 20 minutes to complete questions that test their knowledge, as well as require various hands-on activities (e.g. water sampling etc.). The results of these are worth **75%** of the total score. Note: timing may differ in your regional event.
- **Presentations** are focused on the Envirothon Current Issue of the year. Teams are given one hour to prepare their presentation, as well as materials (flip charts, markers etc.) and must evaluate and analyze the problem presented while relating it to all Envirothon topic areas. The presentations themselves are each 8 – 10 minutes in length and are valued at **25%** of the total competition score.

Following the presentations, the results are tallied and a winning team is chosen. This team will then be the region's representative at the Provincial Envirothon Competition and have the opportunity of advancing to the North American Envirothon competition.

3. STRUCTURE: REGIONAL ENVIROTHON COMPETITION

The Regional Competition requires teams to complete four eco-station tests as well as create an 8-10 minute presentation. After arriving at your Regional Competition, you can expect the following structure:

- **Presentation** materials are handed out to every team (markers, flipchart paper, bristol board, pens and pencils). Following this, advisors are required to leave the area and teams are given **one** hour to create a 10 minute presentation surrounding Envirothon's Current Issue of the year. Teams are only able to use the materials provided to them in the presentation bags distributed. After the hour is complete, teams must hand in their materials, which will be given back to the team directly before their presentation time.
- **Rotation** cycles are then established. Depending on the number of teams competing in your Regional Competition, multiple teams may be completing the same eco-station during the same rotation. Teams are placed into the five rotation cycles of Presentation, Aquatics, Wildlife, Soils, and Forestry. Every team will be given five pencils and one clipboard to use throughout the testing rotations. At every eco-station there will be a station master who will have extra supplies if necessary for the teams (pencil sharpener etc.). Given the walking distance between eco-stations, every station master is given a stopwatch to start the time when their group arrives. Each rotation lasts approximately **20 minutes**.
- **Presentations** should be 8-10 minutes in length. Once a team reaches the presentation component of their rotation cycle, they are led back into the main building where the Regional Competition is held. If multiple teams are in the same rotation cycle, when it is their turn to present, teams present in numerical order. Once the team is back in the building and ready to present, they are given back their presentation materials from the morning and led to the judging area. Advisors are able to watch their team present, but only with the **teams consent**. Videotaping the presentation is not permitted. There will be 3-4 judges on the panel who will judge all of the presentations throughout the day, as well as a volunteer responsible for timing the presentations. Teams will be given the opportunity to decide when they would like to be signaled for time; typically teams are given a **two minute** warning followed by a **one minute** warning.
- **Tallying** of the marks is done once all teams have completed their rotation cycles.

Announcing of the top three competing teams is done at the end of the day, with the first place team gaining the ability to compete in the Provincial Competition.

4. ONTARIO ENVIROTHON – OBJECTIVES

The four core objectives for Envirothon are Forestry, Soils, Aquatics and Wildlife. Every year, Envirothon has a Current Issue which can be found and is described in detail on our website under Study Guides. Our website also has many comprehensive texts on all core objectives. Learning objectives for the four core Envirothon objectives are listed below.

Forestry

LEARNING OBJECTIVES

Comprehension/Knowledge

Participants will be able to:

1. Identify the major forest regions of Canada.
2. Identify the principle tree species of each of Ontario's three forest regions.
3. Examine the historical importance of Ontario's forests, including their many values to people and to the natural environment (horticulture, forestry, and gardening).
4. Identify how much of Canada and Ontario's surface land area is forests, including how much of the forested land is crown and how much is privately owned.
5. Identify the kinds and number of jobs in Ontario and Canada which are forest-related.
6. Describe the economic importance of forest-related industries to provincial, national and international economies.
7. Describe the main components in the operation of a sawmill, including processes, jobs and equipment.
8. Explain the industrial paper making process, including processes jobs, and equipment.
9. Identify the major types of forest products that are produced in Ontario.
10. Understand terminology required to utilize a tree identification key.
11. Describe the process of photosynthesis and cellular respiration as they result to the cycling of energy, carbon, and oxygen through abiotic and biotic components of an ecosystem.
12. Explain tree growth from photosynthesis to branch growth to trunk growth.
13. Explain how environmental concerns such as water quality, habitat, recreation and aesthetics are incorporated into forest management.
14. Explain the concepts of even and uneven aged forests.
15. Describe the various cutting styles and silvicultural principles that are appropriate for various sites.
16. Describe causes of wildfire and fire prevention methods.
17. Explain the role wildfire plays in forest destruction and regeneration.
18. Identify 4 main categories of harmful insects and how they affect trees and forests (defoliators, sucking insects, gall makers, borers).
19. Describe the main insects and diseases that affect Ontario's forests.
20. Illustrate the process of succession.

Application/Analysis

Participants will be able to:

1. Identify a tree species using leaf type, branching, bark, bud scales, site type, key).
2. Use the following forestry equipment:
 - Dot planimeter/grid
 - Tree calipers (dbh)
 - Compass
 - Prism

- Caliper tape
 - Increment borer
 - Stereo viewer (map reading)
3. Use a forestry prism.
 4. Determine the age of a tree using an increment borer or tree cookie.
 5. Explain the forest management cycle and each of its component parts: planning, harvesting, site preparation, regeneration, tending and protection.
 6. Consider the impact of certification on sustainable forest management.
 7. Identify harmful forest insects and evidence of their presence in a forest.
 8. Analyze issues related to environmental sustainability and the impact of technology on the forest ecosystem.
 9. Interpret a dot planimeter.
 10. Illustrate the classification of plants by identifying similar and different characteristics.

Evaluation/Synthesis

Participants will be able to:

1. Critique the various perspectives as they relate to forest issues (industry, environmental, government).
2. Summarize the history of a tree by looking at growth rings (periods of drought, faster growth, scarring).
3. Recommend a management (or no plan) for a forested area.
4. On site construct a history of the forest site (harvested, clear-cut, stage in succession).
5. Address current forestry issues from different perspectives (role play): clear-cut versus old growth, prescribed burns in protected areas, pesticide use, etc.

Soils

LEARNING OBJECTIVES

Comprehension/Knowledge

Participants will be able to:

1. Identify the soil orders.
2. Identify the factors affecting soil formation and describe processes involved.
3. Describe soil structure in terms of its three components: form, stability, and strength.
4. Describe how different amounts of organic matter affect and are affected by soil structure and texture.
5. Identify factors that influence soil temperature.
6. Describe how soil pH affects plant growth.
7. Describe the cation exchange process and relate it to soil fertility.
8. Identify benefits of soil organic matter to soil chemistry.
9. Identify the six essential nutrient elements in soil and describe how they affect soil fertility.
10. Identify types of soil organisms and their functions within a soil ecosystem.
11. Describe the carbon cycle and the nitrogen cycle.
12. Describe the effects of each type of erosion on the landscape and capability for various kinds of plant growth.
13. Identify erosion control methods (windbreaks, crop rotation, drainage, etc.).
14. Explain how soil composition and fertility can be altered in an ecosystem and identify the possible consequences of such changes.

Application/Analysis

Participants will be able to:

1. Identify soil horizons in a soil pit or photograph.
2. Name and map the soil orders of Canada and identify them on a map.
3. Identify soil types according to textural characteristics.
4. Use a soil triangle to determine soil class.
5. Use a Munsell soil colour chart/other soil charts.
6. Classify soil structure according to aggregate characteristics (e.g. granular, blocky, columnar, platy, massive).
7. Measure and interpret soil pH using test kits or pH meter.
8. Use soil test kits to determine preferred conditions for growth of plants (nitrogen, phosphorus, potassium, pH).
9. Use a soil probe.
10. Relate stream velocity to sediment sorting.
11. Identify and measure soil horizons.
12. Describe and classify a soil profile.

Evaluation/Synthesis

Participants will be able to:

1. Relate how soil, water and air are interrelated.
2. Use data, observations on soils to explain vegetation in an area.
3. Predict the types of soil organisms that would be found within a given soil type.
4. Assess a site for the erosion.
5. Make recommendations on how to implement erosion control.
6. Make recommendations on site on how to improve soil quality.

Aquatics

LEARNING OBJECTIVES

Comprehension/Knowledge

Participants will be able to:

1. Define a wetland.
2. Identify and describe the four major types of wetlands: swamps, marshes, fens, and bogs.
3. Describe the importance (e.g. values and benefits) of wetlands.
4. Identify at least 3 characteristics or properties of water, and explain how those characteristics relate to or affect aquatic organisms.
5. Identify at least three chemical factors in water and how they can affect aquatic life.
6. Explain or show how a range of aquatic organisms have adapted to those characteristics.
7. Describe with detail the composition of Ontario's aquatic communities.
8. Relate the elements of each community to the physical characteristics and processes of its environment.
9. Describe the flow of energy through aquatic systems, emphasizing aquatic food chains and webs.
10. Describe the cycling of nutrients within aquatic systems, including additions from upland systems, with particular attention to carbon phosphorous and nitrogen.
11. Define habitat requirements and illustrate with specific examples.
12. Define and illustrate carrying capacity, including the importance and effects of critical habitat.
13. Identify simple and diverse aquatic systems found in Ontario, and illustrate the advantages of biological diversity.
14. Describe normal succession in Ontario's lakes, streams and wetlands.
15. Identify the right of Ontario's First Nations with regard to aquatic resources.

16. Identify Ontario's rare, threatened and endangered aquatic species, as identified by COSEWIC, and explain how and why selected species were reduced to those levels.

Application/Analysis

Participants will be able to:

1. Carry out a number of tests (visual, water, soil, vegetation, etc.) to determine if a site is best described as a swamp, marsh, fen or bog.
2. Identify plants and animals commonly found in wetlands.
3. Identify on site what animals would be found in a given wetland.
4. Compare and contrast the physical characteristics of lakes and streams, as well as the adaptations of life to those environments.
5. Identify from a small cluster of species, to which aquatic community they belong.
6. Identify habitat requirements on site.
7. Illustrate carrying capacity.
8. Carry out water testing (alkalinity, CO₂, nitrate, phosphate, chloride, turbidity, pH, hardness).
9. Use a hand lens and Secchi disks.
10. Calculate the rate of flow of a stream (3 times, take the average).
11. Report on the effects of pollutants on aquatic life.

Synthesis/Evaluation

Participants will be able to:

1. Demonstrate, using Ontario based examples, how current use affects aquatic resources.
2. Examine the effect of the introduction of exotic species in aquatic systems, including origin, means of introduction, attempts at control and results.
3. Assess the application of current aquatic resource management or control.
4. Recommend plans for aquatic management.

Wildlife

LEARNING OBJECTIVES

Comprehension/Knowledge

Participants will be able to:

1. Identify needs for survival for common Ontario wildlife species.
2. Explain why a certain species' habitat requirements might change and describe the changes.
3. Compare and contrast the difference between adaptable (generalized) and non-adaptable (specialized) wildlife.
4. Describe the concept of carrying capacity with reference to two or more Ontario wildlife species.
5. Describe succession in a terrestrial (bare ground) and an aquatic (pond) environment.
6. Explain how a change in climate, topography or land use might modify the process of succession.
7. Define predator, prey, herbivore, carnivore and omnivore and explain how they interact with one another.
8. Explain how predator-prey relationships and carrying capacity are related and give examples.
9. Give reasons for habitat loss in Ontario.
10. Identify how governments and other stakeholders are trying to stop habitat loss.
11. List examples of wildlife species that are non-native to Ontario.
12. Describe how various non-native species have naturalized to Ontario and/or how they have been harmful.

13. Identify the presence of wildlife based on:

- Scat
- Eggs
- Tracks
- Patterns on trees
- Sounds
- Pest evidence
- Feathers
- Nests

14. Identify specific habitat components for above species (biotic, abiotic).

15. Using a field guide/key/index participants will identify:

- Insects (aquatic and terrestrial)
- Reptiles
- Wildlife (large & small)
- Birds
- Amphibians
- Fish

16. Identify and explain how non-native species arrived in Ontario.

17. Recommend measures to remove/reduce impact of non-native species on Ontario ecosystems.

18. Identify reasons for habitat loss in Ontario.

19. Examine the factors (natural and external) that affect the survival and equilibrium of populations in an ecosystem.

Application/Analysis

Participants will be able to:

1. Use a field guide to identify wildlife species common to Ontario.
2. Classify wildlife as rare, threatened and endangered species.
3. Analyze a population case study by producing population growth curves for each of the populations in the study, and use the graphs to explain how different factors affect population size.
4. Identify wildlife signs and describe their significance.
5. Identify animals as predator, prey, herbivore, carnivore and omnivore.
6. Identify an area as habitat for certain wildlife species.
7. Draw and explain a food web and food chain.

Evaluation/Synthesis

Participants will be able to:

1. Evaluate/assess a site as suitable habitat for common wildlife species.
2. Describe and evaluate factors contributing to environmental resistance and the carrying capacity of ecosystems.
3. Assess sites for their ability to support wildlife.
4. Investigate sites for signs of wildlife.
5. Analyze sites and/or information on sites and formulate an explanation for how things are on that site.
6. Analyze and evaluate how the change in one population can effect another population.

5. PREPARING FOR THE COMPETITION

When preparing for the Regional Envirothon Competition, there are a number of resources available for you to better prepare your team. Below is a list of the materials which are available as well as tips on how to best use them.

WEBSITE:

On our website you will find many comprehensive study modules focused on the four core Envirothon topics of Forestry, Aquatics, Soils and Wildlife. Also, every year, Envirothon's Current Issue changes, and a detailed guide of this topic can also be found under our Study Guides section. Upon registering for the competition, you are able to download all study guides. **All content in these guides is eligible for testing.**

Envirothon's core objectives can be easily integrated into classroom lessons. On our site, you are able to see direct curriculum links, tying into the following subject areas: **General Science** (Grade 9 Academic), **Biology** (Grades 11 and 12 – Workplace, College and University Preparation), **Chemistry** (Grade 11 University Preparation), **Environmental Science** (Grades 11 – Workplace, College and University Preparation) and **Geography** (Grades 9 – 12).

Please visit our website at <http://www.ontarioenvirothon.ca/>.

YOUTUBE:

We also have a number of training videos online. By either navigating to YouTube and searching **ontforest**, or clicking the links provided on our website under Study Guides, you will be directed to multiple videos addressing key learning objectives within the four core Envirothon subjects.

- Forestry: Learn about tree identification, sustainable forest management practices, and natural resource careers.
- Aquatics: Learn about aquatic health and ecosystems.
- Soils: Learn about soil characteristics and see demonstrations on techniques such as the ribbon test.
- Wildlife: Learn about how to recognize signs of wildlife as well as determine what they indicate about the health of the ecosystem.

These videos are best used in combination with the Study Guides provided on our website, giving students a deeper understanding and a greater ability to apply their knowledge in a practical way, presenting them with clear visuals of their study materials.

YOUR OWN INITIATIVE:

Many advisors and their teams will spend varying amounts of time beyond the regional workshops to prepare for the competition itself. How you go about this, and how much time you devote is up to you and your team of students. Many schools will meet weekly to discuss their studying or strategies. Some teams will visit interpretive centres at nearby provincial parks. Others will travel to local ecosystems and practice their skills in the various areas (practice determining the height of the tree, characterizing soil, assessing the health of a riparian zone, etc.). There are many teams across the province who prepare extensively for the competitions, and some who do no preparation for them.

6. REGIONAL ENVIROTHON WORKSHOP

As preparation for the Regional Envirothon competition, the workshop day is designed to provide students with the opportunity to learn and interact with the outdoors through hands-on training stations. Experienced natural resource professionals will set up workstations focusing on Envirothon topics and learning objectives. Students will rotate through the various sessions and develop practical knowledge and skills, as well as problem solving and critical thinking related to environmental issues.

These workshops place a strong emphasis on the Application/Analysis objectives listed in the Envirothon objectives document. Natural resource professionals will provide students with the opportunity to analyze their surrounding environment through both direct observation and the application of tools required for each core Envirothon objective.

7. PROVINCIAL COMPETITION

SUMMARY:

The Provincial Envirothon competition takes place each year in the first or second week of May. The competition typically lasts four days. Teams arrive in the afternoon of the first day and attend the opening ceremonies. The remaining three days are full days, and are devoted largely to workshops, testing, and presentations, in that order. The competition ranks are determined based on their testing (75%) and presentation (25%) scores. The winner of the competition then goes on to represent Ontario at the Canon Envirothon (North American) held in July each year.

The main components of the competition include:

Five themed workshops: On the second day of the competition, one student from your team will attend each workshop focused on each of the Envirothon core topics (Aquatics, Soils, Wildlife and Forestry) and the year's current issue. The current issue is the same as the current issue for the North American competition. These workshops are typically two hours long and can be held at a site different than the host site. An expert in the field is brought in to run each workshop. Any material covered in the workshop can be tested the next day. This is in addition to the material in the study modules.

Testing: On the third day of the competition every competing team will cycle through testing stations corresponding to the same five categories. At each station, students are given a paper test and 45 minutes to complete it. Some tests will require hands-on work or observations around the area. Each team will be provided with one clipboard and two pencils for use in the test. Students found with writing implements in excess of those provided, cell phones, or other electronic aids will cause the immediate disqualification of their team. At the end of each 45 minute period, the students will hand their tests into the station leader and travel to the next station. A chaperone will accompany them throughout the day and time will be provided between each test for travel. The testing periods are typically split by a lunch period held at the testing site. Every year the testing site is at a different location that is kept secret until the students are bused to it. This is to prevent any teams from pre-scouting the area and gaining an unfair advantage.

Presentations: On the fourth and final day of the competition, students will be expected to craft and deliver a 10-minute presentation to a panel of three judges. Each team will be given a package that contains ALL the presentation materials that they are allowed to use,

as well as a written description of the problem about which they will present (all teams have the same problem). Approximately four hours is allotted to each team to work on their presentation in isolation from other groups and any teachers. At the end of this period, the students hand in their materials to the organizers until after lunch when they present. Teams are assigned a specific location and 10-minute time period during which they will present. After each presentation, judges may ask the students questions for up to 5 minutes. The scores of all three judges are totaled and tallied against the other teams. The top three ranked presentations will be re-given to a panel of VIP judges and the entire Envirothon assembly.

The presentation problems are typically closely tied to the current issue theme of the year. Students are expected to use both their own knowledge, and the information provided in the package to produce a coherent presentation that addresses the problems asked. Students will be given a copy of the judges' marking rubric so that they can know how they will be marked. Students are asked to address all five Envirothon themes in their presentation, to use their materials to their maximum potential, and to address various economic, social, and stakeholder issues surrounding the problem. Every member of the team is expected to participate equally, and will be penalized if they do not. Similarly, marks are given for the effective use of the time allotted.

Legacy Project: Each year the students give spend one afternoon giving back to a local site and leaving behind a 'legacy' of their good deed. The work supports environmental efforts in some fashion. Past years have seen students constructing outdoor classrooms, helping maintain stands of breeding American Chestnuts, cleaning up a local watershed, etc.

Social Events: Every year a number of social events are interspersed among the other components of Envirothon and help greatly to keep the students energized and making connections with their peers from other regions. The types of events will vary based upon the host site, but past Envirothons have hosted dances, amazing race type events, drumming, film festivals, and so on.

Closing Ceremonies: On the final day of the event, and after the presentation marks have been tallied along with the testing marks, there is a final banquet and awards ceremonies. Students are recognized for their achievements throughout the competition, and prizes are awarded to winners in a number of categories.

8. SAMPLE ORAL PRESENTATION

Presentation Background

The Royal Botanical Gardens (RBG) is a not for profit environmental organization that maintains plant biodiversity over southern Ontario. It is a part of UNESCO's Niagara World Biosphere Reserve, and as such it has some of the most important areas in Canada regarding plant biodiversity. Because of this biodiversity, the areas it maintains provide some areas that are of huge importance to the wildlife of the Great Lakes.

One of the areas that are a concern for them is the Cootes Paradise Estuary (CPE). It is a 250 hectare estuary owned by the RBG just north and west of Hamilton. In the spring and through the summer, this estuary acts as one of the most significant spawning grounds for the native fish species of Lake Ontario. When the weather cools and water levels decline, the marsh then dries up and provides a considerably important area for birds to feed and nest (*Project Paradise Season Summary 2010* p.36). This estuary has many issues affecting its health, and thereby its ability to provide effective spawning grounds for the native fish. These health concerns also reach to the water quality in the estuary and the amount and health of the plant life it sustains. One of the main contributing factors to the decline in the health of the CPE are invasive species of plants and wildlife, these are illustrated below in Table 1.

		Problem?	Remediative Action?
Invasive Species	Purple Loosestrife	✓	✓
	European Manna Grass	✓	✓
	Common Carp	✓	✓
	Mute Swan	✓	✓
	Canada Goose	✓	✓
	Domestic Pets	✓	
Water Quality	Excessive Nutrients	✓	✓
	Excessive Sediment	✓	
	Contaminated Sediment	✓	
Habitat Quality	Altered Water Cycle	✓	
	Habitat Fragmentation	✓	
	Garbage	✓	✓

Table 1: Invasive Species and Habitat Quality in the CPE (*Project Paradise Season Summary 2010*, p. 31)

Table 1 also illustrates the water quality and the habitat quality in the estuary, and whether or not some sort of action is or has taken place. Currently only the invasive species which have had a large effect on the estuary have received funding to pursue thorough remediative action, and of these species carp have been the most destructive.

The carp's only natural habitat is the temperate regions of Asia. This fish species was introduced into the U.S.A. in 1831 as an inexpensive food source. Carp grow quickly and breed many times throughout the year. In addition, our climate is similar to that of their natural habitat. Unfortunately, introduction of this species has had repercussions on the native plants and wildlife in Ontario where carp have expanded since their introduction to the U.S. Female carp live up to 20 years and lay 2 million eggs each year allowing the species to quickly overrun native species and ruin local ecosystems.

This is what has happened over the last 100 years in the CPE; carp have taken root and consistently utilize the fertile grounds for food and spawning, pushing out the native wildlife and destroying the plant life. Carp achieve this through their spawning season and their food selection. Because carp are bottom feeders, they will collect the sediment on the bottom of the estuary, eating the bottom dwellers inside, and then expelling the sediment into the water. This expelling of the sediment clouds the water and stops the light from penetrating into the water, a requirement of some of the native plant varieties. Carp also spawn in the late spring, when the significant portion of the native fish species also spawn, and because of their larger numbers, the carp have the ability to muscle them out of the estuary. This danger associated with the carp does not decrease over time; because they have few natural predators and such long life spans they have the ability to grow their population rapidly.

These qualities of the carp have slowly eroded the ecosystem in the CPE. Native fish populations have decreased drastically over time since carp's introduction, and because of the low light penetration certain plant life has been decreased as well. This unbalancing of the natural ecosystem has led to a decrease in the water quality in the estuary. With these factors feeding on one another the quality of the CPE has spiraled downward over time.

In part because of these factors (mainly habitat alteration by carp) the Cootes Paradise Estuary has been listed as one of the Great Lakes Areas of Concern. This means that the CPE shows significant environmental degradation and are threatening the native flora, fauna, and local ecosystems. Therefore, steps have been taken to remedy this situation, including the creation of a Fishway in 1996/1997. At the time of Fishway construction, the carp population in the CPE was ~800kg/ha, which was far too high. The Fishway operates by mediating the inflow and outflow of fish into the CPE at the Desjardins canal, which opens onto Hamilton Harbour. It does this by having a set of one way gates to allow fish out of the CPE at the down stream area of the Fishway. At the upstream portion, there is a set of bars 50 mm apart to allow only smaller (or younger) fish through. This stops mature carp from coming into the CPE and using it as a spawning ground. The Fishway has been extremely successful in eliminating carp from the ecosystem in the CPE; this can be seen in Figure 1 below.

9. SAMPLE PROVINCIAL COMPETITION AGENDA

WEDNESDAY	EVENT
3:30pm- 6:00pm	Arrival and Registration
6:00pm	Opening Ceremonies Introduction and Welcome
6:30pm	Keynote Speaker:
8:30pm	Ice breaker / welcoming event
9:30pm	Teacher's ice breaker / welcoming event
9:45pm	Important Announcements and Opening Ceremony Dismissal
11:00pm	Lights Out
THURSDAY	EVENT
9:00am	Depart for workshop/legacy day
9:30am - 11:30am	Station Workshops (Soils, Aquatics, Forestry, Wildlife, Current Issue)
12:15pm - 1:15pm	Lunch
1:15pm - 4:30pm	Legacy Project
4:30pm - 6:00pm	Free Time
6:00pm	Dinner
7:00pm	Social Event
11:00pm	Lights Out
FRIDAY	EVENT
8:00am	Depart for Testing site
8:45am	Students Arrive at testing site
9:00 am - 11:35 am	<i>TESTING ROTATION (A) 5 ecostations, 45 min per test</i>
11:50am-12:30pm	Lunch for students
11:50am - 12:30pm	<i>Teachers - tour of testing site</i>
12:45pm - 2:30pm	<i>TESTING ROTATION (B) 5 ecostations, 45 min per test</i>
4:00pm	Depart for Venue
6:00pm - 7:00pm	Dinner
7:30pm - 10:00pm	Social Activity
11:00pm	Lights Out
SATURDAY	EVENT
8:00am - 12:00pm	Students prepare in designated rooms
8:00am - 8:45am	Teachers Meeting
11:00am	Judges Meeting
12:00pm - 12:45pm	Lunch - Students, Teacher and Volunteers
1:00pm to 2:30pm	Presentations First Round
2:30pm	Group Photo
3:00pm -3:30pm	VIP Judges Orientation
3:30pm-4:30pm	Announcement of Top Three Presentations and VIP Judges
6:30pm-8:30pm	Closing Ceremony and Awards Banquet
11:00pm	Lights Out
SUNDAY	EVENT
6:30am - 8:30am	Departure

10. WHAT TO BRING FOR WORKSHOP/ COMPETITION DAY

Remember, this is an outdoor competition, so dress appropriately for the weather:

- ✓ hat
- ✓ jacket
- ✓ close-toed shoes
- ✓ sunscreen
- ✓ bug repellent
- ✓ water bottle
- ✓ umbrella
- ✓ lunch/snacks (if not provided and litter less if possible)
- ✓ any necessary medication (epipen, puffer, painkillers, etc.)

Do Not Bring:

- ✗ ipods, video games, cell phones, portable radios, laptops, cameras
- ✗ Envirothon materials

If participants decide to bring valuables, it is their own responsibility should the item be lost or stolen!

11. FREQUENTLY ASKED QUESTIONS

General

How often should I meet with my students throughout the year to be competitive?

A: The competition at each regional competition will vary greatly depending on the number of schools and their experience level. With that said, many teams will meet for an hour on a weekly or biweekly basis to maintain focus and discuss their studying. Some schools will also make efforts to go out into the field (outside of the regional workshop) to practice their skills.

What does the registration fee cover?

A: The registration fee supports Forests Ontario's efforts in coordinating the provincial program and provides direct support to your regional competition. Additional fees may be requested at your regional event, and this is determined by the Regional Coordinator. These additional fees should be paid directly to the region.

As an advisor, am I allowed to watch my students' 10-minute presentation?

A: You are allowed to watch your students' presentation if they consent to it. No video taping of the presentation will be permitted.

Regional Competition

How many schools participate at the regional event?

A: Every region is different with some only having 3 schools participating, and others having up to 16 schools. The number of schools allowed to participate is decided by the Regional Coordinator and the capabilities of their region.

As an advisor at a regional event, when will I find out how my students did?

A: The top three ranking teams overall will be announced at the end of the competition.

How much time is there between the regional and provincial events?

A: The amount of time between these events is dependent on the timing of the regional event, however anywhere from 1-3 weeks notice is given to the winning team regarding their participation at the championship event.

Provincial Competition

How is the provincial competition different from the regional competition?

A: The provincial competition provides more of a challenge for students with more in-depth workshops, harder and longer tests, regional specific information and longer presentations. The provincial challenges students to push beyond what they learned at regional events.

How long is the provincial competition? Do I have to take time off of school to attend?

A: The provincial competition runs 3-4 days in late spring. Teachers can send a substitute advisor if they are unable to attend, however they are encouraged to come and support their team. No teacher release funding is currently available to support the event.

As an advisor, why can't I talk to my students on the presentation day?

A: We want the student presentations to best represent what they are capable of, without the help of their teachers! To avoid temptation, you are simply kept apart for the day

As an advisor, what will I do while my students are hard at work?

A: Throughout the event you will have opportunities to take part in some teacher-centric social events, have some free time, and have the opportunity to shadow the workshops if you choose.

12. RULES AND REGULATIONS

1. Team members must be enrolled in grades 9-12 for the entire (2) two-semester school year.
2. Each team will consist of five students from the same school, home-schooled group, or local organization. Except for teams from joint vocational schools, team members may not be drawn from different schools (*i.e.* No “all-star” teams).
 - a. No alternates, with the exception of legal substitutions approved by the organizers, may participate in any Ontario Envirothon competition.
 - b. In the event of an emergency that would prevent a registered five-member team from competing in a competition, the organizers may allow a team to compete with fewer than five members. The advisor must certify the legitimacy of the emergency by e-mail, phone or letter. The organizers will determine if a penalty shall be assessed to a team in the presentation for the absence of a complete five-member team.
 - c. If the loss of a team member is not deemed to be an emergency the team may still compete but will not place in the standings.
 - d. If a team member becomes injured or ill during the competition, the organizers will determine if a penalty shall be assessed to a team in the presentation for the absence of a complete five-member team.
3. Substitutions:
 - a. Emergency substitutions can be made from the list of alternates approved by the organizers.
 - b. Any team having to make two or more substitutions to the original competing team must obtain approval from the organizers at least two weeks prior to the competition.
 - c. Substitutions cannot be made during the event. Teams must consist of the same team members throughout the entire competition.
 - d. In the event that a team member must leave the competition for an emergency deemed by the organizers, the team can participate with the remaining team members. The organizers will decide if a penalty should be given.
4. Each Regional Steering Committee will determine how many teams will be allowed to enter in their Regional Envirothon competition. All teams that participate at the Regional Envirothon, must register through Forests Ontario in order to participate. If a team wins their regional event, and was not registered through Forests Ontario, they will not be allowed to participate at the Ontario Envirothon Championship. In the event that this happens, the team with the second highest score will be invited to attend. It is the responsibility of the Regional Coordinators to ensure that all teams participating have registered through Forests Ontario.
5. Teams must be accompanied to any Ontario Envirothon event by an adult advisor. During the event, the advisor may not accompany the team to the testing stations or coach the team during the presentation.
 - a. In the event that the original advisor is unable to attend, a substitute is required and notification to the Regional Coordinator or Forests Ontario is required.
 - b. Advisors/chaperones are responsible for student’s behavior and actions. The organizers will not be responsible for improperly chaperoned teams.
6. Registration forms must be received by the announced deadline. Late or illegible registration forms may be rejected. It may be required that advisors bring a photocopy of the school medical release form for each team member to Envirothon events.

7. Ontario Envirothon events will include testing on the basic four (4) Envirothon subject areas: Aquatics, Forestry, Soils, and Wildlife. Only at the Ontario Envirothon Championship will there be an additional test on the Current Issue.
8. Presentations for the Ontario Envirothon:
 - a. Team presentations will be:
 - i. Regional: eight (8) minutes maximum in length, followed by two (2) minutes of questions to team members by the judges at the regional competition. The length and format of the presentation at the regional level may differ and will be determined by the organizers.
 - ii. Provincial: ten (10) minutes maximum in length followed by five (5) minutes of questions to team members by the judges at the provincial competition.
 - b. All five (5) team members must participate orally in the presentation.
 - c. During presentations, no school, city or regional identification, either written or verbal, is permitted.
 - d. No contact is to be made between the team advisors/chaperones/guests and the judges during the presentation.
 - e. Visual aids must be prepared on-site by team members using only materials provided by the host
 - f. If additional materials are found the organizers will determine how the team should be penalized.
 - g. During the preliminary presentation rounds, advisors/chaperones (and registered and approved guests) may observe only the team they have accompanied to the annual competition, with the permission of the team.
 - h. No photography or video recording shall be allowed during the presentations, other than as approved by the organizers.
 - i. Each team is responsible for ensuring the listed amounts of supplies are in their team's presentation package. If a team has more supplies than listed and does not discard them to a room monitor points will be deducted off the presentation score.
 - j. If a team is in need of supplies, the team will notify a room monitor and the room monitor will ensure the materials are supplied as soon as possible. No additional time will be given to the team to prepare.
9. Team members are not to use or be in possession of electronic recording devices such as cellphones, tape recorders or videotape cameras etc. during the competition.
 - a. No electronic, battery-powered, or solar powered equipment may be used by or be in the possession of team members during the instructional periods, field testing, presentation preparation, or presentations unless such equipment is provided by the organizers for use during the competition (for example to compensate for a physical or mental disability) prior to the start of the competition.
 - b. Cheating in any fashion by students, advisors, chaperones or guests during any Ontario Envirothon event will not be tolerated; immediate disciplinary action may be taken.
10. Reference materials may not be used during an Ontario Envirothon competition except where specified by regional or provincial event organizers. Any materials necessary for completion of Ontario Envirothon testing stations will be provided to all teams equally by the organizers.
11. Judges' decisions are final. Contested decisions will be reviewed by the Event Coordinator and an *ad hoc* committee at the competition. Tiebreaker procedures will be determined and announced prior to the beginning of each Ontario Envirothon event. The winning

- team will be the team with the highest cumulative point total at the end of the testing stations and the presentation.
12. Stealing or vandalism to personal, private, or public property before, during, or after any Ontario Envirothon event will not be tolerated. Also, poor behaviour including the use of alcohol, drugs, harm to other students, etc. will also not be tolerated. Because students compete as a team, the actions of one or two members of a team may be considered to be the actions of the team as a whole.
 13. Any suggestions for improvement of the Ontario Envirothon Rules and Regulations and procedures will be considered by the Provincial Steering Committee.
 14. Any violation of these rules will result in disciplinary action as set forth by the Organizing Committee.
 15. If teams would like to contest any of the rules laid out here or any events during the competition their concerns must be brought to the organizing committee. The Chief Official and at least one member of the organizing committee will discuss the situation. This ad hoc committee will address the concerns and have the ultimate decision about the situation.
 16. Ontario Envirothon Rules and Regulations are subject to change. Any and all relevant changes will be explained to all teams and advisors at an affected Ontario Envirothon competition.

Ontario Envirothon Championship

17. Teams attending the provincial competition must be those that won their regional event. If a regional winning team cannot attend the provincial event they must give notification to the Regional Coordinator within 5 days of the provincial competition's date.
 - a. In the event that the winning team cannot represent their region or province at the next level of competition, the team with the next highest score will be eligible and invited to attend.
 - b. A team of less than five (5) participants may be allowed to participate, but will not place in the standings. Any accommodation will be evaluated on a case-by-case basis.
18. All team members and advisors are expected to attend all scheduled functions outlined on the agenda.
19. Except during off-site events organized and conducted by the organizers, no team members or advisors are allowed to leave the host site without first notifying the organizers.
 - a. If an advisor has to leave for any part of the event the advisor must find a chaperone willing to take responsibility for their team in the advisor's absence. Ontario Envirothon, Forests Ontario and the organizing committee are not responsible for team members.
20. Advisors/chaperones are responsible for student's behavior and actions. The organizers will not be responsible for improperly chaperoned teams. No student or advisor will be allowed in the opposite genders' dormitory or room between the hours of 11:00 pm to 7:00 am. Any violation of this policy will result in disciplinary action.