ROYAL CANADIAN ARMY CADETS

SILVER STAR

INSTRUCTIONAL GUIDE

SECTION 5

EO M326.03 – PRACTICE ENVIRONMENTAL STEWARDSHIP AS A TEAM LEADER

Total Time: 30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-703/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

A group discussion was chosen for TP 1 as it allows the cadets to interact with their peers and share their experiences, opinions, and feelings about Leave No Trace principles. A group discussion also helps the cadets improve their listening skills and develop as members of a team.

An interactive lecture was chosen for TPs 2 and 3 to give an introduction and overview of current land management issues in Canada and generate interest in adhering to Leave No Trace principles.

INTRODUCTION

REVIEW

N/A

OBJECTIVES

By the end of this lesson the cadet shall be expected to practice environmental stewardship as a team leader.

IMPORTANCE

It is important for cadets to understand environmental stewardship as it relates to ecological sustainability and Leave No Trace camping. Environmental management is constantly changing and knowing what is acceptable will assist the cadet in making good leadership decisions.

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Teaching point 1 **Review the Principles of Leave No Trace Camping**

Time: 5 min Method: Group Discussion

BACKGROUND KNOWLEDGE



The point of the group discussion is to draw the principles of Leave No Trace camping from the group using the tips for answering/facilitating discussion and the suggested questions provided.

PRINCIPLES OF LEAVE NO TRACE CAMPING

Plan Ahead and Prepare

Plan ahead by considering your goals and expectations. Taking steps in advance of the trip will allow for minimum impact on the trail. Some points to help prepare include:

- **Knowing the Regulations and Special Concerns for the Areas Visited.** Taking the time to research specific locations will aid the group in packing and preparation.
- **Preparing for Extreme Weather, Hazards and Emergencies.** Information concerning weather, possible hazards, and emergencies should never be assumed or the importance underestimated. Check with weather forecasting services and research the location's seasonal weather history for any clues to weather that may be expected. Always plan for the worst weather expected, and be prepared for any emergency.
- **Carefully Planning Meals and Repackaging Food to Minimize Waste.** Reducing the amount of food you carry by carefully planning meals and repackaging food, reduces the amount of garbage produced. Eliminating trash removes the possibility of accidentally leaving waste behind.

Camp and Travel on Durable Surfaces

Trampled vegetation and eroded trails last for years, or even a lifetime. Walk and set tents on surfaces that endure (eg, rock, sand, gravel, dry grasses and snow). Adhere to the following guidelines:

- **Concentrate the Trek on Existing Trails and Campsites.** In popular areas, focus the trek where it is obvious that other visitors have already left an impact. Travelling on areas already worn will reduce the overall impact on the environment in the long term.
- **Walk in Single File in the Middle of the Trail, Even When Wet or Muddy.** Trails travelled frequently will show signs of wear. Maintaining travel in the centre of the path will reduce wear spreading to the edges of the trail.
- **Avoid Taking Shortcuts Away From Established Trails.** Taking shortcuts around routes or obstacles may be time saving however, the effect on the vegetation and environment is damaging. Avoid this whenever possible.
- **Travel on Rock, Gravel, Dry Grasses or Snow.** These surfaces are durable and can withstand the pressure of human travel. In pristine areas with no noticeable impact, groups should not walk in single file, but should disperse and travel separate routes.
- **Camp 100 m (300 Feet) From Lakes and Streams.** Ground water and water from lakes and streams have the potential to be spoiled by increased human contact. By camping a minimum distance of 100 m (300 feet) from these water sources, cadets can do their part to limit the impact on the area's ecosystem.

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Dispose of Waste Properly

Pack it In, Pack it Out. Inspect the campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food and litter.

Disposing of Human Waste. Dispose of all human waste in catholes dug 16–20 cm (6–8 inches) deep and at least 60 m (200 feet) from water sources, camps, and trails. Cover and disguise the cathole when finished. Be sure to follow any additional direction provided by the owner or manager of the area you are training in, and adhere to any regional directives that may be in place.

Pack Out Toilet Paper and Hygiene Projects. Soiled toilet paper and feminine products will take a considerable amount of time to decompose, especially if the trek involves many participants. Be sure to employ a suitable disposal plan.

Washing the Body or Dishes. Carry water 60 m (200 feet) away from streams or lakes and use small amounts of biodegradable soap. Scatter strained dishwater.

Leave What You Find

While trekking there will be many wonderful structures, intriguing objects, and items one will find interesting. Items of such nature shall be left alone for others to cherish.

Some guidelines to follow include:

- **Preserving the Past.** Leave all cultural or historical structures and artifacts untouched for all to enjoy.
- **Leave Flora and Fauna.** Plants, rocks, and animals shall be left alone and undisturbed.
- **Avoid the Construction of Structures.** While in the field, common practice is to invent or construct structures and furniture or dig trenches to make living easier, however, these actions leave a noticeable, unnatural indication of human presence in the environment. If structures are created out of necessity, once finished return the environment to its original appearance.

Minimize Campfire Impacts

Traditional open fires destroy the landscape, and can be avoided by using lightweight stoves. If fires are acceptable, build minimum impact fires using an existing fire ring, pan or fire mound. Only dead and downed wood, no bigger than an adult's wrist, should be used. Maintain a small fire by burning all the wood down to ash then, saturating the ash with water and scattering the ash broadly. There should be little to no evidence of a fire.

Respect Wildlife

Animals in their natural environment are not used to humans. Although some wild animals adapt to human presence, others flee, sometimes abandoning their young and their preferred habitat. As guests in the environment, and as expeditionists, we need to respect wildlife by observing these simple guidelines:

- Observe wildlife from a distance.
- Never feed the animals.
- Protect wildlife and food by storing rations and trash securely.
- Control pets.
- Avoid wildlife during sensitive times (eg, mating, nesting, when raising young, or during the winter).

Be Considerate of Other Visitors

While trekking, one will likely encounter other travellers. Be sure to respect others and afford common courtesies, such as:

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- respecting visitors to protect the quality of their experience;
- yielding to others on the trail;
- camping away from trails and other visitors; and
- allowing nature's sounds to prevail.

GROUP DISCUSSION



TIPS FOR ANSWERING/FACILITATING DISCUSSION

- Establish ground rules for discussion, eg, everyone should listen respectfully; don't interrupt; only one person speaks at a time; no one's ideas should be made fun of; you can disagree with ideas but not with the person; try to understand others as much as you hope they understand you; etc.
- Sit the group in a circle, making sure all cadets can be seen by everyone else.
- Ask questions that will provoke thought; in other words avoid questions with yes or no answers.
- Manage time by ensuring the cadets stay on topic.
- Listen and respond in a way that indicates you have heard and understood the cadet. This can be done by paraphrasing their ideas.
- Give the cadets time to respond to your questions.
- Ensure every cadet has an opportunity to participate. One option is to go around the group and have each cadet answer the question with a short answer. Cadets must also have the option to pass if they wish.
- Additional questions should be prepared ahead of time.

SUGGESTED QUESTIONS

Q1. What are the seven principles of Leave No Trace camping?

Q2. When in the wilderness, squirrels are often present around the campsite. How much food should you spare to feed the animals?

Q3. When preparing for a trek, what should one check to determine what clothing will be required for the trip?

Q4. Where should campfires be made?

Q5. What action should be taken with respect to other campers?



Other questions and answers will develop throughout the group discussion. The group discussion should not be limited to only those suggested.

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Reinforce those answers given and comments made during the group discussion, ensuring the teaching point has been covered.

CONFIRMATION OF TEACHING POINT 1

The cadet's participation in the group discussion will serve as the confirmation of this TP.

Teaching point 2 **Discuss Land Management Issues in Canada**

Time: 5 min Method: Interactive Lecture



This TP is designed to give cadets an introduction to land management issues in Canada that can affect expeditions. In addition, this information will allow cadets to be knowledgeable about current environmental issues.

SUSTAINABLE FORESTRY

Sustainable forestry is meeting society's increasing demands for forest products while respecting the values of society and preserving forest health.

Forests in Canada are almost 15 000 years old, but, without sustainable forestry they may not be around for another 15 000 years. Over the last decade, forest concerns have been raised by public interest groups, Aboriginal peoples, and concerned citizens. Concerns include clear cutting, using pesticides and managing the forest for wildlife, cultural values, recreation and park management, and fresh water.

Why is it Important for Canada to Have Sustainable Forestry Standards?

Ensuring the sustainability of the resource and the long term protection of forest ecosystems and maintaining employment in the forestry sector are all critical to Canada's competition in international markets. The forestry industry is Canada's largest industrial employer, with over 339 900 Canadians directly employed in the industry.

Sustainable forests are a source of well-being socially, environmentally and economically. Canada is home to approximately 30 percent of the world's boreal forest. There are 180 indigenous species of trees in our forests that provide habitat for 70 species of mammals and 300 species of birds.

Within the 30 percent, 294.8 million hectares are available for commercial use. 143.7 million hectares of commercially available forest are actively managed. Most of Canada's forests are publicly owned (93 percent) of which 77 percent are under provincial jurisdiction.

It is important to note that before any forestry take place, a forest management plan must be prepared.

Forest Management Plan. A plan developed by industry leaders, professional foresters and local citizens that follows the Forest Management Planning Manual. The plan includes determining available harvest areas and assessing criteria and indicators of sustainability.

Forestry companies manage crown forests under licences that are known as sustainable forest licences (SFLs). SFLs are valid for 20 years but must be renewed every five years to show compliance to regulations as well as public audit. If a company does not meet the standard, the licence is not renewed.

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Stumpage fees are charges to companies for the right to harvest timber. Stumpage fees are based on the number of trees harvested.

Canada is committed to and is a world leader in sustainable forest management. As of 2006, Canada had the largest number of independently certified forests.

Independently Certified Forests. Forests that have been certified by an independent third party to be managed using sustainable methods.

WASTE MANAGEMENT

Waste management has changed drastically with recycling becoming a large part of waste reduction. Waste management is the responsibility of all levels of government. Provincial governments are responsible for licensing hazardous waste generators, carriers and treatment facilities.

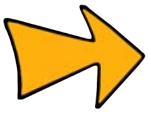
Most waste management is contracted to private companies.

In field and wilderness settings, waste management is conducted by area residents, park staff or a private management company.

Carrying out what was carried in is crucial to waste management in wilderness areas. Bringing garbage back home, or back to the training centre where adequate disposal measures are in place assists in keeping wilderness areas clean.

WATER CONSERVATION

Nearly three quarters of the earth is water. Ninety-nine point six percent of all fresh water is frozen in glaciers and ice fields, or located deep underground. Within our land mass, Canada holds about seven percent of the world's renewable fresh water.



Canada holds 20 percent of the world's fresh water, but only seven percent is renewable.

Canadians rely on this seven percent of fresh water for drinking water, agriculture, recreation, industry and ecosystems. Managing this vast resource is the responsibility of all levels of government. Water conservation and management is an important issue within Canada that many people take for granted.

Why is Water Conservation so Important?

Although Canada has the largest supply of fresh water, it is diminishing. Demand for water is higher, pollution has increased within water supplies, water tables have declined, and prolonged warm weather has caused drought conditions more frequently. These factors are shrinking the usable water supply.

Water is used for cooking food, bathing, doing laundry and drinking. When we are done with the water, it is usually returned to the same body of water it came from, usually in a worse condition.

What Do we Mean by Water Conservation?

Water conservation means wasting less water, using water more efficiently, and not misusing water.

Using Water in the Wilderness

When in the wilderness, collecting water from rivers, streams and lakes should be done with care.

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Bathing in lakes will contaminate water. Using soap when washing is especially detrimental to the water as chemicals and bacteria not found naturally are being added. Even soaps that claim to be biodegradable are harmful to the water.

One drop of oil can render up to 25 L of water unfit for drinking.

The increase in Canada's population leads to an increased demand for water. More chemicals and bacteriological pollutants are found in the water supply. Waterborne diseases found in municipal water have prompted awareness and action by organizations across the country. This, combined with a depleting water table, means that maintaining a stable clean water supply has never been more important.

Only about one percent of the water in the Great Lakes is renewed each year through rainfall and snowmelt.

The entire population of Prince Edward Island and over 60 percent of the population of New Brunswick and the Yukon rely on groundwater to meet their domestic needs.

ECOSYSTEM MANAGEMENT



Ecosystem. A self-regulating association of living plants, animals, and their non-living physical and chemical environment.

The sphere of life and organic activity extends from the ocean floor to approximately 8 km (5 miles) into the atmosphere. Within this sphere are thousands of different ecosystems. In an ecosystem, a change in one component causes changes in others as all systems adjust to the new conditions. An ecosystem includes biotic (living) and abiotic (nonliving) components. All of the components function as a whole, therefore, the slightest change in an ecosystem can drastically change its health.

Limiting factor. Physical or chemical factor that inhibits (through a lack of, or an excess of) biotic processes.

Changes that can threaten the biodiversity of areas are:

- habitat loss and degradation,
- invasive alien species,
- pollution, and
- climate change.

The national Species at Risk Act was adopted in 2002, to work with existing laws to protect wildlife species and protect ecosystems. Designed to ensure action plans are prepared for the recovery of declining species, the Act applies to all federal lands. Most provinces also have Species at Risk legislation.

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CONFIRMATION OF TEACHING POINT 2

QUESTIONS

Q1. What does water conservation mean?

Q2. Why is ecosystem management so important?

Q3. What can threaten the biodiversity of an area?

ANTICIPATED ANSWERS

A1. Water conservation means wasting less water, using water more efficiently, and not misusing water.

A2. Ecosystem management is so important because a change in one component causes changes in others as all systems adjust to the new conditions.

A3. Threats to the biodiversity of an area are:

- habitat loss and degradation,
- invasive alien species,
- pollution, and
- climate change.

Teaching point 3 — **Identify Ways a Team Leader Can Implement Leave No Trace Principles**

Time: 10 min — Method: Interactive Lecture



This TP is designed to motivate cadets to follow Leave No Trace principles.

Allow cadets to develop their own ideas and implement them on corps trips and exercises.

LEAVE NO TRACE PRINCIPLES

Following Leave No Trace Principles Personally by Leading by Example

Cadets follow and do as their leaders do. Cadets watch everything and notice when leaders are doing things differently. Seeing their leaders following Leave No Trace principles allows other cadets to see the principles in action. Seeing the leader of the group apply the principles will cause the junior cadets to follow.

Designate a Leave No Trace Leader Within the Group

Before heading out on the hike, trip or expedition, designate a cadet as a Leave No Trace leader. The Leave No Trace leader ensures the group follows Leave No Trace principles throughout the activity.

Make the job fun! A button or badge can be attached to the person’s pack to identify them.

Becoming a Leave No Trace Advocate

Being an advocate of Leave No Trace principles means following Leave No Trace at home and school as well. Use less water, take public transportation, walk to school, recycle, and compost.

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Even those who do not enter the wilderness affect the places others enjoy by actions such as depleting the water table, contributing to air pollution, and living in large homes that need more heat than smaller ones.

Implementing Awards Systems for Those who Follow Leave No Trace principles

Trail snacks, or treats as well as certificates (or even larger prizes) can be awarded to the cadets that follow Leave No Trace principles, or encourage others to follow the principles.

Sharing Leave No Trace Information With Others

Tell Stories, Don't Preach. Lectures will invariably make the group lose focus. Do not lecture the group about littering or nag them when hiking. Make the point in a story about an experience, or a fictional tale. A story about a mother bear and her cubs living off garbage versus hunting for dinner will have more impact than lecturing the cadets.

Teachable Moments. Pointing out trail erosion or polluted water sources is better than teaching theoretically. Teach when opportunities present themselves.

Show a Better Way. Rather than telling cadets they are doing something wrong, show them the better way.

Authority of the Resource. Switch the authority from the platoon commander to the earth. Encourage people to change their behaviour based on their desire to help the environment rather than on a need to obey an authority figure.

ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is get the cadets to brainstorm implementing Leave No Trace principles.

RESOURCES

N/A.

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into two or three small groups.
2. Have the cadets brainstorm implementation of the principles listed in TP 1.
3. Have the cadets share their ideas with the entire group.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 3

The cadets participation in the brainstorming session about implementing Leave No Trace principles will serve as the confirmation of this TP.

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END OF LESSON CONFIRMATION

QUESTIONS

Q1. Describe the second principle of Leave No Trace, camp and travel on durable surfaces.

Q2. What is sustainable forestry?

Q3. What does being a Leave No Trace advocate mean?

ANTICIPATED ANSWERS

A1. Trampled vegetation and eroded trails last for years, or even a lifetime. Walk and set tents on surfaces that endure (eg, rock, sand, gravel, dry grasses and snow).

A2. Sustainable forestry is meeting society's increasing demands for forest products while respecting the values of society and preserving forest health.

A3. Being a Leave No Trace advocate means following Leave No Trace principles at home and school as well. Use less water, take public transportation, walk to school, recycle, and compost.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

This EO is assessed IAW A-CR-CCP-703/PG-001, Chapter 3, Annex B, Appendix 8 (326 PC).

CLOSING STATEMENT

Understanding environmental stewardship and its practices will guide team leaders when in the wilderness to make proper stewardship decisions.

INSTRUCTOR NOTES/REMARKS

This EO could be delivered by a local official or Ministry of Natural Resources representative.

If being delivered by a guest speaker, this EO may be tailored to the local area; however the human impact theme must remain. The guest speaker should present issues specific to area land management.

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