

# Logger Education to Advance Professionalism: LEAP Curriculum Guide



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## General Information

### Introduction to LEAP

The Vermont Logger Education and Professionalism Program (LEAP) is a 501c3 non-profit educational organization. The only recognized logger education program in Vermont, LEAP offers training for loggers that meets national Sustainable Forestry Initiative (SFI) standards. Established in 1993, LEAP has served approximately 800 logging contractors over its 28-year history. This guide is intended for loggers enrolled or entering the LEAP Program. It provides course descriptions, learning objectives and learning outcomes that emphasize the application and integration of knowledge gained. Curriculum requirements were updated in 2020 to put more focus on logger safety while meeting standards of the Sustainable Forestry Initiative.

### LEAP Mission

*The purpose of the Vermont LEAP program is to promote a professional approach to logging by providing the knowledge necessary for loggers to work safely, efficiently, and in an environmentally conscientious manner while harvesting timber in Vermont.*

### LEAP Philosophy

The logging profession is an essential link between Vermont's woodlands and forest industry. Along with landowners and foresters, loggers are partners in managing our forests for wood, water, wildlife and recreation. Vermont's forests have a legacy of providing these resources and can sustain these public benefits if properly managed. LEAP sees education as offering a positive approach, bringing everyone together to reach this common goal. The LEAP program is an instrument to encourage life-long learning among loggers. LEAP strives to promote professionalism through education and instill a stewardship ethic among loggers. The outcome of this endeavor, we envision, will be a well-managed and productive forest landscape, and a positive public perception of the logging profession.

### Operation and Administration of LEAP

The business and affairs of LEAP are managed by a Board of Directors and a Chief Executive Officer. The administrative functions of LEAP require that the board review practices and procedures associated with this program periodically and administer this program in a manner that is consistent and fair to all LEAP participants. In order to meet that responsibility, certain policies have been developed that will provide operating guidelines in the administration of this program. These policies will be revised as needed and new policies will be adopted to keep pace with issues and circumstances as they arise.

## LEAP POLICIES

Following is a list and description of policies that are currently in effect, as adopted by the LEAP Board of Directors. These policies supersede all previously stated policies.

### 1. Reciprocity

*Approved and Adopted by the LEAP Committee in January 2002. Reviewed and Approved by the LEAP Board of Directors on April 6, 2021*

Loggers coming into the LEAP program will receive credit for comparable courses taken from other logger education programs on a case-by-case basis. Registration fees will be applicable.

### 2. Lapsed Logger Certification

*Revised and Adopted by the LEAP Board of Directors on April 6, 2021*

A logger who allows their certification to expire and wishes to become active again has a one-year grace period without monetary penalty. During the grace period a logger must attain the credits needed to come into compliance with LEAP curriculum requirements. If certification expiration is over a year old, a logger must pay the current registration fee for re-enrollment and come into compliance with LEAP curriculum requirements within one year.

### 3. 'Banking' of Continuing Education Credits

*Approved and Adopted by the LEAP Board of Directors on April 6, 2021*

Continuing education is required to maintain LEAP certification. Within every two years, except as otherwise noted, and after completing LEAP core curriculum requirements, loggers are required to take two full-day LEAP approved workshops and maintain first aid/CPR certification. If additional credits are earned within any two-year certification period they cannot be used (banked) for the next certification period.

### 4. Mailing Lists of LEAP Loggers

*Approved and Adopted by the LEAP Committee on March 10, 2004. Reviewed and Approved by the LEAP Board of Directors on April 6, 2021*

Requests for the LEAP logger's mailing list will be considered on a case-by-case basis. The mailing list will not be supplied under any circumstances for solicitation purposes. Mailing labels may be supplied to logger education organizations for one-time use with a fee to cover administrative expenses for the purpose of notification of upcoming logger education workshops and events.

## LEAP Certification Requirements

### For Mechanized Logging Operators

Adopted by LEAP Board of Directors: February 10, 2021

#### LEAP Certification Requirements

To attain LEAP certification, complete the following workshops within two years. Completing these workshops will satisfy the training requirements for the Sustainable Forestry Initiative (SFI) and for the Vermont Logger Safety and Workers' Compensation Insurance Program. (Additional steps are required for full safety certification with your insurance carrier.)

- Professionalism (1 day – 8 credits)
- Managing and Using Forest Ecosystems (1 day – 8 credits)
- Introduction to Mechanized Logger Safety (1 day – 8 credits)
- Advanced Logger Rescue/First Aid & CPR (1 day – 8 credits)

#### Continuing Education Requirements

Continuing education is required to maintain LEAP certification. Within every two years, except as otherwise noted and after completing the LEAP core curriculum, the following is required to maintain LEAP certification.

- Safety Workshop (1 day - 8 credits)
- \*LEAP elective (1 day – 8 credits)
- Maintain First Aid/CPR certification

*\*A LEAP participant may substitute other non-LEAP sponsored workshops for LEAP electives with pre-approval from the LEAP board of directors. A copy of the agenda shall be sent to the LEAP Coordinator a minimum of one week prior to the scheduled workshop.*

## For Non-Mechanized Logging Operators

Adopted by LEAP Board of Directors: February 10, 2021

### LEAP Certification Requirements

To attain LEAP certification, complete the following workshops within two years. Completing these workshops will satisfy the training requirements for the Sustainable Forestry Initiative (SFI) and for the Vermont Logger Safety and Workers' Compensation Insurance Program. (Additional steps are required for full safety certification with your insurance carrier.)

- Professionalism (1 day – 8 credits)
- Managing and Using Forest Ecosystems (1 day – 8 credits)
- \*Game of Logging (Levels 1 through 4 – 32 credits)
- Advanced Logger Rescue/First Aid & CPR (1 day – 8 credits)

*\*If completed GOL more than five years ago, must take Level 5 GOL (Refresher)*

### Continuing Education Requirements

Continuing education is required to maintain LEAP certification. Within every two years after completing LEAP certification requirements, except as otherwise noted and after completing the LEAP core curriculum, the following is required to maintain LEAP certification.

- Safety Workshop (1 day – 8 credits)
- \*\*LEAP elective (1 day – 8 credits)
- Maintain First Aid/CPR certification

*\*\*A LEAP participant may substitute other non-LEAP sponsored workshops for LEAP electives with pre-approval from the LEAP board of directors. A copy of the agenda shall be sent to the LEAP Coordinator a minimum of one week prior to the scheduled workshop.*

# CORE CURRICULUM

## Managing Forest Ecosystems

### General Description

An understanding of forest ecosystems and how they respond to the impacts of logging is essential knowledge for a timber harvester. In this workshop, loggers learn about the main elements of forest ecosystems including water and wildlife, how productivity is influenced by various harvesting practices, and how to conserve soil while building access roads that can withstand heavy equipment and the elements.

### Learning Objectives

Present basic principles of forest ecology:

- Describe factors that influence forest site productivity.
- Describe forest succession and how it relates to the growth habits of local timber species.
- Describe basic tree physiology and how it is influenced through active timber management.
- Describe the major timber types that occur in Vermont, where they are likely to be found on the landscape, and the tree species associated with those timber types.
- Describe the difference between even-aged and uneven-aged silviculture.
- Describe some of the most common silvicultural practices used in the major timber types found in Vermont.

Present the concepts of protecting water quality during harvesting:

- Describe the purpose and objectives of the AMPs and the principles of water resource protection.
- Describe the 26 AMP practices to protect water quality, prevent soil erosion, and minimize stream impacts during timber harvesting operations.
- Recognize important features of wetlands and how to protect them during harvesting.

Present the concepts of protecting and improving wildlife habitat during harvesting:

- Describe the basic elements of forest wildlife habitats and the habitat requirements of major Vermont game and non-game species.
- Describe strategies and methods to integrate the protection and conservation of wildlife habitat during harvesting operations.
- Describe how to identify the presence of Rare, Threatened, & Endangered (RT&E) species and how to recognize their special habitat requirements and strategies for protection.

### Outcomes

Upon completing the Managing Forest Ecosystems workshop, LEAP participants should be able to:

- *Describe some environmental factors that influence forest site.*
- *Explain the basics of tree physiology and how trees grow.*
- *Describe the successional strategies of at least 3 major species in Vermont.*
- *Predict the impacts of different silvicultural prescriptions on the direction of succession.*
- *Understand the difference between even-aged and uneven-aged management.*
- *Have a basic understanding of the most common silvicultural practices associated with the major timber types found in Vermont.*



- *State three different criteria used to define a wetland.*
- *Describe the ecological importance of protecting water quality during logging.*
- *State the 3 essential elements of habitat.*
- *Understand the impacts of harvesting on succession of wildlife.*
- *Explain ways to create good habitat using harvesting.*
- *Describe how habitat considerations can be easily built into a harvesting plan.*

## Professionalism in Forestry

### General Description

Understanding regulations that apply to logging, personal liability, ethics of forestry practice, and effective communication is the focus of this workshop. Participants will learn about the Sustainable Forestry Initiative and explore current issues that face the forest products industry.

### Learning Objectives

- Review current rules and regulations that apply to timber harvesting practices in Vermont.
- Help participants understand the purpose and intent of regulations, and how to comply.
- Describe the basics of the communication process and the factors that influence how and why we communicate.
- Explore what it means to be a professional.
- Identify images that people associate with professionals.
- Explain the purpose and objectives of the *Sustainable Forestry Initiative* and how it is implemented in Vermont.
- Explain the concept of liability and loss.
- Describe instances where a logging contractor is apt to be held liable.
- Describe situations where ethical concerns arise in forestry.
- Allow participants to explore ethical questions using case studies.

### Outcomes

Upon completing the Professionalism in Forestry workshop, LEAP participants should be able to:

- *Have a clear understanding of the rules and regulations that apply to timber harvesting – their purpose and intent.*
- *Know where to go for more information on a particular regulation.*
- *Identify things that can get in the way of effective communication.*
- *Describe current public opinion about the forest industry.*
- *Discuss ways to effectively influence public opinion.*
- *Explain how the Sustainable Forestry Initiative works in Vermont.*
- *Understand the importance speaking or advocating for one's self or business.*
- *Know the importance of projecting a positive image.*
- *Describe at least 3 ways to create a more professional image.*
- *Distinguish between ethical and unethical behavior.*
- *Describe strategies to address unethical behavior.*
- *State the most common types of ethical questions that arise in forestry.*
- *Define "conflict of interest" and give examples of how to resolve it.*
- *Explain the importance of "full disclosure" when working with clients.*
- *Know the difference between responsibility and liability.*
- *Explain reasons for liability insurance.*

## Game of Logging (GOL)

### General Description

The Game of Logging workshop series, levels 1 - 4 is intended to increase awareness of the many dangers associated with logging, to improve equipment handling procedures (especially chainsaw safety and tree felling practices), and to change work habits so that safety is a primary concern to the crew. In recognition of the fact that accidents do happen from time to time, some first aid for first responders of logging-related traumas is taught as well.

### Learning Objectives

- Learn woods-working methods that emphasize safety, especially in the areas of chainsaw use, tree felling, and equipment operation on steep or difficult terrain.
- Demonstrate safe and efficient methods of working with logging equipment.
- Learn new tree felling methods that improve directional control of falling stems.
- Describe equipment innovations that improve safety and efficiency.
- Review case study accidents and help participants understand ways to avoid situations that appear unavoidable.
- Instill a "safety first" philosophy by discussing both the human and financial tragedies of accidents.

### Outcomes

Upon completing the Game of Logging workshop series, loggers should be able to:

- *Understand and explain the basic "physics" of an operating chain saw.*
- *Describe the circumstances under which a chain saw will kick back.*
- *Explain how a chain brake works and describe proper maintenance of the mechanism.*
- *Describe the advantages and disadvantages of long-bar vs. short-bar saws.*
- *Know how to execute a plunge-cut to safely fall a tree.*
- *Understand and demonstrate the proper method of filing a chain and rakers.*
- *Explain proper procedures when a tree gets hung up.*
- *Explain the importance of escape routes during tree felling.*
- *Understand and explain the effects of compression and tension wood in a stem or log.*
- *Identify at least 3 new ideas that improve safety on his or her job site.*
- *Know how to correct unsafe practices of co-workers.*

**Level 1** focuses on introducing the participant to open face felling and the development of techniques to safely use it. Topics covered include personal protective equipment, chainsaw safety features, chainsaw reactive forces, bore cutting, pre-planning the fell, and understanding hinge wood strength.

**Level 2** focuses on maximizing chainsaw performance through basic maintenance, carburetor setting, and filing techniques. Limbing and bucking techniques are introduced, spring pole cutting is covered, and more felling is practiced.

**Level 3** focuses on techniques for handling difficult trees. Topics covered include limbing, height measurement, segment calculations, wedging techniques, and hinge placement. The felling is done against the tree's natural lean and participants also limb and buck using techniques demonstrated in level 2.

**Level 4** focuses on ways to maximize a harvest plan for safety and productivity. Felling is practiced at working speed using all the techniques from previous levels. This level is geared to the user group.

**Level 5** is a refresher that re-caps the learning objectives covered in levels 1 – 4.

## Mechanized Logging Safety Workshop

### General Description

This workshop is intended to increase awareness of the many dangers associated with mechanized logging, to improve safety procedures, and to change work habits so that safety is a primary concern to the crew. In recognition of the fact that injuries do happen from time to time, some first aid for first responders of logging-related traumas is taught as well.

### Learning Objectives

- Learn woods-working methods that emphasize safety, especially in the areas of equipment operation.
- Learn OSHA Requirements and Regulations for Mechanized Logging.
- Demonstrate safe and efficient methods of working with logging equipment.
- Demonstrate best practices in Personal Protective Equipment (PPE), Fire Safety and Hearing Conservation.
- Describe equipment innovations that improve safety, efficiency, and ergonomics.
- Review case study accidents and help participants understand ways to avoid situations that appear unavoidable.
- Instill a "safety first" philosophy by discussing both the human and financial tragedies of accidents.
- Understand a culture of safety, including safety trainings and meetings and the statistical difference between new hires and current employees.
- Understand the types of accidents and why accidents like Slips, Trips and Falls could be more costly than what appears to be a more serious accident.

### Outcomes

Upon completing the Mechanized Logging Safety workshop, loggers should be able to:

- *Describe basic safety procedures for each piece of equipment used in a logging job.*
- *Understand how to safely diagnosis and initiate repair on the equipment and how to initiate a lockout/tagout procedure.*
- *Understand industrial ergonomics.*
- *Identify at least 3 new ideas that improve safety on the jobsite.*
- *Identify at least 3 new ideas that improve safety on his or her job site, including mentoring new hires to reduce the likelihood of an injury.*
- *Know how to correct unsafe practices of co-workers.*

## Advanced Logger Safety

### General Description

This workshop is intended to grow the participant from the basic awareness by increasing the participant's knowledge base and awareness of the many dangers associated with logging, and appropriate response to them. The workshop focuses on improving safety procedures and further expanding on changes to improve work habits, so that safety is a primary concern to the crew. Through visual interactive learning the student reviews areas of safety related to logging operations and the ways that individual injury trends occur. First Aid response is also reviewed to ensure a basic understanding of first-aid techniques in an austere environment. Lastly the second portion of the workshop utilizes a hands-on approach to allow for participants/students to employ the skills reviewed earlier and allow for actual application of the appropriate rescue/first-aid techniques. Further "Bad Habits" and dangerous techniques are explained and discussed forming an appropriate and safe approach to a serious trauma incident should one occur at a logging, sawmill type location.

### Learning Objectives

- Explain first aid procedures to stabilize an injured person until medical help is available.
- Identify the mechanisms to call for or reach professional emergency care.
- Recognize and be able to treat serious traumas, from blunt injuries to lacerations.
- Understand the importance of quick, clear thinking when an accident occurs.
- Understand the effects of heavy machinery and timbers in a crushing incident.
- Identify the incidents where patient movement or in-place stabilization should occur.

### Outcomes

Upon completing the **Advanced Logger Safety** workshop, participants should be able to:

- *Quickly recognize and assess an injury and apply the appropriate treatment.*
- *Know when to move and not move a patient.*
- *Recognize the symptoms of shock and know what to do.*
- *Accurately describe common injuries to off-site medical professionals.*
- *Know how to transport an injured person.*

## CONTINUING EDUCATION

Continuing education is required to maintain LEAP certification. Within every two years after completing the core curriculum requirements, except as otherwise noted, a logger must complete two full day workshops and maintain First Aid/CPR certification. A full day workshop is worth 8 credits. The following is a list of workshops that LEAP has offered in the past and will continue to offer periodically. Learning objectives and outcomes have been developed for these workshops. It is not inclusive of all topics that LEAP may choose to offer. Examples of other workshops that LEAP will offer include various aspects of Business Management, Managing Exotic Invasive Species, Trucking Regulations & Safety, etc. Workshops, as they are offered, will be based, to a large degree, on logger input and as emerging issues arise.

### Supervising for Safety in Forestry Operations

*This workshop is required for all employers or crew foreman to qualify for the Vermont Logger Safety and Workers' Compensation Insurance Program. It is not a LEAP certification requirement; however, LEAP credits will be awarded to those who attend.*

#### General Description

Forestry operations supervisors instruct, direct, and control workers in the performance of their duties. They communicate safety rules and procedures to workers and ensure that workers understand and follow them. They lead by example and set the tone towards safety. It is not always easy to lead a crew in a small business, but in a dangerous occupation, it is imperative that those in supervisory positions understand their roles and responsibilities and have been trained to develop the proper skill sets to ensure that they are managing a safe and productive workplace. This workshop is intended to train employers and crew leaders in the best practices for leadership and communications in forest operations. Each employer participating in the Vermont Logger Safety and Workers' Compensation Insurance Program must have someone in a supervisory position complete this training.

#### Learning Objectives

- Learn ten tools to handle difficult conversations and address unsafe behavior.
- Learn about improving verbal communications in all aspects of the work, including in the woods, on the landing, and in the shop.
- Review case study accidents and help participants understand ways to avoid situations that appear unavoidable.
- Learn to identify methods that enhance safety, especially in the areas of landing organization, workers and visitors to the site, and machine management on the landing, on skid trails, in the woods, and along roadsides.
- Learn about hazard identification and control.
- Understand safety and production.
- Conduct useful meetings
- Train new hires in safe operations
- Know the difference between a safety culture vs. the illusion of safety.
- Understand trends in forestry operations injuries and insurance claims.

## Outcomes

Upon completing the Forest Operations Supervisor workshop, LEAP participants should be able to:

- *Describe hazards throughout all aspects of the Logging operation.*
- *Be able to conduct a safe Logging operation.*
- *Describe techniques to improve communication to all associated with the operation.*
- *Explain different accidents that can occur and be able to explain how to avoid them.*
- *Explain to others how to increase production and maintain a safe operation.*
- *Know where to find and use different tools to lead useful safety and efficiency meetings.*
- *Demonstrate communication techniques throughout the Job.*
- *Be able to identify and react to unsafe behaviors.*
- *Better relate the need to develop a Culture of Safety.*

## Forest Water Quality, Erosion Control, and Wetlands

### Learning Objectives

- Describe the principals of the AMPs and how they protect water quality in general.
- Demonstrate use of the AMP App and show how to utilize the App for job planning and layout, as well as other features of the App, including the soils map component.
- Identify the key elements of installing an appropriate stream crossing structure.
- Describe the difference between intermittent and perennial streams and cover the Stream Alteration State Rule in relation to the AMPs.
- Explain how to contact the Vermont River Management Engineers and who to contact for Stream Alteration Permits.
- Discuss how to identify wetlands on the ground and explain the Forestry Operations Allowed Use.
- Identify the key aspects of protecting wetlands when logging and how to successfully plan and implement harvesting around wetlands.
- Explain how to contact the Vermont Wetlands Ecologists and what kind of information they can provide.

## Outcomes

Upon completing the **Forest Water Quality, Stream Crossings, and Wetlands** workshop, loggers should be able to:

- *Understand the Acceptable Management Practices (AMPs) as they apply to logging in Vermont.*
- *Be able to find and download the AMP App and understand how it is useful.*
- *Carefully consider options for stream crossings and choose the best methods to suit the circumstances.*
- *Understand the basics of the Stream Alteration Rule, when a Stream Alteration Permit is necessary, and how to get one.*
- *State three different criteria used to define a wetland.*
- *Describe the importance of protecting wetlands when logging and how to comply with the Forestry Operations Allowed Use.*

## Surveys & Boundaries

### Learning Objectives

- Explain the basics of boundary law in Vermont and the Timber Trespass law.
- Describe common methods of marking boundaries.
- Learn how to read a survey, locate a boundary line, and recognize a boundary marker.

### Outcomes

Upon completing the **Surveys & Boundaries** workshop, loggers should be able to:

- *Explain the basics of boundary law as it relates to forestry operations.*
- *Locate (identify) a boundary.*
- *Describe the meaning of different blazes along a boundary.*
- *Understand the conditions of, and penalties for, timber trespass.*

## Log Making

The overall goal of a Log Making (log bucking) workshop is to improve the value recovery capabilities of the workshop participants.

### Learning Objectives

- Learn to identify defects in logs and understand their implications for log quality.
- Develop the ability to identify indicators of internal defects in the bark and on the log surface.
- Understand how internal defects effect log and lumber quality and value.
- Practice identification of defects on the sample tree stems.
- Develop a basic understanding of log grading and scaling.
- Understand how lumber grades relate to log grades.
- Understand the effect of log rules, grades and scale on log value.
- Learn to apply knowledge of defects, scaling & grading to improve value recovery.
- Understand how/when “less is more” with respect to log volume vs. value.
- Learn to apply helpful rules-of-thumb to help improve value recovery.
- Demonstrate how to apply basic grading “rules” to improve log value in bucking.
- Emphasize the importance of good communication between the log buyer and the log makers.

### Outcomes

Upon completing the **Log Making** workshop, loggers should be able to:

- *Understand and apply mill grade specifications to log bucking situations.*
- *Know when and how to isolate defects in the log so as to maximize value.*
- *Make bucking decisions that can substantially improve log grade.*
- *Know when to sacrifice log volume recover to improve grade.*
- *Identify exterior bark characteristics that hide potential lumber defects.*
- *Communicate with the log buyer about grade specifications and premiums for high-value logs.*