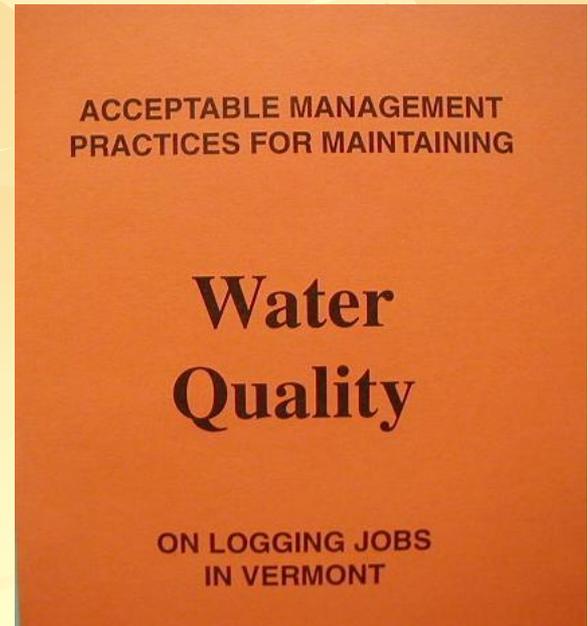


AMPs to Protect Water Quality During Logging



Dave Wilcox Watershed Forester

What are the AMPs?

26 practices to:

- Protect Water Quality
- Prevent Soil Erosion
- Minimize Stream Impacts



To be applied on:

- Truck Roads
- Skid Trails
- Stream Crossings
- Riparian Areas (Buffers)
- Log Landings

To be applied prior to, during and immediately after harvesting



AMPs first adopted in 1987

AMP Revised Rules

Went into effect in October 2016

Rulemaking began for minor changes
to the new rules in November of 2017.

Public comment period ended in early February.
Final proposed rule going to LCAR on June 28th.

What Constitutes An AMP Water Quality Violation?

- Any discharge of sediment, logging slash or petroleum into Waters of the State.
- The proper use of the AMPs are your best chance of preventing discharges.
- Although not mandatory, implementing the AMPs gives the logger the presumption of compliance with the water quality standards.



Who is responsible for implementing the AMPs?

- Loggers are responsible for implementing the AMPs during logging.
- Landowners should ensure that the AMPs are correctly installed on their land.
- Landowners are responsible for their land being in compliance with the AMPs.
- AMPs are mandatory for UVA eligibility.



AMPs apply on all logging jobs on public and private land regardless of purpose.



How Logging Affects Water Quality

- Compaction-reduces soil permeability
- Roads, trails, ditches-
 - increase soil erosion
 - redirect water flow
 - concentrate water flow.
- Crossings- disrupt flow, potential for discharge.



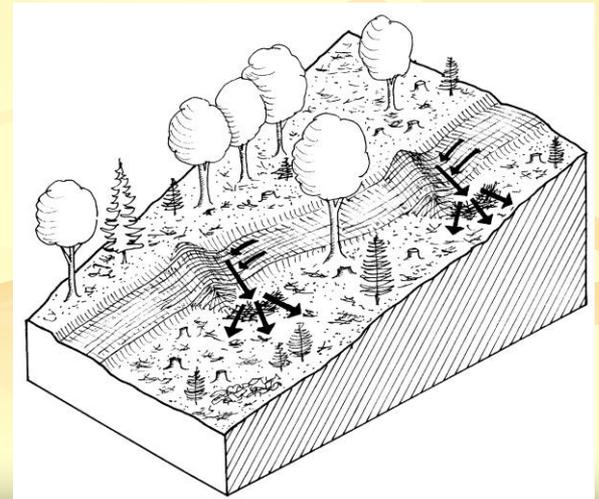
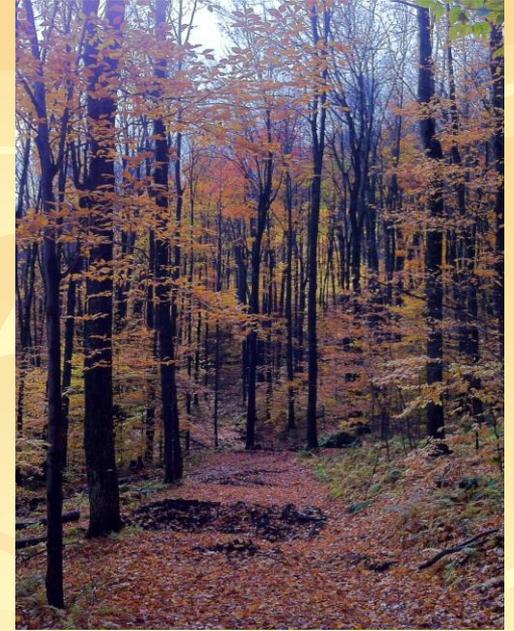
How AMPs Protect Water Quality

- Minimize risk of soil movement
- Protect streambank vegetation
- Maintain natural streamflow
- Stabilize exposed soil within stream buffers.



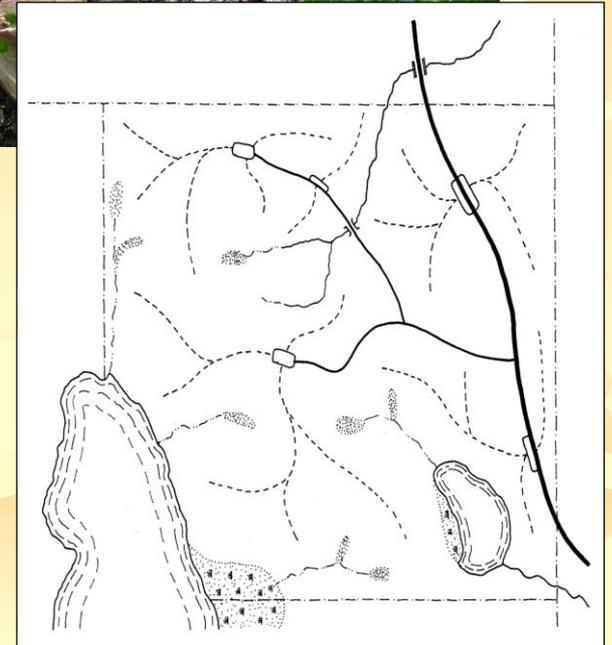
Principles of Water Resource Protection

- Planning the operation
- Controlling water flow
- Minimizing impacts to streams
- Stabilizing soil
- Managing chemical pollutants



Planning Practices to Protect Water Quality

- Identify streams, wetlands and other surface waters
- Clearly designate buffers in the field. (AMP Table 4)
- Determine location of truck roads, skid trails and log landings.
- Decide upon appropriate AMPs
- Consider long-term needs and future logging operations on the property.



Practices to Control Water Flow on Skid Trails and Truck Roads

- Layout roads and trails with as little slope as possible.
- Install waterbars.
- Prevent rutting, smooth ruts after closeout.



Table 1

Road Grade (Percent Slope)	Skid Trails		Truck Roads Permanent Truck Roads During and After Logging. Temporary Truck Roads During Logging.		Temporary Truck Roads After Logging
	During Logging (Waterbars & Turn- Ups)	After Logging (Waterbars and Turn- Ups)	Broad- Based Dips	Ditch Relief Culverts	Waterbars
1	500	400	500	450	400
2	300	250	300	300	250
5	200	135	180	200	135
10	140	80	140	140	80
15	130	60	---	130	60
20	120	45	---	120	45
25	110	40	---	65	40
30	100	35	---	60	35
40	90	30	---	50	30

Be Careful where you terminate drainage structures...



Disconnecting surface water from streams



Minimizing impacts to Stream Crossings

- Properly installing and sizing temp. stream crossing structures (Table 2)
- Temporary structures
 - *12 mos. max for poled fords
 - *18 mos. max for culverts and bridges
- Permanent structures
 - Perennial vs Intermittent



*from time of installation

Permanent Crossing Sizing



Proposed Table 2A -AMP rulemaking 4/25/2018

6.12 Table 2A: Minimum Culvert Sizing for Stream Crossings

Choose the drainage area closest to your crossing site drainage area

Drainage Area (Acres)	Minimum Diameter for Temporary Culverts <18 mos. (in inches)	*Minimum Diameter for Permanent Culverts on Intermittent Streams installed for a period >18 mos. by drainage area (in inches)
4	12	15
8	15	18
16	18	24
20	18	30
40	24	36
50	30	42
80	36	48
120	36	60
160	42	66
200	48	Streams with drainage areas of 160 acres or greater are likely to be perennial. Adhere to the VDEC Technical Guidance for Identification of Perennial Streams
320	54	
350	60	
450	66	
640	72	
For Drainage Areas greater than 640 acres, a temporary bridge is required. See table 2B		
* The minimum size for permanent culverts on intermittent streams shall be as outlined above or shall be sized to accommodate the active channel as observed at the crossing site.		

AMP 6.5.5 states that "Permanent stream crossings on perennial streams shall be in compliance with standards set forth in the Vermont Agency of Natural Resources Stream Alteration Rule and General Permit. Environmental Protection Rule, Chapter 27.

Proposed Table 2B -AMP rulemaking 4/25/2018

6.13 Table 2B: Minimum Bridge Structure Opening for Stream Crossings

Choose the drainage area closest to your site drainage area

Drainage Area Acres	Minimum Span Temporary Bridges (FEET) Distance between abutments	*Minimum Height Temporary Bridges	Minimum Span Permanent Bridges (Feet) Distance between abutments	Minimum Height Permanent Bridges (Feet) From average streambed elevation to low chord of superstructure
<100	6	OHW	6	2.5
160	7	OHW	7	2.75
200	8	OHW	Streams with drainage areas of 160 acres or greater are likely to be perennial. Adhere to the VDEC Technical Guidance for Identification of Perennial Stream 640 acres = 1 square mile	
320	10	OHW		
640	13	OHW		
960	16	OHW		
1,280	18	OHW		
1,920	21	OHW		
2,560	24	OHW		
3,200	27	OHW		
3,840	29	OHW		
4,480	31	OHW		
5,120	33	OHW		
5,760	34	OHW		
6,400	36	OHW		
** See Below				

*Minimum Height- Low chord of superstructure at or above OHW (Ordinary High-Water Mark).

**AMP 6.5.3 and 6.5.4 State that "Temporary Bridges shall span the entire width of the stream channel." The minimum span for bridges shall be according to table 2B or shall span the entire width of the stream channel as observed at the crossing site.

Tables 2A and 2B

Stream Crossing Locations:



- Perpendicular to the stream channel
- Where the Stream Channel is:
 - Narrow
 - Well defined
 - Banks are stable
 - Approaches are 10% grade or less.

Protecting Stream Buffers

- A forest buffer shall be left along streams and other waters.
 - The width of the buffer shall be according to table 4.
 - No less than 60% crown closure
 - Logging equipment shall not be driven within a 25 foot wide area along streams

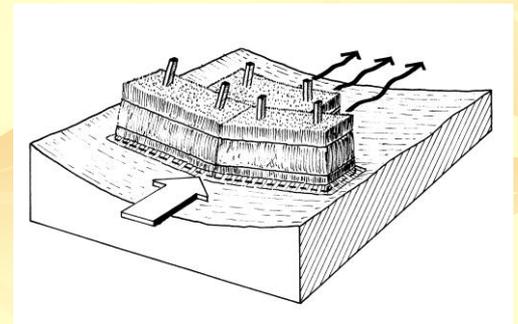
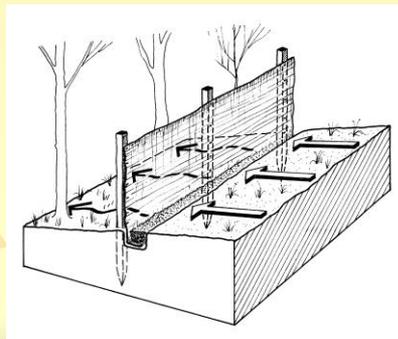


Table 4

Slope of land between stream and road, trail or landing	Width from Top of Bank (Feet Along Surface of Ground)
0-10	50
11-20	70
21-30	90
31-40*	110

Stream Buffer Continued:

- Existing roads, trails or landings located within a buffer, can only be used if they are stable and the AMPs are in place and erosion and discharge is unlikely.
- New truck roads, skid trails and landings shall not be located in the buffer, unless there is no feasible alternative due to existing soil, rock, ledge or other ground conditions



Soil Stabilization

- Seed and mulch exposed soil within 50 feet of the stream after installation of crossing structures (except for traveled portion)
- During closeout, seed and mulch exposed soil within 50 feet of stream channel where structures were removed



Landings

During logging-

- Silt fencing, check dams and drainage structures shall be correctly installed on log landings to prevent sediment from entering streams and other waters.

After Logging-

- Log landings shall be stabilized and drainage structures shall be correctly installed to prevent sediment from entering streams and other waters.



Managing Chemical Pollutants

- Petroleum products and other hazardous materials shall be stored only outside of forest buffers
- Shall be removed immediately after completion of logging



Managing Chemical Spills

For spills of two gallons or more:

To Report a Spill: Contact the VT Dept. of Environmental Conservation
During regular office hours (M-F 7:45am – 4:30pm EST): 802-828-1138

24-Hour HAZMAT HOTLINE: 800-641-5005

National Response Center (for impacts or potential impacts to surface water): 800-424-8802

You must call and speak to someone. Email, text and voicemail messaging is not sufficient!

For more, visit: dec.vermont.gov/waste-management/spills



Maintaining a Positive Public Image

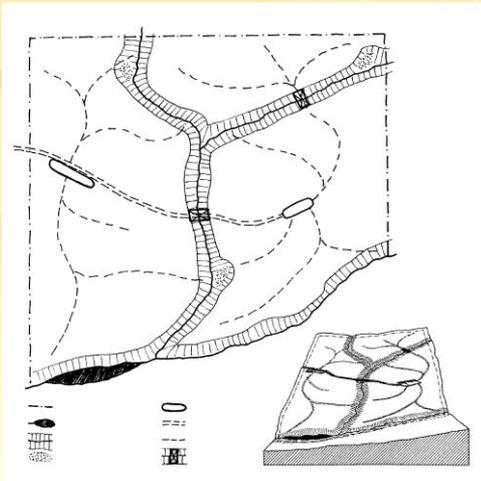
Careless logging practices create reluctant landowners.



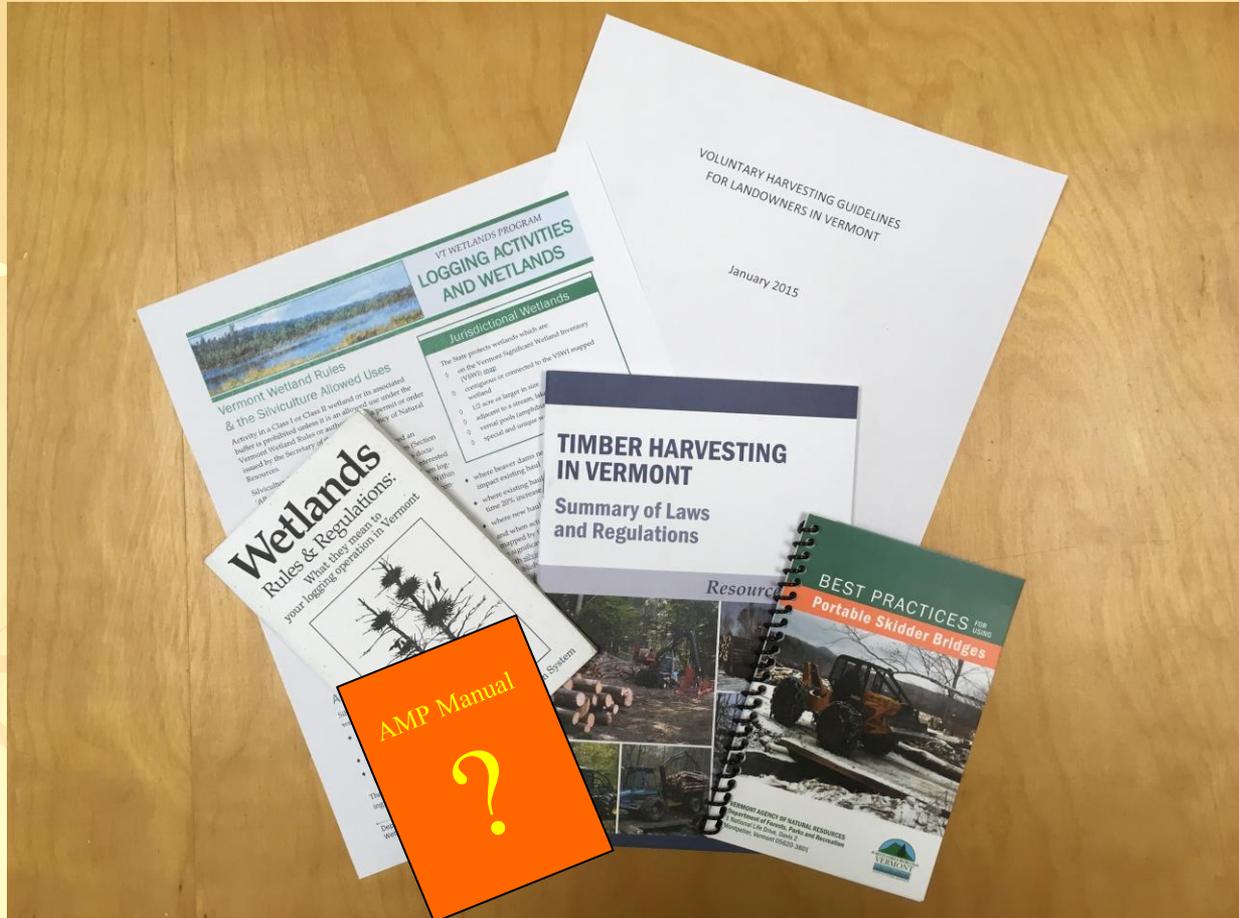
Arriving soon– the new AMP Manual

Will include-

- Enhanced supportive information and technical guidance
 - Up to date photos and graphics
- More on planning for water quality protection
- More information on wetland rules

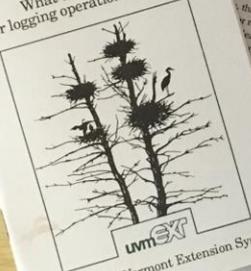


Supporting information



Vermont's Wetland Rules

Wetlands
Rules & Regulations:
What they mean to
your logging operation in Vermont



UVMEX
University of Vermont Extension System

VT WETLANDS PROGRAM
LOGGING ACTIVITIES AND WETLANDS



Vermont Wetland Rules & the Silviculture Allowed Uses

Activity in a Class I or Class II wetland or its associated buffer is prohibited unless it is an allowed use under the Vermont Wetland Rules or authorized by a permit or order issued by the Secretary of the Vermont Agency of Natural Resources.

Silvicultural activities in wetlands are considered an 'Allowed Use' under the Vermont Wetland Rules (Section 6) as long as certain conditions are followed. This document is intended to provide guidance for anyone interested in operating within the silvicultural allowed use when logging within State jurisdictional wetland and buffer. Within this document are clear examples which are not to be considered all-inclusive. It is advised that you contact the Wetlands Office if you have any questions.

Jurisdictional Wetlands

The State protects wetlands which are:

- on the Vermont Significant Wetland Inventory (VSWI) map
- contiguous or connected to the VSWI mapped wetland
- 1/2 acre or larger in size
- adjacent to a stream, lake, pond, or river
- vernal pools (amphibian habitat)
- special and unique wetlands - i.e. bogs or bays

Silvicultural Activities, as defined in the Vermont Wetland Rules, means those activities associated with the management of land for silvicultural purposes including the planting, harvesting and removal of trees.

This Allowed Use does not apply to areas being used for reasons other than sustained silviculture (for example, logging of lots for future development, or construction). For the complete version of the Vermont Wetland Rules, go to <http://www.wetlands.vermont.gov>

Definition of Silviculture

Use in Class II wetlands and buffers:

- Stream bank outlet or the flow of water is not altered;
- No grading occurs;
- No clear-cut plan when rare, sensitive species are present;
- No activities are not required for the following:

- where beaver dams need to be removed because they impact existing haul roads;
- where existing haul roads are expanded to a maximum 20% increase in width in wetlands;
- where new haul roads are constructed in a one-way direction;
- and when activities occur within deer wintering yards mapped by the Fish and Wildlife Department and within significant wetland and buffer, the activities comply with silvicultural standards for deer wintering yards established jointly by the Departments of Fish and Wildlife and Forest, Parks and Recreation.

Silvicultural activity within a Class I wetland is only an Allowed Use if the activity complies with a plan approved by the Commissioner of Forests, Parks, and Recreation. All Vermont wetlands are mapped and can be viewed on the <http://www.maps.vermont.gov/wetlands/WetlandProjects/default.html>

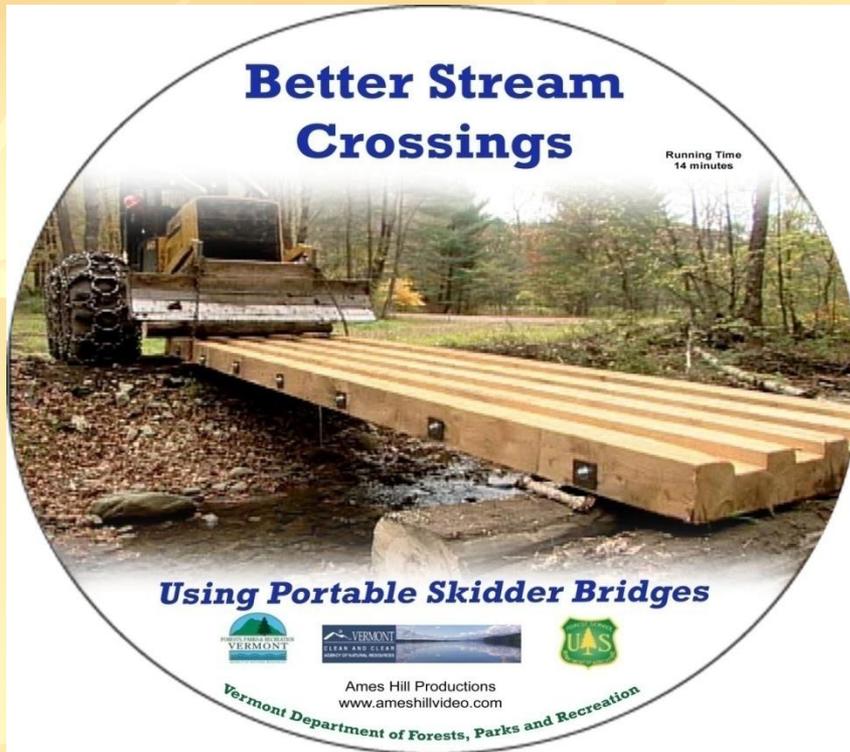
The following activities, for example, are **not** considered an Allowed Use:

- Silvicultural activities in wetlands that result in excessive runoff which alters the hydrology of the wetland.
- Leaving an excessive amount of log corduroy or brush in skid trails, winter haul roads or log landings in wet-

Department of Environmental Conservation - Watershed Management Division
Wetlands Program - 2 National Life Drive - Montpelier VT - 05620-3522 - (802) 490-6100



Portable Skidder Bridge Initiative



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[website] fpr.vermont.gov

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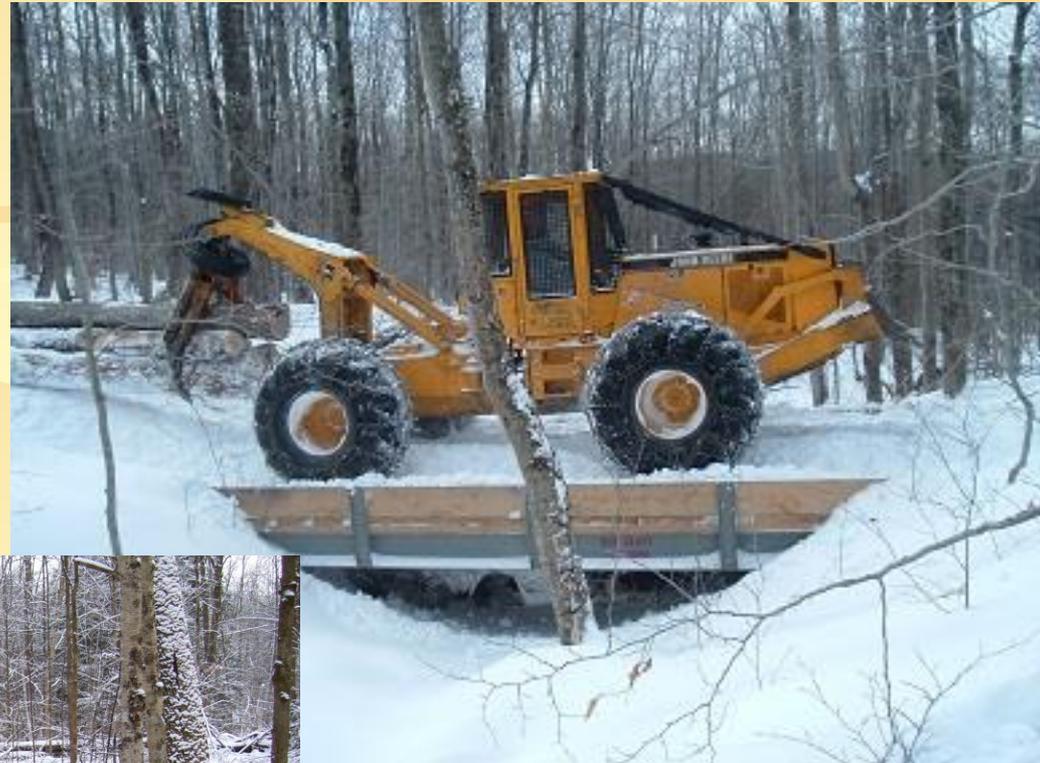
Temporary Bridge Rentals



<http://fpr.vermont.gov/BridgeRentals>



25-foot Steel Skidder Bridges



30 and 40-foot Truck Bridges



Skidder Bridge Initiative VT Legislature



Questions?

