

## Crossing streams and gullies on your property

This article explains how forest owners can cross streams with tractors and ATVs while minimizing sediment runoff and protecting the stream's aquatic life.

### **Main concepts:**

- **Make every effort to avoid crossing streams**
- **Cross streams directly when necessary**
- **Build and maintain effective structures to protect the stream bottom and banks**

Forest owners who work in their woodlot will likely deal with three kinds of streams:

- 1) Creeks that flow constantly
- 2) Smaller streams that occasionally dry down or freeze over
- 3) Dry washes that fill with intermittent flow from snowmelt or rainwater

All three types of streams require some kind of protection during woodland work. Because they are variable, soil erosion can be unpredictable. Damage to soil on the sides or bottom of streams is harmful and should be avoided.



Constant flow



Intermittent flow



Dry channel

## **Best management practices for crossing streams**

**Arrange your firewood cutting or timber improvement activity to cross streams as few times as possible or not at all.**

Refrain from cutting trees or brush in the vicinity of streams or stream crossings.

**Find out if you need a permit to cross large creeks on your property.**

To determine the classification and standard of a given watercourse, contact the Department of Environmental Conservation regional office responsible for the area in

which the creek is located. You can find out from your Soil and Water Conservation District if the stream is considered "classified."

Very small streams are sometimes dry or frozen, making crossing less harmful. If the weather becomes warmer or rainy, refrain from crossing small streams.

**Cross streams where the stream bottom is stable and the banks are low and intact.**

Forest owners will often "ford" a stream (cross through it without any bridge or other structure) with a tractor or ATV. This is sometimes acceptable, sometimes not. Do not ford fast-moving streams or streams with unstable banks. If your crossing forms ruts and suddenly clouds the water, it is incorrect. Find another place to cross or stabilize the crossing to prevent rutting and sedimentation.

If a stream crossing is necessary, install an appropriate structure - a bridge, a culvert, or a pole ford - to minimize rutting and erosion.

**Construct bridges to minimize sediment erosion and maintain stream flow.**

Inspect a planned stream crossing, noting potential obstacles, steep slopes, or other erosion hazards. Select materials that will not harm aquatic life. Consult with the county Soil and Water Conservation District technicians to assist with temporary or permanent bridge construction. They can sometimes visit the site and help guide your efforts to protect the stream from inadvertent erosion.



**Construct culvert crossings to minimize erosion.**

Use arch-type culverts to maintain stream bottoms and reduce sedimentation. Size the culvert(s) to handle current and storm flows of water. Consult with the county Soil and Water Conservation District technicians to assist with proper installation of culverts. Failure to properly size a culvert can lead to washed out roads and inaccessible forest land.

**Stabilize fords with rock or pole timber.**

Fords that cross intermittent streams and dry washes can be protected with small logs placed side-by-side, or clean rock. These materials will prevent cross rutting and ponding within the logging trail. They should be removed immediately following the timber work.



**Do not allow woodlot machinery to enter steep gullies.**

To extract firewood from gullies, use winches or small-scale equipment, like ATV logging devices. Drag logs cross slope and immediately repair or divert water from tracks. In many cases, large trees in gullies are essential for keeping the soil intact and should not be harvested at all.

**Where a logging trail approaches a stream crossing divert water into the forest.**

If water collects and flows down a logging trail, it should be diverted off to the surrounding vegetation with a dip before it reaches the culvert or bridge. Do not allow water on a forest road to flow directly into a stream, as it will inevitably carry sediment. If it flows off to the surrounding vegetation, the water will filter through the streamside

zone, trapping the sediment. The deck of the bridge (or culvert cover) should be higher than the approach road to improve drainage away from the stream crossing.

Construct stream crossing structures during low flow periods.

**Use temporary bridges to cross streams when appropriate.**

If a selected forest road will be unmaintained after the work is completed, a temporary bridge will protect the stream banks without incurring significant costs.

**Monitor stream crossing structures for plugging.**

Bridges and culverts should not become filled with sediment or clogged with debris or beaver activity. This would create a significant erosion hazard as the water would then flow around or over the structure. Bigger may be better, considering the unpredictability of heavy rain and flash floods.

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