

SECTION 8

Pasture, Forest, and Riparian Management

This fact sheet addresses the impacts that pasture and forestry management can have on water quality and how you can make a difference with *Best Management Practices (BMPs)*. BMP's are actions you can take to protect our natural resources.

The ultimate goal of this information is to minimize negative impacts on lake water quality.

1. Read the facts and information in the following pages.
2. Fill out the Property Assessment worksheet in order to analyze your property's specific needs.
3. Fill out the Action worksheet, then **Take Action!**

Small Farms

In recent years there has been a migration from city living to homes on small acreages. This section will address conservation and pollution prevention measures which can be implemented on pastures, forests, and riparian areas up to twenty acres in size. The need for this type of information has been clearly demonstrated in watersheds throughout the state.

Most small farm owners and managers are aware and concerned about protecting water quality in the watersheds. In fact, when determining how to design projects on their property, the water source and quality is always a priority. While it is well known that improper management can lead to pollutants such as sediment, nutrients, and bacteria entering streams, what is not well understood is *how* to manage these issues.

Best management practices (BMPs) are recommended by local soil and water conservation districts, the U.S. Department of Agriculture - Natural Re-

and the Cooperative Extension Service to optimize farm sustainability and protect water quality. provide information and technical support to farm owners who want to implement BMPs such as critical area management, intensive grazing, and alternate water systems.

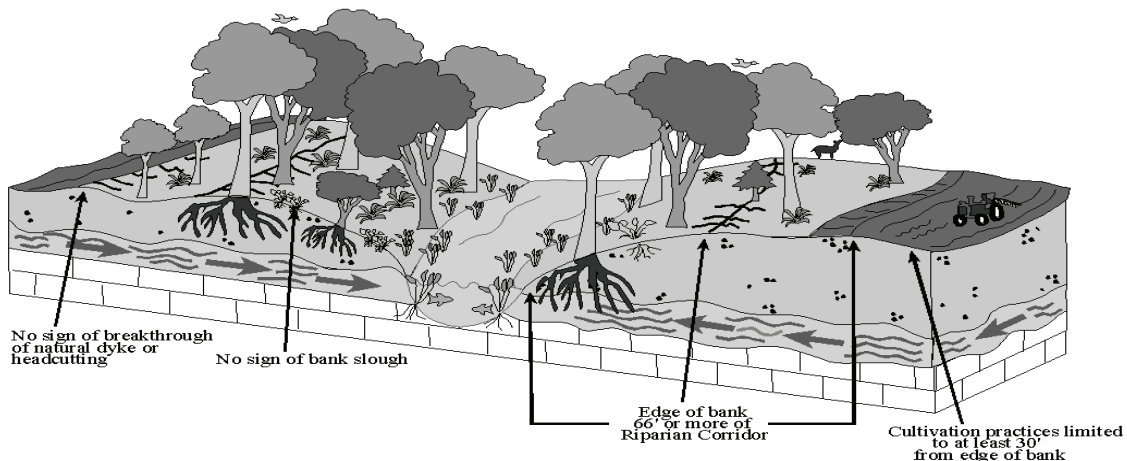
Pastures and Forest Lots

Pastures in good condition provide excellent erosion control against wind and water. Proper grazing practices minimize soil compaction and may improve plant health. When managed incorrectly, pastures become a high risk for water pollution.

As you know, managing your forest lot is extremely important. The forest assists nature in maintaining water quality by keeping soil in place, storing nutrients, and balancing water flows. In addition, stream water temperatures are moderated by tree canopies' to support healthy fish populations.

Riparian Zone

Riparian areas are areas adjacent to creeks, streams, wetlands, lakes and rivers where vegetation composition is strongly influenced by the presence of water. Riparian vegetation serves to stabilize banks, filter out sediment and nutrients, and create productive wetlands and floodplains. Riparian areas in good condition slowly release water to stream channels, thus improving seasonal water quantity and quality. By influencing the timing and quality of water delivered to water bodies, the condition of riparian areas play a significant role in water quality.



Pasture Management

Utilizing proper grazing management strategies and improving pasture and riparian areas is beneficial to the landowner as well as water quality, fish and wildlife. Virtually all of the practices mentioned below result in some type of improvement in forage or water table levels which translates into improved productivity over the long term.

Overgrazing and grazing when soils are too wet are the two most common causes of water runoff and erosion. Both these situations cause soil compaction which limits the amount of water allowed to infiltrate. The lack of infiltration into the soil decreases plant health and increases runoff.

Grazing in wet soils often takes place on pasturelands used as winter and spring feeding areas, on pastures grazed in early spring while soils are still wet, and on pastures grazed during or too soon after irrigation.

A pasture is overgrazed when animals are allowed to feed on over 50% of plant mass. When this happens plants do not have the ability to properly regenerate themselves for the following year.

Contact Bonner Soil and Water Conservation District for a grazing plan specific to your property.

Tips For a Successful Grazing Program:

- Corral livestock and feed hay until the pasture grasses are 6" to 8" high in the spring and the pasture soils have dried sufficiently to minimize compaction.
- Eliminate continuous season-long grazing-consider a high intensity, short duration grazing system or a pasture rotation system.
- Move livestock when 50% of the grass plant has been removed (3" to 4" of plant height remains). Do not graze until grasses have re-grown to at least 6 inches in height-this may take a month or so.
- Subdivide large pastures into smaller ones and develop and maintain a pasture-rotation system.
- During winter months, continue a rotation system and feed in dry or frozen pastures to distribute manure and feed evenly. If this is not possible, hold and feed livestock in a corral.
- Horses do not need round the clock access to feed as nutritional needs can be met with only a few hours of grazing on good pasture each day.

- Provide a water source for each pasture. Water sources should be located away from any riparian zone.
- On irrigated pastures, irrigate immediately following grazing to stimulate plant regrowth. Do not graze on wet soils.
- Be aware when soil erosion and off-site sediment delivery are occurring and change associated practices to eliminate the problem.
- Minimize the risk of both surface and ground-water contamination by preventing soil, fertilizers, and animal feces from entering waterways.

Small farm owners concerned with water quality, as well as, increased productivity should seek the proper technical assistance. For the development and implementation of a plan to improve forage production, riparian areas, and animal watering capabilities contact the Bonner Soil and Water Conservation District and NRCS. Proper management of both pasture and riparian areas can benefit your property in the following ways:

- Create diverse vegetation and root systems which protect and stabilize stream banks. This reduces the likelihood of costly damages caused by flooding and stream bank repair. Loosing your stream bank to erosion means losing your land and its value.
- Maintain a high water table and saturated zone and increase subsurface water storage which promotes deep root growth, healthy native vegetation, and lessens the threat of invasive weed species introduction.
- Reduce stream channel icing in winter and insulate and shade water in summer heat.

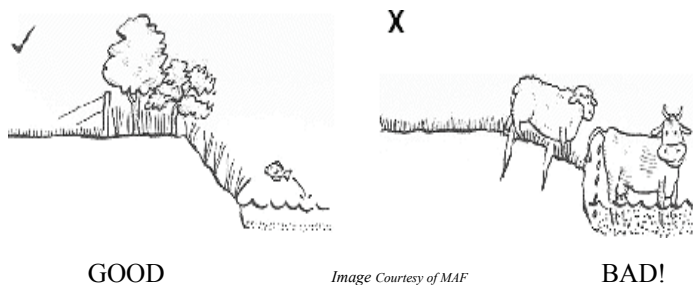
Graze Riparian Areas with Caution!

While most riparian areas need to be completely restricted from grazing, some areas may need to be grazed with caution. Animal grazing in riparian areas can result in loss or reduction of streamside vegetation, erosion due to trampling of stream banks and channels, and water pollution by animal feces.

Streambank compaction can also occur and contribute to poor plant root development and a decrease in the soil's infiltration rate. Grazing in riparian areas should only be utilized as a tool to improve plant health. This is done by grazing herds quickly on grasses areas to aerate soil and reduce duff layer.

Improper grazing can also eliminate woody vegetation resulting in decreased shade and a potential increase in stream temperatures. Streams will become wide and shallow, with elevated water temperatures and will have a negative effect on cold water insects and fish.

Channel stability is reduced and becomes more susceptible to erosion by high flows. Stream incising (channel deepening) or channelization of riparian areas will result in lowering of the water table and additional erosion.



Surface Water (Lakes & Rivers) Impacts

Most research indicates that impacts to surface water can occur in the form of increased bacteria and nutrient concentrations and increased sediment production. It appears that coliform bacteria in streams are a function of animal density and their direct access to streams.

Of the nutrients that could impact streams, nitrogen and phosphorus are of the most concern. Phosphorus binds to soil and is a potential pollutant any time soil erosion rates are high. Pastures receiving fertilizer increase the risk for nutrients to enter streams, especially in areas where riparian area has been disturbed.

Simple Rule of Thumb

Collect manure when plants are NOT growing
Apply when plants ARE growing

Groundwater (Wells) Impacts

Grazing can impact the quality, quantity, and timing of shallow ground water. Often, the flow of perennial and intermittent springs and streams is dependent on shallow ground-water. Poor grazing management practices often lead to slower soil infiltration rates. This means that more water will run off and less water will be available for plant growth and groundwater recharge. This results in decreased plant cover and bare soil exposed to raindrop impact and other soil compaction. These changes in the water cycle can cause a shift in plant species to less desirable grasses and an increase in noxious weeds. It can also have an impact on the quality and quantity of residential drinking water.

Riparian Grazing Solutions



Image courtesy of NC Cooperative Extension Service

Best: Use fencing to restrict livestock from the riparian area. This allows riparian plants the greatest opportunity for recovery. Significant improvement is often seen in only two to three growing seasons. Use watering troughs away from surface water wherever possible.

Good: If riparian grazing is necessary, use fencing to allow *controlled* grazing of the riparian area. Avoid grazing the riparian area until stream banks are stable and well vegetated, then graze only in the late spring for short periods. Avoid early spring grazing because stream banks are saturated and vulnerable to trampling. Avoid summer and fall grazing because this is when livestock tend to overgraze shrubs, especially willows. In just a few days, livestock can remove an entire year's shrub growth. Avoid grazing riparian plants shorter than

Degraded Riparian Areas

- Little vegetation to protect and stabilize stream banks and provide shade
- Lowered water table and saturated zone, reduced subsurface water storage
- Reduction or elimination of summer stream flows
- Warmer water in summer and increased icing in winter
- Poor habitat for wildlife, fish and other aquatic organisms

Healthy Riparian Areas

- Diverse vegetation and root systems protect and stabilize stream banks; stream shaded
- Elevated water table and saturated zone increased subsurface water storage
- Increased summer stream flows
- Cooler water in summer, reduced icing in winter
- Good habitat for wildlife, fish and other aquatic organisms
- Increased potential for nutrient recycling

Forest Management

This Section is directed at the property owner with forest land adjacent to the lake. Management of your forested lot may range from timber harvesting to simply preservation or enhancement of vegetation along waterways for wildlife habitat and water quality enhancement.

Timber Harvesting/ Family Forest Best Management Practices

If you are planning to harvest trees for commercial sale you are required to adhere to the rules and regulations of the Idaho Forest Practice Act (IFPA), a law intended for protection of water quality, forest productivity and wildlife habitat. Before commencing a forest practice, notification must be given to the Idaho Department of Lands (IDL), the state agency responsible to ensure compliance with the FPA.

Six categories of forest practice requiring notification:

- Timber harvesting and related road construction, or road construction and reconstruction away from the harvesting area where notification must be given to the Idaho Department of Lands (IDL), the state agency responsible to ensure compliance to the IFPA, Practices associated with reforestation,
- Application of insecticides, herbicides, rodenticides, and fertilizers for forest management purposes,
- Management of slash resulting from harvest, management, or improvement of forest tree species.
- Conversion of harvested forest land to another use.

In forest industry terminology you are a Family Forest Owner. In Idaho, Family Forest ownership is twice the acreage owned by industrial timber companies. The application of Best Management Practices (BMPs) on these private lands is just as important as on industrial, state, and federal lands. State and federal audits are routinely conducted on various harvested lands to determine whether BMPs are being applied and how effective they are at protecting water quality. Common problems include: inadequate Stream Protection Zones (SPZs), inadequately sized stream crossings, inadequate road surface drainage, and ditches and culverts that don't work.

If hiring a professional timber operator, use this fact sheet, along with other suggested reference material, to determine whether proper BMPs are being applied on your harvested land to protect water quality.

Have a Management Plan

A landowner should develop a management plan before beginning any forest management activities. This plan should make clean water a priority while meeting the landowner's objectives. An important part of the management plan is a map of the area that shows all water bodies, the direction water flows across the property, roads and trails, vegetation, impervious areas (roofs, driveways, and decks), soil types, and slopes.

Retain Existing Trees and Shrubs! They are so valuable.

When developing a management plan keep in mind the preservation of existing vegetation. Once they have been removed, it takes many years before maturity.



Which would you prefer?

You may obtain advice and assistance in preparing a management plan by contacting any of the referenced agencies on the last page of this manual. You can also contract with a private consulting forester.

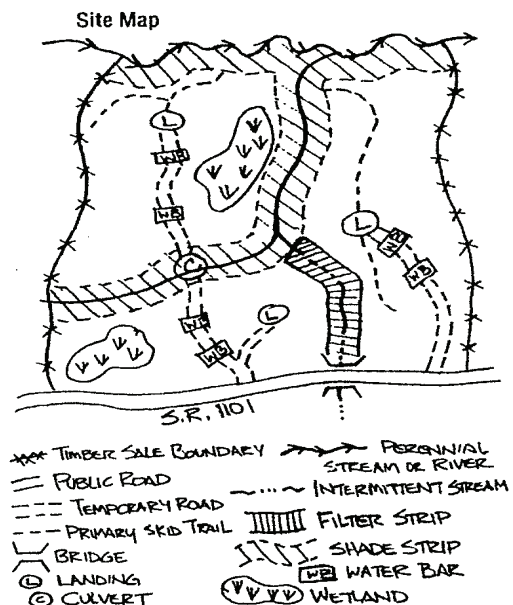


Figure 1: Map of management area showing roads, harvest areas, filter strips, landings, water bodies, and no-harvest areas.

Forest Roads

Erosion that occurs during forest road construction, and throughout the life of the forest road has a great potential to degrade lakes, streams, and wetlands. An important first step is to **determine how the roads will be used now and in the future.**

To minimize the impact of road construction, roads should be built to comply with an IFPA plan and design guidelines. Always consult a professional for proper road design and construction. Below are some BMPs that should be followed:

- Design roads for minimal disruption of drainage patterns.
- Use barriers, such as silt fencing and hay bales, where siltation and erosion may occur (see Section #1). Mulch and seed exposed soils.
- Where the road must cross a stream, construction of a temporary or permanent stream crossing must be in compliance with the Idaho Stream Channel Protection Act. A Joint Application for permits must be obtained from the Idaho Department of Water Resources, U.S. Army Corps of Engineers or, Idaho Dept. of Lands for any alterations within the beds and banks of continuously flowing natural streams in Idaho. **A wrong choice of stream crossing method can result in major damage to both the immediate site and down-stream water uses.**
- Minimize the number of times a road crosses open water or wetlands.
- Driving through open water is not recommended. Skidding through streams is not permitted.
- Water crossings using a culvert or bridge should cross a stream at a 90 degree angle to the stream bed in areas where the stream edge is stable.
- Use properly sized culverts or bridges where necessary. Remove any temporary culverts or bridges after the road has been abandoned. Always re-vegetate disturbed soils.
- Design roads for maximum cross drainage using water diversion structures (e.g., water bars) to minimize down road flow.
- Close all temporary roads after use to prevent unwanted use by off-road vehicles that could be detrimental to the site.
- Always route drainage through a vegetative filter strip so sediment can be removed before water reaches a surface water body.

Site Preparation

Mechanical:

The purpose of mechanical site preparation is to enhance conditions for the establishment, survival, and growth of desired tree species. Mechanical site preparation involves clearing the site for planting, seeding or natural regeneration, and providing partial control of other vegetation competing with crop trees. Site preparation is usually done by a contractor with specialized equipment.

- Avoid operation during periods of saturated soil conditions when such operations may cause rutting, compaction or accelerated soil erosion.
- Avoid disposing of residues from shearing and raking operations in wetland areas. Deposit residues in stable upland locations.
- Be sure that slash piles do not interfere with natural drainage patterns.
- Consider shearing and raking under frozen conditions to minimize incorporation of soil into slash piles.
- Follow land contours to promote soil stability.
- Use patch or row scarification (clearing) where terrain or soil type calls for minimum soil disturbance.
- Low slash and small brush should be left to slow surface runoff, return soil nutrients and provide shade for seeding.

Chemical:

- Chemical site preparation is another method of preparing a site. Consult IDL or the County Extension Service for proper herbicide advice and use. Do not spray near the water.

Manual:

- Hand or individual tree site preparation with hand tools is recommended in small areas and should be considered near water.

Harvesting

Timber harvesting is an integral part of wood lot management that involves cutting trees and removing them from the site. Harvesting temporarily disturbs the environment in the immediate area and should therefore follow a plan that incorporates water quality protection in all operations:

- Time the harvest to be compatible with soils, topography, and weather conditions. Soil disturbance is generally greatest under wet conditions and least under frozen conditions.
- Installing water diversion structures and erosion barriers.
- Locate landings (areas where harvested trees are brought for processing) away from low, poorly drained areas and outside of streambank/lakeshore protection zones.
- Never deposit harvesting slash (treetops, branches) or debris into wetland areas.
- Follow road BMPs when designing and laying out skid trails.
- Prevent erosion and sedimentation along roads by filling in ruts, seeding disturbed areas, and installing water diversion structures and erosion barriers.

Protect Existing Trees from Heavy Equipment

- Protect bark, limbs, and roots during construction, tie planks around trees to protect them from equipment, do not drive or park equipment over the root area.
- Safeguard roots because they are the most important part of a tree. Avoid filling, compacting, or removing soil from the root area; root area is at least as large as the area under the crown of the tree.
- Trim dead and dying limbs and remove diseased growth. Properly dispose of diseased limbs and bark to avoid providing an opportunity for the disease to spread.
- When trees are too crowded, remove some to allow more light and water to reach other remaining stems.
- Contact your local zoning office for restrictions related to thinning trees in the lakeshore area.

Protecting Nearshore Waters

- Maintain a healthy vegetative strip.
- Rake dead leaves and brush away from the water; compost vegetation in a sturdy structure away from the shoreline.
- Never dump leaves and vegetative debris into a lake or stream because this releases nutrients and organic acids into the water and uses up valuable oxygen needed by fish.
- Leave wetlands undisturbed.
- **Avoid burning on the beach or near shore** because the remaining ash is highly alkaline and may change the pH of the lake and promote growth of undesirable plants.
- When treating diseases or insect pests, use chemicals responsibly and use only the required amount. **Note: Use of fertilizers within 25 feet of the lake and streams is discouraged.**

Vegetative Buffer, Riparian Zones, and Stream Protection Zones (SPZ.)

Vegetative Buffers

The area of trees, shrubs and other plants adjacent to streams, lakes, ponds, and wetlands are considered buffers or filter strips. On the lake they occur mostly as a natural riparian area that intercepts sediment, nutrients, pesticides, and other materials in surface runoff and reduce nutrients and other pollutants in shallow subsurface water flow.

A buffer is also an effective storm water management practice on shoreline property, that minimizes the exposure of soil, and maintains the residual vegetation. It traps sediment and provides a zone of infiltration before runoff reaches surface water bodies. Buffers should be established between surface water bodies and developed areas whenever possible. Clearing vegetation down to the lake or stream for a walkway, for home safety, and for beach and dock development are environmentally acceptable amounts of disturbance as long as precautions are taken to reduce excess surface water runoff.

When developing a buffer the width needed will vary depending on steepness (percent slope), length of the slope, and soil type.

(See Table 1. on following page)

Table 1: Filter strip width guide for forest lot management.

Slope of land between management activity and water body (percent)	Recommended width of filter strip (slope distance in feet)
0 – 10	75
11 – 20	76 – 85
21 – 40	86 – 110
41 – 70	111 – 150

* Distance is measured to the edge of soil disturbance, or in the case of fills, from the bottom of the fill slope.

Establishing a New Vegetative Buffer

Using native vegetation is best because it is adapted to the local climate and usually has strong, well-established root systems that provide better erosion control, water-cleaning capacity, and stability for plants. Existing trees and shrubs also offer more typical habitat for wildlife and are more resistant to pests and disease. For a list of recommended plants please see page 8-9

- Use native species when available because they are hardier, more resistant to disease and pests, and provide natural habitat for wildlife.
- Include a variety of trees and shrubs; emphasize diversity of species, heights, and ages.
- Plant in the spring or fall.
- When planting, dig a hole 1 to 2 feet wider than the root system and backfill with original soil. Water the root area thoroughly, add a 3- to- 6 inch layer of mulch, and stake only if necessary.
- Nurture new vegetation (simply planting a tree is not enough to ensure it will survive); water regularly and deeply; avoid short, frequent watering because it promotes shallow roots systems; fertilize and prune as necessary; provide protection from deer, rodents and other pests.
- Scout for pests and diseases; treat early to avoid widespread damage. Contact County Extension Agent or Idaho Dept. of Lands for help.
- Water during times of low rainfall; trees should receive 1 inch of water per week under the crown canopy.
- If trees are too crowded, remove some to allow more light and water to reach remaining stems.
- Minimize the thinning of trees within the stream-side or Lakeside filter buffer strip.

Riparian Areas

Like pasture areas adjacent to the lake, it is likely that much of your forested areas are classified as riparian. And like pastures, improper management practices can lead to poor water quality and habitat in streams and lakes.

Stream Protection Zone

Stream Protection Zone (SPZ) is a term used in the Idaho Forest Practices Act (IFPA) that mandates a 75-foot minimum distance from a Class I (used by fish or for domestic water supply) stream, lake, or other water body that must be protected because of its importance to wildlife habitat, water quality and fish habitat (Figure 3). Even though the IFPA SPZ only refers to lot owners who harvest timber commercially, everyone harvesting timber near a water body should allow for a Stream Protection Zone.

Great Benefits

Slow flood flows and reduce erosion and property loss.

Secure food and cover for fish, birds and other wildlife.

Keep water cooler in the summer and prevent ice damage in winter.

Reduce water pollution by filtering out sediment, chemicals, and nutrients from runoff.

Provide important breeding habitat for birds.

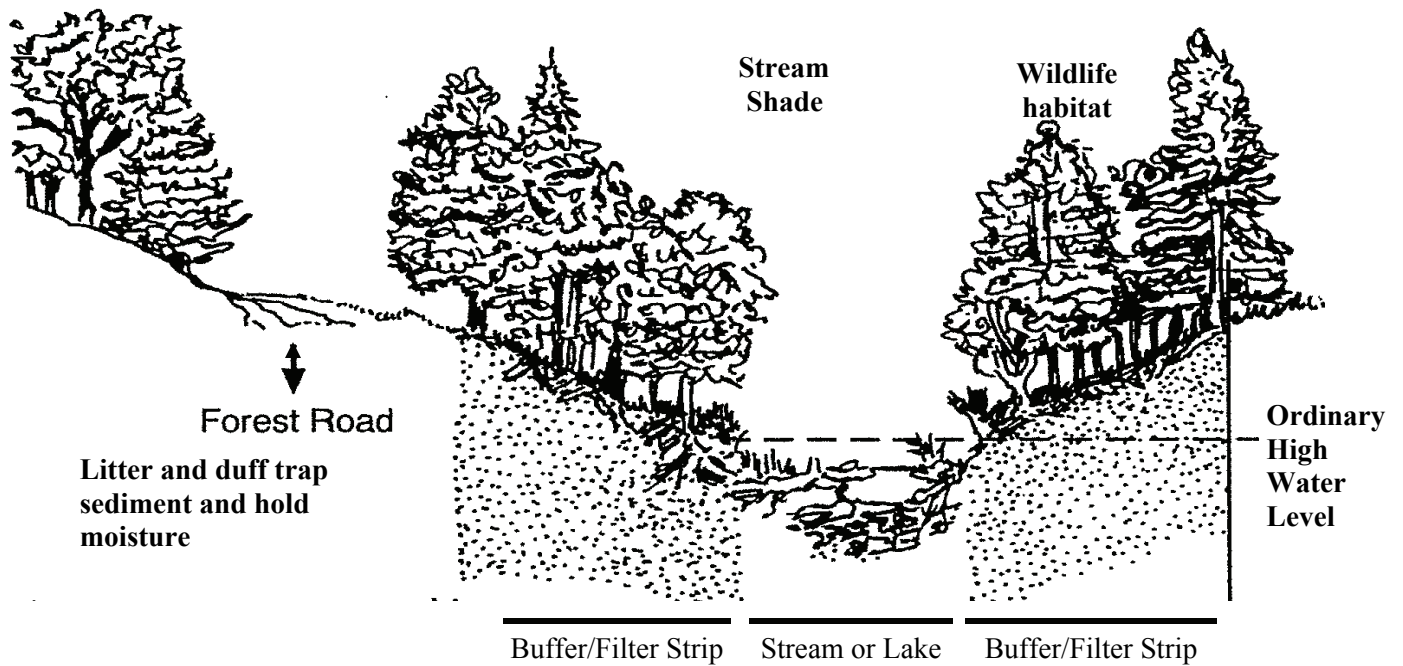


Figure 3: Function of Stream Protection Zones, Riparian areas, and Vegetative Filter Strips.

Suggested Species for North Idaho

DECIDUOUS TREES

- Quaking Aspen (*Populus tremuloides*)
- Black Cottonwood (*Populus trichocarpa*)
- Western Paper Birch (*Betula papyrifera*)
- Rocky Mountain Maple (*Acer glabrum*)

CONIFERS

- White Pine (*Pinus monticola*)
- Lodgepole Pine (*Pinus contorta*)
- Ponderosa Pine (*Pinus ponderosa*)
- Whitebark Pine (*Pinus albicaulis*)
- Grand Fir (*Abies grandis*)
- Douglas Fir (*Pseudotsuga menziesii*)
- Subalpine Fir (*Abies lasiocarpa*)
- Englemann Spruce (*Picea engelmannii*)
- Western Larch (*Larix occidentalis*)
- Pacific Yew (*Taxus brevifolia*)
- Western Red Cedar (*Thuja plicata*)
- Western Hemlock (*Tsuga heterophylla*)

SHRUBS

- Alder (*Alnus* sp.)
- Elderberry (*Sambucus cerulea*)
- Huckleberry (*Vaccinium membranaceum*)
- Serviceberry (*Amelanchier alnifolia*)
- Red-osier dogwood (*Cornus stolonifera*)
- Chokecherry (*Prunus virginiana*)
- Willow (*Salix* sp.)
- Wild Rose (*Rosa gymnocarpa*)
- Shiny Leaf Spiraea (*Spiraea betulifolia*)
- Mountain Ash (*Sorbus sitchensis*)
- Snowberry (*Symphoricarpos albus*)
- Thimbleberry (*Rubus Parviflorus*)
- Buckbrush (*Ceanothus velutinous*)
- Twin Flower (*Linnaea borealis*)
- Mountain Lover (*Pachistima myrsinites*)
- Ocean Spray (*Holodiscus discolor*)

Resources

Notes:

Local

Natural Resources Conservation Service

1224 Washington Ave, Suite 101
Sandpoint, Idaho 83864
(208)263-5310

Bonner Soil & Water Conservation District

1224 Washington Ave, Suite 101
Sandpoint, Idaho 83864
(208)263-5310

Idaho Department of Lands (IDL)

2550 Highway 2 West
Sandpoint, Idaho 83864
(208)263-5104
www.idl.idaho.gov/

Private Forestry Consultants - look in phone book under Forest Management or Bonner County Assessors has a list.

Valuable Websites

www.extension.org –search under small farms

www.idl.idaho.gov/

www.idahoforests.org/bmp.htm

Recommended Reading

Forestry for Idaho: BMP's - Forest Stewardship Guidelines for Water Quality.

An excellent color pamphlet with many photographs displaying and explaining proper and improper uses of forest practice BMPs, along with forest ecology and water quality concepts. Look for this at your IDL offices or find it online at:

www.idahoforests.org/bmp.htm

A Stewardship Handbook for Family Forest Ownership.

www.idl.idaho.gov/

State of Idaho Catalog of Storm Water Best Management Practices for Idaho Cities and Counties

You may examine this useful catalog at IDL, the Forest Service Headquarters in Sandpoint Idaho, Bonner County Planning and Zoning, or the DEQ office in Coeur d'Alene.

Assessing and preventing the risk of lake water contamination

Pasture, Forest and Riparian Management

Risk Assessment Sheet 8

ASSESSMENT 1 – *Forest Management*– The assessment table below will help you identify potential environmental risks related to the way you manage your forested lot. For each question indicate your risk level in the right-hand column. Some choices may not correspond exactly to your situation. Choose the response that best fits. When finished turn to the **Action Checklist** on page 4 and record your medium and high-risk practices. Your goal is to lower your risks. Use the BMP recommendations in Section 8, Pasture, Forest and Riparian Management to help you decide how to best reduce pollution.

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Management Plan:	A written management plan has been developed for timber harvesting, site preparation, stream protection, road maintenance, and forest management BMPs, and a time schedule for review.	A written plan has been created, but has not been updated in the last 5 years.	No management plan has been developed for making clean water a priority.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Timber Harvesting:	Timber harvests are planned and conducted using BMPs to protect water quality, meet sunlight and site requirements of tree species; are monitored by a professional forester.	Timber harvests are planned and conducted using BMPs without the assistance of a professional forester or other natural resources professional.	BMPs are not used. Timber buyer or logger plans and implements the harvest with no landowner or natural resources professional oversight.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Using BMPs:	Forestry Best Management Practices (BMPs) are carefully selected to protect water quality during all forest management activities. BMPs are included in the written forest management plan.	BMPs are included on an as-needed basis where believed necessary, but not included in the written plan.	BMPs are not considered during forest management activities.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

ASSESSMENT 1 CONTINUED – *Forest Management* – Use the table below to rate your risks related to managing your forested lot.

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Forest Health:	Recommended forest management activities produce a healthy, vigorous forest which meets goals for timber production, while enhancing wildlife, water quality, recreational and aesthetic goals.	The forest is not being managed for timber production, but meets goals for forest health, wildlife, water quality, recreation and aesthetics.	The forest is not being managed. As a result, forest health is declining and other goals are not being accomplished.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Tree species:	Planned and implemented forest establishment practices result in adequate populations of forest trees suited to the area. Selected tree species meets goals for timber, wildlife, water quality, recreation and aesthetics.	Forest is adequately populated/stocked, but the species mix is not ideal to meet all forest management goals.	Forest is inadequately populated/stocked with species that match soil conditions. Species do not meet management objectives.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Tree population/stocking:	Appropriate intermediate stand management practices (weeding, release, thinning, timber stand improvement, pruning, controlled burning, fertilization) manipulate the stocking, species composition and competition levels within management goals.	Established forest meets less than all management goals and needs some intermediate stand forest management practices.	Forest is overstocked or under-stocked, lacks vigor, is not of ideal species composition, does not contribute to forest management goals or sustain a healthy forest.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Stream Protection Zone:	Stream Protection Zones are identified and marked. SPZ's adhere to the Idaho Forest Practices Act of a 75 foot width for a Class 1 water body, provide water quality protection, and adequate stream shade. Minimal harvesting in SPZ. No roads or trails in SPZ.		No Stream Protection Zone has been delineated. No efforts are made to reduce harvesting impact on streams.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

ASSESSMENT 2 – *Riparian Management* – Use the table below to rate your risks relating to riparian health. When finished turn to the **Action Checklist** on page 4 and record your medium and high-risk practices.

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Streambank condition:	More than 90% of the streambanks are stable with plant cover or large rocks. Little or no active erosion.	70-90% of the streambanks are stable with plant cover or large rocks. Some active erosion.	Less than 70% of the streambanks are stable with plant cover or large rocks. Active erosion very evident.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Roads, driveways, and openings:	All BMPs required to prevent erosion and protect water quality are identified during the design and construction of roads, trails or driveways, which is done in consultation with an engineer. BMPs are frequently inspected and maintained.		Roads, trails and openings are bare and eroding. No effort is taken to reduce road or skid construction in a riparian area.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Streamside vegetation (riparian):	Stream well shaded with trees and/or shrubs. Perennial plants dominate with few or no annual plants.	Trees and/or shrubs providing some shade. Perennial plants dominate with some annual plants.	Little or no shade provided by trees and/or shrubs. Perennial or annual plants may dominate.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Streamside vegetation trend:	Streamside tree and/or shrub seedlings present and growing well.	Streamside tree and/or shrub seedlings present but not growing well.	Streamside tree and/or shrub seedlings not present.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High
Stream Crossings:	Stream crossings are avoided unless absolutely necessary. BMPs are installed for all temporary and permanent culverts, bridges, and fords. Engineering services used in design of water friendly stream crossings.		BMPs are not used. Stream crossings are eroding or bare. Culverts, bridges, and fords are not maintained.	<input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

