

## Appendix G-1

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### Grazing Best Management Practices Plum Creek Timber Company

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*NOTE: This appendix will be distributed to ranchers  
Who have grazing leases on Plum Creek lands.*

Plum Creek believes that forestry and livestock grazing are legitimate land uses, and if conducted in a manner consistent with good stewardship of the land, are fully compatible with maintaining high-quality water and fisheries. Grazing of Plum Creek land will be done in an environmentally sensitive manner, and in strict compliance with Plum Creek's Environmental Principles and Grazing Best Management Practices (BMPs).

These Grazing BMPs are intended to fulfill obligations under the federal Clean Water Act. They are also a commitment in Plum Creek's Native Fish Habitat Conservation Plan that has been developed under the federal Endangered Species Act. Input from various individuals has been incorporated in the development of the BMPs. These include scientists at the University of Montana Riparian Wetland Research Program and the U.S. Fish and Wildlife Service. They also incorporate feedback received from Plum Creek's leaseholders, the Missoula County Conservation District, Oregon State University, Montana Trout Unlimited, and the Montana Stockgrower's Association.

The BMPs have four primary components:

- Environmental Trend Indicators (ETIs) that, if they are not met, are used as a benchmark in establishing and documenting an improving trend in range conditions.
- Leaseholder development of an annual **Range Management Plan** (RMP) that describes the management system that will be implemented during that grazing season. This system must be designed to achieve the Environmental Trend Indicators or result in an improving trend toward attainment of the Indicators. A toolbox of individual practices is provided that the leaseholder can include in the RMP. Some of these BMPs are mandatory (such as salting away from streams and maintaining existing fencing) and some are optional (such as fencing). Because of the site-specific nature of environmental conditions and sensitivities on each grazing lease, a simplistic set of mandatory BMPs is not workable. This system has built-in flexibility that gives leaseholders latitude to implement a system that will achieve the desired outcome.
- **Monitoring** stream and riparian conditions at several sensitive locations on the allotment at least twice each season. Monitoring involves a simple form and photo-points that are submitted to Plum Creek by the leaseholder.
- Preparation of an **End of Year Report** by the leaseholder that describes what worked well during the grazing season and what did not with regard to environmental compliance, and

includes a list of things that need to be modified the next years RMP (Adaptive Management). If adequate progress is not made in attaining the ETIs, or improving conditions over time, Plum Creek may require specific practices be implemented, or terminate the lease.

## Environmental Trend Indicators

The intent of **Environmental Trend Indicators (ETIs)** is to provide a benchmark by which we can ensure that Plum Creek’s corporate environmental objectives (such as clean water and healthy fisheries) are met. We believe that for the vast majority of cases, the ETIs outlined below will maintain or improve conditions over time. In all cases, they provide measurable criteria, or metrics, that can be used in determining whether range management planning goals are being met. Adaptive management research (as developed under Plum Creek’s Native Fish Habitat Conservation Plan and other outside research) will be the basis for refining these ETIs. See photo appendix (not attached to NFHCP, but will be included in working copies for ranchers) for a series of photographs that illustrate various aspects of the BMPs.

Environmental Trend Indicators	Description
Streambank Stability	Livestock-caused bank disturbance will affect no more than 10% of streambanks. <i>This will be measured as the number of feet of livestock-altered bank divided by 100 feet of measured bank</i>
Riparian Compaction	Less than 10% of riparian soils will be affected by livestock hoof displacement/ compaction (Riparian soils occur in the lush, damp area around streams and ponds). <i>This will be visually estimated over a 1/10th-acre area (66 feet by 66 feet).</i>
Grass Utilization	Riparian grasses, sedges, and rushes may be utilized to no less than 8 inches in height.  Where 8-inch heights are unattainable, allotment-specific analyses can be performed to determine what the potential is. The allotment-specific Indicator would then be a maximum of 50% utilization. In no case however, will stubble heights be less than 4 inches. Upland grasses may be utilized at levels that promote healthy range conditions.
Shrub Utilization	No more than 25% of the current year’s shrub growth (including willows and trees) can be damaged/utilized by livestock. <i>An illustration demonstrating 25% shrub utilization is shown in Appendix 2.</i>
Visual Appearance	Must look good. <i>Subjectively rated by lease administrator</i>
Tree Regeneration	Less than 10% of seedlings and other trees can have physical damage caused by livestock. This includes damage to the terminal bud and leader, or by scarring/scraping. In addition, compaction caused by livestock must not inhibit tree regeneration. <i>This will be visually evaluated over a 1/10th-acre area (66 feet by 66 feet).</i>
Shrub Regeneration	Where they can exist, shrubs must be present along streams and in riparian areas, with all age classes represented. <i>This is to be measured by noting presence, size classes, and numbers.</i>
Noxious Weeds	Note presence and species (no numeric indicator value - monitor and note).

## Leaseholder Requirements

Each leaseholder must do the following to graze livestock on Plum Creek lands:

1. Each leaseholder will complete a Range Management Plan (RMP) that must be approved by the designated Plum Creek lease administrator prior to turnout (See Range Management Plans on Page 4).
2. Where current riparian conditions are not in compliance with the ETIs listed on Pages 2-3, the leaseholder's RMP must provide for steady improvement over time.
3. Each leaseholder will monitor riparian conditions at sensitive locations on their lease at least twice yearly. (See Monitoring on Pages 9-10)
4. Each leaseholder will complete an "End of Year Report." This report will summarize how ETIs were met, whether or not environmental concerns were effectively addressed, whether the RMP was fully implemented and whether it was effective, and what changes should be made to the RMP next year. Monitoring forms will be attached to the report. This report must be turned in to Plum Creek by November 1st (See End of Year Report on Page 11).

## Range Management Plans

A Range Management Plan (RMP) is a written record of your grazing goals and objectives, your plan of action to achieve these goals and objectives, and some form of measurement to determine whether you are successful. The RMP is not only your plan of action for the current year, but becomes a benchmark for future decision making and RMP adjustments. An RMP written by the leaseholder and approved by a Plum Creek representative is required prior to turnout of livestock. A sample RMP outline follows (see also example RMP in Appendix 3).

### I. Objectives and Goals

- A. Plum Creek Objectives (Provided on page 1)
- B. Plum Creek ETIs (Listed on pages 2-3)
- C. Range/riparian condition improvements
- D. Other objectives the leaseholder may have

### II. Environmental Concerns

- What are the environmental weak links of the range?
- What protection measures will be employed?
- How will the success of protection measures be evaluated?

### III. Pasture and Livestock Management (Attach Map)

- A. Allowable AUMs
  - Entire allotment
  - Plum Creek portion of allotment
- B. Pasture control
  - Turnout, numbers of animals, and types of animals (breed, sex, and age)
  - Timing for moving into new pasture (delineate pastures on map)

- Timing for pulling off of the range
- Frequency of re-use
- C. Implementation methods
  - Transporting livestock
  - Distributing livestock
  - Watering methods
  - Planned improvements

#### IV. Monitoring Plans

- A. Meet Plum Creek monitoring requirements
  - Where are monitoring plots to be located?
- B. Other monitoring plans
  - Monitoring on other landowners in allotment
  - Monitoring success of leaseholders goals
- C. Make adjustments based on monitoring - the feedback loop

#### V. Plan to Re-plan

A season-end evaluation of RMP.

### **Best Management Practices (BMPs) that May be Included in RMP**

Each leaseholder must identify the suite of management practices that will be included in the RMP. This combination of management practices must be designed to meet Plum Creek's ETIs, or result in steady improvement toward attainment of the ETIs. No single procedure exists that will tell you how to manage livestock in a way that protects riparian, range, and water resources. Your knowledge of grazing management and the conditions specific to your allotment will be the basis for determining the combination of management practices that are appropriate.

The general categories of factors that are under your control on the allotment that can affect riparian function and fish habitat can be summarized as follows:

- Type of Livestock (breed, sex, age)
- Stocking Density
- Duration of Grazing
- Frequency of Grazing
- Timing of Grazing
- Distribution of Grazing
- Forage Utilization

The BMPs summarized in this section each address one (or more) of the controllable factors listed above. Some of these practices listed in this section are mandatory (***shown in Italics***). The rest are to be used at the discretion of the rancher and the Plum Creek lease administrator.

## **Proper Use and Location of Salt**

*Salt shall be located well away from streams, ponds, seeps, and other riparian areas to avoid concentrating livestock use in these sensitive areas (minimum of ¼ mile away).* Salt can also be an effective tool for dispersing livestock into areas of feed that are not being used. Salt should be moved at least twice per season. Salt is best located on south-facing slopes in the early season and in shaded areas far from streams, ponds, seeps, and other riparian areas in the late season. This BMP is most effective when done in conjunction with development of alternate water sources.

## **Livestock Watering Improvements and Maintenance**

In areas where livestock are watering in streams and this is resulting in stream bank damage, livestock watering improvements will be considered. These may include developing springs on hills to feed a trough. *All existing watering improvements on the lease must be maintained on a frequent basis to ensure they are functioning properly.* Stock water developments should have water-catchment areas fenced out. Place a board in the water tank (cows won't drink as readily out of tanks with dead smelly critters in them; i.e., if a mouse falls in it can crawl out on the board) and place 2 ounces of copper per 1000 gallons of water to keep algae under control.

## **Mobile Watering Devices**

To improve livestock distribution, mobile watering devices could be considered.

## **Fence Construction and Maintenance**

Where livestock have caused severe riparian/stream damage and no other control mechanism is feasible, permanent or temporary fencing may be the only solution for improving the riparian condition.

*Existing fences on the lease (stream exclosures, drift fences, pastures, etc.) shall be maintained as needed to ensure they are effective. At a minimum, these fences shall be checked and repaired annually.*

*Fence gates will be maintained appropriately.* Signs can be effective in maintaining gate closure where roads are subject to public use.

## **Season of Use (Spring, Summer, Fall, Season-Long)—Timing of Turnout**

The timing of animal turnout and roundup can be critical for minimizing range and riparian damage. Riparian areas are most vulnerable when soils are at their wettest. Season-long grazing may not be a feasible alternative for protecting streams. Time the season of use to meet RMP goals.

## **Rotated Pastures**

Having several pastures on an allotment can be an effective way to control the timing and duration of grazing in an area. Multiple pastures can be utilized in a way that minimizes riparian and stream damage and achieves RMP goals. Where rotated pastures are used, the order in which pastures are grazed should be periodically changed.

## **Riding (Moving Stock Around)**

Where cows congregate (especially in riparian areas), they should be frequently moved to minimize riparian and stream impacts.

## ***Bulls on Range***

Bulls must be managed in a way that minimizes environmental impacts. If bulls on the range are resulting in non-attainment of the ETIs listed on Page 1 or are precluding an improving trend in conditions, they must be removed from the range.

## **Armor Watering Holes on Creeks**

In some cases, stream channel impacts are only located in a few areas where animals water. In some cases, armoring the channel with clean rock can prevent bank damage and sedimentation. This improvement will likely require a permit from the local Conservation District. *Contact your Plum Creek lease administrator prior to implementing this management measure.*

## ***Proper Number of Animals***

*The number of animals utilizing the range shall not exceed the carrying capacity of the range. The carrying capacity is that level of use greater than which would result in the inability to achieve the Plum Creek ETIs (see pages 1-2). Good management may, therefore, result in a higher carrying capacity while, conversely, poor management will reduce the carrying capacity.*

## **Yearling Herds**

Turning out only yearling cows can be used effectively to achieve better distribution on the range.

## **Rotating Herds**

In some cases, livestock herds have developed a pattern of use for a particular area. This can lead to continued use and damage of sensitive riparian areas. In some cases, rotating a new herds into the lease can help recover areas that have been impacted over the years.

## Upland Wildlife Considerations

Over utilization of upland areas can have negative affects on many wildlife species. Consideration should be given to maintaining healthy and productive grassland communities in uplands, especially in areas that are important to wintering elk herds. Significant changes in vegetative species composition, reductions in ground cover, and degradation of winter forage availability in important elk wintering areas should be avoided.

Understory vegetation (such as woody shrubs) is an important source of browse, nesting areas, and cover for many wildlife species. The condition of understory vegetation should be monitored and downward trends in shrub availability should be avoided.

## Vegetation Rehabilitation

Planting shrubs and trees can be effective in restoring plant communities to sensitive riparian areas, especially when done in conjunction with exclusion of grazing for a season or more. Dense shrub growth can stabilize stream banks as well as restrict livestock use along streams.

## Intensify Management where Roads Cross Streams

Roads that cross streams may provide an efficient entry for livestock to sensitive stream corridors, thus encouraging unwanted riparian grazing. Management tools to employ at this key location include:

- Wing fences back to impassable vegetation or terrain
- Installation of slash filter windrows at toe of road fills

## Use Vegetation to Restrict or Control Livestock Movement

Examples include those mentioned, such as slash filter windrows or establishment of shrubs along streams, but also includes any opportunity to utilize vegetation or woody debris which discourages free movement of livestock along stream corridors. *In consultation with the Plum Creek lease administrator*, for instance, the leaseholder may try strategically felling trees/snags or placing debris/slash in riparian cow trails to discourage their use.

## Weed Control

To prevent the spread of noxious weeds, grass seed can be applied in areas that have been stripped of vegetation. These areas include disturbed soils around salt licks and water tanks. In addition, ***notify the lease administrator of any new weeds on the allotment.***

## Others???

There are undoubtedly other BMPs that can be effective at minimizing water quality impacts. If you have had success with any particular management practice not discussed, please let us know so we can include it in future updates of this manual.

## **Monitoring**

Each leaseholder must monitor environmental conditions at several locations on their lease at least twice yearly. Monitoring is an opportunity to examine how RMP implementation is working in sensitive areas and what may need to be modified. Monitoring will also help determine if ETIs are being met, or if an improving trend toward their attainment is occurring. Monitoring plots are to be located in sensitive riparian areas that were identified as “environmental weak links” in the allotment in the RMP. These would include areas that are not presently meeting ETIs. See below for an example monitoring form. In addition to this monitoring form, leaseholders are encouraged to conduct more detailed monitoring, such as the Monitoring for Success program developed by the Montana State University Extension.

## ***Instructions***

1. Agree on monitoring procedure in your Range Management Plan with the Plum Creek lease administrator prior to turnout of livestock.
2. Identify monitoring locations on the map of your leased area attached to the RMP.
3. Monitoring will be conducted twice yearly, once in mid-July and once just after the grazing season. Results are to be attached to the End of Year Report (Due November 1st) and will include photos taken at each plot with the plot number marked on each photo.
4. Take monitoring plots at agreed distance apart along the stream, answering questions, taking appropriate notes, and taking a photograph at the plot. Including a piece of paper with the plot number marked in felt pen in the photo is important to remember where the photo was taken.

## Monitoring Form—Grazing in Riparian Areas (9/00)

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<b>Leaseholder name:</b>
<b>Date:</b>
<b>Stream name:</b>
<b>Plot number:</b>

### Are there impacts?

	YES	NO
1. Do hoof prints occupy more than 10% of the riparian area? If yes, how much?		
2. Are "cow pies" visible in the stream?		
3. Are more than 10% of the stream banks altered by livestock? If yes, how much?		
4. Is there bare exposed soil on the stream banks? If yes, which age classes are absent (i.e. young, mature, old)?		
5. Are multiple age classes of shrubs absent along the stream?		
6. Does brush/willow hedging exceed 25% of current years growth? If yes, how much?		
7. Are riparian sedges and grasses less than 8 inches high? If so, by how much?		
8. Is the water murky or foamy looking?		
9. Would you decline from drinking a glass of this water (giardia aside)?		
10. Did the condition of this monitoring plot worsen since your last visit? In what ways?		
<b>Total</b>		
<b>Percent</b>		

**Other Observations:** Because the observational monitoring questions above are very general, the results can be misleading without recording additional observations. What else should the reader of this form know? Use extra pages if needed.

**Was photo taken at this plot?**

## End of Year Report

At the end of the season, it is important to review the operations for the year to evaluate what worked and what didn't. This is a valuable opportunity to determine what improvements can be made to the following years RMP and plan of operations. This evaluation must be written up and turned in to the Plum Creek administrator by November 1.

At a minimum, this report should include the following kinds of information:

- Were Plum Creek ETIs met across the entire lease? If not, why?
- What are the trends in ETIs?
- Were environmental concerns effectively addressed?
- Was pasture and livestock management implemented according to the RMP?
  - AUMs, numbers of animals, type of animals
  - Pasture control
    - Turnout timing
    - Pasture rotation and timing of rotation
    - Turn in timing
  - Distribution
  - Forage utilization
- Were planned range improvements implemented?
  - What worked?
  - What didn't?
- What changes will be made to next years RMP to continue improvements in range conditions and maintenance or attainment of ETIs?

Note: All monitoring forms and photos should be attached to the year end report.

# Appendix Lg-1

## Riparian Condition Survey

