RIPARIAN ZONE MANAGEMENT

BACKGROUND

In the late 80's and early 90's, Jensen Bissell laid out the SFMA road system to minimize stream crossing with the understanding that such sensitivity to watershed structure and topography would often result in longer haul distances. In addition, 1st and 2nd order streams were often used as stand boundaries to provide an opportunity to create a restrictive buffer around them. This framework, combined with riparian zone delineation based on landscape features such as changes in slope, plant community type, and wildlife use patterns, has been part of the effort to protect the water and wildlife resources of the SFMA. These riparian zones were left as "semi-protected" areas, where "sensitive and thoughtful harvesting" could occur as long as it did not damage water quality, wildlife habitat, or decrease vertical structure. Because the identification of on-site indicators determined their lines, these zones vary from 50' to more than 1000'in width[1]. They have been gently treated in a few places, but more often not treated at all.

In our modeling we generally counted any wood in these zones as off-limits; we considered any volume gleaned from these areas as "gravy", and did not factor it into our planning and projections. The riparian zones occupy more than 15% of the terrestrial habitats in the SFMA, offer value for extraction, and can be sustainably managed with appropriate guidelines as a demonstration for other landowners.

RIPARIAN ZONE GOALS AND GUIDELINES

The following section includes overall goals and specific guidelines for different water body types. The intent of this document is to provide more specific guidance to managers that will allow a portion of these areas in our harvest planning and volume projections while ensuring that the primary values of riparian zone goals are protected.

These guidelines should be considered on a management unit (MU) basis. As MUs with adjacent riparian zones are planned for entry, each riparian area directly adjacent to an MU should be considered as a unit. In other words, if we were to extend the boundaries of the MU down to the relevant watercourse, that would create the unit of riparian zone management. Therefore, those riparian areas adjacent to reserve blocks will become de facto part of that reserve block.

In practice, riparian management zones have been delineated based mainly on where the slope down to the watercourse begins, with attention paid to changes in soil drainage and plant species composition. Wildlife experts suggest that this top of the slope terrace is also where a great deal of wildlife mobility occurs. This practice will continue to be employed as the outer layer of riparian protection. An inner layer of additional protection will be established.

Water quality protection, sensitive plants, and wildlife habitat are the primary considerations in riparian zones. Timber and recreation management are secondary uses. This is meant to be similar to the Bureau of Parks and Lands "Wildlife Dominant Areas"[2]. In order to focus our management of wildlife habitat, brook trout, bald eagle and vernal pool guidelines from Maine Audubon's Focus Species Forestry [3]and vernal pool habitat management guidelines[4] will be used as a foundation. Stream crossing guidelines will be addressed in another section.

These guidelines are not intended to limit special projects to accomplish other wildlife goals, such as protecting habitat for pileated woodpecker, barred owl, pine marten, and fisher, or projects aimed at stream habitat restoration, as long as the overall riparian goals are met. The layout process should also serve to conduct cursory monitoring for rare understory plant species.

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[1] Bissell, J. 1998. BSP SFMA Forest Management Plan.
http://www.baxterstateparkauthority.com/pdf/sfma/MgtPlans/SFMA%20Forest%20Management%20Plan%201998.pdf

[2] As defined in ME DOC, BPL 2009. Eastern Interior Region Management Plan. Pg 14-15.

[3] Bryan, R. 2007. Focus Species Forestry: A guide to integrating timber and biodiversity in Maine. Maine Audubon, 98 pages.
http://www.forestsynthesis.com/files/FocusSpeciesForestryMaine.pdf

[4] Calhoun, A.J.K, and Phillip deMaynadier, 2004. Forestry habitat management guidelines for vernal pool wildlife. MCA technical paper No. 6, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY.
http://maineaudubon.org/wp-content/uploads/2012/08/Vernal-Pool-HMG-final.pdf

Overall Riparian Goals

Water quality protection
- Avoid soil disturbance
- Maintain shade over watercourses
- Follow all Best Management Practices [5]

Wildlife habitat protection, development
- Maintain shade
- Manage for large snags, cavity trees, and large woody recruitment to streams
- Manage for vertical forest structure
- Maintain wildlife corridor connectivity

Plant community protection
- Protect riparian plant communities

Assessment Period

These guidelines shall be reviewed by SFMA staff after five years of implementation. Each riparian harvest unit should be monitored following the harvest in the course of normal post- harvest monitoring protocols.

Brook Trout Streams

Goal is to provide high quality cold water fisheries habitat. This entails maintaining shade on the watercourse, ensuring water stays cold and clear, and managing for large retention trees so as ensure recruitment of large woody material to streams (as well as future snags and coarse woody materials). Additional wildlife goals include maintaining wildlife corridor connectivity and managing for vertical forest structure and continuous cover. Management should not degrade recreational opportunities on Webster Stream.

Guidelines:

Within currently delineated riparian
- Maintain an average of >50% canopy cover[6]
- Retain well-distributed overstory
- [7]No canopy openings >10,000 ft^2, openings should be 100' apart
  - Retain 2-3 well-formed trees per opening (1 should be large diameter)

Within 75',
- No equipment entry (may reach in with boom)
- Manage for permanent large tree retention
- Maintain shade on watercourse
- No soil disturbance that results in any stream sedimentation

Small Streams | Intermittent Streams

Goals are to protect water quality, maintain shade on the watercourse, and maintain or develop vertical structure and continuous cover for the benefit of wildlife.

Guidelines:

Within currently delineated riparian
- Maintain an average of >50% canopy cover
- Retain well-distributed overstory
- No canopy openings >10,000 ft^2, openings should be 100' apart
  - Retain 2-3 well-formed trees per opening (1 should be large diameter)

Within 75'
- Maintain shade on stream channel
- No soil disturbance that results in any stream sedimentation

[5] http://www.maine.gov/dacf/mfs/publications/handbooks_guides/bmp_manual.html

[6] the proportion of ground or water covered by a vertical projection of the outermost perimeter of the natural spread of foliage or plants, including small openings within the canopy —*note* total canopy coverage may exceed 100 percent because of layering of different vegetative strata (SAF dictionary, http://dictionaryofforestry.org/dict/term/canopy_cover)

[7] LUPC Timber harvesting regulation in a P-GP.

VERNAL POOLS | SEEPS | OTHER UNIQUE HYDROLOGIC FEATURES

Goal is to manage for high quality amphibian (specifically spotted salamander) habitat. This entails maintaining shade, a supply of coarse woody material, the banking structure of the water feature, and covered corridors for amphibian dispersal.

Guidelines[8]:

Within 400' "amphibian life zone"
- Maintain and average of 50% canopy cover[9] of trees >20ft in height
- Openings should be less than 1 acre
- Harvest in frozen or dry condition
- Maintain abundant large coarse woody material

Within 100' "Vernal Pool Protection Zone"
- Harvest in frozen or dry condition, no rutting
- Maintain abundant coarse woody material
- Maintain an well-distributed average of 75% canopy cover

Vernal Pool Depression
- Identify and flag pool boundary
- Do not disturb the pool with equipment, logging debris, or sediment.

LAKES | PONDS

Goal is to provide high quality bald eagle habitat. This entails maintaining shade along the waterbody and managing for large tree and snag retention. Other considerations for this zone include buffering visual impacts from logging for recreational users on lakes and ponds, and maintaining water quality.

Guidelines:

Within currently delineated riparian
- Maintain minimum of 6 large white pines per mile of shoreland
- Maintain well-distributed overstory
- No canopy openings >10,000 ft^2, openings should be 100' apart
  - Retain 2-3 well-formed trees per opening (1 should be large diameter)

Within 75'
- No equipment entry (may reach in with boom)
- Manage for permanent retention of large trees
- No soil disturbance that results in any waterbody sedimentation

[8] From Calhoun, A.J.K, and Phillip deMaynadier, 2004. Forestry habitat management guidelines for vernal pool wildlife. MCA technical paper No. 6, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY. http://maineaudubon.org/wp-content/uploads/2012/08/Vernal-Pool-HMG-final.pdf

APPENDIX 1: LUPC STATEWIDE STANDARDS

LUPC Statewide Standards:

PSL-1 large streams and P-GP ponds/lakes:
-No clearcuts within 50'
-Retain well-distributed stand of trees within 50' of stream
-From 50' to 250', no one opening >14,000 ft^2 (about 1/3 acre)
-Single canopy openings >10,000 ft^2 must be ≥100' apart
PSL-2 small streams:
-Maintain shade
-Avoid sedimentation

APPENDIX 2 (NEXT TWO PAGES): FSC STREAMSIDE MANAGEMENT ZONE REGIONAL REQUIREMENTS

APPENDIX E: STREAMSIDE MANAGEMENT ZONE (SMZ) REGIONAL REQUIREMENTS
Indicator 6.5.e

This Appendix addresses regionally explicit requirements for Indicator 6.5.e and includes SMZ widths and activity limits within those SMZs for the Appalachia, Ozark-Ouachita, Southeast, Mississippi Alluvial Valley, Southwest, Rocky Mountain, and Pacific Coast regions. The forest owner or manager will be evaluated based on the sub-indicators within their specific region, below.

APPALACHIA REGION
The SMZ is designed to allow harvesting and provide flexibility for silvicultural management.

6.5.e.1.a All ***perennial streams*** have buffers (streamside management zones, SMZs) that include an inner SMZ and an outer SMZ. SMZ sizes are minimum widths that are likely to provide adequate riparian habitat and prevent siltation. If functional riparian habitat and minimal siltation are not achieved by SMZs of these dimensions, wider SMZs are needed.

Table 6.5.f (APP only) Widths of inner and outer Streamside Management Zones. Widths of outer SMZs are applicable where data do not support narrower widths*

Stream zone type	**SLOPE CATEGORY**				
	1-10%	11-20%	21-30%	31-40%	41 % +
Inner Zone (perennial)	25’	25’	25’	25’	25’
Outer Zone (perennial)	55’	75’	105’	110’	140’
Total for perennial	80’	100’	130’	135’	165’
Zone for Intermittent	40	50’	60’	70’	80’

*All distances are in feet -slope distance and are measured from the high water mark.

6.5.e.1.b (APP only) The inner SMZ for *non-high-quality waters* (see state or local listings describing the highest quality waters in the state or region) extends 25 feet from the high water mark. Single-tree selection or small group selection (2-5 trees) is allowed in the inner SMZ, provided that the integrity of the stream bank is maintained and canopy reduction does not exceed 10 percent (90 percent canopy maintenance). Trees are directionally felled away from streams. Note: The inner SMZ is designed as a virtual no-harvest zone, while allowing the removal of selected high-value trees.

6.5.e.1.c (APP only) Along perennial streams that are designated as *high-quality waters* (see state or local listings describing the highest quality waters in the state or region), no harvesting is allowed in the inner SMZ (25 feet from the high water mark), except for the removal of wind-thrown trees. Stream restoration is allowed if a written restoration plan provides a rational justification and if the plan follows local and regional restoration plans.

6.5.e.1.d (APP only) Outer SMZs, outside and in addition to inner SMZs, are established for all intermittent, and perennial streams, as well as other waters. When the necessary information is available, the width of a stream management zone is based on the landform, erodibility of the soil, stability of the slope, and stability of the stream channel as necessary to protect water quality and repair habitat. When such specific information is not available, the width of streamside management zone is calculated according to Table 6.5.f

6.5.e.1.e (APP only) Harvesting in outer SMZs is limited to single-tree and group selection, while maintaining at least 50 percent of the overstory. Roads, skid trails, landings, and other similar silviculturally disturbed areas are constructed outside of the outer SMZ, except for designated stream crossings or when placement of disturbance-prone activities outside of the SMZ would result in more environmental disturbance than placing such activities within the SMZ. Exceptions may be made for stream restoration.

6.5.e.1.f (APP only) The entire SMZ of intermittent streams is managed as an outer buffer zone.

6.5.e.1.g (APP only) The activities of forest management do not result in observable siltation of intermittent streams.

The activities of forest management do not result in observable siltation of intermittent streams.

OZARK – OUACHITA REGION

6.5.e.1.a (OO only) Streamside-management zone widths are horizontal measure (per side) from the mean high water mark:

Table 6.5.f (OO only) Streamside management zone widths for perennial and intermittent watercourses*						
Slope (%)	0	10	20	30	40	50
Soil erosion susceptibility			**SMZ width (ft)**			
Slight	75	75	80	105	130	155
Moderate	75	75	100	140	170	200
Severe	75	90	130	170	210	250

* No-cut zone rules are covered in the text of Indicator 6.5.g.2

6.5.e.1.b (OO only) Streamside-management zones (SMZs) are established for all perennial and intermittent watercourses. Single-tree harvest may be carried out in SMZs, except in no-cut zones. A minimum of 80% crown cover is maintained throughout the SMZ. A 10-foot no-cut zone (from each bank) is established to maintain stream-bank stability for perennial and intermittent watercourses.

6.5.e.1.c (OO only) Use of chemicals is prohibited in SMZs.

6.5.e.1.d (OO only) Skid trails and operation of heavy equipment are prohibited in SMZs, except at designated crossings.

SOUTHEAST REGION

6.5.e.1 (SE only) Streamside or special management zones (SMZs) are specifically described and/or referenced in the management plan, included in a map of the forest management area, and designed to protect and/or restore water quality and aquatic and riparian populations and their habitats (including