

## Baxter State Park Scientific Forest Management Area Forest Management Plan 2012

### Riparian Management Zones Overview:

**Riparian features** occur throughout the SFMA, in the form of **waterbodies** and **wetlands**. From the perspective of overall resource value and diversity, riparian areas exceed all others in importance. Riparian zones provide an area for concentrated use by terrestrial wildlife, the filtering of runoff and floodwater, nesting and breeding sites for a variety of animals, and a focal point for human recreation within the SFMA. Riparian Management Zones (RMZ) are designed to help minimize and control the impact of management actions, like timber harvesting, on the natural functioning of riparian features and systems. Riparian Management Zones are more than just “stream buffers” based on a regulatory statute in the conventional forestry context. Two types of RMZ are defined in the SFMA, a RMZ Reserve and a RMZ Operational. More detail about these two types of RMZ will be provided in the following sections that cover topics relating to management goals, RMZ delineation, and management guidelines.

Riparian areas protect water quality by filtering and slowing movement of spring runoff and heavy rain events and provide streamside shading, leaf litter that serves as a primary source of energy in aquatic food webs, and a source of logs that create in-stream habitat structures, thereby protecting and enhancing habitat for brook trout and other aquatic species. Many animals (Appendix I) frequent the riparian zone, which is vital as winter deer cover, upland habitat for wood turtles, habitat for numerous reptiles and amphibians, and wildlife travel corridors. Shrubby margins provide nest habitat for birds including the Canada warbler, which is in documented decline. Diverse natural communities<sup>48</sup> occur in riparian areas, although these have not yet been inventoried within the SFMA.

### Defining Riparian Features:

There are a wide variety of riparian features in the SFMA. The boundaries between the riparian features and the surrounding terrestrial areas are often well defined such as the high water mark of a year round stream channel. The most obvious riparian features are permanent waterbodies such as rivers, streams, ponds, lakes, which generally appear on topographic maps. More subtle are intermittent streams that are less likely to be mapped, as well as beaver influenced ponds that are often temporary in nature. Wetlands are spread across the SFMA and take many forms including peatlands, scrub/shrub wetlands, and emergent marshes. Ephemeral wetlands and hillside seeps represent important wetland and hydrologic features on the landscape.

Vernal pools are a special type of wetland and can represent unique and critical habitat for certain amphibian species. Lastly, forested wetlands are another special type of wetland and are perhaps the most subtle and variable type of riparian feature in the SFMA. Forested wetlands are complex systems with boundaries that can be difficult to delineate. These systems can be as small as a 1/10 acre or as large as many hundred. For the purpose of SFMA management and operations planning,

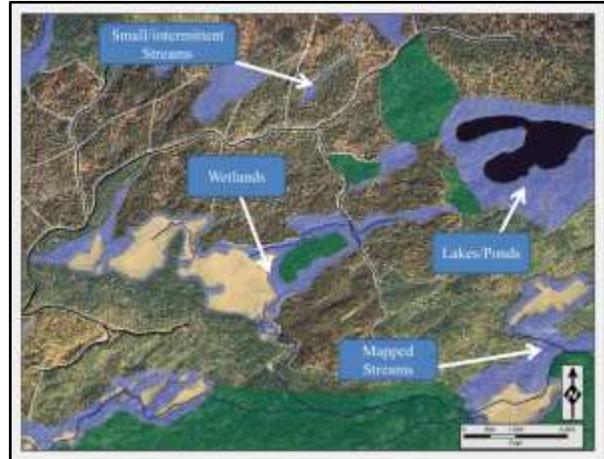


Figure F.4 Types of riparian features in the SFMA.

<sup>48</sup> Gawler, Susan and Cutko, Andrew. Natural Landscapes of Maine: A Guide to Natural Communities and Ecosystems. 2010.

**Baxter State Park  
Scientific Forest Management Area Forest Management Plan 2012**

forested wetlands are not considered a riparian feature. In general forested wetlands will not receive a “buffer” in the form of a surrounding RMZ, however they will generally not receive harvest treatment either. An explanation of how RMZ are delineated can be found in following sections.

**SFMA Management divides riparian features into 3 categories:**

**Category 1:**

Ephemeral wetlands, intermittent streams, hillside seeps, and other unique hydrologic features.

**Category 2:**

All ponds, wetlands, and pond/wetland complexes less than 10 acres in size, and all 1<sup>st</sup> and 2<sup>nd</sup> order streams.<sup>49</sup>

**Category 3:**

All ponds, wetlands, and pond/wetland complexes greater than 10 acres in size, and all 3<sup>rd</sup> and 4<sup>th</sup> order streams.

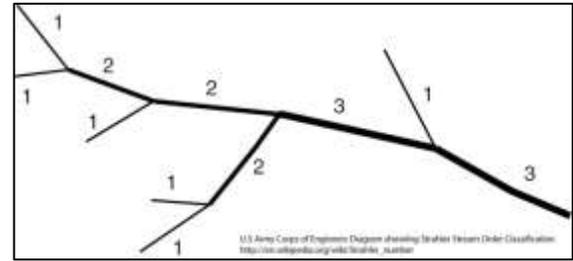


Figure F.5 Strahler stream order classification diagram

**Riparian Management Zone Goals, Objectives, and Evaluation Criteria**

**1. Water Quality**

**Goal:** Protect water quality from negative impacts of human or natural disturbances.

**Objective 1a:** Follow all water quality BMPs relating to timber harvesting and road construction.

**Criteria 1aI:** Ensure that all SFMA staff and contractors are knowledgeable about State BMPs and employ them during management activities

**Objective 1b:** Consider ways to balance the forest age structure at the watershed and riparian feature scale when planning timber harvests, especially regeneration treatments.

**Criteria 1bI:** Consider limiting areas regenerated in any 30 year period to less than 50% of a watershed and/or logical area adjacent to riparian features

**Objective 1c:** Employ guidelines, explained in following sections of this policy, pertaining to no harvest or limited harvest areas within the RMZ during silvicultural treatments

**Criteria 1cI:** Evaluate harvest compliance with guidelines during harvest inspections and post-harvest using remote sensing technology

<sup>49</sup> “In the application of the Strahler stream order to hydrology, each segment of a stream or river within a river network is treated as a node in a tree, with the next segment downstream as its parent. When two **first-order** streams come together, they form a **second-order** stream. When two second-order streams come together, they form a **third-order** stream. Streams of lower order joining a higher order stream do not change the order of the higher stream. Thus, if a first-order stream joins a second-order stream, it remains a second-order stream. It is not until a second-order stream combines with another second-order stream that it becomes a third-order stream.”

[http://en.wikipedia.org/wiki/Strahler\\_number](http://en.wikipedia.org/wiki/Strahler_number) 2012April25

**Baxter State Park**  
**Scientific Forest Management Area Forest Management Plan 2012**

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**2. Habitat Management**

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**Goal:** Protect, maintain, and enhance wildlife habitat attributes within the individual RMZ and at the landscape level.

**Objective 2a:** Protect habitat of species designated as rare, threaten, endangered or determined to have special significance in the region.

**Criteria 2aI:** Ensure that all known occurrences of such species are documented to greatest extent possible by Park staff or outside experts (e.g. in GIS datasets and written reports).

**Criteria 2aII:** Ensure that datasets containing such locations (e.g. MNAP and BSP GIS datasets) and occurrences are consulted during planning of management activities with the potential to disturb populations/habitats.

**Criteria 2aIII:** Utilize existing pertinent habitat management guidelines when planning and implementing management activities.

**Objective 2b:** Protect rare forest types containing areas and features with significant late successional characteristics (consult FSC guidelines for definitions of such features).

**Criteria 2bI:** Ensure that all known occurrences of such conditions are documented to greatest extent possible by Park staff or outside experts (e.g. in GIS datasets and written reports).

**Criteria 2bII:** When preparing treatment sites for management actions ensure proper evaluation for presence of unique late successional forest features and revise actions and plans accordingly.

**Criteria 2bIII:** When important late successional features are identified consult FSC guidelines regarding management options.

**Objective 2c:** Integrate habitat requirements of wildlife species at the landscape level into management planning.

**Criteria 2cI:** When planning management actions evaluate and work to minimize potential impacts on habitat connectivity.

**Criteria 2cII:** When planning management actions consider how to enhance late successional forest characteristics.

**Criteria 2cIII:** When planning management actions consider how to balance diverse wildlife habitat requirements.

**Objective 2d:** Integrate habitat requirements of wildlife species at the stand level into management actions and treatment prescriptions.

**Criteria 2dI:** When preparing treatment sites for management actions ensure proper evaluation for presence of unique habitat features and revise actions and plans accordingly.

**Criteria 2dII:** When implementing management actions ensure proper retention of special habitat features like snags and den trees.

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**3. Sustained Timber Production**

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**Goal:** Conduct management planning and silvicultural treatments so as to ensure the sustainable harvest of forest products.

**Baxter State Park**  
**Scientific Forest Management Area Forest Management Plan 2012**

**Objective 3a:** Ensure RMZ are properly integrated in SFMA monitoring programs.

**Criteria 3aI:** Collect sufficient overstory forest inventory data to enable forest modeling of long term growth and yield within RMZ.

**Criteria 3aII:** Collect sufficient forest regeneration inventory data to enable forest modeling of long term growth and yield within RMZ.

**Objective 3b:** Integrate RMZ into comprehensive management planning and harvest scheduling.

**Criteria 3bI:** Treatments scheduled for RMZ are based on comprehensive management planning approach.

**Objective 3c:** Apply silvicultural systems and principles appropriate to the given forest type, age, and site conditions when planning and implementing treatments.

**Criteria 3cI:** All treatments have a detailed prescription which clearly defines the silvicultural goals and application.

**Criteria 3dI:** Individual trees or areas to be harvested are clearly delineated with the use of flagging and or marking paint to ensure adequate control of harvest area and removals.

#### **4. Recreation and Aesthetic Management**

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**Goal:** Maintain the wild and scenic character of shoreline areas of categories 2 and 3 riparian features.

**Objective 4a:** Minimize visibility of management activities along shoreline areas of categories 2 and 3 riparian features.

**Criteria 4aI:** Conduct GIS or onsite inspection of treatment zones to determine visual impacts when planning treatments.

**Criteria 4aII:** Carefully consider the development of management access roads in proximity to riparian features.

**Criteria 3aIII:** Conduct GIS or onsite inspection of recreation sites to determine visual impacts when planning trail or facility developments.

#### **Riparian Management Zones Delineation:**

RMZ in the SFMA have been delineated based on a variety of factors in order to accurately reflect the diversity of ecological processes that influence them as well as the wide array of ecological functions which occur in proximity to riparian features. Importantly these riparian zones, like the features they surround, extend beyond administrative or ownership boundaries and function at the landscape level. Management should consider both the scale and dynamic nature of these riparian features and the terrestrial ecosystems with which they are intertwined.

Applying this approach, the SFMA has abandoned the traditional pre-determined distance approach to establishing riparian boundaries and instead use on-site indicators to drive the location of riparian boundaries. This has resulted in a highly variable streamside buffer on all 3rd order and greater streams (i.e. Webster Stream, Wadleigh Brook, Brayley Brook, Murphy Brook). Ephemeral features may or may not be mapped and thus have at designated RMZ area. These areas will most likely be identified during field inspections and should be mapped and buffered at that time based on

**Baxter State Park**  
**Scientific Forest Management Area Forest Management Plan 2012**

guidelines for category 1 riparian features. Some site indicators used to establish RMZ boundaries are:

- A distinct break in slope or grade approaching the stream or pond signifying a departure from an upland type;
- A change in forest type from typical upland species (red spruce, northern hardwoods) to wetland types (fir, cedar);
- Evidence of travel pathways for wildlife;
- Intact developed structure providing connective pathways between less developed structure;
- Aesthetic sensitivity with recreational corridors;
- Uniform forest structures coincident with existing significant wetlands or heath bogs (black spruce flats, cedar swamps);
- Obvious concentration areas for wildlife.

These guidelines have resulted in the definition of riparian boundaries determined by landscape features, consequently, riparian lines can vary from 50' to well over 1000' from the shorelines of waterbodies.

**Riparian Management Zone Reserve Selection Process**

The preceding guidelines describe Description of the process by which current RMZ will be reclassified as RMZ Reserve areas. This will be based on: proximity to current designated reserves, habitat importance, operational feasibility due to topography and other stand considers, recreational/aesthetic value to visitors using riparian features.

*Section in Process...*

**General Management Guidelines**

**Water Quality**

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1. Follow all State or regional water quality BMPs relating to timber harvesting and road construction.

**Habitat Management**

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2. When special habitats are encountered that have existing specific habitat management guidelines utilize those guidelines in concert with those described in this SFMA RMZ policy (eg. vernal pools and Forestry Habitat Management Guidelines)
3. Integrate RMZ habitat attributes into management activities applied to adjacent management units.
4. Strive to minimize potential negative impacts to wildlife habitat connectivity by integrating consideration of travel corridors and pathways into management planning and activities for RMZ and adjacent management units.
5. When preparing treatment sites for management actions ensure proper evaluation for presence of RTE species, unique late successional forest features, and other special habitat features. Revise actions and plans accordingly.
6. When implementing management actions ensure proper retention of special habitat features like snags and den trees.

**Sustained Timber Production**

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7. Ensure RMZ are properly integrated in SFMA monitoring programs.

**Baxter State Park**  
**Scientific Forest Management Area Forest Management Plan 2012**

8. All treatments must have a detailed prescription which clearly defines the silvicultural goals and application.
9. Utilize the most appropriate method to define individual trees and/or areas to be harvested through the use of flagging and or marking paint to ensure adequate control of harvest area and tree removals.

**Recreation and Aesthetic Management**

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10. Conduct GIS and/or onsite inspection of treatment zones to determine potential visual impacts when planning silvicultural treatments or access/facilities development.

**Riparian Feature Specific Management Guidelines**

**Category 1:** Ephemeral wetlands, intermittent streams, hillside seeps, other unique hydrologic features.

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1. No equipment entry within 25-50+ft of riparian feature edge.
2. Minimize presence of hard stand boundary when RMZ is adjacent to even-age management unit, by feathering stand edge. (Ideally use individual tree marking to accomplish feathered result leaving 60-70% crown closure)

**Category 2:** All ponds, wetlands, and pond/wetland complexes less than 10 acres in size, all 1<sup>st</sup> and 2<sup>nd</sup> order streams.

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3. No equipment entry within 75ft of riparian feature edge.
4. Minimize presence of hard stand boundary when RMZ is adjacent to even-age management unit, by feathering stand edge. (Ideally use individual tree marking to accomplish feathered result leaving 60-70% crown closure)
5. Consider using multi-age management in RMZ if operational area is large enough to permit reasonable application of silvicultural system.
6. Consider ways to integrate RMZ habitat attributes into management activities in adjacent management units.

**Category 3:** All ponds, wetlands, and pond/wetland complexes greater than 10 acres in size, and all 3<sup>rd</sup> and 4<sup>th</sup> order streams.

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7. No equipment entry within 100ft of riparian feature edge.
8. Minimize presence of hard stand boundary when RMZ is adjacent to even-age management unit, by feathering stand edge of operational unit. (Ideally use individual tree marking to accomplish feathered result leaving 60-70% crown closure)
9. Strongly consider using multi-age management in RMZ if area is large enough to permit reasonable application of desired silvicultural system.
10. Strongly consider ways to integrate RMZ habitat attributes into management activities in adjacent operational management units.