



## 12 Rivers Conservation Initiative A Regional Conservation Plan

The 12 Rivers Conservation Initiative is a regional conservation planning effort of ten land trusts<sup>1</sup> whose service areas include the watersheds of the coastal rivers that flow into the Gulf of Maine between the Kennebec and the Saint George rivers. The total project area encompasses about 825,000 acres. This Plan identifies important natural resource areas and themes for protection (e.g. connectivity, working landscapes) that provide the regional focus for the Initiative, as well as the selection of nine (9) focus areas.

The Initiative hired Janet McMahon, a conservation biologist consultant who completed the following tasks:

1. Worked with Paul Hoffman(SVCA) to prepare the following draft base maps:
  - a. Topography and hydrography (including watershed boundaries of lakes and first-order streams)
  - b. Conserved properties and land trust focus areas
  - c. Habitat (significant habitats, Rare, Threatened & Endangered species occurrences; exemplary communities)
  - d. Undeveloped habitat blocks (1,000 acres and larger)
2. Reviewed The Nature Conservancy Maine Aquatics Database to identify portfolio lakes and streams.
3. Met with Dan Coker (TNC) to review results of Habitat Connectivity Modeling Project which identified potential connectors between undeveloped habitat blocks.
4. Reviewed base maps, aerial photographs, and connectivity study data to determine potential linkages between focus areas and habitat blocks.

### Key Findings and Observations

These findings are based on the review of the natural resources in the region from a landscape perspective.

The protection of headwater first and second order streams and their watersheds is a high priority because headwaters have a disproportionately important impact on overall river water quality. Headwaters:

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<sup>1</sup> The land trusts that are part of the 12 Rivers Conservation Initiative include: Boothbay Region Land Trust, Damariscotta Lake Watershed Association, Damariscotta River Association, Georges River Land Trust, Kennebec Estuary Land Trust, Medomak Valley Land Trust, Pemaquid Watershed Association, Sheepscot Valley Conservation Association, Sheepscot Wellspring Land Alliance and Maine Coast Heritage Trust.

- Are important to wildlife corridors because of the importance of riparian zones
- Harbor and support many cold water fish species
- Are less fragmented and provide more opportunity to connect large blocks

2. It is important to identify and protect habitat on either side of major roads to create crossing corridors because three major highways (US Route 1, Route 17 and Route 3) cross the project area in east-west direction. These have potential to block movement of species from north to south. Protecting land along some of major connectors (especially where they follow streams) is important. A TNC/MaineDOT Habitat Connectivity Modeling Study identified road segments least likely to act as barriers to wildlife movement and developed criteria to help connect adjacent habitat blocks.

The TNC model identified road crossings based on these criteria for wildlife:

- Wide ranging - specifically fisher and bobcat
- Wetlands - to include at least two of following species: wood frog, spotted salamander, leopard frog, Blandings Turtle
- Riverine - specifically mink or wood turtle
- Endangered species habitat - specifically New England cottontail or black racer

### **Other Observations**

- Particular landscapes already well represented on existing protected lands in the region (~4.8% of the Initiative's project area) include midcoast hills and tidal marshes
- 29% of the Initiative's project area is composed of habitat blocks greater than 1,000 acres in size. The largest protected blocks include:
  - The Whitten Hill/Frye Mountain area in Montville
  - Hidden Valley area in Jefferson
  - Appleton Bog
  - Tidal marsh areas in the Kennebec and Sheepscot Rivers
- Landscapes that are presently not conserved include:
  - Large habitat blocks in general
  - Large tracts of late successional forests
  - Intact pond and headwater stream watersheds

### **Conservation Goals for the 12 Rivers Initiative**

1. Maintain and promote biodiversity, meaning the diversity of genes, species and ecosystems, as well as the evolutionary and functional processes that link them.
2. Promote connectivity of large habitat blocks
3. Support wildland habitat protection and working lands conservation across the

landscape, for example managed woodlands and community forests, since forests are key to clean air and water quality, local resource based economy, traditional recreational uses such as hiking, fishing, hunting and snowmobiling, as well as regional biodiversity.

4. Integrate regional outdoor trails and other recreational opportunities.

### **General Strategies**

- A. Focus regional conservation efforts on creating and connecting large blocks (of at least 1,000 acres) rather than on protection of isolated element occurrences (coarse filter versus fine filter approach). When possible, have large blocks center around pond, stream or wetland watersheds.
- B. Choose one focus area (generally an area of concentrated land protection activity) per land trust.
- C. Link large habitat blocks via forested corridors (follow streams where possible). Below headwaters, north-south connections more important than east-west connections.
- D. Connect the focus areas via wide corridors that pass through and/or connect stream watersheds, other large blocks, protected lands when possible.
- E. Connect large undeveloped habitat blocks on the three peninsulas south of Route One to lands to the north<sup>1</sup>. These include:
  - a. Mt. Hunger area/Sherman Lake (~5,000 acres) – Edgecomb
  - b. Pemaquid Lake/Paradise Pond area (~6,000) – Damariscotta
  - c. Three Brooks forest/Goose River/Cushing (~11,000 acres) – Waldoboro, Warren, Cushing
- F. Identify and protect potential connectors along Route 1, Route 17 and Route 3 (may need to relax TNC/MaineDOT criteria used to identify connectors). Use the Riverlink/emerald necklace approach to connecting land trust and/or MNAP ecological focus areas.
- G. Incorporate working forest land, as well as lands important to communities and establish and connect regional trail networks (hiking, snowmobiling).
- H. Protect several “ribbons” of conservation lands that extend downriver ending with large habitat blocks on the peninsulas south of Route 1.

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<sup>1</sup> Arrowsic/Georgetown ‘peninsula’ can’t be connected because it is separated from the mainland by Sasanoa River; St. George peninsular no longer has any large habitat blocks.

In order to implement these key strategies, focus areas were developed throughout the service area that incorporated these overarching criteria:

- Concentrations of ecological values as identified through the state Beginning with Habitat program such as large habitat blocks, representative natural communities, portfolio streams and ponds, etc.
- Contribution to aquatic connectivity

The corridors connecting the focus areas were designed with specific criteria in mind:

- Uses road connectors where possible (TNC data)
- Follow stream corridors (upper headwater first and second order streams very important)-use their watershed boundaries, if possible
- Follow habitat blocks or connect them
- Connect existing protected lands, as appropriate
- Tie in key features for local trusts, as appropriate
- Width:
  - Total width across a stream: 600 to 1200 ft total
  - Upland stretches without streams: 1000 ft width
  - Generally the wider the better!

In addition, the overall system (of both the focus areas and corridors) is to connect habitat blocks on coastal peninsulas to inland blocks, to accommodate the movement of species.

## **Focus Areas**

The Focus Areas developed to implement the strategies are:

1. Nequasset Brook/Brookings Bay (KELT)
  - Includes 1000+ acre undeveloped habitat block
  - Includes large areas of undeveloped shoreline
  - Supports and buffers mapped significant wildlife habitats (tidal wading bird and waterfowl habitat, shorebird areas, inland wading bird and waterfowl habitat), several rare plant species, and rare and exemplary natural communities (salt hay saltmarsh and pitch pine bog)
  - Protects important shellfish resources
  - Is identified in KELTs strategic conservation plan as a high priority
2. Sherman Marsh/Mt. Hunger/Lily Pond (DRA, SVCA, BRLT)
  - One of three large undeveloped habitat blocks south of Route One
  - Focus of conservation activity for 3 land trusts and others (River~Link, Schmid

- Preserve, marsh restoration, etc.)
  - Includes part of MNAP focus area of statewide significance
  - Includes habitat block between Rte. 27 and Cross Point Road, north of Mill Road.
  - High recreation potential
- 3. Muddy Pond/Pemaquid Pond (PWA, DRA)
  - One of three large undeveloped habitat blocks south of Route One
  - TNC portfolio ponds
  - Includes watershed boundary between Damariscotta River and Pemaquid River, such that protection of parcels will benefit water quality protection for both rivers.
  - High recreation potential
- 4. Three Brooks (MVLТ)
  - The largest of three undeveloped habitat blocks south of Route 1
  - MVLТ focus area and large area of conserved land
  - Most land within the area is upland forest and most is periodically harvested for wood products
  - Drained by 3 streams that are all undeveloped; 2 support spring runs of rainbow smelt
  - Provides habitat for moose, fisher, bobcat, owls, hawks and other species that are becoming less common along the coast. There are 4 deer wintering areas and 4 wading bird and waterfowl habitats in the area
  - Extensive snowmobile trail network with more than 10 miles of trails that run the length and breadth of the focus area
- 5. Ben Brook (SVCA)
  - SVCA focus area
  - Within largest undeveloped habitat block in Sheepscot Watershed
  - Includes two nearly undeveloped pond watersheds
  - Southern portion includes large area of privately protected land
  - Extensive working forestlands, state wildlife refuge
- 6. Somerville (DLWA)
  - DLWA focus area, builds on 470 acre core
  - Davis Stream headwaters to Damariscotta Lake
  - Wildlife corridor crosses major Augusta-Rockland east west highway
  - Includes undeveloped Cooks Pond Focus corridor including deeryard and wetlands
- 7. Appleton Bog/Witcher Swamp/Pettengill (GRLT, MVLТ)
  - Three wetland complex includes exemplary communities, supports regional

biodiversity and provides high quality habitat for waterfowl, wading birds and deer

- Large habitat block that includes headwater streams of Medomak and St. George
- Provides flood and water quality protection to the St. George River
- MVLТ and GRLT focus areas (MVLТ Pettingill Stream, GRLT Wilderness Loop, corridor to GRLT Appleton Floodplain)
- BWH ecological focus area (Appleton Bog-Pettingill Swamp-Witcher Swamp)
- Appleton Bog is a TNC portfolio site

8. Central Highlands (GRLT)

- Largest undeveloped block in the watershed
- Several mountain peaks (at or near 1000 ft)
- Large undeveloped deer yard
- High recreational and scenic potential

9. Northern Headwaters (SWLA)

- SWLA focus area (highest priority)
- Headwaters of Atlantic salmon river
- Large tracts of late successional forest (northern hardwood, mixed conifer and hemlock)
- Core of area is being managed like an ecological reserve (benchmark)
- Opportunity to connect with nearby 5,200-acre Frye Mtn State Wildlife Area
- High recreation potential

### **Process for Amending Focus Areas and Corridors**

Members may request amendments regarding focus areas or changes to the location of corridors identified in the 12 Rivers Regional Conservation Plan provided the changes:

1. Are based on sound scientific principles and recommended by a biologist or other qualified scientist/ecologist; and
2. Result in conservation priorities that are more ecologically beneficial to the region.

To request such a change, a member or members must provide a package proposing and justifying the change to the Steering Committee for consideration, including:

1. A report from a biologist or other qualified scientist explaining the rationale for the change;
2. Proposed amendments to the Regional Conservation Plan; and
3. A revised internal map with clearing showing proposed changes (may be hand-drawn for initial review).

Any amendments to focus areas or corridors identified in the 12 Rivers Conservation Initiative's Regional Conservation Plan requires a 2/3 majority vote of Steering Committee members.

## **Timeline and Implementation Strategies**

The members of the Initiative are composing working agreements that will set forth the criteria and process for identifying and selecting specific projects to include in the Initiative's fundraising portfolio. These documents include:

1. Corridor identification criteria;
2. Parcel prioritization criteria;
3. Project selection criteria and
4. A fundraising and spending memorandum of agreement.

In addition, the Initiative is actively seeking partners to assist in its efforts.

Once these agreements are in place, the Initiative will actively seek funding for its first portfolio of projects and hopes to begin its initial campaign by early 2013.

## **Issues and Questions for Future Consideration/Deliberation**

- The mouths of most of the rivers in the Initiative area are relatively undeveloped and without major industries
- What are the values and challenges of having habitat blocks close to population centers?
- What impacts will population growth patterns, climate change, and future energy and communications infrastructure (wind and cellular) have in the Initiative area?
- Farmland was not considered as a component at this time and future consideration would need to involve other groups (e.g., Maine Farmland Trust)
- Headwaters and hills makes a good theme

## **Appendix A: State and Regional Ecological Priorities**

A. *Wildlands and Woodlands*: Their primary objective is to retain 70% of New England landscape as forest (63% managed; 7% reserves). Wildlands and Woodlands report puts most of the midcoast's forests in two categories:

- rural forest category, where goal is to maintain 50% of land in forest, and
- connected forest category, where goal is to maintain 75% of land in forest.

B. *Ecological Reserves*: There are currently no state-designated ecological reserves in the Initiative project area. The Whitten Hill (SWLA) and the Appleton Bog may be managed as a reserve. The Maine Natural Areas Program has identified eight ecological focus areas of statewide significance in the 12 Rivers Initiative project area, including:

1. Appleton Bog – Pettengill Stream – Witcher Swamp
2. Kennebec Estuary
3. Lower Sheepscot River Tidal Marshes
4. Lower St. George River
5. Rockland Bog
6. Salt Bay (Is this on the Damariscotta or other?)
7. St. George River and associated ponds
8. Weskeag Creek

C. *TNC Portfolio watersheds*: Reserves could also focus on watersheds of streams or lakes. The Nature Conservancy has prioritized lakes and streams based on a variety of criteria such as ocean connectivity, presence of dams, shoreline development, presence of native fish species, and association with other rare species and communities. This information is summarized in the Maine Aquatics Database. The 12 Rivers Initiative project area includes the following portfolio watersheds, lakes, streams, and lakes with 100% native fish population.

### *Watersheds:*

Cathance River (S1oc)<sup>1</sup> Unique Area; impacted, but worthy of restoration

Eastern River (S1oc) Unique Area

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<sup>1</sup> S1 = best example of stream type; L1 = best example of lake type; oc = ocean connectivity; oc(d) = desired ocean connectivity; S2 = second rank quality within its type; L1b = not in as good condition as L1, use if need more lakes to meet goals.

Medomak River (S2oc)  
Pemaquid River (S2oc)  
Sheepscot River (S1oc) Near Benchmark; Unique Area; impacted but worthy of restoration; estuary high ranking as well  
St. George River (S1oc(d) Unique Area; potential and desired ocean connectivity

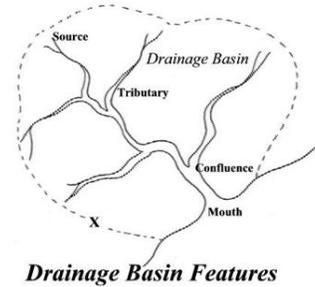
Lakes (out of 222)

Knickerbocker Pond, Boothbay (L2)  
McCurdy Pond, Bremen (L2)  
Newbert Pond, Appleton (L1)  
Paradise (Muddy) Pond, Damariscotta (L1b)  
Peters Pond, Waldoboro (L1)  
Stevens Pond, Liberty (L1)

Lakes with 100% Native Fish Species

Chisholm Pond, Palermo	
Clark Cove Pond, South Bristol	
Colby Pond, Liberty	
Deer Meadow Pond, Jefferson	Mixer Pond, Morrill
	Moody Pond, Windsor
Foster Pond, Palermo	
	Peters Pond, Waldoboro
Hastings Pond, Bristol	Prescott Pond, Palermo
Horn Pond, Jefferson	Shermans Mill Pond, Appleton
Houghton Pond, West Bath	Spring Pond, Washington (not on topo)
Howard Pond, St. George	Upper Pond, Bristol

**Appendix B: 12 Rivers**  
**List of 12 Rivers**



**Non-tidal Rivers (listed west to east):**

#	River Name	Entire Length	Town of Source	Town of Confluence or Mouth	Location of Confluence or Mouth
1.	West Branch of Sheepscot River	25 miles	Freedom	Alna	Sheepscot River (tidal portion)
2.	Dyer River	20 miles	Jefferson	Newcastle	Sheepscot River
3.	Goose River	10.6 miles	Warren	Friendship	Medomak River

**Tidal and Freshwater Rivers (listed west to east):**

#	River Name	Entire Length	Town of Source	Town of Confluence or Mouth	Location of Confluence or Mouth
4.	Kennebec River	170 miles	Big Moose Twp (Moosehead Lake)	Phippsburg/ Georgetown	Gulf of Maine
5.	Damariscotta River	19 miles	Newcastle / Nobleboro	East Boothbay/South Bristol	Gulf of Maine
6.	Pemaquid River	19 miles	Waldoboro (Tobias Pond)	Bristol	Johns Bay
7.	Medomak River	40 miles	Liberty	Waldoboro	Muscongus Bay
8.	Saint George River	57 miles	Liberty	Cushing/St. George	Muscongus Bay
9.	Oyster River	12.5 miles	Rockport	Warren/Thomaston	Saint George River
10.	Sheepscot River	55 miles	Montville/Freedom	Georgetown/ Southport	Sheepscot Bay

**Tidal /Estuarine Rivers (listed west to east):**

#	River Name	Entire Length	Town of Source	Town of Confluence or Mouth	Location of Confluence or Mouth
11.	Back River of the Sheepscot	14 miles	Wiscasset	Arrowsic/ Georgetown	Kennebec River
12.	Weskeag River	5 miles	South Thomaston	South Thomaston/ Owls Head	West Penobscot Bay

**List of all 12 Rivers (west to east):**

1. Kennebec River
2. West Branch of Sheepscot River
3. Back River of the Sheepscot
4. Dyer River
5. Sheepscot River
6. Damariscotta River
7. Pemaquid River
8. Medomak River
9. Goose River
10. Saint George River
11. Oyster River
12. Weskeag River

*Additional Rivers in the Initiative Area:*

Back Rivers – two of them (tidal bays in the Medomak and St. George)

Cross River – this is a bay, not a river

Marsh River

Eastern River (part of Kennebec estuary)

Little River

Meduncook River (mostly a tidal bay)

Sasanoa River – saltwater passage that connects Kennebec and Sheepscot rivers)