

courtesy of Eric Hopkins

Royal River Region Conservation Plan

Winter 2005



**ROYAL RIVER
CONSERVATION TRUST**
(formerly Friends of the Royal River)

Table of Contents

Executive Summary 3

1. Introduction..... 4

 1.1 About Friends of the Royal River 4

 1.2 Vision for the Region 4

2. Overview 5

 2.1 Natural Resources 5

 2.1.1 Ecological and Biological Information..... 8

 2.1.2 Geologic and Hydrologic Information..... 8

 2.2 Cultural Resources 9

 2.3 Socio-Political Framework 10

 2.4 Trends 11

3. Identification of Conservation Targets and Goals 11

 3.1 Water Quality 11

 3.2 River and Stream Corridors 12

 3.3 Scenic Areas..... 13

 3.4 Wildlife and Natural Areas 14

 3.5 Recreational Opportunities 14

 3.6 Wetlands 16

 3.7 Historic Areas 17

4. Assessment of Threats to Achieving Targets and Goals..... 18

 4.1 Growth trends, demographics 18

 4.2 Transportation 20

5. Conservation Strategies..... 20

 5.1 Land Protection (including wetlands, stream corridors, and wildlife habitats) 20

 5.2 Regulatory Efforts 22

 5.3 Water Quality Efforts 22

 5.4 Scenic Areas..... 23

 5.5 Recreational Opportunities 23

 5.6 Historic Areas 23

6. Implementation Strategies 24

 6.1 Actions..... 24

 6.2 Timetable 28

7. Feasibility 28

8. Organizational Strength..... 28

 Appendix 29

Executive Summary

This plan, funded through grants from the Maine Community Foundation and the Davis Conservation Foundation, identifies the goals and implementation actions for the Friends of the Royal River (FORR) to guide the organization's activities over the next few years. It discusses the characteristics of the area covered by the organization, outlines major trends, and identifies important habitat areas most at risk.

Eleven focus areas to protect land and habitat were identified:

River and Stream Oriented

- a) Royal River Corridor – Royal River main stem and estuary
- b) Chandler Brook Corridor – Runaround Pond to Royal River
- c) East Branch Corridor – from its confluence with Chandler Bk. to Freeport/Pownal border
- d) Thoits Brook Corridor from its confluence with the East Branch
- e) Corridors surrounding Eddy, Libby and Collyer Brooks in Gray
- f) Corridor surrounding Pratts Brook to the Cousins River

Large Landscape Oriented

- g) Southeast portion of New Gloucester
- h) Lands around Sabbathday Lake Shaker Village and Shaker Bog
- i) Westcustago to Meeting House Park in North Yarmouth
- j) Runaround Pond to southeast New Gloucester to Pineland
- k) Coastal shorefront areas of Yarmouth

These areas will be the focus of FORR's actions over the next few years.

1. Introduction

1.1 About Friends of the Royal River

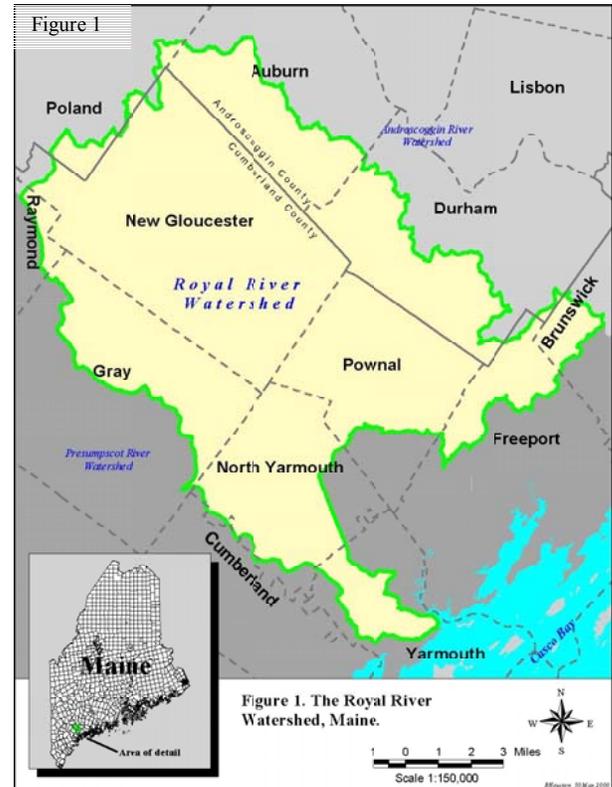
The Friends of the Royal River is a nonprofit conservation organization formed in 1992 to monitor and protect the water quality and wildlife habitat of the Royal River watershed, and to preserve its scenic, historical and ecological integrity. From 1993 through 1999 FORR volunteers conducted a water-quality monitoring program in the watershed. The organization published the results of this work in 2000.

In 2001, FORR and land trusts in New Gloucester, North Yarmouth, Pownal and Yarmouth recognized the need to work collectively in order to accomplish their goals. In 2001–2002, leaders from each of the four trusts and FORR met to determine the best way of achieving this collaboration. They concluded that, given FORR’s accomplishments over the previous decade, it made the most sense to transform the organization into a regional land trust that could facilitate conservation efforts throughout the watershed. FORR could also continue to work with the local trusts and communities, possibly merging with all or some of the land trusts in the future. FORR will work with land owners in any of the 12 communities of the Royal River watershed to conserve important landscapes including places that are outside the watershed area.

FORR is led by a 10-member board of trustees made up of residents of the Royal River watershed towns. Each trustee serves on at least one standing committee. The four standing committees are: executive, lands, development, and nominating. Each committee is responsible for the completion of distinct projects. Since the 2002 summer, FORR has worked with municipalities and partner organizations to permanently conserve estuarine and riparian habitat in four Royal River towns. This regional plan aims to build on the organization’s past water quality work and its more recent land conservation successes. The FORR Board of Trustees will use this plan to guide its volunteer and staff activities over the next five years placing emphasis on conserving land for its natural, recreational, and cultural values.

1.2 Vision for the Region

In a relatively short period of time, the Royal River region has experienced profound changes to its natural landscapes. Suburban dwelling lots are replacing farm and forestland while shrinking available wildlife habitat for birds, reptiles and mammals. Unless we take action now, these losses will continue until there is no open space left. We see a different future. Ten years from now, FORR envisions a region of healthy, interconnected ecosystems, creating a pattern of conservation lands that spread along the regions’ waterways and into its upland forests and meadows. People and wildlife could freely travel from the upper reaches of the watershed (and perhaps beyond) to Casco Bay on a



network of greenways that would be laced with trails and paths, used year round. The open landscapes of rolling farm fields, wooded hillsides, and river views that residents cherish would be protected for generations to come. Special swimming holes, fishing spots, and hunting grounds would continue to be enjoyed. Our rarest species would be secure. Paddlers in the spring and skaters in the winter would still be able to travel the river system without seeing housing developments and no trespassing signs and with even more access points to put in to the water than exist now. The rivers and streams would be cleaner than they have been for over a hundred years, and wildlife would flourish. Through a system of conservation corridors and protected tracts of unbroken habitat FORR and its partners will help to maintain the natural systems so vital to the well-being of all who live here. And the people using these lands and waters would be their stewards, watching out for them, monitoring their use, learning from them.

2. Overview

2.1 Natural Resources

The area which includes the Royal River watershed lies at the southern edge of the Laurentian Mixed Forest Province, the dominant ecosystem in Maine. This ecoregion type is characterized by moderate annual precipitation, winters that are moderately severe, forests that include boreal and broadleaf deciduous tree species, and highly variable soil types, remnants of the last glacial period some 15,000 years ago. Granite bedrock outcroppings and mineral deposits have also helped shape the drainage system and provide the gentle topography of the region.

The four basic natural resources in the Royal River region are **water** (ground and surface), **vegetation** (trees, shrubs, and grasslands), **soils** (agricultural, wetland), and **minerals** (sand/gravel, bedrock and clay deposits).

Water

The single most important natural resource in the region is the Royal River and its tributaries. As part of a system, it is the engine that drives the inputs and outputs that are so critical to keeping the watershed in balance. While many people associate the Royal River with its main stem, its tributaries provide most of the water that eventually flows to the sea at Yarmouth. In addition, lakes, ponds, wetlands, and aquifers are all part of the Royal River watershed, each consistently contributing to the river's flow and biological health. Compared to wetter parts of Maine, the Royal River's water budget is less reliant on large wetlands and surface waters. Crystal Lake in Gray, Sabbathday Lake in New Gloucester, and Runaround Pond in Durham are the only large surface water bodies in the region, and there are only five large wetland complexes dotting the landscape. Underlying parts of the Royal River watershed are several large sand and gravel aquifers. These aquifers supply municipal water and base flow to the Royal River. Consistent flow in the Royal River is critical to the aquatic and terrestrial species that have evolved to depend upon wet conditions and available water throughout the year. Without minimum stream flow, macroinvertebrate, fish and reptile populations would decline and birds and mammals would be forced to seek alternative habitat.

Vegetation

The region’s land cover is predominately forested. In fact, less than 26% of the land area is open grassland, wetlands, and surface waters. By contrast, 80 years ago, the Royal River watershed was mostly open land in pasture or cultivation. With the decline in agriculture, many of the fields have reverted to forests. Numerous stone walls bisecting dense woods are evidence of significant changes in land

uses over the last 200 years. This decline in agriculture, albeit at a slower rate, continues today. The region is predominately forested by a mixed coniferous – hardwood forest. Settlers logged the region extensively for timber and fuel as well as to clear for agriculture. Thus most forest stands are less than 100 years old. The predominant tree types in the region are hardwoods (red maple, oak, beech and paper birch) and softwoods (eastern white pine, balsam fir and hemlock).

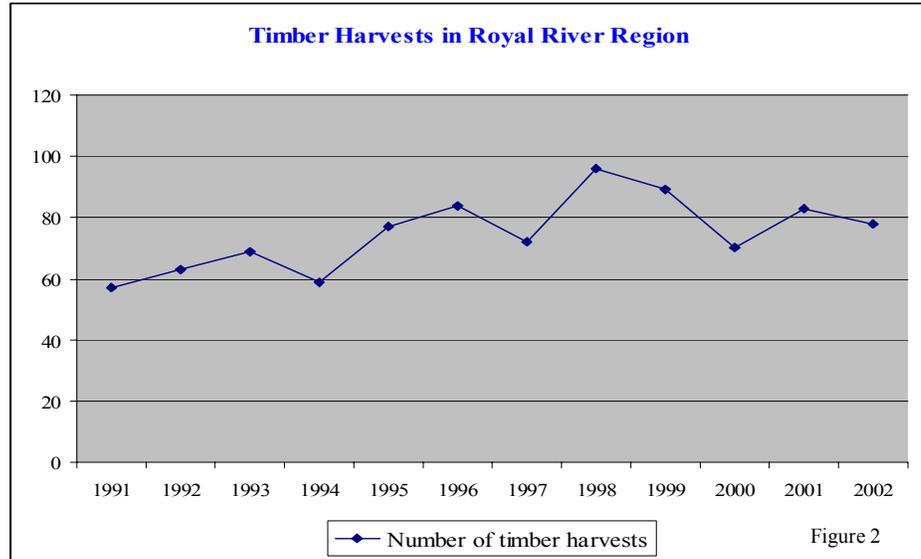


Figure 2

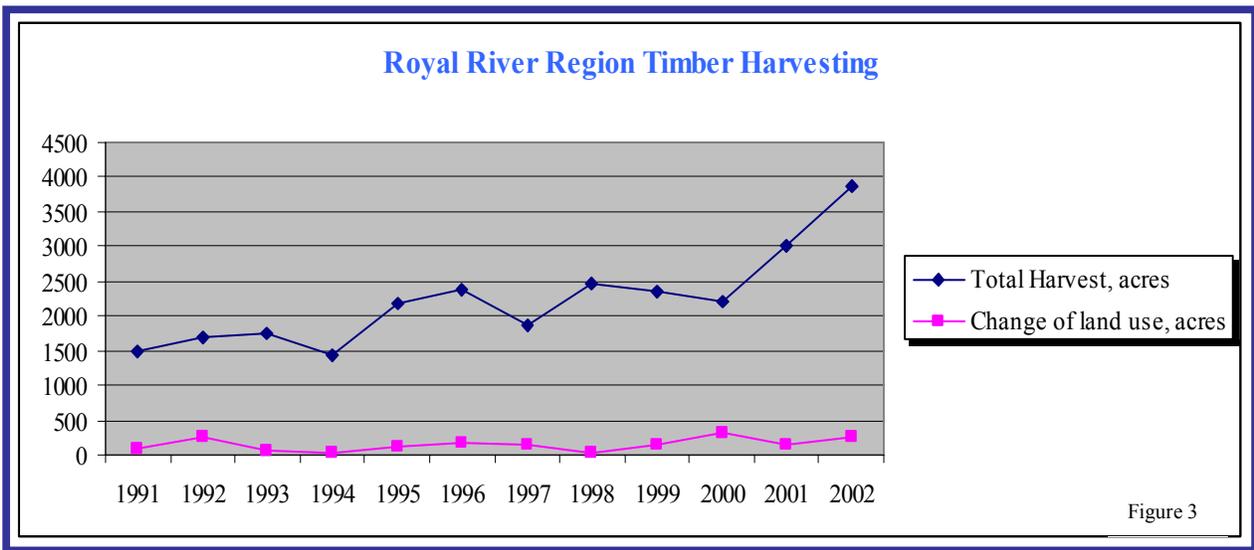


Figure 3

Harvesting activity over one acre is monitored by the Maine Forest Service. By compiling data from Auburn, Durham, Freeport, Gray, New Gloucester, North Yarmouth, and Pownal, we see a steady increase in the number of acres being harvested over an eleven year period (see Figure 3). At the same time the conversion of timberland to other land uses has remained relatively constant. During the same period, the number of harvests has grown moderately which suggests that the size of harvest operations have increased significantly.



Soils

The region’s soils are a byproduct of glacial topography, marine deposits, floodplain sediments, and decaying vegetation. According to the Natural Resource Conservation Service (NRCS) of the US Department of Agriculture, there are 172 separate soil types in Cumberland County. The significance of the many different soil types is that some activities are best suited for certain soils. For example, certain soil types accommodate subsurface waste water disposal better than others while other soils are best suited for agricultural purposes or for growing trees. The categories of greatest interest to the Friends of the Royal River are prime farmland soils, woodland soils, floodplain soils, highly erodible soils, and hydric soils. Figure 4 lists types of soils which are highly productive even without improving conditions by drainage, irrigation or flood control. The distribution of these soils is limited in the Royal River

region, however, there are some significant pockets of prime farmland soils around and west of the Royal River in the Intervale area of New Gloucester. Additionally, this area contains a large amount of Buxton Silt Loam, a soil type that if drained can be extremely productive. NRCS lists 14 other soil types as prime farmland soils. These require improved sites conditions (drainage, irrigation, or flood control). NRCS is currently preparing digital maps of soils in Cumberland County. Once these are available, it will be efficient to determine the exact location and extent of prime farmland soils in the Royal River region. Until that time, FORR will continue to consult soil surveys on a case by case basis.

Geology

The Royal River watershed is underlain by several large sand and gravel aquifers. These geologic features are remnants of the last glacial period and are deposits of the outwash or receding glaciers. They store vast quantities of groundwater which serve domestic and commercial water needs of the region and provide base flow to the rivers and streams. Within these moderate yield (27 gpm) aquifers are four high yield (100 gpm) areas at the following locations:

- on the east shore of Sabbathday Lake in New Gloucester
- in North Yarmouth Center near the intersection of Routes 231 and 115
- east of Walnut Hill in North Yarmouth through to the confluence of Chandler Brook to Crocket Corner
- stretching east from the East Branch in Pownal to Webster Cemetery (between Webster and Granite Streets)

Within New Gloucester, Gray, Pownal, and North Yarmouth there are several large sand and gravel aquifers that are know to yield moderate to good amounts (27 gpm) of water. Some of these aquifers are extensive, the most notable being one that underlies the Maine Turnpike in New Gloucester and runs all the way to Gray Center. While all these sand and gravel deposits are best know for their ability to store large quantities of water, they are also a significant source of raw material for road construction and maintenance. Small gravel pits, no greater that 10 acres in size, are common in Gray, Pownal, North Yarmouth, Pownal, Freeport, and New Gloucester.

The region is also noted for several large granite bedrock outcroppings (i.e. Bradbury Mountain). Several small abandoned granite quarries dot the landscape in Pownal.

2.1.1 Ecological and Biological Information

The Royal River region is located in the temperate eastern forest. The forests are dominated by white pine, succeeding into red oak on sites with better soils. Red maple is abundant on the wetter sites. One remnant stand of black gum, reportedly over 450 years old, is located in New Gloucester.

Agriculture dominated the Royal River region for much of the past two centuries. Although farming is still present, homes and communities dominate the area now. As the landscape changes and blocks of habitat become fragmented, the diversity and density of wildlife species shrinks encouraging opportunistic species such as starlings, raccoons, and red squirrels to flourish.

The Royal River region’s biota has not been extensively inventoried. Much of the biological information comes from data generated by state and federal agencies. With a few exceptions, these data generalize the existence of species by identifying habitat types. For example, the Royal River corridor includes a variety of plant and animal species common to wetlands, but we cannot confirm individual species at this time. In general we know that common plant and animal species dominate. Large mammals such as deer, moose, coyote, fox, raccoon, skunk, and porcupine thrive on trees, shrubs, and non-woody plants common to the northeastern temperate region.

As an ecological system, the Royal River system is dynamic. It is host to many common and some less common insect, bird, reptile amphibian, and mammal species. A list of threatened and endangered species found in the watershed is included in the appendix. Much of the area has not been surveyed for rare and endangered species although there have been unconfirmed sitings of Blanding’s and spotted turtles on the lower Royal River.

The river and riparian lands, and associated wetlands attract and retain a wide variety of animal and insect species, providing shelter and food. This diversity helps maintain an ecological balance in the region that keeps any one species or disease from gaining dominance.

2.1.2 Geologic and Hydrologic Information

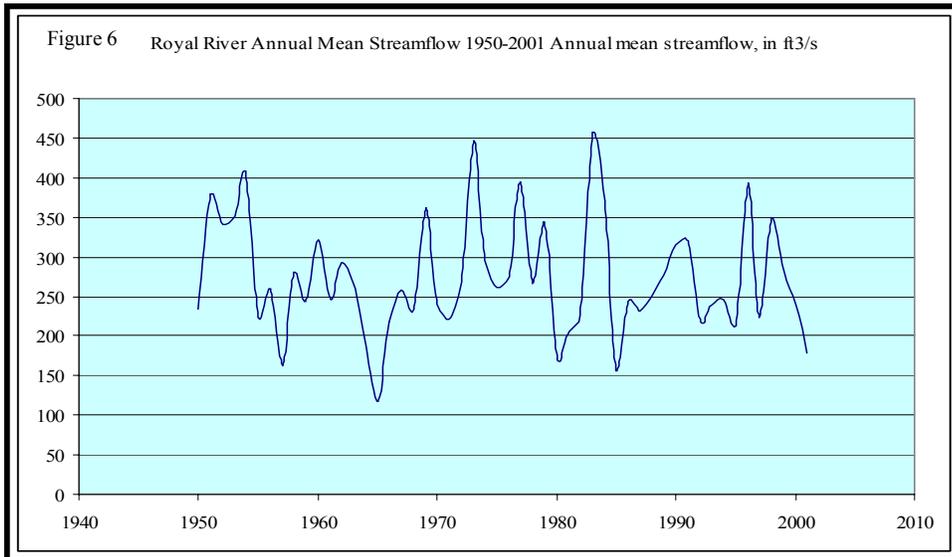
The Royal River Watershed was glaciated 10,000 years ago. The landscape contains marine clays, sandy outwash deposits and other features left behind when the ice sheet melted. Large sand deposits are found near Poland Spring, North Yarmouth, and Gray and marine clays are found in Yarmouth.

Subwatersheds
<i>Moose Brook</i> - Auburn
<i>Meadow Brook</i> - Auburn & New Gloucester
<i>Libby Brook</i> - Gray
<i>Collyer Brook</i> - Gray
<i>Chandler Brook</i> - Durham, Pownal, North Yarmouth
<i>East Branch</i> - Pownal, Freeport
<i>Collins Brook</i> – Freeport
<i>Thoits Brook</i> - Pownal

Figure 5

Considered a small river by Maine standards, the Royal River’s annual mean stream flow over the past 53 years has ranged from a high of 454 cubic feet per second (1983) to a low of 160 cubic feet per second (1985). More typically, the Royal River’s mean daily discharge is around 273 cubic feet per second. Most of the streamflow in the Royal River comes from groundwater seeping into feeder streams and brooks. Wetlands throughout the watershed attenuate stream flow from season to season.

The US Geological Survey (USGS) has maintained a flow gauge in the lower part of the Royal River continuously for 53 years. However, due to the lack of local funding to operate the gauge, the USGS discontinued recording flows in the fall of 2004. The historical record shows the Royal River’s flow to be greatly influenced by seasonal storms suggesting that stormwater runoff plays a significant role in the River’s water budget. With a high percentage of stormwater reaching streams shortly after a storm, water quality may be compromised without adequate buffers or ways of retaining and filtering water.



During the period of record, flows have been as high as 7160 cubic feet per second to as low as 16 cubic feet per second. Fortunately, this drama does not occur often, but more normal conditions show consistent seasonal fluctuations with pronounced spikes in flow due to drought or storms. Relative to other river systems in Maine, the Royal River watershed does not have

a large capacity to hold and slowly release large amounts of water.

The Royal River Watershed contains several subwatersheds (see figure 7). These streams drain over 60% of the Royal River’s watershed area.

Aside from the large aquifers, the region’s geology is known for the vast marine clay deposits known as the “Presumpscot Formation.” According to the Maine Geological Survey, these clays and silts settled in the coastal region, which includes most all of the Royal River basin, after the last glacier receded forming a thin (10’-200’) layer over bedrock. The steep ravines of coastal Yarmouth are not from erosion of these clays. Marine clays were used to make bricks for local buildings since the early 1800’s. Today, a company in Auburn continues to mine Maine’s “blue clay” deposits from the Moose Brook area to manufacture bricks.

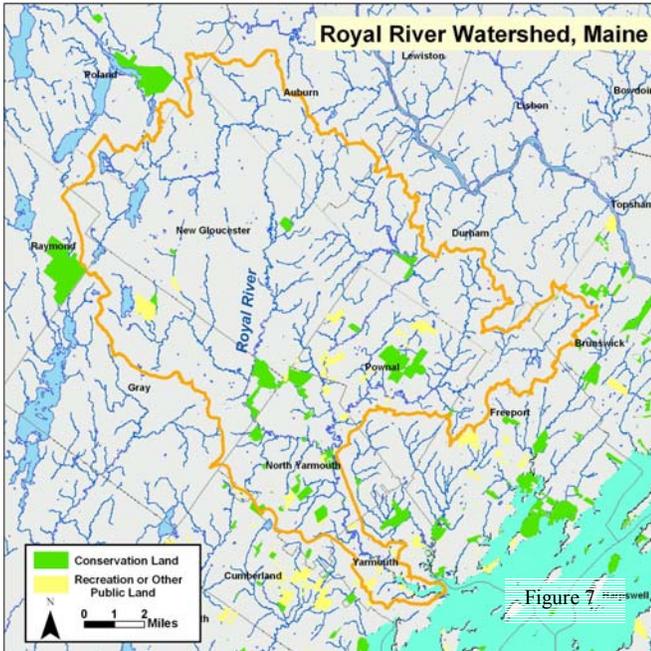
2.1.3 Information Gaps

Inventories of important species (i.e. turtles)

2.2 Cultural Resources

Europeans settled the Royal River region in the late 1600s. The region has a long history of agriculture and manufacturing. Farms dominated the landscape until the last few decades, and evidence of an agricultural society is found in both the character of the landscape and the numerous granges and fraternal societies in the region.

Historically, the Royal River influenced and transformed the many communities through which it flowed. In the early 1800s, 14 mills harnessed the power of the four falls in Yarmouth. This area later became the site of a vast pulp and paper mill. The falls area is now a park where stone foundations of previous industrial activity are still visible. The Sparhawk Mill still stands at the intersection of Bridge Street and the Royal River in Yarmouth, producing electric power and providing space for several businesses. Currently, there are two dams in Yarmouth.



Another major facility in the watershed is Pineland, a large village created in the early 1900s, near the town of Gray for the treatment and housing of mentally disabled Mainers. This facility was recently closed and renovated by the Libra foundations and now supports a variety of light industry, recreational activities and office space.

Historic resources are important to the Royal River watershed communities, as evidenced by their active historical societies (see appendix I). The Groves Farm and the Bayview Estuary Preserve, recently conserved by the Town of Yarmouth, local citizens, and the Friends of the Royal River, are examples of how this heritage is important to local residents.

2.3 Socio-Political Framework

The Royal River watershed includes land in twelve municipalities with the majority lying within New Gloucester, North Yarmouth, and Pownal.

Elected town councils in Auburn, Gray, Yarmouth, Cumberland, Freeport, and Brunswick represent their residents while the remaining watershed towns rely on a town meeting form of governance. Planning boards appointed by selectmen or councilors respond to development applications in each of the towns. In Yarmouth, New Gloucester, Freeport, Brunswick, Gray and Auburn planning staff assist the planning boards. Town Councils, Boards of Selectmen, local planning boards, and code enforcement officers make decisions that affect landscape values in each watershed town. Occasionally, voters decide on local ballot initiatives and ordinance changes that can also translate into habitat and landscape changes.

The Towns of North Yarmouth, Yarmouth, Freeport, and Pownal have active Conservation Commissions each concerned about the protection of their town’s natural resource base. These volunteer groups work with their local planning boards to review and modify, as necessary, development proposals prior to permitting.

Cumberland, Yarmouth, and North Yarmouth (35 building permits/year) each have caps on annual residential growth. These limitations are a response to costs of growth that these communities have experienced over the past two decades.

Pownal, Freeport, Brunswick and Yarmouth have active land trusts. Conservation activity in the watershed over the past 25 years has occurred due to the efforts of individual citizens, the State of Maine, municipalities, and local land trusts. Concurrently, each town in the watershed has experienced both residential and commercial growth in a land consumptive pattern. In the face of a changing landscape from rural to suburban, communities have been setting aside open space.

Auburn	Brunswick
Cumberland	Durham
Gray	Freeport
New Gloucester	North Yarmouth
Poland	Pownal
Raymond	Yarmouth

Figure 8

Figure 7 shows less than 5% of the Royal River watershed’s land is conserved for the public’s benefit.

2.4 Trends

- Loss of informal access and use of lands
- Rise in local efforts for formal access and public use of land by local land trusts and town governments
- Large subdivisions and continuing transformation of open land into residential and commercial subdivisions

3. Identification of Conservation Targets and Goals

3.1 Water Quality

From 1993 through 1999, FORR monitored up to 28 sites throughout the Royal River system for dissolved oxygen, turbidity, and e-coli bacteria. This extensive volunteer effort, which included bi-weekly sampling from June to September, culminated in a water quality report, published in 2001. The authors found that the Royal River and its major tributaries (Collyer Brook, Chandler Brook, and the East Branch Chandler Brook):

1. Generally showed little change over the seven year period except for East Branch of Chandler Brook,
2. Generally met the water quality parameters of a Class B river under the State’s classification system with some notable exceptions on tributaries,
3. Varied in their water quality from one subwatershed to another,
4. Several tributaries failed to meet State dissolved oxygen standards and had elevated bacteria counts,
5. Showed signs of water quality degradation over a four year testing period with declining dissolved oxygen levels and rising bacteria counts (East Branch Chandler Brook), and
6. Did not reveal the sources of isolated degradation.

The State of Maine classifies the water quality of major rivers and streams. From the outlet of Sabbathday Pond to its confluence with Collyer Brook, the Royal River is Class A. The Department of Environmental Protection assigns a Class B rating to all the Royal River tributaries and to the main stem starting at its confluence with Collyer Brook. These classifications are based on water quality parameters such as dissolved oxygen, bacteria and the abundance of aquatic life as well as the presence of direct discharges (pipes into the stream) and dams.

Data from FORR's 2001 water quality report and from the State of Maine's periodic testing for classification purposes does not reveal particular pollution sources of the Royal River's degraded waters. Experts suspect that ubiquitous, "non-point source" pollution, or polluted runoff, poses the greatest current threat to the Royal River's water quality. Isolated agricultural practices, road runoff, soil erosion, inadequate vegetative buffers and impoundments are all contributing to the Royal River's substandard conditions. FORR's 2003 survey of non point source pollution "hot spot" shows there to be dozens of places throughout the watershed that are adding sediments and hydrocarbons to the Royal River and its tributaries.

"Polluted runoff is caused by a variety of land use activities, including development, transportation, agriculture and forestry, and may originate anywhere in the watershed. Due to its diffuse nature, polluted

runoff has not been effectively managed through regulatory programs alone" (Maine DEP Watershed Planning and Management website, 2004). When stormwater does not completely soak into the ground, it often picks up soil, fertilizers, pesticides, manure, petroleum products, and even heat from roads, farm fields, driveways, golf courses, and lawns. These pollutants may eventually reach the Royal River. Excess soil, bacteria, phosphorous, toxics, and water that is warmed can create conditions that make survival and reproduction challenging for aquatic species.

Water Quality Goals

- a) protect minimum stream flows by tracking any permitting that withdraws water
- b) maintain or improve upon the State's water quality classification for the Royal River
- c) continue to be a source for water quality information and raise public awareness about the Royal River's water

3.2 River and Stream Corridors

The main stem of the Royal River starts at Sabbathday Lake and at several wetland complexes on the border of New Gloucester and Poland and extends approximately 30 miles to Casco Bay at Yarmouth. In addition, the major tributaries of Libby and Collyer Brooks drain portions of Gray and New Gloucester to the west while Chandler, East Branch, Thoits, and Collins Brooks contribute the bulk of the river's flow through Auburn, Durham, Brunswick, Freeport, Pownal, New Gloucester and North Yarmouth to the east. In all, the Royal River watershed covers 141 square miles and 252 miles of streams and brooks.

Available data shows that the riparian corridors and associated wetland complexes are some of the most biologically productive lands in the Royal River watershed. For example, the Royal River defines and flows through Intervale in New Gloucester which is the heart of the region's most important grassland, wetland, and forested habitat for a large variety of birds. Few areas in the watershed rival this convergence of habitat types in terms of quality and breadth.

While all stream and river corridors are important as habitat for resident and migrating birds, small and large mammals, and reptiles, several corridors and associated wetlands are notable for their concentration of high value habitat characteristics. The following are several of these exemplary riparian areas:

- ✓ Confluence of the Royal River and Chandler Brook and the riparian land up and down stream for two miles from this intersection (North Yarmouth)
- ✓ The Royal River from Morse Road in New Gloucester north to Cobbs Bridge

- ✓ One mile in either direction from the confluence of the Royal River and Meadow Brook (drains the southeast corner of Auburn)
- ✓ One and one-half miles downstream along the Royal River from the outlet at Sabbathday Lake
- ✓ Almost the entire length of Chandler Brook and the East Branch in Pownal and Durham
- ✓ Nearly the entire length of the main stem of the Royal River and Chandler Brook in North Yarmouth

<p>River and Stream Corridor Goals</p> <p>a) to protect as much of the riparian areas as possible along the Royal River and its tributaries (within 500-600' of the stream)</p> <p>b) to foster greater public awareness of best management practices in riparian areas</p> <p>c) support enforcement of existing regulatory standards that protect streams and riparian areas</p>

Using generalized data, the U.S. Fish and Wildlife Service identifies all these areas as high and moderate value habitat for a wide variety of birds,

fish, reptiles and mammals. To our knowledge, little field data exists that confirms the existence of specific plant and animal species.

3.3 Scenic Areas

Each town contains scenic areas that are enjoyed by people passing by on roadways or from the river. Less well known scenic views are located on or around private property so their community value is limited.

FORR has catalogued its interpretation of the top scenic views enjoyed by the public in several of the Royal River communities. These choices are subjective and would not necessarily be universally agreed upon. For the purposes of this plan, they represent a start.

The top scenic views accessible by the public by town are:

Yarmouth

1. View of the estuary from the top of the harbor looking southeast,
2. View up river from the Elm Street railroad bridge,
3. View out to Casco Bay and of Yarmouth Village from the Bayview Estuary Preserve,
4. View from the of the river from the river,
5. View from Cousin's Island Bridge,
6. View across the Sanders' land from Route 88,
7. View of Groves Farm along Gilman Road.

North Yarmouth

1. View of the large open fields to the north of Route 115 driving west toward Walnut Hill
2. View from Route 231 of the Royal River going away from Pineland
3. View around the old Gillespie's farm on Rte 9/Royal River canoe launch site
4. Most all views from the Royal River and Chandler Brook while boating or hiking

Pownal

1. View of farm and across fields to Bradbury Mountain from the Elmwood Road
2. View across fields to Bradbury Mountain along the Elmwood Road between Pownal Center and Pownal Elementary School
3. View from and of Tryon property (field and hills) to the northwest of Lawrence Road before the intersection with Sweetser Road
4. Views from Hodsdon Road out across open fields

5. View across fields along Lawrence Road

New Gloucester

1. View of Intervale from Route 231
2. View from the top of Gloucester Hill Road across the Intervale
3. View of Mt. Washington from Pineland Campus
4. View from Bald Hill Road at the crest of the hill looking south
5. View along Route 26 from the Shaker Village looking west across open fields

Scenic Area Goals
a) Protect scenic areas in each town

Durham

1. View of riparian land surrounding Runaround Pond

3.4 Wildlife and Natural Areas

Rare Plants
Back’s sedge, Freeport
American chestnut, Yarmouth
wild leek, Yarmouth
black gum, New Gloucester

Rare Animals
spotted turtle, Yarmouth
New England cottontail, North Yarmouth
wood turtle, North Yarmouth, New Gloucester
creeper, Pownal

Figure 9

As noted earlier, the Royal River region’s prime wildlife habitats are often associated with stream corridors. The exceptions are grassland habitat and deer wintering areas which are found in upland portions of the watershed. Information from the Maine Natural Areas Program and the Maine Department of Inland Fisheries and Wildlife show several occurrences of documented rare plants and animals (see figure 9). Further field research could uncover other instances of rare plants and animals in the region. The existence of a variety of plants and animals indicates the potential for

diversity of species and habitat which is important, as a hedge against disease or species dominance, for the overall health of the region’s natural systems.

In addition to data on individual species, MDIF&W indicates that there are 22 distinct deer wintering areas and eight waterfowl and wading bird habitats in the region. New Gloucester and North Yarmouth have the highest percentage of land that

Wildlife and Natural Areas Goals

- a) Protect, conserve and link large, unbroken, unfragmented blocks of land, diverse habitat, and wet areas including:
 - special habitat such as deer yards, nesting areas
 - rare and endangered species of plants, animals, and rare plant communities
 - wetlands
- b) work with partners to improve survey information about wildlife

qualifies as deer wintering habitat. New Gloucester also boasts a large waterfowl and watering bird habitat complex along the Royal River from the Penny Road up to Cobbs Bridge and Meadow Lane. This significant area, otherwise known as Intervale, is unmatched in the region in terms habitat quality and diversity. Turkey, woodcock, and grouse are also common throughout the region.

3.5 Recreational Opportunities

Public Access

Currently there are limited points of formal public access to the Royal River. Many are associated with road crossings on public right-of-ways. However, the Towns of Yarmouth and North

Yarmouth have purchased land along the Royal River over the past 10-20 years in recognition of their community’s desire to gain recreational access to the Royal River. Yarmouth’s Royal River Park and North Yarmouth’s property north of Route 9 are two examples. In 2002, the Town of North Yarmouth, with assistance from the Friends of the Royal River, purchased and improved a traditional hand carry boat launch at the Route 9 crossing. Each of these communities continues to look for and act upon opportunities to purchase additional riparian land.

The Town of North Yarmouth purchased 62 acres that front the Royal River just north of Route 9 for use as a town park. Dubbed Meeting House Park, the property includes open fields and a trail (soon to be developed) that are open to the public. North Yarmouth’s newest acquisition is a 63 acre parcel of farm, forest, and riparian land off of North Road. This property boasts nearly two miles of frontage on Chandler Brook, large open meadows, and numerous trails.

Yarmouth has purchased a property on Sligo Road, formerly owned by Central Maine Power, for use as a canoe launch and as recreational fields. Known as the “Pole Yard,” this property is under town management with oversight from a local committee. Additionally, Yarmouth acquired the Sweetser Farm at its northern border and the Barker property between the railroad track and the Royal River also in the northern part of town. During the 2004 summer, Yarmouth has also acquired the Bayview Estuary Preserve that provides access to the public at the Royal River estuary.

Local Land Trusts have also contributed to expanding public access of both the region’s waterways and land. The Pownal

<p>Recreational Opportunities Goals</p> <ul style="list-style-type: none"> a) create public access to the Royal River and its tributaries by establishing formal access ways in each town b) develop trails along the river and tributaries where appropriate c) work with other organizations to connect and protect trails throughout the region d) protect large, unfragmented blocks of land

Land Trust has been instrumental in adding property to Bradbury Mountain State Park and is currently working on a large project to provide a corridor connecting the State Park to Pineland Center. Land Trusts in Pownal, New Gloucester, Yarmouth, and North Yarmouth have small land holdings. Some of these lands, owned by the land trusts (see map, Figure 7), are open to the public for low impact uses and provide access to the river.

Pineland Farms, a privately-owned business campus located on the grounds of the former state mentally disabled home, Pineland Center, invites the public to use its trail system for skiing and hiking for a fee. According to Pineland Farms officials, they plan on expanding their trail system and providing snowmaking.

Runaround Pond in Durham, the headwaters of Chandler Brook, is a destination in the region for people seeking opportunities to fish, canoe, boat, snowmobile, and ice skate. The southern end of Runaround Pond, the primary access point, is owned and managed by the Maine Department of Inland Fisheries and Wildlife. The site allows for trailer access to the pond. In general, the site shows the wear and tear of overuse by vehicles and foot traffic and could use some improvement.

The public also uses state and local highway crossings of the Royal River and the large tributaries for access to open waters. These are limited, offer no parking, and often infringe on adjacent private property though they are relatively infrequently used.

3.6 Wetlands

Healthy wetlands purify water flowing through them, regulate water discharge and recharge, stabilize shorelines, retain nutrients and sediments, control flooding, provide habitat for a variety of plant and animals, and provide recreational opportunities. Wetland systems are important components of a healthy ecosystem. The Maine State Planning Office has characterized wetlands based on the functions they provide. These wetlands were mapped on a town wide basis.

Wetlands are regulated under the Natural Resources Protection Act (NRPA). Many of the important wetlands in the region are large enough to be protected under NRPA and to some extent through Shoreland Zoning. However, issues remain over education and enforcement of Shoreland Zoning requirements and encroachment of sensitive wetlands. Also, smaller wetlands that are not covered by state’s regulations such as vernal pools are largely unprotected.

<p>Wetlands Goals</p> <p>a) seek no net loss of significant wetlands</p> <p>b) encourage the enforcement and application of existing wetland regulations and laws</p>
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The two most important wetland complexes in the Royal River Watershed are the Intervale area of New Gloucester and the estuary in Yarmouth. Smaller important wetlands are found in the

upper reaches of the watershed in Auburn, Durham and Pownal.

Auburn

- Forested wetlands in the upper reaches of Moose Brook and Meadow Brook provide important habitat within Auburn.
- Meadow Brook has stretches with important wetlands.

Poland

- Only a small section of Poland lies within the Royal River Watershed. However, this section includes the Shaker Bog. This wetland is of high habitat value and feeds into Sabbathday Lake.

Gray

- The Royal River flows through the northeastern section of Gray, in a region of steep slopes and rocky soil. 9500 acres is within the watershed.
- In addition, another 220 acres near Notched Pond in the Northern corner of the town flows into the Royal River.
- The topography in the eastern region of Gray is hilly and rocky, with few wetland areas. Important forested wetlands are found along the Royal River in this region.
- Libby Brook has important wetlands along its banks.
- Abundant sand aquifers in this region support a state fish hatchery in Dry Mills, and one near Eddy Brook.

Durham

- The Royal River Watershed bisects Durham. The southwestern portion is contained within the watershed.
- Extensive forested wetlands surround Chandler Brook and Runaround Pond. Runaround Pond also hosts important wetlands from a wildlife perspective.
- Wet area near Libby Hill

New Gloucester

- 90% of the town of New Gloucester is within the Royal River Watershed.
- Hundreds of small wetlands dot the landscape, remnants of the area's glacial history.
- Important wetlands are found alongside the upper reaches of the Royal River as it leaves Sabbathday Lake.
- The Intervale Region is another high value wetland site within the town. Broad flat wetlands are sandwiched between two ridges. The Intervale region is surrounded by productive farmland.
- Meadow Brook, flowing out of Auburn is part of the rich Intervale complex.
- Brandy Bog also has important wildlife values and wetland functions. The bog flows into Brandy Brook and ultimately Chandler Brook.
- There are several small brooks that feed into Runaround Pond in the eastern side of New Gloucester. These brooks and their wetlands drain a series of parallel ridges in the area.

Pownal

-

Brunswick

North Yarmouth

- Deer Brook area that includes high value wetlands

Yarmouth

- In Yarmouth the watershed narrows and most wetlands flow into the Cousins River, Broad Cove, and the Piscataqua River.
- The highest value wetlands are along the lower Royal River, below head of tide. These broad flat muddy areas provide important feeding areas in an estuarine environment.

3.7 Historic Areas

Historic Areas Goals

a) encourage efforts by local groups and municipalities to protect important historic resources

4. Assessment of Threats to Achieving Targets and Goals

4.1 Growth trends, demographics

[Note: data used in this section relies upon information about demographics of an entire municipality. The Royal River watershed includes portions of 11 communities and all of New Gloucester. Thus, the information presented covers a larger geography and population than is contained just within the Royal River watershed. Friends of the Royal River is concerned with the communities of the Royal River region as a whole including those areas outside the watershed.

A key factor effecting the conservation of land and habitat, particularly in large blocks, is the region’s projected growth. Generally, the historic pattern of growth, which shows no signs of changing, consumes land along roadways in 2 to 10 acre increments. Alternatively, on larger divisions, developers are constructing paved roads to access more remote portions of large lots when 10 or more subdivided lots are profitable. The exception to this ubiquitous development pattern in the region is Yarmouth, where housing development has slowed because land is largely unavailable or already built upon.

The following table shows the region’s population change during the 1990’s. Only Auburn lost population during this decade. The towns of North Yarmouth, Cumberland, and New Gloucester saw significant change.

1990-2000 Population Statistics for the Royal River Communities

Municipality	Population		Numeric Change	Rate of Change
	01-Apr-90	01-Apr-00		
Auburn	24,309	23,203	(1,106)	-4.5%
Brunswick	20,906	21,172	266	1.3%
Cumberland	5,836	7,159	1,323	22.7%
Durham	2,842	3,381	539	19.0%
Freeport	6,905	7,800	895	13.0%
Gray	5,904	6,820	916	15.5%
New Gloucester	3,916	4,803	887	22.7%
North Yarmouth	2,429	3,210	781	32.2%
Pownal	1,262	1,491	229	18.1%
Raymond	3,311	4,299	988	29.8%
Yarmouth	7,862	8,360	498	6.3%

Source: US Census, 2000

Demographers and population statisticians calculate that the population trends that defined the 1980s and 1990s will continue in the Royal River region. With the exception of Auburn, each

community will experience growth at rates similar to or below the preceding decade. For example the explosive growth in North Yarmouth is expected to moderate but still remain high. When combined the communities of the Royal River will experience an 11.17% in population from 2000 to 2010.

2000-2010 Population Projections for the Royal River Communities

Figure 11

Municipality	Population		Numeric Change	Rate of Change
	1-Jul-00	1-Jul-10		
Auburn	23,270	22,500	-770	-3.31%
Brunswick	21,234	21,733	499	2.35%
Cumberland	7,179	8,076	897	12.49%
Durham	3,390	3,841	451	13.30%
Freeport	7,823	8,626	803	10.26%
Gray	6,839	7,583	744	10.88%
New Gloucester	4,819	5,460	641	13.30%
North Yarmouth	3,222	3,854	632	19.62%
Poland	4,879	5,318	439	9.00%
Pownal	1,496	1,804	308	20.59%
Raymond	4,311	5,166	855	19.83%
Yarmouth	8,375	8,852	477	5.70%

Source: Maine State Planning Office, Greater Portland Council of Governments

If population projections for the region are accurate, housing demand will remain strong over the next 6 years (2004-2010) placing more pressure on development along roads and on interior, large parcels. Based on population projections, housing stock, historic development, and the trend of declining household size, the Maine State Planning Office projects the following housing need by 2010.

2000-2010 Housing Projections for the Royal River Communities

Figure 12

Municipality	Housing		Numeric Change	Rate of Change
	1-Jul-00	1-Jul-10		
Auburn	10,202	10,288	86	0.84%
Brunswick	8,316	8,679	363	4.37%
Cumberland	2,559	2,889	330	12.90%
Durham	1,237	1,480	243	19.64%
Freeport	3,089	3,486	397	12.85%
Gray	2,667	3,047	380	14.25%
New Gloucester	1,781	2,070	289	16.23%
North Yarmouth	1,130	1,379	249	22.04%
Poland	1,862	2,152	290	15.57%
Pownal	562	745	183	32.56%
Raymond	1,640	2,021	381	23.23%
Yarmouth	3,480	3,789	309	8.88%
Totals	38,525	42,025	3,500	9.09%

Source: Maine State Planning Office

The housing projections show the region adding 3500 new homes to the housing base by 2010 with the greatest change occurring in the more rural communities. If current development patterns continue, the Royal River communities can expect open land to be incrementally consumed by single and multi lot developments. These trends will make it increasingly difficult to conserve and connect large or even medium size land parcels. Furthermore, as habitat becomes fragmented by sprawling development, the habitat values the Friends of the Royal River are attempting to protect will become diminished.



While developing raw land or converting land from one use to another can be directly attributed to population and housing increases in the region, the profile of the region’s population also reveals information which influences how the Royal River region will develop over time. Consistent with the national phenomenon, people in the Royal River communities do not live near to where they work. According to the 2000 census, the median distance people are traveling to get to work is nearly 25 miles. Assuming that this trend continues, we can expect most of the region’s growing population to work outside their town of residence. The implications are that the region’s secondary roads will see ever increasing use, town maintenance budgets will adjust accordingly, and the sprawling development pattern will remain strong. The populations’ proclivity to living outside of village centers and relying upon automobile transportation will also continue to challenge the Friends of the Royal River’s goal of protecting and connecting large habitat blocks.

By Maine standards, the region’s population as a whole has a relatively high standard of living. The region’s median annual, household income is \$52,175.

4.2 Transportation

The Royal River region contains all the transportation facilities, except public transportation, that are found elsewhere in Maine. They include an airport, freight trains, interstate highways, state highways, local secondary and dirt roads, and snowmobile trails.

As the region’s population swells and the average household size decreases, more and more vehicles are using the area’s road infrastructure. This trend, as much as any other, is having a profound detrimental effect on the functioning of natural systems and the livability of our communities. More automobiles mean more non point source and air pollution. New and improved roads mean the further fragmentation of habitat and division of large blocks of land.

5. Conservation Strategies

5.1 Land Protection (including wetlands, stream corridors, and wildlife habitats)

Several of the conservation strategies proposed in this plan cover multiple targets. Wetlands, riparian corridors, and wildlife / natural areas all share overlapping and important qualities. These

common elements comprise the suite of values that FORR seeks to conserve. This section highlights the steps and actions we believe will be the most effective in protecting the region’s natural attributes.

Figure 14 **11 Land and Habitat Protection Focus Areas**

River and Stream Oriented

- a) Royal River Corridor – Royal River main stem and estuary
- b) Chandler Brook Corridor – Runaround Pond to Royal River
- c) East Branch Corridor – from its confluence with Chandler Bk. to Freeport/Pownal border
- d) Thoits Brook Corridor from its confluence with the East Branch
- e) Corridors surrounding Eddy, Libby and Collyer Brooks in Gray
- f) Corridor surrounding Pratts Brook to the Cousins River

Large Landscape Oriented

- g) Southeast portion of New Gloucester
- h) Lands around Sabbathday Lake Shaker Village and Shaker Bog
- i) Westcustago to Meeting House Park in North Yarmouth
- j) Runaround Pond to southeast New Gloucester to Pineland
- k) Coastal shorefront areas of Yarmouth

Acquisition and Conservation Easements

Based on the best available natural resource information and the demographic trends the region faces, the FORR plans to devote time and resources to working with landowners in 16 focus areas. FORR has identified these focus areas because they contain exemplary natural characteristics, important cultural features, or are

one of the few remaining large blocks of undivided land. These places help define the region, provide recreational opportunities, and protect the Royal River region’s natural functions.

Generally, within the aforementioned focus areas FORR will reach out to landowners seeking opportunities to conserve landscapes that will continue to provide critical habitat, water quality protection, and potential recreational opportunities. Depending upon the circumstance, FORR will work with willing landowners to design appropriate conservation easements or acquire land to protect habitat, wetlands, unique natural areas, and stream corridors. FORR will work to connect conservation lands within a focus area realizing that larger, unfragmented landscapes offer the greatest public benefits.

FORR’s strategy to achieve its goals related to wildlife habitat, recreational opportunities, and river and stream corridors will be to introduce FORR’s plan to conserve and connect important landscapes in the watershed to individual landowners. It may be advantageous to gather a neighborhood of landowners together to spark a discussion about permanent conservation of key parcels within FORR’s focus areas.

Actions:

River & Stream Corridors

- 1) acquire conservation easements, fee ownership, and landowner agreements to protect riparian areas.
- 2) work with partner organizations to establish education programs to promote best management practices.
- 3) contact CEOs, Town Managers, Planning Boards, and Conservation Commission to let them know of FORR’s interest.
- 4) Organize and conduct an annual paddle of the Royal River to monitor the health of the river.

Wildlife and Natural Areas

- 1) work with partners to improve survey information
- 2) set up volunteer surveys
- 3) identify areas with high habitat values
- 4) work with towns and landowners to conserve important habitat lands

Wetlands

- 1) acquire wetlands and conservation easements on wetlands
- 2) contact CEOs, Town Managers, Planning Boards, and Conservation Commission to let them know of FORR’s interest.

FORR will contact landowners and maintain a dialogue about conservation options with families that show interest in working with us.

After a period of assessment and adjustment to this outreach strategy, we will approach possible funders and partners to help FORR knit together a corridor of conservation land in one or more focus areas. FORR will concentrate on building upon existing conservation land wherever possible. Funding will be critical to this large scale project to cover transaction, administration, and stewardship costs. In other cases FORR will have to raise funds for acquisition of fee or easements. Another option is to develop a planned giving program that encourages landowners to donate their property or an easement in an estate will. Because funding is so critical to FORR’s strategy of easement and acquisition of the region’s highest valued natural landscapes, FORR will work with partners to gather legislative support to bond the Land for Maine’s Future program.

Supporting local efforts

Aside from acquiring legal interest in lands within our focus areas, FORR will work with local code enforcement officers, conservation commissions, planning boards, selectmen and councilmen to ensure that the highest possible standards are applied to projects that effects wetlands, stream corridors and natural areas. To do this FORR will have to develop in-house expertise on local and state regulations (Shoreland Zoning and Natural Resources Protection Act) and train volunteers to become FORR’s responsible eyes and ears throughout the region. Additionally, FORR will stay informed about permitting issues affecting these natural resources and continue to educate local officials about the importance of their protection. This will include advocating for healthy buffers according to the latest science. Lastly, FORR will develop an in-house protocol for responding to permits and events that may compromise the functions of stream corridors, wetlands, natural areas and wildlife habitat.

5.2 Regulatory Efforts

FORR will work with local conservation commissions and town officials to encourage them to adopt better minimum standards for clearing and development along tributaries and the main stem of the Royal River. The strategy will be to research the extent of permitting activity in a particular municipality, develop a case for seeking any change in their current standards, and presenting an alternative plan that protects the riparian lands. Any alternative must be based on the best available science and recognition of threats and conditions in a given community.

5.3 Water Quality Efforts

FORR will continue to add to its inventory of non point source “hot spots” throughout the watershed and address them, as resources permit, with a mix of dedicated student labor (Royal River Youth Conservation Corps) and targeted remediation projects. This strategy will

- | |
|---|
| <p>Actions</p> <p>Water Quality</p> <ol style="list-style-type: none"> 1) Monitor dams and water withdrawals from the Royal River 2) Protect riparian areas with conservation easements and acquisition. 3) Educate the public about good stewardship of riparian areas. 4) Continue to be a source of water quality information. 5) Develop programs that educate the public and enhance water quality. |
|---|

include working with landowners and municipalities to improve vegetative buffer conditions, protect riparian areas, and reduce direct runoff. FORR will continue to work with its partners at Maine DEP, Casco Bay Estuary Project, Cumberland County Soil and Water Conservation Service, Sabbathday

Lake Association, area towns and generous foundation supporters to expand the scope of the Royal River Youth Conservation Corps.

Starting in spring 2005, FORR will conduct an intensive non-point source survey on the Moose Brook in Auburn using a Maine DEP 319 grant. This small subwatershed represents an area of the Royal River watershed that faces numerous land use changes and possible degradation of water quality. The survey will lead FORR towards addressing the most egregious pollution problems.

5.4 Scenic Areas

FORR will continue to identify important scenic areas in the region and update the list in this document. Additionally, FORR will discuss the protection of scenic views with landowners and encourage them to protect scenic values of their property by restricting future development where appropriate.

<p><u>Actions</u> <u>Scenic Areas</u></p> <ol style="list-style-type: none"> 1) add to the inventory of scenic areas in this conservation plan by doing a windshield survey in each community. 2) using conservation easements, work with landowners to protect the scenic values of properties.

5.5 Recreational Opportunities

The premise of FORR’s strategy to create and maintain recreational opportunities lies in the belief that if people experience the natural wonders of the Royal River region first hand, they will appreciate (and learn from) the resources in our own backyard. By providing opportunities for residents and visitors to experience the region’s wildlife and natural beauty, FORR and its partners will be

<p><u>Actions</u> <u>Recreational Opportunities</u></p> <ol style="list-style-type: none"> 1) identify formal and informal trails and access points 2) acquire land, conservation easements, and landowner agreements to protect and create trails 3) work with other organization to create new trails and maintain existing trails 4) using conservation easements and acquisition, work with landowners to protect the recreational values of large properties.

addressing the public’s need for low impact, outdoor recreation opportunities. By building an infrastructure of connected and accessible conservation greenways, FORR will help to counter trends that are reducing opportunities for simple, inexpensive means of enjoying the outdoors. FORR’s strategy will be to work with landowners and our communities to promote a recreation ethic that fosters responsible use of conserved lands and waterways. FORR will also endeavor to raise the funds and marshal the volunteers necessary to maintain trails and access points.

5.6 Historic Areas

FORR recognizes that historic structures and areas are important elements of the regions character. Its strategies will include:

- partnering on projects where there is a land component
- permanently conserving historic landscapes through easements and acquisition

6. Implementation Strategies

6.1 Actions

TARGET	GOAL(s)	ACTIONS	JUSTIFICATION(s)
Water Quality	<ul style="list-style-type: none"> a) protect minimum stream flows by reacting to any permitting that withdraws water b) maintain or improve upon the State's water quality classification for the Royal River c) continue to be a source for water quality information and raise public awareness about the Royal River's water quality 	<ul style="list-style-type: none"> 1) monitor dams and water withdrawals from the Royal River 2) Protect riparian areas with conservation easements and acquisition. 3) Educate the public about good stewardship of riparian areas. 4) Continue to be a source of water quality information. 5) Develop programs that educate the public and enhance water quality. 	<ul style="list-style-type: none"> 1) Prolonged and excessive withdrawals of water can negatively affect in-stream habitat and limit the functions of the river as a system. 2) The most effective way to control land use actions in the riparian zone is to have a full or partial interest in the property. Riparian areas include some of the most valued and ecologically sensitive places in the region. 3) Raising awareness about the impacts of land use practices in the riparian zone will increase the likelihood of people making good decisions. 4) Specific knowledge enhances FORR's credibility when working with landowners and municipalities. 5) Ditto # 3 above
River and Stream Corridors	<ul style="list-style-type: none"> a) protect as much of the riparian areas as possible along the Royal River and its tributaries (within 500-600' of the stream) b) foster greater public awareness of best management practices in riparian areas c) support enforcement of existing regulatory standards that protect streams and riparian areas 	<ul style="list-style-type: none"> 1) Acquire conservation easements, fee ownership, and landowner agreements to protect riparian areas. 2) Work with partner organizations to establish education programs to promote best management practices. 3) Contact CEOs, Town Managers, Planning Boards, and Conservation 	<ul style="list-style-type: none"> 1) The most effective way to control land use actions in the riparian zone is to have a full or partial interest in the property. Riparian areas include some of the most valued and ecologically sensitive places in the region. 2) Several existing organizations such as the Soil & Water Conservation District and Casco Bay Estuary Project are currently working to spread the use of best management practices and have been for years.

		<p>Commission to let them know of FORR's interest.</p> <p>4) Organize and conduct an annual paddle of the Royal River to monitor the health of the river.</p>	<p>3) Municipalities and State agencies need the support of local groups to uphold the standards that existing regulations attempt to establish. Code enforcement officers and state regulators may benefit by knowing there is a local advocacy group keeping an eye on their activities.</p> <p>4) A canoe trip inventory will provide valuable information and first hand knowledge of activities in the riparian zone. It is also a good way to engage a group that might become river stewards.</p>
<p>Scenic Areas</p>	<p>a) Protect scenic areas in each town</p>	<p>1) Add to the inventory of scenic areas in this conservation plan by doing a windshield survey in each community.</p> <p>2. Using conservation easements, work with landowners to protect the scenic values of properties.</p>	<p>1) Scenic areas are places that people identify as being important for the overall character of their town. When a favorite one is compromised, communities have a collective sense of loss.</p> <p>2) Limited or no development easements may be the best way</p>
<p>Wildlife & Natural Areas</p>	<p>b) Protect, conserve and link habitat of large, unbroken, unfragmented blocks of land, diverse habitat, and wet areas including:</p> <ul style="list-style-type: none"> ■ special habitat such as deer yards, nesting areas ■ rare and endangered species of plants, animals, and rare plant communities 	<p>1) work with partners to improve survey information</p> <p>2) set up volunteer surveys</p> <p>3) identify areas</p> <p>4) work with towns and landowners to conserve important habitat lands</p>	<p>1) The State of Maine and the Gulf of Maine program each have species and habitat information that is useful on a macro level, but too general for site specific analysis. Developing a methodology and system for adding information to their existing databases would help FORR further identify important habitats.</p> <p>2) One way of adding to our base of</p>

	<ul style="list-style-type: none"> ▪ wetlands b) work with partners to improve survey information about wildlife 		<p>knowledge is to enlist people to survey portions of the watershed we suspect may contain concentrations of wildlife.</p> <p>3) While FORR has identified the stream corridors for protection because of their high habitat values, it is also important to identify the remaining large blocks of other types of habitat that are significant to the region.</p> <p>4) Some municipalities in the region are aware of the need to protect wildlife habitat as evidenced by their comprehensive plans and their actions to modify development proposals. Also, more and more landowners, because of their intimate knowledge of their property, want to protect its wildlife values. Both these situations present conservation opportunities to FORR.</p>
<p>Recreational Opportunities</p>	<ul style="list-style-type: none"> a) create public access to the Royal River and its tributaries by establishing formal access ways in each town b) develop trails along the river and tributaries where appropriate c) connect and protect trails throughout the region d) protect large, unfragmented blocks of land 	<ul style="list-style-type: none"> 1) identify formal and informal trails and access points 2) acquire land, conservation easements, and landowner agreements to protect and create trails 3) work with other organization to create new trails and maintain existing trails 4) Using conservation easements and acquisition, work with landowners to protect the recreational values of large properties. 	<ul style="list-style-type: none"> 1) In order to appreciate and ultimately care for the river, streams, and important landscapes, people need to be able to experience natural places throughout the Royal River watershed. Knowing the location of trails and river access points FORR and its partners develop appropriate strategies to provide access and protect the natural values of conserved lands. 2) The most effective way of controlling public access and providing recreational opportunities is to own, have a partial interest in, or take some responsibility for a network of trails and access points.

			<p>3) Several organizations and municipalities in the region are working to create and maintain local and interconnected trail systems. FORR can add to these initiatives by applying for grants and working with landowners to knit together a system of trails.</p> <p>4) Certain properties in the watershed have value because of their size. Size is important because certain wildlife depend upon large areas to forage and reproduce. These places provide opportunity to responsible hunters, hikers, and nature lovers.</p>
<p>Wetlands</p>	<p>a) seek no net loss of locally significant wetlands</p> <p>b) encourage the enforcement and application of existing wetland regulations and laws</p>	<p>1) acquire wetlands and conservation easements on wetlands</p> <p>2) Contact CEOs, Town Managers, Planning Boards, and Conservation Commission to let them know of FORR's interest.</p>	<p>1) Even with local and state regulations, wetlands are still lost to development activities. This is especially true of small wetlands such as vernal pools. Owning or restricting activities in and around wetlands will help keep their functions intact.</p> <p>2) Municipalities and State agencies need the support of local groups to uphold the standards that existing regulations attempt to establish. Code enforcement officers and state regulators may benefit by knowing there is a local advocacy group keeping an eye on their activities.</p>
<p>Historic Areas</p>	<p>a) encourage efforts by local groups and municipalities to protect important historic resources</p>		

6.2 Timetable

The timetable for implementing the actions listed in the table above is within the next five years contingent on the capacity of the Friends of the Royal River to initiate and make substantial progress toward all the goals (some are ongoing and not subject to completion). At the date of this writing, FORR has initiated several programs aimed at implementing many of the actions related to land protection and water quality improvements. It is unlikely that after five years FORR will have attained its goals. At that time the organization will evaluate its progress and make the necessary adjustments to this plan.

7. Feasibility

8. Organizational Strength

Presently, FORR does not have the capacity to carry out the programs that this plan calls for. Recent community involvement and support in the protection of riparian land suggests that many people in the region value land and habitat protection that has a strong public access flavor. Furthermore, individuals and households are much more likely to support a project that they can see or experience than one that is miles away even if it is in the same watershed.

As an organization, FORR will continue to rely upon support from individuals to help fund its basic programs of land conservation and water quality. To do the job adequately, staff and volunteer capacities must expand.

Appendix

I. Historical Societies

Yarmouth Historical Society
North Yarmouth Historic Society
New Gloucester Historical Society
Pownal Historical Society
Freeport Historical Society

II. Historic Places

Bradbury Mountain State Park
Royal River Park
Bradbury Mountain Arts
Shaker Village
Westcustago Grange
North Yarmouth Grange
Fish & Wildlife Center in Gray
Pineland Center
Cemeteries



Abandoned turn-of-the-century railroad crossing over tributary in North Yarmouth

III. Threatened and Endangered Species

According to the Maine Natural Areas Program, Maine Dept. of Inland Fisheries and Wildlife, and the US Fish & Wildlife Service, the following high value plant and animal habitats exist in the Royal River watershed:

Wood Turtle (2 instances)
Creepers
Wood Turtle
New England Cottontail (2 instances)
Wild Leek

New Gloucester
Pownal
North Yarmouth
North Yarmouth
Yarmouth

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