

New Hampshire Rivers Management and Protection Program

River Nomination Form

Instructions: Before beginning any work on a river nomination, Sponsors should contact the State Rivers Coordinator at the NH Department of Environmental Services (DES). The Rivers Coordinator can provide initial guidance by identifying local and regional contacts and other sources of information and can give advice throughout the preparation of a river nomination. Refer to the publication, "A Guide to River Nominations," for a step-by-step explanation of the nomination process and a directory of federal, state, regional, and private sources of information and technical assistance. The River Coordinator's address and telephone number are: DES Rivers Coordinator, P.O. Box 95, 5 Hazen Drive, Concord, NH 03302-0095, (603) 271-1152.

I. NOMINATION INFORMATION

1. Name of River: Cold River

2. River/River Segment Location (and start/end points) and Length (miles):

Beginning at the Sleeper Brook inlet to the impounded segment known as Crescent Lake, east of North Shore Road in Unity, approximately 23.5 miles to the mouth of the Cold River at the Connecticut River in Walpole.

3. (a) Sponsoring Organization or Individual: Friends of the Cold River

(b) Contact Person: Debby Hinman

(c) Address: P.O. Box 26

Acworth, NH 03601

(d) Daytime Telephone Number: 543-1700 (w) 835-2309 (h)

II. SUMMARY: RESOURCES OF STATEWIDE OR LOCAL SIGNIFICANCE

Explanation: In order to be eligible for designation to the NH Rivers Management and Protection Program, a river must contain or represent either a significant statewide or local example of a natural, managed, cultural, or recreational resource.

Instructions:

1. By checking the appropriate boxes below, indicate the resource values that you believe are present in the nominated river and its corridor and whether you believe these values are present at a level of significance that is statewide or local. If the value is not present, leave the box blank.

Natural Resource	Value Present/ Statewide Significance	Value Present/ Local Significance
Geologic or Hydrologic Resources		X
Wildlife Resources	X	
Vegetation/Natural Communities	X	
Fish Resources	X	
Rare Species or Habitat	X	
Water Quality		X
Open Space		X
Natural Flow Characteristics		X

Managed Resources

Impoundments		X
Water Withdrawals/Discharges		X
Hydroelectric Resources		

Cultural Resources

Historical/Archaeological Resources	X	
Community River Resources		X

Recreational Resources	Value Present/ Statewide Significance	Value Present/ Local Significance
Fishery Resources	X	
Boating Resources	X	
Other Recreational Resources	X	
Public Access		X

Other Resources

Scenic Resources	X	
Land Use		X
Land Use Controls		X
Water Quantity		X
Riparian/Flowage Rights		
Scientific Resources	X	

2. Briefly describe the most important resource values which are present in the nominated river and why you believe these values are significant from either a statewide or local perspective. For example, if the river contains a segment of whitewater that attracts kayakers from throughout the state, and is identified in a regional boaters' guide as a premier whitewater boating segment, you should identify recreational boating as a significant statewide resource and include one or two sentences in support of this statement. In addition, if you feel that a resource value is threatened, explain why.

The 23.5 mile long Cold River connects the small rural towns of Unity, Lempster, Acworth, Alstead, Langdon, and Walpole. The rural nature of the river corridor is extensive: only four gas or oil stations exist within the entire watershed and not a single fast food restaurant is to be found anywhere. Five of the watershed towns (Walpole, Langdon, Alstead, Acworth, Charlestown) are in the Fall Mountain Regional School District which has a high school population of approximately 500 students, fed by three middle schools of which one is in the Cold River watershed. The other three watershed towns are not large enough to support a high school or a middle school within their borders and, after elementary school, send students to surrounding junior and senior high schools, most notably Keene, Claremont, and Newport.

The river's reputation as an excellent cold water trout stream is renowned. From a boat on Crescent Lake or a seat at the edge of the Vilas Pool dam, from the many roadside pull-ins and bridges, or in the more remote wetland and wooded runs to the spawning grounds at the confluence of the Connecticut River, fishermen have innumerable favorite places to cast a line for the native and stocked fish that this cold water river supports so well. Volunteers from the region look forward to the day in early May that they can help Ken Sprankle and the NH Fish and Game folks set in below Crescent Lake and work their way the length of the river carrying carefully nurtured populations of salmon and trout fry, releasing a prescribed number along each 100-foot segment to the pools and undercutts that provide the perfect habitat for these cold water dwellers. References are made to specific sites along the Cold River in "The Connecticut River Atlantic Salmon Restoration Index Station Summary (1997)" regarding 18.7 salmon habitat units, and in the "Wild Brook Trout Population Assessments in Southwest New Hampshire(1997)", both submitted by Sprankle to Inland Fisheries Division Chief Stephen Perry. Acworth's Dodge Brook and Langdon's Great Brook are two of fourteen brooks statewide that are sampled based on the known existence of wild trout.

The significance of this fishery habitat is reflected in the recent designation of the Cold River as one of 38 high priority special focus areas in the Connecticut River watershed identified in The Silvio O. Conte National Fish and Wildlife Refuge Final Action Plan and Environmental Impact Statement, October 1995 (excerpts attached). The special focus area follows the Cold River and Warren Brook up to Lake Warren. The special values this high priority were based on were fisheries and contiguous habitat type. Specifically, the high priority of the Cold River is based on the presence of nursery and rearing habitat for juvenile Atlantic salmon as well as potential spawning habitat for adults.

The Cold River also has a regional reputation for its ability to provide a challenging run for canoeists and kayakers, serving over the years as a planned outing for groups such as the AMC and others. The DeLorme New Hampshire Atlas & Gazetteer lists the Cold as having a Class II rating while the AMC New England Canoeing Guide also notes that at high water it is considered Class III. Limited to the weeks of heavy spring rains, snow melt, and the occasional prolonged fall rains for these runs, the Cold River is viewed as a flashy but unpredictable river to set into. The steep wooded slopes and streambanks ravaged by

seasonal high waters usually contribute several downed trees to the river each year, creating submerged and potential hazards to novice and expert river runners alike. No two years in a row are found to be the same run.

There are three sections used for this sport, interrupted by the dam at Vilas Pool and the Gorge in Drewsville. Setting in below the Deep Hole in South Acworth, whitewater enthusiasts can make a run of approximately 10 miles, most within sight of 123A, to Vilas Pool. A portage around that dam will find a set in just below it which quickly drops into the caldron behind the former Newell's Mill and then flattens out for 5 miles to the Gorge where another portage is required. This portage is made more difficult by the fact that the land below the Gorge is posted, thus preventing a set in for at least half a mile down Cold River Road in Drewsville. Once in the river though, the whitewater seeker will be gratified to encounter what is considered to be the best stretch of whitewater in the river, and, if the water is high, will thrill to the 5-6 foot drop where the river rushes over a former impoundment made of concrete and built in the years that Whitcomb's was using that area to divert waters for their gravel cleaning operations. The final stretch mellows out into cornfields between the two bridges of Rt. 123A and Rt. 12, within sight of each other and of the Connecticut River itself.

In this last leg of the journey, the river runs through an area of much human activity in the last century. The 123A bridge, whose stone arches canoeists pass under first, was a one lane bridge until 1910, when it was expanded to its current two lane status by the town , particularly Peter Boudrieau, who managed to complete the entire job with only a wheelbarrow! The original lane was made of stone; the added lane was made of concrete. The observant traveler may still notice this unusual combination.

Before Mr. Boudrieau put his wheelbarrow to such extensive use, visitors were coming to this part of the river to stay in one of three "fancy" hotels to partake of the healing benefits to be found in the 3 or 4 mineral springs on the Walpole hillsides of Brewery Road. Further up the road the thriving brewery, accompanied by the Brewery Hotel, produced "Mountain Springs Brewery" beer. Also on Brewery Road was the Cold River Trout Club, consisting of several small cabins along the river in which the fishing faithful of the river would stay each spring. The flood of 1927 took away the Trout Club's cabins and the remainder of the Brewery's buildings and stream structures, although two fires in three years had already claimed most of the Brewery property by 1898.

A railroad bridge crossed the mouth of the Cold River as it entered the Connecticut River, providing the outside connections that sustained a stageline, cattle-yard, and a feldspar processing plant, all thriving enterprises where Aubuchon's Hardware is today. Today, residents along this stretch of river report frequent sightings of, among others, wild turkeys, mossback snapping turtles, and weasels in summer and winter coats.

In the shallower, hotter days of summer, inner tubes are used for more leisurely excursions, primarily in this last segment of the journey. At any time other than winter, canoes may also travel in the great wetlands of East Acworth and Lempster to view herons and numerous waterfowl, moose and deer, otters and beaver, as well as unique wetland vegetation. The balsam fir rarely found this far south, and dense alder thickets of these areas, provide excellent habitat for these and other forms of wildlife. In addition, the wetlands here provide the canoeist and fisherman a beautiful setting as wild and remote as more northern waters can offer.

Winter along the Cold River provides additional recreational opportunities. There are many years in which the river serves as a rare flat course for cross country skiers, particularly in

the upstream communities. Several steep rock faces provide ice climbing challenges for some. The local Scouts usually schedule an outing to tackle the short, but steep and predictably icy face along 123A in Langdon shortly before Crane Brook Road. Stevens High School in Claremont has brought students down to this spot as part of the school's Challenge Program. And finally, the most organized use in winter is by snowmobilers, who have built bridges to span the Cold and various tributaries to continue the labyrinth of trails that cover the watershed. Of particular interest is the bridge over Warren Brook, shortly before it joins the Cold, and the bridge in South Acworth that spans the Cold. These are attractive and solid affairs which each see a lot of use. The State of New Hampshire has a series of snowmobile trails that avid riders may use to travel from the southern NH border right into Canada. The trail that the state calls "Highway #5" travels through the Cold River Watershed and uses both bridges. State tourism numbers show that upwards of 30,000 snowmobiles use the main trails in the state each year, although this does not mean that all of them use "Highway #5". Usage has increased over recent years and in 1998, a landowner in Acworth with a significant length of the #5 trail on his land decided the noise had reached an unacceptable level and closed his land at the end of the season to all wheeled vehicles, which has the local snowmobile clubs searching for an alternative route to reconnect the local as well as state #5 systems.

Small sandy pools, cobbled rock holes, and the beautiful Vilas Pool have provided swimming and relaxation for generations of residents in its valley. Deep glacial cuts in the rocks and the riverbed itself, resulting in the Deep Hole in South Acworth and the Drewsville Gorge in Walpole, have been favorite sites to swim, fish, or simply view from a solitary rock seat. From such a seat, one can easily imagine the same scenes being similarly enjoyed by New Hampshire's native peoples, the Abenakis, who lived throughout the valley. It comes as no surprise to those familiar with the valley that, after a comprehensive assessment of the resources of the Connecticut River Basin, the Connecticut River Basin Coordinating Committee recommended inclusion of the Cold River in a scenic river program.

The Gorge was posted against trespassing two years ago due to improper trash disposal and partying by inconsiderate visitors over the years. The Deep Hole, also in private ownership, has had "No Trespassing" signs up for a couple of years, long considered a necessity for the owner's liability protection, and is now being posted along the road with state "No Parking; Tow Zone" signs. This is a situation that will bear watching to see where parking does occur and what safety issues the resultant walk will create given the very narrow cut of road that 123A represents in that area. The two remaining swimming spots of great popularity, both with parking spaces and in private ownership, are in Alstead behind the old Newell's Mill just below the Warren Brook confluence, and in Langdon at the confluence of Great Brook on Cold River Road. The Alstead property is also posted with "No Trespassing" signs. Unfortunately, the Langdon site is consistently abused by people who chose to dispose of their trash in the parking and turn-around areas, as they also do to that entire stretch of remote dirt road.

The close proximity of main roads to the Cold River provides a daily, visual reminder of it as a living presence in the lives of those who live here. The sound of the river in the early spring reverberates up and down the valley and bounces off the hills, providing a reassuring sound of the seasons late at night when the winds are still. This sound is as comforting to many as is the sound of the migrating geese and ducks that frequent the valley and fly low over the hills on their travels to and from the Connecticut River. Schoolchildren delight in the occasional bus reroute, and thus late arrival, caused some years in the spring as the ice jumps the river bank and floods the main road between Acworth and Alstead. Unusual rainstorms find the tributaries in the steep hillsides of the valley just waiting to practice their carving techniques on the landscape. Of greatest note is the storm of August 1987 in which 6

inches fell in 2 hours, taking out sections of many roads in the area, moving tons of soil and rocks from streambanks, breaching the already damaged South Acworth dam, and providing a successful thesis topic for master's degree candidate Sarah K. Faldetta at Boston University the following year. Several other theses centered on the Cold River have come from Professor Dee Caldwell's geology classes over the past ten years. Of additional interest are Edward Kelly Jr.'s "Surface Water Hydrology of the Cold River, Southwestern New Hampshire" in 1987 and Mark E. Radville's "Ice Regime of the Cold River, New Hampshire" in 1981.

The many remains of stone foundations of historical and cultural sites intrigue those who explore the bed of the Cold River and most of its tributaries. The prevalence of mills powered by the river in the late 1700 and 1800's speaks to the early agricultural and industrial nature of the region, a culture that was changed, as all New England was, by the advent of the railroads and electricity, thus decreasing the reliance on the family homestead and community for survival. The tight-knit nature of those early communities remains, however, evidenced by annual "Old Home Day" events; a locally stocked Food Shelf and home-cooked meals for senior citizens; volunteer Fire Departments; thriving "General Stores" rather than modern convenience stores in the watershed areas of Drewsville, Alstead, Acworth, and Lempster; and community potluck dinners in town halls and churches to celebrate community and seasonal events. In Acworth, for instance, town organizations rotate the task of hosting a "goodwill donation" potluck at the Community Church on the Hill every Friday night from early July through September, while other potluck meals are hosted directly by the church during the rest of the year. Other community dinners throughout the valley take place in the schools, town halls, and churches to support everything from hunters' breakfasts to school outings to various youth club activities.

An energetic community effort has successfully evolved in Langdon over the past two years to raise money and awareness to preserve Langdon's two covered bridges. The Prentiss Bridge which crosses Little Brook, and the McDermott Bridge which crosses the Cold River, are both on the National Registry of Historic Places. The Langdon Covered Bridge Association has sponsored bike races, the Bridge-to-Bridge Road Race and Walk On, competitive equestrian rides, and a Village Market Day, all designed to bring in many people to have a good time for a great Cold River cause. In addition, the group has created a newsletter and even a website!

The mills along the Cold River processed trees into lumber, paper, tool handles, pegs, barrels, boxes, and farm implements; wool and flax into textile products; corn and grains into flours; apples into cider, and local clays into pottery. Alstead, still known to many by its original name, Paper Mill Village, maintains a wealth of material from this era in the former Unitarian Church which is just uphill of the river. This building is now owned by Alstead's Historical Society Museum. Outside of the river corridor, on Kennedy Hill in Acworth, stone structures called the "Bee Hives" are thought by some to be ancient reminders of a Celtic or Phoenician presence between 800 to 600 BC. Individuals hike to this site in search of its mystery as well as the "earth energy" that is said to be present there. Stone bridges, both flat and arched, grace many small and large tributaries, and, of course, stone walls of all shapes and sizes outline the fields that used to produce the grains, hay, and pastures that kept the early communities and their animals fed and thriving. Today, many of the roads in the watershed are still framed by walls in various conditions, remnants of old cow lanes, holding their own in the onslaught of wider roads and bigger road equipment. Hikers who venture out of the valley and head for the highest hilltops along the river valley are astonished to find these walls, now deep in woods, still marking the old farms of the Cold River watershed.

The Cold River and its watershed provide a unique community for its human and wildlife

inhabitants. Partly due to its location as “edge” territories of Cheshire and Sullivan Counties, but primarily due to its topography and narrow roads, the region finds itself largely blessed to be rather left alone from the hustle and bustle of society’s doings along the busier stretches of Rt. 12 and the population centers of Keene, Newport, and Claremont which ring the two counties’ southern, eastern, and northern reaches. The combination of topography and its continued rural status have been beneficial for wildlife and vegetation along the river corridor. Ted Walski, NH Fish and Game, has reported that Acworth has more deer yards and wintering deer than other Sullivan County communities, mostly along the Cold River and its tributaries. The grasses and fruiting shrubs provide sustenance to migrating waterfowl. The nationally endangered bald eagle and peregrine falcon have been sighted at the mouth of the Cold as have numbers of other raptors that are currently threatened, such as the Cooper’s Hawk and the osprey. In addition, the sedge wren is known to like the habitat it finds in Lempster, and the Northeastern bulrush is found in five locations in the watershed. The undeveloped nature of the corridor has enabled the continued existence of other Threatened plant species and several Exemplary Natural Ecological Communities as well.

The wealth of diverse plant, wildlife and water habitat, the health of the waters and the human communities, and the varied recreational uses of the river all point to a river system that has benefited from unique topography and good management practices employed by many riparian owners and towns. This is a river system that can maintain its excellent health into the future, but care should be taken to do so purposefully through the careful development of good management plans created cooperatively by the towns on the river and in the watershed. Not only do the plant, fish, bird, and wildlife depend on the human inhabitants doing the right things for the health of the river and its watershed, but we humans often find out after it is gone that we depended on the “feel” of a place, or the “look” of a place. We take for granted that the shores of the river will always be wooded and sheltering, that the farms will always be farms, that the dirt roads will remain dirt, that the waters will run clear and stay swimmable, that the balsam fir in East Acworth and Lempster can always make us feel far removed from modern life, and that the villages with their historically significant buildings and configurations will be there to welcome us home. These things have been there for Cold River residents for a long time and it is far easier to keep them safe than it is to find ways to bring them back once they are gone.

The Friends of the Cold River and the towns through which the river runs, are proud to submit this nomination for inclusion of the Cold River into the New Hampshire Rivers Management and Protection Program. The intent that we seek is increased understanding of river and riparian ecology, and the implementation of best stewardship practices to protect the riparian and river habitat, water quality, outstanding recreational opportunities, and the highly desirable quality of life found in this river valley. We all look forward to a continuing dialogue among our communities for the long term good of our common resource, the Cold River.

III. COMMUNITY AND PUBLIC SUPPORT

Explanation: The level of community and other public support which is demonstrated for a river nomination will be an important factor in determining whether that river will be recommended for legislative designation. Such support may be shown by the adoption of a town resolution, a letter from selectmen, master plan excerpts, or documented support from other groups, either public or private (if private, explain the group's purpose and who is represented).

Instructions: Describe the type of community and other public support which exists for the river nomination and attach appropriate documentation. Include copies of any letters of support from local elected and appointed officials.

In October 1996, a river landowner in Drewsville, a small village within the Walpole boundaries, put a notice in the local papers announcing a meeting for anyone interested in the Cold River and its protection. Twenty people showed up. Debby Hinman and Pam McWethy, both of Acworth, volunteered to co-chair the yet to be named group to continue the discussions of how to best ensure the continued good health of the river. Monthly meetings were held in locations the length of the river over the next ten months, continuing to draw 8-25 people each time. Of primary discussion in the early months were the goals and interests of the Friends of the Cold River, as they decided to call themselves, and whether or not they wanted to nominate the river for inclusion in the NH Rivers Management and Protection Program. The decision was made not to rush into the nomination process, primarily because the members did not feel that they could ask their communities to support something that they themselves did not yet fully understand.

Prior to the formation of the Friends of the Cold River, the New Hampshire Rivers Council received a grant from the NH-VT Joint Commissions Partnership Program to fund a natural resource inventory of the Cold River to be completed by an Antioch graduate student. Doug Payne of Hancock, NH, selected to do the project, completing it by September 1996 with help from the Southwest Regional Planning Commission and others who had recently completed the Ashuelot River nomination and were familiar with the inventory process. The group was extremely pleased to meet Doug at the kick-off meeting in October and to be the recipient of enough copies of his Cold River Inventory report for every town in the watershed to have its own copy.

One of the first undertakings of the Friends was the successful application to the Connecticut River Valley Joint Commissions Partnership Program for a grant to develop a comprehensive GIS resource map set. Meetings between the UVLSRPC and Southwest Regional Planning Commission and the Friends took place to ascertain who would be responsible for the data which spanned the two group's territories. The maps, developed by Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC), have served planning and educational purposes. The Friends were also able to involve a local Acworth resident, Mark Goodwin, as a "manager" of projects between the towns and the regional planning commission which enabled the process to move along steadily. Mark had just completed his Masters degree in Regional Planning with a GIS Analyst speciality from UMass Amherst and completely understood the needs of the Friends as well as the UVLSRPC.

The next successful project was a river clean-up project focused on the Cold River Road in Drewsville. Despite the unexpected arrival of wet snow and heavy rains on April 19, and the expected arrival of a baby born that day to one of the key members of the group (which was actually unexpected because how many first babies ever arrive on their due date?), the whole event was an enormous success. With the volunteer help of landowners along that stretch of the river, people from other towns in the watershed, and two huge dumptrucks and

a driver generously donated by Whitcomb's Construction Company, the group filled one truck with furniture and metals, the other with bags of trash, and two regular pickup trucks with tires. The Walpole Recycling Center accepted all of the materials as much as they were able and Whitcomb's arranged for the removal of the rest.

Meanwhile, interest was growing in the group's activities and the possibilities inherent in the existence of the Friends. Acworth School, K-4, invited the Friends to provide a week of river exploration for the school's Project Week in June 1997. Alstead residents Kathy Miller and Jim Gruber formed a new "Eco Club" for 9-13 year olds and offered their assistance on future river cleanups and other projects. Bob Brown, science teacher at Walpole's Middle School, shared the water quality data from two sites on the Cold River that his 8th grade classes have been gathering for the past 9 years. George Hanson and Dee Caldwell, hydro-geologists, shared their extensive knowledge of test wells, instream flow data, and graduate student theses in their possession. The five Conservation Commissions along the river began consulting with each other on shared concerns, particularly pertaining to water quality issues in the watershed. The Langdon Covered Bridge Protection Association announced that they would like to become more involved with the Friends of the Cold River. Other residents in Langdon wondered why their town was the only town in the watershed without a conservation commission and have now gathered support and approached the selectmen about putting a warrant article on the 1999 Town Meeting ballot to ask the town to create such a commission. The Vilas School in Alstead is exploring the possibility of training students and teachers in water quality testing procedures to begin gathering data next school year. Crescent Lake residents are hoping to develop a subcommittee within the Crescent Lake Association that would primarily concern itself with the health of the lake and subsequent education around this issue.

In February 1998, just as the mapping project was completed, the Friends decided that they were comfortable with the NH River Management and Protection Program as a good fit with the goals and needs of their communities concerning the Cold River. The Upper Valley Lake Sunapee Regional Planning Commission offered their assistance with the nomination process which was gladly accepted.

The Friends spent April and May in frenzied activity, meeting with every group of selectmen in the river towns as well as the Conservation Commissions and Planning Boards whenever possible. These meetings were an opportunity to present each town with their set of the maps completed with the Partnership Program grant, to explain the nomination process and the NH Rivers Management and Protection Program, and to solicit support. The idea of improved communications among the river towns seemed to appeal to most of the groups, as did the maps, which were gratefully accepted.

Letters of Support have been received to date from the Planning Board and Conservation Commission of Alstead, and the Selectmen of Acworth, Walpole, and Langdon. Other letters are expected to follow shortly.

A Public Meeting was held to announce the completion of the application process. Eleven people from various river towns attended. No opposition was expressed at any time, while enthusiasm and support was strongly expressed. We hope that the communication that has been started through the creation of the Friends of the Cold River will have the opportunity to evolve into a Cold River Local Advisory Group with the support of the State Legislature and the River Program.

* * *

As we began to look more closely at the results of other planning efforts in the corridor communities, we quickly discovered that protection of the river and all other waters is often in the forefront and has been for some time.

In the spring of 1998, as part of the Regional Environmental Planning Program, Upper Valley Lake Sunapee Regional Planning Commission staff met with local officials and interested citizens in each community to determine local priorities relative to resource conservation. At meetings in corridor communities Unity, Lempster, Acworth and Langdon, as well as watershed community Charlestown, a consistent theme was support for protection of surface waters and related resources. Lakes, rivers and brooks, shorelines and floodplains were identified as priorities by each community, as well as special features such as waterfalls and cascades and Natural Heritage sites and other unique habitat areas.

In 1997, Southwest Region Planning Commission conducted a survey of community conservation priorities. Walpole reported that the protection of surface water resources such as rivers, brooks and wetlands was a high priority of the community. Alstead reported that protection of Lake Warren, the largest surface water body in the watershed outside of the proposed river corridor, was a high priority. The Cold River protection program and wetland protection were also noted in Alstead's response.

Strong support for protection of surface water resource is reflected in the 1996 Unity Master Plan. In 1992, the Unity Planning Board conducted a community survey to establish the goals and priorities of residents. Protection of lakes and ponds was a priority of 79% of respondents and rivers and streams a priority of 74%. As a result, the Planning Board adopted the protection of the town's water resources as one of five land use goals. Implementation steps incorporated in the Plan include the requirement of a 75 foot undeveloped shoreline buffer for streams and lakes, improved enforcement of water quality protection regulations, and adoption of an erosion and sedimentation control ordinance.

The following goals adopted by the Acworth Planning Board as part of the 1997 Acworth Comprehensive Master Plan convey the community's support for activities and programs, such as this river nomination, which would enhance protection of local natural and historic resources:

To preserve, improve, and enhance insofar as possible the present environment and character of the Town. All natural and man-made features of any area will be considered before altering by development, roads, or any other means.

To protect, improve, enhance and maintain scenic, historic and natural areas.

To protect certain areas from improper development-floodplains, streambelts, wetlands, lakes, ponds, higher elevations.

The Lempster 1987 Master Plan also provides support for efforts to enhance surface water protection. The Plan includes a goal of preserving and protecting water resources and a specific recommendation of restricting development in shoreline areas.

After citing the Cold River as one of the watercourses important to Lempster, the Plan goes on to say:

It is extremely important from both a local and a regional perspective that these rivers and brooks be kept clean and uninterrupted. In addition to their importance as a water

supply and as a natural drainage system, they are vital to a variety of wildlife species and offer numerous recreational opportunities. Town residents, hunters, fishermen, environmentalists and even businessmen who want to capture the tourist's dollar all have a stake in the quality of Lempster's waters. The water resources of Lempster are an asset which should not be abused.

The 1994 Alstead Water Resources Management and Protection Plan provides support for multiple-town approaches to river management such as the Rivers Program. As part of the Plan, the Alstead Planning Board adopted the recommendation that Alstead cooperate with neighboring towns sharing watersheds.

A community survey conducted in Langdon in preparation for developing the 1992 Master Plan revealed that a majority of residents there favor control of land development in shoreline areas. As a result, the Planning Board included a recommendation to adopt zoning in part to protect the town's water resources.

The 1986 Walpole Master Plan provides strong support for water resources activities. Policies include protection of wetlands and floodplains and preservation of water resources. The Plan calls for incorporating environmental concerns into local land use planning and developing additional ordinances to control development in wetlands and over aquifers.

The Walpole Planning Board has been developing a natural features analysis to incorporate in the town's Master Plan. One goal of the analysis, currently in draft form, was the protection of scenic elements of the Town's natural environment, particularly areas adjacent to the Connecticut River and Cold River.

Press clippings of an assortment of activities and meetings concerning the River during the past 18 months can be found in the back of the Supporting Documents.

IV. OTHER SUPPORTING INFORMATION

Explanation: In addition to the information provided on this nomination form, Sponsors are encouraged to submit any other information which they believe will support the nomination of the river. This information may include a visual presentation (for example, a slide program or a map showing the location of significant resources) or studies and reports on the river.

Instructions: List what, if any, additional supporting information has been submitted with this river nomination.

Wild Brook Trout Population Assessments in Southwest New Hampshire (1997)

Conte Refuge Action Plan excerpt

Connecticut River Atlantic Salmon Restoration Index Station Summary (1997)

NHDES 1997 River Water Quality Sampling Data

NH Volunteer Lake Assessment Program, 1997 Annual Report for Crescent Lake Acworth

NHDES Lake Trophic Data

Stream Gauge Data of Cold River at Drewsville, NH, 1940-1978

Assorted press clippings demonstrating the importance of the Cold River's resources to the communities

V. RIVER CLASSIFICATIONS

Explanation: Each river or river segment that is designated by the state legislature will be placed into a river classification system. This classification system consists of four categories: Natural, Rural, Rural-Community and Community Rivers. Refer to Appendices A and B in the Guide to River Nominations, for a complete description and explanation of the river classification system and the instream protection measures which have been adopted by the state legislature for each classification. In this part of the nomination form, DES and the State Rivers Management Advisory Committee are interested in learning which river classification(s) you believe is most appropriate for your river.

Instructions:

1. For each classification criteria listed below (a-d), check the one box which most accurately describes the nominated river or segment.

SEGMENT 1. IMPOUNDED HEADWATER SEGMENT KNOWN AS CRESCENT LAKE

(a) General Description

- The river or segment is free-flowing and characterized by high quality natural and scenic resources. The river shoreline is in primarily natural vegetation and the river corridor is generally undeveloped and development, if any, is limited to forest management and scattered housing. (Natural Rivers)
- The river or segment is adjacent to lands which are partially or predominantly used for agriculture, forest management, and dispersed or clustered residential development. Some instream structures may exist, including low dams, diversion works and other minor modifications. (Rural Rivers)
- The river or segment which flows through developed or populated areas of the state and which possesses existing or potential community resource values such as those defined in official municipal plans or land use controls. Such a river has mixed land uses in the corridor reflecting some combination of open space, agricultural, residential, commercial and industrial land uses. It is readily accessible by road or railroad and may include impoundments or diversions. (Rural-Community Rivers)
- The river or segment flows through populated areas of the state and possesses actual or potential resource values, with some residential or other building development near the shoreline. The river or river segment is readily accessible by road or railroad, and may include some impoundments or diversions. (Community Rivers)

(b) Length

- The river or river segment is at least 5 miles long. (Natural Rivers)
- The river or segment is at least 3 miles long. (Rural and Rural-Community Rivers)
- The river or segment is at least 1 mile long. (Community Rivers)

(c) Water Quality

- The actual water quality of the river or segment meet Class A standards under the state's water quality standards. (Natural Rivers)
- The actual water quality of the river or segment meets Class B standards under the state's water quality standards. (Rural, Rural-Community and Community Rivers)

(d) Distance to Roads

- The minimum distance from the river shoreline to a paved road open to the public for motor vehicle use is at least 250 feet, except where a vegetative or other natural barrier exists which effectively screens the sight and sound of motor vehicles for a majority of the length of the river.
(Natural Rivers)
- There is no minimum distance from the river shoreline to an existing road. Roads may parallel the river shoreline with regular bridge crossings and public access sites. (Rural, Rural-Community and Community Rivers)

SEGMENT 2 - CRESCENT LAKE OUTLET TO ABOVE VILAS POOL

(a) General Description

- The river or segment is free-flowing and characterized by high quality natural and scenic resources. The river shoreline is in primarily natural vegetation and the river corridor is generally undeveloped and development, if any, is limited to forest management and scattered housing. (Natural Rivers)
- The river or segment is adjacent to lands which are partially or predominantly used for agriculture, forest management, and dispersed or clustered residential development. Some instream structures may exist, including low dams, diversion works and other minor modifications. (Rural Rivers)
- The river or segment which flows through developed or populated areas of the state and which possesses existing or potential community resource values such as those defined in official municipal plans or land use controls. Such a river has mixed land uses in the corridor reflecting some combination of open space, agricultural, residential, commercial and industrial land uses. It is readily accessible by road or railroad and may include impoundments or diversions. (Rural- Community Rivers)
- The river or segment flows through populated areas of the state and possesses actual or potential resource values, with some residential or other building development near the shoreline. The river or river segment is readily accessible by road or railroad, and may include some impoundments or diversions. (Community Rivers)

(b) Length

- The river or river segment is at least 5 miles long. (Natural Rivers)

The river or segment is at least 3 miles long. (Rural and Rural-Community Rivers)

The river or segment is at least 1 mile long. (Community Rivers)

(c) Water Quality

The actual water quality of the river or segment meet Class A standards under the state's water quality standards. (Natural Rivers)

The actual water quality of the river or segment meets Class B standards under the state's water quality standards. (Rural, Rural-Community and Community Rivers)

(d) Distance to Roads

The minimum distance from the river shoreline to a paved road open to the public for motor vehicle use is at least 250 feet, except where a vegetative or other natural barrier exists which effectively screens the sight and sound of motor vehicles for a majority of the length of the river.

(Natural Rivers)

There is no minimum distance from the river shoreline to an existing road. Roads may parallel the river shoreline with regular bridge crossings and public access sites. (Rural, Rural-Community and Community Rivers)

SEGMENT 3 - VILAS POOL/ALSTEAD VILLAGE

(a) General Description

The river or segment is free-flowing and characterized by high quality natural and scenic resources. The river shoreline is in primarily natural vegetation and the river corridor is generally undeveloped and development, if any, is limited to forest management and scattered housing. (Natural Rivers)

The river or segment is adjacent to lands which are partially or predominantly used for agriculture, forest management, and dispersed or clustered residential development. Some instream structures may exist, including low dams, diversion works and other minor modifications. (Rural Rivers)

The river or segment which flows through developed or populated areas of the state and which possesses existing or potential community resource values such as those defined in official municipal plans or land use controls. Such a river has mixed land uses in the corridor reflecting some combination of open space, agricultural, residential, commercial and industrial land uses. It is readily accessible by road or railroad and may include impoundments or diversions. (Rural- Community Rivers)

The river or segment flows through populated areas of the state and possesses actual or potential resource values, with some residential or other building development near the shoreline. The river or river segment is readily accessible by road or railroad, and may include some impoundments or diversions. (Community Rivers)

(b) Length

- The river or river segment is at least 5 miles long. (Natural Rivers)
- The river or segment is at least 3 miles long. (Rural and Rural-Community Rivers)
- The river or segment is at least 1 mile long. (Community Rivers)

(c) Water Quality

- The actual water quality of the river or segment meet Class A standards under the state's water quality standards. (Natural Rivers)
- The actual water quality of the river or segment meets Class B standards under the state's water quality standards. (Rural, Rural-Community and Community Rivers)

(d) Distance to Roads

- The minimum distance from the river shoreline to a paved road open to the public for motor vehicle use is at least 250 feet, except where a vegetative or other natural barrier exists which effectively screens the sight and sound of motor vehicles for a majority of the length of the river.
(Natural Rivers)
- There is no minimum distance from the river shoreline to an existing road. Roads may parallel the river shoreline with regular bridge crossings and public access sites. (Rural, Rural-Community and Community Rivers)

SEGMENT 4 - ALSTEAD TO WALPOLE TOWN LINE

(a) General Description

- The river or segment is free-flowing and characterized by high quality natural and scenic resources. The river shoreline is in primarily natural vegetation and the river corridor is generally undeveloped and development, if any, is limited to forest management and scattered housing. (Natural Rivers)
- The river or segment is adjacent to lands which are partially or predominantly used for agriculture, forest management, and dispersed or clustered residential development. Some instream structures may exist, including low dams, diversion works and other minor modifications. (Rural Rivers)
- The river or segment which flows through developed or populated areas of the state and which possesses existing or potential community resource values such as those defined in official municipal plans or land use controls. Such a river has mixed land uses in the corridor reflecting some combination of open space, agricultural, residential, commercial and industrial land uses. It is readily accessible by road or railroad and may include impoundments or diversions. (Rural Community Rivers)
- The river or segment flows through populated areas of the state and possesses actual or potential resource values, with some residential or other building development near the shoreline. The river or river segment is readily accessible by road or railroad, and may include some impoundments or diversions. (Community Rivers)

(b) Length

- The river or river segment is at least 5 miles long. (Natural Rivers)
- The river or segment is at least 3 miles long. (Rural and Rural-Community Rivers)
- The river or segment is at least 1 mile long. (Community Rivers)

(c) Water Quality

- The actual water quality of the river or segment meet Class A standards under the state's water quality standards. (Natural Rivers)
- The actual water quality of the river or segment meets Class B standards under the state's water quality standards. (Rural, Rural-Community and Community Rivers)

(d) Distance to Roads

- The minimum distance from the river shoreline to a paved road open to the public for motor vehicle use is at least 250 feet, except where a vegetative or other natural barrier exists which effectively screens the sight and sound of motor vehicles for a majority of the length of the river.
(Natural Rivers)
 - There is no minimum distance from the river shoreline to an existing road. Roads may parallel the river shoreline with regular bridge crossings and public access sites. (Rural, Rural-Community and Community Rivers)
-

SEGMENT 5 - WALPOLE TOWN LINE TO CONNECTICUT RIVER

(a) General Description

- The river or segment is free-flowing and characterized by high quality natural and scenic resources. The river shoreline is in primarily natural vegetation and the river corridor is generally undeveloped and development, if any, is limited to forest management and scattered housing. (Natural Rivers)
- The river or segment is adjacent to lands which are partially or predominantly used for agriculture, forest management, and dispersed or clustered residential development. Some instream structures may exist, including low dams, diversion works and other minor modifications. (Rural Rivers)
- The river or segment which flows through developed or populated areas of the state and which possesses existing or potential community resource values such as those defined in official municipal plans or land use controls. Such a river has mixed land uses in the corridor reflecting some combination of open space, agricultural, residential, commercial and industrial land uses. It is readily accessible by road or railroad and may include impoundments or diversions. (Rural- Community Rivers)
- The river or segment flows through populated areas of the state and possesses actual or potential resource values, with some residential or other building development near the shoreline. The river or river segment is readily accessible by road or railroad, and may include some impoundments or diversions. (Community Rivers)

(b) Length

- The river or river segment is at least 5 miles long. (Natural Rivers)
- The river or segment is at least 3 miles long. (Rural and Rural-Community Rivers)
- The river or segment is at least 1 mile long. (Community Rivers)

(c) Water Quality

- The actual water quality of the river or segment meet Class A standards under the state's water quality standards. (Natural Rivers)
- The actual water quality of the river or segment meets Class B standards under the state's water quality standards. (Rural, Rural-Community and Community Rivers)

(d) Distance to Roads

- The minimum distance from the river shoreline to a paved road open to the public for motor vehicle use is at least 250 feet, except where a vegetative or other natural barrier exists which effectively screens the sight and sound of motor vehicles for a majority of the length of the river.
(Natural Rivers)
- There is no minimum distance from the river shoreline to an existing road. Roads may parallel the river shoreline with regular bridge crossings and public access sites. (Rural, Rural-Community and Community Rivers)

2. Based on the boxes checked above, and your knowledge of the river or segment, identify those segments of the river which you believe should be classified as either a Natural, Rural, Rural-Community, or Community River. Be sure to include the start and end point of each segment and the length of the segment in miles (for example: Natural River: headwaters, Z miles, to the Town of ABC town line; Rural River: Town of ABC town line, Y miles, to the state border). Although a river or segment may be given more than one classification, the number of differently classified segments should be kept to a minimum. If your recommendation is incompatible with any of the above-listed criteria for a particular river classification, and you believe the classification is nevertheless appropriate and justified, explain why.

(See also Base Map)

1. Community River: Impounded segment of Cold River known as Crescent Lake, from the Sleeper Brook inlet east of North Shore Road in Unity to Crescent Lake dam in Acworth, approximately 1.2 miles.
2. Rural River: From the Crescent Lake dam in Acworth approximately 15.4 miles to the small stream inlet in Langdon which is upstream from Vilas Pool and approximately 925 feet upstream from the Alstead-Langdon town line.
3. Community River: From the small stream inlet in Langdon which is upstream from Vilas Pool and approximately 925 feet upstream from the Alstead-Langdon town line, approximately 1.5 miles to the small stream inlet which is approximately 1515 feet downstream from the state highway bridge in Alstead Village. (Small stream is the one that crosses under NH 123 in the culvert.)
4. Rural River: From the small stream inlet which is approximately 1515 feet downstream from the state highway bridge in Alstead Village approximately 3.4 miles to the Cold River's most downstream crossing of the Langdon-Walpole town line.
5. Community River: From the Cold River's most downstream crossing of the Langdon-Walpole town line approximately 2.1 miles to the mouth of the Cold River at the Connecticut River in Walpole.

VI. Maps

A map of the river must be appended to this resource assessment. This map should be taken from a U.S. Geological Survey quadrangle (scale 1:24,000) or equivalent in accuracy and detail. GIS maps produced to show river-related resources can serve this purpose. Include an inset or locator map showing the location of the river or segment within the state.

List of Maps

(8.5 x 11 maps)

Deeryard Maps: Walpole

Langdon

Alstead

Acworth (2 sheets)

Lempster Mill Sites

(36 x 48 maps)

Base Map, Cold River Watershed

Natural Resources, Cold River Watershed

Land Use, Cold River Corridor

Soil Attributes, Cold River Watershed

Conservation, Recreation and Historic Sites, Cold River Watershed

VII. RESOURCE ASSESSMENT

1. Natural Resources

(a) Geologic Resources

Briefly describe the significant geologic resources of the river and its corridor, including any unique or visually interesting features such as waterfalls, unusual rock formations, and areas of rapids. If you are unable to include such features, then simply describe in the bedrock geology map. Consider geologic resources on the basis of natural history, visual, and economic interest. Indicate if the state geologist or a national or state resource assessment has identified these geologic resources as significant at a national, regional (New England), state, or local level.

General River Description

The Cold River begins in the hills of northwest Acworth and Unity at Crescent Lake at an elevation of 1215 feet above mean sea level and drops 979 feet over its 22 mile course from the Crescent Lake dam to the Connecticut River in Walpole. A small stream leaves the east end of Crescent Lake over a small dam and tumbles over a bouldery course for approximately 1.3 miles. This is the steepest stretch of the River, with a gradient of 66 ft./mile. It then meanders through a marsh that was once the mill pond behind an old dam at Keyes Hollow.

From Keyes Hollow to East Acworth the River's character changes little as it works its way through several marshes. Below East Acworth, the Cold flows through a narrow valley, is joined by several tributaries, including Dodge Brook and Honey Brook, and doubles in size. The headwaters of these two streams flow through Dodge Brook and Honey Brook State Forests, respectively, east of the River corridor.

Below Honey Brook, the River valley becomes narrower and steeper until South Acworth where there is a breached mill pond dam at Beryl Mountain Road. Beyond the dam is a gorge which drops 60 feet over its 0.2 mile length, with two significant falls. The first, immediately below the dam and under Beryl Mountain Road bridge, is about 16 feet. Near the end of the gorge is a beautiful waterfall pouring between two pillars of rock into Deep Hole, which is reportedly to be 40 feet deep. Soon the valley broadens and the Cold begins to meander across the valley floor, although the current is still swift and the river bottom cobbled.

From just below Deep Hole to the River's end, the average gradient is 40 ft./mile. It crosses under McDermott Covered Bridge and enters Vilas Pool, created by a small dam at the head of a small gorge. Vilas Pool is a popular place for picnicking, boating, swimming and many summer events in the town of Alstead.

From here the river flows through Alstead and the river valley broadens again. After several miles, the valley walls close and the most spectacular feature on the River is reached: Drewsville Gorge, where several small waterfalls are surrounded by cliffs rising 25 feet from the water's edge. Below this gorge, the Cold cuts its way through a deep deposit of sand and gravel that was once a great delta in ancient glacial Lake Hitchcock.

As the Cold joins the Connecticut, this sand and gravel is deposited in a large sand bar that sweeps into the larger and slower Connecticut.

Geology

The rocks in the Cold River Corridor tell a fascinating story. The geology of the Cold River area follows closely the geologic history of the area, punctuated by three distinct periods. The first, a period of mountain building, occurred about 375 million years ago. The second occurred when magma was injected into the existing rocks. These first two chapters are key to the bedrock geology. The third period defines the surficial geologic legacy; continental glaciation, covering most of Canada and the northern United States, scoured the terrain. Meltwater from those glaciers shaped the land surface both by eroding it and by depositing on it vast quantities of materials- sands, silts and large glacial erratics.

Bedrock Geology

During the Ordovician Period, 430 - 500 million years ago, New Hampshire was thought to have been under a sea, bound by a continent to the west and a volcanic island arc to the east. Some of the volcanism of that time occurred under the sea and is now evident in the Ammonoosuc Volcanics. These rocks can be found in exposures between Alstead and South Acworth at Osgood Ledge, west of the Cold River.

Following this period of volcanic activity, sediments eroded from the lands to the east buried the igneous rock under beds of mud. The rock from this period was metamorphosed into schists known as the Partridge Formation. Towards the end of the Ordovician Period, the Taconic Orogeny occurred. With much folding and faulting, this region of New Hampshire was lifted from the sea. In the area of the Connecticut River, an arching structure was formed as magma rose beneath the ground surface to form the Bronson Hill anticlinorium. Following this period of upheaval, erosion again took place removing much of the Partridge Formation. What remains of this formation is also located between Alstead and South Acworth, although no good exposures have been located.

As the land subsided, the sea again covered western New Hampshire. Quartz sands and gravels were deposited in a relatively thin layer many feet thick. These sediments eventually became Clough quartzite. It is present in a narrow, disjunct band between the older Partridge Formation and the younger Littleton Formation. A juncture where these three rock types are in close proximity to one another may be seen at the mine found on the side of Beryl Mountain.

The Littleton Formation created nearly 400 million years ago during the Devonian Period is composed chiefly of fine to sandy muds, now metamorphosed into schists. Sporadic volcanism is evident from this time, about one half mile from the river mouth, under many yards of sand and sediment. Rock representing the Littleton Formation is visible at Deep Hole in South Acworth and at Vilas Pool in Alstead.

About 385 million years ago the sea once again retreated and a period of folding began which coincided with the injection of masses of molten rock in the shape of great mushrooms into the Ammonoosuc Volcanics. These cooled and consolidated into the Olivarian magma series. One of these granite structures bisects the Cold River just west of Beryl Mountain and is called the Alstead Dome. At a later stage, magma was injected into the Littleton Formation. It cooled and formed Bethlehem gneiss, part of the New Hampshire magma series. This rock type is found in two areas along the River.

From Alstead south to the Connecticut River is the Bellows Falls Pluton, visible at Drewsville Gorge. Upstream from Honey Brook to Crescent Lake is the Mt. Clough Pluton, which is exposed near Honey Brook where ledge bisects the Cold River.

Since this last episode of folding and magma intrusions about 30 million years ago, erosion has been the dominant force in the Cold River Corridor. It is likely that episodes of uplift have alternated with periods of erosion many times in the last 25 million years.

Along with the Ammonoosuc Volcanics at Osgood Ledge, the Clough quartzite, Partridge Formation and Littleton Formation juncture at Beryl Mountain, the Littleton Formation exposures at Deep Hole and Vilas Pool, the Alstead Dome just west of Beryl Mountain, the Bellows Falls Pluton at Drewsville Gorge, and the Mt. Clough Pluton at Honey Brook, are the amazing pegmatites in this area. Pegmatite is a very coarse-grained granite. It was formed during the same period as the New Hampshire magma series as a watery fluid injected into rock fractures. Because of this, pegmatites can be found in almost any rock type. Extremely large crystals formed due to the watery nature of the material. Gene Boudette, NH State Geologist, conveyed that this mineralization resulted in a valley noted for its beryl and feldspar deposits. Beryl Mountain, located just south of South Acworth, was the site of a large pegmatite mining operation. Beryl crystals four feet long and feldspar crystals fourteen feet long have been found. Other valuable minerals associated with pegmatites are quartz, and books of white mica. Three other mines once operated in the South Acworth area and extracted primarily feldspar, which was shipped to the midwest for use in the glass and ceramics industries. These features make the Cold River Corridor a geologist's and rock hound's delight.

Surficial Geology

As impressive as continental glaciation was to the land surface of the Cold River Corridor, it is deglaciation that has left the surficial geology familiar today.

Glacial Lake Hitchcock, which extended from near Rocky Hill in Middletown, Connecticut, north to Lyme, New Hampshire, left evidence of its existence in the Cold River Valley. Melt water flowing from the glaciers and eventually meltwater flowing down the Cold River valley deposited vast amounts of sand and gravel at the lake margin. Driving east on Route 123 towards Drewsville is an extensive plain with several small hills, including Drew Mountain, punctuating it. This was the top of a delta that extended back to Cock Hat Hill, east of Alstead, formed in glacial Lake Hitchcock over 10,000 years ago. The delta is now bisected by the Cold River; terraces to either side of the River are evidence of the top of the ancient delta at a relatively consistent elevation of 492 feet. Within this great deposit is Drewsville Gorge, which became exposed as the Cold River eroded the delta down to bedrock.

Over the course of deglaciation, several small glacial lakes formed along the Cold River. One was behind the falls at Vilas Pool; the falls area was probably plugged by ice and sediment. This area and other former glacial lakes like it are interesting meltwater deposits of sand and gravel. Most are relatively intact having been exposed to only minimal mining.

Just south of Vilas Pool is Cock Hat Hill. By following a woods road that leads along the west side of the hill along a trickle of a brook, there is an area with many glacial potholes. This area is well away and above the River channel. During deglaciation torrents of meltwater from Warren Brook must have roared through here. As the Cold eroded deeper into the surrounding sediments it captured Warren Brook's flow and the gorge around Cock Hat Hill was left dry.

Sand and Gravel Deposits

The glacial legacy is most evident in the sand and gravel deposits scattered through the Corridor. These deposits are economically important for the region, making it self-sufficient

for aggregate needed for construction, road building and winter road maintenance. Much of the corridor is encompassed by soil types that are classified as having some potential as sand and/or gravel resources. The NRCS rates soils as being either "probable" or "improbable" as commercially useful sources of sand and gravel with a minimum of processing. The ratings are based on grain sizes, the thickness of the deposit, and the content of rock fragments. The criteria used are a deposit at least 3 feet thick and less than 50%, by weight, large stones. In reality, not all of these deposits would meet the stricter criteria of a sand and gravel excavator looking for an economically viable site where the investment needed for site development and permitting must be weighed against the volume of good material at the site. Access is obviously another determining factor of economic viability. One large active sand and gravel operation, known as Cold River Materials, a Division of Lane Construction Company (formerly Whitcomb), is located in the corridor in Walpole and extends across the River into Langdon utilizing the vast amounts of sand and gravel left in the lower Cold River valley by glacial meltwaters. Several other smaller active and abandoned excavations are located within the corridor in these soils as well.

Prime Agricultural Soils

Another aspect of the surficial geology of economic interest are the prime agricultural soils. As shown on the map entitled "Natural Resources - Cold River Watershed", much of the corridor, from South Acworth to the Connecticut River is covered by prime agricultural soils. A comparison with the map "Land Use - Cold River Corridor" shows that much of the area encompassed by these soils remains in agricultural use today forming an important component of the local agricultural economy as well as an essential feature of the scenic value of the area.

Groundwater Resources

As shown on the map "Natural Resources - Cold River Watershed", another economically significant result of the presence of Glacial Lake Hitchcock and the valley meltwaters was the formation of stratified-drift aquifers. Stratified-drift aquifers consist of sorted sands and gravels deposited by glacial meltwater. The large pore spaces permit these deposits to store and transmit groundwater readily. A series of stratified drift aquifers follows the Cold River corridor starting with a massive deposit along the Connecticut River in Walpole and stretching all the way to the village in Alstead. Other areas with aquifers with potential for municipal use are found in Langdon just upstream from Alstead, downstream from South Acworth where Great Brook joins the Cold, in South Acworth, upstream where Honey Brook joins the Cold, and stretching along the River from East Acworth into Lempster. Although most of the Cold River valley aquifers have relatively low transmissivities, less than 1,000 square feet per day, they are nonetheless important as sources for existing individual private wells and potential future sources of small community water supplies.

* * *

The 1983 New England Rivers Center New Hampshire River Protection and Energy Development Final Report noted the high significance of the geologic/natural features of the Cold River based on a state-wide analysis of river resource values.

(b) Wildlife Resources

(1) List the species of mammals and birds commonly found in the river and river corridor.

The following list of mammals was compiled from Species in New Hampshire (Residents and Visitors) by New Hampshire Fish and Game - Nongame and Endangered Wildlife Program. Although the presence of some species has not been verified, according to NH Fish and Game, most would be expected to use the Cold River watershed at some point due to the size of the area and the diversity of habitat types found there.

Bat, Big Brown	Mouse, Woodland	Shrew, Smoky
Bat, Hoary	Jumping	Shrew, Water
Bat, Silver-haired	Moyotis, Keen	Skunk, Striped
Bear, Black	Moyotis, Little Brown	Squirrel, Gray
Beaver	Muskrat	Squirrel, Northern Flying
Bobcat	Opossum, Virginia	Squirrel, Red
Chipmunk, Eastern	Otter, River	Squirrel, Southern Flying
Cottontail, Eastern	Pipistrelle, Eastern	Vole, Meadow
Mole, Star-nosed	Porcupine	Vole, Southern
Moose	Raccoon	Red-backed
Mouse White-footed	Rat, Norway	Vole, Woodland
Mouse, Deer	Shrew, Long-tailed	Weasel, Long-tailed
Mouse, House	Shrew, Masked	Weasel, Short-tailed
Mouse, Meadow	Shrew, Pygmy	Woodchuck
Jumping	Shrew, Short-tailed	

The following bird species are listed in Atlas of Breeding Birds in New Hampshire as possible, probable or confirmed breeding in Priority Blocks 0236 and 0314, which are closest to the corridor, or any nonpriority blocks within the corridor.

Bittern, American	Grosbeak, Rose-breasted	Phoebe, Eastern
Blackbird, Red-winged	Grouse, Ruffed	Redstart, American
Bluebird, Eastern	Hawk, Broad-winged	Robin, American
Bobolink	Hawk, Red-shouldered	Sandpiper, Spotted
Bunting, Indigo	Hawk, Red-tailed	Sapsucker, Yellow-bellied
Catbird, Gray	Heron, Great-blue	Siskin, Pine
Chickadee, Black-capped	Hummingbird,	Sparrow, Chipping
Cowbird, Brown-headed	Ruby-throated Jay, Blue	Sparrow, Field
Creepers, Brown	Junco, Dark-eyed	Sparrow, House
Crow, American	Kestrel, American	Sparrow, Song
Dove, Morning	Killdeer	Sparrow, Swamp
Duck, American Black	Kingbird, Eastern	Sparrow, White-throated
Duck, Mallard	Kingfisher, Belted	Starling, European
Duck, Wood	Kinglet, Gold-crowned	Swallow, Bank
Finch, House	Meadowlark, Eastern	Swallow, Barn
Finch, Purple	Merganser, Hooded	Swallow, Cliff
Flicker, Northern	Mockingbird, Northern	Swallow, Tree
Flycatcher, Alder	Nuthatch, Red-breasted	Swift, Chimney
Flycatcher, Great-crested	Nuthatch, White-breasted	Tanager, Scarlet
Flycatcher, Least	Oriole, Northern	Thrasher, Brown
Flycatcher, Olive-sided	Ovenbird	Thrush, Hermit
Goldfinch, American	Owl, Barred	Thrush, Wood
Grackle, Common	Owl, Great-horned	Towhee, Rufous-sided

Turkey, Wild	Warbler, Blackburnian	Woodcock, American
Veery	Warbler, Canadian	Woodpecker, Downy
Vireo, Red-eyed	Warbler, Chestnut-sided	Woodpecker, Hairy
Vireo, Solitary	Warbler, Magnolia	Woodpecker, Pileated
Vireo, Warbling	Warbler, Nashville	Wren, House
Vulture, Turkey	Warbler, Yellow	Wren, Winter
Warbler, Black and White	Warbler, Yellow-rump	Yellowthroat, Common
Warbler, Black-throated	Waterthrush, Northern	
Blue Warbler,	Waxwing, Cedar	
Black-throated Grn.	Wood-Pewee, Eastern	

Douglas G. Payne, in Resource Inventory of the Cold River Corridor, August 1996, provides the following description of the common wildlife species:

Most of the common species found throughout New Hampshire can be found in the Cold River corridor. Because little development exists in the river valley and the adjoining uplands, birds and mammals can take advantage of the diverse plant communities found here. In the uppermost reaches of the corridor bear and fisher can be found along the steep wooded slopes as well as many species of warblers and thrushes. In the marshes, moose feed on aquatic vegetation in the summer. Swallows, herons, bittern, and waterfowl can also be found feeding in these marshes. Some nest there as well. The border areas around the marshes where alder and other shrubs grow are ideal habitat for woodcock. Two populations of New England Cottontail have been noted historically along the Cold. The first, around Keyes Hollow has not been verified for over 20 years and may no longer exist. Another just south of the confluence with the Connecticut has been verified in the 1990s. This species has been in decline over the years and is monitored by New Hampshire Fish and Game (NHF&G) in Region 4.

The heron population found feeding in these marshes and along the rest of the river has a rookery at Middle Pond in Langdon. This is the only known rookery in the watershed and is in a remote area on the side of Fall Mountain. Other species take advantage of the remoteness as well. Turkey vultures and raven nest in the higher rocky outcrops.

In the river valley as well as on the surrounding uplands are many hay and corn fields. Along with the high energy, shrub covered stream banks, these provide a vegetative "edge" area. These areas are preferred by many species including deer, fox, rabbits, sparrows and quite a few other songbirds. Also the hayfield provide a bounty of crickets and grasshoppers, especially after summer haying, for killdeer, crows and young turkey.

Residents report that both moose and bear wander the corridor in increasing numbers. In response to the increasing bear population, NH Fish & Game opened a bear hunting season in the area in 1998.

Following a deeryard survey of Langdon, Charlestown and Acworth in the early 1980's, Ted Walski of NH Fish & Game reported that fisher tracks were common in virtually every site visited. He reported that partridge sign was common as well (Ted Walski, Inter-Department Communication, 1982).

(2) List any endangered or threatened animals which are supported by the river and river corridor environment. Include location, if known. Check whether these animals are endangered [E] or threatened [T] species and if they are significant at a national [N] or state [S] level.

<u>Animal Species</u>	<u>Location</u>	<u>E or T</u>	<u>N or S</u>
Haliaeetus leucocephalus Bald eagle	Walpole, Alstead, Langdon	E	N
Falco peregrinus Peregrine falcon	Walpole	E	N
Circus cyaneus Northern harrier	Walpole	T	S
Accipter cooperii Copper's hawk	Walpole, Langdon, Lempster	T	S
Pandion haliaetus Osprey	Walpole, Unity	T	S
Cistothorus platensis Sedge wren	Walpole, Lempster	E	S
Cortalus horridus Timber rattlesnake	Walpole	E	S

The source for the above list was Resource Inventory for the Cold River Corridor, August 1996, developed by Douglas G. Payne. Payne based his information on a variety of reliable sources, including Natural Heritage Inventory records, the Atlas of Breeding Birds in New Hampshire, and the Audubon Society of New Hampshire bird database. Payne provides the following additional information:

Several species of birds listed as endangered or threatened have confirmed sightings either from the Atlas of Breeding Birds in New Hampshire or from the Audubon Society New Hampshire Bird database.

Many of these species have been sighted near the mouth of the Cold River in Walpole and include several raptors. They are the bald eagle, peregrine falcon, Cooper's hawk, northern harrier, and osprey. Both the osprey and eagle take advantage of the fish resource found at the confluence with the Connecticut River. Habitat requirements for Cooper's hawk and the northern harrier exist along the river corridor and though not confirmed, these two species may breed in the region.

One species known to breed in Lempster is the sedge wren. The marshes found in the upper reaches of the Cold River are the preferred habitat of this little fellow. Though not documented as breeding here, a confirmed population is present within a few miles. It seems a good possibility that, if surveyed, the sedge wren will be found along the Cold in this area.

Historical records at Natural Heritage Inventory show that the timber rattlesnake has been found on and around Fall Mountain. While it has been over 25 years since any confirmed sightings have taken place, Crotalus horridus may be found within the river

corridor on the south slopes of Fall Mountain.

(3) List significant wildlife habitat which is supported by the river or to which the river is integral, for game and non-game wildlife populations. Identify if the habitat has been determined to be exceptionally diverse, very diverse, or moderately diverse by the NH Fish and Game Department or the U.S. Fish and Wildlife Service.

Significant Habitat

Diversity Rating

According to NH Fish & Game, no diversity ratings have been developed for habitats in the Cold River watershed.

Significant habitats include the lands surrounding the mouth of the River, deer yards, and the wetlands associated with the River.

According to Payne's Resource Inventory of the Cold River Corridor several species of birds listed as endangered or threatened have confirmed sightings near the mouth of the Cold River where the confluence with the Connecticut River results in an abundance of the fish resource on which they depend. Species recorded in this area either by the Audubon Society of New Hampshire or in the Atlas of Breeding Birds in New Hampshire include the bald eagle, peregrine falcon, Cooper's hawk, northern harrier and osprey.

The Cold River corridor provides essential winter deer habitat for the region's deer population. The valley's hillsides, along with those of the tributary streams, provide the combination of topography and vegetation needed by deer for winter survival. Ted Walski of NH Fish & Game reported the following after his fieldwork surveying deeryards in the early 1980's:

The entire length of the Cold River was probably once deer yarding cover. The lower third of the drainage has now been eliminated for winter deer use because of human development in the Drewsville-Alstead Village area and because of the Whitcomb Sand & Gravel operation near the junction with the Connecticut River. The 9 miles through Acworth are still good because human development is still not significant and because the slopes along the river and Rte 123A are quite steep.

(Walski, NH Fish & Game Inter-Department Communication, 1982)

Deer yard maps have been published by NH Fish & Game for Walpole, Langdon and Alstead. As shown on the accompanying maps, deer wintering habitats can be found north of the River's mouth and spanning the River just upstream from the mouth in Langdon. In addition, two very large areas of deer wintering habitat have been mapped in Langdon.

Although not yet published, deer yards have been surveyed in Acworth by Ted Walski of NH Fish & Game resulting in the finding that the Cold River corridor is the focus for deer winter habitat in the watershed. The accompanying maps from the files of Ted Walski show the concentration of deeryards along the Cold River that Walski described as follows:

Acworth has perhaps a unique deer yarding phenomenon in that 8 of its 11 deer yards are along the Cold River Drainage and most of the deer yard is in the southern 25% of the town as a result. The narrow valley carved out by the Cold River has virtually continuous softwood cover along both sides of the river. Hemlock is very prevalent and the spruce-fir also helps to provide winter cover.

(Walski, NH Fish & Game Inter-Department Communication, 1982)

Walski also notes that as a result, Acworth is probably the town in Sullivan County with the most deeryards and number of wintering deer.

The same softwood cover needed by deer for winter survival also provides habitat for the fisher. As noted above, NH Fish & Game biologist Ted Walski reported that fisher tracks were common in almost all of the deeryards surveyed. (Walski also reported the presence of two good rabbit covers in East Acworth although no area he surveyed had an abundance of hare sign.)

Wetlands of substantial size are associated with the River through much of Lempster and downstream to East Acworth. One large Cold River wetland is located in the extreme northwest corner of Lempster in the area of hydric soil shown on the "Soil Attributes" map. Another stretches from below the Unity Springs Road in Lempster down through Keys Hollow to East Acworth. Utilizing the hydric soils shown on the "Soil Attributes" map as an indicator, it can be seen that several other stretches of the River have smaller wetland systems associated with them. Many other large wetland systems are located throughout the watershed.

Wetlands associated with the River and its tributaries provide important habitat for a variety of species such as beaver, moose and waterfowl. Payne describes the particular importance of the Cold River wetlands for migrating waterfowl and other birds:

During spring and fall migrations, the marshes found in the upper reaches of the Cold River are used by local species such as mallards and wood ducks for cover and feeding areas as they funnel towards the migration route that follows the Connecticut River. The grasses and fruiting shrubs found here also provide a food source for migrating songbirds heading south in the fall.

In the spring the marshes mentioned above provide succulent sprouts and insect larvae for waterfowl as they either pass through to more northern areas or seek nesting sites in the river corridor.

(Resource Inventory of the Cold River Corridor, Douglas G. Payne, August 1996)

(4) Determine if the river corridor is important for the movement of wildlife between large habitat areas. If it is, explain why.

The Cold River and its wetlands provide an important corridor funneling into the Connecticut River Flyway. Payne describes the use of the Cold River habitat for migrating waterfowl and other birds:

During spring and fall migrations, the marshes found in the upper reaches of the Cold River are used by local species such as mallards and wood ducks for cover and feeding areas as they funnel towards the migration route that follows the Connecticut River. The grasses and fruiting shrubs found here also provide a food source for migrating songbirds heading south in the fall. ...Also corn fields supply a much needed food source for south migrating geese.

...In the spring the marshes mentioned above provide succulent sprouts and insect larvae for waterfowl as they either pass through to more northern areas or seek nesting sites in the river corridor.

(Resource Inventory of the Cold River Corridor, Douglas G. Payne, August 1996)

Many species such as moose, bear and deer tend to follow either rivers or ridge lines as

travel corridors. NH Fish & Game's Director of Nongame Wildlife John Kanter notes that river corridors such as the Cold River are natural features that these wide ranging animals tend to use to go between seasonal habitat areas. Residents report increasing sightings of bear and moose moving within the corridor. The River itself is essential for the movement of river otter, mink, beaver and other species dependent on aquatic habitat.

(c) Vegetation/Natural Communities

(1) List the plant species commonly found in the river and river corridor.

Payne describes the great diversity of plant species found in the Cold River corridor:

The forests found along the Cold River go through several changes as the elevation drops and the river valley broadens.

*In the upper reaches above Honey Brook, the valley floor has a northern feel to it. Balsam fir (*Abies balsamea*) and red spruce (*Picea rubens*) are common. Hemlock (*Tsuga canadensis*), black birch (*Betula lenta*), yellow birch (*Betula alleghenensis*), and red maple (*Acer rubrum*) are also found in these forests. The moist understory contains many species including mountain maple (*Acer spicatum*), moosewood (*Acer pennsylvanicum*), canadian yew (*Taxus canadensis*), and hobblebush (*Viburnum alnifolia*). Groundcover is also abundant. The most common species found here is the canadian mayflower (*Maianthemum canadense*), literally carpeting many parts of the woods in the spring. Other abundant species include bunchberry (*Cornus canadensis*), goldthread (*Coptis groenlandica*), twinflower (*Linnaea borealis*), and wild sarsaparilla (*Aralia nudicaulis*).*

*Also in this region there are the marshes in the Keyes Hollow - East Acworth area. Again this area has the feel of being much further north with firs found along the marsh shores. These marshes are a mixture of scrub/shrub and emergent wetland types. Within the marshes can be found speckled alder (*Alnus rugosa*), arrowwood (*Viburnum recognitum*), meadowsweet (*Spirea latifolia*), cattails (*Typha latifolia*), red maple and tussock sedge (*Carex stricta*), plus many species of rushes, grasses, and other sedges.*

*Below Honey Brook, sugar maple (*Acer Saccharum*) becomes a major component of this forest area. Other important species include white pine (*Pinus strobus*), hemlock, yellow birch, black birch, beech (*Fagus grandifolia*) and locally paper birch (*Betula papyrifera*). On some of the south facing hillsides and areas with sandy soils red oak (*Quercus rubra*), red maple and white pine dominate the forest.*

*In the Alstead area, the composition of the forests starts to take on species associated with a southern hardwood forest as the river valley broadens. Sycamore (*Platanus occidentalis*) are found along the river. Red maple, red oak, white pine are the dominant species in this area but mockernut (*Caraya tomentosa*) and shagbark hickory (*Caraya ovata*) are now present. White ash (*Fraxinus americana*) and white oak (*Quercus alba*) are also becoming more common. The south side of the river is mostly agricultural land.*

*Below Drewsville, the lower reaches of the Cold River corridor has many riparian and mesic condition species growing in the nonagricultural lands. The woodlands are dominated by sugar maple, white ash, and white oak. Mockernut hickory and red maple are also common. Hornbeam (*Carpinus caroliniana*), witchhazel (*Hamamelis virginiana*) and hackberry (*Celtis occidentalis*) are found in the shrub layer in many parts of the forest and on the edge of fields and the river. The herbaceous layer has many species including ostrich fern (*Mettecuia struthiopteris*), Christmas fern (*Polystichum acrostichoides*), cinnamon fern (*Osmunda cinnamomea*), interrupted fern (*Osmunda claytoniana*), Jack-in-the-pulpit (*Arisaema atrorubens*), and several species of wood fern (*Dryopteris* Spp.). In the more open areas honeysuckle (*Lonicera* spp.), poison ivy (*Toxicodendron radicans*), bloodroot (*Sanguinaria canadensis*), jewelweed (*Impatiens capensis*), and boxelder (*Acer negundo*) are found. Along the floodplain, silver maple (*Acer saccharinum*), cottonwood (*Populus deltoides*) and sycamore are common.*

On the south side of the valley as you head downstream from Drewsville Gorge the forest retains several of the species common further upstream including white pine, hemlock, beech, and in scattered locations aspen. Hickory becomes scarce. Wood ferns and interrupted fern remain common.

(Resource Inventory of the Cold River Corridor, Douglas G. Payne, August 1996)

(2) List any endangered or threatened plant species that are supported by the river and river corridor environment. Include location, if known. Check whether these plants are endangered [E] or threatened [T] species and if they are significant at a national [N] or state [S] level.

<u>Plant Species</u>	<u>Location</u>	<u>E or T</u>	<u>N or S</u>
Corridor			
Black Maple	Cold River, Alstead	T	S
Ciliated Willow-Herb	Vilas Pool, Alstead	T	S
Four-Leaved Milkweed	Cold River, Walpole & Drewsville Plain, Walpole	T	S
Goldie's Fern	Alstead	T	S
Meadow Horsetail	Cold River, Walpole	T	S
Watershed			
Bur Sedge	Alstead	E	S
Downy False-Foxglove	Alstead	T	S
Four-Leaved Milkweed	Fall Mountain, Walpole	T	S
Narrow-Leaved Spleenwort	Alstead	E	S
Northeastern Bulrush	Mitchell Pond, Acworth; 4 sites in North Pond/Middle, Pond area, Charlestown & Langdon	E	N
Northern Waterleaf	Fall Mountain, Walpole	T	S
Philadelphia Panic-Grass	Alstead	E	S
Sweet Goldenrod	Fall Mountain, Walpole	T	S
Three-Leaved Black Snakeroot	Alstead	T	S
Virginian Mountain Mint	Alstead	E	S
Woodland Hound's-Tongue	Fall Mountain, Walpole; Alstead; Langdon	T	S

(Source, NH DRED Natural Heritage Inventory, February 1998)

(3) List any vegetative communities supported by the river and river corridor environment which have been identified as “exemplary natural ecological communities” by the New Hampshire Natural Heritage Inventory. Include location, if known.

Exemplary Natural Ecological Community

Location

Southern New England Acidic Rocky Summit/Rock Outcrop

Walpole

*This acidic woodland community is found on warmer rocky ridges at low to mid elevations in central and southern NH and is characterized by the prominence of species with decidedly southern affinities. Some NH occurrences are transitional, exhibiting floristic compositions characteristic of both Appalachian and northern influences. Red oak tends to be consistently present in quantity along with a variable presence of other trees including white pine (*Pinus strobus*), red pine (*Pinus resinosa*), pitch pine (*Pinus rigida*), white oak (*Quercus alba*), black oak (*Quercus velutina*), chestnut oak (*Quercus prinus*), shagbark hickory (*Carya ovata*), eastern red cedar (*Juniperus virginiana*), sassafras (*Sassafras albidum*), and ironwood (*Ostrya virginiana*). Common shrubs include scrub oak (*Quercus ilicifolia*), early low blueberry (*Vaccinium angustifolium*), late low blueberry (*Vaccinium vacillans*), bush honeysuckle (*Diervilla lonicera*), black huckleberry (*Gaylussacia baccata*), and bearberry (*Arctostaphylos uva-ursi*). Open glades and patchy tree canopy support a variety of plant associates with herbaceous species including Pennsylvania sedge (*Carex pennsylvanica*), hairgrass (*Deschampsia flexuosa*), hay-scented fern (*Dennstaedtia punctilobula*), little bluestem (*Andropogon scoparius*), corydalis (*Corydalis sempervirens*), bastard toadflax (*Ommandra umbellata*), dwarf dandelion (*Krigia virginica*), silvered (*Solidago bicolor*), pussy toe (*Antennaria plantaginifolia*), marginal woodfern (*Dryopteris marginalis*), false Solomon's seal (*Smilacina racemosa*), rock polypody (*Polypodium virginianum*), false fern-leaved foxglove (*Aureolaria pedicularia* var. *intercedens*), sweet-scented goldonrod (*Solidago odora*), and abundant lichens and mosses.*

Central New England Dry Transitional Forest on Acidic Bedrock and Till

Walpole

Dry to dry-mesic forest of coarse till, sandy or shallow-to-bedrock soils, with overstory composition of red oak and white pine. As defined here, the type includes forests dominated by either or both species. White pine appears to be more predominant on many of the dryer sites. This community may grade into oak-pine rocky summit woodland communities.

Southern New England Floodplain Forest

Walpole

Floodplain forests characterized by silver maple in NH occupy regularly flooded alluvial terraces along margins of major rivers. This is a broadly defined community as considerable floristic variation exists between high and low floodplain resulting from differences in the periodicity, intensity and duration of flooding. Deposition and erosion in the river channel through time generates successive point bars, particularly on meanders. A ridge and swale topography results with bands of vegetation corresponding to the flood regime.

*Low flood plain forest is remarkably consistent throughout the northeast and is composed of silver maple (*Acer saccharinum*) canopy with hackberry (*Celtis occidentalis*), eastern cottonwood (*Populus deltoides*), boxelder (*Acer negundo*), and american elm (*Ulmus americana*) occurring as associates, particularly along the riverbank. Common herbaceous species include ostrich fern (*Matteucia struthiopteris*), stinging nettle (*Urtica diocea*), false nettle (*Boehmeria cylindrica*), wood nettle (*Laportia canadensis*), Jack-in-the-pulpit*

(Arisaema triphyllum), sensitive fern (Onoclea sensibilis), bladdernut (Staphylea trifolia), poison ivy (Toxicodendron radicans), white snakeroot (Eupatorium rugosa), Osmunda spp. and various shrubs.

(Descriptions from A Classification Of The Natural Communities Of New Hampshire, 1994 Draft, Natural Heritage Inventory, by Dan Sperduto)

(d) Fish Resources

(1) List the fish species commonly found in the river.

Payne describes the fishery of the Cold River corridor:

Above Crescent Lake Dam

*Over the years many fish species have been stocked into the waters of Crescent Lake. In 1938 white perch (*Morone americana*), in the 1940s and 50s smallmouth bass (*Micropterus dolomieu*), in the 40s yellow perch (*Perca flavescens*) and golden shiners, along with horned pout (brown bullheads) in 1946 were introduced. In 1947 brown trout were also stocked. Historically chain pickerel (*Esox niger*), largemouth bass (*Micropterus salmoides*), and common white suckers have also been reported. In 1962 the lake was reclaimed and stocked with smallmouth bass, chain pickerel, and horned pout. The New Hampshire Fishing Guide, 1986 by Swasey and Wilson report chain pickerel, yellow perch, horned pout and smallmouth and largemouth bass are present.*

Below Crescent Lake Dam

The vast majority of the fish species that inhabit the Cold River are cold water species. They prefer water temperatures below 70° f. during the summer months, although many of these fish can tolerate warmer temperatures of short periods of time. River temperatures were taken in August 1987 and showed a 24 hr. temperature range of 58° - 72° in Acworth and 65° - 75° in Walpole. All of these species like clean well oxygenated water with stream bottoms of gravel or rubble as the preferred habitat.

*Of the cold water species found, three are desirable game species. Brook trout (*Salvelinus fontinalis*) are found throughout the Cold River and many of its tributaries. Due to warming water temperatures, brook trout probably migrate to tributaries and other thermal refuges in the summer, especially below Alstead, where the river receives more direct sunlight. The rainbow trout (*Salmo gairdneri**) is also present throughout the river. This non-native species is tolerant of warmer water temperatures and can survive in habitat abandoned by brook trout in the summer. Also introduced is the brown trout (*Salmo trutta*). It is able to tolerate water temperatures up to 80° f. , although they prefer temperatures in the 65° - 75° range.*

*Many other species are found in the Cold. Including trout, 13 species were recorded by the N.H. Fish & Game during an electro shock survey in 1988. The most common of these were the blacknose dace (*Rhinichthy atratulus*) and the longnose dace (*Rhinichthy cataractae*). Also present were common shiner (*Notropus cornutus*), longnose sucker (*Catostomus catostomus*), common white sucker (*Catostomus commersoni*), creek chub (*Semotilus atromaculatus*), and slimy sculpin (*Cottus cognatus*). Two species that were each found in only one location were the brown bullhead (*Ictalurus nebulosus*) and the golden shiner (*Notemigonus crysoleucas*). Both prefer warmer, sluggish streams or ponds and lakes. One spottail shiner (*Notropis hudsonius*) was found. It is possible this*

species was present because it is known to inhabit the Connecticut River.
 (Resource Inventory of the Cold River Corridor, Douglas G. Payne, August 1996)
 (*The rainbow trout has since been reclassified *Oncorhynchus mykiss*.)

In addition to those species listed above by Payne, Atlantic salmon are also found in the River as a result of the Atlantic salmon restoration program discussed further below. Ken Sprankle of NH Fish & Game also reports that anglers have caught walleye below Drewsville Gorge. Another species Sprankle feels likely to be found in the River at spawning time, although not documented, is the sea lamprey.

(2) List any endangered or threatened fish species which inhabit the river. Check whether these fish are endangered [E] or threatened [T] species and if they are significant at a national [N] or state [S] level.

<u>Fish Species</u>	<u>Location</u>	<u>E or T</u>	<u>N or S</u>
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There are no documented occurrences of endangered or threatened fish species in the Cold River.

(3) Describe the presence and location of spawning beds, feeding areas, and other significant aquatic habitat for fish populations. Determine if the habitat is exceptionally diverse, very diverse or moderately diverse as determined by the NH Fish and Game Department or the U.S. Fish and Wildlife Service.

<u>Significant Habitat</u>	<u>Diversity Rating</u>
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Diversity ratings have not been determined by NH Fish & Game or US Fish & Wildlife. Ken Sprankle at NH Fish & Game describes the Cold River habitat as typical for a Connecticut River tributary, a relatively simple system, not exceptionally diverse.

According to Ken Sprankle at NH Fish & Game, the Cold River offers significant habitat for a variety of species during different stages of the life cycle. Crescent Lake, the tributary streams, and the Cold River mainstem each offer a different set of conditions.

Crescent Lake offers warm water habitat providing all of the spawning and feeding needs for species such as bass, perch and pickerel.

With high water quality, abundant food resources, and tree cover and other conditions needed to maintain cool summer temperatures, the tributary streams provide suitable spawning and nursery habitat for cold water species such as brook trout. The temperature differential between the Cold River mainstem and the tributaries is an important determinant of the suitability as summer habitat for various species. Characteristics of the native brook trout populations in two tributaries, Great Brook and Dodge Brook, are described in the attached Index Station Summary.

Along the entire length of the Cold River are areas with a gravel substrate - prime spawning habitat for cold water species. The tributaries offer nursery habitat for species that require cooler temperatures in the summer.

The Cold River also provides important spawning habitat for the white sucker in close proximity to the conditions needed for nursery habitat found in the Connecticut River.

Sprankle notes that while 100's have been observed, he would estimate the usage to be in the 1000's. He also stresses the importance of the young as forage fish for adult game fish.

Another species Sprankle feels are likely to be spawning in the Cold River is the walleye. He notes that the walleye caught by anglers below Drewsville Gorge indicate that walleye are entering the River to take advantage of the river substrate for spawning in the spring.

Sprankle reports that the River's gravel substrate located proximate to the silty bottom of the Connecticut River needed for nursery habitat provides ideal spawning conditions for the sea lamprey as well. Although this is not documented, Sprankle feels there is no reason to believe the sea lamprey is not spawning in the River. He also notes the potential significance of the lamprey to the watershed as a source of nutrients to the ecosystem after they spawn and die.

The subject of much attention in recent years is the combination of spawning and nursery habitat conditions suitable for Atlantic salmon. Below the Drewsville Gorge, conditions continue to be suitable for the Atlantic salmon spawning known to have taken place prior to the construction of the dams on the Connecticut River. The entire River up to the marshy stretch at Keyes Hollow, along with the Warren Brook tributary, is currently used as nursery habitat as part of the Atlantic salmon restoration program.

The significance of this fishery habitat is reflected in the recent designation of the Cold River as one of 38 high priority special focus areas in the Connecticut River watershed identified in The Silvio O. Conte National Fish and Wildlife Refuge Final Action Plan and Environmental Impact Statement, October 1995 (excerpts attached). The special focus area follows the Cold River and Warren Brook up to Lake Warren. The special values this high priority were based on were fisheries and contiguous habitat type. Specifically, the high priority of the Cold River is based on the presence of nursery and rearing habitat for juvenile Atlantic salmon as well as potential spawning habitat for adults.

(4) Indicate whether the significant fisheries found in the river rely on natural reproduction or a stocking program. If fish populations rely on a stocking program, indicate whether they are partly or wholly dependent on the program.

NH Fish & Game manages Crescent Lake as a warm water fishery where populations and conditions are monitored periodically, but stocking does not take place. The Crescent Lake Association reportedly stocks the Lake with bass to offset the effects of heavy summer fishing pressure. NH Fish & Game plans a population assessment in the near future.

Similarly, the tributaries are left alone to maintain a native brook trout population. Residents report healthy brook trout populations in several tributary streams. Two tributaries, Great Brook in Langdon and Dodge Brook in Lempster and Acworth, are NH Fish & Game index sites, where adult biomass, juvenile production and fish condition are evaluated, along with factors influencing these conditions. (See attached Index Site report)

The Cold River has a long history as a managed recreational cold water fishery. The Biological Survey of the Connecticut Watershed published by the NH Fish and Game Department in 1939 notes heavy fishing pressure and stocking of rainbow and brook trout. NH Fish & Game currently stocks the River with several species of trout as well as Atlantic salmon. Although the River system does provide the conditions needed for some natural reproduction, with the combination of spawning habitat in the River and the cooler temperatures required in the tributaries in the summer, the number and size of trout available to anglers are greatly enhanced by the stocking program. NH Fish & Game stocks the Cold

River with 2470 brook trout, 3900 rainbow trout, and 1720 brown trout annually, all yearlings. In addition, as part of the Atlantic salmon restoration program discussed further below, 125,000 Atlantic salmon fry are released to the Cold River and the Warren Brook tributary.

(5) Is the river a viable anadromous fish resource? If yes, identify any on-going or planned restoration programs.

Before a dam was built near the Miller's River on the Connecticut River, Atlantic salmon spawned and spent the early part of their life cycle in the Cold River. In 1789 the dam blocked anadromous fish from returning to their natal streams which included the Cold.

At present the Cold River is part of the Connecticut River Salmon Restoration Program. Salmon have been released into the river since the early 1980s. It is estimated that 350,000 square yards of habitat is available for them. The necessary river substrate for habitat is composed of rubble (gravel and cobble) with a current in the river. The absence of areas of sand and silt is also important when defining the habitat.

On the upstream migration to spawn, adult salmon can not pass Drewsville Gorge due to the falls. The Restoration Program has enabled increased utilization of the high quality habitat provided by the River. The entire River, with the exception of the marshy stretch at Keyes Hollow, along with the Warren Brook tributary, provides excellent nursery habitat for Atlantic salmon young. NH Fish & Game placed 125,000 salmon fry (35 fry to 100 square yards of habitat) in the River system in 1998.

Monitoring indicates that this program is successful and that the River does have suitable attributes to enable the fish to reach the size needed for the downstream migration. After two years in the River system, the salmon migrate to sea. The fish are successful at passing through the Gorge for the downstream passage. Although currently 9 out of 10 returning adults are removed from the Connecticut River to produce fry at the hatchery for the ongoing restoration program, Sprankle reports that adult salmon have been documented in the Cold River. (See Atlantic Salmon Index Station Summary for more information.)

Due to the high quality of the habitat in the Cold River it is estimated that about 10,800 smolt can be produced per year. This is the fourth highest among the 25 rivers identified as having suitable habitat in the Connecticut River Basin.

As noted above, Ken Sprankle at NH Fish & Game also notes the importance of the Cold River as spawning habitat for two other anadromous species, the walleye and the sea lamprey.

As part of the implementation program associated with the Conte Refuge Plan, the U.S. Fish & Wildlife Service will be continuing working with partners such as N.H. Fish & Game and The Nature Conservancy to protect riparian buffers through cost share challenge grants for conservation easements.

(e) Water Quality

(1) Check the state's water quality classification which applies to this river or segment under state law.

_____ Class A X Class B

(2) According to readily available information, what is the actual water quality of this river under the state's water quality standards?

_____ Class A X Class B

NHDES reports no impaired segments of the Cold River. NHDES monitors the Cold River at two sites, by the Route 123 bridge in Walpole and the Route 123A bridge in Alstead. Data sheets for last summer's results are included in the appendix.

Monitoring of Crescent Lake water quality is conducted each May, July and September, by the Acworth and Unity Conservation Commissions in cooperation with DES through the Volunteer Lake Assessment Program. The report for 1997 is also appended hereto. In 1992 and 1993, NHDES conducted an in-depth lake study of Crescent Lake. Excerpts from the lake study are included in the appendix as well.

(3) If the river is not currently supporting its water quality classification, identify the existing major causes of deficient water quality (e.g., industrial or sewage pollutants, agricultural fertilizer run-off) and possible corrective measures (e.g., regulations, enforcement, local and use controls).

Although the Cold River, including the impounded stretch known as Crescent Lake, is currently supporting Class B uses, the NHDES Volunteer Lake Assessment Program coordinators, following interpretation of Crescent Lake monitoring results, emphasized the need for continued vigilance in water quality protection efforts aimed at Crescent Lake. The coordinators included several recommendations in their report, including:

- * reducing phosphorous inputs to the Lake to "continue to limit algae growth to natural, manageable levels"
- * establishing and maintaining a vegetated buffer around the Lake "to filter watershed runoff and protect surface water from land use activities such as roadways and construction sites"
- * continuing "to encourage boaters to stay in deeper waters to prevent stirring of the bottom sediments"

(f) Natural Flow Characteristics

Briefly describe the natural flow characteristics of the river, including natural periodic variation in flow (e.g., spring run-off and summer flow amounts) and frequency and duration of flood events. If applicable, describe purpose of and flow variations caused by impoundments, significant diversions, or channel alterations, including interbasin transfers. Indicate which segments of the river are free-flowing.

Although 100-year flood hazard areas have been mapped, a detailed flood insurance study has not been performed on the Cold River, so base flood elevations, flood profiles and flood hazard factors have not been determined. While much of the River has steep banks causing rain events to result in higher water levels rather than flooding of adjacent lands, important floodwater storage capacity is provided in those areas where wetlands are located adjacent to the River.

Historic flow information is available in the form of data from a USGS stream gauge that was operated in Drewsville from 1940 to 1978. The gauge is located upstream from the NH123 bridge at a point 3.4 miles upstream from the mouth. These data show an extreme fluctuation in flows both seasonally and from year to year. The annual mean recorded from 1940 to 1978 ranged from a low of 36.1 cubic feet per second (cfs) in 1965 to a high of 189 cfs in 1960. The daily mean ranged from a low of 1.8 cfs on September 22, 1940, to a high of 3,120 cfs on November 26, 1950. The graph included in the appendix presents a clear picture of the seasonal flow variations. As shown, the mean flow in April was almost twice the volume of any other month. Low flow conditions exist in the summer and to an extent in mid-winter.

Two impoundments are located on the River, Crescent Lake at the Unity-Acworth town line and Vilas Pool in Alstead just downstream from the Langdon line. The river flows freely between the two dams and below Vilas Pool to the Connecticut River. Except for the times when either of the two dams have drawdowns, the Crescent Lake and Vilas Pool dams are not operated in a manner that impacts the flow of the River. Flow variations are experienced when these dams are drawn down. Each fall the Crescent Lake Association has a draw down of approximately one foot for 2-3 weeks each year to avoid ice damage to docks. The Vilas Pool dam is drawn down periodically to remove sediments from behind the dam. This year will be the first drawdown in 8 years, although the town hopes this will be accomplished more regularly in the future and so with less impact.

In Walpole, two sumps were constructed in the River to divert water for washing sand and gravel. However, in practice, most of the water used in the operation now comes from a fire pond south of NH123 with most reused through a series of settling ponds.

There are no significant diversions, channel alterations, or interbasin transfers.

(g) Open Space

Briefly describe, give the location and identify the type (e.g., floodplain, forested, etc.) and type of ownership (i.e., public or private) of significant areas of open space in the river corridor. Describe and include the location of any protected land parcels within the river corridor (e.g., state parks and forests, national forest lands, municipal parks and conservation easements).

**SEE ALSO THE FOLLOWING MAPS:
CONSERVATION, RECREATION, AND HISTORIC SITES
LAND USE
SOIL ATTRIBUTES**

Undeveloped Lands of the Corridor: Forest & Fields, Floodplains and Wetlands

As shown on the Land Use map, most of the land in the northern half of the corridor from the outlet at Crescent Lake to South Acworth is forested. Downstream from South Acworth through Langdon, Alstead and Langdon again, the corridor is dominated by a mixture of forest and agricultural land interrupted only by the village of Alstead and the smaller village of Drewsville and low density residential use. Downstream from the sand and gravel excavations in Walpole, agricultural open space again dominates the landscape as the Cold meets the Connecticut.

The Cold River floodplain begins in Lempster about a half mile below the Crescent Lake dam and extends at varying widths all the way to the Connecticut. Below the Unity Springs Road in Lempster the floodplain widens out to about 1,000 feet for a stretch before narrowing again prior to crossing the Acworth town line. The floodplain widens out again to about 500 feet above the Allen Road crossing in East Acworth. Other floodplain areas of significant size in Acworth are located near the confluence with Dodge Brook and the vicinity of Great Brook and Forest Road. Through Langdon the floodplain ranges from 400 to 600 feet in width and then is fairly narrow in Alstead until below the NH12 bridge. It then begins to widen out about 1,000 feet below the bridge reaching a width of about 800 feet east of the Alstead-Langdon line and 400 to 600 feet through the next portion of Langdon. The floodplain in Walpole is not mapped above the NH 123 bridge. Below the bridge the floodplain widens out to join that of the Connecticut. (A GIS map of the watershed's floodplains will be available this fall.)

Wetlands of substantial size are associated with the River through much of Lempster and downstream to East Acworth. One large Cold River wetland is located in the extreme northwest corner of Lempster in the area of hydric soil shown on the "Soil Attributes" map. Another stretches from below the Unity Springs Road in Lempster down through Keyes Hollow to east Acworth. A large tract of the Acworth portion of this wetland has been protected through Town ownership. Utilizing the hydric soils shown on the "Soil Attributes" map as an indicator, it can be seen that several other stretches of the River have smaller wetland systems associated with them. Many other large wetland systems are located throughout the watershed.

Protected Parcels

NH Fish & Game owns parcels at both the "beginning" of the River mainstem and at the mouth of the River at the Connecticut. A 1.8 acre Fish & Game parcel* lies just below the Crescent Lake Dam in Lempster. On the bank where the Cold meets the Connecticut is the 10.1 acre NH Fish & Game access providing fishing and boating opportunities in both rivers. In East Acworth, along both sides of the Cold River stretches 61.3 acres of town-owned

wetland. Also in Acworth, a portion of the Honey Brook State Forest can be found in the corridor where Honey Brook meets the Cold River.

(*This parcel is referred to as the "Crescent Lake Fish Barrier"; however, NH Fish & Game's Ken Sprankle clarified that there is no fish barrier on the Cold River.)

As shown on the "Conservation, Recreation and Historic Sites" map, several protected parcels in the watershed beyond the quarter mile corridor along tributaries and in the headwaters also serve to protect the resources and water quality of the Cold River. Through the efforts of the State, Town of Acworth and private landowners, over 2,000 acres in the Great Brook and Crane Brook subwatersheds has been conserved for agricultural and other open space uses. Encompassing portions of both the Tracy Brook headwaters and the Crescent Lake drainage, the Acworth Town Forest provides 274 acres that will remain in forest use. On the Unity-Lempster town line, NH Fish & Wildlife's Gallop Marsh Wildlife Management Area provides 26 acres of protection for the natural and recreational resources associated with this tributary wetland. The 226 acre Dodge Brook State Forest and 1023 acre Honey Brook State Forest provide important protection to these two tributaries.

2. Managed Resources

(a) Impoundments

List all of the dams which are present in the river, including any dams which are breached or in ruins. Identify their location, ownership, and purpose (i.e., flood control, low flow augmentation, or storage). Also indicate whether minimum flow requirements exist at any of the impoundments, if known. Include any proposals for new or reconstructed dams; indicate that this is a proposed dam by placing an asterisk (*) next to the name of the dam. Do not include existing or proposed dams which are used for hydroelectric energy production. These will be listed separately in the managed resources category.

No information regarding minimum flow requirements is available.

No proposals for new or reconstructed dams are under review by NH DES.

The following lists dams in order from Crescent Lake going downstream to the Connecticut River.

<u>Name of Dam</u>	<u>Location</u>	<u>Ownership</u>	<u>Purpose</u>
Crescent Lake - #001.07	Acworth	Crescent Lake Assoc.	storage
Cold River - #136.05	Lempster	Mrs. James Delaney	breached
Cold River - #136.04	Lempster	Ms. L. May Wheeler	breached
Cold River - #136.02	Lempster	Ms. L. May Wheeler	breached
Cold River -#136.03	Lempster	David Kitteredge & Barbara Leave	breached
Written Dam - #001.01	Acworth	Mr. Rescue Written	breached
Lombard Mill - #001.02	Acworth	Ms. L. May Wheeler	breached
Cold River - #001.03	Acworth	W. L. Sargent Estate	breached
Beryl Mountain Road Pond - #001.04	Acworth	Town of Acworth	breached
South Acworth Dam - #001.05	Acworth	unknown	breached
Cold River Dam - #005.06	Alstead	Town of Alstead - Vilas Pool Committee	storage
Cold River Dam - #005.01	Alstead	Mr. C. J. Newell	breached
Cold River Dam - #005.07	Alstead	Mr. C. J. Newell	breached

Water Supply I - #242.21	Walpole	Frank Whitcomb Construction Co.	storage
Water Supply II -#242,22	Walpole	Cold River Sand & Gravel	storage

As noted above, 11 of the 15 Cold River dams have been breached. Of the remaining four, two were constructed long ago to augment the water level to create ponds (Vilas Pool and Crescent Lake) and two are large concrete sumps used to take process water from the River to wash sand and gravel. These sumps do not span the river. The Crescent Lake Association dam is 3 feet in height and 40 feet long creating the 116 acre impoundment known as Crescent Lake. Each fall the Crescent Lake Association has a draw down of approximately one foot. The Vilas Pool dam is 31 feet high and 135 long creating the 6 acre Vilas Pool for recreational purposes in 1925. In recent years, swimming has not been feasible at the Vilas Pool due to the build-up of sediments in the impoundment. The Town is in need of assistance with a management plan for the dam which will permit routine sediment removal in a manner which does not create an adverse water quality impact. The Pool's function as an important source of water for fire-fighting also needs to be considered.

(b) Water Withdrawals and Discharges

(1) List any significant water withdrawals from the river, including withdrawals for public drinking water, industry, and agriculture. Identify the purpose (e.g., irrigation) and location of the withdrawal. Indicate if the river has been identified in a state, regional, or local study as a potential source of water supply and, if so, identify the study.

<u>Withdrawal</u>	<u>Purpose</u>	<u>Location</u>	<u>Potential Source? (ID Study)</u>
F. Whitcomb Construction Corp. Permit #20216	Washing sand and gravel	Cold River Road, Walpole	

Although this withdrawal is registered for 372,000 gallons per day, supply is currently obtained from a fire pond south of NH123. The water is then recycled through the use of two settling ponds. The new owners, Lane Construction, have not withdrawn water from the River since their purchase of the operation in March 1997 according to property manager Bill Jean.

The River also provides alternative water supply for firefighting in Alstead.

(2) List all known surface water and potential discharges to the river and identify the source, type (e.g., industrial wastewater) and location of the discharge. Indicate whether the discharge has been permitted by the state (yes or no).

<u>Point Source Discharge</u>	<u>Type</u>	<u>Location</u>	<u>Permit?</u>
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There are no permitted direct discharges to the Cold River.

(c) Hydroelectric Resources

List all known existing or potential (as cited in the NH River Protection and Energy Development Project - Final Report; New England Rivers Center, 1983) sites of hydroelectric power production. Record the owner, location and whether the site is regulated or exempt from regulation by the Federal Energy Regulatory Commission (FERC).

<u>Hydroelectric Facility</u>	<u>Owner</u>	<u>Location</u>	<u>FERC regulated or exempt?</u>
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NONE EXISTING

Several comprehensive studies of potential hydropower sites were conducted in the early 1980's. These were conducted by different groups, each with somewhat different priorities and criteria. None identified any potentially feasible sites on the Cold River or its tributaries.

- The US Army Corps of Engineers did not identify any potential sites in The National Hydro Electric Power Study, 1980.
- No existing or breached dams or undeveloped dam sites were identified as potential hydropower sites in Water, watts, and wilds, Hydropower and competing Uses in New England, the Final Report of the New England River Basin Commission's Hydropower Expansion Study, 1981.
- The 1983 New England Rivers Center New Hampshire River Protection and Energy Development Project Final Report did not identify any potential hydropower sites in the Cold River watershed which are economically feasible and/or under consideration for development.

3. Cultural Resources

(a) Historical and Archaeological Resources

Describe any significant historical or archaeological resources or sites with significant potential for such resources (as determined by the state historic preservation officer) found in the river or river corridor. Identify whether the resource is listed or is eligible to be listed as a National Historic Landmark (NHL) or on the National Register of Historic Places (NRHP) or is a recognized Historic District (HD) or Multiple Use Area (MUA). If known, indicate whether these resources are significant at a national, regional (New England), state, or local level. Below this listing, note any local town histories, oral histories, or general historical knowledge about the use of the river and its corridor.

The descriptions for each site in the following list were provided by Douglas G. Payne, Resource Inventory of the Cold River Corridor.

<u>Historical/Archaeological Resource</u>	<u>Listing/Eligibility</u>	<u>Significance</u>
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Buildings

United Church Of Acworth, South Acworth	not listed	local
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The early and mid 1800s was a period of religious tolerance and many churches were organized in the small town of Acworth. Originally the Baptist Church, the United Church of Acworth was built at Lynn Hill, east of Acworth in 1818. In 1844 to attract more parishioners, the church was dismantled and moved less than a mile to the common land in Acworth. As the mill communities became the population centers in the mid 1800s, attendance dropped off and it was decided that the church would be moved again. Windows, pews and belfry were removed and the building shell was moved over three miles and downhill almost 700 feet in elevation. Six team of oxen were used to move the church using logs as rollers down Acworth Town Road. It is now located on the north side of Rt. 123A and is open for winter services.

Grange Hall, South Acworth	not listed	local
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What was once the Methodist Church of Acworth is almost as well traveled as the old Baptist church. This building was dismantled in 1854 and rebuilt south of the Cold River, east of Beryl Mountain Road. It reopened on July 1855. It was sold and become the Grange Hall in the early part of this century.

(The Grange Hall was purchased by the Town in the 1980's and subsequently reroofed with town funds.)

Hutton House, River Road, Alstead	NRHP eligible	local
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Hutton House was built in 1839 by Thomas Prentiss. It was the first house on River Street. In the mid 1800's it served as residence for the pastor of the Third congregational Church, Pastor Seth Arnold, who had returned from Acworth to preach in the town he had ministered in for many years.

Shedd Porter Library, Alstead	not listed	regional
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An elaborate structure built in the neo-classical style called Ecole des Beaux Arts, This library was designed by the Boston architects William H. McLean and Albert H. Wright. Built

in 1909 as gift from John Graves Shedd and Mary Roenna Porter to the towns of Langdon and Alstead, it boasts granite and marble stone-work, mahogany paneling, mosaic floors, and gold leaf embellished on the interior of the dome. Shedd had roots here and had lived in these two towns until he was 16. The design of this building was studied and written about by Dan Bartlett from the Boston Architectural Center of Boston in Renaissance Influence on the Shedd-Porter Library, Nov. 1993.

Kingsbury grist and sawmill, Alstead not listed local

Built by Elisha Kingsbury in 1793, this small brick mill survived the industrial revolution as industry moved from small streams to large centers of hydro power. It is presently used as a residence and antique shop. It is located on the north side of Rt. 123, east of Alstead.

Drewsville Mansion - Old Cheshire Turnpike, NRHP eligible local
Village of Drewsville, Walpole

*The Drewsville Mansion is thought to have been built by architect/builder William Pitt Wentworth in 1880 in the Eastlake style that popularized the time. Noteworthy feature is the double-door entry-way with ornate porch. Window bays are located above the porch on the second and third story. All are decorated with jigsaw cut ornamentation. The mansion was built for Sarah Lathrop Lovell and Bolivar Lovell. Mr. Lovell was a prominent lawyer and served as an elected member of the Governor's Council in 1873-74.
(The Drewsville Mansion has more recently been used as low income housing.)*

Bridges

McDermott Covered Bridge, Langdon NRHP state
(AKA Cold River Covered Bridge)

Three bridges previously stood on this site. The first was built in 1790. The current bridge was built by Albert S. Granger in 1869. The style is town lattice truss with light arches. The total length is 81' 0" and has a clear span of 76' 0". In 1961 it was estimated that it would cost \$7,000 to restore the bridge, over 15 times the original cost of \$450. At that time the town decided to build a modern bridge beside the old covered bridge, which was finished in 1964. McDermott Bridge was close to vehicular traffic and retained for historic reasons. At present there is an organization that is raising money for this bridge and the Prentiss Bridge which spans Great Brook in Langdon, to save these pieces of history.

Masonry Arch Bridge, NHDOT #079/067 not eligible local
Walpole

This bridge spans the Cold River along Rt 123 near the entrance to Whitcombs Sand and Gravel. In the winter of 1906-7 on this site a covered bridge burned. The following summer it was replaced with a 100' stone arch bridge consisting of two arches of equal length. It was eventually widened to accommodate two lanes of traffic with abutting concrete arches.

Unnamed, Honey Brook, Acworth not evaluated local
(Stone bridge over Honey Brook slightly more than 1/4 mile upstream from confluence with Cold River.)

Historic Markers

Town of Newton plaque, Alstead town square (Alstead first proclaimed as Town of Newton, 1763, in a grant to John Towlet and others. New charter granted to Charles Chase and others in 1766.)	not listed	regional
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Paper Mill Village sign, Millot Green, Alstead	not listed	regional
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One of the first mills in Alstead, the paper mill was built in 1793. Paper was produced from linen and cotton rags. In the 1820's a lesser quality paper was also produced, made of straw. The mill survived several fires until in 1880 it burned to the ground.

Civil War Monument, Vilas Cemetery, Alstead	not listed	local
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Honor Roll for World War I and II plaque, east of Alstead town square	not listed	local
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NRHP within watershed outside of corridor

Prentiss Covered Bridge, Little Brook/Cheshire Turnpike, Langdon	NRHP	local
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Congregational Church, Acworth	NRHP	local
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Acworth Silsby Free Library	NRHP	local
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Lempster Meetinghouse	NRHP	local
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Local Town Histories, Oral Histories or General Historical Knowledge

The 1983 New England Rivers Center New Hampshire River Protection and Energy Development Project Final Report noted the high historical/cultural significance of the Cold River based on a state-wide analysis of river resource values.

The Connecticut River Basin Coordinating Committee noted in its 1970 report Comprehensive Water and Related Land Resources Investigation that an archeological survey had been recommended along both banks of the Cold River from the mouth to its junction with Great Brook in the southwest corner of Acworth. Although there are no documented archeological sites in the corridor, Deputy State Archeologist Richard Boisvert agrees that "the confluence of the Cold River and the Connecticut is a likely location for prehistoric sites".

Payne provides the following general history of the area, particularly the role of the Cold River's waterpower in influencing the settlement of the corridor:

Native Americans used the floodplain at the mouth of the Cold River for many years. Bellows Falls, only a mile from the Cold, was an important gathering place for many tribes to fish for shad and salmon. Many encampments were set up during the fishing season and this area along the Cold River was reportedly used frequently.

Thomas Kilburn was the first settler in Walpole, arriving in 1749. Kilburn settled south of

the Cold River near the confluence with the Connecticut River with his wife and two children. One of the most famous events in Walpole history was an Indian attack on Kilburn and his family. on August 17, 1755, a band of approximately 400 Indians attacked Kilburn's neighbor to the south, Col. Benjamin Bellows. Bellows who would become the most prominent citizen of the region (Bellows Falls), retreated to a small fort with 14 of his men. Discouraged the band left and turned their attentions on Kilburn. For most of that day Kilburn, his 18 year old son, wife, daughter, and two other men defended his cabin. It is reported in the Walpole Town history that they ran out of bullets. To continue the fight they caught bullets fired from their foe in blankets, recast and used them.

Mills were an important part of life in the late 1700s and 1800s. Power could be supplied by animals such as horses or oxen or moving water. With the many steep drops and a narrow valley the Cold River was an ideal location for mills of all sorts. Many towns were located because of their proximity to mill sites. Keyes Hollow, East Acworth, South Acworth, Alstead, and Drewsville all became population centers because of the water power available and the mills that took advantage of these sites.

Early on, mills functioned primarily to aid the local population. Grist mills and sawmills were common in the 1700s. One of the early mills in Alstead produced paper, a rare and expensive product. As access to the region improved more mills were built and products for the outside world were produced. Flax was an important crop and it was processed and spun for cloth. Butter was also a major export from the region. In 1889 the town of Acworth produced 34,280 lbs. of butter. Maple sugar, and now maple syrup, has been an important crop for almost two centuries. To support these crops the local mills turned out buckets, tubs, barrels and other containers used to process and ship this produce. As the industrial revolution began, many mills began producing turnings using a lathe. Clothes pins, hoe and mop handles, bobbins, chair rails, and shoe pegs were produced by the thousands.

Keyes Hollow, now a little crossroads, was an important mill site in the 1800s. Up to three mills operated here. Shingles and custom lumber were cut in the saw mills and a grist mill also operated here.

East Acworth, which is now less populated than Keyes Hollow also had three mills and turned out quite an array of products. Barrels, bobbins, handles, boxes, sap buckets, and butter tubs were among them. Also operating were a cider press, grain thresher, bone meal grinder, a livery and a tavern.

South Acworth had between four and six mills operating at an time and they produced many of the same products as East Acworth did. Shoe pegs seems to have been the dominant export. One mill was perch precariously at the top of the waterfall that plunges into the Deep Hole. It was washed away on several occasions.

Alstead, also known as Paper Mill Village, supported many mills, the most famous being the Kingsbury Paper Mill. Paper which was an expensive product, requiring rags of linen and cotton cloth which were chopped into a pulp to make the paper. Later straw was used but the quality was inferior to paper made of cloth. The mill operated from 1793 to 1880 when it was lost to fire.

Drewsville also has its roots as a mill village. Col. Benjamin Bellows was one of the first to harness the waterpower of Drewsville Gorge. Over the years no less than seven mills operated along the Gorge.

The last important village to the area also relied on the mills but had none of its own. Cold River, near the mouth of the river was a train stop along the Connecticut River and most of the products exported from the mills along the Cold River came here to be shipped to population centers to the south.

Since the small mills along the Cold River could not compete with larger mills that could locate anywhere due to the advent of the combustion engines and then electricity, the industrial nature of these riverside towns has almost vanished. No mills operate and almost all the structures are gone, save a few houses. What is left in many spots, especially Keyes Hollow and around East Acworth, are the footings of buildings and dams that show their location and give an idea of the size of these old mill operations. All are in private hands.

Cold River mill sites have been inventoried and mapped by Helen Frink. (See Conservation, Recreation and Historic Sites map.) Another source of information is the inventory performed by Dick Diehl and Bud McCullough for the Lempster Master Plan. (See Lempster Mill Sites map.)

In addition to the mills discussed above by Payne, mining was an important industry in the region's history as well. The mineralization associated with the valley's geologic history provided large deposits of beryl and feldspar which were mined commercially from the mid-1800's to the mid-1900's. Pegmatite mines just outside the corridor in South Acworth provided important supplies of feldspar and beryl as well as quartz. The feldspar was shipped to the mid-west to support glass and ceramics industries there.

Town Histories

Alstead Through the Years - 1763-1990, Helen H. Frink

New Hampshire Borns a Town, Marion Nichol Rawson

History of Mill Hollow, Herman Chase

These Acworth Hills- 1767-1988, Helen Frink, 1989

History of Acworth, J.L. Merrill, 1869

History of Walpole, NH, Volumes I & II, Martha McDonalds Frizzell, 1963

(b) Community Resource

Briefly describe how the river is recognized or used as a significant community resource. If the river's importance is recognized in any official town documents, such as a master plan, include reference to such documents.

How the River is recognized and used as a significant community resource, for a link with the past, a site for today's recreational interests, and as a visible thread that holds a way of life together is best described by referring the reader to the Resource Summary (II.2.) and description of Community Support (III) sections above. Those sections are incorporated herein by reference.

As we reviewed the results of other planning efforts throughout the process of developing this nomination, the importance of the River and other water resources to the corridor communities was confirmed.

In the spring of 1998, as part of the Regional Environmental Planning Program, UVLSRPC staff met with local officials and interested citizens in each community to determine local priorities relative to resource conservation. At meetings in corridor communities Unity, Lempster, Acworth and Langdon, as well as watershed community Charlestown, a consistent theme was the importance of surface waters and related resources. Lakes, rivers and brooks, shorelines and floodplains were identified as priorities by each community, as well as special features such as waterfalls and cascades and Natural heritage sites and other unique habitat areas. Through a similar process conducted by Southwest Region Planning Commission in 1997, Walpole identified the protection of rivers, brook, and wetlands as conservation priorities.

Residents of Acworth and Unity work cooperatively on issues surrounding Crescent Lake. The two conservation commissions participate jointly in the Volunteer Lake Assessment Program to monitor the Lake water quality. The active Crescent Lake Association has members in both communities. The Association manages the dam and stocks the Lake with bass.

The importance of Unity's surface waters to the community is discussed in the 1996 Unity Master Plan. Specific values cited include storm drainage, wildlife habitat, and recreation opportunities.

The 1987 Lempster Master Plan reflects the community's strong feelings about the importance of the town's watercourses. After listing the Cold River as one of the watercourses particularly important to the community, the Plan goes on to state:

It is extremely important from both a local and a regional perspective that these rivers and brooks be kept clean and uninterrupted. In addition to their importance as a water supply and as a natural drainage system, they are vital to a variety of wildlife species and offer numerous recreational opportunities. Town residents, hunters, fishermen, environmentalists and even businessmen who want to capture the tourist's dollar all have a stake in the quality of Lempster's waters. The water resources of Lempster are an asset which should not be abused.

The Cold River through Keyes Hollow is discussed further as an important natural area providing important wildlife and fish habitat along with the associated recreational opportunities.

The 1997 Acworth Comprehensive Master Plan reflects the strong representation of local history the River carries for today's residents. The Plan discusses the transition in the settlement pattern from a widely dispersed population farming the hilltops to villages growing up along the River:

The Cold River was recognized as a source of water power and was altered by the construction of several dams along its length, the principal dam being the one at South Acworth village. The dams transformed the previously natural river by the creation of mill ponds supporting a variety of small water-powered industries. This industrial use gave rise to further growth especially in the village of South Acworth.

The importance of this link with the past to today's residents is evident. Fifteen historic mill sites along the River have been identified by local historian Helen H. Frink. (See map Conservation, Recreation and Historic Sites.) At a meeting of Acworth officials and residents gathered on April 15, 1998 to discuss priorities for heritage conservation, the mill sites located in Acworth were identified as one of several priorities related to the River.

In addition to the reflection of the region's history provided by the River, the corridor is recognized by the Acworth community for the variety of resources associated with it. At a meeting held by Upper valley lake Sunapee Regional Planning Commission to discuss resource protection priorities of the Acworth community, several sites in the corridor were identified as priorities for protection including the wetland habitat associated with the River from East Acworth up into Lempster, the Dodge Brook fishery, the stone bridge over Honey Brook, the historic buildings of South Acworth, and Deep Hole with its scenic waterfall.

Acworth members of the Crescent Lake Association have been participating in the Acworth Planning Board's review and revision of the Acworth Zoning Ordinance to ensure lake protection concerns are balanced with lakeshore homeowner interests.

Acworth has taken steps to protect the scenic resources of the river corridor as well. Portions of four roads within the corridor have been designated as scenic roads. As a result, certain special features of portions of Campbell Road, Ball Road, Grout Hill Road and Gates Mountain Road are subject to careful review prior to alteration.

The importance of water resources such as the Cold River to the Alstead community was reflected in the development and adoption of a Water Resources Management and Protection Plan by the Planning Board in 1994. The Plan stresses the multi-town nature of surface and groundwater quality protection needs. Recommendations for action include acquiring aquifer lands and other sensitive water resource areas, development of a public education and monitoring program, developing wetland protection and scenic road ordinances, encouraging clustering to minimize the negative impacts associated with development, and developing a comprehensive regulatory program to protect the town's water resources.

River protection planning has been in the forefront in Walpole for some time. The 1986 Master Plan recommends preserving the town's water resources, in part by discouraging development in wetlands, on steep slopes where erosion and sedimentation of water courses might occur, and in floodplains.

The Walpole Planning Board has been developing a natural features analysis to incorporate in the town's Master Plan. One goal of the analysis, currently in draft form, is the protection of scenic elements of the Town's natural environment, with an emphasis on areas adjacent to the Connecticut River and Cold River.

4. Recreational Resources

(a) Fishery

Identify the type and location of any high quality recreational fisheries or areas with such potential which are present in the river (as determined by the NH Fish and Game Department). Also indicate areas that have potential to be significant fisheries.

The DeLorme New Hampshire Atlas & Gazetteer lists the Cold River as providing 21 miles of fishing opportunity with brook, brown and rainbow trout. Ken Sprankle of NH Fish & Game noted that anglers also find walleye in the spring below the Drewsville Gorge. The River is a significant local trout fishery; most stretches are heavily fished. Certain tributaries are also important local recreational fisheries for native brook trout. Crescent Lake is an important recreational warm water fishery.

(b) Boating

Describe any significant recreational boating opportunities which are present on the river, including whether it is used for motorized boating. Indicate if the river is cited as significant for recreational boating in a publication of a national, regional or statewide recreation organization. Refer to the NH River Protection and Energy Development Project to determine the river's significance as a recreational boating river. Also note if boaters are attracted from beyond the local area and if there are areas with potential to be significant boating resources.

The Cold River is indicated as a canoeing location in the A.M.C. New England Canoeing Guide and the DeLorme New Hampshire Atlas & Gazetteer. The River is described by both sources as providing challenging rapids and as best run at high/medium water. DeLorme lists the Cold as having a Class II rating while the A.M.C. guide also notes that at high water it is considered Class III. The put-in is below the gorge in South Acworth from which the paddler can follow the River to the Connecticut River with portages at Vilas Pool and the Drewsville Gorge. The A.M.C. holds a whitewater outing on the Cold River when spring run-off or heavy fall rains create ideal conditions.

The impoundment at Vilas Pool also provides an opportunity for row-boating there.

The State access at Crescent Lake provides access for motor boating on the Lake. The Lake receives particularly heavy motorboat usage between July 4th and Labor Day, especially on weekends. The Lake is extensively used by canoeists and row boats as well.

Currently, there are no limits on the size or speed of motor boats on the Lake. This is a cause for concern among some residents and others concerned about the protection of the Lake. Although the Lake is 114 acres, its long narrow shape resulting from its creation from the river channel, necessitates boats often being operated relatively close to the shoreline where erosion is a concern. The shallow depth is also a consideration regarding the appropriateness of unlimited motor boat as it may result in enhanced release of nutrients from the lake bottom sediments.

(c) Other Recreational Opportunities

List any other recreational areas, facilities, or opportunities or potential for such on the river or in the river corridor (e.g., hiking, camping, picnicking, etc.). Indicate ownership, if known.

The descriptions for each listing below were provided by Douglas G. Payne, Resource Inventory of the Cold River Corridor:

<u>Recreational Area</u>	<u>Ownership</u>	<u>Location</u>
Alstead Playing Fields	Town of Alstead	Millot Green, Alstead
<i>This downtown park has a baseball field, basketball court and horse riding ring, plus plenty of parking for a big game or several horse trailers.</i>		
Vilas Pool	Town of Alstead	Alstead, adjacent to Langdon town line
<i>Built and donated to the Town of Alstead by Charles N. Vilas in 1926. Facilities include a swimming beach, boat rentals, swings, picnic facilities, small pavilion, large main pavilion, bathrooms, and refreshment stand. Diving platforms and boards have been removed or closed. On a hill in back of the large pavilion is a stone bell tower with 12 bells. During the summer there are childrens programs that run three to four days a week.</i>		
swimming hole	private	Alstead, below Vilas Pool
swimming hole ,Deep Hole	private	South Acworth
Mill Pond, swimming hole ice skating	Town of Acworth, managed by Recreation Committee	South of Acworth, Mica Shed Property
swimming hole	private	Walpole, confluence of Cold River and Great Brook

Winter Recreation

Winter along the Cold River provides additional recreational opportunities. There are many years in which the river serves as a rare flat course for cross country skiers, particularly in the upstream communities. Several steep rock faces provide ice climbing challenges for some. The local Scouts usually schedule an outing to tackle the short, but steep and predictably icy face along 123A in Langdon shortly before Crane Brook Road. Stevens High School in Claremont has brought students down to this spot as part of the schools Challenge Program.

The most organized use in winter is by snowmobilers. The region has three active snowmobile clubs: Tri-town Trail Blazers in Langdon, Hooper Hill Hoppers in Walpole, and Crescent Lake Snowmobile Association. These groups have built bridges to span the Cold and various tributaries to continue the labyrinth of trails that cover the watershed. Of particular interest is the bridge over Warren Brook, shortly before it joins the Cold, and the bridge in South Acworth that spans the Cold. These are attractive and solid affairs which each see a lot of use. In addition, the McDermott is used as another crossing.

The State of New Hampshire has a series of snowmobile trails that avid riders may use to travel from the southern NH border right into Canada. The trail that the state calls "Highway #5" travels through the Cold River Watershed and uses the Warren Brook bridge. State tourism numbers show that upwards of 30,000 snowmobiles use the main trails in the state each year, although this does not mean that all of them use "Highway #5". Usage has increased over recent years and in 1998, a landowner in Acworth with a significant length of the #5 trail on his land decided the noise had reached an unacceptable level and closed his land at the end of the season to all wheeled vehicles, which has the local snowmobile clubs searching for an alternative route to reconnect the local as well as state #5 systems.

In other seasons, the snowmobile trails are used by mountain bikers and hikers as well. A Fall Mountain High School student is working with the Acworth Conservation Commission as a member of SERVE to create a map of multi-use trails in Acworth.

Other Enjoyment of Corridor Resources

The wildlife habitat in the corridor provides important hunting opportunities for bow, muzzle, and rifle seasons. The waterfowl of the wetlands, abundant deer, coyotes, and turkeys of the forest, and as of this year, black bear are popular pursuits. Increasingly, people are also learning more about tracking, without hunting, as a way to enjoy the woods while learning more about the wildlife. And of course, birding and wildflower expeditions are perennial favorites, as is photographing of the same. A request from one family on Derry Hill in Acworth went to the state this year, seeking a protective sign for Lady Slippers in the woods on their road, since they had noticed last year that many of the stems had been picked at the height of bloom. The Cold River towns are filled with artists and musicians, photographers and fiber artists, all of whom depend upon the woods, fields, and waters for their craft and their muse.

Recreation Potential

Increased opportunities, or continued use of informal recreational sites, could be achieved through the securance of public rights to certain currently privately-owned River accesses. This is an issue that has been brought up by many people as a topic for a future Advisory Group to explore.

(d) Public Access

List any existing public access sites located along the river. These may be formal or non-formal access points. Include the type of public access (e.g., canoe only), related facilities (e.g., parking), and, if known, ownership at each site.

<u>Location</u>	<u>Type of Access</u>	<u>Related Facilities</u>	<u>Ownership</u>
Crescent Lake, Acworth	boat launch	parking	State
Keyes Hollow Road, Acworth	informal, walk-in or 4-wheel drive	birdwatching	Town
East Acworth, just north of bridge	informal, fishing, bird watching	none	Town
Grout Hill Road bridge, Acworth	informal, fishing	none	Town
Mill Pond, S. Acworth, Mica Shed Property	swimming	undeveloped parking area, picnicking, ice skating	Town
Deep Hole, South Acworth, 1/4 mile west on NH123A	informal, swimming	none, owner has restricted parking in the area	private
South Acworth, 1/2 mile west on NH123A	informal, canoe put-in, fishing	none	private
Vilas Pool, Alstead	boat launch, canoe take-out, fishing, swimming	park with picnicking, pavilion, foot-bridge, parking, rowboats available when facility is open	Town of Alstead
Millot Green, Alstead	canoe put-in, fishing	parking, playing fields, recreation facility	Town of Alstead
Alstead, NH123/123A	informal, fishing, swimming	none	private, currently posted
McDermott Covered Bridge, Langdon	fishing, sightseeing	roadside parking	Town
Drewsville, NH123 bridge	informal, canoe take-out, fishing, sightseeing	none	private (currently posted)
Great Brook-Cold River confluence,	informal, fishing, swimming	none	private

<u>Location</u>	<u>Type of Access</u>	<u>Related Facilities</u>	<u>Ownership</u>
Walpole			
Connecticut River, adjacent to mouth of Cold River, North Walpole	Cold River fishing	parking, paved boat launch provides access to Connecticut River	NH Fish & Game

5. Other Resources

(a) Scenic Resources

Briefly describe any significant scenic focal points along the river including designated viewing areas and scenic vistas and overlooks. Indicate the location of the significant views to and from the river.

As a result of the 1965 Water Resources Planning Act, the Connecticut River Basin Coordinating Committee conducted a thorough assessment of the resources of the Connecticut River Basin culminating in the multi volume Comprehensive Water and Related Land Resources Investigation (June 1970). The Committee recommended the "creation of a basin-wide scenic river program to preserve, protect and enhance those reaches of the river identified as "Wild, Scenic or Recreational". It is no surprise that the Cold River was one of the rivers identified as appropriate for this program.

The River corridor provides both striking scenery in the form of river-related features such as the gorge and Deep Hole in South Acworth, the falls below Vilas Pool, and the waterfall and gorge at Drewsville, and also classic northern New England scenery with the contrast of fields, forests, and quaint villages against the backdrop of the beautiful river. The river-related features and contrast of farms and forests is also appreciated by those traveling on the River itself. After a portage around the high waterfall at the head of the Drewsville Gorge, the A.M.C. New England Canoeing Guide describes the passage through the Gorge as "spectacular canoeing".

Payne provides the following narrative describing a drive through the corridor:

It is difficult to believe that Rt. 123A is not listed as a scenic drive in The Official New Hampshire Guide Book. From Drewsville to Honey Brook, the drive is away from anything that could remotely be called traffic. Above Honey Brook, the forest crowds in upon you. This provides an intimate natural surrounding. Balsam fir, with their spire-like crowns, pierce the sky, lending an air of being much further north. Along the river, north of Honey Brook, are several old mill sites that can be viewed from the road. Much of the stonework foundations are still standing and at two other old mill sites at Keyes Hollow. Also several marshes are visible from East Acworth and the maintained portion of Keyes Hollow Road. Many bird species and waterfowl can be observed in these areas. Between East Acworth and Keyes Hollow the unmaintained portion of Keyes Hollow Road provides the naturalist great viewing access to several marshes, provided you have your walking shoes on. Beavers have flooded either end of the road denying access to most vehicles.

Just west of South Acworth, there is an opportunity to see into the upper reaches of the gorge above Deep Hole, where an occasional fisherman can be seen casting the waters for trout. The view of Deep Hole is spectacular from the north side of the river just off Rt.

123A, as the Cold River, surrounded by a cool, shady hemlock forest plunges into Deep Hole. As the road and river bend to the southwest a wonderful vista of Beryl Mountain is visible across the river valley. The bare rock at the summit from the mine is a strong contrast to the soft green forests in the rest of the area. Then of course there's the covered bridge in Langdon which is best viewed across the field to its east or up close at the rivers edge.

While not spectacular, Vilas Pool presents a pleasant view across the pool to the main pavilion and picnic grounds perched by the edge of the water under a canopy of pines. A small round pavilion provides a cool place among the pines to sit and watch the river flow over the dam at Vilas Pool.

The bridge at the head of Drewsville Gorge provides a spectacular view of the churning waters leaping into the gorge. Also old stone bridge abutments remain from a bridge long since gone. In Drewsville one can look down the common to the Drewsville Mansion and St. Peters Church.

(Resource Inventory of the Cold River Corridor, Douglas G. Payne, August 1996)

The view of the scenery from the driver's point of view described by Payne has been recognized and protected by the Acworth community in the form of a scenic road ordinance. Four roads within the corridor have been designated as scenic roads: Campbell Road, Ball Road, Grout Hill and Gates Mountain Road.

(b) Land Use

Briefly describe the general patterns of current land use in the river corridor. Include location of significant developments within the river corridor including agricultural, residential, commercial, and industrial developments, and solid waste management facilities. Also include location of lands used for forest management or which are undeveloped. Identify such features as roads along the river, railroads, bridges, and utility crossings. Describe the type and location of any proposals for major developments within the river corridor.

SEE ALSO LAND USE MAP

Throughout the corridor, the natural resources associated with the River can be seen as the dominant factor in influencing land use patterns. Today's villages represent clusters of activity originally located with easy access to the water power which was the foundation of the area's economy. Another concentration of development is found around Crescent Lake where recreational opportunities and scenic beauty attracted seasonal residents. Agricultural activity has thrived in the productive soils of the flatter areas along the lower River. The forests of the watershed are working forests as the lumber industry continues to play an important role in the area's economy. In recent decades, New Hampshire's scenic rural communities have seen an increase in dispersed residential development as people seeking to benefit from the abundance of scenic and recreational resources seek rural rather than village living. Transportation corridors throughout history have followed the easier paths provided by the riverside routes. Today's confluence of several NH state highways in the corridor now enable easy access to regional job centers such as Keene or Bellows Falls for the growing numbers desiring to live in quiet, rural communities year round. Even the largest industrial site in the corridor is no exception to the corridor's resource-based land use pattern; it is a sand and gravel operation mining the deposits left by glacial water flowing down the Cold River valley.

The Crescent Lake shoreline is dominated by seasonal and year-round homes. In both Unity and in Acworth, Crescent lake represents the main concentration of seasonal homes. However, about half of the land in the corridor surrounding Crescent Lake remains undeveloped forest. From the outlet of Crescent Lake to the village of South Acworth, undeveloped, forested land and wetlands dominate the landscape. Only scattered clearings and a handful of residences can be found within this northern half of the corridor. Along this stretch of the River, only small local roads with little traffic are found. NH123A joins the Cold River's course at the juncture with Honey Brook and takes us through the River's forested corridor to the village of South Acworth.

From South Acworth through Alstead to Drewsville, human influence is more apparent with a series of picturesque villages connected by a corridor of agricultural land and forest. South Acworth is a small residential village. West of the village is a Tree Farm in the vicinity of Milliken Brook. From here NH123A continues to follow the River through Langdon to the village of Alstead. Alstead is a hub of activity with a cluster of residences, community buildings and small businesses. The village is as influenced today by the highway network as it once was by the water power supplied by the River. East of the village, NH123A and NH12A enter the corridor from the south. In the center of the village, NH12A leaves to the north and NH123 continues along the River through a mixture of forest, agricultural and rural residential areas to the small residential village of Drewsville.

From Drewsville to the mouth of the River, a variety of land uses are found. After passing through a mixture of farms and forest in Langdon, the River passes by the large sand and

gravel operation formerly owned by Whitcomb and now owned by Lane Construction Company and know as Cold River Materials . Although the excavations stretch for about a mile along the River, a buffer zone has been maintained between the two. Whitcomb's also continues to maintain an equipment business in this area. From Cold River Materials to the mouth of the River is a mixture of forest, residential, agricultural and commercial use. NH12 crosses the River just before it reaches the Connecticut and is the site for several commercial buildings.

According to Payne, a total of nineteen bridges span the Cold River between Crescent Lake and the Connecticut River (Resource Inventory of the Cold River Corridor, Douglas G. Payne, August 1996). The state highways account for six of these crossings. Five other town and private road bridges and two snowmobile bridges cross the River between Alstead and Honey Brook. Five roads and one snowmobile trail cross above Honey Brook.

Payne notes one major utility line that originates at the Bellows Falls hydroelectric facility on the Connecticut River and crosses the River in Walpole.

A railroad line once passed over the mouth of the Cold River just below the NH12 bridge but has been abandoned and the bridge dismantled.

Other man-made features in the corridor include two inactive landfills, in South Acworth and Walpole, and several small excavations. The groundwater between the River and the inactive South Acworth landfill is monitored by retired hydrogeologist George Hanson in association with Boston University Professor Dee Caldwell. Testing at the three monitoring wells has not indicated movement of leachate toward the River.

(c) Land Use Controls

Identify the municipalities with existing master plans and zoning ordinances within the river corridor. Identify existing or significant proposed land use controls which affect the river and the river corridor (e.g., easements, subdivision regulations).

SEE ALSO LAND USE MAP

UNITY

Master Plan, adopted 1986, amended 1996

Subdivision Regulations, adopted 1973, amended 1987

Although Unity has not yet adopted a zoning ordinance, Unity's Subdivision Regulations contain several very strong provisions to ensure that applicants "make every reasonable effort" to protect surface waters. Specific requirements include:

- * The alteration, dredging, draining, or filling of natural watercourses is prohibited.
- * A 125 foot permanent natural greenbelt along watercourses is "strongly encouraged".
- * Buildings, streets, drives and parking areas must be setback 100 hundred feet from any surface water.
- * Subdivider is required to correct any conditions which cause soil erosion or other damage to waterways.
- * Subdivider is required to plan with "due regard" for the preservation and protection of brooks, streams and water bodies.
- * The subdivider must show that plans for storm water drainage are adequate.
- * Erosion and sedimentation control standards include requirements for retention of natural vegetation, time limits on the disturbance, retaining sediments in runoff on-site, and temporary mulching and seeding during construction.
- * Planning Board can obtain outside review of surface water runoff, sedimentation and erosion control plans.
- * Special frontage requirements are provided for lots on year-round water bodies.

LEMPSTER

Master Plan, adopted 1987

Subdivision Regulations, adopted 1975

Lempster's Subdivision Regulations provide some protection for water resources through the following provisions when developments involve the construction of improvements such as roads and utilities:

- * Subdivider is required to correct any conditions which cause soil erosion or other damage to waterways.
- * Detailed grading and drainage plans are required.

- * Erosion and sedimentation control standards include requirements for retention of natural vegetation, time limits on the disturbance, retaining sediments in runoff on-site, and temporary mulching and seeding during construction.
- * Sewage disposal standards include a requirement that the subdivision will not result in the contamination of any watercourse used for recreational purposes.

ACWORTH

Comprehensive Master Plan, adopted 1978, amended 1997

Zoning Ordinance, adopted 1970, last amended 1998

Subdivision Regulations, adopted 1972, last amended 1983

Non-Residential Site Plan Review Regulations, adopted 1982

Scenic Road Ordinance

Except for a small area at the village of South Acworth zoned Residential, the land within the corridor in Acworth is in the Rural District. The Rural District provides for residential , agricultural, and small cottage industries on lots a minimum of 3 acres in size. In the village of South Acworth, residences and home offices are permitted at the higher density of 1 acre in keeping with the purpose of the District "to preserve the historic, colonial atmosphere of the villages". The Acworth Zoning Ordinance contains several provisions specifically aimed at protecting surface water quality:

- * Uses which would result in the pollution of ground or surface water, which would permit toxic or hazardous substances to enter ground or surface waters, which would result in soil erosion during or after construction or would result in the sedimentation of surface waters are prohibited.
- * Occupancy of a building with running water is prohibited until an approved septic system is completed and operable.
- * A one hundred foot buffer from the shores of all natural ponds and lakes and all streambanks, including that of the Cold River, is protected by the provisions of the Town's Conservation Zone. Only uses are permitted which do not involve the erection or construction of any buildings or structures. Permitted uses include agriculture, forestry and other open space uses.
- * Further protection within the one hundred foot shoreline buffer is provided by special provisions that must be met prior to obtaining special exceptions from the ZBA for changes, alterations or expansions of nonconforming uses. The requirements include submission of an erosion and sedimentation control plan demonstrating that impaired water quality will not result from the activity and conservation commission review of the proposal. Additionally, no increase in sewage loading is allowed.

The Acworth Subdivision Regulations provide further protection for water resources through the following provisions when developments involve the construction of improvements such as roads and utilities:

- * Subdivider is required to correct any conditions which cause soil erosion or other damage to waterways.
- * Subdivider is required to plan with "due regard" for the preservation and protection of brooks and streams.

- * Planning Board may require detailed grading and drainage plan including proposed soil erosion and sedimentation control measures.
- * Erosion and sedimentation control standards include requirements for retention of natural vegetation, time limits on the disturbance, retaining sediments in runoff on-site, and temporary mulching and seeding during construction.
- * Criteria are included for evaluating potential wetland impacts.
- * Sewage disposal standards include a requirement that the subdivision will not result in the contamination of any watercourse used for recreational purposes.

Acworth's Non-Residential Site Plan Review Regulations contain the requirement that provision be made for the protection of natural features when planning nonresidential development and incorporate the subdivision regulation erosion control requirements by reference.

Acworth has recognized the value of its scenic resources through the designation of four scenic roads within the river corridor. Certain special features of portions of Campbell Road, Ball Road, Grout Hill Road and Gates Mountain Road are subject to careful review prior to alteration.

LANGDON

Master Plan, adopted 1986, amended 92
 Zoning Ordinance, adopted 1973

Under Langdon's Zoning Ordinance the whole community is within one district in which residential and agricultural use are allowed. Commercial and industrial uses involving more than one acre, 2,000 square feet, or two or more employees require ZBA review, providing an opportunity for potential water resources impacts to be identified and evaluated.

ALSTEAD

Master Plan, 1979
 Water Resources Management and Protection Plan, 1994
 Zoning Ordinance, adopted 1989
 Subdivision Regulations, adopted 1989
 Floodplain Development Ordinance, adopted 1986

Alstead's Zoning Ordinance provides for the preservation of the "special quality and

character of the Town's historic village centers", including Alstead Village alongside the River, through the dimensional and use provisions of the Village District. Surrounding corridor lands in Alstead are part of the Rural Residential District which provides for larger lot sizes and allowance for some uses not appropriate in a village environment. Outside of the corridor, a special Lakeside District exists to protect the special quality of Lake Warren, headwater of the Warren Brook tributary.

The Floodplain Development Ordinance requires a special permit for any proposed development in the 100-year floodplain. New construction and substantial improvements must be elevated or floodproofed, septic systems must be floodproofed, and development which would result in an increase in flood levels is not allowed. Manufactured homes must be anchored as well. In addition, proposed structures on slopes in the floodplain need to include a design for appropriate storm water drainage.

One purpose of Alstead's Subdivision Regulations is to preserve and protect water bodies and water courses and other natural features.

WALPOLE

Zoning Ordinance, Town of Walpole, adopted 1966, amended 1972

Zoning Ordinance, Village of North Walpole, adopted 1950

Subdivision Regulations, adopted 1966, last amended 1982

Site Plan Review Regulations, adopted 1982

Floodplain Ordinance (within zoning ordinance)

Land use in the Walpole section of the corridor is regulated to the south of the Cold River by the Town of Walpole Zoning Ordinance and to the north by the Village of North Walpole Zoning Ordinance.

The Town of Walpole Zoning Ordinance provides for four different districts within the river corridor. Lands upstream from the Cold River Materials excavation are within the Rural-Agricultural District. The purpose of this district is to provide ample area for the pursuit of agricultural and forestry activities. Together with the Timberland District, this district comprises the bulk of Walpole's land area, reflecting the importance of natural resources to the community. The property encompassed by the excavation is zoned Industrial to accommodate the excavation activities. The Ordinance provides for Planning Board review of proposed industrial activities for potential offending impacts, including water pollution. In addition, the provisions of RSA 155-E are incorporated by reference. The Cold River village area is zoned Residential-B. In this district, use is primarily limited to residential to ensure continued enjoyment by residents. The lot size is relatively small in keeping with the traditional village atmosphere. Commercial use is provided for along NH 12. Most types of businesses with potential water quality impacts, such as vehicle servicing and industrial uses, require a special exception from the ZBA prior to locating in the Commercial District.

A special exception is required for any use in the Floodplain Overlay District. Mobile homes are prohibited in the 100-year floodplain areas along the River. New construction and substantial improvements must be elevated or floodproofed, septic systems must be floodproofed, and development which would result in an increase in flood levels is not allowed.

To the north of the River, the Village of North Walpole Zoning Ordinance provides for residential use for all of the corridor land with the exception of one small parcel zoned Industrial. The Residential District limits use to residential and customarily associated uses, and provides for the small lot sizes typical of a village atmosphere. In the Industrial District, applicants require Zoning Board approval following review for impacts such as potential

water pollution.

Walpole's Land Subdivision Control Regulations provide some protection for surface water resources by restricting subdivision of floodplains and poorly drained soils and requiring a storm water management plan.

Walpole's Site Plan Review Regulations provides further protection for surface waters by controlling erosion and sedimentation that may otherwise be associated with nonresidential and multi-family development. In addition, the Regulations enable storm water to become groundwater recharge by enabling the use of permeable pavement.

(d) Water Quantity

List the location of all operating stream gauge stations maintained by the U.S. Geological Survey, U.S. Army Corps of Engineers or the Department of Environmental Services. Include the number of years of record and whether it is a partial or full record station.

There are currently no publicly maintained operating stream gauge stations on the Cold River. The Drewsville Gorge station previously operated by USGS is now owned by Dee Caldwell, a geology professor at Boston University.

(e) Riparian Interests/Flowage Rights

Briefly describe any riparian interests in the corridor, including any known flowage rights, historic water uses, and legislative authorizations or appropriations (for example, a town given legislative authorization to water for public consumption in the 19th century).

Flowage rights associated with the Crescent Lake dam and Vilas Pool dam exist historically but are not documented.

Final Note: Before submitting the nomination, please check the form for completeness. Nomination forms are reviewed for completeness by the Department of Environmental Services. Be sure to consult Env-C 700 and RSA 483 to make sure that all information requirements have been met. Incomplete nominations will be ineligible for consideration by the State Legislature in the next legislative session.