

EAGLE RIVER RESTORATION PROJECT

WORK PLAN

PHASE I

includes work in Reaches 1 and 2 and floodplain vegetation plantings in half of Reach 5, the upstream portion of the reach. This work is scheduled for the summer of 2008.

Instream Structures

Habitat Boulders, Logs, and Log Jams – Completed by November 31, 2008

Habitat boulders, logs, and log jams all provide instream cover. Protective cover is critical to fish species, particularly juveniles. These features create locally roughened conditions, flow separation zones (i.e., for flow diversity) and small scour holes for locally deeper water. The importance of the hydraulic roughening is that it yields locally slower and deeper flows.

Strategic location of these features can also help with flow concentration and redirection (i.e., to increase low flow sinuosity). Larger boulders to a limited extent, but more commonly the logs can also be located to provide localized backwater conditions to break up an extended riffle section that lacks slow moving water.

The large woody debris content provided by the log and log jam features is additionally important for both habitat and supplemental bank armoring. Systems with higher large woody debris levels have been found to be generally higher in biological productivity and species richness. Stream systems often have higher fish numbers when large woody debris is prevalent.

Submerged Fish Structures – Completed by November 31, 2008

The submerged fish structures will be constructed using logs or recycled materials in an open construction (i.e., with large gaps for fish passage and cover). A typical construction is an alternating criss-cross or grid pattern. In addition to protective cover, these structures also contribute to instream cover to improve the localized cooling capacity of the system.

The intent of proposed activities for this restoration project is to maintain consistency with natural conditions. Reach 4, where the submerged fish structures are proposed, is naturally a depositional zone and with its mild velocities, exhibits characteristics similar to a lake or pond. However, the reach will be treated as a channel in a backwatered condition and not as a pond. Therefore the fish structures will be kept to a low profile (i.e., two three logs in height) to imitate snagged logs and debris on a channel bottom.

Proposed bank stabilization treatments fall into two categories – bioengineered and biotechnical treatments. The distinction is that vegetation is the primary stabilization component in bioengineered treatments, and only natural materials are used. Biotechnical methods incorporate vegetation into the treatment, thereby maintaining the benefits and natural look and function of “softer” treatments, however biotechnical treatments rely on non-natural materials in addition to the vegetation for stabilization. Biotechnical treatments are specified for the more severely eroded banks and/or in areas where known impacts will continue (e.g., cattle grazing impacts). Stabilization of the banks will help ameliorate the channel widening process and it will improve water quality for the river through reduction of a significant source of fine sediment (i.e., bank erosion).

Revegetation – Completed by November 31, 2008

Existing ecological and environmental conditions guided the formulation of the following plant lists for restoration activities. In addition, Wyoming sagebrush and White rabbitbrush were included to the list based on feedback from CDOW staff. Planting all listed species will be subject to total project funding. All vegetation will be protected from wildlife, especially beavers, with beaver sand paint and with fencing.

Montane Area Plant Species

Common Name; Scientific Binomial

Utah juniper; *Sabina osteosperma*

Skunkbrush; *Rhus trilobata*

Wild rose; *Rosa woodsii*

Mountain sagebrush; *Seriphidium vaseyanum*

Wyoming sagebrush

Rubber rabbitbrush; *Chrysothamnus nauseosus*

Silver buffaloberry; *Shepherdia argentea*

Golden currant; *Ribes aureum*

White rabbitbrush

Riparian Area Plant Species

Common name; Scientific Binomial

Chokecherry; *Padus virginiana*

Sandbar willow; *Salix exigua*

Mountain willow; *Salix monticola*

Narrow-leaf

Cottonwood; *Populus angustifolium*

Colorado blue spruce; *Picea pungens*

Golden currant; *Ribes aureum*

River hawthorn; *Crataegus rivularis*

Twinberry; *Lonicera involucrata*

PHASE II

for reaches 1,2 and half of Reach 5

Bird Platforms, Boxes and Habitat Enhancement – Completed by December 31, 2009

In cooperation with Colorado Division of Wildlife (CDOW), bird platforms and nest boxes will be placed at key locations in the north bank wetland complex and in the south bank wetland complex to enhance perching, resting, nesting and feeding opportunities for local birds and raptors. Based on feedback from the Colorado Division of Wildlife (CDOW), the platforms and nest boxes will need to be placed far enough away from social trails and from dogs. In addition, closures may be necessary to protect nesting species.

Recreation/Fencing/Trails/Signage

Boat Launch and Restrooms – Completed by December 31, 2009

The existing boat launch area receives significant use and is lacking in definition and amenities that would protect the degradation of the banks from erosion and enhance the experience of the users. Therefore, the plan proposes to formalize the boat launch area via a formal, concrete launch access ramp and directional signage. Public and recreational facilities will be installed at key locations throughout this area including picnic tables and a much needed ADA accessible restroom benefiting anglers. Where feasible, facilities will be constructed of synthetic/recycled materials that are both eco-friendly and durable.

Parking will also be better defined and formalized using porous pavement to prevent non-point source pollution, improve water quality, address safety and provide handicap accessible parking locations. Parallel parking will be defined along Lake Creek Village Drive and formal parking spaces will be defined adjacent to the boat ramp to accommodate the numerous users of this facility. Bear-proof trashcans will be installed to prevent wildlife problems associated with park facilities.

The boat ramp will also serve as the western terminus of the local trail system. Trailhead signage at the boat ramp will provide a map that defines the organized trail system and directs users to the various segments of the trail system to the east. The signage will also provide educational and safety information about the river and the riparian environment.

Restoration activities in this lower reach of the project will enhance habitat and function, alleviating current impacts in an area that is heavily used as a local park although was never designed or built to function as a park. In addition to direct improvements, this work will improve bank conditions and water quality.

Fishing Access – Completed by December 31, 2009

Defined access trails will be constructed along the north bank of the river in an attempt to minimize the riparian corridor degradation occurring from the planned social/informal trails. It is common to see valuable resources such as rivers and streams “loved to death” by users who do not understand that walking across sensitive riparian vegetation leads to denuded soil that is subject to erosion and non-point source pollution. Similarly, piers and overlook locations will be defined on the river bank to minimize bank degradation that is occurring from uncontrolled foot traffic. All existing social trails that are not planned to be formalized and improved will be restored, vegetated using native riparian/transitional seed, and marked with temporary signs as necessary to inform hikers of the restoration process that is being implemented.

The access trails and overlook/pier locations have primarily been located based on the use patterns observed on the ground, as well as at great fishing locations. The access points will be defined using a combination of soft trail bedding, signage and/or kiosks, and vegetative and natural materials “blocks/screens”. The blocks/screens are a non-intrusive way of directing traffic along the main access paths and areas while deterring off-path use. The screens

plantings will incorporate thorny species such as Hawthorns to discourage people from short-cutting the newly established trail system and creating further riparian impacts with social trails. Where feasible, the fishing access points/piers will be designed to meet the criteria of the ADA and/or CDOW Fishing is Fun grant program to maximize accessibility and the enjoyment of the users.

River Access for Pedestrians – Completed by December 31, 2009

Defined river access areas will offer unique recreational opportunities to local residents and visitors to the Eagle River corridor. Native trees planted at the river access areas will provide comfortable, shady settings for rest or reflection. These features will also include benches and/or “sit rocks” located under the shade of the new trees and shrubs. “Leaning fences” will also be installed to encourage river viewing and general enjoyment.

The river access points will be defined using a combination of soft trail bedding, signage and/or kiosks, and vegetative and natural materials “blocks/screens”. The blocks/screens are a non-intrusive way of directing traffic along the main access paths and areas while deterring off-path use. The screen plantings will incorporate thorny species such as Hawthorns to discourage people from short-cutting the newly established trail system and creating further riparian impacts with social trails.

Trails, Overlooks, and Signage – Completed by December 31, 2009

In order to protect the restoration from human impacts, a variety of soft and natural trails will be constructed and/or formalized along the north bank of the river to define safe access between recreational and educational features and to provide access to the various habitat types and vistas within the project. “Trailhead” signs and trail markers will map out and define the trail system and link the trails together in an easily understood manner. Educational signage will also be utilized at key points to provide information regarding the history, ecology, geology, natural resources and other relevant features of the area. The signage will assist in educating the users in the value and sensitivity of this riparian environment such that they can better understand and appreciate this natural resource.

On the west end, a trail will link the boat ramp and associated facilities eastward in a safe manner along the north riverbank to the proposed park with a trailhead sign directing foot traffic. The park area will serve as an intersection in the trail system that links the boat ramp, the existing hard path, and the proposed wetland trail feature. Signage at the park will provide a map that defines the organized trail system and directs users to the various segments that may be accessed from this point.

The wetland trail will provide access to the sensitive wetland area for hikers, birders and wildlife enthusiasts while minimizing disturbance. It will be designed in a non-intrusive manner such that it does not encroach upon the habitat utilized by the birds and other wildlife. The trail will be constructed as either natural or soft material; and will be laid out in upland areas such that it avoids sensitive wetland areas. Educational signage will be installed at pertinent locations along the trail (e.g., to inform the public of the sensitivity and importance of wetland habitat, identify some of the common wildlife residents and visitors, etc.). A bird/wildlife overlook will be situated at the terminus of the wetland trail to provide a quiet place to rest and observe birds and other wildlife. With CDOW direction, additional bird boxes and platforms will be installed within the wetland complex to enhance nesting and roosting opportunities in this area

A new trailhead sign at the east end of the hard surface trail will direct users to the eastern terminus (cul-de-sac) of Lake Creek Village Drive; where a new (foothills) trailhead is proposed to be developed by the future developers of the parcel. Numerous fishing access trails will spur off of the hard path to the northern riverbank; and these trails will also link eastward to the foothills trailhead. The western end of the foothills trail will be a crusher fine surface that provides ADA access to an overlook gazebo. The gazebo will be constructed of

synthetic/recycled material; and will provide both a beautiful view and pertinent educational signage that explains the interface between the montane and riparian habitats. Heading east of the overlook gazebo, the foothills trail will transition into a natural (packed soil), informal trail system that explores the interface of the montane and riparian habitats with their distinct vegetation communities and wildlife. Trail markers, rather than a formalized trail surface, will define the route of this trail such that further disturbance of the sensitive habitat is not required.

PHASE I for Reaches 3, 4 and the remainder of Reach 5 – to commence ????.

PHASE II for Reaches 3, 4 and the remainder of Reach 5 – to commence ????.

Project Expected Results and Benefits:

The restoration project utilizes a coordinated program of bank stabilization, stream channel improvements, riparian vegetation establishment, and improved land use management to improve habitat and function in the Edwards reach of the Eagle River and its floodplain and to offer significant public benefits by enhancing passive angling and recreation river access to a healthy riparian area by means that will not become degraded with normal projected use. These coordinated improvements will serve to:

Reduce overly high instream temperatures and raise dissolved oxygen levels (during critical summer months) providing better quality habitat for fish populations.

Reduce fine sediment accumulations and sediment supply, thereby minimizing the magnification of the natural whirling disease exposure levels in waters where whirling disease already exists.

Improve channel function and aquatic habitat that will have direct benefits to quality and quantity of fish habitat.

Improve riparian and terrestrial habitat thereby increasing the number of terrestrial insects available for fish consumption.

Provide managed recreational and educational opportunities for the river corridor with educational signage for wildlife overlooks, trails and trailheads.

Expand opportunities for fishing to seniors, small children and handicapped persons with ADA river access trails.

Progress towards increasing the number of fisherman days. In this stretch of the river, current estimated shore fisherman days is 500; boat fisherman 1,000 and is expected to increase to 1,500 shore fisherman days; 2,000 boat fisherman days by the end of 2009.