



# THE BEAR RIVER

## *A Conservation Priority*

**O**n its 500-mile journey through Wyoming, Idaho and Utah, the nature of the Bear River changes with the landscape through which it flows. It begins as a tiny stream at the dramatic crest of the High Uintas. Then it winds and loops on its journey through high elevation rangeland and pastoral farm land, creating wetlands and riparian woodlands along its floodplain. Finally, it flows through a thick marsh oasis to its destination at the Great Salt Lake.

Vital to both human and natural communities, the Bear River provides critical wildlife habitat, and serves as the largest water source feeding globally important habitats at the Great Salt Lake. The quantity and quality of water in the Bear River is crucial to the health of the Lake ecosystem, which supports millions of migratory shorebirds and waterfowl each year.

The Bear River provides a home for numerous species of nesting and migratory diving and dabbling ducks, colonies of snowy egret, white-faced ibis and great blue heron and many shorebirds, including long-billed curlew and migratory and nesting greater sandhill crane. The Bear River system also supports the at-risk Columbian sharp-tailed grouse, Bonneville cutthroat trout and northern leatherside chub.

## The Need for Concerted Action

A number of entities have recognized the conservation value of the Bear River and have taken action to protect it-- there are three National Wildlife Refuges on the Bear-- but these efforts have historically focused on smaller-scale planning and projects to tackle localized problems. The development of a river-wide vision and conservation strategy is needed now to address the growing threats to the Bear's flows and habitats, to coordinate and prioritize conservation efforts, and to ensure a sustainable river system for future generations.

## Going Big on the Bear

In 2009, many organizations and stakeholders interested in conserving the Bear River's waters and habitat came together to create a blueprint for a healthier river system (see participants list on page 8). They chose to use The Nature Conservancy's science-based planning framework to create a system-wide assessment and plan to address the most important conservation priorities (see sidebar). This brochure describes the findings and recommendations of the resulting Conservation Action Plan (CAP).

## Conservation Action Planning

Over the past 15 years, the Conservancy has developed an integrated, science-based approach to planning, called the Conservation Action Planning (CAP)

Process. CAP has been used successfully for more than 1,000 conservation projects worldwide. The

CAP is a biologically driven process that guides project teams to identify effective conservation strategies. This innovative system helps conservation

practitioners focus on the most important protection needs, and allows them to identify the most cost effective and inclusive strategies for lasting success. The CAP also provides an

objective, consistent and transparent accounting of all information developed through the process.

For more information, please visit [conservationgateway.org](http://conservationgateway.org).



Photos: Great blue heron © Gary Crandall;  
(Front Page) Bear River © Steve Mulligan

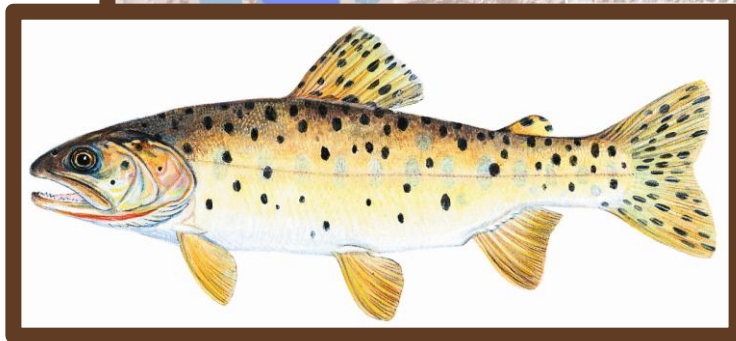
# Bear River Conservation Action Plan (CAP)

The Bear River CAP effort provided a forum for systematically identifying and understanding the key species and ecological systems most in need of conservation, the suite of factors that either sustain or degrade them, and the strategies needed to effectively protect them. Key components of the CAP process are described briefly in the following paragraphs.

## *Step 1. Conservation Targets: Focal Elements for Conservation*

The Bear River CAP process began by selecting a series of focal targets – the species and ecosystems that represent and encompass the biodiversity of the Bear River. Targets form the backbone of the full CAP by serving as the central elements upon which viability and threats analyses are built and to which conservation strategies are tied. Four main focal conservation targets - riparian, wetland, aquatic and grassland systems - were selected to represent and encompass the biodiversity of the Bear River system<sup>1</sup>. The CAP team has determined that conservation of these targets will secure an ecologically functional system for all biodiversity dependent on the river.

These four key systems are some of the most limited in the West. For example, in Utah, riparian areas cover less than 0.2% of the landscape, aquatic systems 0.1%, grasslands 3.5% and wetlands 0.2%, and a substantial portion of these wetlands occur within the Bear River drainage. Each of these systems provides essential habitat for the many bird and fish species listed above. They are four of the ten most at-risk habitats identified in Utah's Wildlife Action Plan.



<sup>1</sup> Although an important component of biodiversity within the Bear River Watershed, sagebrush habitats have had much attention and conservation action by government agencies, local working groups, universities and conservation groups. Therefore the sagebrush steppe systems were not included with this CAP. The CAP team has determined that conservation of these targets will secure an ecologically functional system for all biodiversity dependent on the river.

## Step 2. Viability Assessment: Determining Target Health

In the second phase of CAP planning, expert teams defined a set of Key Ecological Attributes (KEAs) and associated indicators for each target. These attributes are features of a target’s biology or ecology that are critical to the survival of the target for the next 100 years.

For example, KEAs for the lower Bear River mainstem riparian target included riparian vegetation presence and composition. Teams rated the current condition of each KEA as very good, good, fair, or poor. Below is an example of these key ecological attributes for the riparian target and definitions:



Key Attribute	Poor	Fair	Good	Very Good	Current Rating	Desired Rating
<b>Riparian vegetation presence</b>	0-25% of available floodplain (potential riparian habitat) occupied by riparian vegetation	25-50% of available floodplain (potential riparian habitat) occupied by riparian vegetation	50-75% of available floodplain (potential riparian habitat) occupied by riparian vegetation	75-100% of available floodplain (potential riparian habitat) occupied by riparian vegetation	Fair	Good
<b>Vegetation composition</b>	0-50% native	50-75% native	75-90% native	90-100% native	Poor	Good

**Very Good:** Functioning at its ecologically desirable status. Requires little human intervention.

**Good:** Functioning within its range of acceptable variation. May require human intervention to maintain this status.

**Fair:** Outside its range of acceptable variation. Requires human intervention. Vulnerable to serious degradation if left unchecked.

**Poor:** If condition remains for extended period, restoration or prevention of extirpation will be practically impossible.

Photo: Bear River near Battle Creek © Scott T. Smith

KEA current condition scores for each target were then averaged to arrive at an overall viability rank for the target. The following table summarizes the viability analysis:

	<b>Conservation Targets</b>	<i>Viability Rank</i>
	<i>Current Rating</i>	
1	Upper Bear Wetlands	Fair
2	Upper Bear Riparian Main Stem (historic floodplain from Evanston to Thomas Fork)	Poor
3	Upper Bear Riparian Tributaries (downstream from Evanston)	Fair
4	Upper Bear Aquatic (tributaries and main stem below Evanston)	Fair
5	Middle Bear Wetlands	Fair
6	Middle Bear Riparian Main Stem	Fair
7	Middle Bear Riparian Tributaries	Fair
8	Middle Bear Aquatic Main Stem	Fair
9	Middle Bear Aquatic Tributaries	Fair
10	Lower Bear Wetlands	Fair
11	Lower Bear Riparian Main Stem (includes tributaries to Bonneville bench and Malad)	Poor
12	Lower Bear Riparian Tributaries (from benches to headwaters)	Very Good
13	Lower Bear Aquatic Main Stem	Fair
14	Lower Bear Aquatic Tributaries (from main stem to Bonneville Bench)	Fair
15	Lower Bear Grasslands	Fair
	<b>Project Biodiversity Health Rank</b>	Fair

### Key Finding

CAP findings indicate the river’s systems are generally in fair condition, but identified important areas for restoration and improvement, especially in the upper and lower Bear riparian areas. The Bear River through Cache Valley still retains very good size and connectivity characteristics. Much of the Bear River, however, is privately owned and development pressures from urban sprawl and commercial expansion are increasing, so conservation action is needed now before conditions further deteriorate.

**Step 3. Threats: Identifying Factors Affecting Targets**

The next phase of the CAP was the identification of critical threats. Experts identified the top threats to each target and then rated each threat as low, medium, high or very high in terms of its relative “contribution” to the effect on the target and the degree to which the threat was irreversible. To complete the threats assessment, all threats across all targets were compiled into a “threats scorecard” and an overall threat rank was calculated for each threat. The table below shows the threat scorecard for the highest ranked overall threats on the Bear River.

	Threats Across Targets	Overall Threat Rank
	<i>Project-specific threats</i>	
1	Residential development	Very High
2	Water allocation policies	Very High
3	Invasive species	Very High
4	Inappropriate grazing and agricultural practices	Very High
5	Dams and diversions	High
6	Mining and energy	High
7	Commercial development	High
8	Credit Reserve Program is not extended or adequately funded	High
9	Rip-rap/other stream bank stabilization	High
10	Storm water	High
11	Waste water	High
	<b>Threat Status for Targets and Project</b>	<b>Very High</b>

**High:** Threat is likely to seriously degrade the ecological system over much of the area.

**Very High:** Threat is likely to destroy the ecological system over much of the area.

**Key Finding:**

Residential and commercial development are some of the highest ranked threats. These are primarily concerns in Idaho and Utah (Cache County is expected to double its population by 2035). Water allocation policies, how water is stored and used for power and agriculture, also can negatively impact the natural system.

**Step 4. Strategies: Critical Conservation Actions**

After carefully reviewing and examining the targets’ viability and threats and the priority conservation needs rising from these analyses, the partners recommended a broad array of 13 objectives and numerous strategies designed to achieve the objectives. The objectives are listed below:

Objectives	
1	A multi-state team is in place to implement CAP strategies.
2	The most problematic invasive species are identified, mapped, and action taken to stop their spread. Educated landowners are active participants in these efforts.
3	Grazing and other agricultural practices are not negatively affecting conservation targets in priority areas.
4	Residential and commercial development has been guided away from high priority conservation sites.
5	The main stem riparian target improves from poor to fair condition.
6	Tributaries provide good aquatic conditions that support native species.
7	Wetlands, riparian and aquatic targets have adequate water to maintain the system in good to fair condition.
8	Wetland, riparian and aquatic targets have been enhanced by achieving water quality goals.
9	Impacts are minimized from recreational use/development.
10	Impacts are minimized from mining and energy as the result of science-driven locations.
11	The Conservation Reserve Program (CRP) is extended, adequately funded, and implemented to benefit grasslands.
12	New analysis has been conducted to understand the impact that climate variability has on the conservation targets.
13	The loss of shrub-steppe habitat due to fires has been minimized.

**Key Finding:**

Because of the size of the Bear River system, our initial efforts will target priority areas in which to secure easements, provide adequate water, work with landowners to promote better grazing systems and address invasive species. A first priority action is to work cooperatively to map areas that are most intact, exist adjacent to already protected areas, and meet other key criteria.

## Next Steps: Building Toward the Future

Over the next ten years, the original CAP team intends to build on this foundation by working with partners to refine our plan through implementation. We will share the CAP process and its products, building a broader, deeper network of collaborators who are working toward the vision of a Bear River that can sustain its ecological systems and support wonderful and diverse wildlife.

Our basin-wide approach will provide a template for the protection of working rivers throughout the West, particularly with growing demands on water and increasingly arid conditions. Our action plan will help bring partners together to synchronize their conservation work in a way that will sustain the natural environment while providing water for people.

Because adaptive management is, by its nature, never finished, this CAP framework is by no means complete. This is a *working* CAP that will be continually refined as our knowledge of the river system expands and our conservation strategies are implemented and tested.

We invite you to share in our efforts to put this framework into action. Please contact Joan Degiorgio ([jdegiorgio@tnc.org](mailto:jdegiorgio@tnc.org)) at The Nature Conservancy for more information.



## Planning Process Participants

*Thanks to the following groups for their guidance and participation in this effort:*

PacifiCorp

U.S. Fish and Wildlife Service

Utah Division of Wildlife Resources

Utah Division of Environmental Quality

Idaho Department of Environmental Quality

Trout Unlimited

Bridgerland Audubon Society

Wild Utah Project

Ducks Unlimited

Institute for Watershed Science

Sagebrush Steppe Regional Land Trust

USDA Forest Service