Shattuck Draft RP/EA

DRAFT RESTORATION PLAN

AND

ENVIRONMENTAL ASSESSMENT

FOR THE

SHATTUCK CHEMICAL RESTORATION

Prepared by:

U.S. Department of the Interior
Fish and Wildlife Service

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ACRONYMS AND ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CDM	Camp, Dresser and McKee, Inc.
CO	Colorado
CWCS	Comprehensive Wildlife Conservation Strategy
DOI	U.S. Department of the Interior
DU	Ducks Unlimited
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
FWS	U.S. Fish and Wildlife Service
NAWMP	North American Waterfowl Management Plan
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRDA	Natural Resource Damage Assessment
NRDAR	Natural Resource Damage Assessment and Restoration
OU	Operable Unit
PLJV	Playa Lakes Joint Venture
RP	Restoration Plan
RP/EA	Restoration Plan/Environmental Assessment
USC	United States Code

1.0 INTRODUCTION

This draft Restoration Plan and Environmental Assessment (RP/EA) presents and evaluates proposed actions to address natural resources injured or lost by the release of hazardous substances from the S.W. Shattuck Chemical Company, Inc. site (Shattuck site). The Shattuck site is Operable Unit 8 of the Denver Radium Superfund site, and is located in southwest Denver within the South Platte River Basin.

In 2002, a settlement agreement was reached between the responsible party, the S.W. Shattuck Chemical Company, and the United States Department of the Interior (DOI) to resolve claims under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that the release of hazardous substances from the site caused injuries to natural resources. The purpose of this RP/EA is to document the selected restoration alternative that will restore, rehabilitate, replace, or acquire the equivalent natural resources (and services provided by those resources) that approximate those injured as a result of the hazardous substance release.

1.1 Trustee Responsibilities

Under CERCLA, federal agencies who administer natural resources, states, and federally-recognized Indian tribes are designated as natural resource trustees for those natural resources under their statutory authorities and responsibilities. These designated natural resource trustees have the responsibility to restore, rehabilitate, replace, or acquire the equivalent of natural resources injured as a result of a hazardous substance release.

The Region 6 Regional Director of the U.S. Fish and Wildlife Service (FWS) has been designated as DOI's authorized official for the Shattuck case, to act as the natural resource trustee on behalf of the DOI Secretary. As such, FWS is responsible for the development of a restoration plan, and for the implementation and oversight of activities aimed at restoring natural resources injured by the release of hazardous substances from the Shattuck facility. As a natural resource trustee, FWS is also responsible for administering the natural resource injury-related settlement funds and soliciting public input into the restoration process.

Under the National Environmental Policy Act (NEPA), the FWS, as a federal agency, must also assess the potential environmental impacts associated with the proposed actions. Therefore, the requirements of a restoration plan and a NEPA environmental analysis are combined in this RP/EA document.

1.2 Summary of the Settlement

A Consent Decree was entered with the U.S. District Court for the District of Colorado, by the United States, the State of Colorado, and the S.W. Shattuck Chemical Company on August 26, 2002. The portion of the Consent Decree dealing with settlement of DOI's natural resource damage claims required Shattuck to pay $250,000 to DOI to address natural resource injury caused by the release of hazardous substances from the site. Under the Natural Resource

Damage Assessment (NRDA) provisions of CERCLA, these funds will be used to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources.

1.3 Summary of Hazardous Substance Release and Injury

The Shattuck Chemical site is located in southwest Denver, northeast of the intersection of Evans Avenue and Santa Fe Drive. The site consists of 5.9 acres of land formerly owned by the S. W. Shattuck Chemical Company, a 4.3-acre railroad right-of-way just west of the Shattuck property, and nearby "vicinity" properties bounded by South Broadway Street, South Santa Fe Drive, Evans Avenue, and Iowa Avenue.

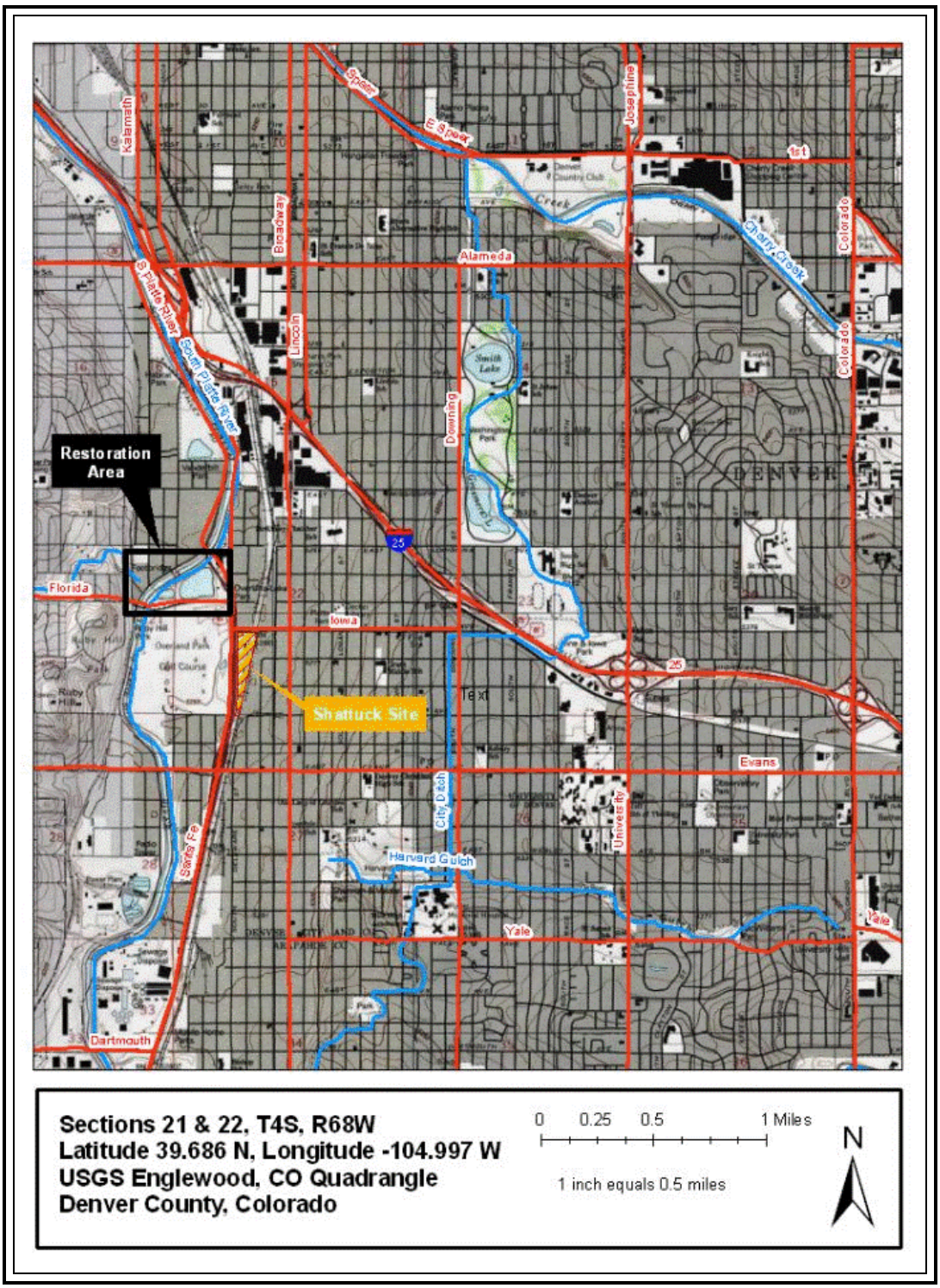
The Shattuck Chemical facility operated from 1917 to 1984. The company processed various minerals and other materials, including tungsten and carnotite ores (for uranium and vanadium salts), radium slimes, molybdenum ores, and depleted uranium. These activities resulted in uncontrolled releases of hazardous substances from the site. The Shattuck site is designated as Operable Unit 8 of the Denver Radium Superfund site. The U.S. Environmental Protection Agency (EPA) placed Denver Radium on the National Priorities (Superfund) List on September 8, 1983.

The Shattuck site is located within the drainage basin of the South Platte River, which flows approximately 3,000 feet west of the site (Figure 1). A shallow unconfined aquifer exists beneath the site. The shallow unconfined aquifer is perched on bedrock and merges with the alluvial aquifer beneath the floodplain of the South Platte River. Groundwater in the area of the site generally flows west across the site and then northwest toward the South Platte River. Groundwater contours within the alluvium indicate that west and northwest of the site, the South Platte River is a gaining reach that receives discharge from the groundwater system (EPA 2000).

Several contaminants including uranium, gross alpha and beta radioactivity, arsenic, cadmium, selenium, molybdenum, other metals, and some organic chemicals were documented in groundwater of the shallow unconfined aquifer beneath the Shattuck site. Some of these contaminants were shown to have infiltrated a storm sewer adjacent to and downgradient from the site, raising concerns that contaminants discharged from the storm sewer outfall had impacted the South Platte River and its natural resources (EPA and Colorado Department of Health 1992).

The South Platte River provides habitat that supports a variety of migratory birds. Seasonal surveys conducted by the FWS and the Denver Chapter of the Audubon Society along the urban reach of the South Platte River identified more than 30 species of migratory birds including waterfowl, shorebirds, and songbirds. Migratory birds and their supporting habitat are resources under the trusteeship of the DOI. Injury to these trust resources occurred as a result of the release of hazardous substances from the site to the South Platte River.

Figure 1. Site Location Map for the S.W. Shattuck Chemical Company Site and the Urban Restoration Area.



1.4 Restoration Goals

The purpose of the proposed actions are to restore, rehabilitate, replace, or acquire the equivalent of trust resources (migratory birds and their supporting habitat) that were injured or destroyed by the hazardous substance release, pursuant to the requirements of the Consent Decree, and applicable federal and state laws and regulations.

The $250,000 recovery for restoration will allow for the development, implementation, and oversight of planned activities that will advance the goal of restoring habitat along the South Platte River that supports migratory birds.

1.5 Need for Restoration

The proposed actions are needed to facilitate the restoration and recovery of natural resources injured by the hazardous substance release.

1.6 Compliance with Other Authorities

The following environmental laws, regulations, and executive orders were considered in the restoration planning process because they may impose limits or standards for restoration completion.

1.6.1 Clean Water Act

The Clean Water Act, 33 United States Code (USC) 1251, et seq., is the principal law governing pollution control and water quality of the nation's waterways. Section 404 of the law authorizes the permit program that allows for the disposal of dredged or fill material into navigable waters. The U.S. Army Corps of Engineers administers this program. Restoration projects that move material into or out of waters or wetlands require individual Section 404 permits or may be addressed under nationwide permits.

1.6.2 Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act, 16 USC 2901-2911, authorizes federal financial and technical assistance to the states for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife**.**

1.6.3 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, 16 USC 661, et seq., states that wildlife conservation shall receive equal consideration with other features of water resource development. The Act requires federal permitting and licensing agencies to consult with the FWS and state wildlife agencies before permitting any activity that in any way modifies any body of water to minimize the adverse impacts of such actions on fish and wildlife resources and habitat.

1.6.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), 16 USC 715, et seq., provides for the protection of migratory birds. The MBTA may be used to consider time of year restrictions for construction

activities on sites where it is likely migratory birds may be nesting, and to stipulate maintenance schedules that would avoid disturbances during the nesting seasons of migratory birds.

1.6.5 National Environmental Policy Act

The National Environmental Policy Act, 42 USC 4321 *et seq*., established a national policy for the protection of the environment. NEPA applies to all federal agency actions that affect the human environment. Federal agencies are obligated to comply with NEPA regulations issued by the Council on Environmental Quality. NEPA requires that for activities not categorically excluded, an analysis be conducted to determine whether proposed actions will have a significant effect on the quality of the human environment. If an impact is considered significant, then an environmental impact statement is prepared and a record of decision is issued. If the impact is considered not significant, then an environmental assessment (EA) is prepared and a finding of no significant impact is issued.

1.7 Coordination and Scoping

This RP/EA has been developed in coordination with state and local governmental agencies, non-governmental organizations, and the public.

1.7.1 Public Notification

Under the CERCLA NRDA regulations and NEPA, the natural resource trustees shall notify the public and any federal, state, and local government agencies that may have an interest in the activities analyzed in the RP/EA. A notice of the availability of the draft RP/EA will be published in the following local newspapers:

The Denver Post
1560 Broadway
Denver, CO 80202
(303) 820-1010

The Denver Herald Dispatch
2200 South Federal Boulevard, Unit 6
Denver, CO 80219
(303) 936-7778

The Washington Park Profile
617 East Jewell Avenue
Denver, CO 80210
(303) 778-8021

Copies of the draft RP/EA will be made available at the following locations:

Decker Branch of the Denver Public Library

1501 South Logan Street
Denver, CO 80210
(303) 733-7584

Athmar Park Branch of the Denver Public Library
1055 South Tejon Street
Denver, CO 80223
(720) 865-0230

U.S. Fish and Wildlife Service
Ecological Services
Colorado Field Office
134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

An electronic version of the draft RP/EA will be posted on the FWS Region 6 website (http://www.fws.gov/mountain-prairie/nrda/).

The public comment period will be 30 days. Parties to whom comments may be sent, and the due date for receipt of comments, will be published in the notice of availability of the draft RP/EA.

1.7.2 Public Meetings and Summary of Scoping

A public meeting will be scheduled if sufficient interest exists as determined by the public comment received on this draft RP/EA. If a public meeting is scheduled, notice will be provided in the same newspapers listed in Section 1.7.2.

1.7.3 Responsible Party Involvement

The responsible party will not participate in restoration planning and implementation.

1.7.4 Administrative Record

The administrative record contains the official documents pertaining to the Shattuck Chemical Company, Inc. case settlement, restoration planning, and restoration implementation. The administrative record for this case is housed at the FWS Ecological Services, Colorado Field Office, 134 Union Boulevard, Suite 670, Lakewood, CO 80228-1807.

1.7.5 Regional Plans and Partnerships

Natural resource trustees may consider implementing projects described in existing regional restoration plans or other planning documents, when those projects pertain to the injured natural resource or to the geographic area where the injury occurred. Similarly, natural resource trustees may partner with other parties whose conservation goals overlap the restoration goals for the

injured natural resources. Other parties, and the conservation and restoration priorities set forth by those parties, that were considered in the development of this RP/EA are discussed below.

1.7.5.1 Denver Parks and Recreation

The City and County of Denver Parks and Recreation (Denver Parks and Recreation) has been working to restore the remnants of the high plains prairie and South Platte River watershed ecosystem that once characterized Colorado's Front Range. In their South Platte River Work Plan (Denver Parks and Recreation Natural Areas Program 1999), the following objectives were identified:

- Protect and prevent further degradation or deterioration of the natural areas
- Restore and nurture the natural areas back to a sustainable healthy ecological system
- Manage to keep the natural areas in a healthy sustainable state
- Improve the aesthetics and enhance the experience on the South Platte River

More recently, Denver Parks and Recreation (2009) has identified on their website two program goals: (1) to protect and restore existing natural ecosystems, and (2) to create and nurture natural ecological processes in open space areas with the potential of becoming naturalized landscapes.

The objectives and goals of Denver Parks and Recreation align with restoration goals described in this RP/EA to address natural resource injury from the Shattuck site. FWS and Denver Parks and Recreation have thus formed a partnership to accomplish restoration within the urban corridor of the South Platte River.

1.7.5.2 Greenway Foundation

The Greenway Foundation is a 501(c)3 non-profit organization with historic ties to the South Platte River. Working closely with Denver land use agencies, most significantly Denver Parks and Recreation, the Foundation continues to provide construction and renovation supervision on many of the most successful projects completed along the river over the past 25 years. Beginning in 2008, the Greenway Foundation became engaged in long-range planning for the entire length of the South Platte River through Denver.

In addition to planning and construction experience, the Greenway Foundation supports a program of environmental education for public school students and creates various opportunities for public engagement and stewardship of the urban river corridor. The Greenway Foundation is devoted to bringing the urban public in contact with significant natural resources such as waterways, native vegetation, and wildlife. The Greenway Foundation, through its role in planning and implementing restoration projects for Denver Parks and Restoration, will serve as an important partner in accomplishing restoration of migratory bird habitat within the South Platte River urban corridor.

1.7.5.3 Urban Drainage and Flood Control District

The Urban Drainage and Flood Control District works with local governments to solve and prevent multi-jurisdictional drainage and flood control challenges in order to protect people, property, and the environment within the Denver metropolitan area. Urban Drainage and Flood Control District will provide resources for review of plans and enhanced maintenance for restoration projects within the South Platte River urban corridor.

1.7.5.4 FWS Partners for Fish and Wildlife Program

The FWS Partners for Fish and Wildlife program (Partners Program) and its partners (including the Colorado Division of Wildlife, Playa Lakes Joint Venture, Great Outdoors Colorado, U.S. Natural Resources Conservation Service, Ducks Unlimited, Centennial Land Trust, and several water interests) have identified the South Platte River Focus Area (Figure 2) as a priority area for restoration of habitat that benefits migratory birds (FWS 2009). Focusing restoration efforts within this area supports a landscape-level strategy to protect, conserve, and enhance contiguous wetland and riparian habitat over a large geographic area that maximizes the ecological benefit for migratory birds that utilize the South Platte River ecosystem.

The FWS Partners Program recognizes the South Platte River as an important migration stopover for waterfowl, shorebirds, and songbirds. Their primary goal for restoration within the South Platte River Focus Area is to restore the habitat values for migratory birds that were historically provided by overbank flooding of the river. Because this goal is consistent with the restoration goals described in this RP/EA to address natural resource injury from the Shattuck site, the Partners Program will assist in restoration of migratory bird habitat within the South Platte River Focus Area.

1.7.5.5 Playa Lakes Joint Ventures

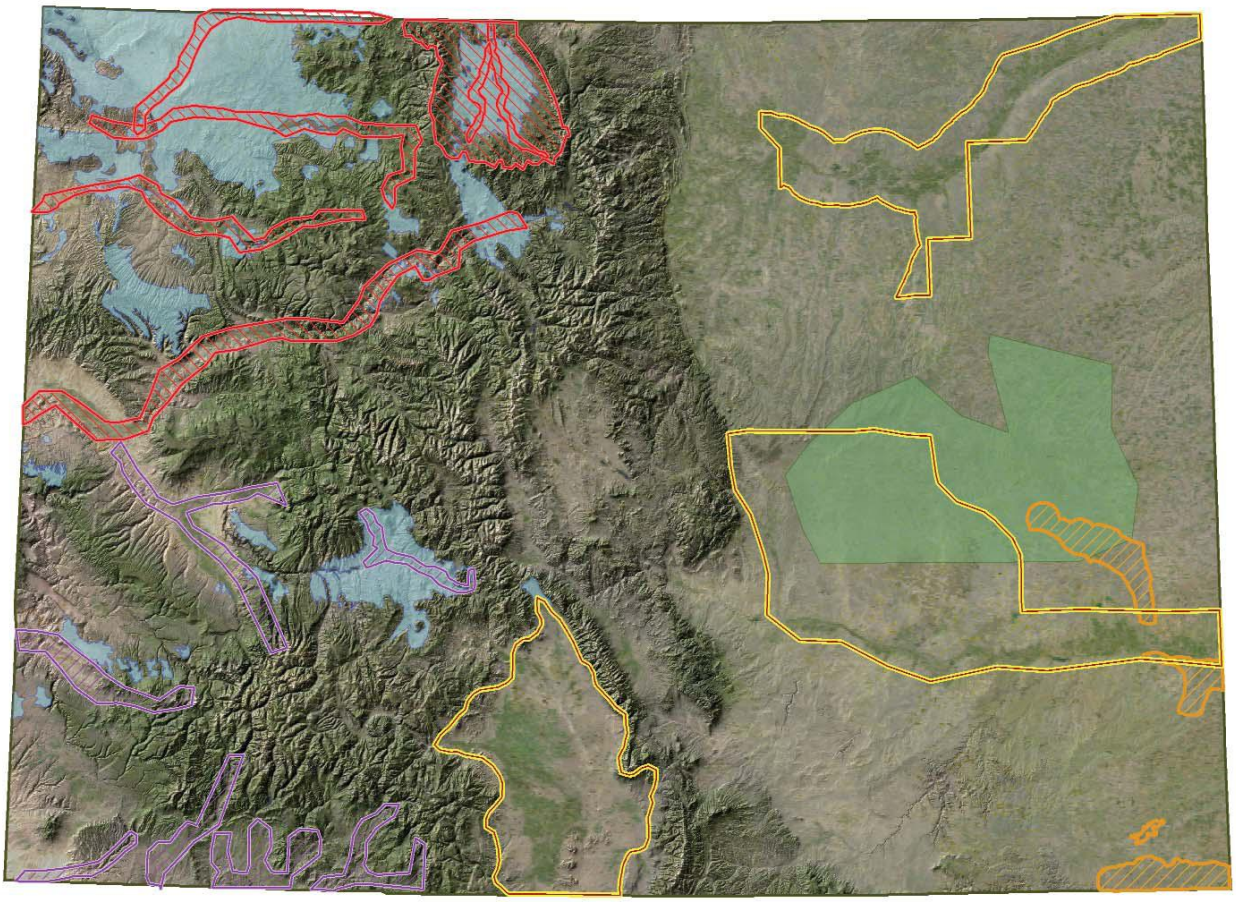
The North American Waterfowl Management Plan (NAWMP) represents an international cooperative effort by the United States, Canada, and Mexico to restore and maintain abundant populations of waterfowl in North America. The NAWMP identified large geographical regions of North America where wetlands are especially critical to waterfowl and other wetland-dependant wildlife.

The NAWMP recommended that “Joint Ventures” be formed in those areas of high priority as a means for governments, organizations, and individuals to cooperate in the planning, funding, and implementation of projects to conserve wetlands and their associated habitats. One of these priority areas is represented by the Playa Lakes Joint Venture whose geographic area includes the South Platte River Basin in eastern Colorado.

The Playa Lakes Joint Venture (PLJV; 2009) is a partnership of federal and state wildlife agencies, conservation groups, private industry, and landowners dedicated to conserving bird habitats in the Southern Great Plains. The PLJV benefits from a broad coalition of partners

representing the conservation community on the national, regional, and state levels, and facilitates the development of locally-led conservation partnerships throughout their region.

Figure 2: FWS Colorado Partners Program Conservation Focus Areas. The South Platte River Focus Area is in the upper right corner of the state.



The FWS Partners Program South Platte River Focus Area is one example of a regionally-led and locally-led conservation effort that is partnered with and adheres to the objectives of the NAWMP and Joint Ventures.

Conservationists concerned about other migratory and resident bird groups such as landbirds, shorebirds, and colonial waterbirds adopted the NAWMP model and subsequently developed the North American Landbird Conservation Plan, the U.S. Shorebird Conservation Plan, and the North American Waterbird Conservation Plan. Joint Ventures have thus integrated the conservation of all migratory birds into its planning and habitat restoration function.

Restoration of migratory bird habitat within the South Platte River Focus Area will therefore be consistent with the goals of Joint Ventures and the conservation plans developed for North American migratory birds.

1.7.5.6 Colorado Division of Wildlife

The Colorado Division of Wildlife authored Colorado's Comprehensive Wildlife Conservation Strategy and Wildlife Action Plans (CWCS) (2006), a detailed report that catalogs the status of knowledge about Colorado's native wildlife, the threats to the habitat on which the wildlife depends, and strategies that may be employed to lessen those threats. The CWCS fulfills the requirements of the State Wildlife Grants program created through federal legislation. The CWCS reflects the data that currently exist for Colorado species and their habitats, the collective judgment of many of Colorado's scientists, and also reflects the interests and concerns of citizens with a stake in Colorado wildlife conservation. Its fundamental goal is to secure wildlife populations such that they do not require protection through federal or state listing regulations.

Two of the guiding principles discussed in the CWCS are to (1) acknowledge the pivotal role that private landowners and local stakeholders play in conservation, and (2) maintain an atmosphere of cooperation, participation, and commitment among wildlife managers, landowners, private and public land managers, and other stakeholders in development and implementation of conservation actions. Restoration of migratory bird habitat within the South Platte River Focus Area and the urban corridor is consistent with the Colorado Division of Wildlife's CWCS.

1.7.5.7 Ducks Unlimited

Ducks Unlimited (DU) is a volunteer-based conservation organization whose mission is to conserve, restore, and manage wetlands and associated habitats for North America's waterfowl. DU implements habitat conservation and restoration projects in all 50 states of the United States, every province in Canada, and in key areas of Mexico and Latin America. DU (2009) identifies 12 priority areas for waterfowl and wetland conservation within the United States. One of these areas is the southern Great Plains, which includes the South Platte River Focus Area. FWS and DU have thus formed a partnership to accomplish restoration within the South Platte River Focus Area.

2.0 PROPOSED ACTION/PREFERRED ALTERNATIVE

The purpose of this section is to describe each of the proposed actions, identify the preferred alternative, and describe the environmental effects of each alternative.

2.1 Criteria for Identifying and Selecting the Proposed Action/Preferred Alternative

The primary restoration goal is to restore, rehabilitate, replace, or acquire the equivalent of migratory birds and their supporting habitat that were injured or destroyed by the hazardous substance releases from the Shattuck Chemical site.

Drawing upon the factors within the DOI NRDA regulations and DOI policy for selecting a restoration alternative, a preferred restoration alternative was selected based on relevant considerations, including general consideration of the following factors:

- Technical feasibility.
- Relationship of the expected costs of the proposed actions to the expected benefits from the restoration, rehabilitation, replacement, or acquisition of equivalent resources.
- Cost-effectiveness.
- Potential for additional injury resulting from the proposed actions, including long-term and indirect impacts to the injured resources or other resources.
- Ability of the resources to recover with or without the alternative actions.
- Potential effects of the action on human health and safety.
- Consistency with relevant federal and state policies.
- Compliance with applicable federal and state laws.

The preferred alternative described in this RP/EA is based on conceptual plans for which some costs have been estimated. The size and design of specific restoration actions may change based on additional scientific findings or other factors. If, during implementation, it is determined that significant changes to the selected restoration alternative are needed, additional public review and comment will be sought, as appropriate. No restoration actions will be conducted that would incur ongoing expenses to the trustee agency in excess of those than can be funded by settlement monies.

2.2 Description of the Alternatives

The no action alternative and the proposed action/preferred alternative are described in this section.

2.2.1 No Action Alternative

A no action alternative is addressed to fulfill requirements under NEPA, and is consistent with the damage assessment process under the CERCLA NRDA regulations. Under this alternative, no action would be taken to restore migratory birds and their supporting habitat injured from hazardous substance releases to the South Platte River, or to replace or acquire the equivalent of the ecological resources lost. The underlying assumption of this alternative is that adequate numbers and diversity of native migratory bird species are present within the geographic area,

and given adequate time and a stable habitat, recovery of the resource and resource function would be completely dependent upon natural processes. This alternative has no cost.

2.2.2 Proposed Action/Preferred Alternative

The proposed action/preferred alternative for restoring migratory birds and their supporting habitat involves restoration projects that will take place in the Denver urban corridor and in the eastern plains.

2.2.2.1 Urban Corridor

The Greenway Foundation along with the City and County of Denver Parks and Recreation Natural Areas Program (Denver Parks and Recreation) is actively working on restoring wildlife habitat along the South Platte River urban corridor. Of the several projects for which planning is underway, the Overland Pond Park project is considered one that most closely aligns with the restoration goals and budgetary considerations of this RP/EA. Although natural resource restoration within urban areas poses greater challenges than restoration conducted in less-developed areas, there is an interest among the trustees and stakeholders to conduct part of the restoration as close to the injury occurrence as is feasible. The urban reach of the South Platte River, and adjacent water features such as Overland Pond, provide important stopover habitat for migratory birds. Wildlife habitat improvement along the urban river corridor will not only serve to restore the injured resources and their ecological services, but will also provide better opportunities for citizens to engage in wildlife-related activities such as bird-watching, volunteering, and learning about the river ecosystem.

Overland Pond Park was developed in 1986 as a "park of intrinsic ecological value which offers opportunities for interdisciplinary, environmental and conservation studies…a place where students can learn the importance of understanding and protecting Colorado's fragile land and wildlife" (Denver Parks and Recreation 1986). The park lies on 6.5 acres and is adjacent to the South Platte River. The pond itself makes up 1.7 acres, and is stocked with warm water fish for youth programs and local fisherman.

Restoration actions to be implemented at Overland Pond Park will enhance habitat for migratory birds. Specific actions will restore native plant communities around Overland Pond and within the adjacent South Platte River riparian habitat; provide improvements within the park to enhance educational opportunities that emphasize migratory birds; and incorporate volunteer efforts to include the community in the restoration efforts. The Greenway Foundation will provide overall management, supervision, and coordination for the Overland Pond Park project, and will serve as project lead for Denver Parks and Recreation as land owner.

2.2.2.2 Eastern Plains

Restoration of the migratory bird habitat values historically provided by overbank flooding of the South Platte River is one of the major efforts undertaken by the Service's Partners Program within the South Platte River Focus Area. By working with landowners and other partners, projects are designed and managed to provide spring and fall foraging sites for wetland-

dependent migratory birds. These projects are designed to meet a broader goal of identifying, conserving, and restoring wetland habitats on a landscape level to help maintain ecosystem viability and provide for sustainable migratory bird populations.

Specific restoration actions to be conducted in the eastern plains that also address the natural resource injury resulting from hazardous substance releases from the Shattuck site are summarized below and their approximate locations are depicted in Figure 3.

Drakeland Farms Wetland Restoration and Development

The objective of this project is to provide shallow-water wetland habitat to a complex that already maintains riverine, warm-water slough, and deep-water aquatic habitats for migrating waterfowl. Wetland habitat will be improved through the placement of low-level, contour levees in locations optimizing wetland extent and depth, as well as the establishment of water delivery infrastructure to flood those wetlands. Established shallow-water wetland habitats will be managed such that foraging efficiency of migrating waterfowl, shorebirds, and other waterbirds is maximized. Implementation of the Drakeland Farms project will increase wetland acreage from 25 to 52 acres, and will protect the conservation values of the 830-acre Drakeland Farms property in a perpetual conservation easement.

Dune Ridge Wetland Restoration

Implementation of this project will increase the quality and quantity of spring and fall migration and breeding habitat for migratory waterfowl within the Dune Ridge State Wildlife Area. The project involves restoring the open water habitat of a 2.8-acre slough, and creating a 2.5-acre shallow pond within the seasonally-flooded floodplain and wet meadow habitat along the South Platte River.

Fender Wetland Restoration

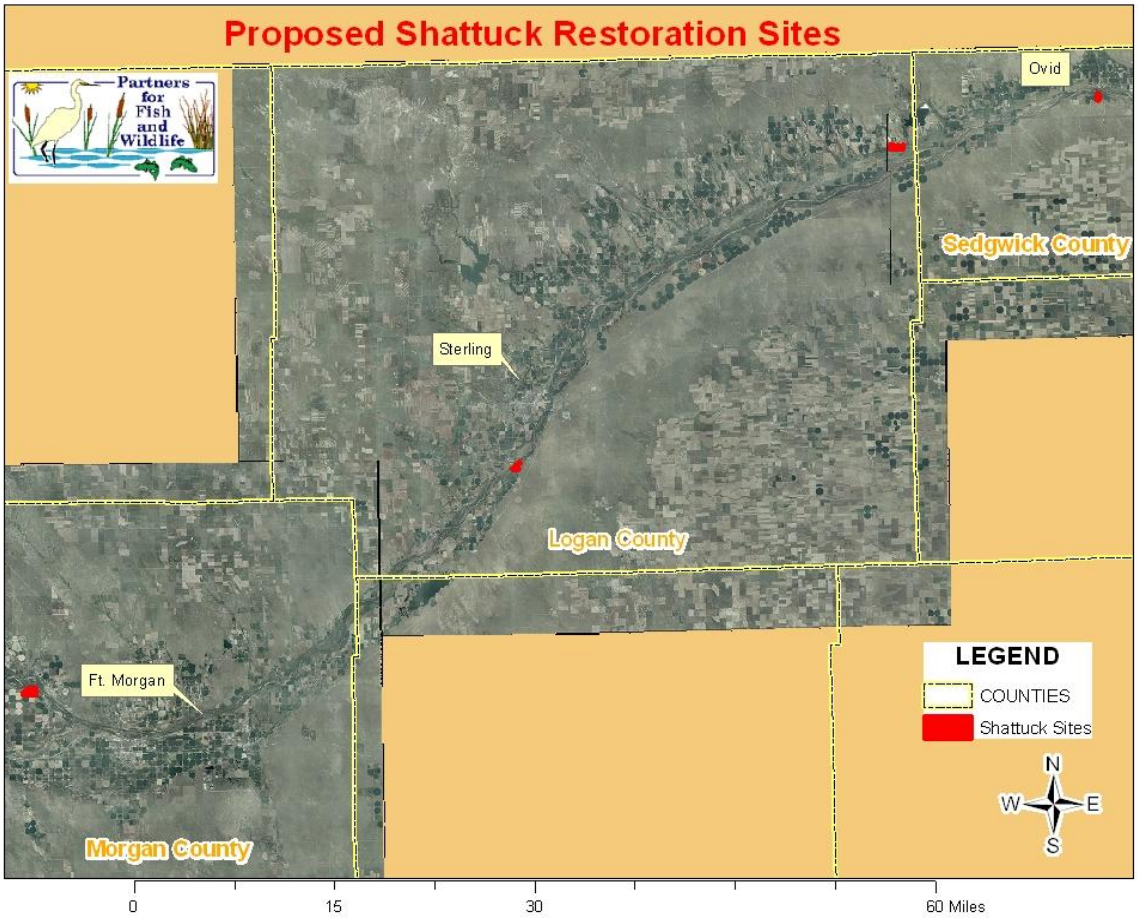
This project will restore and create impoundments to enhance migration and wintering habitat for a variety of wetland-dependent migratory bird species. A pipeline and pump system will be installed near the South Platte River that will deliver water to the wetlands. Hydrologic inundation of the wetland is expected during periods of high flows in the river. Approximately 125 acres of wetland will be created and restored within this 850-acre property, which is owned and managed by Ducks Unlimited, Inc. The property will be open to the public for recreational uses through a long-term lease agreement with the Colorado Division of Wildlife.

Schiller Wetland Restoration

This project will restore wetland and shallow open-water habitat to maximize foraging opportunities for a variety of wetland-dependent migratory bird species. Surface water will be delivered through a pipeline from the Harmony Ditch and will flow through a set of low-head contour levees which contain inline control structures for management of water levels. The project will restore 120 acres of wetland on private land that is adjacent to the Red Lion State Wildlife Area and is positioned within a much larger complex of quality migratory bird habitat.

FWS's Partners Program is negotiating development of a long-term agreement with the land owner for operations and maintenance of the wetland.

Figure 3. FWS Partners Program's Proposed Eastern Plains Restoration Sites.



2.3 Other Alternatives Considered

The FWS considered other restoration alternatives that were informally presented during discussions with Denver Parks and Recreation personnel, FWS Partner Program personnel, and during a meeting with South Platte River stakeholders in 2007. Other alternatives were deemed infeasible because either they did not meet the restoration goals set forth in this RP/EA, or they could not be accomplished with the available settlement funds.

3.0 AFFECTED ENVIRONMENT

The South Platte River Basin is located within the Southern Rocky Mountain Physiographic Province and the Colorado Piedmont Section of the Great Plains Physiographic Province. The South Platte River originates near the Continental Divide in central Colorado at an elevation of more than 14,000 feet. It flows for nearly 100 miles over the mountainous region, and through Platte Canyon to the base of the foothills. From the foothills, the South Platte River flows in a northeasterly direction through the major metropolitan area of Denver, then flows eastward across the plains of Colorado to it's confluence with the North Platte River in western Nebraska. Major perennial tributaries include the North Fork of the South Platte River, Plum Creek, Bear Creek, Cherry Creek, Clear Creek, Boulder Creek, St. Vrain River, Big Thompson River, and Cache la Poudre River.

Historically, the South Platte River was a wide meandering river with braided channels and intermittent flows. High flows resulting from snow melt in the mountainous upper portion of the drainage were typical in the spring and early summer, while late summer and winter flows were low or the river was dry. Today, the South Platte River is a highly-managed, perennially-flowing river. It is impounded at four locations within the mountains; Chatfield Reservoir is formed by the impoundment at the base of the foothills. Throughout the Denver metropolitan area, instream structures have been constructed to stabilize the channel grade and protect utilities. Several irrigation ditches divert water for agricultural irrigation, and the river is impounded at several other locations through the eastern plains (Dennehy et al. 1998; Camp, Dresser and McKee (CDM) 1994; Luecke 2002).

The principal sources of groundwater within the South Platte River Basin are the alluvial aquifers along the river, the High Plains aquifer in eastern Colorado, and the Denver Basin aquifer system underlying the South Platte River Basin. The alluvial aquifer, historically recharged by precipitation and leakage from streams, is unconfined and hydraulically connected with the river along its mainstem and major perennial tributaries (CDM 1994).

The portion of the South Platte River that flows through the Denver urban corridor eastward through the plains provides habitat for a wide variety of aquatic and terrestrial organisms. Transitional aquatic habitat supports cold-water fish species closer to the foothills, and warm-water fish species through the eastern plains. Sampling by the U.S. Geological Survey (1995) found species such as longnose sucker (*Catostomus catostomus*) and longnose dace (*Rhinichthys cataractae*) more common near Denver, and sand shiner (*Notropis stramineus*) and red shiner (*N. lutrensis)* more common in the eastern plains. The highly adaptable white sucker (*Catostomus commersoni*), common carp (*Cyprinus carpio*; an introduced species), fathead minnow (*Pimephales promelas*), and creek chub (*Semotilus atromaculatus*) were the most common fish species present from Denver to the state line.

A diverse complex of wetland, riparian, and upland habitat types are present along the South Platte River as it flows through the lower foothills through the eastern plains. Wetland habitats

include seasonal emergent wetlands, wet meadows, oxbows, sandbars, and warm-water sloughs. Riparian habitat is generally characterized by patchy mosaics of cottonwood-dominated woodlands and willow-dominated shrublands. Upland habitat is provided by shortgrass and sand sage prairie, pastureland, and agricultural fields. This diverse complex of habitat types supports a wide variety of migratory birds.

Wetlands in the South Platte River Basin support numerous waterbirds throughout the year. In spring, breeding waterfowl are evident throughout the basin. An estimated 20,000 duck pairs including mallard (*Anas platyrhynchos*), gadwall (*A. strepera*), northern shoveler (*A. clypeata*), blue-winged teal (*A. discors*), redhead (*Aythyaa americana*), and wood ducks (*Aix sponsa*) breed within the South Platte River Basin. White pelicans (*Pelecanus erythrorhynchos*), double-crested cormorants (*Phalacrocorax auritus*), western and Clark's grebes (*Aechmophorus occidentalis* and *A. clarkii*), sora (*Porzana carolina*), Virginia rail (*Rallus limicola*), American coot (*Fulica americana*), killdeer (*Charadrius vociferous*), spotted sandpiper (*Actitis macularia*), American bittern (*Botaurus lentiginosus*), and American avocet (*Recurvirostra americana*) are other wetland-dependent birds that breed in the South Platte River Basin. Red-winged (*Agelaius phoeniceusand*) and yellow-headed (*Xanthocephalus xanthocephalus*) blackbirds and marsh wrens (*Cistothorus palustris*) use emergent wetland vegetation for nesting. During fall migration, the breeding species are joined by many North American shorebird species such as western and Baird's sandpipers (*Calidrus mauri* and *C. bairdii*). Upland sandpipers (*Bartramia longicauda*) and long-billed curlew (*Numenius americanus*) are found in shortgrass prairie habitats, and riparian areas support a myriad of species including red-headed woodpecker (*Melanerpes erythrocephalus*) and Bell's vireo (*Vireo bellii*) (South Platte Wetland Focus Area Committee and Centennial Land Trust 2002; Rocky Mountain Bird Observatory 2007).

Even within its urban corridor, the South Platte River provides important year round and winter stopover habitat for migratory birds. Seasonal surveys conducted by the FWS and the Denver Chapter of the Audubon Society (National Audubon Society 1996) along the urban reaches of the South Platte River identified more than 30 species of migratory birds. Jones et al. (2003) documented over 60 native bird species at six urban locations during bimonthly bird surveys conducted over a 12-month period in 1998 and 1999.

The Colorado Division of Wildlife's list of special status species (Colorado Revised Statute 33-2-105) contains several wetland-dependent or aquatic-dependent species that may occur along urban and eastern plains segments of the South Platte River. These species include bald eagle (*Haliaeetus leucocephalus*), northern leopard frog (*Rana pipiens*), northern cricket frog (*Acris crepitans*), and common garter snake (*Thamnophis sirtalis*). State-listed threatened or endangered small native fish that occur in the eastern plains include suckermouth minnow (*Phenacobius mirabilis*), brassy minnow (*Hybognathus hankinsoni*), plains minnow (*H. placitus*), and common shiner (*Luxilus cornutus*). No federally-listed threatened or endangered species are known to occur along the urban reach of the South Platte River. Federally-listed threatened or endangered species that could potentially occur along the eastern plains reaches of the South Platte River are Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and Ute

ladies'-tresses orchid (*Spiranthese diluvialis*). Both of these species are known to occur in Morgan County.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

This section evaluates the environmental consequences of the no action alternative and the proposed action/preferred alternative.

4.1 Evaluation of the No Action Alternative

The no action alternative relies on natural recovery to restore the injured resource and the services provided by that resource. This alternative would not restore migratory birds and their supporting habitat that were injured by hazardous substance releases, and would not compensate the public for this loss.

4.2 Evaluation of the Proposed Action/Preferred Alternative

The proposed action/preferred alternative described in this RP/EA is designed to actively restore migratory bird habitat along the South Platte River in the Denver urban corridor and in the eastern plains.

4.2.1 Urban Corridor

Restoration actions to be implemented at Overland Pond Park will restore native plant communities around Overland Pond and within the adjacent South Platte River riparian habitat; provide improvements within the park to enhance educational opportunities that emphasize migratory birds; and incorporate volunteer efforts to include the community in the restoration efforts. Specific actions that may be undertaken to accomplish restoration may include irrigation improvements; grading for new trails, buffers, and safe access points; tree removal; and in-pond construction. During the construction phases, any of these actions may have a temporary negative impact (such as turbidity or other localized effects to surface water quality, exhaust emissions and dust generated by heavy equipment, noise impacts, or reduced human recreation), however these effects should be minimal and of short duration. Such actions will be avoided during migratory bird breeding. Protocols shall be in place to ensure human health and safety. Beyond the short-term potential negative effects, the proposed restoration actions will have an overall positive effect through improved migratory bird habitat, and expanded human use opportunities including education, recreation, and volunteerism.

No federally-listed threatened or endangered species are known to occur along the urban reach of the South Platte River; consequently, there are no impacts to federally-listed threatened or endangered species. Some state species of special concern (i.e. bald eagle, common garter snake) may occur in or near the project area. Bald eagles may intermittently utilize the area

during the winter, but they are not known to roost or nest in the project area. Common garter snakes may reside in the project area. Construction may have a temporary negative impact (such as noise impacts or ground disturbance); however, these effects should be minimal and of short duration. Construction activities will be avoided during migratory bird breeding. Beyond the short-term potential negative effects, the proposed restoration actions will have an overall positive effect through improved habitat in the project area.

Regarding cultural resources, a records search was conducted by the Colorado State Historic Preservation Office (SHPO) in September 2009. The following area, which includes the proposed project area, was searched:

T. 3S, R.68W
Section. 22 (south Denver).

No records were found within the Overland Pond Park project area. Based on the location of this project (park), the disturbed nature of the area (urban), and the minimal ground disturbance anticipated for the project, we believe the likelihood of this project disturbing any historic properties is very slim. The Service submitted a letter to SHPO for their concurrence on this project.

4.2.2 Eastern Plains

Restoration projects proposed within the eastern plains will restore the migratory bird habitat values historically provided by overbank flooding of the South Platte River. Specific actions will include construction of low-level contour levees or impoundments, and installation of water delivery infrastructure to create or enhance floodplain, shallow open water, and wetland habitat. These actions may have temporary negative impacts during the construction phases. However, the overall effects will be positive through a significant increase in waterfowl and shorebird habitat within the South Platte River Focus Area.

No federally-listed threatened or endangered species are known to occur within the project areas on the eastern plains; consequently, there are no negative impacts to federally-listed threatened or endangered species.

The restoration projects proposed within the eastern plains have undergone a NEPA review, including cultural resources, by the Service's Partners Program and all the projects meet the criteria for NEPA categorical exclusion as provided by 516 DM 6, Appendix 1 and/or 516 DM 2, Appendix 1; therefore, no further NEPA documentation will be made.

4.3 Cumulative Impacts

The proposed restoration actions in the urban corridor and in the eastern plains will increase the availability and quality of migratory bird habitat. These restoration actions will be positive and

are not expected to result in a cumulative negative impact to the natural and physical attributes of the river ecosystem.

5.0 MONITORING PROGRAM AND PERFORMANCE CRITERIA

A monitoring program will be developed and implemented to evaluate whether the goal to restore, rehabilitate, replace, or acquire the equivalent of migratory birds and their supporting habitat has been met. The proposed action/preferred alternative presented in this RP/EA describes restoration projects along the South Platte River in the Denver urban corridor and in the eastern Colorado plains. The monitoring program for each project will include provisions for project monitoring and reporting to ensure the specific project objectives and restoration actions are conducted as intended. Such provisions include performance standards and criteria for each restoration action, guidelines for implementing corrective actions, and a schedule for frequency and duration of monitoring. The monitoring program will adhere to the reporting requirements described in Appendix A.

6.0 BUDGET SUMMARY AND TIME TABLE

The settlement with the responsible party provided $250,000 for restoration of the injured natural resources. These funds are held in an interest-bearing account in the U. S. Department of the Interior's Natural Resource Damage Assessment and Restoration (NRDAR) Fund, and are available to the trustee agency only for planning, implementation, and monitoring of actions necessary to restore, replace, or acquire the equivalent of the injured natural resources. The Eastern Plains projects will be implanted in the late fall of 2009 if weather allows. If weather delays construction, then the Eastern Plains projects will be implemented in 2010. The Urban Corridor project will continue its planning process through 2010 and construction is expected to begin late 2010 or 2011. Budgets for each of the five restoration projects proposed in this RP/EA are summarized below.

The Overland Park Pond project has a total estimated budget of $235,000 with $120,000 coming from settlement funds. The Eastern Plains Projects have a total estimated budget of $817,933 with $75,000 coming from settlement funds. The FWS has an estimated budget of approximately $45,000 ($15,000/year for three years) for monitoring the Eastern Plains projects and the Overland Pond Park Project.

Table 1: Budget Summary for Overland Pond Park Project

Action	Match	NRD Funds
Project Design & Planning		
Survey existing conditions	$2,000	$6,000
Work with stakeholders to develop priorities – 3 meetings	2,000	6,000
Review with all relevant land use agencies, obtain approval as necessary	1,000	2,000
Complete Construction Drawings	5,000	5,000
Engage in Contractor Selection Process	1,000	1,000
Total Design & Planning	**$10,000**	**$20,000**
Project Construction**		
Repair or replacement of seating areas	$20,000	$20,000
Grading for new trails, buffers and access points		20,000
Remove or reposition boulders in pond		10,000
Materials for trails, buffers and access points		5,000
Labor to finish trails, prepare ground for planting, install plant material	30,000	
Irrigation improvements	5,000	
Interpretive and project credit signage	5,000	5,000
Removal of non-native, invasive elm trees that have overtaken parts of the floodplain	20,000	
Total Project Construction	**$80,000**	**$60,000**
Project Coordination		
Identify and engage Stakeholders	$2,000	
Administer Design & Planning Tasks	5,000	$5,000
Administer Construction Contracts		6,000
Supervise and coordinate site work	3,000	9,000
Total Project Coordination	**$10,000**	**$20,000**
Volunteer Support		
Engage volunteer support		$2,000
Develop implementation strategy	$2,000	2,000
Develop seasonal work plans	2,000	4,000
Develop and implement training program	4,000	2,000
Fees, tools and supply costs	2,000	6,000
Develop Monitoring and Maintenance Plan	5,000	2,000
Total Volunteer Support	**$15,000**	**$20,000**
Total Requested and Anticipated Match	**$115,000**	**$120,000**

*Design & Planning estimated match: donated/discounted professional services (200 hours at $50 per hour)

*Project construction estimated match: volunteer labor (5,000 volunteer hours at $10 per hour), donated/discounted professional services (100 hours at $50 per hour), contractors paid by others ($25,000) and partner in-kind contributions of tools and supplies.

*Project Coordination estimated match: donated/discounted professional services (200 hours at $50 per hour)

*Volunteer support estimated match: donated/discounted professional services (300 hours at $50 per hour)

Table 2: Budget Summaries for Eastern Plains Projects

Fender Wetlands Project

Federal Funding Partner	Indicate whether support is Cash or In-Kind	Dollar Value	Project Budget Item(s) these funds will support
Shattuck NRDA	Cash	**$20,000**	On-the-ground construction materials.
Platte River Partnership I – Standard NAWCA Grant	Cash	$100,000	18" Pipeline for water conveyance (portion).
Non-Federal Funding Partner	Indicate whether support is Cash or In-Kind	Dollar Value Indicate pending contributions with *	Project Budget Item(s) these funds will support
Lower South Platte Water Conservancy District	In-Kind	$5,000	Water consultation regarding groundwater recharge.
Ducks Unlimited, Inc.	In-Kind/ cash	$153,933	Survey/Design/Delivery
Wetlands Program	(Leave blank. Cash support is assumed.)	Dollar amount of request, per item(s)	Project Budget Item(s) these funds will support
CDOW	Cash	$100,000	On-the-ground construction materials
	Project Total	**$378,933**	

Dune Ridge Wetland Project

Funding Partner(s)	Indicate whether support is Cash or In-Kind	Dollar Value	Project Budget Item(s) these funds will support
Shattuck NRDA	Cash	**$15,000.00**	pipeline, pond construction and slough renovation
	TOTAL PARTNER SUPPORT:	$15,000.00	
Wetlands Program		Dollar amount of request, per item(s)	Project Budget Item(s) these funds will support
Pipeline installation		$25,000.00	
Pond construction		$6,000.00	
Slough renovation		$4,000.00	
		$13,000.00	One year O&M
	Project Total	**$63,000**	

Drakeland Farms Wetland Project

Federal Funding Partner	Indicate whether support is Cash or In-Kind	Dollar Value	Project Budget Item(s) these funds will support
Shattuck NRDAR	Cash	**$20,000**	Levee work
Non-Federal Funding Partner	Indicate whether support is Cash or In-Kind	Dollar Value	Project Budget Item(s) these funds will support
Drakeland Farms	Cash	$12,000	P&T, Survey & Design
Ducks Unlimited, Inc.	Cash	$14,000	Indirect, Survey/Design
CCWCD	Cash	$50,000	Contracts
CCWCD	Cash	$60,000	Materials
Wetlands Program	(Leave blank. Cash support is assumed.)	Dollar amount of request, per item(s)	Project Budget Item(s) these funds will support
	Cash	$100,000	Survey/design, contracts, construction materials
	Project Total	**$256,000**	

Schiller Wetland Project

Federal Funding Partner	Indicate whether support is Cash or In-Kind	Dollar Value	Project Budget Item(s) these funds will support
Shattuck NPL- USFWS Funds	Cash	**$20,000**	In-line water control structures for water management (6) and native grass seed for re-vegetation of borrow areas.
Platte River Partnership I – Standard NAWCA Grant	Cash	$30,000	18" Pipeline for water conveyance (portion).
Non-Federal Funding Partner	Indicate whether support is Cash or In-Kind	Dollar Value	Project Budget Item(s) these funds will support
Harmony Ditch Company	Cash	$15,000	Water Measuring Device-Flume/Weir
Schiller - Private Landowners	In-Kind	$5,000	Fencing for grazing management, Noxious weed control, daily water management
Wetlands Program	(Leave blank. Cash support is assumed.)	Dollar amount of request, per item(s)	Project Budget Item(s) these funds will support
CDOW		$50,000	Dirtwork for levees and 18"pipeline for water conveyance (portion)
	Project Total	**$120,000**	

7.0 LIST OF PREPARERS

This RP/EA was prepared by representatives of the natural resource trustee agency listed below, in consultation with other partnering agencies and stakeholders. Report preparation assistance and review were provided by the DOI NRDAR Program Restoration Support Unit.

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Susan Kennedy, Environmental Protection Specialist
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8.0 LIST OF AGENCIES, ORGANIZATIONS, AND PARTIES CONSULTED FOR INFORMATION

Colorado Division of Wildlife

Denver Parks and Recreation

Ducks Unlimited

Natural Resource Conservation Service

Urban Drainage and Flood Control District

9.0 PUBLIC COMMENTS AND TRUSTEE RESPONSES

In accordance with NEPA, this RP/EA has been prepared to analyze the impacts of the alternatives considered, select a preferred alternative, and determine whether the preferred alternative is expected to have a significant effect on the quality of the environment. If a significant effect is expected, an environmental impact statement must be prepared. If no significant effects are expected from the proposed alternative, the NEPA process concludes with the EA and issuance of a finding of no significant impact.

In analyzing the potential significance of a proposed project, federal agencies must consider: (1) the nature of the impacts and whether they are beneficial or detrimental; (2) impacts on public health and safety; (3) unique characteristics of the geographic area of the project; (4) whether the project is likely to generate controversy; (5) whether the project involves uncertain impacts or unknown risks; (6) the type of precedent created by implementing the project; (7) cumulative impacts of the proposed action with known other future actions; (8) impacts on nationally significant cultural, scientific, or historic resources; (9) impacts on threatened or endangered species or their habitats; and (10) potential violations of federal, state, or local environmental protection laws.

The trustees welcome input from the public in evaluating the likely success of the proposed action in making the environment and the public whole for losses suffered from the hazardous substance releases. Information currently available suggests that the proposed restoration projects will not have a significant effect on the quality of the human environment. If no new substantive information is received during the public comment period that would change the evaluation of the restoration alternatives and the selection of the preferred alternative, then the NEPA process will likely conclude with a finding of no significant impact.

The final draft RP/EA will be available for public review and comment for 30 days from the date of publication of the notice of availability.

9.1 Public Comments

Comments that are received during the 30-day public comment period for this draft document will be presented in this section of the final RP/EA.

9.2 Responses to Public Comments

Responses to the public comments will be presented in this section of the final RP/EA.

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Appendix A. Restoration and Monitoring Reports

Preliminary Restoration Implementation Report

To be completed at the end of the preliminary implementation stage of major components of the restoration (i.e., once construction is complete, purchases have been made, population supplementation has been initiated, etc.) as delineated in the restoration plan. In the case of multiple-component or multiple-site restoration projects, multiple implementation reports may be completed in a manner that complements the timeline and milestones established in the restoration plan.

1.0 Introduction

1.1 Brief description of the incident
1.2 Injured resources
1.3 Restoration goals and objectives

2.0. Modifications to Restoration Objectives or Actions

2.1 Explain any modifications to the restoration plan objectives or restoration actions including why modifications were necessary.

3.0 Restoration Actions Completed and Associated Costs

3.1 Within an outline of restoration objectives, list each restoration action that supported each objective, document its completion and that it met the performance standards established in the restoration plan. If deviations from planned performance standards were accepted, document each modification or deviation, the reason for each, and its influence on obtaining the restoration goal.

3.2 In a separate list or table, provide actual cost for completion of each restoration action.

4.0 Monitoring Requirements and Ongoing Actions

4.1 Document post-implementation monitoring activities that will be performed. If there are no changes from the monitoring plan outlined in the restoration plan, simply indicate such with no further documentation necessary. If modifications of the plan have been made, document them, the reason for the change (i.e., change in objective, change in restoration action, change in performance standard or criteria, etc.).

4.2 If there are further site modifications anticipated during the post-implementation stage of the restoration (i.e., controlled burns, ongoing invasive species control, etc.) document them and the anticipated timetable for their completion.

5.0 Photo Documentation

5.1 Provide before and after photos for sites where restoration actions have been performed, photos of parcels subject to easement or management, education displays developed, etc., as prescribed in the restoration monitoring plan.

6.0 Certification

6.1 The case manager for the lead trustee certifies the findings presented in the preliminary restoration implementation report.

Monitoring Reports

To be completed according to the monitoring schedule presented in the restoration plan.

1.0 Executive Summary

1.1 Provide a condensed summary of the highlights of monitoring activities, findings and corrective actions occurring during the current monitoring period.

2.0 Introduction

2.1 Provide an abbreviated introduction that documents the incident that triggered the restoration, the injured resources and the goals and objectives for the restoration. Include findings and corrective actions from previous monitoring periods as appropriate and relevant to the current monitoring period.

3.0 Modifications and Corrective Actions

3.1 Document any modifications to the restoration objectives or actions made during the time since the preliminary implementation report or the previous monitoring report for this restoration. In the case of corrective actions, reference the section, below, that documents the monitoring findings leading to the actions. Provide performance standards and performance criteria for restoration actions without previous application within this restoration. If restoration actions were completed during this monitoring period, document their implementation and meeting of performance standards.

3.2 Document the implementation of corrective actions that were initiated but not completed during previous monitoring periods.

4.0 Monitoring Activities

4.1 Document monitoring activities (including or referencing measures, previously undocumented methods, frequency, dates, locations, participants, etc.) evaluating the outcome of all restoration actions taken to assess attainment of restoration objectives. Provide summary statistics and data summaries with sufficient detail to allow evaluation of performance criteria for restoration actions. When findings indicate failure to meet performance criteria, describe actions taken to rectify deficiencies or further evaluate causation of failure.

4.2 Describe other findings since the previous monitoring period that are relevant to the progression of the restoration process.

4.3 Provide photographic documentation of the progression of site recovery, specific monitoring endpoints, corrective actions and other topics that help clarify the findings of the monitoring report.

4.4 Describe other monitoring activities (not currently part of the restoration) that might provide improved insight into the restoration process, the breadth of the resource recovery or additional benefits resulting from restoration activities.

5.0 Recommendations

5.1 Provide recommended modifications of restoration objectives or actions for the upcoming monitoring period that have not already been implemented during the current monitoring period. Reference monitoring findings or project conditions upon which the recommendations are based. Provide methodological and scheduling recommendations for their implementation and performance standards and criteria for their assessment if they are actions not previously implemented in this restoration.

6.0 Certification

6.1 The case manager for the lead trustee certifies the findings presented in the monitoring report.

Final Restoration Completion Report

To be submitted upon completion of restoration objectives and meeting of restoration goals.

1.0 Executive Summary

1.1 Provide a condensed summary of the highlights of the restoration, documenting the initial condition of the resource, the primary goals of the restoration and the condition of the resource at the time of completion of the restoration.

2.0 Introduction

2.1 Provide an abbreviated introduction that documents the incident that triggered the restoration, the injured resources and a complete and updated list of goals and objectives for the restoration.

3.0 Completion Status of Restoration Objectives

3.1 Document the completion of each of the restoration objectives. For each objective, provide a reference to previous monitoring reports documenting the attainment of performance criteria for each restoration action taken to reach the objective. Include all restoration actions implemented as corrective actions beyond the scope of the original restoration plan. Where appropriate and sufficiently documented, a simple tabular format may suffice.

3.2 In the case where individual restoration actions or restoration objectives are not completed or attained and this deficiency is not documented in previous monitoring reports, provide an explanation and reason for the deficiency.

3.3 Provide photographic, tabular and/or statistical documentation, as most appropriate for the restoration, that documents the progression of the resource's recovery.

4.0 Achievement of Restoration Goals

4.1 Confirm that the restoration goals, as described in the restoration plan, were achieved with the completion of the restoration objectives.

4.2 If any of the stated restoration goals were not achieved, explain why they were not met (i.e., insurmountable or unanticipated logistical/monetary impediments, natural disasters, etc.).

5.0 Future Management of the Restored Resource

5.1 Document the identity and contact information of the party responsible for future management of the restored resource. If the party and their contact information is the same as that documented in the restoration plan, state only that there is no change from the restoration plan.

5.2 Describe any special conditions or recommended actions relevant to the future management of the resource that have not been documented since the previous monitoring report.

6.0 Certification

6.1 The Administrative Official for the restoration certifies the findings presented in the restoration completion report and that all performance bonds, contingency funds, escrow accounts, etc., have been released.