

Exhibit 1
Wetlands and Flood Plain Report

**WETLANDS AND FLOODPLAINS REPORT
PROPOSED RIO OXBOW LAND EXCHANGE**

1.0 INTRODUCTION

This assessment was conducted to identify, map, and classify floodplain and wetland habitats on approximately 468.78 acres (ac) of Federal lands and/or National Forest System lands administered by the Rio Grande National Forest (RGNF) and 1,134.63 ac. of privately owned lands in Mineral, Hinsdale and Rio Grande Counties, Colorado. These lands are collectively involved in the proposed Rio Oxbow Land Exchange, currently being considered by the RGNF. This assessment has been conducted according to guidelines provided by FSM 2527 in order to determine potential impacts that may occur as a result of the exchange of these lands, as proposed under the authority of the General Exchange Act of March 20, 1922 and amended under the Federal Land Policy and Management Act (FLPMA) of October 21, 1976, and the Federal Land Exchange Facilitation Act of August 20, 1988.

1.0 SUMMARY OF FINDINGS

Wetlands: Through the proposed Rio Oxbow Land Exchange (Alternative 1), Federal lands in National Forest system would realize a net gain of approximately 29.19 acres of wetland. Under Alternatives 3 and 4 this net gain would increase to 29.29 acres. Additionally, covenants, that would become effective at the time of conveyance of the Federal lands to private ownership, would prohibit development and other activities that could disrupt the functions or diminish values of the wetlands present on the Federal parcels.

Floodplain: The Forest Service would lose jurisdictional control of approximately 27.01 net acres of federally owned floodplain under Alternative 1 for the proposed action and approximately 23.51 acres of floodplain under Alternatives 3 and 4. However, covenants, effective at the time of conveyance of these lands to private ownership, would restrict development in floodplain areas that are currently present on the Federal lands. These covenants would protect functions and values of floodplain on the Federal parcels and would preclude an increase in flood hazard to the non-federal estate.

Therefore, little or no loss in wetland and floodplain functions and values would occur as a result of this exchange. No potential hazards to life or property are known to exist in the federal or private lands proposed for exchange. Given the net gain of approximately 29.19 ac of federally-owned wetlands, as well as the implementation of covenants that would protect both wetland and floodplain functions for the areas that would be transferred to private ownership; it has been determined that the proposed exchange would be consistent with Executive Order 11988 and Executive Order 11990, as they pertain to wetlands and floodplains. Tables 1 and 2 present wetland and floodplain acreages of the Federal and Non-Federal parcels involved in this exchange proposal.

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Table 1.
Wetland and Floodplain Acreage
of the Federal Lands Proposed For Exchange

Federal Parcel	Wetland (acres)	Floodplain (acres)
N2	-	2.50
N4	2.00	0.5
N5	-	-
N6	1.00	7.50
L1	0.01	4.00
L2	7.90	19.00
L3	0.10	1.00
L4	-	0.01
L5	3.60	-
Total	14.61	36.01

Table 2.
Wetland and Floodplain Acreage
of the Non-Federal Lands Proposed For Exchange

Non-Federal Parcel	Wetland (acres)	Floodplain (acres)
B1	2.50	5.00
B2	0.70	2.00
B3	1.60	2.00
Hays Placer	39.00	-
Mining Claims	-	-
Total	43.80	9.00

2.0 METHODOLOGY

USGS quadrangle maps and color aerial photographs of an approximate 1:24,000 and 1:12,000 scale were examined to determine approximate wetland and floodplain locations and boundaries. Wetlands and waterbodies were mapped directly on the photographs and verified during site visits conducted during September 1999 and August 2001. A modified Wetland Evaluations Technique (WET) was used to determine the functions of wetlands located on both federal and private lands.

3.0 GENERAL HYDROLOGIC DESCRIPTION AND EVALUATION

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Parcel L1: This 4.06-acre parcel is located entirely within the floodplain of the Rio Grande (with the exception of the highway road berm). Although this parcel is located within a floodplain, the area is relatively dry due to the presence of coarse rocky soils and a slightly southern aspect. A small, shallow drainage depression runs diagonally through the area. This drainage conveys an intermittent flow and rarely contains surface water. Several small wetland depressions are located within this drainage. These depressions also only contain surface water during short periods after snowmelt or as a result of significant precipitation events. Sedge species dominate these depression areas. Total wetland acreage for Parcel L1 is approximately 0.01 ac.

The wetlands present on Parcel L1 provide low to moderate functions and values. The wetlands received low ratings for groundwater recharge/discharge, production export, streambank stabilization, maintenance of biodiversity, and wildlife habitat. Moderate ratings were determined for floodflow alteration and conveyance, and nutrient/sediment removal and retention.

Parcel L2: This triangular 19.59-acre parcel is located directly adjacent to State Highway 149, and with exception of a road berm that runs along the eastern edge, is entirely within the floodplain of the Rio Grande. A channel to the river enters the tract roughly in the middle of the western boundary and exits in the southeast corner of the area, approximately 100 ft above its confluence with the river. The channel is fed by a spring that originates and is dammed on the adjacent private property located immediately west of the parcel boundary. Wetland margins are located on both sides of the channel. The channel appears to be slow moving throughout the year, as is evidenced by a shallow bank-full depth (less than 1ft) and the absence of any appreciable bank structure.

An additional wetland area is located along the northeastern edge of the parcel, bordering the highway berm. This area appears to be hydrologically supported by subsurface flow derived from a drainage that enters the northern portion of the property from the opposite side of the highway.

Wetlands associated with these areas measure approximately 7.9 ac in size. A mixture of obligate wetland and facultative wetland species including rushes (*Juncus* spp.), canary reed grass (*Phalaris arundinacea*), Canadian reedgrass (*Calamagrostis canadensis*), and sedge dominated the vegetation found in the wetland areas located within Parcel L2. A discontinuous, relatively dense, shrub component comprised primarily of willow and alder is present in some areas, particularly in the eastern portion of the parcel. The combination of emergent and scrub-shrub areas results in a well-formed area that provides numerous wetland functions.

The Parcel L2 wetlands received high functional ratings for all categories including groundwater recharge/discharge, floodflow alteration and conveyance, nutrient/sediment removal and retention, production export, streambank stabilization, maintenance of biodiversity, and wildlife habitat. The intermittent flows that are provided by this drainage contribute to groundwater recharge on the northern portion of Parcel L2.

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Parcel L3: This 1.11-acre triangular parcel is also located directly adjacent to Highway 149. With the exception of the highway berm it lies entirely within, and within the floodplain of the Rio Grande. The extreme northwestern corner of the parcel, located between the bottom of the highway berm and the river edge, is wetland. This wetland measures slightly less than 0.10 ac in size, and is dominated by a mature willow overstory with a discontinuous herbaceous layer dominated by sedge. Due to the occurrence of the river within this parcel, terrestrial areas are seasonally saturated and flooded during high flow events.

The Parcel L3 wetlands received moderate to high functional ratings. Moderate ratings were determined for nutrient/sediment removal and retention. High ratings were given for groundwater recharge/discharge, floodflow alteration and conveyance, production export, streambank stabilization, maintenance of biodiversity, and wildlife habitat. is located immediately adjacent to the Rio Grande.

Parcel L4: This small 0.04-acres parcel is contained almost entirely within the road berm of Highway 149. A very small area in the southwest corner of this parcel is located within the floodplain of the Rio Grande. There are no wetlands present in Parcel L4.

Parcel L5: This 214.06-acre parcel is located along the southwestern border of the Rio Oxbow Ranch. The majority of Parcel L5 is located on steep, forested northeast facing slopes. The very southern end of this parcel extends into the open floodplain of the Rio Grande. Hydrologic features on this parcel include two perennial streams and two distinctly separate wetlands areas. In addition to these areas several intermittent drainage patterns convey surface flows from the slopes of Parcel L5. These features general flow only as a result of snowmelt or significant precipitation events and convey water to the floodplain as surface and subsurface runoff via poorly defined channels.

Woodfern Creek and Workman Creek, both direct tributaries to the Rio Grande, are characterized by moderately high gradients, which decrease as the streams enter the floodplain of the Rio Grande. The surface flows in Workman Creek are completely diverted to a reservoir located on the Rio Oxbow Ranch. A portion of the flow of Woodfern Creek is diverted, via a stream course, to an irrigation ditch that is located at the base of the eastern-facing slopes on which the parcel is located. The natural channel conveys the remaining flows of Woodfern Creek to the floodplain.

Both of the wetlands areas lie in the northern portion of Parcel L5. The southern-most wetland is formed from seeps from a moderate-sized reservoir located on the adjacent private lands of the Rio Oxbow Ranch, as well as from seeps in the irrigation channel that conveys water from Woodfern Creek and Workman Creek to the reservoir. This area, which lies immediately to the west of the reservoir, is approximately 1.7 acres in size and is dominated by a dense stand of water sedge (*Carex aquatilis*).

This wetland received low ratings for floodflow alteration, conveyance and production export, and streambank stabilization. Moderate ratings were determined for maintenance

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of biodiversity and wildlife habitat, and high ratings were given for groundwater recharge nutrient/sediment removal and retention.

The second wetland is located in the extreme northeastern corner of the northern-most triangle of land forming this portion of the Parcel L5. It consists of small areas of open wet meadows that are located on the lower slopes of the northern portion of the parcel and is approximately 1.9 acres in size. This wetland is apparently formed by subsurface and limited surface flows from the natural Woodfern Creek channel. The area is dominated by sedges (*Carex sp.*) and tufted hairgrass (*Deschampsia cespitosa*).

This wetland received low ratings for groundwater recharge/discharge, floodflow alteration and conveyance, production export, maintenance of biodiversity, streambank stabilization and wildlife habitat. Moderate ratings were determined for nutrient/sediment removal and retention.

N1: This 37.82-acre parcel lies within the Shallow Creek drainage, a direct tributary to the Rio Grande. With the exception of a minor ephemeral drainage depression, there are no hydrologic features associated with Parcel N1. The ephemeral drainage feature conveys surface water only during snowmelt and significant precipitation events.

N2: There are two distinctive hydrologic features found on the 80.0-acre N2 Parcel. An incised intermittent drainage pattern bisects the lower portion of the parcel, running from the west to east, intersecting the river on private lands near the eastern parcel boundary. This drainage feature conveys water only during spring snowmelt and during significant precipitation events. There are no wetlands or floodplains associated with this feature.

The Rio Grande bisects the southeastern portion of Parcel N2 and includes approximately 1266 lineal feet of the stream course at centerline. There are approximately 2.5 acres of floodplain and 2.0 acres of surface water associated with the river. The northern banks of the river channel are steep and rise to cliff areas. As a result, floodplain functions are predominantly restricted to the areas adjacent to the southern bank.

N4: This 84.6-acre parcel lies in the Trout Creek drainage, immediately above the western edge its floodplain. A natural pond approximately 1.5 acres in size (normal highwater) is present on the eastern edge of this parcel. This shallow pond has an approximate average depth of 2.5 feet and appeared to be less than 4 ft deep at its deepest point. Water movement into this feature occurs from both surface and sub-surface flows from the eastern-facing slopes of the parcel as a result of snowmelt and significant precipitation events. Sedge-dominated wetlands (*Carex aquatilis*) with intermittent willow (*Salix sp.*) surround this feature and extend in a narrow band to the south along the natural outflow to the pond. There is no distinctive channel associated with this outflow. A total of approximately 2.0 acres of wetland is associated with this portion of the parcel.

These wetlands were rated as moderate for groundwater recharge, floodwater storage, production export and high for maintenance of biodiversity and wildlife habitat. Low

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ratings were determined for floodflow alteration and conveyance, nutrient/sediment removal and retention, and streambank stabilization.

There are two intermittent drainage patterns on this parcel. One is a highly definable drainage that pattern that originates on the forested slopes west of the parcel, creating a narrow valley in the center of the western portion of N4. This drainage lacks a well-defined channel. Additionally, a poorly defined natural ephemeral drainage flows across the extreme southeastern corner of N4. Approximately 0.5 acres associated with this drainage pattern lies within the floodplain of Trout Creek. There are no wetlands associated with this drainage feature within the parcel.

N5: This 15.0-acre parcel lies immediately above the floodplain to Trout Creek and borders a 10-acre reservoir on its southeastern edge. Water to this reservoir is provided a diversion from Trout Creek located immediately upstream from Parcel N6. A narrow band of riparian habitat has formed along the edge of the reservoir, but no wetlands are present within this area. Other than the reservoir there are no perennial water features on this parcel. An incised intermittent tributary to Trout Creek bisects the center of this parcel, flowing through the parcel toward the northeast. There are no wetlands or floodplains associated with this parcel.

N6: This 12.5-acre parcel size and is bisected by Trout Creek, and with the exception of steep slopes on its southern edge (approximately 5.0 acres), lies completely within the floodplain of Trout Creek totally approximately 7.5 acres. Approximately 1630 lineal feet of Trout Creek courses through N6 from west to east, entering the parcel on its western edge and leaving the parcel on its north-central boundary. Large, mature cottonwoods (*Populus angustifolia*) and blue spruce (*Picea pungens*) line much of the stream bank. A lower shrub canopy composed of willow and alder also lines the streambank beneath the tree cover. A fairly contiguous ground layer comprised of a variety of obligate wetland and facultative herbaceous species is also present in these areas. A large portion of the floodplain is occupied by riparian habitat. Wetland meadow, dominated by sedge and willows, extends into the extreme western corner of the tract and occurs intermittently along the edge of creek. Approximately one acre of the parcel was classified as wetland.

The wetlands present on Parcel N6 provide low to high functions and values. The wetlands received low ratings for nutrient/sediment removal and retention. The wetlands received moderate ratings for groundwater recharge, floodflow alteration and conveyance, and production export. High ratings were determined for streambank stabilization, maintenance of biodiversity, and wildlife habitat.

NON-FEDERAL PARCELS

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Long Ridge Properties

There are no distinctive drainage patterns or hydrologic features present within any of the four tracts that comprise the Long Ridge properties.

Bonafacio Properties

The two primary drainage systems associated with the Bonifacio tracts, Nicomodes and Bonafacio Creeks, show signs of considerable past erosion and scouring. The banks of the original channels still show signs of heavy erosion with vertical cutbanks of 3-4 feet in height. This was probably the result of intense grazing pressure that occurred during the early and middle parts of the last century. Apparently due to reductions in grazing, these stream systems are beginning to recover. Within the broad eroded channels, narrow channels, lined with dense, primarily herbaceous riparian cover, have formed, indicating a more controlled pattern of runoff during significant precipitation events.

B1: This 153.96-acre parcel is bisected by Nicomodes Creek, a perennial stream. The current Nicomodes Creek is located within a remnant channel that averages 35 ft in width. The active stream channel averages 1 to 2 ft in bank-full width and approximately 1 ft in depth. A substantial wetland border, occupying much of the bottom of the original channel lies along on the margins of the active channel. This area is dominated by sedges (*Carex aquatilis*, *Carex* spp.), rushes, field mint (*Mentha arvensis*), tufted hairgrass, cattail (*Typha* spp.), and scattered willows. Natural dams have formed in a few places within the channel, creating impoundments of surface water that measure up to 20 ft x 20 ft in size. The wetlands within Parcel B1 were estimated to cover an area of 2.5 acres, all within remnant stream channel and floodplains were estimated to cover an area of approximately 5 acres along the length of the stream.

The wetland areas located on Parcel B1 received moderate ratings for floodflow alteration and conveyance, production export, maintenance of biodiversity and wildlife habitat. High ratings were determined for groundwater recharge, nutrient/sediment removal and retention, and streambank stabilization.

There are several small intermittent tributaries to Nicomodes Creek within Parcel B1. These features drain relatively limited areas and flow only as a result of snowmelt and significant precipitation events.

B2: This 80-acre parcel is bisected by two intermittent streams that merge in the center of the property, flowing generally to the northeast. There are no wetlands or floodplains associated with this drainage feature. However, Bonafacio Creek, a small perennial stream, located on the extreme northern edge of the area, does support riparian and wetland vegetation communities. Bonafacio Creek is located in a well-formed remnant channel that is approximately 35 ft in width. The active channel is 1 to 2 ft in bank-full width and averages 1 ft in depth. Wetland areas border both sides of the active channel, and an approximate 0.40 ac wetland pocket is present in the northwestern corner of the parcel. The approximate total wetlands area within this parcel is estimated at 0.70 acres. The wetlands are dominated by sedge in association with a variety of other wetland obligate and wetland facultative herbaceous species similar to those present in the

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wetlands present on Parcel B1. There are approximately 2.0 acres of floodplain associated with Bonafacio Creek as it passes through Parcel B2.

The wetland areas located on Parcel B2 received low functional ratings for production maintenance of biodiversity and wildlife habitat export, and moderate ratings for floodflow alteration and conveyance. High ratings were determined for groundwater recharge, nutrient/sediment removal and retention, and streambank stabilization.

B3: This 153.15-acre parcel is bisected by Bonafacio Creek, entering the parcel on its south-central boundary and leaving at its extreme northeast corner. Wetland margin areas are present along both sides of the active channel. The active channel measures approximately 1 to 1.5 ft in width, and the channel and adjacent wetlands areas measure approximately 15 ft in width. Sedges (*Carex aquatilis*, *Carex* spp.), rushes, fieldmint (*Mentha arvensis*), tufted hairgrass, cattail (*Typha* spp.) dominate these wetland areas adjacent to Bonafacio Creek. The total wetlands within this parcel cover an approximate area of 1.6 acres with approximately 2.0 acres of floodplain associated with the channel.

The wetland areas located on Parcel B3 received low functional ratings for production maintenance of biodiversity and wildlife habitat export, and moderate ratings for floodflow alteration and conveyance. High ratings were determined for groundwater recharge, nutrient/sediment removal and retention, and streambank stabilization.

B4: Bonafacio Creek and another unnamed intermittent drainage bisect this 215.81-acre parcel. Bonafacio Creek is intermittent in flow in this reach, flowing primarily during snowmelt and as a result of significant precipitation events. There are no wetlands or floodplains associated with any of the hydrologic features are present on this parcel.

Carson Properties

Hays Placer: This 133.87-acre parcel is located on the west side of the Continental Divide at an average elevation of 11,600 ft. The northern portion of this parcel is characterized by wetland areas that are dominated by dense stands of willows interspersed with small wet openings. Sedges, as well as other wetland obligate and wetland facultative grass and forb species, dominate the open areas. This area is part of a larger wetland complex that is located between the West Fork and Main Fork of Wager Creek, and extends to the north. At the time of field surveys (August 2001), the soils were saturated with water to the surface and surface water was present in some areas. The Main Fork of Wager Creek runs along the eastern edge of the parcel, flowing generally from south to north. Willow dominated areas border the creek along its course through, and immediately adjacent to the parcel. The West Fork of Wager Creek also bisects the northwestern corner of the property. The west fork is also intermittently vegetated with willow-dominated wetlands. The wetlands within the Hays Placer covers an area of approximately 39.0 acres.

The Hays Placer wetlands received a moderate rating for floodflow alteration and conveyance, and high ratings for groundwater recharge, nutrient/sediment removal and retention, production export, streambank stabilization, maintenance of biodiversity, and

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wildlife habitat. The Hays Placer receives surface flows from the West Fork and the Main Fork of Wager Creek. The flows conveyed by these drainages result in an expansive area in the northern portion of the parcel that contains saturated soils, as well as surface water in some places. Both surface and sub-surface flows are directed from south to north in this portion of the parcel.

Continental Divide Mining Claims: The 230.61 acre group of patented mining claims are located on the Continental Divide at elevations ranging from 11,800 to 12,800 ft. The only distinctive hydrologic feature within the area is an intermittent stream course located roughly in the center of the properties. No wetlands or floodplains are associated with this drainage feature.