



**Project Partners** 



City of Ketchum



Wood River Land Trust



Friends of Warm Springs Preserve Committee





**H** Bench





Creek Access



Public Toilets



🛇 Water & Pet Fountain





- Multi-Use Winter Trails



Design Team





Rio Applied Science & Engineering Engineering, Geomorphology, Hydrology

Superbloom Team Lead, Community Engagement, Landscape Architecture

——— Classic Cross Country Track

BLM

#### ECOSYSTEM SCIENCES, LLC

Ecological Systems



February 2023

## WARM SPRINGS PRESERVE Master Plan Process

![](_page_1_Figure_1.jpeg)

![](_page_1_Figure_2.jpeg)

### Project Partners

![](_page_1_Picture_4.jpeg)

City of Ketchum

![](_page_1_Picture_6.jpeg)

Wood River Land Trust

![](_page_1_Picture_8.jpeg)

Friends of Warm Springs Preserve Committee

### Design Team

![](_page_1_Picture_11.jpeg)

Superbloom Team Lead, Community Engagemen Landscape Architecture

![](_page_1_Picture_14.jpeg)

## Action

### 2024

![](_page_1_Picture_19.jpeg)

![](_page_1_Figure_20.jpeg)

![](_page_1_Picture_22.jpeg)

Applied Science & Engineering

Rio Applied Science & Engineering Engineering, Geomorphology, Hydrology ECOSYSTEM SCIENCES, LLC

**Ecosystem Sciences** Écological Systems

![](_page_2_Picture_0.jpeg)

### 10public meetings (from Sept. - Feb.)

![](_page_2_Picture_2.jpeg)

![](_page_2_Picture_3.jpeg)

thus far

![](_page_2_Picture_5.jpeg)

329 online + in-person survey results

![](_page_2_Picture_7.jpeg)

![](_page_2_Picture_8.jpeg)

"I really appreciate how much community feedback is incorporated into the plan!"

"Thank you for taking community feedback excited for it to begin!"

![](_page_2_Picture_11.jpeg)

Principle 06 Celebrate & Educate about the Past, Present and Future of the Preserve

![](_page_2_Picture_13.jpeg)

200+ estimated average daily visitors today

# range

![](_page_2_Picture_16.jpeg)

## donors

![](_page_2_Picture_18.jpeg)

### WARM SPRINGS PRESERVE

Draft Construction Phasing Class 3 Estimate -20% to +30%

Date: February 06, 2023

		2024								202						
			AUG	SEPT	ОСТ	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
<b>1 A</b>	PHASE 1A FLOODPLAIN RESTORATION	\$2,254,000														
	1. Floodplain Excavation	No access to trails, creek or bridges														
	2. Temporary Fencing															
	3. Planting	November and/or April														
<b>1</b> B	PHASE 1B NON-FLOODPLAIN RESTORATION	\$1,600,000	,													
	4. New Fairway Irrigation															
	5. Middle Terrace Planting & Irrigation	No access to trails, creek or bridges														
	6. Utilities for Future Building															
	7. Committed Donor Recognition Elements	(Benches, main trail, welcome sign)														
	8. Minimum Amenities	(Dog bag & waste receptacles)														
	9. Trails & Footbridges															
2	PHASE 2 BUILDING/ROAD	\$630,000	TBD													
	10. Paving the Road															
	11. Storage Building/Restroom w/Donor Sign	No access to trails, creek or bridges														
3 4	PHASE 3 AMENITIES	\$750,000	TBD													
	12. Overlooks & Additional Seating Areas															
	PHASE 4 SOUTHERN FLOODPLAIN	\$100,000	TBD													
	13. Trails & Restoration Areas															

#### <u>Notes</u>

1. All estimated item costs include full compensation for all materials, labor, equipment, and all appurtenances unless noted or itemized separately.

2. Class 3 estimates are generally prepared to form the basis for budget authorization, appropriation, and/or funding. As such, they typically form the initial control estimate against which all actual costs and resources will be monitored. Typically, engineering is from 10 to 40 percent complete. Class 3 estimates usually involve more deterministic estimating methods and usually involve high degree of unit cost line items, although these may be at an assembly level of detail rather than individual components.

3. The total construction cost excludes permitting, permit costs, and engineering support during construction (bid support, prebid and pre-construction meetings, and construction observation and inspections by engineering staff during construction).

![](_page_3_Picture_9.jpeg)

![](_page_4_Picture_0.jpeg)

![](_page_4_Picture_5.jpeg)

## Entry, Parking & Facilities

### <u>What's planned:</u>

To improve the existing parking area and reduce maintenance, the design proposes to pave the parking lot; adjust its shape to increase efficiency; provide handicap accessible spaces.

- Two (2) year-round public toilets
- 1,000 sq. ft. (max) storage building for maintenance equipment
- Donor Recognition Wall (\$1,000+)
- History and Preserve Map
- Bike Racks

ADA

Leash Hook Board

![](_page_5_Figure_10.jpeg)

#### **NOVEMBER FEEDBACK**

- Preference to keep some parking spaces on exterior

- Like having the building nestled in the aspen grove
- Flush toilets and ADA access are important
- Plan for overflow parking or future expansion

![](_page_5_Picture_16.jpeg)

RESTORED FLOODPLAIN (non-irrigated with native riparian plantings)

Expanded Aspen Grove

Snow Storage

Culvert

AVALANCHE ZONE

Wetland Overlook

24 PARKING SPACES, INCLUDING 4 HANDICAP ACCESSIBLE SPACES (ASPHALT PAVING)

Channel

FAIRWAY LAWN (preserved w/updated irrigation)

Welcome Building

SOFT SURFACE

ADA TRAIL

![](_page_5_Picture_24.jpeg)

The proposed restroom and storage building will be compact and efficient while providing needed services and facilities to support the Preserve. It will include two (2) toilets for year round use, storage for maintenance, water fountains for people and dogs, waste receptacles, donor wall to recognize community supporters, a trail map, historical infographics, bike racks and sheltered seating. The building will have ample screening set within the enhanced grove of trees.

![](_page_5_Picture_26.jpeg)

#### Your Responses to the November Survey How On Track Was the Previous Design for this Opportunity Area?

![](_page_5_Figure_28.jpeg)

#### Enhanced Floodplain & Lower Creek Edge

![](_page_6_Picture_1.jpeg)

![](_page_6_Picture_2.jpeg)

![](_page_6_Picture_3.jpeg)

# Enhanced Floodplain & Lower Creek Edge

What's planned: The lower creek edge area is proposed to expand and enhance the floodplain to restore ecological services and wildlife habitat. Excavated materials would be relocated to the middle terrace and revegated with native plants.

- Extensive grading & earthworks
- New side channel and pond
- Islands & gravel bars
- Low water crossings for side channels
- Expanded riparian zone including native trees and shrubs
- New beaver wetland

Your Responses to the November Survey How On Track Was the Previous Design for this Opportunity Area?

![](_page_7_Figure_11.jpeg)

![](_page_7_Picture_12.jpeg)

#### **NOVEMBER FEEDBACK**

- Habitat enhancement and protecting existing ecosystems is important
- Extensive support for creek restoration and the integration of native species
- Consider subtle 'nature play' integrated with restored areasCreekside owners concerned
- about views and creek access points

![](_page_7_Picture_18.jpeg)

Scale - 1:100

![](_page_7_Picture_20.jpeg)

arm Springs Creek

Aspen Groves

New Floodplain Channel

Woody Debris for Restoration

**Overall View of Restored Floodplain** G

#### Enhanced Floodplain & Lower Creek Edge

![](_page_8_Picture_1.jpeg)

Potential Location for Public Art

Wetland Overlook

1

Overflow Culvert

Beaver Dam Relic

Beaver Dam Relic Wetland

RIDGE TRAIL TO SOUTHERN FLOODPLA

J

CATTAIL MARSH

WET MEADOW

Potential Location for Public Art

Interpretive Sign

AND THE REAL OF

CONSTRUCTED BEAVER DAM RELIC

PICNIC AREA

Beaver Dam Relic Wetland

## Southern Floodplain

![](_page_9_Picture_2.jpeg)

### <u>What's planned:</u>

The intent for this area is to celebrate and preserve the existing floodplain along the creek while improving access and connections. The southern property has been minimally touched by humans which has allowed native ecosystems to thrive. Minimal improvements can make it even better and safer. Despite less impact in this area, the stream lacks pools and habitat complexity while the floodplain is not well connected and has many weeds. Minimal changes include removal of invasive plant species and overseeding and planting of targeted native plants for enhanced restoration.

- Light touch, minor enhancements
- Minor grading
- Strategic floodplain connections
- One minimal soft surface pathway to connect at key access points
- Removal of invasive species
- In-stream fish habitat (wood & boulders)

![](_page_9_Picture_11.jpeg)

#### **NOVEMBER FEEDBACK**

- Desire to keep the southern property as natural and untouched as possible
- Excited about the expansion and making access easier and safer
- Some want to restrict access to minimize impacts

**IMPROVED** FLOODPLAIN CONNECTION

WARA SPRINGS CREEK

I like the improved access to the entire property. In the past, it seems a large portion of the land to the south east was not very utilized because of a lack in ease of access.

NEW SOFT SURFACE TRA (reduced to 1-trail)

CREATE PERENNIAL SIDE

![](_page_9_Picture_20.jpeg)

![](_page_9_Picture_21.jpeg)

![](_page_9_Picture_22.jpeg)

neutral needs improvement

# Middle

Terrace

#### <u>What's planned:</u>

To reduce costs and keep all excavated earth on site, the middle terrace will receive the fill excavated from the restoration. This will be replanted with native grasses and wildflowers as well as expanded aspen groves for shaded sitting areas.

- Potential for seasonal native wildflower meadow
- Enhanced biodiversity & pollinator species
- Minimal irrigation
- Mown pathways

![](_page_10_Figure_9.jpeg)

![](_page_10_Picture_10.jpeg)

#### **NOVEMBER FEEDBACK**

- Excited about native species, restoration and increased biodiversity
- Want to ensure success of native meadow restoration while keeping water use low
- Concern for dog waste in nonlawn areas

Scale - 1:100

Æ

![](_page_10_Picture_16.jpeg)

![](_page_10_Picture_17.jpeg)

![](_page_10_Picture_18.jpeg)

Aspen Grove Restoration

Native Meadow Restoration

## The Fairway

### <u>What's planned:</u>

The existing upper Fairway is a unique and special landscape that is loved by Ketchum residents and dogs alike. Minimal changes are contemplated and the Fairway will be preserved as an open irrigated lawn. Some improvements are needed to upgrade the irrigation system for water efficiency and amenities such as new benches, picnic tables and waste receptacles will also improve visitors' comfort. Existing path will be updated to ensure ADA access.

- Maintain upper terrace fairway with some restored edges
- Replace inefficient irrigation system
- Opportunities for benches & picnic tables (material TBD)
- Potential for bear-proof dog waste receptacles
- Update existing path to ensure ADA access

![](_page_11_Picture_9.jpeg)

#### **NOVEMBER FEEDBACK**

- Preserve and enhance the Fairway
- Reduce irrigation use for lawn
- Park management issues and maintenance
- Manage relationship between people, dogs, wildlife
- Include disc golf in master plan
- Excited about nordic skiing trails in the winter

Scale - 1:100

![](_page_11_Picture_18.jpeg)

![](_page_11_Figure_21.jpeg)

![](_page_11_Picture_22.jpeg)

![](_page_11_Picture_23.jpeg)

#### Did you know that currently WSP uses 80% more water per acre than the ballfields at Atkinson Park?

#### In July 2022:

Atkinson Park: 9.5 acres @ 1.25mil gal 131,500 gal/acre

Warm Springs Preserve: 10.5 acres @ 2.5mil gal 238,000 gal/acre

Your Responses to the November Survey How On Track Was the Previous Design for this Opportunity Area?

![](_page_11_Figure_29.jpeg)

# In Stream Creek Restoration

Warm Springs is one of the few opportunities to restore the river through Ketchum so this should be a priority.

What's planned: Several improvements can be made along the creek edge to enhance hydrologic and ecological health of the creek.

The Creek

- Improved fish habitat
- Modifications will create more pools and off channel areas for fish rearing

![](_page_12_Picture_7.jpeg)

![](_page_12_Figure_8.jpeg)

- Greater floodplain connection
- Native riparian vegetation

![](_page_12_Picture_11.jpeg)

![](_page_12_Picture_12.jpeg)

![](_page_12_Picture_13.jpeg)

![](_page_12_Picture_14.jpeg)

![](_page_12_Picture_15.jpeg)

![](_page_12_Picture_16.jpeg)

#### Trout love a healthy riparian zone. Densities are 8-10 times higher in healthy creek habitat that includes large woody debris & a healthy riparian zone compared to habitat with rip-rap (large exposed rock).

Ζ

![](_page_12_Picture_18.jpeg)

110

![](_page_12_Picture_19.jpeg)

**Constructed Beaver** Dam Relic

Your Responses to the November Survey How On Track Was the Previous Design for this Opportunity Area?

![](_page_12_Figure_22.jpeg)

![](_page_13_Picture_0.jpeg)

#### to Warm Springs Preserve

![](_page_13_Picture_2.jpeg)

Potential Bridge Connections to Ketchum

![](_page_13_Picture_4.jpeg)

## Planting Character Zones

![](_page_14_Figure_1.jpeg)

**Restored Lawn** 

Warm Springs Cree

**Gravel Point Bar** 

Trail

- Drought Tolerant Lawn 2
- **Tree Groves**
- **Upland Meadow**
- Xeric (Dry) Floodplain
- Mesic (Wet) Floodplain 6
- **Near-Stream Riparian**
- **In-Stream Aquatic** 8
- 9 Wet Meadow
- **Cattail Wetland**

- An area that is dominated by a single opportunistic species is considered a monoculture. Natural ecological conditions rarely contain monocultures, rather, they contain a diverse mix of individual plant species that interact with one another and the surrounding environment. The arrangement of such a polyculture population in space is the product of all those interactions. An appropriately diverse vegetation design — in terms of genetics, sizes, and ages—is more likely to be successful and self-sustaining. Furthermore, plants that are matched to their surrounding environmental conditions (i.e., soil and climate) are more likely to be healthy and grow with minimal intervention. Selecting plants according to biogeographical principles can help create designed landscapes that will thrive and sustain themselves. The following set of principles should be considered when selecting plants for the site:
- Choose Plants that are adapted to the local environment
- Create environmental differences at small scales to create microclimates
- Match plants to microclimates
- Develop planting patterns in concert with ecological processes
- Distribute plants with respect to spatial structure
- Populations should include individuals of different sizes and ages
- Species richness increases with area

![](_page_14_Picture_21.jpeg)

- Include large populations of a few species and small populations of others
- Integrate habitat for pollinators
- Create seasonal interest by showcasing plant adaptations to climate
- Design plantings for screening views
- Design and specify plantings for fire resilience

![](_page_14_Picture_27.jpeg)

#### **In-Stream Aquatic** 8

This zone is closely associated with the spatial extent of the current active stream channel and is mostly composed of open water and/or scoured substrate. Located at or below the Ordinary High-Water Mark (OHWM) of the stream, occurrences of established riparian vegetation are uncommon. However, in low velocity areas of the stream and in the proposed wetland, emergent aquatic vegetation may include common cattail, bulrush, water sedge, and baltic rush.

![](_page_14_Picture_30.jpeg)

#### **Near-Stream Riparian**

This zone occurs directly adjacent to the active stream channel, proposed side channels, and low-lying portions of the restored floodplain that has access to Warm Springs Creek's hydrology. Currently only a narrow strip of riparian habitat is present. The restoration strategy envisions a restored and enhanced riparian zone. Common species that occur within this class are: Black cottonwood, narrowleaf cottonwood, coyote willow, peachleaf willow, booth's willow, pacific willow, bittercherry, Red-osier dogwood, Wood's rose, Canada goldenrod, baltic rush, Larkspur.

![](_page_14_Picture_33.jpeg)

#### Mesic (Wet) Floodplain 6

A mesic habitat is a type of habitat that has access to a moderate or well-balanced supply of moisture. The elevation of the mesic floodplain area is generally lower and more connected to the hydrology of Warm Springs Creek than portions of the xeric floodplain. Healthy mesic habitats function like a sponge; they effectively store water, which can be utilized by neighboring, drier habitats. Healthy mesic habitats also provide a higher density of herbaceous plants and insects that can be used as cover and forage by organisms belonging to higher trophic levels, such as grouse.

![](_page_14_Picture_36.jpeg)

![](_page_14_Picture_37.jpeg)

![](_page_14_Picture_38.jpeg)

![](_page_14_Picture_39.jpeg)

Warm Springs Creek dog access

#### **Vear-Stream** Ð Floodplair Riparian Mesic

000 eric

#### Ð Floodplair ≥ esic

ear-Strea Ū ear-Strea Aquatic In-Stream Ripariar Riparian Mesic

Grov 00

## Upland Meadow

U Grove **Existing Tre** Groves ree

**Restored Law** 

The Woods

![](_page_14_Picture_50.jpeg)

## New gravel point bars for people and

loodpla

DQ

Flood

eric

U.S. F

#### Xeric (Dry) Floodplain This zone occurs almost exclusively within the flat surfaces of the project area that are at a higher

estuca idahoensis

elevation than the mesic floodplain area. The surfaces that are inhabited by xeric species are disconnected from the hydrology of Warm Springs Creek. The xeric floodplain character zone is a mixed plant community, consisting of some native upland shrub species, wildflowers, grasses.

#### **Upland Meadow**

This zone occurs in upland portions of the site above the floodplains, particularly in areas of fill and adjacent to the restored lawn. The palntings here focus on drought tolerant grass, forb and shrub species that are attractive to pollinator insects and birds.

#### **Tree Groves**

aphylos uva-u

The tree groves connect to existing evergreen planted areas on the site or positioned as islands throughout the upland areas. In time, the shade created by the deciduous and evergreen trees in this zone creates a microclimate for unique native shrub and perennials that provide diversity within the landscape for visitors to experience.

covered with gravel. The gravels must be 10-40mm in size, loose and free of silt with plenty of oxygen rich water flowing through them. eggs, they are fertilized by the male and then Female trout dig a nest or redd in clean gravel shallows. As she releases her Spawning occurs in the spring. Spawning

At 2-5mm in diameter, alevins. Female rainbow trout usually produce 2000 to 3000 eggs. The eggs usually hatch in weeks, depending on gravels and hatch into about four to seven eggs incubate in clean stream temperature. Eggs

emerge as fry, set up territories and grow into parr. Alevins develop into parr in early summer, depnding on stream conditions. Alevins Newly hatched trout are called sac fry or alevin. Alevins stay in the gravel, consumed, and fry commence feeding living off the yolk sac. In approximately two weeks, the yolk sac is completely mainly on zooplankton. They then

Parr Fry and parr are territorial and solitary. They need plenty of cover in the stream from rocks, emergent and trailing bankside plants, and shallow water that is not too fast flowing. Side channels are incredibly important for native trout. They provide vital habitat and often allow these juveniles to escape high velocity flows during flood events, escape predators and offer a food resource.

![](_page_15_Picture_4.jpeg)

Adult fish need deep pools and **Deep Pools and Cover** cover often associated with instream wood and boulders.

# Life Stages and d Habita

In C

predators and room to travel upstream and down at different times of the year when Trout need cool, clear water and plenty of food to eat. They also need cover from feeding, overwintering and spawning.

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![](_page_15_Picture_8.jpeg)

+ Plants = Fish Food Aquatic invertebrates like insects, are

![](_page_15_Picture_10.jpeg)

**Riparian Vegetation** 

banks while providing shade and cover and cover generally near the bank and for fish. Juvenile fish need slow water Riparian vegetation helps stabilize in side channels.

![](_page_15_Picture_14.jpeg)

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Ecosystem Sciences

www.ecosystemsciences.com

# Cottonwod - Willow

Riparian Forest This community occurs at low elevations, along the stream channel, year-round water flow. Frequent spring flows where the water table is high and/or there is within the channel; this dynamic hydrologic regime contributes to the habitat's structural provide areas of scour and sedimentation diversity and high wildlife value.

# **Botanical Resources**

grasses. full canopy cover. Typical tree species include cottonwood, Vegetation within this community understory result in almost is predominantly composed of deciduous species. The tall riparian trees and dense herbaceous shrubs and rosewood, dogwood, willow, bittercherry,

used by nesting migrants for foraging during noted for its very high bird species diversity and Wildlife Resources This habitat type is migration. Mature trees provide numerous abundance. Deciduous trees and shrubs are by nesting raptors; stream banks provide nesting for belted kingfishers. A variety of mammals utilize the dense forest for cover, such as woodpeckers. Tall trees are used cavities for cavity-dependent wildlife shade and food.

aquatic species and juvenile fish) and riparian habitat are small watered remnants of major river meanders across the floodplain. On the Preserve these sites are constructed channels connecting ponds built specifically for aquatic habitat. These areas provide off-channel habitat for aquatic (built specifically for species and riparian habitat for terrestrial species and increases the diversity channel habitats corridor.

cottonwood community can grow into a mature riparian Periodic flooding events are needed for Cottonwood seedlings to germinate and become established on newly-deposited, moist sand and gravel bars. This

![](_page_16_Picture_7.jpeg)

# 0

benefits. The Warm Springs Pr

## Resources **Fisheries**

provides cover, shade at the water's edge Vegetation rooted

and food for fish. This is especially critical along embedded in the stream bank provides cover intermittent streams where remnant summer pools provide refugia for fish. Large wood and refuge for fish.

![](_page_16_Picture_13.jpeg)

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# **Meadow/Wetland**

The

Wet

elevations warms due to seasonal or other changes. the dry meadow. Wet meadow habitats effectively shrubs. The Warm Springs Preserve wet meadow is intended to emulate a beaver wetland; beaver often hydrology of Warm Springs Creek than portions of Wet meadows may include some trees and larger provide drought insurance as land at higher elevation of the wet meadow or wetland is generally lower and more connected to the

![](_page_17_Picture_2.jpeg)

mixed with some native upland disconnected from the annual occur almost exclusively within the then the wet meadow and are shrub species, wildflowers, and flat surfaces of the project area that are at a higher elevation hydrology of Warm Springs character zone is arid and Creek. The dry meadow

wildlife. Floodplains are an important source of nutrients and provide multiple habitat niches. A new floodplain will provide offchannel habitat for aquatic species and Floodplains provide essential habitat for riparian habitat for terrestrial species.

the challenges, opportunities and the many benefits of a reconnected floodplain that include habitat for fish and and adaptability to climate change. The plan highlights wildlife, groundwater recharge, carbon sequestration, open space and recreation.

![](_page_17_Picture_8.jpeg)

landscape. The floodplain in the Preserve is made up of mesic (wet) and xeric (dry) meadows. ie channels we associate them with. The areas next Known as floodplains, in their natural condition they are an important ecological part of the to streams, which are only covered by water during floods, are also part of the river system. Floodplains filter and store water, secure both natural flood protection and the healthy functioning of the stream ecosystems, and help sustain high biological diversity. Streams and rivers are much wider than th

# odplains **Connected Stream Flo**

functions of floodplains is well understood and there are so that they actively flood. This not only supports native many benefits to restoring connectivity of floodplains The importance of the hydrologic and ecological

floodwaters, thereby reducing flood peaks downstream. riparian and aquatic species, but it also accommodates combining flood risk reduction, ecosystem restoration, planned in a way to provide multiple benefits, such as ecological benefits of floodplain inundation and is The Warms Spring Preserve plan recognizes the

# Floodplai

![](_page_17_Picture_14.jpeg)