West Fork Cow Creek Restoration from Scratch

Jonas Parker, US Bureau of Land Management

A Unique Watershed

Population zero Only nine landowners



Remote



Rugged

Steep at bottom, flat at the top
Great habitat – if fish can get there





Human History of W. Fk. Cow Creek

- Ancestral territory of the Cow Creek Band of Umpqua Tribe of Indians
- Mining pack trails
- Community of Dothan in 1882 (118 residents)
- Southern Pacific Railroad depot until 1932
- 3 hotels morphed into logging camp in the 1950s





WEST FORK 1909

Leo Frye Collection



INTERIOR WEST FORK HOTEL

Past Restoration Efforts

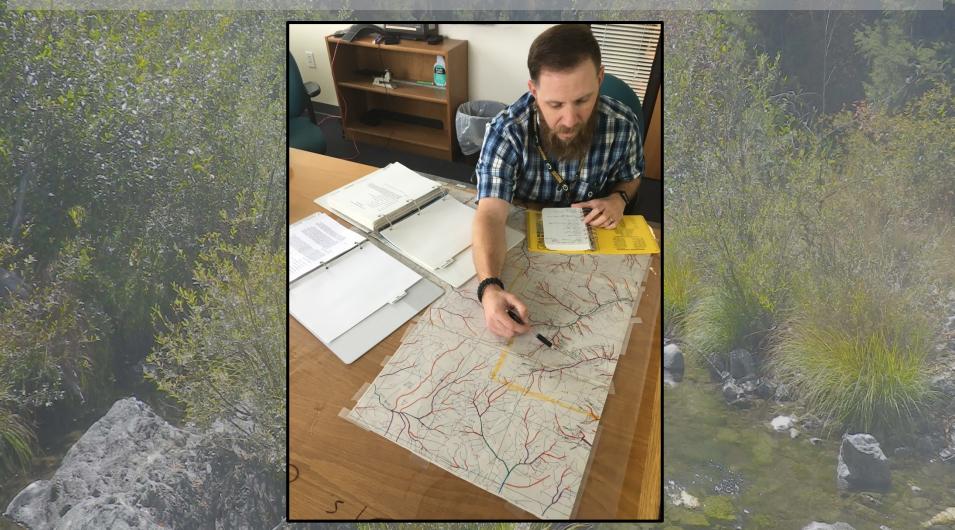
- Not much was done
- Log weirs
- Rootwad necklaces



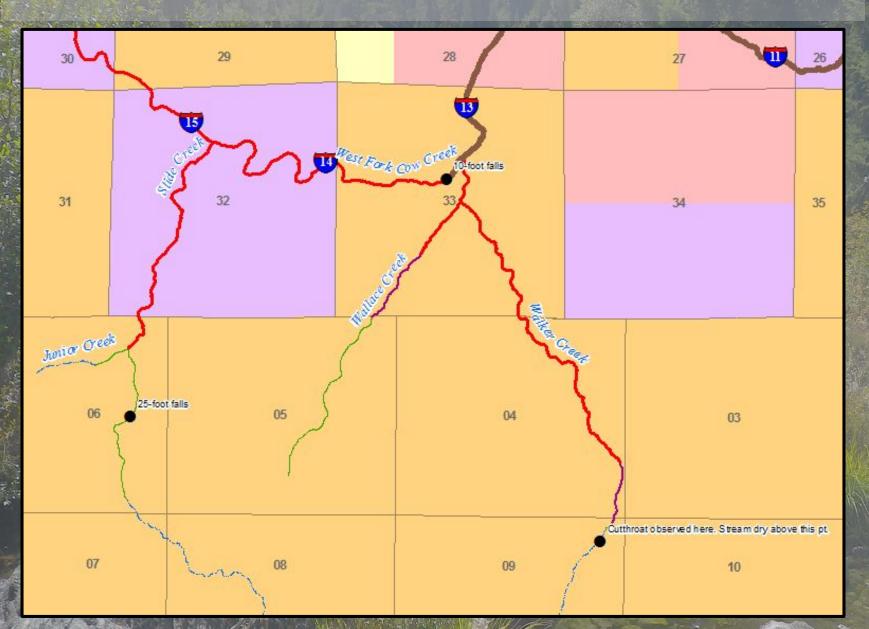


Starting Fresh

Fish distribution



"Final" Fish Distribution



Stream Crossing Surveys

BLM funded survey completion
Private v. public stream crossings

Slotted Pen Creek





Douglas Complex 2013

2,600 acres burned in lower W. Fk. Cow Creek
Lots of restoration material!



Changing Paradigms

- Shift from reactive restoration
- Understand the watershed and its processes
- Bring partners to the table
- Integrate and leverage money and abilities



Instream Season 2016

East Fork Elk Valley Creek, phase 1
Lower Panther Creek, phase 1







First Steps

Do no harm - monitoring



Paired Watershed Monitoring

- West Fork Elk Valley (control) & East Fork Elk Valley (treatment)
- Automated water quality samplers paired with flow/rain
- Paired with Bobby Creek paired watershed (19 years of data)
- Monitor restoration and timber harvest



Second Steps

- Who lives where?
- Habitat condition
 - Barriers? Summer flow?
- Restoration suitability
 - Substrate? Floodplain? Flow variation?
 - Quickly and comprehensively survey the entire watershed



2016 Surveys with HDR Inc.







2016 Surveys with HDR Inc.



Wilson Creek, HDR



Snorkeling & eDNA!



2016 Surveys with HDR Inc.

Fish passage
Restoration suitability
habitat surveys

08/01/2016 09:55

Panther Creek, HDR

2017 Surveys with USDA and OSU

- Where are the beaver?
- What habitat are they using?
- What could they use more of?





All photos courtesy of USDA National Wildlife Research Center



Moving Forward

~18 miles of tributaries
~18 miles of mainstem







Giving Nature a Number

- 50 "arbitrary" reaches delineated
- Every reach given points
 - Species present
 - Life stages contained
 - Fish passage
 - Instream condition
 - Riparian condition
 - Reach accessibility
 - Estimated cost

Restoration Plan

Project Description Project Type Unit No. Unit RAW SCRE 2 A shur Creek UWD enhancement - road based miles 0.9 0.92 3 1 Achur Creek UWD enhancement - road based miles 0.7 0.52 5 3 Bar Creek 27.5K project UWD enhancement - road based miles 0.7 0.52 6 Bar Creek XE/SK project UWD enhancement - road based miles 0.7 0.50 7 5 Bar Creek XE/SK project UWD enhancement - road based miles 0.4 1.49 6 Black Creek IWD enhancement - helicopter required miles 0.5 0.50 7 Bobly Creek phase 1 UWD enhancement - helicopter required miles 0.5 0.50 19 Bobly to Panther UWD enhancement - road based miles 0.1 0.5 0.50 19 Bolivar Creek IWD enhancement - road based miles 0.1 0.2 2.67 10 Bolivar Creek IWD enhancement - road based miles			А	В	c	D	F	G	н	AM	
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2422Mainstem Elk Valley Creek phase 1 fundedLWD enhancement - helicopter requiredmiles0.30.402523Mainstem Elk Valley Creek phase 2LWD enhancement - road basedmiles0.61.572624No Sweat to BobbyLWD enhancement - road basedmiles0.93.852725No Sweat to Bobbyriparian rehabilitationacres22.07.142826No Sweat to BobbyLWD enhancement - road basedmiles0.911.252927outflow to Jackassboulder/rock enhancementmiles3.41.513028outflow to Jackassriparian rehabilitationacres82.01.753129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles3.41.333331Panther to WalkerLWD enhancement - road basedmiles1.40.253435Ide to StanleyLWD enhancement - road basedmiles2.00.833534Slide to StanleyLWD enhancement - road basedmiles2.40.83	3 :	22	20	Jackass to Hayes		LWD enhancement - road based	miles		2.4	0.75	
2523Mainstem Elk Valley Creek phase 2LWD enhancement - road basedmiles0.61.572624No Sweat to BobbyLWD enhancement - road basedmiles0.93.852725No Sweat to Bobbyriparian rehabilitationacres22.07.142826No Sweat to BobbyLWD enhancement - road basedmiles0.911.252927outflow to Jackassboulder/rock enhancementmiles3.41.513028outflow to Jackassriparian rehabilitationacres82.01.753129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - road basedmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88		23	21	Mainstem Elk Valley Creek PCSRF phase		LWD enhancement - helicopter required	miles		1.0	0.40	
2624No Sweat to BobbyLWD enhancement - road basedmiles0.93.852725No Sweat to Bobbyriparian rehabilitationacres22.07.142826No Sweat to BobbyLWD enhancement - road basedmiles0.911.252927outflow to Jackassboulder/rock enhancementmiles3.41.513028outflow to Jackassriparian rehabilitationacres82.01.753129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - road basedmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88		24	22	Mainstem Elk Valley Creek phase 1 funded		LWD enhancement - helicopter required	miles		0.3	0.40	
2725No Sweat to Bobbyriparian rehabilitationacres22.07.142826No Sweat to BobbyLWD enhancement - road basedmiles0.911.252927outflow to Jackassboulder/rock enhancementmiles3.41.513028outflow to Jackassriparian rehabilitationacres82.01.753129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - helicopter requiredmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88		25	23	Mainstem Elk Valley Creek phase 2		LWD enhancement - road based	miles	Γ	0.6	1.57	僟
2826No Sweat to BobbyLWD enhancement - road basedmiles0.911.252927outflow to Jackassboulder/rock enhancementmiles3.41.513028outflow to Jackassriparian rehabilitationacres82.01.753129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - helicopter requiredmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88	. 6	26	24	No Sweat to Bobby		LWD enhancement - road based	miles	Γ	0.9	3.85	Y
2927outflow to Jackassboulder/rock enhancementmiles3.41.513028outflow to Jackassriparian rehabilitationacres82.01.753129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - helicopter requiredmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88	1	27	25	No Sweat to Bobby		riparian rehabilitation	acres		22.0	7.14	3
3028outflow to Jackassriparian rehabilitationacres82.01.753129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - helicopter requiredmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88	<u>)</u> :	28	26	No Sweat to Bobby		LWD enhancement - road based	miles		0.9	11.25	H
3129outflow to JackassLWD enhancement - road basedmiles3.41.333230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - helicopter requiredmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88	1	29	27	outflow to Jackass		boulder/rock enhancement	miles		3.4	1.51	1
3230Panther Creek phase 1LWD enhancement - road basedmiles0.42.063331Panther Creek phase 2LWD enhancement - helicopter requiredmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88	; :	30	28	outflow to Jackass		riparian rehabilitation	acres		82.0	1.75	
3331Panther Creek phase 2LWD enhancement - helicopter requiredmiles1.40.253432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88		31	29	outflow to Jackass		LWD enhancement - road based	miles		3.4	1.33	3
3432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88			30	Panther Creek phase 1		LWD enhancement - road based	miles		0.4	2.06	10
3432Panther to WalkerLWD enhancement - road basedmiles2.00.833533Slide to StanleyLWD enhancement - road basedmiles2.40.833634Slide to Stanleyboulder/rock enhancementmiles2.42.88		33	31	Panther Creek phase 2		LWD enhancement - helicopter required	miles		1.4	0.25	
36 34 Slide to Stanley miles 2.4 2.88	- C -		32	Panther to Walker		LWD enhancement - road based	miles		2.0	0.83	
	3	35	33	Slide to Stanley		LWD enhancement - road based	miles		2.4	0.83	1
	10.2	36	34	Slide to Stanley		boulder/rock enhancement	miles		2.4		

The Plan Lives!





As new information is attained, scores and priorities are updated

What is missing that should be here?



Account for flashy flows



• Utilize existing material (large and small)



Consider natural processes



Don't force it, but still be aggressive

- Don't create features where they don't belong
- No fixed spacing intervals or formulas for site placement





Allow for post-placement flow adjustment



One size doesn't fit all

Consider other species

- Umpqua chub, Pacific lamprey, dace, bass
- Beaver



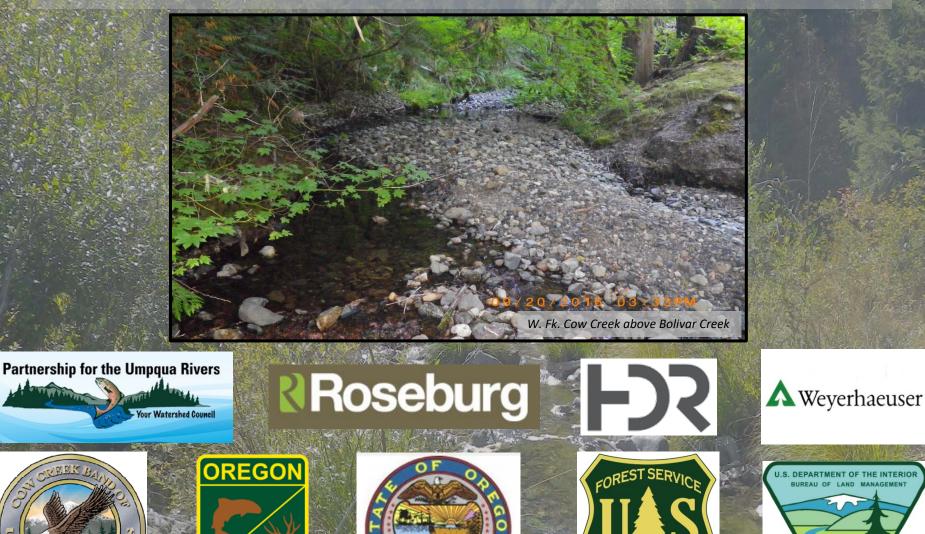
Riparian Treatments

- Noxious weeds
- Riparian thinning





Engage all Partners



OREGON DEPARTMENT OF

Fish & Wildlife

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S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEME

Collaboration is everything

