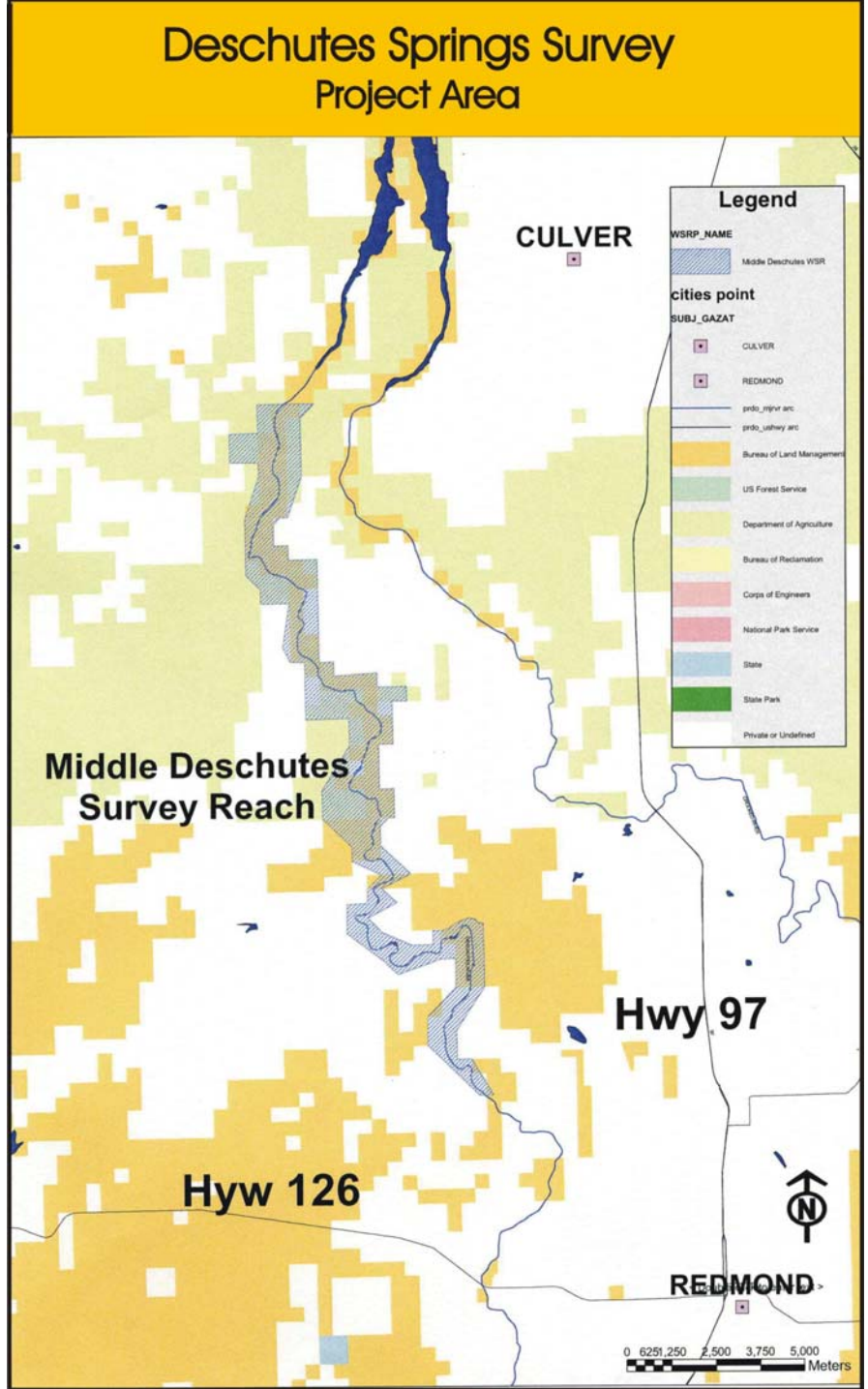
Middle Deschutes Botanical Inventory

WPN Watershed Professionals Network, LLC

Introduction

- Team – Nancy Napp, Joanne Richter and Ed Salminen
- Project Area
- Access Challenges
- Field Logistics and Constraints
- FLIR Data

- Project Area



Odin Falls

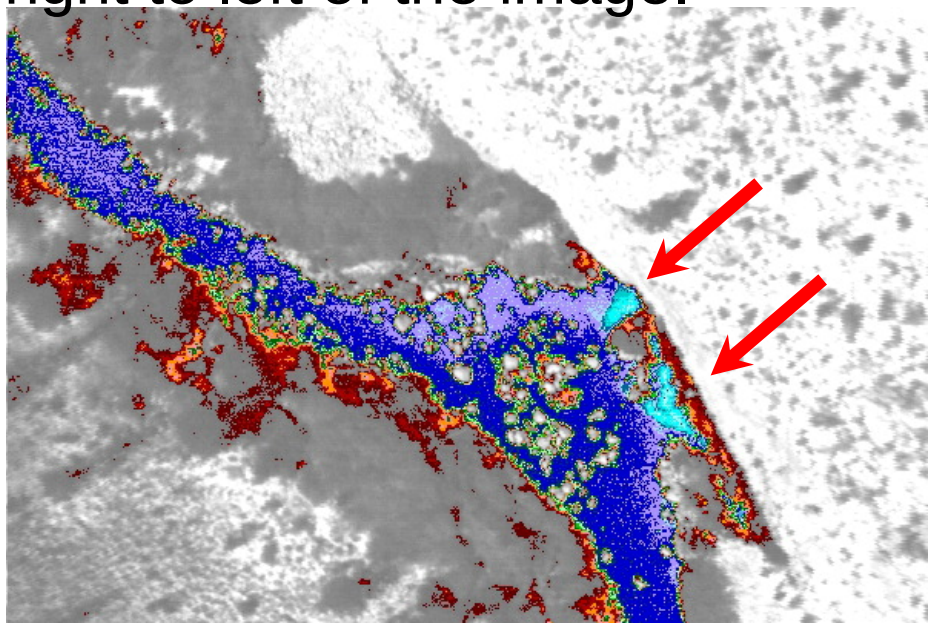
Culver Gauge

Access Challenges

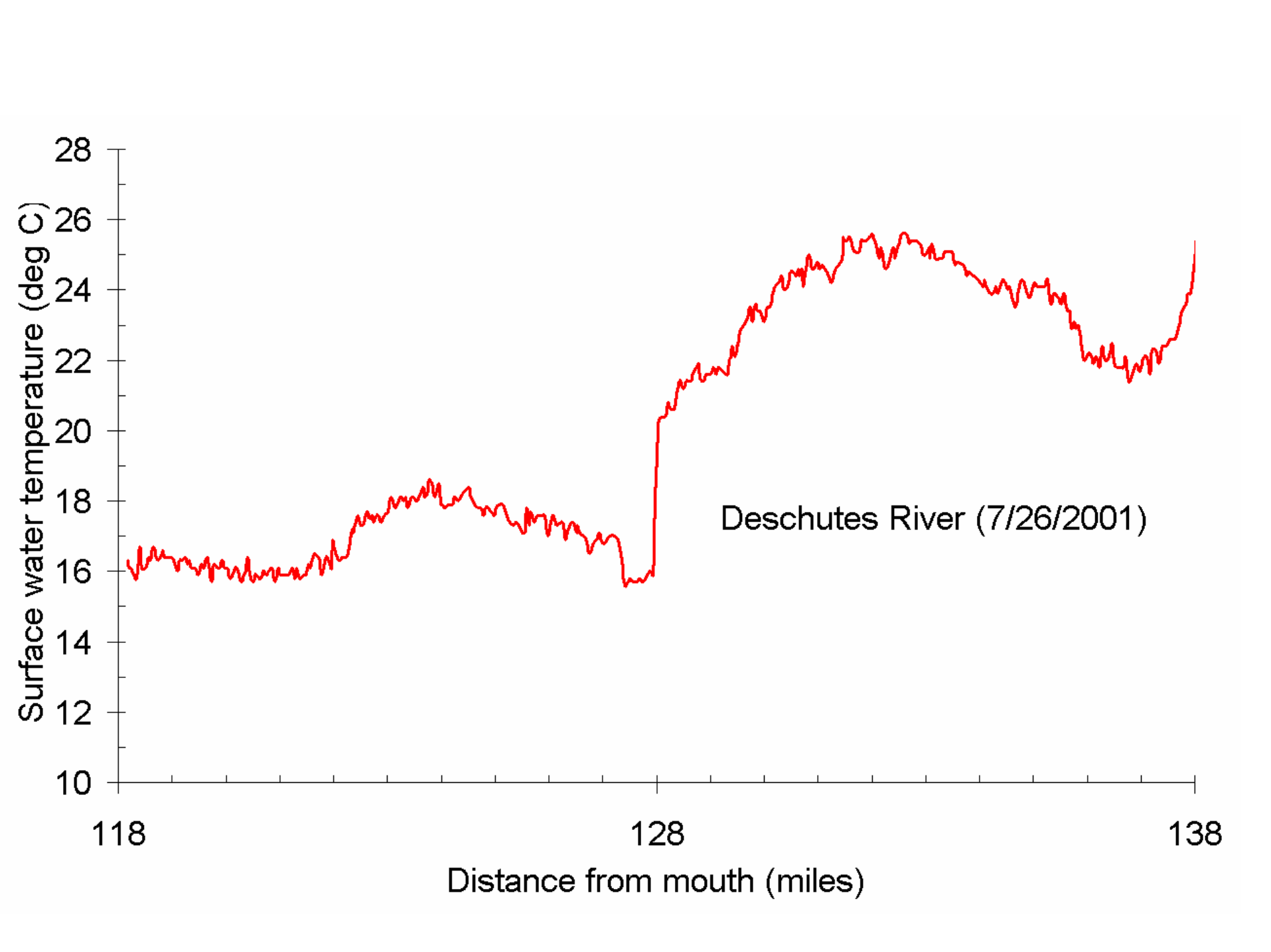
BLM SPRINGS SURVEY:
FIELD GEAR

GPS Unit and Backup GPS
Digital Camera and Backup Camera
Extra AA Batteries (lithium)
Waterproof Field Maps and Compass
Cell Phones (2)
Binoculars
Dry Bags for Electronic Equipment
Plant Identification Manuals
Waterproof Data Sheets and Clipboard
Waterproof Field Notebook
Extra Pens and Pencils
100’ Tape Measure
2, 30’ Nylon Ropes
Carabineers
Paddling Throw Bag
Float Tubes (2)
First Aid Kit
Flashlight
Emergency Blanket
Waders

Image pair showing springs (~16ºC) entering the Deschutes River (~21ºC) at river mile 129.8. Flow direction is from bottom right to left of the image.



Temperature (deg C)


Surface water temperature (deg C)
28
26
24
22
20
18
16
14
12
10
118
128
138
Distance from mouth (miles)
Deschutes River (7/26/2001)

Methods

- Mapping plant associations using aerial photographs
- Detailed plant species inventory at each spring
- GPS
- Photography

Mapping Plant Associations

Middle Deschutes Canyon Springs Floristic Survey
RIPARIAN PLANT COMMUNITIES DATA FORM — DATE: 6/14/05

SEGMENT RB: 1109-85	RIVER MILE:
SEGMENT LB: 1109-84	GPS:
PHOTO NUMBERS:	ASSOCIATION:

DOMINANT SPECIES: CODE	NOTES	LAYER	ASSOCIATED SPECIES:
			ARLUE
COSE		S	PHAR
SRDD		S	ALIN – scattered throughout
TYLA		H	
IRPS		H	

Notes on vigor, disturbance, ecological trend:
PHAR, IRIS indicate disturbance

SEGMENT RB: 1109-86	RIVER MILE: 130.5
SEGMENT LB: 4	GPS: 35935, 15955
PHOTO NUMBERS: 166, 167	ASSOCIATION:

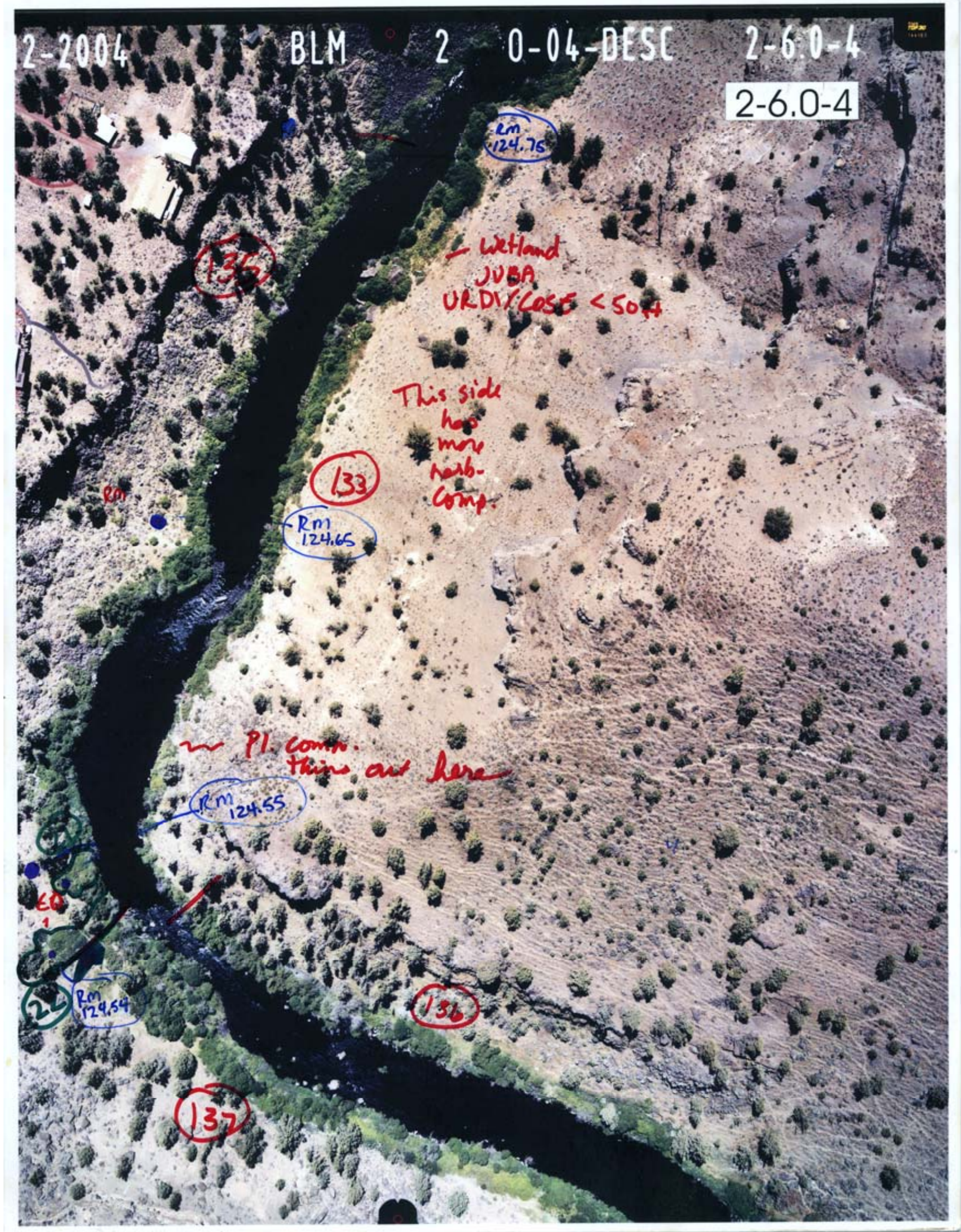
DOMINANT SPECIES: CODE	NOTES	LAYER	ASSOCIATED SPECIES:
			PHAR
PRVI		T	
BEOC		T	
COSE		S	
TYLA-IRPS		H	

Notes on vigor, disturbance, ecological trend:
narrow strip, TYLA IRPS comes in & out depending on grade

SEGMENT RB: 4	RIVER MILE: 130.45
SEGMENT LB: 1107-87	GPS: 35975, 16021
PHOTO NUMBERS: 168, 169	ASSOCIATION:

DOMINANT SPECIES: CODE	NOTES	LAYER	ASSOCIATED SPECIES:
			RARE
PRVI		T	CIAR
COSE		S	HELA
TYLA		H	URDI
IRPS		H	BEOC

Notes on vigor, disturbance, ecological trend:
Big bunch of RARE here, lots of CIAR,
One big patch of BEOC
disturbance road/early seral comm.
Cover of trees/shrubs low compared to other places



Springs Inventory

Middle Deschutes Canyon Springs Floristic Survey

SPRING FEATURE DATA FORM 130.75 - 130.2

DATE: 6/15/05 **FEATURE NUMBER:** SPRING 14 - [illegible] X

DIMENSIONS: 159 yds X ~50' wide on Average

GPS COORDINATES: midpoint 35796, 15565 end 35751, 15642

PHOTO NUMBERS: 154, 157

PLANT ASSOCIATION:

CODE	GENUS	SPECIES	%COVER	LAYER
PRVI	Prunus	virginiana	10	T
ALIN	Alnus	incana •	30	T
SACE	Sambucus	cerulea •	20	S
[illegible]	Rosa	woodsii	5	S
COSE	Cornus	sericea	10	S
SPDO	Spiraea	douglasii	5	S
SCMI	Scirpus	microcarpus	20	H
IRPS	Iris	pseudacorus	15	H
TYLA	Typha	latifolia •	30	H
EQUISETUM	Equisetum	sp (large thick [illegible])	5	H
HYPE	Hypericum	perforatum	T	H
IRLUE	[illegible]	[illegible]	5	H
MYLA	Myosotis	laxa	5	H
URDI	Urtica	dioica	T	H
SODU	Solanum	dulcamara	T	H
JUEF	Juncus	effusus	T	H
SOLIDAGO sp	Solidago	sp	5	H

STRUCTURAL DESCRIPTION OF PLANT COMMUNITY:

@ upland edge of spring complex ALIN/[illegible]/COSE dominate wetland grades into TYLA/IRPS/SCIMI @ riparian edge. ALIN^ bigger dominant here than in SPRING 13.
[illegible]
√ GIS for distance - p draw

Results

- Springs Inventory
- Plant Associations
- Rare plants

Springs Inventory Results

- Total of 33 springs in the 20-mile section of the Middle Deschutes.
- Many of the spring features are comprised of more than one plant association.
- The plant associations at the spring features frequently did not follow the available literature regarding plant associations in this region.
- Springs ranged in diversity from 8 plant species to 42 plant species.

Spring 15

Spring 16

Spring 17

Spring 20

Spring 26

Spring 27

Plant Association Results

- Plant Association Acreages and Percent of Total

Plant Association	Acreage	Percent
SPDO/COSE	60.847	24%
BEOC/COSE	39.534	15%
ALIN/COSE	24.874	10%
ALIN/COSE/PHLE	25.416	10%
COSE	26.876	10%
SPDO	18.436	7%
PRVI/COSE	13.959	5%
ALIN/SPDO	9.663	4%
BEOC/SPDO	11.213	4%
PHLE	8.008	3%
BEOC/PHLE	6.393	2%
ALIN/BEOC	3.366	1%
GRASS*	1.701	1%
POTR	1.675	1%
ROCK	2.809	1%
SAEX	1.597	1%
CANU*	0.127	0%
PHAR*	0.126	0%
Grand Total	**256.6**	

Rare Plant Results

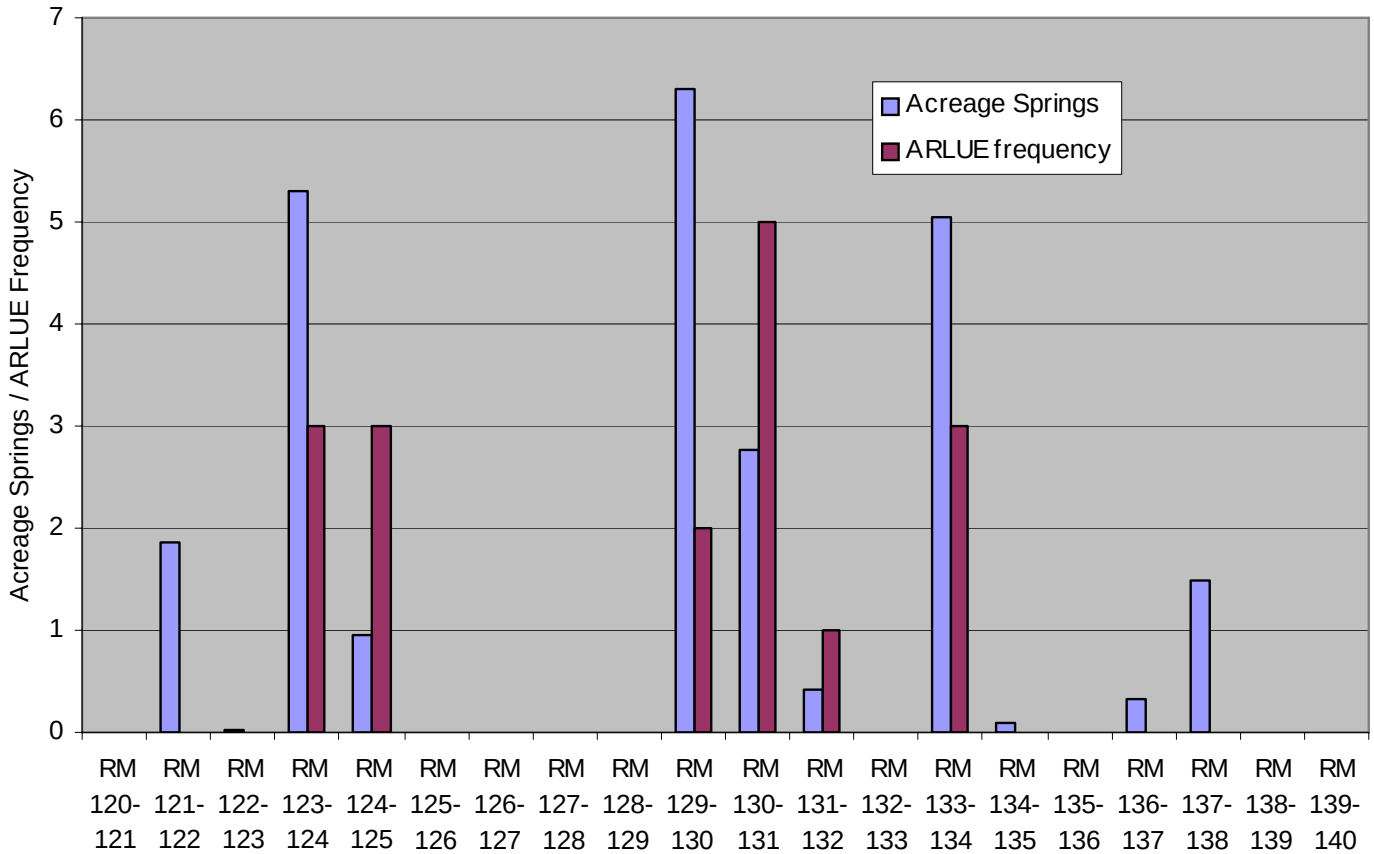
- *Artemesia ludoviciana ssp. Estesii*
- See chart slide 14
- See wall map

Discussion

- Springs and species diversity
- Plant Associations
- Special Status Plants
- Weeds
- Vegetation health
- How do the springs influence species/association patterns on the river?

Springs Inventory

Spring Acreage by River Mile

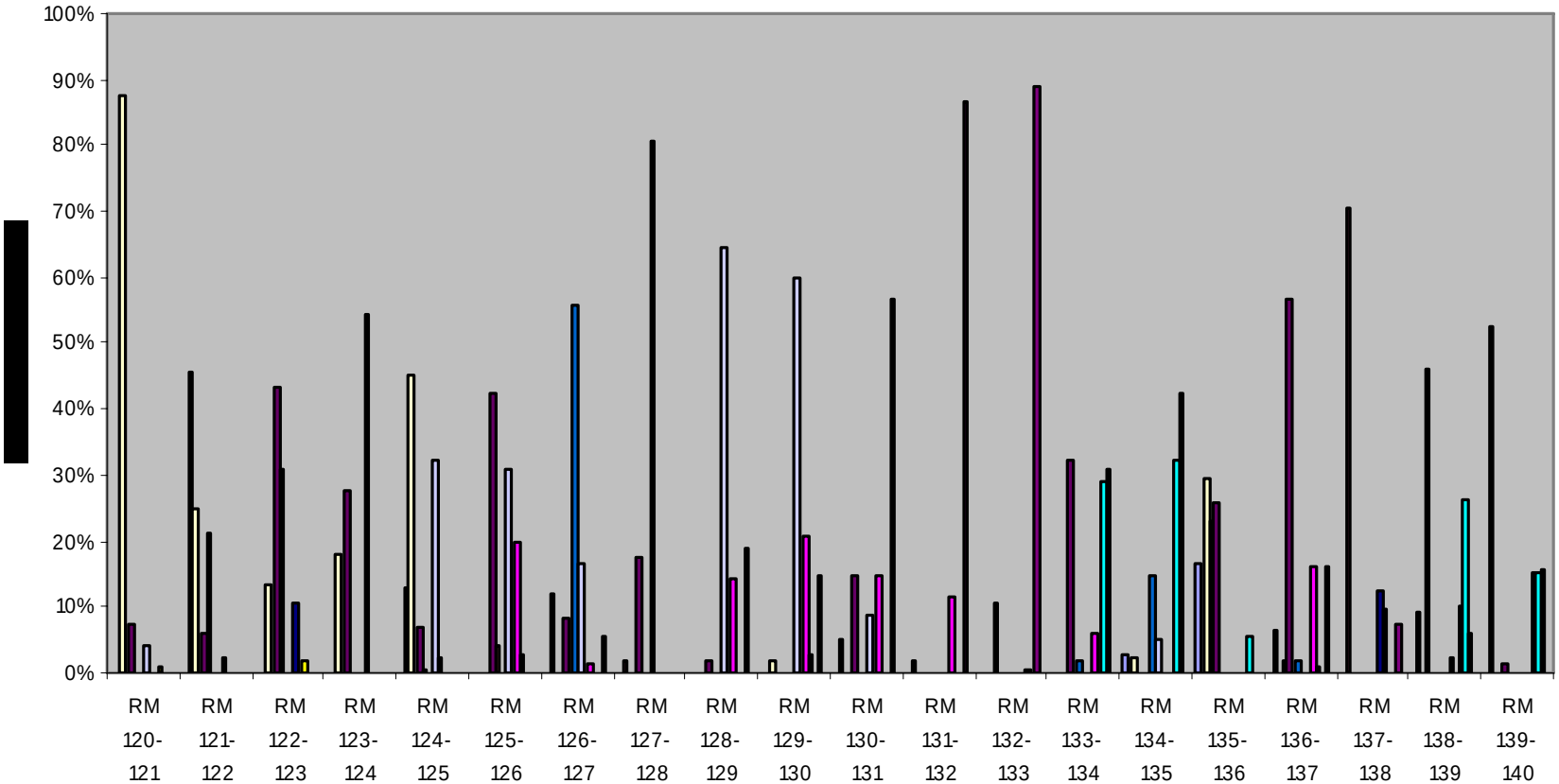


Springs and Species Diversity

- Highest diversity at springs 19,24,26,27.
- Largest number of species found was 42 plant species at Spring 27 (includes ARLUE).
- The springs have a major influence on floristic diversity in the Deschutes Canyon.

Plant Associations

- Plant associations by river mile



Plant Associations

Plant Association Observations

- Douglas spiraea *(Spiraea douglasii)* is much more common in the upstream half of the project area.
- Douglas spiraea (*Spiraea douglasii*) and red-osier dogwood (*Cornus sericea*) form a plant association in the upper reaches that is not described in the literature.
- Douglas spiraea (*Spiraea douglasii*) appears to play a role in the ecology of the Deschutes canyon that may be played by a different species in other areas, perhaps snowberry (*Symphoriocarpos alba*), or willow (*Salix spp.*).
- Lewis' mock orange (*Philadelphus lewisii*) rarely dominates plant communities until downstream of RM 125.
- Ponderosa pine (*Pinus ponderosa*), Pacific ninebark (*Physocarpos capitatus*) dogbane (*Apocynum sp.*) and Elderberry (*Sambucus nigra spp. cerulea*) were only found in the lower reaches of the project area.

Alder-dogwood association

Spiraea-dogwood association

River birch-dogwood association

Dogwood association

Special Status Plants

- Estes' white sagebrush (*Artemisia ludoviciana spp. estesii*)
- Liverwort monkey-flower (*Mimulus jungermannioides*), was reported from the project area but was not located.

Weeds

- yellow flag (*Iris psuedacorus*)
- reed-canary grass (*Phalaris arundinaceae*)
- creeping buttercup (*Ranunculus repens*)
- poison hemlock (*Conium maculatum*)

Other Notable Features

Basalt Banks

Steelhead Falls

Confluence with Wychus Creek

Lower Canyon

Discussion

- Vegetation Health

  “There are areas in the upper reaches with dead and decadent alder, some large infestations of weeds in a few places, but otherwise there are both healthy woody and herbaceous riparian plant communities present, and healthy plant assemblages at all of the springs.”

- How do the springs influence vegetation patterns on the river?

- Essentially have high quality wetland habitats in an arid environment.
- Springs expand the riparian potential in many areas
- Springs expand plant species diversity in the canyon

Conclusions

- Deschutes River canyon is a very unique habitat.
- Many of the springs have impressive flows.
- Some springs are long continuing complexes with rivulets of water appearing along their lengths.
- The springs increase diversity, riparian fringe habitat, and in-stream flows.

Recommendations

- Continue to exclude cattle grazing from the area.
- Monitor the springs on 5-year intervals if possible, or no more than 10-year intervals.
- Repeat the photography of the springs during monitoring events.
- Repeat the FLIR and use other remote sensing to monitor the area on a more frequent time scale, perhaps every 2-3 years if possible.
- Gain access to the areas that were viewed by aerial photograph and ground truth the 2005 results.