

An Ecological Assessment of Oregon's CREP Cumulative Impact Incentive Program

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Riparian Buffers

- Absorb floodwaters
- Filter sediment and nutrient runoff
- Regulate water temperature
- Provide woody debris inputs to rivers

Oregon CREP

- Focus on streams with T&E salmon species
- Pay competitive rental rates to producers
- Cumulative impact program
 - >50% of a 5 mile stretch of stream enrolled into program
 - One-time payment of 4 times the annual rental rate

Methods

- Select buffered and unbuffered areas along streams with similar geography and upland land use.
- Selected 9 buffered and 3 unbuffered sites along 3 streams in Wasco County, OR
 - Fivemile Creek
 - Eightmile Creek
 - Fifteenmile Creek



Methods - Macroinvertebrates

- Methods similar to OR DEQ
- Sample in riffle/fast water habitat
- D-frame kick-net
- Samples sorted in lab, Identified to lowest taxonomic order (usually Genus)

Environmental Variables

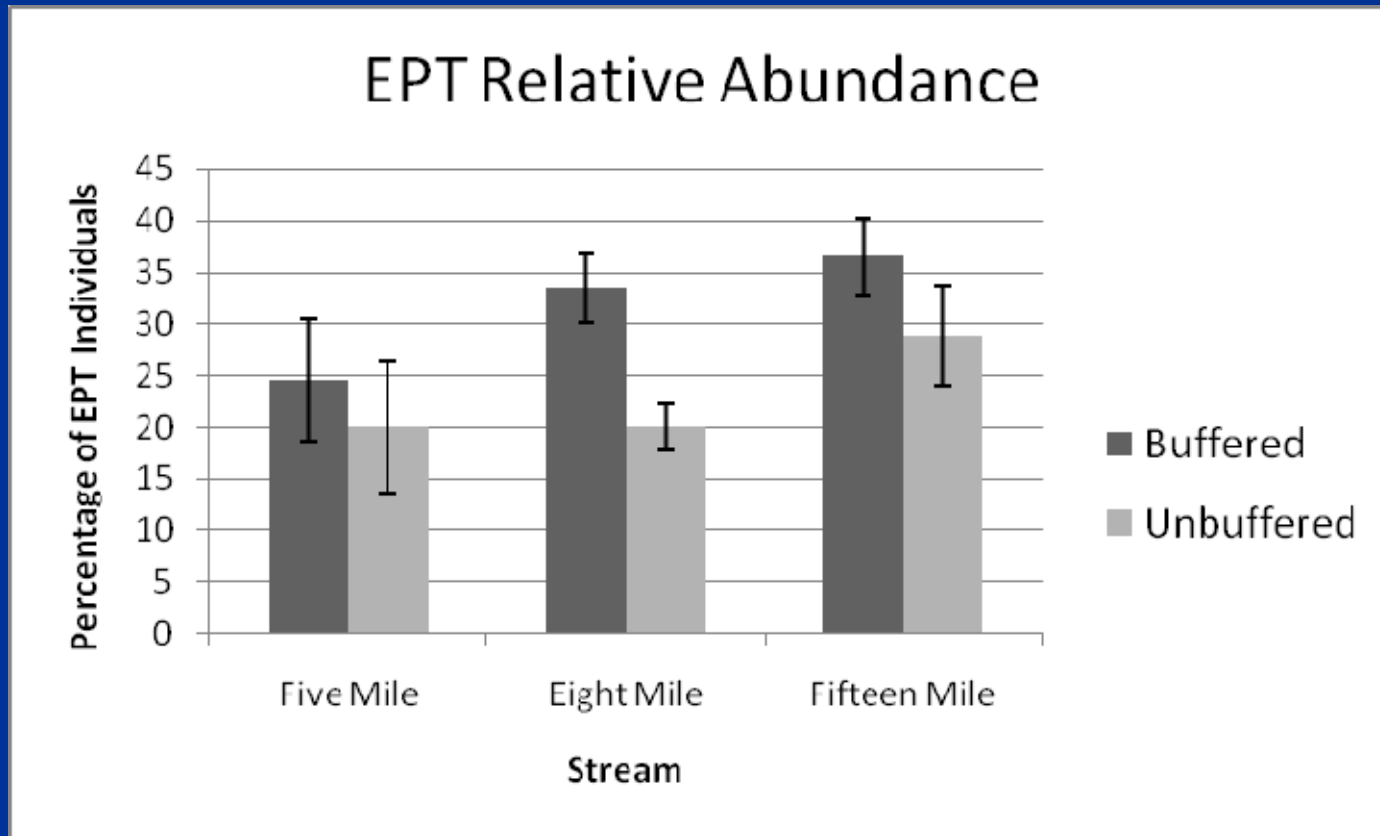
- Wetted width
- Substrate composition (Wohlman pebble count)
- Water depth and velocity
- Solar exposure (Solar pathfinderTM)
- Specific conductance
- pH
- Turbidity
- Temperature

Vegetation Sampling

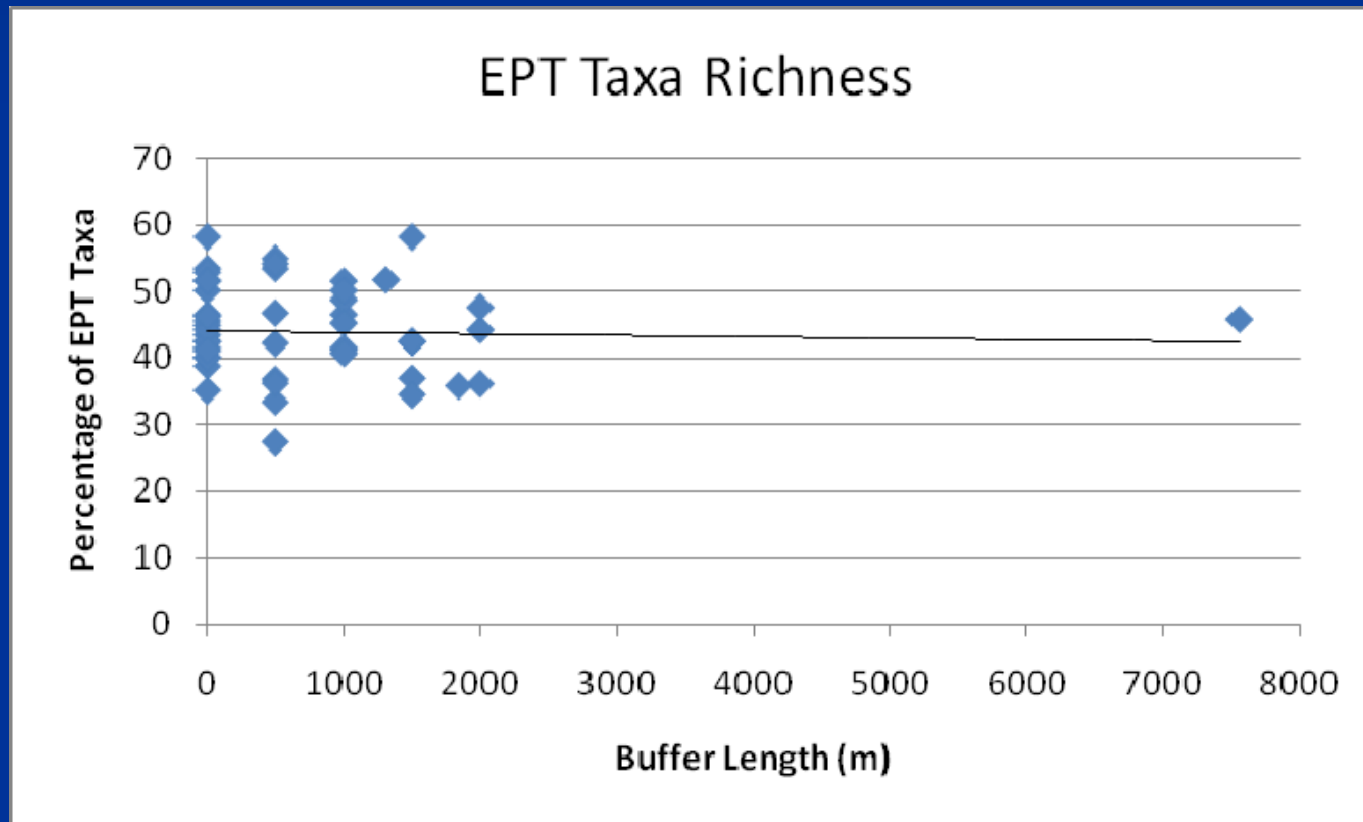
- 15 m transects extending perpendicular from stream flow to upland
- Estimate percent in 1 m² frames at 6 distances along transect (0, 1, 2, 4, 8, 14 m)
- Count number of woody stems in 4 X 15 m belt transect
- Collected soil sample
- Placed seed trap in stream



28.7% of individuals identified were mayflies, stoneflies, and caddisflies. Buffered areas had significantly higher percentages of these taxa than unbuffered areas



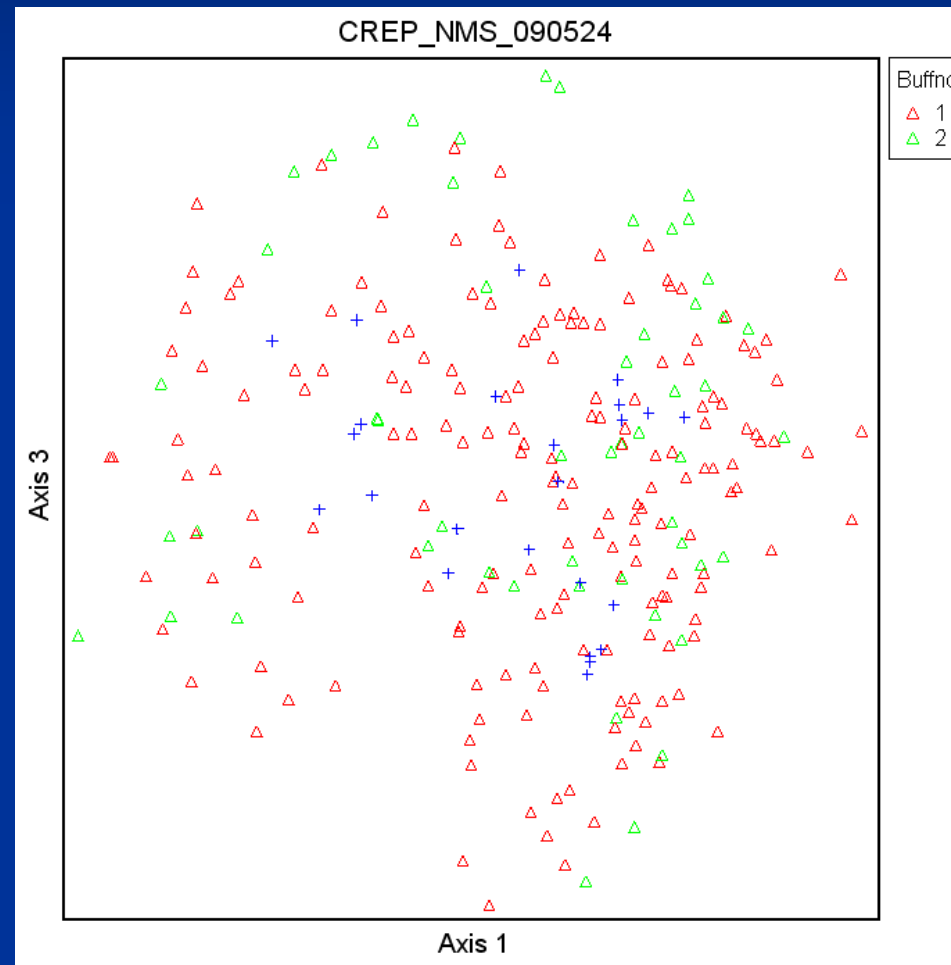
No significant effect of buffer length on EPT taxa richness, Percent EPT taxa, and Index of Biotic Integrity



Plant Sampling Results

- 222 herbaceous plant species identified
 - 95 herbaceous species were exotic
 - 11 are classified as noxious weeds in OR
- 38 species of woody vegetation

No difference in plant community composition between buffered and unbuffered sites



Conclusion

- Buffered sites have higher stream quality than unbuffered sites.
 - Only for one index.
- Longer buffers did not have higher stream quality
 - Unlike other studies who have shown a relationship between stream quality and buffer length

Conclusion

- No differences in vegetation. Riparian areas are highly disturbed and ruderal species are adapted to these areas.
- Visual differences between buffered and unbuffered sites were small.
- Chose Wasco County because of the large area in buffers.
- Larger differences may be found if more obvious differences were present between buffered and unbuffered areas.

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- Thanks to field assistants who helped with the vegetation and macroinvertebrate sampling.
- Thanks to OSU EOARC and Hermiston station.