Identifying distribution boundaries at the upper extent of fish in forested streams with electrofishing and eDNA



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Pothole Creek above E. Fk Trask River



Acceptable Methods for Determining Fish Presence



Electrofishing: "most effective method" in determining fish presence

Sources: FPA OAR 629-635-0200 (13) (11/1/07), Forest Practices Rule Guidance (11/15/07), SF Policy Bulletin (#09-04 – Appendix 1) Slide courtesy of Mark Meleason, ODF

eDNA Barcoding of Focal Taxon



Objectives

1. Assess whether eDNA can identify the end of fish distributions at their upper extent

2. Compare eDNA detections to electroshocking







Study Design

- We sampled 60 streams, 31 streams on private lands and 29 streams on federal lands over two years
- We worked in collaboration with interested landowners, including Hancock, Port Blakely, and Weyerhaeuser for sampling on private lands
- We collected and filtered 3 water samples at eight sites in each stream to detect eDNA









Understanding qPCR results



 $CT \leq 29$ strong positive reactions with abundant target DNA in the sample

CT 30-37 positive reactions with moderate amounts of target DNA

CT ≥38 weak reactions with minimal target DNA, or problems with PCR setup



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Questions?

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