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Literature Search Strategy – Roads (DRAFT)

For 21 August 2024 IRST meeting

The roads and hydrologic connectivity literature compilation conducted by the Institute for Natural Resources is intended to serve, not as a comprehensive literature review, but rather as a means to facilitate the development of requests for proposals (RFPs) to address the Adaptive Management Program Committee's (AMPC) final roads research questions. Requests for further review of the literature may be included in the RFPs, depending on the needs determined by the Independent Research and Science Team (IRST).

This literature search strategy outlines how literature will be sought. It is a living document.

AMPC's Final Roads Research Questions

Baseline Report

1. What is the baseline status of hydrologic connectivity of roads prior to the implementation of the OFPA road rules effective Jan 1, 2024?
2. How does the status of hydrologic connectivity differ based on landowner type and East/West region?
 - 3a. How does road surface type, geology, soils and other factors affect the status of hydrologic connectivity?
 - 3b. How do particular elements, such as undersized culverts or road location, in the regulatory framework contribute to hydrologic connectivity?

Trend Monitoring

1. What are the trends in the status of hydrologic connectivity of roads over 5-year intervals? These trends should be assessed for the same variables in question 1.

Determination of Rule Effectiveness

1. Within 25 years, to what extent are road rules associated with hydrologic disconnection effective at achieving biological goals and objectives?

Search Strategy

Focus

The primary purposes of this review are to inform the request for and review of proposals received, thus the focus will be on monitoring methods rather than the effects of road-stream connectivity. More specifically, we will look for monitoring strategies that can be applied to small and large private landowners in the eastern and western regions of Oregon.

Time period to conduct literature search

- Start date
- End date

Electronic databases

- [Forest Science: CAB Direct](#)
- Treearch: [USDA Forest Service Research](#)
- [Web of Science: Science Citation Index](#)

Meta search engine

- Google Scholar
- [SciSpace \(AI tool - can extract methods\)](#)

Unique library collections

- Example: Oregon State University's Scholars Archive
- Unique collections at universities (Oregon's public universities, Washington State University, University of Washington)
- Unique collections at State Libraries (Oregon State Library, Washington State Library)

Selected bibliographies

- Dubé, K., A. Shelly, J. Black, and K. Kuzis. 2010. Washington road sub-basin scale effectiveness monitoring first sampling event (2006-2008) report. Cooperative Monitoring, Evaluation and Research Report CMER 08-801. Washington Department of Natural Resources. Olympia, Washington. https://www.dnr.wa.gov/publications/fp_cmer_08_801.pdf
- [Dube-2004-Washington Road Surface Erosion Model \(WARSEM\) Manual.pdf](#) (Appendix A)
- [Trees to Tap](#) (2020) literature spreadsheet
- [NW Forest Plan Aquatic & Riparian Effectiveness Monitoring Program literature database](#)
- [WA Cooperative Monitoring, Evaluation, and Research Committee \(CMER\)](#)
- [California Board of Forestry, Effectiveness Monitoring Committee](#)

Literature dates

- 2004-2024 (since the Dubé et al literature review was published)

Type of literature

- Peer review
- Technical reports
- Dissertations and theses
- Conference proceedings

Literature Geographies

- Oregon
- Washington
- Pacific Northwest

Keywords for searching

- ***hydrologic connectivity and disconnection***
 - Sediment delivery
 - Drainage
 - Run off
 - Erosion

- **Roads**
 - Forest + road
 - Drainage structures (e.g., culverts, ditches)
- **Methods**
 - Monitoring
 - Effectiveness monitoring
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Review Strategy

Categories of information documented for each publication

- Publication citation (principal investigators, date, title, etc.)
- Study dates and study duration
- Study location
- Research question(s), hypotheses
- Sample sizes and results
- Methods: empirical vs modeled
-

Subjects of Interest for article reviews

- **Road characteristics**
 - Surfacing (asphalt, gravel, native)
 - Geometry (crowned, insloped, and outsloped)
 - Road location
 - Status: active, inactive, abandoned, vacated
- **Environment**
 - East/West regions
 - Geology
 - Soil characteristics
 - Climate
 - Vegetation
 - Topography
- **Landowner type**
 - small private landowners
 - small private landowners
 - state/local
 - federal