

# *Forested wetlands and forest harvest*

*a successional framework for forested wetlands of the Olympic Peninsula*

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# Forested wetlands and current harvest practices in Washington

- Forested wetlands are one of three types of wetlands regulated under Forest Practices Rules:
  - Forested
  - Type A
  - Type B
  - Bogs (both forested and non-forested, but treated as Type A)
- Under Forest Practices Rules, ***forested wetlands*** are defined as a **wetland or portion thereof that has, or if the trees were mature would have, a crown closure of 30 percent or more.** (WAC 222-16-035)



Complete harvest of forested wetlands is allowed under existing rules



# Complete harvest of forested wetlands is allowed under existing rules

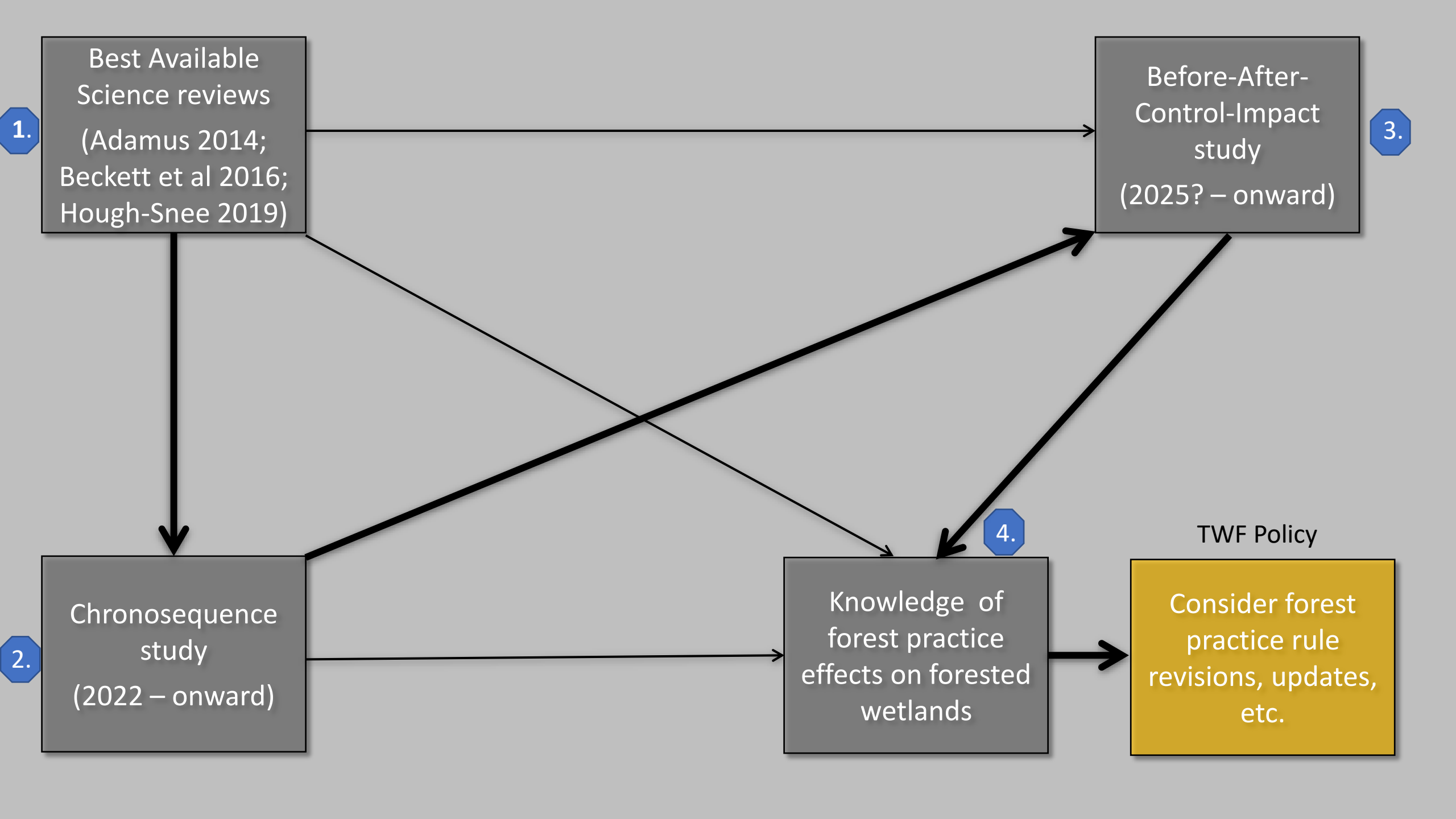
- WAC 222-030-10 (4)

Wetland areas serve several significant functions in addition to timber production: Providing fish and wildlife habitat, protecting water quality, moderating and preserving water quantity. Wetlands may also contain unique or rare ecological systems. The wetland management zone and wetland requirements specified in this chapter are designed to protect these wetland functions when measured over the length of a harvest rotation, although some of the functions may be reduced until the midpoint of the timber rotation cycle. Landowners are encouraged to voluntarily increase wetland acreage and functions over the long-term. Other laws or rules and/or permit requirements may apply.

# No shared understanding / interpretation of this language among current policy makers

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1.

Best Available Science reviews  
(Adamus 2014; Beckett et al 2016; Hough-Snee 2019)

3.

Before-After-Control-Impact study  
(2025? – onward)

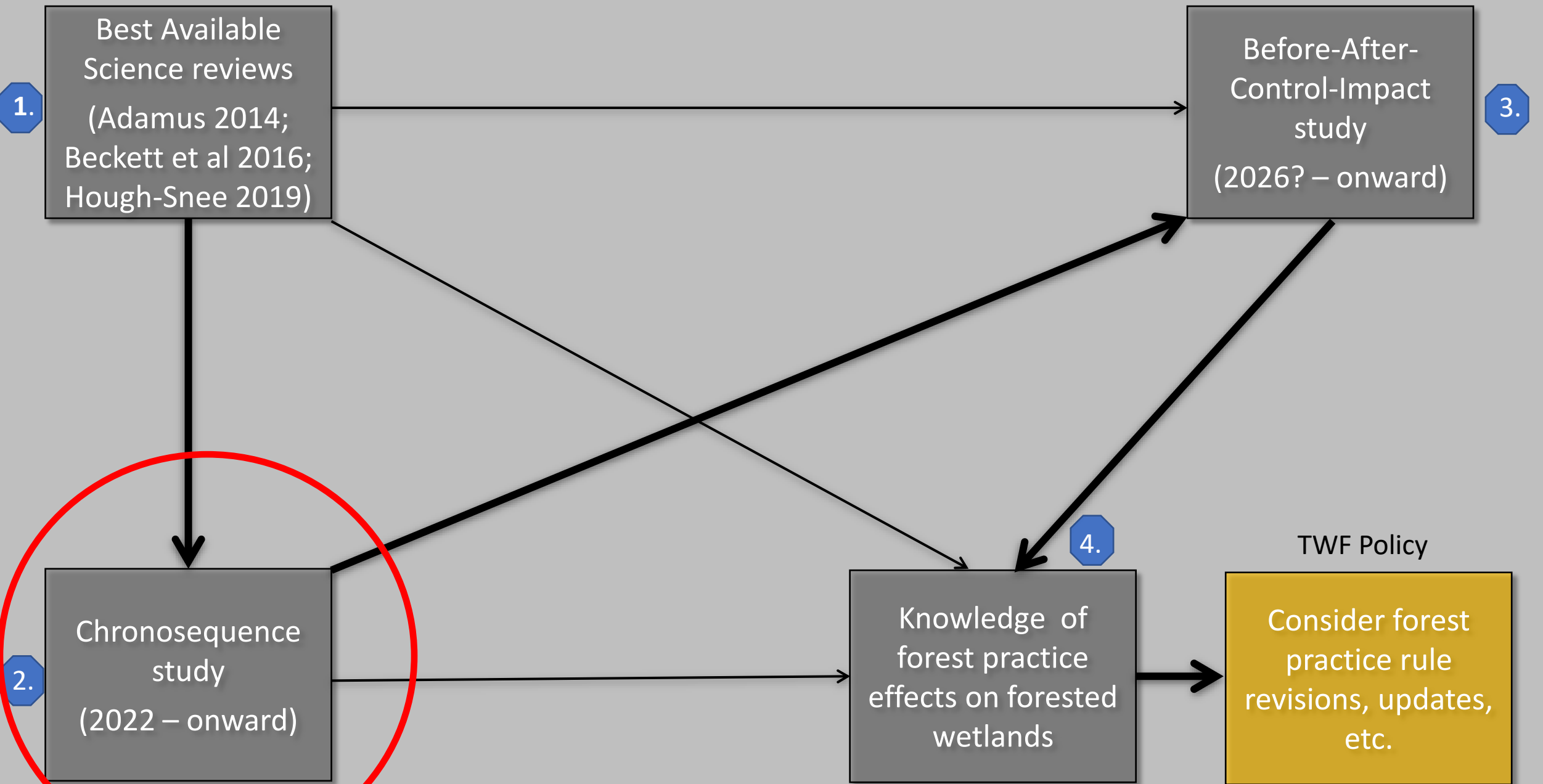
2.

Chronosequence study  
(2022 – onward)

4.

Knowledge of forest practice effects on forested wetlands

TWF Policy  
Consider forest practice rule revisions, updates, etc.



# Chronosequence study: Understanding forested wetland change over time

Time over a harvest rotation (~40 years)





# Chronosequence questions

1. How does forested wetland hydrology change over time following post-harvest forest stand development?
2. How do forested wetland vegetation and canopy-mediated habitat conditions change over time following post-harvest forest stand development?

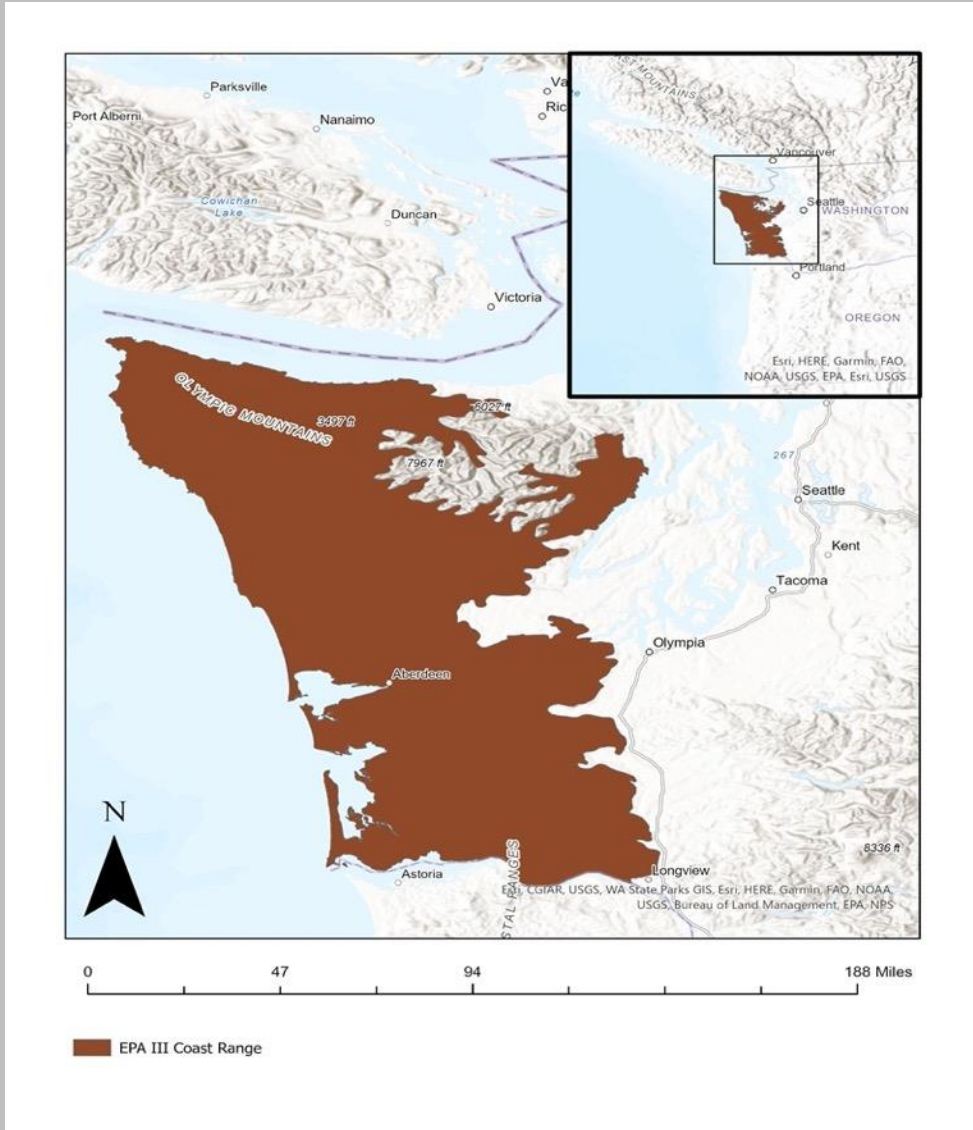


This study will conclude in 2025



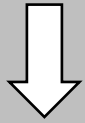
# Focus area

## Coast Range L3 EcoRegion



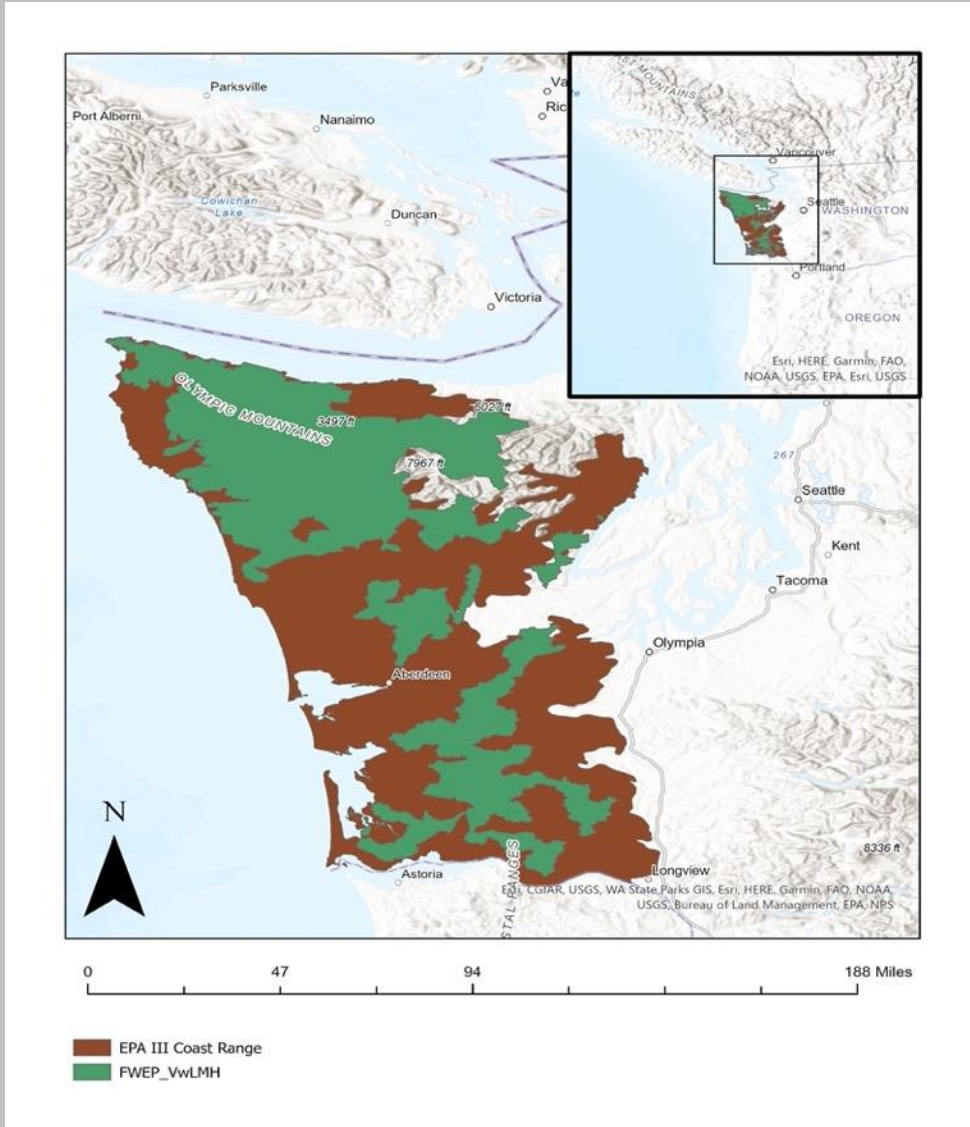
# Focus area

Coast Range  
L3 EcoRegion



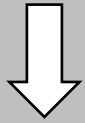
VwLMH  
Hydrologic Landscape  
Class

Very wet climate, winter seasonality, low aquifer permeability, mountainous terrain, high soil permeability.

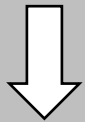


# Focus area

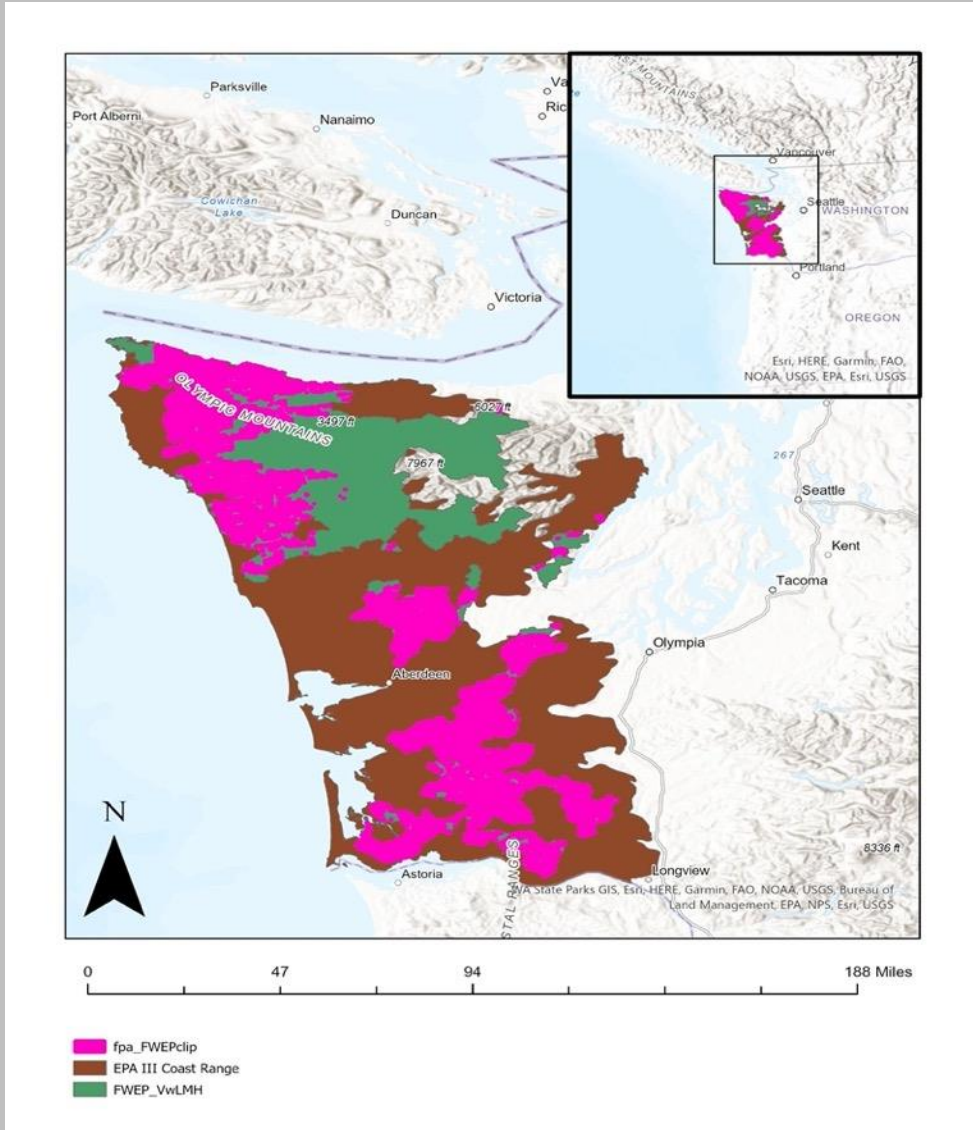
Coast Range  
L3 EcoRegion



VwLMH  
Hydrologic Landscape  
Class



Lands covered  
by FPHCP

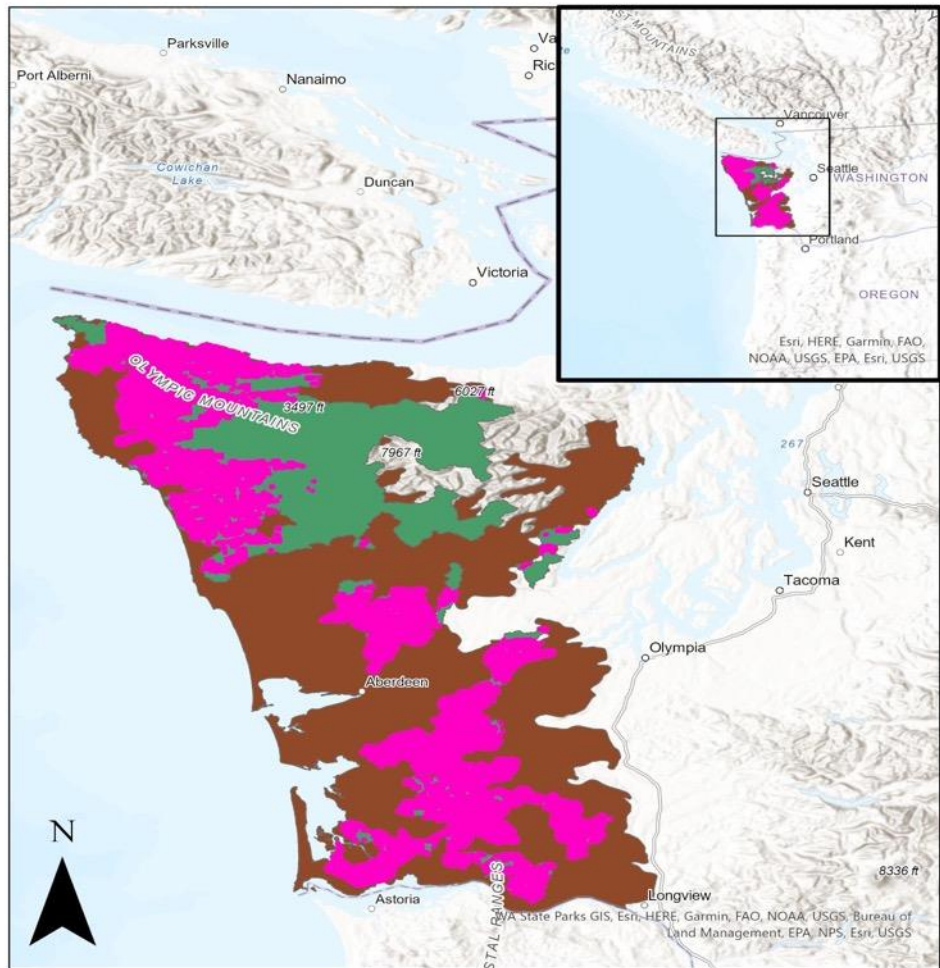


# Within this area, we looked for forested wetlands that:

- Had a perennial non-fish stream
- Harvested following current FPHCP rules
- Of the following age classes
  - 2 years old
  - 10 years old
  - 20 years old
  - 40 years old

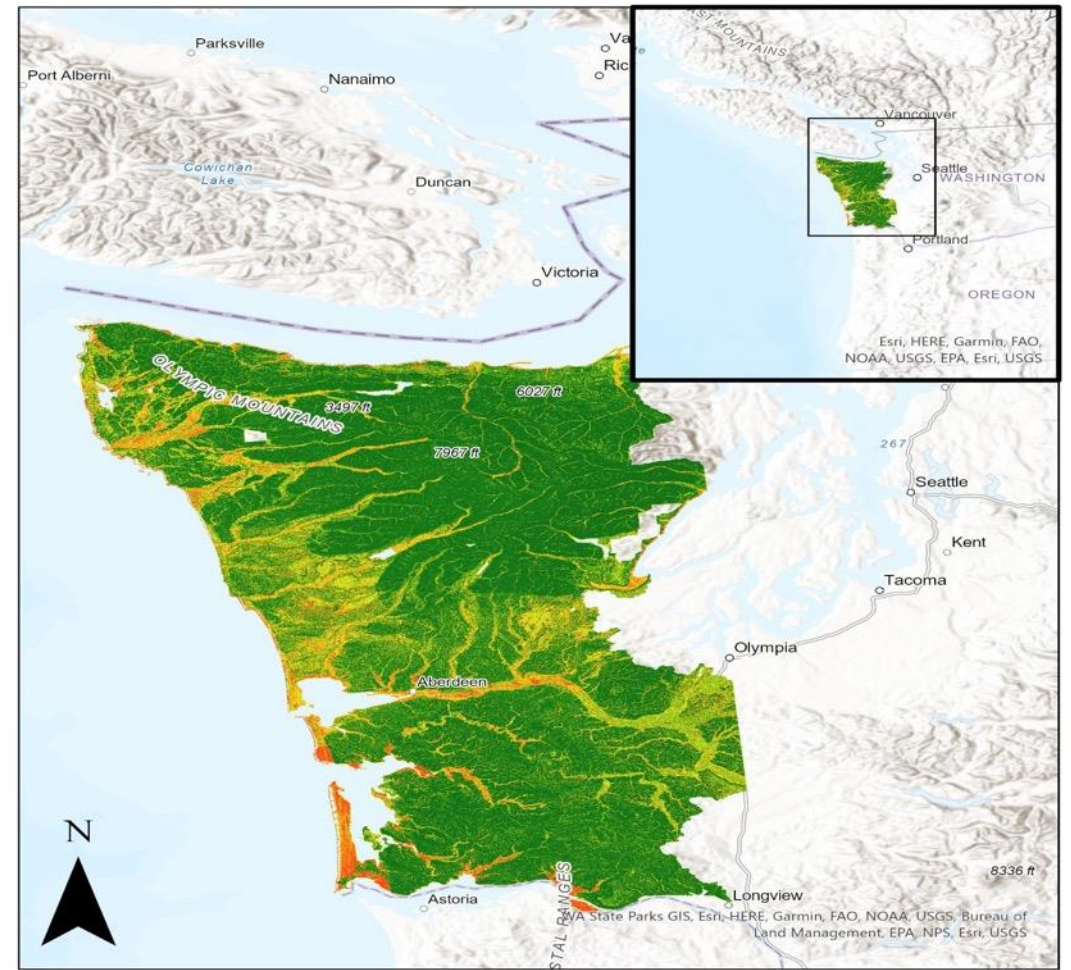
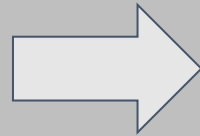


# We leaned heavily on the Wetland Intrinsic Potential (WIP) tool



0 47 94 188 Miles

- fpa\_FWEPclip
- EPA III Coast Range
- FWEP\_VwLMH

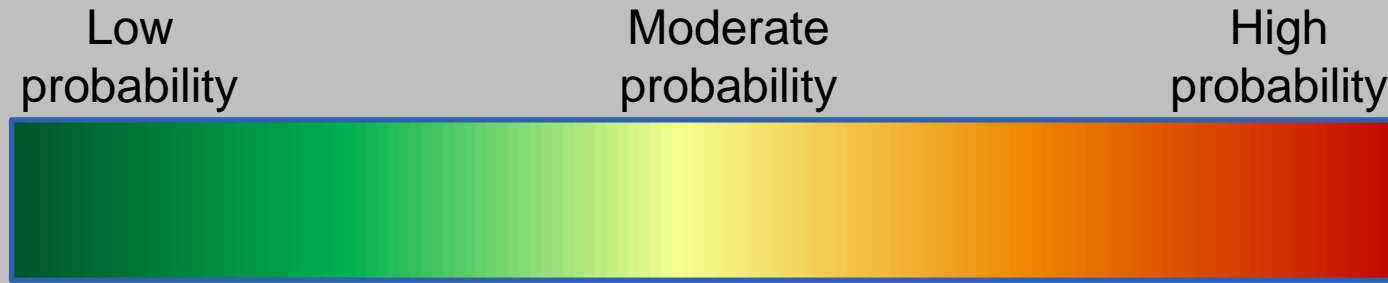


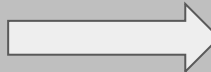
0 47 94 188 Miles

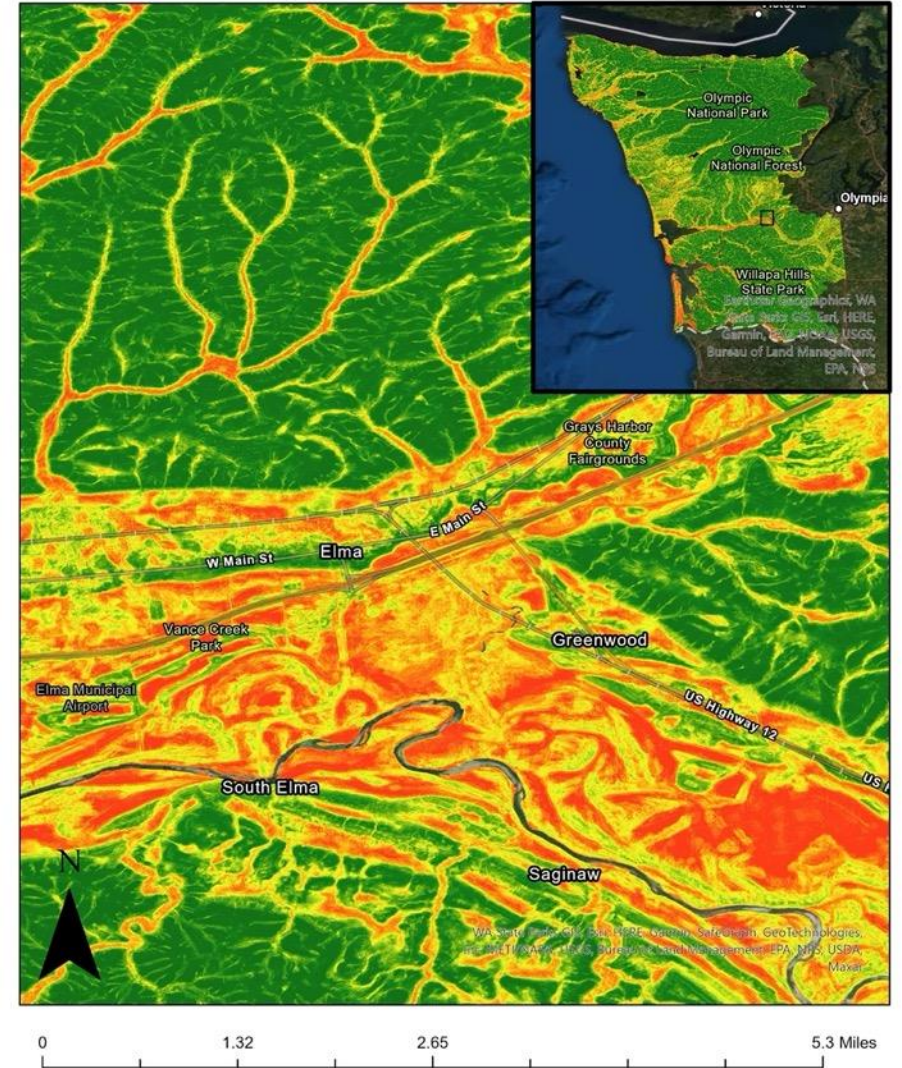
- fpa\_FWEPclip
- EPA III Coast Range
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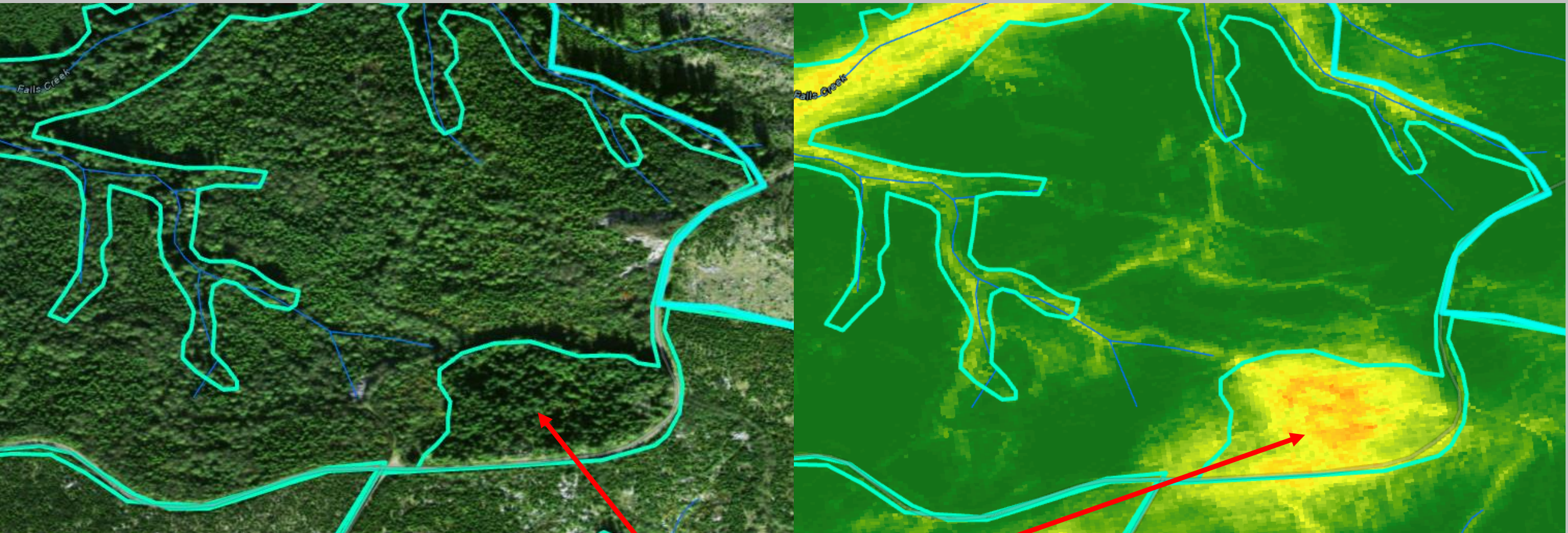
The WIP tool generates a probability raster of wetland potential



For example, the Chehalis River floodplain near Elma, WA. 

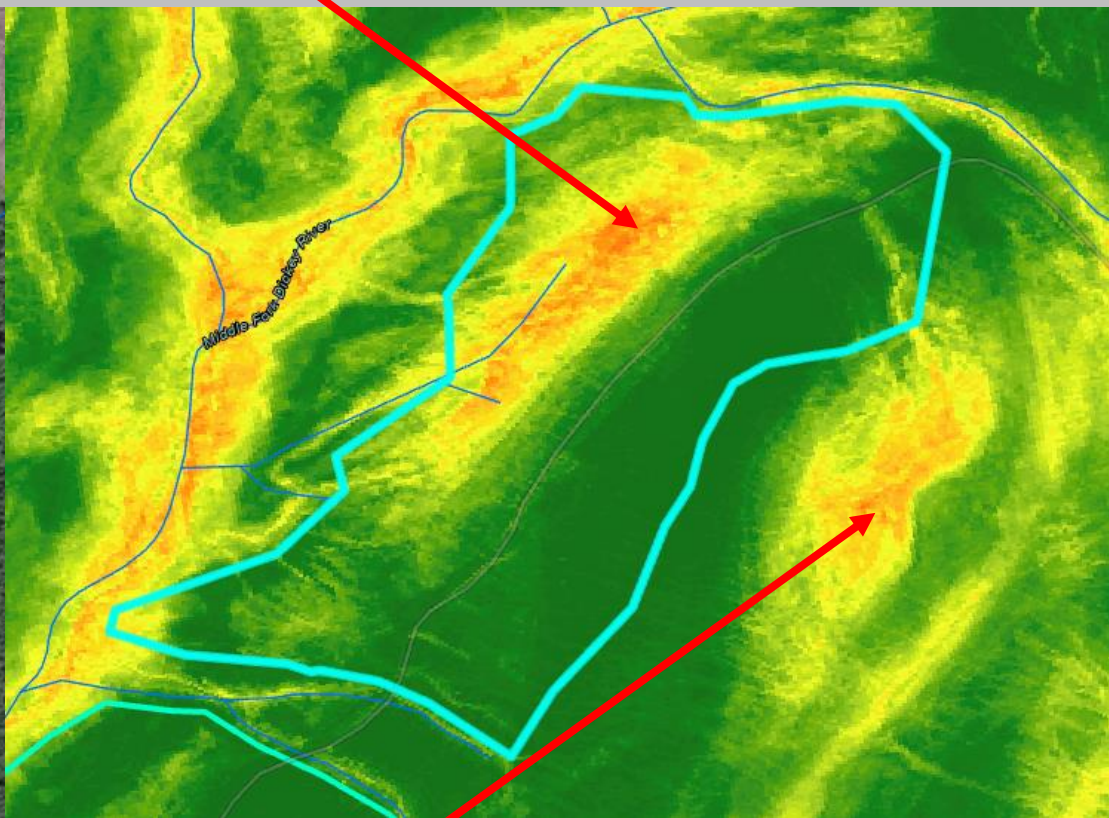
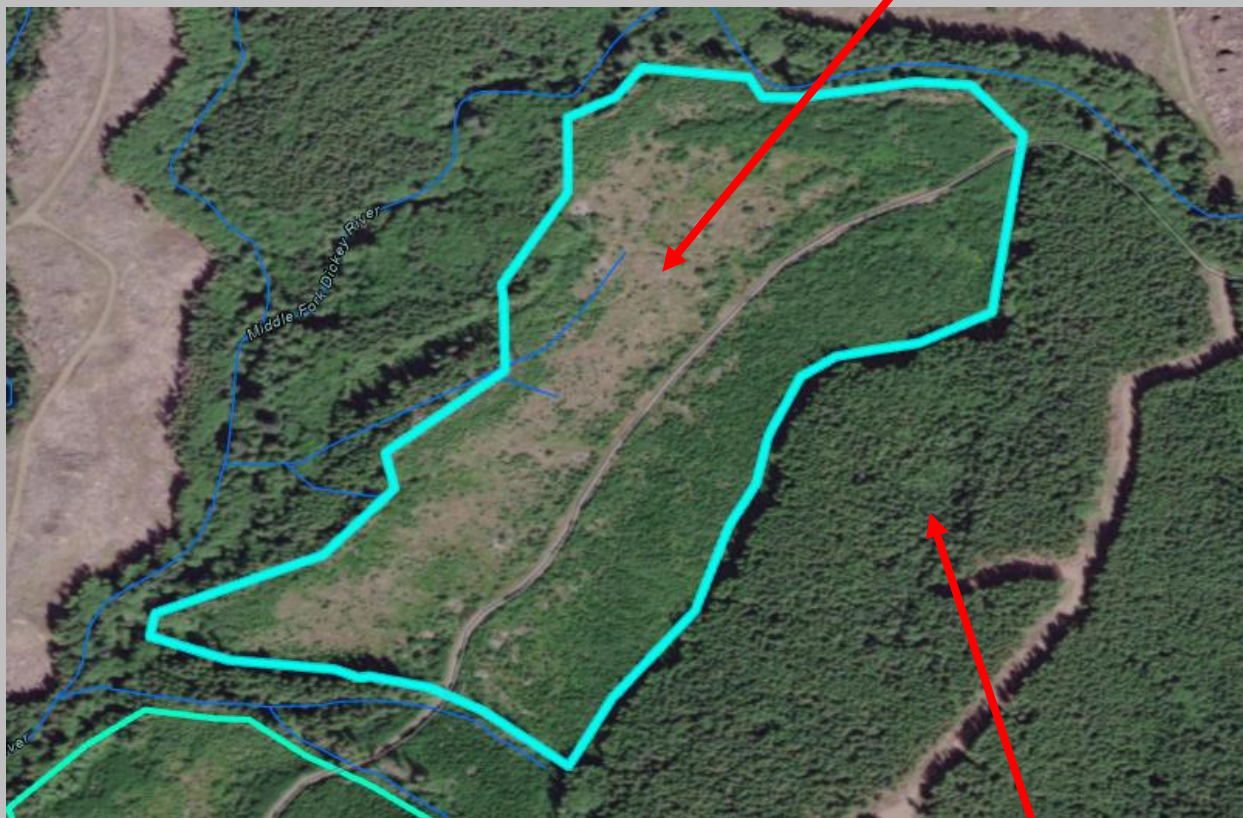


Evaluate FPA units and discard those that don't meet the study design criteria

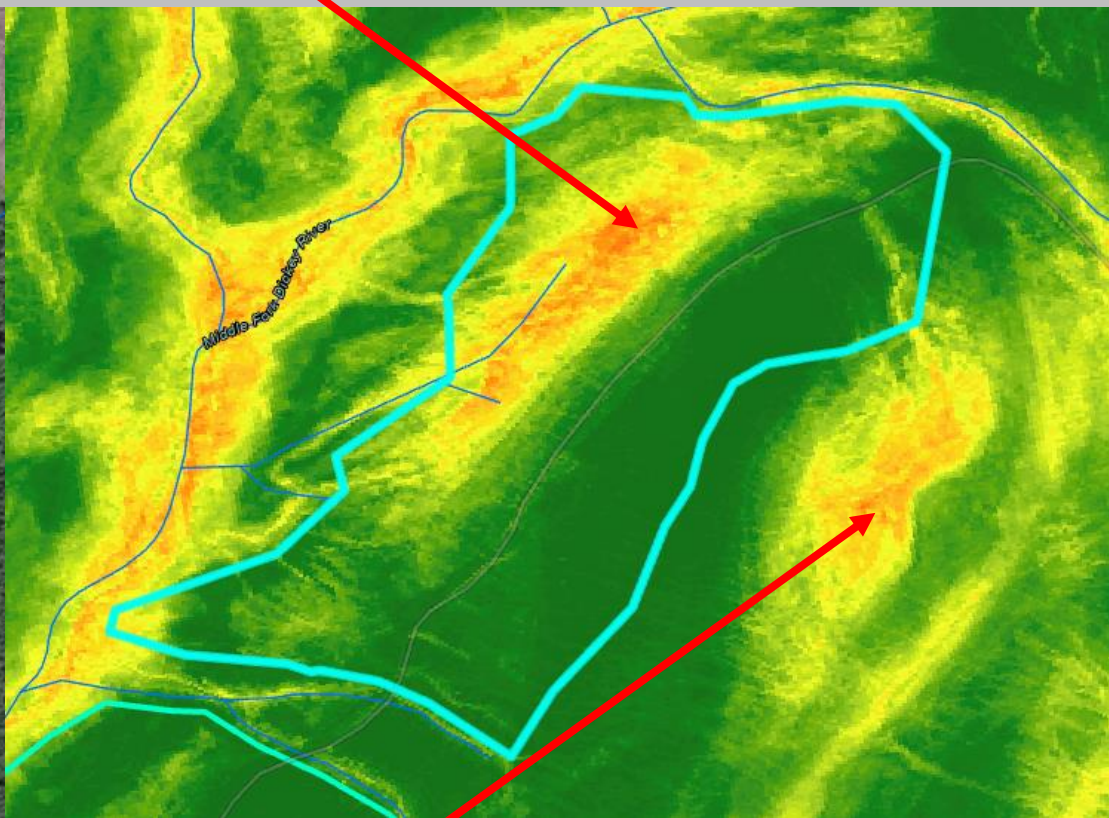
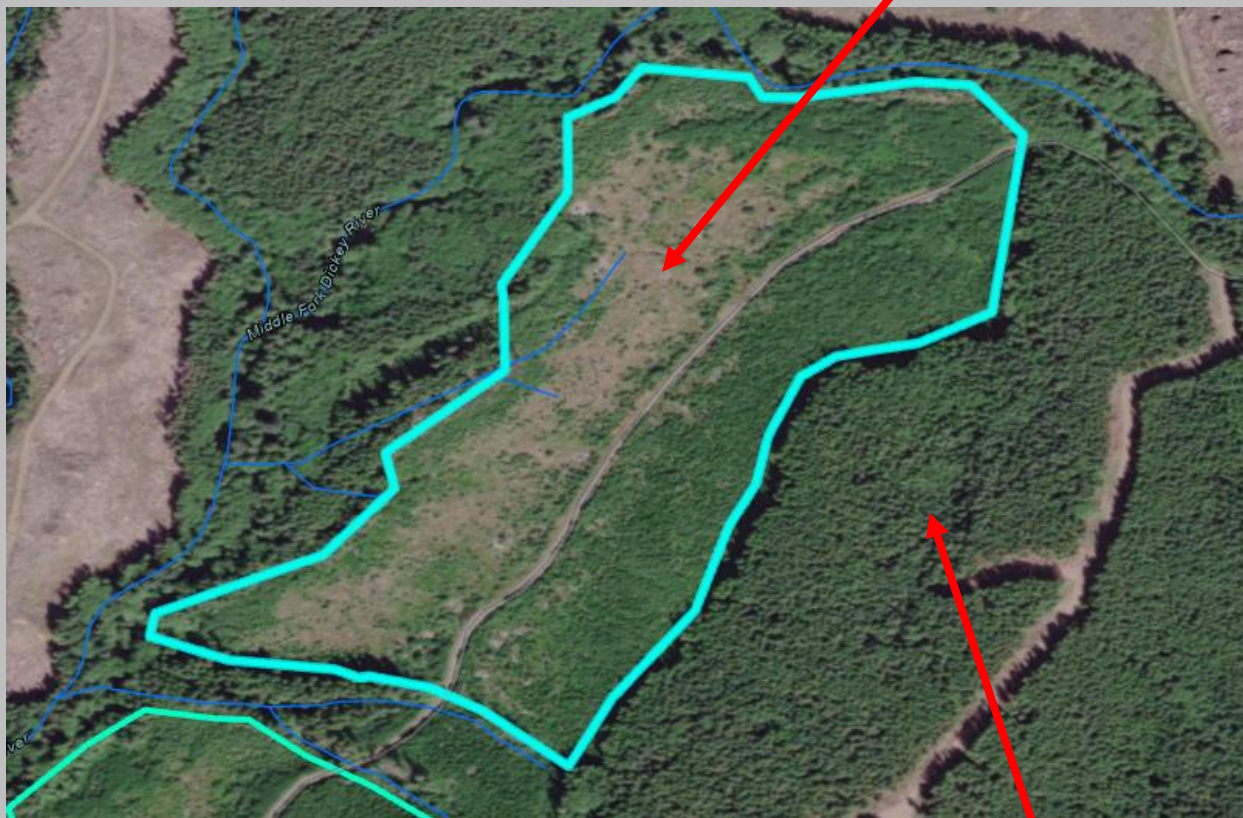


Area left unharvested

Harvested in 2012



Last harvested pre-1985





2 year old site

Top of  
non-fish  
stream  
buffer

2 year old site





2 year old site



Top of non-fish stream buffer



Logging slash  
is commonly  
piled and  
burned





Or less commonly  
broadcast burned



Wetter wetland cores are left unharvested if the trees within don't have market value



Almost every system we've looked at has some degree of road influence



10 year old site

10 year old site



10 year old site



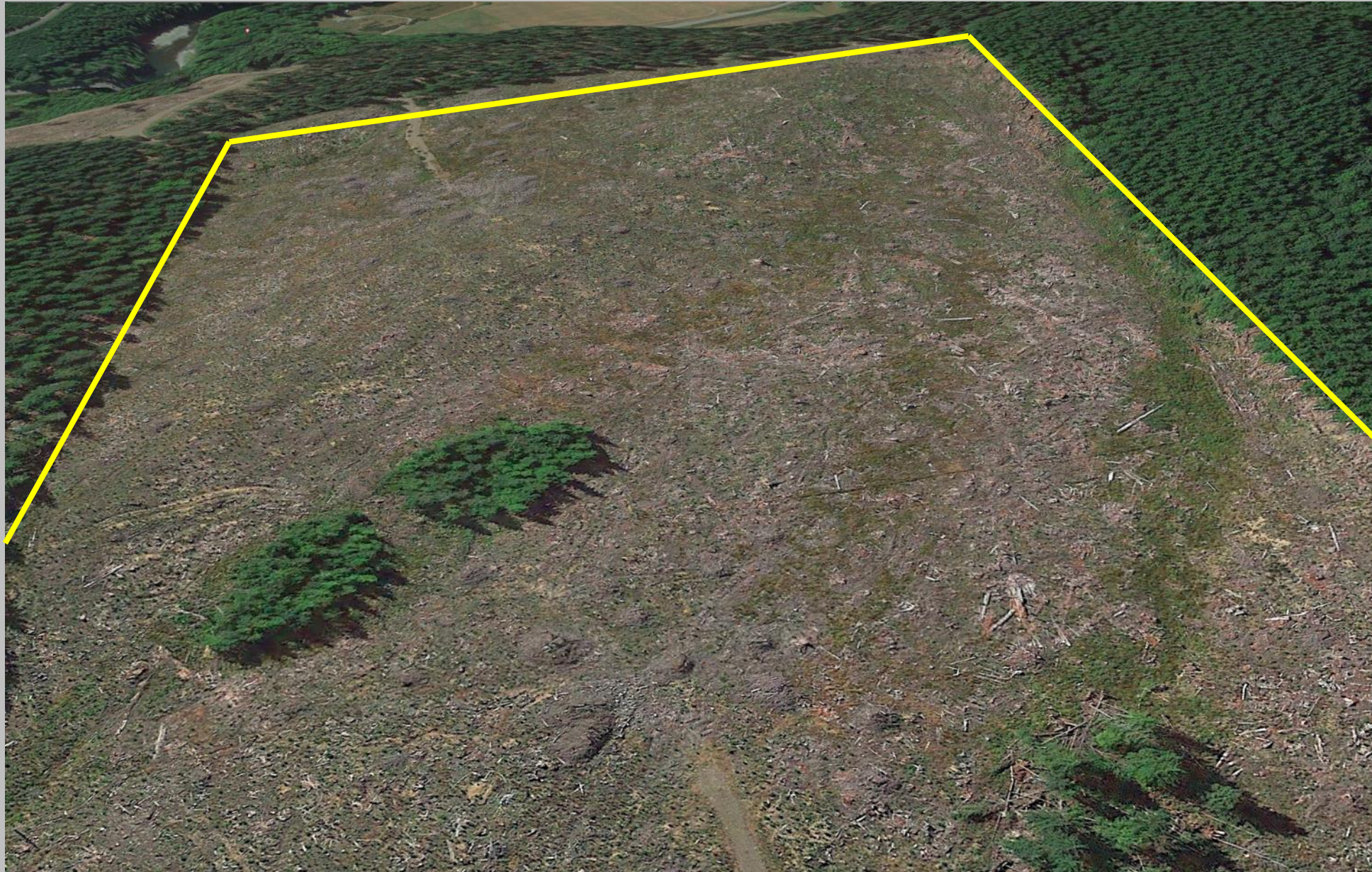
# 2011 – (pre-harvest)



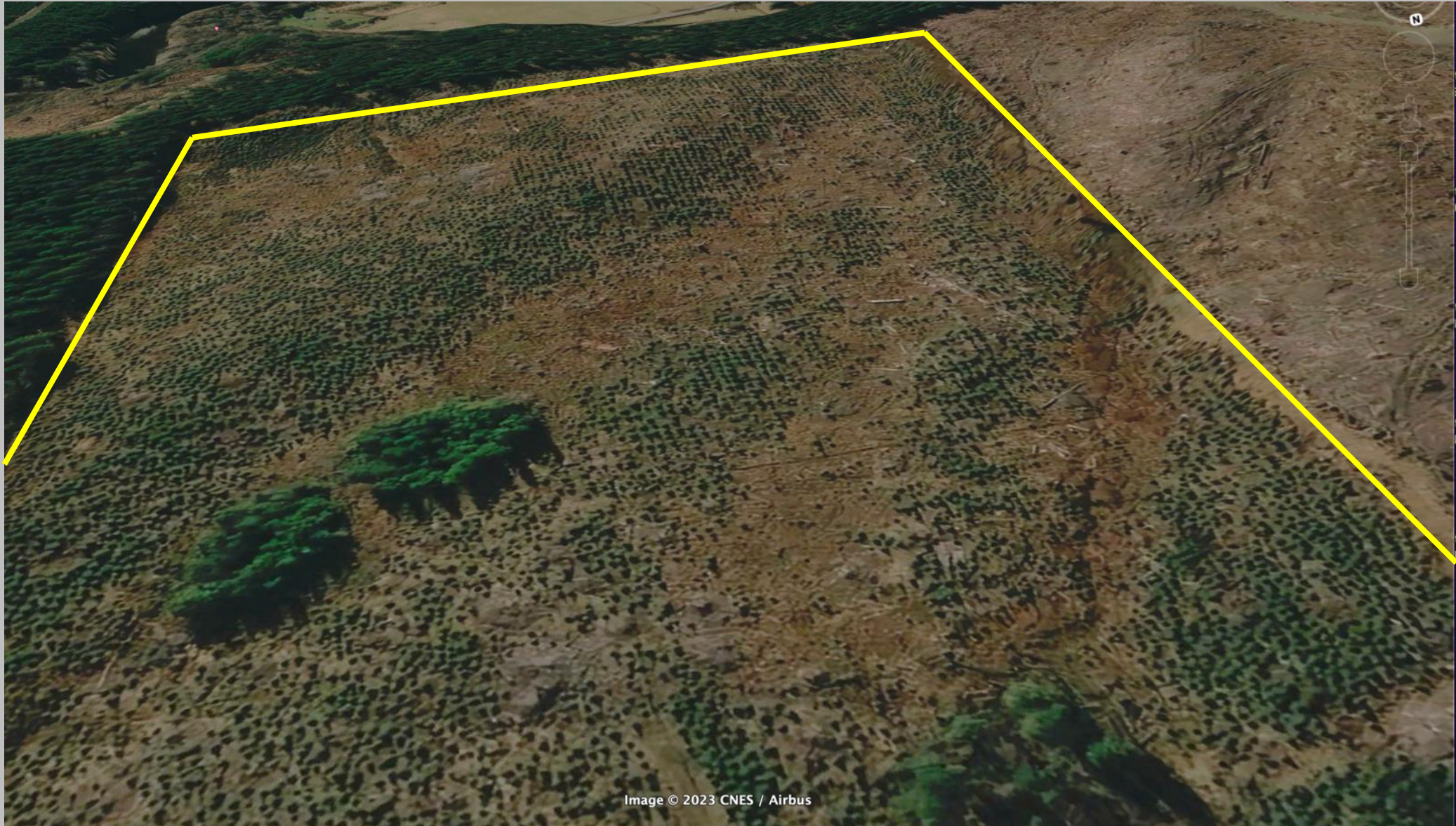
2013 – (1 year post-harvest)



2016 – (4 years post-harvest)



2020 – (8 years post-harvest)







20 year old site



20 year old site



20 year old site

20 year old site



40 year old site



40 year old site





40 year old site



40 year old site



40 year old site  
(bog / peatland)





40 year old site  
(insufficient organic  
soil depth to be classed  
as a bog / peatland )

Old growth > 360 years



Understanding successional arcs in the context of regulation that assumes functional recovery by the mid-point of a harvest rotation.

- Develop a successional model that captures
  - Post-harvest management
    - Slash treatments
    - Replanting regime
    - Pest control
    - Brush control
    - Browse pressure
  - Hydrology
  - Structural elements (hummocks / hollow topography)
  - Other geomorphic characteristics
  - Landscape position

Understanding successional arcs in the context of regulation that assumes functional recovery by the mid-point of a harvest rotation.

- Use the outcomes from the Chronosequence study to inform subsequent Before / After Control style experiments
- Develop best management practice recommendations for post-harvest management.

# Acknowledgements

