

Modeling the Impacts of Reach Scale Stream Restoration on Flooding and Water Storage

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Background

- Big Picture:
 - Reduce Wildfire Vulnerability
 - Promote Ecological Resilience
- Objectives:
 - Estimate changes in flooded area before and after amendment
 - Estimate changes in water storage before and after amendment



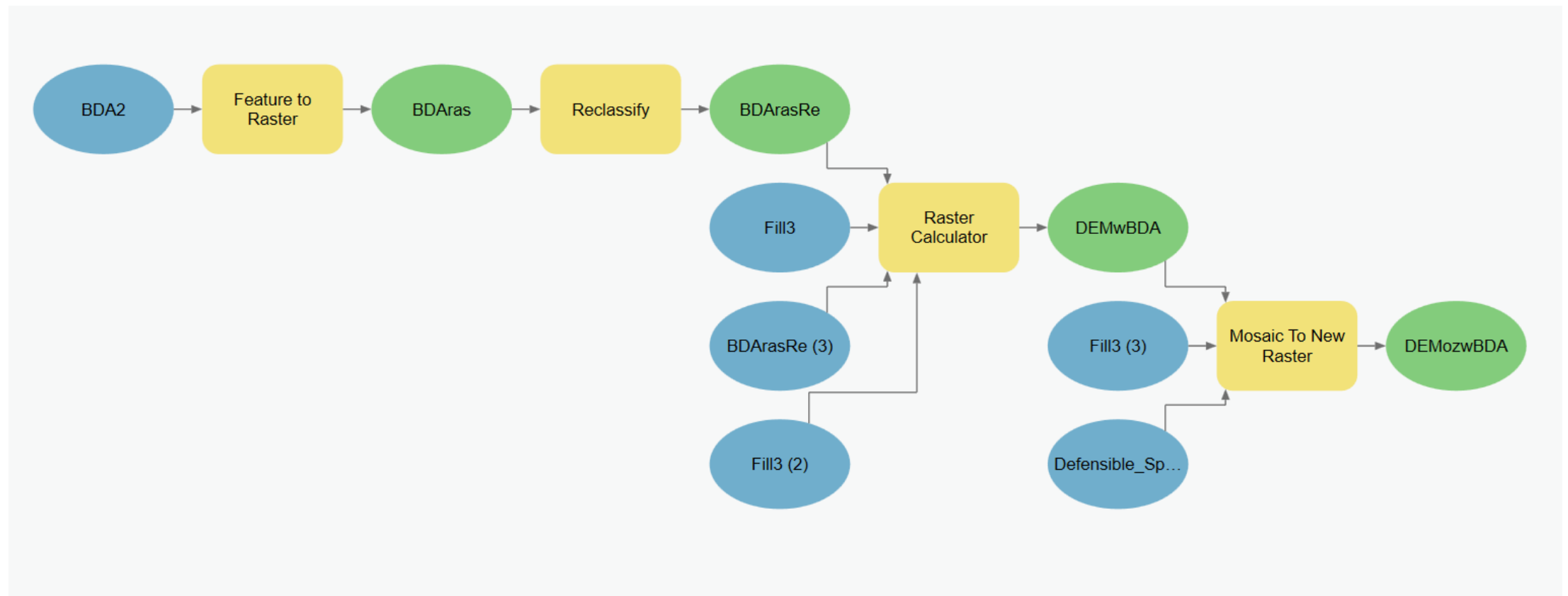
Site Description

Data Sources

Name	Vector/Raster	Attributes Used	Map Projection
National Hydrography Dataset Plus Flowline	Vector	Length ReachCode	GCS North American 1983
be44123c4 (Bare Earth Lidar) DOGAMI	Raster	Raster Values	NAD 1983 HARN Lambert Conformal Conic
National Water Model Discharge Forecasts (Larson Creek)	Stand Alone Table	Discharge	No Spatial Reference
National Hydrography Dataset HUC 12 basins	Vector	Shape Area	GCS North America 1983

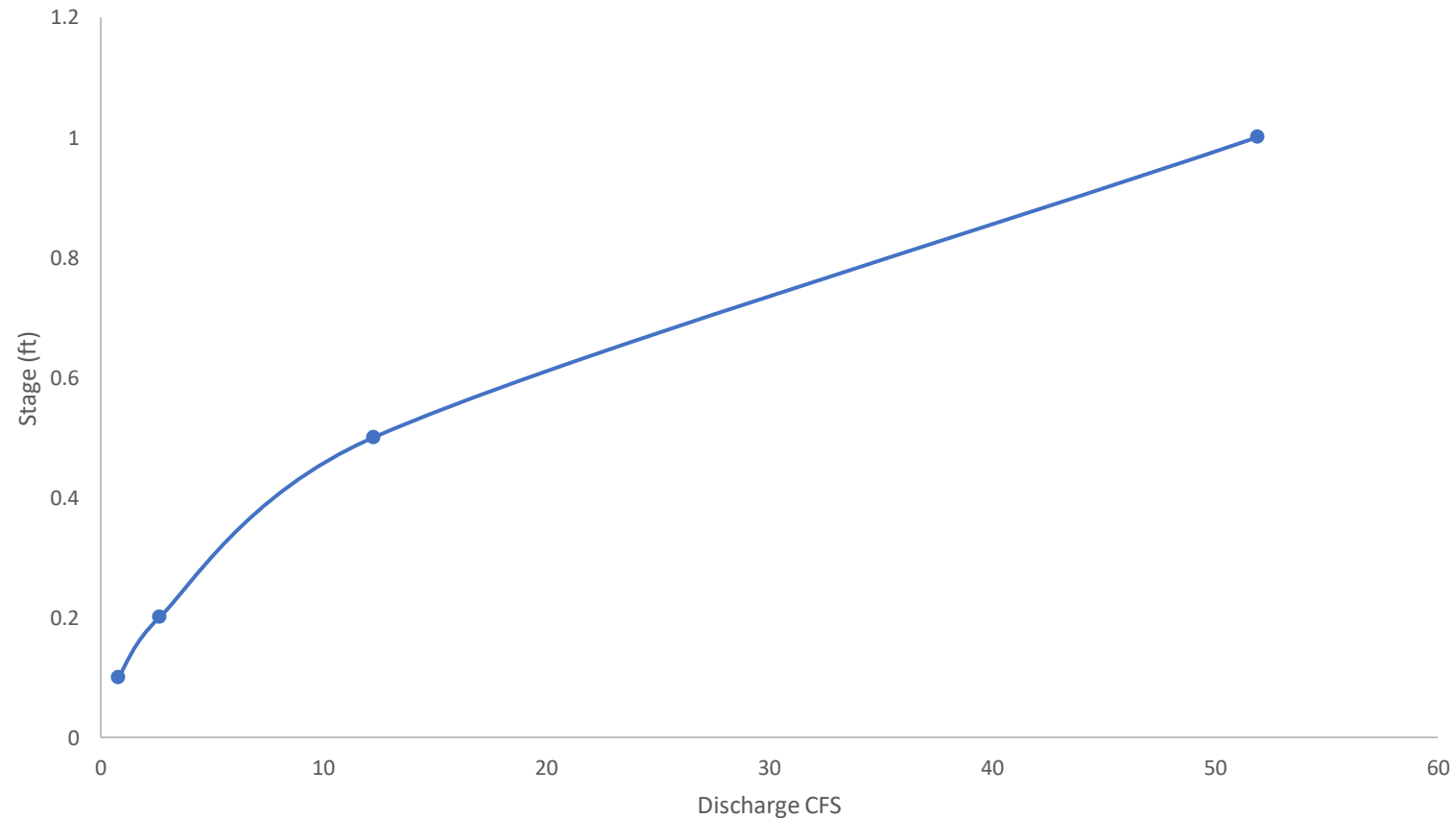
Methodology – Flooded Area (Amended DEM)

Burn Streams → Create Feature → Raster Calculator → Mosaic



Methodology – Flooded Area (Estimating Discharge)

Hydrology Calculations → Regional Curve → National Water Model Forecasts → Visualize

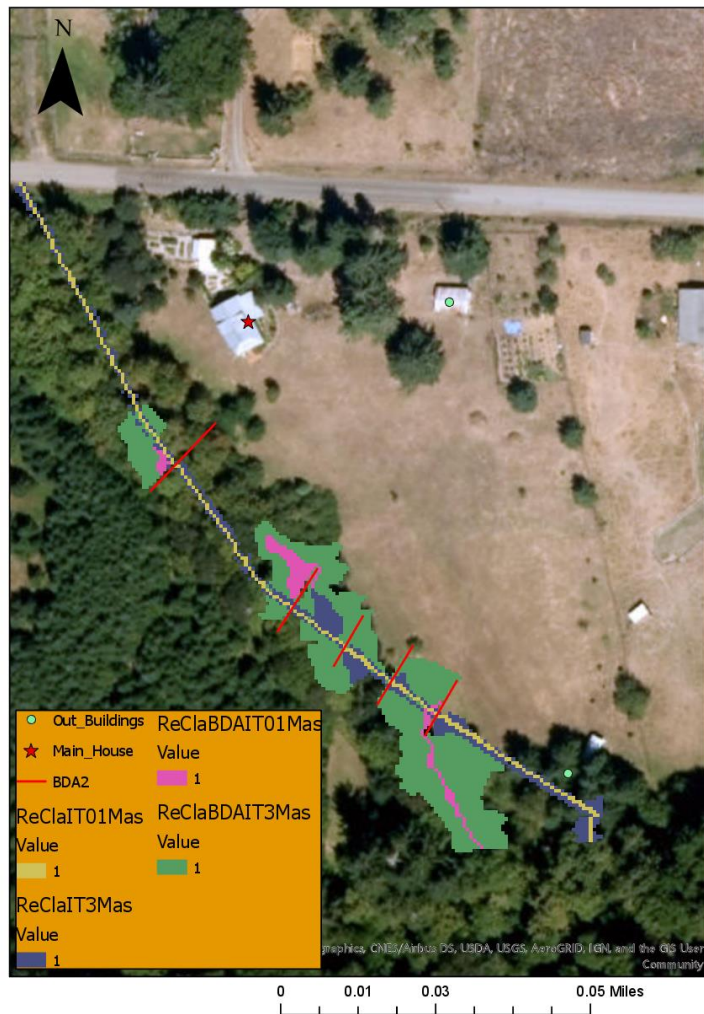


Results – Flooded Area

- 561ft² change flooded area at 0.1ft stage
- 4818ft² change in flooded area at 3ft stage



Flooded Area at Flood Stage of 0.1 and 3ft, With and Without BDAs



Results – Water Storage

- 561ft³ change water storage at 0.1ft stage
- 4818ft³ change in water storage at 3ft stage

Conclusions



Outbuildings are safe with amendment!



Storage over time? Water rights conflicts?



Long term effects soil moisture, riparian vegetation, evapotranspiration, geomorphology



Questions