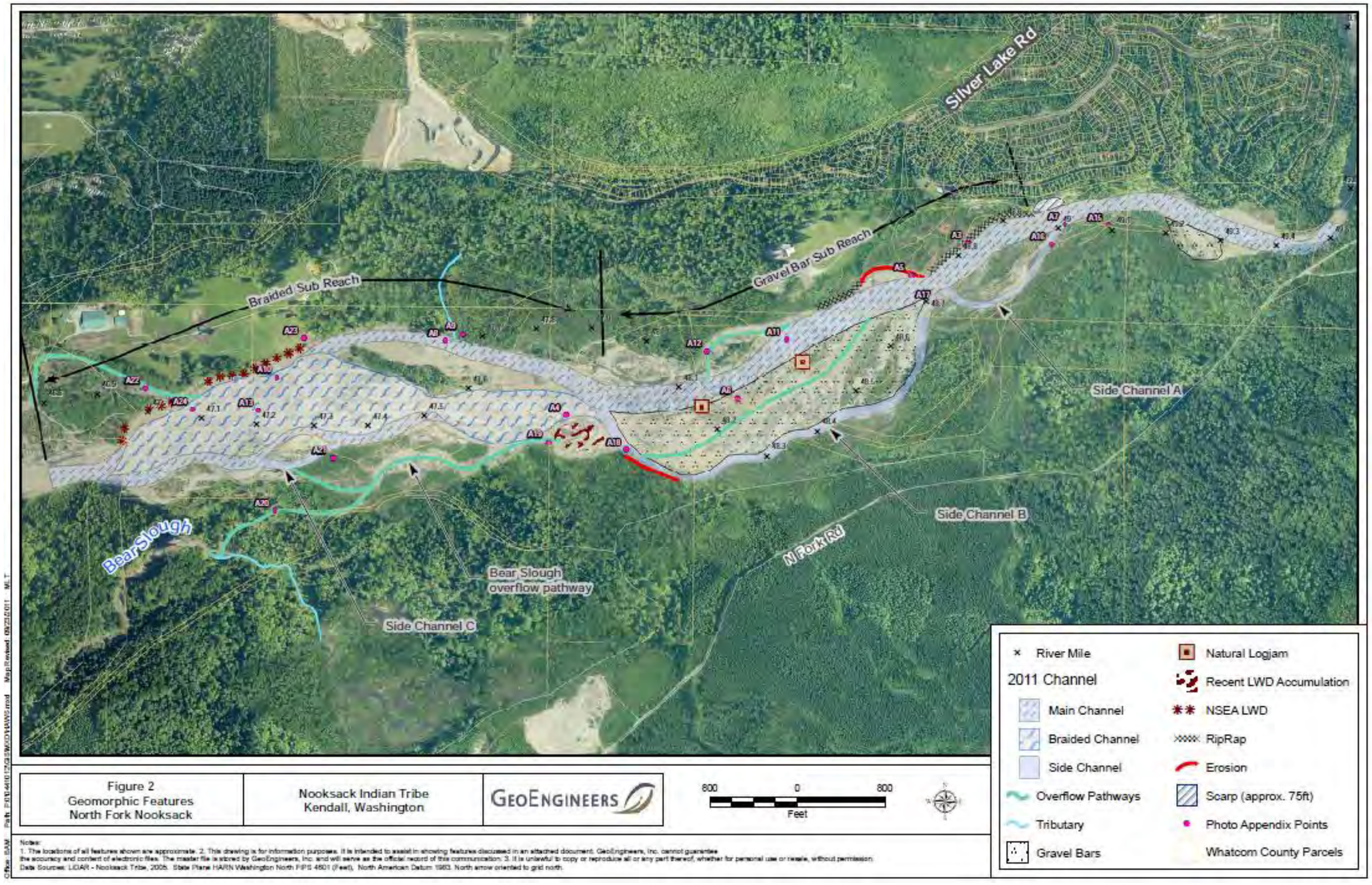


Figure 1. Geomorphic features in the North Fork Nooksack River, Farmhouse reach. Excerpted from Geoengineers 2012.

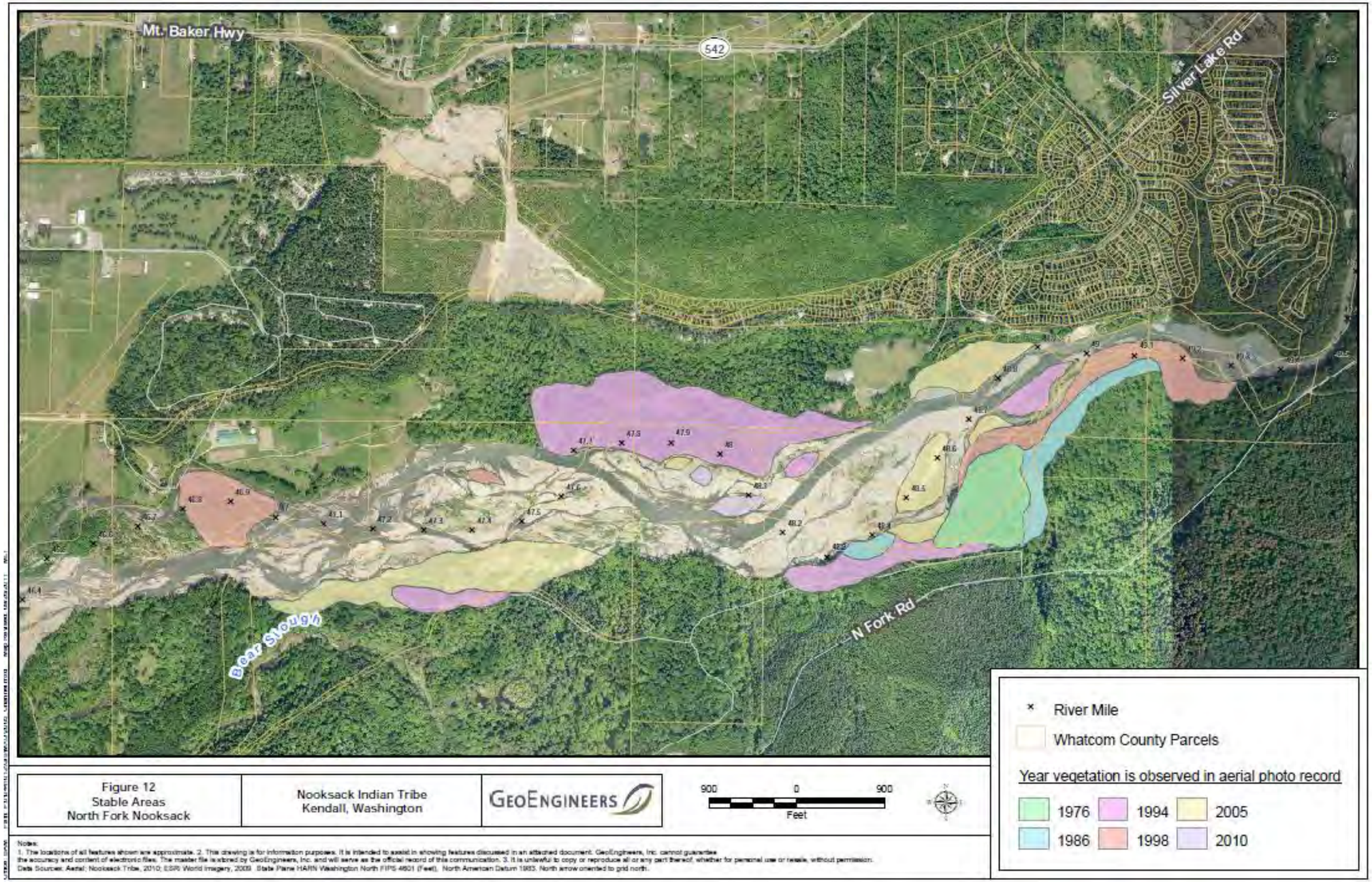


Figure 2. Year of vegetation establishment in the North Fork Nooksack River, Farmhouse Reach. Excerpted from Geoengineers 2012.

Figure 3. Channel occupation in the Farmhouse Reach between 1933 to 2001 (Collins and Sheikh 2004).

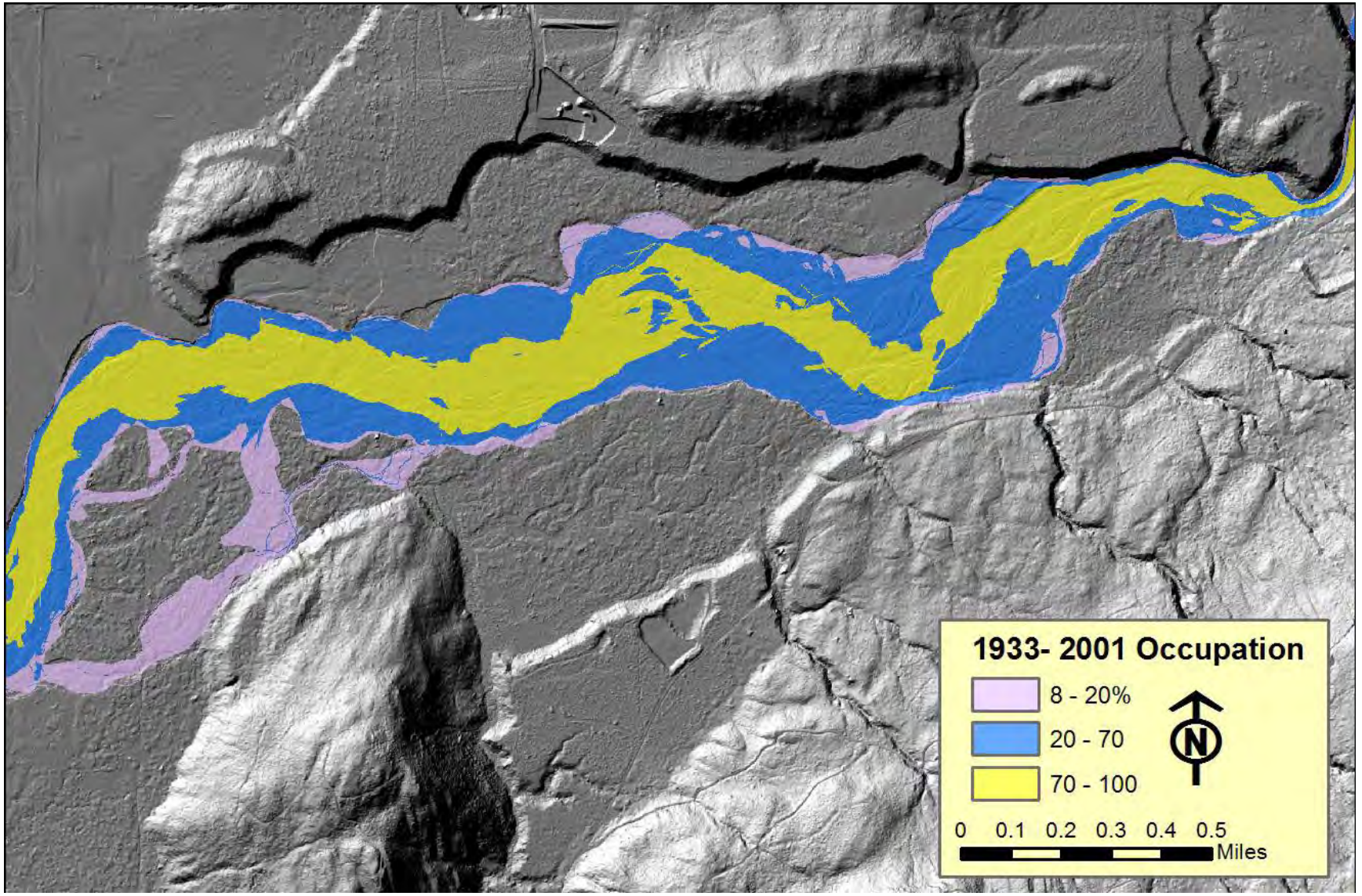


Figure 4. Height above the low flow channel

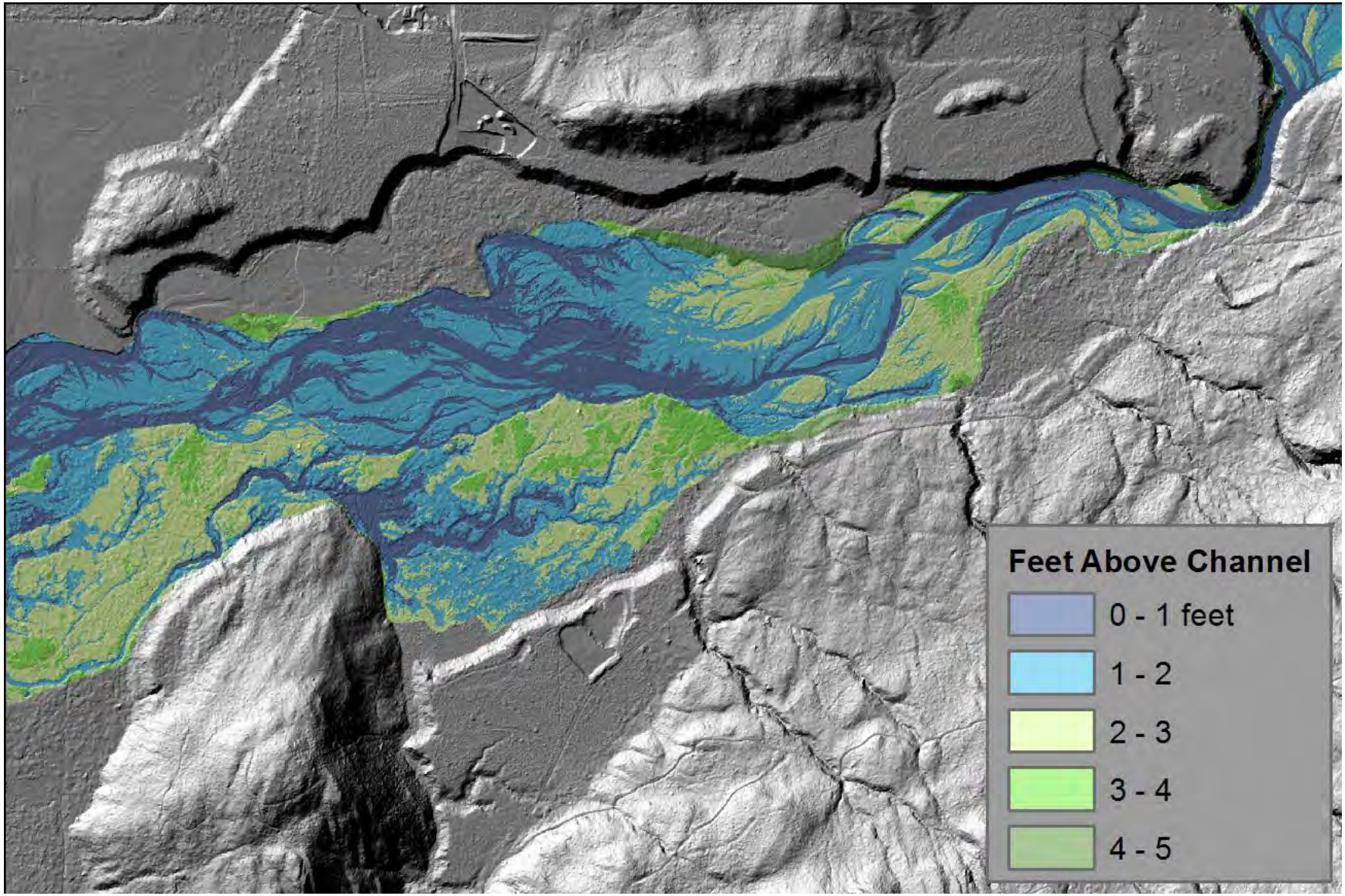


Figure 5. Habitat mapping in the Farmhouse Reach (NNR 2005, on 2009 NAIP aerial photo).

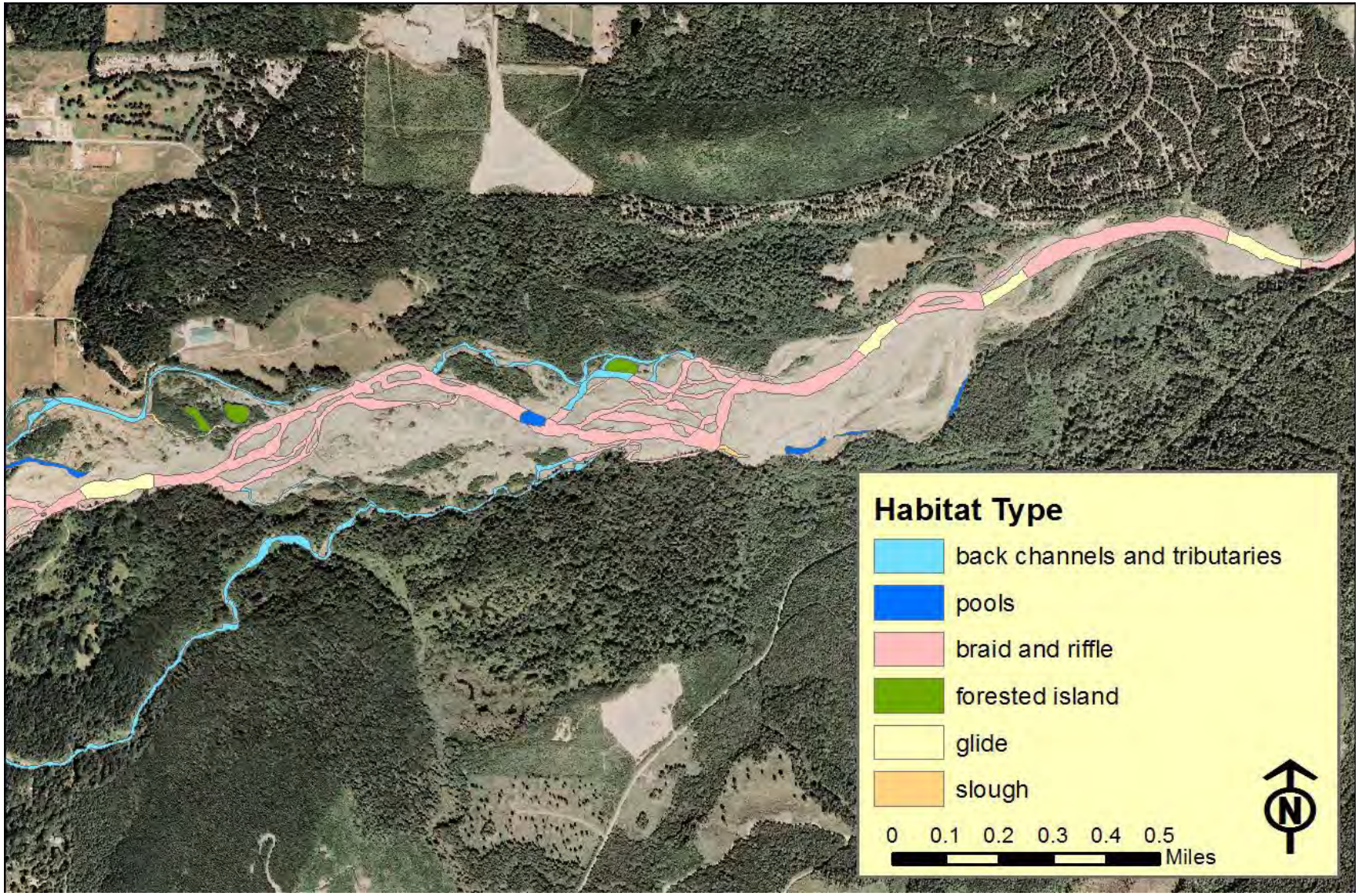


Figure 6. Side channel areas with historically high levels of spawning use in the Farmhouse Reach.

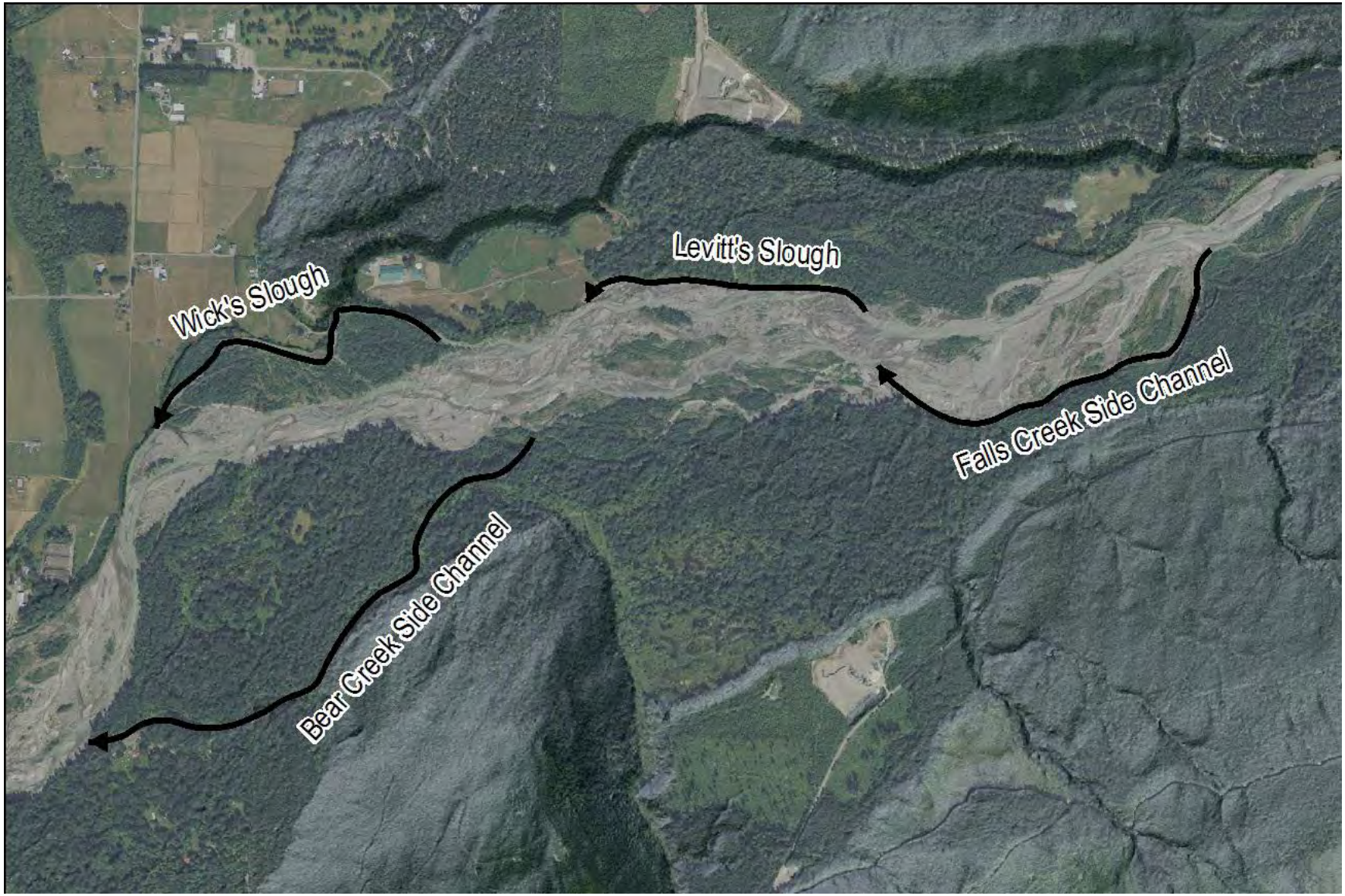


Figure 7. Photos of Farmhouse reach: A: Aerial oblique view of braided subreach (RM) taken June 2014; B: main channel character; C: Phase 2B channel island; D: Falls Creek side channel. Top left photo courtesy of Herrera and right photo courtesy of GeoEngineers.

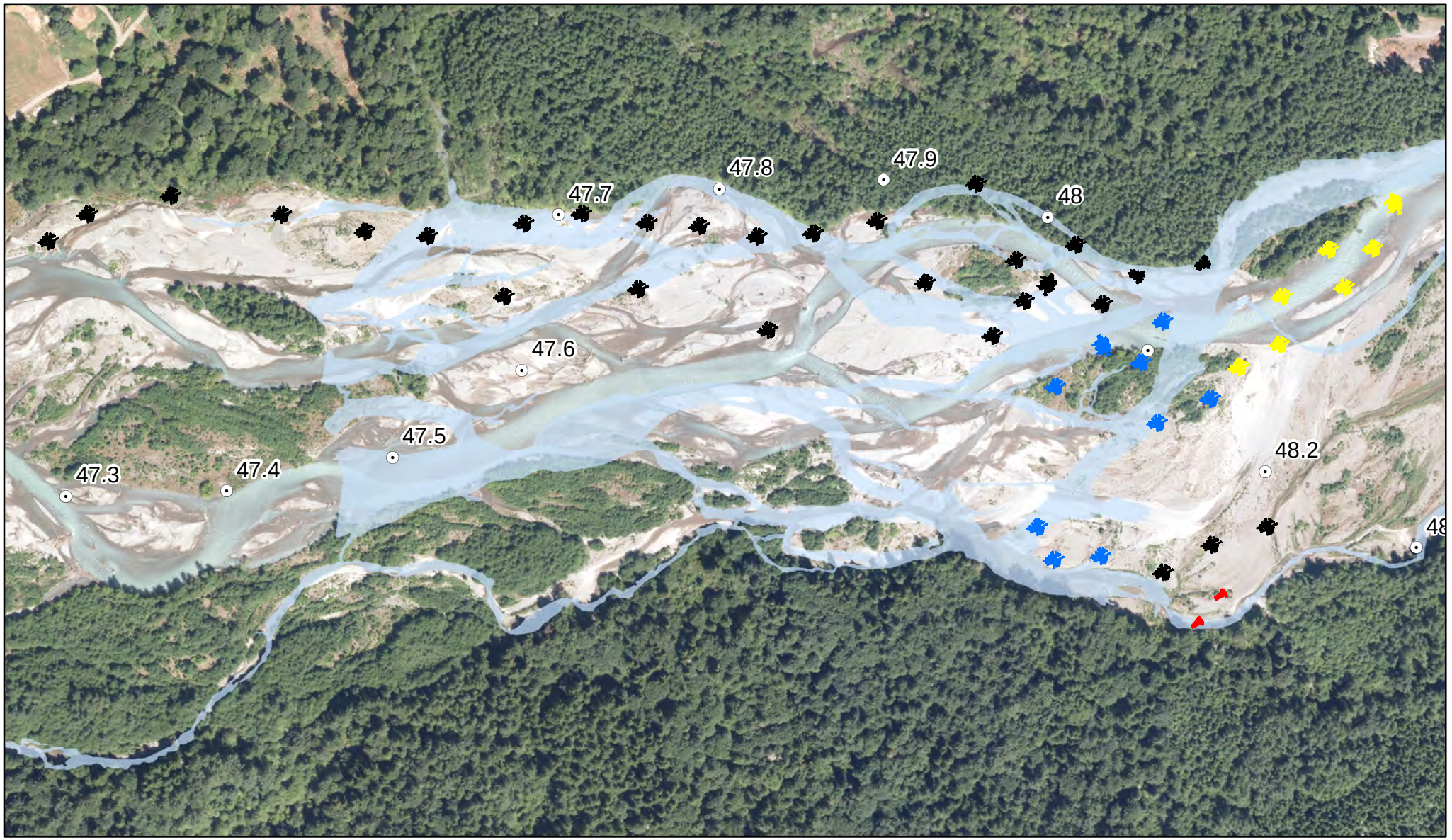


Figure 8. Site plan for Phase 2 restoration by subphase. Phase 2b is proposed for this project.

Figure 9. Structure types proposed for the North Fork Nooksack River Farmhouse Reach restoration project. A: Type 1; B: Timber Gnarl; C: Type 2; D: Type 3 side channel structures. Note only the Timber Gnarl and Type 3 ELJ's are proposed in Phase 2b.

FLOODPLAIN FOREST CONDITIONS

1850 (Analog)

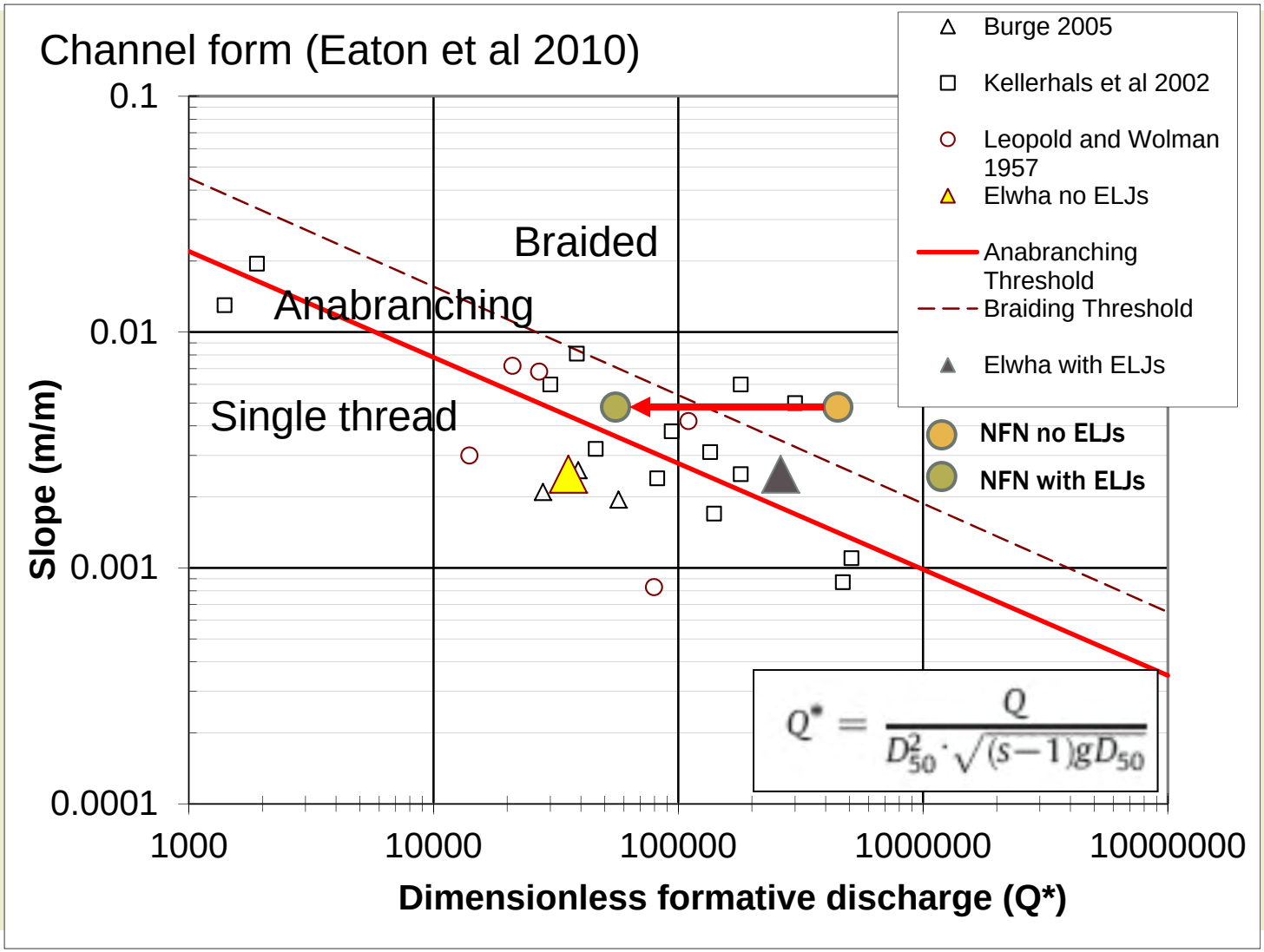
- Anastomozing Channel (Taiya River, AK)
- Extensive mature floodplain forest side-channel network
- Forest and wood stabilized channel banks

North Fork Nooksack (2011)

- Shallow Braided River Channel
- Immature red alder dominated floodplain forest
- Loss of forest channel bank stability
- Loss of stable side-channels
- Very limited functional salmon habitat

Figure 10. Floodplain forest conditions in the Taiya River (historical analog) and the North Fork Nooksack River.

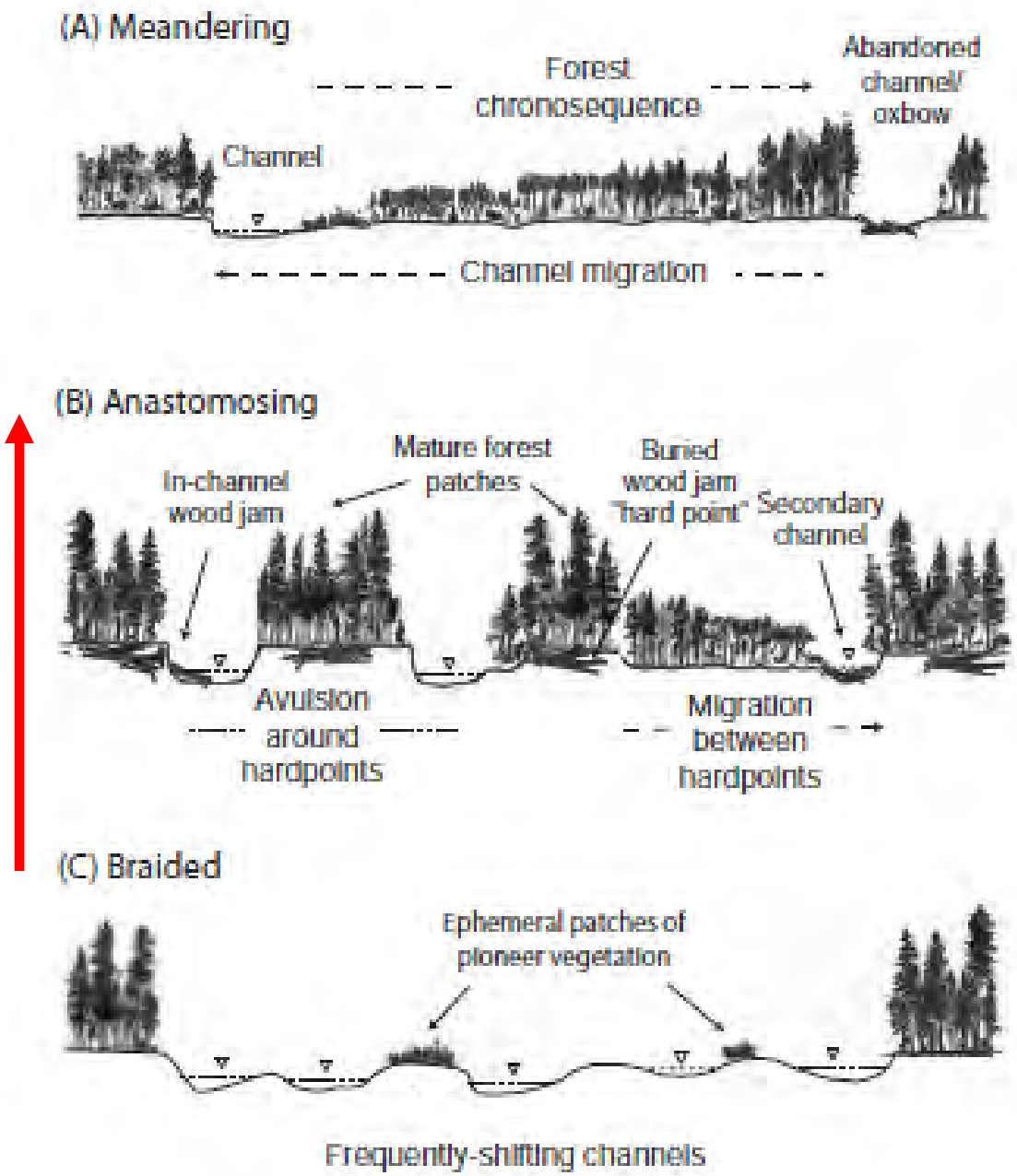
STABLE WOOD EFFECTS ON SHEAR STRESS AND CHANNEL FORM



Tim Abbe 2012

Figure 11. Stable wood effects on shear stress and channel form.

ELJs to function as foundation for planform to shift from braided to anastomosing/anabranching



(Collins et al, 2012)

Figure 12. Floodplain structure associated with meandering, anastomosing, and braided channel planforms.