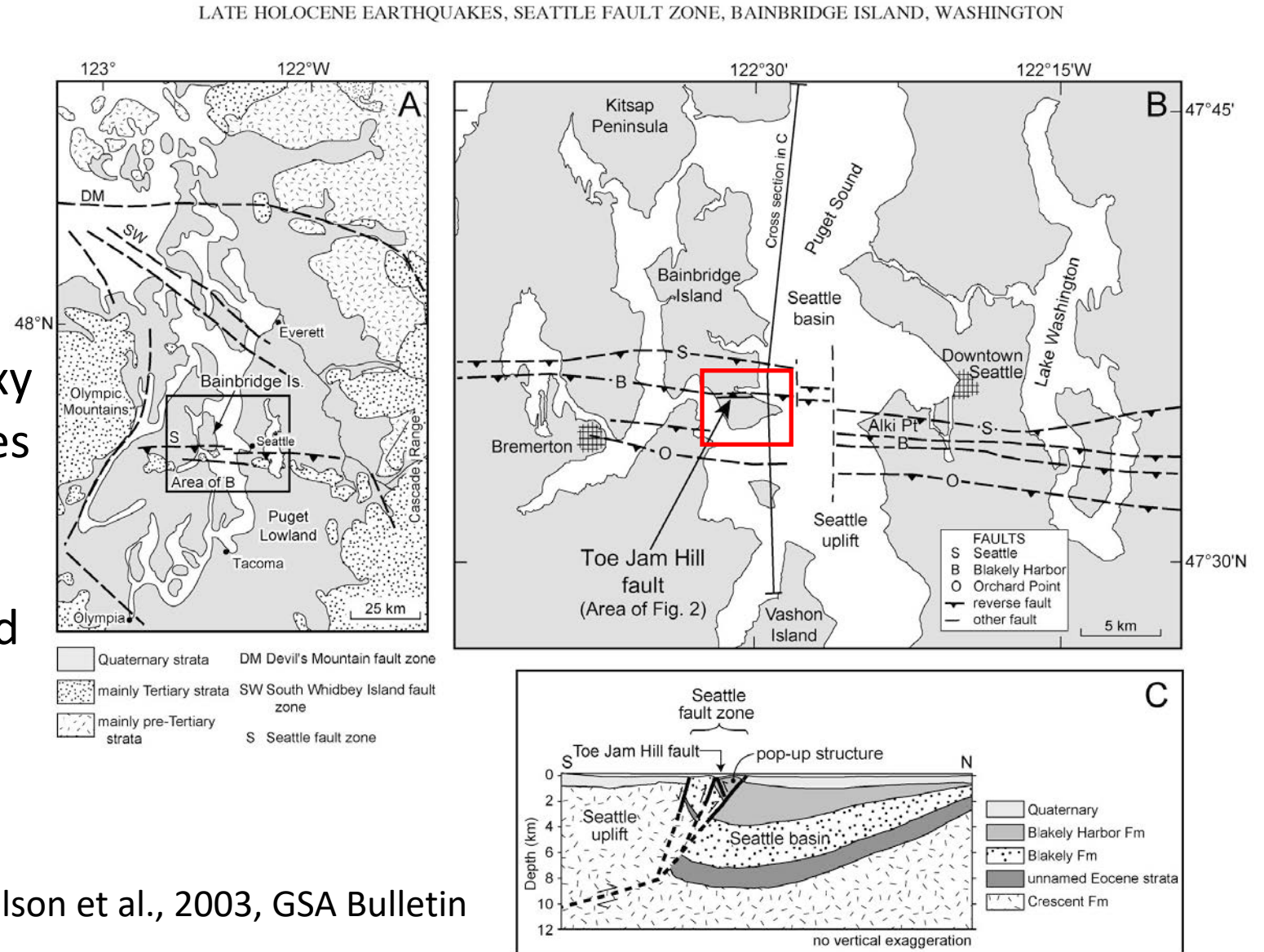


# Seattle fault, Bainbridge Island, WA

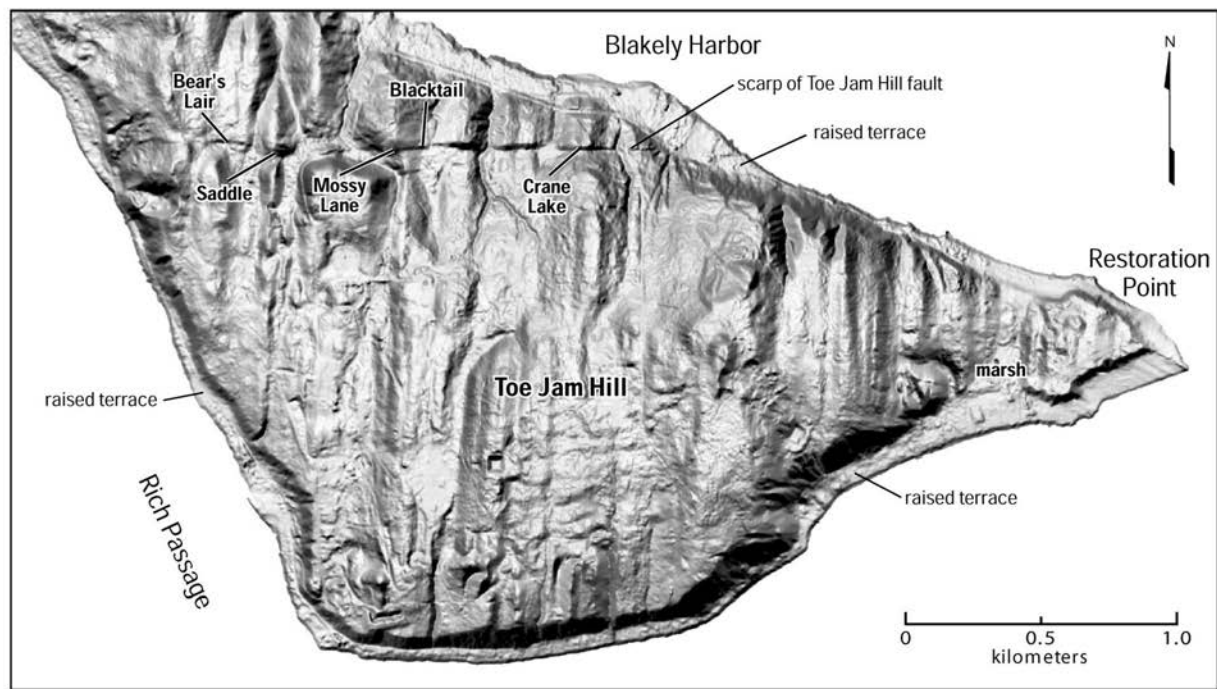
Toe Jam Hill fault is a north-dipping backthrust to the Seattle fault zone.

The earthquake history of the Toe Jam Hill fault provides a proxy for the recurrence of earthquakes along the Seattle fault zone.

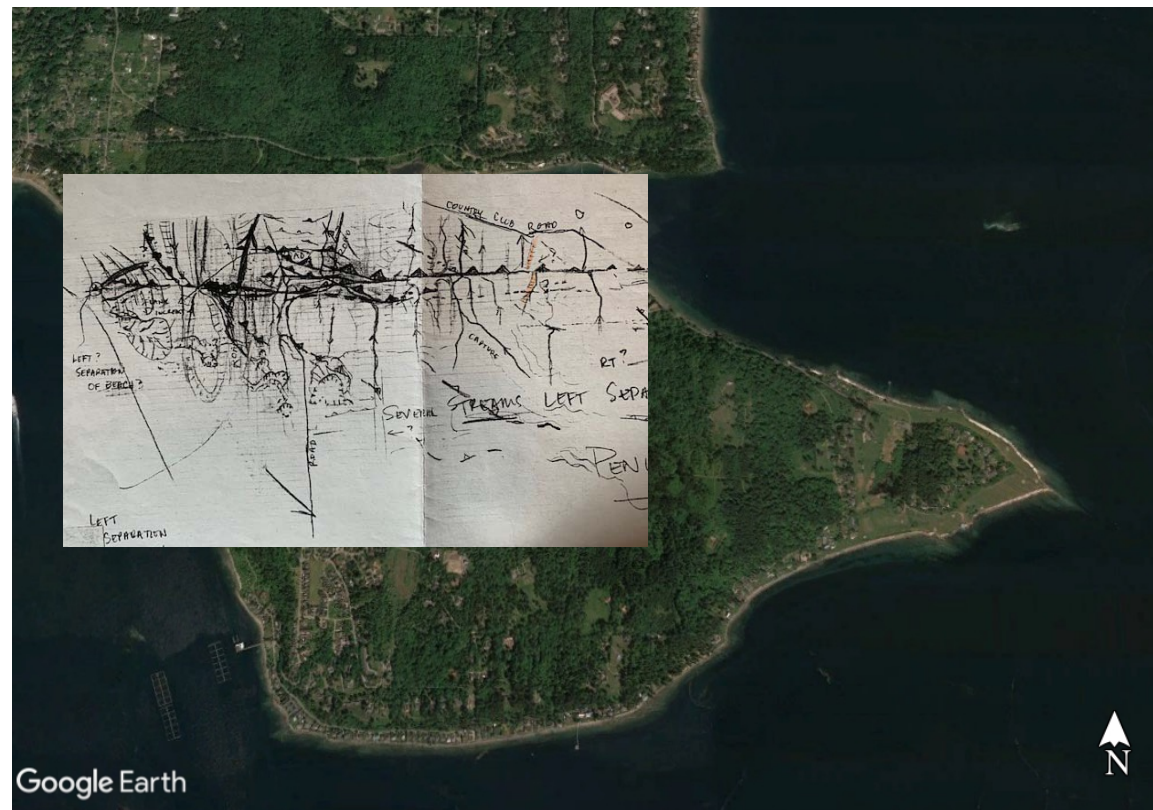
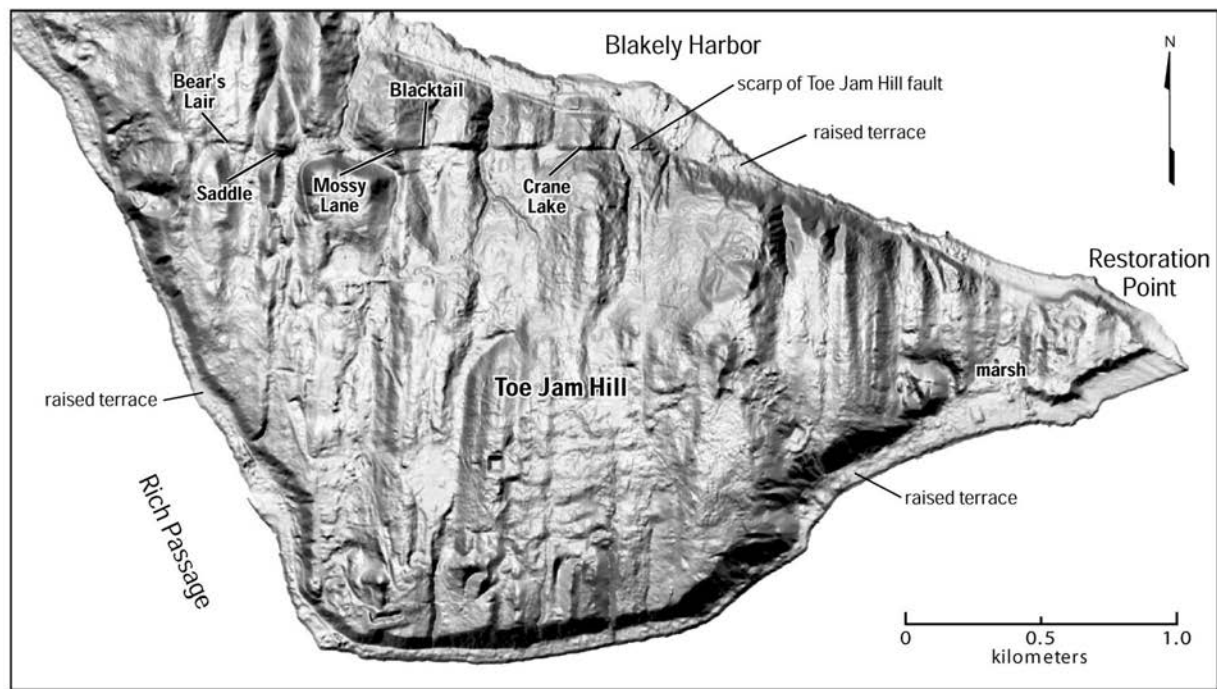
These data inform seismic hazard assessments.



Nelson et al., 2003, GSA Bulletin





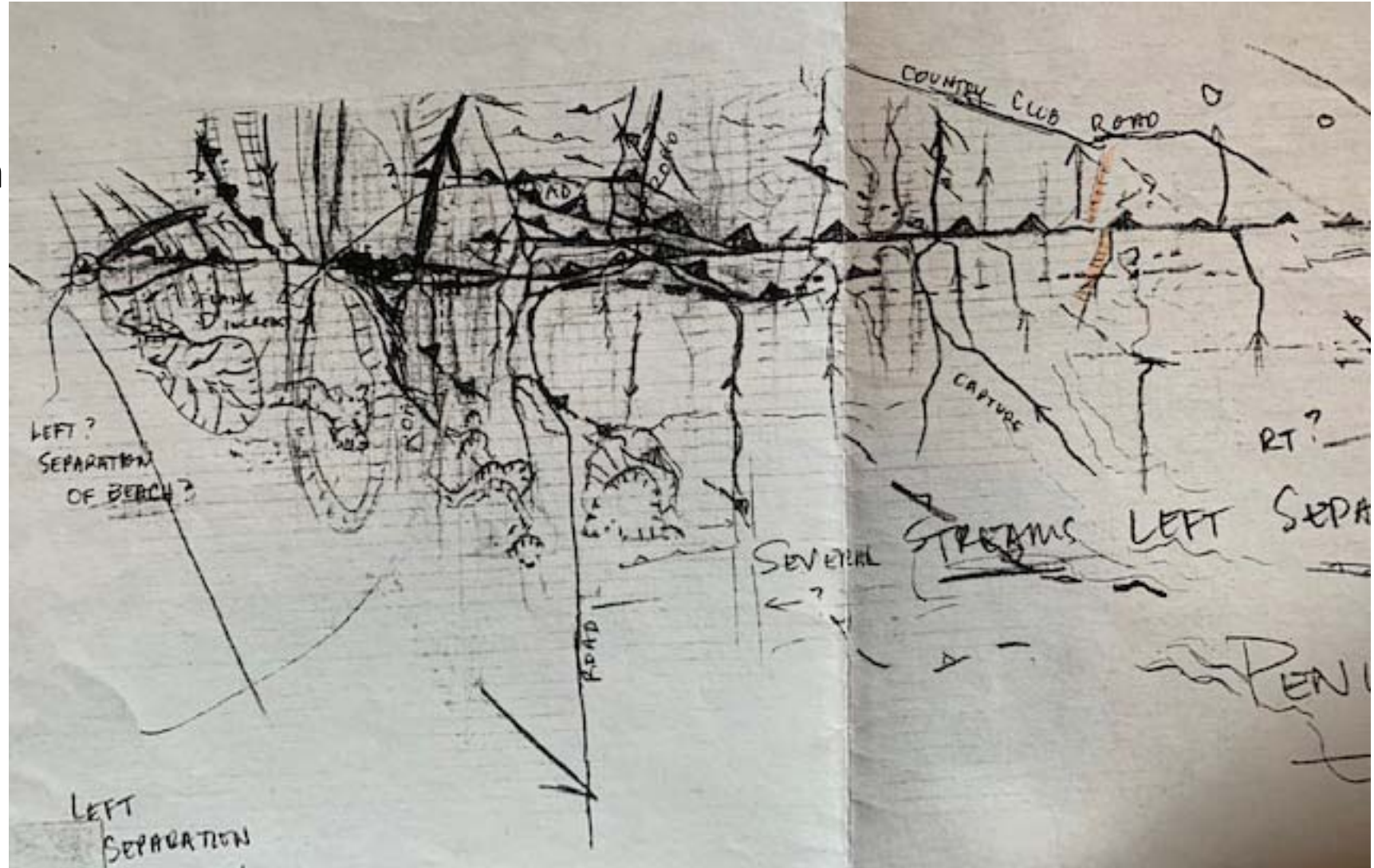


# Interpretation of lidar and morphology mapping

Old school mylar overlay on printed lidar

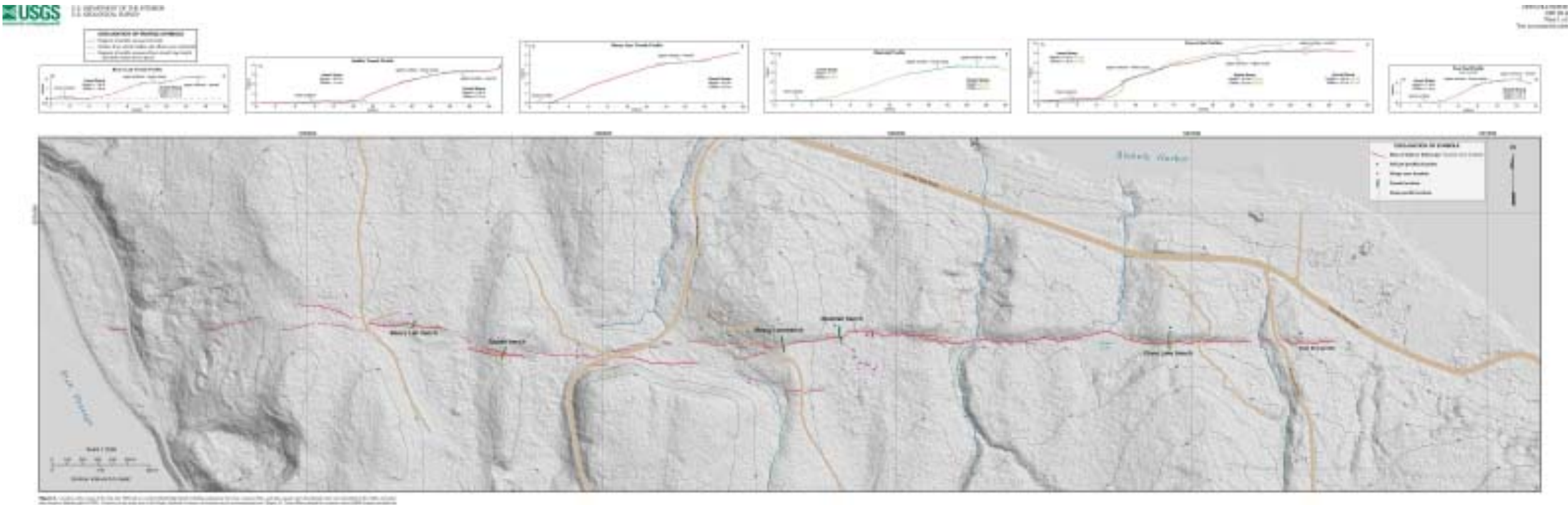
Similar to what we now do on screen in QGIS

Effectively identifies faults and other geomorphic features useful in planning paleoseismic studies.





## Full map interpretation of the location of the Seattle fault on Bainbridge Island





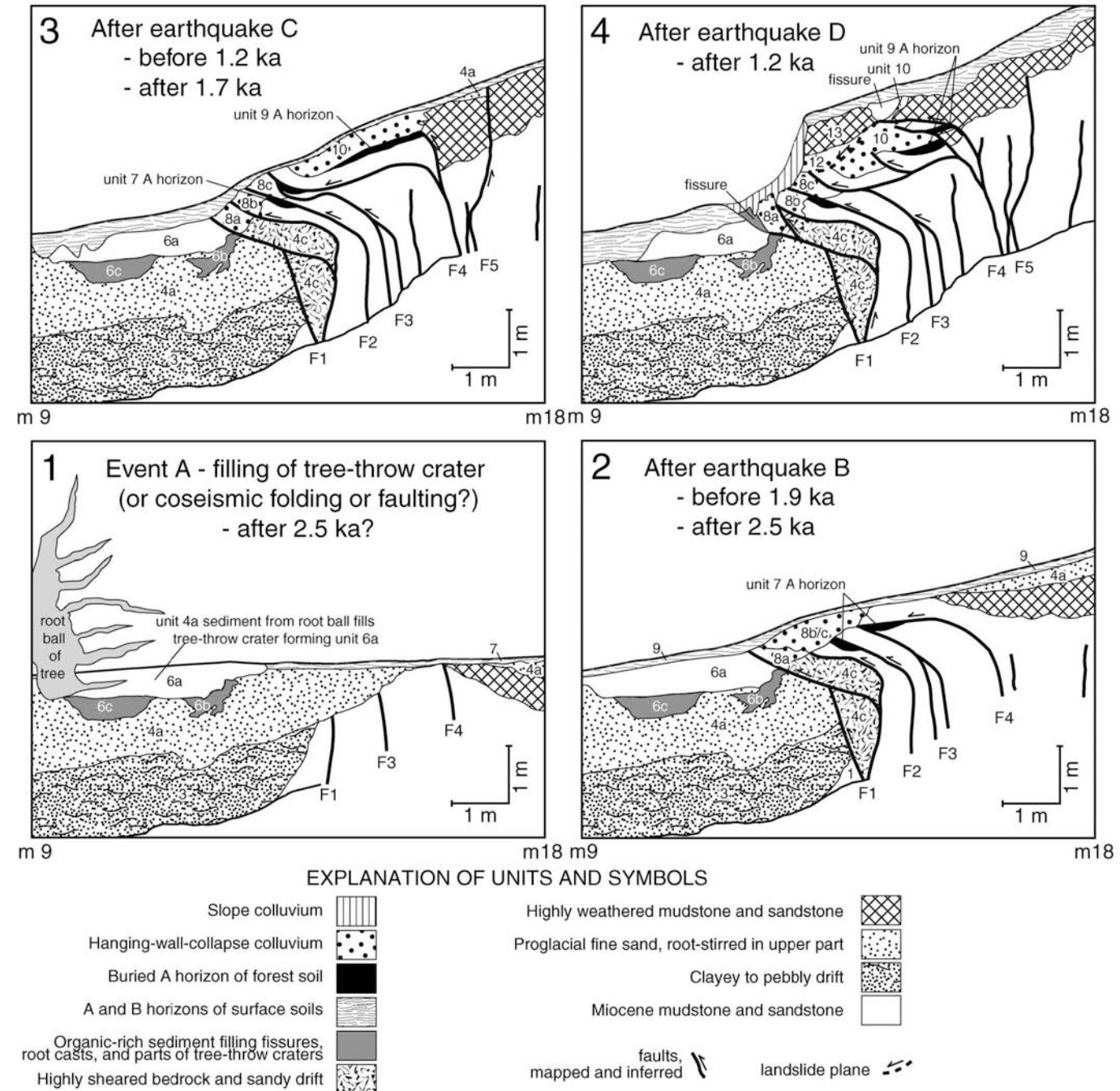
Nelson et al. 2003

<http://pubs.usgs.gov/of/2002/ofr-02-0060/>



Three, or possibly four, earthquakes between 2500 and 1000 yr ago.

The most recent earthquake occurred Between 1050–1020 cal. (calibrated) yr B.P. (A.D. 900–930).







Nelson et al. 2003

**EXPLANATION OF SYMBOLS IN SADDLE TRENCH**

**Faults**

- Dashed primary fault with displacement—Faults are numbered separately in red (e.g., 3.2.1)
- Dashed primary fault, displacement probable
- Inferred primary fault
- Dashed secondary fault, landable plane (labeled L), or fracture
- Dashed secondary fault, landable plane, or fracture

**Contacts**

- Sharp or distinct
- Gradual and/or indistinct
- Inferred
- Indistinct lateral changes in lithologies

**Interunit contacts or structures**

- Indistinct
- Sedite (D-3607) and dip (°) of bedding ("r" indicates overturned bedding)

**Symbols**

- Large roots or pieces of wood
- Selected cobbles and boulders
- Radioactive ages, rounded to nearest 100 or 100 in 1000 or 10<sup>3</sup> dated material to charcoal unless otherwise indicated; ages <20 ka are calibrated to approximate years; other ages are in 10<sup>3</sup> or 10<sup>4</sup> years; sample numbers on Table S-1
- close (Y) maximum age for host sediment
- maximum age for host sediment
- minimum (Y) age for host sediment
- Pollen, diatoms and/or macrofossil sample (superscript is sample number on Table S-1)
- Concentration of white silty sediment infiltrated from former overlying E horizon

**NOTES TO SADDLE TRENCH**

Notes refer to locations ("r") numbered approximately from left to right on trench log.

- 1-1: Rapid lateral facies changes probably reflect the filling of root casts or tree trunks.
- 2-2: Area of many small faults and fractures not mapped in detail. Labeled faults are all reverse faults reactivated as normal faults.
- 3-3: Organic-rich, sandy, pebbly sediment, possibly unit 4B filling an unscripted feature or root cast.
- 4-4: Boulder of fairly conglomerate unit of the Blakely River Formation, possibly transported by ice from a source >1 km to the north. Now is a small graben created by extensional loading.
- 5-5: Indistinct intra-unit contacts mark probable upper boundaries of weak BE and the horizon that could not be mapped laterally due to loose, root-stored, sandy sediment to the trench wall.
- 6-6: One of unit 5a that has no record downhole.
- 7-7: Vertical zone of light-colored E horizon sediment that was infiltrated into fractures along unit contact.
- 8-8: 10°C age on charred wood from the oval-shaped remnant of a tree root that intruded into sand, therefore, is younger than unit 7a.
- 9-9: Crater that filled with a horizon sediment when the backhoe pulled up large roots.
- 10-10: Although fading is also a possible explanation, rapid lateral facies changes probably reflect the filling of root casts or tree trunks.
- 11-11: juxtaposition of Miocene and late Quaternary units strongly suggests unrecognized loading in this area.

**EXPLANATION OF UNITS IN SADDLE TRENCH**

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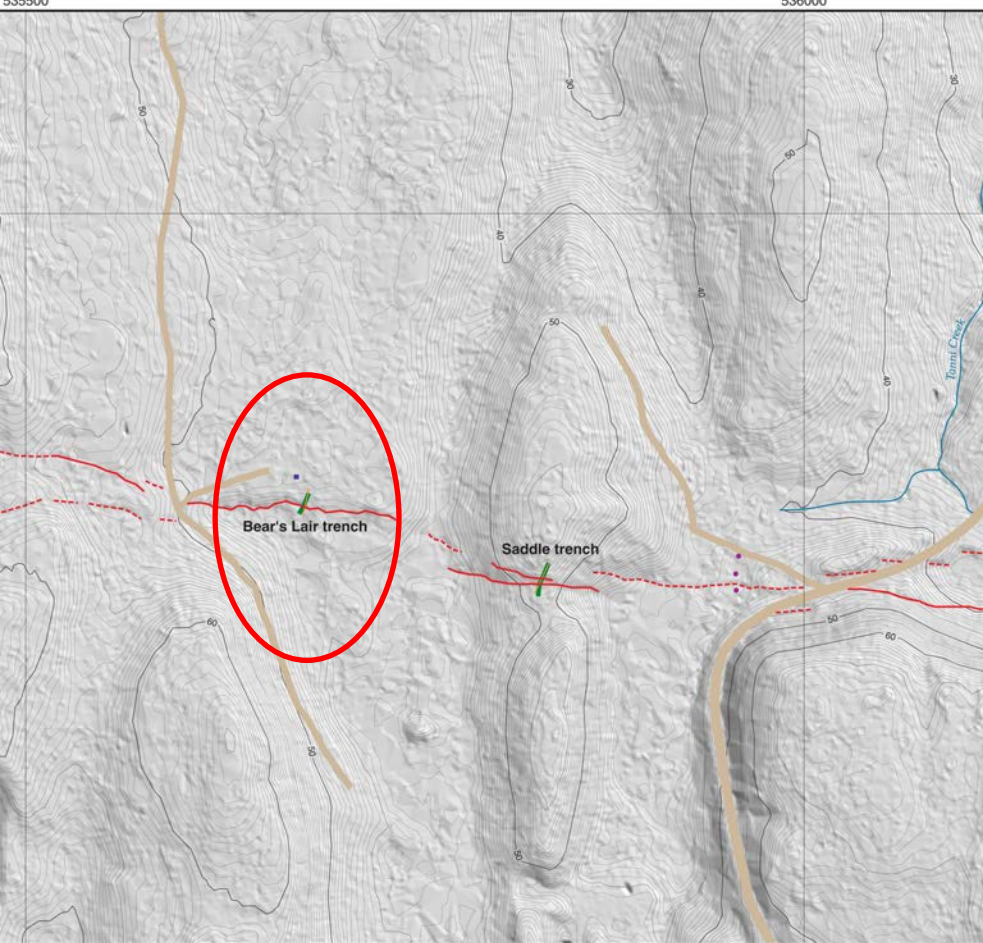
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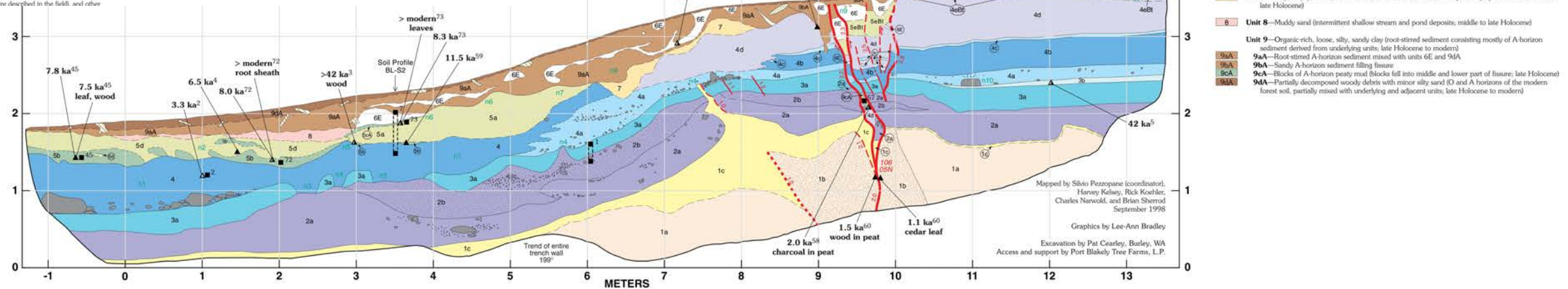
# Bear's Lair trench

Nelson et al. 2003

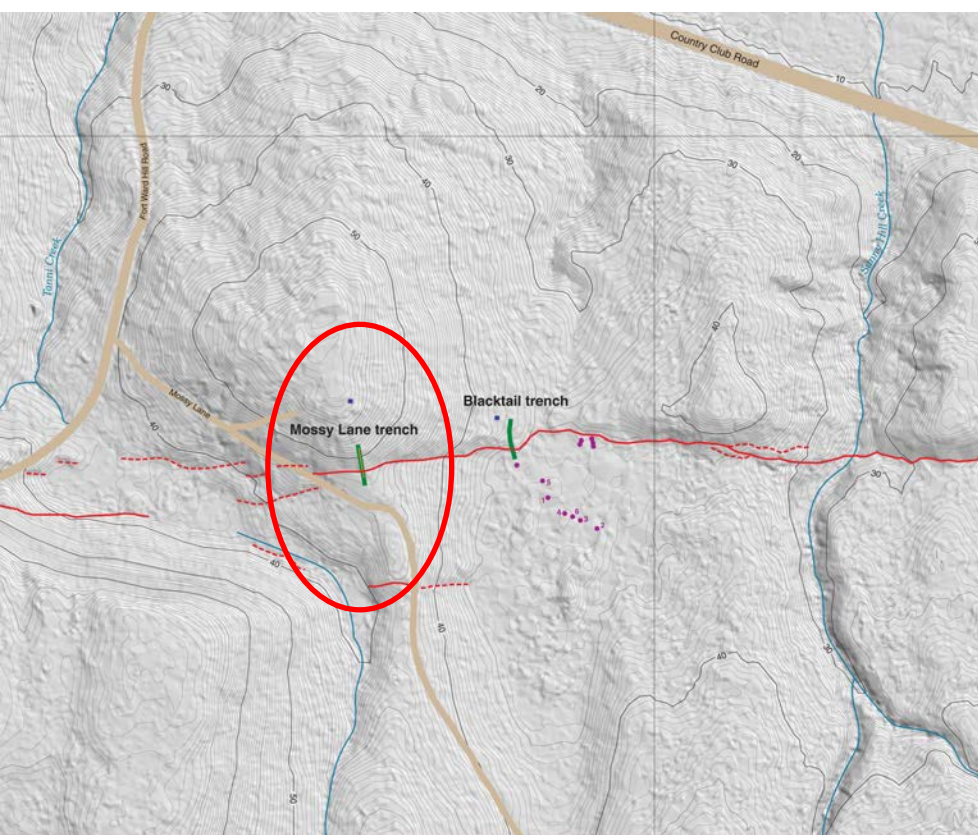
<http://pubs.usgs.gov/of/2002/ofr-02-0060/>



res. numbered crosses were described in the field, and either



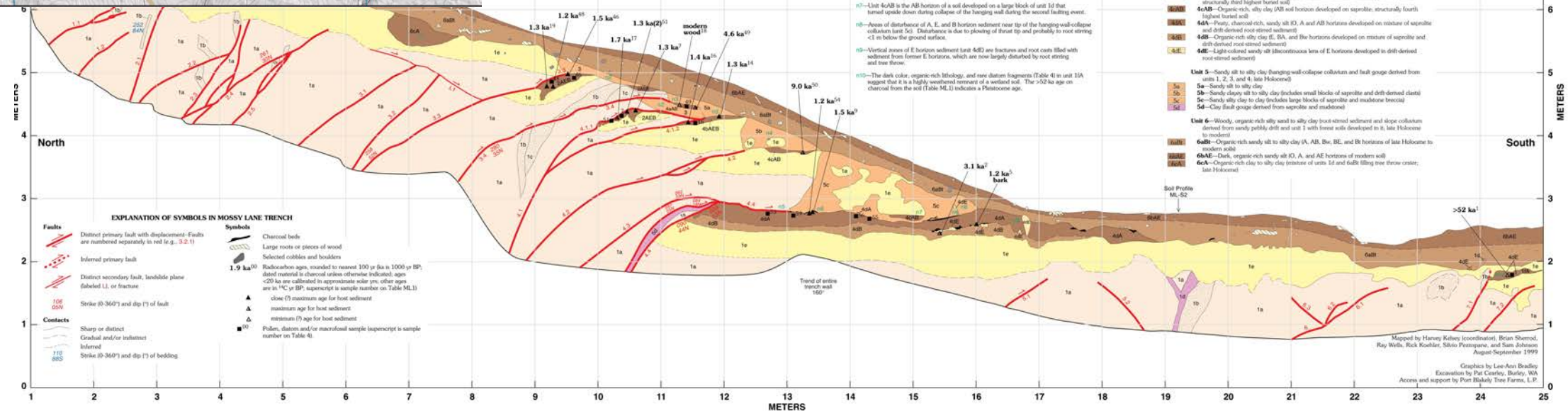




# Mossy Lane trench

Nelson et al. 2003

<http://pubs.usgs.gov/of/2002/ofr-02-0060/>



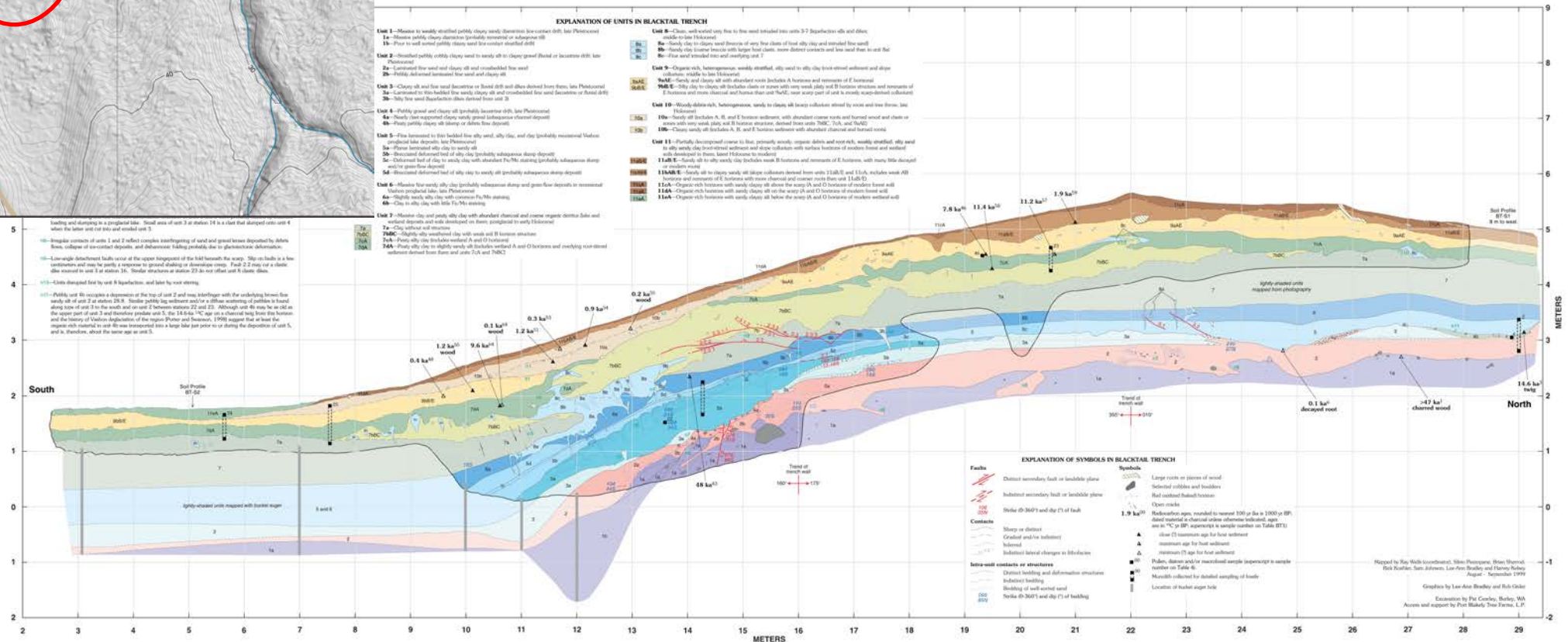


This topographic map displays the terrain around the Mossy Lane and Blacktail trench areas. Key features include:

- Topography:** Contour lines indicate elevation, with labels for 10, 20, 30, 40, 50, and 60 feet.
- Roads:** Country Club Road runs diagonally across the top right. Mossy Lane runs horizontally across the middle left.
- Creeks:** Tenn Creek flows along the left edge. Spring Hill Creek flows along the right edge.
- Trenches:** The Mossy Lane trench is marked with a green vertical line. The Blacktail trench is marked with a green vertical line and is highlighted by a red oval.
- Other Features:** A red dashed line runs horizontally across the map. Several purple dots are scattered in the Blacktail trench area.

Nelson et al. 2003

<http://pubs.usgs.gov/of/2002/ofr-02-0060/>





Crane Lake trench





Mossy Lane trench



Bedrock faulted against forest soil A-Horizon

Saddle trench





Bears Lair trench



Saddle trench

