

Social Dimensions of Obsidian in the Portland Basin, Columbia River

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The Portland Basin looking west to the Pacific, Columbia River on the right, Willamette River on the left.

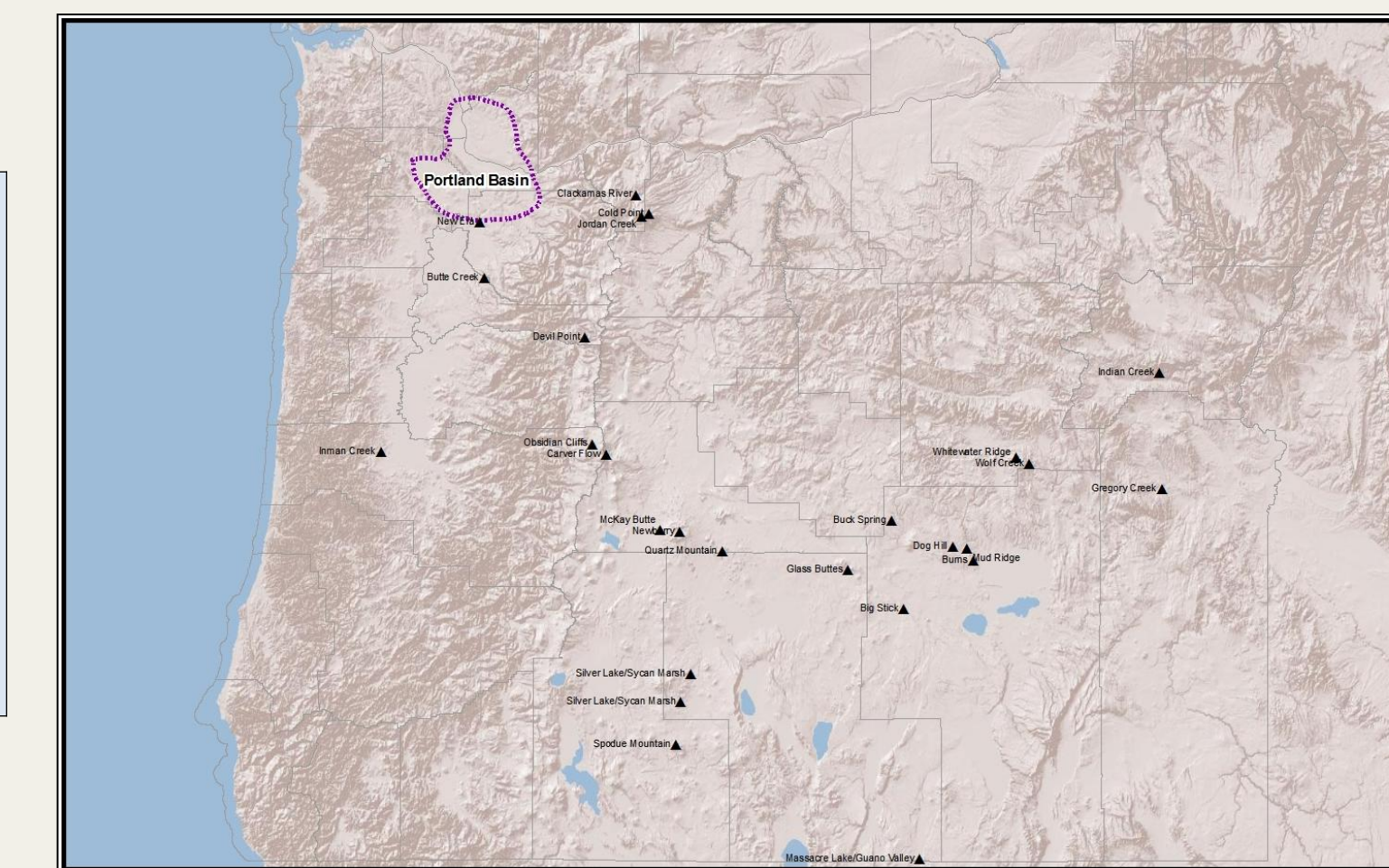
The Portland Basin

- The Columbia River forms the Portland Basin where the river emerges from the Cascade Range and crosses a structural trough.
- The Pacific Ocean is 90 to 120 miles to the west and much of the river floodplain in the Portland Basin is just above sea level. The Columbia River provides the easiest travel route between the interior Plateau and the Pacific Ocean in the Pacific Northwest other than the Fraser River in modern British Columbia.
- The Willamette River, a major tributary, empties into the Columbia in the Portland Basin.
- The Columbia and Willamette river floodplains are bounded on the north and south by upland terraces that are typically 30 to 60 meters higher in elevation than the floodplain and on the east and west by the foothills of the Cascade and Coast ranges.

Obsidian in the Portland Basin

- There are no known sources of obsidian in the Portland Basin.
- It is possible that some obsidian from sources in the upper Willamette Valley or High Cascades might have been found in the bedload of the Willamette River but such occurrences have not been identified and are likely to have been rare.
- Almost 100 obsidian sources have been identified in Oregon, primarily in central and eastern Oregon. These sources range from 100 to over 500 kilometers from the Portland Basin.
- Not surprisingly, obsidian constituted a rare raw material for residents of the Portland Basin, with obsidian artifacts typically comprising less than 5% of lithic assemblages from Basin sites.
- XRF analyses of obsidian artifacts from 45 sites in the Portland Basin have identified 24 different sources, which can be grouped into three geographical areas.

Willamette Valley and High Cascades	Central Oregon	Eastern Oregon
Inman Creek	Glass Buttes	Indian Creek
Obsidian Cliffs	Newberry Crater	Whitewater Ridge
Devil Point	Silver Lake/Sycan Marsh	Wolf Creek
New Era	Spodas Mountain	Burns
Clackamas River	Mickey Butte	Dog Hill
Butte Creek	Quartz Mountain	Missouri Lake/Guano Valley
Carver Flow		Black Spring
Cold Point		Gregory Creek
Jordan Creek		Mud Ridge



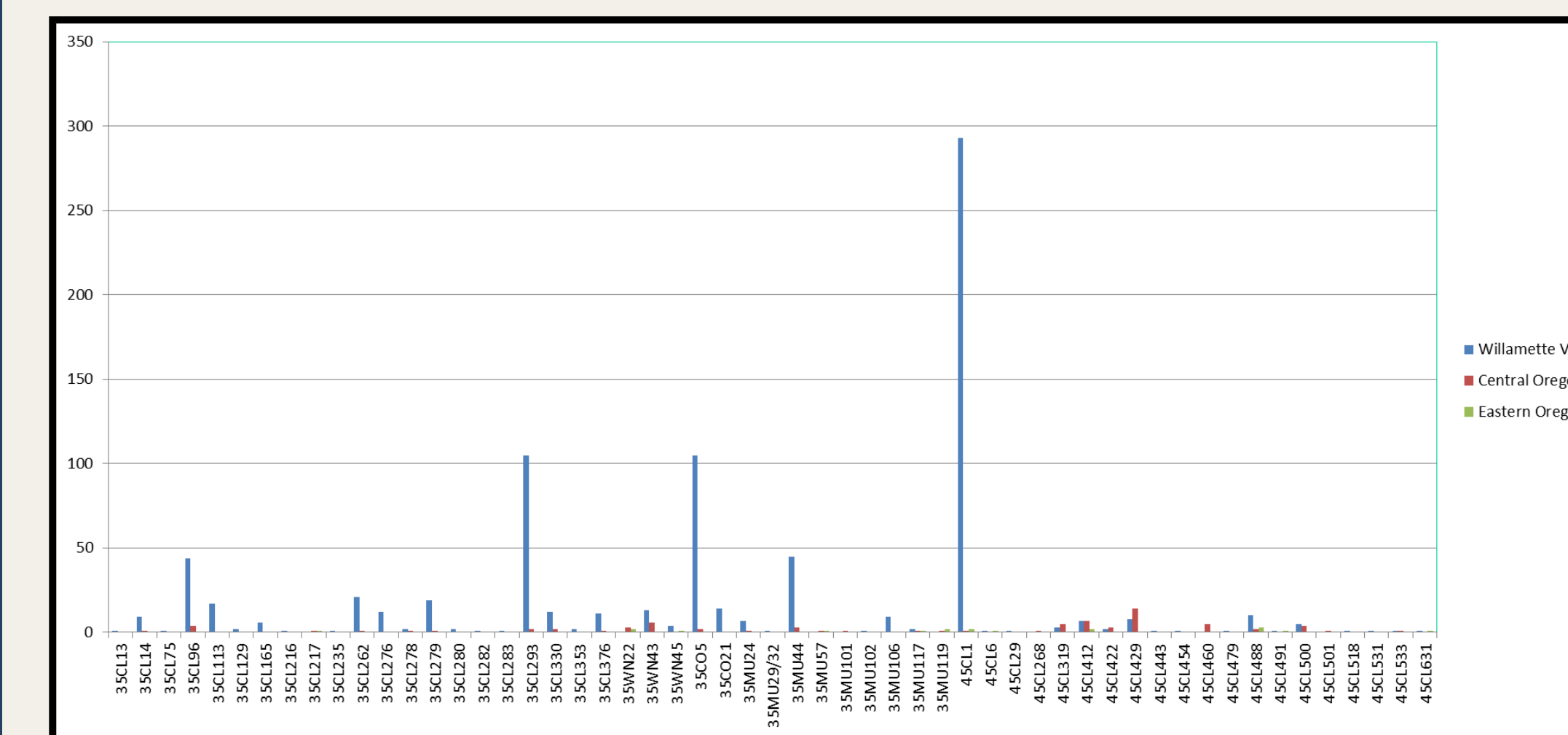
Locations of obsidian sources documented at Portland Basin sites.

Current Research

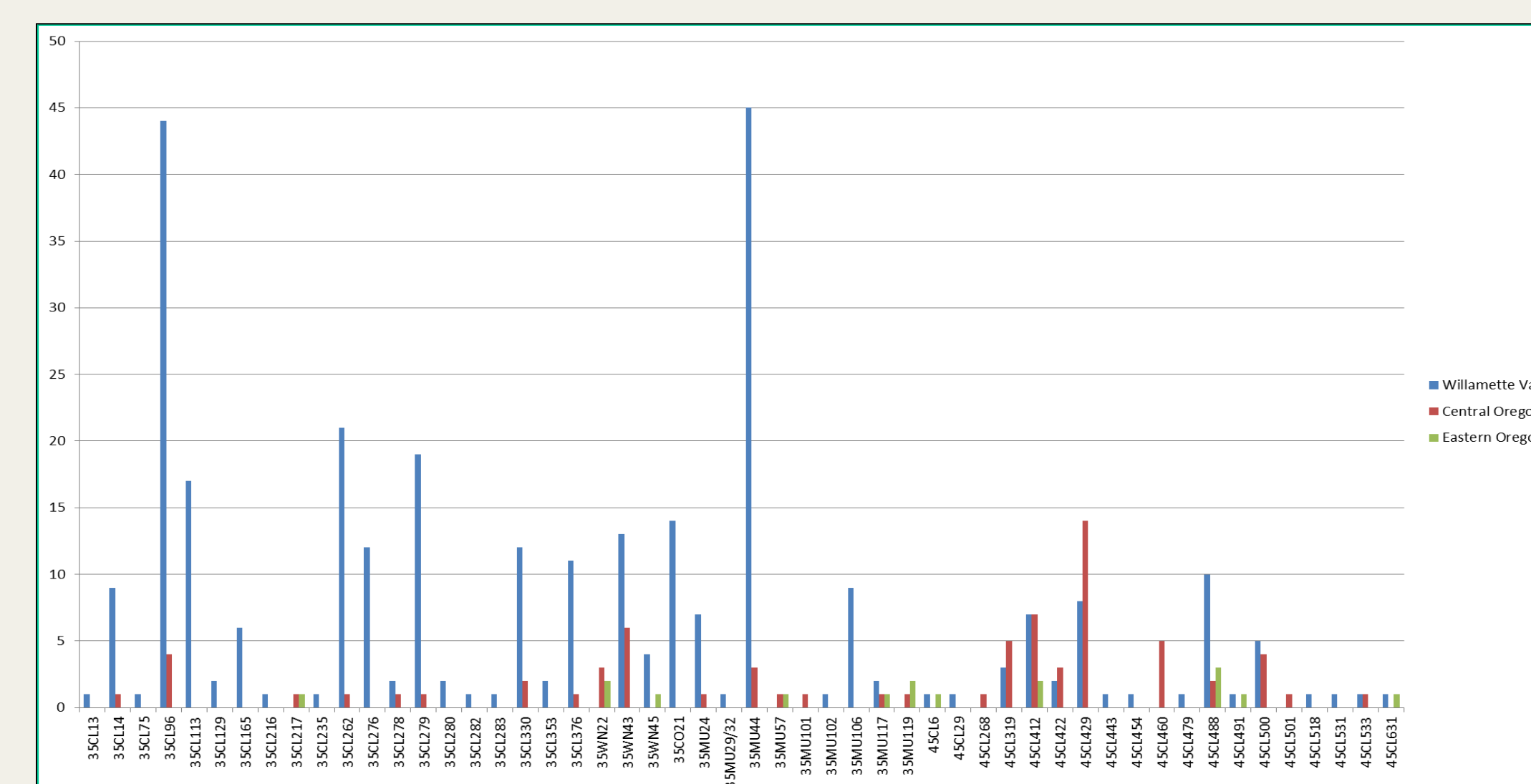
- Our first objective was to build on previous research (Ellis and Skinner 2004) and analyze the distribution of obsidian in site assemblages from the Portland Basin to determine if there is any evident patterning in the distribution of different source groupings.
- If there is evident patterning in source distribution, our second objective was to determine if the patterning could provide insights in exchange and social networks.

Mapping Obsidian Sources I

- Our initial graphing of obsidian sources at Portland Basin sites demonstrated a clear preference for Willamette Valley sources, not surprising given greater proximity to those sources.
- That graphing is visually distorted, however, by data from three sites (35CL293, 35CO5, and 45CL1) at which large numbers of obsidian artifacts have been recovered and sourced.



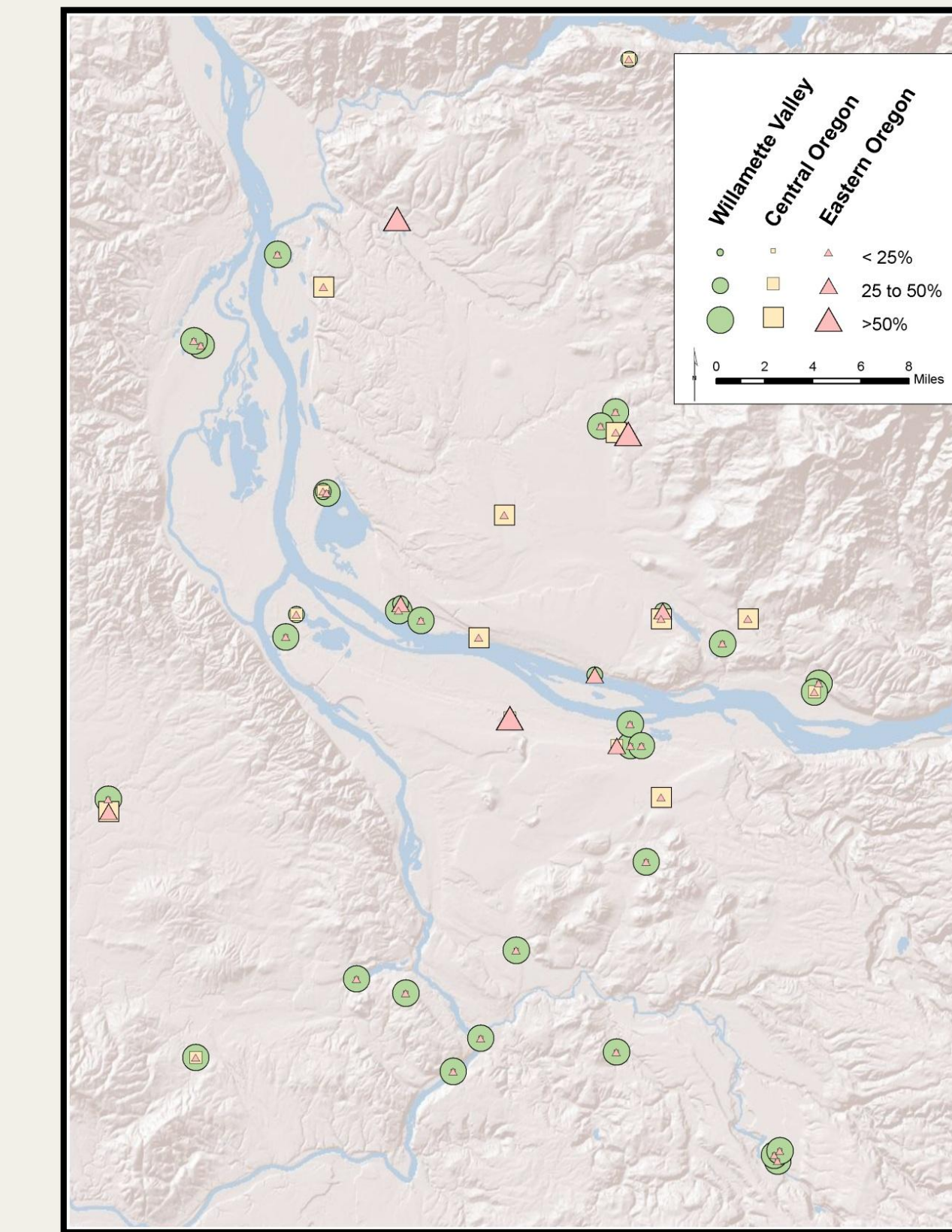
Frequencies of obsidians by source at Portland Basin sites.



Frequencies of obsidians by source at Portland Basin sites exclusive of 35CL293, 35CO5, and 45CL1.

Mapping Obsidian Sources II

- Excluding the data from those three sites provides a better visual representation of the distribution of sources.
- The modified results also show a preference for Willamette Valley sources but also demonstrate the presence of central and eastern Oregon sources in notable frequencies at some sites.



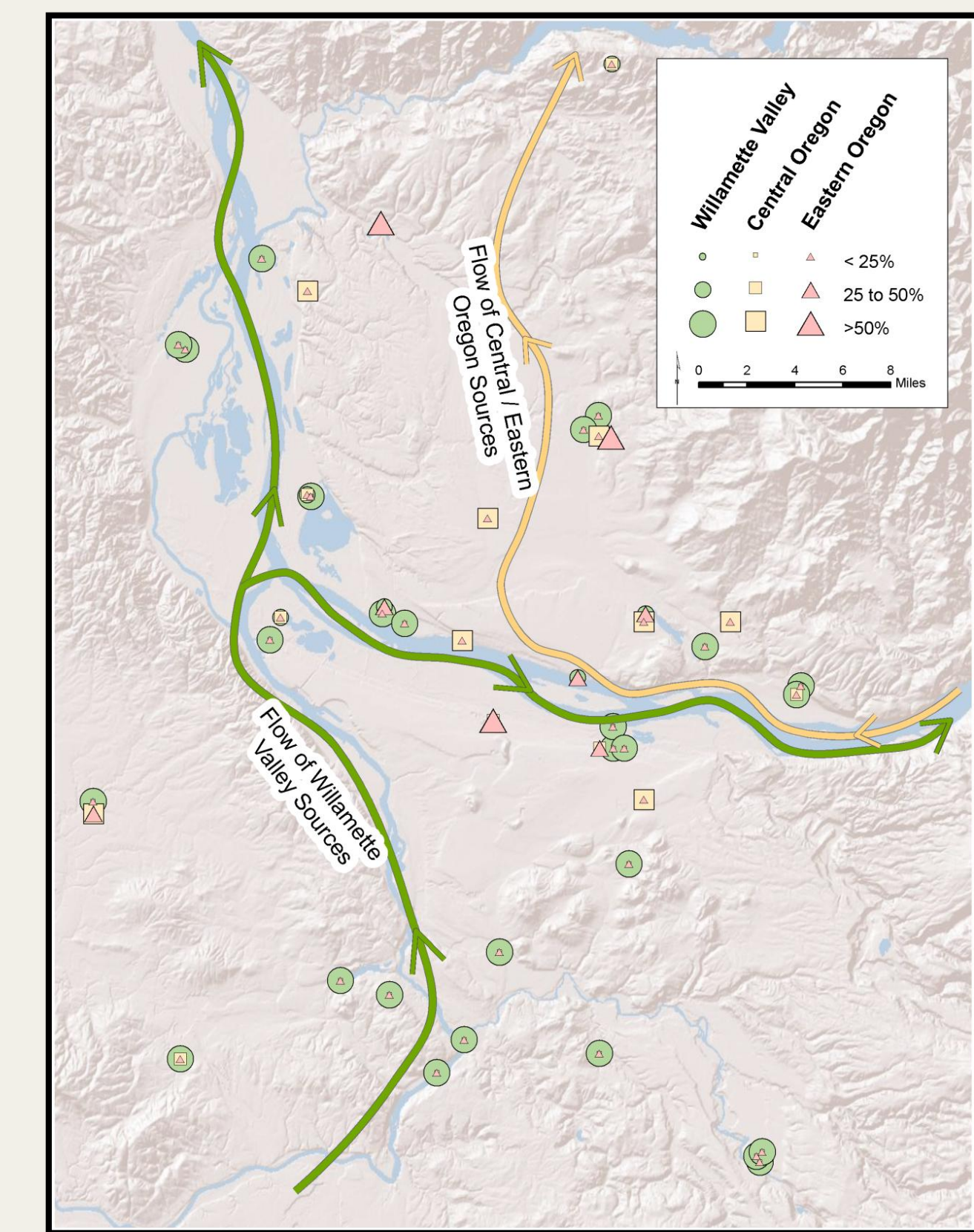
Mapping Obsidian Sources III

- The geographical distribution of sites and sources demonstrate some interesting patterns.
- Willamette Valley sources are widespread through the Basin and tend to dominate at many sites.
- Central and eastern Oregon sources also occur throughout the Basin but generally in low frequencies.
- The central and eastern Oregon obsidians are most common or dominant at sites in the eastern Basin, upriver of the mouth of the Willamette River.

Mapping Obsidian Sources IV

Based on these source distributions, we hypothesize that sources are reaching the Portland Basin along two "flow" lines:

- Willamette Valley sources are moving down the Willamette River to its confluence with the Columbia and then moving both up and down the Columbia from the confluence.
- Central and eastern Oregon sources are moving down the Columbia from eastern Oregon but upon reaching the Portland Basin largely "stall" in the eastern Basin and diminish in frequency to the west.



Observations and Conclusions

- Ethnohistoric accounts provide evidence of two spheres of exchange on the lower Columbia: prestige goods through stranger-to-stranger trade, possibly only among elites; and everyday goods through exchange based on kin ties and friendship.
- There is presently little evidence for obsidian as a prestige item. Exchange (or gifting) through kin ties is therefore the most likely means for obsidian to reach the Portland Basin.
- If we view the flow lines as a surrogate for kin networks, they suggest at least two networks in the Basin: one that extends through the Portland Basin and into the Willamette Valley; and a second that is strongest in the eastern Portland Basin and extending up the Columbia River.
- In 1805-1806, Lewis and Clark observed pronounced differences in cultural traditions and practices between the Chinookan groups living along the Columbia River from the mouth of the Willamette River downstream to the Pacific and those living upriver through the Columbia River Gorge (where the river cuts through the Cascade Range) to the western edge of the interior Plateau. Later ethnohistoric and ethnographic research has provided further support for distinguishing between upriver and downriver Chinookans.
- Establishing the age of some of the sites addressed in this poster is difficult, but a coarse assignment of age does not indicate any change over time in the distribution of sources. Although this patterning is most evident for sites dating to the later precontact period, it may extend back further in time. The social patterning of the Portland Basin at the time of Euroamerican contact may therefore have considerable temporal depth.
- The distance-decay model would suggest that Willamette Valley obsidians should dominate in the Portland Basin given the greater proximity and more distant sources should be scarce or absent. In general, this model appears to hold but the exceptions indicate that social networks may facilitate the movement of goods from distant sources.

Portland Basin Prehistory: An Overview

- Prehistoric settlement in the Basin area appears to extend back in time about 9,000 years or more. The earliest known sites have been dated based on artifact assemblages and are situated on the upland terraces.
- The archaeological record is better for the floodplain areas but well-dated sites extend back in time only to about 3500 BP.
- By 3500 BP, populations had grown and evidence of house construction at concentrated settlements appears.
- The first direct contact with Euroamericans came in the 1790s. In 1805-1806, Lewis and Clark reported a population of 8,000 in the Portland Basin, with some villages estimated to have had more than 1,000 residents. Lower Columbia River Native populations shared many of the features of the complex hunter-gatherer societies of the Northwest Coast.
- Archaeological and ethnohistoric evidence indicates that the Portland Basin was a major center in regional exchange networks by the late prehistoric period (~500 BP).

