OLYMPIC LOWLAND BEARGRASS: A FORGOTTEN LANDSCAPE

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Washington Botanical Symposium

March 5, 2025

FORESTRY SCIENCES LABORATORY PNW Olympia, Washington

FOREST SERVICE US DEPARTMENT OF AGRICULTURE

There is a landscape in the southeastern Olympic Peninsula with a host of unusual botanical characteristics that when considered together suggest the existence of an extensive system of fire maintained anthropogenic parklands, savannas and prairies unlike any landscape presently in existence.

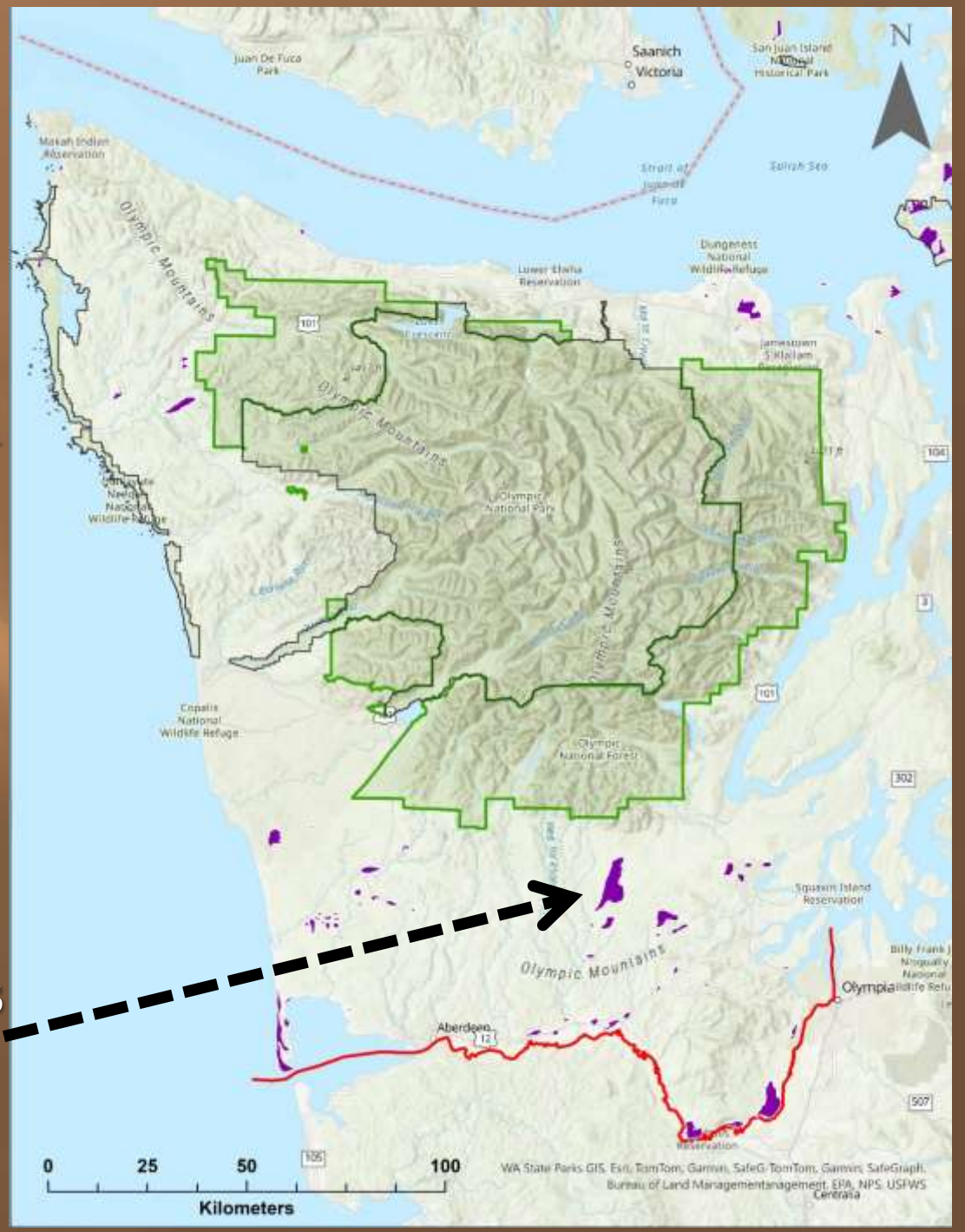
This is today's topic.

Digitized all the prairies on General Land Office (GLO) maps (township, range and section mapping in the late 1800's).

We sampled as many historic prairies as we could looking for clues to their original nature.

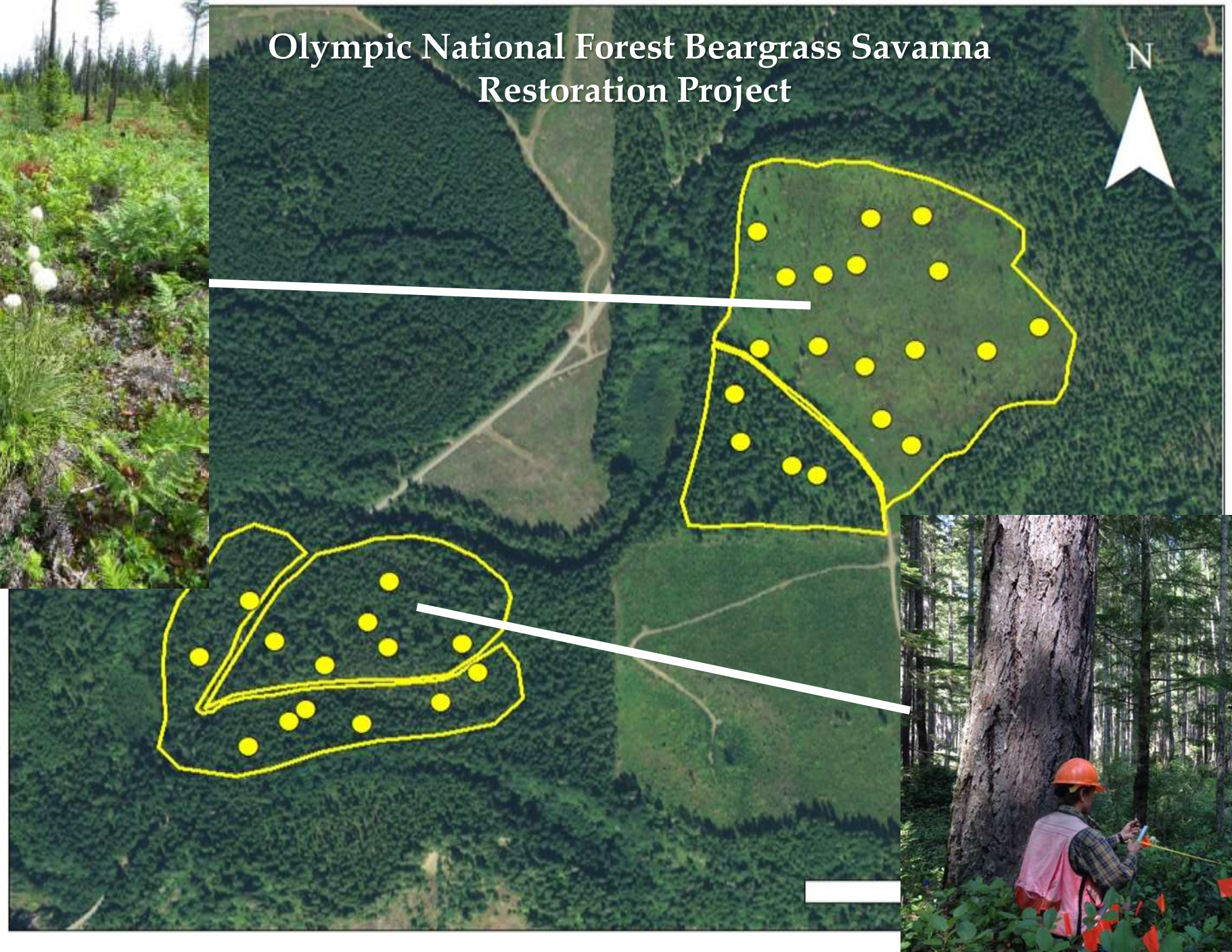
However, the surveyor's notes spoke of a prairie that they never put on a map.

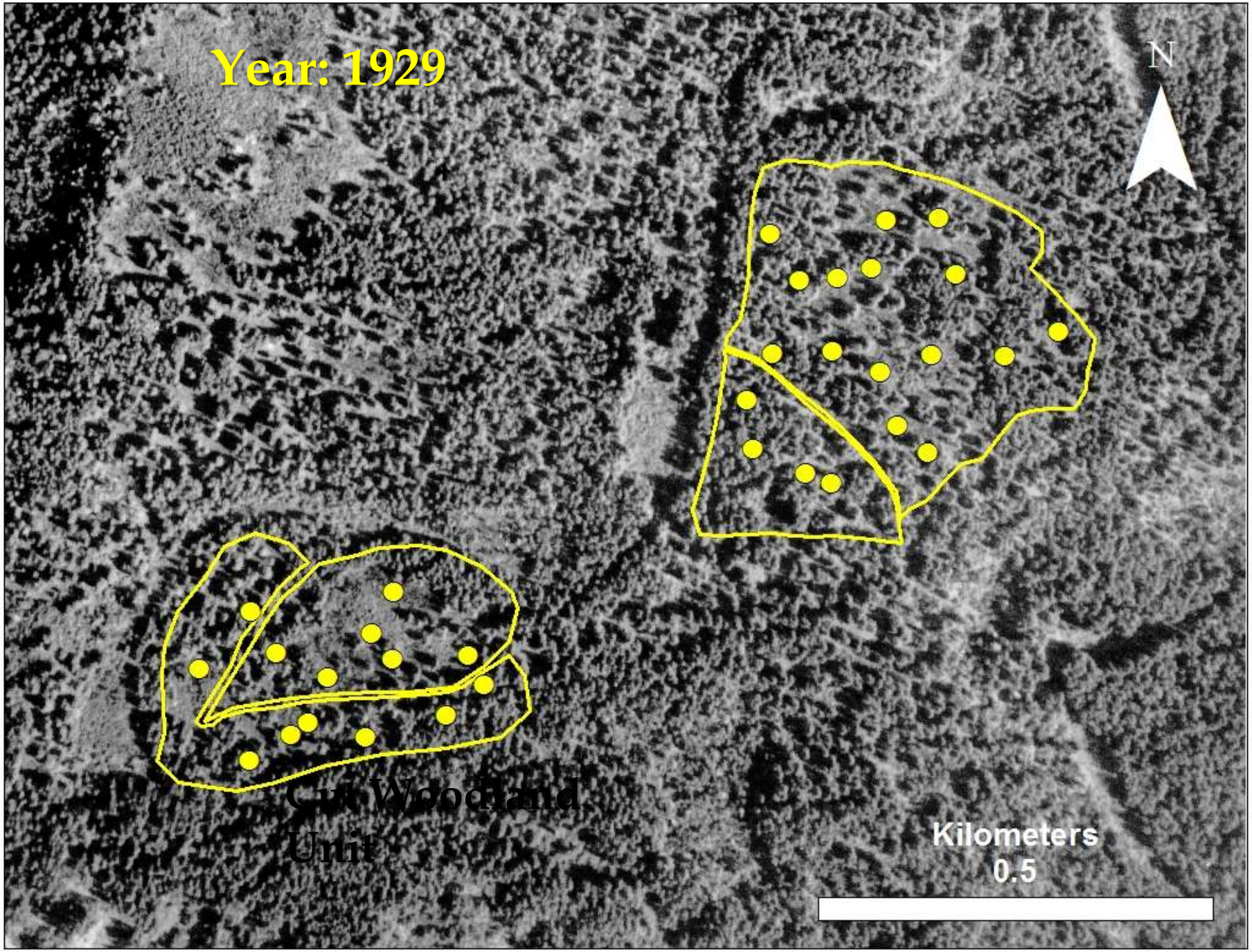
By marking their "entry" and "exit" points on a map one of the largest prairies on the Olympic Peninsula emerged.

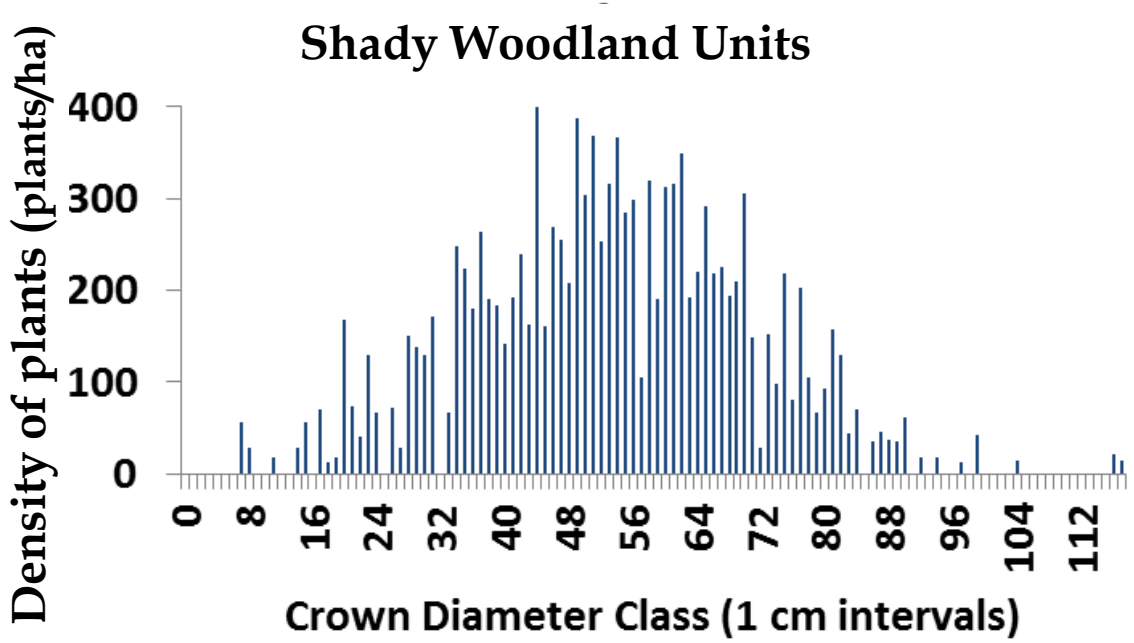


Why didn't they map it? What was different about it?

- So, I searched the area for remnant prairie vegetation. Things like oak, camas, Roemer's fescue.
- I found none.
- But I did find lots of beargrass.
- To know what that meant, I needed to understand beargrass better.

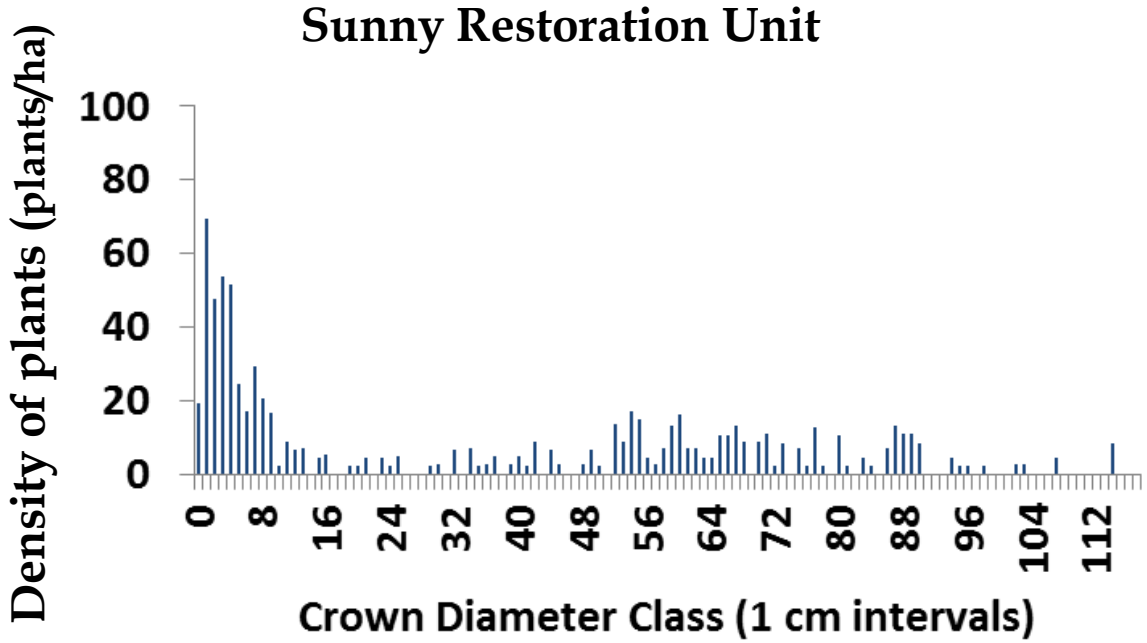

Olympic National Forest Beargrass Savanna
Restoration Project
N


Year: 1929
N
Cut Woodland
Unit
Kilometers
0.5



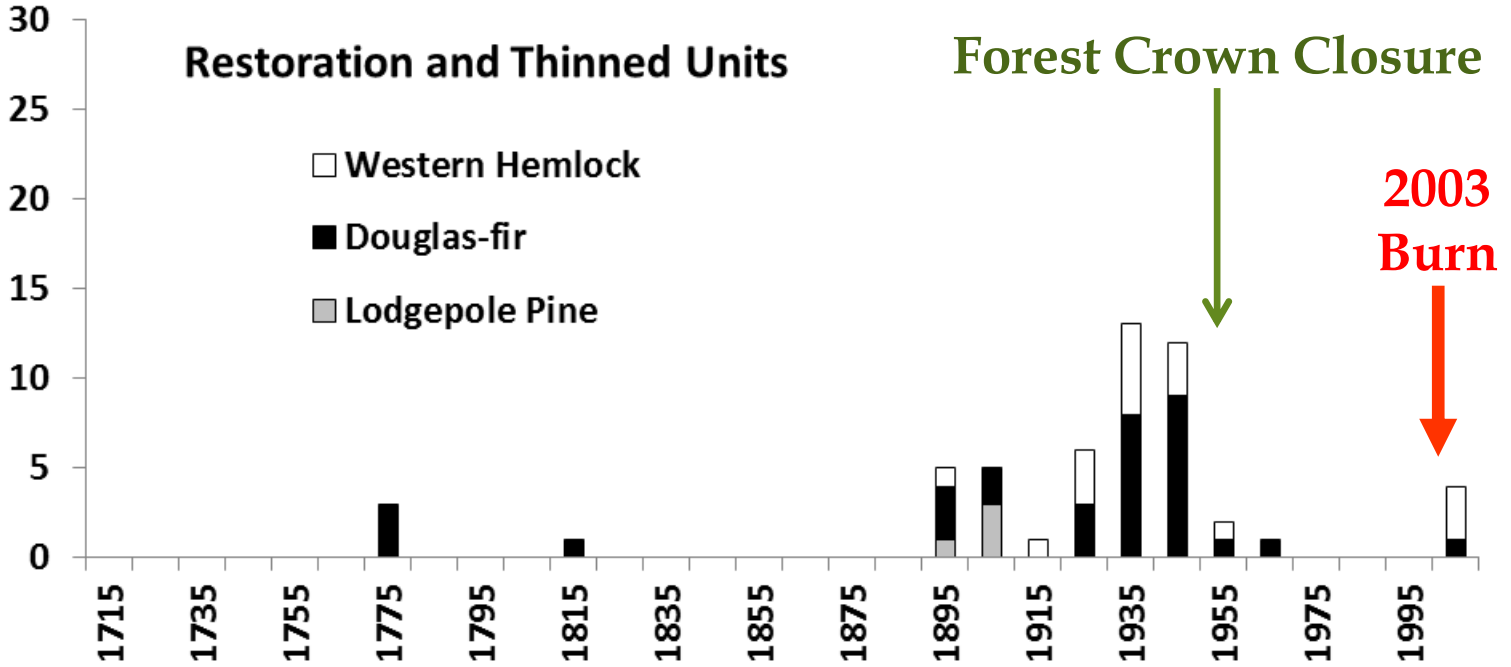
Beargrass population density by crown size and light environment.

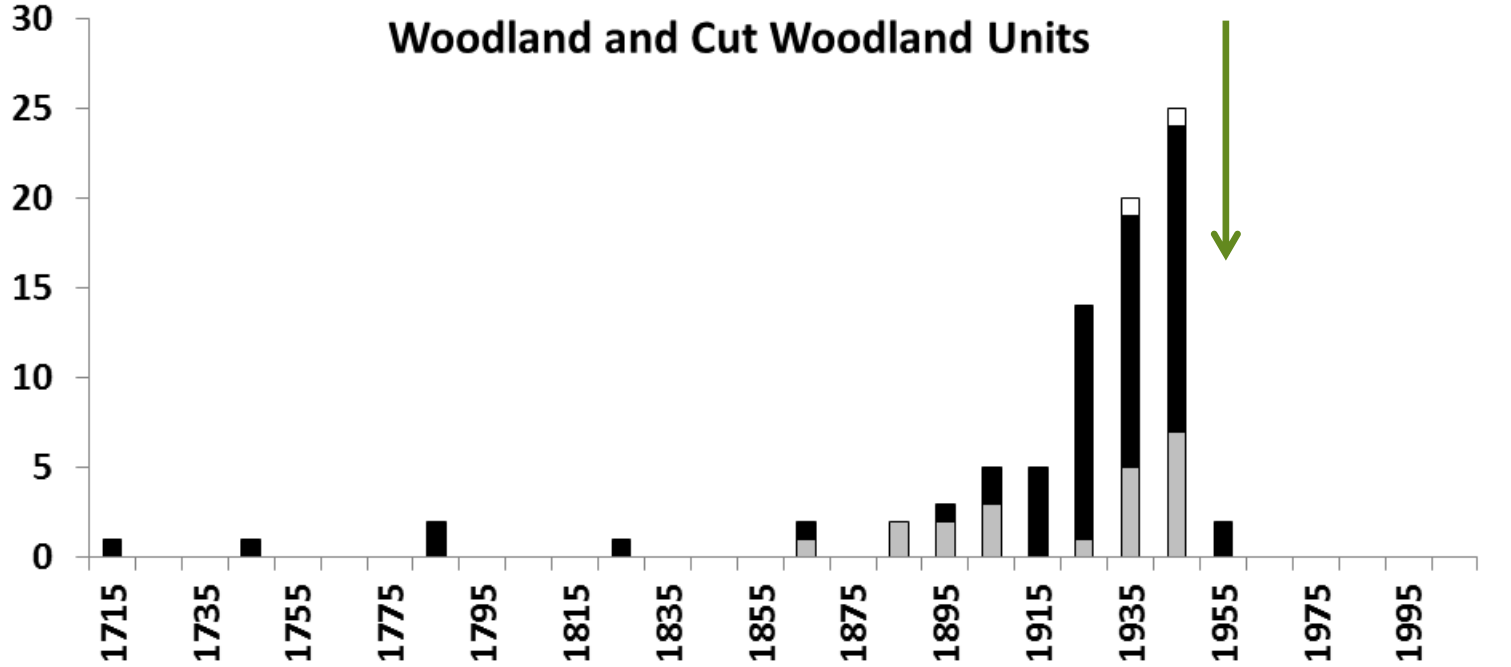
Reproduction occurred only in the open, sunny Restoration Unit.



Tree invasion.

Number of Trees dating to each decade





A typical managed forest landscape for western Washington

(but it doesn't have a typical history)

General Land Office Surveyors located several "prairies" in this area during their late 1800's surveys.

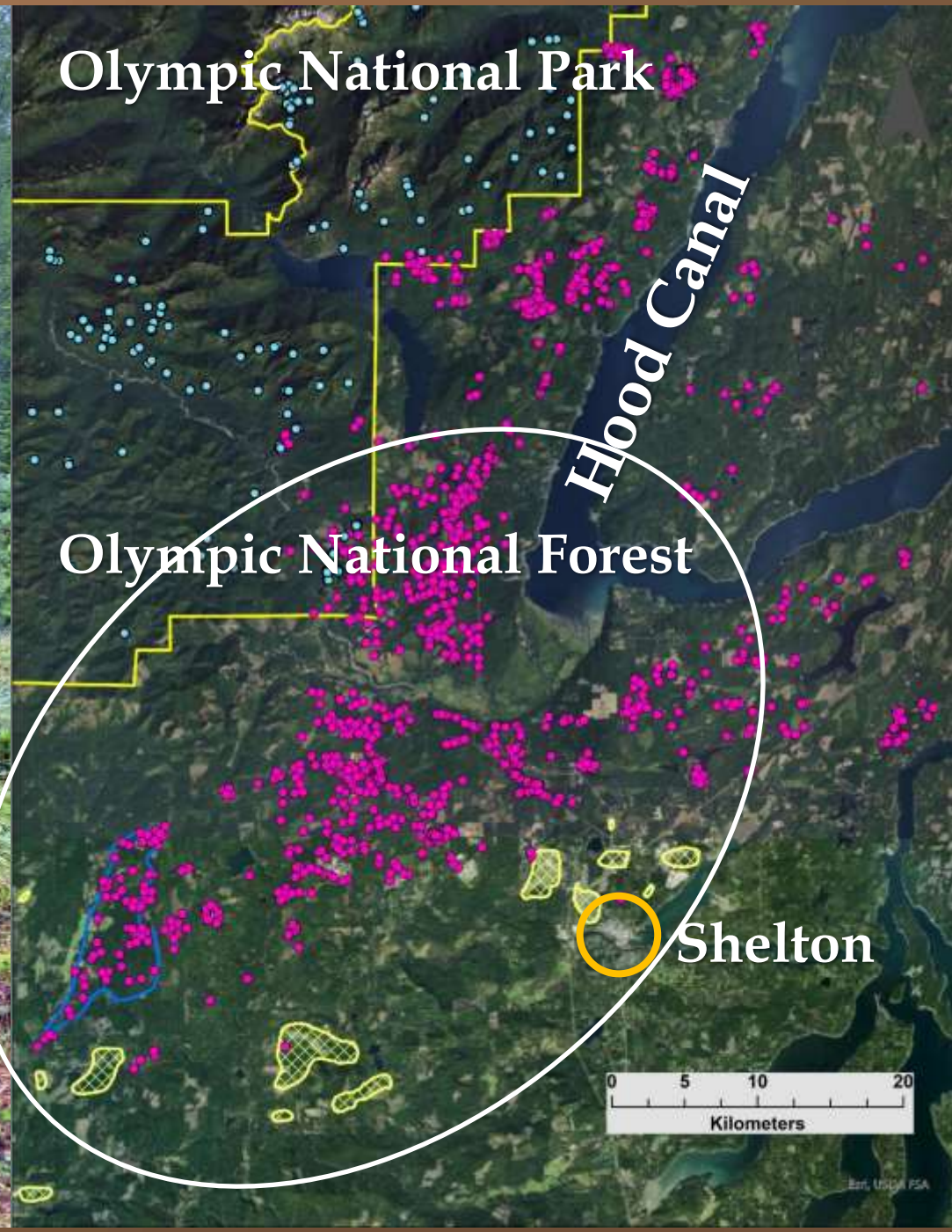
But there was also this prairie that they had noted but not mapped.

Field visits turned up a lot of beargrass.

The pink dots are beargrass plots.

Once I became interested in beargrass, it seemed the more I looked, the more I saw—and it was never in the known prairies.

But it wasn't everywhere.
It had definite limits.



Pink dots – Lowland beargrass.
Blue dots – Montane beargrass.

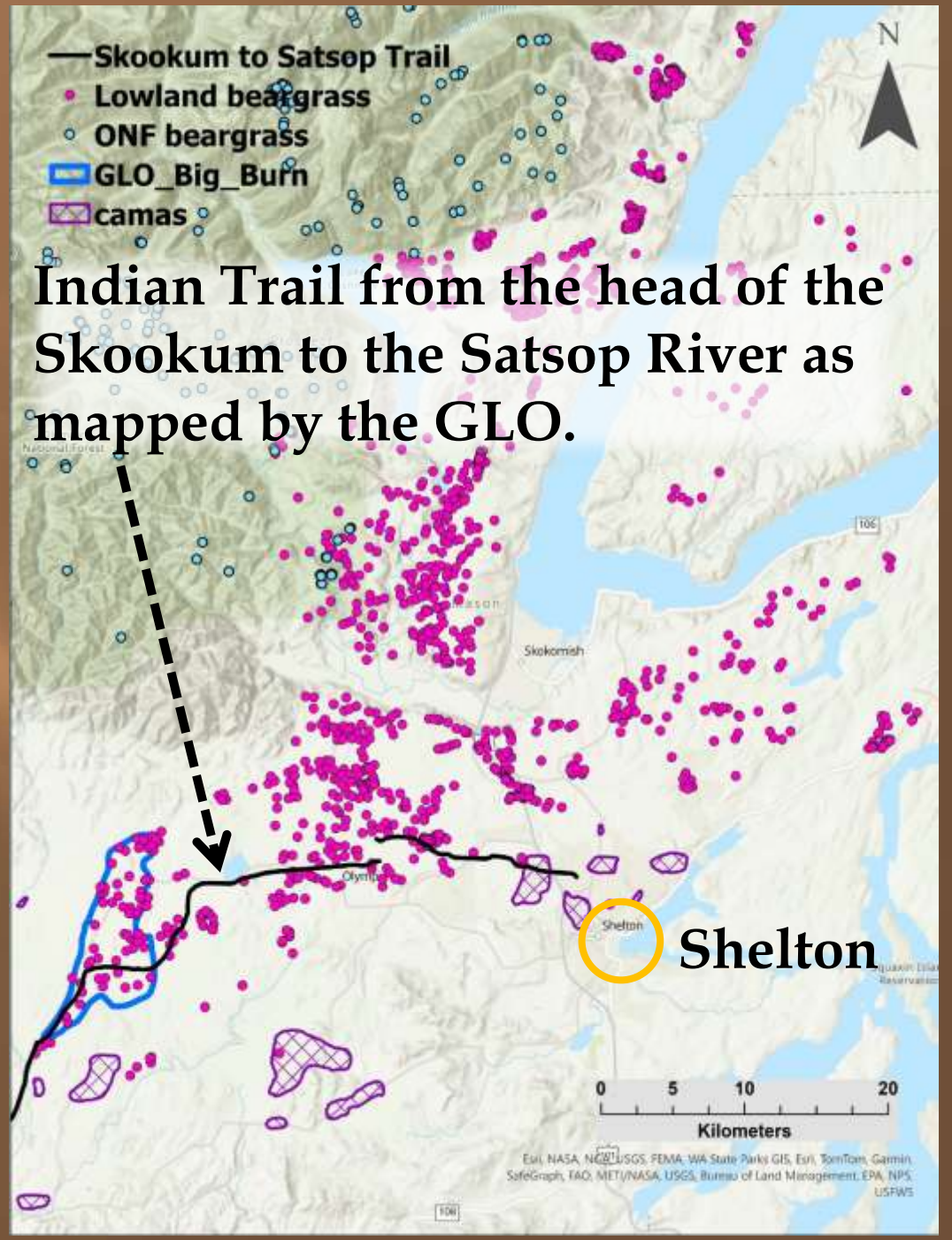
The beargrass was usually in managed second growth stands of timber and usually quite shady.

That's lot of "unhappy" beargrass.

Why is it there?

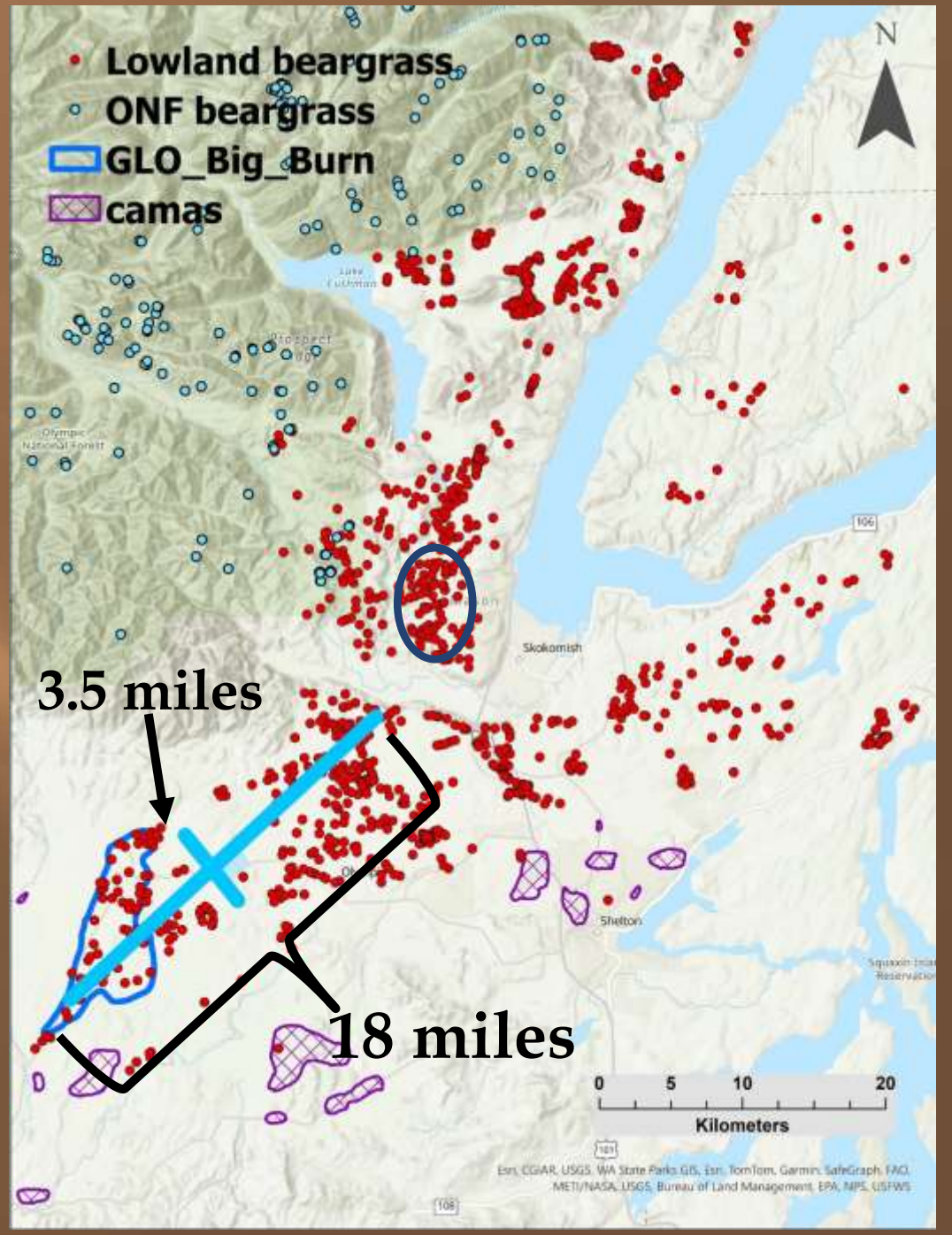
Historical accounts spoke of an open landscape between Shelton and Matlock.

P.H.Roundtree (spring 1861):
"From the head of the Skookum we traveled west through open timber and almost level country to the Satsop. Deer and bear were in sight often. As high as seven or eight deer at a time could be seen...."
In: Trosper, D. 1992. The History of Tumwater, Fortress Tumwater.



Mason County Journal 9/16/1887:

"…an open burn about three- and one-half miles in width and eighteen miles in length which is almost a dead level and has a surface nearly smooth as a frozen lake. It is covered with a beautiful green coat of bunch grass…and a few fir trees with large bushy tops. …and is one of the finest natural stock ranges I have seen west of the Cascade Mountains. A team hitched to a wagon or buggy can be driven all over this burn the same as you would drive over a level prairie."



50 years later Botanist George Neville Jones described the area:
On the dry gravelly soils in parts of Mason County where the Douglas fir has already completed the first or invading stage of the sere, and is well on its way to the second, or competitive stage, there are open park like forests of fir and lodgepole pine, the latter soon outstripped and gradually replaced by the former, in which the trees are distant and well spaced. In this association there is a remarkable assemblage of subdominant ericaceous shrubs such as (mentions; salal, evergreen huckleberry, red huckleberry, dwarf bilberry, rhododendron, Columbia manzanita, kinnikinnick, Arctostaphylos hybrids) But the most surprising of all is the pine lily (beargrass) occurring scattered among the lodgepole pine and fir trees.

Jones, G. N. 1936. A botanical survey of the Olympic Peninsula, Washington. University of Washington

Year - 1929


Now

Trip to the Skokomish.

In company with G. Noschka, of Olympia, W. H. Clark and Frank Drolet we went over to the Skokomish river one day this week. We went ostensibly to fish, but as the fish in that stream were not ripe yet we did not pick any. We staid, while there at Cardwell's logging camp, where we were made to feel perfectly at home. The boys got up a splendid program for our entertainment, which consisted of singing, instrumental music and dancing, all of which were entered into with vim and great gusto. They are a jolly good natured set of boys there, and they have their fun as well as hard work. They are putting into the river from 30,000 to 35,000 feet per day, of an excellent quality of logs. Eighteen men and a team of fine yoke of splendid oxen are employed. The boys are quite anxious to see a rise in the river so that a drive can be made. The stream at present is almost at low water mark. The Skokomish valley is an extensive one, embracing a large area of fine agricultural land and much valuable timber. The drive between Shelton and the river is a delightful one, leading as it does over beautiful grass covered prairies and lovely forest stretches, which are free from the usual underbrush and fallen timber so common in the woods of Western Washington.

We regret that Mr. Cardwell was not at the camp, he being at Olympia on business. Mr. Kincaid, the naturalist, son of Dr. Kincaid, of Olympia is at the camp acting as book and time keeper and following his study of nature, gathering specimens of various kinds, etc., and making himself generally useful about the camp. The boys are preparing for the 4th of July. They ordered suits from Mr. Noschka amounting to something like $500.

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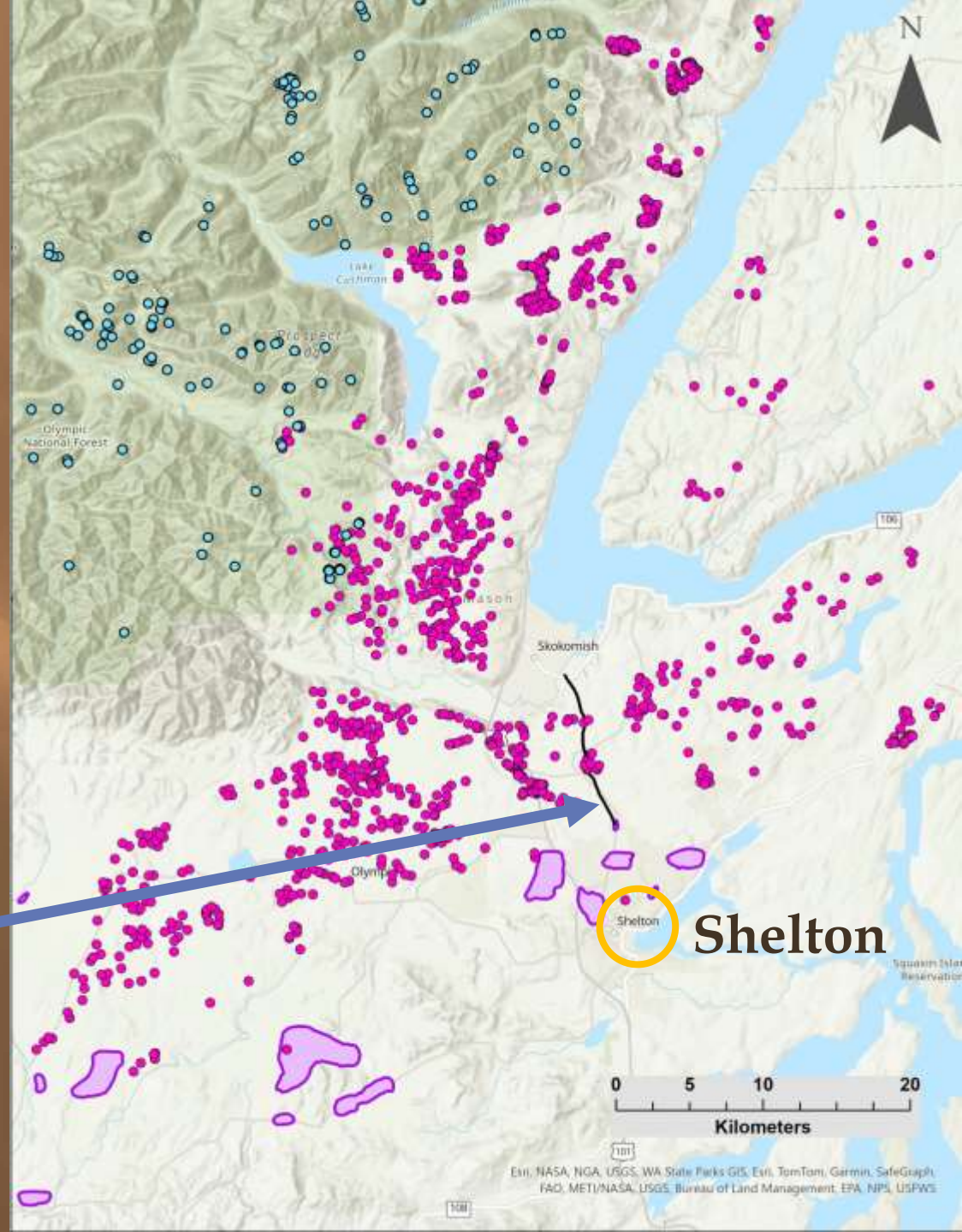
Route taken.

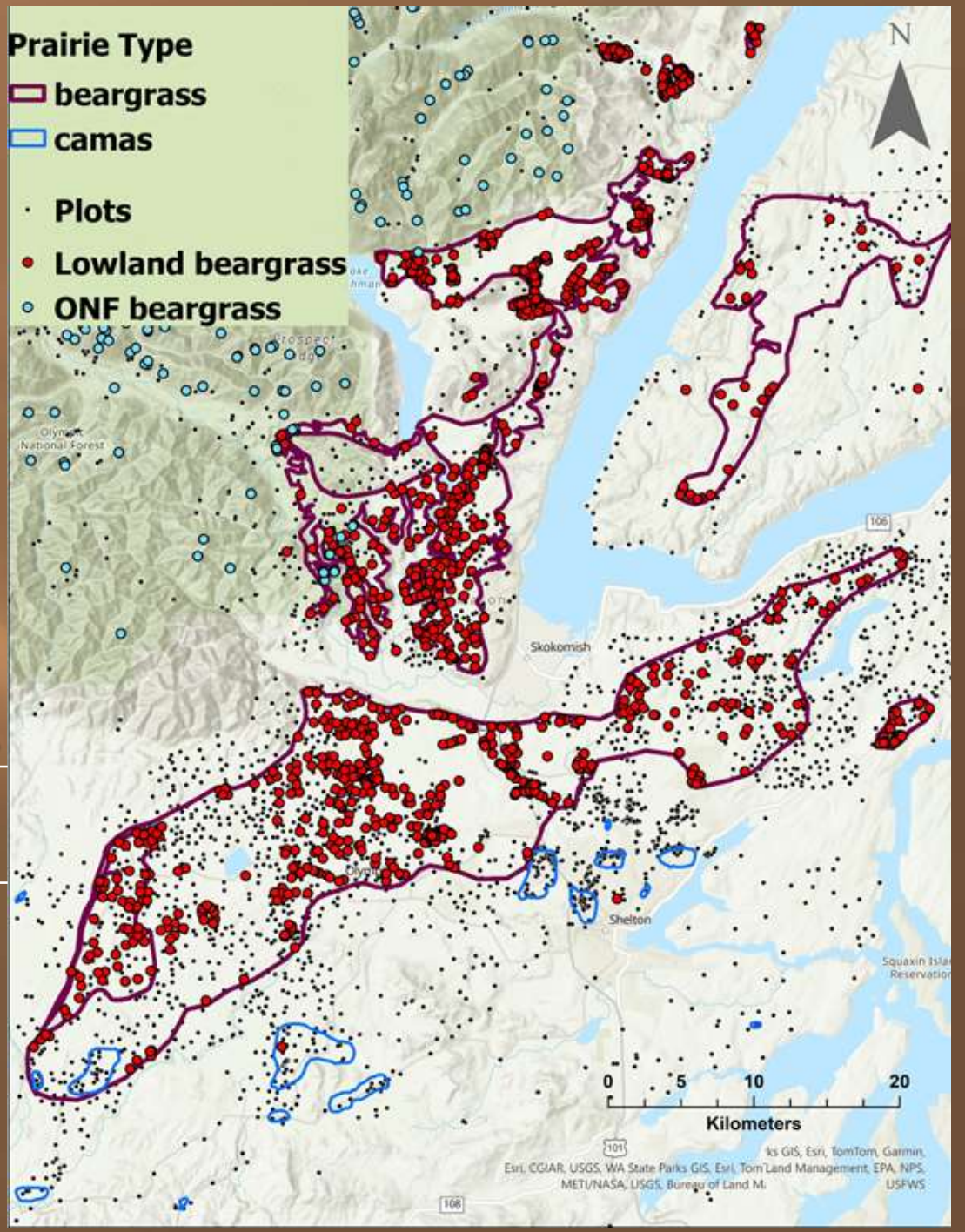
Purple polygons are GLO mapped prairies

The Shelton Sentinel July 11, 1892



Current Floral Composition

The distribution of beargrass and the network of plots.



Total area for the two types of "prairies".

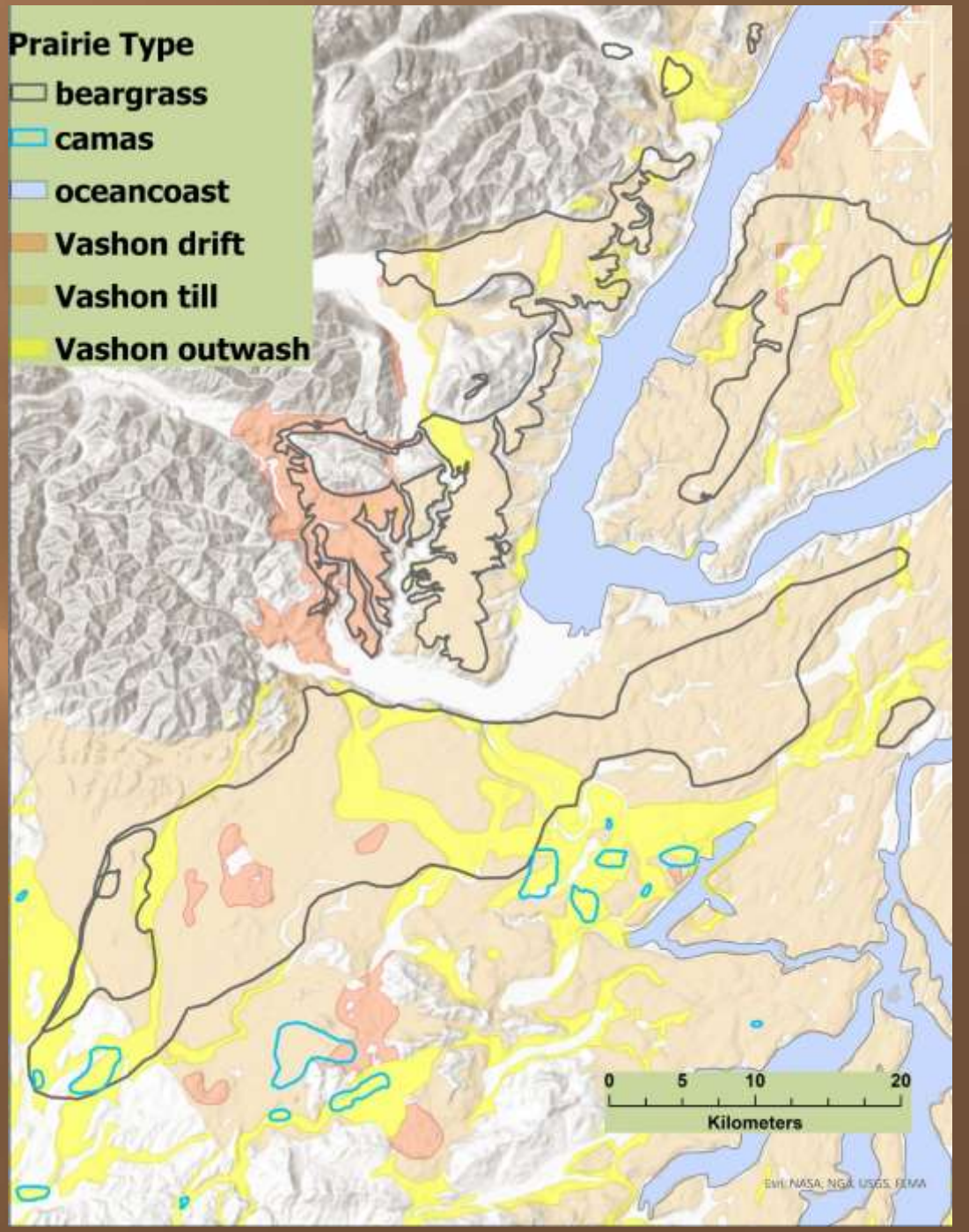
	Hectares	Acres
Beargrass Savanna	43,511	107,510
Oak/Camas Prairies	1,877	4,638

Soils

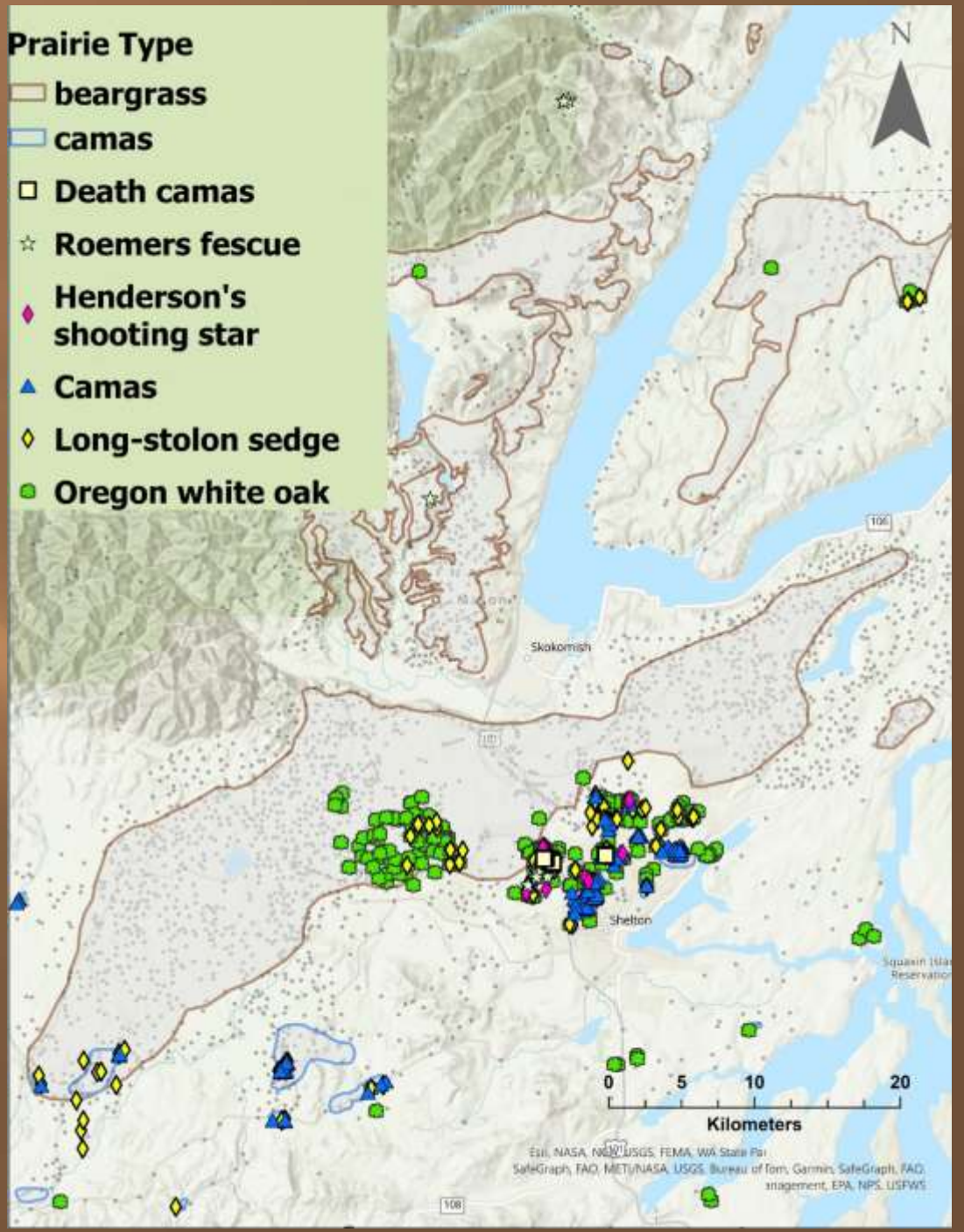
The entire area is covered in gravelly Vashon glacial till, drift and outwash with mostly poor water holding capacity and relatively low fertility.

Typical prairies (in blue outline) have darkened A horizons (Carstairs soil series)

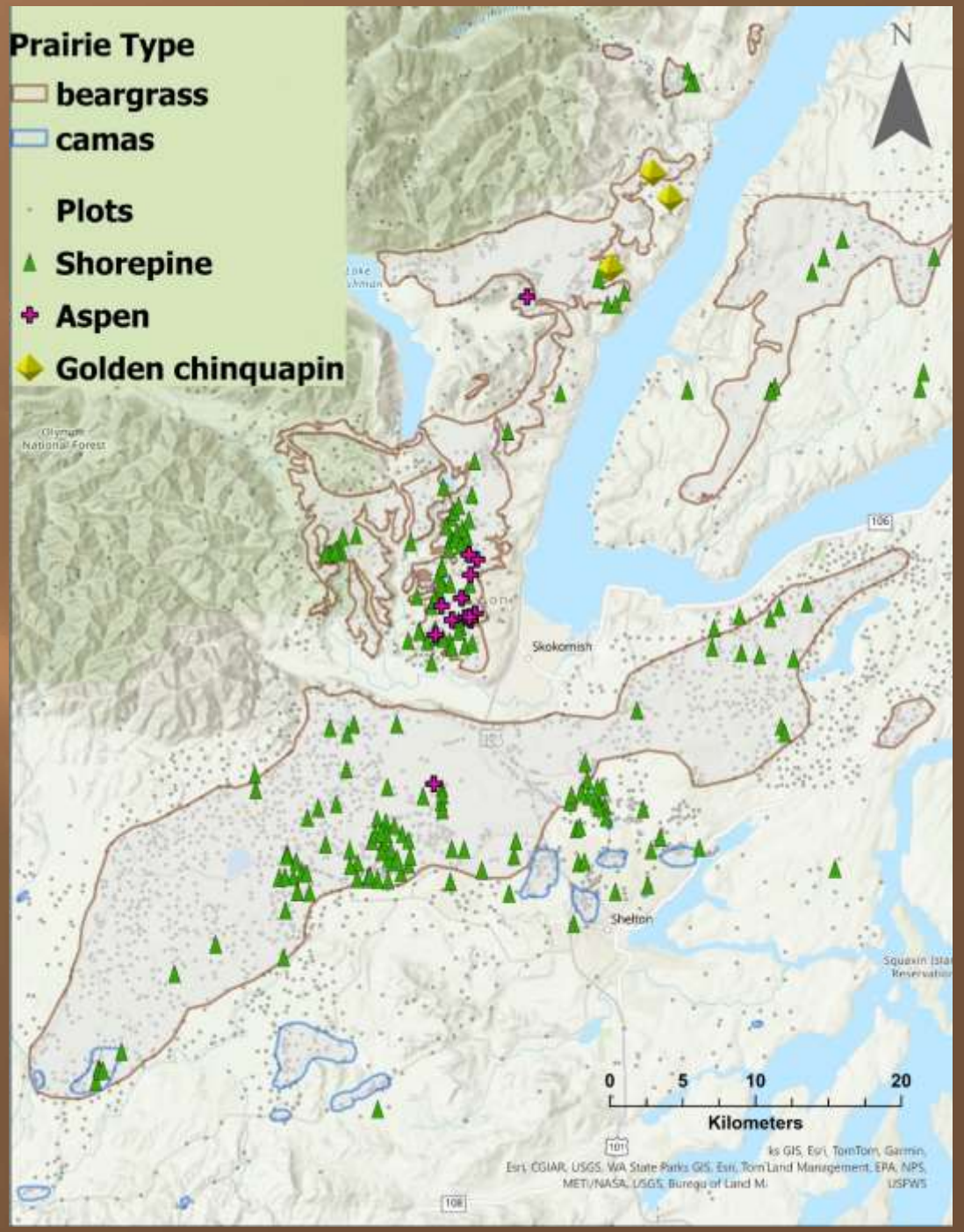
The former beargrass savannas do not have darkened A horizons.



The distribution of several typical south Puget Sound prairie species.



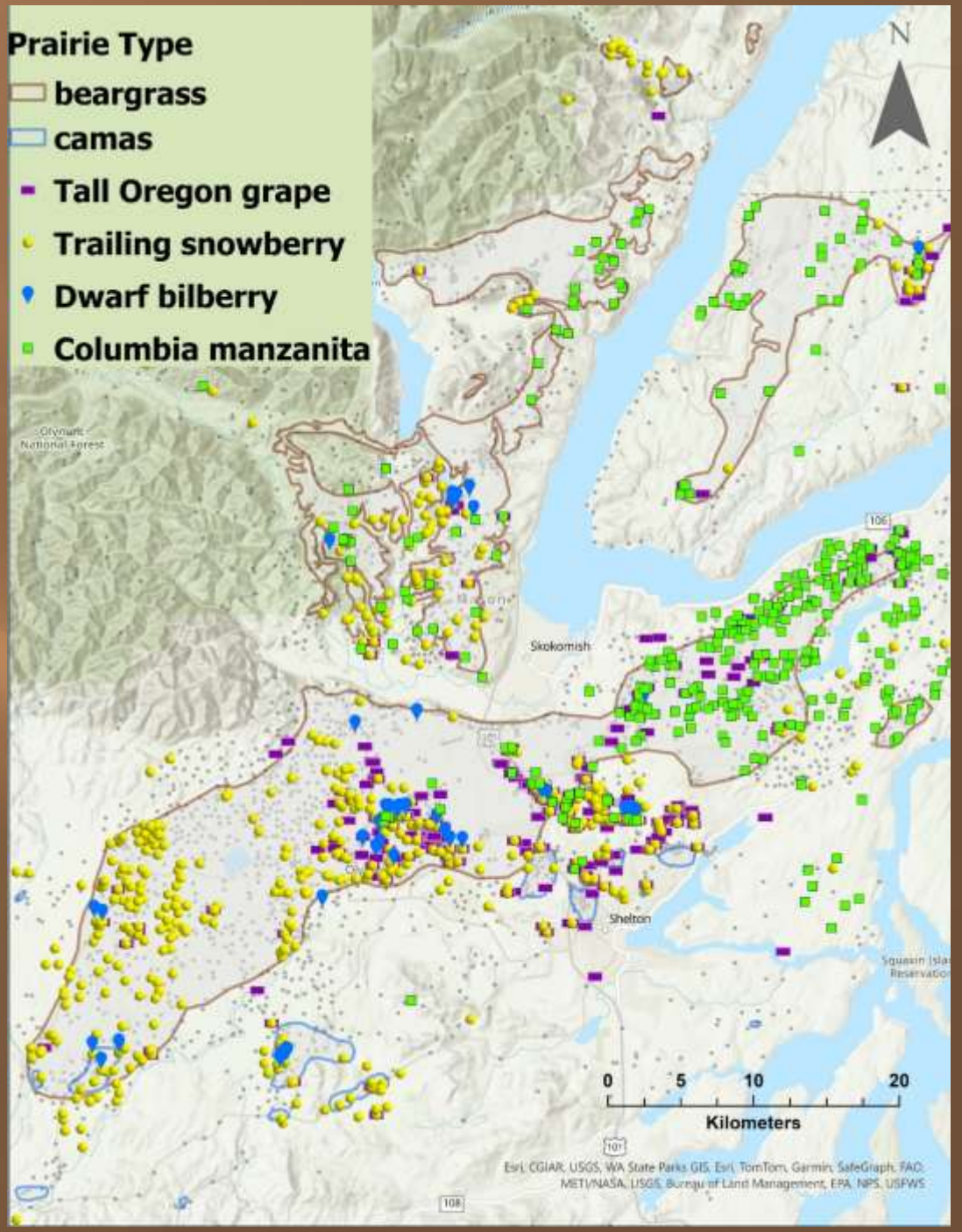
The distribution of three species of trees.



The distribution of four shrubs.

- Annual precip SW to NE: 2206mm—1506mm (87″ to 59″).
- 1631mm (64″)at farthest north.

- Annual temperature east to west: 10.6—10.6°C.
- 10.5°C farthest north.
- July temperature east to west: 17.5—17.6°C.
- 18.3°C farthest north.



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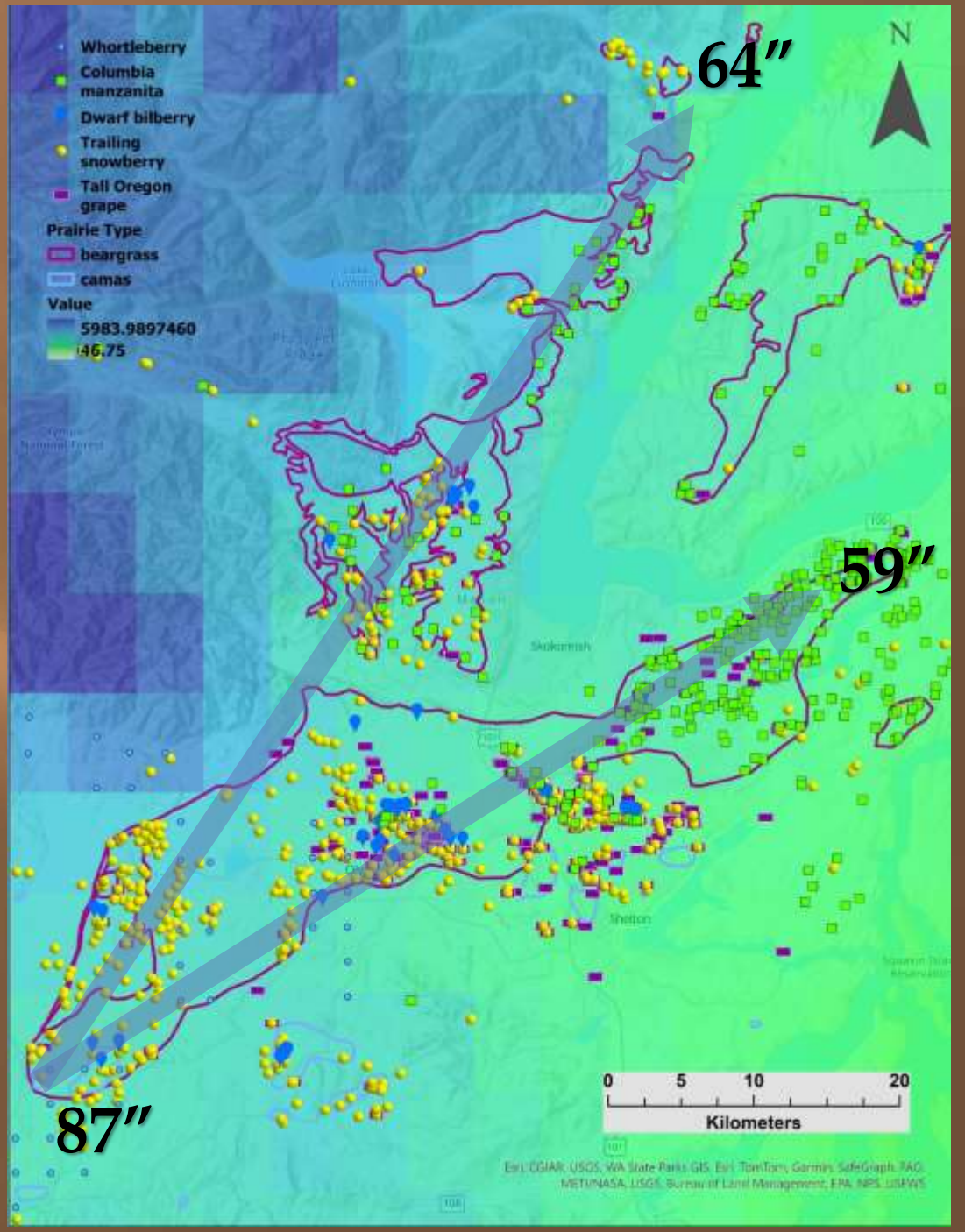
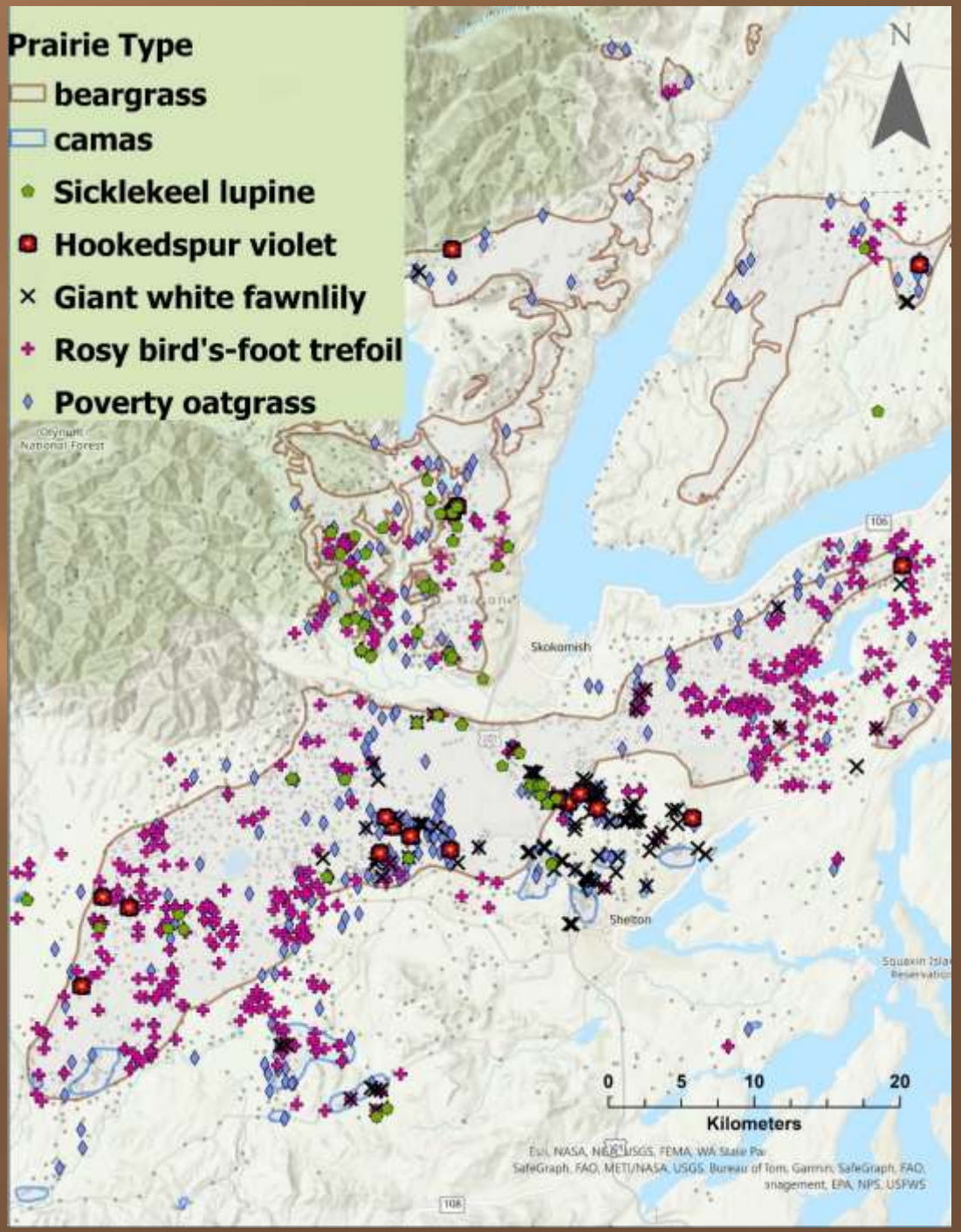


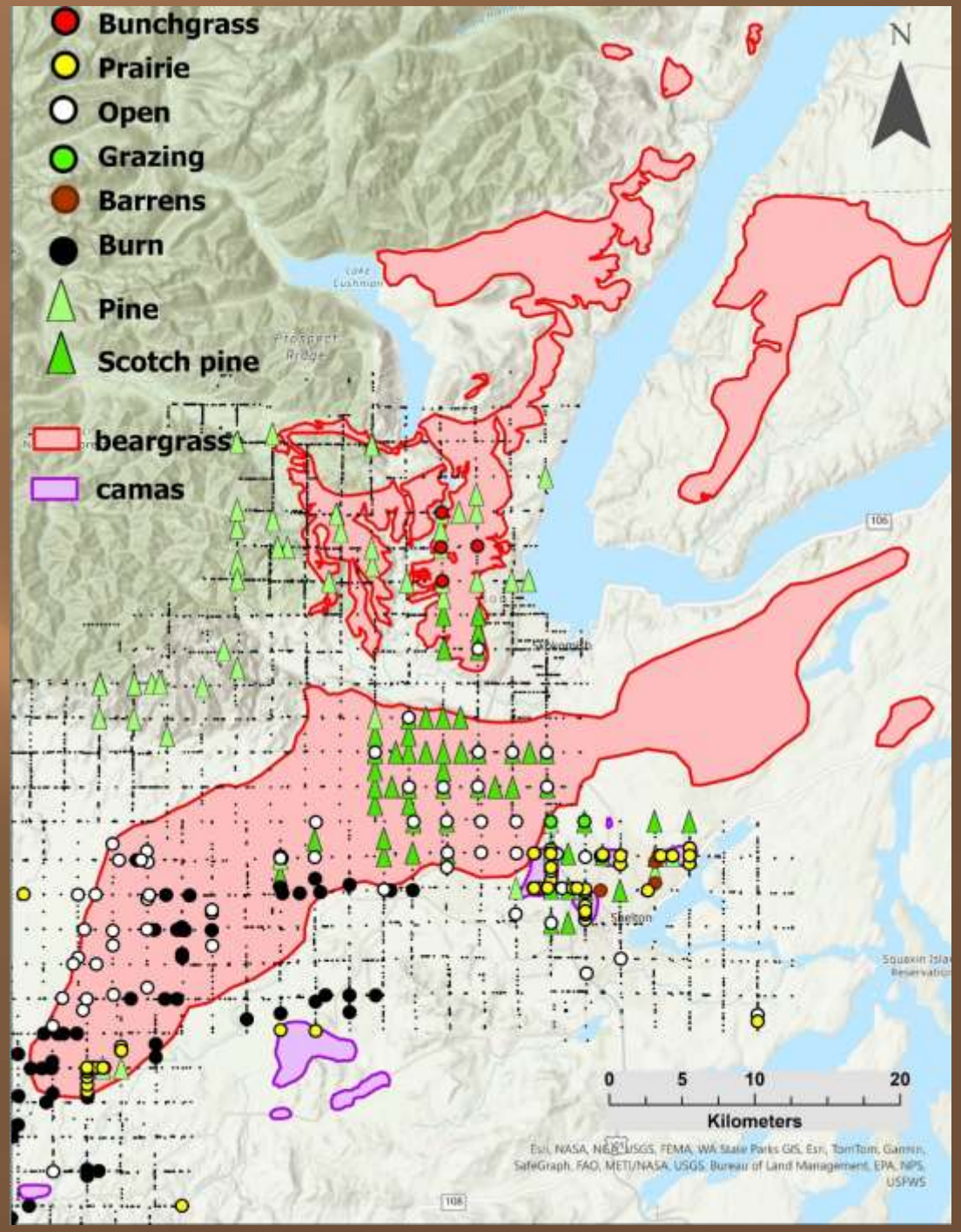
The distribution of 5 herbs.

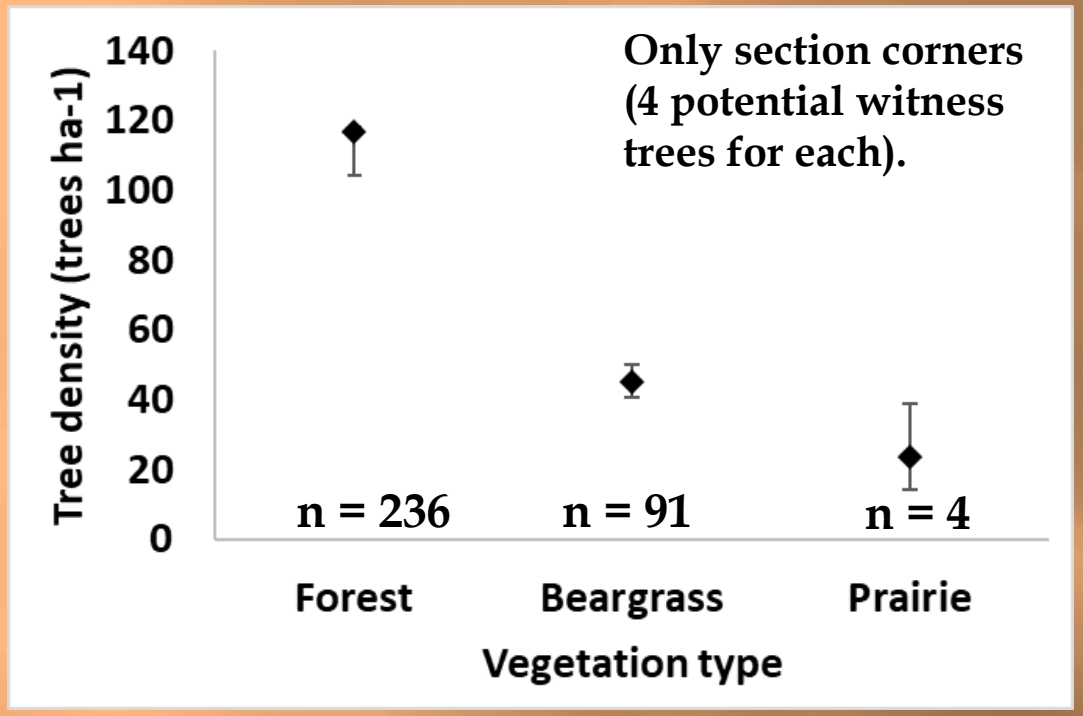


GLO Surveyor's Notes

The pattern of very small black dots shows the area for which data has so far been entered from the surveyor's notes.

Notes are attached to each dot.

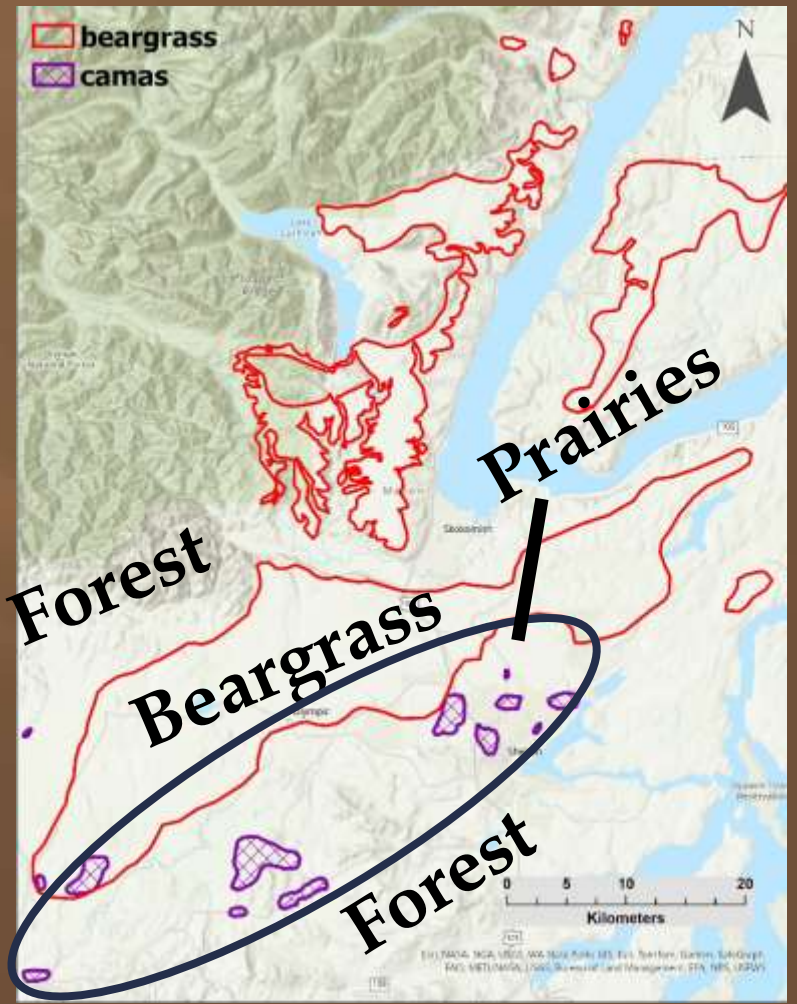




Tree density around section corners for three vegetation types showing 95% confidence intervals.

General Land Office survey mean stem diameter and tree distance from the witness corner for Douglas-fir trees. Empty quarters are not accounted for.

Vegetation Type	Trees (n)	Mean diameter (cm)	St. Dev.	Mean distance (m)	St. Dev.
Forest	731	59.8	36.0	8.7[a]	8.3
Beargrass	472	62.1	35.6	12.2[b]	10.3
Prairie	3	52.7	14.4	8.4[ab]	4.2
P		0.5178		<.0001	



Summary

- The SE Olympic Peninsula was a mix of savanna and open woodlands in the 1800's.
- It was maintained by Indian burning.
- It was diverse with heliophytic species including beargrass.
- Heliophytes are gone or fading from the landscape.
- This landscape certainly functioned very differently for wildlife from big game to birds and insects.

Beargrass near South Fork Skokomish River

Acknowledgements

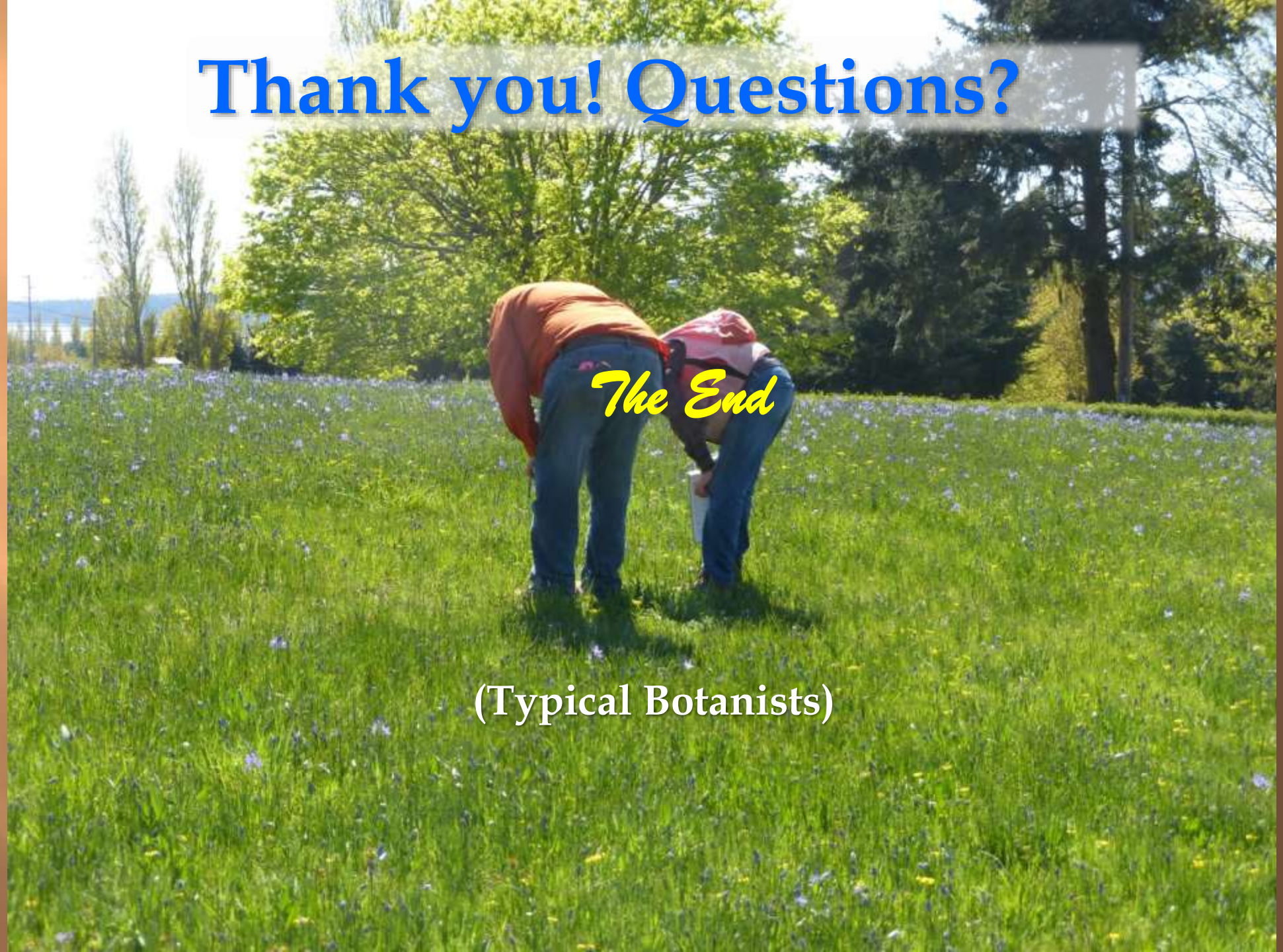
- Stan Graham, Jim Messmer, Ron Cavaille, Tyler Graham, David Stephens, James Dollins and many others for field and technical assistance.

- Green Diamond Resource Company.

- USFS Pacific Northwest Research Station.

Eagle Creek Prairie

Thank you! Questions?



(Typical Botanists)