

An Historical Perspective on Woody Vegetation in Western North Dakota

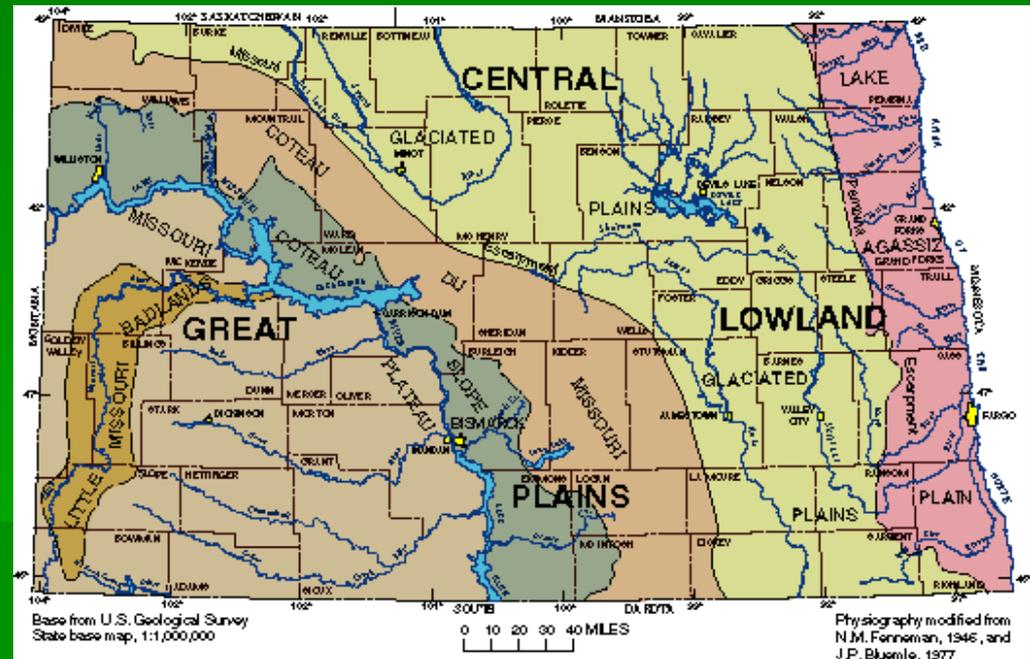
Generally accepted that major rivers (and tributaries) in central and eastern ND supported riparian forests.

e.g. Red, Sheyenne, James, Missouri

However, the extent and distribution of woody vegetation in the western areas has been the subject of much debate.

What did the landscape look like just before European settlement?

- Focus on
 - Glaciated Plain
 - Souris River
 - Missouri Coteau
 - Coteau Slope
 - Missouri Plateau
 - Little Missouri badlands



Some things to remember

- Grazing and fire were natural factors
- Most riparian trees are sprouters
- Landscape is a mosaic of vegetation types and successional stages



Other considerations

- Big game & livestock grazing patterns
- Beaver population fluctuations
- Wolf & elk populations
 - E.g. wolves and willow/aspen in Yellowstone



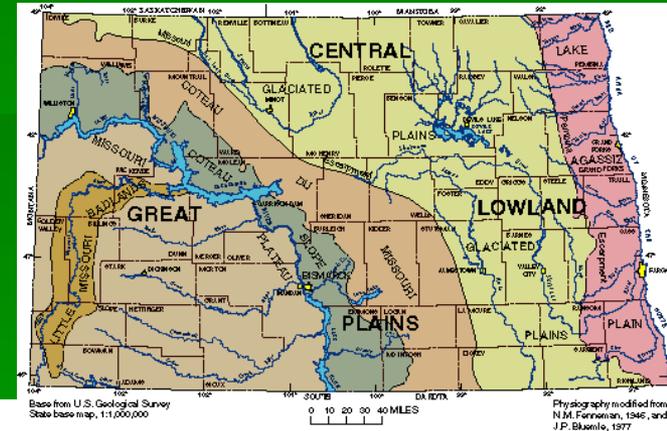
Riparian area morphology

- The morphology and hydrology of most riparian areas has probably changed since pre-settlement times



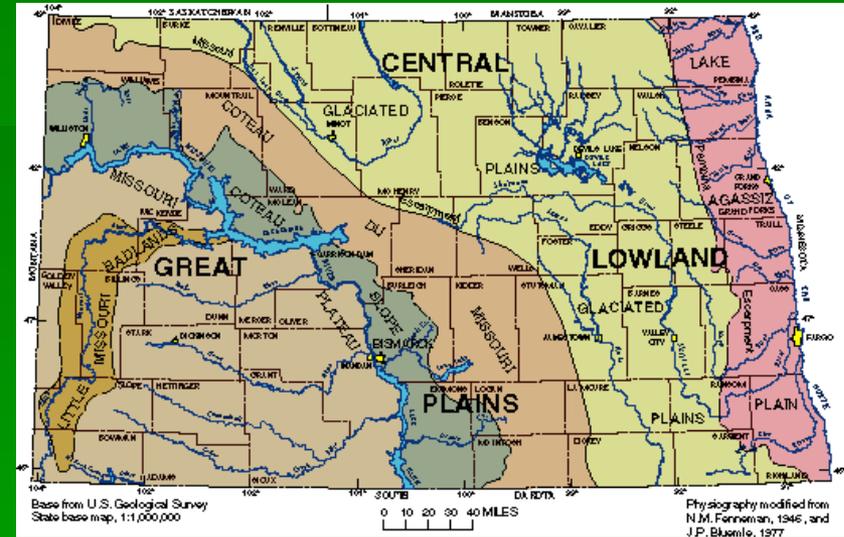
Ponderosa Pine Limber Pine

Stands of both species
in SW North Dakota
pre-date European
settlement



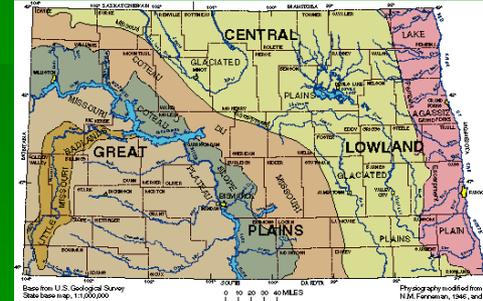
Glaciated Plains

- Quotes from Alexander Henry the Younger journal
- Early 1800's



Missouri Coteau in ND

- Surveyor's records
 - 1872-1898
 - 169 townships
- I did not find a reference to a tree

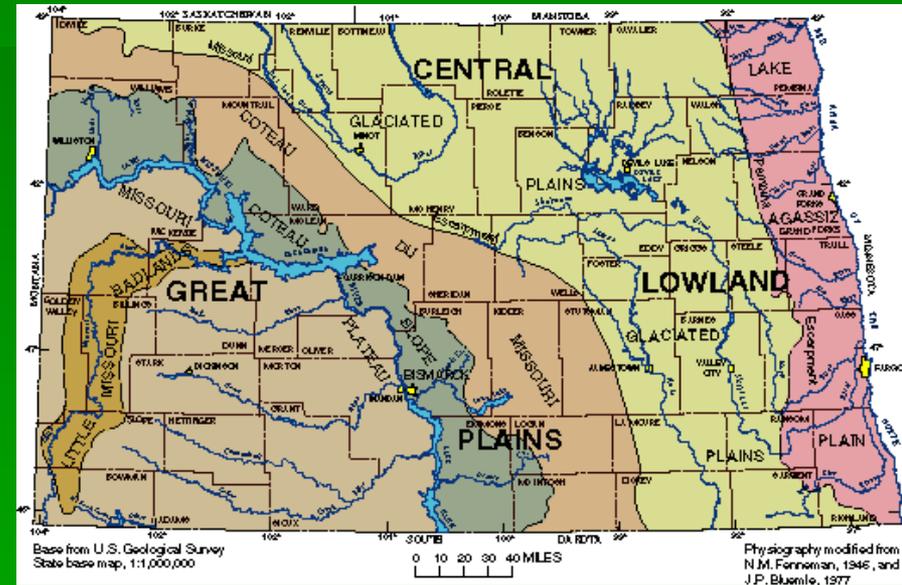


Coteau surveyors notes

- Williams & Divide Counties (1898): “There are no settlements and no timber in the township
- McLean County (1895): enter meadow – leave meadow, land rolling, soil 2nd rate
- Kidder County (1875): “There is not a tree in the whole survey (12 townships).

Coteau Slope Notes

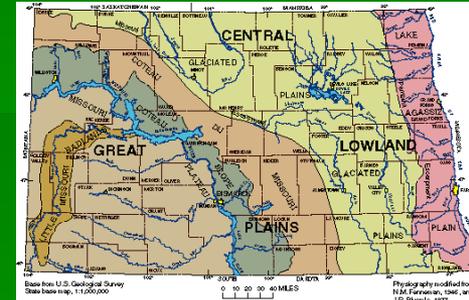
- Williams County
 - 1898
 - 3 townships
 - 108 square miles



- No mention of trees, brush, or mark with post

Missouri Plateau in ND

- Surveyors records
- Roosevelt quotes
 - Mostly in badlands
- Scattered trees
 - Riparian
 - Cottonwood, elm, ash, willow
 - Draws and breaks
 - cedar



Plateau Surveyors Notes

- McKenzie County (1 township, 1904)
- No mention of trees, brush, posts
- Another township (1901)
- “There is some brush and a few trees in the ravines and on banks of water courses.”
- 35 ref: dry grassy drain
- 9 ref: dry brushy drain
- 6 ref: brushy ravine

Plateau Surveyors notes

- Golden Valley County (1892)
 - “Scattering” timber along creeks, banks, and drains”...boxelder, ash, elm, cottonwood
 - “Bullion Creek runs across the northern part...quite a supply of ash and elm and some cottonwood along the creek and drains.”
 - Garner Creek: no reference to trees

Plateau Surveyors Notes

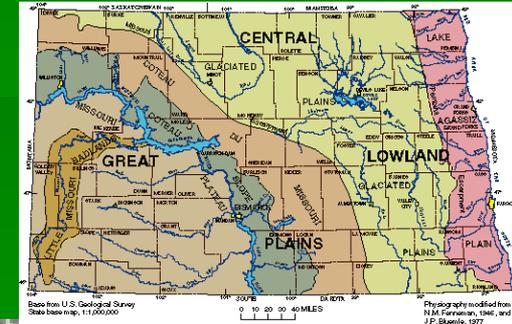
- Slope County (one township, 1902)
 - Crossed several drains & valleys
 - 8 chains of dense cedar brush
 - Cottonwood 6" diameter
 - Cottonwood 8" diameter
- 1 unoccupied ranch building
- No other evidence of settlement

Plateau Surveyors Notes

- Dunn County (1898)
 - “No timber, except scattered boxelder along Knife River, and some ash and alder....
- Sioux County (1901)
 - “Cannonball River... some scattered brush and a few small trees mostly cottonwood...

Little Missouri Badlands

- Theodore Roosevelt
- Elkhorn Ranch
 - On the Little Missouri River in Golden Valley County



Little Missouri Badlands

- Golden Valley County (1902-1901)
 - “scattering timber along banks”
 - Ash, cottonwood, elm
- Many drains with no ref to woody vegetation

Little Missouri Badlands

- Billings County (occasional summaries, 1 township, 1903)
 - ~S. Unit TRNP
- 46 ref: timber, a few scattered cedar trees
- 4 ref: no timber
- 2 ref: timber, a few cottonwoods
- 1 ref: timber, scattering cottonwood and cedars
- 1 ref: timber, scattering cottonwoods and elm
- “The land in this township is all prairie with a little scattering cedar and cottonwood timber...”

Surveyors' references to tree size

- Elm 4" dia
- Cottonwood 6,8" dia
- Several Cedars
 - 12" diameter max
- Fire may have reduced tree longevity/size



Conclusions

- Little Missouri badlands area historically supported areas of woody vegetation along water courses and drainages as well on steep slopes
 - E.g. “scattering trees and brush”
- Missouri Plateau
 - Rougher areas likely supported some/more woody vegetation
- With the exception of the major rivers, trees on the Missouri Coteau and Coteau Slope were probably quite uncommon to rare

Conclusions

- Many of the surveyor's records indicate a forest less extensive and mature compared to what we see today
- “Scattered” is the operative word
 - Some riparian areas historically supported woody vegetation while other areas in the same drainage may not have

Conclusions

- Rougher topography and areas more consistently wet were more likely to support woody vegetation
- Consideration must be given to variations in weather and precipitation, fire frequencies, grazing pressure, beaver populations and many other factors when making interpretations

"Thank you"



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PRAIRIE FIRES OF THE GREAT WEST.