Evaluation of WI biomass-restricted soils

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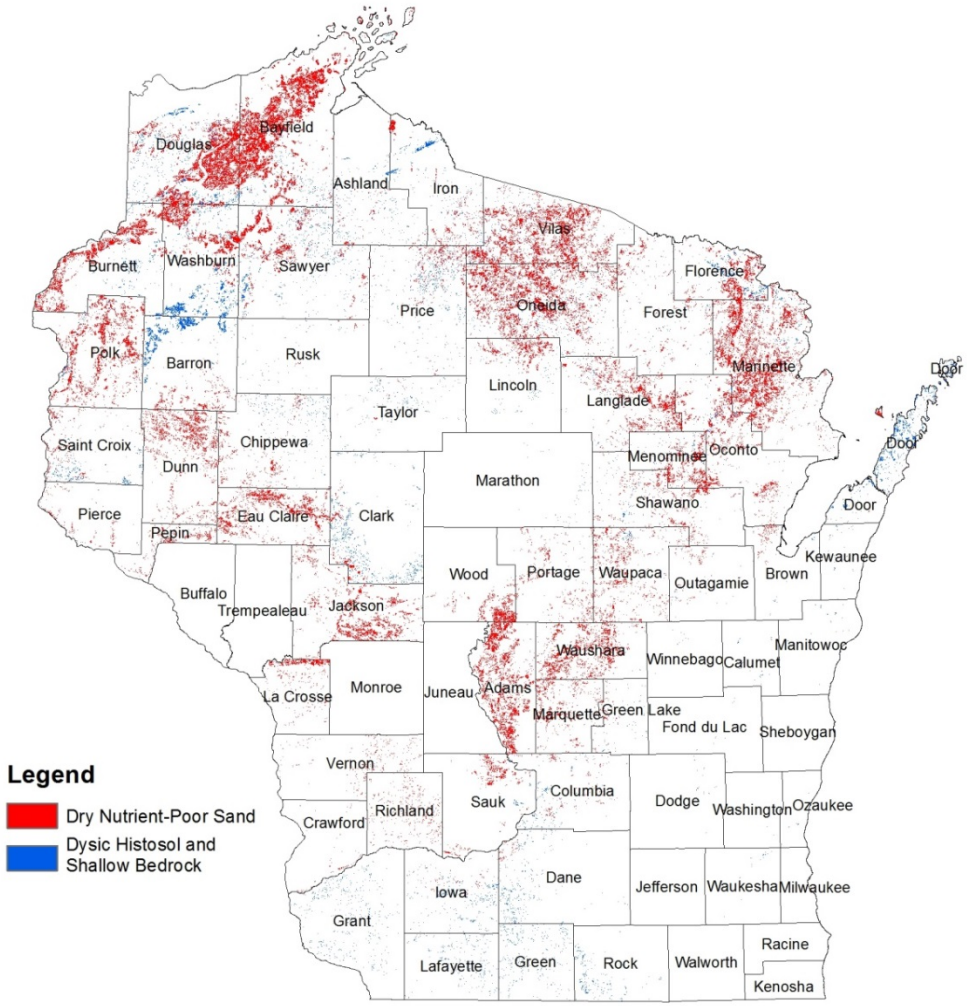
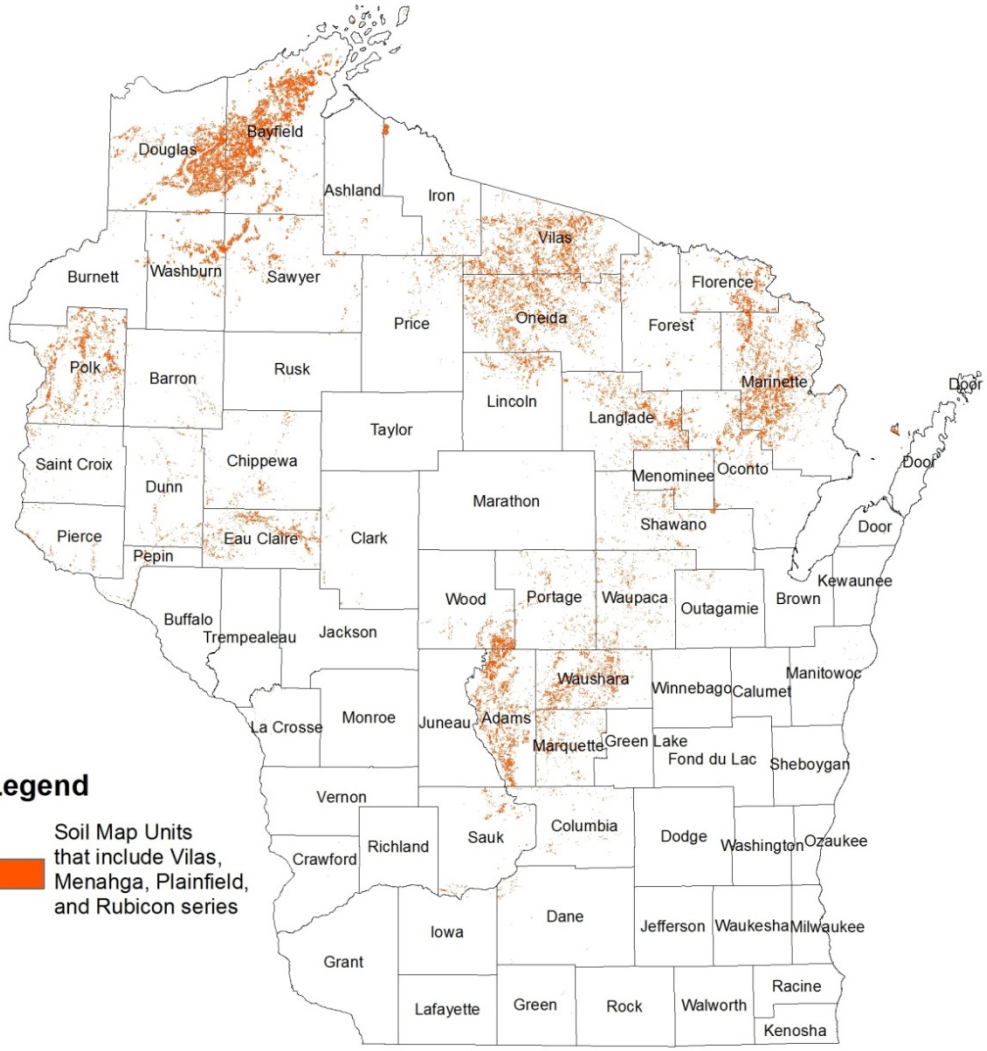
Wisconsin's Forestland Woody Biomass Harvesting Guidelines

Field Manual for Loggers, Landowners, and Land Managers

Restricted Soil Map Units on Forested lands



Restricted Soil Map Units on Forested lands



Dry nutrient-poor sandy soils are components of soil map units that meet the following criteria in the NRCS database:

a) Low percent clay (generally 3% or less, but some soils have a range of characteristics that includes 4-5%)

b) Low CEC (3-4 meq/liter)

c) Drainage classes of well-drained and drier (excludes moderately well-drained and wetter)

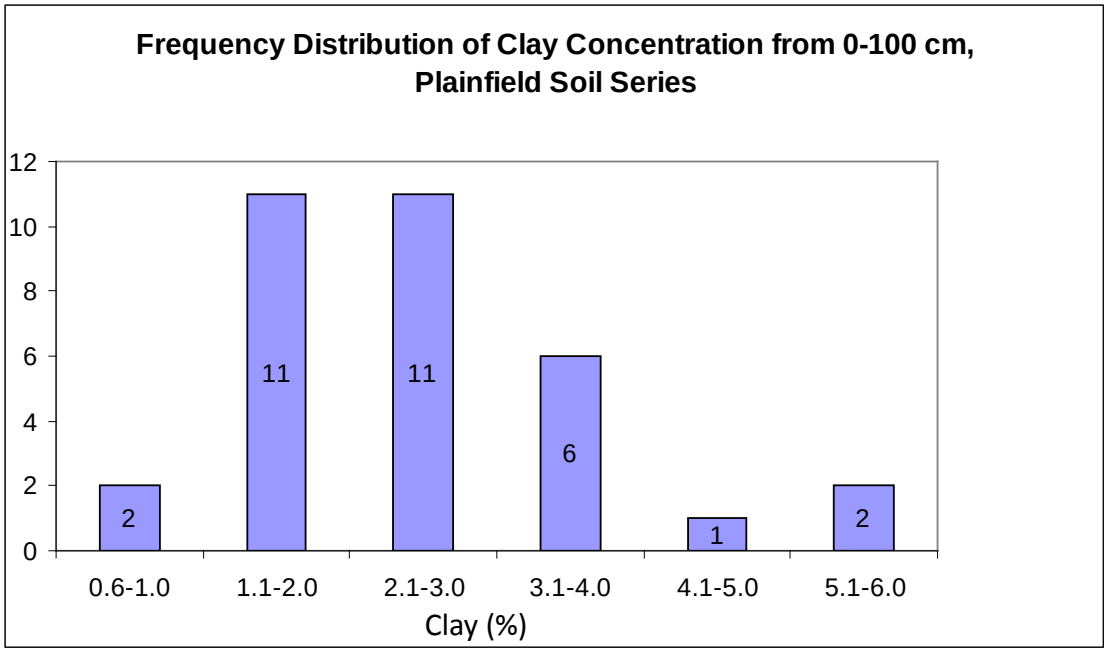
d) No lamellae, or loam or heavier textural layers below 100 cm

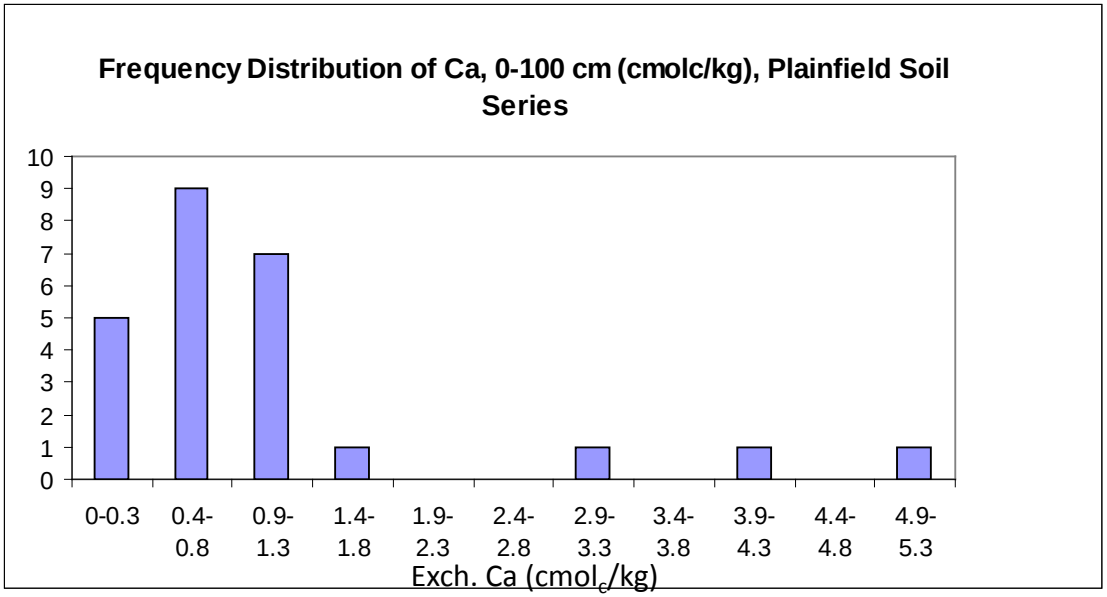
e) No carbonates or water tables described within the profile

f) Not classified as Alfisols or Mollisols by Soil Taxonomy

Soil Series	Restricted Forested Acres	WI KSSL correlated pedons
Vilas	250,201	8
Menahga	225,090	6
Plainfield	216,230	8
Rubicon	215,560	8

Variation within a single soil map unit

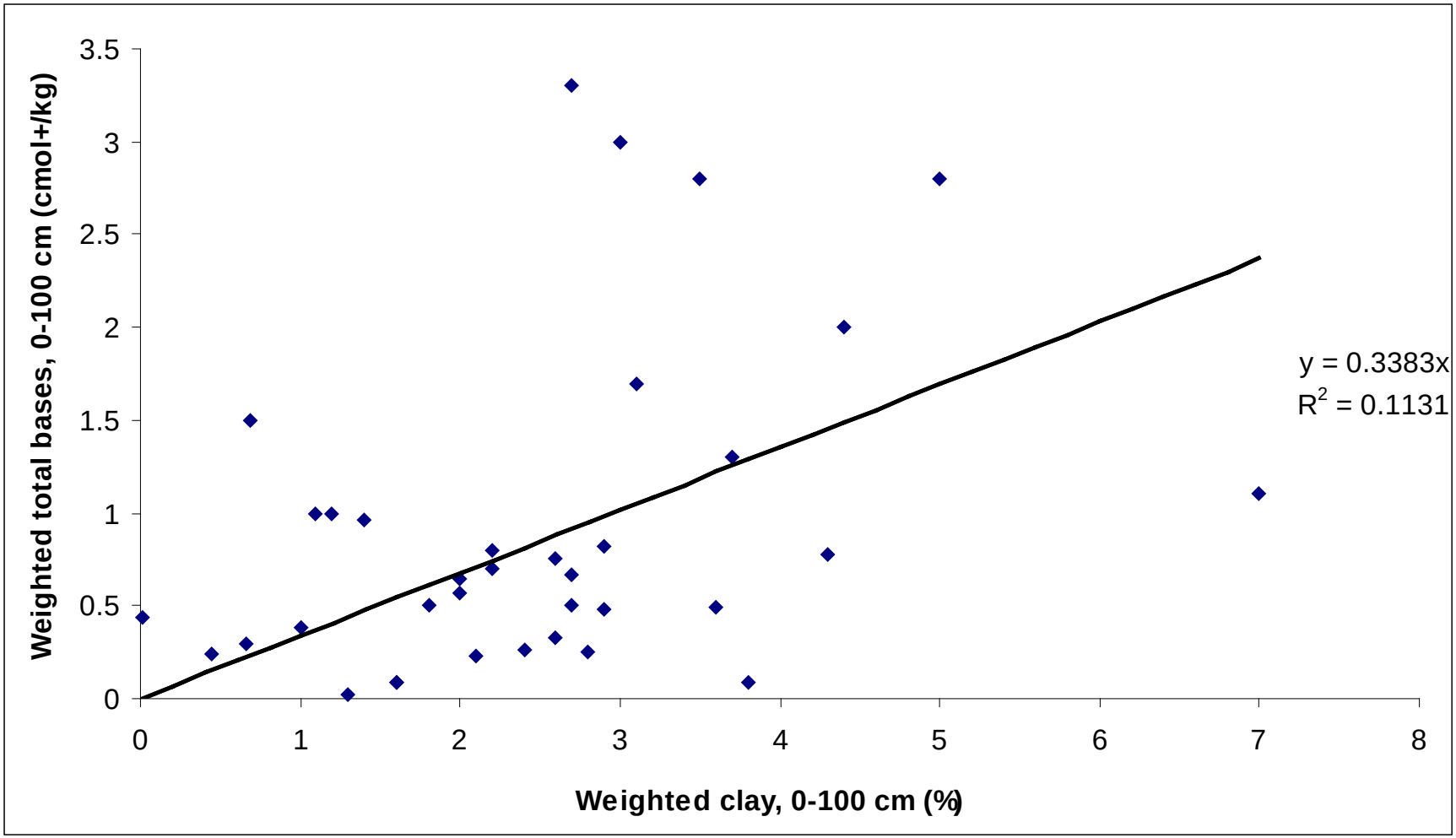




Slide and data provided by Dr. Jim Bockheim -UWMadison

Variation within a single soil map unit

Relation between total bases in the 0-100 cm and clay for sandy soils in WI (weighted by depth)



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Ca content, 0-60 cm (kg/ha) [number of pedons analyzed in parentheses]

Soil series	WI biomass study*	SSURGO
Grayling	2675 (2)	371 (1)
Menahga	3050 (1)	1536 (3)
Omega	1911 (2)	2816 (1)

*Wilhelm et al., 2013

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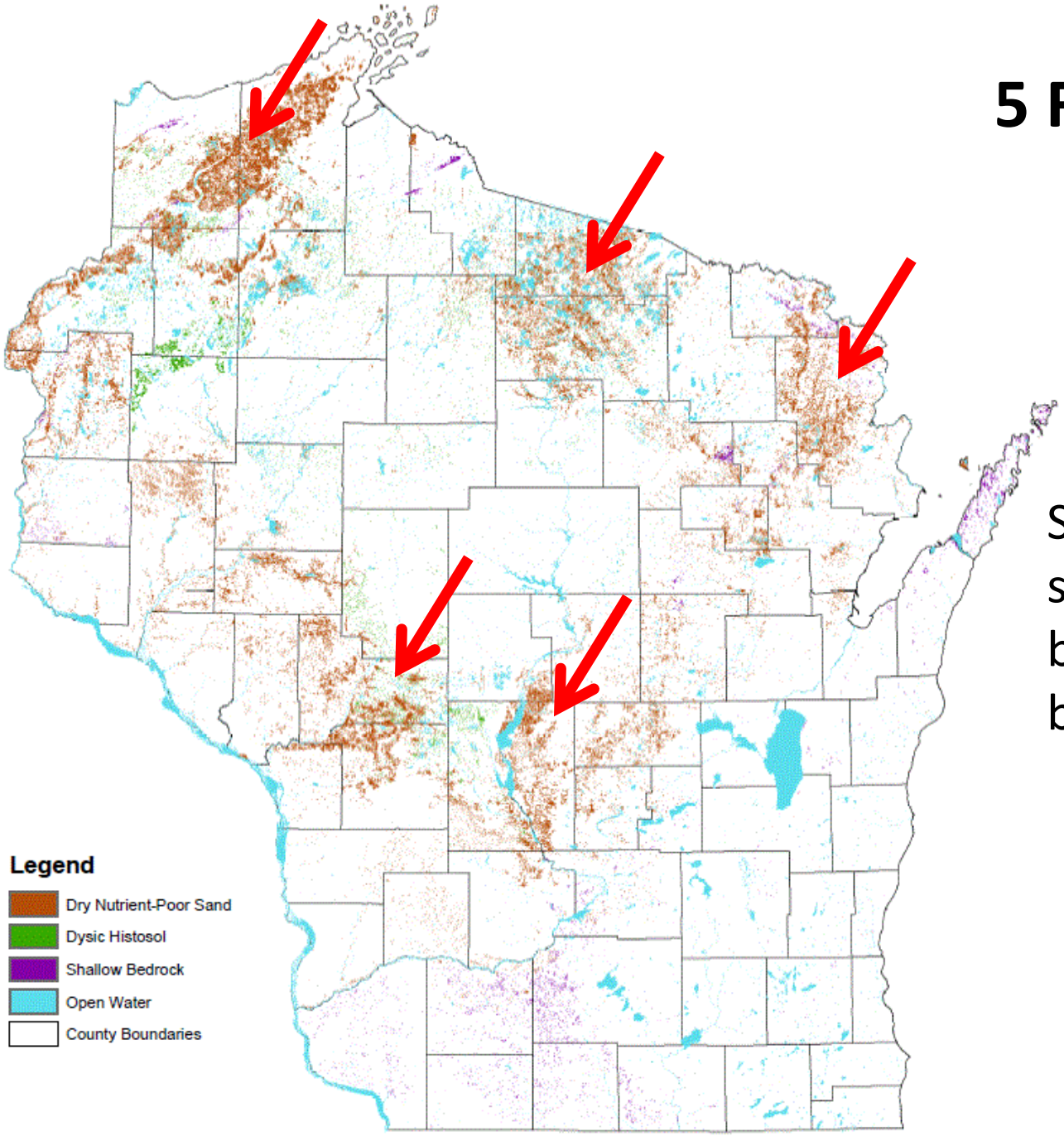
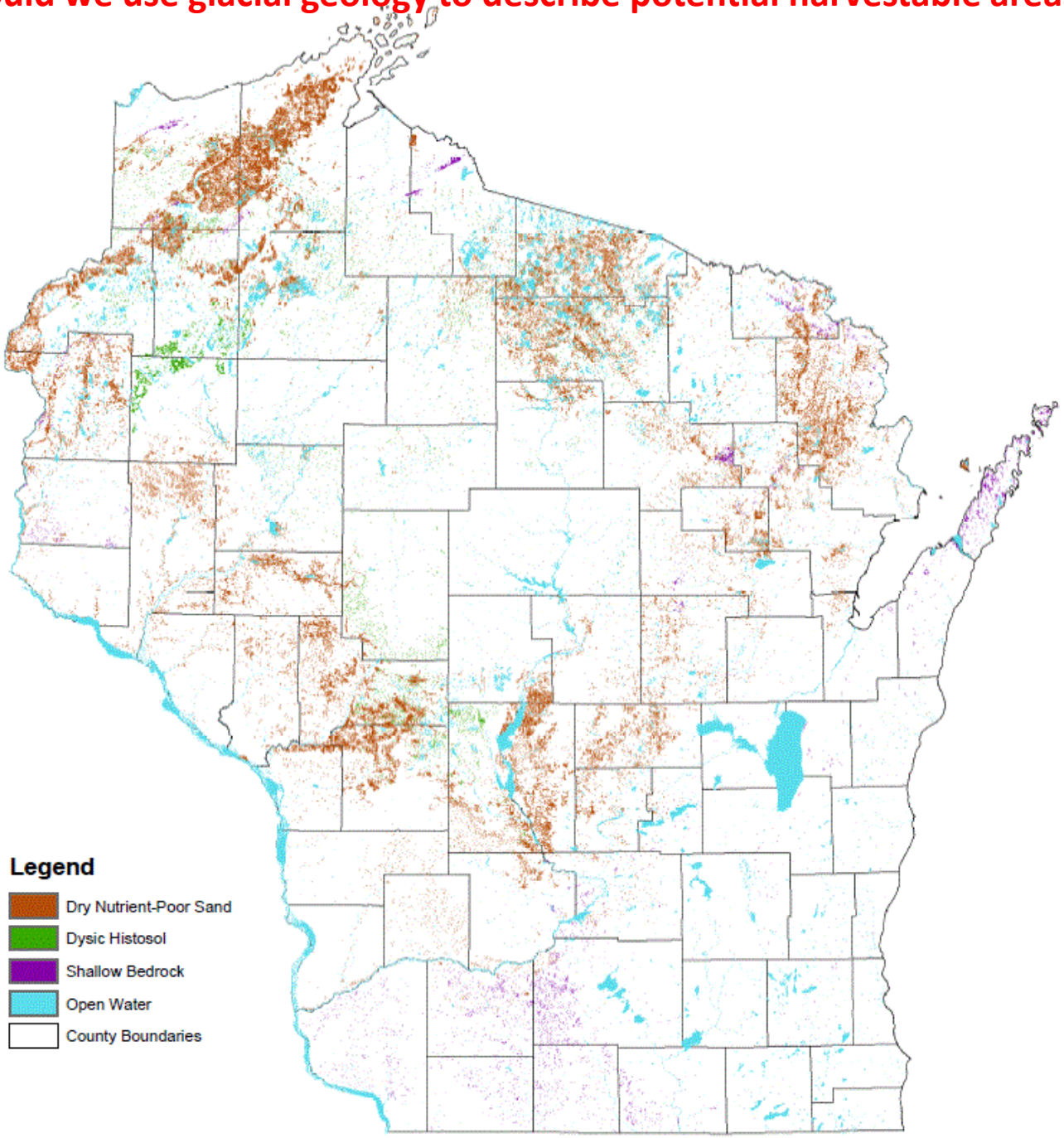
Are there restricted soil map units that have enough mineralization that biomass harvesting would be environmentally sustainable?

5 Focus Areas

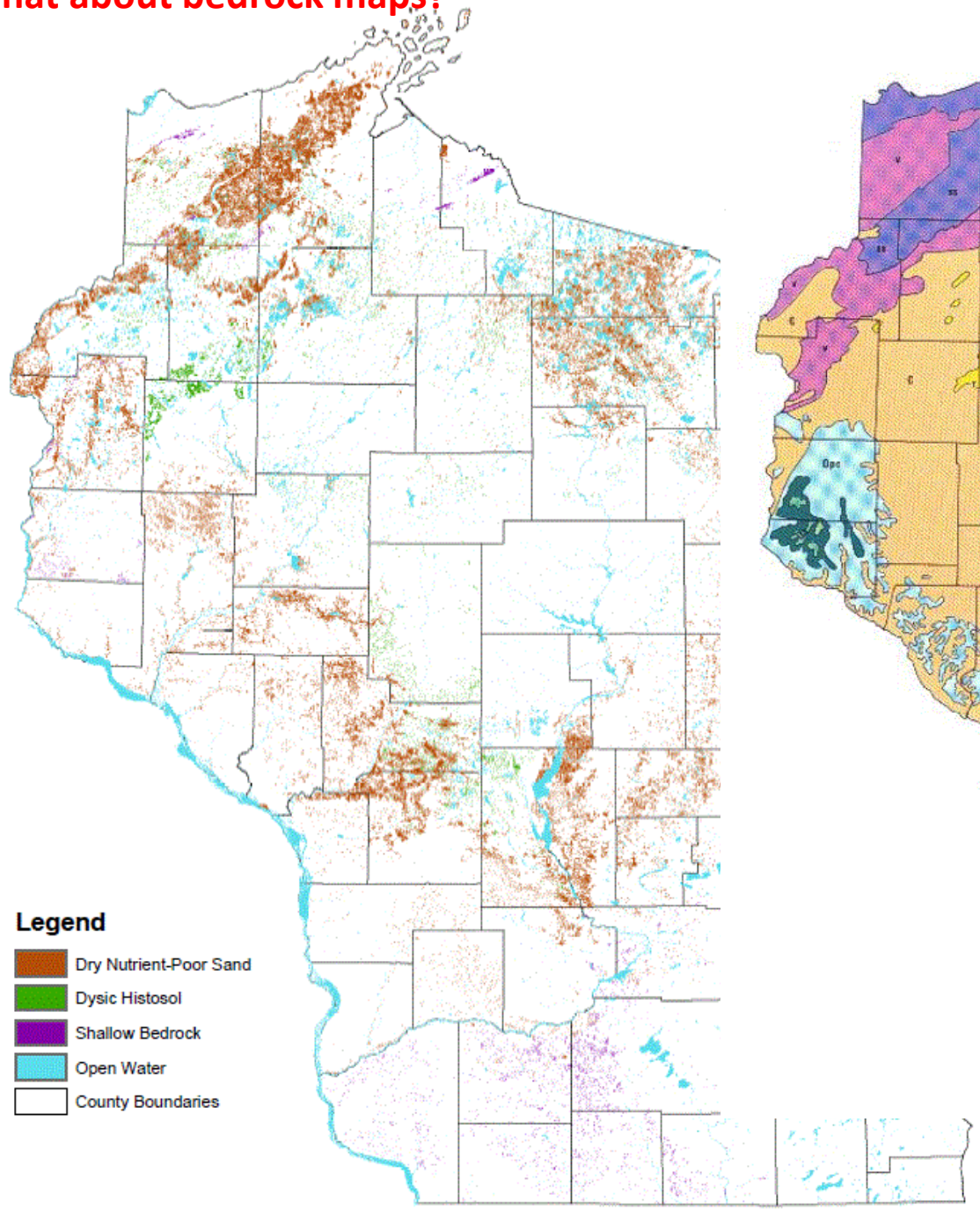


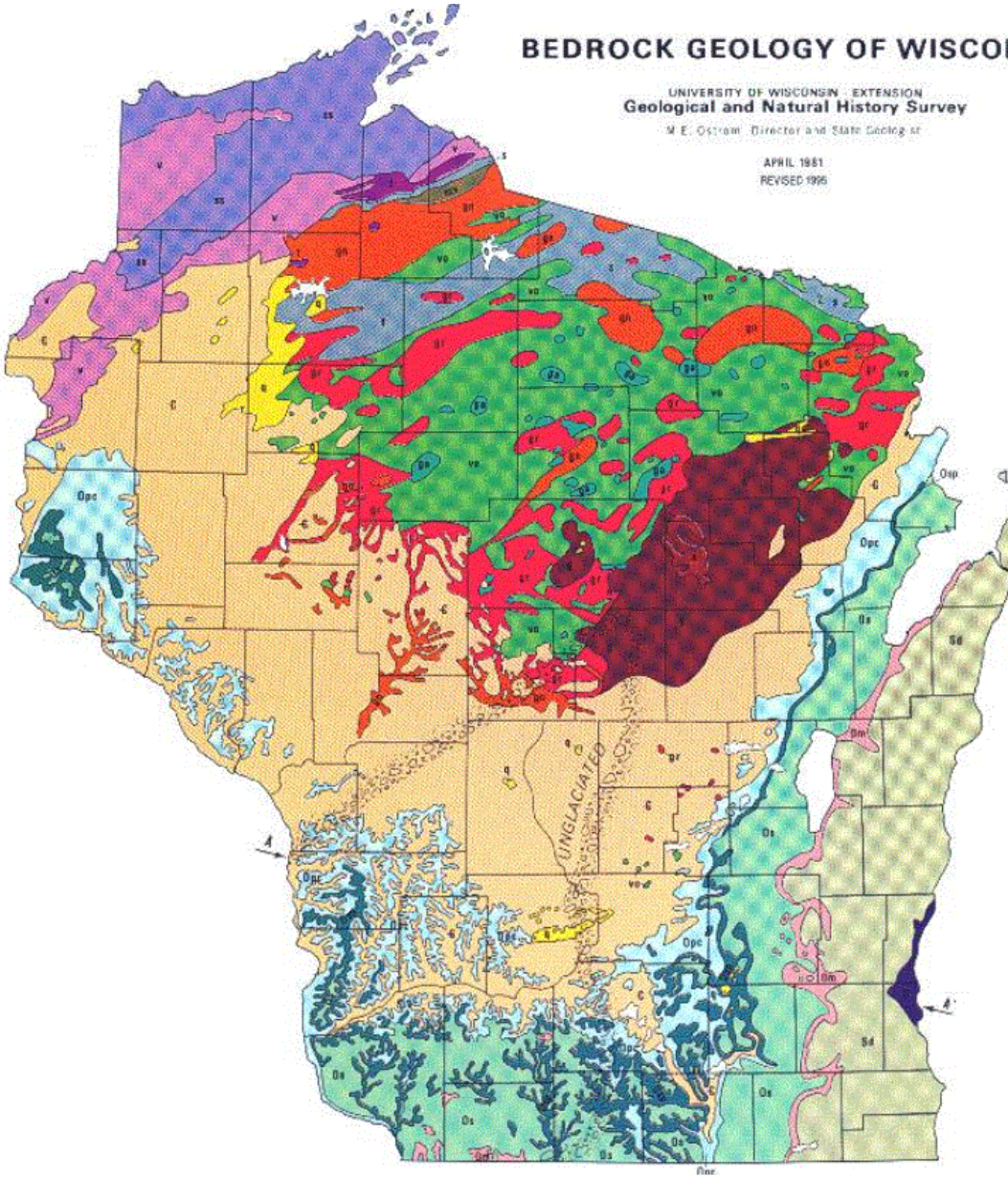
Specifically focus on stands that would be considered for biomass harvesting

ould we use glacial geology to describe potential harvestable areas?



What about bedrock maps?





Could we use aboveground ecological indicators?

1) Site Index

2) Stand Characteristics

3) Habitat Type

Thank you

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Focus on soil map units that affect the largest amounts of forest land

Soil type	Forested Acres
Vilas	250,201
Menahga	225,090
Plainfield	216,230
Rubicon	215,560
Sayner	168,697
Boone	128,713
Tarr	95,577
Grayling	93,950
Loxley	55,579