## *Riparian Functional Assessment*

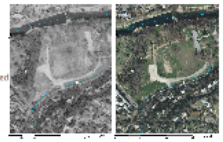
how do we know if sites under restoration are improving their function?

## Reference vs degraded sites

can we quantitatively distinguish reference from degraded sites?
can we quantitatively measure function as restoration progresses?

Reference:

urban influence
relatively undisturbed
mature canopy



Degraded:

urban influence
chronic disturbance
poor or no canopy

## Restoration approach

Eliminate main disturbance (mowing)
Long term
Gradual change
Minimal inputs/risks
Facilitated forest succession

## How to we measure riparian function?

2012

?

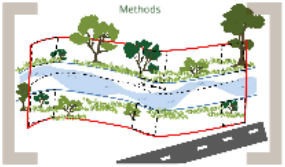
2013

?

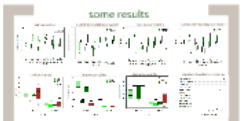
2014

?

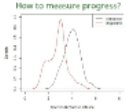
## Methods



## some results



## How to meesure progress?



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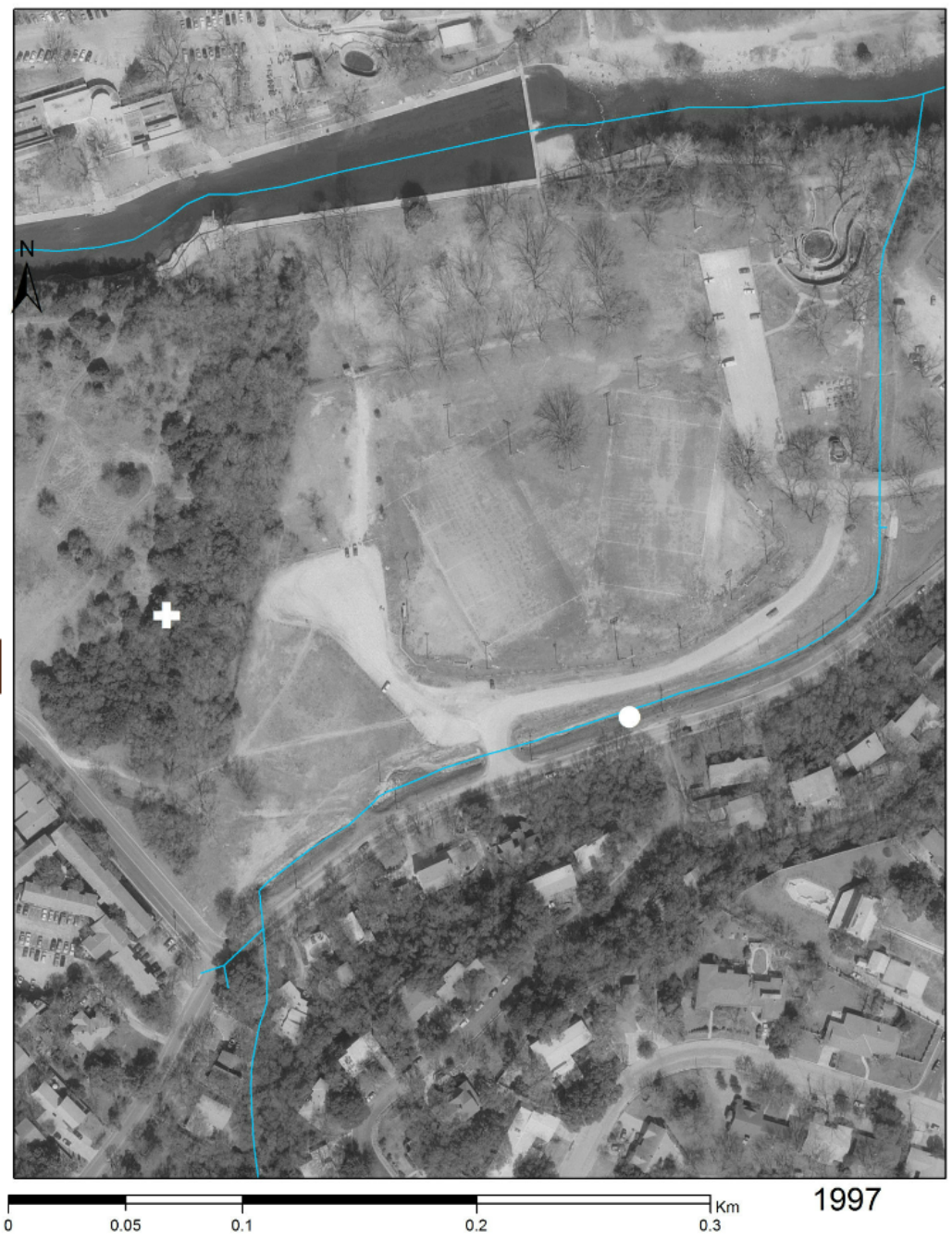

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# Degraded:

urban influence
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poor or no canopy

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# Restoration approach

Eliminate main disturbance (mowing)
Long term
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Minimal inputs/risks
Facilitated forest succession

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# How to we measure riparian function?

## 2012

macroalgae cover
diatoms
vegetation gap
bank stability
large woody debris
in-stream canopy cover
entrenchment ratio
soil compaction
soil moisture
soil pH
plant cover and structural diversity
hardwood demography
recruitment and succession
riparian zone width
riparian zone width/site potential tree height

?

## 2013

soil compaction
soil moisture
riparian zone width
in-stream canopy cover
plant cover and structural diversity
hardwood demography
recruitment and succession

?

## 2014

soil compaction
soil moisture
riparian zone width
in-stream canopy cover
plant cover and structural diversity
recruitment and succession
snags
large woody debris
hydrophytic vegetation
soil organic carbon
woody species diversity (2)
wetland forest affinity

?

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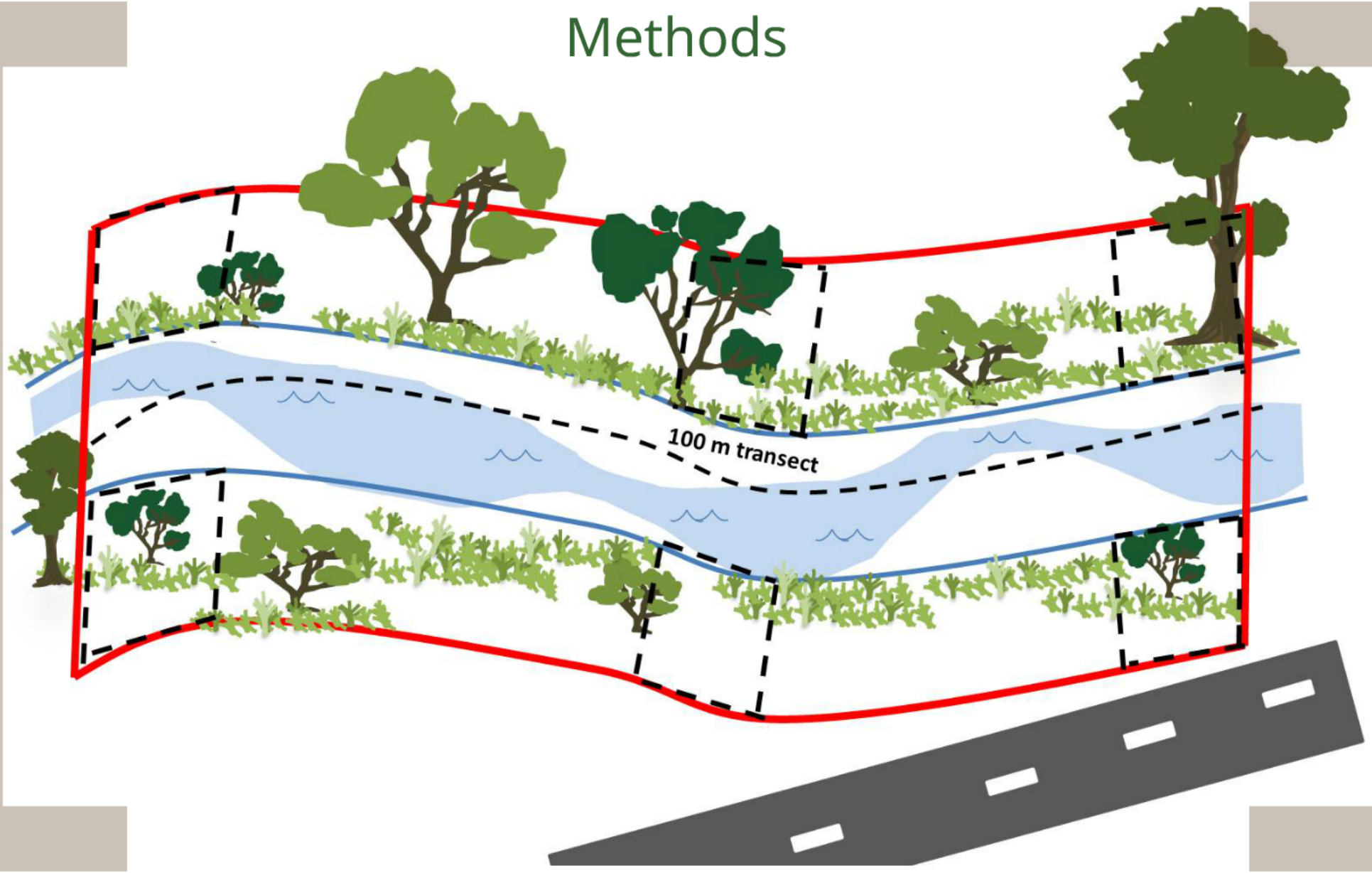
# Methods

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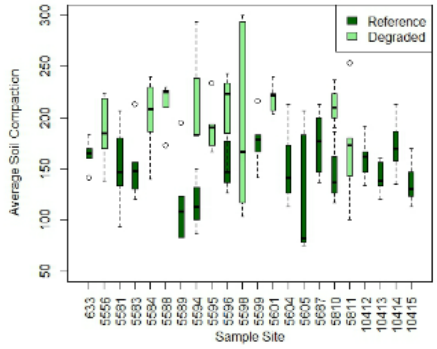
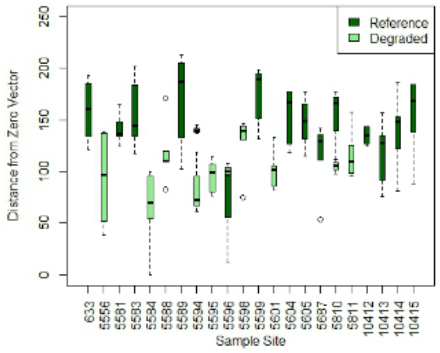
# some results

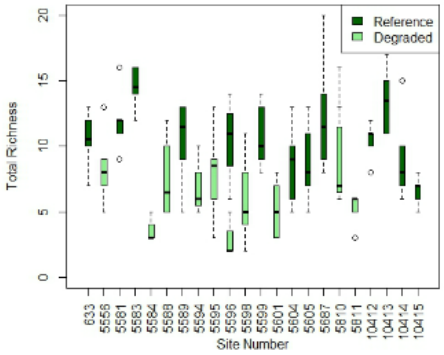
soil compaction



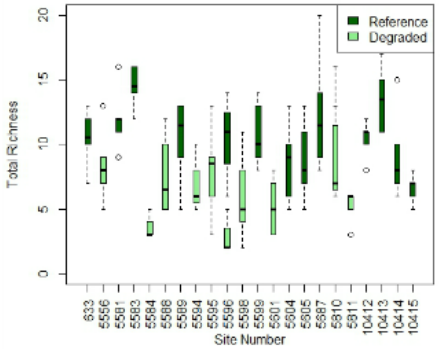

plant structural distance (vector)



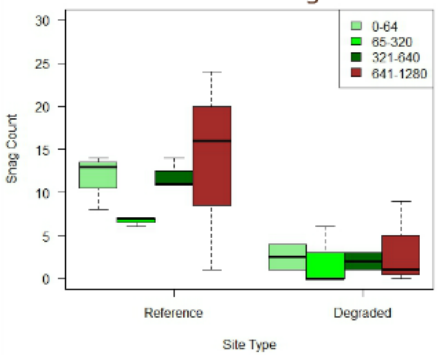

total woody diversity



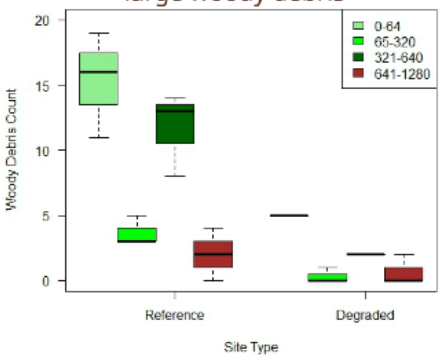

species richness distance (vector)



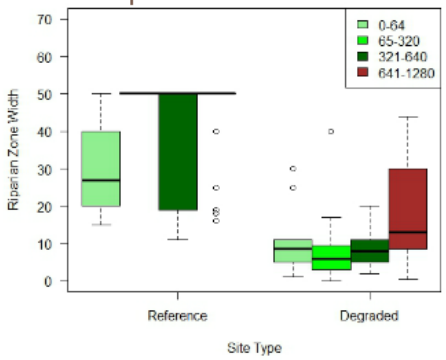

number of snags



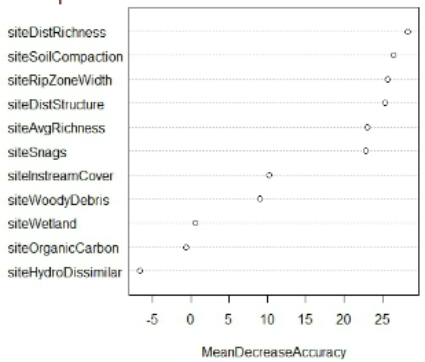

large woody debris

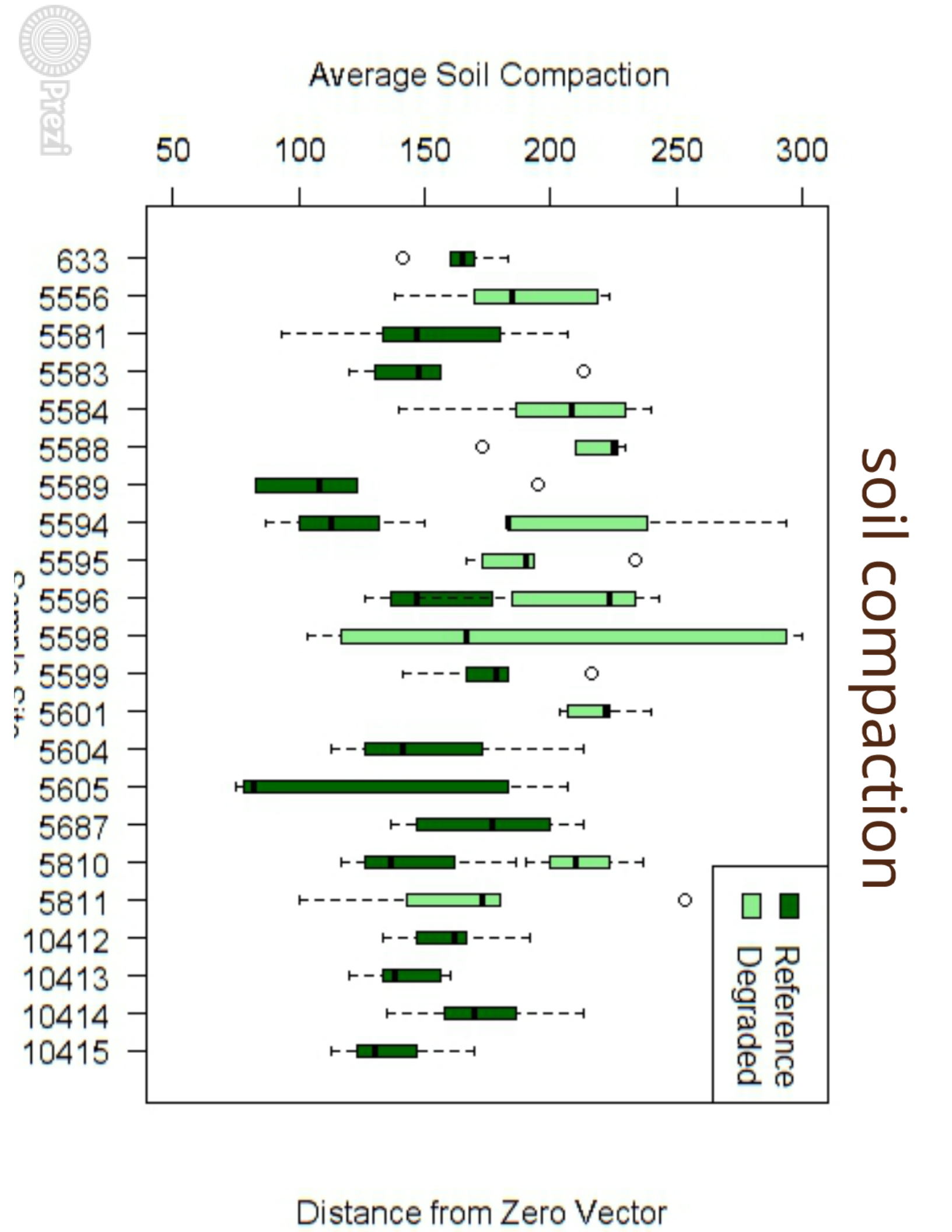



riparian zone width

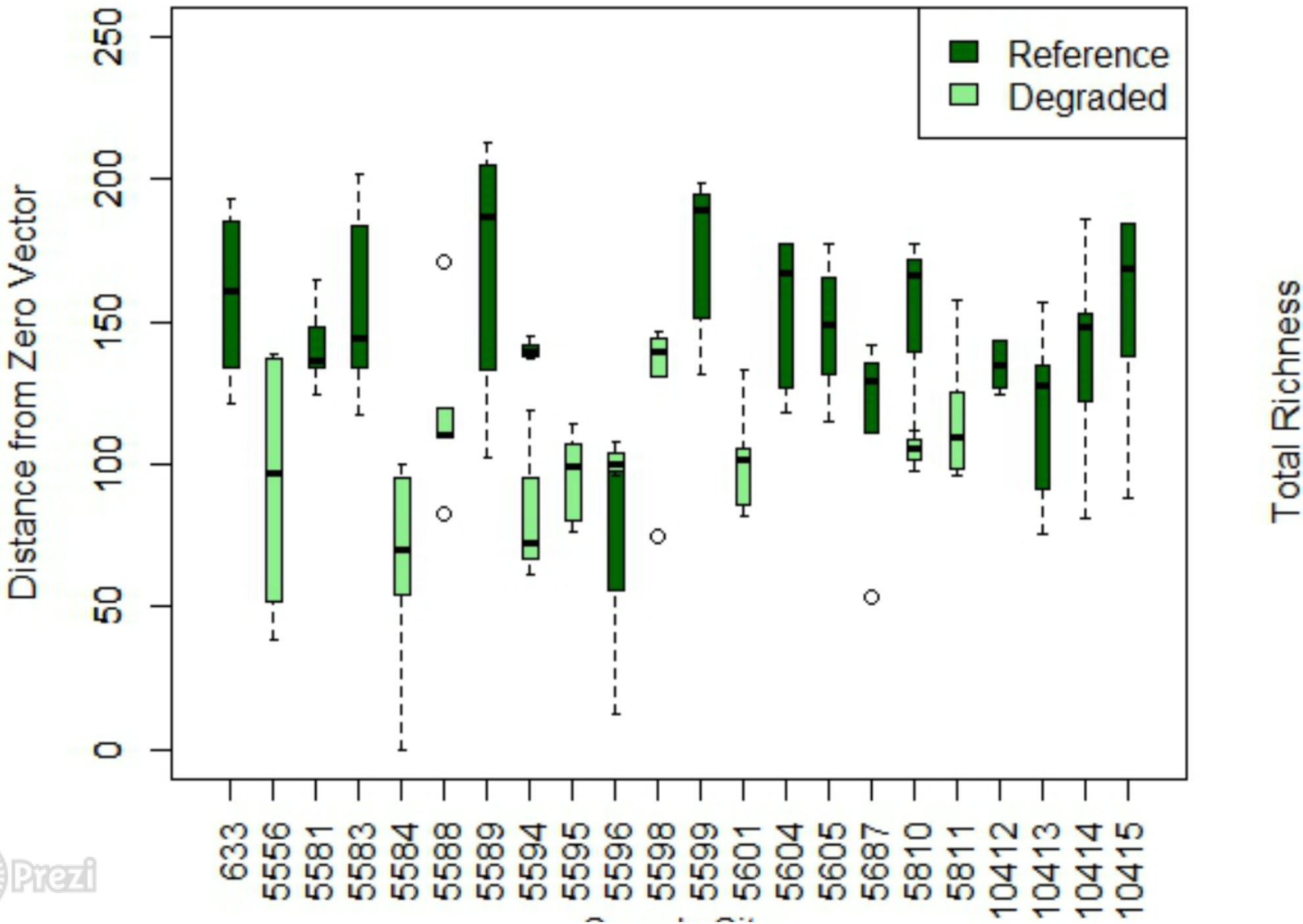



important classification variables




Average Soil Compaction
50
100
150
200
250
300
633
5556
5581
5583
5584
5588
5589
5594
5595
5596
5598
5599
5601
5604
5605
5687
5810
5811
10412
10413
10414
10415
Reference
Degraded
soil compaction
Distance from Zero Vector

# plant structural distance (vector)

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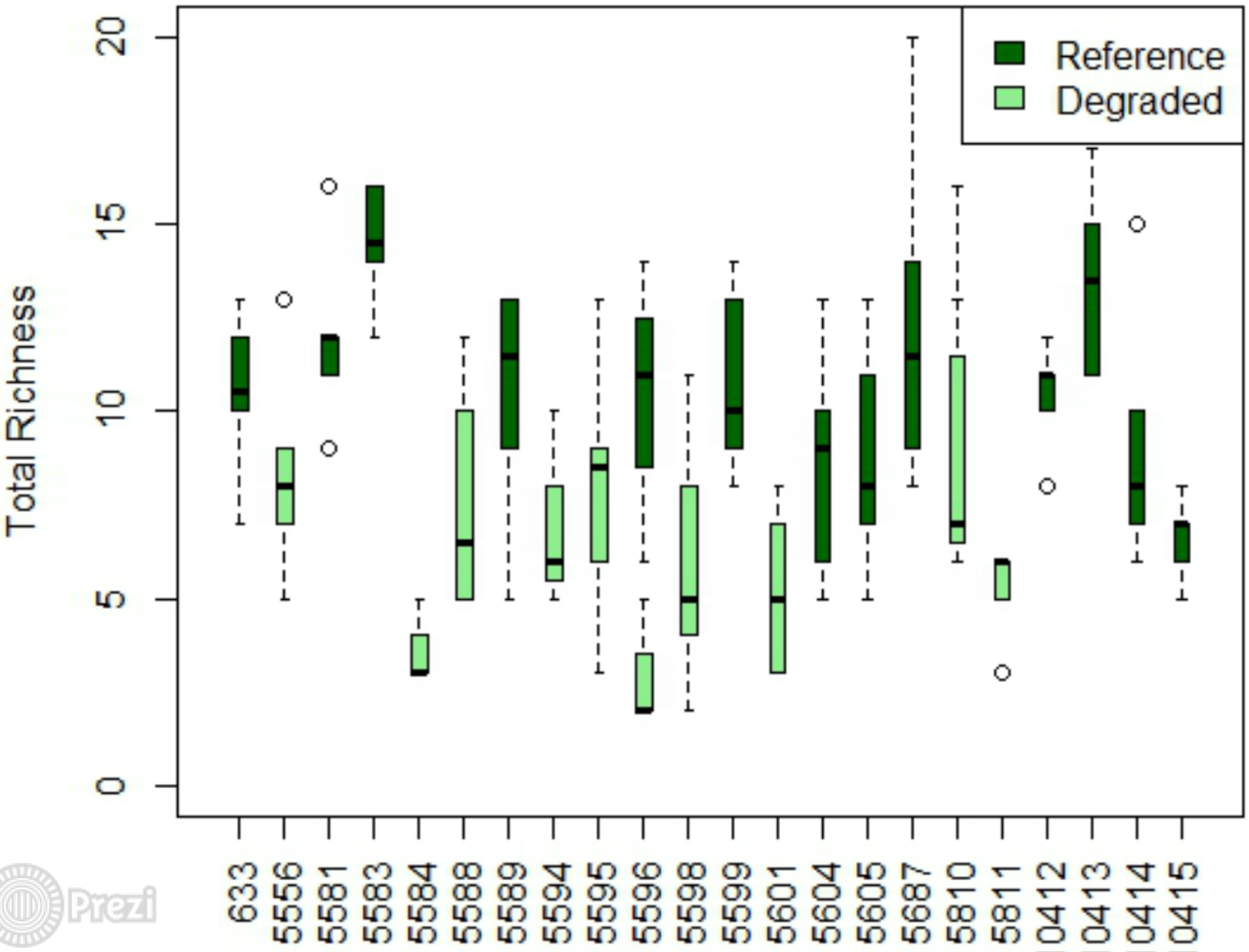
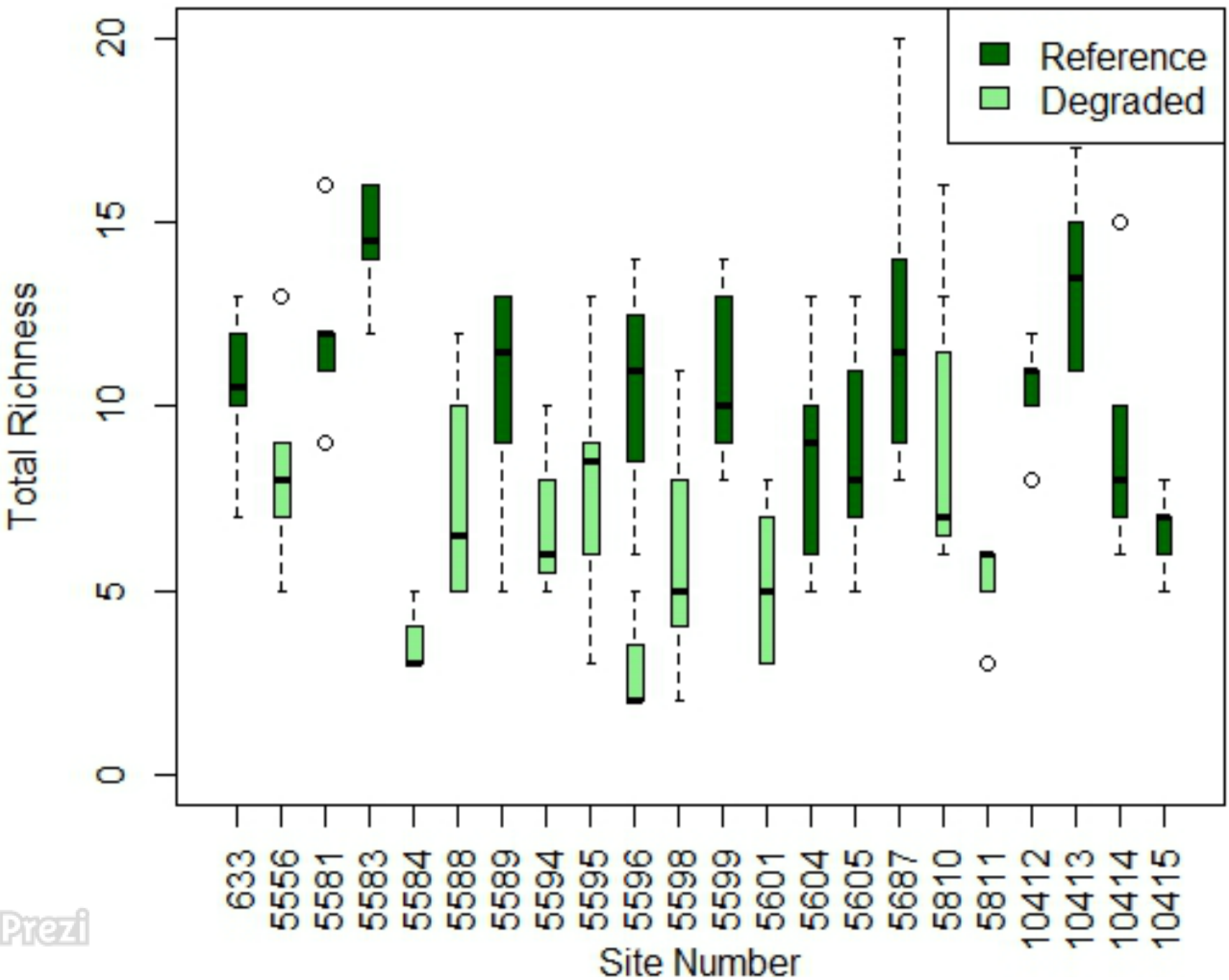
# total woody diversity



# species richness distance (vector)

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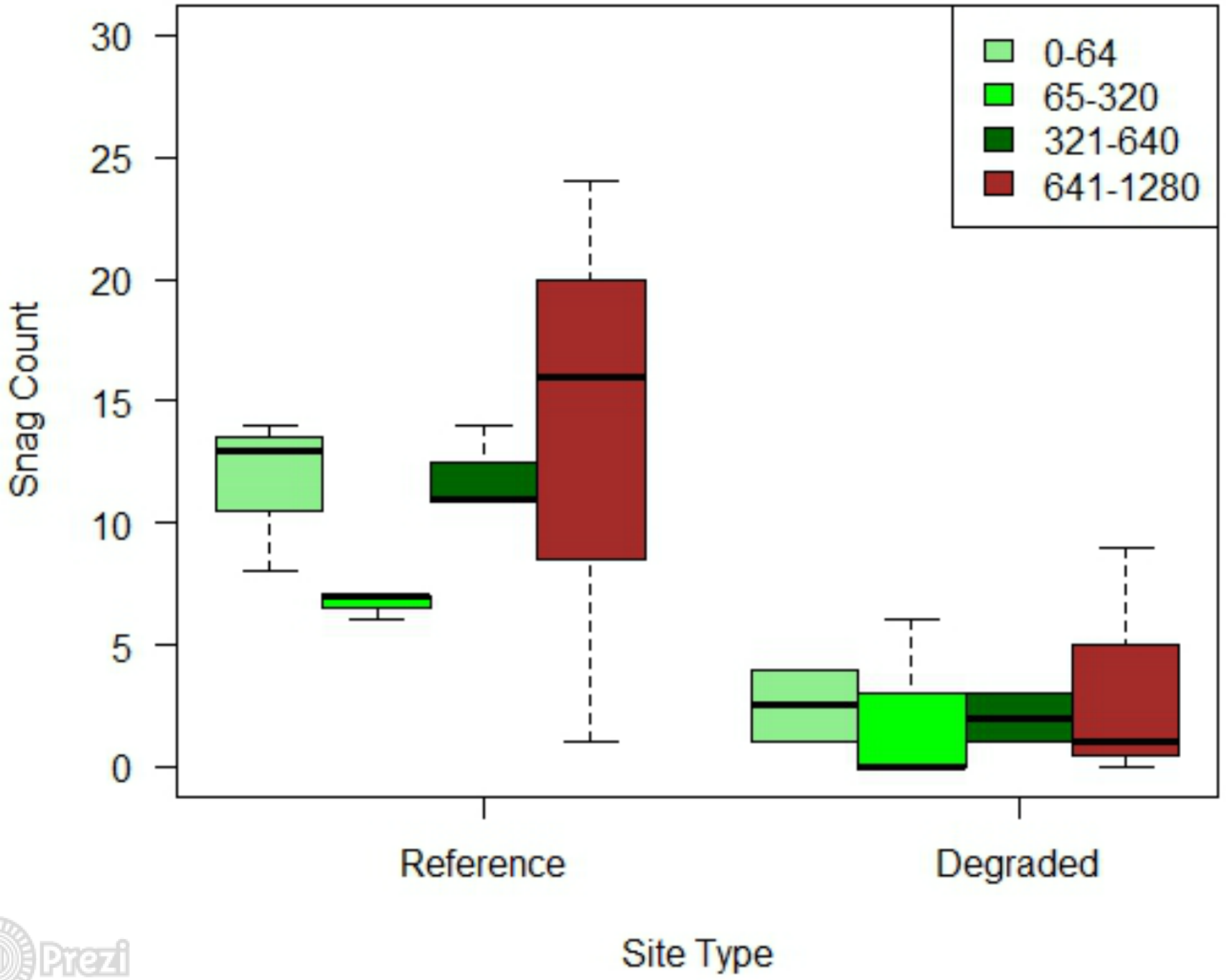
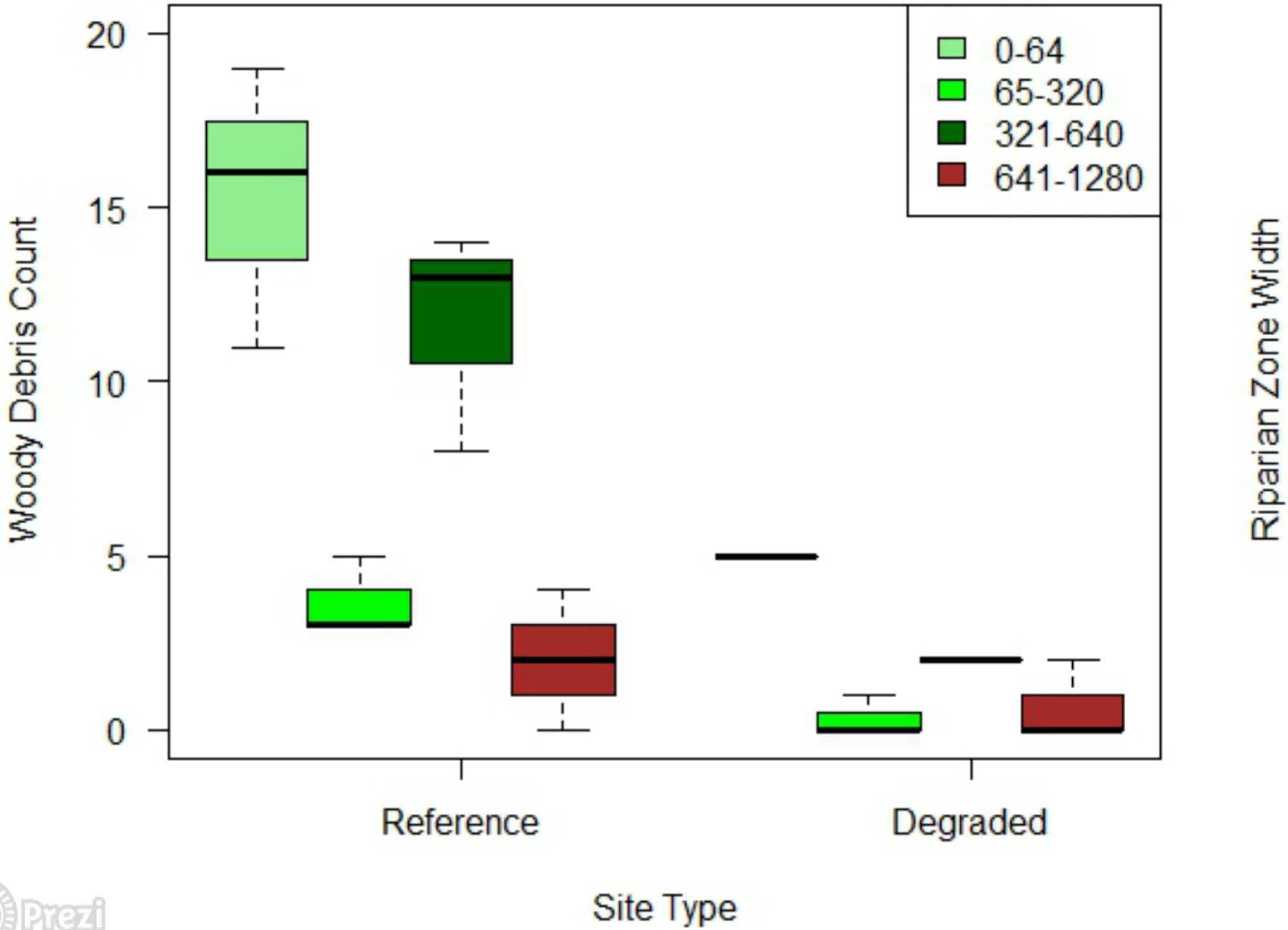
# number of snags



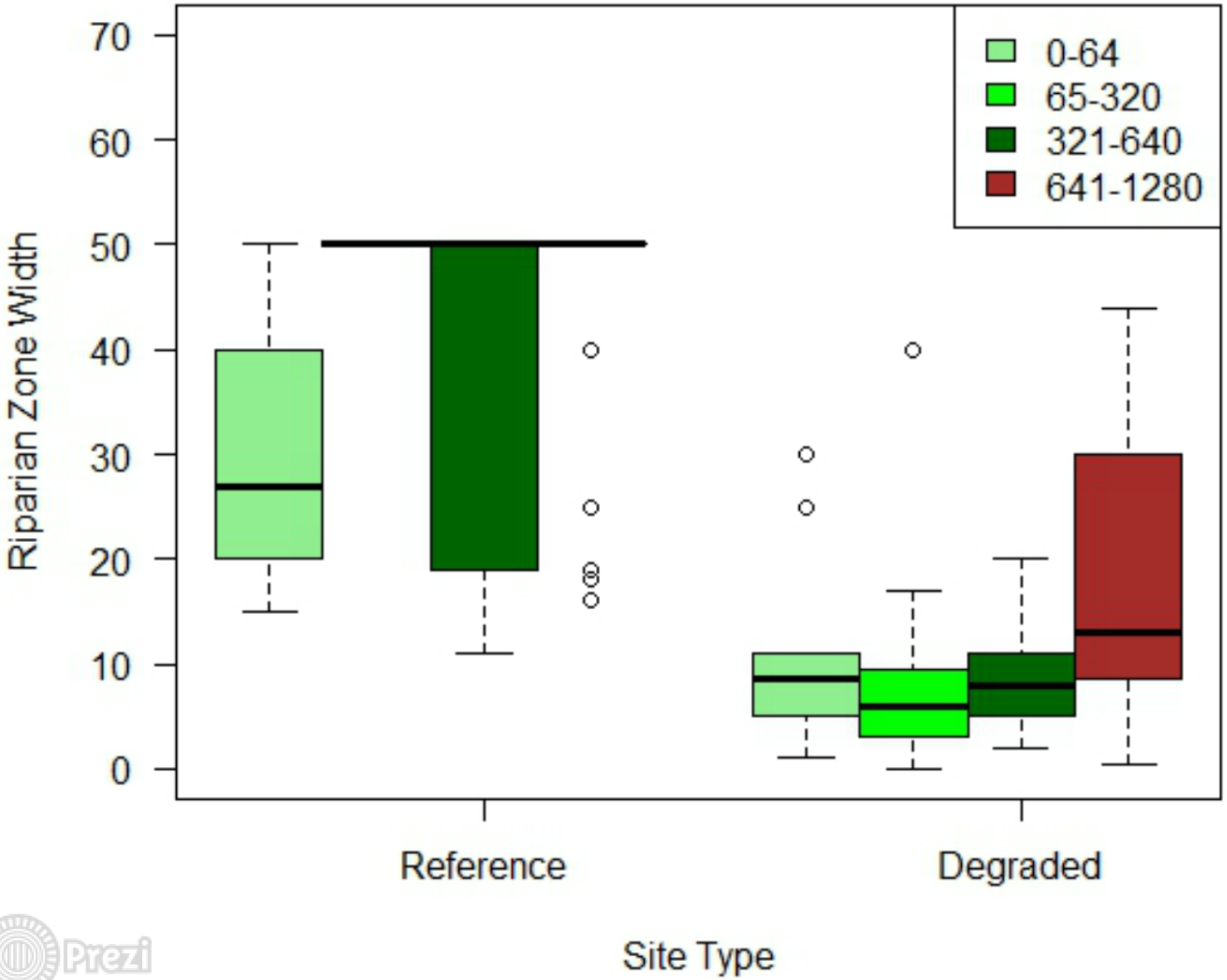

Prezi

# large woody debris




Prezi

# riparian zone width

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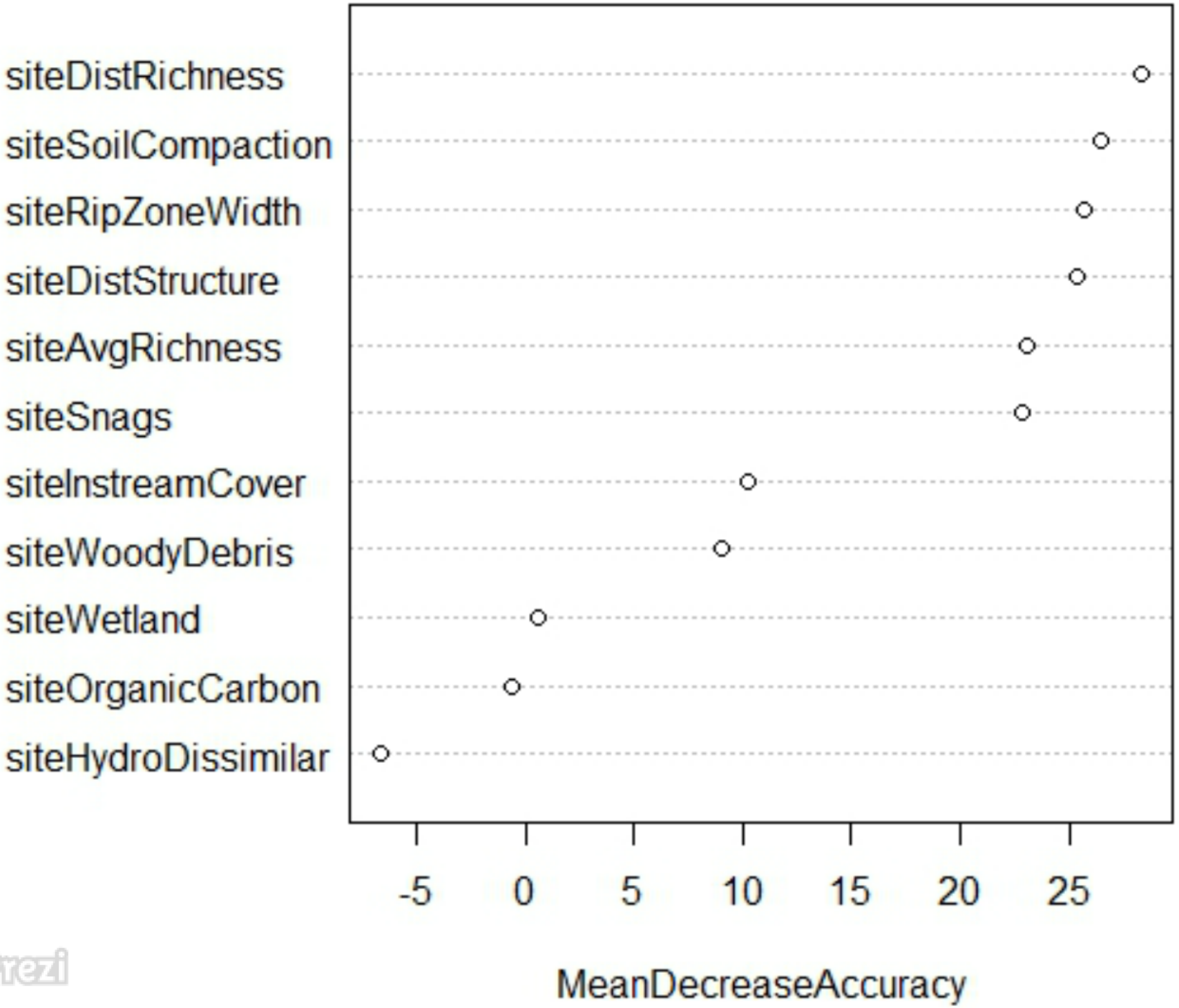
# important classification variables

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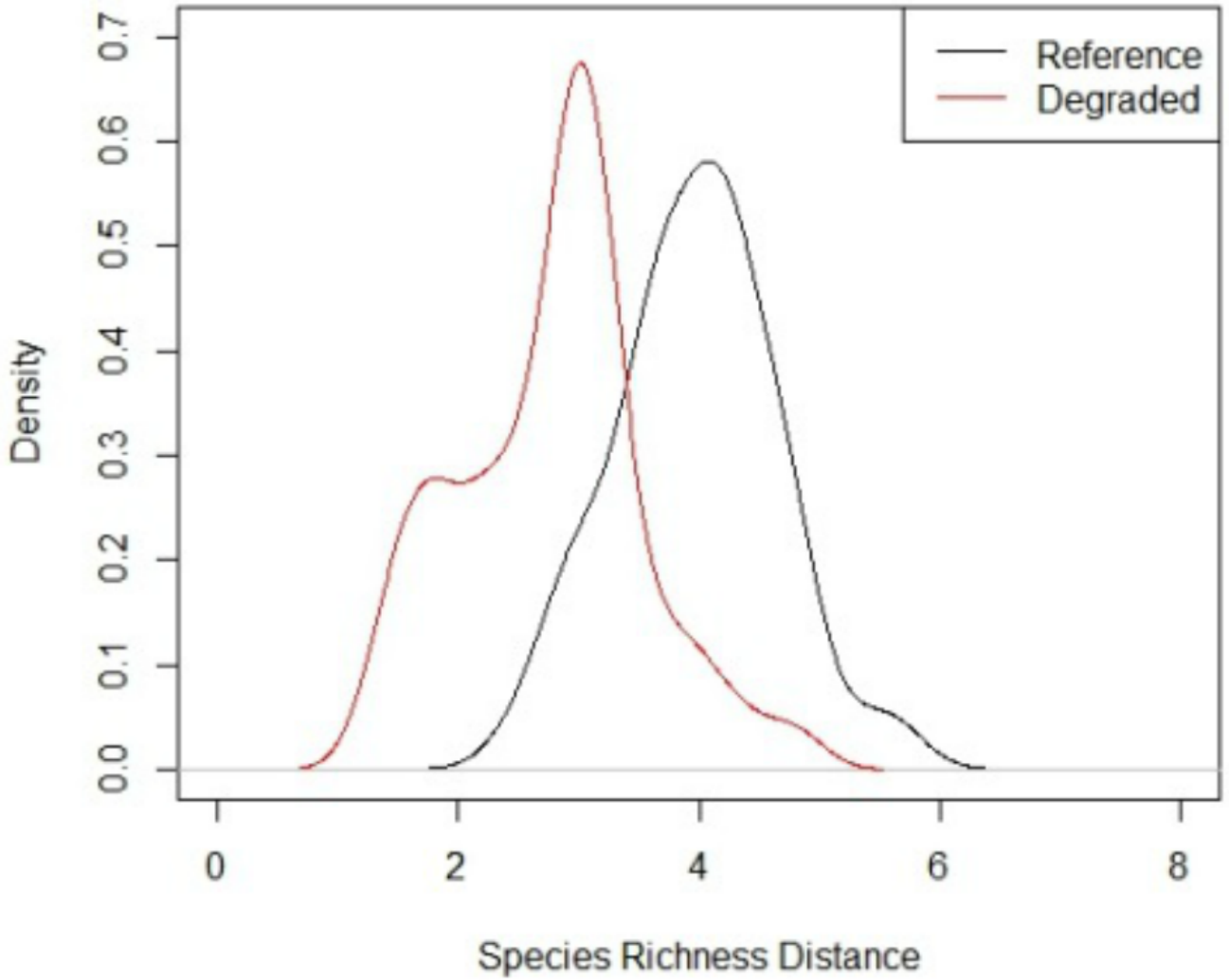
# How to measure progress?