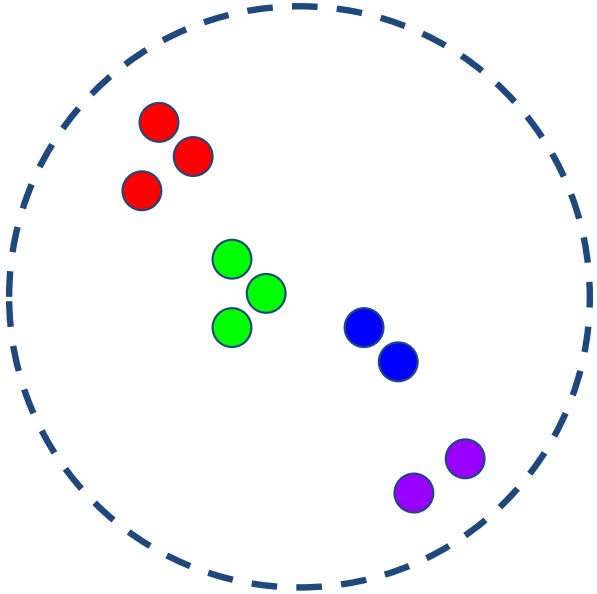
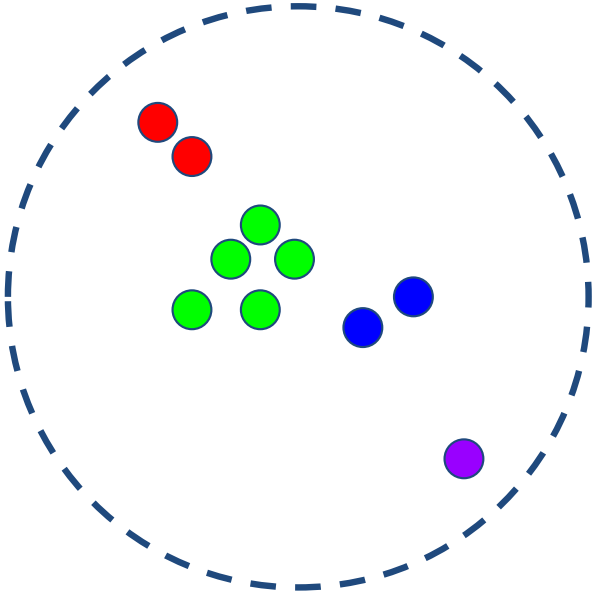
Introduction to ecological diversity measurements and ordination

Daniel Lundin

Linnæus University | Centre
Ecology and Evolution in Microbial model Systems

What is diversity?

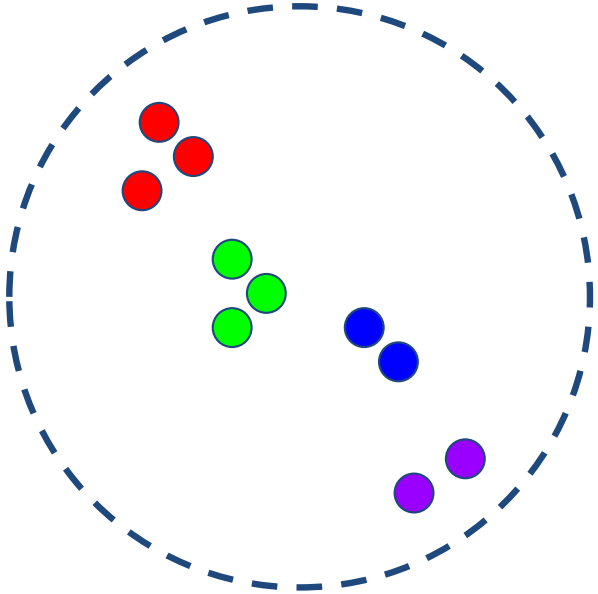




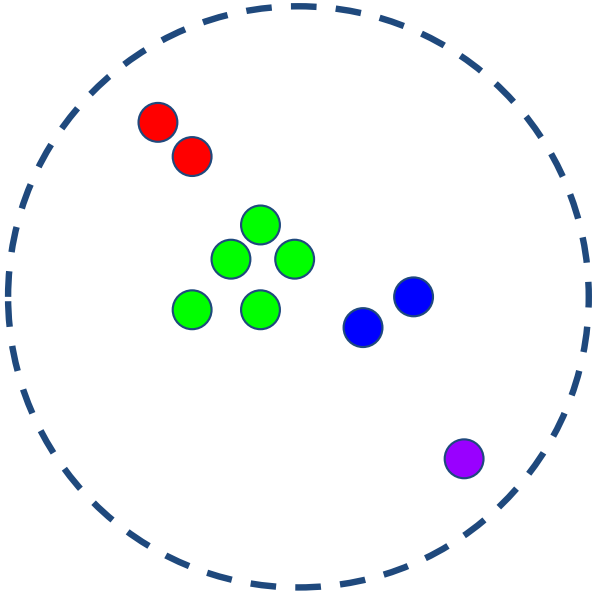
Alpha diversity

- Species count – “richness”
- Abundance distribution – “evenness”
- Joint measurements – “entropy”

Richness: species count

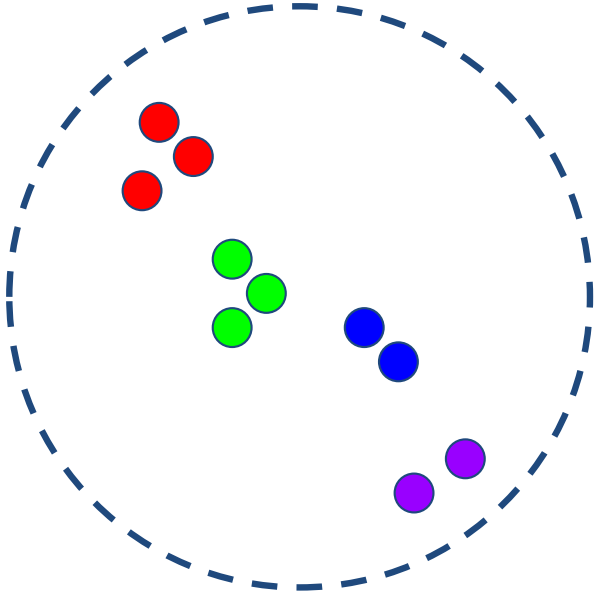


4

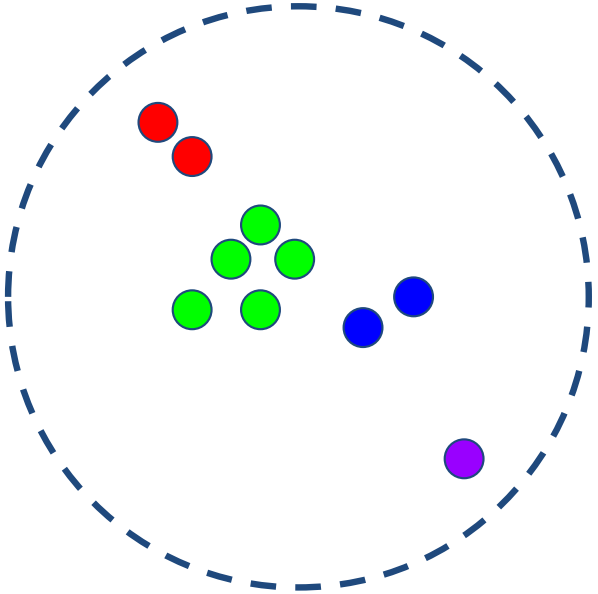


4

Pielous's evenness

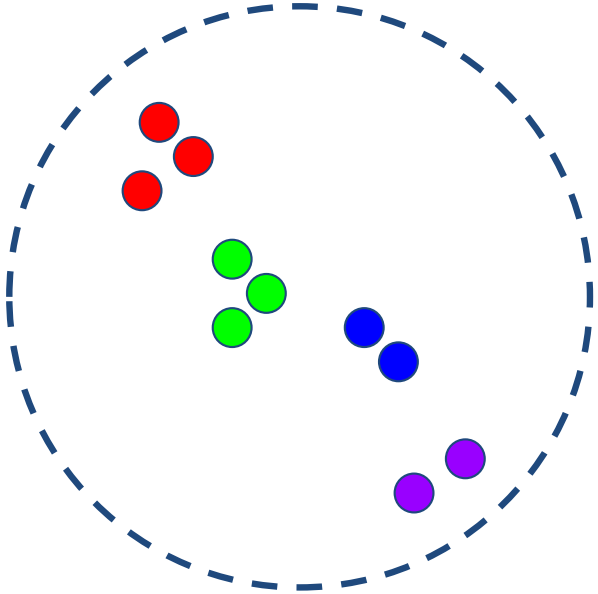


0.98

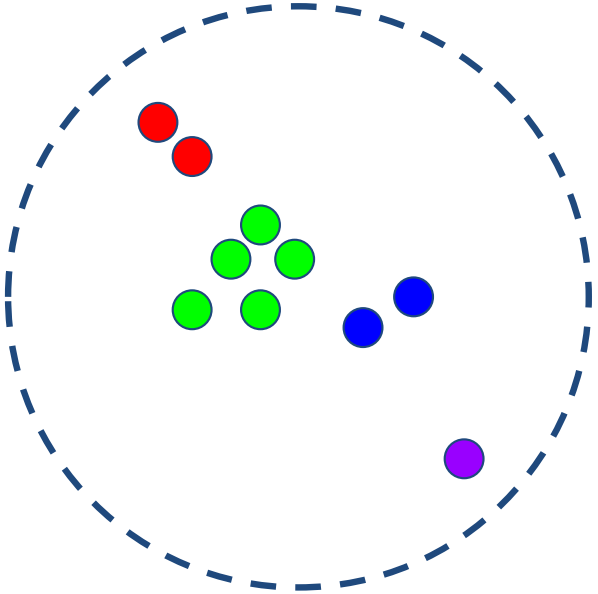


0.88

Shannon

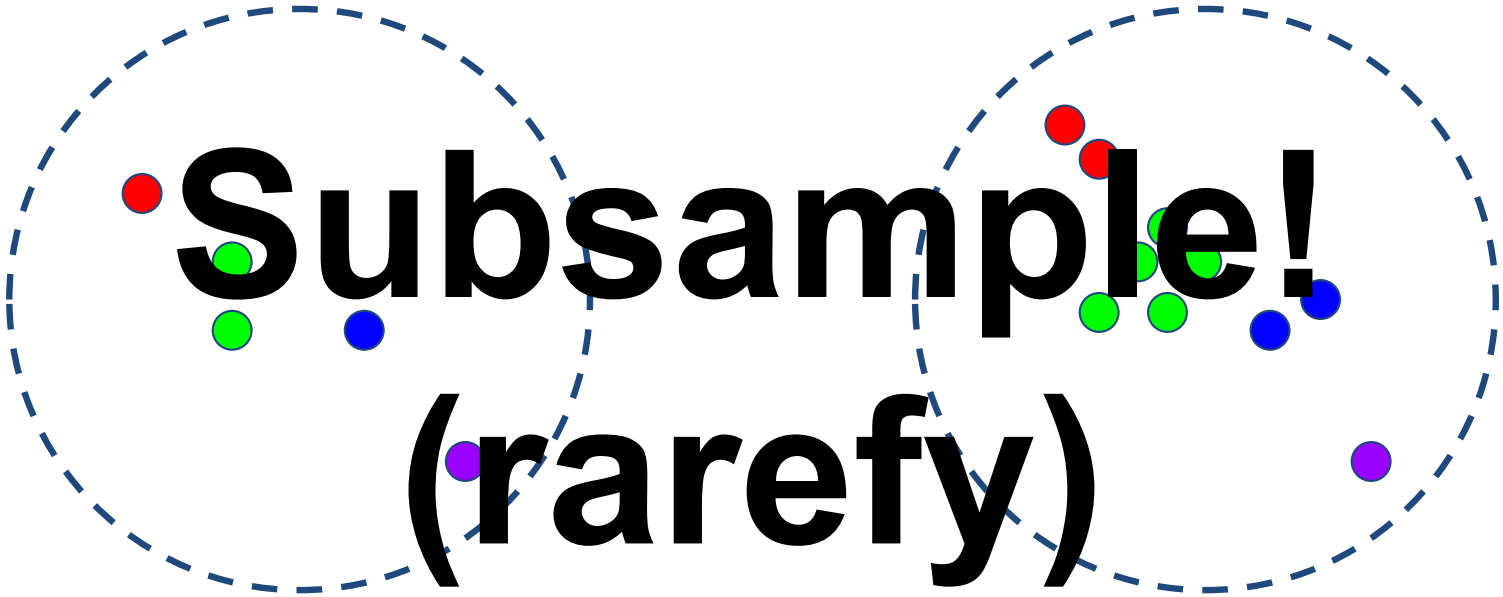


1.4

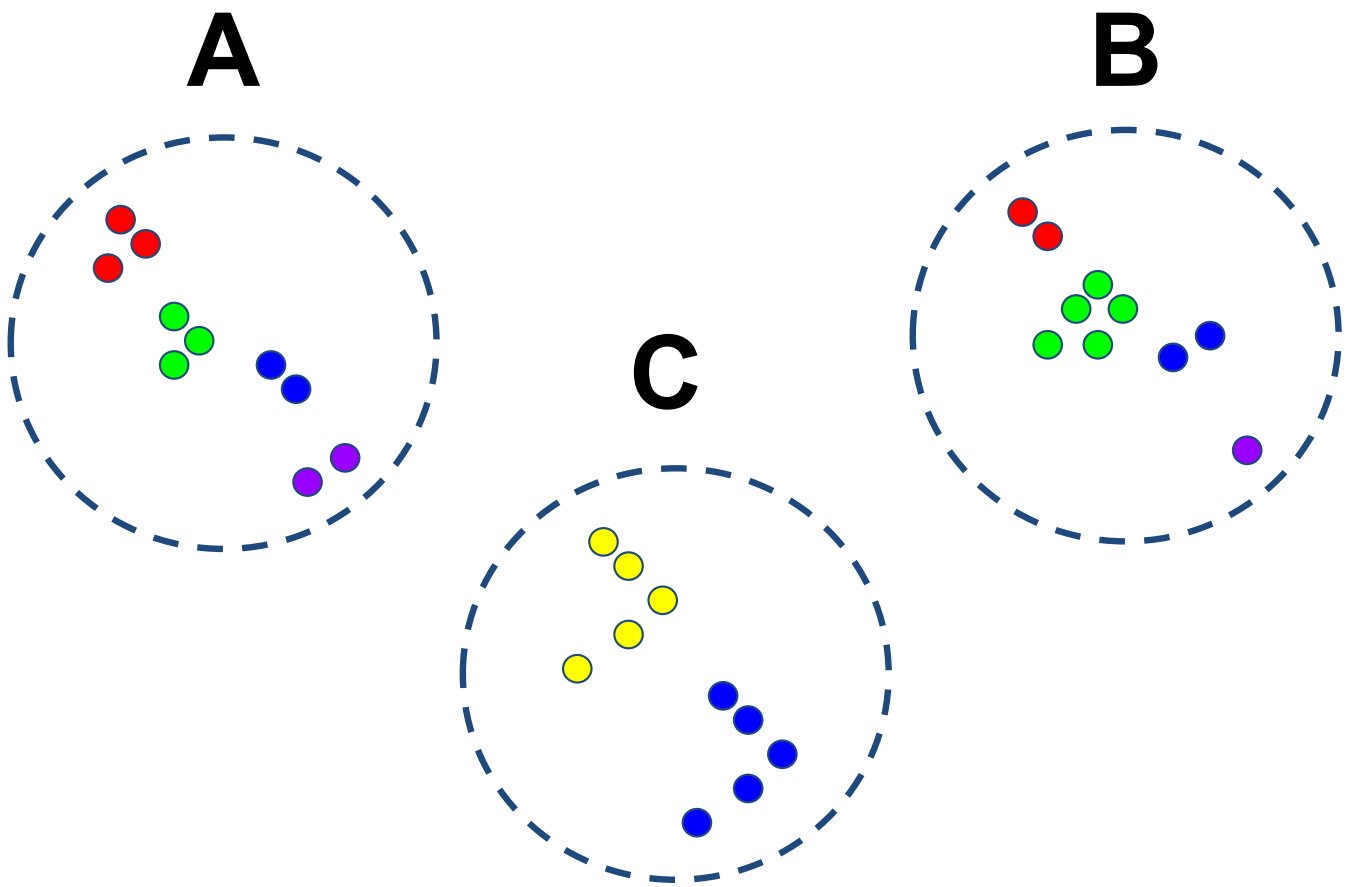


1.2

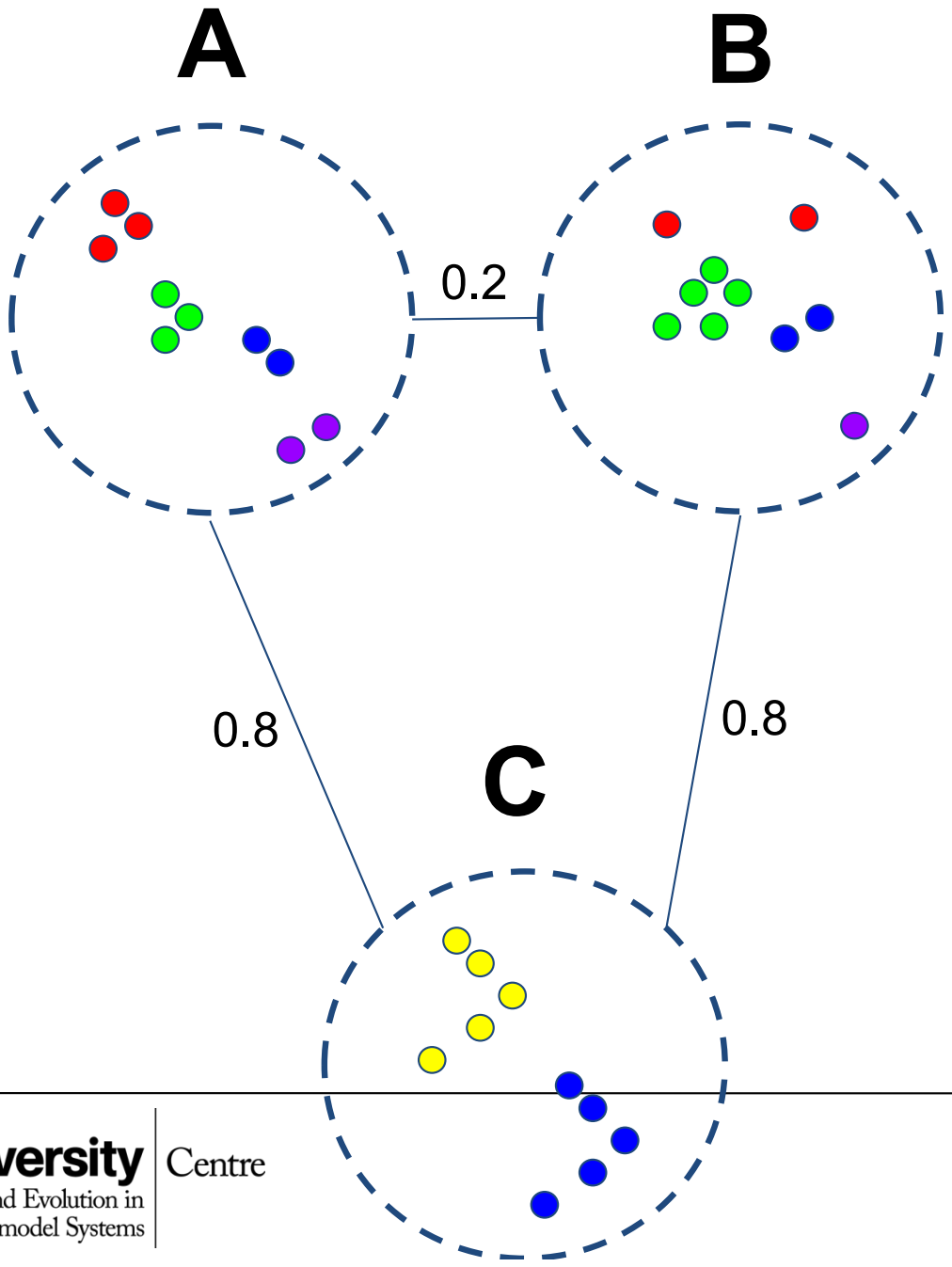
What happens if the total is different?



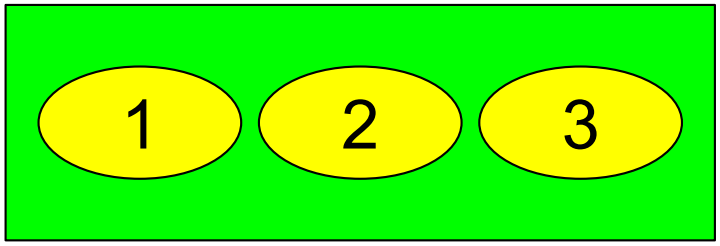
Beta diversity – how similar are A, B and C?



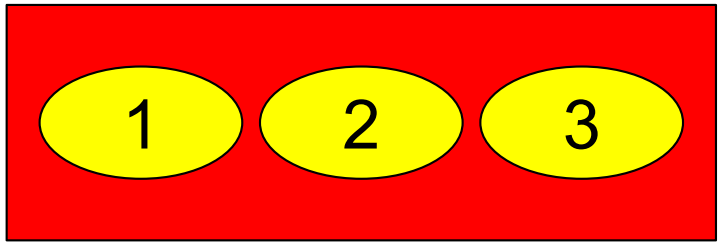
Bray-Curtis



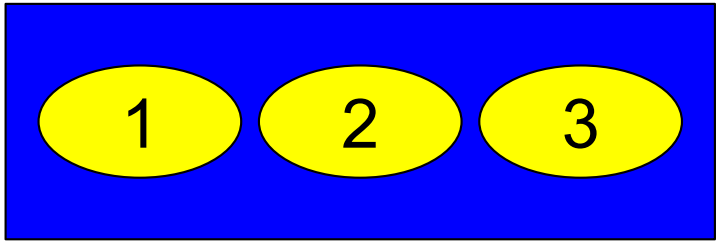
Ordination



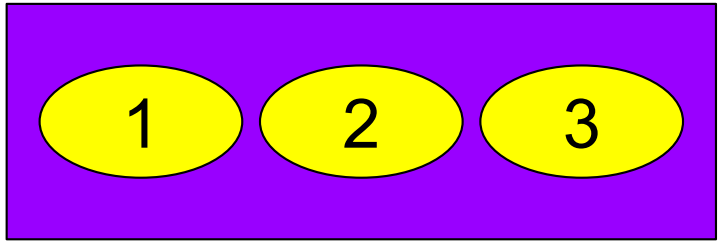
Control



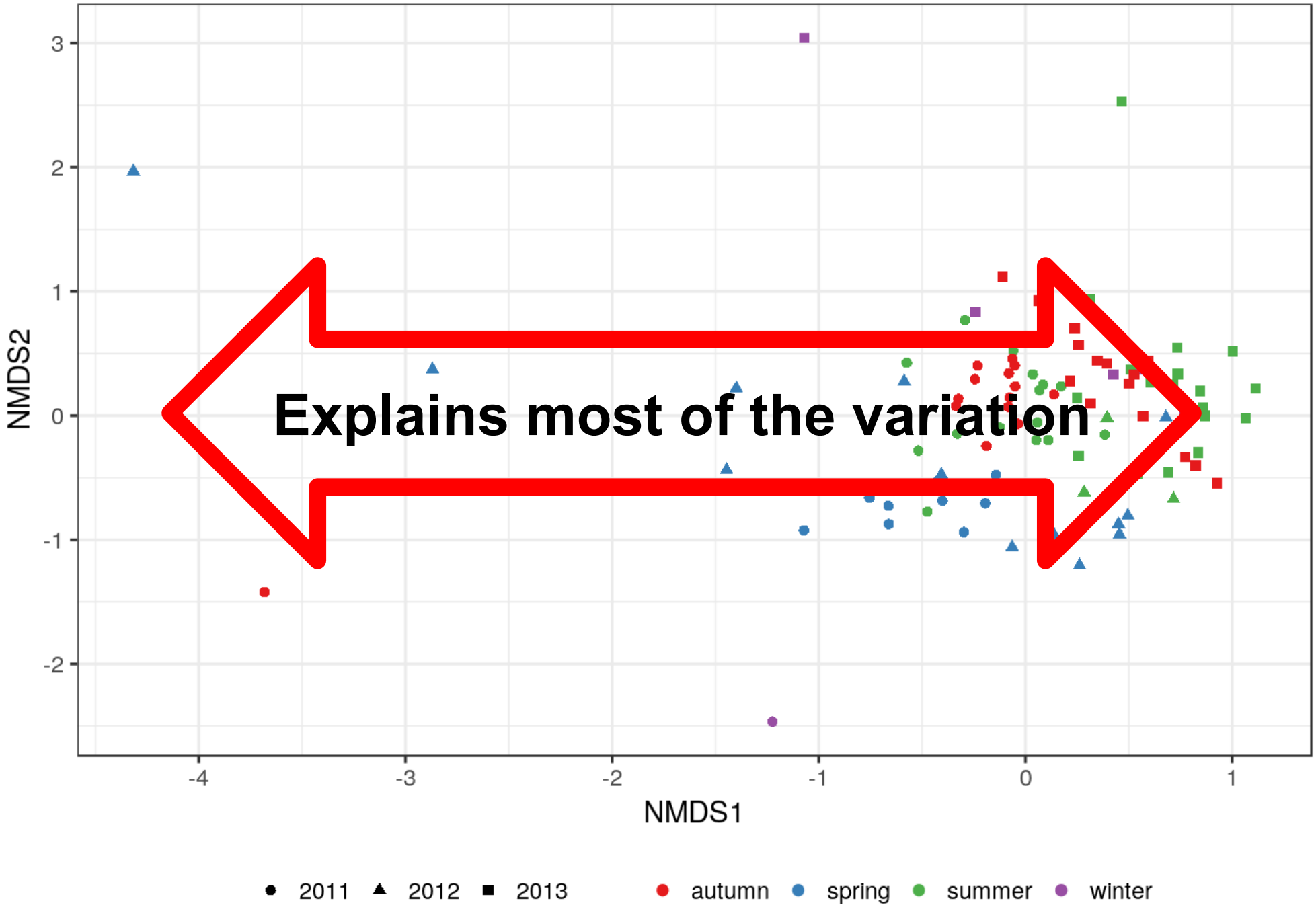
Treatment 1

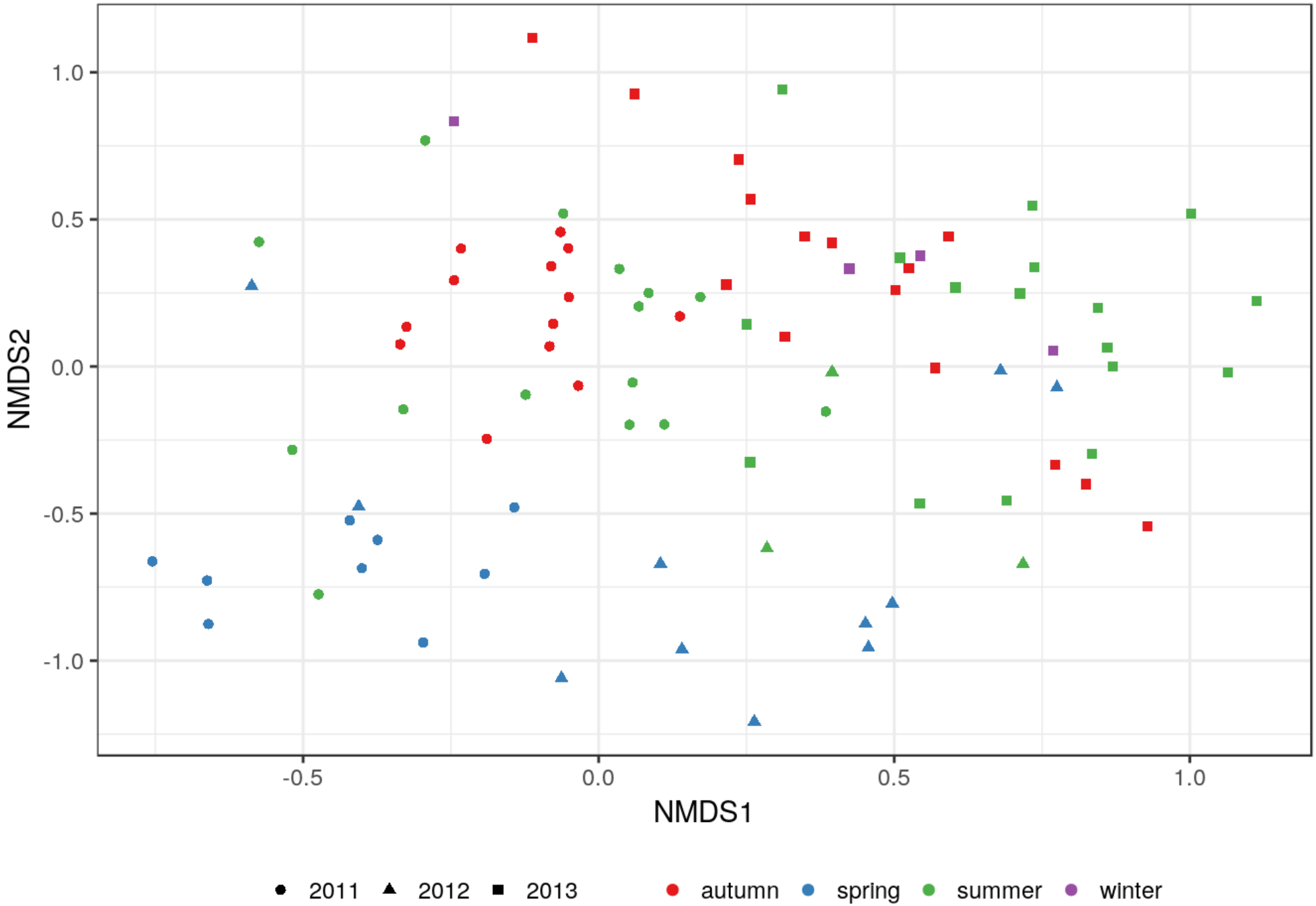


Treatment 2

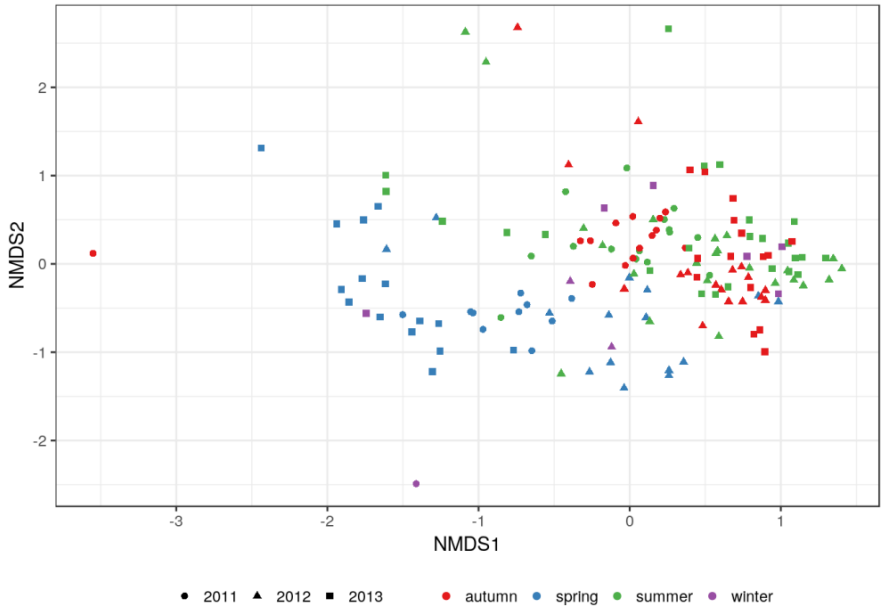


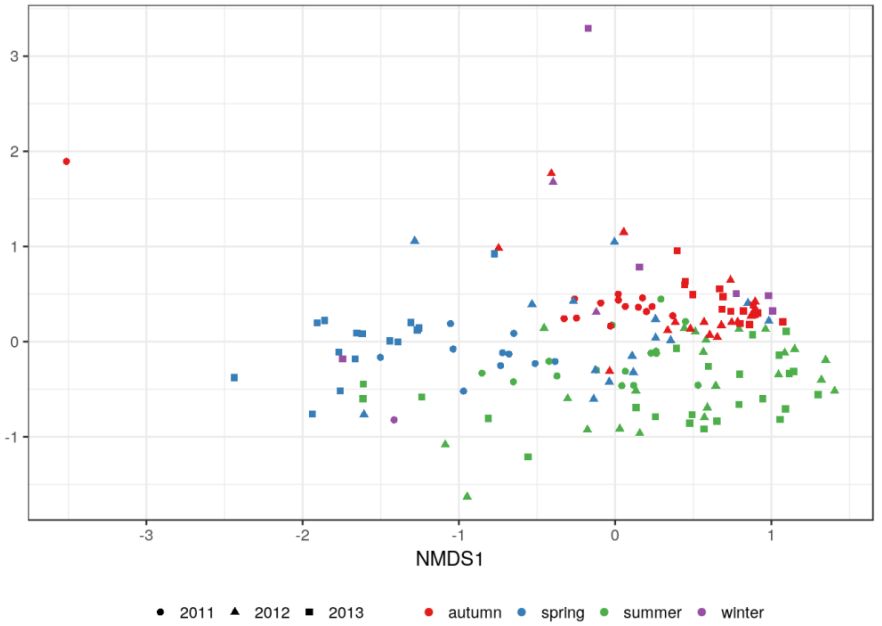
Treatment 1+2


NMDS2
NMDS1
3
2
1
0
-1
-2
-4
-3
-2
-1
0
1
Explains most of the variation
2011
2012
2013
autumn
spring
summer
winter


1.0
0.5
0.0
-0.5
-1.0
NMDS2
-0.5
0.0
0.5
1.0
NMDS1
2011
2012
2013
autumn
spring
summer
winter

NMDS can have more dimensions





https://jonlefcheck.net/2012/10/24/nmds-tutorial-in-r/