Summary of AMF community assembly

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Description of study design

Study design: farm type x block

- 21 sites: 10 monoculture and 11 polyculture
- 2 transects per 2 blocks (focal vs non-focal) each site
- 10 = 2017 and 11 =2018

Contents

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Monoculture and Polyculture

Model output

No-scale scale

```
##                     Predictors Coefficients
## 1                   Geographic        1.036
## 2                           pH        1.628
## 3                            P        0.724
## 4                          TOC        0.000
## 5                            N        2.809
## 6                     NP_ratio        0.320
## 7                      FarmBi         0.000
## 8                cropDiversity        1.470
## 9  Percent Deviance Explained       21.848
## 10                         DIC     2435.890
```

Landscape scale

```
##                     Predictors Coefficients
## 1                   Geographic        1.077
## 2                           pH        1.684
## 3                            P        0.485
## 4                          TOC        0.000
## 5                            N        0.097
## 6                     NP_ratio        0.321
## 7                      FarmBi         0.000
## 8                cropDiversity        1.755
## 9  Percent Deviance Explained       17.167
## 10                         DIC      470.723
```

Local scale

```
##                     Predictors Coefficients
## 1                   Geographic        0.000
## 2                           pH        1.538
## 3                            P        2.883
## 4                          TOC        0.000
## 5                            N        0.178
## 6                     NP_ratio        0.207
## 7                      FarmBi         0.000
## 8                cropDiversity        3.658
## 9  Percent Deviance Explained       36.063
## 10                         DIC       58.873
```

Focal blocks

Model output

Monoculture

Landscape scale

```
##                    Predictors Coefficients
## 1                  Geographic        0.000
## 2                          pH        2.166
## 3                           P        1.024
## 4                         TOC        2.293
## 5                           N        0.147
## 6                    NP_ratio        1.198
## 7                      FarmBi        0.000
## 8               cropDiversity        0.000
## 9  Percent Deviance Explained       18.392
## 10                       DIC      117.585
```

Local scale

```
##                    Predictors Coefficients
## 1                  Geographic        0.146
## 2                          pH        4.131
## 3                           P        2.194
## 4                         TOC        0.000
## 5                           N        2.015
## 6                    NP_ratio        1.481
## 7                      FarmBi        0.000
## 8               cropDiversity        1.549
## 9  Percent Deviance Explained       31.434
## 10                       DIC       32.371
```

Polyculture

Landscape scale

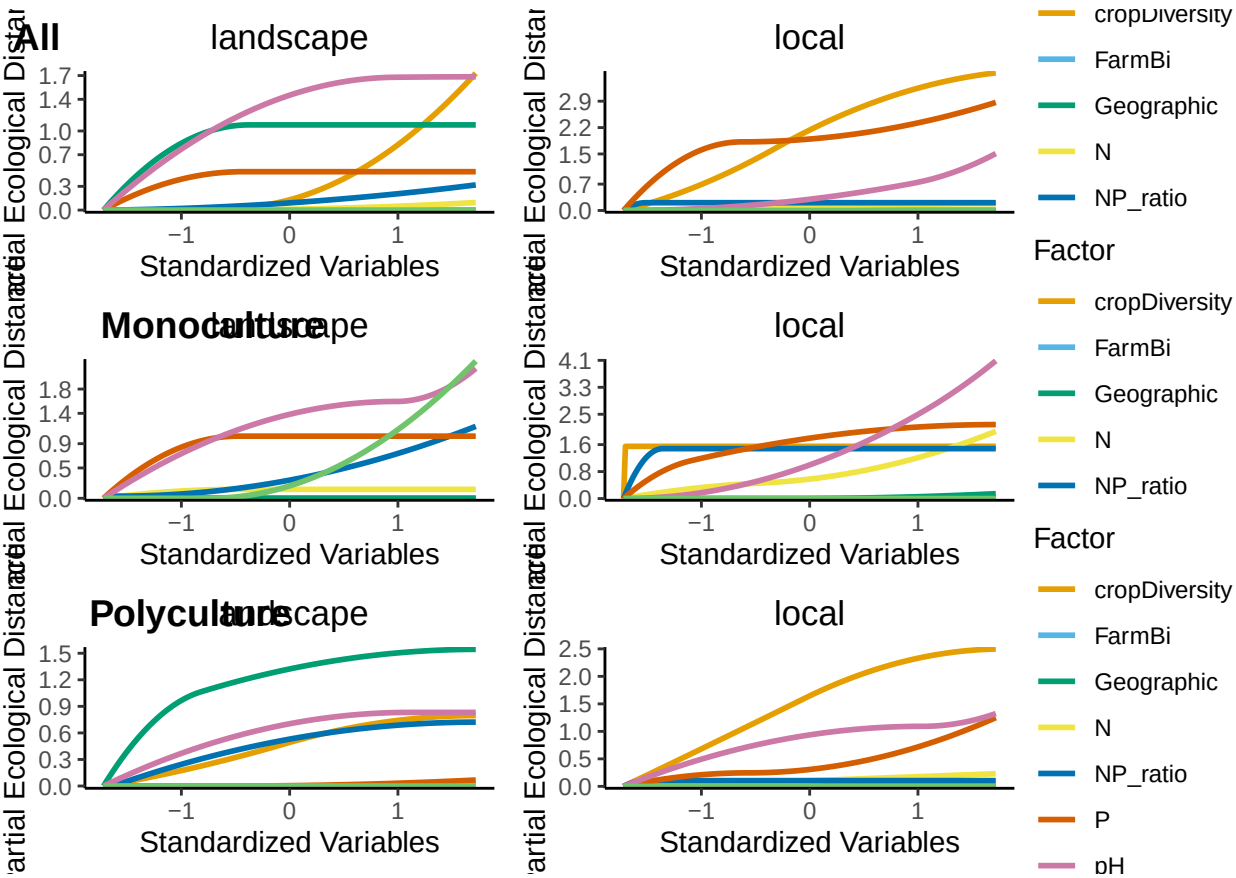
```
##                    Predictors Coefficients
## 1                  Geographic        1.544
## 2                          pH        0.832
## 3                           P        0.069
## 4                         TOC        0.000
## 5                           N        0.000
## 6                    NP_ratio        0.722
## 7                      FarmBi        0.000
## 8               cropDiversity        0.796
## 9  Percent Deviance Explained       21.098
## 10                       DIC       96.277
```

Local scale

```
##                    Predictors Coefficients
## 1                  Geographic        0.000
## 2                          pH        1.335
## 3                           P        1.265
## 4                         TOC        0.000
```

```
## 5                           N        0.231
## 6                    NP_ratio        0.104
## 7                      FarmBi        0.000
## 8                cropDiversity        2.498
## 9  Percent Deviance Explained       54.258
## 10                         DIC       20.493
```

Plots for all focal blocks

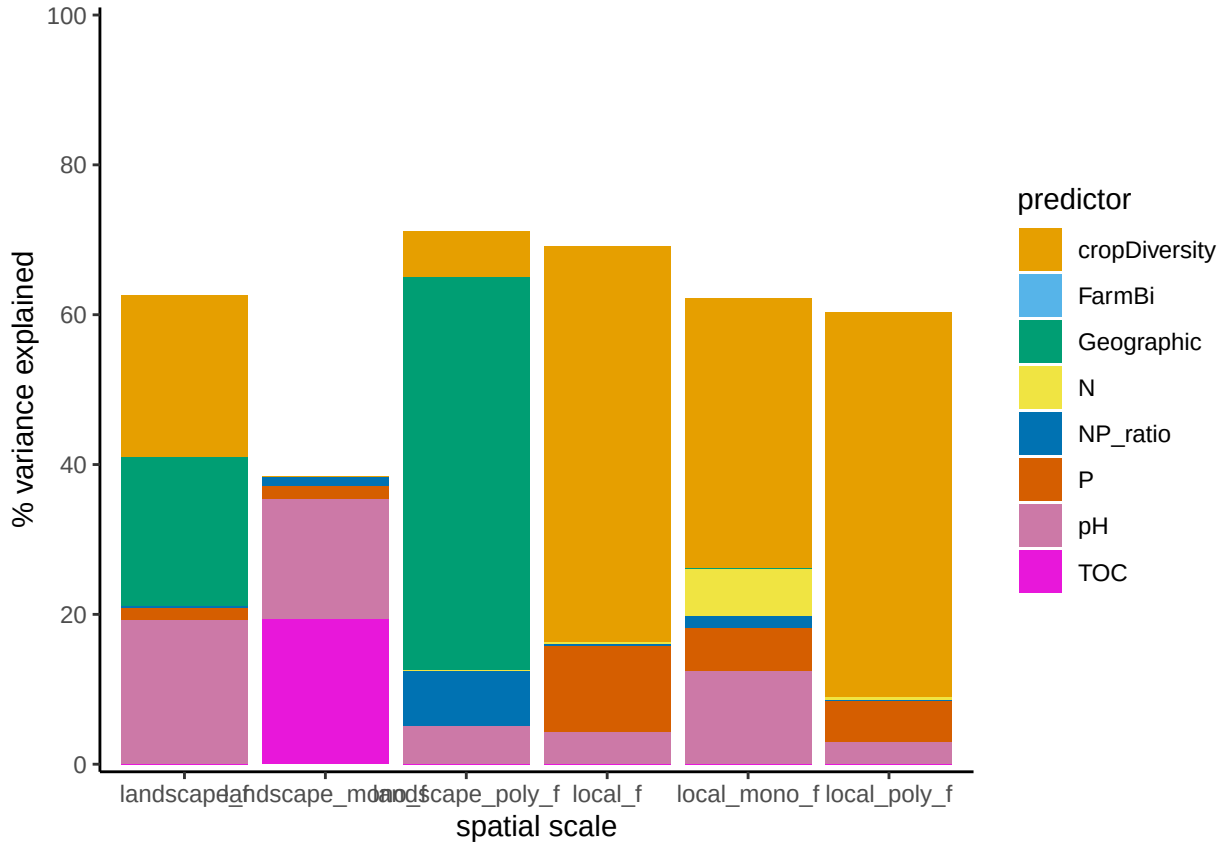


Variance importance

Output

```
##          scaleLevel     predictor    variance
## 1       landscape_f    Geographic 19.91195911
## 2       landscape_f            pH 19.29183546
## 3       landscape_f             P  1.52637395
## 4       landscape_f           TOC  0.00000000
## 5       landscape_f             N  0.09552754
## 6       landscape_f      NP_ratio  0.21409133
## 7       landscape_f        FarmBi  0.00000000
## 8       landscape_f cropDiversity 21.54941649
## 9           local_f    Geographic  0.00000000
## 10          local_f            pH  4.36298562
## 11          local_f             P 11.38338723
## 12          local_f           TOC  0.00000000
## 13          local_f             N  0.40722529
## 14          local_f      NP_ratio  0.24303270
## 15          local_f        FarmBi  0.00000000
## 16          local_f cropDiversity 52.81293644
## 17 landscape_mono_f    Geographic  0.00000000
## 18 landscape_mono_f            pH 16.12198196
## 19 landscape_mono_f             P  1.70198046
## 20 landscape_mono_f           TOC 19.34317909
## 21 landscape_mono_f             N  0.22273355
## 22 landscape_mono_f      NP_ratio  1.06800154
## 23 landscape_mono_f        FarmBi  0.00000000
## 24 landscape_mono_f cropDiversity  0.00000000
## 25     local_mono_f    Geographic  0.25559773
## 26     local_mono_f            pH 12.54478066
## 27     local_mono_f             P  5.60934858
## 28     local_mono_f           TOC  0.00000000
## 29     local_mono_f             N  6.30769084
## 30     local_mono_f      NP_ratio  1.58090731
## 31     local_mono_f        FarmBi  0.00000000
## 32     local_mono_f cropDiversity 35.90597937
## 33 landscape_poly_f    Geographic 52.57569911
## 34 landscape_poly_f            pH  5.10121677
## 35 landscape_poly_f             P  0.05643446
## 36 landscape_poly_f           TOC  0.00000000
## 37 landscape_poly_f             N  0.00000000
## 38 landscape_poly_f      NP_ratio  7.32148004
## 39 landscape_poly_f        FarmBi  0.00000000
## 40 landscape_poly_f cropDiversity  6.11664924
## 41     local_poly_f    Geographic  0.00000000
## 42     local_poly_f            pH  2.94742596
## 43     local_poly_f             P  5.51225702
## 44     local_poly_f           TOC  0.00000000
## 45     local_poly_f             N  0.49464827
## 46     local_poly_f      NP_ratio  0.08935956
## 47     local_poly_f        FarmBi  0.00000000
## 48     local_poly_f cropDiversity 51.33408929
```

Plots


100
80
60
40
20
0
% variance explained
landscape_f
landscape_mono_f
landscape_poly_f
local_f
local_mono_f
local_poly_f
spatial scale
predictor
cropDiversity
FarmBi
Geographic
N
NP_ratio
P
pH
TOC

Mantel tests

Composition

Output

```
##                     Factor Statistic Significance
## 1 Species v Crop Diversity 0.1831283        0.001
## 2    Species v Environment 0.1231558        0.001
## 3      Species v Geography 0.2163710        0.001
## 4  Environment v Geography 0.1721390        0.001
```

Plots

```
## NULL
```

Nestedness

Output

```
##                     Factor  Statistic Significance
## 1 Species v Crop Diversity -0.1220792        1.000
## 2    Species v Environment -0.0957041        1.000
## 3      Species v Geography -0.1906487        1.000
## 4  Environment v Geography  0.1721390        0.001
```

Plots

```
## NULL
```

Turnover

Output

```
##                     Factor Statistic Significance
## 1 Species v Crop Diversity 0.1615046        0.001
## 2    Species v Environment 0.1158130        0.001
## 3      Species v Geography 0.2174524        0.001
## 4  Environment v Geography 0.1721390        0.001
```

Plots

```
## NULL
```

Monoculture

Composition

Output

```
##                     Factor   Statistic Significance
## 1 Species v Crop Diversity -0.07511109        0.950
## 2    Species v Environment  0.18492399        0.001
## 3      Species v Geography  0.18022382        0.001
## 4  Environment v Geography  0.29761775        0.001
```

Plots

```
## NULL
```

Nestedness

Output

```
##                     Factor  Statistic Significance
## 1 Species v Crop Diversity  0.1037034        0.006
## 2    Species v Environment -0.1252613        1.000
## 3      Species v Geography -0.1014215        1.000
## 4  Environment v Geography  0.2976177        0.001
```

Plots

```
## NULL
```

Turnover

Output

```
##                     Factor   Statistic Significance
## 1 Species v Crop Diversity -0.07943162        0.961
## 2    Species v Environment  0.17118033        0.001
## 3      Species v Geography  0.17007731        0.001
## 4  Environment v Geography  0.29761775        0.001
```

Plots

```
## NULL
```

Polyculture

Composition

Output

```
##                     Factor Statistic Significance
## 1 Species v Crop Diversity 0.1566694        0.001
## 2    Species v Environment 0.1983407        0.001
## 3      Species v Geography 0.4529020        0.001
## 4  Environment v Geography 0.2105996        0.001
```

Plots

```
## NULL
```

Nestedness

Output

```
##                     Factor   Statistic Significance
## 1 Species v Crop Diversity -0.09029293        0.997
## 2    Species v Environment -0.12995286        1.000
## 3      Species v Geography -0.38883923        1.000
## 4  Environment v Geography  0.21059959        0.001
```

Plots

```
## NULL
```

Turnover

Output

```
##                     Factor Statistic Significance
## 1 Species v Crop Diversity 0.1286012        0.001
## 2    Species v Environment 0.1754151        0.001
## 3      Species v Geography 0.4448994        0.001
## 4  Environment v Geography 0.2105996        0.001
```

Plots

```
## NULL
```