

Supplementary: Characteristics of the study plots

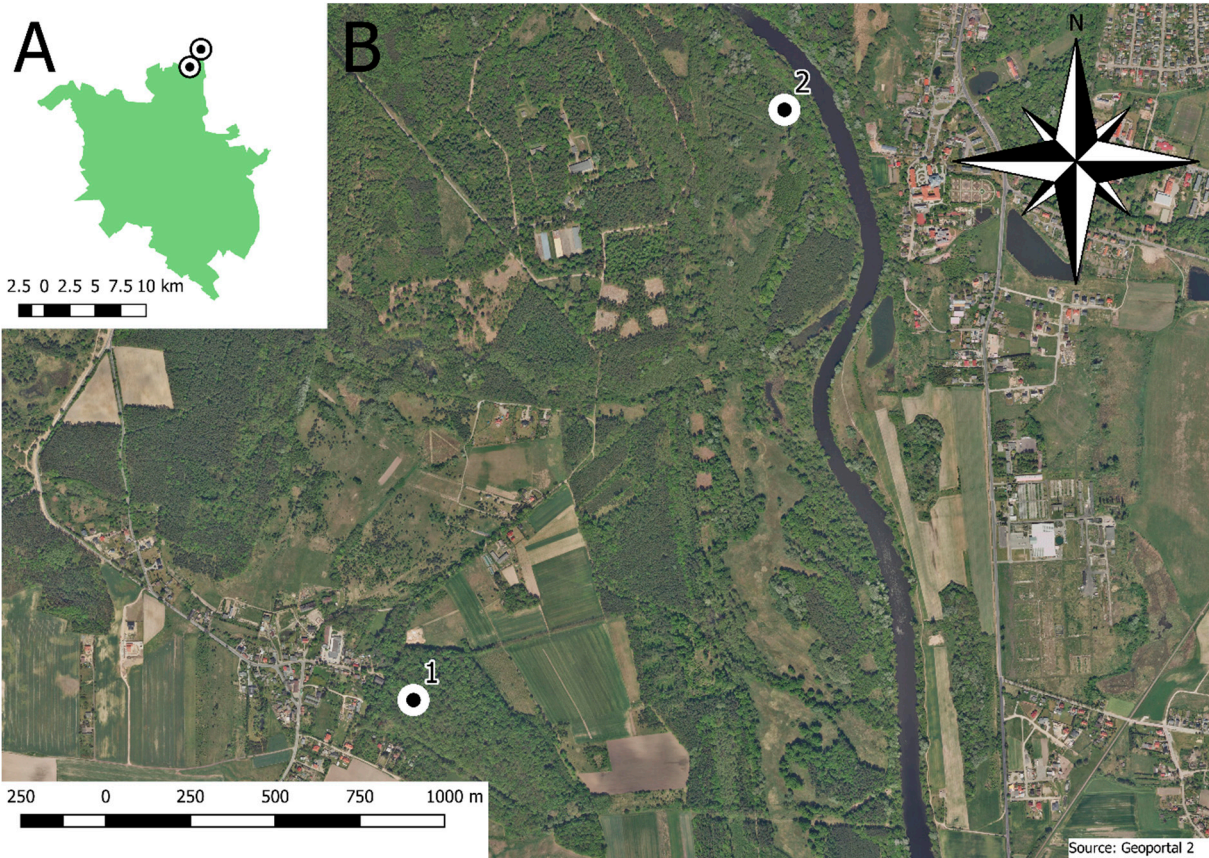


Figure S1. Locality of the study plots: a. locality at the background of satellite imagery, b. locality of study plots at the background of the borders of Poznań city (W Poland; 52°24'N; 16°57'E). Plot no. 1–degraded floodplain forest, plot no. 2–non-degraded floodplain forest.

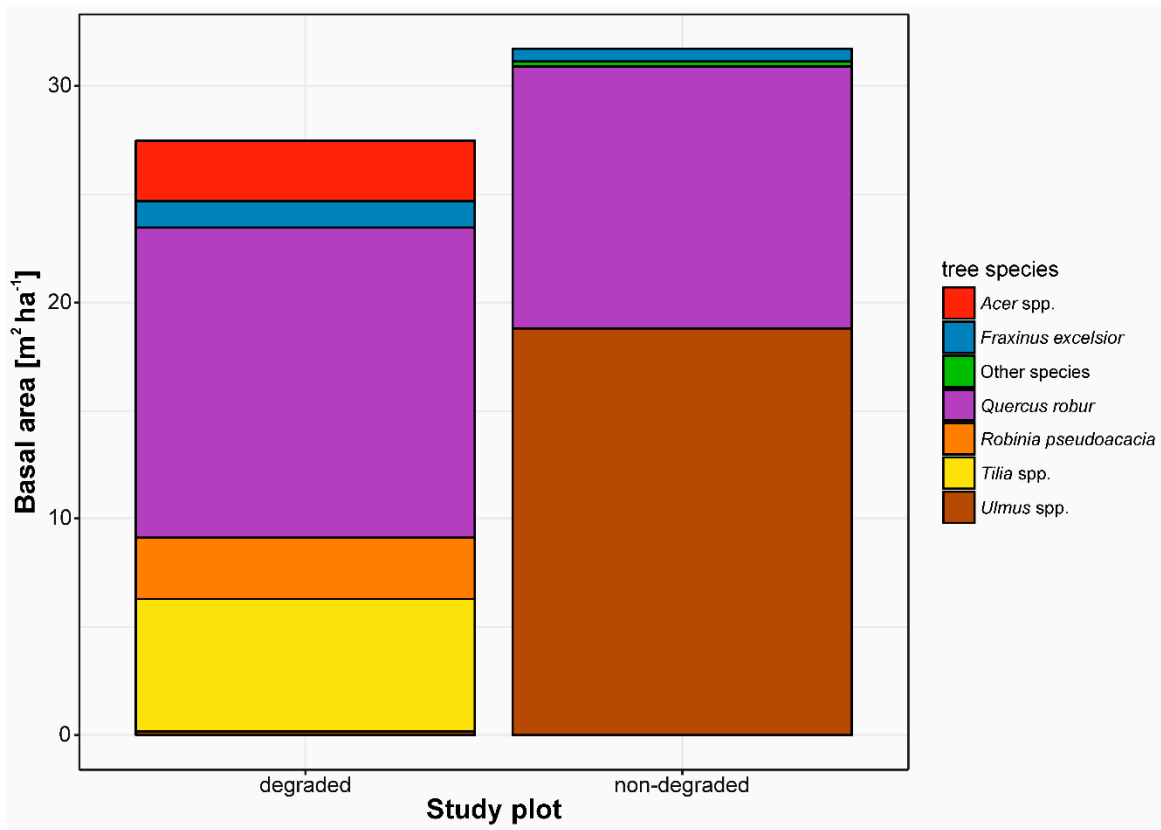


Figure S2. Tree stand species composition–basal area of particular tree species in tree stand layer (trees >7 cm diameter at breast height).

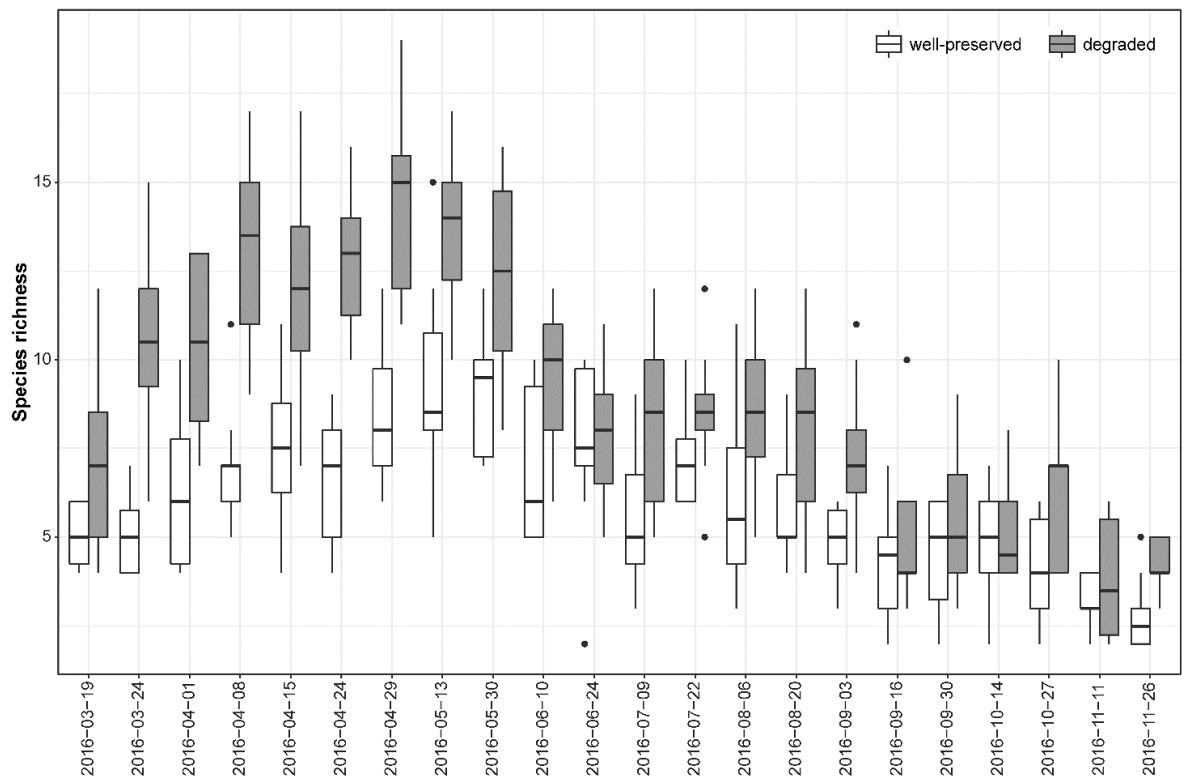


Figure S3. Boxplots representing species richness per sample (10 samples per date). Box represents interquartile range, bar inside box–median, whiskers–range of minimum and maximum excluding outliers (points).

Table S1. Phytosociological table for degraded and non-degraded floodplain forests at two dates and conducted in three 100 m² subplots per study plot. Plant communities represent the *Quercus-Ulmetum minoris* association.

| | | Degraded | | | Non-Degraded | | | Degraded | | | Non-Degraded | | |
|--|-----------------|----------|----|----|--------------|----|----|----------|----|----|--------------|----|----|
| Consecutive number | Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Date | Month (of 2016) | 04 | 04 | 04 | 04 | 04 | 04 | 07 | 07 | 07 | 07 | 07 | 07 |
| Cover of Tree Layer (a, %) | | 90 | 90 | 95 | 85 | 85 | 80 | 90 | 90 | 95 | 85 | 85 | 80 |
| Cover of Tree Upper Layer (a1, %) | | 60 | 80 | 70 | 85 | 60 | 75 | 60 | 80 | 70 | 85 | 60 | 75 |
| Cover of Tree Lower Layer (a2, %) | | 30 | 10 | 25 | 0 | 25 | 5 | 30 | 10 | 25 | 0 | 25 | 5 |
| Cover of Shrub Layer (b, %) | | 25 | 1 | 1 | 1 | 1 | 1 | 25 | 1 | 1 | 1 | 1 | 1 |
| Cover of Herb Layer (c, %) | | 90 | 95 | 80 | 90 | 85 | 90 | 70 | 65 | 60 | 90 | 80 | 65 |
| Cover of Moss Layer (d, %) | | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Species Number | | 27 | 25 | 26 | 23 | 25 | 22 | 23 | 23 | 14 | 31 | 26 | 24 |
| Ch. All. <i>Alnion incanae</i> | | | | | | | | | | | | | |
| (locally Ch. Ass. <i>Quercus-Ulmetum</i>) | | | | | | | | | | | | | |
| <i>Elymus caninus</i> (L.) L. | | . | . | . | . | . | . | . | + | + | . | . | . |
| <i>Festuca gigantea</i> (L.) Vill. | | . | . | . | . | . | . | . | . | . | r | . | + |
| <i>Ficaria verna</i> Huds. | | b | 2b | 3 | 4 | 4 | 4 | . | . | . | . | . | . |
| <i>Gagea lutea</i> Ker. Gawl. | | 1 | 2m | 1 | . | . | . | . | . | . | . | . | . |
| <i>Prunus padus</i> L. | | . | . | . | . | . | . | . | . | . | r | . | r |
| <i>Quercus robur</i> L. | a1 | 3 | 1 | 2a | 2b | 1 | 3 | 3 | 1 | 2a | 2b | 1 | 3 |
| <i>Quercus robur</i> | | . | . | . | . | . | . | r | . | . | . | r | r |
| <i>Ribes spicatum</i> E. Robson | | . | + | . | + | . | . | . | . | . | . | . | . |
| <i>Sambucus nigra</i> L. | | . | . | . | . | . | . | . | . | . | . | . | r |
| <i>Stachys sylvatica</i> L. | | + | . | . | . | . | . | 1 | . | . | 1 | + | . |
| <i>Ulmus laevis</i> Pall. | a1 | . | . | . | 2m | 2b | 3 | . | . | . | 2m | 2b | 3 |
| <i>Ulmus laevis</i> | a2 | . | . | . | . | 1 | . | . | . | . | . | 1 | . |
| <i>Ulmus minor</i> L. | a1 | . | . | . | 3 | 3 | 2a | . | . | . | 3 | 3 | 2a |
| <i>Ulmus minor</i> | a2 | . | 2m | 2a | . | . | 1 | . | 2m | 2a | . | . | 1 |
| <i>Ulmus minor</i> | b | 1 | + | . | . | . | . | 1 | + | . | . | . | . |
| <i>Ulmus minor</i> | | + | + | . | . | . | . | + | + | 1 | . | + | . |
| <i>Viola odorata</i> L. | | 1 | + | 2m | . | . | . | 2m | 2a | 2m | . | . | . |
| Ch. O. <i>Fagetalia sylvaticae</i> | | | | | | | | | | | | | |
| <i>Acer platanoides</i> L. | a1 | . | 5 | 3 | . | . | . | . | 5 | 3 | . | . | . |
| <i>Acer platanoides</i> | | 1 | . | . | . | . | . | 1 | 1 | 1 | + | . | . |
| <i>Acer pseudoplatanus</i> L. | b | 2m | . | + | . | . | . | 2m | . | + | . | . | . |
| <i>Acer pseudoplatanus</i> | | 2a | 1 | . | . | . | . | 2m | 1 | 1 | . | . | . |
| <i>Brachypodium sylvaticum</i> P. Beauv. | | . | + | . | . | . | . | . | + | . | + | . | . |
| <i>Dactylis aschersoniana</i> Graebn. | | . | . | + | . | . | . | . | + | r | . | . | . |
| <i>Euonymus europaeus</i> L. | | . | r | . | . | . | . | . | + | + | . | . | + |
| <i>Hedera helix</i> L. | | r | . | . | . | . | . | . | . | . | . | . | . |
| <i>Tilia cordata</i> Mill. | a2 | 3 | . | . | . | . | . | 3 | . | . | . | . | . |
| <i>Tilia cordata</i> | | 1 | . | . | . | . | . | . | . | . | . | . | . |
| <i>Tilia platyphyllos</i> Scop. | a1 | 3 | . | a | . | . | . | 3 | . | a | . | . | . |

| | | Degraded | | | Non-Degraded | | | Degraded | | | Non-Degraded | | |
|---|----|----------|----|----|--------------|----|----|----------|---|----|--------------|----|----|
| <i>Tilia platyphyllos</i> | b | 1 | . | . | . | . | . | 1 | . | . | . | . | . |
| <i>Tilia platyphyllos</i> | | . | + | + | . | . | . | . | . | . | . | . | . |
| Ch. Cl. Quercu-Fagetea | | | | | | | | | | | | | |
| <i>Adoxa moschatelina</i> L. | | 1 | . | m | . | . | . | . | . | . | . | . | . |
| <i>Corydalis cava</i> Schweigg. & Kort. | | 4 | 2b | 2b | . | . | . | . | . | . | . | . | . |
| <i>Fraxinus excelsior</i> L. | a1 | . | . | 1 | 2a | 2m | . | . | . | 1 | 2a | 2m | . |
| <i>Fraxinus excelsior</i> | a2 | . | . | . | . | 2b | . | . | . | . | . | 2b | . |
| <i>Fraxinus excelsior</i> | b | + | . | . | . | . | . | + | . | . | . | . | . |
| <i>Fraxinus excelsior</i> | | . | . | . | . | . | . | + | 1 | + | . | . | . |
| <i>Mercurialis perennis</i> L. | | . | . | . | . | . | r | . | . | . | . | . | . |
| <i>Pulmonaria obscura</i> Dumort. | | + | . | . | . | . | . | . | . | . | . | . | . |
| Ch. Cl. Artemisietea vulgaris | | | | | | | | | | | | | |
| <i>Alliaria petiolata</i> L. | | 1 | + | + | 1 | 1 | 2b | 2m | 1 | 2m | + | + | 1 |
| <i>Anthriscus sylvestris</i> (L.) Hoffm. | | . | + | 1 | . | . | . | . | + | + | . | . | . |
| <i>Carduus crispus</i> Guirao ex Nyman | | . | . | . | . | r | . | . | . | . | r | + | r |
| <i>Chaerophyllum temulentum</i> L. | | + | + | + | 1 | 1 | 1 | + | 1 | 1 | 1 | + | 1 |
| <i>Chelidonium majus</i> L. | | . | . | . | + | r | . | . | + | + | + | . | . |
| <i>Elymus repens</i> (L.) Gould | | . | . | . | + | . | . | . | + | . | . | + | . |
| <i>Galeopsis tetrahit</i> L. | | . | . | . | . | . | . | . | . | . | + | + | + |
| <i>Galium aparine</i> L. | | + | 1 | + | 2a | 2m | . | . | . | . | + | + | + |
| <i>Geranium robertianum</i> L. | | + | + | . | + | 1 | + | 1 | 1 | 1 | + | . | . |
| <i>Geum urbanum</i> L. | | 1 | + | 1 | 1 | + | + | + | . | + | + | 1 | 1 |
| <i>Glechoma hederacea</i> L. | | . | . | . | 2a | 2b | 2a | . | . | . | 3 | 2a | 2b |
| <i>Impatiens parviflora</i> DC. | | 2m | 2a | 1 | 1 | 1 | 1 | 3 | 3 | 3 | + | + | + |
| <i>Lamium purpureum</i> L. | | . | . | . | . | . | . | + | . | . | . | . | . |
| <i>Lapsana communis</i> L. | | . | . | . | . | + | . | + | . | . | + | . | . |
| <i>Moehringia trinervia</i> (L.) Clairv. | | . | . | . | . | . | . | + | + | + | + | 1 | + |
| <i>Robinia pseudoacacia</i> L. | a1 | . | 1 | 2a | . | . | . | . | 1 | 2a | . | . | . |
| <i>Robinia pseudoacacia</i> | a2 | . | . | 1 | . | . | . | . | . | 1 | . | . | . |
| <i>Rubus caesius</i> L. | | . | . | . | 2b | 2m | 1 | . | . | . | 2b | 3 | 1 |
| <i>Stachys palustris</i> L. | | . | . | . | . | r | . | . | . | . | . | + | . |
| <i>Urtica dioica</i> L. | | . | . | . | 2m | 1 | 1 | . | . | + | 2m | 1 | 1 |
| Ch. Cl. Molinio-Arrhenatheretea | | | | | | | | | | | | | |
| <i>Carum carvi</i> L. | | . | . | . | . | . | . | . | . | . | r | . | . |
| <i>Cirsium oleraceum</i> Scop. | | . | . | . | r | . | . | . | . | . | . | . | . |
| <i>Deschampsia caespitosa</i> (L.) P.Beauv. | | . | . | . | 2m | 2m | r | . | . | . | 1 | 2b | . |
| <i>Lysimachia nummularia</i> L. | | . | . | . | . | . | r | . | . | . | . | + | . |
| <i>Myosotis scorpioides</i> L. | | . | . | . | r | . | . | . | . | . | . | . | . |
| <i>Poa palustris</i> L. | | . | . | . | . | + | . | . | . | . | . | . | + |
| <i>Veronica chamaedrys</i> L. | | . | . | . | . | . | + | . | . | . | . | . | . |
| Accompanying species | | | | | | | | | | | | | |
| <i>Rubus idaeus</i> L. | | . | . | . | + | + | + | . | . | . | 1 | + | + |
| <i>Acer negundo</i> L. | b | . | . | . | + | + | + | . | . | . | + | + | + |

| | | Degraded | | Non-Degraded | | Degraded | | Non-Degraded | | | | |
|--|----|----------|----|--------------|---|----------|---|--------------|---|---|---|---|
| | | | | | | | | | | | | |
| <i>Veronica hederifolia</i> L. | a2 | 2m | 2 | 2m | . | . | 1 | . | . | . | . | . |
| <i>Crataegus rhipidophylla</i> Gand. | . | 2m | 1 | . | . | . | . | 2m | 1 | . | . | . |
| <i>Corydalis solida</i> (L.) Clairv. | 2b | 2a | 2a | . | . | . | . | . | . | . | . | . |
| <i>Eranthis hyemalis</i> Salisb. | + | 3 | 1 | . | . | . | . | . | . | . | . | . |
| <i>Bromus benekenii</i> (Lange) Trimen | . | . | . | . | . | . | 1 | 1 | + | . | . | . |
| <i>Carex riparia</i> Curt. | . | . | . | . | 1 | r | . | . | . | . | + | . |
| <i>Syringa vulgaris</i> L. | . | . | 1 | . | . | . | + | + | . | . | . | . |
| <i>Acer negundo</i> L. | . | . | . | . | . | . | . | . | . | + | + | + |
| <i>Maianthemum bifolium</i> (L.) F.W. Schmidt | + | + | r | . | . | . | . | . | . | . | . | . |
| <i>Iris pseudacorus</i> L. | . | . | . | . | r | . | . | . | . | r | + | . |
| <i>Eurynchium hians</i> Sande Lacoste | d | . | . | . | . | + | . | . | . | . | + | . |
| <i>Prunus insititia</i> L. | b | + | . | . | . | . | + | . | . | . | . | . |
| <i>Ribes nigrum</i> L. | b | . | . | . | . | . | + | . | . | . | . | + |
| <i>Syringa vulgaris</i> | b | . | . | + | . | . | . | . | + | . | . | . |

Rare species (occurring only in one plot, cover in parentheses, plot number before species name): 1 – *Holcus mollis* L. (+), 4 – *Stellaria media* (L.) Vill. (+), 6 – *Phragmites australis* Trin ex. Steud. (r), 8 – *Ribes uva-crispa* L. (+), 10 – *Fallopia convolvulus* (L.) Á.Löve (+), 10 – *Bidens frondosa* L. (r), 12 – *Phalaris arundinacea* L. (+)

Ch. Cl.–species characteristic to the particular class, Ch. O–to the order, Ch. All–to the alliance and Ch. Ass.–to the plant association, according to Ratyńska et al. [1] classification.

Reference

1. Ratyńska, H.; Wojterska, M.; Brzeg, A.; Kołacz, M. *Multimedialna Encyklopedia Zbiorowisk Roślinnych Polski. Warsaw: NFOSiGW. 2010, 400, 1–2.*

Table S2. Seasonal variation in DIFN among 22 dates and between plots. Differences among terms within each plot were assessed using one-way ANOVA (dates marked with the same letters did not differ statistically significantly at $p = 0.05$). Differences between study plots within the same date were assessed using t -test.

| Date | Degraded | | Non-Degraded | | t | $p (< t)$ |
|------------|--------------------|-------------------------|--------------------|-------------------------|--------|------------|
| | Mean \pm SE DIFN | Differences among Dates | Mean \pm SE DIFN | Differences Among Dates | | |
| 2016-04-01 | 0.446 \pm 0.003 | ab | 0.483 \pm 0.005 | a | -2.735 | 0.026 |
| 2016-04-15 | 0.415 \pm 0.003 | b | 0.427 \pm 0.002 | b | -1.298 | 0.234 |
| 2016-04-29 | 0.341 \pm 0.003 | c | 0.402 \pm 0.002 | b | -7.267 | <0.001 |
| 2016-05-13 | 0.086 \pm 0.003 | e | 0.143 \pm 0.003 | d | -5.312 | <0.001 |
| 2016-05-30 | 0.043 \pm 0.001 | f | 0.045 \pm 0.002 | ef | -0.247 | 0.811 |
| 2016-07-09 | 0.051 \pm 0.001 | ef | 0.060 \pm 0.003 | e | -1.173 | 0.278 |
| 2016-08-06 | 0.048 \pm 0.002 | f | 0.018 \pm 0.001 | f | 5.065 | 0.003 |
| 2016-09-30 | 0.037 \pm 0.001 | f | 0.029 \pm 0.001 | ef | 2.753 | 0.022 |
| 2016-10-27 | 0.140 \pm 0.005 | d | 0.160 \pm 0.005 | d | -1.186 | 0.263 |
| 2016-11-26 | 0.454 \pm 0.006 | a | 0.302 \pm 0.004 | c | 9.025 | <0.001 |
| ANOVA | F = 545.7 | $p < 0.001$ | F = 600.4 | $p < 0.001$ | | |

Table S3. Seasonal variation in understory biomass (Mean \pm SE biomass (kg/ha)) among 22 dates and between plots. Differences between study plots within the same date were assessed using t-test. Response variable was log transformed prior to analyses.

| Date | Degraded | Non-Degraded | <i>t</i> | <i>p</i> (< <i>t</i>) |
|-------------|--------------------|---------------------|-----------------|----------------------------------|
| 2016-03-19 | 166.56 \pm 16.16 | 80.92 \pm 3.12 | -0.873 | 0.401 |
| 2016-03-24 | 329.84 \pm 39.32 | 116.12 \pm 8.76 | -2.250 | 0.038 |
| 2016-04-01 | 372.56 \pm 45.36 | 214.72 \pm 21.96 | -1.512 | 0.148 |
| 2016-04-08 | 626.08 \pm 38.4 | 213.88 \pm 11.92 | -3.277 | 0.004 |
| 2016-04-15 | 603.52 \pm 40.24 | 341.24 \pm 17.84 | -2.324 | 0.032 |
| 2016-04-24 | 930.12 \pm 48.68 | 420.4 \pm 22.04 | -2.771 | 0.013 |
| 2016-04-29 | 741.12 \pm 28.52 | 518.36 \pm 21.48 | -1.664 | 0.120 |
| 2016-05-13 | 902.16 \pm 42.32 | 626.2 \pm 31.84 | -1.094 | 0.291 |
| 2016-05-30 | 510.92 \pm 16.44 | 769 \pm 40.64 | 1.536 | 0.147 |
| 2016-06-10 | 536.92 \pm 21.6 | 737.32 \pm 30 | 1.244 | 0.231 |
| 2016-06-24 | 473.2 \pm 16.2 | 670.84 \pm 49.44 | 0.789 | 0.444 |
| 2016-07-09 | 546.12 \pm 31.36 | 543.08 \pm 33.16 | -0.125 | 0.902 |
| 2016-07-22 | 570.12 \pm 29.6 | 550.24 \pm 35.8 | -0.277 | 0.785 |
| 2016-08-06 | 468.04 \pm 16.4 | 453.68 \pm 16.84 | -0.230 | 0.821 |
| 2016-08-20 | 366.92 \pm 32.2 | 384.4 \pm 24.64 | 0.230 | 0.821 |
| 2016-09-03 | 409.28 \pm 27.56 | 406.92 \pm 29 | -0.595 | 0.561 |
| 2016-09-16 | 267.96 \pm 16.64 | 384.16 \pm 22.96 | 0.968 | 0.346 |
| 2016-09-30 | 352.12 \pm 22.72 | 450.72 \pm 41.64 | 0.529 | 0.603 |
| 2016-10-14 | 220.08 \pm 14.24 | 422.4 \pm 53.16 | 0.675 | 0.511 |
| 2016-10-27 | 197 \pm 11.6 | 218.68 \pm 12.08 | 0.402 | 0.692 |
| 2016-11-11 | 118.68 \pm 9.16 | 95.56 \pm 6.32 | -0.090 | 0.929 |
| 2016-11-26 | 74.84 \pm 4.84 | 147.84 \pm 14.44 | 0.960 | 0.351 |