

Study literature in English and Czech

Course “Community ecology and macroecology”

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1. Introduction: definition and delimitation of the community, community ecology vs macroecology, aims and history of community ecology and macroecology;
Begon et al. 2006, Chapter 16 The Nature of the Community: Patterns in Space and Time
Krebs 2001, Chapter 20 The Nature of the Community
Mittelbach & McGill 2019, Chapter 1 Community ecology's roots
In Czech: Begon et al. 1997, kapitola 17 Podstata společenstva
2. Community structure: Clementsian vs Gleasonian community concept, niche and competitive exclusion, assembly rules, phylogenetic community structure;
Begon et al. 2006, Chapter 16 The Nature of the Community: Patterns in Space and Time
Krebs 2001, Chapter 20 The Nature of the Community
Krebs 2014, Chapter 19 Community Structure in Time: Succession
Mittelbach & McGill 2019, Chapter 1 Community ecology's roots
Mittelbach & McGill 2019, Chapter 12 Community assembly and species traits
Götzenberger et al. 2012 Biological Reviews
In Czech: Begon et al. 1997, kapitola 17 Podstata společenstva a 20 Vliv konkurence na strukturu společenstva
3. Measuring diversity: species richness, indices of diversity, equitability and beta diversity, phylogenetic diversity;
Begon et al. 2006, Chapter 16 The Nature of the Community: Patterns in Space and Time
Magurran 2005, Chapters 2, 3, 4 and 6
Krebs 2014, Appendix: Species Diversity Measures of Heterogeneity
Mittelbach & McGill 2019, Chapter 2 Patterns of biological diversity
Pavoine & Bonsall 2011 Biological Reviews
In Czech: Begon et al. 1997, kapitola 17 Podstata společenstva
4. Local species richness: relationship between species richness, productivity and disturbance, regional effects on local species richness, species pool, biodiversity and ecosystem functioning;
Begon et al. 2006, Chapter 21 Patterns in Species Richness
Krebs 2001, Chapter 22 Community Organization I: Biodiversity
Krebs 2014, Chapter 18 Community Structure in Space: Biodiversity
Mittelbach & McGill 2019, Chapter 2 Patterns of biological diversity
Mittelbach & McGill 2019, Chapter 3 Biodiversity and ecosystem functioning
In Czech: Begon et al. 1997, kapitola 20 Vliv konkurence, 21 Vliv predace a narušení a 24 Obecné rysy bohatství druhů
5. Global species richness: estimations of the number of species on the Earth, stability vs. increase, mass extinctions and adaptive radiations;
Begon et al. 2006, Chapter 21 Patterns in Species Richness
Magurran 2005, Chapter 3 How many species?

Krebs 2014, Chapter 18 Community Structure in Space: Biodiversity
Mittelbach & McGill 2019, Chapter 2 Patterns of biological diversity
In Czech: Begon et al. 1997, kapitola 24 Obecné rysy bohatství druhů

6. Current global change of biodiversity: extent and causes;
IPBES 2019, Summary for Policy Makers + IPBES Global Assessment Chapter 2
Krebs 2014, Chapter 26 Ecosystem Health and Human Impacts

7. Biodiversity of islands: theory of island biogeography and its generalizations;
Begon et al. 2006, Chapter 21 Patterns in Species Richness
Krebs 2001, Chapter 24 Community Organization III: Disturbance and Nonequilibrium
Communities
Krebs 2014, Chapter 21 Community Dynamics II: Disturbance and Nonequilibrium
Communities
In Czech: Begon et al. 1997, kapitola 22 Ostrovy, plochy a kolonizace

8. Relationship between number of species and area;
Begon et al. 2006, Chapter 21 Patterns in Species Richness
Krebs 2001, Chapter 24 Community Organization III: Disturbance and Nonequilibrium
Communities
Krebs 2014, Chapter 21 Community Dynamics II: Disturbance and Nonequilibrium
Communities
Mittelbach & McGill 2019, Chapter 2 Patterns of biological diversity
In Czech: Begon et al. 1997, kapitola 22 Ostrovy, plochy a kolonizace

9. Latitudinal and altitudinal biodiversity gradient: hypotheses explaining large tropical
biodiversity, altitudinal gradient and mid-domain effect, gradients of habitat heterogeneity;
Begon et al. 2006, Chapter 21 Patterns in Species Richness
Krebs 2001, Chapter 22 Community Organization I: Biodiversity
Krebs 2014, Chapter 18 Community Structure in Space: Biodiversity
Mittelbach & McGill 2019, Chapter 2 Patterns of biological diversity
In Czech: Begon et al. 1997, kapitola 24 Obecné rysy bohatství druhů

10. Relative abundance distributions: statistical and biological models, species rarity;
Begon et al. 2006, Chapter 16 The Nature of the Community: Patterns in Space and Time
Krebs 2001, Chapter 22 Community Organization I: Biodiversity
Krebs 2014, Chapter 18 Community Structure in Space: Biodiversity
Mittelbach & McGill 2019, Chapter 2 Patterns of biological diversity
In Czech: Begon et al. 1997, kapitola 17 Podstata společenstva

11. Metacommunities: alternative metacommunity models: species sorting, patch dynamics,
spatial mass effect, neutral model, Hubbell's neutral theory;
Mittelbach & McGill 2019, Chapter 14 Metacommunities
http://www.scholarpedia.org/article/Unified_neutral_theory_of_biodiversity_and_biogeography
(do not study the formulas)

12. Metabolic theory of ecology: relationship between energy and speed of biological
processes including evolution and succession;
Brown 2004 Ecology
In Czech: Storch 2004 Vesmír

13. Biological invasions in communities: basic terms of invasion ecology, differences in invasibility of large areas or habitats, theory of invasibility, species richness vs. invasibility.

Mack et al. 2000 Ecological Applications

Richardson et al. 2000 Diversity and Distributions

Rejmánek et al. 2013 Vegetation Ecology

Textbooks

Begon, M., Townsend, C.R., Harper, J.L. 2006. Ecology: From individuals to ecosystems. 4th ed. Oxford: Blackwell.

Krebs, C.J. 2001. Ecology: The experimental analysis of distribution and abundance. 5th ed. San Francisco: Benjamin Cummings.

Hardcopies available from the libraries of the Faculty of Science:

- https://aleph.muni.cz/F/TPD8UL61VE7DCCCCL58BH472TF4QQ3UEAHM8FTA5LV7VXJHQY2-15768?func=item-global&doc_library=MUB01&doc_number=000349656&year=&volume=&sub_library=PRIF
- https://aleph.muni.cz/F/TPD8UL61VE7DCCCCL58BH472TF4QQ3UEAHM8FTA5LV7VXJHQY2-17458?func=item-global&doc_library=MUB01&doc_number=000349656&year=&volume=&sub_library=KUK

Krebs, C.J. 2014. Ecology: The experimental analysis of distribution and abundance. 6th ed. Harlow: Pearson.

Mittelbach, G.G. 2019. Community ecology. 2nd ed. Oxford: Oxford University Press.

Begon, M., Harper, J. & Townsend, C. 1997. Ekologie: jedinci, populace a společenstva. Olomouc: Vydavatelství Univerzity Palackého.

Papírová verze v knihovnách PřF MU:

- https://aleph.muni.cz/F/XAEUMEYILIU47EAL2CJLHAHKC4N4SPBVTPBCPC3ISC1C88DVTN-25983?func=full-set-set&set_number=002165&set_entry=000005&format=999

Further literature is available as PDFs in Study Materials of the course Community Ecology and Macroecology in the Information System of Masaryk University.