

Population ecology of animals

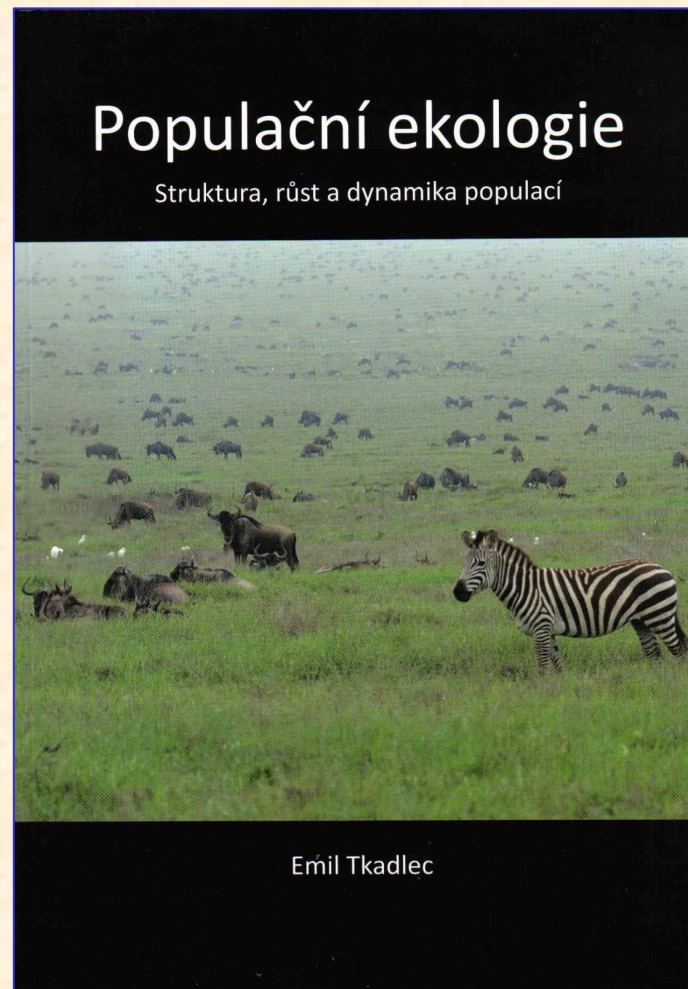
“Populační ekologie živočichů“

Stano Pekár

Content

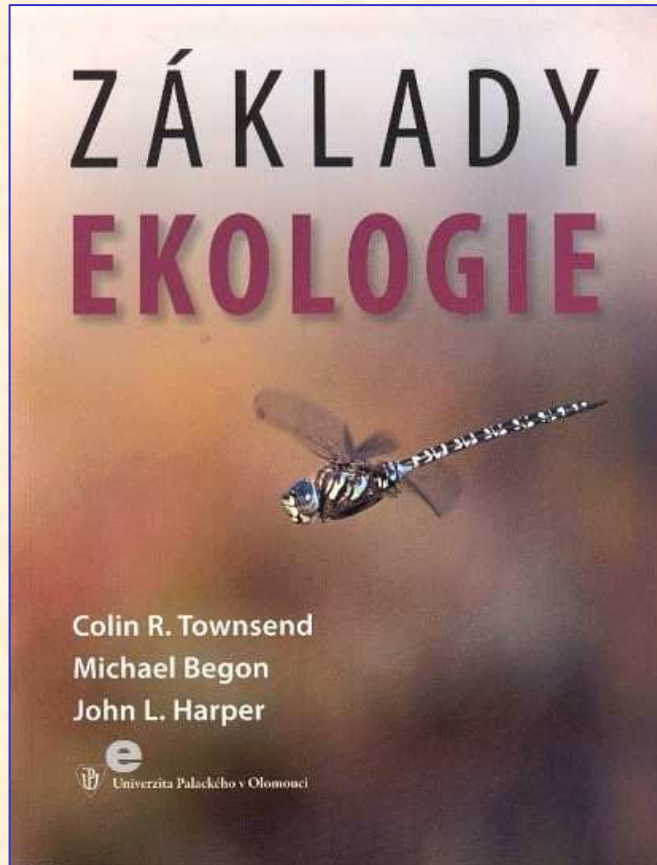
- Population ecology (Resources, Conditions, Models)
- Population growth (Population censuses)
- Population structure (Stage/Age life-tables, k-factor analysis)
- Temperature models (Degree-days)
- Intraspecific competition (Harvesting, Allee effect)
- Spatial ecology (Distribution, Dispersal, Metapopulations)
- Interspecific competition (Mutualism)
- Predation (Functional and numerical responses)
- Predation models (Host-pathogen/parasite, Prey-predator, Host-parasitoid, Plant-herbivore)

Literature

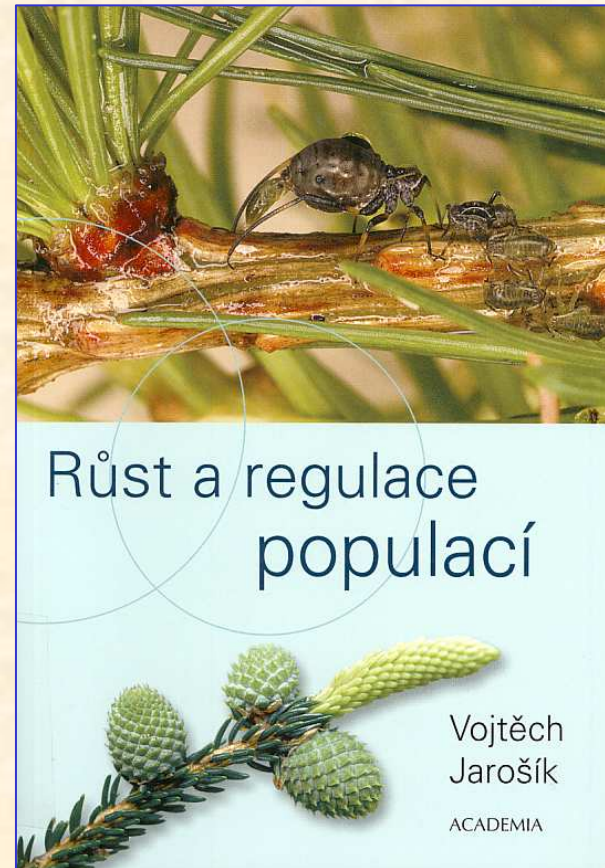


Tkadlec E. 2009. **Populační ekologie. Struktura, růst a dynamika populací.** Univerzita Palackého.

Literature



Townsend R.T., Begon M., Harper J.L. 2010. **Základy ekologie.** Univerzita Palackého.



Jarošík V. 2005. **Růst a regulace populací.** Academia.

Literature

Akcakaya H.R., Burgman M.A. & Ginzburg L.R. 1999. **Applied Population Ecology. Principles and Computer Exercises using RAMAS EcoLab.** Sinauer.

Alstad D. 2001. **Basic POPULUS Models of Ecology.** Prentice Hall.

Begon M., Mortimer M. & Thompson D.J. 1996. **Population Ecology: A unified study of animals and plants.** Blackwell.

Bernstein R. 2003. **Population Ecology. An Introduction o Computer Simulations.** Wiley.

Gotelli N.J. 2001. **A Primer of Ecology.** Sinauer.

Hastings A. 1997. **Population Biology. Concepts and models.** Springer.

Neal D. 2006. **Introduction to Population Biology.** Cambridge University Press.

Ranta E., Lundberg P. & Kaitala V. 2006. **Ecology of Populations.** Cambridge.

Shultz S.M., Dunham A.E., Root K.V., Soucy S.L., Carroll S.D. & Ginzburg L.R. 1999. **Conservation Biology with RAMAS EcoLab.** Sinauer.

Stevens M.H.H. 2009. **A Primer of Ecology with R.** Springer.

Vandermeer J.H. & Goldberg D.E. 2003. **Population Ecology: First principles.** Princeton.

Presentations

No.	Topics	Date
1.	Adaptation, fitness and phenotypic plasticity	4.10.
2.	Abundance and cycles	4.10.
3.	Evolution of sex, sex determination	11.10.
4.	Sex ratio	11.10.
5.	r- and K- selection	18.10.
6.	Geographic variability (temperature, physiological time)	18.10.
7.	Intraspecific competition	18.10.
8.	Management of endangered species	1.11.
9.	Regulation of pests, sustainable harvest	1.11.
10.	Cooperation, Allee effect	8.11.
11.	Dispersal and movement	8.11.
12.	Dormancy, navigation, and migration	15.11.
13.	Interspecific competition, competitive exclusion principle, apparent competition	15.11.
14.	Niche and coexistence (storage effect, heteromyopy, resource partitioning)	29.11.
15.	Amensalism, comensalism, mutualism	29.11.
16.	Defence against predators (crypsis, mimicry)	6.12.
17.	True predators, parasitoids, and host manipulation	6.12.
18.	Herbivores, Parasites and pathogens	13.12.

Projects

1. Life-table analysis – laboratory, *Tenebrio* beetles
2. Numerical response – laboratory, cockroaches
3. Mark capture-recapture – field, woodlice
4. Spatial distribution – field, coccinellid beetles
5. Trophic niche – laboratory and field, spiders

Homework

1. Install R (<http://www.r-project.org/>)
2. Download packages: deSolve, rootSolve, Rramas
3. Print chapters 4-6 of **Populační ekologie živočichů v příkladech**
4. Study chapter 2