

# Population Ecology of Animals

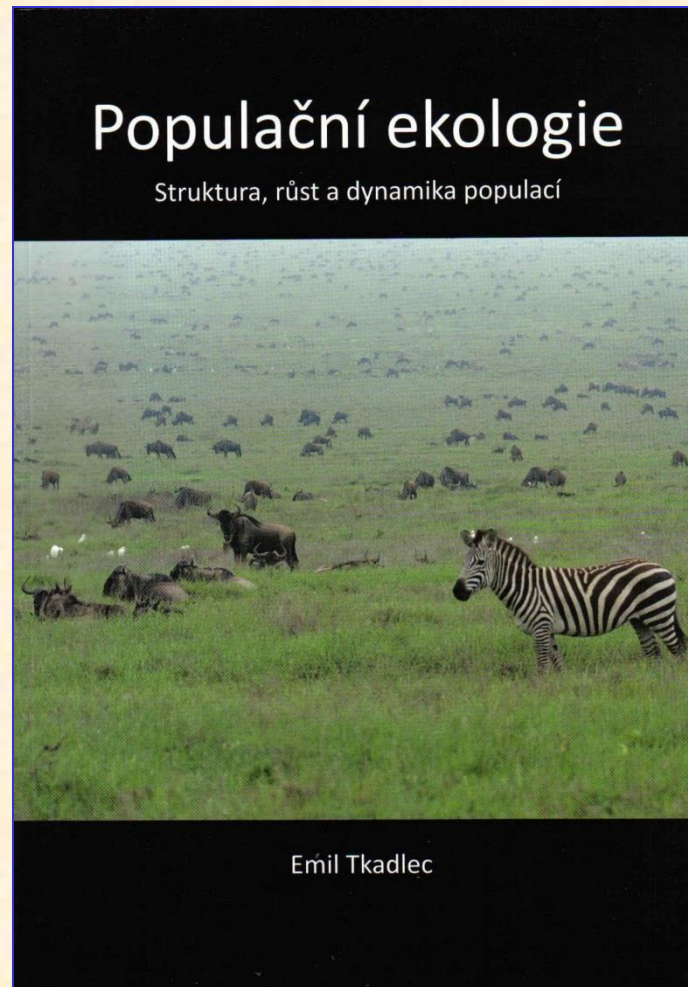
*“Populační ekologie živočichů”*

Stano Pekár

# Content

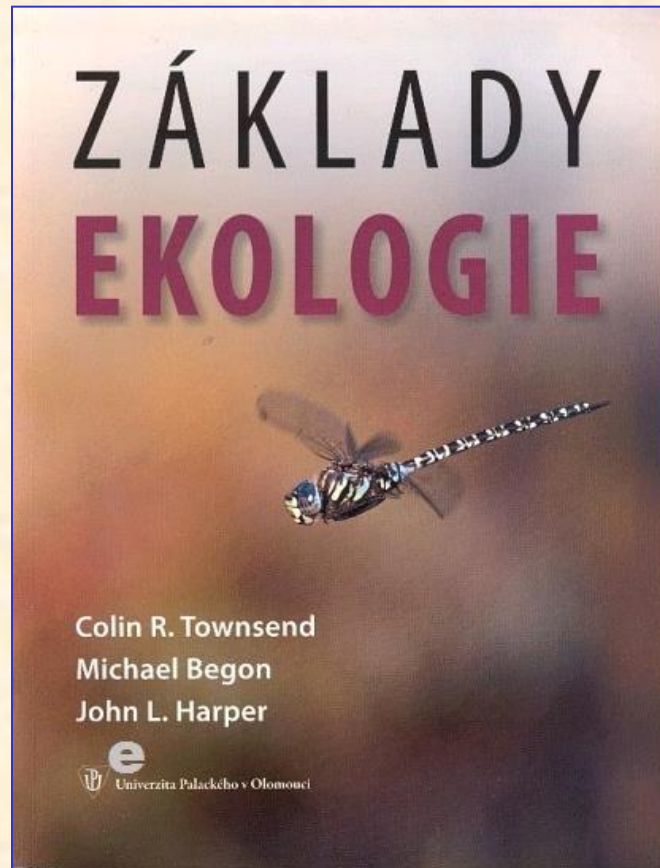
- Population ecology (Resources, Conditions, Models)
- Population growth (Population censuses)
- Population structure (Stage/Age life-tables, k-factor analysis)
- Temperature models (Degree-days)
- Intraspecific competition (Harvesting, Allee effect)
- Spatial ecology (Distribution, Dispersal, Metapopulations)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

# Literature

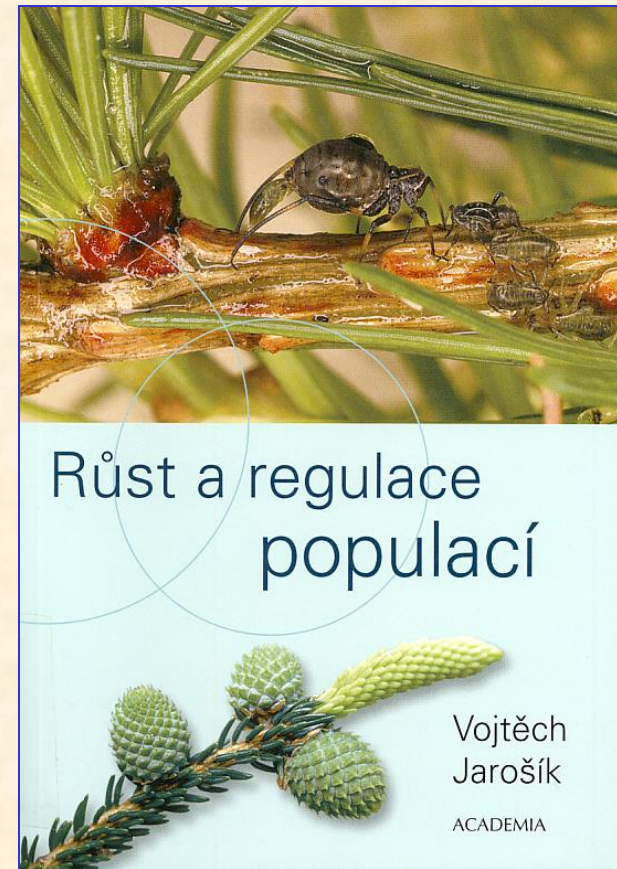


Tkadlec E. 2009. **Populační ekologie. Struktura, růst a dynamika populací.** Univerzita Palackého.

# 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

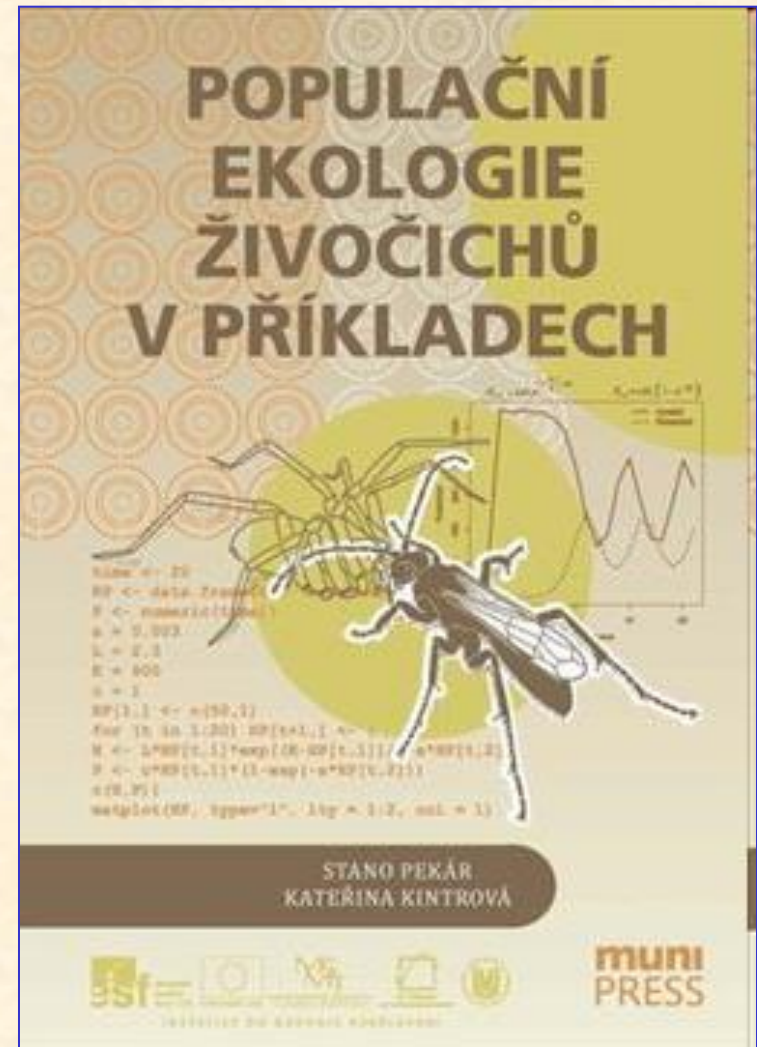
No.	Topics	Date
1.	Adaptation, fitness and phenotypic plasticity	27.9.
2.	Abundance and cycles	27.9.
3.	Evolution of sex, sex determination	4.10.
4.	Sex ratio	4.10.
5.	r- and K- selection	11.10.
6.	Geographic variability (temperature, physiological time)	11.10.
7.	Intraspecific competition	18.10.
8.	Management of endangered species, Regulation of pests	18.10.
9.	Sustainable harvesting	25.10.
10.	Cooperation, Allee effect	25.10.
11.	Dispersal and movement	8.11.
12.	Dormancy, navigation, and migration	8.11.
13.	Interspecific competition, competitive exclusion principle, apparent competition	15.11.
14.	Niche and coexistence (storage effect, heteromyopy, resource partitioning)	15.11.
15.	Amensalism, comensalism, mutualism	22.11.
16.	Defence against predators (crypsis, mimicry)	22.11.
17.	True predators, parasitoids, and host manipulation	29.11.
18.	Herbivores, Parasites and pathogens	6.12.

# Projects

1. Spatial distribution – field, coccinellid beetles
2. Trophic niche – field/laboratory, *Zodarion* & *Pardosa* spiders
3. Demography – laboratory, *Tenebrio molitor* beetles

# Homework

Study chapters 1 & 2 and the description of a selected project



Pekár S. & Kintrová K. 2013. **Populační ekologie živočichů v příkladech.** MU Brno.