



Arachnida

Úvod do terénní zoologie bezobratlých

Stano Pekár

Arachnofauna



Araneae



Pseudoscorpiones



Acari



Opiliones

Habitat

	Araneae	Opiliones	Acari	Pseudoscorpiones
soil	present	absent	present	absent
litter	present	present	present	present
epigeon	present	present	present	present
vegetation	present	present	present	absent
shrubs	present	present	present	absent
trees	present	absent	present	present
air	present	absent	present	present
water	present	absent	present	absent
cave	present	present	present	absent
building	present	present	present	present

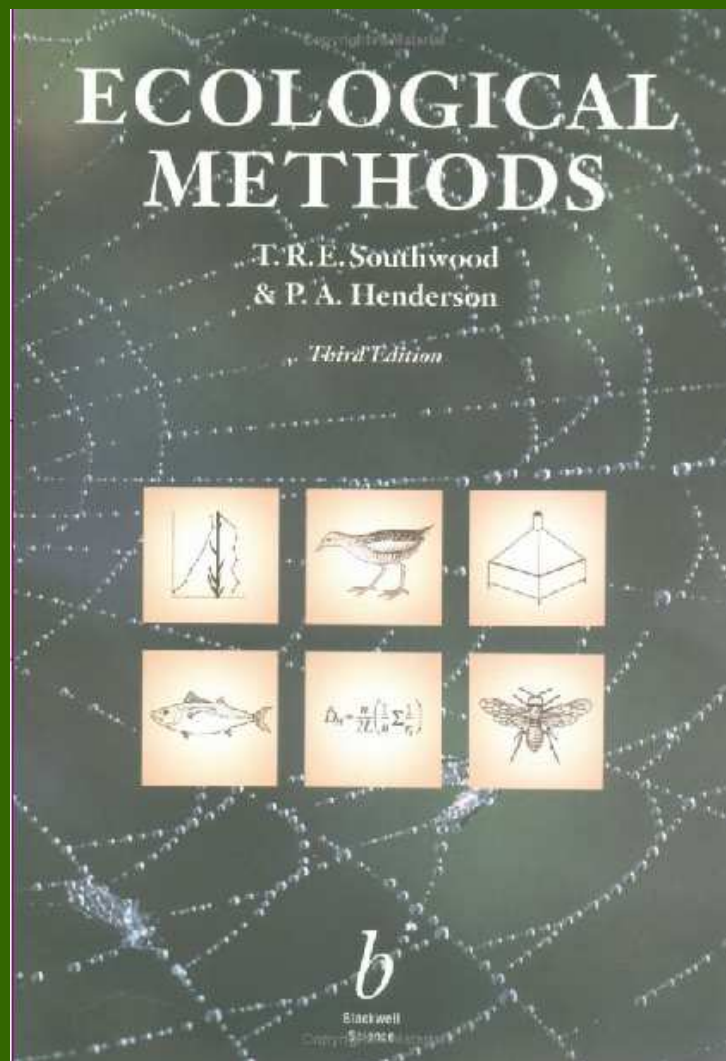


present

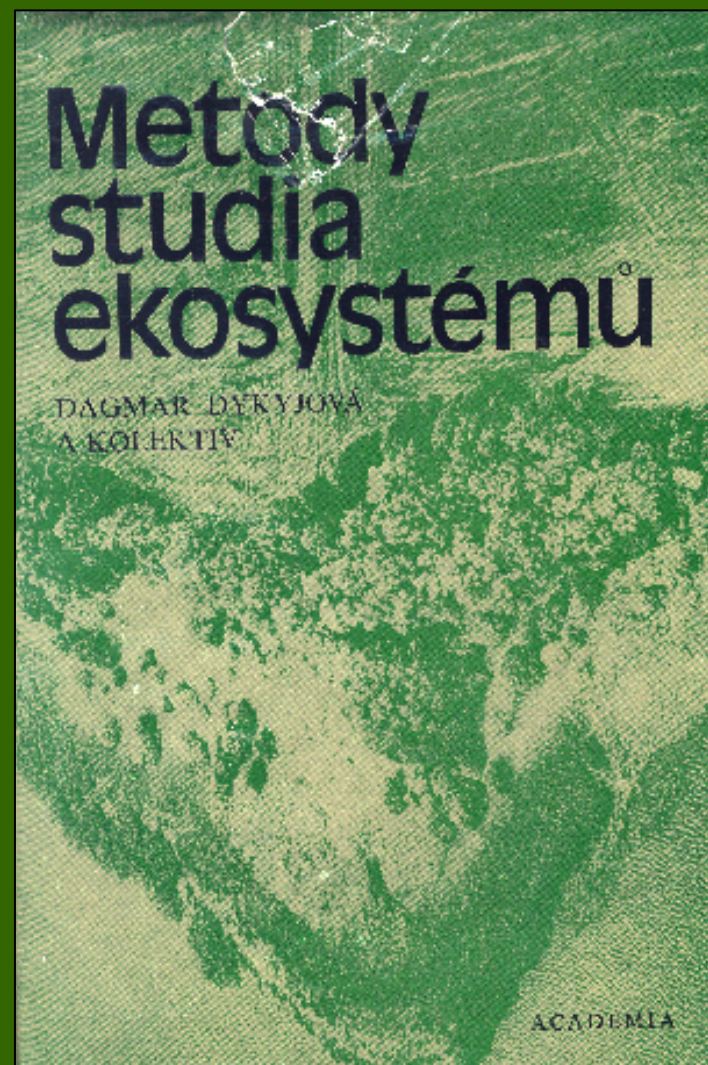


absent

Literature



Southwood R. & Henderson P.A.
(2000). Ecological Methods. Blackwell.



Dykyjová D. a kol. (1989). Metody
studia ekosystémů. Academia.

Field sampling

Population sampling

Study:

- extensive - large area will be sampled once → **faunistic survey**
- intensive - repeated observation of area → **ecological survey**

Timing of sampling:

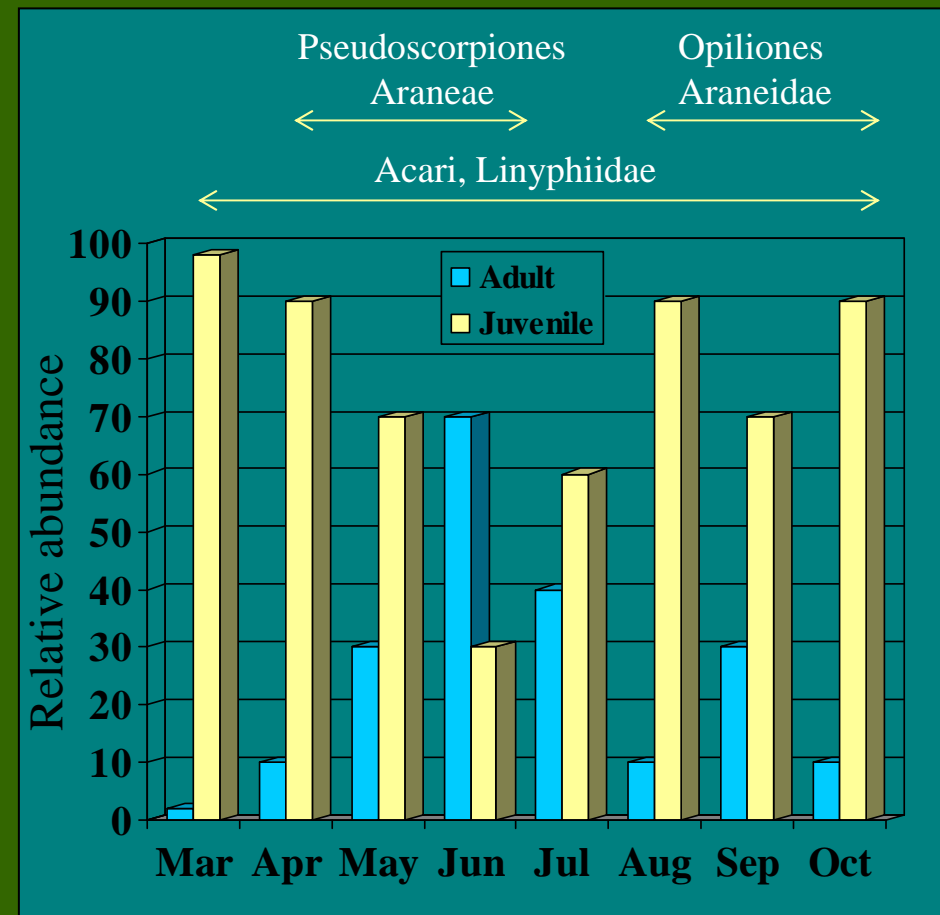
- depends on phenology

Size of sampled area:

- large for rare, small for abundant species

Population estimates:

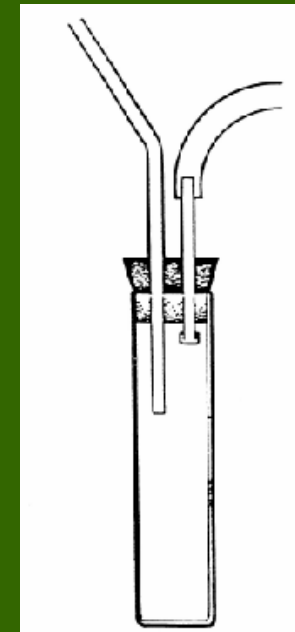
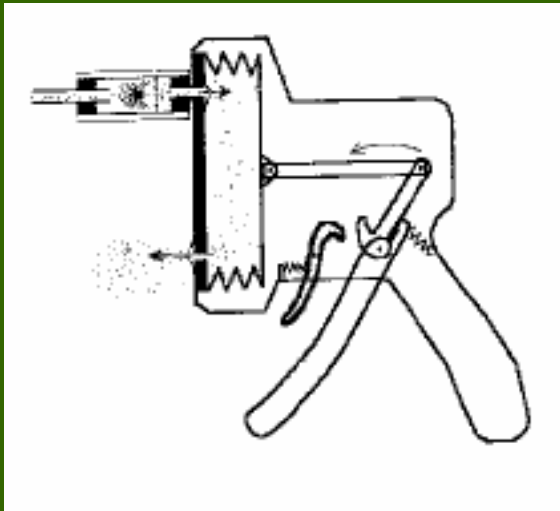
- absolute - density per unit area
- relative - catch per unit time



Relative methods

Hand sampling

- to sample arachnids under stones, from cracks, on bark, on rocks, in caves, on walls
- using pooter (aspirator), brush, pincer, tube or a suction gun



Catch per unit effort

- observation of a spider
- used for conspicuous (large) species, webs, retreats, eggsacs



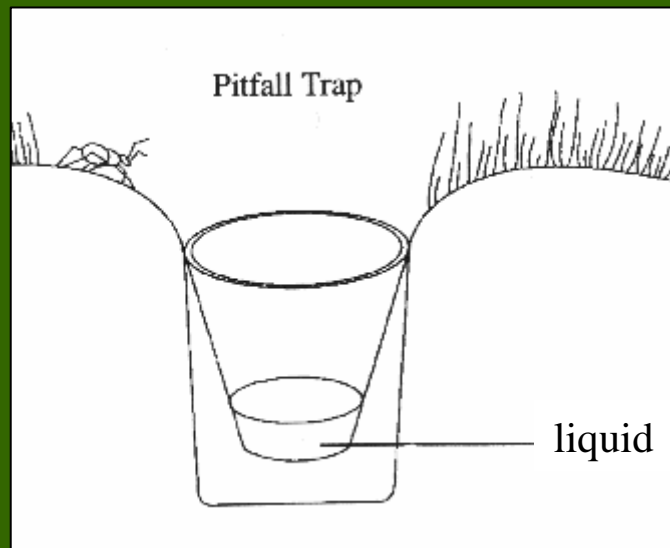
Aerial sampling

- to sample ballooning individuals (aeroplankton)
- using special sucking aerial traps: Johnson-Taylor, rotary trap
- segregate capture in time



Pitfall sampling

- to sample arachnids mobile upon epigeon
- using pitfall traps consisting of a jar with a cover
- filled with salt water, 4% formaldehyde, ethyleneglycol + detergent



- traps collect continuously
- cheap, low effort
- activity depends on sex, circadian activity, weather, reproduction, dispersal
- arranged in a grid or in a row
- with exclusion barriers
- diameter of the trap selects captured individuals
- efficiency 0-40 %
- with timing device



Shelter sampling

- to sample individuals on tree trunks during overwintering
- using corrugated paper bands



Absolute methods

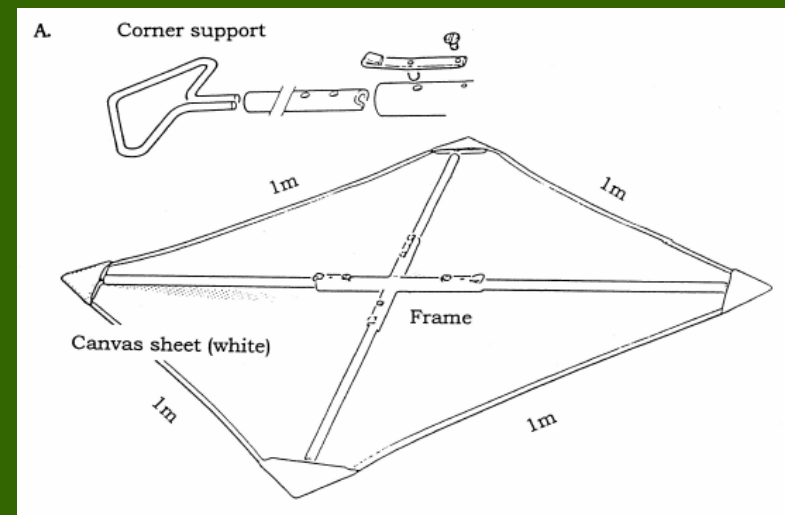
Sweeping

- to sample arachnids on low vegetation
- using round sweeping net



Beating

- to sample arachnids on tree crowns and bushes
- using beating tray and rubber/wooden stick or shaking by hand
- colour of the cloth should be light
- in the bottom with a container
- not used after rain, during fruit maturation or leaf falling



Chemical knock-down

- to sample arachnids on tall tree crowns and bushes
- using sprayer (mist-blower) with a pyrethrin insecticide
- sheet of cloth spread below tree



Suction sampling

- to sample arachnids in epigeon, on plants and on branches
- using D-VAC garden blower with a net
- efficiency 50-70%, ineffective for mobile species
- not used on wet soil, tall (> 15 cm) and dense (grassland) vegetation



Photoelectectors

- to sample arachnids from low vegetation
- muslim-covered tent



Dry sieving

- to sample arachnids in litter
- using a sieve and a cloth or tray



Berlese-Tullgren funnel

- to sample arachnids from soil, litter, moss
- using funnel extraction



Specimen transport

Dead specimens

- put in ependorf tubes, plastic tubes, filled with ethanol
- live are put in plastic tubes with piece of grass, leaf, moistened cloth with rubber or foam stop

Labelling

- labelled using permanent ink-pen
- use pencil on labels of tubes with ethanol

Transport

- in the plane, bus, car, train
- put in plastic bag to keep humidity and at cold place

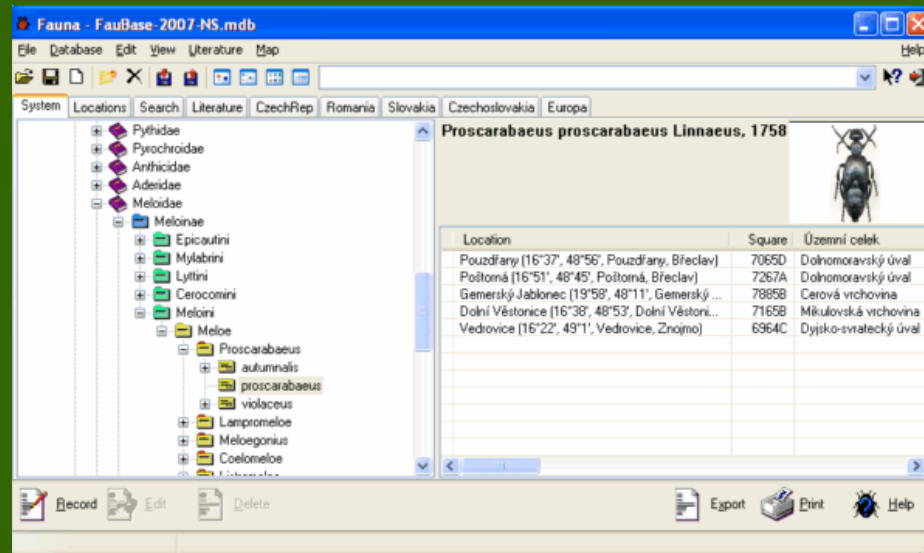
Storage

Labels

- locality, GPS coordinates, habitat, date, hour (?), collector (leg.), identified (det.)
- print on cardboard paper using inkjet printer, write with a pencil or black-ink

Database

- Excel, Access, faunistic software (P&M software) Fauna 2011



Storage

- individually or together into glass tubes
- tubes are put in a jar with a lid with rubber and filled with denaturated or pure 70-90% ethanol



Laboratory rearing

Laboratory rearing

- singly in tubes with a layer of Paris of plaster
- labelled on outside with permanent ink-pen
- moistened regularly (3-5 days) with drops of water
- foam rubber stop or pierced plastic plug
- fed with prey in regular intervals

- kept clean (without prey remnants) to avoid attack by fungi and parasitic mites



Chambers

Physical conditions

- Humidity - difficult to control
- Temperature - constant between -10 and 40 °C
- Light regime - light:darkness long day 16:8, short day 10:14

