Arachnida

Úvod do terénní zoologie bezobratlých

Stano Pekár

Arachnofauna

Araneae

Pseudoscorpiones

Acari

Opiliones

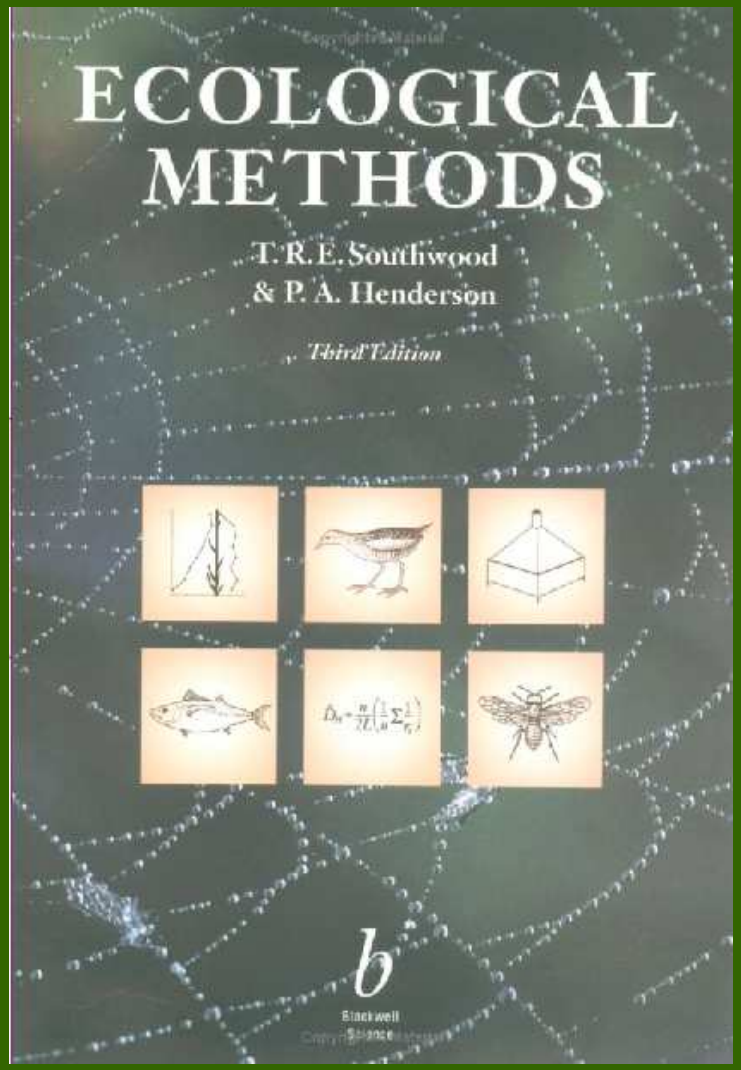
Habitat

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

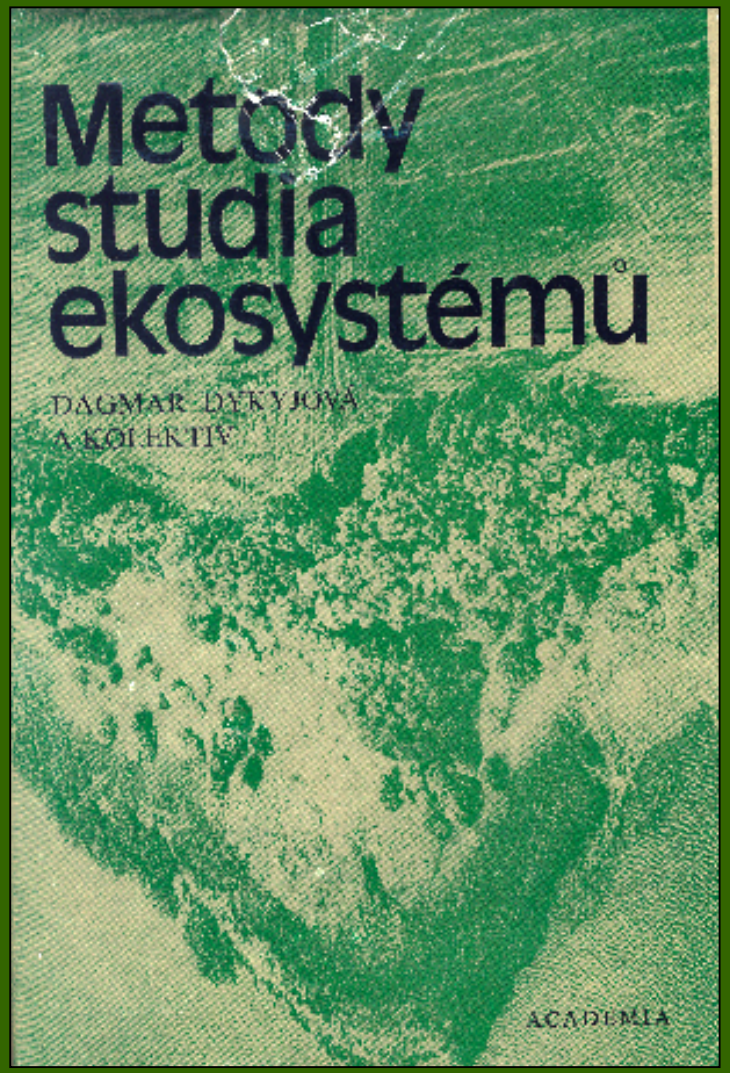
■ present

□ absent

Literature



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



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

Field sampling

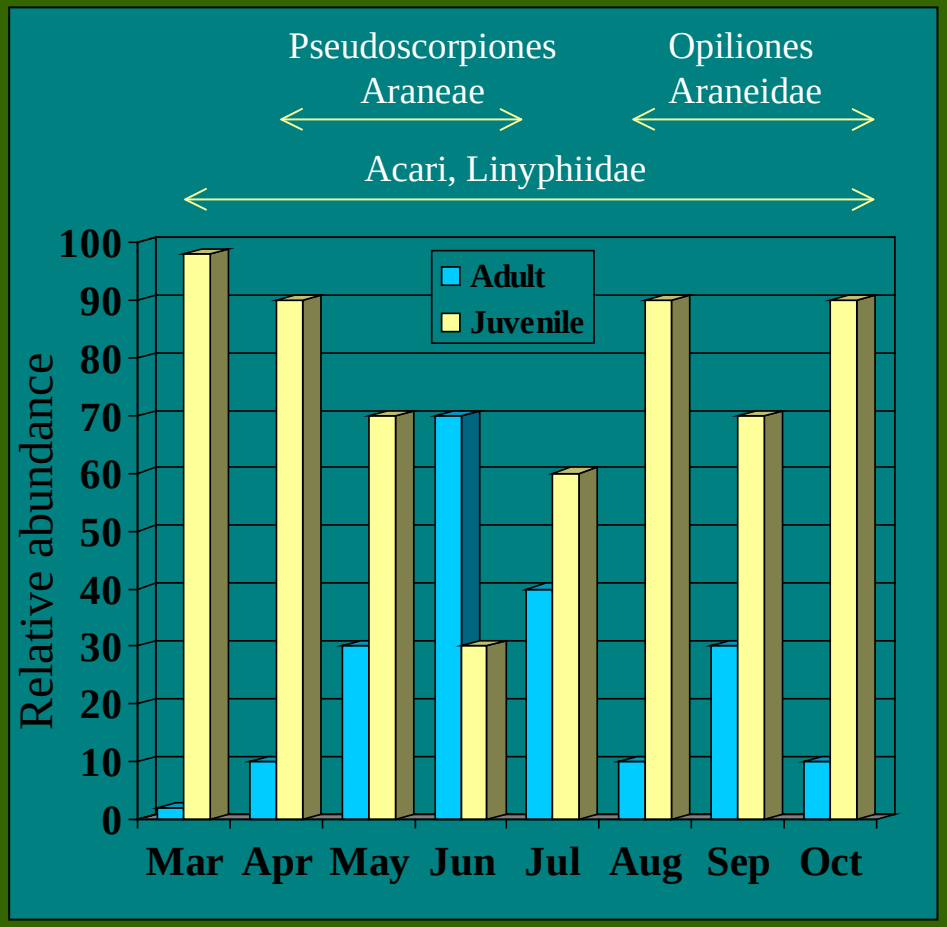
Population sampling

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

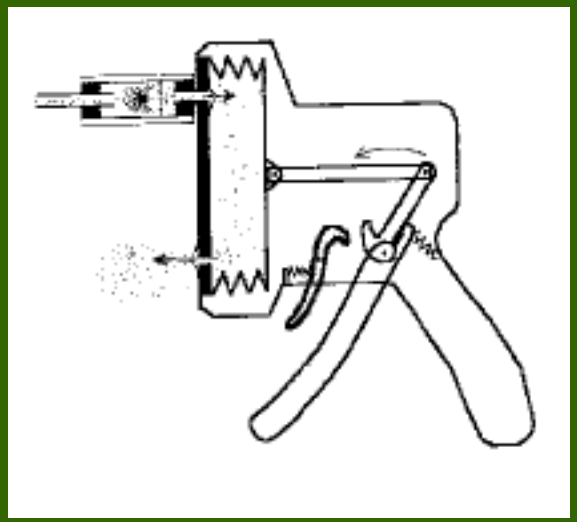
Population estimates:
- absolute - density per unit area
- relative - catch per unit time

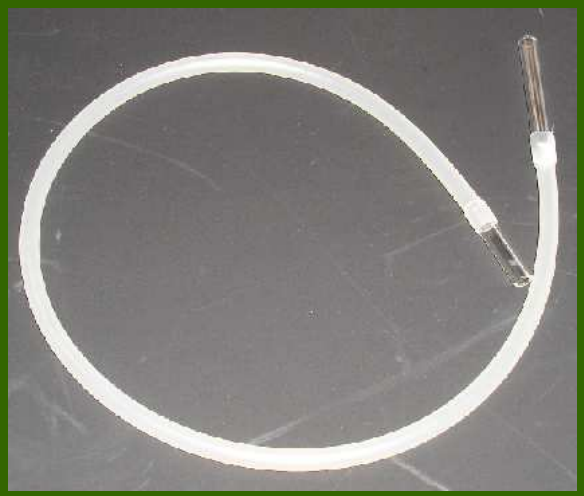


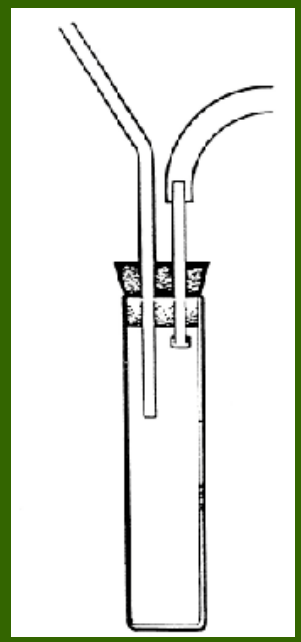
Relative methods

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

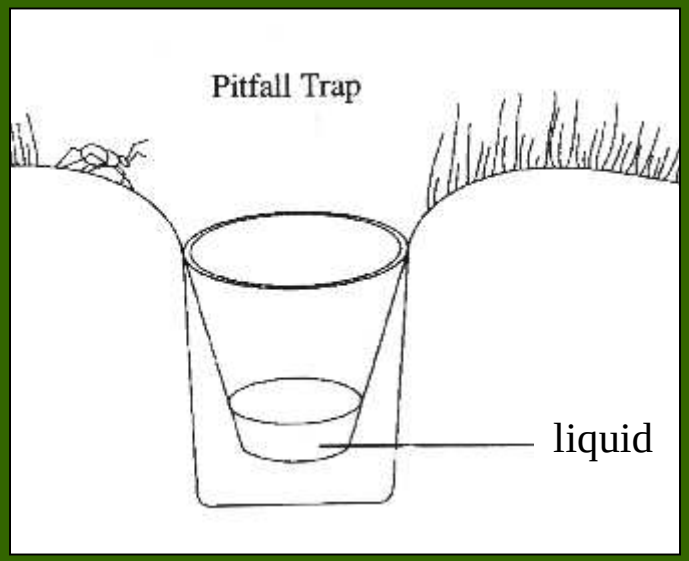
- observation of a spider
- used for conspicuous (large) species, webs, retreats, eggsacs

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

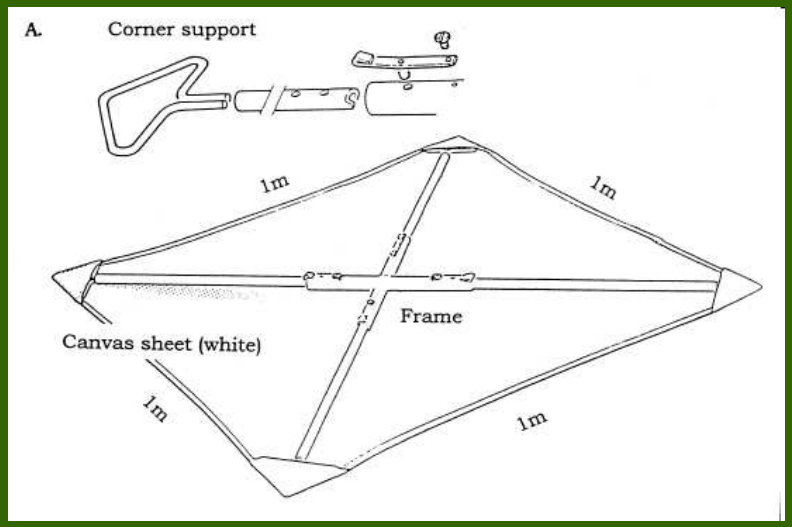
Absolute methods

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

Photoeclectors

- 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 ependerorf 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

• put in plastic bag to keep humidity and at cold place

Transport

• in the plane, bus, car, train

Storage

Labels

• locality, GPS coordinates, habitat, date, hour (?), collector (leg.), identified (det.)

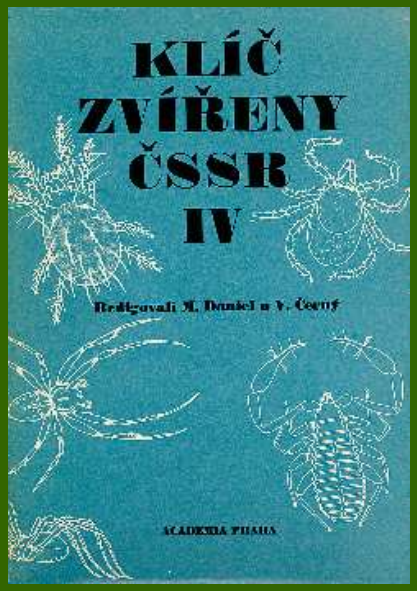
• print on cardboard paper using inkjet printer or write with a pencil

Database

• Excel, Access, faunistic software (Fauna 2000)

Identification

• Klíč zvířeny ČSSR IV



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 inkpen
- moistened regularly (3-5 days) with drops of water
- foam rubber stop or pierced plastic plug
- fed with prey in regular intervals

- kept clean 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