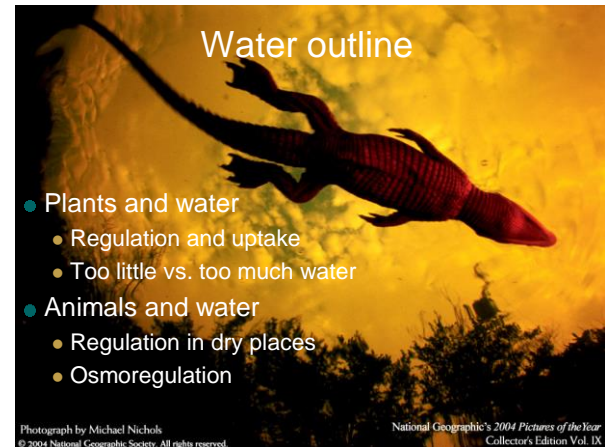


Physiological ecology

- How individual organisms respond to the abiotic environment:
 - Temperature
 - Water**
 - Light
 - Nutrients



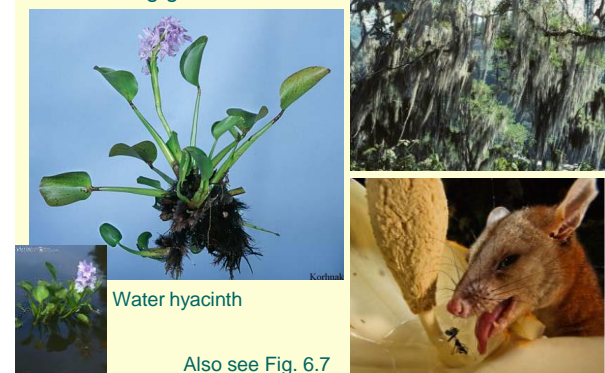
Plants and water

- Plants perform best when their cells are fully hydrated—at maximum turgor
- What are they using the water for?



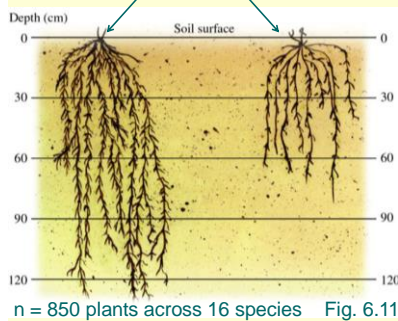
Water regulation in plants

- Balancing gains & losses



Water uptake in plants

- Canadian grassland
Wet or dry sites?

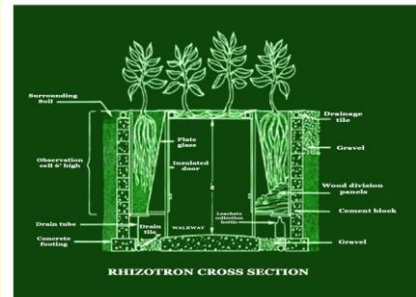


Soil pit



Prairie sagewort

n = 850 plants across 16 species Fig. 6.11




UGA RHIZOTRON

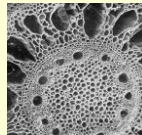
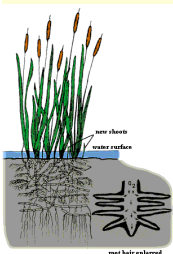
■ cross section
the cross section of the



Click

Responses to flooded soils (1)

- Too much water leads to low levels of...
 - Some solutions:
- 



Responses to flooded soils (2)

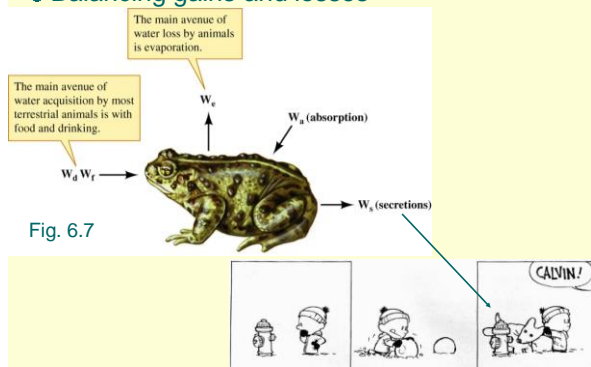
- Two more solutions



Congaree National Park

Animals and water

- Balancing gains and losses



Animals in the desert (1)

- Tenebrionid in the coastal Namib Desert



Onymacris unguicularis

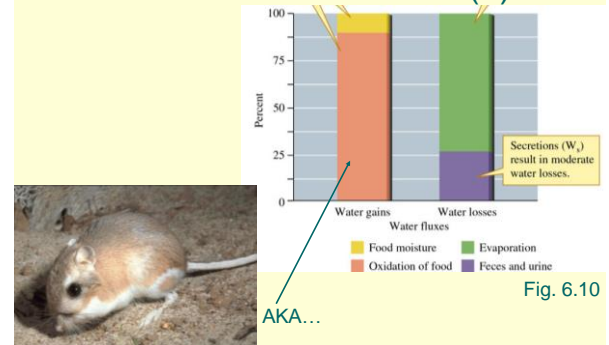
Also see Fig. 6.8



Related applications



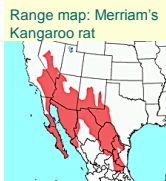
Animals in the desert (2)



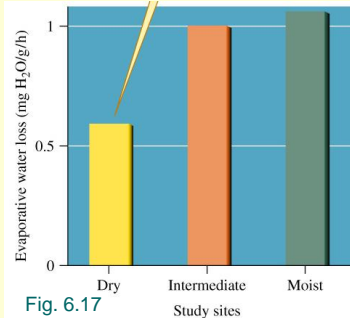
Merriam's kangaroo rat
SW US in action

Adaptation to water availability

- Do different populations of the same species vary in their ability to conserve water?



What about acclimation?



Osmoregulation in a 'dry' environment

- Passive:
 - Water out
 - Salts in

