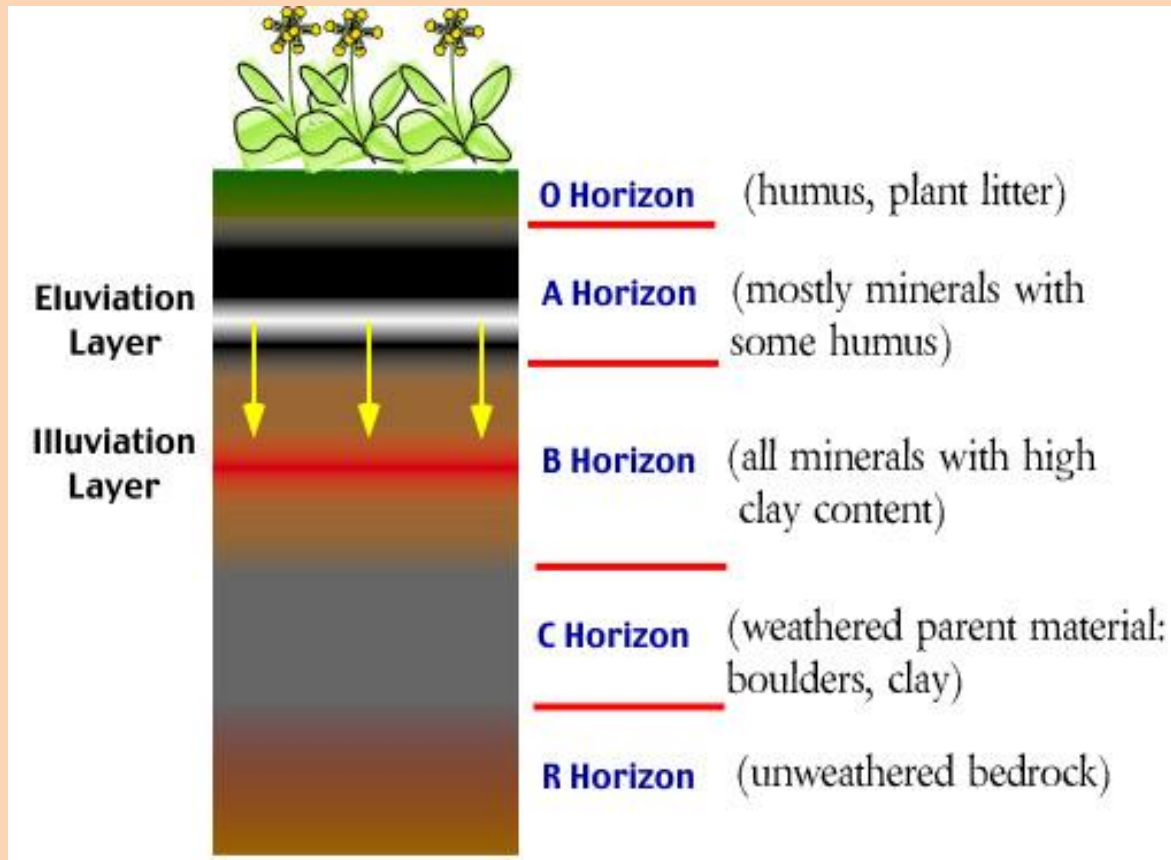
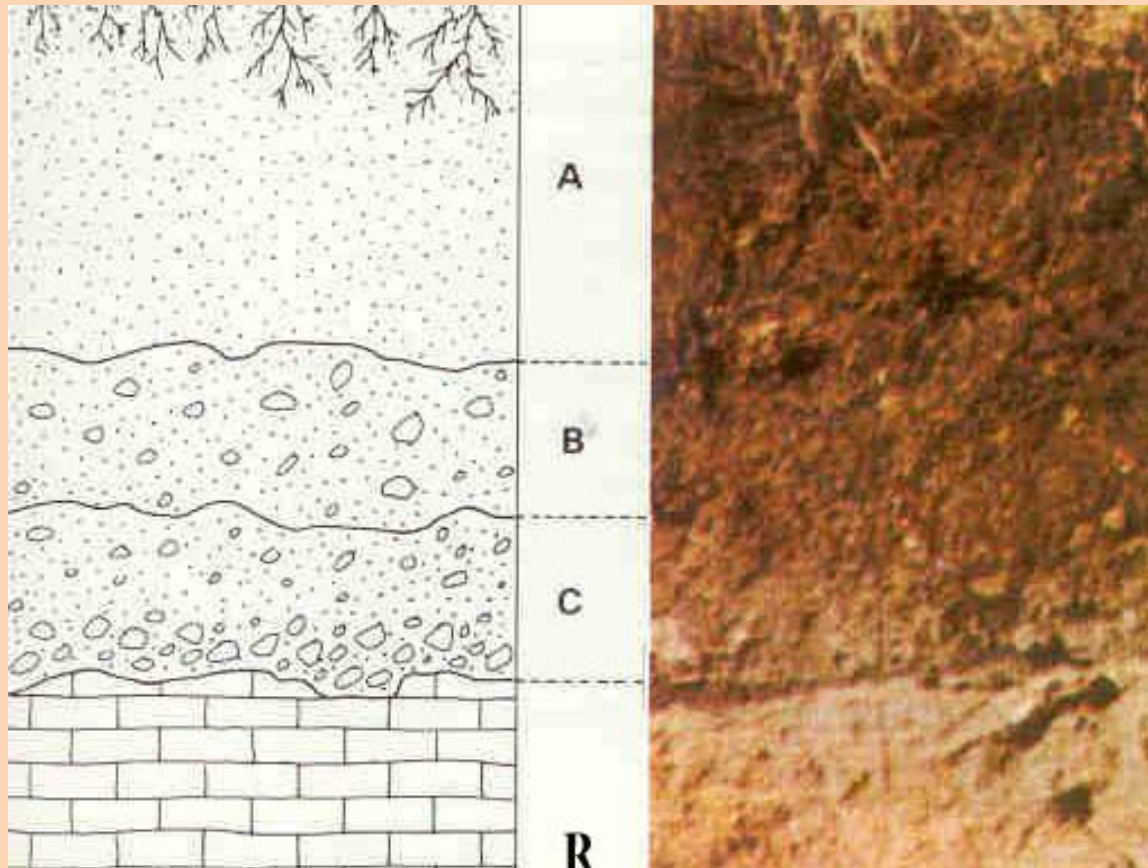


Soil Profiles



Example 1: Into which layer do roots spread?

O ; A horizon, mostly; sometimes B



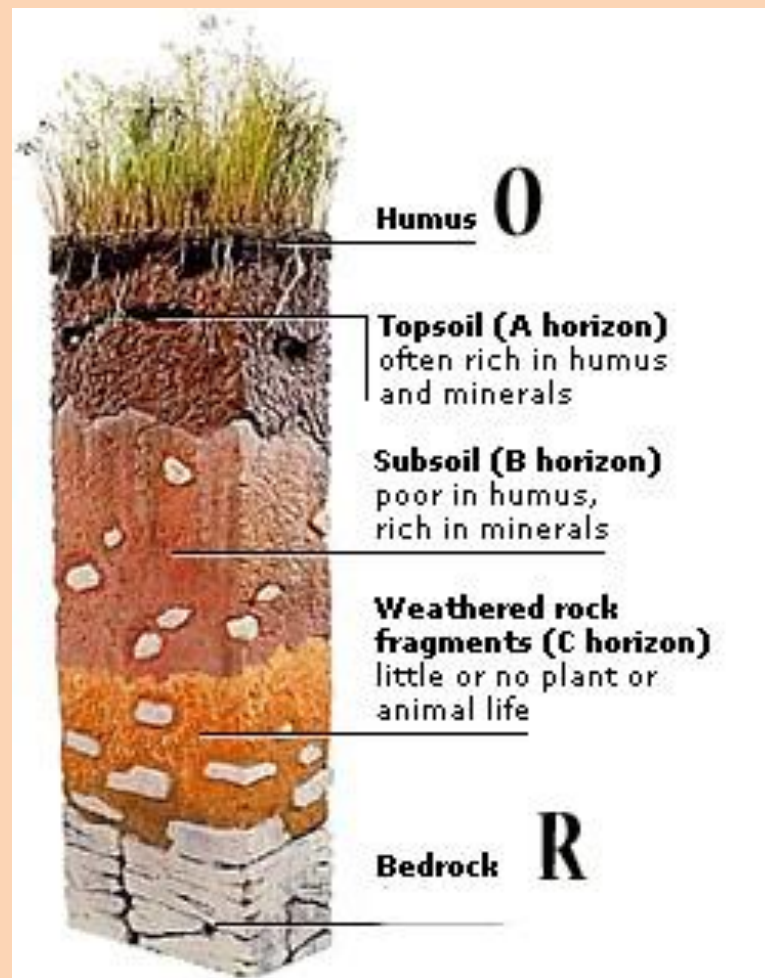
Ex 2. Where would pH, moisture and conc. Of mineral ions be an important factor in plant growth?

Layer A



3. What ions colour the B-layer(subsoil)?

Fe^{+2} , Fe^{+3} ,



4. Why is the R-layer unweathered?

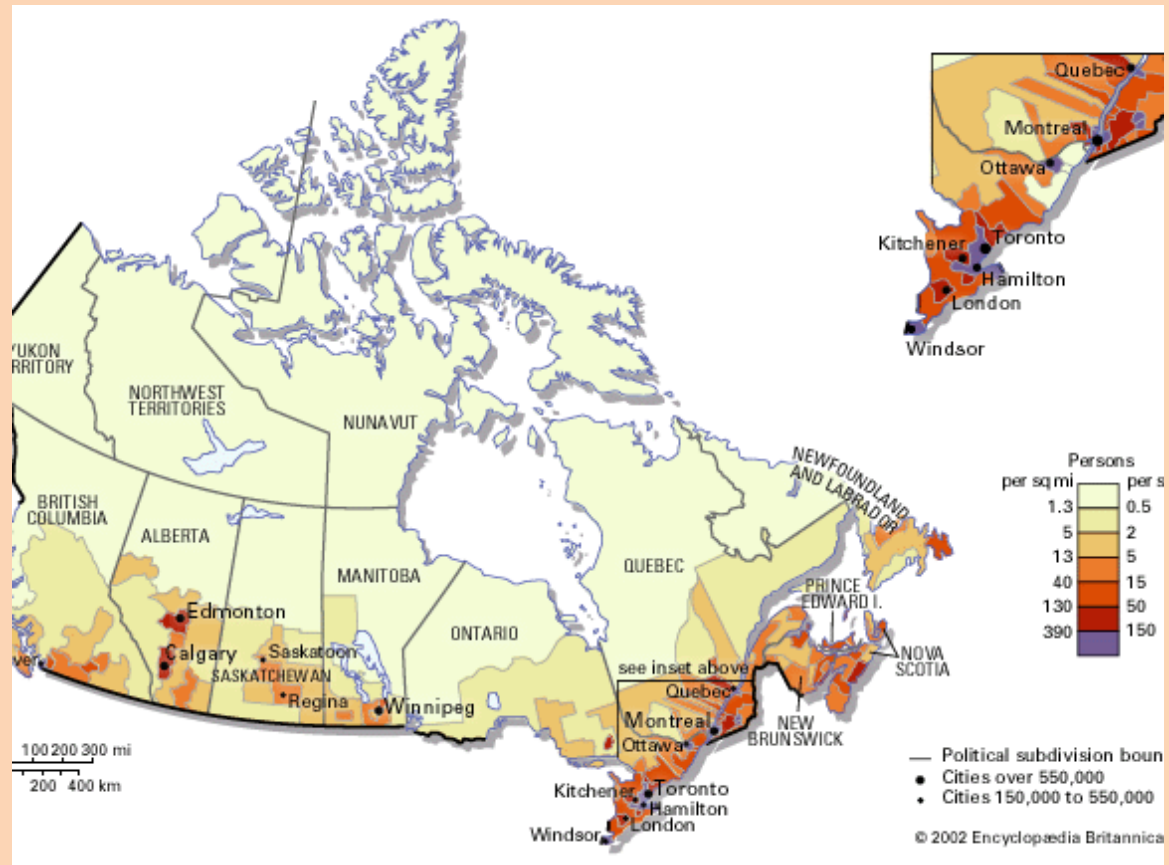
Wind and rain can't reach it. Ice especially cannot break it down since it's below the frost line.

Population



A- A population is a group of individuals of the same species. What is a species? p64

A species is a group of organisms that are genetically similar enough to produce a fertile offspring. (can have babies that will eventually be able to produce babies)



B- Population Size what are the four factors affecting population size (BIDE)?

1. Births
2. Immigration (arrival of individuals from other regions)
3. Deaths
4. Emigration (departure of individuals to a new region)

C- Methods of Measuring Population Size p64

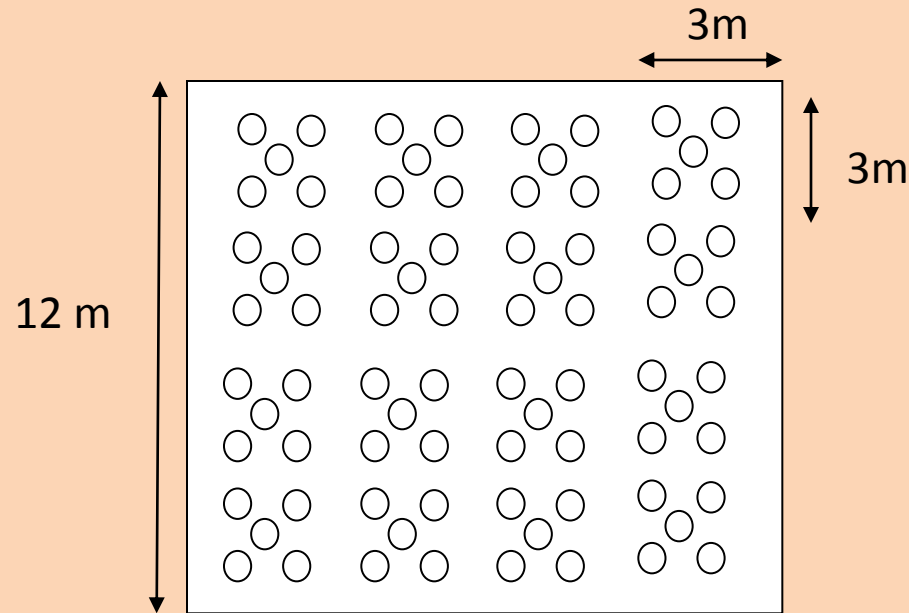
1. Sample Area

$$\frac{\text{avg. \# of individuals per section}}{\text{Area of section}} = \frac{\text{population size}}{\text{total area}}$$

Same formula but rearranged:

$$\frac{\text{avg. \# of individuals per section}}{\text{Area of section}} * \text{total area} = \text{Population size}$$





Example: What is the population of dandelions?

$$\frac{\text{avg. \# of individuals per section}}{\text{Area of section}} * \text{total area} = \text{Population size}$$

$$5 / (3 * 3) \text{m}^2 * (12 * 12) \text{m}^2 = 80$$

individuals

2. Mark and Recapture

$$\frac{\text{\# of marked animals recaptured}}{\text{total number of animals captured 2nd time}} = \frac{\text{original number of marked animals}}{\text{population size}}$$

Or rearranged:

Population size

$$= \frac{\text{total \# of animals captured 2nd time}}{\text{\# of marked animals recaptured}} * \text{original \# of marked animals}$$

Example

One hundred Canada geese are captured, marked with tags and released.

On the second capture of 200 geese, 50 have tags on them. What is the population size?

$$200/50 * 100 = 400 \text{ geese}$$



C- Population Density

$$\text{Population density} = \frac{\text{number of individuals}}{\text{space occupied (area or volume)}}$$

Example 1 There are 6000 ants living in a an area of 3 m by 10 m.
Find their population density.



$$\text{Density} = 6000 \text{ ants} / (3 * 10) \text{ m}^2 = 200 \text{ ants/m}^2$$

Example 2 If on average the population density is 0.0001 fish per litre, how many fish would you find in a 100 000 L pond?

$$\begin{aligned} 0.0001 &= x / 100\ 000 \\ X &= 100\ 000 * 0.0001 = 10 \text{ fish} \end{aligned}$$

