



Biology 101

Populations

Remember to practice with the study questions on the BIOL 101 web site.

Abiotic

Biotic potential

Carrying capacity

Climax community

Density dependent

Density independent

Disclimax

Ecological footprint

Erosion

J-shaped curve

K-strategist

Natural capital

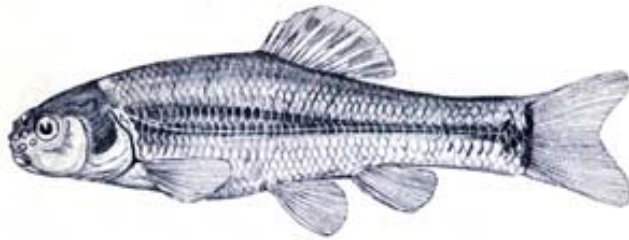
r-strategist

Species diversity

Subclimax

Succession

Weathering

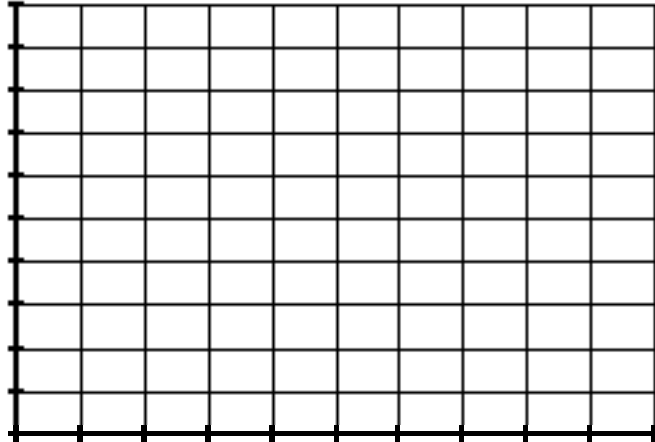


Go to <http://www.footprintcalculator.org/> to determine your ecological footprint. List three things you can go to reduce it.

Some problems

1. A Central Valley farmer stocked his farm pond with 1000 fathead minnows to raise as bait. Fatheads usually reproduce first as yearlings and regularly thereafter. The farmer recorded the number of fish each year for 10 years. He obtained the following data:

<u>Year</u>	<u>Number of fish</u>
0	1000
1	750
2	580
3	600
4	750
5	1200
6	1400
7	1460
8	1440
9	1450
10	1460



- Plot these data on a graph.
 - Mark the area on the growth curve where the rate is greatest.
 - Mark the point at which the farmer should begin fishing if he wants to maintain his population.
 - Why did the population decline during the first two years?
 - What was involved in slowing the population growth from the sixth year on?
 - Is the fathead minnow a K-strategist or an r-strategist?
2. Looking at these data, write a paragraph describing how you would improve the living conditions in developing countries. Gross domestic (GDP) is the value of a country's production of goods and services over a specific period of time.

Country	United States	Nicaragua	Dem. Rep.of the Congo	Australia	China
Ecological footprint (hectares/per capita)	9.4	2	0.5	7.8	2.1
Annual GDP (per capita, U.S.\$)	\$48,000	\$3,000	\$300	\$39,300	\$6,100
Annual per capita electricity use (kWh)	12810	417	78	10473	2.5
Paved roads per capita (km)	14	0.0003	0.04	16	1.2
Natural capital (hectares/per capita)	5	3	13.9	15.4	0.9
Population with access to safe water, %	100	81	46	100	77
Literacy rate, %	95.5	76.7	82.8	100	90.9
Food, % recommended minimum	143	102	72	115	125