

Pre AP Biology

Population Ecology (6.2)

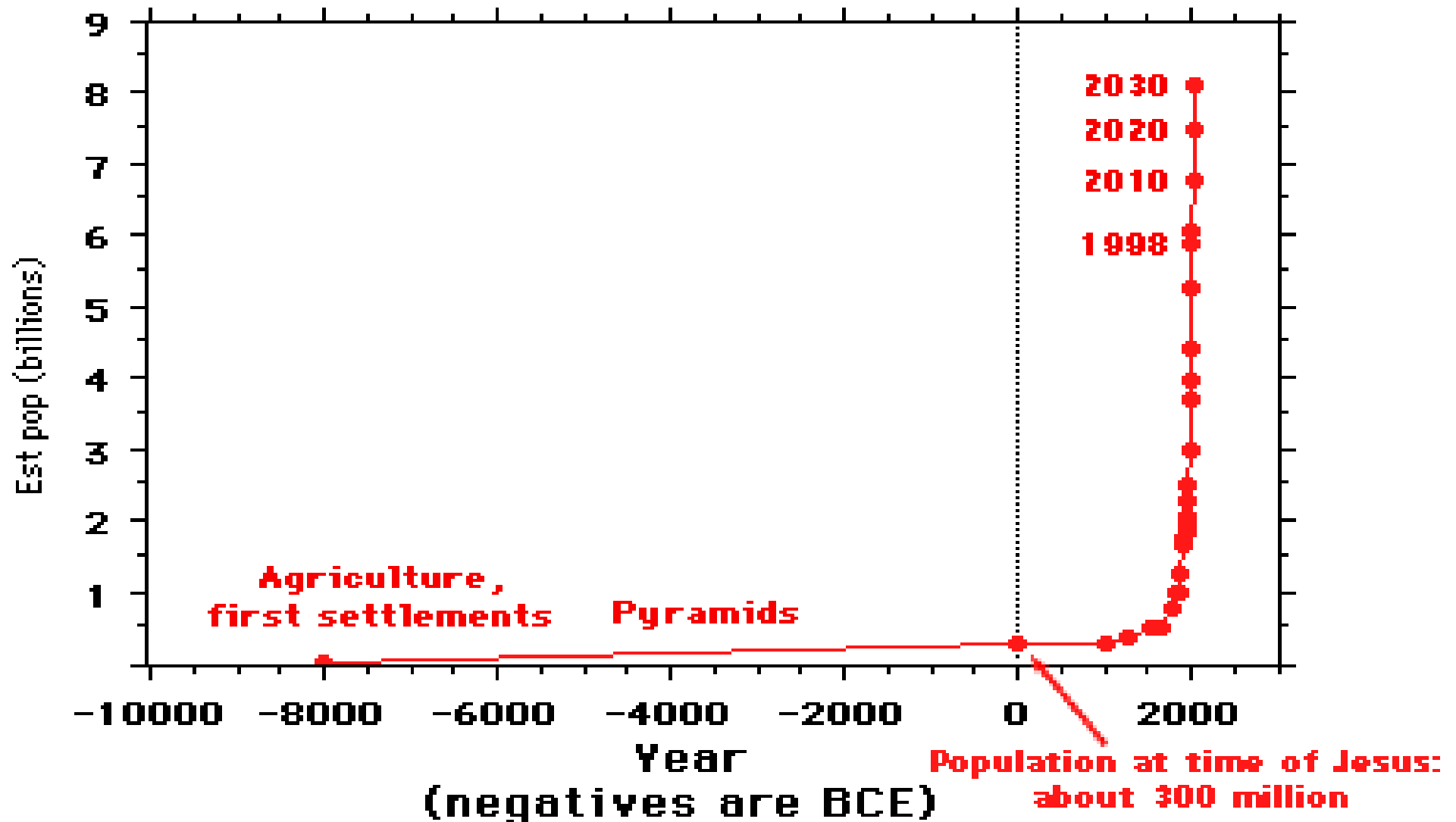
Part 1

Population

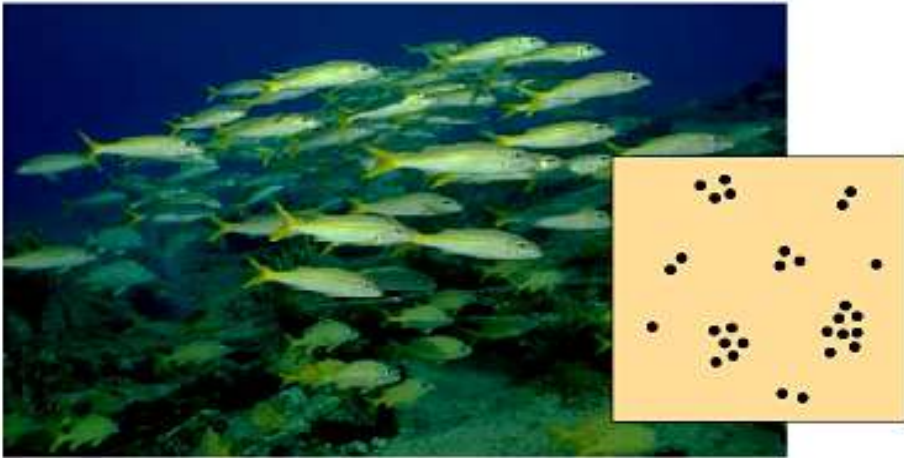


Human Population on Earth

World Population (in billions)



Dispersal Types



(a) Clumped



(c) Random



(b) Uniform

Life Table showing cohorts

Table 52.1 Life Table for Belding Ground Squirrels (*Spermophilus beldingi*) at Tioga Pass, in the Sierra Nevada Mountains of California*

Age (years)	Females					Males				
	Number Alive at Start of Year	Proportion Alive at Start of Year	Number of Deaths During Year	Death Rate [†]	Average Life Expectancy (years)	Number Alive at Start of Year	Proportion Alive at Start of Year	Number of Deaths During Year	Death Rate [†]	Average Life Expectancy (years)
0-1	337	1.000	207	0.61	1.33	349	1.000	227	0.65	1.07
1-2	252 ^{††}	0.386	125	0.50	1.56	248 ^{††}	0.350	140	0.56	1.12
2-3	127	0.197	60	0.47	1.60	108	0.152	74	0.69	0.93
3-4	67	0.106	32	0.48	1.59	34	0.048	23	0.68	0.89
4-5	35	0.054	16	0.46	1.59	11	0.015	9	0.82	0.68
5-6	19	0.029	10	0.53	1.50	2	0.003	0	1.00	0.50
6-7	9	0.014	4	0.44	1.61	0				
7-8	5	0.008	1	0.20	1.50					
8-9	4	0.006	3	0.75	0.75					
9-10	1	0.002	1	1.00	0.50					

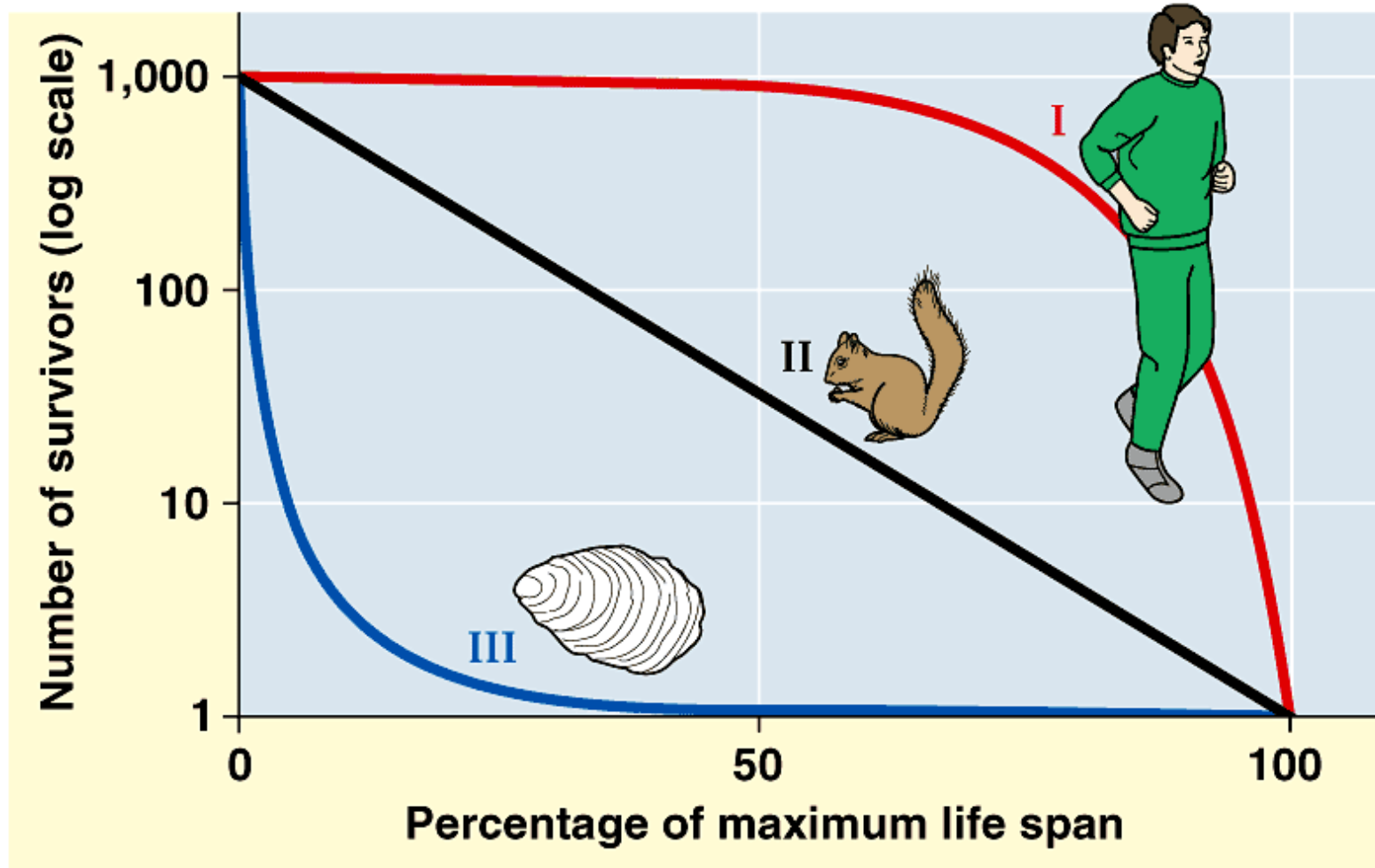
*Males and females have different mortality schedules, so they are tallied separately.

[†]The death rate is the proportion of individuals dying in the specific time interval.

^{††}Includes 122 females and 126 males first captured as one-year-olds and therefore not included in the count of squirrels age 0-1.

SOURCE: Data from P. W. Sherman and M. L. Morton, "Demography of Belding's Ground Squirrel," *Ecology* 65(1984): 1617-1628.

Survivorship curves



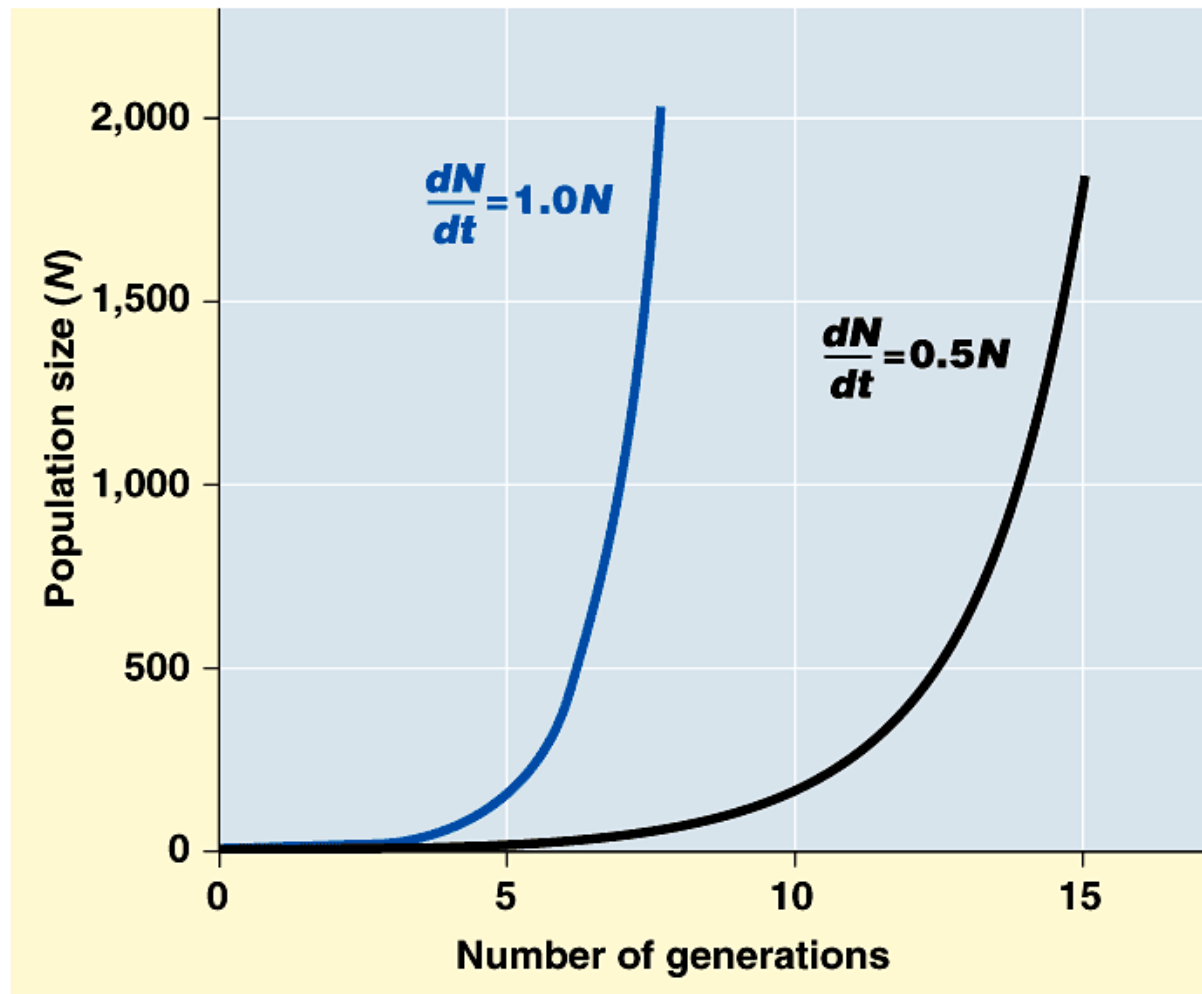
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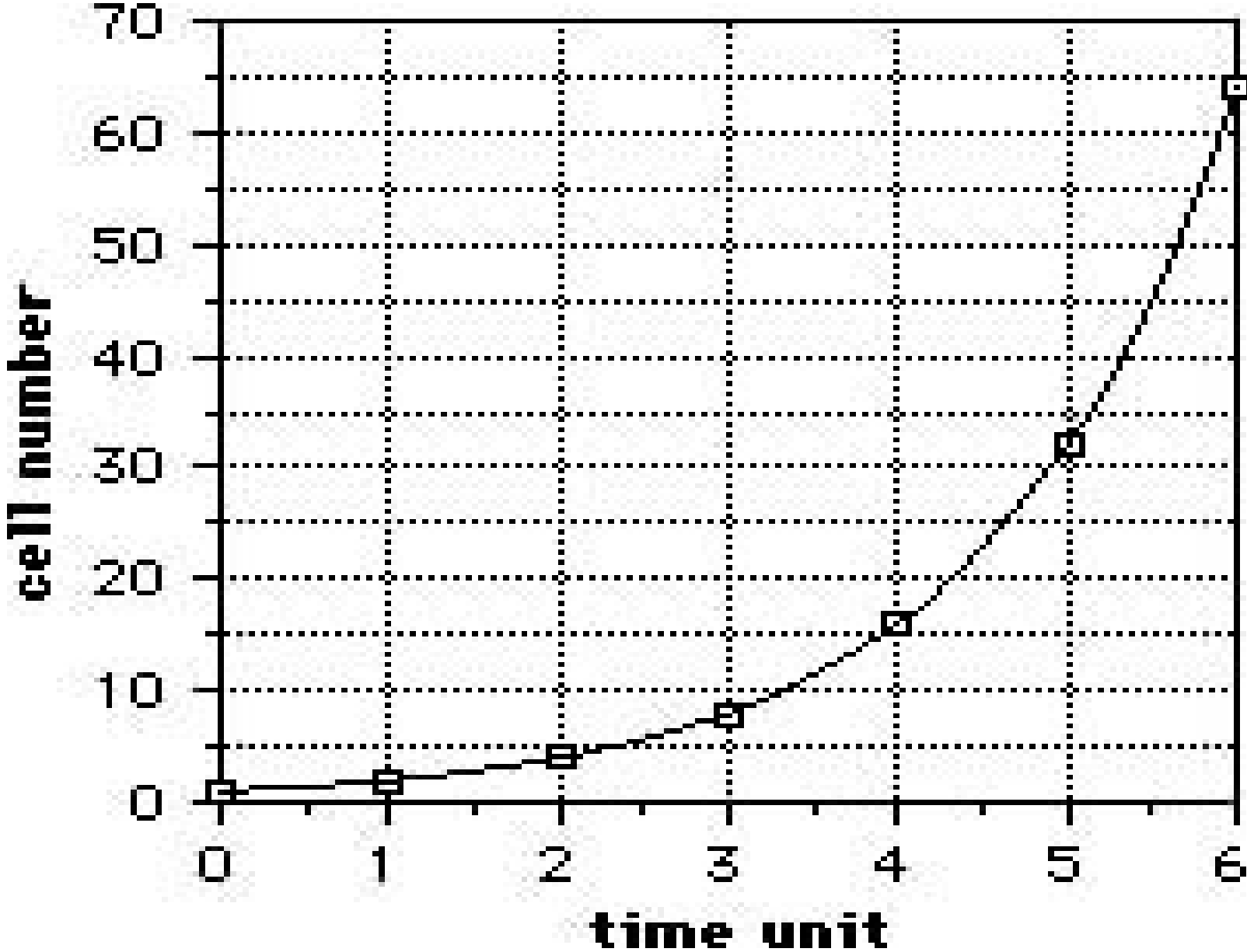
Part 2

Exponential Growth (Ideal Growth)

“J” curve growth



Exponential Growth



Hawaii millions of years ago



Pioneer species begin to colonize
(lichens and mosses)



Then over time, grasses begin to grow.



Then over time, shrubs will appear and they will be followed by trees.

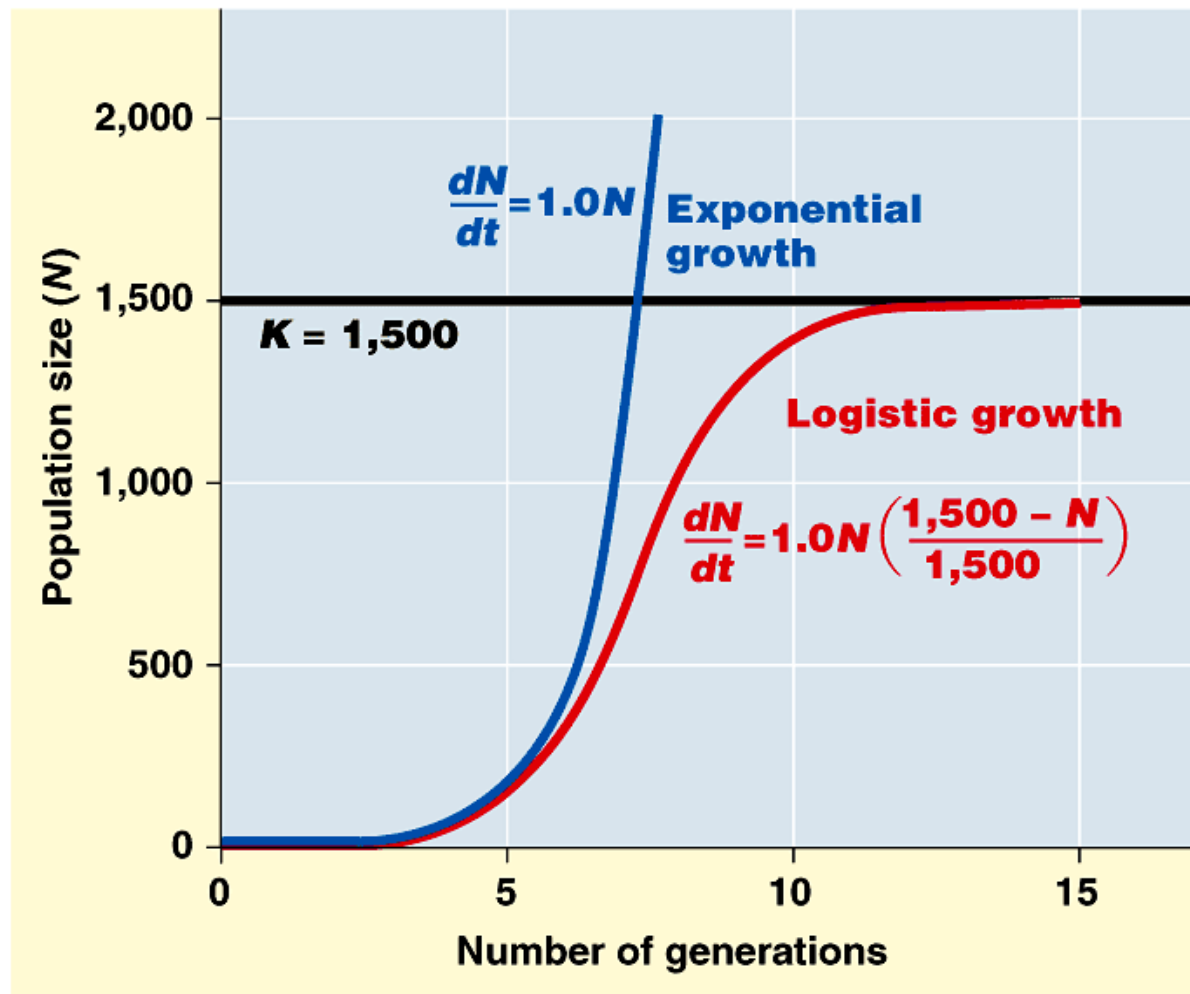


Hawaii today



Logistical Growth (Realistic Growth)

“S” curve growth

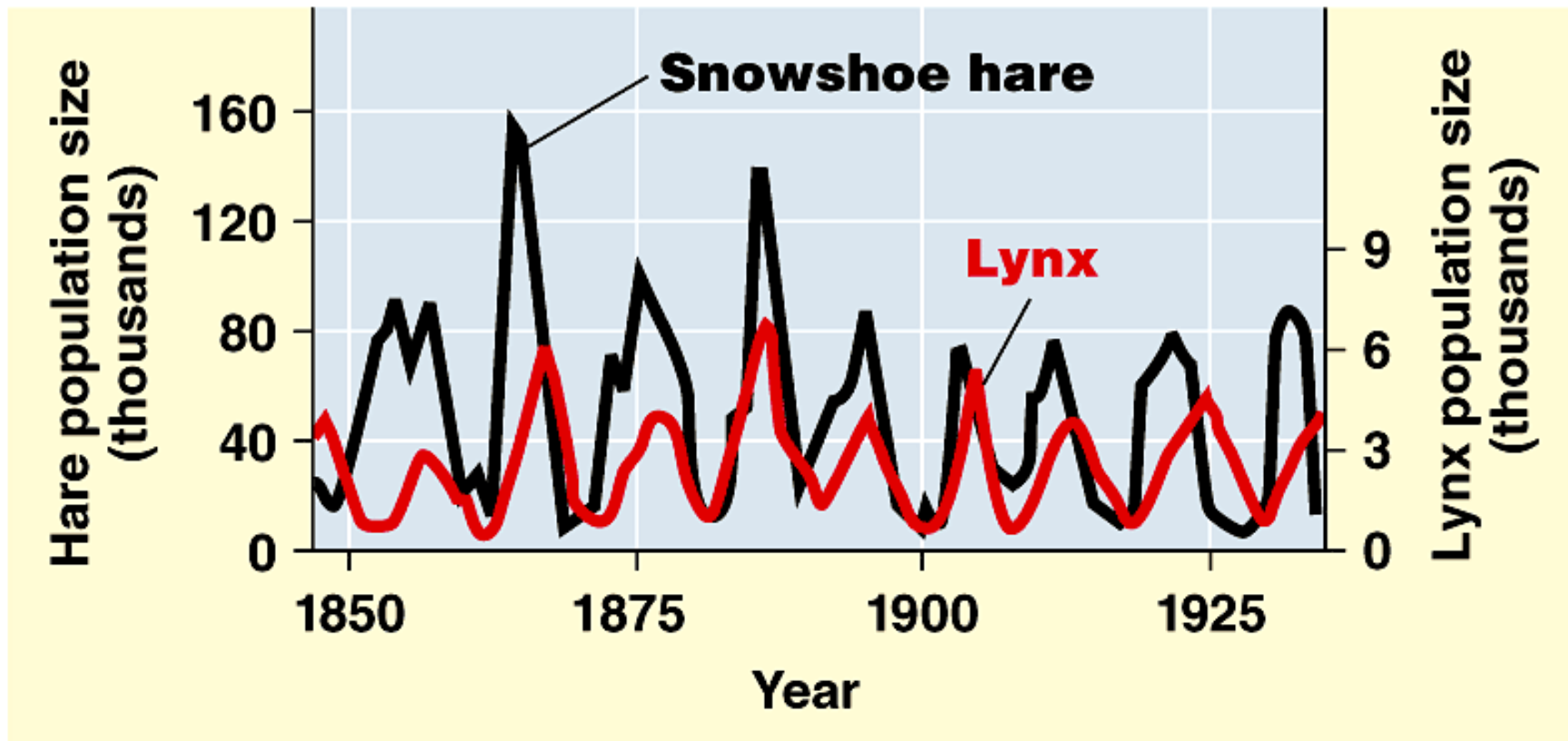


Pre AP Biology

Population Ecology (6.2)

Part 3

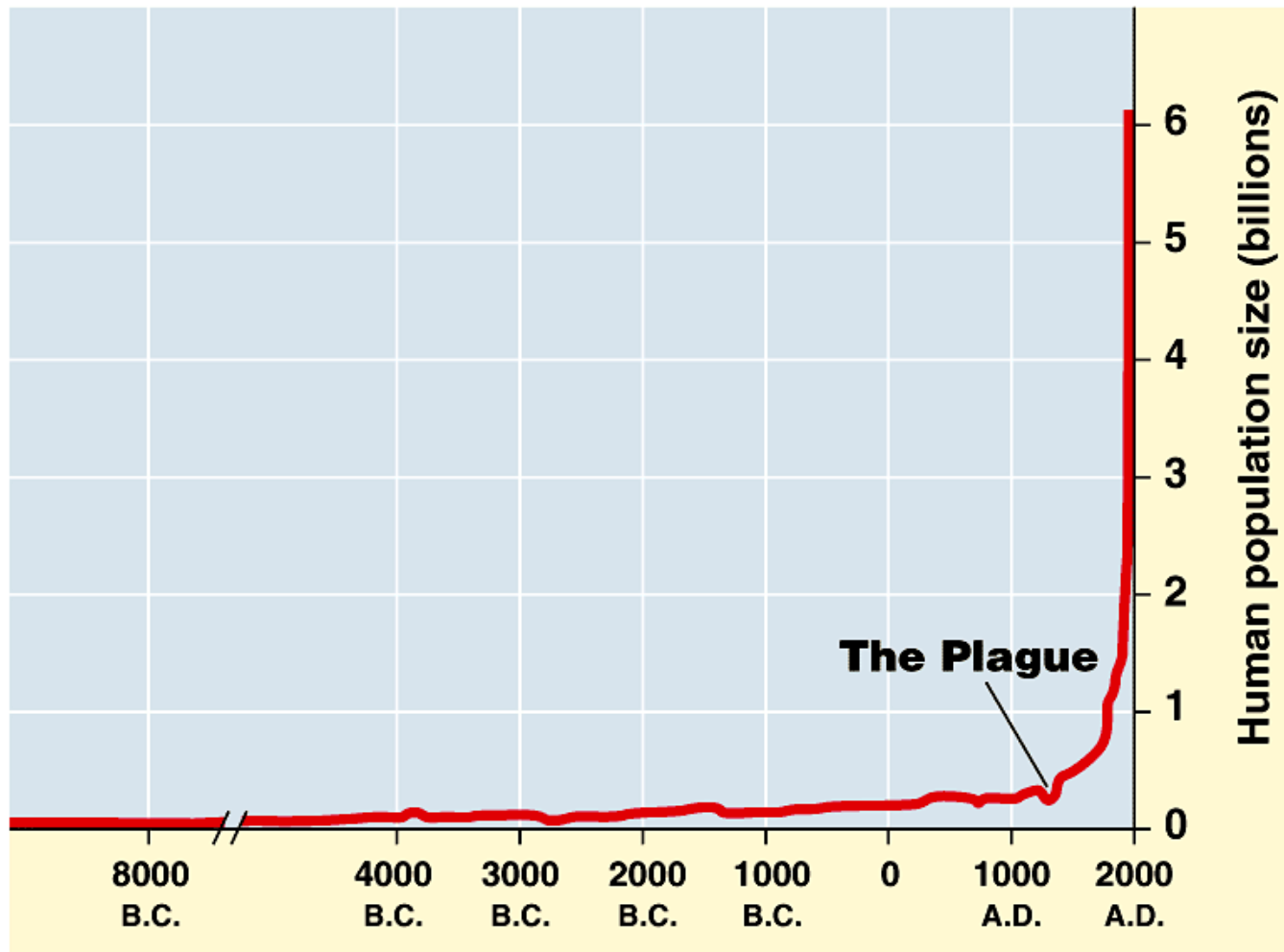
Boom-bust cycles



Snowshoe Hare and Lynx



Human Growth on Earth



Various Country “footprints”

Above the line = bad

Below the line = good

