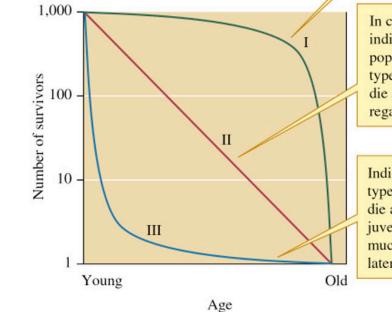
Survivorship curves

Everything dies, but on different schedules

In type I survivorship, juvenile survival is high and most mortality occurs among older individuals.



In contrast, individuals in a population with type II survivorship die at equal rates, regardless of age.

Individuals showing type III survivorship die at a high rate as juveniles and then at much lower rates later in life.

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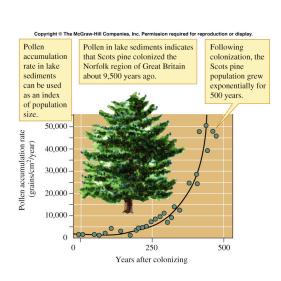
		Proportion			
Age (days)	Number surviving to day x	surviving to day x	Average number of seeds per individual during time interval	Multiplicati of l_x and m_x	
х	n_x	l_x	m _x	l _x m _x	
0-299	996	1.0000	0.0000	0.0000	
299-306	158	0.1586	0.3394	0.0532	
306-13	154	0.1546	0.7963	0.1231	
313-20	151	0.1516	2.3995	0.3638	
320-27	147	0.1476	3.1904	0.4589	
327-34	136	0.1365	2.5411	0.3470	
334-41	105	0.1054	3.1589	0.3330	Each individua leaves an
341-48	74	0.0743	8.6625	0.6436	average of
348-55	22	0.0221	4.3072	0.0951	2.4177 offsprin
355-62	0	0.0000	0.0000	0.0000	

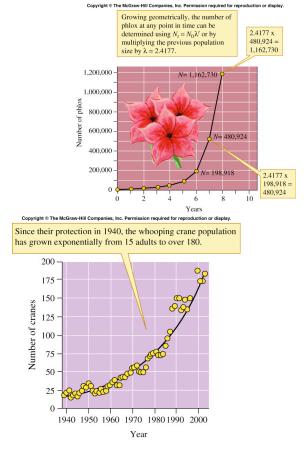
Life table

What are the units of R_0 ? What are the units of T?



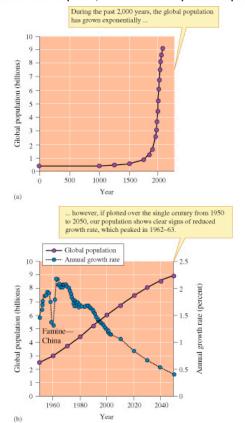
Exponential growth



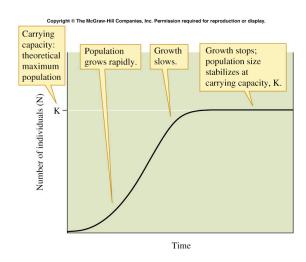


Human population

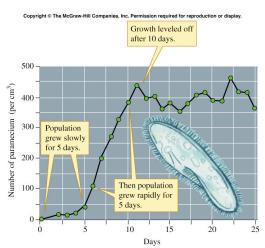
Where will it stop...



Gotta stop somewhere - logistic growth



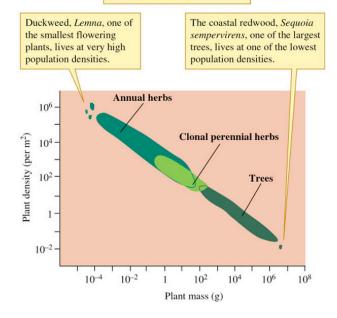
What influences K?



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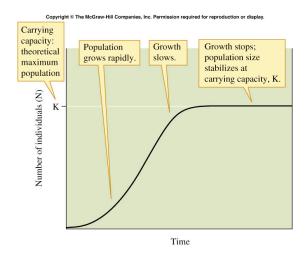
Damuth's rule Population size decreases with body size

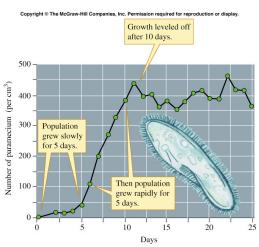
As in animals, plant population density decreases with increasing plant size across a wide range of plant growth forms.



Copyright © The McGraw-Hill Companies, Inc. $r_{\rm max}$ changes with size too Permission required for reproduction or display. As in animals, plant population density decreases with increasing plant size across a wide range of plant growth forms. Duckweed, Lemna, one of The coastal redwood, Sequoia the smallest flowering sempervirens, one of the largest plants, lives at very high trees, lives at one of the lowest population densities population densities. Copyright ® The McGraw-Hill Companies, Inc. Permission required for reproduction or display From viruses to large animals, intrinsic rate of increase declines predictably with increasing size. 106 Daily per capita rate of increase (rmax) Clonal perennial herbs Plant density (per m2) Bacteria 100 10-Ectothermic animals 1 .1 Homeothermic 10^{-2} animals .01 10-2 10^{2} 10^{4} 10^{6} Plant mass (g) 6,6,6,6,6,6,6,6,6,6,6,6 Weight (g)

Why do natural populations fluctuate?





CHAOS?

(Lord) Robert May (1974 Science)

Discrete logistic models



VERY sensitive to $r_{\rm max}$

