

*Assigned readings, 8th Edition pp. Review Chapter 53
 7th Edition pp. 1139-1143, 1148-1152

Demography

Outline of Lecture 4

A. Demography

1. Survivorship or Death Schedule
2. Survivorship curves

B. Reproductive patterns

1. Semelparous
2. Iteroparous

C. r-selected and K-selected populations

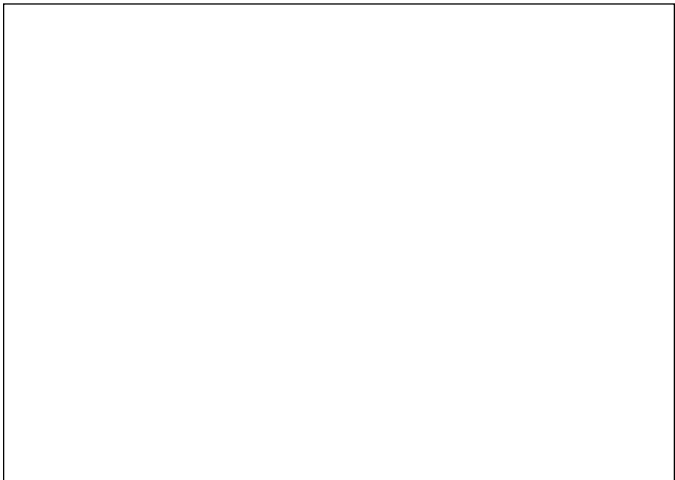
D. Idealized r and k species traits



A. Demography

1. Survivorship or Death Schedule

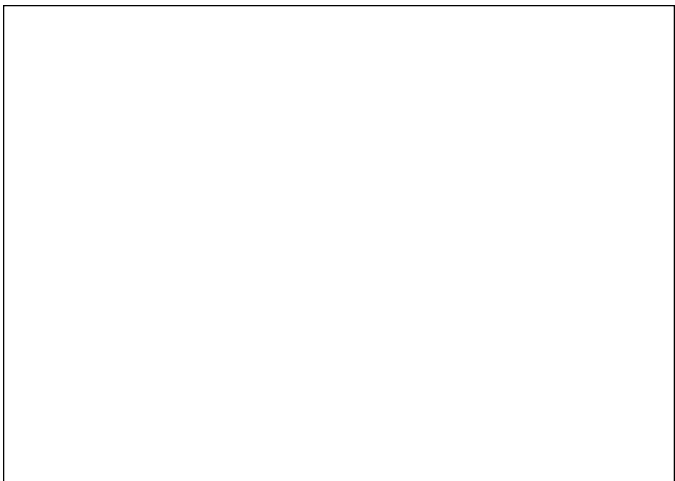
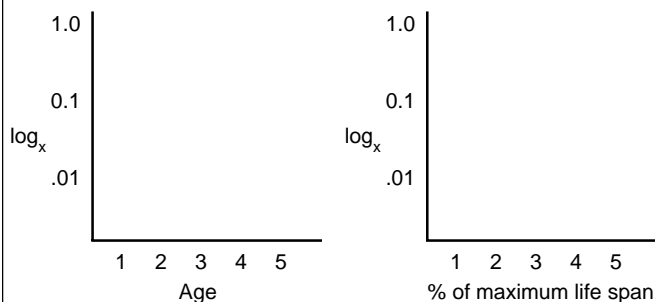
Age	Deaths (number dead at end of age x)	Survivorship (number alive at age x)	Survivorship as proportion of population, l_x
0	200	1,000	$1,000/1,000=1.0$
1	100	800	$800/1,000=0.8$
2	0	700	$700/1,000=0.7$
3	100	700	$700/1,000=0.7$
4	600	600	$600/1,000=0.6$
5	0	0	$0/1,000=0.0$



3. Survivorship curves

(see Figs. 53.5-6 on p. 1178 of text, 8th Edit.)

(see Fig. 52.4-5 on p. 1140 of text, 7th Edit.)



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Demography

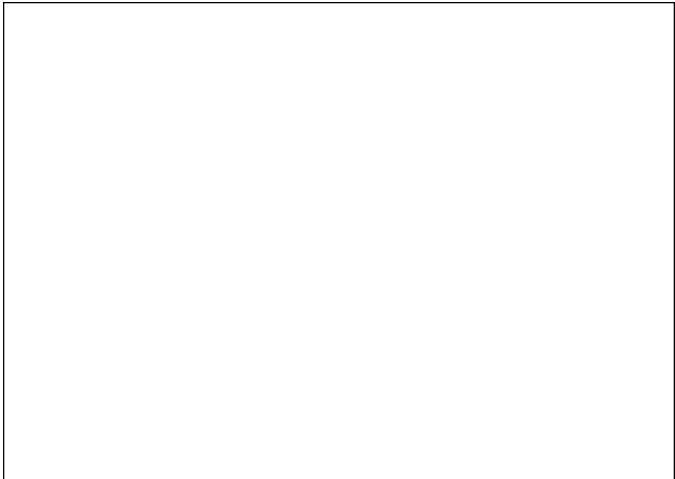
Survivorship curves con't

Age (x)	Survivorship (1x)	Births/rep'd (ideal) or gross rep'd rate within age class	Per individual net rep'd rate	# offspring
0	1.0	0	0	0
1	0.8	0	0	0
2	0.7	2	1.4	1,400
3	0.7	2	1.4	1,400
4	0.6	1	0.6	600
5	0	0	0	0

5 3.4

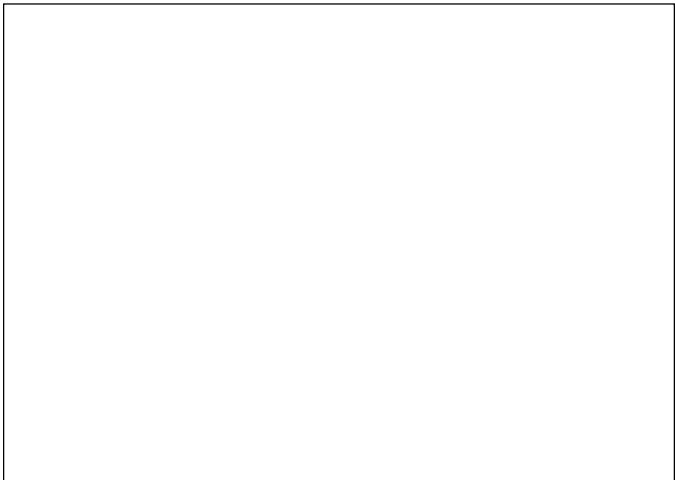
1. If net reproductive ratio (Ro)=1, female replaces herself; Ro>1 population grows; Ro<1 population decreases

net reproductive rate or replacement rate
 3,400/1,000=3.4



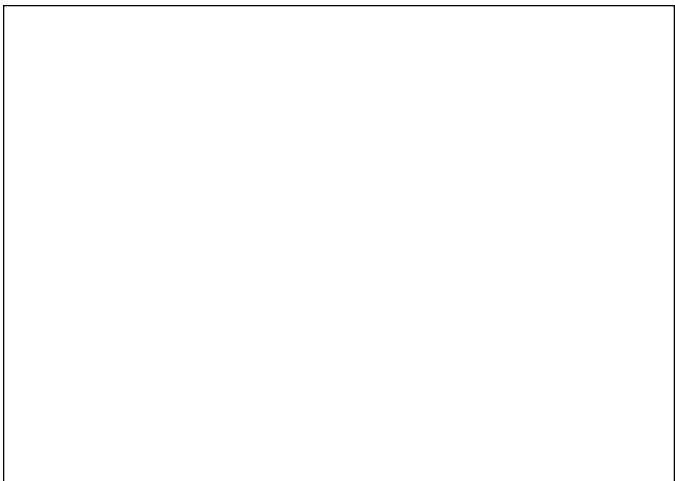
B. Reproductive patterns

1. **Semelparous:** reproduce in one episode
2. **Iteroparous:** reproduce repeatedly



C. **r-selected populations:** individuals reproduce at an early age, *semelparous*, have large clutch sizes

K-selected populations: reproduce later, *iteroparous*, have fewer offspring, parental care.



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Demography

D. Idealized r-selected and k-selected population *

How would they differ in terms of?

- maturation time (short or long)
- lifespan (short or long)
- death rate in a given time (high or low)
- number of offspring per reproductive episode (many or few)
- number of reproductions per lifetime (one or several)

- timing of first reproduction (early or later in life)
- size of offspring (small or larger)
- parental care (none or extensive)
- *can you think of some others?*

**Note: The sum of all species traits involve trade offs.*