



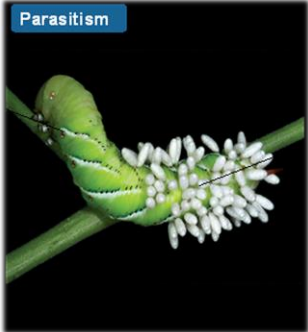
Chapter 14 Honors Biology Study Guide

Habitat and Niche

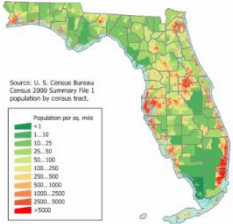

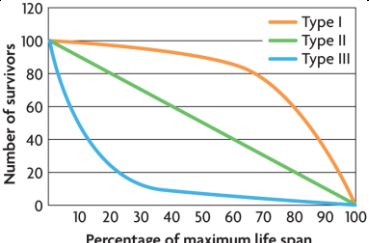
Habitat	Where a species lives: all biotic and abiotic factors in area where organism lives
Niche	How a species lives in its habitat: all physical, chemical, and biological factors a species needs to survive (food, abiotic conditions, behavior)
Competitive Exclusion	When 2 species compete for same resources, one species will be better suited to niche Other species will be pushed into another niche or become extinct Big idea: animals will do everything to avoid competition
Niche Partitioning	Dividing niche by 2 competing species (ex: top of tree and bottom of tree)
Evolutionary Response	Divergent evolution resulting in different successful traits
Ecological Equivalents	Species that occupy similar niches but live in different geographical regions (ex: two rainforests on two different continents)

Interactions

Competition	Two organisms fight for same limited resources <ul style="list-style-type: none"> • interspecific competition: competition between different species • intraspecific competition: competition between members of same species
Predation	One organism captures and feeds upon another organism

Symbiosis	Close relationship between 2+ different species that live in direct contact	
Mutualism	Commensalism	Parasitism
both species benefit from one another	one species benefits, other unaffected	one species benefits, other harmed
anemone and clownfish	human eyelash and demodex	hornworm caterpillar & braconid wasp
		

Population Density and Distribution

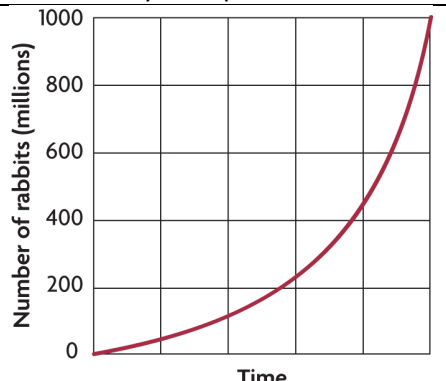
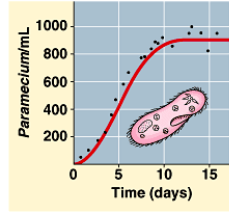
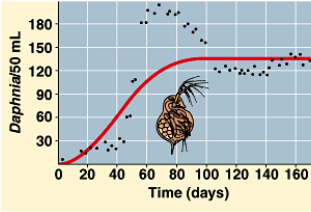
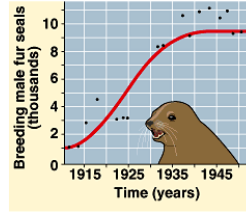
Population Density	Population Dispersion	Survivorship Curves
Number of individuals that live in a defined area (# of organisms / area)	How individuals in a population are spread in an area	Describes type of reproductive structure Generalized diagram showing number of surviving members over time from measured set of births
	<p>Clumped Uniform Randomly</p> 	

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Population Growth

Factors Determining Population Size	Immigration (increase size), births (increase), emigration (decrease), deaths (decrease)
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Limiting Factors	Factor with the greatest effect on keeping down size of population; 2 categories:
Density-dependent	Affected by number of individuals in a given area: eg competition, predation, parasitism and disease (spreads quickly in dense populations)
Density-independent	Limit population growth regardless of density: eg unusual weather, natural disasters, human activities

Exponential Growth	Logistic Growth
population size increases dramatically over period of time	Begins with period of slow growth, followed by brief exponential growth, levels off at stable size
	<p>Levels off at carrying capacity: maximum number of individuals of a particular species that the environment can support</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>(a) A <i>Paramecium</i> population in laboratory culture</p> </div> <div style="text-align: center;">  <p>(b) A <i>Daphnia</i> population in laboratory culture</p> </div> <div style="text-align: center;">  <p>(c) A fur seal (<i>Callorhinus ursinus</i>) population on St. Paul Island, Alaska</p> </div> </div>
Population Crash	Dramatic decline in size of population over a short time

Ecological Succession

Ecological succession	Sequence of changes that regenerate a damaged community or creates a new community after a disturbance in an ecosystem
Primary succession	Development of ecosystem in previously uninhabited areas, starting on bare rock <ul style="list-style-type: none"> • pioneer species: first organisms to move into new area (ex: moss, lichens)
Secondary succession	Reestablishment of a damaged ecosystem, starts with soil left intact
Dynamic process	Face of ecosystem is always changing in cycle of succession and catastrophe