1.	The term for the population at which the number of individuals is just sufficient for the resources available to them:
a)	logistic carrying capacity
b)	maximum sustainable yield
c)	minimum viable population
d)	optimum sustainable population
e)	maximum sustainable population
	Ans: a Difficulty: Medium Link to: 14.2

2.	The first target in recovery programs for endangered species is:
a)	logistic carrying capacity
b)	maximum sustainable yield
c)	minimum viable population
d)	optimum sustainable population
e)	maximum sustainable population
	Ans: c Difficulty: Easy Link to: 14.3

3.	The term for the maximum population that can be sustained into the indefinite future without degrading the species' habitat or the viability of the species itself:
a)	logistic carrying capacity
b)	maximum sustainable yield
c)	minimum viable population
d)	optimum sustainable population
e)	maximum sustainable population
	Ans: d Difficulty: Easy Link to: 14.2

4.	If a population grows beyond its carrying capacity, deaths _____ births, and the population _____ back to the carrying capacity. If a population falls below its carrying capacity, births _____ deaths, and the population _____.
a)	are exceeded by; increases; exceed; decline
b)	exceed; increases; are exceeded by; decreases

c)	exceed; decline; are exceeded by; increases
d)	are exceeded by; decline; exceed; increases
e)	none of these is the correct option
	Ans: c Difficulty: Medium Link to: 14.2

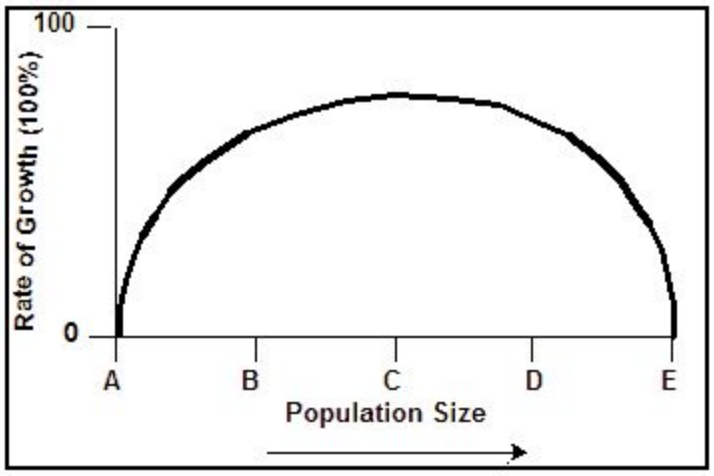
5.	Characteristics of species likely to become endangered and extinct as a result of human activities include:
a)	long-lived individuals
b)	small body size
c)	rapid rates of reproduction
d)	rapid rates of population growth
e)	invertebrates
	Ans: a Difficulty: Easy Link to: 14.8

6.	Competition among individuals in a population:
a)	increases the birth rate
b)	increases the carrying capacity
c)	keeps the population at a constant level and is beneficial to the population in the long run
d)	slows the growth rate of the population
e)	lets the population increase at nearly exponential rate
	Ans: d Difficulty: Medium Link to: 14.1

7.	Some introduced species become abundant pests because they are:
a)	parasites
b)	superior competitors
c)	predators
d)	a density-independent population
e)	a minimum viable population
	Ans: b Difficulty: Easy Link to: 14.8

8.	As people clear land and modify the environment, species which _____ are especially vulnerable to extinction.
a)	are generalists
b)	have highly specific habitats
c)	are mammals
d)	can adapt to a different environment
e)	live in diverse ecosystems
	Ans: b Difficulty: Easy Link to: 14.8

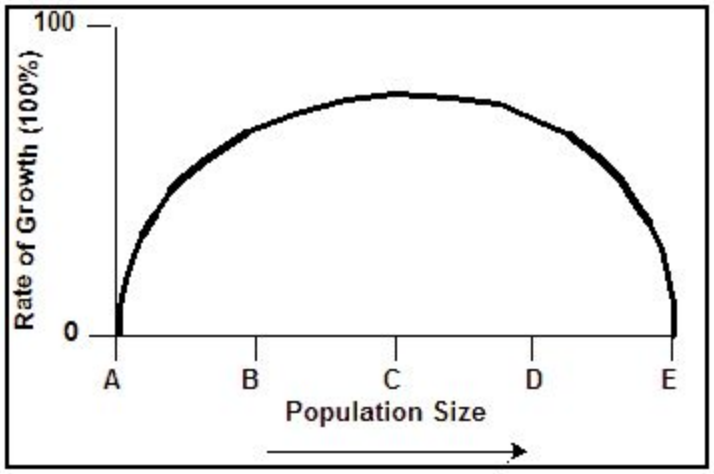
9.	A key to successful wildlife management is monitoring a population's age structure. What does it suggest, if a shift in catch of commercial fish towards younger ages is observed?
a)	this is an early sign of over-exploitation
b)	that the fish stock has reached its carrying capacity
c)	that the fishing is done according to the logistic growth curve
d)	that the fish stock obtained its maximum sustainable yield
e)	that global warming is impacting the population
	Ans: a Difficulty: Medium Link to: 14.4

10.	At what size is the population growth rate greater than 0?  The graph above illustrates the rate of growth of a hypothetical fish population off the California coast (in each question, more than one answer may be correct).
a)	A
b)	B

c)	C
d)	D
e)	E

Ans: b
Difficulty: Medium
Link to: 14.2

11. At what size is the population growth rate zero in the figure above(more than one answer may be correct)?

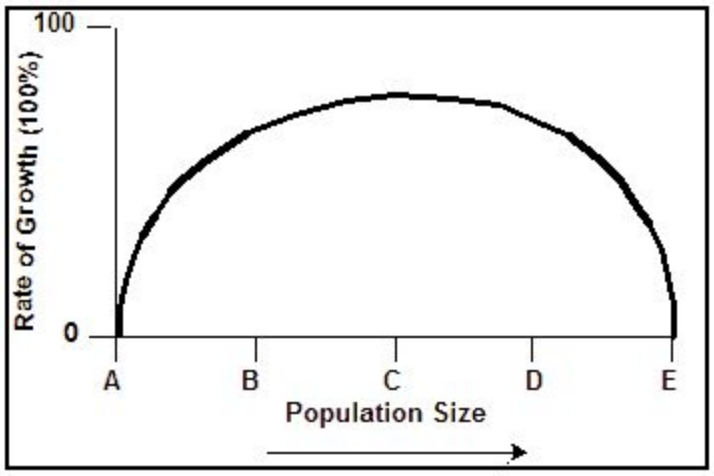


The graph above illustrates the rate of growth of a hypothetical fish population off the California coast (in each question, more than one answer may be correct).

a)	A
b)	B
c)	C
d)	D
e)	E

Ans: a
Difficulty: Medium
Link to: 14.2

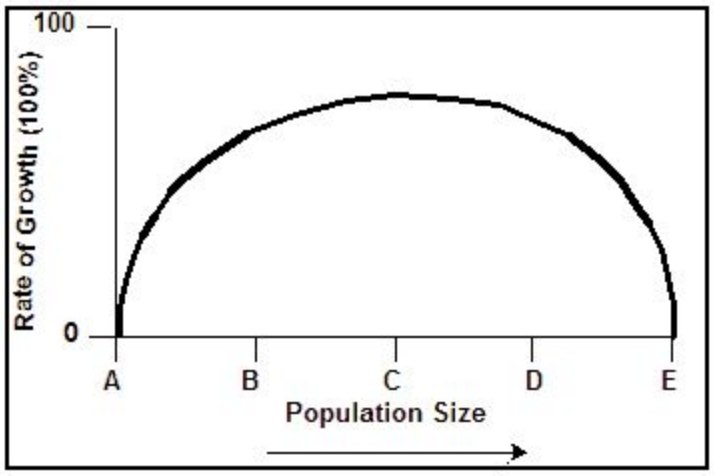
12. What population size is the carrying capacity in the figure above? (only one correct answer)



The graph above illustrates the rate of growth of a hypothetical fish population off the California coast (in each question, more than one answer may be correct).

a)	A
b)	B
c)	C
d)	D
e)	E

Ans: e
Difficulty: Medium
Link to: 14.2

13.	If you were harvesting the population in the figure above, what size would be the maximum sustainable yield? (only one correct answer)  The graph above illustrates the rate of growth of a hypothetical fish population off the California coast (in each question, more than one answer may be correct).

a)	A
b)	B
c)	C
d)	D
e)	E

Ans: c
Difficulty: Medium
Link to: 14.2

14.	Fishery management has used the optimum sustainable population in order to avoid over-fishing. What exactly is the optimum sustainable population?

a)	it is the largest number of fish that can be harvested
b)	it is the fish harvest that generates the highest possible market price for the fish
c)	it is the fish harvest that can be sustained through the lifetime of one fisherman
d)	it is the population that equals the maximum sustainable yield
e)	it is the largest fish harvest that can be sustained indefinitely

Ans: e
Difficulty: Medium
Link to: 14.5

15.	An ecological island is:

a)	an island uninhabited by humans
b)	the transition zone between two or more distinct ecosystems
c)	an island managed for the preservation of specific natural features
d)	an area that is biologically isolated
e)	public land set aside to protect the habitats of endangered species

Ans: d
Difficulty: Easy
Link to: 14.10

16.	**Carrying capacity** is the:
a)	largest-sized individual that can survive in a given ecosystem
b)	maximum number of a species that an environment can support without degradation to the environment
c)	maximum number of a species that can live in an environment without competition among individuals
d)	maximum number of a species confined to a specific area
e)	variety of species that can live in one habitat without going extinct

Ans: b
Difficulty: Easy
Link to: 14.2

17.	The survival of an endangered species depends strongly on the:
a)	competition of male individuals within the species
b)	size of the ecological island the species lives in
c)	maximum sustainable yield of the habitat
d)	succession stage of the ecosystem
e)	the macronutrients available within the ecosystem

Ans: b
Difficulty: Easy
Link to: 14.10

18.	An early sign of the over-exploitation of a fish stock is:
a)	an increase in the average size of fish caught
b)	a shift in the catch towards younger fish
c)	overall declining quantity of catch
d)	an unstable maximum sustainable yield (MSY)
e)	decline in the logistic growth curve

	Ans: b Difficulty: Easy Link to: 14.5

19.	Traditional wildlife management was based on:
a)	sustainable yield
b)	exponential growth curve
c)	age structure of the population
d)	the logistic growth curve
e)	the minimum viable population
	Ans: d Difficulty: Easy Link to: 14.4

20.	Which of the following would improve the food supply for a population of wild condors?
a)	people hunting mountain lions
b)	establishing large cattle ranches on fertile, undeveloped land
c)	planting trees on steep slopes
d)	suppressing all fires in chaparral environments
e)	improving soil conditions for trees
	Ans: a Difficulty: Medium Link to: A Closer Look 14.3

21.	"Population risk" refers to:
a)	short-term changes in the habitat of a species
b)	a threat to species that consist of only a single population in one habitat
c)	the risk of changes in genetic characteristics
d)	the human population bomb
e)	catastrophes that change the environment
	Ans: b Difficulty: Easy Link to: A Closer Look 14.3

22.	Species can be especially vulnerable to extinction when:
a)	the population has high genetic variability
b)	the population is small

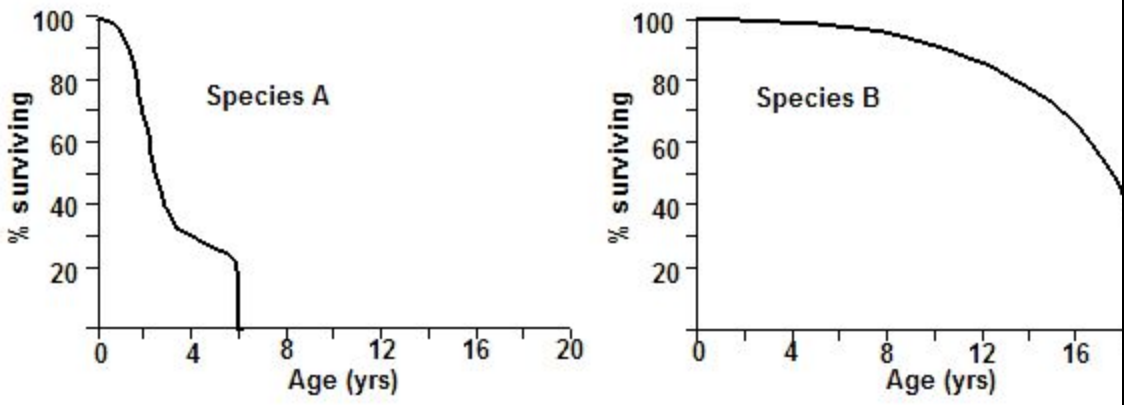
c)	the population lives far from human activity
d)	the population is very widely distributed
e)	the population's ecosystem is productive and fertile

Ans: b
Difficulty: Medium
Link to: A Closer Look 14.3

23.	With the recent introduction of off-road vehicles to the Sahara desert, the Sahara goat has been subjected to an increase in hunting by Bedouins. Studies indicate that as the total population size is decreased by the hunting, the percentage of females that are pregnant is increasing. This is an example of:
a)	competitive exclusion
b)	density-dependent population regulation
c)	succession
d)	density-independent population regulation
e)	prey and predator

Ans: b
Difficulty: Medium
Link to: 14.2

24. Based only on the graphs below, which species (A or B) would be more likely to survive periodic disturbances?



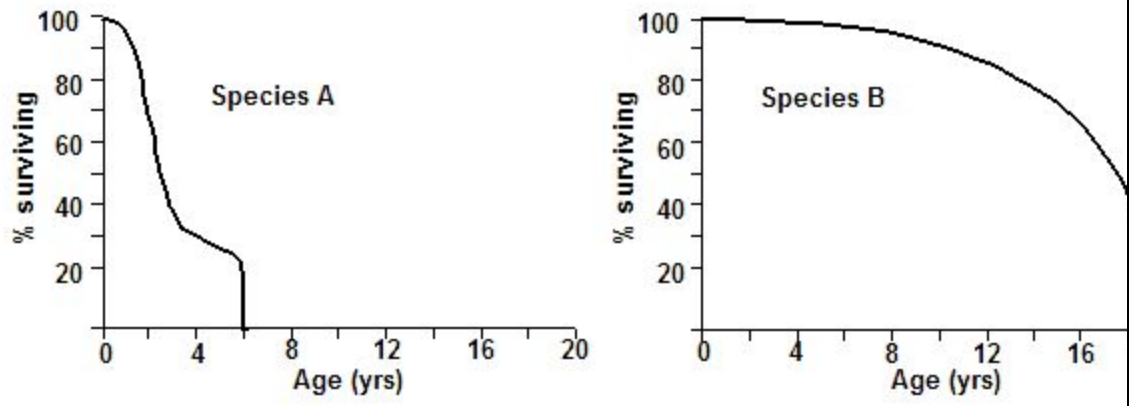
You are the manager of a reserve which contains two herbivorous species, A and B. The survivorship curves of the two species have been estimated in the graphs above.

a)	A
b)	B
c)	C
d)	D

e)	E

Ans: b
Difficulty: Easy
Link to: 14.2

25. In the figure below, which species (A or B) would better withstand sport hunting? (Assume that the hunters selectively shoot the largest [oldest] individuals.)



You are the manager of a reserve which contains two herbivorous species, A and B. The survivorship curves of the two species have been estimated in the graphs above.

a)	A
b)	B
c)	C
d)	D
e)	E

Ans: a
Difficulty: Easy
Link to: 14.2

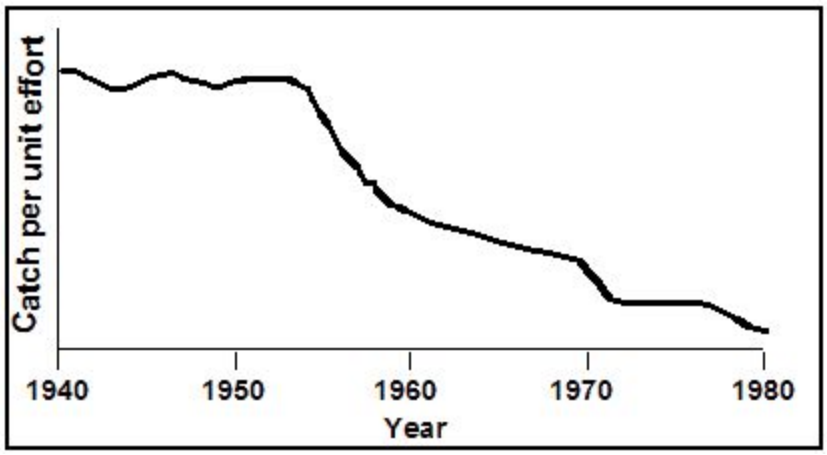
26. European diseases caused fatal epidemics among native human populations in South and North America:

a)	through natural selection
b)	because Europeans introduced these diseases intentionally to reduce the native population
c)	because the natives did not have antibodies to fight the new diseases
d)	through parallel evolution
e)	because Europeans withheld medicine from the natives

	Ans: c Difficulty: Medium Link to: 14.7

27.	In the course of evolutionary history:
a)	humans have been the primary agent of extinction
b)	about half of the species which have existed have become extinct
c)	all species alive today will eventually go extinct
d)	only poorly adapted species will go extinct
e)	extinction occurs only in connection with meteorite impacts
	Ans: c Difficulty: Easy Link to: 14.7

28.	_____ involves variations in the physical or biological environment
a)	Population risk
b)	Genetic risk
c)	Human induced risk
d)	Environmental risk
e)	A natural risk
	Ans: d Difficulty: Easy Link to: A Closer Look 14.3

29.	A thorough population study of a fishery in 1940 led to the calculation of an "optimum sustainable yield" for that population. The same amount has been harvested every year since then. Judging by the data below, do you believe this yield is really sustainable? What may have happened to cause the pattern shown? 
Ans:	The yield between 1955 and 1980 evidently was not sustainable because the fish population declined rapidly. Between 1940 and 1955, the population was basically stable. Some environmental change around 1955 may have brought the population from equilibrium to rapid decline.
	Difficulty: Difficult Link to: 14.5

30.	In what ways can illegal commercial trade of endangered animal species contribute to their extinction?
Ans:	It creates additional threats to species already suffering from reduced abundance and habitat damage.
	Difficulty: Medium Link to: 14.8

31.	Why is the diversity of forests and of wildlife of great importance to many indigenous peoples of less developed countries?
Ans:	The diversity of forests and wildlife provides the necessities for the survival of these people (wood for shelter, tools and fuels, material for clothing, food). Without these resources, they could not survive and would become dependent on external assistance.

	Difficulty: Difficult Link to: 14.11

32.	List at least three human actions that cause extinction of animal species.
Ans:	intentional hunting or harvesting disruption or elimination of habitats introduction of new predators, competitors, and diseases pollution of the environment
	Difficulty: Easy Link to: 14.7

33.	In terms of population, what is the ultimate practical goal in conservation of an endangered species?
Ans:	to achieve a minimum viable population in a minimum viable habitat
	Difficulty: Easy Link to: 14.6, 14.5

34.	France, Germany, and Portugal have high percentages of endangered species. Briefly explain why.
Ans:	These countries have a long history of intense land use and land conversion. These activities destroy the ecological niches which are required for a high species diversity.
	Difficulty: Medium Link to: 14.8

35.	Why does modern agricultural production of crops depend on the continued introduction of fresh genetic characteristics from wild strains?
Ans:	By introducing fresh genetic characteristics from the wild, researchers develop hybrid strains resistant to new diseases.
	Difficulty: Medium Link to: 14.8

36.	Maintaining forests protects natural diversity and ecological balance in a number of ways. Explain how forests work to the benefit of the environment.
Ans:	Forests retard soil loss and erosion. They stabilize the water supply and runoff. Worldwide reduction of forest acreage can change the global climate.
	Difficulty: Medium Link to: 14.8

37.	The Marine Mammal Protection Act of 1972 defined an optimum sustainable population of marine mammals to mean "the number of animals which will result in a maximum productivity of the population." There are 3,000 bowhead whales today, and there were approximately 30,000 prior to the beginning of modern commercial whaling. A) Is the present population an optimum as defined by the law? If not, what is the optimum population as defined by that law? B) List three factors that make the legal definition unrealistic for whales.
Ans:	(A) The present population is not an optimum as defined by the law. The optimum population, according to the definition above and the logistic growth curve, is 15,000 animals. (B) The logistic growth curve is unrealistic for whales because: their environment is not constant, all individuals are <u>not</u> identical, there are important time-lags, and because there are chance events which may be important
	Difficulty: Difficult Link to: 14.5

38.	Fisheries had been managed to achieve a maximum sustainable yield, as defined by the logistic growth curve. What is the major problem that results from this type of management?
Ans:	This practice often resulted in over-fishing.
	Difficulty: Easy Link to: 14.5

39.	List at least three of the assumptions of the logistic growth equation.
Ans:	that all individuals are alike that events are continuous that density effects occur at all densities that no time lags that constant environment that no age structure
	Difficulty: Easy Link to: 14.2

40.	Why have humans been <u>un</u>successful in making mosquitoes into an endangered species?
Ans:	Mosquitoes have: - a high reproductive rate - a short generation time - many different habitats are favorable for them - abundant food sources
	Difficulty: Medium Link to: 14.7

41.	Successful wild game management which is based on the maximum sustainable yield is based on three assumptions. Name them.
Ans:	The population has an exact and single carrying capacity. Its growth must be determined exactly by the classical logistic growth curve. The carrying capacity and the present population size are known exactly. It is possible to obtain complete cooperation from all who harvest the population.
	Difficulty: Easy Link to: 14.2

42.	What are the major advantages of wild game ranching, compared with traditional goat, sheep, and cattle ranching?

Ans:	Wild game damages the vegetation and the soil less than newly-introduced species, because the wild animals are adapted to the area. It increases the economic value of endangered species to the local human inhabitants, and it also increases the chances of survival of an endangered species.
	Difficulty: Easy Link to: 14.4

43.	List three reasons why it is useful to preserve endangered species.
Ans:	genetic diversity potentially useful chemical compounds aesthetic reasons crucial to the ecosystem food chain diversity
	Difficulty: Easy Link to: 14.6

44.	Explain how steelhead trout are valued by people, in contrast to sea lions, and why the species are valued differently.
Ans:	Steelhead trout are economically valuable because fishing is important for recreation. Sea lions are valued for their continued existence as part of the biological diversity on Earth. People enjoy watching them.
	Difficulty: Easy Link to: 14.5

45.	Name two biological factors which lead to the extinctions of species.
Ans:	competition predation
	Difficulty: Easy Link to: 14.2