APES Study Guide **Name:** _____

This STUDY GUIDE (with complete answers attached) is due the DAY OF THE EXAM- no exceptions! This is part of your <u>EXAM GRADE!</u> *Answers must be <u>HAND-WRITTEN.</u>*

Unit 3: -- BIODIVERSITY & EVOLUTION

The third unit of APES will continue our study of ecology. It will focus on biodiversity, species interactions and evolution.

Vocabulary: *Directions: Review key vocabulary, words may appear in quizzes and/or tests. You are not required to write the definitions but are <u>encouraged to **review them.**</u>*

adaptation
artificial selection
biological diversity
biological evolution
biological hotspots
differential reproduction
ecological niche
endemic species
extinction
fossils
foundation species
generalist species
food chains/webs
geographic isolation
indicator species
keystone species
mass extinction
mutations
native species
natural selection
niche *(realized vs.fundamental)*
nonnative species
invasive species
island biogeography
reproductive isolation
sexual selection
Shannon-Weiner Index
specialist species
speciation
species
species richness
species diversity
theory of evolution

age structure
carrying capacity
coevolution
commensalism
competitive exclusion
ecological succession
el nino
interspecific competition
limiting factor
limiting factor principle
mutualism
parasitism
population vs. community
population crash
population density
predation
predator-prey relationship
primary ecological succession
range of tolerance
r and k species
resilience
resource partitioning
rule of 10
secondary ecological succession
trophic levels
trophic level efficiency

Study Guide Questions (SGQ): *Directions: **Answer in complete sentences (attach to another paper)***

1. What are the four major components of **biodiversity** *(biological diversity)*?
2. What is the ***importance of biodiversity***?
3. Summarize the ***theory of evolution.***
4. Explain how ***mutations, natural selection, geographic isolation, genetic drift, and migration*** contribute to biological evolution.
5. Distinguish between ***geographic isolation and reproductive isolation*** and explain how they can lead to the formation of a <u>new species.</u>
6. Distinguish between ***artificial selection and genetic engineering*** and give an example of each.

7. What is ***species diversity***? Distinguish between ***species richness and species evenness*** and give an example of each.
8. Summarize and explain the theory of ***island biogeography.***
9. What is an ***ecological niche***? Distinguish between specialist species and generalist species and give an example of each.
10. Biological diversity is one of the most important indicators of the health of an ecosystem. List and describe several ***environmental factors that affect diversity***, and state whether each factor tends to increase or decrease biological diversity.
11. Distinguish among ***native, nonnative and indicator species*** and give an example of each type.
12. Distinguish between ***keystone and foundation species.*** Describe the role of some sharks as keystone species.
13. Define ***interspecific competition, predation, parasitism, mutualism, and commensalism*** and give an example of each. Explain how each of these species interactions can affect the population sizes of species in ecosystems.
14. Describe and give an example of ***resource partitioning*** and explain how it can increase species diversity.
15. Distinguish between a ***predator and a prey species*** and give an example of each. What is a predator–prey relationship?
16. Describe **three ways** in which prey species can avoid their predators and **three ways** in which predators can increase their chances of feeding on their prey.
17. Define and give an example of ***coevolution.***
18. Distinguish between the environmental resistance and the ***carrying capacity*** of an environment, and use these concepts to explain why there are always limits to population growth in nature.
19. Define and give an example of a ***population crash.***
20. Explain why humans are not exempt from nature's population controls. Describe the exploding white-tailed deer population problem in the United States and discuss options for dealing with it.
21. Describe two different ***reproductive strategies*** that can enhance the long-term survival of a species.
22. Define ***population density*** and explain how it can affect the size of some but not all populations.
23. Distinguish between ***primary ecological succession and secondary ecological succession*** and give an example of each.
24. Draw and explain the dynamics of a basis ecosystem in a t**rophic level pyramid**. Explain **trophic-level efficiency** and the **rule of 10.**

Unit 4: -- Endangered, Invasive Species
The fourth unit of APES will look at the causes and effects of deforestation, habitat destruction, invasive species, and overexploitation on endangered and invasive species.

Vocabulary: Directions: Review key vocabulary, words may appear in quizzes and/or tests. You are not required to write the definitions but are ***encouraged to review them.***

Study Guide Questions (SGQ): *Directions: Answer in complete sentences* ***(attach to another paper)***

By-catch
Clear cutting (Benefits)
Clear cutting (Disadvantages)
Critically Endangered
CITES Treaty
Deforestation (problems)
Ecologic services of forests
Economic services of forests
Endangered
Endemic species
Endangered Species Act
Extinction
Exotic species
Evolution-First Conservation
Function-First Conservation
Geographic Isolation
Invasive species
In situ vs. Ex situ
Marine Mammal Protection Act
Triage
EDGE
Threatened species
Noah Principle
Umbrella species
Conservation hotspots
KT Boundary (65 mya)
Speciation
Trawling
Long-lining
Purse seining
Mass extinctions
Sustainability
fish farming
aquaculture
moratorium
Old growth forests
Second growth forests
Selective cutting
Strip cutting
Sustainable forestry (logging)
Marine protected areas (MPA's)
HIPPCO
Ubiquitous
Vulnerable Species

1: Explain the acronym **(HIPPCO)** and how it *helps us to identify* the problems causing endangerment.

2: What is **aquaculture** and *what problems are associated* with farming such species as Salmon?

3: Explain why some people suggest that we eat *"lower on the food chain"*.

4: Explain why the technique of **bottom trawling** is so bad for the marine environment.

5: **When** was the Endangered Species Act enacted into law? *What does it say?*

6: **Contrast** the ideas of **evolution-first and function-first conservation.** I*n your opinion, what is the best option for conservation?*

7: What is the **Noah Principle**? Define.

8: *Prior to now*, **when** was the last large-scale, **world-wide mass extinction**? *What is this time period called?*

9: What happened in Newfoundland in 1992? *What were the consequences?*

10: What is the **Colony Collapse Disorder**? What could be the consequences of disappearing bees? What are some of the current theories?

11: Explain the ***Bushmeat Crisis- describe the problem, causes, consequences and possible solutions.***

12: Explain the idea of **sustainable forestry**- *how we can satisfy both the logging industry and preserve forests?*

13: What is **selective cutting of forests**? *How is this practice actually helpful to forests?*

14: Explain the *economic and ecologic* benefits of forests?

15: Explain the term *"by-catch"* and what percentage of the world's catch is considered by-catch?

16: What is the CITES Treaty? How does it help Endangered Species?

17: Know at least ***3 different endangered species (aquatic, terrestrial and plant).*** Be able to explain WHY they are endangered and ways to help support them.

18: Know at least ***3 different invasive species (aquatic, terrestrial and plant).*** Be able to explain WHY they are invasive and how we can control or eradicate them.

19: What are the benefits of **National Parks**? *Why were they created?*

20: Explain the idea of **conservation hotspots-** Why must we "choose" who to save? *How is this being done?*