

**2010 California Envirothon  
Wildlife Station Test  
Total Points= 100**

**Please write your team number on the top of EACH page. You may unstaple the test and work on the questions in any order: however, pages should be returned to the correct order when the test is turned in. You may choose to split your team and work on several questions at once or work on them together. For multiple-choice questions, mark the letter that describes the best answer or complete the sentence most accurately. Please show all work or thought process, as you may receive partial credit.**

**1) Mammal and Feeding Habits Identification:**

Identify the skulls and tracks on the table numbered 1 - 7 using the names in the list below. Write the animal's name, and whether that animal is an herbivore, carnivore, or omnivore. **(14pts)**

- |            |                    |                |         |
|------------|--------------------|----------------|---------|
| Black Bear | Badger             | Whitetail Deer | Beaver  |
| Grey Fox   | Long-tailed Weasel | Jackrabbit     | Bat     |
| Bobcat     | Mountain Lion      | Coyote         | Raccoon |

<u>Number</u>	<u>Animal Name</u>	<u>Carnivore/Herbivore/Omnivore?</u>
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1)	_____	_____
2)	_____	_____
3)	_____	_____
4)	_____	_____
5)	_____	_____
6)	_____	_____
7)	_____	_____

**Continue to use the list of mammals from Question 1**

2) Some Mojave animals have developed special physiological structures to enable them to regulate body heat. One of the mammals you identified above is a common desert resident with a specific adaptation to help stay cool. Identify the mammal and its adaptation: **(1pt)**

\_\_\_\_\_

3a) Identify which mammal produced the scat sample on the table **(1pt)**

\_\_\_\_\_

3b) Many areas of the California deserts are dotted with abandoned mines. Besides presenting a hazard to hikers, bikers and off-roaders, these mines provide important habitat for the mammal, just identified in 3a, that over-winter in these areas.

How is it possible to make the mines safe for over curious humans, but not deprive animals of this habitat? **(1pt)**

\_\_\_\_\_

4a) **See skull on table.** This skull belongs to a species that has demonstrated some of the fastest running speeds of all land animals. Give its common name: **(1pt)**

\_\_\_\_\_

4b) How might this skull's long nasal area illustrate an adaptation for conservation of metabolic water? **(1pt)**

\_\_\_\_\_

4c) What is this species' present day role in the ecology of the southern California deserts? **(1pt)**

\_\_\_\_\_

5a) **See skulls on table:** The labeled fragmentary specimens of skulls that were obtained from owl pellets. Note their identifications and structural features. Using this information, identify the three complete skulls of these small, herbivorous/granivorous mammals. Identify using common names. **(3pt)**

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

5b) Which of these species is known for its ability to retain almost all of its metabolic water? **(1pt)**

\_\_\_\_\_

**MULTIPLE CHOICE**

**6)** Two federal agencies work together to protect species listed as endangered or threatened under the Endangered Species Act of 1973. Circle the two correct names: **(2pts)**

- A. United States Environmental Protection Agency (USEPA)
- B. United States Fish and Wildlife Service (USFWS)
- C. United States Forest Service (USFS)
- D. National Oceanic and Atmospheric Administration (NOAA Fisheries Service)

**7)** Name the California state agency charged with managing California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. **(1pt)**

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**8)** The Migratory Bird Treaty Act (MBTA) made it illegal for people to "take" migratory birds, their eggs, feathers or nests. Define the term "take" in this context: **(2pts)**

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**9)** Which of the following birds species, all found in the Mojave Desert, is not protected by MBTA? **(1pt)**

- A. Le Conte's Thrasher
- B. Tri-colored Blackbird
- C. Golden Eagle
- D. House Sparrow

**10)** The Peregrine Falcon was one of the first birds to be placed on California's Endangered Species List. In 1970, the population in the state was listed at just five pairs. The cause of this dramatic decline was primarily the ingesting of prey contaminated by DDT. This is an example of: **(1pt)**

- A. Biome
- B. Carrying Capacity
- C. Biomagnification
- D. Aestivation

**11)** Which of the following conservationists/environmentalists developed "The Land Ethic" philosophy presented in the book "A Sand County Almanac"? **(1pt)**

- A. Gifford Pinchot
- B. Ansel Adams
- C. Theodore Roosevelt
- D. Aldo Leopold

**12)** Twenty-four hours a day, there is always some form of wildlife activity taking place, even in the desert. When wildlife species are active near dawn and dusk, they are referred to as? **(1pt)**

- A. Altricial
- B. Crepuscular
- C. Diurnal
- D. Nocturnal

**13)** The southwest deserts are home to a carnivorous rodent, the grasshopper mouse. What desert limiting factor might have helped bring about this adaptation? **(1pt)**

\_\_\_\_\_

**14)** The hump of a camel and the enlarged tails of the gila monster and the banded gecko are similar adaptations that serve what purpose? **(1pt)**

\_\_\_\_\_

**15)** Habitat is the key to wildlife survival. What is the term for the number of animals a habitat can support through the year? **(1pt)**

- A. Carrying Capacity
- B. Density
- C. Population Dynamics
- D. Stocking Rate

**16)** Which of the following species' territories or range is most limited by distance and/or availability of a permanent surface water source? **(1pt)**

- A. Desert Tortoise
- B. Black-tail Jackrabbit
- C. Golden Eagle
- D. Desert Bighorn Sheep

**17)** Creosote bush, an important wildlife plant providing shelter and seeds for many desert creatures, exhibits root-mediated **allelopathy**: Define allelopathy and briefly describe why it may be considered advantageous in a desert environment. **(2pts)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**18) VOCABULARY:** Place the letter corresponding to the correct definition for the listed terms in the second column. **(9 points)**

<b>1</b>		Aestivation	<b>A</b>	The arrangement of plants and animals into groups based on their natural relationships.
<b>2</b>		Niche	<b>B</b>	Watching these populations helps scientists forecast broader environmental problems such as climate change, ozone layer destruction, biodiversity loss, and global air/water pollution.
<b>3</b>		Indicator species	<b>C</b>	The resulting influence two starkly different plant communities have on the animals that inhabit the area.
<b>4</b>		Extirpate	<b>D</b>	The role a particular species plays within its ecosystem
<b>5</b>		Keystone species	<b>E</b>	a species that is not only native to a geographic area but is also restricted to that area or specific habitat
<b>6</b>		Taxonomy	<b>F</b>	a species that other species depend upon for survival
<b>7</b>		Edge Effect	<b>G</b>	elimination of a species from a given area
<b>8</b>		Endemic	<b>H</b>	Caused by repeated mating of successive generations of closely related individuals, especially in small or isolated populations
<b>9</b>		Inbreeding depression	<b>I</b>	State of animal dormancy, takes place during times of heat and dryness,

**19)** The intensity of natural selection in desert settings produces many close relationships between species, some we could classify as “symbiotic”. Match one species from the first column with a species on the right with which it has a special relationship; then choose a description of this relationship. Use the letters (A-E) to match the two species and the description of their relationship. **An example, (F), is given. 10 points**

Species 1	Letter	Relationship	Letter	Species 2
A. Night Lizard	F	Nest area provides shelter from predators		Desert Tortoise
B. Tarantula		Is its primary food source/prey	F	Cholla Cactus
C. Phainopepla		Feeds on termites in plant		Joshua Tree
D. Common Raven		Important vector for seed dispersal		Hawk Wasp
E. Harvester Ants		Preys on young		Horned Lizard
F. Cactus Wren		Will be food for larvae		Mistletoe

**20)** Which of the above relationships could be described as... **(2pts)**

-Predatory: \_\_\_\_\_

-Mutualism: \_\_\_\_\_

**19)** Briefly describe how wild burros often affect the ability of bighorn sheep to survive in California desert habitat. Give a reason that burros became so numerous in this habitat. What method is being used by the Federal Bureau of Land Management and the National Park Service to control this situation? **(3pts)**

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**21)** Draw a diagram of a food web, showing at least four trophic levels, labeling producers, decomposers, primary and other consumer levels, and which are herbivores, carnivores, etc., incorporating, but not limited to the following organisms: desert cottontail, insects, kit fox, hawk, snake, tarantula, deer mouse, horned lizard, coyote, creosote bush, wildflowers. Use arrows to show the associations among the organisms at one trophic level and the next. **(8 points)**

**22)** As the signature species of the dominant vegetation type of the high desert, the Joshua Tree itself provides relief for wildlife from severe desert limiting factors. Give a brief explanation how each of these animal species uses the Joshua Tree as a resource. **(4 points)**

-Yucca moth \_\_\_\_\_

-Yucca night lizard \_\_\_\_\_

-Yucca weevil \_\_\_\_\_

-Gilded flicker \_\_\_\_\_

**23a)** These two photos represent characteristic habitats of Joshua Tree National Park. Name each. **(2pt)**

A. \_\_\_\_\_

B. \_\_\_\_\_

**23b)** The skull with the photos was picked up on a family camping trip back around 1995. It was found along the side of Box Canyon Road, in Riverside County north of Mecca, just south of Shavers Valley (Cottonwood Springs 15' quad, T6S R10E).

Give a common name for this animal (hints: uncommon but permanent resident, nocturnal, fossorial carnivorous mammal): **(1pt)** \_\_\_\_\_

**23c)** Which of the two habitats was it found in, A or B? **(1pt)**

\_\_\_\_\_

**24)** Federal desert lands are managed for multiple uses, including the following: (8pts total)

**A. Livestock grazing**

**B. Off –road travel**

**C. Highway travel**

**24A-**Match a use that poses these threats to survival of the desert tortoise? **(3pts)**

\_\_\_\_\_

death from exposure or crushing

\_\_\_\_\_

competition for food plants

\_\_\_\_\_

soil crust disturbed; tortoises crushed in their burrows

**24B-**Match a use with each method wildlife authorities, land managers and owners have tried to limit impacts on the tortoises. **(3pts)**

\_\_\_\_\_

created roadless/restricted areas; relocated tortoises from military facilities

\_\_\_\_\_

created tunnels/culverts for tortoises to pass beneath highways

\_\_\_\_\_

curtailed grazing allotments/leases; setup exclosures

**24C-**The Desert Tortoise is currently protected by the Endangered Species Act. **(2pts)**

What is its current listing status) \_\_\_\_\_

and population status (recovering, stable, declining, or extinct). \_\_\_\_\_





Desert riparian habitats are found along permanent streams and at seeps and springs in the Mojave Desert. These habitats support more bird species, and at greater densities, than other desert habitats (with the possible exception of some Palm Oasis habitats). The dense shrubbery and permanent water provide food, cover, and water for additional wildlife diversity.

Desert Riparian habitats vary. Overstory species may include tamarisk, velvet ash, mesquite, screwbean mesquite, Fremont cottonwood, and willows. The midstory and understory plants may include smaller individuals of the canopy species as well as quailbush, Mojave seablight, desert lavender, seep willow, and arrowweed.

Dominant canopy plant species of

**25) (3 points total)**

Of the plant species listed in the last paragraph, name the invasive, non-native species. State two reasons why this species - if its growth is left unchecked - degrades wildlife habitat:

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26) Different bird species select different locations within a habitat to build their nest and raise their young. The vegetative composition of a riparian system can be described by the height of the plants using the terms:

(A) understory and ground, (B) midstory, (C) canopy, and (D) cavity nesters.

Which suite of birds would you expect to find using each of the listed categories of riparian habitat? Use the letters (A-D) to match the habitats to the birds: (4 points)

- Phainopepla, House Finch, Western Scrub Jay: \_\_\_\_\_
- Western Screech Owl, Canyon Wren, Wood Duck: \_\_\_\_\_
- Northern Harrier, Western Meadowlark, California Quail: \_\_\_\_\_
- Golden Eagle, Common Raven, Great Horned Owl: \_\_\_\_\_

27) For the different interest groups listed below, pretend each has land next to desert riparian habitat. Note one simple action that each group members can take to make their land a better home for birds: (3 points)

Agriculture- local rancher \_\_\_\_\_  
\_\_\_\_\_

Urban- local home owner \_\_\_\_\_  
\_\_\_\_\_

Government-BLM off-road vehicle park \_\_\_\_\_  
\_\_\_\_\_

28) Suppose an upstream dam project is proposed desert riparian habitat. Why might riparian obligate plant and species be more vulnerable than the facultative generalists species to impacts from the creek damming and flow regulation? (3pts)

\_\_\_\_\_  
\_\_\_\_\_

**THE END**  
*When you try to pick out anything by itself,  
you find it hitched to everything else in the universe.*  
- John Muir