Bear Care

By Stephen Fraser

Lisa Stevens oversees two of the Smithsonian zoo’s most popular residents: the giant pandas.

No more than 2,000 giant pandas exist in the world. So Lisa Stevens has one of the most specialized and critical jobs in her field. She is the curator of pandas at the Smithsonian’s National Zoological Park in Washington, D.C. The zoo is home to two giant pandas: Tian Tian, a 13-year-old male, and Mei Xiang, a 12-year-old female. Current Science spoke with Stevens about the challenges of keeping giant pandas and what has been learned at the zoo about the species.

Jessie Cohen/National Zoo
Lisa Stevens feeds one of her celebrity charges. Giant pandas will eat carrots, apples, sugarcane, and sweet potatoes in addition to bamboo.

Current Science: Did giant pandas fascinate you as a child?
Lisa Stevens: I was fascinated by animals in general, though mostly insects and reptiles. I grew up in Thailand and Japan in tropical environments.

CS: What was your major in college?
Stevens: I have a Bachelor of Science degree in zoology [the scientific study of animals] from Michigan State University.

CS: How did you get the job at the zoo?
Stevens: I was volunteering at the Smithsonian insect zoo and contemplating veterinary school or graduate studies in entomology [the scientific study of insects] when I heard about a panda keeper position at the zoo.

CS: Are giant pandas considered bears?
Stevens: Yes, giant pandas are bears. That was established in 1987 through DNA analysis.

CS: What features make giant pandas like, and unlike, other bears?
Stevens: Like other bears, giant pandas have the same body structure and are primarily solitary as adults. Unlike other bears, which are primarily omnivorous [eat plants and animals], pandas feed almost exclusively on bamboo.

Most bears consume high-energy foods that enable them to slow down and stay in their dens throughout the winter. But bamboo is a low-energy food, so pandas have to eat all year round. They can’t hibernate.

Giant pandas are also unique in terms of the presence of a broadened skull and molars [teeth that have deep grooves and ridges for crushing or grinding food], as well as pseudo-thumbs. A pseudo-thumb is not a finger but a bony extension of one of the wrist bones. It assists the panda in grasping and manipulating bamboo stalks.
CS: Mei Xiang and Tian Tian have produced only one surviving cub. Why is it so difficult to breed giant pandas in captivity?

Stevens: They are difficult to breed because females ovulate [release eggs] only once a year and are fertile [able to conceive] for just two days. Some mammals have more than one period of fertility in a year. Human females are fertile once a month.

CS: What has been discovered about giant pandas at your zoo?

Stevens: Giant pandas regularly experience false pregnancies. A false pregnancy is a state in which a female exhibits symptoms of pregnancy but is not pregnant. We looked at hormones in the urine, which showed that the female panda’s body goes through the same hormonal changes whether she is pregnant or not. There is still not a test to tell whether a panda is truly pregnant. Scientists are still working on this.

We also learned how to monitor the health of newborn cubs by counting their vocalizations. Newborn pandas are noisy when they are healthy. We counted the number of squeals and grunts to monitor their activity. This is important because panda cubs are tucked under their mothers’ large arms and are difficult to see.

CS: Are you allowed to interact with the pandas? If so, how do the pandas respond to you?

Stevens: Yes. I interact with them through protective barriers. They are comfortable with the keeper staff and me. They are primarily interested in us as food providers.

KRT/Newscom

CS: Why are giant pandas rare in the wild?

Stevens: The giant panda evolved its specialized bamboo diet during a time when the bamboo forests were plentiful throughout China and Southeast Asia. That specialization has made the species vulnerable to habitat loss due to human activities.

CS: What is the National Zoo doing to help panda conservation?

Stevens: We are working with our Chinese colleagues to establish wildlife management and research programs in the reserves in China so that there is effective conservation for giant pandas, their habitat, and all the other animals that depend on that forest. We also provide funds to help build roads and provide offices, laboratories, and housing so that park staff can live near and actually get into the reserves to study and monitor animals.

CS: What is the most difficult part of your job?

Stevens: When animals get sick or die.

CS: What is the most rewarding part of your job?

Stevens: It’s rewarding to go home in the evening and know that your animals were given the best of care. It’s rewarding to light a fire for conservation in a person’s heart, whether it is a child or an adult.

CS: What would you tell a young person who wants to pursue a career in
Stevens: Study the sciences, and get lots of hands-on experience—at riding stables, humane societies, vet clinics, and the like. Read, read, read, and watch animal-related programming. Volunteer in your spare time to help a conservation or animal-care group.

Name: _______________ Date: _______________________

1. What did Lisa Stevens study in college?
A geology
B zoology
C paleontology
D entomology

2. How does the author describe the job of curator of pandas at the Smithsonian zoo?
A as specialized and critical
B as fun, but unimportant
C as dangerous and difficult
D as common, but interesting

3. After reading the passage, you can conclude all of the following about Lisa Stevens EXCEPT
A she is comfortable being around animals
B she would rather be a veterinarian
C she enjoys working with giant pandas
D she finds her job rewarding

4. Read this sentence from the passage: “I was volunteering at the Smithsonian insect zoo and contemplating veterinary school or graduate studies in entomology [the scientific study of insects] when I heard about a panda keeper position at the zoo.”
Based on the text, the word **contemplating** means
A studying diligently
B giving little thought
C considering thoroughly
D listening attentively

5. The primary purpose of this passage is to describe
A why giant pandas have so much difficulty breeding in captivity
B the reason giant pandas are so popular at the Smithsonian zoo
C Lisa Stevens’s job as curator of pandas at the Smithsonian zoo
D how giant pandas use their pseudo-thumbs to grasp bamboo stalks

6. According to the article, how are giant pandas like other bears?

_____________________________________________________________

7. What might happen if more bamboo forests disappear? Give specific examples from the article that support your answer.

_____________________________________________________________

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.
Giant pandas can’t hibernate throughout winter __________ they have to eat all year long.
A until
B before
C although
D because

9. Answer the following questions based on the sentence below.
Lisa Stevens volunteered at the Smithsonian insect zoo before becoming the curator of pandas because she was fascinated by insects.
Who?

_____________________________________________________________

(did) What? volunteered at the Smithsonian insect zoo
When?

___
Why?

10. **Vocabulary Word**: consume: to eat or drink.
Use the vocabulary word in a sentence: