

# EXZOOBERANCE

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## ZOO RENDEZVOUS

*Strut your Stuff*



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# TIS THE SEASON FOR HIBERNATION

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**W**hile it's hard to imagine preparing for winter in the current hot weather, animals are beginning to gear up for the cooler temperatures. Some animals find shelter, some rely on their thick skin or fur coat, while others start fattening themselves up to get ready for hibernation.

Hibernation is a state of reduced activity – normal bodily functions slow down, so less energy is used during this period, which allows animals to stay in this state for months on end. The good thing about hibernation is two-fold. For starters, animals don't have to come out looking for food in the harsh environment (and let's face it, there's not much to be found in winter anyway.) Plus, they don't risk being eaten by whatever is strong enough to weather the winter storms. The down side is that they're relying solely on their built-up fat reserves. The longer they stay in hibernation, the skinnier and more vulnerable animals can be when they emerge in the spring.

This tradeoff between the pros and cons of hibernation is tricky for the animals, and even trickier for the zoo keepers taking

care of them. When should we start the hibernation process? How long should we let the animals hibernate? What temperature do we keep them? All these are questions that need to be worked out through detailed experiments. For some species, such as the polar bear, scientists have things pretty much worked out. For reptiles and amphibians, such as frogs and toads, however, a lot remains unknown.

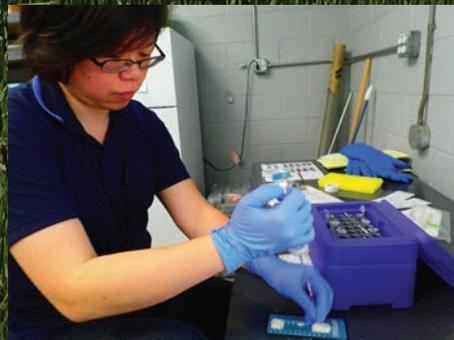
In the Research Department, Zoo staff is taking the first steps to figure out how hibernation affects the health and activity of one of the most endangered amphibians in North America – the Wyoming toad. Historically, these toads were common in the Laramie Basin of Wyoming. Currently, however, there are only a handful of lakes with wild populations. Most individuals are found in captivity in zoos and hatcheries across the U.S. For endangered species like the Wyoming toad, captive programs are vital to the long term survival of the species. These captive populations not only serve as insurance for maintaining biodiversity (should the wild population go extinct),

but also actively contribute through release programs (which helps prevent extinction.)

Working with biologists at the Wyoming Field Office of the U.S. Fish and Wildlife Service and the Leadville National Fish Hatchery, Memphis Zoo staff designed a comparative study to examine how male toads do under short-term hibernation, long-term hibernation, or no hibernation at all. We compared how the body condition of toads change, depending on how long they have been in hibernation. We also looked at the quality and quantity of sperm that male toads produced upon emergence. Turns out, these hardy toads handled hibernation a lot better than we anticipated. Our results indicated that toads were not negatively affected by hibernation, possibly due to the fact that they are receiving such good care under captive conditions. Knowing this now, we can all rest assured that when spring arrives, our captive toads will be emerging from their hides ready to find a mate and contribute to the survival and longevity of their species.



*Wyoming toad adult coming out of hibernation.*



*Memphis Zoo researcher (Dr. Sinlan Poo) collecting Wyoming toad sperm.*



*Memphis Zoo researcher (Ms. Kristin Hinkson) collecting Wyoming toad sperm.*