

**1993 Protocol for Wyoming Toad  
Reintroduction Using Sybille Wildlife Research Unit  
and Cheyenne Mountain Zoo Captive Animals**

The Wyoming toad (*Bufo baxteri*) captive breeding program is a cooperative endeavor between the Wyoming Game and Fish Department, the Cheyenne Mountain Zoo, and the U. S. Fish and Wildlife Service. The toad population at Sybille is believed to consist of 1.1 toads born in 1989, 8.5 toads born in 1990, 3.6 toads from 1991, and 22 toads of unknown sex from the 1992 cohort. These captive toads should be used for the best possible advantage to the species by establishing a new population in former habitat. This may be accomplished 1993 by encouraging breeding and egg laying under semi-protected conditions in natural habitat at Lake George, Hutton National Wildlife Refuge. There is risk to the captive toads associated with possible escape, predation, theft, and disease; but the risks are far outweighed by the benefits to the species if a new population is established at Lake George.

1. Three to five metal cages will be constructed.
  - a. Cages will have a wire top, but will not have a bottom.
  - b. Cages will measure 16 feet by 8 feet or 8 feet by 8 feet and will be 2 to 4 feet deep.
  - c. Cages will be constructed in portable panels framed with angle iron, with a double layer of wire mesh consisting of 1 inch by 2 inch welded wire outside ¼ inch hardware cloth wire.
2. Cages will be set up at Lake George by May 10 in order to allow time for vegetation disturbed by installation to recover and to be sure all sides remain adequately buried and sealed.
3. An aggressive effort will be made at Mortenson Lake to locate and document calling males and egg masses.
4. Captive toads will not be brought out of hibernation until a few days after toads are known to emerge at Mortenson Lake. If captive toads emerge before toads at Mortenson Lake, they will be subjected to as near ambient temperatures as possible and they will not be managed in any way that encourages activity, including breeding activity. This may require holding the toads in their hibernacula within the environmental chamber.
5. Captive toads will be moved to Lake George after the first males are heard calling at Mortenson Lake and after ambient temperatures, as recorded in Laramie, have exceeded 70 degrees Fahrenheit for four consecutive days and night time low temperatures generally exceed 32 degrees Fahrenheit.

- a. All captive 1991 and older toads at Sybille will be used, except females that do not appear gravid.
  - b. The five largest male toads and female toads which have attained adult size and appear gravid at the Cheyenne Mountain Zoo will be moved to Lake George. These toads will be confined in a cage (or cages) separate from the Sybille toads. Prior to delivery, they will be maintained on a natural light cycle.
  - c. Males and females will be moved at the same time.
  - d. Captive toads will not be moved to Lake George during a period of unfavorable weather conditions.
  - e. All toads will be photographed and weighed immediately before being move to Lake George.
6. Cages and toads will be examined at least daily in order to maximize safety of confined toads.
- a. Cages and toads will be examined for evidence of cage damage, vandalism, predation, cold stress, disease, and escape.
  - b. A cylindrical cage of ½ inch hardware cloth wire 24 inches in diameter will be available if it appears necessary to confine a make and female close together in order to facilitate amplexus.
  - c. Artificial shelters will be established inside cages.
  - d. Feasibility of establishing solar powered artificial heat sources will be explored and, if possible, artificial heat will be provided.
7. Initially, all captive toads will be placed in the same cage to simulate breeding congregation and competition conditions.
- a. Recording of calling males will be played at night if it is demonstrated to encourage breeding activity.
  - b. Cages and toads will not be visually examined at night unless an emergency, e. g., predation attempt, is perceived.
  - c. Cages and toads will be carefully inspected at least once daily to account for toads, search for egg masses, and inspect cages for potential escape routes.
8. When an egg mass is discovered, if she can be identified, the female that produced it will

be returned to Sybille, and remaining toads will be moved to a second cage after two or more egg masses are established. The process of moving all remaining toads to a new cage will continue until the fourth and fifth cages are used.

9. Hormonal induction will be considered using the protocol of Bob Johnson on an apparent gravid female at Lake George after seven days of calling without apparent amplexus in the presence of calling males.
10. Toads will be placed into maintenance isolation upon return to Sybille and the Cheyenne Mountain Zoo.
11. If technician assistance and equipment are available, environmental variables will be monitored: a. air temperature, b. water temperature, c. wind intensity.