Dear Potential Desert Tortoise Caregiver:

Thank you for your interest in adopting a desert tortoise (*Gopherus agassizii)*. As an adopter of a captive desert tortoise, you become a tortoise *custodian*, not owner. Removing desert tortoises from the wild was legal until 1989, when the Arizona Game and Fish Department protected the species from collection from the wild. Captive breeding of these desert tortoises and their offspring has led to a surplus of tortoises that need homes. However, we ask that you give considerable thought to being a tortoise caregiver before you apply. A captive tortoise can live up to 100 years, so be aware that a tortoise you adopt may outlive you. Please read the following information carefully and determine whether or not you are able to provide the burrow and yard enclosure a desert tortoise requires, as well as the necessary care and treatment. Desert tortoises are typically only adopted from April 1-September 30 because they hibernate during the cooler months. Often families use the winter months to prepare their backyard habitat, constructing the burrow and enclosure.

If you decide you would like to adopt a desert tortoise, please visit the AGFD Captive Desert Tortoise Care website at: http://www.azgfd.gov/tortoise. Please also review the checklist below to be sure you have fulfilled the requirements. Then, fill out the application at the end of this booklet and return it with the required photo documentation. In some cases, we may request that you give a tortoise adoption expert permission to visit your yard to take a closer look at your tortoise habitat. After you have been approved to adopt a tortoise, we will contact you to make arrangements to pick up your desert tortoise. Your tortoise may be permanently marked so if it becomes lost and then found it can be identified by various animal care agencies or veterinarians. A marked tortoise can be traced back to one of our adoption facilities and returned to you. You will be asked to pay a re-homing fee to cover the costs of the adoption process.

Any of the state-sanctioned desert tortoise adoption facilities will accept desert tortoises that can no longer be cared for by adoptive families. Typically, this occurs when adoptive families leave the state or the owner passes away. Desert tortoises cannot be removed from Arizona, so if you are a desert tortoise custodian and are moving from Arizona, you must return the desert tortoise to one of the adoption facilities. If you relocate within the state, please contact the nearest adoption facility to update your address in our records. **Remember that it is not only illegal to release a captive desert tortoise into the wild, doing so is also detrimental to wild tortoises because it can spread disease and disrupt uniquely adapted genetics in wild populations. It is also illegal and detrimental to desert tortoise populations to collect tortoises from the wild.** Desert tortoises cannot be adopted outside of their natural range. You may adopt a desert tortoise if you live in the Phoenix, Bullhead City, Kingman, Lake Havasu, Tucson, and Yuma areas. Desert tortoises cannot survive the severe winters that occur in the northeastern or southeastern regions of the state. Contact information for desert tortoise adoption facilities are listed below.

Phoenix: Phoenix Herpetological Society (602) 550-7029 or (602) 705-2240;
www.phoenixherp.com
Bullhead City / Kingman / Lake Havasu: AGFD Region III Office (928) 692-7700
Tucson: Arizona-Sonora Desert Museum (520) 883-3062;
www.desertmuseum.org/programs/tap.html
Yuma: AGFD Region IV Office (928) 342-0091

Caring For a Captive Desert Tortoise

As an adopter of a captive desert tortoise, you become a tortoise *custodian*, not owner. A captive desert tortoise is still wildlife, and thus remains the property of the State of Arizona. This distinction allows the state to maintain certain authorities required by state and federal regulations. A captive desert tortoise is not a typical pet, and does best when handled infrequently. Children especially must understand that the tortoise is an animal that should be watched, not picked up and held. However, desert tortoises can be fascinating animals to observe, and families can gain an appreciation of desert wildlife by caring for a tortoise and watching its natural behavior. Before adopting a desert tortoise**,** we strongly encourage you to learn as much as possible about desert tortoises and desert ecology. Below we have provided basic information about desert tortoise care and adoption; this document is not designed to be a definitive guide.

General

Responsibility for feeding, veterinary care, safety and general well being of the tortoise rests with the adoptive family. Children should not be solely responsible for the care of the tortoise.

Dogs can pose a deadly threat to your captive desert tortoise. If you have a dog, it must be fenced separately from the tortoise. There have been many cases where even well behaved dogs have mauled desert tortoises, resulting in severe injuries and expensive veterinarian bills. In some cases, the injuries were so severe that the tortoise had to be euthanized. Desert tortoises must be housed separately from other species of turtles or tortoises, as potentially fatal diseases and parasites can be spread among species.

The desert tortoise is a reptile, and so it can't regulate its body temperature like warm-blooded animals. Instead, the tortoise needs to spend much of its time in a thick-walled, insulating burrow for refuge from temperatures that are too hot and too cold. To keep cool in the summer, it remains in its burrow most of the day, but will come out briefly to feed in early morning and early evening. In the winter, your desert tortoise will hibernate and emerge only on the very warmest days. If your tortoise does not hibernate in the winter, this could be a sign that your tortoise is sick, and you should take it to a veterinarian for a health check-up.

A desert tortoise is a solitary animal and does not require any additional tortoises to keep it company. Per the 2008 Tortoise Adoption Program guidelines, possession limit is one desert tortoise per household. This means that if you already have a desert tortoise, you will not be able to adopt another. If you already care for more than one desert tortoise, please house them separately because eventually they will fight and/or breed. Fighting between tortoises creates a stressful environment for both tortoises.

The problem with breeding captive desert tortoises

We strongly discourage breeding captive tortoises because the hatchlings often end up in one of our adoption facilities, and caring for them uses resources that would otherwise help with the state's desert tortoise conservation efforts. Each year there are approximately 300-400 desert tortoises available for adoption throughout the state, not including hundreds of unwanted hatchling tortoises, resulting in an excess of adoptable tortoises. If your household already has a male and female pair, it is extremely important to create two separate enclosures so they cannot

breed (you can distinguish males from females only after they have reached more than 6” in length; the plastron, or bottom part of the shell, becomes concave in males, while it is flat in females). A female desert tortoise can store sperm for several years, meaning that mating once can result in several years of hatchlings.

Captive tortoise hatchlings can never be released into the wild. Each wild population of desert tortoises has a unique genetic makeup that is specially adapted to the environment in which it lives. Captive hatchlings, which have an unknown or varied genetic makeup, have the potential to disrupt the unique genetics of a wild population if released. Additionally, captive hatchlings can acquire the same diseases as adult tortoises in captivity, which can spread into wild populations upon release. By law, hatchlings from captivity must be either given away or turned over to a state-sanctioned adoption facility within 24 months of hatching. If you give hatchlings away to friends, remember that the possession limit for desert tortoises is one tortoise per person, and please make sure they understand how to care for a hatchling properly, otherwise it might acquire chronic diseases which could result in death. Hatchling care information can be found at: www.azgfd.gov/w_c/tortoise/hatchling.shtml

Enclosure

Your captive desert tortoise requires a secure habitat consisting of an enclosure with at least one burrow. For security reasons, we typically require the enclosure to be in the backyard; however we will make exceptions if you live in a rural area and can show that the front yard habitat is secure. The total minimum area for an adult desert tortoise should be at least 18’ x 18’ (324 sq. ft.) and this area must include a grass section of at least 6’ x 6’. Grasses, along with other native vegetation such as mallows, forbs, and vines are all an excellent diet staple for a desert tortoise. If you have a dog, the enclosure fence must be high enough to exclude the dog. Your pool, spa, or fish pond must also be fenced off separately. Desert tortoises cannot swim, so if they fall into deep water, they will drown.

The tortoise must always be able to get to shade, sun, water, and dry ground. Shade is an important component of your tortoise’s backyard habitat so that it can take refuge from the sun when it is outside of its burrow. Shade can be achieved by establishing several medium to large plants within the enclosure. Alternatively, you can create shade in the enclosure by building a shade ramada with an awning. Gravel is not suitable as an enclosure substrate for two reasons: 1) gravel absorbs heat and makes the surface temperature extremely hot; and 2) gravel can be ingested by a tortoise while it is eating. Both heat from and ingestion of gravel can cause health problems for your desert tortoise, or even death.

Your entire backyard can serve as the enclosure if it is fenced, with at least a 12” footer, which prevents the tortoise from digging under the fence. If your backyard is not fenced, you can create an enclosure by first digging a 12” footer, which can be made of cement or cinder blocks (or you can trench down 12” and install a barrier of ¼” or ½” hardware cloth). Then construct an enclosure wall at least 18” high (if the wall is constructed of cinder blocks, you will need at least 3 layers of blocks above the surface of the ground). If the enclosure wall is constructed of hardware cloth or a similar material, you will need to create a lip along the top edge to ensure the tortoise cannot escape if it climbs the wall.

If your backyard fence is chain link, your tortoise can see out of the enclosure and might try to escape, which ultimately causes stress. Also, a tortoise can get its head or limbs stuck in chain

link or wire fencing. To solve these problems, create a visual barrier that is at least 16” high against the bottom of the chain link. This barrier can be constructed of cinder blocks, opaque Plexiglas, or wood. Do not use metal, because it can reflect heat and potentially have sharp edges.

Fence gates must be self-closing so that they are not accidentally left open, and the tortoise cannot easily push them open. The gate must be at least 18” high, with no open space below through which the tortoise can escape.

Do not use dry fertilizer, snail bait, weed or pest sprays or systemic poisons in the enclosure. Many pest control chemicals can kill tortoises, so ask your pest control company to use natural or synthetic pyrethrum sprays, which are not harmful to tortoises.

Burrow

The burrow serves an important function in protecting the tortoise from the extreme heat and aridity of the summer, and providing a place to hibernate in the winter. It is therefore critical that you build a burrow that insulates well. The burrow should have a layer of at least 8” of soil on the top, sides, and back for insulation. The bottom substrate of the burrow needs to be soil, not rocks or gravel, for proper insulation. Burrows with openings facing the south are good burrows for hibernation, because they warm up quickly. Burrows with openings towards the north warm up slowly, and are suitable for summer burrows. If you have only one burrow for your tortoise, build it in the shade of a shrub or tree. Below we provide general instructions on how to create a tortoise burrow. For complete instructions on how to build different kinds of burrows for your desert tortoise, and photographs of burrows, refer to the AGFD Captive Desert Tortoise Care website: www.azgfd.gov/tortoise. If you do not have access to the internet, you can request a paper copy of the burrow construction instructions through AGFD at (602) 942-3000 or by visiting the Kingman, Phoenix, Tucson, or Yuma Regional Offices, or the Arizona-Sonora Desert Museum (contact information above).

The burrow can be constructed out of a 5-gallon bucket or a large metal trash can cut in half and placed lengthwise so that it sits level on the ground. Rocks can be placed around the sides and back to prevent erosion. Add an 8” layer of soil on the top, sides, and back for stabilization and insulation. Cinder blocks can also be used to create a burrow. Arrange 6 cinder blocks into a “U” shape, and cover with a ¾” thick, 40" long x 32" wide piece of ceramic tile backer board (e.g., Hardieboard™) or a piece of flat rock such as flagstone. Soil should then be piled 8” high on the top, sides, and back for insulation.

The burrow should be high and dry, meaning that it is located in a high area of your backyard, and away from any water source, including irrigation or areas where water collects after rains. It is critical that the tortoise burrow stay **completely dry** during irrigation or heavy rains and that the tortoise always has a dry place to bask. The location of the burrow should not be on any rocks or gravel. The burrow should be at least 8’ away from the water and the entrance should be raised up on a mound that is high enough to prevent becoming inundated with water during flood irrigation (at least 2’ above ground) and during monsoon rains (8” above ground). A damp den will cause your tortoise to become susceptible to various respiratory ailments that require costly veterinarian treatment. These ailments, if left untreated, will most likely result in the death of the tortoise.

If you live in the Bullhead City, Kingman, Lake Havasu, or Yuma areas, the burrow must be dug below ground to offer the best thermal protection against the extreme heat in these regions. However, the entrance should still be high enough to prevent flooding during heavy rain. You can create a below ground burrow by digging a hole that is 5-7' deep, the width of your tortoise, and at an angle of 15-20º below the horizontal ground level.

Hibernation

Desert tortoises hibernate from October through March (but hibernation may begin as early as September and end as late as July). During this time your tortoise will retreat to its burrow and may not emerge until spring or the onset of the summer rains, although it might come out on warm days for water. Captive desert tortoises, even hatchlings, should be allowed to hibernate in an outdoor burrow because it is part of the species' natural cycle. However, hatchlings less than 20 grams, and sick tortoises should not be allowed to hibernate. September is an excellent month to get your captive desert tortoise's health checked to make sure it is healthy enough to hibernate.

If your tortoise does not move into its burrow by the time temperatures at night go below 50º F, or you are not sure the burrow will remain dry during winter rains, you will need to hibernate it inside. The tortoise should be placed in a cool, dark area such as a garage. A heavy cardboard box or plastic storage container packed with shredded paper or straw generally provides adequate protection. The box should be covered with several layers of blankets or newspapers, and it should be kept up off the floor away from any holes that could lead to drafts or rodent invasion. The temperature should remain around 55° F with the humidity range between 30-40 percent. These parameters can be monitored using an inexpensive thermometer and humidity meter.

Dehydration is a risk to desert tortoises during hibernation in dry winters. Before your tortoise retreats to hibernation, you may soak it for 20 minutes; be sure to dry your tortoise completely before it heads into its burrow and it begins hibernation. If you have more than one tortoise, soak them separately so you avoid spreading diseases. Dehydration also can be prevented by making sure the burrow is cozy, meaning that there is very little space around the tortoise in the chamber, where dry air can creep in and lower humidity.

If it is a dry winter, you should supplement water by recreating a winter rain. On a warm (~65º F) overcast day, you can turn on a sprinkler within 10 ft. of the burrow, which may prompt the tortoise to come out and drink.

If your tortoise is sick or less than 20 grams, it should not be allowed to hibernate. Instead, you should bring it inside and keep it in an indoor enclosure filled with a one-quarter to one-half inch diameter gravel substrate. Sand and fine gravel should be avoided since it may be accidentally ingested, causing fecal impaction and gastrointestinal infections. The daytime temperature should be kept between 80-85° F with a nighttime temperature range of 68-75° F. A normal light cycle of 11 hour days and 13 hour nights should be maintained using artificial lighting, preferably a mercury vapor light, which provides full spectrum lighting and heat. A shelter box should be provided for resting from the heat to prevent dehydration.

Diet

Make sure that water is available in the enclosure at all times. Keep the water dish in the same place so the tortoise knows where to find it. Your tortoise will get a lot of its water from its food, so you may not see it drink frequently. However, tortoises enjoy soaking occasionally, and so the water dish should be just a few inches deep, but wide enough for the tortoise to sit in.

The desert tortoise is a vegetarian, and needs to eat only plants. Do not feed your tortoise dog or cat food, monkey chow, or any food that contains more than 15% protein. These will cause liver and kidney damage, as well as deformed shell growth. Provide a variety of foods to meet your tortoise's nutritional needs. In general, commercial produce is less nutritious than native plants because of higher water and lower fiber content. Ideally, you should allow your tortoise to browse on plants that you can establish in your backyard. For example, grass in your backyard can contribute a significant portion to your tortoise's healthy diet if you establish a patch large enough for your tortoise to browse when it is hungry (at least 6' x 6' in size). There are many native grasses and other plants that you can establish in your yard that are favored by desert tortoises in the wild (see below). You can purchase native plant seeds at the Arizona Native Plant Society website (www.aznps.com/sources.html) or by inquiring at your local nurseries.

It is important that a captive desert tortoise receive enough calcium for proper shell and bone growth. Much of the calcium it needs can be obtained from the dark green leafy vegetables you provide. However, you can supplement calcium in its diet by adding pieces of bone, cuttlefish, or antler to your yard, which the tortoise can bite on periodically.

For a special treat, (once a month or so) you can give a tortoise a **small** piece of fruit such as 1 strawberry. Tortoises also enjoy prickly pear cactus fruit, which can be fed to a captive desert tortoise when in season. Fruits have too much sugar and water to be fed in large amounts; not more than 10% of its diet should consist of fruit. Also, do not feed tortoises frozen vegetables or sodium-rich foods including canned vegetables, dairy products, breads, and celery. Below is a list of acceptable foods, and those to avoid.

Captive Desert Tortoise Diet

Favored native plants (all of plant consumed unless otherwise noted)

Hoary abutilon (*Abutilon* spp.)
Arizona cottontop grass (*Digitaria* spp.)
Bamboo muhly grass (*Muhlenbergia dumosa*)
Blue grama grass (*Bouteloua gracilis*)
Buckwheats (*Eriogonum* spp.)
Cassia (*Senna* spp.)
Curly mesquite grass (*Hilaria belangeri*)
Deer grass (*Muhlenbergia rigens*)
Desert four-o'clock (*Mirabelis spectabalis*)
Desert honeysuckle (*Anisacanthus thurberi*)
Desert senna (*Cassia covesii*)
Desert willow (flowers) (*Chilopsis linearis*)
Evening primrose* (*Oenothera* spp.)
Fern acacia (flowers) (*Acacia angustissima*)
Globe mallows* (*Sphaeralcea* spp.)
Morning glory (Convolvulaceae)
Plantain* (*Plantago* spp.)
Prickly pear (fruit and new pads) (*Opuntia*)
Hibiscus (flowers and leaves) (*Hibiscus denudatus* and *H. coulteri*)
Spurges* (*Euphorbia* spp.)
Trailing four-o'clock (*Allionia incarnata*)
Vine mesquite grass (*Panicum obtusum*)

Acceptable produce

Barley
Bean sprouts (mung)
Beet greens
Bok choy
Carrot greens
Cilantro
Collard greens
Endive
Kale
Mustard greens
Parsley
String beans
Snow peas
Spinach
Turnip greens

Other healthy foods

Grass, i.e., Bermuda or timothy (fresh or hay)
Bluegrass lawn
Cantaloupe leaves
Clover*
Dandelion greens
Grape leaves and shoots
Mulberry leaves*
Pumpkin leaves*
Rose petals*
Watercress
Zucchini/squash leaves

*** = good for young desert tortoises**

Avoid the following

Alfalfa
Avocado
Cabbage
Celery
Cucumber
Fruit (all types)
Lettuce (all types)
Mushrooms
Any protein rich foods
Canned and frozen vegetables
Starchy vegetables (including corn)
Chinaberry berries
Plants in the *Nicotiana* (tobacco) genus

Health

If you adopt a desert tortoise, you are responsible for caring for its health. There are several experienced reptile veterinarians throughout the state who can examine your tortoise and determine if it is sick. Common symptoms of illness in a desert tortoise include runny nose, swollen eyelids, wheezing, lethargy, weight loss, and loss of appetite. Failure to treat an ill tortoise could result in its unnecessary death. If you do not know of a reptile veterinarian, call any of the listed AGFD sanctioned adoption facilities (contact info above) for a referral in your area; or you can find veterinarians certified by the Association of Reptilian and Amphibian Veterinarians by entering your city in the searchable membership directory at: http://www.arav.org/ECOMARAV/timssnet/amm/tnt_mdsearch.cfm.

For more information

Books

The Sonoran Desert Tortoise: Natural History, Biology, and Conservation by Thomas R. Van Devender. Published by University of Arizona Press, 2002.

Tortoises and Box Turtles: A Complete Owner's Manual by Hartmut Wilke and Gyorgy Jankovics. Published by Barron's Educational Series, 2000.

Web resources

Phoenix Herpetological Society: www.phoenixherp.com

Tortoise Adoption Program at the Arizona-Sonora Desert Museum: www.desertmuseum.org/programs/tap.php

More information on care of captive desert tortoises: www.tortoisegroup.org

Contributors

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Checklist

Please make sure you have fulfilled these requirements before applying to adopt a desert tortoise

- Have you familiarized yourself with desert tortoises and their proper care?

- Have you constructed a secure habitat for keeping a desert tortoise?
  ____If you rent your home, have you received permission to construct a burrow and care for a tortoise?

  ____Do you have a fenced-in yard that is comprised of a mix of self-sustaining grass and desert topsoil? If not, have you created an enclosure with a mix of grass and desert topsoil that will be large enough for a desert tortoise (18'x18' for an adult tortoise)?

  ____Have you constructed a burrow that will insulate your tortoise from the heat and cold (covered with at least 8" of dirt on the top, sides, and back)?

  ____Have you taken photos of the following elements of your enclosure?*
  - ☐ Enclosure (entire to show ground cover, and perimeter)
  - ☐ Burrow
  - ☐ Water dish
  - ☐ Food source
  - ☐ Shade (tree/shrub/constructed)
  - ☐ Fence (to show construction material)
  - ☐ Security measures (gates, locks)
  - ☐ Any other important feature of the backyard habitat

*please note that photos will not be returned

____Have you made your backyard safe from potential hazards to a desert tortoise, like a pool, toxic chemicals, or the family dog?

- Are you committed to caring for a desert tortoise for many years, possibly for the rest of your life?

  ____Have you thought about what will happen if you move away from Arizona or can otherwise no longer care for it?

  ____Have you considered that you are responsible for the health and well-being of the tortoise, even if it gets sick and requires veterinary treatment?

If you have answered yes to all of the above, proceed to the application!