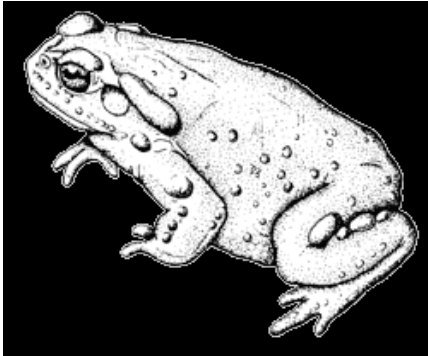


BUFO ALVARIUS TOAD HANDLING: BEST PRACTICES



The Bufo Alvarius toad and its medicine are sacred gifts. In honor of these gifts we have developed this document to share techniques for handling toads more safely and respectfully. WBAC does not condone the handling or milking of the Bufo Alvarius, but we acknowledge that people are engaging in this practice, and if this is being done it should be done in a way that is safe and sustainable for the toads themselves.

The practice of milking toad glands for the purpose of obtaining secretions for use in spiritual or ceremonial practices should also be done in accordance with protocols established by existing guardians of the land, including any tribal protocols and in accordance with state and/or federal jurisdiction and regulations regarding amphibian handling. If you plan to handle toads, please consider doing so in a sacred manner and take precautions to protect the toads from unnecessary harm. And remember—the toads only come up to eat and breed, if you engage them too early in the season you could break that cycle.

Captive/pet toads cannot survive in the wild.

There is a high risk that captive toads can spread diseases (like amphibian chytrid fungus) to wild populations. In addition, captive toads cannot survive being released into the wild in where they are unfamiliar with conditions and predators. It is considered inhumane to release them where they pose a significant danger to the wild populations.

Drive carefully in toad territory

Toads are attracted to vehicle headlights and many get run over and die on roads. If you can't avoid driving through toad breeding territory, drive slowly, use headlights and have someone scan the road in front of you while you drive. Check under and around tires before driving away from a site. If you spot a toad on the road, drive around it or carefully move it to the side of the road.

Leave adult toads exactly where you find them

Adult toads cannot survive being moved to a new location. Toads will become disoriented and are unable to hide from predators in an unfamiliar place. They will likely die in an unfamiliar location (even if the new place is good toad habitat) or in the attempt to return to their original breeding site. Toads have strong fidelity to their first breeding site and will continue to return to the same place for the rest of their lives. Furthermore, moving toads disrupts their ability to breed, lay eggs and reproduce the next generation.

Handling toads causes stress

A toad's body will only release secretions when they are under stress. Handling or milking their glands causes stress and should be acknowledged. While amphibians do not show visible, external signs of stress, internal hormones may be surging which have a negative effect on the immune system of the toad. Milking also depletes the toad's immune and defense systems and it can take 30-60 days for it to fully recover. During



the recovery period, the toad's immune and defense systems are impaired, are more vulnerable to predators and illness and have less energy available for breeding. Handling *Bufo Alvarius* toads does not transmit warts or disease to humans, but you could be spreading amphibian chytrid fungus from an infected toad to other toads.

Milking glands ALSO CAUSES STRESS

The Sonoran desert toad has large paratoid glands on both sides of the back of its head and smaller glands on its hind legs. *Milking all the glands on a single toad leaves it defenseless.* Consider milking only one or a portion of the glands. Don't milk all the toads at a single site, and give toads plenty of time to recover before visiting the site again. This may require developing an agreement or system with other people who visit the same sites.

Minimize handling stress

Keep handling time to a minimum. If it is necessary to place a toad in a holding container, even temporarily, be sure that container has first been disinfected. Do not place multiple toads together in a container as this increases the chance of injury and spread of infectious disease. Place a lid with sufficient air holes and a dark, visual barrier over the top of the holding container as the sight of a predator (human) causes fear and induces an internal stress response in amphibians. Disinfect holding containers between uses and between sites.

Reduce the spread of infectious toad diseases

Amphibian chytrid fungus is a serious disease world-wide and *has been detected in some Sonoran desert toad populations.* The greatest risk of contamination happens when toads are placed in contact with each other, in the same container or in reused holding containers that have not been disinfected. To protect toads from the spread of this disease, wear disposable gloves when handling toads and disinfect your hands before and after touching the animals. If you are visiting more than one breeding site (each individual water body should be considered a separate site), be sure to change your gloves and disinfect hands, containers, and any equipment that come into contact with toads or water (including muddy boots or tires) before visiting a new site. Remember not to move toads from one site to another and never release captive toads into the wild.

Disinfect your equipment

Clean equipment, containers, boots or anything that that comes into contact with wild toads, muddy soil or water in toad breeding habitat to ensure you are not passing on any fungi.

- 1) Wear clean, disposable gloves or wash hands with hand sanitizer containing at least 70% ethanol or for at least 1 minute
- 2) Spray containers and equipment with 70% ethanol or 1% bleach solution for at least 1 minute
- 3) Wash clothing and cloth bags in hot water 60°C or higher
- 4) Dry containers and equipment completely for 4 hours at 37°C
- 5) Rinse muddy boots and tires and dry completely for 4 hours at 37°C

This field protocol has been developed based on the best available scientific evidence regarding amphibian hygiene and handling from herpetologists we have consulted with. This is a working document that will be updated as new and better data becomes available.