

RECOMMENDATIONS FOR REPTILES AND AMPHIBIANS USED IN OUTREACH PROGRAMS

Compiled by Diane Barber, Fort Worth Zoo
Originally posted September 2003; updated February 2008

INTRODUCTION

This document has been created by the AZA Reptile and Amphibian Taxon Advisory Groups to be used as a resource to aid in the development of institutional outreach programs. Within this document are lists of species that are commonly used in reptile and amphibian outreach programs. With over 12,700 species of reptiles and amphibians in existence today, it is obvious that there are numerous combinations of species that could be safely used in outreach programs. It is not the intent of these Taxon Advisory Groups to produce an all-inclusive or restrictive list of species to be used in outreach. Rather, these lists are intended for use as a resource and are some of the more common species that have been safely used in outreach programs. A few species listed as potential outreach animals have been earmarked as controversial by TAG members for various reasons. In each case, we have made an effort to explain debatable issues, enabling staff members to make informed decisions as to whether or not each animal is appropriate for their situation and the messages they wish to convey.

It is hoped that during the species selection process for outreach programs, educators, collection managers, and other zoo staff work together, using TAG Outreach Guidelines, TAG Regional Collection Plans, and Institutional Collection Plans as tools. It is well understood that space in zoos is limited and it is important that outreach animals are included in institutional collection plans and incorporated into conservation programs when feasible. However, this does not mean that all outreach animals need to be part of a conservation program. There are many parallel species that can be used in place of rare or “fragile” animals to convey conservation and education messages.

There are numerous components to consider when choosing appropriate species for use in outreach programs. Some popular species used for exhibit can be categorized as “difficult” from documented experience or by reputation, rendering them unsuitable for outreach. However, it is important to remember that individual animals often have individual personalities and can sometimes be evaluated on a case-by-case basis. These considerations as well as staff expertise, husbandry requirements, medical and nutritional requirements, length and types of programs, environmental needs, restraint and transportation methods, temperament, safety issues, and educational messaging should all factor into sound collection planning for outreach program animals.

HUSBANDRY CONSIDERATIONS

It is imperative that adequate housing is provided for all animals. Housing and quarantine requirements for each species should be addressed and approved by qualified staff before animals are acquired. Because of their relatively small size, ease of availability, and seemingly routine housing components, reptiles and amphibians are oftentimes acquired before enough is learned about their husbandry requirements. Although some reptiles, such as corn snakes, can

live long and seemingly well-adjusted lives housed in nothing more than a plastic sweater box lined with newspaper and equipped with a hide box and a water bowl, this is not the case for every reptile. Many species require elaborate environments just to survive. Components such as space utilization, ultraviolet light requirements, thermoregulation needs, nutritional and medical requirements, stress factors, water quality issues, adequate record keeping, etc., all factor into maintaining healthy captive reptiles and amphibians. There is no simple recipe or cookie-cutter approach to choosing the right species for outreach. It is imperative that each animal is researched and experienced personnel are consulted before acquisition in order to evaluate whether or not the animal can be adequately housed and cared for. TAG Regional Collection Plans, Taxon Management Accounts and Steering Committee Members can be used as resources outside of institutions if necessary, but by all means utilize Herpetological Staff if they are present.

All efforts should be made to acquire animals that can be properly cared for. Some species are suitable for trained keepers or educators that have little to no reptile and amphibian husbandry experience. On the other hand, there are many species that require expert care and are labor intensive. Adequate training should be given to all caregivers and expertise levels of staff should mirror the attention needed for the animals in the collection. The animals recommended for outreach in this document have been categorized by level of experience needed by the caregiver in terms of meeting husbandry requirements, as well as the animal's relative level of hardiness in captive situations in order to help facilitate the decision-making process.

HANDLING ISSUES

During the handling or transporting of any animal, safety considerations for the animal, handler, and audience are of utmost importance. Numerous factors influence proper handling protocols for outreach programs. These factors include animal transport and restraint methods, potential bite risks, animal size, temperature limitations, stress levels and temperament of the animal, audience contact with the animal, appropriate settings and situations, disease and handling protocols, and experience and number of handlers.

Each institution should develop its own handling protocols for its programs. This document touches upon some of the more common issues and suggestions for safely handling and transporting reptiles and amphibians. Once again, this is not an all-inclusive document and is meant to serve as a guideline for developing a handling protocol.

Animal transport and restraint methods

Many amphibians and reptiles are easily transported from one destination to the other with little to no demonstrable adverse effects. Acceptable transport methods for snakes, lizards, and turtles include placing them in a pillowcase or snake bag, securely tied and then placed within a cooler or Styrofoam box to provide insulation from severe temperature changes. Some lizards and turtles are also transported in standard plastic travel kennels for short distances. Amphibians can be placed in small plastic containers filled with damp moss or paper towels. As with any animal, care must be taken to keep them from direct sunlight and extreme temperature changes and to provide adequate ventilation. (See IATA's Live Animal Regulations for standard shipping methods for reptiles and amphibians by commercial airlines for more information.)

Most of the reptiles and amphibians recommended in this document require little restraint when handling. When choosing outreach animals, it is important to take into consideration the size and temperament of the animal and the type of restraint necessary for each species. It is imperative that the handler is experienced enough to reasonably be able to anticipate the animal's reactions and behavior in various situations. The handler should also know how to adequately provide support to the animal so that is comfortable and relaxed. The use of leather gloves is sometimes necessary for larger lizards due to their sharp claws. It is recommended that powder-free surgical gloves be worn when handling amphibians due to their permeable skin. Many institutions restrict the handling of amphibians entirely, using a clear box instead.

Large snakes, monitor lizards, green iguanas and small alligators are commonly used in outreach. Again, it is imperative that handlers are experienced when working with any species that could potentially deliver a nasty bite. Adequate handling staff must be supplied to properly hold and manipulate large snakes. Eventually, some snakes and alligators will become too large to be safely handled and transported on a regular basis. It is important to be familiar with space and transportation requirements for large species and to consider loan options as opposed to purchasing animals if necessary.

There is some debate surrounding the appropriateness of using large snakes, green iguanas, and crocodylians in outreach programs because audience members may receive mixed messages as to whether or not the above mentioned species are acceptable as pets. Another debatable topic concerning handling is taping or banding crocodylians' mouths shut. Although taping or banding is an acceptable method for preparing crocodylians for transport, some audience members view it as degrading or unnecessary. Both of these topics are visited again in the Educational Messaging Section and need to be carefully considered when choosing species.

Evaluating the Situation

Comparing the animal's temperament and anticipated stress levels against the actual type of event will help determine the amount of time each animal should be handled. For example, a chameleon may be appropriate for an intimate 10-minute news interview, but will most likely become stressed during a 30-minute demonstration walking amongst a group of party guests. Some species such as green tree pythons can be safely perched on a stick to use in a brief, behind-the-scenes encounter, but may be quite unpredictable and will most likely bite in a contact situation with a group of school children. The actual environment can also have a direct effect on the amount of time an animal should be used in a program. Most reptiles become very active when warmed and may be difficult to handle in hot, outdoor settings. In such cases, it is best to keep the animals in shaded areas and to keep contact with the audience at a minimum. It is important to know the natural history for each species. For example, an African spur-thigh tortoise would most likely enjoy a sunny outing, but hot temperatures could be dangerous for a cool, forest dwelling species such as a hinge-backed tortoise for extended periods of time. Many facilities also have a policy that snakes in the opaque or "blue" phase prior to shedding should not be used in outreach.

Whatever the case, always evaluate the setting and consider stress-related factors such as handling and amount of time handled, potential contact with the audience, and environmental

influences such as temperature, as well as the animal's actual role in the program's messaging in order to help choose the most appropriate species.

Minimization of Disease Transfer

Each institution needs to decide what level of intermixing between "collection animals" and "outreach animals" is allowed to reduce the risk of spreading infectious diseases into the zoo population. This needs to be decided through thoughtful consultation of the reptile staff, veterinary staff and programs staff so that the institutional goals for the outreach program may be obtained without placing unreasonable or unnecessary limits to the use of the animals. As a general guideline, it is best to maintain outreach animals in a separate facility from the core animal collection.

Outreach animals may need to be held to a more rigorous preventive medicine program with routine fecal checks performed quarterly. Any animals that are not behaving normally or are known to be ill should not be used until the issue is resolved.

The ARAV-CDC recommendations for reducing the risk of contracting salmonellosis should be followed. (These guidelines are available online at www.arav.org.) At a minimum, all people who come in contact with reptiles should wash their hands with warm water and disinfectant soap before eating, drinking or smoking. Some facilities provide antimicrobial hand wipes and gels in animal contact situations/areas.

All personnel involved in handling amphibians and reptiles should be informed of ways to reduce the risk of bites, scratches, tail whips and other injuries that may be inflicted by the animals. A first aid protocol should be established and taught and first aid materials readily available wherever these animals are handled

EDUCATIONAL MESSAGING

Larger, more charismatic animals such as large snakes, iguanas, and alligators can be used to awe and inspire audiences, but these same animals are common pets that are quickly disposed of when they become too large or unmanageable. This is a huge problem!! If an institution chooses to use these animals for outreach, the audience should be informed that these animals do not make good pets and the more often than not, these animals do not live out their natural life if purchased as a pet. In doing so, the institution provides an important educational message that is generally not provided in other venues.

The use of species at risk of extinction can be effective. It is recommended that all State and Federal laws are followed and that the audience is made aware of the laws. Animals that are surplus to SSP's and captive management programs can be important ambassadors for their own conservation.

Native species are all too often overlooked in zoo programs. Through the use of locally occurring species in outreach, audiences can learn about conservation in their own backyard. This is a good opportunity to teach an audience about cohabitation, venomous vs. nonvenomous species, amphibian declines, rattlesnake round-ups, state protected species, the affects of urban sprawl, pollution, etc.

*SUGGESTED REPTILES AND AMPHIBIANS FOR USE IN OUTREACH PROGRAMS (Sept. 2003)

HUSBANDRY LEVEL DEFINITIONS:			
Hardy- basic diet, lighting and housing needs, easy to handle			
Moderate- could require more space, more cleaning, specialized diet, complex environment, will tolerate handling in brief intervals.			
Difficult- requires large space or complex environment, uv lighting imperative, intense heating, specialized feeding strategies, will tolerate handling in brief intervals, could potentially be difficult to handle, unpredictable or deliver a potentially dangerous bite.			

ANIMAL CAREGIVER/HANDLER EXPERIENCE LEVEL DEFINITIONS:			
Novice- very little animal husbandry and handling experience.			
Moderate- some reptile experience for at least one year.			
Experienced- diverse reptile experience for more than two years.			

SUGGESTED SPECIES LIST			*Almost all reptiles and amphibians benefit from UV lighting
SPECIES	HUSBANDRY	EXPERIENCE LEVEL	COMMENTS
Amphibians			*ATAG recommendation: when handling amphibians,
Central American caecilian, <i>Dermophis mexicanus</i>	Moderate	Moderate	(Imported) powder free laytex gloves should be worn.
Tiger salamander, <i>Ambystoma tigrinum</i>	Hardy	Novice	(Wild-caught) Use clear containers for presentations.
Red-eyed tree frog, <i>Agalychnis callidryas</i>	Moderate	Moderate	
White's tree frog, <i>Litoria caerulea</i>	Moderate	Novice	
Tomato frog, <i>Dyscophus insularis</i> , <i>D. guinetti</i>	Moderate	Moderate	
Ornate horned frog, <i>Ceratophrys ornata</i> , <i>C. cornuta</i>	Hardy	Novice	
Fire-bellied toad, <i>Bombina orientalis</i>	Hardy	Novice	
North American tree frog, <i>Hyla chrysoscelis</i> , <i>H. cinerea</i>	Moderate	Moderate	Use wild-caught
African clawed frog, <i>Xenopus laevis</i>			Where legal
African bullfrog, <i>Pyxicephalus adspersus</i>	Hardy	Novice	Do not recommend as a pet
Marine toad, <i>Bufo marinus</i>	Hardy	Novice	Warn parents about toxins
North American toad species, <i>Bufo sp.</i>	Hardy	Moderate	Use wild-caught
Bullfrog, <i>Rana catesbiana</i>	Hardy	Moderate	Adults & tadpoles
Poison dart frogs, <i>Dendrobates spp.</i>			Use captive-bred
Leopard frogs, <i>Rana pipiens</i>			
Wood frogs, <i>Rana sylvatica</i>			
Lizards			*Almost all reptiles and amphibians benefit from UV lighting
Leopard gecko, <i>Eublepharis macularius</i>	Hardy	Novice	
Fat-tailed gecko, <i>Hemitheconyx caudicinctus</i>	Hardy	Novice	
Prehensile-tailed skink, <i>Corucia zebrata</i>	Moderate	Moderate	UV requirements, Potential bite risk

***SUGGESTED REPTILES AND AMPHIBIANS FOR USE IN OUTREACH PROGRAMS (Sept. 2003)**

Blue-tongued skink, <i>Tiliqua sp.</i>	Hardy	Novice	
Shingleback skink, <i>Tiliqua rugosa</i>	Hardy	Novice	
SPECIES	HUSBANDRY	EXPERIENCE LEVEL	COMMENTS
Lizards, Cont.			*Almost all reptiles and amphibians benefit from UV lighting
Eastern glass lizard, <i>Ophisaurus attenuatus longicaudus</i>	Moderate	Moderate	
Anoles, <i>Anolis sp.</i>	Moderate	Moderate	UV requirements
Spiny-tailed lizards, <i>Uromastyx sp.</i>	Difficult	Experienced	UV requirements
Collard lizards, <i>Crotaphytus collaris</i> (hand-raised)	Moderate	Moderate	UV requirements
Spiny lizards, <i>Sceloporus sp.</i>	Moderate	Moderate	UV requirements
Bearded dragon, <i>Pogona vitticeps</i>	Moderate	Moderate	UV requirements
Chuckwalla, <i>Sauromalus sp.</i>	Difficult	Moderate	UV requirements
Green iguana, <i>Iguana iguana</i> (small to medium sized)	Difficult	Moderate	Educational messaging, UV requirements, potential bite risk
Rhinoceros iguana, <i>Cylura cornuta</i>	Difficult	Moderate	UV requirements, potential bite risk
Desert iguana, <i>Dipsosaurus dorsalis</i>	Difficult	Moderate	UV requirements
Black and White tegu, <i>Tupinambis teguixin</i>	Moderate	Moderate	Potential bite risk
Savannah monitor, <i>Varanus exanthematicus</i>	Moderate	Moderate	Potential bite risk
Chelonians			*Almost all reptiles and amphibians benefit from UV lighting
Spotted turtle, <i>Clemmys guttata</i>	Moderate	Novice	*UV light for adults preferred, required for juveniles. Aquatic
Wood turtle, <i>Clemmys insculpta</i>	Hardy	Novice	turtles require heavy filtration or frequent water changes.
Razorback musk turtle, <i>Sternotherus carinatus</i>	Hardy	Novice	
Red-eared slider, <i>Trachemys scripta elegans</i>	Hardy	Novice	
River cooters, <i>Pseudemys sp.</i>	Hardy	Novice	
Red-bellied short-necked turtle, <i>Emydura subglobosa</i>	Hardy	Novice	
Pond turtles, <i>Mauremys sp.</i>	Hardy	Novice	
Chinese box turtle, <i>Cuora flavomarginata</i>	Moderate	Moderate	
Alligator snapping turtle, <i>Macrolemys temminckii</i>	Hardy	Moderate	Potential bite risk/size restrictions?
Box turtle, <i>Terrapene sp.</i>	Hardy	Novice	
Yellow-footed tortoise, <i>Geochelone denticulata</i>	Hardy	Moderate	
Red-footed tortoise, <i>Geochelone carbonaria</i>	Hardy	Moderate	
Pancake tortoise, <i>Malacochersus tornieri</i>	Moderate	Moderate	
Star tortoise, <i>Geochelone elegans</i>	Hardy	Novice	
Radiated tortoise, <i>Geochelone radiata</i>	Hardy	Moderate	

***SUGGESTED REPTILES AND AMPHIBIANS FOR USE IN OUTREACH PROGRAMS (Sept. 2003)**

African spur-thigh tortoise, <i>Geochelone sulcata</i>	Hardy	Moderate	Size restrictions?
Hermann's tortoise, <i>Testudo hermannii</i>	Hardy	Novice	
SPECIES	HUSBANDRY	EXPERIENCE LEVEL	COMMENTS
<u>Snakes</u>			*Almost all reptiles and amphibians benefit from UV lighting
Sand boas, <i>Eryx sp.</i>	Hardy	Novice	
Rosy boa, <i>Lichanura trivirgata</i>	Hardy	Novice	
Dumeril's ground boa, <i>Acrantophis dumerili</i>	Hardy	Novice	could require large enclosure
Boa constrictor, <i>Boa constrictor</i>	Hardy	Novice	could require large enclosure
Burmese python, <i>Python molurus bivittatus</i>	Hardy	Moderate	educational messaging important/size recommendations?
Ball python, <i>Python regius</i>	Hardy	Novice	some animals are notorious for going off feed
Green tree python, <i>Morelia viridis</i>	Moderate	Experienced	Potential bite risk
Rat snakes, <i>Elaphe sp.</i>	Hardy	Novice	
King and milk snakes, <i>Lampropeltis sp.</i>	Hardy	Novice	
Gopher snakes, <i>Pituophis sp.</i>	Hardy	Novice	
Bull snake, <i>Pituophis melanoleucus</i>	Hardy	Novice	
Eastern indigo snake, <i>Drymarchon couperi</i>	Hardy	Moderate	Potential large size
Garter snakes, <i>Thamnophis sp.</i>	Moderate	Moderate	
<u>Crocodylians</u>			*Almost all reptiles and amphibians benefit from UV lighting
Common caiman, <i>Caiman crocodylus</i>	Moderate	Moderate	educational messaging/size recommendations?/potential bite risk
Dwarf caiman, <i>Paleosuchus palpebrosus</i>	Moderate	Moderate	educational messaging/size recommendations?/potential bite risk
American alligator, <i>Alligator mississippiensis</i>	Moderate	Moderate	educational messaging/size recommendations?/potential bite risk

***Please remember that this is a SUGGESTED list of species to use in animal outreach programs. It is in no way inclusive of all of the reptiles and amphibians available today. Please be sure to consult herpetological staff, review Institutional Collection Plans, Taxon Advisory Group RCPs and Husbandry Manuals before acquiring animals.**

Compiled by Diane Barber, Fort Worth Zoo