

General Guidelines for the Intake, Quarantine, and Release of Reptiles and Amphibians in Rehabilitation Facilities in Northeastern States, USA



OBJECTIVE

These guidelines are provided to help reduce the risk of pathogen and disease transmission in reptile or amphibian cases brought into rehabilitation facilities. Typically, this would include one to several individuals brought in from a wild, native environment and intended for release upon completion of rehabilitation.

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BEFORE COMMITTING TO INTAKE OF ANY ANIMAL, PLEASE CONSIDER THE FOLLOWING

- 1 Do you have knowledge of the biology of the species, or closely related species, and previous experience with successful outcomes?
 - If help is needed identifying species, please contact state/federal fish and wildlife agencies or check online resources (i.e., <https://www.whattheherp.com/identify>).
- 2 Are you able to bring this animal back to the health and mobility status that will ensure its survival and biological functioning post-release?
 - If this is not answerable prior to rehabilitation, please reassess routinely to determine if animal will be releasable.
- 3 Do you have experience with this species/group or know someone you can consult who does?
- 4 If this is a threatened and endangered species (federal or state), are you appropriately licensed? If not, locate an appropriate rehabilitator and contact federal and/or state wildlife agencies.
- 5 Is this a native species?
 - If in doubt, please contact appropriate state or federal wildlife agency for guidance.

- 6 In most states in the Northeast United States, non-native or invasive reptiles and amphibians are not allowed to be released post-rehabilitation. For example, red-eared sliders may be rehabilitated, but should not be released.
 - Therefore, if this is a non-native, invasive, or nuisance species, contact your state wildlife officials immediately for guidance.
 - When in doubt, contact state wildlife official(s).

CONSIDERATIONS DURING REHABILITATION

Note that these considerations are set as a 'gold standard.' While some aspects may not be feasible, it is highly recommended that attempts be made to optimize practices to be in accordance with these recommendations and considerations for rehabilitated wild reptiles and amphibians.

- 1 At time of intake, be sure to obtain exact location (i.e., Lat/Long) where animal was found. If a Lat/Long is not feasible, please note the exact address so this can be converted to Lat/Long if necessary.
- 2 Within 48 hours of intake, please check with your state fish and wildlife health officials or state herp disease surveillance plan to verify if this is a species of concern and/or a priority for disease/pathogen testing.

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- If this is a federally listed species, work with state wildlife officials to ensure the appropriate federal authorities are also contacted.
- 3 Bring new animals into a quarantine area located AWAY from longer-term or permanent housing of herptiles.
 - Do not house native wild reptiles or amphibians in the same room/area as non-native or exotic animals.
 - Quarantine enclosures should be possible to clean and disinfect completely, so avoid organic matter (plants, mulch, etc.) and wood whenever possible.
 - Clean first, then disinfect, all enclosures. Be sure to meet appropriate contact time for the disinfectant used. If possible, keep quarantine enclosures empty for a minimum of 24 hours between individuals.
 - For examples of appropriate disinfectants and contact time, please review Appendix 1, Gray et al., 2017.
 - Keep animals in quarantine for a minimum of 30 days, or until they are ready for either release or to move into long-term housing.
 - A person should be designated to care only for quarantined reptiles (and/or amphibians), or someone should attend quarantined reptiles only after fulfilling all responsibilities for other reptiles, amphibians, birds, or fish.
 - Monitor the health of individuals in quarantine and conduct regular health exams, including fecal exams (for parasites). Administer parasiticide treatment as necessary, with oversight of a veterinarian.
 - 4 Don't mix individuals, whether in quarantine or in long-term housing, if the goal is release back into the wild, unless they are from the same wild population.
 - If mixing individuals is necessary for health-based reasons (i.e., to minimize stress), please contact the appropriate state fish and wildlife official for permission and to provide documentation of the co-housing.
 - 5 Use unique tools/containers/brooms, etc. for each individual and its enclosure, or clean and disinfect the tools between enclosures.
 - 6 Wear disposable gloves and/or wash hands between handling individual animals or any substrate/biological waste material to avoid contamination and transfer of pathogens.
 - 7 Maintain daily health and treatment records.
 - 8 Disinfect long-term enclosures weekly if inhabited:
 - Remove feces and other excreta; if soil/organic material must be used for substrate, remove at least the top 2 inches of substrate (helping to decrease parasite egg loads in soil). Or, if possible, expose topsoil and other porous material in the enclosure to direct sunlight (this helps kill parasite eggs and other pathogens); be sure to turn over the top 1-2 inches of soil during periods of UV exposure.
 - Wash and disinfect food and water containers and any other items in the enclosure.
 - 9 Disinfect enclosures completely between animals, or groups of animals. If organic substrate is used, dispose of it appropriately and replace (i.e., do not reuse between different individuals or groups of animals)
 - 10 If animals die during rehabilitation, please coordinate with state wildlife health officials to submit the dead animals for necropsy to determine cause of death submit the dead animals for necropsy and histopathology. Consult a veterinarian about possible changes to the enclosure(s), additional disinfection procedures, or temporary restriction in the use of that enclosure.
 - When in doubt, check with state wildlife health officials and/or rehabilitation coordinator(s) to determine if the case is a priority
 - Consult your state disease surveillance plan for pathogens/clinical signs of concern.

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RELEASING ANIMALS

- 1 Do not release an animal anywhere other than the immediate vicinity in which it was found (i.e., within 50 yards). Ensure location found (Lat/Long) was obtained at intake. If the exact location is not appropriate (e.g., middle of a road), the animal may be placed in more appropriate habitat located within a ½ mile radius from the location the animal was found.
 - Be sure to follow state regulations and guidelines (e.g., some states may not allow release within city limits).

- 2 Before release, please ensure all conditions are appropriate for the species being released (i.e., current and forecasted weather, temperature, time of release (morning vs night), etc).
 - Adhere to a NO RELEASE time during winter months, when ambient air/water temperatures are consistently below optimal ranges for reptiles and amphibians.
 - Consult with your state agency to identify specific dates of “no release” to ensure the animal has time to enter hibernation (i.e., a warm winter day in December will not provide time to enter hibernation prior to temperatures dropping below optimal thresholds).
- 3 Before release, please consider working with state wildlife officials to appropriately mark the individual in a way that will be visible and recognizable if it is found, alive or dead, after release. If feasible, a Passive Integrated Transponder (PIT) tag should be used.
- 4 Obtain photo documentation of animals before release. This will provide baseline information if/when an animal is recaptured, serve as an aid in identifying individuals, and provide verification of species. Photos should include a top view, bottom view, and a clear view of the head. Each photo should include a ruler to demonstrate size.
- 5 Keep a separate log of the animals you release. Logs should include, at a minimum:
 - Species
 - Location animal found (Lat/Long), collected at intake
 - Name, contact information of individual who brought animal into rehabilitation
 - Sex (if known)
 - Age (at least whether adult or juvenile)
 - Individual ID (marking), if appropriate, matched to in-house records
 - Date of admission
 - Diagnosis (cause of its stay in rehabilitation); include any additional disease testing/diagnostics performed
 - Date of release
 - Location of release (as precise as possible, i.e., Lat/Long)
 - Follow up (if individual is seen after release or if carcass is found and examined)
- 6 Considerations for **NOT** releasing an animal:
 - If specific pathogens of concern (e.g., Ranavirus, Bd, Bsal) are suspected or detected. Please contact state wildlife officials and work with the appropriate wildlife veterinarian/health professional to determine eligibility for release.
 - Consult with the appropriate state disease surveillance plan
 - If questions, contact your state wildlife agency
 - If the specific location (i.e., address and/or Lat/Long) an animal was found is not known, please contact state wildlife agency for guidance, especially in regard to the release of a threatened/endangered species or Species of Greatest Conservation Need (SGCN).
 - If the location is known, but the habitat is unsuitable (within a ½ mile radius) for release.
 - If the overall health status of the animal does not warrant release.
 - If other variables exist that may impact the animal's survival upon release.
 - If this is a nuisance, invasive, exotic/non-native species and deemed inappropriate for release in your state.
- 7 Consult your state fish and wildlife authorities for issuance of updated rehabilitation and possession permits. Regulations vary by jurisdiction, but many states require a possession or rehabilitation permit for any wildlife collected from the wild, and most states require special permits for possession or transport of state endangered and threatened species.

EXAMPLE QUARANTINE PROTOCOLS / PROCEDURES

The procedures outlined below are for example only. We strongly encourage individual facilities to establish written Standard Operating Procedures for the intake and quarantine of reptiles and amphibians. Note that while we recommend biological, diagnostic sampling for specific pathogens of concern and baseline health parameters, this may not be feasible in all cases (e.g., due to limited financial support).

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- 1 Complete health exam and biological sampling for pathogen(s) of concern at time of intake.
 - For example, box turtles should be tested for Ranavirus, amphibians for Chytrid fungus (Bd and Bsal) and snakes for SFD/Oo
 - Other testing will be specific to species and/or clinical signs (refer to state disease surveillance documents)
- 2 If it is not feasible to collect biological samples for diagnostic purposes to identify pathogens of concern, please monitor individuals extremely closely for clinical signs related to specific pathogens such as Bd, Bsal, and Ranavirus.
 - If questionable clinical signs are observed, consult with a veterinarian and your state wildlife health officials immediately.
- 3 Ensure quarantine area is separate from other, more permanent housing facilities. Do not move between quarantine areas without proper disinfection. Ideally, you should enter the quarantine areas last thing in the day, and never enter a quarantine area and then move directly to another area housing amphibians or reptiles. If it is necessary to enter the quarantine area first, be sure to clean shoes, wash hands, and change shirt/clothing to minimize moving pathogens from the quarantine area to the other areas.
 - If possible, designate a single person to care for animals in quarantine. Do not allow this individual to move between quarantine facilities and other facilities.
- 4 The Association of Zoos and Aquariums (AZA) has specific quarantine procedures for all taxa. Specifically, they recommend a minimum of 30 days quarantine for all reptiles and amphibians. During this time, if any animal is added to the quarantined group, the 30 days must start over. Please review this [document](http://www.rhinosourcecenter.com/pdf_files/150/1507157932.pdf) (www.rhinosourcecenter.com/pdf_files/150/1507157932.pdf) for more information.
- 5 During the quarantine period, prophylactic procedures should be implemented. For example:
 - Routine individual or group fecal samples should be collected and examined at least twice and appropriate anti-parasitic treatments given as warranted. Release from quarantine should follow a minimum of two negative fecal tests (~2 weeks apart).
 - Evaluate animals for ectoparasites and treat as needed.
 - Other pathogen screening, as needed. For some species, it may be necessary to repeat pathogen screening (e.g., Ranavirus for box turtles) 2 weeks post-intake to ensure negative results.
 - Routine serum chemistry and complete blood counts completed at least once while in quarantine.
 - Other testing, as warranted either by clinical signs or species.
- 6 Do not use porous material/surfaces in quarantine as these cannot be disinfected.
- 7 Minimal cleaning and disinfection should occur daily and as enclosures are soiled to maintain a clean environment. This should include washing and disinfecting of all of food, water bowls, and substrates and the removal of all feces and bodily fluids. If an animal is housed in a temporary container while daily cleaning occurs, be sure to wash and disinfect the temporary container and do not use it for other animals.
- 8 Disinfection protocols once an animal is removed from quarantine should include:
 - A cleaning step: soap/water to remove organic debris and fecal material
 - A disinfection step: appropriate disinfectant and contact time.
 - For example, Virkon™ Aquatic is a great disinfectant against most herp pathogens. A 1% solution should be allowed a contact time of 1 min for Ranavirus, 2-10 min for snake fungal disease, and 1-5min for Bd. When in doubt, allow the longest contact time possible to ensure all target pathogens are effectively killed.
 - Review Appendix 1 from Gray et al., 2017 for information on appropriate disinfectants and contact time.
 - Be sure to clean/disinfect the brushes, gloves, and other materials used to clean and disinfect the quarantine area
- 9 Leave quarantine enclosures empty for a minimum of 24 hours before adding new inhabitants.

Considerations for Intake of Herps into Rehabilitation Facilities in the Northeast, USA

ARE YOU LICENSED TO TAKE HERPS IN YOUR STATE?		NO ▶ Do not rehabilitate; direct animal to licensed rehabilitator. What needs to be done so you can rehabilitate herps?
YES ▼		NO ▶ Log as required per state rules/guidelines YES ▶ Is this a state or federally listed species? YES ▶ Contact USFWS and/or state fish and wildlife agency
Do you have adequate housing?		
YES ▼	NO ▶ Research what is needed and build/procure; if feasible direct animal to another licensed rehabilitator with appropriate facilities.	
Are you able to quarantine?		
YES ▼	NO ▶ Do not rehabilitate; build appropriate quarantine facility; if feasible direct animal to another licensed rehabilitator with appropriate quarantine facilities.	
Do you have experience with this species or closely related taxa?		
YES ▼	NO ▶ Consider transferring to another facility that does, or seek training. If possible, consult with someone who does have experience.	
Does it appear this animal will be biologically fit (i.e., able to survive and reproduce) post rehabilitation?		
YES ▼	NO ▶ Reassess status as necessary to determine if biological fitness changes as rehabilitation progresses. If no change, consider euthanasia* *Always follow AVMA guidelines for humane euthanasia of reptiles. https://www.avma.org/KB/Policies/Documents/euthanasia.pdf	
Will rehabilitating this individual contribute to conservation of and/or education about its species and/or population? If necessary, consult with state or federal fish and wildlife agency to address this question.		
YES ▼	NO ▶ Consider other options: • Euthanasia • Rehoming / Long-term captivity • Other?	
Intake and proceed to rehabilitation, following QT and biosecurity guidelines.		