

Applying the North American Model of Wildlife Conservation to Herpetofauna: Voluntary Guidance for Ensuring Sustainable Use

Association of Wildlife Agencies Concept Paper

Prepared By: The Wildlife Resource Policy Committee, Amphibian and Reptile Subcommittee

(Staff Contact: Priya Nanjappa; 202.624.3643, pnanjappa@fishwildlife.org)

Approved at the AFWA Business Meeting – St. Louis, Missouri, September 24, 2014

The North American Model of Wildlife Conservation (*sensu* Geist et al. 2001) describes the basic concepts underlying modern wildlife conservation and management activities, historically applied primarily for game species and nongame birds. These concepts could be applied broadly to the management of other nongame wildlife, particularly where a user community exists and harvests wild, native fauna (Organ et al. 2012). Native amphibians and reptiles (i.e., herpetofauna) have long been used in unique ways relative to other vertebrates in the public trust. For example, for many children, exposure to frogs or turtles, etc., in their own backyards, and particularly the ability to hand-capture and observe them, provides the initial spark of interest in these animals and in wildlife in general. Herpetofauna are removed from the wild for traditional wildlife uses such as for research or education as well as for human food consumption or for their skins; they are also removed from the wild for live uses, such as for pets, bait, and for hobbyist collection, captive breeding, or photography. However, in general, many of these uses are not closely tracked, and thus, sustainability of such harvest may not be known. Further, these diverse interests are stable or increasing, and with the global human population still growing, in combination with continued habitat loss and fragmentation and the emerging threats of disease and climate change, state, provincial, and territorial fish and wildlife agencies need more tools to ensure the sustainability of herpetofaunal species and communities. One such tool already exists in the North American Model of Wildlife Conservation. The North American Model is a set of seven principles or “pillars” addressing the availability of wildlife to the public (e.g., via permits, with science-based limits and seasons, and with other considerations for fair and equitable distribution of access to wildlife; see also Prukop & Regan 2002).

On November 4, 2009, the Association of Fish and Wildlife Agencies’ (Association) Amphibian and Reptile Subcommittee partnered with the Association Law Enforcement Committee to hold a Herpetofauna Regulatory Summit (Summit). The Summit was initiated in response to concerns raised by state members regarding (both legal and illegal) commercial markets in, and demands for, herpetofauna, along with efforts among some states to revisit their own legal and regulatory frameworks for these species. State Fish and Wildlife Agencies were the primary participants of the Summit, the goals of which were threefold: (1) To assess the current status of statutes, regulations, and policies in the states relative to the use of native herpetofauna; (2) To discuss needs and challenges of managing this unique resource; and (3) To formulate recommendations for voluntary guidance within the context of the North American Model.

An Association report, *State of the Union: Legal Authority Over the Use of Native Amphibians and Reptiles in the United States* (Nanjappa and Conrad 2012), has been completed as part of this assessment, and forms the basis of these suggestions and recommendations. The Association understands that the process of changing laws, regulations or policy differs among states, and often can be challenging. We also recognize that these animals have not been traditionally addressed by many states, provinces, or territories using the North American Model concepts. That being said, the

Association and its Amphibian & Reptile Subcommittee offers assistance to any state, province, or territory that would like to pursue any of the suggestions below.

Purpose and Use of this Document: This document serves as voluntary guidance for states, provinces, or territories to consider when making changes or updates to their existing frameworks. Each of these management jurisdictions has varying policies, regulations, or laws pertaining to various uses of native amphibians and reptiles. Recently, many states have been updating these policies to address growing evidence of increased use and commercialization, and in a few cases, documented population declines, of some native herpetofauna. The suggestions and recommendations provided herein are intended as a toolkit, not a recipe, for addressing particular needs that our member agencies identify relative to native amphibian and reptile use, to ensure sustainability. Should this voluntary guidance be applied, there is no implication that all suggestions or recommendations must be implemented at once, nor that certain ideas must be prioritized over others or be pursued in any particular order. Each jurisdiction may select from these suggestions and recommendations, and use or modify one or more as needed. While we understand that in some states, provinces, or territories, there are cultural or regional activities that make some of these suggestions or recommendations more difficult or complex to implement, the Association stands ready to assist any member agency who may want information or assistance prior to pursuing such modifications.

Legitimate exemptions: In all of the suggestions that follow, we recognize the need for some “legitimate exemptions” such as reduced restrictions or costs particularly for children, but also for senior citizens, veterans, private landowner activities, or for instances of property-protection or self-defense.

Guidance and Options for Applying the North American Model to Herpetofauna

The voluntary guidance described below was developed within the context of the North American Model of Wildlife Conservation and its seven (7) principles or “pillars.”

1) Wildlife as Public Trust Resources

Wildlife is a common resource held in trust for the people (Geist et al. 2001); state, provincial, and territorial fish and wildlife agencies are charged with managing all fish and wildlife resources in the public trust, except those reserved for the federal government by the Constitution. When species are designated as federally Threatened or Endangered, these species are co-managed by the US Fish and Wildlife Service (or in the case of migratory sea turtles, by the National Marine Fisheries Service). As such, wild fauna are owned by no one, and can only be privately owned once physically possessed; this sets the framework for our user-pay system such that animals (customarily sportfish and game species) can be removed from the wild and may be possessed only with a license or permit.

In the context of this principle, we offer the following suggestions:

- a. At a minimum, and with legitimate exemptions, we suggest requiring a permit and/or license to “take” or harvest (i.e., removal from the wild, even without killing) for commercial, personal, or scientific uses (**see also #6 and #7**).
- b. When establishing permit and/or license fees, these fees should adequately cover costs (administrative, enforcement, management, and/or monitoring harvest).
- c. In management jurisdictions where private land and water rights and associated laws are complex, consider establishing a no-cost permit or license for landowners, with reporting, for take on private land/water. Such a permit or license and associated reporting can allow the monitoring and analysis of such use (**see also #6**).

2) Elimination of Markets for Wildlife

Prior to the enactment and promulgation of laws and regulations establishing permits, limits, and reporting, some game species were hunted for the incentive of harvest for money, or a value placed on dead wildlife, such that commercial gains outweighed wildlife appreciation to the point of near extirpation (known as the “Tragedy of the Commons”). Although many commercial herpetofauna hobbyists and breeders truly appreciate the animals they sell, there are some for whom the commercial gain may outweigh their interest in sustaining wild populations. While there is a clear market value on live herpetofauna, there are not clear ways to confirm wild vs. captive-bred origins. Currently, game and bird species generally are not permitted to be commercialized unless they are captive-bred (or farmed), and such commercial activities, where allowed, are tightly regulated for these species.

Some management jurisdictions have applied this principle of non-commercialization of wildlife to all species, including herpetofauna; this is one interpretation of the North American Model. However, in many states, at least some wild-caught species of amphibians and reptiles are allowed for commercial purposes. Examples of well-regulated commercial harvest exist, for example in fisheries and furbearer management, but also with American alligators in several Gulf Coastal Plain states. In the latter case, the creation of the strictly-controlled market actually ensured sustainable use of this species, and populations have rebounded to the point that limited hunting for personal use/recreation is again allowed in some states. This concept of well-regulated commercial use is another interpretation of the North American Model. The suggestions below address both interpretations (see also Prukop & Regan 2002).

- a. Where non-commercialization of native, wild-caught wildlife is the current, or desired, condition, some options may include:
 - i. Prohibiting the commercialization of all native species, even when they are captive-reared. This can prevent illegal collectors from claiming that the animals they are selling are captive-reared when in actuality, they may have been taken from the wild. This has been implemented in New York for native herpetofauna (with the exception of two turtle species).
 - ii. Creating certification and identification systems for captive-bred animals to differentiate those specimens from wild-collected animals as a management and enforcement tool (e.g., required pit-tagging or marking of captive progeny).
 1. Similarly, consider allowing only the sale of “designer” or color-morphs (e.g., certain snake species), which can only be achieved through captive breeding.
- b. Where commercialization of any herpetofauna is currently allowed in a state, province, or territory, options may include:
 - i. Creating strictly regulated markets for some high-demand species, with permits and reporting, along with monitoring and analysis of harvest data, as in fisheries or furbearer models, to establish and adjust sustainable harvest limits (**see also #3**).
 - ii. Establishing a special account or fund toward amphibian and reptile conservation and management, specifically for the administration and enforcement of commercial permits or licenses as well as for associated monitoring and analysis, funded by either:

1. A percentage of the sales receipts by commercial sellers or dealers of native amphibians or reptiles (an example of this has been implemented in Louisiana); OR
2. The sale of amphibian and reptile commercial collection or dealer permits or licenses (perhaps via a special stamp to distinguish these from commercial permits or licenses for other species).

3) Allocation of Wildlife by Law

Based on this principle, and according to Geist and colleagues (2001), “surplus” wildlife (i.e., numbers of animals beyond what the population needs to persist; **see also #6**) is allocated only by law, not by land-ownership, nor markets (i.e., supply and demand), nor by other status. In some states, private land and water rights and associated laws may add complexity to this concept of allocation without regard to land-ownership. Allocation of wildlife and related law-making is typically also based on public involvement, particularly with input from the user community.

Given the considerations of this principle, we offer the following suggestions:

- a. Establish regulatory harvest limits for herpetofauna based on at least one, though preferably more, of the following limits:
 - i. species (i.e., only allow less vulnerable species, based on scientific data),
 - ii. bag (daily, annual, or aggregate),
 - iii. possession,
 - iv. seasonal,
 - v. size,
 - vi. life stage (e.g., egg, larva, juvenile, adult),
 - vii. sex
 - viii. [geographic] area (i.e., less sensitive habitats),
 - ix. species look-alike considerations
- b. Where species are shared across jurisdictional boundaries, endeavor to collaborate in establishing these limits to ensure sustainability and prevent over-harvest (**see also #5**).
- c. Regard the herpetofaunal user community as somewhat akin to the traditional hunting, fishing, and trapping communities. As such, it could be helpful to initiate outreach to these communities that likens them to the game and fish community, as users of a resource that they enjoy or depend upon, and engage them regarding the role they can have in continued wise use (by supporting and following fish and wildlife laws), as with game species (**see also #7**). This can help initiate constructive conversations regarding the need for, and establishment of, permits, licenses, or fees as well as bag and season limits as a manner of benefitting the resources upon which they enjoy or depend.
- d. With respect to enforcement of these and related laws:
 - i. Encourage and develop regular communication plans between management, biological, and law enforcement personnel.
 - ii. Develop identification materials and cooperative training sessions between law enforcement and biological personnel. The Association and its Amphibian & Reptile Subcommittee can assist in the development of such training materials.

4) Wildlife Can Only Be Killed for a Legitimate Purpose

Killing game species or nongame birds without a permit or license is currently prohibited by law (with legitimate exceptions, including self-defense, property protection, etc.). This is based on

the North American Model principle that harvest of a wild animal, or its removal from the wild, must be for legitimate purposes, such as for food, skins, self-defense, or property protection.

Using the concepts of this principle, we offer the following options:

- a. Eliminate methods of take that harm habitats or non-target species (e.g., the use of gasoline to force animals from burrows, or rock prying).
- b. Prohibit wasteful resources uses, such as large-scale collections for short-term entertainment (e.g., “round-ups” or races). Instead, shift the focus of such entertainment activities from killing or removing species from the wild to educational opportunities, perhaps with existing captive animals via zoos and other partners, to foster respect and appreciation for the species, its habitat, and for wildlife in general. Engage conservation educators and human dimension biologists in such activities.
- c. Create and implement (working with partner organizations, such as nature centers, Partners in Amphibian and Reptile Conservation, Center for North American Herpetology, etc.) educational programs that teach proper identification of and safety around venomous species to minimize unnecessary killing of both venomous and non-venomous species. Also, establish a protocol (or work with partners to do so), and educate the public, regarding what to do and whom to contact (including partners rather than solely agency employees) should they see or suspect a venomous species in a high-risk area (e.g., children’s play area or school, residential areas).

5) Wildlife is Considered an International Resource

While this principle originates within the concepts of migratory bird management, it has since been expanded to the realm of international commerce. In the case of migratory birds, these animals travel across geo-political boundaries, and thus the management of species in one country may affect the population status in another country. However, this also occurs on smaller scales, with resident wildlife that cross into Mexico or Canada, or as applied in the Convention on the International Trade in Endangered Species (CITES) which investigates the potentially harmful impact of commerce in declining species. As it pertains to herpetofauna, where many species and populations are very localized, the same principles could apply across *jurisdictional* boundaries, and the cooperative sharing of information and even collaborative development of regulations can be beneficial to the overall management of North American species.

A note regarding turtle exports: Recently, there has been growing concern over the international trade in turtles, particularly for the consumption of their meat (but also for eggs and turtle parts) and as breeding stock. In China and parts of Southeast Asia, wild turtles have been harvested nearly to extinction. However, the demand for wild-caught meat continues, and sourcing this meat is expanding to other parts of the world. Already, the United States ships several millions of primarily farmed turtles to China and Southeast Asia, but a market in wild turtles also exists. Experts gathered at a 2010 FWS-sponsored workshop agreed that this international demand for wild-collected turtles from the United States will persist into the future.

We suggest the following, within the context of this principle, and including emerging concerns:

- a. Given evidence of increasing trade and export trends for turtles, eggs, and turtle parts, we suggest establishing regulations to ensure limited, sustainable use of only those species of turtles or other herpetofauna where such use is scientifically defensible (**see also #6**).

- i. As part of maintaining wild turtle populations and reducing pressure on them due to food demands, encourage well-regulated, closed-cycle turtle farming operations for species where captive-breeding is well-documented to be successful.
 - ii. Limit supplementation of brood stocks with wild species to instances deemed absolutely necessary (based on scientific studies of brood-stock genetics), or if wild populations are well-documented to be stable (**see #6**).
 - iii. Establish requirements for disease and/or pathogen testing prior to either import or export of all live animals (regardless of captive-reared or wild origin).
 - b. We suggest exploring the application of international wildlife trade concepts across international borders to state, provincial, or territorial boundaries when addressing the management of sensitive species across these jurisdictions.
 - i. Where species are shared across jurisdictional boundaries:
 - 1. Endeavor to collaborate with adjacent management jurisdictions in the establishment of regulations to ensure sustainability and to prevent overharvest.
 - 2. Recognize the impact of any new regulations, or changes therein, to adjacent management jurisdictions and endeavor to communicate with management as well as law enforcement personnel in these jurisdictions.
 - ii. Explore the feasibility of utilizing or applying models for reciprocal agreements among management jurisdictions, e.g., the Interstate Wildlife Violator Compact, or other intelligence and resource sharing (e.g., Regional Information Sharing System, RISS), to commercial amphibian and reptile violations. This can facilitate both law enforcement communication and collaboration, but can also help to reduce repeat offenders who may be illegally collecting herpetofauna in multiple management jurisdictions.
 - iii. If resources and capacity allow (**see also #1.b.**), or if reassignment of resources for such a purpose is possible, initiate covert units in law enforcement, specifically to address herpetofaunal investigations and enforcement, including monitoring of internet sales.

6) Science is the Proper Tool for Discharge of Wildlife Policy

Science should be the backbone by which wildlife policy is determined; this originated as the “Roosevelt Doctrine” and was carried forward in Leopold’s American Game Policy (1930) and principles described in *Game Management* (1933). As applied to herpetofauna, this principle calls for science-based policies, which are best determined via the establishment of permits or licenses, in combination with reporting, monitoring, and analysis. This allows the fine-tuning of season, bag, size and other limits to ensure sustainability and wise use of the resource. Of course, costs and capacities can influence agencies abilities to conduct such studies, but where possible, these studies also make regulations or laws defensible when objections or concerns arise. An example of establishment of new permits, and analysis of harvest to determine sustainable limits, was implemented in Texas.

Based on this principle, we recommend the following:

- a. Regulate harvest of herpetofauna from the wild based on the best available scientific knowledge of species-specific life history traits to ensure self-sustaining viable populations in the wild. For species where basic population data are lacking, establish

- more restrictive and/or more conservative regulations, at least temporarily, while initiating monitoring efforts to gain these data.
- b. Establish long-term monitoring programs for amphibian and reptile species that are allowed for personal and/or commercial uses.
 - i. Assess population impacts in harvested versus unharvested sites; assess cumulative threats in association with harvest; and assess socio-economic concerns related to collection, use, and/or trade of herpetofauna.
 - ii. If funds do not allow an effective and meaningful monitoring program, consider more restrictive and/or more conservative regulations with permit fees (i.e., via a special herpetofauna stamp; **see #2.b.**) and reporting to begin to provide funds and data, respectively, until such programs can be established, and to inform interim regulations.
 - c. Require permits and permit reporting for all uses of herpetofauna. Reporting data can assist with tracking and assessing the impacts of the(se) use(s) on the resource. Typically required report data include date, time, general location, and species observed/collected. Compliance and report quality can vary, but over time, the data can be useful.
 - i. Some important items to require might include the reporting of the sex, age class, size and/or weight measurements, take method, habitat description, and specific location (coordinates).
 - ii. Additional, useful reporting items could include the final disposition (e.g., live pet, meat, skin, bait) and whether the animals collected were sold.
 - d. Establish plans that provide capacity to assess permit/license report data on a regular basis, in conjunction with population monitoring data, to determine and adjust sustainable harvest limits as needed.
 - e. Where appropriate, add highly-traded species to Species of Greatest Conservation Need lists in State Wildlife Action Plans to help support the leveraging of funds toward additional research on harvested vs. unharvested populations.

7) Democracy of Hunting

This principle applies to the opportunity for all, regardless of class or status, to hunt or use wildlife in the public trust. In Canada and the United States, hunting is not a special privilege given to a select few, but is an opportunity available to all citizens. When applied to herpetofauna, “hunting” could mean the act of searching for and finding these mostly cryptic species in the wild. Making this opportunity available to all can also mean favoring wise, well-regulated use over bans on the collection, particularly personal collection, of many species. In addition, the democracy of hunting could apply to the transparency and clarity of the laws governing use, i.e., straightforward laws and regulations should not discourage legal hunting practices.

With these interpretations of the principle in mind, we offer the following suggestions:

- a. As feasible in regulation, or perhaps as an outreach concept, apply the fisheries concept of “catch and release” to herpetofauna, particularly for certain declining, but popular species, for the purposes of hands-on education and appreciation, nature photography, etc. where releases must occur at the point of capture. As feasible, develop such a permit or license, at low cost and with legitimate exemptions especially for children, to foster and track this appreciation without causing harm to populations.
- b. Develop an outreach plan to the herpetofaunal user community – this community is somewhat akin to the traditional hunting, fishing, and trapping communities. Consider

approaching them for help to ensure long-term enjoyment and wise-use, including input on how to address the costs of managing sustainable use populations (**see also #3**).

- c. Ensure that laws and regulations are easy to access and understand; this can assist law enforcement to determine when violations are intentional.
 - i. Ensure that penalties for violations of regulations are also clearly stated, and as feasible in regulatory or legislative action, establish these at levels that will discourage repeat violations.
 - ii. Where commercial markets are involved, and as feasible, ensure that commercial violation penalties are set relative to market values to encourage legal compliance and deter illegal activity (penalties that are too low can do the opposite).

Literature Cited:

- Geist, V., S.P. Mahoney and J.F. Organ. 2001. Why hunting has defined the North American model of wildlife conservation. Transactions North American Wildlife and Natural Resources Conference 66: 175-185.
- Leopold, A. 1930. Report to the American game conference on an American game policy. Trans. Amer. Game Conf. 17: 281-283.
- Leopold, A. 1933. Game Management. Charles Scribner's Sons, New York. 481 pp.
- Nanjappa, P. and P.M. Conrad (Eds.). 2012. State of the Union: Legal Authority Over the Use of Native Amphibians and Reptiles in the United States. V.1.03. Association of Fish and Wildlife Agencies, Washington, DC, USA.
- Organ, J.F., V. Geist, S.P. Mahoney, S. Williams, P.R. Krausman, G.R. Batcheller, T.A. Decker, R. Carmichael, P. Nanjappa, R. Regan, R.A. Medellin, R. Cantu, R.E. McCabe, S. Craven, G.M. Vecellio, and D.J. Decker. 2012. The North American Model of Wildlife Conservation. The Wildlife Society Technical Review 12-04. The Wildlife Society, Bethesda, Maryland, USA.
- Prukop, J. and R.J. Regan. 2002. The value of the North American model of wildlife conservation. Wildlife Resource Policy Committee white paper. International Association of Fish and Wildlife Agencies, Washington, DC.