3D model set by Ken Gilliland

Nature's Wonders

Salamanders & Newts

of the World Volume 1

Manual

Field Guide

Introduction

Salamanders and Newts are a group of amphibians typically characterized by their lizard-like appearance with some frog qualities.They generally have slender bodies, blunt snouts, short limbs, and the presence of a tail in both larvae and adults. All ten extant salamander families are grouped together under the order *Urodela* ("conspicuous tail").

Their diversity is highest in eastern North America, especially in the Appalachian Mountains; most species are found in the Nearctic and Palearctic regions with some species present in Neotropical areas. This group of amphibians is capable of regenerating lost limbs as well as other damaged parts of their bodies. All salamanders have poisonous skin. The skin of the California newt secretes tetrodotoxin, the same toxin found in puffer-fish, making them deadly to most creatures.

Legends have developed around the salamander over the centuries, many related to fire. This connection likely originates from the tendency of many salamanders to dwell inside rotting logs. When the log was placed into a fire, the salamander would attempt to escape, lending credence to the belief that salamanders were created from flames.

Overview and Use

This set uses a common model to recreate digitally the lizard species included in this volume. Each species uses specific morphs from the generic model to single-out its unique features.

- **Models included in this volume:**
    - **Natures Wonders Salamander Base** - This model is used with all salamanders and newts included in this set. .

The set is located within the **Animals : Nature's Wonder** folder. Here is where you will find a number of folders, such as **Manuals, Resources** and **Fauna Libraries**. Let's look at what is contained in these folders:

- **Fauna Libraries:** This folder holds the actual species and poses for the "premade" fauna. The fauna for this set can be found in the following folder(s):
    - **Amphibians/Salamanders of the World**
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your fauna included in the set

- **… Based Models:** This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species. When using physical renderers such as Iray and Superfly, SubD should be turned to at least “3”. For DAZ Studios 3Delight renders, the SubD must be turned from the “High Resolution” setting to the “Base” setting (otherwise some areas will render incorrectly transparent).

Creating a Specific Salamander using Poser

1. For this example, we’ll create the Fire Salamander.
2. Load Poser, select the FIGURES library and go to the "Animals", "Nature’s Wonders" and then the Nature’s Wonders Fauna Libraries Amphibians folder.
3. Go to the Salamanders of the World folder and select the Firefly or Superfly sub-folder.
4. Select the Fire Salamander (or a salamander of your choice) and load it by clicking the mouse.

Creating a Specific Salamanders using DAZ Studio

1. For this example, we’ll create the Fire Salamander.
2. Load DAZ Studio and go to the "Animals", "Nature’s Wonders" and then the Nature’s Wonders Fauna Libraries Amphibians folder.
3. Go to the Salamanders of the World folder and select the Iray or 3Delight sub-folder.
4. Select the Fire Salamander (or a salamander of your choice) and load it by clicking the mouse.

Using the Poses

The poses were designed for the default model. Since different individual species may use torso, neck, leg and tail scaling, it may alter the expected ground level of the species model. Some adjusting may be necessary (e.g. the "ytran" dial may need to be used to raise or lower the model).

Hellbender *Cryptobranchus alleganiensis*

This species of aquatic giant salamander is endemic to the eastern and central United States. They are present in a number of Eastern US states, from southern New York to northern Georgia, including parts of Ohio, Pennsylvania, Maryland, West Virginia, Virginia, Kentucky, Illinois, Indiana, Tennessee, North Carolina, South Carolina, Alabama, Mississippi, Arkansas, Missouri, and extending into Oklahoma and Kansas.

It is a member of the family, Cryptobranchidae, and the only extant member of the genus Cryptobranchus. The name 'hellbender' probably comes from the animal's odd look. One theory claims the hellbender was named by settlers who thought "it was a creature from hell where it's bent on returning." Another rendition says the undulating skin of a hellbender reminded observers of "horrible tortures of the infernal regions" but in reality, it's just a harmless aquatic salamander.

Both sexes grow to an adult length of 12 to 29 inches (30 to 74 cm). They are blotchy brown or red-brown in color, with a paler underbelly.They have a flat body and head, with beady dorsal eyes and slimy skin. Like most salamanders, it has short legs with four toes on the front legs and five on its back limbs, and its tail is keeled for propulsion. Its tail is shaped like a rudder, but it is rarely used for swimming. Aquatic salamanders use pads on their toes instead to grip rocks and walk up and down streams instead of swimming. The hellbender has working lungs, but gill slits are often retained, although only immature

specimens have true gills; the hellbender absorbs oxygen from the water through capillaries of its side frills. The frills run from their neck down to the base of their tail on each side of their body. The frills' function is to increase the surface area of the hellbender and to help the hellbender breathe. Hellbenders only occasionally leaving the water.

It feeds primarily on crayfish and small fish, but also insects, worms, molluscs, tadpoles and smaller salamanders.

The species is listed as Vulnerable on the IUCN Red List of Threatened Species due to the impacts of disease and widespread habitat loss and degradation throughout much of its range. The Ozark hellbender (subspecies) has been listed as an endangered species under the Endangered Species Act by the US Fish and Wildlife Service since October 5, 2011. This hellbender subspecies inhabits the White River and Spring River systems in southern Missouri and northern Arkansas, and its population has declined an estimated 75% since the 1980s, with only about 590 individuals remaining in the wild. Degraded water quality, habitat loss resulting from impoundments, ore and gravel mining, sedimentation, and collection for the pet trade are thought to be the main factors resulting in the amphibian's decline.

Hida Salamander *Hynobius kimurae*

The Hida salamander or Hondo salamander is a species of salamander in the family Hynobiidae, the Asiatic salamanders. It is endemic to central and western Honshu, Japan.

It lives in deciduous, coniferous, and mixed forests, where it breeds in streams. It emerges at night or on rainy days to forage for earthworms, slugs, spiders, small insects.

Its length of 101-184 mm. It has a long and robust trunk, a thick tail, and costal grooves. Its limbs and toes are short. The base color is golden brown and is speckled with erratic purplish black blotches. The blotches may be tiny dots or more like freckles and they may be dense or sparse, depending on the region

of the individual, but they are about the same size all over the dorsal surface. The ventral surface is lighter with less blotches.

The egg sacs of this species were reported to display blue-to-yellow iridescent glow due to a quasi-periodic diffraction grating structure embedded within the envelopes of the egg sacs. These salamanders typically spawn from February to April, leading some to metamorphose in late September while others wait for the following year to do so after winter is over.

Tiger Salamander *Ambystoma tigrinum*

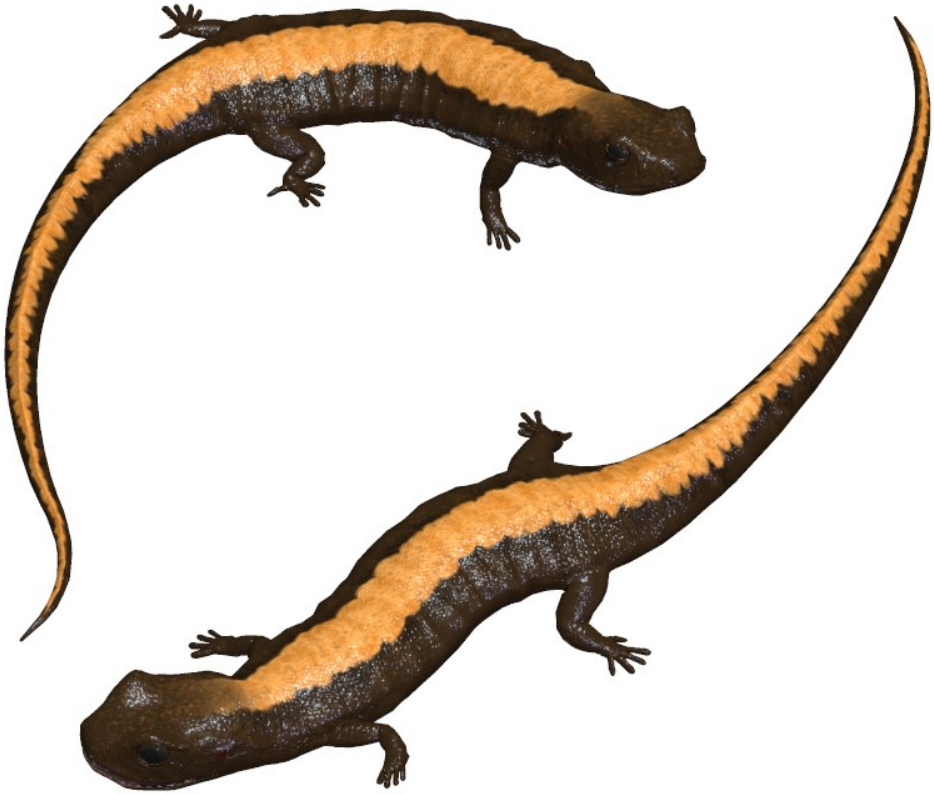
It is a species of mole salamander and one of the largest terrestrial salamanders in North America. This species is most commonly found on the Atlantic coast from New York down to Florida. They are known, however, to be the widest ranging species of salamander in North America and have been found in smaller populations from coast to coast.Tiger salamanders habitats range from woodlands crowded with conifer and deciduous trees to grassy open fields. These amphibians are secretive creatures who spend most of their lives underground in burrows, making them difficult to spot

These salamanders usually grow to a length of 6–8 in (15–20 cm) with a lifespan of around 12–15 years. They are characterized by having markings varying in color on the back of their head, body, and tail. The coloring of these spots range from brownish yellow to greenish yellow, while the rest of their back is black or dark brown. They are smooth bodied, with costal grooves running down their sides to aid in moisture control. They have short snouts, thick necks, strong legs, and lengthy tails.Tiger salamanders are a sexually dimorphic species, as the males are larger in body size, as well as have longer and higher tails than females

Red-backed Salamander *Plethodon cinereus*

It is a small, hardy woodland salamander species in the family Plethodontidae. It is also known as the red-back salamander, eastern red-backed salamander, or the northern red-backed salamander. The species inhabits wooded slopes in eastern North America, west to Missouri, south to North Carolina, and north from southern Quebec and the Maritime provinces in Canada to Minnesota.

As with all amphibians, the red-backed salamander has permeable skin. They also lack lungs, a condition which is an ancestral trait of the Plethodontidae.



It is a small terrestrial salamander, 5.7–10.0 cm (2.2–3.9 in) in total length (including tail). It exhibits color polymorphism, the common ones being the red-striped morph and the lead-phase. The "red-backed" or "red-stripe" variety has a red dorsal stripe that tapers towards the tail, and the darker variety, known as the "lead-backed" (or simply "lead") phase, lacks most or all of the red pigmentation. The red-backed phase is not always red, but may actually be various other colors (e.g., yellow-backed, orange-backed, white-backed, or a rare erythristic morph in which the body is completely red). Both morphs have speckled black and white bellies. Additional color anomalies of this species

also exist, including iridistic, albino, leucistic, amelanistic, and melanistic anomalies.These color morphs are rarer than the red-backed, lead-backed, and erythristic morphs, but still have been reported with consistency among varying populations of this species.

Red-backed salamanders are mostly insectivorous, but prey on a wide assortment of other small invertebrates including isopods, millipedes, centipedes, pseudo-scorpions, harvestmen, spiders, and gastropods.

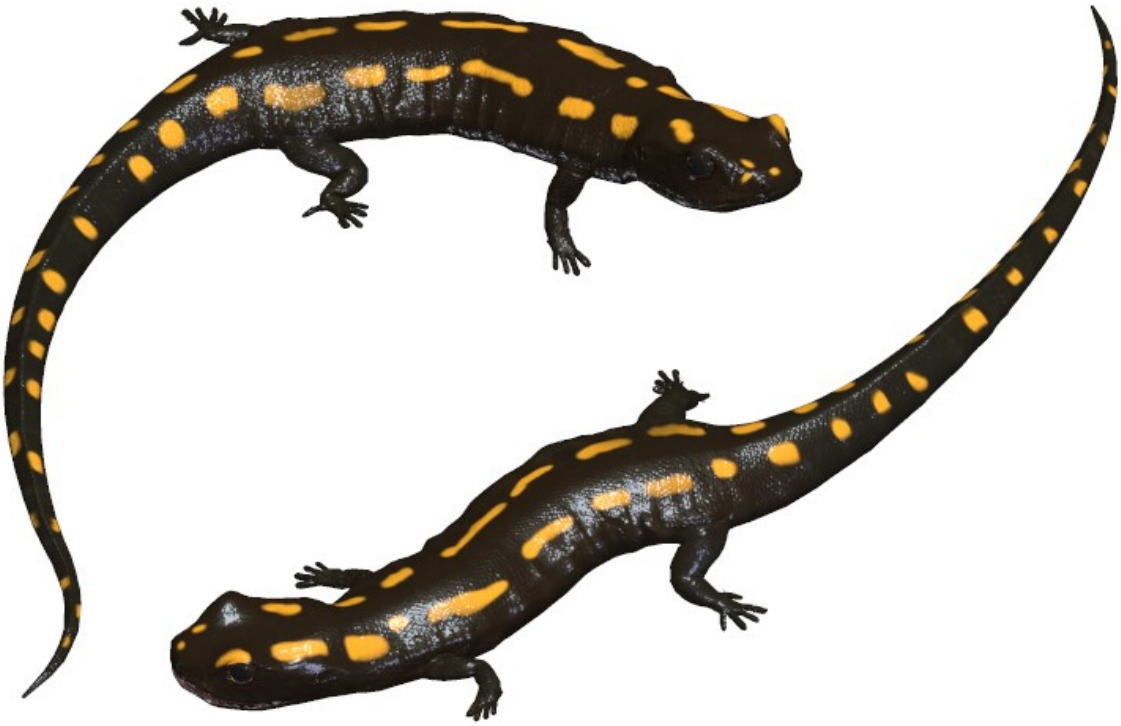
This species is not threatened.

Caucasian Salamander *Mertensiella caucasica*

It is endemic to the south-western Caucasus, in Georgia and Turkey. The subspecies Race janashvilii is found at Mt. Mtirala near Batumi, and probably along the Black Sea coast.

It lives along the banks of mountain brooks and small rivers with fast currents, both in the forest belt and above timberline, up to about 2400 m above sea level.

This is a salamander is 3 inches (7.66 cm) in length, with a thin, elongated body. It is primarily brownish-black in color with yellow to orange spots from snout to tail along its back. Costal grooves are well-developed with 11-12 on each side of the body.



The species is secretive and strictly nocturnal, and mates on land. The male uses the protuberance on the upper side of the tail for opening the female's cloaca and passes the spermatophore directly to the female.

Their diets consist of invertebrates living in soil or shallow water; an important

part of the diet is amphipods.

This salamander is listed as “Vulnerable”. While it hardly has any important natural enemies, humans are driving it to extinction. The most important factor affecting it is habitat loss, caused by extensive logging in Georgia and construction works in Turkey. Large parts of the habitat of the salamander are not covered by any kind of protected areas.

There are two subspecies:

- *M c. caucasica. First reported by Waga in 1876.*
- *M.c. djanaschvilii. First reported by Tartarachvili and Bakradze in 1989.*

Chinese Fire-belly Newt *Cynops orientalis*

It is endemic to subtropical forests in East-Central China and prefers to live in shallow, semi-aquatic environments such as abandoned paddies and ponds with dense vegetation. Like many amphibians, the Chinese fire belly newt hibernates.

It is a small 2.2–4.0 inches (5.6–10.2 cm) black newt, with bright-orange aposematic coloration on their ventral sides.

Chinese fire-belly newts typically spawn in ponds, ditches, wells, and fields, ideally with a water temperature within 15-23°C. Eggs are often deposited on aquatic plants and have a typical incubation time of 13-24 days. Breeding takes place from March to July, with the most spawning occurring in April and May. After the female takes the spermatophore from the male, spawning generally occurs within 65 days. Populations have been found to have a male-biased skewed sex ratio. Sexual maturity of the species is reached within 1 to 3 years

This newt is mildly poisonous and excretes toxins through its skin. Consisting primarily of tetrodotoxins, newts of the genus Cynops pose a medically significant threat if enough toxins are consumed, and toxins may cause numbness or irritation on skin contact.

Special Thanks to…

….my betatesters Alisa and FlintHawk

Species Accuracy and Reference Materials

The author-artist has tried to make these species as accurate to their real life counterparts as possible. Salamanders of the same species vary considerably, as do all other animals in nature. These salamanders were created using the correct field markings and the most common similarities.

With the use of one generic model to create dozens of unique salamander species, some give and take is bound to occur. In addition, 3D-models have many technical challenges, which make exact representations difficult, if not impossible. It's best to think of these salamanders represented as resembling the particular species, and they may not, in some cases, be 100% scientifically accurate.

The model and morphs were created using Luxology's Modo. The texture maps were created in Corel's Painter. The model was rigged and materials were created in Smith-Micro's Poser and DAZ's DAZ Studio.

Internet Sources:

- **Wikipedia** (http://www.wikipedia.com)
- **San Diego Zoo** (http://animals.sandiegozoo.org/animals/lizard)
- **AmphibiaWeb** (https://amphibiaweb.org)