

Salamanders of Tennessee: modified from Lisa Powers

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The Salamanders of Tennessee



Photo by John White

Salamanders are the group of tailed, vertebrate animals that along with frogs and caecilians make up the class Amphibia.



Salamanders are ectothermic (cold-blooded), have smooth glandular skin, lack claws and must have a moist environment in which to live.

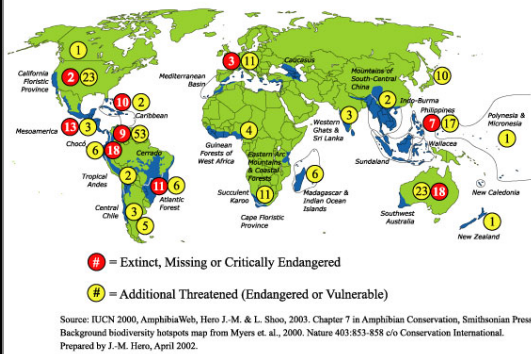
Amphibian Declines

Worldwide, over 200 amphibian species have experienced recent population declines. Scientists have reports of 32 species extinctions, mainly species of frogs.



First discovered in 1967, the golden toad, *Bufo periglenes*, was last seen in 1987.

Distribution of Global Amphibian Declines









Much attention has been given to the Anurans (frogs) in recent years, however salamander populations have been poorly monitored.



Photo by Henk Wallays

Fire Salamander - *Salamandra salamandra terrestris*

Why The Concern For Salamanders in Tennessee?


-  Their key role and high densities in many forests
-  The stability in their counts and populations
-  Their vulnerability to air and water pollution
-  Their sensitivity as a measure of change
-  The threatened and endangered status of several species
-  Their inherent beauty and appeal as a creature to study and conserve.


*Possible Factors Influencing Declines Around the World

-  **Climate Change**
-  **Habitat Modification**
-  **Habitat Fragmentation**
-  **Introduced Species**
-  **UV-B Radiation**
-  **Chemical Contaminants**
-  **Disease**
-  **Trade in Amphibians as Pets**


*Often declines are caused by a combination of factors and do not have a single cause.


Major Causes for Declines in Tennessee

 **Habitat Modification** - The destruction of natural habitats is undoubtedly the biggest threat facing amphibians in Tennessee. Housing, shopping center, industrial and highway construction are all increasing throughout the state and consequently decreasing the amount of available habitat for amphibians.

 **Habitat Fragmentation** – The fragmentation of remaining habitats can have negative effects on amphibians by isolating populations. Animals may no longer be able to reach breeding ponds or interact with other populations.

Major Causes for Declines in Tennessee - continued

 **Introduced species** - Introduced species can negatively affect amphibians by direct predation and competition. Many native amphibians are vulnerable to introduced fishes and introduced amphibians. Others may be prone to damage to their habitat from invasive species like pine beetles & wooly adelgids.

 **Chemical Contaminants** - Chemicals such as pesticides, herbicides, and fertilizers are affecting amphibians in many areas around the world. A recent article in the Proceedings of the National Academy of Sciences shows that frogs can be highly affected by one of the most commonly used herbicides. The same is likely true for salamanders.

Caudata (Salamanders)

10 Families Worldwide

511 Species Worldwide



Tennessee is home
to over 60 species of
salamanders
belonging to 7
different families.

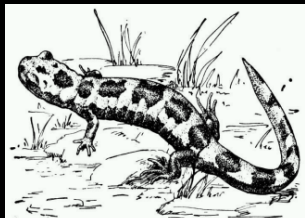


Family Ambystomatidae

Mole Salamanders

30 Species Worldwide

6 Species in Tennessee



Streamside Salamander



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Photo by Leslie Meade

Ambystoma barbouri

Spotted Salamander



Photo by John White

Ambystoma maculatum

Marbled Salamander



Ambystoma opacum

Photo by John White

Mole Salamander



Ambystoma talpoideum

Photo by John White

Small-mouthed Salamander



Ambystoma texanum

Photo by John White

Eastern Tiger Salamander



Ambystoma tigrinum

Photo by John White

Family Amphiumidae Amphiumas

3 Species Worldwide

1 Species in Tennessee

Three-toed Amphiuma



Photo by Suzanne Collins

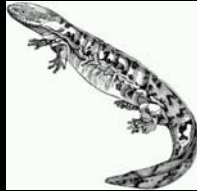
Amphiuma tridactylum

Family Cryptobranchidae

Hellbender and Giant
Salamanders

3 Species Worldwide

1 Species in Tennessee



Eastern Hellbender



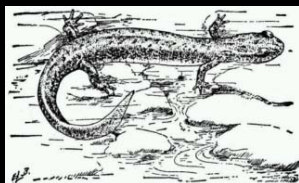
Cryptobranchus alleganiensis

Family Plethodontidae

Lungless Salamanders

352 Species Worldwide

45 Species in Tennessee



Subfamilies of the Plethodontidae

Subfamily Desmognathinae

Subfamily Plethodontinae

Subfamily Desmognathinae

Seepage Salamander



Desmognathus aeneus

Photo by Steve Tilley

Dusky Salamanders

Carolina Mountain Dusky Salamander-
Desmognathus caroliniensis

Spotted Dusky Salamander-*Desmognathus*
conanti

Northern Dusky Salamander-
Desmognathus fuscus

Dusky Salamanders-continued

Allegheny Mountain Dusky Salamander –
Desmognathus ochrophaeus

Blue Ridge Dusky Salamander –
Desmognathus orestes

Santeetlah Dusky Salamander –
Desmognathus santeetlah

Representative Dusky Salamander



Desmognathus species

Imitator Salamander



© Brad Moon

Plethodon jordani-top;
Desmognathus imitator-below

Photo by Brad Moon

Shovel-nosed Salamander



© Ken Felsman

Photo by Ken Felsman

Desmognathus marmoratus

Seal Salamander



c 2000 Dennis Desmond

Photo by Dennis Desmond

Desmognathus monticola

Ocoee Salamander



Photo by Brad Moon

Desmognathus ocoee

Black-bellied Salamander



Desmognathus quadramaculatus

Blackbelly's eggs



Black Mountain Salamander



© L.S. Meade

Desmognathus welteri

Photo by L.S. Meade

Pigmy Salamander



Photo by Terry Hibbitts

Desmognathus wrighti

Subfamily Plethodontinae

Tribe Hemidactyliini

Tribe Plethodontini

Tribe Hemidactyliini

12 Species

Southern Two-lined Salamander



Eurycea cirrigera Photo by Brad Moon

Three-lined Salamander



Eurycea guttolineata Photo by John White

Junaluska Salamander



Photo by Steve Tilley

Eurycea junaluska

Long-tailed Salamander



Photo by John White

Eurycea longicauda

Cave Salamander



© Ken Felsman

Photo by Ken Felsman

Eurycea lucifuga

**Blue Ridge Two-lined
Salamander**



Eurycea wilderae Photo by Brad Moon

Tennessee Cave Salamander



Gyrinophilus palleucus Photo by Tom Barr

Spring Salamander



Gyrinophilus porphyriticus Photo by Brad Moon

Four-toed Salamander



© John White

Photo by John White

Hemidactylium scutatum

Four-toed Salamander



© John White

Photo by John White

Hemidactylium scutatum

Midland Mud Salamander



© John White

Photo by John White

Pseudotriton montanus

Midland Mud Salamander



Larval stage

Photo by John White

Red Salamander



Pseudotriton ruber

Photo by John White

Tribe Plethodontini

19 Species

Green Salamander



Aneides aeneus

Photo by David Wojnowski

Tellico Salamander



Photo by Suzanne Collins

Plethodon aureolus

Eastern Red-backed



Plethodon cinereus

Photo by Joyce Gross

Slimy Salamanders

White-spotted Slimy Salamander –
Plethodon cylindraceus

Northern Slimy Salamander – *Plethodon*
glutinosus

Mississippi Slimy Salamander -
Plethodon mississippi

Slimy Salamanders



Plethodon species

Photo by John White

Zigzag Salamanders



Northern Zigzag - *Plethodon dorsalis*
Southern Zigzag - *Plethodon ventralis*

Jordan's Salamander



Cumberland Plateau Salamander



Photo by Suzanne Collins

Plethodon kentucki

Southern Ravine Salamander



© Les S. Meade

Photo by L.S. Meade

Plethodon richmondi

Southern Red-backed Salamander



Plethodon serratus

Photo by Terry Hibbitts

Red-legged Salamander



Plethodon shermani

Photo by Brad Moon

Southern Appalachian Salamander



Plethodon teyahalee

Photo by Terry Hibbitts

Wehrle's Salamander



Plethodon wehrlei

Photo by John White

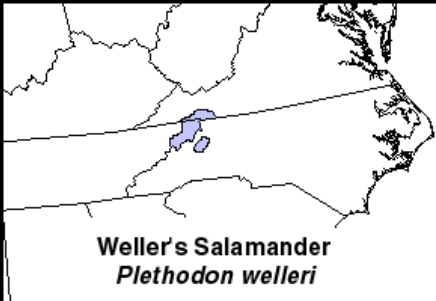
Weller's Salamander



Mullin ©

Plethodon welleri

Appalachian endemic



Weller's Salamander
Plethodon welleri

Yonahlossee Salamander



Plethodon yonahlossee

The most handsome of all
salamanders!

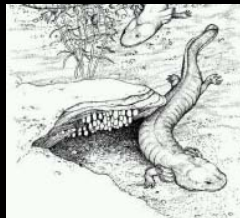


Family Proteidae

Waterdogs and Mudpuppy

6 Species Worldwide

1 Species in Tennessee



Common Mudpuppy



Photo by Suzanne Collins

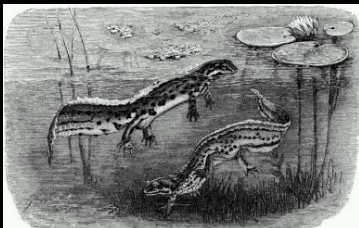
Necturus maculosus

Family Salamandridae

Newts

62 Species Worldwide

1 Species in Tennessee



Eastern Newt



Photo by John White

Notophthalmus viridescens

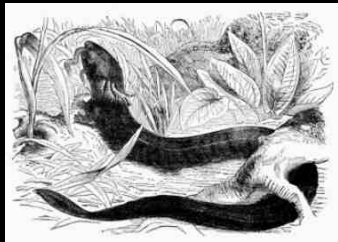
Eastern Newt



Red Eft Stage

Photo by Joyce Gross

Family Sirenidae Sirens 4 Species Worldwide 1 Species in Tennessee



Western Lesser Siren



Siren intermedia nettingi

Photo by John White
