

# Salamanders of Tennessee

WFS 433/533  
1/15/2013




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## Caudata

- Very diverse amphibian order; nearly 642 species (9% of all amphibians)
- Nine extant families worldwide
  - Proteidae
  - Cryptobranchidae
  - Plethodontidae
  - Ambystomatidae
  - Amphiumidae
  - Sirenidae
  - Salamandridae
  - Hynobiidae
  - Rhyacotritonidae
- Total of ~58 species in Tennessee
- Diverse array of habitats (high mountains and floodplains)




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## Family Plethodontidae

- Largest family of salamanders (27 genera; >375 species worldwide); ~46 species in TN
- Nasolabial grooves
- Lack lungs
- Some species neotenic
- Larval stage or direct development
- Occupy a variety of habitats; diversity greatest in Blue Ridge Mtns.
- TN has the following genera: *Desmognathus*, *Plethodon*, *Eurycea*, *Hemidactylium*, *Aneides*, *Pseudotriton*, and *Gyrinophilus*



Photo by: B. Sutton

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### Genus *Desmognathus*

- 16 species in Tennessee
- Some almost entirely aquatic, others fully terrestrial
- Two species w/ direct development
- Hind limbs larger than fore limbs
- Line line running from eye to posterior margin of jaw
- Some species can only be distinguished based on geography and genetics
- Larvae very difficult to identify



Photos by: B. Sutton

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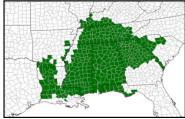

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### Spotted Dusky Salamander (*Desmognathus conanti*)

- Generally low elevation
- Wavy line on dorsum
- Slight keel on tail

Photos by: M. Niemiller

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### Santeetlah Dusky Salamander (*Desmognathus santeetlah*)


- Flecking on body
- Yellowish tinge on venter
- Slight keel
- Higher elevations

Photos by: B. Sutton

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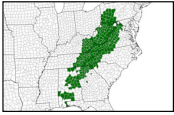
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### Seal Salamander (*Desmognathus monticola*)

©2005 Mike Graziano

- Worm-like markings on dorsum
- Pale belly with no markings
- Keel evident on tail
- Up to ~3500 ft. in elevation




Photo by: M. Niemiller

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### Black-bellied Salamander (*Desmognathus quadramaculatus*)



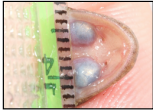




Photo by: B. Sutton

- Brown-rufous dorsal coloration
- Charcoal black belly
- Sharp keel on tail
- 1000 ft to highest elevations

Photos by: M. Niemiller

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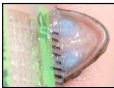

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### Shovel-nosed Salamander (*Desmognathus marmoratus*)

- Very similar to the Blackbelly
- Sharper keel on tail and shorter snout
- Nares are closed

Photos by: M. Niemiller

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### Pygmy Salamander (*Desmognathus wrighti*)






Photo by: B. Sutton

- Look for "chevron" markings on dorsum
- Relatively small size
- No keel on the tail
- Highly terrestrial
- 2,400 ft and up in elevation




Photo by: M. Niemiller

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### Ocoee Salamander (*Desmognathus ocoee*)

Photos by: B. Sutton and R. Hardman

- Distinct wavy line on dorsum
- Rounded tail
- Highly variable dorsal coloration
- Higher elevations

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### Imitator Salamander (*Desmognathus imitator*)

Photos by: M. Niemiller

- "May" have red cheeks
- Slightly keeled tail
- Wavy line on dorsum
- Can be difficult to distinguish from *D. ocoee*
- Higher elevations

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## Genus *Plethodon*

- 17 species in Tennessee
- Fully terrestrial
- Direct development
- Very high densities in some areas
- Some species can only be distinguished based on geography and genetics




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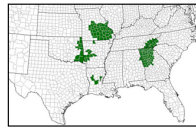
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## Southern Red-backed Salamander (*Plethodon serratus*)



- Bright red dorsum
- Serrated edges along dorsal stripe

Photos by: M. Niemiller

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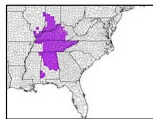
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## Northern Zig-zag Salamander (*Plethodon dorsalis*)



- Distinct wavy line on dorsum
- Chestnut-reddish stripe down dorsum
- Orange-red shoulder patch
- Confusion on exact species in TN
- Lower elevation woodland habitats

Photos by: Bill Sutton

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### Jordan's Salamander (*Plethodon jordani*)






Photo by: B. Sutton      Photo by: R. Hardman

- Endemic to the Great Smoky Mtns.
- Found at elevations >2,800 ft.
- Bluish-gray dorsum coloration

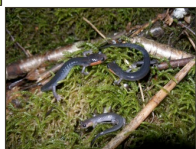


Photo by: R. Hardman

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### Slimy Salamander *Plethodon glutinosus*

- White spotting on dorsum and lateral surface
- "Glue-like" substance excreted when handled



Photos by: B. Sutton

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### Genus *Eurycea*

- 7 species in Tennessee
- Most species brightly colored: yellow, red, orange
- Both hind and fore limbs approximately equal size
- Males with conspicuous mental glands and cirri during breeding season
- Larvae can be difficult to identify
- Known as "brook salamanders"

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### Blue Ridge Two-lined Salamander (*Eurycea wilderae*)






Photo by: R. Hardman

Photo by: M. Niemiller

- Yellow to orange dorsal coloration
- Two single black lines on the dorsum
- Present at most elevations above 1000 ft

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### Cave Salamander (*Eurycea lucifuga*)


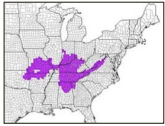



Photo by: B. Sutton

Photo by: Bill Peterman 2007

- Primarily "twilight" zone of caves
- Spotted pattern on dorsum

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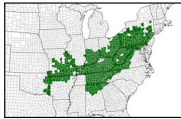
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### Long-tailed Salamander (*Eurycea longicauda*)

Photos by: B. Sutton

Photo by: Bill Peterman 2007

- Tail comprises >60 percent of body
- Chevron markings on lateral surface of tail

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### Four-toed Salamander (*Hemidactylium scutatum*)




Photo by: M. Niemiller






Photo by: B. Sutton

- Monotypic genus
- Brownish dorsum
- Square blunt snout
- Constriction at base of tail
- Pepperish belly
- Found in sphagnum bogs

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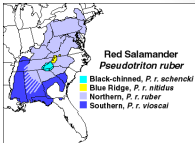
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### Red Salamander (*Pseudotriton ruber*)

Red Salamander  
*Pseudotriton ruber*

- Black-chinned, *P. r. schencki*
- Blue Ridge, *P. r. nitidus*
- Northern, *P. r. ruber*
- Southern, *P. r. violaceus*



Photos by: B. Sutton

- Three species of *Pseudotriton* worldwide
- Robust cigar-shaped body
- Striking red body coloration
- Black flecks on the dorsal and lateral surfaces
- Golden iris
- Low order streams and seeps up to 1500 m in elevation

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### Green Salamander (*Aneides aeneus*)

Photos by: B. Sutton and R. Hardman

- 7 species of *Aneides* worldwide; 1 in TN
- Green and black lichen dorsal coloration
- Laterally compressed body structure
- Squarish toe tips with sticky toe pads
- Commonly inhabits rock outcrops and bluffs

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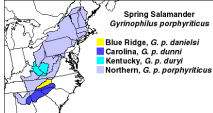

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### Spring Salamander (*Gyrinophilus porphyriticus*)

- Four species of *Gyrinophilus*; three in TN
- Bright orange to salmon body coloration
- Large squarish snout with pronounced canthus rostralis
- Large and fleshy keeled tail
- Commonly found associated with stream, seep, and cave environments

Photos by: B. Sutton and M. Niemiller

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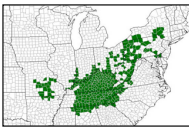
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### Eastern Hellbender (*Cryptobranchus alleganiensis*)

- Cryptobranchidae: two genera (3 species worldwide); 1 species in TN

- Broad, flat head
- No external gills
- Keratinized toe tips
- Broad, flat paddle shaped tail
- Extra skin flaps on lateral surface

Photo by: B. Sutton

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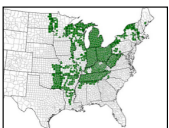
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### Mudpuppy (*Necturus maculosus*)

- Proteidae: two genera (~7 species worldwide); 1 species in TN



- Broad, flat head
- External gills (reddish tinge)
- Spotted pattern on dorsum
- Four toes on hindlimbs
- Broad, flat paddle shaped tail
- Max. total length ~400 mm

Photo by: B. Sutton  
Photo by: M. Niemiller

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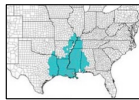
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### Three-toed Amphiuma (*Amphiuma tridactylum*)

- Amphiumidae: one genera (3 species worldwide); 1 species in TN



- Eel-like appearance
- Rudimentary front and hindlimbs present
- Three small toe-like structures on limbs
- Floodplains and other mucky, low-oxygen environments

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### Lesser Siren (*Siren intermedia*)

- Sirenidae: two genera (4 species worldwide); 1 species in TN



- Eel-like appearance
- Only forelimbs present; no hindlimbs
- Also found in mucky, low-oxygen environments

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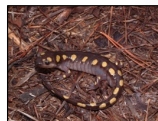
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### Family Ambystomatidae

- One genus; 31 total species (six species in TN). Fully new-world distribution
- Large, robust adults
- Costal grooves
- Adults possess lungs
- Most reproduce in ephemeral ponds; some in streams
- Some species neotenic
- Larval stage

Photos by: B. Sutton




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### Tiger Salamander (*Ambystoma tigrinum*)

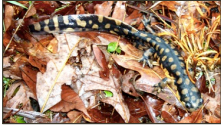





Photo by: L. Marshall

- Large, robust salamander with olive dorsal coloration
- Large paddle-shaped tail
- Broad distribution



Eastern Tiger Salamander    *Ambystoma tigrinum*

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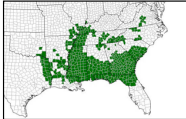
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### Mole Salamander (*Ambystoma talpoideum*)

- Relatively large head
- Stocky and plump body
- Flecking on lateral surface



Photos by: M. Niemiller

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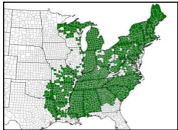
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### Spotted Salamander (*Ambystoma maculatum*)

- Large conspicuous yellow or orange spots
- Dark gray dorsal coloration
- Moves to breeding ponds in mass migrations



Photos by: B. Sutton

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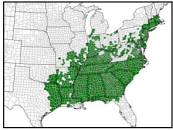

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### Marbled Salamander (*Ambystoma opacum*)

- White and black marbled dorsal coloration
- Breeds in fall months
- Nests communally

Photo by: B. Sutton

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### Smallmouth Salamander (*Ambystoma texanum*)

Photos by: B. Sutton

- Head small relative to body
- Brown or grayish body coloration
- Fleshy keeled tail
- Lichen-like markings on lateral surface

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### Red-Spotted Newt (*Notophthalmus viridescens*)

• Salamandridae: 15-20 genera (70 species worldwide); 1 species in TN

- Bright orange skin
- Cranial crests above eyes
- Complex three stage life history
- Rough glandular skin
- Toxic skin secretions

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