

## A Key To the Adult Salamanders of Illinois<sup>1</sup>

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The salamanders of Illinois were treated comprehensively by H. Garman, in 1892, in his taxonomic and biological work entitled "A Synopsis of the Reptiles and Amphibians of Illinois." Since that date there have been many changes in nomenclature for members of this group and furthermore Garman's publication is not generally available. Like most zoologists of his day Garman based his keys on anatomical characters which always involved a knowledge of the form of the vertebrae and the condition of the tongue. Such characters have phylogenetic value and tend to emphasize the features on which the families and genera are based. However, to students interested primarily in field problems these internal characters have no value in the offhand recognition of specimens encountered in the field and laboratory.

Most of the modern general systematic texts have followed the practice of using internal anatomical details in the keys to the salamanders. Several keys have been constructed in recent years covering the salamanders of restricted areas but no key has been available for the species living in the state of Illinois.

The writer has felt that a means of identification based wholly on external characters would be of value to students who are not specialists in the group. Relatively large collections of preserved specimens in the Zoological Laboratory of the University of Illinois and numerous living representatives taken in the field have been examined. These studies were carried on under the direction of Dr. H. J. VanCleave to whom the writer is indebted for advice and criticisms. A key based on the present study is presented so that a more ready means of recognition of the salamanders of this state may be available. Twenty species are here included. All but one of these have been examined by the present writer and this species (*Pseudotriton ruber ruber*) is included on the strength of a single literature record.

Names adopted in Stejneger and Barbour's most recent check list of the amphibians (1933) have been accepted.

<sup>1</sup>Contribution from the Zoological Laboratory of the University of Illinois, No. 518.

<sup>2</sup>There is a possibility that *Siren intermedia* LeConte may occur in southern Illinois, but all published records list only *Siren lacertina* Linn. However, this may be due to the fact that until recently *S. intermedia* was considered a synonym for *S. lacertina*. Noble and Marshall (1932), Am. Mus. Nov. No. 532, state that adult *S. intermedia* may be distinguished from adult *S. lacertina* by its smaller size and smaller number of costal grooves.

Costal Grooves: *Siren lacertina* Linn. 36-39, usually 37-38. *Siren intermedia* LeConte 31-35, rarely 36.

<sup>3</sup>In this key all references to feet refer to the posterior appendages.

<sup>4</sup>There is some doubt if *Amphiuma means* occurs as far north as Illinois, but it may occur in the southern swamps. Information as to the limits of its range are much to be desired, and it was included in this key in the hope that this might assist in recognition and hence in better knowledge of its range.

<sup>5</sup>*Pseudotriton ruber ruber* was included in this key on the basis of the Aux Plains record of Yarrow (1883) based on U.S.N.M. specimen No. 9555. However, this specimen has disappeared and Dunn (1926), "The Salamanders of the Family Plethodontidae" (281), says that "since neither specimens nor records are known from Indiana, the Illinois records are highly dubious."

AN ARTIFICIAL KEY TO THE ADULT SALAMANDERS OF ILLINOIS

1. (a) External gills present ..... 2
- (b) External gills absent ..... 3
2. (a) One pair of legs, posterior pair lacking.....
- .....Mud eel. *Siren lacertina* Linn<sup>2</sup>
- (b) Two pair of legs..Mudpuppy. *Necturus maculosus maculosus* (Raf.)
3. (a) External gill slits present ..... 4
- (b) External gill slits absent ..... 6
4. (a) Two or three toes on foot<sup>3</sup>; body eel-like, skin smooth..... 5
- (b) Five toes on foot; body flattened, skin wrinkled.....
- .....Hellbender. *Cryptobranchus alleganiensis* (Daudin)
5. (a) Two toes on foot.....Congo snake. *Amphiuma means* Garden<sup>4</sup>
- (b) Three toes on foot.....*Amphiuma tridactylum* Cuvier
6. (a) A naso-labial groove present..... 13
- (b) No naso-labial groove present..... 7
7. (a) Costal grooves lacking.....
- .....Common newt. *Triturus viridescens viridescens* (Raf.)
- (b) Costal grooves prominent..... 8
8. (a) With distinct, large, yellow spots on sides and back..... 9
- (b) Spots, if present, only in the form of small white dots..... 10
9. (a) One or no plantar tubercle on foot.....
- .....Spotted Salamander. *Ambystoma maculatum* (Shaw)
- (b) Two distinct plantar tubercles on foot, one at base of first toe
- and one at base of fifth toe.....
- .....Tiger Salamander. *Ambystoma tigrinum*. (Green)
10. (a) Wide, transverse, silver bars on back.....
- .....Marbled salamander. *Ambystoma opacum* (Gravenhorst)
- (b) Without wide, transverse silver bars on back..... 11
11. (a) Costal grooves 14.....
- .....Small-mouthed salamander. *Ambystoma texanum* (Matthes)
- (b) Costal grooves 10-12..... 12
12. (a) Costal grooves 12; usually with small, white dots on sides and
- tail...Jefferson's salamander. *Ambystoma jeffersonianum* (Green)
- (b) Costal grooves 10; no spots on sides and tail.....
- .....Mole salamander. *Ambystoma talpoideum* (Holbrook)
13. (a) Four toes on foot.....*Hemidactylium scutatum* (Schlegel)
- (b) Five toes on foot..... 14
14. (a) Stripe along dorsal line of body with or without small dark
- dots and streaks on the stripe..... 15
- (b) No stripe along dorsal line of body..... 18
15. (a) Median dorsal stripe zigzag.....*Plethodon dorsalis* (Cope)
- (b) Median dorsal stripe not zigzag ..... 16
16. (a) Costal grooves 13; often with vertical black bars on sides of tail
- .....*Eurycea longicauda* (Green)
- (b) Costal grooves 15-21; never with vertical black bars on side of
- tail ..... 17
17. (a) Costal grooves 15.....*Eurycea bislineata bislineata* (Green)
- (b) Costal grooves 17-21; usually 19-20.....
- Redbacked salamander. *Plethodon cinereus* (Green) (red phase)
18. (a) Dark above, with or without small white dots..... 20
- (b) Not dark above but with yellow or orange ground color..... 19

19. (a) Dark pigmentation on back consists only of small black dots or streaks, often with vertical black bars on sides of tail; costal grooves 13.....*Eurycea longicauda* (Green)
- (b) Dark pigmentation on back consists of many brown spots, never with vertical black bars on sides of tail; costal grooves 14-15 .....Cave salamander. *Eurycea lucifuga* (Raf.)
20. (a) Costal grooves 17-21, usually 19-20.....*Plethodon cinereus* (Green) (dark phase)
- (b) Costal grooves 14-16 ..... 21
21. (a) Costal grooves 16; dark red above with black spots.....<sup>5</sup>  
.....Red salamander *Pseudotriton ruber ruber* (Sonnini)
- (b) Costal grooves 14; not red above with black spots..... 22
22. (a) Light line from eye to angle of mouth; brown above, mottled below.....*Desmognathus fuscus fuscus* (Raf.)
- (b) No light line from eye to angle of mouth; black above with or without small white dots; not mottled below.....  
.....Slimy salamander. *Plethodon glutinosus* (Green)