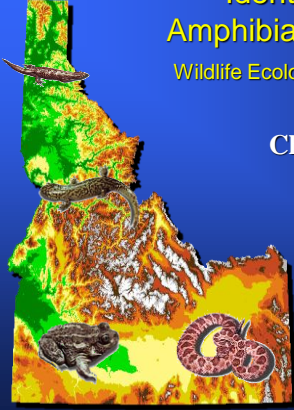




## Identifying Idaho Amphibians and Reptiles

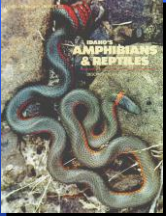
Wildlife Ecology, University of Idaho  
Fall 2011

**Charles R. Peterson**  
**Herpetology Laboratory**  
 Department of Biological Sciences,  
 Idaho Museum of Natural History  
 Idaho State University  
<http://www.isu.edu/~petechar>





## Outline

- Sources of Information
- Species – Character Matrices
- Using Keys
- Salamanders
- Anurans 
- Turtles
- Lizards
- Snakes 



## Sources of Information



The collage includes the following titles:

- PETERSON FIELD GUIDES: Western Reptiles and Amphibians** by Robert C. Stebbins
- AMPHIBIANS & REPTILES OF THE PACIFIC NORTHWEST** by Ronald A. Nisubam, Richard D. Bodie, Jr., and Robert M. Stone
- AMPHIBIANS OF THE PACIFIC NORTHWEST** by Pacific Audubon Society
- Reptiles of the Northwest** by Lone Pine
- Idaho's Amphibians & Reptiles** by Charles R. Peterson

## Sources of Information

Idaho Digital Atlas Website:  
<http://www.imnh.edu/digitalatlas/>




## Species – Character Matrices

	Tiger Salamander <i>Ambystoma tigrinum</i>	Long-toed Salamander <i>Ambystoma macrodactylum</i>	Idaho Green Salamander <i>Rhyacophila aureovariegata</i>	Cooper's Red Salamander <i>Rhyacophila carolinensis</i>
<b>Total Length (male)</b>	12 inches 302 mm	9.25 inches 235 mm	7.5 inches 190 mm	6 inches 152 mm
<b>Snout-Vent Length (male)</b>	5.5 inches 142 mm	3.5 inches 89 mm	2.8 inches 70 mm	2.25 inches 58 mm
<b>Dorsal Coloration</b>	green to black ground color; black to yellow bars or blotches	brown to black ground color; yellow, greenish-yellow or red dorsal stripes	dark brown to almost black; ground color lighter tan or black; preference on/darkish color	black ground color; yellowish dorsal stripe with uneven edges
<b>Lateral Coloration</b>	light tan, blotches, or spots may strongly contrast with ground color	white, silver, or blue flecks		
<b>Ventral Coloration</b>	gray; may have yellowish bars and/or blotches	grayish brown to grayish black; may have white, silver, or blue flecks	tan, without marbling	rusty; yellow patch on throat
<b>Shape</b>	stocky, but lighter than Idaho Green Salamander		<b>bulky head and body</b> ; large rounded tail	relatively slender
<b>Head</b>	small, rounded	rounded	<b>large head</b>	
<b>Skin Texture</b>	smooth	smooth	smooth	smooth
<b>Costal Grooves</b>	<b>prominent</b>	present	inconspicuous	present
<b>Neonatal Grooves</b>	absent	absent	absent	<b>present</b>
<b>Eyes</b>	small protruding			
<b>Parasitoid Ovicels</b>	absent	absent	absent	<b>present</b> , distinct in large adults
<b>Feet</b>	2 protrusions subventral on hindfoot	<b>six toe of hindfoot exceptionally long</b>	no subventral (?)	two slightly webbed
<b>Males</b>	harder croaky lips during breeding season	small croaky lip during breeding season; broader ear development during breeding season		ear flaps; thin earflap; elongate nuptial cone
<b>Females</b>		broader vent openings than in males		slightly longer than males; nuptial cone lacking
<b>Habitat</b>	occurs in a wide variety of habitats; breeds in still or slow moving water	occurs in a wide variety of habitats; breeds in still or slow moving water	under forested areas; breeds in streams	under forested areas; spring stream, or moist areas
<b>Remarks</b>	range complementary to Long-toed Salamander; usually stream; where range overlaps, where range overlaps	range complementary to Tiger Salamander; usually stream; where range overlaps	adults hard to find in Idaho	

## Using Keys:

- A **dichotomous identification key** is a list of steps (couplets) that can identify an individual to species. At each step in a key a choice must be made between two alternatives.
- You will need to know the morphological characters that distinguish the different species.

## Using Keys:

### Key to the Classes Amphibia and Reptilia



1a. Skin smooth or warty; never with epidermal scales; limbs lacking true claws ..... **Amphibia**

1b. Skin nearly always with epidermal scales; if lacking scales, skin leathery; limbs (if present) with claws

..... **Reptilia**

## Using Keys:

### Key to the Orders of Amphibia (in the U.S.)



1a. Fore-limbs and hindlimbs (when present) similar in structure and essentially equal in size; tail present ..... **Urodela (=Caudata)**

1b. Hindlimbs more robust than forelimbs and at least somewhat larger in size; true tail absent

..... **Anura (=Salientia)**

## Using Keys:

### Key to the Orders of Reptilia (in the U.S.)



1a. Bony or leathery shell present

.....Testudines

1b. No bony or leathery shell

.....2

## Using Keys:

### Key to the Orders of Reptilia (in the U.S.)



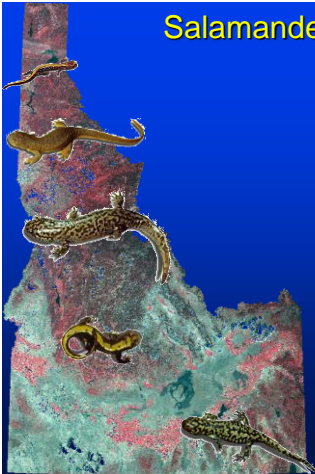
2a. Cloacal opening a longitudinal slit

.....Crocodylia

2b. Cloacal opening a transverse slit

..... Squamata

## Salamanders of Idaho



### Ambystomatidae

- Mole Salamanders
- Long-toed Salamander
- Tiger Salamander

### Dicamptodontidae

- Pacific Mole Salamanders
- Idaho Giant Salamander

### Plethodontidae

- Lungless Salamanders
- Coeur d'Alene Salamander

### Salamandridae

- Newts
- Roughskinned Newt

## Salamander Characteristics

- Color pattern
- Size and body shape
- Head size and shape
- Balancers
- Eye size and shape
- Toe shape and length
- Nasolabial groove
- Costal grooves
- Skin texture
- Glands



## Salamander Characteristics

- Color pattern
- **Size and body shape**
- Head size and shape
- Balancers
- Eye size and shape
- Toe shape and length
- Nasolabial groove
- Costal grooves
- Skin texture
- Glands



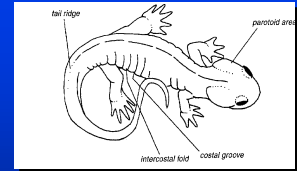
Slender, Max length 4 inches (102mm)



Bulky, max length 13 inches (330mm)

## Salamander Characteristics

- Color pattern
- Size and body shape
- Head size and shape
- Balancers
- Eye size and shape
- **Toe shape and length**
- Nasolabial groove
- Costal grooves
- Skin texture
- Glands

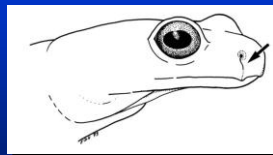


Leonard et al. 1993



## Salamander Characteristics

- Color pattern
- Size and body shape
- Head size and shape
- Balancers
- Eye size and shape
- Toe shape and length
- **Nasolabial groove**
- Costal grooves
- Skin texture
- Glands



Leonard et al. 1993

## Salamander Characteristics

- Color pattern
- Size and body shape
- Head size and shape
- Balancers
- Eye size and shape
- Toe shape and length
- Nasolabial groove
- **Costal grooves**
- Skin texture
- Glands

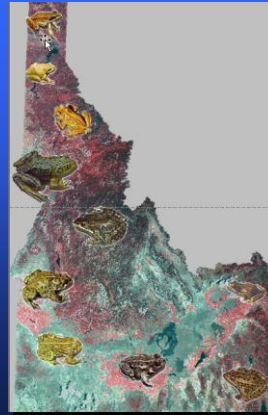


## Salamander Characteristics

- Color pattern
- Size and body shape
- Head size and shape
- Balancers
- Eye size and shape
- Toe shape and length
- Nasolabial groove
- Costal grooves
- **Skin texture**
- Glands



## Frogs and Toads of Idaho



- Ascaphidae - Tailed Frogs
  - Rocky Mountain Tailed Frog
- Pelobatidae - Archaic Toads
  - Great Basin Spadefoot
- Bufonidae
  - Western Toad
  - Woodhouse's Toad
- Hylidae - True Tree Frogs
  - Boreal Chorus Frog
  - Pacific Treefrog
- Ranidae - True Frogs
  - American Bullfrog
  - Northern Leopard frog
  - Columbia Spotted Frog
  - Woodfrog

## Frog and Toad Characteristics

- **Size**
- Color pattern
- Body shape
- Head shape
- Skin texture
- Tympanum
- Dorsolateral folds
- Eye size and placement
- Pupil shape
- Glands
- Toe shape and length
- Tubercles



36 mm, 1.5"



200 mm, 8"

## Frog and Toad Characteristics

- Size
- **Color pattern**
- Body shape
- Head shape
- Skin texture
- Tympanum
- Dorsolateral folds
- Eye size and placement
- Pupil shape
- Glands
- Toe shape and length
- Tubercles





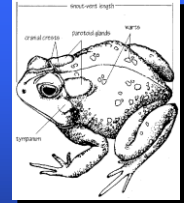
### Frog and Toad Characteristics

- Size
- Color pattern
- Body shape
- Head shape
- Skin texture
- Tympanum
- Dorsolateral folds
- Eye size and placement
- Pupil shape
- Glands
- Toe shape and length
- Tubercles



### Frog and Toad Characteristics

- Size
- Color pattern
- Body shape
- Head shape
- Skin texture
- Tympanum
- Dorsolateral folds
- Eye size and placement
- Pupil shape
- Glands
- Toe shape and length
- Tubercles



### Frog and Toad Characteristics

- Size
- Color pattern
- Body shape
- Head shape
- Skin texture
- Tympanum
- Dorsolateral folds
- Eye size and placement
- Pupil shape
- Glands
- Toe shape and length; webbing
- Tubercles



### Frog and Toad Characteristics

- Size
- Body shape
- Color pattern
- Head shape
- Skin texture
- Tympanum
- Dorsolateral folds
- Eye size and placement
- Pupil shape
- Glands
- Toe shape and length
- Tubercles



## Frog and Toad Calls

### Ascaphidae - Tailed Frogs

Rocky Mountain Tailed Frog



No call

### Pelobatidae - Archaic Toads

Great Basin Spadefoot



### Bufoidea

Western Toad



Woodhouse's Toad



## Frog and Toad Calls

### Hylidae - True Tree Frogs

Boreal Chorus Frog



Pacific Treefrog



### Ranidae - True Frogs

American Bullfrog



Northern Leopard frog



Columbia Spotted Frog

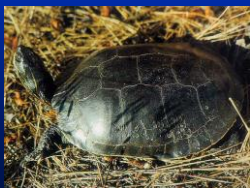


Woodfrog



## Painted Turtle

- Olive to black carapace
- Red bridge and plastron
- Webbing between toes
- Yellow and/or red lines on neck and limbs



## Lizards of Idaho



### Anguidae

Northern Alligator Lizard

### Iguanidae

#### Crotaphytinae

Great Basin Collared Lizard

Long-nosed Leopard Lizard

#### Phrynosomatinae

Pigmy Short-horned Lizard

Desert Horned Lizard

Common Sagebrush Lizard

Western Fence Lizard

Common Side-blotched Lizard

### Scincidae

Western Skink

### Teiidae

Tiger Whiptail



## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- Head size and shape
- Scalation
  - head
  - dorsal
  - ventral
- Skin texture



## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- Head size and shape
- Scalation
  - head
  - dorsal
  - ventral
- Skin texture



## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- Head size and shape
- Scalation
  - head
  - dorsal
  - ventral
- Skin texture



Total length: 5 inches / 130 mm



Total length: 12.9 inches / 328 mm

## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- Head size and shape
- Scalation
  - head
  - dorsal
  - ventral
- Skin texture



## Lizard Characteristics

- Color pattern
- Size
- Body shape
- **Body fold**
- Head size and shape
- Scalation
  - head
  - dorsal
  - ventral
- Skin texture



Gular fold

## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- **Head size and shape**
- Scalation
  - head
  - dorsal
  - ventral
- Skin texture



## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- Head size and shape
- **Scalation**
  - head
  - dorsal
  - ventral
- Skin texture



## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- Head size and shape
- **Scalation**
  - head
  - dorsal
  - ventral
- **Skin texture**



## Lizard Characteristics

- Color pattern
- Size
- Body shape
- Body fold
- Head size and shape
- **Scalation**
  - head
  - dorsal Femoral pores
  - ventral
- Skin texture



## Snakes of Idaho



### Boidae

Rubber Boa

### Colubridae

Eastern Racer  
 Ringnecked Snake  
 Nightsnake  
 Striped Whipsnake  
 Gophersnake  
 Long-nosed Snake  
 Ground Snake  
 Terrestrial Garter Snake  
 Common Garter Snake

### Viperidae

Prairie Rattlesnake  
 Western Rattlesnake

## Snake Characteristics

- **Length**
  - Body
  - Tail
  - Total
- Body shape
- Head
- Eyes
- Tail



## Snake Characteristics

- Length
  - Body
  - Tail
  - Total
- **Body shape**
- Head
- Eyes
- Tail



## Snake Characteristics

- Length
  - Body
  - Tail
  - Total
- Body shape
- Head
- Eyes
- Tail



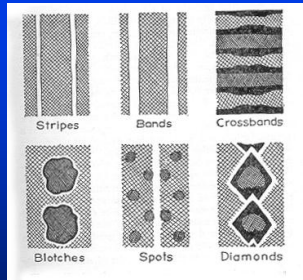
## Snake Characteristics

- Length
  - Body
  - Tail
  - Total
- Body shape
- Head
- Eyes
- Tail



## Snake Characteristics

- Color pattern
- Ground color
- Ventral coloration



Schmidt and Davis 1941

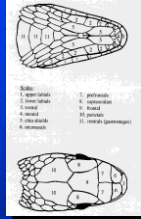
## Snake Characteristics

- Color pattern

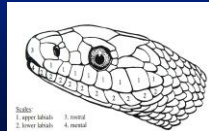


## Snake Characteristics

- Scalation
  - head
  - dorsal
  - ventral



Storm and Leonard 1995

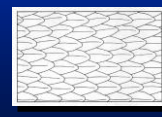


## Snake Characteristics

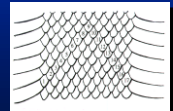
- Scalation & Skin texture dorsal



smooth



keeled



[www.isu.edu/~petechar](http://www.isu.edu/~petechar)