


## Anuran Larvae



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## Lecture Outline

- General tadpole features
- How to use features to key out tadpoles
- Anuran Families
  - Body size
  - Coloration and patterning
  - General habitats
- Summary

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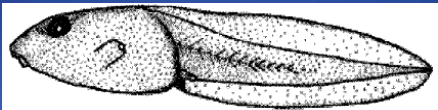
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## General Body Features



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### General Oral Disc Features



A detailed black and white line drawing of a tadpole's oral disc. The drawing shows the mouth opening surrounded by a complex arrangement of papillae and jaw sheaths. Four red arrows point to specific features: two on the upper lip (top) and two on the lower lip (bottom). The drawing is signed '© J. Bryant 2001' at the bottom.

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### Body features used to key tadpoles

- Ocular position
- Oral disc morphology
  - Papillae
  - Cuspate and serrate jaw sheaths
- Patterning of tail musculature
- Spiracle positioning
- Vent positioning

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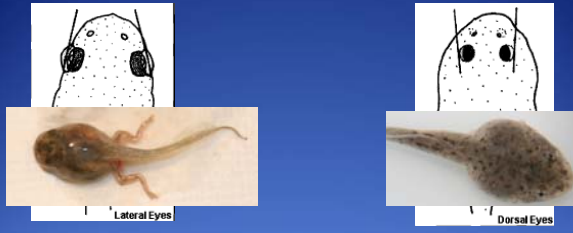
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### Ocular Position



Two diagrams and two photographs illustrating different eye positions in tadpoles. The left diagram shows a tadpole with eyes positioned on the sides of its head, labeled 'Lateral Eyes'. Below it is a photograph of a brown tadpole. The right diagram shows a tadpole with eyes positioned on top of its head, labeled 'Dorsal Eyes'. Below it is a photograph of a darker, more mottled tadpole.

**Families:**  
Hylidae (excluding *Acris*)  
Microhylidae

**Families:**  
Ranidae  
Hylidae (*Acris*)  
Bufonidae  
Pelobatidae

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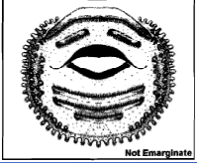
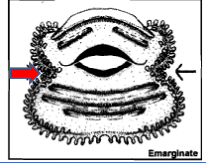
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### Oral Disc Morphology: Emargination

Emarginated      Not Emarginated



Families:  
Ranidae  
Bufonidae

Families:  
Microhylidae  
Hylidae  
Pelobatidae

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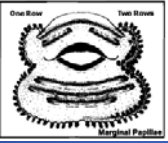
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### Papillae

Marginal      Sub marginal



Families:  
Ranidae  
Hylidae  
Pelobatidae  
Bufonidae

Families:  
Some Hylids  
Some Ranids

Microhylidae – No papillae

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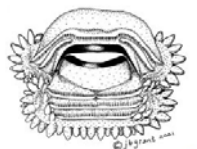
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### Cusplate and Serrate Jaw Sheaths



*Rana catesbeiana* does not have cusplate or serrate jaw sheath

Families:  
Bufonidae  
Hylidae  
Most Ranids  
Pelobatidae

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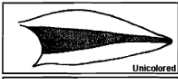
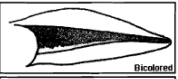






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### Patterning of tail musculature

<i>Scaphiopus holbrookii</i>	 Unicolor	 Bicolor	<i>Pseudacris feriarum</i>
	 Banded	 Saddled	
	 Mottled	 Spotted	
<i>Gastrophryne carolinensis</i>	 Striped	 Reticulate	

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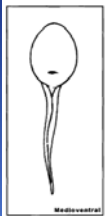
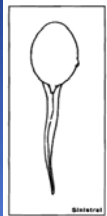
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### Spiracle Positioning

<b>Medioventral</b>	 Medioventral	<b>Sinistral</b>	 Sinistral
Families: Microhylidae		Families: Ranidae, Hylidae, Bufonidae, and Pelobatidae	

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### Vent Positioning

<b>Medial</b>	 Medial Vent	<b>Dextral</b>	 Dextral Vent
Families: Microhylidae, Pelobatidae, and Bufonidae		Families: Ranidae, and Hylidae	

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## Ranidae

- Body size: medium-large (1 ½ -4 inches TL)
- Coloration: Most green or olive in color with varying degrees of pigmentation (*Rana sylvatica* – brown)
- Habitat: Most reside in permanent ponds
- Exception:



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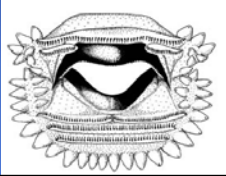
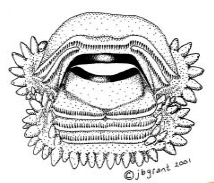
## Examples



*Rana catesbeiana*



*Rana palustris*



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## Hylidae

- Body size: small-medium (1 1/16 – 1 ½ inches TL)
- Body shape: Deep bodied
- Coloration: Light brown or olive
- Characteristic:
- Characteristic only present on *Acris* sp.:
- Habitats: Temporary and permanent ponds

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### Examples



*Acris crepitans*



*Hyla chrysoscelis*



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### Bufoidea

- Body size: small ( $\frac{3}{4}$  – 1 inch TL)
- Body shape: Elongated as compared to Ranids
- Habitats: Mostly temporary pools, but may occur in permanent ponds
- Coloration: Dark brown or near black
- Distinguishing characteristic:
- Distinguishing between *B. americanus* and *B. fowleri*:

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### Example



*Bufo americanus*



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## Pelobatidae

- Body size: medium (1 ½ - 2 inches TL)
- Body shape: round
- Coloration: dark brown
- Distinguishing characteristics:
- Habitats: Both permanent and temporary pools

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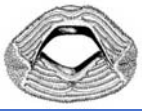
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## Example



*Scaphiopus holbrookii*



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## Microhylidae

- Body size: small-medium (1 – 1 3/16 inches TL)
- Body shape: flattened
- Coloration: mostly black with gold or silver flecking
- Distinguishing characteristics:
- Habitat: temporary pools

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**Example**



*Gastrophyrne carolinensis*




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**Summary**

- Ranidae:
  - Eyes dorsal
  - Vent dextral
  - Oral disc emarginated
  - Medium-large tadpole
  - Usually green or olive in color
- Hylidae:
  - *Acris spp.*
    - Eyes dorsal
    - Vent dextral
    - Oral disc not emarginated
    - Small-medium
    - Intestinal coil visible
- Hylidae:
  - All others
    - Eyes lateral
- Bufonidae:
  - Eyes dorsal
  - Vent medial
  - Oral disc emarginated
  - Dark brown or black coloration
- Pelobatidae:
  - Eyes dorsal
  - Vent medial
  - Oral disc not emarginated
- Microhylidae:
  - Eyes lateral
  - Vent medial
  - Nares absent
  - Oral disc absent
  - Two oral flaps over mouthparts
  - Spiracle midventral

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**Summary**

- Some easy give-aways:
  - Large tadpole in permanent pond –
  - Ranid-like tadpole in temporary pond –
  - Small black tadpole in temporary pond –
  - Small-medium olive or light brown tadpole with eyes lateral –
  - Medium sized, dark brown tadpole, tens of thousands of them -

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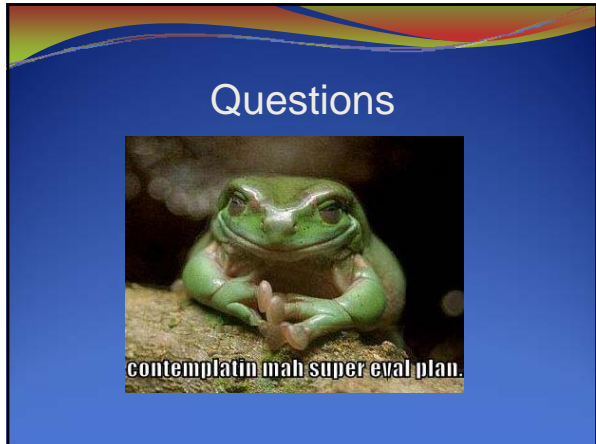
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