Identification of Tennessee Anurans

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Hyla versicolor

Anuran Families

Suborder Mesobatrachia
- Bufonidae
- Scaphiopodidae
- Microhylidae

Suborder Neobatrachia
- Hylidae
- Ranidae

Order Anura

Morphological Characteristics
**American toad**
*Bufo americanus*

**Family** Bufonidae

**Breeding Call**
- Long, musical trill (constant)

**Eggs:** 1-2 strings (4,000-12,000 eggs)

**Length:** >10 m

**Characteristics:**
- Parotoid glands rarely touch cranial crest
- 1-2 granular glands “warts” per dark spot

**Breeding Season**
- Early (March)

**Distribution:**
- Eastern United States
- Statewide

[Map link: http://www.apsu.edu/amaplace/]

**Fowler’s toad**
*Bufo fowleri*

**Family** Bufonidae

**Breeding Call**
- Nasal “w-a-a-k”
- Sheep bleating or baby crying

**Eggs:** 1-2 strings (5,000-10,000 eggs)

**Length:** <3 m

**Characteristics:**
- Parotoid glands touch cranial crest
- ≥3 granular glands “warts” per dark spot

**Breeding Season**
- Mid (May)
**Fowler’s toad**
(*Bufo fowleri*)

*Family: Bufoidae*

**Distribution:**
- Eastern United States
- Statewide

[Map showing the distribution of Fowler’s toad in the Eastern United States]

[Website: http://www.apsu.edu/amatlas/]

**Eastern spadefoot**
(*Scaphiopus holbrookii*)

*Family: Scaphiopodidae*

**Breeding Call**
- Nasal grunts: “wahh, wahh, wahh”
- Young crow

**Breeding Season**
- Late (June, July) (heavy rain)

**Metatarsal tubercle**

**Characteristics:**
- Vertical Pupil
- Granular glands but no parotoid glands

[Image showing a Eastern spadefoot with a metatarsal tubercle and vertical pupil]

[Website: http://www.apsu.edu/amatlas/]

**Eastern spadefoot**
(*Scaphiopus holbrookii*)

*Family: Scaphiopodidae*

**Xeric Adapted Genera**

**Distribution:**
- Southeastern United States
- Statewide (rare Smokies)

[Map showing the distribution of Eastern spadefoot in Xeric Adapted Genera]

[Website: http://www.apsu.edu/amatlas/]
**Eastern narrow-mouthed toad**

*Gastrophyne carolinensis*

**Family** Microhylidae

**Breeding Call**
- High pitch buzz
  - “bzzzzzz”
- Insect wings

**Breeding Season**
- Late (June, July)
  - (heavy rain)

**Characteristics:**
- Pointed snout, short limbs, plump body
- Folded skin between eyes

**SVL = 1”**

**T-storms**

**Distribution:**
- Southeastern United States
- Statewide (rare Smokies)

Specialize in eating ants!

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**Northern cricket frog**

*Acris crepitans*

**Family** Hylidae

**Breeding Call**
- Metallic clicking
  - (2 metal balls)
- Tempo changes:
  - (slow-fast-slow)

**Breeding Season**
- Mid (May)

**Characteristics:**
- Dark triangle between eyes; often bright “Y” racing stripe
- >1/2 of longest toe on rear feet webbed

**SVL = <1”**

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Northern cricket frog
(Acris crepitans)

Distribution:
- Midwest and Eastern U.S.
- Statewide

Emergent wetlands with direct sun

Breeding Call
- Metallic clicking (2 metal balls)
- Raspier, shorter
- Tempo constant

Breeding Season
- Late (June, July)

Characteristics:
- Dark triangle between eyes; often bright "Y" racing stripe (more distinct line than A. crepitans)
- <1/2 of longest toe on rear feet webbed

Southern cricket frog
(Acris gryllus)

Breeding Call
- Acris = locust
- Gryllus = cricket

Breeding Season
- SVL = <1"
- Tempo constant

Characteristics:
- Deep Southern U.S.
- Southwest TN

Distribution:
- Deep Southern U.S.
- Southwest TN
**Breeding Call**

- Bird-like Chirping
- Whistling for dog

**Breeding Season**

- Mid (May, June)

**Characteristics:**

- Light green or gray with light-colored patch under eye
- No flash colors like gray treefrogs

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**Breeding Call**

- Short nasal repeating "quonk"
- Bicycle horn

**Breeding Season**

- Late (June, July)

**Characteristics:**

- Always green, smooth back and belly
- White-yellow stripe extending from upper lip mid-laterally

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**Distribution:**

- Primarily MAV
- Western TN

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**Family Hylidae**

- **Bird-voiced treefrog** *(Hyla avivoca)*
- **Green treefrog** *(Hyla cinerea)*

**Family Hylidae**

- **Bird-voiced treefrog** *(Hyla avivoca)*
- **Green treefrog** *(Hyla cinerea)*

**Coloration can be highly variable!**

**Highly arboreal: forested wetlands and streams**

**SVL = 1.5"**

**SVL = 2"**

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[Map of Tennessee showing distribution of **Hyla avivoca**](http://www.apsu.edu/amatlas/)
Green treefrog
(Hyla cinerea)

Distribution:

- Southeastern United States
  - Western TN

Good climbers, Nocturnal

Breeding Call

- Short raspy trill (constant)
- Faster than H. versicolor
- 34-69 pulses/sec

Breeding Season

- Mid (May, June)

Characteristics:

- Gray to greenish with mottled back
- Yellow-orange flash colors under legs

Cope’s Gray treefrog
(Hyla chrysoscelis)

Breeding Call

- 3/4 chromosomes of H. versicolor

Breeding Season

- Mid (May, June)

Characteristics:

- Highly arboreal: forested wetlands

Cope’s Gray treefrog
(Hyla chrysoscelis)

Distribution:

- Eastern United States
  - Statewide

http://www.apsu.edu/amatlas
Gray treefrog  
*Hyla versicolor*

**Breeding Call**
- Short raspy trill
- Slower than *H. chrysoscelis*
- 17-35 pulses/sec
- 2X chromosomes of *H. chrysoscelis*

**Breeding Season**
- Mid (May, June)

**Distribution**
- West Tennessee

**Characteristics:**
- Gray to greenish with mottled back
- Yellow-orange flash colors under legs

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Barking treefrog  
*Hyla gratiosa*

**Breeding Call**
- Steady raspy honk
- Sounds similar to a beagle bark or Canada goose
- Higher pitch than green frog

**Breeding Season**
- Late (June, July)

**Characteristics:**
- Solid green (granulated) or green with dark spots
- White upper lip does not extend mid-laterally

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Barking treefrog  
*Hyla gratiosa*

**Distribution:**
- West TN & Cumberland Plateau
- Deep Southern U.S.
- Species of Concern (G5, S3)
- Males often call from water
- http://www.apsu.edu/amatlas/

Largest of the treefrogs in Tennessee
Spring Peeper (Pseudacris crucifer)

Breeding Call
- Clear Distinct Peep
- “Cross bearer”

Breeding Season
- Early (Feb, March)

Characteristics:
- Light-brown, smooth skin with dark line between eyes
- Dark cross on back
- SVL = 1”

Pseudacris crucifer is a species of spring peeper. It is known for its distinctive breeding call and light-brown skin with a dark cross on the back. The SVL is 1”, and it prefers woodland pools.

Spring Peeper (Pseudacris crucifer)

Distribution
- Eastern United States
- Statewide

Mountain Chorus Frog (Pseudacris brachyphona)

Breeding Call
- Short, raspy call that rises in pitch
- Running finger over comb but duller than P. feriarum

Breeding Season
- Early (April)

Characteristics:
- Light-brown, smooth skin with dark line through eye
- Backward parentheses on back (sometimes)
- 1/3 size of a wood frog
Mountain Chorus Frog
(*Pseudacris brachyphona*)

**Distribution:**
- Southern Appalachia
- Mostly Cumberland Mountains and Plateau

**Characteristics:**
- Breeding Season: Early (January)
- SVL = 1”
- Late breeding frog
- Light to dark brown with dark triangle between eyes
  - Three dark dorsal lines (usually)

**Breeding Call:**
- Running finger over comb but more metallic than *P. brachyphona*
- Note: call rises (gray treefrogs do not)

**Southern Appalachia**
- Mostly Cumberland Mountains and Plateau

**Southeastern Chorus Frog
(*Pseudacris feriarum*)

**Breeding Call:**
- Running finger over comb but more metallic than *P. brachyphona*
- Note: call rises (gray treefrogs do not)

**Breeding Season:**
- Early (January)

**Characteristics:**
- Light to dark brown with dark triangle between eyes
  - Three dark dorsal lines (usually)

**Distribution:**
- Southeastern United States
- Statewide

**Southeastern United States**
- Statewide

**Southeastern Chorus Frog**
(*Pseudacris feriarum*)

**Breeding Call:**
- Running finger over comb but more metallic than *P. brachyphona*
- Note: call rises (gray treefrogs do not)

**Breeding Season:**
- Early (January)

**Characteristics:**
- Light to dark brown with dark triangle between eyes
  - Three dark dorsal lines (usually)

**Distribution:**
- Southeastern United States
- Statewide

**Southeastern United States**
- Statewide
Chorus Frog Distributions

Spotted Chorus Frog (P. clarkii)

Family Ranidae

Crawfish Frog (Rana areolata)

Lives in crawfish and small mammal burrows.

Breeding Call
- Deep “Waaaaa”
- Sounds like someone snoring

Breeding Season
- Early (March)

Characteristics:
- Dark spots encircled in white, white throat
- Dorsal lateral folds very apparent

Species of Concern (G4, S4)

Known to eat crawfish and small amphibians.

Distribution:
- EM
- Mississippi Alluvial Valley
- West Tennessee

http://www.apsu.edu/amatlas/
**Gopher Frog**

*Family: Ranidae*

**Breeding Call**
- Deep drawn-out snore or growl
- Sounds like a woodpecker pecking

**Breeding Season**
- Early (Feb)

**Characteristics:**
- Dark spots NOT encircled in white, spotted throat
- Dorsal lateral folds & sacral humps apparent

**Species of Concern**
- (G3, S1)

**Distribution:**
- Gulf Coastal Plain
- Coffee County (Tullahoma)

**Life History in Tennessee:**
- Unknown

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**American bullfrog**

*Family: Ranidae*

**Breeding Call**
- Loud deep "jug-o-rum"
- Often play dead when handled

**Breeding Season**
- Late (June, July)

**Characteristics:**
- Green or brown with dorsal lateral folds around tympanum
- **Males:** Tympanum larger than eye

**Largest frog in Tennessee**

**Eat anything can fit in mouth**

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**Breeding Call**
- Loud deep "jug-o-rum"

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**Largest frog in Tennessee**

**Eat anything can fit in mouth**
American bullfrog
(*Rana catesbeiana*)

**Distribution:**
- Eastern U.S.
- Statewide
- Introduced western states

Breeding Call
- Short, explosive “rink”

Breeding Season
- Late (June, July)

**Characteristics:**
- Green or brown with dorsal lateral folds extending past tympanum, center of tympanum raised
- **Males:** Tympanum larger than eye

Green frog
(*Rana clamitans*)

**Breeding Call**
- Short, explosive “rink”
- Banjo string being plucked
- Lower pitch than barking treefrog

**Breeding Season**
- Late (June, July)

**Characteristics:**
- Green or brown with dorsal lateral folds extending past tympanum, center of tympanum raised
- **Males:** Tympanum larger than eye

**Distribution:**
- Eastern United States
- Statewide

**Additional Resources:**
- [APSU.edu/amatlas](http://www.apsu.edu/amatlas)
**Pickerel frog**
*(Rana palustris)*

**Breeding Call**
- Drawn-out, descending snore, "yeeeeeooow"
- Not as deep as *R. areolata* and *capito*

**Breeding Season**
- Early (April)

**Characteristics:**
- Tan with dark paired dorsal spots (square)
- No white spot on tympanum

**Distribution:**
- Eastern United States (excluding Gulf Coast)
- Statewide (less common in west TN)

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**Southern leopard frog**
*(Rana sphenoecephala)*

**Breeding Call**
- Series of clucks or chuckles
- Also, groans similar to rubbing hand over a balloon

**Breeding Season**
- Early (Feb, March)

**Characteristics:**
- Tan with dark dorsal spots in irregular pattern
- White spot on tympanum

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**Breeding Call**
- Sounds like opening a creaky door

**SVL = 2.5"**
**Southern leopard frog**
*Rana sphenocephala*
- Escapes predators by swimming underwater
- **Distribution:**
  - Southeastern U.S.
  - Statewide
  (not common in Smokies)
- **Characteristics:**
  - Breeding Call: Series of clucks or chuckles (mallard)
  - SVL = 2''
  - Interspersed with low grunts
  - Early (February)
  - Often before ice is gone
- **Breeding Season:**
  - Tan dark mask below and behind eye
  - White upper lip

**Wood frog**
*Rana sylvatica*
- **Bi-colored Embryos**
  - Black (above), white (below)
- **Characteristics:**
  - Forested wetlands
  - Black (above), white (below)
- **Breeding Season:**
  - Tan dark mask below and behind eye
  - White upper lip
  - SVL = 2''
  - Early (February)
  - Often before ice is gone

**Wood frog**
*Rana sylvatica*
- **Distribution:**
  - Northeastern U.S.
  - Middle & East TN
- **Breeding Season:**
  - Tan dark mask below and behind eye
  - White upper lip
  - SVL = 2''
  - Early (February)
  - Often before ice is gone
Seasonal Occurrence
Tennessee Anurans

January: southeastern chorus frog
February: wood frog, spring peeper, gopher frog
March: American toad, southern leopard frog, crawfish frog
April: pickerel frog, mountain chorus frog
May: Fowler’s toad, northern cricket frog, gray treefrogs, bird-voiced treefrog
June/July: green frog, American bullfrog, southern cricket frog, eastern narrow-mouthed toad, eastern spadefoot, barking treefrog, green treefrog
August-December: possible to hear most species especially after rains and on warm days in fall and winter, although breeding for temperate anurans is concentrated January-July.

Citations and Helpful Websites

Identification Texts

Pictures

Pictures and Calls
- LEAPS-Environmental Consulting: http://www.leaps.me/
- Tennessee Wildlife Resources Agency (Frogs and Toads of TN): http://www.state.tn.us/twra/tamp/frogs.html