# Key to Herp Groups found in Delaware Wetlands

<table>
<thead>
<tr>
<th><strong>REPTILES</strong></th>
<th><strong>AMPHIBIANS</strong></th>
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<tbody>
<tr>
<td>√ have scales on body</td>
<td>√ have moist, often slimy skin</td>
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<tr>
<td>√ have claws</td>
<td>√ most have aquatic stages</td>
</tr>
<tr>
<td>√ lay eggs on dry land</td>
<td>√ most lay eggs in water</td>
</tr>
<tr>
<td>√ eggs have hard shell</td>
<td>√ eggs are soft &amp; jelly-like</td>
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</tbody>
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**Pages 2-6**

<table>
<thead>
<tr>
<th>If you find a turtle</th>
<th>If you find a snake</th>
<th>If you find a tadpole with no external gills</th>
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</thead>
<tbody>
<tr>
<td>Go to Page 2 &amp; 3</td>
<td>Go to Page 4-6</td>
<td>It’s a larval frog or toad</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>If you find a newt or salamander</th>
<th>If you find a larva with external gills</th>
<th>If you find a frog, usually on land, that differs from those found on pages 10-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go to Page 8 &amp; 9</td>
<td>It’s a larval salamander</td>
<td>Go to page 12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If you find a small frog, usually in or around forested areas, having suction cup-like feet</th>
<th>If you find a frog in or around water that has wet skin and webbed feet</th>
<th>If you find a frog, usually on land, that differs from those found on pages 10-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go to page 10</td>
<td>Go to page 11</td>
<td>Go to page 12</td>
</tr>
</tbody>
</table>

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Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)
### Eastern Painted Turtle
*Chrysemys p. picta*

- **Easily identified by** having scutes on top of the shell in relatively straight rows. Also look for yellow or red "painted" markings on the legs and head, especially the yellow spots behind each eye. Usually not more than 6 inches in length.
- **Northern Red-Bellied Cooter**
*Pseudemys rubriventris*

- **Larger in size** than the painted turtle (average 8 to 12 inches). Yellow markings may be present on the neck, head and legs, but, unlike the painted, the underside of the shell (plastron) is red, not yellow.

### Spotted Turtle
*Clemmys guttata*

- **Easily recognized by** the yellow spots on the scutes, typically one spot per scute, but could also have no visible spots or very faint spots. Head usually has several yellow or orange spots also. This is a species of special concern in Delaware.

### Bog Turtle
*Clemmys muhlenbergii*

- **Easily identified by** the large patch of orange-red on each side of its head. The bog turtle is a listed species (federally-threatened, state-endangered). It is typically found in bogs, wet meadows or swamps having grassy tussocks and open canopies.

### Stinkpot
*Sternotherus odoratus*

- **The Stinkpot usually has** two yellowish stripes on its head. It also has fleshy hair-like projections, called barbels, on its chin and throat. The plastron is small and only has one hinge.

### Eastern Mud Turtle
*Kinasternon s. subrubrum*

- **The Eastern Mud Turtle** has no distinctive markings. The carapace, or top of the shell, varies in color from olive-green to almost black. The best way to identify it is by the double-hinged plastron.

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<table>
<thead>
<tr>
<th>Northern Red-Bellied Cooter</th>
<th>Eastern Painted Turtle</th>
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<tr>
<td>The Red-bellied Cooter is the largest basking turtle found in Delaware, reaching over a foot in length. They inhabit ponds, lakes, streams, and even brackish marshes, where they can be found basking from March through October. Females have vertical reddish lines on the side scutes, males a red mottled pattern. Older adults tend to be very dark and may appear patternless. Hatchlings are green. They were at one time sold for consumption and are still eaten in parts of the US.</td>
<td>The Eastern Painted Turtle is one of the most common basking turtles in Delaware. They can be found in any body of water that features a soft bottom, adequate basking areas and lots of aquatic plants. Millponds and slow-moving stretches of streams are favored habitats. Painted Turtles can be active year long, and are often seen basking on fallen trees. Male Painted Turtle tails are thicker and their front claws are longer than those of females. Painted Turtles are omnivorous</td>
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<table>
<thead>
<tr>
<th>Bog Turtle</th>
<th>Spotted Turtle</th>
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<tbody>
<tr>
<td>The Bog Turtle is a species of conservation concern in Delaware, it being listed as both federally-threatened and state-endangered. In Delaware, they are only found in New Castle County, and only there in special wetland habitats featuring particular types of vegetation, open canopies and mucky soils. In such places, bog turtles are most often seen during Mid-April to June, basking on grass-like tussocks. Populations have been impacted by habitat loss, illegal collection, and the introduction of exotic plant species.</td>
<td>The Spotted Turtle favors marshy, boggy, swampy areas and woodland vernal pools, the latter providing an important source of early spring food after coming out of hibernation. They are most active in spring, where they can be found basking on logs on sunny days. The yellow spots on the shell are diagnostic, though highly variable, and some specimens may lack them entirely. Male Spotted Turtles have a concave plastron and brown eyes. Females have a convex plastron, red eyes, an orange chin and a yellow beak.</td>
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<table>
<thead>
<tr>
<th>Eastern Mud Turtle</th>
<th>Stinkpot</th>
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<tbody>
<tr>
<td>The Mud Turtle is common along the muddy bottoms of ponds, ditches, and marshes, where they can be observed walking slowly along the bottom in search of food. They are semi-aquatic and can also be found walking on land, especially after warm rains. They rarely bask on logs. The best way to distinguish the Mud Turtle from the Stinkpot is by the presence of two hinges on the plastron, a feature that enables it to close from both behind and front, like the Eastern Box turtle.</td>
<td>The Stinkpot or Common Musk Turtle gets its names from the smelly musky aroma it exudes when disturbed. It can be found in still or slow-moving water, where it walks along the bottom in search of food. They are rarely found far from water, and are able to remain underwater for extended periods. Stinkpots can be distinguished from mud turtles by the presence of yellow stripes on the face, and in having only one hinge on it’s plastron, so it can only close in the front.</td>
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More Turtles

**Eastern Snapping Turtle**
*(Chelydra s. serpentina)*

The Snapping Turtle is easily identified by its large head, long saw-toothed tail, and keeled shell. Our largest, non-sea turtle (reaching up to 50 lbs), snappers occupy a variety of habitats statewide. They are rarely seen basking like other turtles.

**N. Diamond-backed Terrapin**
*(Malaclemys t. terrapin)*

The Diamond-backed Terrapin is a turtle of brackish-water habitats. They are our only turtle with ‘lips’, and can also be identified by their spotted skin – either gray with dark spots or dark with light spots – and by the series of concentric rings on the scutes.

**Red-eared Slider**
*(Trachemys scripta elegans)*

The Red-Eared Slider is not a native turtle of Delaware, but was introduced into the area through the pet trade. They are usually found in mill or farm ponds in Delaware, but can also be found in any aquatic habitat with a muddy bottom, abundant vegetation and ample basking areas.

**Eastern Box Turtle**
*(Terrapene c. carolina)*

The Eastern Box Turtle is the only terrestrial turtle found in Delaware. They are usually found in woodlands, meadows, floodplains, and old fields, but can sometimes be found in bogs and marshes.

**Northern Map Turtle**
*(Graptemys geographica)*

This turtle gets its name from the topo-map like pattern of yellow lines across its olive brown shell. The head, neck, and limbs are dark green with distinct yellow stripes. The plastron is yellowish.

**Wood Turtle**
*(Glyptemys insculpta)*

The Wood Turtle is rare in these parts. The only reports from DE are most likely escaped pets. Usually found near streams, but can also venture into vernal pools and more terrestrial habitats.

Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)
<table>
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<tr>
<th><strong>N. Diamond-backed Terrapin</strong></th>
<th><strong>Eastern Snapping Turtle</strong></th>
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<tr>
<td>The Diamond-backed Terrapin favors brackish habitats, including salt marshes, estuaries, tidal flats, inland bays, and barrier beach lagoons. They are able to live in such salty conditions with the help of a nasal gland that excretes excessive salt. Terrapins are easily seen late May through July, when females emerge to lay eggs in sandy areas. At one time populations were waning (due to over-harvesting for terrapin stew.) Primary threats today are from hatchlings loss at road crossings and drowning in crab pots (turtle exclusion devices are now required in pots, but not always used).</td>
<td>The Snapping Turtle occurs throughout Delaware in just about any kind of still water habitat, from fresh to brackish, and permanent to vernal. In such environments, they can be found swimming, lurking under vegetation, or buried in mud at the bottom. They are aggressive predators and will eat anything they can catch. Snapping Turtles are rarely seen basking, but do emerge sometimes after strong rains to bask on the warmer roads. Take care when handling snappers, as they will try to defend themselves and can cause serious damage with their strong jaws.</td>
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<table>
<thead>
<tr>
<th><strong>Eastern Box Turtle</strong></th>
<th><strong>Red-eared Slider</strong></th>
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<tbody>
<tr>
<td>Box Turtles are common throughout Delaware, but numbers seem to be on the decline in recent years. Causes of this decline include: removal from natural habitat, habitat loss/fragmentation, and death from cars and lawnmowers. Where free from such problems, Box Turtles can live long in the wild, reaching the ripe old age of 75 or more. They can be aged by counting concentric rings on any of the larger scutes. Males usually have red eyes and concave plastrons, females, brown eyes and flat plastrons. In terms of diet, Box turtles are especially fond of slugs, but also consume various other kinds of plants and animals.</td>
<td>A popular species in the 1950’s to 70’s pet trade, sliders were purchased for as little as a quarter. Sufficient numbers of these small turtles survived to be released into ponds and rivers throughout the U.S., thus greatly expanding their distribution. In 1975, sliders smaller than 4 inches were banned from sale in the pet trade because the young were found to carry salmonellosis. Sliders are easily identified by their colorful markings. They are dark green with yellow stripes on the head and legs and concentric yellow rings on the shell. The head features a red stripe just behind the eye.</td>
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<tr>
<th><strong>Wood Turtle</strong></th>
<th><strong>Northern Map Turtle</strong></th>
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<tr>
<td>Like the Map Turtle, wild Wood Turtles have only been documented in this area from the lower Susquehanna drainage. Potentially, they could be found here, so if you think you’ve run across one, be sure to document it fully. Preferred habitats are along freshwater rivers and streams, though in other parts of its range, it will venture into meadows, thickets and even farm fields to feed, especially during the summer months. Habitat destruction, road-crossing mortality and collecting for the pet trade have probably all contributed to the decline in Wood Turtle populations.</td>
<td>The Map Turtle is not known from Delaware, but can be found in the Susquehanna drainage in nearby Maryland and Pennsylvania, where it favors large freshwater rivers and tributaries with deep, slow-moving waters offering ample basking sites. Adult females (7.0-10.8”) are much larger than males (3.5-6.8”). Map Turtles can be distinguished from Painted Turtles in having yellow markings on the marginal scutes at the edge of the shell (as opposed to red markings on the Painted). The Map Turtle also has a serrated rear edge to its shell.</td>
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**Large Snakes with colored blotches or bands**

**Copperhead**  
*(Agkistrodon contortrix)*

![Copperhead Image]

Vertical pupil  
Hour-glass bands narrowest on top

The Copperhead is the only venomous snake found in DE. They are rare here, but have been recorded in the Piedmont, and in southern Sussex County.

**Northern Watersnake**  
*(Nerodia s. sipedon)*

![Northern Watersnake Image]

Brown bands, widest on top

The Watersnake is one of our most common snakes, occurring in virtually any type of water. Although variably-colored, the brown bands are fairly typical.

**Milksnakes**  
*(Lampropeltis triangulum)*

![Milksnakes Image]

Broad red/brown blotches with black borders on a white, cream to grayish background

Two subspecies of Milksnakes can be found in DE, one in the Piedmont, the other on the Coastal Plain. See the White's book for how to distinguish them.

**Cornsneak**  
*(Elaphe guttata)*

![Cornsneak Image]

Irregular red/brown blotches on gray, brown or orangish background

The Cornsnake is listed as endangered in Delaware, with documentation only from southern Sussex County. It spends much of its time underground.

**Eastern Hog-nosed Snake**  
*(Heterodon platirhinos)*

![Eastern Hog-nosed Snake Image]

Upturned, shovel-like snout

Easily identified by its shovel-like snout, the Hog-nosed is only known from the coastal plain in DE. Coloration is variable, including pink, tan and black.

**Eastern Kingsnake**  
*(Lampropeltis g. getula)*

![Eastern Kingsnake Image]

Chain link pattern on black body

The Kingsnake is uncommon in Delaware, occurring on the Coastal Plain. Light-colored cross-bands on a shiny-black body give it a chain-link appearance, distinguishing it from other black snakes.

**Northern Scarlet Snake**  
*(Cemophora coccinea copei)*

![Northern Scarlet Snake Image]

Hour-glass bands narrowest on top

Easily identified by its shovel-like snout, the Hog-nosed is only known from the coastal plain in DE. Coloration is variable, including pink, tan and black.

**Northern Pinesnake**  
*(Pituophus melanoleucus)*

![Northern Pinesnake Image]

Brown-black blotches on light-colored background head to tail

Wild Pine Snake sightings have been reported, but not documented, from DE. Where found (from Virginia-south), it favors mixed pine-oak habitats. Known to hiss when disturbed like the Hog-nosed.

Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)
## Northern Watersnake

The Watersnake occupies all kinds of fresh and brackish water habitats, where it can often be seen swimming at the surface or basking near the shoreline. It is often mistaken for the venomous Copperhead or Water Moccasin, the former being rare in DE, the latter not occurring here at all. Bold in behavior, the Watersnake will flatten its body and strike if prompted. Watersnakes feed mainly on fish and amphibians, including toads (appearing to be immune to their toxic secretions).

## Copperhead

The only venomous snake in DE, the Copperhead features a somewhat flattened, triangular head, a vertical pupil, and hour-glass shaped crossbands. Certain non-venomous snakes (including the Cornsnake, Hognose, Milksnake and Watersnake) are confused with the Copperhead, but these snakes lack the above features. The Copperhead has been found in rocky areas of the Piedmont, in Bald Cypress swamps of the Coastal Plain, and in sandy, mixed hardwood/pine forests in Sussex County.

## Cornsnake

The Cornsnake is a southern species, reaching the northern limits of its range in the Pine Barrens of New Jersey and the woodlands of the southernmost parts of Sussex County, Delaware. Solitary and secretive in habit, the Cornsnake lives mostly underground, coming out to hunt in the evening. Due to their attractive appearance and docile manner, cornsnakes are popular in the pet trade. Because of their endangered status, collecting of cornsnakes is illegal in Delaware.

## Milksnakes

There is ongoing debate about the classification of Milksnakes in this area, with current thinking recognizing two subspecies: the Eastern Milksnake (known from the Piedmont area) and the Coastal Plain Milksnake (limited to coastal plain habitats). Records of both forms are not extensive here. Although often found around fields and farms, they feed on small mammals, the old and ludicrous myth that Milksnakes seek out cows and suck their milk, is still held on to in some places.

## Northern Scarletsnake

The Scarletsnake is one of the most attractive, secretive and rarest of our native reptile species. Although called the Northern Scarletsnake, this is really a southern species, with the only occurrence in Delaware (Sussex County) representing the more-or-less northern extent of its distribution. Where it does occur, preferred habitats are the sandy soils of coniferous or mixed deciduous-conifer woodlands. Due to its burrowing habit, it is seldom seen in the open, aside from occasional roadway crossings, especially following heavy rains.

## Eastern Hog-nosed Snake

The Hognose is primarily found on the Coastal Plain in sandy soil areas, such as sand dunes, beaches and sandy fields. They feed primarily on toads, using their shovel-like snout to burrow for toads in the soil. They have sharp rear teeth to puncture inflated toads to help with swallowing. The saliva is mildly venomous to toads, other small mammals and even some humans. When disturbed they will rear up and flatten their neck like a cobra and if that doesn’t work they flip on their back, stick out their tongue and play dead.

## Northern Pinesnake

Although the only existing Pinesnake specimen found in Delaware is thought to be an escaped pet, several unconfirmed sightings from likely habitats in Sussex County suggest that it may occur here. Because of its secretive, burrowing nature, the Pinesnake may easily go unnoticed, so if found, be sure to document its presence with a photograph. Pinesnakes have been known to hiss loudly when disturbed and may bite upon capture.

## Eastern Kingsnake

The Kingsnake is uncommon throughout Delaware, with documented reports only from the Coastal Plain. Habitats include forests, wetland edges, around old farm buildings and under human-deposited debris. The kingsnake is an aggressive predator. They kill by constricting, and have been known to consume snakes as large as themselves. They are immune to the venom of poisonous snakes. When threatened they have been known to coil, strike and vibrate their tail.

Sources for species accounts: Amphibians and Reptiles of Delmarva (White & White, 2002) and A Field Guide to the Animals of Vernal Pools (Kenney & Burne, 2001). Jim White, Joseph Mclaughlin and Holly Niederriter provided additional information.
Small Snakes (1-2 feet in length or smaller)

**Eastern Wormsnake**  
*Carphophis a. amoenus*

- Plain brown on top
- Spine on tail
- Head small, pointed, indistinct from neck

Resembling a large earthworm, this small (<12"), slender brown snake can be found under debris or burrowing in moist soils of Coastal Plain woodlands, where it feeds on earthworms and soil insects.

**E. Smooth Earthsnake**  
*Virginia v. valeriae*

- Coloration uniformly dark gray to brown above
- Belly plain white, gray or yellowish

Documented only from a few pre-1975 records from the Piedmont area of DE, this small woodland snake is thought to be more common than reported. Similar in length, but stouter than the Wormsnake.

**N. Red-bellied Snake**  
*Storeria o. occipitomaculatus*

- Top side gray, brown or black, with one broad stripe down its center bordered by thinner lateral ones
- Belly orange-red, often edged in black

This small (<12"), secretive snake is also one of our most rarely documented, including a few records from the coastal plain and none from the Piedmont. Look for it in woodlands and along wetland edges.

**Northern Brownsnake**  
*Storeria d. dekayi*

- Rows of dark spots on a light to dark brown background
- Vertical black stripe behind eye

Another small (<15") brownish snake, the N. Brown is considered uncommon in Delaware, but may be abundant where found, including mixed woodlands, wetlands, fields, lawns and even urban areas.

**Ring-necked Snake**  
*Diadophis punctatus*

- Cream, yellow to orange neck ring
- Belly with dark blotches

Ring-necked snakes in Delaware are thought to be intergrades between southern and northern forms. Easily distinguished by its light-colored neck ring, this species is commonly found under logs and leaf litter in coastal plain woodlands.

**Queen Snake**  
*Regina septemvittata*

- Olive to brown above
- Low, lateral yellow stripe running from head to tail

The Queen is a medium-sized (15-24") slender brown snake with a yellow stripe low on its side. Referred to as "crayfish snakes", these seldom-seen snakes are found only where crayfish abound - most likely in Delaware, along Piedmont streams.

Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)  
### Eastern Smooth Earthsnake
The Smooth Earthsnake is another southern species near the northern limits of its range in Delaware. Although uncommonly observed (due to its secretive habits), it is probably common here. It prefers woodland habitats with sandy or loamy soil (for burrowing) but may also be found in more open areas, including roadsides, fields, and dump sites. Like the Wormsnake, Earthsnakes are usually found under logs and other debris and feed primarily on earthworms, grubs and slugs.

### Eastern Wormske
Whether attributed to its worm-like appearance and burrowing habits, or its dietary proclivity for earthworms, the Wormsnake is aptly named and well-suited for life in the loamy woodland coastal plain soils it inhabits. Though its burrowing habit and secretive nature bring it seldom to notice, Wormsnakes are fairly common, with typical encounters arising from turning over logs and other woodland debris. The Wormsnake does not bite when handled, but will probe with head and tail in its captor’s hand in search of escape.

### Northern Brownsnake
Though sometimes referred to as the “city snake” because of its association with urban and disturbed areas (appearing frequently in abandoned lots, parks and yards), the Brownsnake also inhabits the same kind of woodland habitats where one might find the Smooth Earth or Worm Snakes, and it feeds on a similar diet of earthworms, slugs and grubs. Its habits however, are more terrestrial than burrowing. If found near water, it is also known to consume small frogs, fish and snails.

### Northern Red-bellied Snake
A rare snake here (known only scarcely from the Coastal Plain and not at all from the Piedmont), the Red-bellied has been found in forested areas as well as more open field and edge habitats, and particularly those near freshwater wetlands. Secretive by nature, the Red-bellied comes out of hiding at night to feed on slugs, earthworms and other soft-bodied invertebrates. This snake will not bite, but does exude musk and is known to curl its upper lip in a sneer-like manner when handled.

### Queen Snake
This rarely-seen snake prefers small stony Piedmont creeks and rivers, and other places where crayfish are abundant. There must be lots of crayfish, since that’s all Queen Snakes eat, and then only of the soft-shelled variety (ones that have just molted). Queen snakes are fairly secretive. They are usually found under rocks or debris at the water’s edge. Unfortunately, queen snakes have declined in Delaware, due to the poor quality of stream habitat and reduction in numbers of crayfish.

### Ring-necked Snake
Ring-necked Snakes are relatively common throughout much of Delaware’s Coastal Plain. They inhabit moist areas in or near woodlands of various types, where they can be found in leaf litter or under rotting logs, rocks or the shelter of man-made debris. It is under such cover that Ring-necked snakes are typically observed. They don’t bite, but emit a musk on handling. Salamanders appear to be a favored food item, supplemented by earthworms, frogs, lizards and other small snakes.

## Miscellaneous Snakes

| **Northern Black Racer**  
**Coluber c. constrictor** | **Eastern Ratsnake**  
**Elaphe alleghaniensis** |
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<tbody>
<tr>
<td><img src="image1" alt="Adult Black Racer" /></td>
<td><img src="image2" alt="Adult Ratsnake" /></td>
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<tr>
<td><img src="image3" alt="Juv Black Racer" /></td>
<td><img src="image4" alt="Juv Ratsnake" /></td>
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The Black Racer is found in a variety of habitats statewide. They are duller in color, have larger eyes, and move quite a bit faster than ratsnakes. Note the cross-banded pattern on the juveniles.

The Ratsnake is one of our most common snakes, occupying a variety of habitats statewide. Belly is light/flecked, not uniformly dark as in the Racer. Note the blotched pattern on the juveniles.

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| **Eastern Gartersnake**  
**Thamnophis s. sirtalis** | **Common Ribbonsnake**  
**Thamnophis s. sauritus** |
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<tbody>
<tr>
<td><img src="image5" alt="Eastern Garter" /></td>
<td><img src="image6" alt="Common Ribbon" /></td>
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</table>

Gartersnakes vary as much in color and pattern as they do in habitats. They typically have 3 stripes, one on the back and one on each side. A checked pattern is often visible between the stripes.

The Ribbonsnake is uncommon in Delaware, with an absence of recent records from the Piedmont. Usually found in or around freshwater wetlands, where they feed almost exclusively on amphibians.

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| **Red-bellied Watersnake**  
**Nerodia s. sipedon** | **N. Rough Greensnake**  
**Opheodrys a. aestivus** |
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<tbody>
<tr>
<td><img src="image7" alt="Red-bellied Watersnake" /></td>
<td><img src="image8" alt="N. Rough Greensnake" /></td>
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The Red-bellied Water Snake is known only from the southernmost parts of Delaware, where it is generally associated with Bald Cypress or Atlantic white cedar swamps. They are fairly large-bodied snakes, with brown coloring above and a red belly.

This slender, medium-sized green snake is rare to uncommon on the coastal plain and unknown from the Piedmont in Delaware. May be observed in the foliage of shrubs or trees overhanging streams, ponds and wetlands, where it feeds on insects.

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*Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)*

<table>
<thead>
<tr>
<th><strong>Eastern Ratsnake</strong></th>
<th><strong>Northern Black Racer</strong></th>
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<tbody>
<tr>
<td>The Ratsnake gets it's name from it's main food source - mice and rats. They occur in all parts of the state, in and around various aquatic habitats, as well as woods, hillsides and meadows. Accomplished climbers, black snakes can also be found in trees and rock cavities. Baby Black Ratsnakes are gray with black blotches (not fully black). Though scary because of their size, black snakes are non-venomous and relatively timid, but if cornered, they will literally rear up and fight.</td>
<td>The Black Racer is common throughout Delaware, but more abundant on the Coastal Plain. Its habitats vary from fields to the borders of freshwater, brackish and salt marshes. They are distinguished from the Black Ratsnake by their gray belly and round profile - the black rat having a white belly and a bread-shaped profile. As their name suggests, Black Racers are very quick and are known for being aggressive when cornered, often rearing up and shaking the tail as warning. If that doesn't work it will strike repeatedly!</td>
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<table>
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<tr>
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<tbody>
<tr>
<td>The Ribbonsnake is only found on the Coastal Plain, but even there it is fairly uncommon. They inhabit a variety of wetlands, from vernal pools to streams, to wet meadows and marshes. They are strong swimmers, and can also be seen hanging from trees or bushes. They eat amphibians (preferably frogs), and fish, which they swallow whole. Ribbonsnakes are very agile; when approached they quickly swim away and hide. If caught they seldom bite, but can produce a musky smell.</td>
<td>The Garter Snake is common statewide, in meadows, marshes, woodlands, hillsides, and along streams, drainage ditches and assorted other habitats. They eat frogs, salamanders, fish, tadpoles, and even sometimes leeches. They get their name from the longitudinal stripes that resemble garters that were once fashionable for supporting gentlemen's socks. This snake is usually docile, but will strike if disturbed, and will often produce an unpleasant musky smell when alarmed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Northern Rough Greensnake</strong></th>
<th><strong>Red-bellied Watersnake</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>This seldom-seen snake prefers the dense vegetation of deciduous or mixed woodland ecosystems, where its green coloration offers good camouflage from its predators and prey. It also favors the wooded edges of streams, ponds and marshes, where careful observation may reveal its presence amidst the foliage of overhanging trees or shrubs. Insectivorous in habit, the inside of the Rough Greensnake's mouth is a vibrant purple, which it willingly displays in defense when disturbed.</td>
<td>The Red-bellied Watersnake is a southern species. In Delaware, at the more northern limits of its range, it is very rare, and most likely to be found in freshwater or brackish swamps, slow moving streams, and ditches associated with Bald cypress or Atlantic white cedar swamps. It is thought that habitat destruction is the cause of its decline in population throughout Delaware. Red-bellied Watersnakes feed on frogs, salamanders, crayfish, and fish, and the prey is eaten alive.</td>
</tr>
</tbody>
</table>

### Eastern Fence Lizard
(*Sceloporus undulatus*)

The Fence Lizard is an easily recognized species. The keeled overlapping scales give it a rough look. Arboreal in habit, the Fence Lizard prefers the more dry and open field and woodland habitats.

### E. Six-lined Racerunner
(*Aspidoscelus s. sexlineata*)

This species gets its name for its remarkable quickness and the six light stripes on its body. Not recorded from DE, but potential habitat exists. Prefers open, well-drained fields and woodlots.

### Common Five-lined Skink
(*Eumeces fasciatus*)

Five-lined Skinks vary much in appearance with sex and age. Juvenile have bright iridescent-blue tails and conspicuous body stripes. Females are striped with a brown tail. Males are more solid in coloring.

### Broad-headed Skink
(*Eumeces laticeps*)

This large (6-13") lizard exhibits highly variable coloration with sex and age. Juveniles have bright blue tails, orange head stripes, and 5-7 yellow body stripes, making them rather difficult to distinguish from juvenile Five-Lined Skinks. Adult females also show striping, albeit somewhat faded.

### Little Brown Skink
(*Scincella lateralis*)

This small (3-6"), slender, secretive skink is easy to miss, spending most of its time on or under the leafy humus layer of mixed woodland habitats. Considered rare to uncommon in all parts of DE.

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Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)

### Eastern Six-lined Racerunner

The White's list this species as having only one (unconfirmed) record from all of Delmarva, that from the southern (Virginia) part of the peninsula. It is included here because potentially suitable Six-lined Racerunner habitat - open, well-drained areas with loose or sandy soil - exists in Delaware. If observed, photographic documentation would be crucial, but the quickness of this creature will not make that an easy task. Also, be aware of possible confusion with the Five-lined and Broad-headed skinks, both of which are shinier and have brighter blue tails as juveniles than the racerunner.

### Eastern Fence Lizard

The rough, scaly appearance of this species makes it hard to confuse with any of the other lizards found here. Preferred habitats are hedgerows, old fields, and dry open areas of woodlands, where sunlight is fairly abundant. In such places, look for it around logs, and wood, stone or debris piles. An active climber, when disturbed, the Fence Lizard is apt to climb the nearest structure and hide on the back side, somewhat in the manner of gray squirrels. Known only from the coastal plain. Populations may be declining in some areas due to habitat loss related to increasing development.

### Broad-headed Skink

Distinguishing the Broad-headed from the 5-Lined Skink can be challenging, especially when it comes to ID-ing juveniles, which in both species feature a bright blue tail and similar series of light stripes running down the body. Adults of the two species also share many similarities, including development of a reddish head in breeding plumage males - though Broad-headed’s are larger and stouter-bodied than Five-lined’s. Existing records show the Broad-headed Skink to be rare on the Coastal Plain and absent from the Piedmont. Its apparent preference for large expanses of mature forest habitat is cited as a reason for its scarcity here.

### Common Five-lined Skink

This is our most commonly-encountered lizard, found in a variety of woodland habitats, as well as around human dwellings, including woodpiles, decks, compost bins, and other areas that offer adequate woody cover and a certain amount of dampness. In such places, Five-lined skinks can frequently be observed sunning themselves and scurrying about. The juvenile's striking iridescent blue tail serves as an adaptation for avoiding predation, as it will break off upon attack and wiggle for several minutes, distracting the predator long enough for the skink to escape with its vital parts intact.

### Little Brown Skink

The Little Brown is the easiest to identify of the three skink species found in Delaware, but also the rarest and most secretive in habit, making it the least likely to observe. Although in shape, size and coloration, it superficially resembles the two-lined salamander, the claws, scales and quickness of the skink clearly set it apart. The Little Brown is a ground-dwelling species, spending most of its time under, in, or moving on top of, the leafy humus layer of the forest floor. As with other skinks, the tail breaks off easily and wriggles for a while, an adaptation for escaping predation.

---

| **Red-spotted Newt**  
* (Notophthalmus v. viridescens) | **Eastern Tiger Salamander**  
* (Ambystoma t. tigrinum) |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><img src="image1" alt="Red-spotted Newt" /></td>
<td><img src="image2" alt="Eastern Tiger Salamander" /></td>
</tr>
<tr>
<td><strong>ADULT</strong></td>
<td><strong>ADULT</strong></td>
</tr>
<tr>
<td>The Red-Spotted Newt is an unusual amphibian in having 4 (not 3) life stages: egg/larva/eft/adult, with the eft being the terrestrial stage, and all other stages (including the adult) being aquatic. Easily identified by red spots with black borders.</td>
<td><strong>large, with lots of variable-shaped yellow spots.</strong></td>
</tr>
<tr>
<td><img src="image3" alt="EFT" /></td>
<td></td>
</tr>
<tr>
<td><strong>EFT</strong></td>
<td><strong>EFT</strong></td>
</tr>
</tbody>
</table>

Notice that the spots on the Tiger Salamander are more numerous and less round than the Spotted, producing a barring effect. Tigers are the largest of Delaware's 11 salamander species and they are state-endangered. They breed in woodland pools in winter, sometimes laying their eggs under the ice.

| **Marbled Salamander**  
* (Ambystoma opacum) | **Spotted Salamander**  
* (Ambystoma maculatum) |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><img src="image4" alt="Marbled Salamander" /></td>
<td><img src="image5" alt="Spotted Salamander" /></td>
</tr>
<tr>
<td><strong>black body with white to gray banding</strong></td>
<td><strong>black body with isolated, round yellow spots</strong></td>
</tr>
<tr>
<td>The Marbled Salamander is the smallest (3-5&quot;) of the mole salamander species found in Delaware. The males are black and with marbled white bands and the females are black with grayish bands. Unlike the tiger and spotted, they breed in fall.</td>
<td>The Spotted Salamander resembles the Tiger, but the Spotted does not have as many spots, or as broad patterns of coloration. It also is smaller, ranging from 4-9&quot; in length. Spotted salamanders breed in vernal pools in late winter/early spring.</td>
</tr>
</tbody>
</table>

| **Eastern Red-backed Salamander**  
* (Plethodon cinereus) | **Four-toed Salamander**  
* (Hemidactylium scutatum) |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6" alt="Eastern Red-backed Salamander" /></td>
<td><img src="image7" alt="Four-toed Salamander" /></td>
</tr>
<tr>
<td><strong>redback form</strong></td>
<td><strong>only 4 toes</strong></td>
</tr>
<tr>
<td>The Redbacked is the most common and only all-terrestrial (no aquatic larvae) salamander in the state, where it occupies various woodland habitats. There are two color types, one having a red, orange or yellow stripe on it's back, and the other a blackish back (known as Leadback form).</td>
<td>This Salamander gets it's name from having only four toes on ALL of it's feet, not just the front pair, as in other salamanders. It has a white belly with black spots. Four-toed salamanders breed in sphagnum bogs and cedar swamps, and due to the scarcity of these habitats, are rare in Delaware.</td>
</tr>
</tbody>
</table>
## Eastern Tiger Salamander

The Tiger Salamander is one of the largest known terrestrial salamander species in the world, ranging from 7-13” in size. It, along with the spotted and marbled, are "mole Salamanders", meaning they spend most of their life underground in woodlands, usually in small animal burrows or burrows of their own making. Tigers migrate out of their burrows to breed in nearby vernal pools in winter, usually in January or February. The Tiger Salamander has been found only in a few Delmarva Bay wetlands on the coastal plain, and is listed as endangered in Delaware and several other states.

## Red-Spotted Newt

The Red-spotted Newt occurs in vernal pools, permanent ponds and slow-moving streams, primarily in the Piedmont and upper Coastal Plain. Records are lacking for Kent County. Adults are olive-brown with two parallel rows of red spots on the back, and yellow with small black dots on the belly. The life cycle is this species is unique in usually having an in-between, pre-adult stage (following transformation from aquatic larva) called the red eft (of a red to light-orange coloration) that lives 3-5 years on land, prior to transforming to the aquatic adult newt form.

## Spotted Salamander

The Spotted is the clown of the mole salamander group, sporting bright yellow-orange spots that look like they've been dabbed on with paint. Breeding takes place from late February to early April in vernal pools, where egg clusters (sometimes cloudy in appearance) are attached to submerged twigs or debris. Adults, ranging from 4-9 inches in length, can best be found under logs near breeding pools at this time. For the rest of the year, Spotted Salamanders live underground in small animal burrows in woodlands close to their breeding pools, feeding on invertebrates. This species occurs on both Piedmont and Coastal Plain.

## Marbled Salamander

The Marbled Salamander is the smallest of the mole salamanders found in Delaware, reaching a length of only 3 to 5 inches. They are black with white (male) or silvery-grey (female) crossbands on the back. The marbled salamander is unique in that it breeds in dry vernal pools during autumn. The female guards the eggs, which are laid under debris until rains fill the pool sufficient for the eggs to hatch and the larvae to develop. Hidden underground in animal burrows for most of their life, the best place to find Marbled Salamanders is in Coastal Plain woodlands under logs or on nearby roadways on rainy autumn nights.

## Four-toed Salamander

The Four-toed is one of Delaware's most rarely seen and smallest salamanders, reaching a maximum length of only 4 inches. The name comes from the four toes on the hind foot (other salamanders having five). It has a reddish-brown back and white belly speckled with black dots. If you look carefully at the base of the tail, you'll notice a constriction - an adaptation allowing the tail to break off easily for quick escape when attacked. Adult four-toed salamanders are terrestrial but breed in cedar swamps and sphagnum bogs on the Coastal Plain and Piedmont.

## Eastern Red-backed Salamander

By far the most common salamander in Delaware, the Red-backed is also the only one that does not have an aquatic larval stage. The female-guarded eggs are laid in rotten logs or moist organic soils, not in or around aquatic habitats as most other salamanders. The entire larval phase takes place in the egg and the young resemble adults. The Red-backed is easy to find in woodland areas, by looking under rotten logs, rocks or other sources of cover. In such places, they may be seen year-round, not just during their late spring to early summer breeding season. Red-backeds are small and slender, reaching 2-5 inches in length.

Sources for species accounts: Amphibians and Reptiles of Delmarva (White & White, 2002) and A Field Guide to the Animals of Vernal Pools (Kenney & Burne, 2001). Jim White, Joseph McLaughlin and Holly Niederriter provided additional information.
### N. Two-lined Salamander
*(Eurycea bislineata)*

Though the Northern Two-lined varies in color from yellow to orange, it is easily distinguished by the two lines that run from its eyes to its tail. Its tail is usually at least half as long as its body.

![Image of N. Two-lined Salamander](image)

*Line from eye to tail*

### N. Dusky Salamander
*(Desmognathus fuscus)*

The N. Dusky Salamander is tan to brown to gray, with a broad dorsal stripe and black spots or streaks on its back. It’s tail is only half as long as its body. Dusky’s also have a distinct light stripe that extends from the eye to the back of the jaw.

![Image of N. Dusky Salamander](image)

*distinct light stripe*

### Northern Red Salamander
*(Pseudotriton r. ruber)*

The best way to distinguish the Northern Red from the similar-looking Eastern Mud Salamander is by its eyes: the Red having yellow eyes compared to the brown of the Mud. It also has irregular-shaped black spots that tend to be more numerous than the Mud salamander.

![Image of Northern Red Salamander](image)

*yellow eye*

### Eastern Mud Salamander
*(Pseudotriton m. montanus)*

The Eastern Mud Salamander, like the Northern Red, features a reddish body with black spots. But its spots are well separated from one another and less numerous than the Northern Red, and the eyes are solid brown (not yellow as in the N. Red).

![Image of Eastern Mud Salamander](image)

*brown eye*

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

The Long-tailed Salamander lives up to its name, having the longest tail (about 2/3 of its total body length) of any of the 11 salamanders found in DE. Coloration varies from yellow to red, with black spots prevalent. It can be found under rotting logs and rocks near streams, but is not common.

![Image of Long-tailed Salamander](image)

*long tail*

### N. Slimy Salamander
*(Plethodon glutinosus)*

This slender salamander gets its name from the sticky skin secretions it exudes when disturbed. No Delaware records exist, but it has been found in the Piedmont area of nearby Cecil County MD. Preferred habitat is under debris on moist slopes bordering streams in deciduous forested areas.

![Image of N. Slimy Salamander](image)

*numerous light-colored spots on body*

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Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)
### Northern Dusky Salamander

The Dusky is a relatively heavy-bodied salamander, dark-brown in color with a vague lighter band on its back. It is typically found near streams or seeps under rocks and logs or other moist debris. Eggs are laid, in fall or spring, on the undersides of rocks in streams, where they are guarded by the female. The larvae have several pairs of light dots on their back and may require a full year to transform. Adults range from 2.5 to 6 inches. They forage nocturnally on aquatic and terrestrial invertebrates. Like the other salamanders on this page, the Dusky is most common in the Piedmont.

### Northern Two-lined Salamander

The Two-Lined Salamander is a slender yellowish species with two prominent dark lines on its back. Like the Dusky salamander, with which it is frequently found, the Two-lined lays its eggs under rocks, in fall or spring, and the female guards the egg mass. The larvae require one to three years for transformation, depending on availability of prey. Adults reach a length of 4-5 inches. Two-Lined salamanders are usually found under rocks along swift-moving Piedmont streams or in spring-fed seeps. Coastal plain populations favor swamps, river floodplains and seeps.

### Eastern Mud Salamander

The Eastern Mud is a robust red salamander with round, widely-scattered black dots on its body and brown eyes. This species is extremely rare in Delaware - known from only a few specimens taken from muddy wooded seeps and small streams in the Nanticoke watershed. They are usually found in muddy burrows or underneath natural or man-made substrates, and are known to excavate tunnels connecting their burrows to adjacent waterways. Eggs are deposited in late fall. The aquatic larvae are brownish with black dots and require up to two-and-a-half years to transform. The record length for the species is over 8 inches!

### Northern Red Salamander

The Northern Red Salamander is another robust red salamander, but (unlike the Eastern Mud) has more numerous and irregularly-shaped black spots on its body and yellow eyes. Its bright coloration also makes it stand out. Red salamanders favor the clean, cool waters of springs, seeps and small streams in the Piedmont area. Eggs are deposited in fall, and the light brown aquatic larvae take a long time to develop - as long as 3.5 years before reaching adulthood. In many areas, this species appears to be declining in numbers, most likely because of water pollution and habitat alteration.

### Northern Slimy Salamander

Occurrences of the Northern Slimy Salamander are undocumented in Delaware, although it has been found in the Piedmont area of adjacent Cecil County, MD. If it were to be found in Delaware, it would most likely be under rocks, logs or other debris in moist slopes along a forested Piedmont stream. Nocturnal by nature, this salamander forages for invertebrates on the ground surface at nights when the ground is damp. When handled, the Slimy exudes a sticky secretion from its skin, which is difficult to remove, and probably serves as a defensive deterrent to predators.

### Long-tailed Salamander

The Long-tailed Salamander is another slender streamside species found only in a few slender locations on the Piedmont. It has not been found on Delaware’s Coastal Plain. This species is yellow to orange with numerous black spots forming vertical bars on the long tail, which is noticeably longer than the rest of the body. Not much is known of its breeding habits. Long-tailed salamanders are most often found in clean cool waters, including springs (and springhouses), streams and seeps. Where found, they are considered an indicator of high water quality. Adults reach nearly eight inches in length.

**Tree Frogs & Chorus Frogs**

**Northern Spring Peeper**
(Pseudacris c. crucifer)

- **Call:** Peep Peep Peep
- **When:** late February through July

The Spring Peeper is found statewide in and around a variety of wetland habitats. They are easily identified by the X-marking on the back. The skin is smoother than the cricket frog.

**Eastern Cricket Frog**
(Acris c. crepitans)

- **Call:** two stones being struck together
- **When:** May and June

The Cricket Frog occurs statewide on the Coastal Plain in temporary pools, ponds and slow-moving streams. It is identified by its small size (<1.5”), rough, warty skin, short hind legs, and the black triangle marking between its eyes.

**Cope’s Gray & Gray Treefrog**
(Hyla chrysoscelis & versicolor)

- **Call (Gray):** slow trill
- **Call (Cope’s):** quicker higher pitch trill
- **When:** May to July

Gray Treefrogs are larger (1.3–2”) and stouter than the peeper, cricket and chorus frogs. The skin is rough and warty and usually gray to green. There is a white spot beneath each eye, and the back of the hind legs is bright orange to yellow.

**New Jersey Chorus Frog**
(Pseudacris feriarum kalmi)

- **Call:** fingernails across teeth of a comb
- **When:** February - May

About the same size as peepers, the New Jersey Chorus Frog is longer-legged, smoother-skinned and has three dark stripes running down its back and side. There is also a light line on the upper lip.

**Barking Treefrog**
(Hyla gratiosa)

- **Call:** like barking dog
- **When:** late April through July

Endangered in Delaware, the Barking Treefrog is easily identified by its large size (2–2.5”), rough skin, spotted markings, and distinctive call. The throat is white in females and greenish in males.

**Green Treefrog**
(Hyla cinerea)

- **Call:** single note at 1-sec. intervals
- **When:** May-July

The Green Treefrog is a medium-sized (1.3–2.3”), smooth-skinned, bright green species. Color and pattern variations can be considerable (see above). Often there is a whitish stripe down the side.

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Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)
### Eastern Cricket Frog

The **Eastern Cricket Frog** is one of Delaware’s three smallest frogs, averaging around an inch in length. It inhabits temporary pools, ponds and sluggish streams statewide. Unlike other treefrogs, they do not climb. Cricket frogs can be distinguished from the similarly-small **Northern Spring Peeper** and **New Jersey Chorus Frog** by the dark triangle between its eyes, the warty skin, and the lack of adhesive discs on the toes. The back color is extremely variable, and may include elements of green, yellow, red, brown and gray. It breeds May to June. The call sounds like two stones being struck together.

### Northern Spring Peeper

The **Spring Peeper** can be distinguished from all other small treefrog species by the dark x-shaped marking on its back. It features a brown-to-gray coloration, and adhesive discs on the toes that are slightly larger than those of the **New Jersey Chorus Frog**. It occurs statewide, in a variety of habitats, near shallow or vernal wetlands (for breeding). The peeper is one of the earliest frog species to breed in this area, beginning as early as February during warm spells. The call is a single high-pitched peep, usually made from the ground or on low vegetation. Adults range in length from 1/2 to 1.5 inches.

### New Jersey Chorus Frog

The **New Jersey Chorus Frog** is another small species that breeds early. It’s body color varies from greenish-gray to brown. Three dark lines run down the back, and the toes have small adhesive disks. It is common throughout the Coastal Plain. Aside from the breeding season, it is rarely seen, as it moves away from the pools, ditches and marshes after egg-laying. Often heard in late winter/early spring in mixed choruses with the Spring Peeper, the NJ Chorus frog’s call is a clicking sound, likened to that created by running a fingernail over the teeth of a comb.

### Cope’s Gray & Gray Treefrog

These two species appear virtually identical and can best be distinguished by slight differences in calls (with Cope’s Gray Treefrog having a higher-pitched, more rapid trill). Both frogs are gray to green with a darker blotch on the back, and bright orange-yellow patches on the thighs. Toe pads are well-developed, and the hind feet are webbed. Adults reach a length of 2-3”. Both species breed in ponds and vernal pools in late spring to early summer. Both are arboreal, occurring in mixed woodlands with vernal pools nearby for breeding. The Cope's Gray is a state-listed rare species.

### Green Treefrog

The **Green Treefrog** is a slender, dull-to-bright-green species with a white line on its side and smooth skin. It inhabits swamps and water-edge vegetation and sometimes even brackish coastal environments - an unusual habitat for amphibians. These frogs are also known to frequent summer windowsills and porches in search of insects that are attracted to lights. Breeding takes place May through July, with the call a single ‘queen’ note repeated over and over, as many as 75 times per minute. Green Treefrogs are similar in size to their gray co-geners, reaching a length of 2.5”.

### Barking Treefrog

The **Barking Treefrog** is a robust green to dark-brown species, typically with dark oval spots on its back. The skin is rough and granular (not smooth like the Green Treefrog). This is our largest native treefrog, reaching a length of as much as 3 inches. It was not known to occur in Delaware until 1984, and is found in a few locations (only in Delmarva Bay wetlands) on the coastal plain. Breeding takes place in late spring and early summer in the Bays. As the name suggests, the call resembles that of a barking dog. Reflecting its rarity, the Barking Treefrog is listed as endangered in Delaware.

American Bullfrog
(*Rana catesbeiana*)

Call: *jug-o-rum*
When: April - July

The Bullfrog is our largest frog, reaching up to 8". It can be distinguished from the similar-looking Green Frog by the lack of a dorsolateral ridge - a fold of skin that starts behind the eye and extends down the back.

N. Green Frog
(*Rana clamitans melanota*)

Call: *plucked rubber band*
When: April - August

Though smaller (reaching 4"), the Northern Green Frog can be confused with the Bullfrog. But if you look closely at the Green's back, you'll notice a line of skin (dorsolateral ridge) extending from behind the eye all the way down to the hind leg.

S. Leopard Frog
(*Rana sphenoecephala utricularia*)

Call: *duck-like clucks*
When: Feb. - April

The Southern Leopard is similar in appearance to the Pickerel Frog, but instead of having fairly evenly-spaced, square-shaped spots on its back and legs, it has more randomly-placed oval spots. The Leopard Frog also has a more pointed snout.

Pickerel Frog
(*Rana palustris*)

Call: *low, slow snore*
When: March - April

The Pickerel Frog can be identified by the distinct rectangular markings on its back. In contrast to the Leopard Frog, it also tends to have bright orange or yellow coloring on the back of its thighs. The snore-like call is also diagnostic.

Carpenter Frog
(*Rana virgatipes*)

Call: *hammer on a nail*
When: April - July

The Carpenter Frog is a small to medium-sized brownish frog with four distinct yellowish stripes running down its back. There are no dorsolateral ridges or folds of skin. This is an extremely rare species in Delaware, reported exclusively from certain mossy, bog-like swamps in Sussex County.

Wood Frog
(*Rana sylvatica*)

Call: *quacking of Mallards*
When: February - March

Similar in size to the Carpenter Frog, the Wood Frog is easily distinguished by the dark mask on the side of its head and the dorsolateral ridges on its back. They are the earliest frogs to breed in Delaware, doing so in frenzied mass matings during selected days and nights in February/March.

Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource and Environmental Control, 2003)
True Frogs (background)

<table>
<thead>
<tr>
<th>Northern Green Frog</th>
<th>American Bullfrog</th>
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</thead>
<tbody>
<tr>
<td>The Green Frog is differentiated from the Bullfrog by its smaller size (up to 4” in length) and the presence of dorsolateral ridges running far down its back. Coloration is brown, green or some combination thereof. The Green frog is widely distributed and commonly seen in and around shallow freshwater habitats throughout the state. We often hear their distinctive call, sounding much like the plucking of a loose banjo string, along the brackish marshes bordering Delaware Bay during the spring, while surveying the coincidentally-timed spawning of horseshoe crabs.</td>
<td>The Bullfrog is the largest North American frog, reaching a length of 8”. Bullfrogs inhabit most wetland environments, but can only reproduce in permanent bodies of water, as the tadpoles require up to two years for transformation. Breeding takes place in mid-spring through summer, and the deep bass call can carry for long distances. Transplanted throughout the western United States for culinary purposes, the Bullfrog, owing to its voracious appetite for smaller life forms, has been blamed for declines in other native amphibian species.</td>
</tr>
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</table>

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<thead>
<tr>
<th>Pickerel Frog</th>
<th>Southern Leopard Frog</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Pickerel Frog is a medium-sized frog common to most permanently wet, freshwater habitats statewide. It bears a close resemblance to the Leopard Frog, from which it is distinguished by the dark-brown/black squarish blotches on its back, and the yellow-orange inner thigh coloration. Breeding begins in March and continues into May, with the mating call sounding like a low-pitched slow snore. Glands in the Pickerel Frog’s skin exude toxic secretions, making them distasteful to most predators. These secretions are toxic to other frogs, so if kept, they should be separated.</td>
<td>The Southern Leopard Frog is another common coastal plain species, occurring in all three counties, and in a wide variety of vernal pool, pond, marsh and swamp habitats. Along with the Green Treefrog and Bullfrog, the Leopard Frog is one of the few frogs in Delaware that frequents brackish as well as freshwater environments. During the summer it can be found in moist meadows that are quite far from any water source. Breeding takes place in February through April and the call is a series of duck-like clucks. Also heard calling at times on especially warm autumn days.</td>
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<thead>
<tr>
<th>Wood Frog</th>
<th>Carpenter Frog</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Wood frog is one of the earliest frogs to begin breeding in Delaware, sometimes before the ice is totally gone from the vernal pool habitats it favors. They are exceptionally cold-tolerant for amphibians, and can withstand their bodies becoming completely frozen, and then go on about their business after thawing. The call is similar to the Southern Leopard's, resembling the quacking or clucking of mallards, repeated 1 to 5 times. Outside of the breeding season, the Wood Frog can sometimes be found great distances from water. It is known from all three counties.</td>
<td>The Carpenter Frog is another southern species, rarely seen in general, and known in Delaware only from Sussex County sphagnum swamps. Carpenter Frog populations are thought to be declining on Delmarva, due to neutralization of their preferred naturally-acidic habitats from agricultural runoff. The Carpenter Frog acquires its name for its distinctive call, likened to a hammer striking a nail. Large choruses are said to sound like a bunch of construction workers hammering away on the job! The breeding season begins in April, with tadpoles transforming during the year following.</td>
</tr>
</tbody>
</table>

**Eastern American Toad**  
*Bufo a. americanus*  
- **Call:** musical trill, lasting up to 90 seconds  
- **When:** mid-March to May

The American Toad is found in the northern, Piedmont region of Delaware. It gets to be larger (4.5” or so) than the Fowler’s (3”) and only has one or two warts within each black spot on its back.

**Fowler’s Toad**  
*Bufo fowleri*  
- **Call:** short wailing trill; *b-w-a-a-a-h*  
- **When:** mid-April to Sept.

Distribution of the Fowler’s Toad in Delaware is opposite that of the American Toad, being found only in the Coastal Plain and not in the Piedmont. In addition to its smaller size and different call, the Fowler’s has 3 or more warts in each splotch.

**Eastern Spadefoot**  
*Scaphiopus holbrookii*  
- **Call:** low-pitched grunt  
- **When:** after warm rains

The Eastern Spadefoot is known from all parts of the Coastal Plain. It gets its name from the sharp digging projection on its hind feet. This is the only frog in Delaware that has a vertical pupil.

**E. Narrow-mouthed Toad**  
*Gastrophryne carolinensis*  
- **Call:** lamb-like bleat  
- **When:** after warm rains

The Narrow-mouthed Toad is distinguished by its pointed head, short legs, stocky appearance, and in having a fold of skin that can extend over its eyes. Rare on Delmarva and never recorded in Delaware.
<table>
<thead>
<tr>
<th>Fowler’s Toad</th>
<th>Eastern American Toad</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Fowler’s Toad is the smaller of Delaware’s two <em>Bufo</em> species, reaching a maximum size of 3 inches. In contrast to the Piedmont-dwelling American toad, the Fowler’s favors the Coastal Plain, though hybrids of the two species have been recorded. The spots on the back of Fowler’s toads are more prominent, with each of the larger spots encompassing 3 or more warts. The call is usually a short trill (like a baby wailing) of less volume than the American Toad, and the breeding season starts later and lasts longer. In good years, the newly-transformed toadlets can be extremely abundant.</td>
<td>The Eastern American Toad is the larger of the two toad species occurring in Delaware. It reaches 4.5 inches (females being larger than males) and appears to be confined to the Piedmont region of the state. Breeding takes place in mid-March to early May, with the eggs deposited in long strings. The males make a musical trill, which may last up to one-half minute. Both <em>Bufo</em> species should be handled with care, as they secrete a powerful skin toxin that can cause much irritation if ingested or when brought in contact with eyes. This toxin makes them distasteful to predators.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eastern Narrow-mouthed Toad</th>
<th>Eastern Spadefoot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow-mouthed Toads are extremely rare in these parts, being listed as endangered in Maryland, and having never been recorded from Delaware. Where it does occur, it spends much of its time sheltering in underground burrows or under logs, bark or other debris. This habit suits it well, for its diet consists primarily of ants, termites and other underground insects. The characteristic fold of skin at the back of its head may be an adaptation to protect the eyes from biting insects. Narrow-mouthed toads are explosive breeders, congregating in shallow wetland pools on warm nights after or during heavy rains in late spring and summer.</td>
<td>The Eastern Spadefoot is a secretive species. Its skin is smoother and moister than that of the true toads. For this reason it is actually considered a frog. It is also recognizable as the only amphibian species native to Delaware that features a vertical pupil in the eye. The Eastern Spadefoot is a burrowing creature that seems to favor areas of loose soil or sand. Breeding is accomplished in temporary pools after warm rains, and may be explosive over a few nights. In years when weather conditions are not optimal, no breeding takes place. The voice is a low-pitched grunt.</td>
</tr>
</tbody>
</table>

Tadpole identification can be a very challenging process. To do it correctly, you need a microscope, an extensive knowledge of terminology, and no small degree of patience. You can narrow down identification options, however, if you consider where and when you find it, since different species produce tadpoles at varying times and in selected habitats. To that end, we have divided tadpole types into groups based on where and when you are likely to come across them, taking into account that some overlap occurs for the widespread species. Note that some species vary in darkness or lightness depending upon the water found in. If you want to go deeper into identifying tadpole species, check out this excellent website: Tadpoles of the United States and Canada: A Tutorial and Key: [www.pwrc.usgs.gov/tadpole/default.htm#families](http://www.pwrc.usgs.gov/tadpole/default.htm#families). All pictures are taken from The Frogs and Toads of Georgia: [wwknapp.home.mindspring.com/GAFrog.Toad.html](http://wwknapp.home.mindspring.com/GAFrog.Toad.html).

<table>
<thead>
<tr>
<th>Tadpoles found in Sphagnum Bogs</th>
<th>Large Tadpoles found in any permanent body of freshwater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpenter Frog</td>
<td>American Bullfrog</td>
</tr>
<tr>
<td><img src="image" alt="Carpenter Frog" /></td>
<td>Size: 125-150mm to 5.1” Breeds: April to June</td>
</tr>
<tr>
<td>Size: 23-31mm to 3.5” Breeds: April to August</td>
<td>Found in permanent ponds and slow-moving parts of streams. May overwinter up to three years. Has yellow belly, and spots on its back and tail.</td>
</tr>
<tr>
<td>Found only in sphagnum bogs. Has a dark stripe through tail and translucent fin with dark spots.</td>
<td></td>
</tr>
<tr>
<td>Green Treefrog</td>
<td>Green Frog</td>
</tr>
<tr>
<td><img src="image" alt="Green Treefrog" /></td>
<td>Size: 19-28mm to 3.9” Breeds: April to Aug.</td>
</tr>
<tr>
<td>Size: 12-17mm to 1.6” Breeds: Spring</td>
<td>Found in permanent ponds or slow streams. May overwinter 1 year. Similar looking to Bullfrog, but has more splotches on its tail.</td>
</tr>
<tr>
<td>Found in temporary or permanent pools of water with emergent vegetation. Green with a yellow tinge, showing pale lines from eyes to nostrils.</td>
<td></td>
</tr>
<tr>
<td>Spring Peeper</td>
<td>Pickerel Frog</td>
</tr>
<tr>
<td><img src="image" alt="Spring Peeper" /></td>
<td>Size: 19-27mm to 3.1” Breeds: March to May</td>
</tr>
<tr>
<td>Size: 6mm to 1.3” Breeds: Early Spring</td>
<td>Found in early spring in permanent ponds or slow streams. White belly with small black dots above.</td>
</tr>
<tr>
<td>Found in any body of freshwater near woodlands. Fins are translucent with small black flecks.</td>
<td></td>
</tr>
</tbody>
</table>

Developed by: Delaware Adopt-a-Wetland Program (DE Department of Natural Resource & Environmental Control, 2003)

Tadpole illustrations are from: The Frogs and Toads of Georgia (Knapp, 2002)
<table>
<thead>
<tr>
<th><strong>Small Tadpoles found in early spring in shallow freshwater habitats</strong></th>
<th><strong>Tadpoles found in Delmarva Bays and other vernal pool habitats</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>American Toad</strong></td>
<td><strong>New Jersey Chorus frog</strong></td>
</tr>
<tr>
<td>Size: 7-12mm to 1.2” Breeds: Early Spring In shallow areas of pools, ponds and ditches. Dark brown to black with short rounded tail.</td>
<td>Size: 14-20mm to 1.2” Breeds: Late winter to May Found in vernal pools. Dark brown body, with bronze belly, translucent tail fins with black spots.</td>
</tr>
<tr>
<td><strong>Fowler’s Toad</strong></td>
<td><strong>Barking Treefrog</strong></td>
</tr>
<tr>
<td>Size: 8-11mm to 1” Breeds: Spring/Summer In shallow still water of ponds, marshes &amp; ditches. Virtually identical to American Toad tadpole.</td>
<td>Size: 13-20mm to 2.8” Breeds: May to July Found in a few, isolated Delmarva Bay wetlands. Dark brown body with unmarked throat.</td>
</tr>
<tr>
<td><strong>S. Leopard Frog</strong></td>
<td><strong>Gray Treefrog</strong></td>
</tr>
<tr>
<td>Size: 20-25mm to 3.4” Breeds: Early Spring Usually found in shallow temporary ponds. Green with iridescent white belly, lines and spots on tail.</td>
<td>Size: 6mm to 2” Breeds: Late Winter Found in vernal pools. Red tail w/heavy mottling.</td>
</tr>
<tr>
<td><strong>E. Cricket Frog</strong></td>
<td><strong>Wood Frog</strong></td>
</tr>
<tr>
<td>Size: 14mm to 2” Breeds: April to June Found in late summer along edges of ponds or slow-moving streams. Tail has distinctive black tip.</td>
<td>Size: 12- 17mm to 2” Breeds: Spring In freshwater habitats with emergent vegetation. Dark green- brown w/gold flecks; pale underside</td>
</tr>
<tr>
<td><strong>Spring Peeper</strong></td>
<td><strong>Spring Peeper</strong></td>
</tr>
<tr>
<td>Size: 6mm to 1.3” Breeds: Early Spring In any freshwater body bordering woodlands. Fins are translucent with small black flecks.</td>
<td>Size: 6mm to 1.3” Breeds: Early Spring Found in any body of freshwater near woodlands. Fins are translucent with small black flecks.</td>
</tr>
<tr>
<td><strong>Spring Peeper</strong></td>
<td><strong>Green Treefrog</strong></td>
</tr>
<tr>
<td>Size: 12- 17mm to 1.3” Breeds: Spring Found in ponds &amp; pools with emergent vegetation. Green w/yellow-tinge; pale line from eye to nostril.</td>
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