

[23] From: James Atkinson at. NP-SHEN-I&M 5/17/95 5:12PM (24600 bytes: 35 ln, 1 f

To: SHEN-PR-RPVM (Steve Bair) at NP-SHEN, Rolf Gubler at NP-SHEN, SHEN-SG-RPVM
(Shawn Green) at NP-SHEN, SHEN-HQ-I&VS (Barb Stewart) at NP-SHEN,
Paul Pfenninger at NP-SHEN, Marsha McCabe at NP-SHEN
Subject: Reptile and Amphibian "Quick Key"

-----Message Contents-----

Text item 1:

Hey folks:

The attached DOS file (WP5.1) is for use in the field identification of selected reptile and amphibian species that are either easily confused with species having similar color patterns, are uncommon to rare, are suspected but not yet confirmed from the Park, or a combination of the above. Obviously, this document does not include all members of these groups (frogs, toads, turtles, other salamanders etc.) The other species may be included later.

This is simply an attempt to generate interest and information from you or your seasonal crews in identifying and reporting observations as these animals (particularly the uncommon or rare ones) are encountered around the Park.

Feel free to review and make comments of this document so that it can be refined as necessary to enhance user friendliness and ultimately use in the field.

I am simply interested in species records accompanied by a date, observer name and location. For the "Drive", use nearest milepost. If in the backcountry, identify trail name and relative section of trail or stream and relative location along stream. Not intended to be time consuming or overly complicated. Photographs when possible are invaluable.

The information that you or your crews generate in this regard will ultimately be incorporated in NPS Observe, a database derived from Foxpro. These data will assist some of my species inventory and status determination goals and your help with this is greatly appreciated.

Jim A.

SMP Rogers

•A GUIDE FOR IDENTIFYING REPTILE AND AMPHIBIAN SPECIES
THAT APPEAR SIMILAR AT FIRST GLANCE

- A. Skinks
- B. Black colored snakes
- C. Snakes with dorsal blotches
- D. Snakes with crossbands
- E. Snakes with stripes
- F. Small brown snakes
- G. Greensnakes
- H. Jefferson/Slimy salamanders
- I. Dusky salamanders
- J. Brook salamanders

A: Skinks

1. Five-lined Skink, *Eumeces fasciatus*. The two stripes that appear on each side of the middorsal stripe, (dorsolaterals), originate above the eye and run along scale rows 3-4 as counted from the mid-dorsal stripe. The midventral scales on the underside of the tail are much wider than long. Four upper labials (lip plates) as counted from the rostral (nose plate), towards the eye with the 5th one touching the ocular series (those scales immediately around the eye itself). Somewhat spotty distribution in the Park but is the most likely of the four species to be encountered. These then are the standard skink characters for determining the presense of the other three species in the Park.
2. Northern Coal skink, *Eumeces a. anthracinus*. Broad tan to brown mid-dorsal stripe on body and tail, bordered by light, narrow dorsolateral stripes (two on each side). The other three skinks have five distinct light, narrow stripes. One postmental scale (adjacent to and aft of mental or tip of lower lip scale), under lower jaw. The others have 2. In the Park, known only from Pond Ridge adjacent to the Moormans River, North Fork in the South District. One record only (1953).
3. Southeastern Five-lined skink, *Eumeces inexpectatus*. The two dorsolateral stripes originate above the eye and run along scale rows 4-5 as counted from the middorsal line. In the other two skinks in this group (broad-headed and five-lined), these two stripes run along scale rows 3-4. All scales on underside of tail about same size. In the other three skinks, the midventral scales are much wider than long (twice as wide as long). Individuals have been found in northern and western Virginia and they are possible in the Park.
4. Broad-headed Skink, *Eumeces laticeps*. Same general characters as five-lined skink but differing by having five upper labials with the 6th one touching the ocular series. As in the southeastern five-lined skink, scattered populations and individual broad-headed skinks have been found in northern and western Virginia (one record from Rileyville, Page County) and, although possible, this lizard has never been recorded in the Park.

B: Black colored snakes

1. Black Rat snake (adults), *Elaphe O obsoleta*. Typically three to five feet long, occasionally larger (to 6.5 feet), and mildly stout relative to total length. Elaphe body is "bread loaf" shaped in cross-section. Adult coloration is typically shiny black, sometimes flecked with white or remnants of juvenal blotch pattern. **Scales weakly keeled** (lengthwise raised ridge along scale center). Eye diameter is small relative to head length. Much slower moving, often assumes a rigid posture when discovered and often seen in trees. Most abundant large snake in the Park. Frequently observed around developed areas.
2. Black Racer (adults), *Coluber constrictor*. Typically three to four feet long and fairly slender relative to total length. Coluber, body is circular in cross-section, coloration varies from slate gray to dull black. **Smooth scales**. Eye diameter is large relative to head length. Typically seeks escape by swift, fluidlike and often noisy departure. Usually seen on the ground surface. Spotty distribution in the Park. More frequently encountered at low elevations (near the Park boundary).
3. Eastern Kingsnake, *Lampropeltis g. getula*. Typically three to four feet long, occasionally larger (to five feet). Lampropeltis body is circular in cross-section, eye diameter small relative to head length. Smooth scales. Body coloration is black to shiny black with thin white to yellow dorsal crossbars that form a distinct "chainlike" pattern from neck to tail. Ventral pattern is an irregular "checkerboard" of black and white to yellow patches. Juvenal pattern similar. Rarely encountered in the Park (most recent record, 1978).
4. Eastern Hog-nosed snake, black phase, *Heterodon platyrhinos*. Typically less than three feet long, (occasionally larger) fairly stout relative to total length. Satiny black, body cross-section circular to sharply triangular; snout upturned; eye diameter large relative to head length. Infrequently encountered in the Park.
5. Timber rattlesnake, black phase, *Crotalus horridus*. Satiny black, usually has bold, darker crossbands that fade to uniform black towards the tail. May or may not show any yellow on body, head roughly triangular, facial pit, elliptical rather than round pupils, rattles. Typically very stout with respect to length.
6. Ringneck snake, *Diadophis punctatus*. Typically less than 18 inches long and very slender relative to length. Uniformly bluish black to slate gray in color with a cream to yellow collar (ring) across neck. Most abundant snake in the Park.

C: Snakes with dorsal blotches

1. Black Rat snake (young-of-the-year and age one juvenals), *Elaphe o.obsoleta*. Juvenal black rat snakes (less than 24 inches long), typically have dark brown to black, **squarish blotches** that are **evenly spaced and distinct from neck to tail** in contrast to a gray body. Under (ventral) surface has a "checkerboard" pattern of brown and white. Widespread in the Park, fairly abundant and frequently observed around developed areas.
- 2.. Black Racer (young-of-the-year and age one juvenals), *Coluber constrictor*. Juvenal black racers (less than 18 inches long),

typically have dark gray to reddish brown, **rectangular to oval blotches**. These are **closely spaced (nearly touching) and most distinct toward the head**. The ventral surface is typically plain with a series of small brown to black dots located along both sides.-. Large prominent eye relative to head size. Spotty distribution in the Park. More frequently encountered at low elevations (near the Park boundary).

3. Milk snake, *Lampropeltis t. triangulum*. Typically three feet or less in length, occasionally larger (to four feet). *Lampropeltis* **body is circular in cross-section**, eye diameter small relative to head length, blotches brown to reddish nearly surrounded by black in contrast to a brown or gray body color. Blotches rectangular in northern and western parts of park, fusing with side blotches to form saddles in eastern and southern parts of park. Juvenal pattern similar with more vivid coloration. Present but apparently declining in the Park.
4. Corn snake, *Elaphe g. guttata*. Typically three to four feet long, occasionally larger (to six feet), and mildly stout relative to total length. *Elaphe* **body is "bread loaf" shaped in cross-section**, eye diameter large relative to head length, body blotches reddish to chestnut with a narrow black border in contrast to a reddish orange to gray body color. Juvenal pattern similar with more vivid coloration. Infrequent to rare in the Park (most recent record, 1954).
5. Eastern Hog-nosed snake, typical phase, *Heterodon platyrhinos*. Typically less than three feet long, (occasionally larger) fairly stout relative to total length. Body cross-section circular to sharply triangular; snout upturned; eye diameter large relative to head length. Dark brown to black blotches in contrast to a combination of body colors that can vary from gray, tan, pink, yellow, orange and red. Juvenal pattern similar with more vivid coloration. Infrequently encountered in the Park.
6. Northern Pine Snake, *Pituophis melanoleucus*. Typically large (four to six feet long) and stout relative to length. Body coloration is white, cream or yellow with large dark brown to black, irregular blotches that are fairly diffuse on the forward third of the snake, becoming more distinct towards the tail. A series of dark, lateral blotches alternate with the dorsal blotches. The ventral surface is likewise white, cream or yellow and is typically patternless. Juvenal pattern similar. May hiss loudly when approached. Spotty distribution in the South District. Rare at best with no verified records since 1950.

D: Snakes with crossbands

1. Northern water snake, *Nerodia s. sipedon*. Typically two to three feet long, occasionally larger (to four feet). *Nerodia* body is nearly circular in cross-section, eye diameter fairly small relative to head size with prominent round pupil. Coloration and pattern is most striking in juvenal water snakes (those less than two feet long). Juvenals have distinct, closely spaced dark brown cross bands that begin to separate at mid-body to form a series of mid-dorsal and lateral blotches. **The dark crossbands are generally widest along the spine and narrow laterally**. Juvenal base color varies from cream in some individuals to tan or medium brown in others. Patterns become less distinct to indistinct with age and adults can appear evenly brown from a distance. Most typically associated with streams and streamside habitats

Parkwide. More abundant on some (Big Run) than on others (Hughes River)

2. Northern copperhead, *Agkistrodon contortrix mokasen*. Typically 18 to 30 inches long, occasionally larger (to four feet). *Agkistrodon* body is triangular in cross-section, eye diameter fairly small relative to head size with a distinct, vertical pupil. Small facial pit present between eye and nostril. Coloration and pattern is most striking and distinct in juvenals (those less than 18 inches long) although the pattern typically remains distinct regardless of size or age. Copperheads have broad, alternate to broken dark brown crossbands from neck to tail on a base color of tan to medium brown. **The dark crossbands are generally widest laterally and narrow along the spine.** Coloration on the top of the head generally differs from body tones with more of an orange-brown cast. Can be found in any locale or habitat Parkwide from May through September. Prefers shaded, rocky habitats and is most active at night during the summer months.
3. Timber rattlesnake, *Crotalus horridus*. Typically large and heavy bodied (three feet), occasionally larger (to four or five feet). *Crotalus* body varies from triangular to nearly round in cross-section, head very distinct from neck and angular. Eye has distinct, vertical pupil. Small facial pit present between eye and nostril. Variably colored pattern of distinct to indistinct narrow dark brown to black crossbands on a base color that can range from a bright sulfur yellow to brown, gray or nearly black. Coloration typically darkens and pattern becomes indistinct towards tail. Rattle of varying length and taper, may or may not rattle when encountered. Generally associated with exposed to partly shaded rocky habitats along south and west facing slopes. Can be found in any locale or habitat Parkwide from late May through August and is most active at night during the summer months.

E. Snakes with stripes

1. Eastern garter snake, *Thamnophis s. sirtalis*. Medium sized and fairly slender (18 to 30 inches), occasionally larger. Dorsal coloration and pattern varies from greenish to brown or black and from heavily spotted to solid with a distinct cream or yellow mid-dorsal stripe from neck to tail. A lateral cream to yellow stripe may be present **along scale rows 2 and 3** as counted from the side up towards the spine, but is usually less distinct than the middorsal stripe. Juvenal and adult coloration and patterns similar. Abundant and widespread in the Park, one of our most frequently encountered snakes.
2. Eastern ribbon snake, *Thamnophis sauritus*. Medium sized and slender (18 to 30 inches), occasionally larger. Dorsal coloration uniformly dark brown to black with three distinct cream to yellow stripes from neck to tail. The lateral stripes occur **along scale rows 3 and 4**. Prefers habitats associated with a water source. Often found coiled on the limbs of shrubs or trees overhanging water. Spotty distribution in the Park from Big Meadows south along the Drive (most recent record, 1958).
3. Queen snake, *Regina septemvittata*. Small to medium sized watersnake (18 to 30 inches) with a small, indistinct head. Dorsal coloration is a dull olive to medium brown with a cream colored lateral stripe **along scale rows 1 and 2**. Some individuals may have an additional three dark brown to black stripes along the dorsum from neck to tail. Due to exclusive diet of crayfish,

seldom found far from permanent water source. Often found coiled on the limbs of shrubs or trees overhanging water. Only one, record from the Park (Pass Run near Headquarters).

F. Small brown snakes

1. Red-bellied snake, *Storeria occipitomaculata*. Small, typically 12 inches or less (maximum size 16 inches), keeled scales. Body color ranging from light brown, sandy tan, cinnamon brown, or light blue-gray. Individuals may have a single light middorsal stripe or four faint narrow dark stripes along the dorsum or a combination of both patterns. All have **three light colored spots at the base of the neck** (one dorsally and one on each side). **Ventral surface is usually brick-red** but can range from cream to black. Infrequently encountered though fairly widespread in the Park.
2. Northern brown snake, *Storeria d. dekayi*. Small, typically less than 18 inches (maximum size 20 inches), keeled scales. Body color light sandy tan with a lighter dorsal stripe edged with an opposite array of dark brown spots. Some may fuse across forming a ladder effect. **Two enlarged dark spots on either side of the dorsal stripe at the base of the neck.** Ventral surface pale brown or cream with small black dots along edges. Possible along eastern boundary, but has not been recorded in the Park.
3. Smooth earth snake, *Virginia valeriae*. Small, typically 12 inches or less (maximum size 15 inches), **smooth scales**. Head and body color uniformly reddish brown to dark gray, adults may have an irregular pattern of tiny black spots on dorsum, **otherwise patternless**. Ventral surface uniformly cream. Possible occurrence in the Park based on one recent observation but has not been verified.
4. Eastern worm snake, *Carphophis a. amoenus*. Small, typically 11 inches or less (maximum size 13 inches), **smooth scales**. Head and body color **uniformly medium brown and patternless**. Ventral surface uniformly pink. Pink extends upwards along the sides through scale rows 1 and 2. Spotty distribution in the Park with no recent records (last 20 years). Most likely encountered beneath debris in areas having sandstone based soils.

G: Greensnakes

1. Rough greensnake, *Opheodrys a. aestivus*. Small to medium sized and slender (adults 18 to 30 inches), occasionally larger. Dorsal coloration uniformly leaf green and patternless. **Keeled scales. Eye diameter large to very large for length and depth of head.**
2. Smooth greensnake, *Opheodrys v. vernalis*. Small and slender (maximum adult size is 22 inches). Dorsal coloration uniformly leaf green and patternless. **Smooth scales. Eye diameter small to tiny for length and depth of head.** Known from Big Meadows. May also have a spotty distribution south along the Drive through the South District.

H: Jefferson/Slimy salamander

- 1.. Slimy salamander, *Plethodon cylindraceus*. Large (to 8.5 inches') and moderately stout. Black with silvery-white spots on top and sides. **Tail rounded**. Middle toes of front and hind feet are the same length as or only slightly exceed the length of the "untoed" portion of the foot. Skin secretes heavy, sticky mucus when handled. Widespread, fairly abundant and largest member of the *Plethodon* genus in the Park.
2. Jefferson salamander, *Ambystoma jeffersonianum*. Large (to 8 inches) and moderately stout. Deep blue-black with pale bluish snowflake-like spots along lower flanks. **Tail vertically flattened**. Middle toes of front and hind feet are long and slender, easily exceeding the length of the "untoed" portion of the foot. Known only from the vicinity of Big Meadows Swamp. May have spotty distribution elsewhere in the Park.

I: The Dusky salamanders

1. Northern dusky salamander, *Desmognathus f. fuscus*. Large (to 5.5 inches) dark brown and fairly stout salamander associated with streambed habitats. Typical pattern is a **weak reddish stripe along the middorsum without spots**. Older individuals may be patternless. **Ventral surface has "salt and pepper" spotting**. Abundant in stream drainages Parkwide but can be difficult to distinguish from *D. m. jeffersoni* below.
2. Virginia seal salamander, *Desmognathus monticola jeffersoni*. Large (to 6.0 inches) dark brown and fairly stout salamander associated with streambed habitats. Typical pattern is an irregular arrangement of diffuse spots along the dorsum. Older individuals may be patternless. Ventral surface is clear. These salamanders have a narrow line of "salt and pepper" spotting that appears lengthwise along the lower sides between the front and hind legs. Abundant in stream drainages Parkwide.

J: The Brook salamanders

1. Northern two-lined salamander, *Eurycea bislineata*. Small (to 4 inches), slender and associated with streambed habitats from the "splash zone" through the floodplain. Back with a greenish yellow stripe with/without a center row of dots; belly transparent yellow. **Tail length about equal body length**. Abundant in stream drainages Parkwide.
2. Northern long-tailed salamander, *Eurycea longicauda longicauda*. Long (to 6 inches), slender and associated with streambed habitats from the "splash zone" through the floodplain. Back yellow to golden yellow with two black lines broken to form bars. **Vertical black bars on each side of the tail**; belly fleshly white; **tail twice body length**. Known only from White Oak Canyon Run (late 1940s) and from Madison Run and Big Run. The most recent record on the latter two streams is 1963.
3. Three-lined salamander, *Eurycea longicauda guttolineata*. Long (to 6 inches), slender and associated with streambed habitats from the "splash zone" through the floodplain. Back yellow to golden yellow with **three bold black stripes**, one splitting the yellow

area and the others on the sides; belly fleshly with lightly to heavily mottled with black; **tail twice body length**. Possible but never recorded from the Park. This salamander has been recorded from most stream drainages to the east of the Park including one record along the Robinson River near Banco, VA. There is also at least one record from Crozet, VA, just southeast of the Moorman's River drainage.