

Fifth Annual HerpBlitz: Survey of Kiptopeke State Park

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Introduction

The fifth annual HerpBlitz was located on the Eastern Shore of Virginia at Kiptopeke State Park. The Eastern Shore was selected for this HerpBlitz because the VHS has not conducted a survey in this area of Virginia. The intent of HerpBlitz is to select a different place each year in a section of Virginia which has very few sampling records or a unique habitat. Kiptopeke State Park is a newly formed park, having opened in the early 1990's. It is an oasis of habitat in a sea of agricultural fields and private land holdings. Kiptopeke State Park is located in North Hampton County and resides in the coastal plain physiographic province. The soil is composed predominantly of sand and is very well drained. There are no streams, no springs, and very limited standing fresh water with the exception of the ponds described below. Kiptopeke State Park encompasses 227 hectares (562 acres). The current stewards of the park are actively collecting information on the types of plants and animals which inhabit the park's boundaries and are making specific management plans to better protect the environment. They were very pleased that we wanted to visit the park and very helpful at organizing the survey and giving us unprecedented access to all areas. The park is aggressively restoring habitat by planting trees in remnants of agricultural fields. One of their major goals is expanding the existing maritime forest into reclaimed agricultural fields. The park hosts a diversity of habitats including a 1.6 hectare (4 acre) man-made pond, a large barrow pit, two interdunal ponds, forested dunes and active sand dunes, newly planted agricultural fields, a half mile of beach, and one of the few

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remaining mature maritime forests on the Eastern Shore. For recreation the park has 144 camping spaces, 9 km (5.6 miles) of hiking trails, a fishing pier, a public beach, and a boat ramp giving access to the Chesapeake Bay. The park is very well organized and maintained.

Study Sites

The park was divided into two equal parts to accommodate two survey groups that were formed on 12 June 2010 of the survey. The dividing line was set to ensure that each survey group had a diverse portion of habitat with some water. Essentially the property was divided in half from east to west. The northern portion contained sites 1 and 2. The southern portion contained sites 3 and 4. Site 5 was set aside for a total group survey on the afternoon of 12 June. The descriptions that follow give a glimpse of some of the attributes of each site. GPS coordinates represent a point taken at the center of each site. GPS coordinates were obtained from Google Earth.

Site 1: Northwestern Portion of Park (37°10'21.88"N,
75°58'47.17"W)

This site is located at the most northerly portion of the park. This site includes work sheds, debris piles, a ranger house, grass fields, a family cabin area with surrounding grass fields, and an old farm house. The main road coming into the park was searched as part of this site.

Site 2: Barrow Pit on northeastern edge of property (37°10'6.28"N,
75°58'19.58"W)

This site consists of an old barrow pit surrounded by a mixed pine/hardwood forest. The barrow pit edge has many cattails and is heavily vegetated. The woods surrounding the pit are mature. The edge habitat is grown up with greenbrier and poison ivy.

Site 3: Duck Pond (37° 9'54.01"N, 75°58'23.00"W)

The duck pond is a newly acquired 1.6 hectare (4 acre) pond which the state park just added to the property. It is located on the eastern edge of the property adjacent to Route 13. Next to the pond is a house and surrounding the pond are agricultural fields which have been planted in trees.

Site 4: Maritime forest in southern portion of park (37° 9'42.04"N, 75°58'44.56"W)

This section of the park include trails which traverse through a maritime forest. Dominant tree species include *Quercus velutina*, *Ilex opaca*, and *Prunus serotina*. Other tree species and herbaceous plants are *Pinus taeda*, *Nyssa sylvatica*, *Smilax sp.*, *Rubus sp.*, *Vitis sp.*, and *Toxicodendron radicans* (Wendy Mooring personal communication.).

Site 5: Interdunal Ponds in the northwestern portion of the property (37°10'11.80"N, 75°59'8.63"W)

This site by far is the most interesting and diverse. The ponds are surrounded by dunes on the eastern and western sides. At this site there are two major ponds and then a wet area at the southern end of the second pond. Surrounding the ponds is a mature maritime forest. To the west are active dunes with grassy vegetation and small shrubs and actively moving sand.

Materials and Methods

The fifth annual Herpblitz began at 0800h on 12 June 2010 and ended at 1000h on 13 June 2010. Two teams of 8 and 10 people respectively surveyed different parts of the park for half a day on Saturday. The team with 8 people surveyed sites 1 and 2. The team with 10 people surveyed sites 3 and 4. A combined group of 12 people surveyed site 5 on Saturday afternoon. See Table 1 for the amount of survey effort for each research site. At each site surveyors implemented standard

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collecting techniques including hand capture, visual observation, flipping surface debris, dipnetting, road cruising, and listening for calling anurans. In addition to these survey methods, 4 baited hoop turtle traps were deployed on Saturday night at site 3. Each animal captured was inspected for health, signs of disease, and presence of parasites or mutations. Digital photos were taken to record each species collected. Group leaders were tasked with recording all species and animals collected or observed and information regarding a description of the survey site.

Table 1: The amount of survey effort per research site.

| | Site 1 | Site 2 | Site 3 | Site 4 | Site 5 |
|-------------------------------|--------|--------|--------|--------|--------|
| Number of hoop nets set | | | 4 | | |
| Number of surveyors | 9 | 9 | 10 | 10 | 12 |
| Hours surveyed | 2 | 1.5 | 1 | 2.5 | 1 |
| Person hours of survey effort | 18 | 13.5 | 11 | 25 | 12 |

Results

Despite 79.5 person hours of survey effort only 13 species of amphibians and reptiles were found during the survey time period. Of the 13 species five were anurans, two were turtles, two were lizards, and four were snakes. No salamanders, adult or larvae, were found. A total of 46 animals were captured or heard calling. Table 2 lists each species found and the total number of animals found at each site.

This is the fewest number of animals and species that any member present at the survey could recall. An annotated checklist below documents observations made for each species.

Table 2. Summary of the number of animals observed at each site.

| Sites/Species | 1 | 2 | 3 | 3a | 4 | 5 |
|--|----|----|----|----|---|----|
| Amphibians | | | | | | |
| <i>Anaxyrus fowleri</i> | 2 | NM | 7M | | | NM |
| <i>Hyla cinerea</i> | 1D | 4C | 1 | | | C |
| <i>Lithobates catesbeianus</i> | | | 3C | | | 1C |
| <i>Lithobates sphenoccephalus</i> | | | 2 | | | 5T |
| <i>Pseudacris crucifer crucifer</i> | | | | | | 2M |
| Reptiles | | | | | | |
| <i>Chrysemys picta picta</i> | | | | 7 | | |
| <i>Terrapene carolina carolina</i> | 1S | | 1 | | | |
| <i>Plestiodon fasciatus</i> | | 1 | | | 1 | |
| <i>Scincella lateralis</i> | | | | | 1 | |
| <i>Carphophis amoenus amoenus</i> | | 1 | | | 1 | |
| <i>Coluber constrictor constrictor</i> | 1 | | 2 | | | |
| <i>Nerodia sipedon sipedon</i> | | | 1 | | | |
| <i>Pantherophis alleghaniensis</i> | | | | | 1 | |
| Total Number of animals by site | 4 | 6 | 17 | 7 | 4 | 8 |

3a = animals captured in turtle trap, T = tadpole, M = metamorph, S = shell, D = Dead on road, N = numerous, C = calling anurans observed

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Annotated Checklist Amphibians

1. *Anaxyrus fowleri* (Fowler's Toad) – [1,2,3,5]

Anaxyrus fowleri was the most commonly observed anuran during the survey. A lone male was observed calling at night at site 5. Small water puddles near this site yielded many observations of small toadlets in the road and boat parking lot. Many DOR toadlets were collected on the road. At site 1, an adult was found under a board in the work shed area. Another adult was found dead (presumably drowned) in a half full five gallon bucket of water in the work shed area. Numerous toadlets were observed at the edge of the barrow pit at site 2 and along the edge of the pond at site 3.

2. *Lithobates catesbeianus* (American Bullfrog) – [3,5]

American Bullfrogs were observed calling at the duck pond at site 5 and from the edge of an interdunal pond at site 3.

3. *Lithobates sphenoccephalus* (Southern Leopard Frog) – [3,5]

Two adult *Lithobates sphenoccephalus* were observed basking on the edge of the 1.6 hectare pond at site 3. Five Leopard Frog tadpoles were dipnetted in the two interdunal ponds at site 5.

4. *Pseudacris crucifer crucifer* (Northern Spring Peeper) – [5]

Two Northern Spring Peeper metamorphs were hand-captured on vegetation in the interdunal ponds at site 5.

5. *Hyla cinerea* (Green Treefrog) – [1,2,3,5]

Male Green Treefrogs were observed calling at sites 2 and 3 during the survey time period on Saturday. Several males were observed calling

at night from site 5. One DOR adult was found on the main road in front of the park office.

Reptiles

6. *Chrysemys picta picta* (Eastern Painted Turtle) – [3]

The only aquatic turtle species observed during the survey was the Eastern Painted Turtle. Many were observed swimming in the large pond at site 3. Two predated nests were seen along the edge of the pond at site 3. Four baited hoop turtle traps captured five female and one male painted turtles.

7. *Terrapene carolina carolina* (Eastern Box Turtle) – [1,3]

One adult female box turtle was found under the deck of the house beside the pond at site 3. One dry shell was found in a small patch of woods adjacent to the Ranger's house.

8. *Plestiodon fasciatus* (Five-lined Skink) – [2,4]

Five-lined Skinks were found on the boardwalk at site 4 and under a piece of bark in the woods surrounding the barrow pit at site 2.

9. *Scincella lateralis* (Little Brown Skink) – [4]

One Little Brown Skink was captured under a log in the pine forest at site 4. Another was observed in the grassy vegetation on a dune near the fishing pier. This observation was made outside the survey time period.

10. *Carphophis amoenus amoenus* (Eastern Wormsnake) – [2,4]

An Eastern Wormsnake was found under a log in a pine forest at site 4. Another juvenile snake was found under a log in the small forest surrounding the barrow pit at site 2

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11. *Coluber constrictor constrictor* (Northern Black Racer) – [1,3]

One juvenile Northern Black Racer was found under a board in a trash pile near the work sheds. Site 3 yielded two black racer observations. One snake was foraging at the edge of the pond. The other snake was found dead. The cause of death could not be determined.

12. *Nerodia sipedon sipedon* (Northern Watersnake) – [3]

A single Northern Watersnake was observed basking at the edge of the pond at site 3.

13. *Pantherophis alleghaniensis* (Eastern Ratsnake) – [1,4]

One survey member found a skin of a large Eastern Ratsnake under a vacant Ranger's house. A second large adult ratsnake was hand captured while it was crossing a road at site 4. This animal had one eye missing.

Discussion

Everyone's general opinion after the survey was complete and total amazement at how little amphibian and reptile life exists within the park's boundaries. The species and total animal counts were the lowest anyone could remember from any survey conducted by the VHS. With this said, expectations before the survey were low after reviewing the literature of known surveys in locations near Kiptopeke State Park (see Table 3). Roble et.al (2000) reported a total of 17 species of amphibians and reptiles for Savage Neck Dunes Natural Area Preserve just to the north of Kiptopeke. Their study was much more comprehensive, covering dates from April to October and totaling 16 sampling dates. Mitchell (2002) summarizes the herptofaunal assemblage for the Eastern Shore and reports 41 species of reptiles and amphibians for North Hampton County. So why are there so few animals and species? To answer this question we must

take into consideration the climate conditions, geography, geology, and history of this location. Leading up to the survey date, Kiptopeke State Park had been dry. Weather conditions play a large role in the behavior of these species and this dry weather could have diminished the number we encountered. Geographically, Kiptopeke is a small island of habitat surrounded by agricultural fields and residential development. The eastern edge of the park is bordered by Route 13 which has moderate traffic flow. The western edge of the park is the Chesapeake Bay. The northern and southern parts of the park come into contact with active agricultural fields. There are no dispersal corridors for species to migrate. This park is located at the tip of a peninsula; a peninsula not known for high herpetofaunal biodiversity. Geologically the sediments making up the soil are sand. This type of soil has very poor water retention properties. The park has no streams, no springs, no pocosin-like wetlands, and therefore very little water and water related habitats. Historically, the general area has been highly affected by European agricultural practices. No early records of amphibians and reptiles were kept to fully understand the declines that this area surely must have experienced after 1608. Even more recently, before acquiring the property, the site was a ferry station and a private campground. Management practices such as killing snakes in the campground might have impacted the diversity we see today. Since acquiring the property the state park is a hot spot for recreational tourism. How this will further impact the herpetofauna remains to be seen.

So what will the future hold for herps in this park? The consensus among members present is that the park management appears to value restoration efforts and is actively engaged in this process. Recommendations we might suggest are keeping debris piles instead of cleaning them up. Immediately remove any erosion netting as this is linked to snake mortality (Mitchell et.al, 2006). Board up the cellar portion of the old farm house in the family lodge area to reduce the chances of it becoming a deadly pitfall trap for all types of animals. Increase the number of puddles, decrease drainage from the property. Retention of any water will increase habitat for amphibians. In

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regards to longer term goals, buying up land or developing easements to make dispersal corridors between other public land holdings would be desirable.

Table 3. Summary of four studies on the Eastern Shore.

| | JCM ¹ | JCM ² | SMR | KSP |
|-------------------------------------|------------------|------------------|-----|-----|
| Sites | | | | |
| Species | | | | |
| | | | | |
| Amphibians | | | | |
| <i>Acris creptians</i> | * | * | * | |
| <i>Anaxyrus americanus</i> | * | | | |
| <i>Anaxyrus fowleri</i> | * | * | * | * |
| <i>Gastrophryne carolinensis</i> | * | * | * | |
| <i>Hyla chrysoscelis</i> | * | * | | |
| <i>Hyla cinerea</i> | * | * | | * |
| <i>Pseudacris crucifer crucifer</i> | * | * | * | * |
| <i>Pseudacris feriarum (kalmi)</i> | * | * | | |
| <i>Lithobates catesbeianus</i> | * | | * | * |
| <i>Lithobates clamitans</i> | * | * | * | |
| <i>Lithobates palustris</i> | * | | | |
| <i>Lithobates sphenoccephalus</i> | * | * | * | * |
| <i>Lithobates sylvaticus</i> | * | | | |
| <i>Scaphiopus holbrookii</i> | * | * | | |
| <i>Ambystoma opacum</i> | * | * | * | |
| <i>Eurycea bislineata</i> | * | | | |
| <i>Hemidactylium scutatum</i> | * | * | | |
| <i>Notophthalmus viridescens</i> | * | * | * | |
| <i>Plethodon cinereus</i> | * | * | * | |
| Reptiles | | | | |
| <i>Caretta caretta</i> | * | * | | |
| <i>Chelonia mydas</i> | * | * | | |
| <i>Dermochelys coriacea</i> | * | * | | |
| <i>Lepidochelys kempii</i> | * | * | | |

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| | | | | |
|--|---|---|---|---|
| <i>Chelydra s. serpentina</i> | * | * | | |
| <i>Chrysemys picta picta</i> | * | * | * | * |
| <i>Clemmys guttata</i> | * | * | | |
| <i>Kinosternon subrubrum</i> | * | * | | |
| <i>Malaclemys terrapin</i> | * | * | | |
| <i>Pseudemys rubriventris</i> | * | * | * | |
| <i>Sternotherus odoratus</i> | * | | | |
| <i>Terrapene carolina carolina</i> | * | * | * | * |
| <i>Plestiodon fasciatus</i> | * | * | * | * |
| <i>Plestiodon laticeps</i> | * | * | | |
| <i>Scincella lateralis</i> | * | * | | * |
| <i>Sceloporus undulatus</i> | * | * | | |
| <i>Agkistrodon contortrix mokasen</i> | * | * | | |
| <i>Carphophis amoenus amoenus</i> | * | * | | * |
| <i>Coluber constrictor constrictor</i> | * | * | * | * |
| <i>Diadophis punctatus</i> | * | * | * | |
| <i>Heterodon platirhinos</i> | * | * | * | |
| <i>Lampropeltis getula</i> | * | * | | |
| <i>Nerodia sipedon</i> | * | * | | * |
| <i>Opheodrys aestivus</i> | * | * | | |
| <i>Pantherophis alleghaniensis</i> | * | * | * | * |
| <i>Storeria dekayi</i> | * | * | | |
| <i>Thamnophis sauritus</i> | * | * | | |
| <i>Thamnophis sirtalis</i> | * | * | | |

JCM¹ = Joe Mitchell Checklist for Herps of the Eastern Shore as reported in Mitchell (1999), JCM² = Joe Mitchell list of herps for North Hampton County as reported in Mitchell (2002), KSP = Herps of Kiptopeke State Park, SMR = Herps of Savage Neck as reported in Roble et.al (2000) and Roble (2001).

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