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SNAKE PREDATION ON AMERICAN OYSTERCATCHER EGGS ON FISHERMAN ISLAND, VIRGINIA. — Fisherman Island National Wildlife Refuge is located at the tip of the Delmarva Peninsula in the mouth of the Chesapeake Bay. The island is an important breeding area for several species of beach-nesting birds, including American Oystercatchers (*Haematopus palliatus*), Least Terns (*Sternula antillarum*), and Piping Plovers (*Charadrius melodus*) (Wilke et al., 2007; Denmon et al., 2013). A bridge connecting the mainland to the island, as well as their close proximity (ca. 600 m), has facilitated the presence of mammalian and avian predators, including Raccoons (*Procyon lotor*), American Crows (*Corvus brachyrhynchos*), Fish Crows (*Corvus ossifragus*), Herring Gulls (*Larus argentatus*), and Laughing Gulls (*Leucophaeus atricilla*), all of which prey on birds, eggs, and nestlings (Nol, 1989; Sabine et al., 2006). Here we summarize observations of a large snake that consumed eggs from an American Oystercatcher nest. Two species of snakes known to eat bird eggs, Eastern Ratsnake (*Pantherophis alleghaniensis*) and North American Racer (*Coluber constrictor*), have been documented for Fisherman Island (Mitchell & Reay, 1999; Mitchell, 2012) and both are potential predators of birds that nest on this barrier island (Fitch, 1963; Mitchell, 1994).

During the 2006 American Oystercatcher breeding season, U.S. Fish and Wildlife Service staff deployed several wildlife cameras on Fisherman Island to monitor nest success using the techniques described in Denmon et al. (2013). Each camera was mounted to a post that was buried with about 0.5 m visible above ground. Posts were camouflaged using wrack from the beach and all wires were spray-painted light tan and covered with sand. The cameras took pictures every five seconds; because the data consisted of a series of digital pictures rather than video footage, images were often grainy and only of fair quality.

The nest identified as 6F51 was located on the northwest side of Fisherman Island. The habitat consisted of low sand dunes with piles of wrack and some beach grasses. Directly behind the nest (shoreward) was a sheer sand cliff topped with grasses that resulted from erosion. Thick grassland and shrubs constitute the upland habitat in the area. The oystercatcher pair at this site laid their first egg on 18 May 2006; a second egg was laid by 20 May. Camera deployment was delayed until 25 May to reduce the chance of the birds abandoning the nest.

Analysis of the digital images taken at nest 6F51 on

the night of 9 June 2006 revealed that at 1846 h EDT the incubating oystercatcher left the nest and began looking to the north. It then proceeded to pace up and down a dune south of the nest. A snake first appeared on camera at 1849 h, moving in from the northeast and arrived at the nest at 1854 h. At this time, the oystercatcher headed back to the nest and began moving in a random pattern, circling the nest, then retreating and running along the southern dune, then returning and circling again. At 1907 h, the bird appeared to be staying very close to the nest and had increased its circling and pacing. The snake cannot be seen at this point due to vegetation obstructing the view, but it appeared that the bird was attempting to scare the predator away. After a few minutes, the oystercatcher ceased its circling behavior, moved to the left of the camera, and continued pacing the dune.

The oystercatcher made a final attempt at 1914 h to defend the nest; the snake is again visible in this frame. The bird resumed its pacing at the southern dune and seemed to be in a state of distress. The snake moved away at 1934 h and is out of the camera frame a minute later. The oystercatcher returned to the nest and then left the area at 1944 h. The snake (presumably the same one) returned later that evening (from the south) and proceeded to the nest at 2124 h, where it remained until 2132 h, when it moved away to the south again. The nest site was completely empty upon examination the next day; there were no eggshell fragments or tracks. We assume the snake swallowed both eggs. This behavior is similar to that seen in an insular milksnake (*Lampropeltis triangulum*) on Isla Isabel in Mexico, where specific nests were visited by the same snake up to three times in a single night over a two-hour period (Rodriguez & Drummond, 2000).

Due to the poor quality of the images, we were unable to precisely identify the snake to species. However, based on its size, movement, and coloration, we postulated that it was either an Eastern Ratsnake or North American Racer. On 26 June 2006, one of us (J. Mitchell) set 60 minnow traps in the vicinity of the nest under vegetation and caught a large (1,370 mm total length) female racer on 28 June. We concluded from this information that the snake that ate the American Oystercatcher eggs was most likely this or another large North American Racer.

American Oystercatcher productivity on Fisherman Island in 2006 was very poor, with 42 pairs successfully fledging only 13 chicks (P. Denmon, unpubl. data). Egg predators of this species known to occur on the island include Raccoons, American Crows, and several species of gulls. To this list we add the North American Racer. This snake species is attracted to habitat edges where American Oystercatchers often nest because they

are thermally optimal habitats and where greater prey abundance often occurs (Weatherhead & Blouin-Demers, 2004). Because they locate prey visually, these snakes may be more attracted to nests where the parents are active. We hypothesize that North American Racers are attracted to potential prey (e.g., bird eggs) by watching adult movements. Wildlife cameras coupled with the use of radio-transmitters in the snakes might allow such behaviors to be watched and recorded in nature. Experimental tests with racers in outdoor enclosures with simulated moving adults and stationary eggs may also elucidate this form of predatory behavior.

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LITERATURE CITED

- Denmon, P., B. D. Watts, & F. M. Smith. 2013. Investigating American Oystercatcher (*Haematopus palliatus*) nest failure on Fisherman Island National Wildlife Refuge, Virginia, USA. *Waterbirds* 36: 156-165.
- Fitch, H. S. 1963. Natural history of the racer, *Coluber constrictor*. University of Kansas Publications, Museum of Natural History 15: 351-468.
- Mitchell, J. C. 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington, DC. 352 pp.
- Mitchell, J. C. 2012. Amphibians and reptiles of the Eastern Shore of Virginia National Wildlife Refuge and Fisherman Island National Wildlife Refuge. *Banisteria* 39: 21-33.
- Mitchell, J. C., & K. K. Reay. 1999. Atlas of Amphibians and Reptiles in Virginia. Special Publication No. 1, Virginia Department of Game and Inland Fisheries, Richmond, VA. 122 pp.
- Nol, E. 1989. Food supply and reproductive performance of the American Oystercatcher in Virginia. *Condor* 91: 429-435.
- Rodriguez, M. C., & H. Drummond. 2000. Exploitation of avian nestlings and lizards by insular milksnakes, *Lampropeltis triangulum*. *Journal of Herpetology* 34:

139-142.

Sabine, J. B., S. H. Schweitzer, & J. M. Meyers. 2006. Nest fate and productivity of American Oystercatchers, Cumberland Island National Seashore, Georgia. *Waterbirds* 29: 308-314.

Wilke, A. L., D. F. Brinker, B. D. Watts, A. H. Traut, R. Boettcher, J. M. McCann, B. R. Truitt, & P. P. Denmon. 2007. American Oystercatchers in Maryland and Virginia, USA: status and distribution. *Waterbirds* 30(sp1): 152-162.

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