

## Bobcat Predation on American Alligators in Coastal South Carolina

Meghan P. Keating<sup>1,\*</sup>, Thomas R. Rainwater<sup>2,3</sup>, Randeep Singh<sup>3</sup>, Maggie R. Priore<sup>3</sup>, Steven G. Platt<sup>4</sup>, Philip M. Wilkinson<sup>2</sup>, Taal Levi<sup>5</sup>, Catherine M.B. Jachowski<sup>1</sup>, and David S. Jachowski<sup>1</sup>

**Abstract** - We describe 6 observations of *Lynx rufus* (Bobcat) preying on *Alligator mississippiensis* (American Alligator) in South Carolina. Two of our accounts are field observations, 3 are based on trail camera imagery, and 1 is via scat analysis. Bobcat diet items most often include small- to large-bodied mammals and birds, whereas our observations provide evidence of predation on American Alligators by Bobcats. Further, 3 of our observations involve juvenile Alligators and 2 involve Alligator hatchlings and eggs, for which knowledge gaps exist with regards to predation risk.

*Lynx rufus* (Schreber) (Bobcat) is the most widely distributed felid in North America, occurring throughout the contiguous US, southern Canada, and Mexico, and its dietary patterns often reflect prey availability in the regions it occupies (Baker et al. 2001). Across their range, Bobcats feed most frequently on rodents, lagomorphs, cervids, and birds (Beasom and Moore 1977, Fritts and Sealander 1978, Godbois et al. 2004, Maehr and Brady 1986, Tewes et al. 2002, Tumilson and McDaniel 1990, Williams et al. 2023). However, as prey availability shifts regionally across the Bobcat's range, diet composition also shifts, and documenting these dietary differences is crucial to our understanding of Bobcat ecology and conservation in a rapidly urbanizing world (Birnie-Gauvin et al. 2017). For example, Bobcats in arid regions consume more avian prey than in moister regions (Draper et al. 2022). Across their northern range, Bobcats occurring in western portions consume more rodents compared to Bobcats occurring in eastern portions, where consumption of lagomorphs and cervids is more common (Landry et al. 2022, McLean et al. 2005, Newbury and Hodges 2018). In the southeastern US, Bobcat diet is dominated by rodents and lagomorphs (Booth-Binczik et al. 2013, Fox and Fox 1982); however, consumption of lizards and snakes has also been documented (Fritts and Sealander 1978, Mahaer and Brady 1986, Williams et al. 2023).

In a review of predation on crocodylians, Somaweera et al. (2013) summarized reports of 13 species of crocodylians preyed upon by 11 different felid predators in Africa, Asia, and North, Central, and South America. In Central and South America, *Panthera onca* (L.) (Jaguar) are well known for predation on *Crocodylus acutus* (Cuvier) (American Crocodile; Alvarez del Toro 1974), *Crocodylus moreletii* (Duméril & Bibron) (Morelet's Crocodile; Alvarez del Toro 1974, Pérez-Flores 2018, Simá-Pantí et al. 2020), and several species of caiman (subfamily: Caimaninae; Da Silveira et al. 2010, Somaweera et al. 2013), any of which can be dominant prey items of Jaguars in some regions (Eriksson et al. 2022).

<sup>1</sup>Department of Forestry and Environmental Conservation, Clemson University, Clemson, SC 29634.

<sup>2</sup>Tom Yawkey Wildlife Center, Georgetown, SC 29440. <sup>3</sup>Belle W. Baruch Institute of Coastal Ecology and Forest Science, Clemson University, Georgetown, SC 29440. <sup>4</sup>Wildlife Conservation Society–Cambodia Program, Tonle Bassac, Phnom Penh, Cambodia. <sup>5</sup>Department of Fisheries, Wildlife, and Conservation Sciences, Oregon State University, Corvallis, OR 97331. \*Corresponding author - mpkeati@clemson.edu.

In North America, *Puma concolor coryi* (Bangs) (Florida Panther) predation on *Alligator mississippiensis* (Daudin) (American Alligator; hereafter Alligator) has been reported (Dalrymple and Bass 1996, McBride and McBride 2010). These accounts demonstrate the potential vulnerability of crocodylians to felids, particularly large-bodied cats of the genus *Panthera*; however, observations of predation by medium- to small-bodied felids on crocodylians are limited (Somaweera et al. 2013). In regions where Bobcats are sympatric with Alligators (North Carolina to southern Florida and west to southern Texas), Bobcats are suspected predators on Alligator hatchlings (Merchant et al. 2018); however, to our knowledge only 2 records of Bobcat predation on an Alligator exist in the published literature (Rainwater et al. 2024). Here, we describe 6 observations of Bobcat predation on Alligators in coastal South Carolina: 4 observations are new and 2 were previously reported by Rainwater et al. (2024) without the level of detail provided here.

The first observation (2 May 2015) occurred at the Savannah National Wildlife Refuge (32°09'00"N, 81°06'20"W) in Jasper County, SC. At ~1810 hrs, a wildlife photographer was traveling slowly in a vehicle along an embankment between 2 impounded wetlands when an adult Bobcat was encountered walking away from the vehicle along the edge of the road with a juvenile Alligator (~90 cm total length [TL]) that appeared to be dead hanging from its jaws (Fig. 1A). The Bobcat had the Alligator grasped just behind the head with its canines gripping the throat. The Bobcat immediately turned and faced the vehicle (Fig. 1B) before moving rapidly into the adjacent impoundment (still carrying the Alligator) and disappearing among dense vegetation.

The second observation (3 May 2017) occurred at Bear Island Wildlife Management Area (WMA; 32°36'49"N, 80°26'37"W) in Colleton County, SC. At ~1107 hrs, a WMA employee was traveling slowly in a truck along an embankment between 2 impounded wetlands when an adult Bobcat was observed along the water's edge carrying a dead juvenile Alligator (~75 cm TL; Fig. 2). Like the first observation, the Bobcat had grasped the Alligator just behind the head with its canines gripping the Alligator's throat. As the truck approached, the Bobcat stopped and turned its head toward the vehicle, remained motionless for ~2 sec, and then quickly walked into dense vegetation along the edge of the impoundment, disappearing from view.

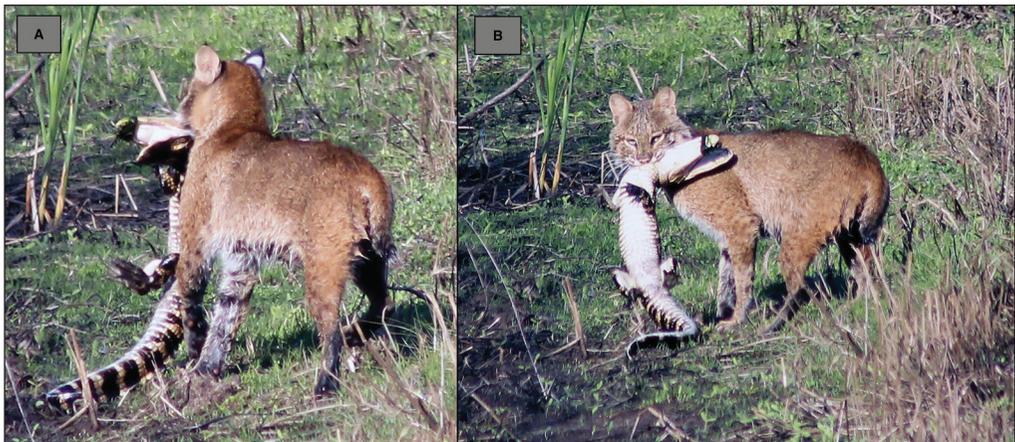


Figure 1. An adult *Lynx rufus* (Bobcat) with a juvenile *Alligator mississippiensis* (American Alligator; ~90 cm total length) at the Savannah National Wildlife Refuge in Jasper County, SC (2 May 2015). (A) The American Alligator appears dead, with eyes closed and no change in body position, and (B) the Bobcat is grasping it by the ventral surface of the throat. Photograph © Margaret Coley.

The third observation (18 June 2018) occurred at the Nemours Wildlife Foundation Plantation (32°38'24"N, 80°40'48"W) in Beaufort County, SC. At 0403 hrs, a trail camera (8MP Trophy Cam; Bushnell, Lenexa, KS) deployed on an embankment adjacent to an impounded wetland captured 2 photographs of an adult Bobcat walking along the embankment with a juvenile Alligator (~105 cm TL) hanging from its jaws (Fig. 3A). Similar to the 2 previous observations, the Bobcat had grasped the Alligator just behind the head with its canines gripping the Alligator's throat. In the first photograph, the Bobcat and Alligator had just entered the frame (0403 hrs; Fig. 3A). In the second photograph (1 min later), the Bobcat had veered to the left and was walking toward dense vegetation adjacent to the embankment (Fig. 3B). We were unable to discern whether the Alligator was alive or dead at the time the photographs were taken.

Figure 2. An adult *Lynx rufus* (Bobcat) with a juvenile *Alligator mississippiensis* (American Alligator; ~75 cm total length; grasped by the ventral surface of the throat) at Bear Island Wildlife Management Area in Colleton County, SC (3 May 2017). Photograph © Daniel Barreanu.



Figure 3. An adult *Lynx rufus* (Bobcat) with a juvenile *Alligator mississippiensis* (American Alligator; ~105 cm total length) at the Nemours Wildlife Foundation Plantation in Beaufort County, SC (18 June 2018). (A) The Bobcat is grasping the American Alligator by the ventral surface of the throat (0403 hrs) and (B) dragging it into the brush (0404 hrs). Photograph © Amanda Williams.

The fourth, fifth, and sixth observations occurred on the South Island portion (~16 km<sup>2</sup>) of the Tom Yawkey Wildlife Center (33°13'31"N, 79°12'22"W) in Georgetown County, SC. Our fourth and fifth observations were previously reported by Rainwater et al. (2024); however, here we include photographs and additional details not provided in the earlier account. These 2 observations occurred ~1 km apart, and because the core home range of Bobcats at this site varies from 1 to 4 km<sup>2</sup> (M.P. Keating, unpubl. data), it is possible (though unconfirmed) the same Bobcat was involved in both events. The sixth observation occurred ~4 km from the fourth and fifth observations, suggesting a different Bobcat was involved in this event. The fourth observation was made on the late evening of 23 August 2019 and early morning of 24 August 2019. A trail camera (XR6 Ultrafire; Reconyx, Holmen, WI) recorded an adult Alligator (presumably the maternal female) excavating her nest as hatchlings emerged from eggs and transporting the young to nearby water, a process that may take several hours (Rainwater et al. 2025). On this occasion, an adult Bobcat appeared at the nest site (2349 hrs) and approached the nest, first from a short distance ( $\leq 1$  m) but eventually climbing onto the nest mound and extending its head into the open nest cavity

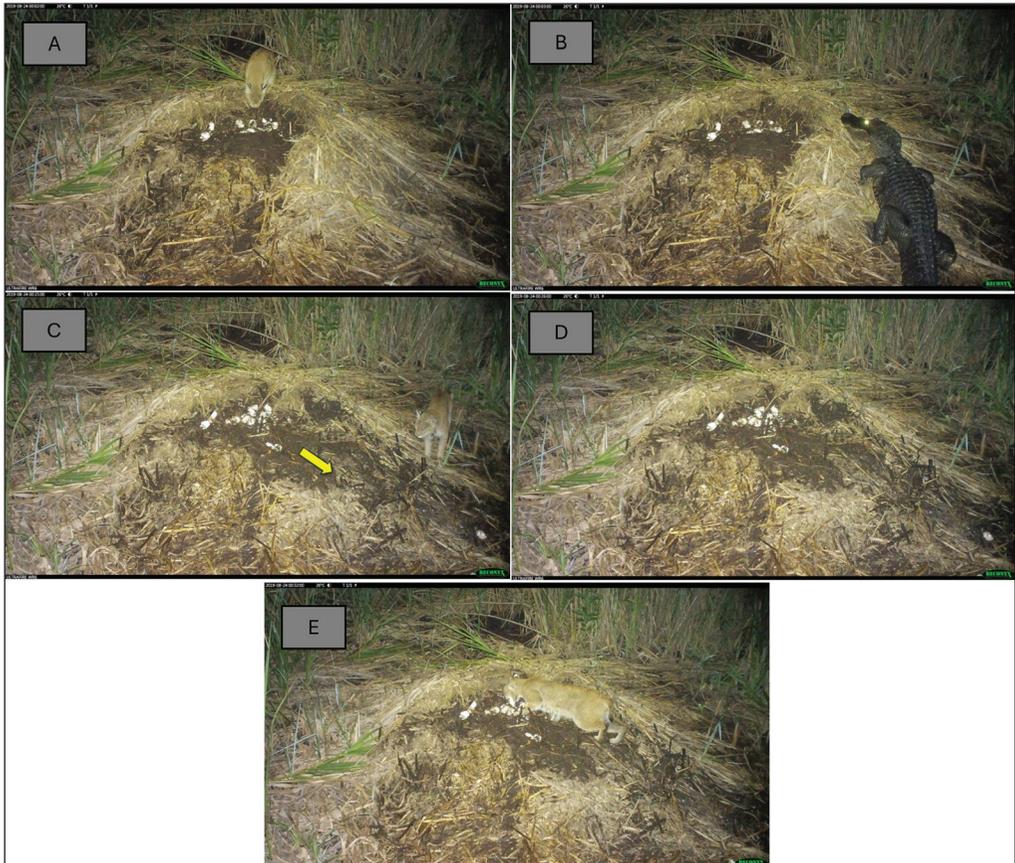


Figure 4. An adult *Lynx rufus* (Bobcat) visiting an *Alligator mississippiensis* (American Alligator) nest recently excavated by the presumptive maternal female at the Tom Yawkey Wildlife Center in Georgetown County, SC (24 August 2019). (A) The Bobcat extends its head into the exposed nest cavity (0002 hrs) and then (B) leaves the nest when the maternal American Alligator returns (0003 hrs). (C) Later, the Bobcat is seen looking directly at a hatchling American Alligator (arrow) at the edge of the nest (0025 hrs) and (D) both are absent from the frame less than 1 min later (0026 hrs). (E) The Bobcat is later seen standing in the nest cavity, grasping an egg in its mouth (0032 hrs).

(0002 hrs; Fig. 4A). The adult Alligator quickly (<1 min) returned to the nest, presumably to defend the hatchlings from the Bobcat (Fig. 4B). The Bobcat disappeared from the camera frame upon the arrival of the Alligator but repeatedly returned whenever the Alligator left the nest. At 0025 hrs, the Bobcat approached within 0.5 m of a recently hatched neonate lying on the edge of the nest and appeared to be looking directly at the hatchling (Fig. 4C; Rainwater et al. 2024). In the following photograph ( $\leq 1$  min later), both animals were gone, and the nest material between the 2 had been disturbed (Fig. 4D), suggesting the Bobcat had moved forward and taken the hatchling (Rainwater et al. 2024). Approximately 6 min later, the Bobcat was photographed standing in the nest cavity and grasping an Alligator egg (possibly containing an emerging hatchling) in its mouth (Fig. 4E).

The fifth observation was made during early morning on 29 August 2019 when a trail camera (Reconyx XR6 Ultrafire) recorded another adult Alligator (presumably the maternal female) excavating her nest as the eggs were hatching and transporting the young to nearby water. An adult Bobcat appeared at the nest site at 0542 hrs as a hatchling Alligator crawled away from the nest toward the water (Fig. 5A) but remained in place for  $\sim 2$  min. At 0545 hrs, the Bobcat turned its head toward the water (Fig. 5B) and disappeared from the camera field of view 1 min later as the maternal Alligator reappeared (Fig. 5C). At 0611 hrs, with the maternal Alligator again absent from the nest site, the Bobcat returned, stepped onto the excavated side of the nest (obscured from camera view), and grasped an egg (possibly containing an emerging hatchling) in its mouth (Fig. 5D) before disappearing into the adjacent vegetation. The Bobcat returned to the nest at 0626 hrs, peered into the exposed egg cavity (Fig. 5E), and from 0627–0633 hrs appeared to be feeding on something in the foreground between the camera and the nest (Fig. 5F). The Bobcat's mouth was just outside the camera field of view, but we speculate it was likely feeding on an Alligator hatchling fully or partially emerged from an egg.

The sixth instance of Alligator predation by a Bobcat was discovered during an ongoing investigation into Bobcat dietary habits on barrier islands. As part of this study, we systematically collected Bobcat scat samples across South Island, SC, verified via microsatellite genotyping following methods of Miller-Butterworth et al. (2021), and analyzed their contents via DNA metabarcoding of the 12S rRNA locus following the methods of Roffler et al. (2021). A Bobcat scat sample collected on 18 August 2023 along an embankment between 2 impoundments contained Alligator remains (100% taxonomic match; M.P. Keating, unpubl. data). Bobcats do occasionally scavenge (Platt et al. 2010), and this method cannot differentiate between scavenged food items and live-caught prey; however, the timing of this defecation and subsequent collection coincides with our previously described observations of Bobcat–Alligator nest interactions on South Island as well as the seasonal timing of hatchling emergence (Hunt and Ogden 1991, Joanen 1969, Joanen and McNease 1989, Ruckel and Steele 1984, Wilkinson 1984). Further, South Island has no public access or hunting, so we consider it unlikely this was anthropogenically supplied food.

These observations serve to further existing knowledge of Bobcat diet in the southeastern US, particularly where these felids are sympatric with Alligators. Further, we present detailed accounts of predation on juvenile and hatchling Alligators, size classes less represented in the extensive review of felid and crocodylian interactions conducted by Somaweera et al. (2013). Our observations may also represent the first visual confirmation of crocodylian predation by a medium to small-bodied felid; however, since we did not witness juvenile (i.e., non-hatchling) predation firsthand (observations 1–3), we cannot rule out the possibility of scavenging in these cases.

Throughout coastal regions of the southeastern US, Alligators are ubiquitous and may thus be a prey item available to Bobcats despite limited documentation of their

interactions and the potential risk of Alligator predation on Bobcats (Barr 1997). There is likely a size range in which Alligators are susceptible to predation by Bobcats, after which the former become too large, illustrated by 5 of our 6 accounts in which smaller Alligators (hatchlings and juveniles  $\leq 105$  cm TL) were taken. *Leptailurus serval* (Schreber) (Serval), comparable in size to a Bobcat, was mentioned by Steel (1989) as a predator of hatchling *Crocodylus niloticus* Laurenti (Nile Crocodile), but to our knowledge predation of other crocodile size classes by Servals is undocumented. Similarly, *Leopardus pardalis* (L.) (Ocelot), also comparable in size to a Bobcat, has been mentioned as a predator of Morelet's Crocodiles (Alvarez del Toro and Sigler 2001) and caiman species (Emmons 1987), specifically *Caiman crocodilus* (L.) (Spectacled Caiman; Alvarez del Toro 1974) and *C. crocodilus chiapasius* (Bocourt) (Spectacled Caiman subspecies; Alvarez del Toro and Sigler 2001). Finally, *Felis aurata* Temminck (African Golden Cat), a small-bodied cat, was assumed by Waitkuwait (1989) to be a potential predator of *Crocodylus cataphractus* Cuvier (West African Slender-Snouted Crocodile) hatchlings in the Republic of

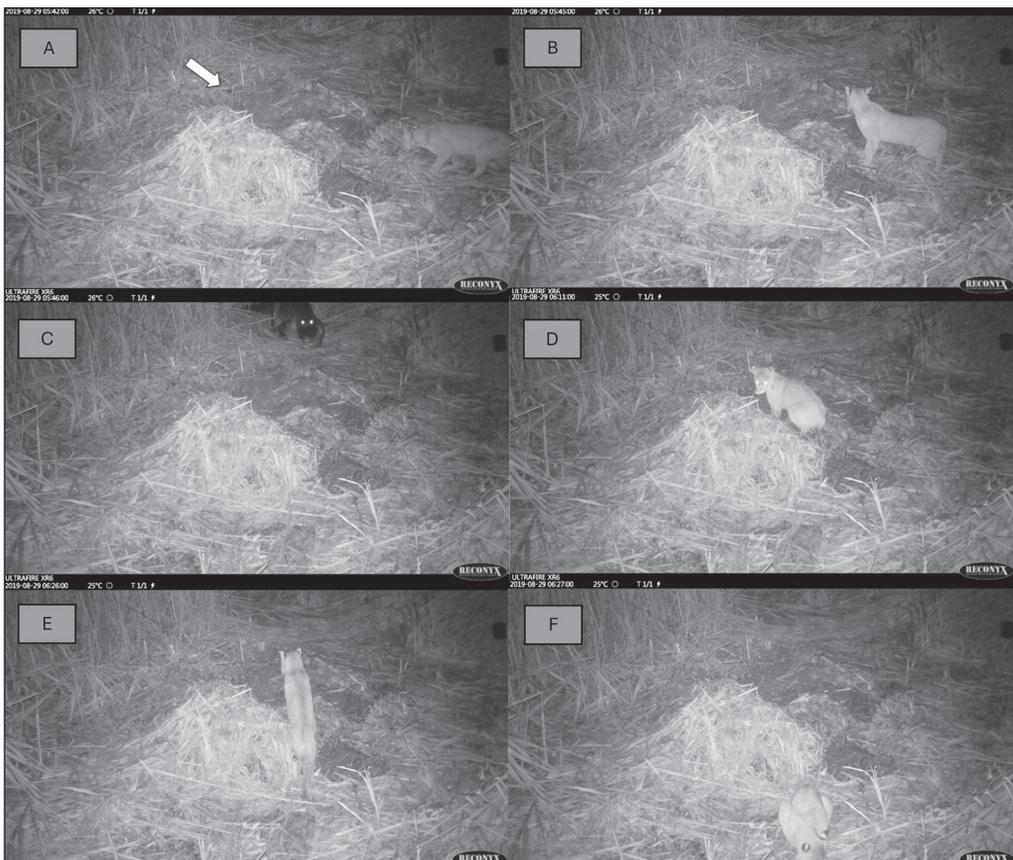


Figure 5. An adult *Lynx rufus* (Bobcat) visiting an *Alligator mississippiensis* (American Alligator) nest at the Tom Yawkey Wildlife Center in Georgetown County, SC (29 August 2019). (A) A newly emerged hatchling American Alligator (arrow) can be seen next to the nest as the Bobcat approaches (0542 hrs). (B) The Bobcat turns towards the water (0545 hrs) and (C) is absent from the frame once the maternal American Alligator reappears (0546 hrs). (D) Later, the Bobcat can be seen holding an egg (possibly containing an emerging hatchling) in its mouth (0611 hrs), (E) peering into the exposed egg cavity (0626 hrs), and (F) presumably feeding on an American Alligator hatchling fully or partially emerged from an egg (0627 hrs).

Côte d'Ivoire, Africa. Given the paucity of data on the survival and fate of crocodylian hatchlings and smaller size classes, small- to medium-bodied felids are potentially underappreciated predators of hatchling and juvenile crocodylians.

Nest-guarding behavior by female Alligators (Kushlan and Kushlan 1980; McIlhenny 1935; Merchant et al. 2018; Rainwater et al. 2022, 2025) may hinder Bobcat predation of eggs and hatchlings. Indeed, in our observations of Bobcats approaching and depredating Alligator nests, Bobcats retreated from the nest when the maternal Alligator was present and returned when she was transporting hatchlings to water. In the instances where Bobcats approached Alligator nests and carried away eggs, we consider it most likely these eggs contained full-term embryos or emerging hatchlings rather than being infertile or incompletely developed; however, because Bobcats are known to feed on eggs of both birds (Sabine et al. 2006, Staller et al. 2005) and reptiles (Currylow et al. 2022, Lindborg et al. 2016, Martin et al. 2005), we cannot rule out the possibility that unhatched eggs or eggshells were taken and consumed. Bobcats are likely attracted to Alligator nests via auditory cues (vocalizations) from emerging hatchlings, which alert maternal females to a hatching event (Vergne et al. 2009), or through olfactory cues from the excavated nest cavity (Buzuleciu et al. 2016, Geller and Parker 2022, Simoncini et al. 2016). To our knowledge, predation of Alligator eggs (i.e., not during a hatching event) by Bobcats has not yet been reported.

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