

Noteworthy observations on the feeding behaviour of Crested Serpent Eagle *Spilornis cheela* from Corbett Tiger Reserve, India

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The Crested Serpent Eagle *Spilornis cheela* is one of the most well documented species in its genus. It is widely distributed with at least 22 recognised races (Dickinson 2013), occurring from Pakistan, where it is a straggler and a vagrant (Grimmett *et al.* 2008; Roberts 1991), to India (Grimmett *et al.* 2011; Kazmierczak 2000; Rasmussen & Anderton 2012), China (Meyer de Schauensee 1984), Nepal (Fleming *et al.* 1976; Grimmett *et al.* 2000; Inskipp & Inskipp 1985), Bhutan (Ali *et al.* 1996; Inskipp *et al.* 1999; Spierenburg 2005), Bangladesh (Halder 2010; Harvey 1990; Siddiqui *et al.* 2008), Sri Lanka (Harrison 1999; Wait 1931; Warakagoda *et al.* 2012), Myanmar (Lwin & Thwin 2003; Smythies 1986), and into South-east Asia up to the Philippines (King & Dickinson 1975; Lokagul & Round 2005; Myers 2010; Robson 2004 & 2008). Several races of the Crested Serpent Eagle are island endemics and del Hoyo (1994) suggests that some (or all) island races of the species may subsequently prove to be distinct species.

In northern India it is resident in Uttarakhand (Grimmett *et al.* 2011; Rasmussen & Anderton 2012; ZSI 1995) where it thrives in the forested areas of the hills and plains skirting the Himalayas (Osman 1973). It is found in Corbett National Park (Editor-Director 2008; Lamba 1987; Lamba & Bhatnagar 1977; Sharma *et al.* 2003) where it is considered to be one of the commonest of raptors (Naoroji 1999). It is a forest-dwelling species usually seen perched on trees of the riparian forest on the banks of a flowing stream, river, or a dry riverbed (Naoroji 2007). It is also found on the edge of dense forest (Lamba 1987). It is known to usually 'still hunt' from partly hidden, or fully exposed, perches— from where it keeps a look out for long periods and upon sighting prey, it drops to the ground to catch it. The species is believed to 'perch hunt' within the canopy for arboreal snakes, and lizards (Ferguson Lees & Christie 2001).

The Crested Serpent Eagle is known to feed mainly on snakes (Jerdon 1862), which may reach up to 2–2.5 m in length (Smythies 1986). 'They will occasionally stoop at jungle fowl, pheasants, and partridges, but they do not seem to be very successful at such quarry, and after snakes, lizards, frogs and small waterbirds would appear to form their principal diet' (Baker 1914). However, it is an opportunist and adaptable species, capable of taking a wider range of prey than is recorded ((Naoroji 1994). Naoroji (1985) describes bull frog *Rana tigrina*, and bush rat *Golunda ellioti* to be part of its diet. Sano (2012) includes Asian House Shrew *Suncus murinus* in its diet. It is also known to take lizards and rock lizards (Ali 1979; Naoroji 1985; Smythies 1968),

mahseer *Tor tor* fingerlings (Naoroji 1994), mudfishes and crabs (Tikader 1984), millipedes, scorpions, and locusts (Smythies 1968). The species is occasionally known to feed on small grassland birds like weavers (Ploceidae), munias (Estrildidae), and pipits (Motacillidae) (Wells 1999). Naoroji (1999) recorded it feeding on Jungle Babbler *Turdoides striatus*, and Common Myna *Acridotheres tristis*. Though Wells (1999) observes that 'larger birds tend not to show fear of it', Baker (1928) mentions that 'when no snakes are to be found they will eat reptiles, birds of all kinds up to the size of the largest pheasants, partridges and ducks and also grubs and the larger insect'. Osman (2005) points out that 'in addition to taking snakes it also is seen hunting such game as jungle fowl or peafowl, and sometimes picks up hares as well'. He observed it catching a kingfisher that was trying to take off from the water's surface after an attempt to catch fish (Osman 2001); and a bird trying to rob a captive Goshawk of its Black Francolin *Francolinus francolinus* catch (Osman 1973). Naoroji (1994) gives another interesting account of its attempt to catch a flying squirrel *Hylopetes fimbriatus*. It has been recorded taking a Black-naped Hare *Lepus nigricollis* at Garlapet Reserved Forest, Andhra Pradesh (Waghay *et al.* 2003).

On 08 March 2009, at Dhikala, Corbett Tiger Reserve, a Crested Serpent Eagle was seen picking up an unidentified fresh-water eel from the Ramganga River, which it carried into a tree, and probably offered it to its mate (Sanjay Chimwal, *verbally* 15 February 2017). Devendra Singh Negi, and J. P. Khulbe observed it feeding on unidentified fresh-water eels on more than one occasion on the Ramganga, and Palain rivers in Corbett Tiger Reserve during 2008–2010 (Devendra Singh Negi, and J. P. Khulbe, *verbally*, June 2010). Ali & Ripley (1978) record the '*davisoni*' race of Crested Serpent Eagle in Andaman Islands to have fed once upon a salt water eel 'about a foot long'. The present observations are the first record of a Crested Serpent Eagle feeding on a fresh-water eel. It is worth mentioning that no other *Spilornis* species has been recorded feeding on fresh-water eel.

On 31 May 2009 we were driving from Dhikala to Dhangarhi and as we crossed Dhulwa Sot (29.53°N; 79.02°E) at 1610 hrs, we saw a Crested Serpent Eagle dropping upside down out of the canopy of a tree. In mid-air the bird righted itself, gained balance, and came to rest on the bank of a small nullah, three meters from our vehicles. The bird held three bats in its talons. It flew again, almost immediately, leaving one of the bats on ground. Another bat escaped from its talons at this time, and flew in

the opposite direction. The bird disappeared with the remaining bat, and we could not re-locate it. The bat that had been left on ground, a young hairless creature, unable to fly but apparently unharmed, was photographed [179], and later identified as a greater short-nosed fruit bat *Cynopterus sphinx* based on 'white ear margins and whitish fingers' (Sanjay Molur, *in litt.*, e-mail dated 01 July 2009), a common species found in the area. It is worth mentioning here that the bat that escaped from the talons of the eagle, and flew away, had fur on its body, and was apparently an adult of the same species. We believe that the bird was hunting the bats that were roosting in the trees and while trying to catch them, lost its balance and crashed out of the tree canopy. Several species of birds across the world are known to prey upon bats (Gillette & Kimbrough 1970; Lewis 1987; Speakman 1991; Fenton *et al.* 1994; Chong 1998; Carey *et al.* 2001; Hernández *et al.* 2007). Naoroji (2007) describes bats being part of the diet of several species of birds of prey in the Indian Subcontinent, including Jerdon's Baza *Aviceda jerdoni*, Black Baza *A. leuphotes*, Crested Goshawk *Accipiter trivirgatus*, Besra *A. virgatus*, Black Eagle *Ictinaetus malayensis*, Changeable Hawk Eagle *Nisaetus cirrhatus*, Rufous-bellied Eagle *Lophotriorchis kienerii*, Common Kestrel *Falco tinnunculus*, Sooty Falcon *F. concolor*, Merlin *F. columbarius*, Laggar Falcon *F. jugger*, and Peregrine Falcon *F. peregrinus*. Some other birds of prey known to feed on bats are Black Kite (Ali & Ripley 1978), Brahminy Kite *Haliastur indus* (Mankadan & Natrajan 1992), Shikra *A. badius* (Muni & Hegde 1998; Agoramoorthy & Hsu 2001; Zari 2001), and Eurasian Hobby *F. subbuteo* (Dharamkumarsinhji 1955; Roberts 1991).

The present observation is the first record of a Crested Serpent Eagle hunting bats. No other *Spilornis* species has been recorded hunting bats previously.

On 29 April 2010 at 1013 hrs, a Crested Serpent Eagle was photographed [180] feeding on a small, unidentified, turtle in a tree above a waterhole on Sambar road near Khinanauli forest resthouse in Corbett Tiger Reserve (Sidharth Katyal, *in litt.*, e-mail dated 17 May 2010). From the pictures it is difficult to ascertain the species of turtle but it is presumed be a young testudine of either the Indian softshell *Aspideretes gangeticus*, or the Indian flapshell *Lissemys punctata* turtles (Isaac Kehimkar, *verbally*, October 2010). Davison (1883) records it to feed on small land tortoises in Wynaad but Naoroji (2007) demands substantiation of the same. The present observations are the first confirmed record of a Crested Serpent Eagle feeding on a turtle. No other species belonging to genus *Spilornis* are known to prey upon turtles and tortoises.



Nikhil Bhopale

179. Greater short-nosed fruit bat.



Sidharth Katyal

180. Crested Serpent Eagle feeding on young turtle.

On 06 May 2016 at 0910 hrs, a Crested Serpent Eagle was observed in a tree with a newly born wild boar *Sus scrofa* at Doulpani Sot near Bichalmi check post, Durga Devi, Corbett Tiger Reserve (Shankar Lal *pers. com. verbally May 2016*). The young wild boar was dead and was being eaten. It cannot be ruled out that the young wild boar was not hunted by the bird and was already dead when picked up. The species is occasionally known to indulge in scavenging (Sano 2012). The species is known to occasionally prey upon small mammals including 'hare' (Osman 2005), and flying squirrel (Naoroji 1994). The present record is a first record of the Crested Serpent Eagle, or any *Spilornis* species feeding on a young wild boar.

The observations presented above confirm that the Crested Serpent Eagle is opportunistic in its feeding behaviour and occasionally includes bats, freshwater eels, freshwater turtles, and juvenile wild boar in its diet.

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