

The jaguar as a potential predator
of *Kinosternon scorpioides*
(LINNAEUS, 1766)

Due to its large Neotropical range, the diet of the jaguar reflects the local spectrum of potential prey species and, thus varies by region (DE OLIVEIRA 2002). Although the cat has a marked preference for mammals, there are reported cases in which reptiles were eaten (EMMONS 1989; CHINCHILLA 1997; FONSECA et al. 2009; SALERA et al. 2009; CAVALCANTI & GESE 2010; PLATT & RAINWATER 2011; PAÉZ et al. 2012; VERÍSSIMO et al. 2012). These authors recorded predation of four species of sea turtle, *Iguana iguana* (LINNAEUS, 1758), *Caiman crocodilus* (LINNAEUS, 1758), *Melanosuchus niger* (SPIX, 1825), *Crocodylus acutus* (CUVIER, 1807) and the turtle species *Podocnemis expansa* (SCHWEIGGER, 1812), *Podocnemis unifilis* TROSCHEL, 1848, *Chelonoidis denticulata* (LINNAEUS, 1766), *Chelonoidis carbonaria* (SPIX, 1824) and *Platemys platycephala* (SCHNEIDER, 1792).

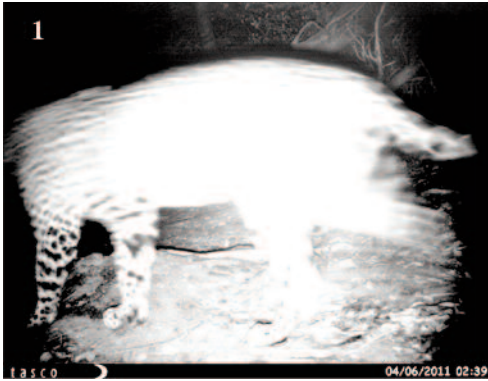


Fig. 1: Camera trap photograph of a jaguar (*Panthera onca*) taken on April 6, 2011, at Santa Rosa National Park, Guanacaste, Costa Rica. The site is located 25 meters from a place where the remains of a Scorpion Mud Turtle, *Kinosternon scorpioides* (LINNAEUS, 1766), were found (see Fig. 2).



Fig. 2: The shell remains of the adult Scorpion Mud Turtle, *Kinosternon scorpioides* (LINNAEUS, 1766), mentioned in the legend to Fig. 1., show bite marks which the authors attribute to the dentition of a jaguar (*Panthera onca*).

Local populations of jaguars (*Panthera onca*) in Santa Rosa National Park, Guanacaste, Costa Rica, are opportunistic predators, feeding on as many as 85 different prey species (RABINOWITZ & NOTTIGHAM 1986; WECKEL et al. 2006; HARMSSEN et al. 2011) including the sea turtles *Lepidochelys olivacea* (ESCHSCHOLTZ, 1829) and *Chelonia mydas* (LINNAEUS, 1758), whereas there is no observation of other turtle predation from that country (EMMONS 1989; CARRILLO et al. 1994; SALERA et al. 2009; PAÉZ et al. 2012; VERÍSSIMO et al. 2012). Solely the book by ACUÑA-MESÉN (1998) enumerates mammalian predators to various Costa Rican turtle species including cougar (*Puma concolor*), jaguar (*Panthera onca*), ocelot (*Leopardus pardalis*), oncilla (*Leopardus tigrinus*) and coyote (*Canis latrans*), however, without quoting references.

Some evidence for predation of *Kinosternon scorpioides* (LINNAEUS, 1766), by *Panthera onca* was obtained at Santa Rosa National Park (10°53'1" N, 85°46'30" W) in April, 2011 from a camera trap installed on a trail near a permanent water source. April is the driest month of the year and therefore the time of peak water stress for the jaguar. During the dry season, both prey and predators tend to cluster at the few

remaining water sources (VAUGHAN & WEIS 1999). Although the camera did not photograph a jaguar's actual kill or predation, this cat was photographed at that location (Fig. 1) and four days later, the carapace of *K. scorpioides* was found broken open (Fig. 2) 25 meters from the camera.

The forcible opening of the carapace (length 193 mm, width 132 mm) of the adult mud turtle was consistent with observations made by EMMONS (1989) in Peru, suggesting that the hole was caused by canine teeth cutting open the turtle shell along its width in order to extract the meat. Bite marks were found on plastron and carapace, not at the lateral shell portions. The option of a crocodylian predator is discarded since its pattern of predation is characterized by crushing the carapace and swallowing the entire object (MCILHENNY 1935). Other carnivores reported in the area such as *L. pardalis*, *L. tigrinus*, *P. concolor* and *Canis latrans* were discarded as well. If they had killed the turtle, both carapace and plastron would be severely scratched as reported for *C. latrans* (MINCKLEY 1966), but not broken. On the other hand, carnivores that prey on large animals produce high bite forces (CHRISTIANSEN & WROE 2006). Thus, for *P. onca* who uses to kill by biting into the skull (SEYMOUR 1989; MORAL-SACHETTI et al.

2011), breaking a highly arched carapace as in *K. scorpioides* cannot be a challenge.

The authors suspect that in times of scarcity, predation of small turtles such as *K. scorpioides* which contain 0.5 - 1.0 kg of meat (MÁRQUEZ 1995), contributes to the jaguar's diet and survival.

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