

**PREDATION OF A COATI (*Nasua narica*) BY A PUMA (*Puma concolor*) IN THE SOUTHEAST OF THE OSA PENINSULA, COSTA RICA<sup>1</sup>**

**Aida Bustamante\***, Wildcats Conservation Program, Friends of the Osa and Instituto Internacional en Conservación y Manejo de Vida Silvestre, Heredia, Costa Rica†.

**Ricardo Moreno**, Smithsonian Tropical Research Institute; Wildcats Conservation Program, Friends of the Osa.

**Joel C. Sáenz**, Instituto Internacional en Conservación y Manejo de Vida Silvestre, Heredia, Costa Rica.

\* Correspondence to:

Aida Bustamante

Wildcats Conservation Program

Friends of the Osa, Apdo. 54-8203

Puerto Jiménez, Golfito, Costa Rica.

Phone numbers: (506) 2735 5756 and (506) 8817 3809

Email: [abustamante@osaconservation.org](mailto:abustamante@osaconservation.org), [aida.bustamante@gmail.com](mailto:aida.bustamante@gmail.com)

† Instituto Internacional en Conservación y Manejo de Vida Silvestre, Campus Omar Dengo, Apdo. 1350-3000, Heredia, Costa Rica.

‡ Instituto de investigaciones tropicales Smithsonian, Unit 0948, APO AA 34992-0948, Panamá.

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**Quick news**

Little is known about the diet of pumas in Central America (*Puma concolor* Linnaeus, 1771). However, there are a few studies that describe the eating habits of pumas and other wildcat species in some areas of the region (Aranda & Sánchez-Cordero 1996, Núñez *et al.* 2000, Moreno 2002, Rosas-Rosas *et al.* 2003, Chávez 2006, Moreno 2006, Moreno *et al.* 2006). Throughout their distribution range, pumas are known to predate animals as large as moose (*Alces alces*) and as small as country rats (*Proechimys sp.*). Within this range, coatis (*Nasua narica*) can be considered small prey. However, this depends on the size of the predator: for small pumas, a coati could very well be considered a large prey. Actually there is a latitudinal variation in the mentioned predations, as well as a latitudinal variation in the body mass of the pumas (McNab 1971, Currier 1983, Iriarte *et al.* 1990, Sunquist & Sunquist 2002).

The best way to determine if pumas are capturing prey adequate to their size is to observe them while they eat, which is very difficult due to the elusive nature of these felines (R. Moreno pers.obs.). Information has been generated in the last 15 years about pumas and

other wildcats, their diet and behavior, using methods such as radio-telemetry, tracks and signs, scats collection and camera traps (Ceballos *et al.* 2002, Maffei *et al.* 2002, Núñez *et al.* 2002, Polisar *et al.* 2003, Rosas-Rosas *et al.* 2003, Scognamillo *et al.* 2003, Noss *et al.* 2004, Mafei *et al.* 2005, Novack *et al.* 2005, Aliaga-Rossel *et al.* 2006, Moreno 2006, Moreno *et al.* 2006, Moreno & Bustamante 2007, Bustamante 2008, Kelly *et al.* 2008). The latter are photo and video cameras with sensors for color and movement. They are widely used in this type of research because they directly register what pumas (and other species) are doing, and even help compare photographs to find behavior patterns in their environment (López-González & Lorenzana-Piña 2002, Poszig *et al.* 2004, Aliaga-Rossel *et al.* 2006, Moreno & Giacalone 2006).

This note reports a predation of a coati (*N. narica*) of approximately 4.6kg by a puma, registered during day and night hours by a camera trap station, providing new information about the sequence and period of the event in the study area.

The observed event took place in the Southeast of the Osa Peninsula (8°24' 00" North and 83°18' 00" West). This area is composed entirely by a mosaic of private properties, most of them possessing coverage of very humid tropical forests (*sensu* Holdridge 1967) secondary, primary and grassy areas. The land use includes cattle ranching, rice plantations and tourism. Precipitation varies between 4500 to 6000 mm per year, the dry season extending from January to April, with an average annual temperature of 25 °C ("Osa Biodiversity Center" meteorological station, data not published).

The camera trap (Deercam DC 300) was placed in secondary forest. Aside from the digital printing of the photos of the event, the cameras were programmed to register the date and time of each picture taken; providing information of the duration of the predation event.

The first photos were taken between 15:21 and 15:29 hours, December 06, 2007 (Fig. 1a). These pictures display a female puma with an adult coati in its mouth, looking for a place to hide it. The last photograph was taken on December 07, at 06:51. The puma was photographed a total of 18 times, during the 15 hour period between the first and last photo. During this interval 5 eating events were registered (Table 1, Fig.1b-c), the photos then show that the coati was not entirely consumed when the puma retrieved with the coati in her mouth (Fig. 1d).

The pumas' main preys in the study area are coatis, which comprise 39.5 % and 38.6 % of the relative biomass consumed by pumas in the area (Bustamante 2008). This is due to the high relative abundance of the specie in the study area (Bustamante 2008).

Direct observations made by residents of the area note that puma predation of coatis during the day is common, followed by that of white-faced capuchin monkeys (*Cebus capucinus*), howler monkeys (*Alouatta palliata*) and spider monkeys (*Ateles geoffroyi*). Along with our photographs, this would reflect the diurnal behavior of pumas in this area,

being most active during the times when their main prey is most active, in this case the coati (Bustamante 2008), which is also discussed by other authors (Curio 1976).

**Table 1.** Dates, hours and observations of the behavior of a female puma (*Puma concolor*) preying on an adult coati (*Nasua narica*), registered in a camera trap station in the Osa Peninsula (Costa Rica). The letters in the parenthesis belong to figure 1.

Dates and times	Observations
<b>06/12/2007</b> 15:21 15:29 ~ 15:44 17:40, 18:05 21:38, 22:10 23:04	Coati in mouth (A) 1st eating period (B) 2nd eating period 3rd eating period (C) Seems to inspect the area, no eating
<b>07/12/2007</b> 1:47, 2:45 05:01, 06:51 06:51	4th eating period Last eating period She takes the remains away (D)

Studies in California (USA) have registered that pumas consume small prey in periods of 4-6 hours, and large prey in periods of 2 to 5 days (Beier *et al.* 1995). At the same time, pumas in Chile may take 4 to 5 consecutive days to finish large prey (guanacos *Lama guanicoe*) (Bank y Franklin 1998). Our photos show that the puma ate the pizote during a period of 15 hours, but this period could have been longer (between 15 and 24 hours). We consider that for the puma photographed in this study, which presents a small body mass in comparison with other pumas in the area, the coati was a good-sized prey for the study area.

According to the literature quoted in this study, our finding supports the idea that one species, in different latitudes, can vary its behavior depending on the availability and behavior of prey species in each locality. For example, in Llanos de Venezuela coatis are not reported as part of the pumas' diet (Scognamillo *et al.* 2003), while in Chamela Cuixmala in México and the Maya Biosphere Reserve in Guatemala they are registered as such (Núñez *et al.* 2000, Novack 2003).

Although it is still subject to confirm empirically in our study area, many observations noted by the local residents indicate that coati predations by pumas were made mainly on solitary adult males. This is very similar to what was found by Hass and Valenzuela (2002) in the Southeast of the United States and the West of Jalisco in Mexico. This invites us to take into account the hypothesis that living in groups provides anti-predator benefits.



**A**  
Day 6 Time: 15:29



**B**  
Day 6 Time: 15:44



**C**  
Day 6 Time: 21:38



**D**  
Day 7 Time: 6:51

**Figure 1:** Images of the predation of an adult coati (*Nasua narica*) by a female puma (*Puma concolor*). Osa Peninsula, December 06, 2007.

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