

# Behaviour of the Tayra *Eira barbara* near Medellín, Colombia: preliminary data from a video-capturing survey

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## Abstract

Based on 11 video clips (234 seconds total duration) obtained with an effort of 994 camera-trap-days, we describe some natural history observations of the Tayra *Eira barbara* in a small reserve about 30 km southeast of Medellín, the second largest urban centre in Colombia. Territory marking, foraging in pairs, defecating, and escape behaviours were detected. We also estimated daily activity pattern using video footage. This conservative approach allowed us to suggest that *E. barbara* exhibits two activity peaks, one around midday (13–15h) and one just before evening (17–18h); also, a weak peak of activity was observed in the morning (07–09h). We encourage the use of long-term automatic video-trapping instead of still image trapping in order to acquire more detailed natural history and behaviour observations.

*Keywords:* automatic cameras, daily activity pattern, natural history, peri-urban habitat, video-trapping

## Comportamiento de la Taira *Eira barbara* cerca a Medellín, Colombia: datos preliminares de un estudio de video trampeo

### Resumen

Con base en 11 video clips (234 segundos en total) obtenidos con un esfuerzo de 994 trampas-cámara/día, describimos algunos aspectos de la historia natural de la Tayra *Eira barbara* en una pequeña reserva situada a aproximadamente 30 kilómetros al sureste de Medellín, segundo centro urbano más grande de Colombia. Marcado de territorio, forrajeo en parejas, defecar y comportamiento de escape fueron algunos de los aspectos registrados en nuestras trampas-cámara. Así mismo, estimamos de forma preliminar el patrón de actividad diaria utilizando como parámetro el número de videos obtenidos. Este enfoque nos permite sugerir que *E. barbara* en el área de estudio presenta principalmente dos picos de actividad, uno al medio día (13–15 h) y uno justo antes del anochecer (17–18 h). Igualmente, se observó otro pico corto de actividad en la mañana (07–09 h). En este sentido promovemos el uso a largo plazo de las video-capturas, en lugar de sólo la captura de imágenes fijas, con el fin de obtener más detalles de historia natural.

*Palabras clave:* patrón de actividad diaria, hábitat periurbano, Historia Natural, video captura, cámaras automáticas

## Introduction

Little information has been published on the natural history of small and medium-sized Neotropical carnivores (e.g. Kaufmann & Kaufmann 1965, Schipper 2007). Although natural history studies of small carnivores are of valuable importance for their conservation and management, numerous facets of their behaviour in nature remain unknown, especially in areas with heavy direct human influence such as reserves surrounding urban centres (see Pedó *et al.* 2006).

Despite Tayra *Eira barbara* being among the most common medium-sized predators in the Neotropics (Emmons & Feer 1997), it is one of the least-known carnivores close to Medellín, one of the main urban centres in Colombia with growing levels of deforestation and urbanisation in its surroundings (Delgado-V. 2007).

Crab-eating Fox *Cerdocyon thous* has recently been studied in locations surrounding the city (Delgado-V. 2002), but limited attention has been given to other families such as procyonids and mustelids. We describe some natural history aspects of the Tayra *Eira barbara*, which was videotaped using automatic cameras in one of the reserves with high biodiversity surrounding Medellín (Delgado-V. 2009).

## Methods

### Study Site

Reserva Ecológica San Sebastián-La Castellana (about 30 km south-east of Medellín city; 6°06'N, 75°33'W), comprises approximately 200 ha and is located in the municipality of El Retiro (Departamento de Antioquia, Central Mountain Range) from 2,500 to 2,800 m asl; it has an average temperature of 16.7 °C, relative humidity of 75.5%, and annual rainfall of 2,280 mm. A preliminary floral inventory documented disturbed primary forest as the principal cover in this zone and the dominant tree species includes *Quercus humboldtii* (Fagaceae), *Schefflera arborea* (Araliaceae), *Ilex laurina* (Aquifoliaceae), *Weimannia balbisiana* (Cunnoniaceae) and *Hyeronima antioquiensis* (Euphorbiaceae) (Delgado-V. 2002). Interspersed within this vegetation mosaic are homogeneous patches supporting dense bamboo thickets of *Chusquea* (Gramineae) and some exotic plantations of *Pinus patula* (Pinaceae) (Delgado-V. 2002). One main trail (1–2 m wide, from 2,500 to 2,800 m in altitude) crosses the reserve and is used for bird watching, hiking, and downhill and mountain biking.

### Video-trapping and analyses

The automatic video cameras used were Bushnell Infrared and Motion Activated Trophy Cam with the following settings: 5MP

high-quality full colour resolution, day/night auto-sensor, programmable trigger interval of 1–2 sec, 1 image per trigger and 60 sec video length. One to three automatic cameras (one camera per station) were used from December 2009 to February 2011 (one camera from 11 December 2009 to 11 April 2010, two from 12 April 2010 to 9 May 2010, and three from 10 May 2010 to 7 February 2011) comprising a total effort of 994 video camera-days. Cameras were set parallel to the main trail (3–5 m apart) in secondary native forest. Bananas and sardines were used as bait.

Results presented are part of the urban nature initiative called *aburratural.org*, where scientists and naturalists compile, publish and diffuse (through the Web) natural history and biodiversity information of the Valle de Aburrá and San Nicolás regions where the reserve is located. The objective of the project is to provide many video clips of the reserve's fauna to promote conservation of the region's biodiversity and raise awareness of the fauna still present near an important urban area. No protocol was followed to standardise the camera placement, and only few video clips were obtained, so other analyses sometimes seen in studies using camera-traps (e.g. Kuijper *et al.* 2009) were not performed.

## Results and discussion

Eleven video clips (234 sec total) of at least two different individual Tayras (according to form and placement of the yellow back spot) were captured. Each video was considered an independent occasion, except for three obtained on 30 May 2010 which were consecutive (1–2 min apart) and the same individual was captured by the same camera (see Marking section below).

### Behaviour

Four behaviours that merit comments are summarised below. Date, time of day, description and approximate duration are provided.

**Marking:** three consecutive videos were captured on 30 May 2010 at 14h57, 14h59, and 15h00 about 1 m from the defecation site of another individual (see below). Neck, cheeks, throat and upper back were rubbed firmly (90 sec total) against an exposed root segment on the forest floor. Occasionally, the individual seemed to lick the root gently.

**Defecating:** this was the second most frequently filmed behaviour, occurring twice on the same spot. The same individual (a male) defecated at the same site on 13 (at 13h46) and 15 May 2010 (at 14h16) for two and one second, respectively. On both occasions the Tayra ran from the place once it finished defecating. Defecating at the same site suggests Tayras may defecate for territorial marking.

**Escape:** while rubbing on the root (see Marking section, above) the Tayra was disturbed by something not detected in the video on 20 May 2010 at 15h00. The Tayra shook its body and then rapidly climbed up the tree it was standing next to. It remained in the canopy for 15 sec, and then it climbed down (descended vertically head first) and ran away.

**Foraging in pairs:** A single video (18 sec) was obtained on 8 October 2010 at 17h07. One individual was roaming behind the other. Both ate the banana bait and kept sniffing around the site before continuing on their way.

### Activity patterns

**Morning peak:** A single video clip was obtained on 24 May 2010 at 08h34.

**Midday peak:** Six video clips were obtained between 11h and

15h: one each day on 13 and 15 May 2010, and 27 January 2011, and three consecutive videos (considered same event) of the same individual on 30 May 2010 at 14h57, 14h59 and 15h00.

**Afternoon peak:** Four videos were obtained, on 24 May 2010, 27 August 2010, 8 October 2010 and 4 February 2011, between 17h00 and 18h00.

Some behaviours reported herein, such as two adults travelling together and tree climbing, were also reported from a study in a Belizean rain forest (Konecny 1989) and in the general overview of Emmons & Feer (1990). However, other literature describes the species as mainly solitary (e.g. Presley 2000).

Tayras exhibited diurnal activities at our study site with most activity in the afternoon. Although our data are too few to make a strong conclusion, they are congruent with previous observations about the daily activity patterns recorded in other Neotropical regions (Konecny 1989, Emmons & Feer 1990, González-Maya *et al.* 2009).

Our experience using Bushnell trophy cameras suggests that video-trapping versus still image capturing offers the possibility of recording data of an observed behaviour more completely than with still cameras. For example, our cameras running in still image mode would probably have not documented some fast Tayra behaviours observed here (e.g. defecation; climbing up and down), had they been performed during trigger time or the gap between pictures. In agreement with others (e.g. Bridges & Noss 2011), video trapping has the potential of offering new data about aspects of natural history and behaviour.

Several types of information have been collected from automatic camera surveys in still image mode, including patterns of relative abundance, density, distribution, habitat use and activity, all of which could be quantitatively analysed (Jiménez *et al.* 2010). However, video-trapping probably has the potential of studying not just these mentioned parameters (although new analytical advances should be developed) but also valuable natural history data which provide more qualitative evaluation and appreciation not just for scientific proposal, but also for promulgation and education (Kays *et al.* 2009).

Video-trapping offers the possibility to record continuous movements of a behaviour with almost no interruption. Picture trapping experiences a more frequent lag between detection and recording as well as delays due to trigger time (at least on the model we used). Both still image capturing and video-trapping have allowed us to inventory mammal and bird species in Valle de Aburrá during our experience with *aburratural.org*, but natural history data of some vertebrates have exclusively been recorded (or more easily identified and detected) by video recording. Moreover, notes on the Aburrá-Natural web-page are often more commented by readers and shared with others when videos (instead of pictures) are included (Delgado-V. *et al.* unpublished data).

Although new analytical advances should be developed in order to increase its use in the future (Kays *et al.* 2009), we promote the use of long-term automatic video-trapping versus still image capturing if acquiring basic natural history information is the main goal of a project. Still pictures offer accurate species identification (Meirelles *et al.* 2008) but they could be pieces of a natural history puzzle more difficult to analyse, describe, and disclose. In this sense, as we obtain more natural history data, we can better supplement management and conservation plans for Tayras and other species occurring not only in natural ecosystems but also in those ecosystems surrounding urban centres.

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