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Greater Grison (*Galictis vittata*) predation events upon Paca (*Cuniculus paca*) suggest a cavity targeted hunting strategy by Greater Grison

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ABSTRACT

The elusive Greater Grison has been reported to predate mostly relatively small prey, with evidence of some larger items. Using observations from cell phones and social media, I report two separate predation events by Grison (*Galictis vittata*) upon its largest known prey to date, the Paca (*Cuniculus paca*); both events in Costa Rica. These observations of Paca, a nocturnal cavity dwelling rodent, being preyed upon diurnally, suggest that Grison target the burrows of such species as a hunting strategy.

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In April of 2019, a video was uploaded to social media of a Greater Grison (*Galictis vittata*) attacking a Paca (*Cuniculus paca*) in the Pejibaye district of the Pérez Zeledón canton, in the San José province of Costa Rica (original recorder unknown – one posting of the video with ~133,000 views and another with 269,000, as of 15th June 2021). The video can be found on “Facebook” by searching under videos for “Grison matando un Tepescuintle” - Tepescuintle is the Costa Rican name for the Paca.

The video begins on a blacktop paved road with the two animals struggling intensely, the Grison biting at the rump, legs, rear-neck, and face of the Paca, the Paca distressed and attempting to pull free (Figure 1). After 20 seconds, the Grison appears distracted or disturbed by the cars and people filming and runs from the highway. The Paca injured and breathing heavily staggers back, shaking its rump and faces towards where the Grison has run. The Grison quickly returns, and although the Paca lunges towards the Grison, the Grison quickly ends up on top of the Paca, grabs it by the scruff of the neck, then the face, pins the Paca to the road, and drags the exhausted larger Paca off the highway and into the dense vegetation, when the filming ends.

Just over two years later since the upload of the first Grison-Paca attack, at around 09:30 am on the morning of 19th May 2021, a second similar event occurred at the Osa Biological Station (known locally as Piro Biological Station; 8.40388N, 83.336618W). One of the field staff showed me a 35 second video-clip taken on the cell phone of local field botanist Marvin Lopez Morales that same morning at 09:01 am.

Marvin had heard a grunting noise behind the station laboratory. Outside in the open grass was a

Greater Grison attacking a Paca (Figure 2). The footage shows a similar struggle to the one on the road; the Grison aggressively biting at the face of the distressed Paca (now with an injured head and face, Figure 2(c)). At the approach of the staff members, the Grison turned and ran, disappearing into the forest. Shortly after, the severely injured Paca did the same, but in the following days, the rotting smell of putrid death emanated from the forest nearby.

In over 10 years of running camera trap surveys in rainforest habitats of Ecuador, Peru and Costa Rica, all known to harbour Greater Grison, I have only rarely captured footage and have seen just one Grison in person – on Costa Rica’s Osa Peninsula. Not only is the Grison a cryptic species [1,2], but information about its ecology is scarce [3], and most information that we have comes from captive individuals [4], and most recently from camera trap footage (see [3] and [5] for example). The most comprehensive review of its diet suggests that they eat mostly small mammals, amphibians, reptiles, eggs, and birds – sometimes attacking domestic chickens in rural areas [5]. Two stomachs assessed from Venezuela contained a Common Opossum (*Didelphis marsupialis*), an unidentified rodent, a lizard (*Ameiva ameiva*), and an amphibian (*Coelostethus auriculata*) [6], and in north-eastern Brazil, Grison are major predators of Rock Cavies (*Kerodon rupestris*) that they attack in the cavies’ burrows [5]. A recent note from southern Mexico details camera trap footage of a Grison carrying a Central American Indigo Snake (*Drymarchon melanurus*) in its mouth [3], and a previous note has suggested a potential hunting strategy of Grison to target Agouti (*Dasyprocta*, a diurnal rodent found to occupy

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Figure 1. Still captures taken from the online 2019 encounter of the Grison attack on a Paca in the Pejibaye district of the Pérez Zeledón canton, in the San José province of Costa Rica (original recorder unknown); a – the setting and observers on the blacktop road, b – the Grison returning to the attack and the Paca's defensive posture, c – the Grison dominating on top of the Paca while biting the neck, d – Grison dragging the weakened Paca by the face off the road and into the vegetation.



Figure 2. Still captures taken from the cell phone footage by Marvin Lopez Morales at the Osa Biological Station in southern Pacific Costa Rica; a – the open setting in the grounds of the biological station, b – the Grison attacking and dragging the Paca by the face, c – the Grison biting the neck of the Paca, and the visible injuries to the face of the Paca, d – the Grison biting the back of the Paca's neck and attempting to gain a dominant position on top of the Paca.

rainforest burrows and hollow tree cavities on the ground [7]).

None of these prey items compare with the size and weight of a Paca (6–12 kg) – significantly heavier than either the Grison itself (1.4–3.8 kg), or two previously identified large rodent prey species (Central American Agouti, 1.3–4 kg; Rock Cavy, up to 1 kg; weights taken from <https://animaldiversity.org/>). Pacas are nocturnal, known to live during daylight hours within underground burrows and cavities that often have more than one entrance/exit route – a strategy shown to relate to the protection from predation [8].

Although the reports here are just two events, when considering the previous evidence of Grison chasing down other burrow-dwelling rodents [4,7], and considering that Pacas are nocturnal despite the predation

observations being in the daytime, these observations lead to the hypothesis that Grisons specialize in entering the burrows of cavity dwelling animals. This with the aim to either chase or drag them from their burrows. Grison are known to be primarily diurnal [4], and captive animals have been found to frequently investigate large rodent burrows, even entering, and sleeping inside abandoned burrows during the day [4].

One theory as to why a Grison would take on animals as large as a Paca, and risk injury from their impressive incisors, might be that a mother Grison with various young needs a large food resource to feed her hungry offspring (sometimes up to litters of four offspring). Or maybe Grison target younger, smaller Pacas that can be more easily overwhelmed. The Paca observed being hunted in the Osa Biological

Station footage at least looks like a relatively small individual. It is also possible that this is a typical strategy used by Grison. Once out of their cavity, the nocturnal Paca is likely more vulnerable in the daylight and cannot defend itself against the ferocious nature of the Grison.

Camera traps setup to focus upon rainforest burrows would be useful to confirm this hunting strategy hypothesis. One such study to assess Paca burrows was carried out in the Lacandon Rainforest of Mexico in 2016 [8]. Although eight other animal species were recorded, no Grison were detected. Cameras were only set for 20–30 days on each burrow however, and the presence of Grison has only been confirmed at the study site via one camera trap image and through hunting bycatch [9]. A similar, longer-term study design in landscapes where both burrowing rodents and Grison are well documented may yield further insights.

There is still much to learn about Grison ecology and rare rainforest mammals in general, but these observations suggest that these relatively small sized Mustelid meso-predators play a significant role in the predation of sizeable prey species in Neotropical rainforest. In addition to further field studies focussed upon cavities and burrows, a meta-analysis using existing camera trap survey data throughout the Neotropics would be useful in collating prey observation data, but also in collating information about the activity patterns in general of Grison.

The observations presented here showcase how modern cell phones with high-definition quality video and optical-zoom capabilities can allow people around the world to contribute useful observations of ecological interactions and behaviours of wildlife. In addition, social media provides a platform for the “viral-spread” of videos to make what would once have been isolated records shared and known only locally, able to reach an international audience.

Disclosure statement

No potential conflict of interest was reported by the author.

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