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An Incident of Swimming in a Large River by a Mantled Howling Monkey (*Alouatta palliata*) on the North Coast of Honduras

Daniel Gonzalez-Socoloske
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Introduction

With the exception of hominids, most primates rarely travel or forage in water (but see Williamson *et al*., 1988; Parnell and Buchanan-Smith, 2001). There are no reported cases of swimming by prosimians; however a number of cercopithecoids (Old World monkeys) are capable of swimming (bonnet macaques *Macaca radiata:* Agoramoorthy *et al*., 2000, proboscis monkeys *Nasalis larvatus*: Bennett, 1988; Bennett and Sebastian, 1988; Yeager, 1991, olive baboons *Papio anubis*: Forthman, 1999–2000, Japanese macaques *Macaca fuscata fuscata*: Wata, 1981). Among the platyrrines (New World monkeys), several species may inhabit or utilize swamp forests and seasonally flooding forests (*Cebus* spp.: Fernandes, 1991; Snarr, 2009, *Alouatta* spp.: Kinzey, 1997; Bravo and Sallenave, 2003; Snarr, 2009, *Cacajao* spp., *Aotus* spp., and *Saimiri* spp.: Bezerra *et al*., 2010), but accounts of swimming or crossing bodies of water are rare and have only been reported for howling monkeys, *Alouatta* spp., and golden-backed uakaris *Cacajao melanocephalus*. *Cacajao melanocephalus* were only observed swimming when they accidentally fell into the water and returned immediately to a nearby tree (Bezerra *et al*., 2010). Several authors have inferred that *Alouatta* can swim based on anecdotal reports (Collins and Southwick, 1952; Milton, 1982; Izawa and Lozano, 1990) or from identifiable animals on islands moving to adjacent areas (Froehlich and Thorington, 1982; Feeley and Terborgh, 2005). Glander (Neville *et al*., 1988; K. E. Glander, pers. comm.) placed a captured male mantled howling (*Alouatta palliata*) on a natural stone in the middle of a relatively fast moving river in Costa Rica and it swam 15 m to shore without hesitation. Kinzey (1997) stated that both mantled and red howlers are excellent swimmers, however there is only one published first-hand observation of a wild howler swimming without human manipulation (*A. seniculus*: Izawa and Lozano, 1990). We report the use of a major river by an adult male mantled howling monkey in the attempt to swim from one patch of forest to another on the north coast of Honduras.

Study Site

The study site, Cuero y Salado Wildlife Refuge (CSWR; 15°46'30"N, 87°3'25"W; sea level, 13,255 ha; PROBAP, 2002; WCS, 2002) situated 18 km west of La Ceiba, the largest urban area in the Atlantida region of Honduras, is one of the 26 wildlife refuges in Honduras (PROBAP, 2002). Both mantled howling monkeys and white-faced capuchin monkeys (*Cebus capucinus*) are found in the refuge (Snarr, 2005, 2006). Central American spider monkeys (*Ateles geoffroyi*) are not present but appear to have been historically present in the refuge (Trapido and Galindo, 1955; Snarr, 2009). The natural areas of the refuge are made up of regenerating patches of red mangrove (*Rhizophora mangle*), and lowland wet tropical forest, containing a complex series of salt and freshwater wetlands (Snarr, 2009). In addition, there are areas rich in thick mats of vines and lianas. Beyond the natural areas, the refuge is a mosaic of regenerating agricultural lands, private agricultural holdings with small plantations of African palm and other subsistence crops, and cattle pasture land. Surrounding CSWR, there are large African palm (*Elais* sp.) plantations and citrus groves eliminating virtually all connectivity between the refuge and other natural areas (Snarr, 2009).

Observations

On July 21st 2005, Daniel Gonzalez-Socoloske and assistant Jose Paz were conducting an Antillean manatee (*Trichechus manatus manatus*) survey in the eastern portion of CSWR on an overcast day (Gonzalez-Socoloske *et al*., 2009). While traveling southeast up the Salado river from survey point 14 at the mouth of the Salado river to survey point 16 located at the junction of the Marinero and Salado rivers, Gonzalez-Socoloske saw what initially appeared to be a small child jumping repeatedly in a spread eagle manner from a small dugout canoe piloted by two local fishermen. However, upon approaching the swimmer, Gonzalez-Socoloske confirmed that it was a mantled howler (*Alouatta palliata*), swimming in the water in a dog-paddling manner with only the head above the water. The local fishermen in the canoe reported that minutes earlier, they saw the howler swimming west across the river and when they approached it climbed onto their canoe. As the fishermen paddled slowly across the river, the howler would jump off of the canoe but then return to it. When Gonzalez-Socoloske approached within 1 m of the mantled howler, the howler climbed onto the front end of the small (1x3 m) flat-bottom research boat. The encounter occurred where the river is at least 150 m wide, beginning at 7:34 am and lasting 20 minutes (see Figure 1). Based upon Carpenter's (1934) criteria, the mantled howler was identified as an adult male based upon his large white testicles, large body size, and pronounced mantle (Figure 2).

While traveling on the research boat with Gonzalez-Socoloske, the howler avoided direct eye contact with the researchers but moved his gaze from the shore and the water. The howler jumped in and out of the boat several times when the boat slowed down or when the researchers turned the 25HP outboard motor off. The howler would begin swimming towards the western shore of the river, but as the researchers followed it to one side it would turn towards the boat and climb on again. Soft 'uh, uh, uh, uh' vocalizations were given at irregular intervals. The howler remained

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passive and in a seated position in the boat as it moved. The researchers traveled upriver with the howler in the boat for ~1.25km and when they approached the western side of the river, the howler climbed from the boat onto red mangrove stilt roots, resting 3 m up in the canopy along the water's edge (Fig. 1). The howler rested there until the boat left the river's edge. Prior to the event of swimming, Gonzalez-Socoloske and residents in the Salado village reported that the adult male howler was solitary for approximately three days and fed from a large mango tree that was fruiting during that time.

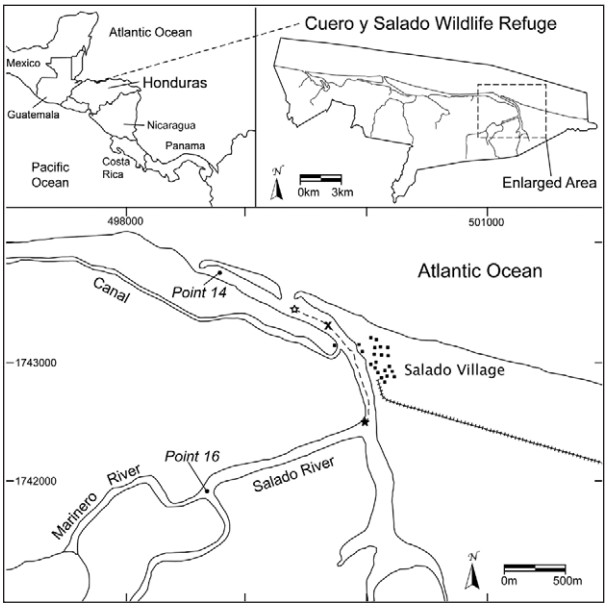


Figure 1. Study site and observation location of the swimming mantled howler (*Alouatta palliata*) in Cuero y Salado Wildlife Refuge, Honduras. Boat travel path with the howler (dashed line) after it climbed on the boat at 7:34 am (hollow star) and jump off the boat at 7:55am (solid star). The approximate location where Figure 2 was taken (x).



Figure 2. Photograph of the adult male mantled howler (*Alouatta palliata*) in Cuero y Salado Wildlife Refuge, Honduras, shortly after it climbed onto the front end of research boat (7:38 am, 7/21/2005). The dugout canoe that first encountered it swimming can be seen on the top right and several buildings from the Salado village on the eastern shore on the left. The boat is traveling upriver heading southeast. Photo Credit: Daniel Gonzalez-Socoloske

Discussion

During Snarr's (2006) study period in 2001, there was no evidence of howlers using water for travel. In the ethnographic inquiry, locals reported that howlers rarely used the ground for travel with no mention of howlers using water for travel (Snarr, 2009). Gonzalez-Socoloske (2007) reports no other observations of howlers using water for travel in CSWR; however, assistant Jose Paz reported that while this was a rare event, he had seen it before, including one occasion in which an adult male and female were seen crossing together.

Caiman and crocodiles are listed as potential predators of New World monkeys (Miller, 2002), but have not been observed predating on any. Both crocodiles (*Crocodylus acutus*) and caiman (*Caiman crocodilus chiapasius*) were commonly seen in the refuge on a near daily basis (DG-S pers. obs.; KAS pers. obs.). Thus, it is a surprise that a howler would be crossing the river. It may be that the crocodiles and caiman are not considered a threat by the howlers. However considering the rarity of ground use and especially water use for travel by howlers, it is more likely that they don't know them as potential predators. Howlers have shown considerable flexibility in their diet and social systems, and have been able to live in fragments under great ecological stresses (McCann *et al.*, 2003; Rodriguez-Toledo *et al.*, 2003; Burton and Carroll, 2005). Although they are normally highly arboreal, studies have shown that they can exhibit behavioral plasticity in disturbed and isolated habitats and under extreme environmental conditions (i.e. high temperatures), at times exhibiting otherwise uncommon behavior such as frequent ground use (Glander, 1992; Pozo-Montuy and Serio-Silva, 2007) and feeding and drinking from ground sources (Gilbert and Stouffer, 1989; Bicca-Marques, 1992; Serio-Silva and Rico-Gray, 2000; Clark *et al.*, 2002; Almeida-Silva *et al.*, 2005; Pozo-Montuy and Serio-Silva, 2007). This swimming incident may demonstrate further this flexibility in fragmented forests and to what extent a howling monkey will go to disperse or to obtain a desired food source.

The swimming behavior (paddling with all four legs with only the head out of the water) observed for *A. palliata* is consistent with other anecdotal accounts for the species (Collins and Southwick, 1952) and that of *A. seniculus* reported by Izawa and Lozano (1990). The adult male had no injuries and appeared to be in good health. In addition, after interviewing residents of the Salado Village there was no evidence found that the howler was driven into the water by any human or animal predator (howlers are well tolerated in CSWR; see Snarr, 2009). Thus, it appears that it entered the water on its own accord. We speculate it would have crossed the river without any assistance had it not been disturbed because it did not appear out of breath or in a state of panic when it climbed on the research boat, even though it was in close proximity with the researchers. Interestingly, the red howler encountered by Izawa

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and Lozano (1990) swimming across a 200 m river also climbed onto their canoe when they approached it and it was also an adult male. They suggested that it might have been a solitary male dispersing to a new habitat.

Rivers have been examined as important barriers and determinants of ecological and genetic distribution and variation in species and communities (Haffer, 1982; Gascon *et al*., 1996; Peres *et al*., 1996; Gascon *et al*., 1998; Gascon *et al*., 2000). In New World primates, the effects of river as barriers have been examined by Ayres and Clutton-Brock (1992), da Silva and Oren (1996), Peres *et al*. (1996), and Collins and Dubach (2000). This documented event of a mantled howler attempting to swim across a 150 m slow moving river indicates that while rare, howlers do cross rivers, and that this type of water system may not be an effective barrier to them. Like other uncommon behaviors (i.e. ground use), it may become more common as forests are increasingly fragmented and howlers are forced to use waterways for reaching suitable habitats.

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Contribuição à Distribuição do Gênero *Mico*, (Callitrichidae, Primates) No Médio Teles Pires, Jacareacanga, Pará

Marcos de Souza Fialho

Metade das espécies de primatas categorizadas como Deficiente em Dados (DD) pelo Ministério do Meio Ambiente da República Federativa do Brasil (Chiarello *et al.*, 2008) pertencem ao gênero *Mico* da família Callitrichidae. Tal realidade se deve, em parte, à existência de lacunas no conhecimento da distribuição geográfica dos táxons. Esta é a situação do *Mico leucippe* (Thomas, 1922), cuja distribuição geográfica conhecida se restringe ao interflúvio Tapajós-Cupari no baixo rio Tapajós (van Roosmalen *et al.*, 2000; Pimenta e Silva Júnior, 2005) (Figura 1). A observação de dois indivíduos de *M. leucippe* na margem direita do rio São Benedito (9°02'51"S, 56°32'09"O), afluente do rio Teles Pires (antigo São Manuel), no município de Jacareacanga, Pará (Figura 1), durante inventário de primatas

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