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WHAT DO LOCAL FISHERMEN FROM THE MID SOLIMÕES RIVER THINK ABOUT THE GIANT RIVER OTTER?

RESUMO

The giant river otter is a mustelid that uses different habitats in tropical forests and flooded areas of South America. In the past the species suffered heavy hunting pressure, due to the commercial value of its pelt, and nowadays is considered threatened by anthropogenic factors, such as negative interaction with fishing activities. The objective of this work was to analyze the perception of local fishermen in the town of Tefé, Amazonas (Brazil), generating information on possible threats to the species in the area. Fishermen point to the species as a competitor for food and responsible for damages to fishing gear, which causes a negative perception among humans towards the animal. An investigation of this relationship was conducted in Tefé, mid-Solimões river, where one-hundred fishermen were interviewed. Thirty-one percent ($n = 31$) of the interviewees declared giant river otters damage fishing nets and cause fish schools to flee. Among those who witnessed or had second-hand information on behaviors characteristic of the species, 22% ($n = 22$) interpreted them as offspring or territorial defense, or an attempt at attack. In the past, 23% ($n = 23$) of the interviewees practiced hunting activities, aiming the pelt trade and, secondarily, as an item of house decoration, or basic material to build a musical instrument. Information generated may contribute to the elaboration of an environmental education policy, aiming at avoiding future impacts to the giant otters due to lack of information, or misinformation by the local human population.

PALAVRAS-CHAVE: Pteronura brasiliensis; Interaction; Fishing Activity; Amazonas.

O QUE PENSAM OS PESCADORES NA REGIÃO DO MÉDIO RIO SOLIMÕES SOBRE A ARIRANHA?

ABSTRACT

A ariranha é um mustelídeo que utiliza distintos ambientes em florestas tropicais e planícies inundáveis na América do Sul. No passado a espécie sofreu forte pressão de caça, devido ao valor comercial da pele, e atualmente está ameaçada por fatores antrópicos como, por exemplo, a interação negativa com a pesca. Pescadores apontam a ariranha como competidora pelo alimento e responsável por danos em artefatos de pesca. Sendo assim, o objetivo do presente estudo foi analisar a percepção dos pescadores locais na cidade de Tefé, região do médio rio Solimões no estado do Amazonas (Brasil), gerando informações sobre possíveis ameaças para as espécies na área. Um total de 100 pescadores artesanais foi entrevistado, do qual 31% ($n = 31$) afirmou que ariranhas rasgam redes de espera e espantam cardumes de peixe. Dos entrevistados que já presenciaram a exibição de padrões comportamentais por ariranhas ou conheciam relatos de avistagem, 22% ($n = 22$) interpretou tal comportamento como defesa da prole, defesa de território ou tentativa de ataque. Em relação à caça, 23% ($n = 23$) dos entrevistados praticou tal atividade no passado, visando principalmente a comercialização e, em menor escala, utilização de peles como adorno de residências e confecção de instrumento sonoro. Espera-se que estas informações possam contribuir para a elaboração de políticas públicas de educação ambiental, capazes de minimizar impactos por falta de informações básicas a respeito da biologia e o comportamento da espécie.

KEYWORDS: Pteronura brasiliensis; Interação; Atividade Pesqueira; Amazonas.

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INTRODUCTION

The giant river otter (*Pteronura brasiliensis*) (Gmelin, 1788) is one of the most spectacular animals in the Neotropics. It is endemic to South America, and uses rivers, creeks and lagoons in tropical rainforests and flooded areas (CARTER; ROSAS, 1997). It forms groups that may reach up to 20 individuals, composed by a dominant breeding pair, litters of different ages and/or unrelated individuals (DUPLAIX, 1980; CARTER; ROSAS, 1997; RIBAS et al. 2012) and conducts daily chores collectively. This characteristic, associated with the conspicuous noisy and territorial behavior, makes sightings of the animal relatively easy (CARVALHO-JUNIOR et al., 2004).

The species was widely hunted between the decades of 1950 and 1970 due to the high value of its pelt in international markets (FOSTER-TURLEY et al., 1990). Hunting pressure was so intense that caused the reduction of the population and fragmentation of the original distribution (VAN DAMME et al., 2002). Nowadays the species is threatened mainly due to habitat alteration, although both low-level hunting and cub trafficking persist (CARTER; ROSAS, 1997). Culling as a result of conflict with fishing communities has been pointed out as a potential threat to giant river otters (EMMONS, 1999; MARMONTEL; CALVIMONTES, 2004). Giant otters are opportunistic predators that feed almost exclusively on fish (DUPLAIX, 1980; ROSAS et al., 1999), therefore they are perceived by fishermen as competitors for the fisheries resource. Fishermen frequently report that giant otters remove fish from their fishing gear, especially gillnets (ROOPSIND, 2002), which causes discontent among fishermen.

The resource use conflict between fishermen and giant otters is currently the major cause of deaths in Brazil (ROSAS et al., 2003; MARMONTEL; CALVIMONTES, 2004; ZUCCO; TOMAS, 2004; LIMA, 2009; ROSAS-RIBEIRO, 2009; VARGAS, 2009). The first conflict events were documented in Mato Grosso do Sul state (Pantanal) by Tomas et al. (2000), at the Miranda and Aquidauana rivers, where fishermen attribute fishing deficits to giant river otters. Similarly, conflicting relations were also recorded in the Brazilian Amazon, documented for the Purus (ROSAS et al., 2003; ROSAS-RIBEIRO, 2009) and Japurá basins (MARMONTEL; CALVIMONTES, 2004; LIMA, 2009).

The giant river otter is considered endangered by the IUCN (DUPLAIX et al., 2008) and is listed under Appendix I of CITES (2011). Given the recent reports of negative interactions of the species with fishing communities, it is important to know if this same type of impact occurs also in the region of Tefé. Thus, the objective of this work was to analyze the perception of local fishermen in the town of Tefé, Amazonas (Brazil), generating information on possible threats to the species in the area.

MATERIALS AND METHODS

Semi-structured questionnaires about the perception of giant river otters by local fishermen were applied to 100 fishermen in the region of Tefé, mid-Solimões river, and surroundings, including the Mamirauá and Amanã reserves (Figure 1). Fishermen were contacted in the fish landing structure, on the Tefé harbor; in the local fishing colony and in their homes in the Abial section of town, where most fishermen live. Data collection took place from August to December 2005, always in the morning, when the flow of fishermen is higher. Data were analyzed in Excel, using descriptive statistics.

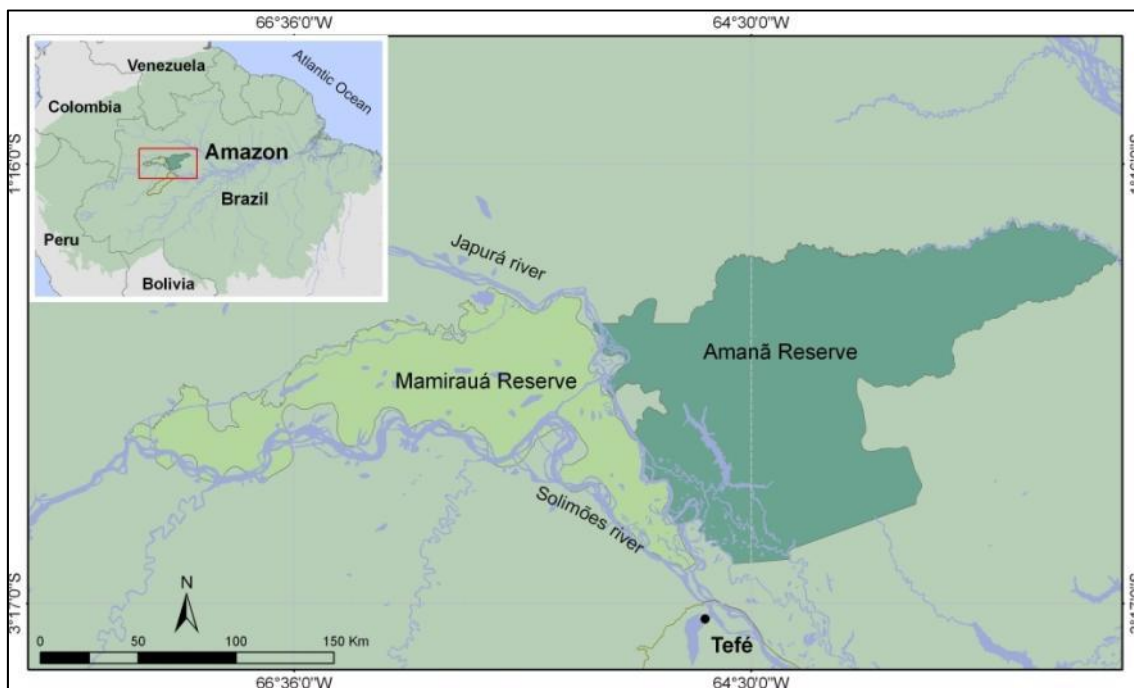


Figure 1: Location of Tefé municipality, mid-Solimões river, Amazonas State.

RESULTS

One hundred professional fishermen were interviewed, 92% ($n = 92$) of which were still active in the area. Only 12% ($n = 12$) of the interviewees had less than 11 years of experience in fishing. The period of activity of those eight who did not fish any longer ranged from 14 to 50 years.

Giant river otter sightings were reported to occur in parts of the Japurá, Negro, Purus and Tefé rivers, in rivers close to the towns of Maraã and Jutá and in creeks and flooded areas in the region of the mid-Solimões river (Figure 2). Although sightings could occur throughout the year, they were more frequent during the dry season (between June and November).

The perception of 70% ($n = 70$) of the interviewees during such encounters was that the giant otters showed nonaggressive or docile behavior and suggested that the animals do not attack; 18% ($n = 18$) of the subjects consider the giant otter slightly aggressive, that tends to attack when feeling threatened by man. Ten percent ($n = 10$) of fishermen judged that the otters are very

aggressive, both among themselves and in relationship to humans. Two fishermen did not answer the question. During the encounters, 92% (n = 92) of the fishermen had the opportunity to see the animals feeding, and suggested that common catfish (*Liposarcus pardalis*), trairas (*Hoplias malabaricus*), tambaquis (*Colossoma macropomum*) e jaraquis (*Semaprochilodus insignis*, *S. taeniurus*) are the preferred fish by giant otters.

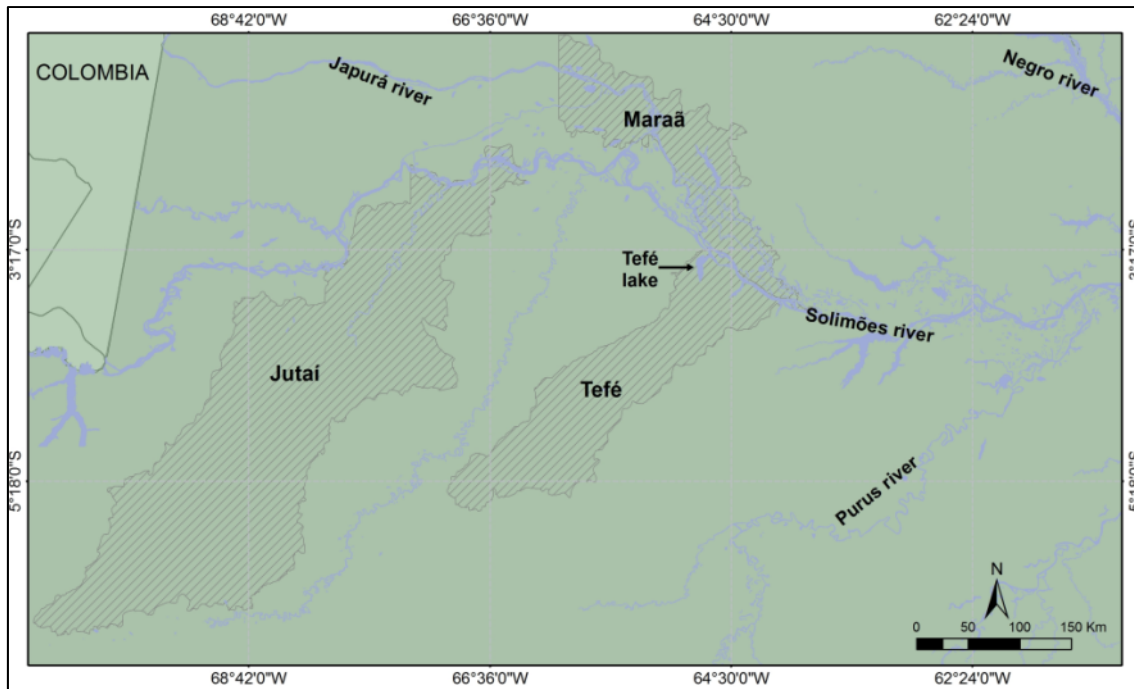


Figure 2: Municipalities and rivers where giant river otter sightings were reported by the interviewees.

When asked about problems caused by giant otters to the fishing activity, 28% (n = 28) of the interviewees reported some kind of problem, either damaging gillnets or frightening fish schools; 69% (n = 69) thought giant otters do not interfere with fishing; 3% (n = 3) thought they interfere slightly, sometimes. Approximately 72% (n = 72) of the subjects declared never having hunted a giant otter, whereas the remainder had already either killed an animal (23%, n = 23) or knew someone who had done so (5%, n = 5). The pelt trade of the past was the motivation for 23 of the fishermen to have culled an animal; two killed the otter to use the skin as a piece of décor; one to build an utensil, such as a drum and one in allegedly self defense; one did not report the motive.

Seventy-eight percent (n = 78) of the fishermen interviewed had never heard about giant otter attacking humans. Of the 22% (n = 22) who knew such cases, eight interviewees did not know why it had happened, six mentioned they were defending their cubs, four fishermen suggested the animals felt threatened, three thought the giant otters were defending their territory and one fisherman mentioned the animal was feeding at the time of the encounter. All interviewees declared that those had been attack attempts, with no injuries involved. When asked about their perceptions of giant otter vocalizations, 43% (n = 43) regarded it as a means of communication among the animals, 13% (n = 13) believed they occur during territorial disputes, 11% (n = 11)

thought they were about to attack, 8% said they represented no more than noise, 2% (n = 2) believed it was a sign of hunger and 23% (n = 23) did not know the meaning of the sounds.

DISCUSSION

Following the reduction in intentional killing of giant river otters for pelts, these animals are starting to reoccupy areas of historical occurrence, where now there are concentrations of human dwellings. This proximity has been known to cause uneasiness, generating conflicts (MARMONTEL; CALVIMONTES, 2005; LIMA, 2009; LIMA; MARMONTEL, unpubl. data). The conflict occurs mainly due to the fact that the animal is seen as a competitor for the fish, and for damaging fishing gear (DUPLAIX, 1980; ROOPSIND, 2002; ZUCCO; TOMAS et al., 2004).

In the mid-Solimões area fishermen have the same kind of perception, yet reporting that giant otters do not interfere with fishing activity. This may be due to the fact that the giant river otter population is still small in their fishing areas. Few are the reports of negative interaction of giant otters and fisheries among the Tefé fishermen; when it occurs, the fishermen try to discourage the animals from approaching the gear, by producing noise, e.g. slapping the paddle on the water surface.

During the research period no incident occurred regarding negative interactions with giant otters. However, fishermen do perceive the giant otters as inhibitors of fish presence, even if only when the otter group is nearby. This situation may be considered an impact of giant otters over fisheries, but it is not large or frequent enough to generate a conflict. While in Ecuador there are no reports of conflicts, fishermen in Colombia point at giant otters as the cause of reduction of fish stocks (CARRERA, 2003). According to Tefé fishermen, the reduction in fish stocks may occur in the future, not due to giant otter populations, but due to unregulated fishing, practiced by unauthorized people without specific knowledge of the activity.

Gómez (2004) mentioned that consumption of giant river otter meat does not occur in Colombia, as fishermen do not find the meat palatable; however, Guaripa indians in Colombia do kill giant otters for consumption rather than for the pelt. One such report was also found in the region of Tefé, where only one interviewee mentioned having taken the giant otter meat for food; however, all others reported that otter meat is not edible.

One of the main threats present in Ecuador is the capture of giant river otter cubs to be maintained as a family pet (GOMÉZ, 2004). In the past, this was also common in the mid-Solimões region. One local dweller who maintained a giant river otter pet in the past, mentioned that "... it was a restless animal, was constantly making noises, and as soon as it fed it went to sleep". Nowadays, this practice is not common in the area, as local populations are aware that the species is endangered and protected by law. Additionally, they mention that "... it is a tremendous chore to raise a giant river otter cub as a pet".

Legal in the past, culling of giant river otters for pelt was very profitable. The data obtained with the local fishermen in Tefé showed that only a small number of them practiced the activity, and only five learned of other fishermen who had killed otters. All subjects of this research demonstrated familiarity with the species and the history of hunting, and declared that killing does not persist because of the prohibition and law enforcement efforts, and the lack of buyers.

CONCLUSION

Tefé fishermen perceive the giant river otter as a nonaggressive animal, due to the fact that during sightings and encounters, oftentimes the animals approach the boat, which is interpreted as a natural behavior that represents no harm to humans. Fishermen add that such behavior is initiated by curiosity, and is the animals' way to learn who is in their areas. Therefore, generally the local fishermen do not consider giant river otters as aggressive, and even when displaying a supposedly aggressive behavior, attribute it to a way of defense, be it territorial, of an offspring or of food item.

However, if the trend observed in many parts of the Amazon is valid for the Tefé area, giant river otter populations will grow in the next decades, expanding their territories and colonizing water bodies new or previously occupied. In all likelihood those habitats are nowadays used by humans, which will bring both species in closed contact, and exacerbate the possibility of conflict. It is important to monitor these populations on a regular basis and, should it become necessary, intervene in the system in order to ensure the maintenance of giant otters in the region.

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