

Exploring behavioral patterns of Neotropical Otters in communal latrines

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Introduction

The Neotropical otter (*Lontra longicaudis annectens*) is a solitary species that strategically uses communal latrines for intraspecific communication, revealing essential aspects of its behavioral ecology. However, the difficulty of locating and monitoring these latrines has limited our understanding of otter behavior, leaving important aspects poorly documented. This study aims to explore otter behavioral patterns in latrines and identify co-occurring species within their habitats.

Preliminary results

A total of 1,526 20-second video clips were recorded from both latrines, capturing various fauna species for a total of 509 minutes of footage, of which 24% corresponded to Neotropical otters (366 videos, 122 minutes). Three distinct males were identified based on physical traits and unique markings like scars, while females were also observed visiting the latrines but lacked identifiable features to distinguish individuals.

The observed otter behaviors were classified into 10 categories described in the ethogram (Table 1), with the most frequent being passing by, smelling, and rubbing (Figure 2). Figure 3 presents a flow chart representing the most common behavioral sequences and the percentage of times one behavior was followed by another within recorded sequences. Additionally, 44 fauna species were recorded visiting the sites, including 21 bird species (the most common being *Actitis macularia*), 16 mammal species (*Philander melanurus* being the most frequent visitor), 4 reptile species (*Basiliscus plumifrons*, the most recorded), and one unidentified crab species. Sporadic interactions with otter feces were recorded from two species (*Procyon lotor* and *Leptotila cassinii*), possibly in search of invertebrates present within them.

The field study was conducted in the Tirimbina Biological Reserve, Heredia, Costa Rica along the Sarapiquí River (Figure 1). Two frequently used neotropical otter latrines were identified on sandbanks two meters from the water. Monitoring took place from May to November 2024, using motion- and heat-activated camera traps (Hawkray Trail Cam and Browning Strike Force) operating 24 hours a day. Individual males were identified by physical traits and unique markings (e.g., scars), while females lacked identifiable features for individual differentiation. Other fauna species visiting the latrines and their interactions were also recorded. Otter behaviors captured were categorized to develop an ethogram and a flow diagram of behavioral transitions, with probabilities calculated for movements between behaviors during latrine visits. A brief analysis of other species' presence and interactions at the latrines was also conducted.

Table 1. Ethogram of Neotropical otter (*Lontra longicaudis annectens*) in communal latrines in Costa Rica. On the left are the names of the behaviors with AI-generated illustrations. N = number of records for each behavioral state filmed as a single behavior or within a series of other behaviors. Descriptions of each behavioral state in the right column.

Behavior	Illustration	N	Description
Passin by		323	Otters arrive at the latrine from the river, pass through the latrine and sometimes perform one or more other behaviors in sequence.
Rubbing		157	Otters lie on the ground and rub their entire bodies in the latrine, especially their heads and necks.
Scratching		10	Otters rest their bodies on their tails and scratch the wood or the ground with their claws (mostly from the front paws and sometimes with claws from the hind paws).
In vigilance		6	Otters raise their heads and necks and look around in all directions. They remain attentive for a few seconds while turning their heads from side to side.
Smelling		262	Otters use their sense of smell to check specific areas of the latrine for information about other individuals.
Defecating		29	Otters defecate at specific points in the latrine, leaving scent marks for other individuals.
Urinating		101	Otters urinate at specific points in the latrine, leaving scent marks for other individuals.
Digging		65	Otters scavenge the ground while lying in the latrine. They especially rub against the existing droppings or urine of other individuals and when there are fallen leaves on top of the latrine.
Self-grooming		7	Otters groom themselves, cleaning their fur and maintaining their personal hygiene.
Interacting with others		3	Otters interact with each other, displaying social behaviors such as play and communication.

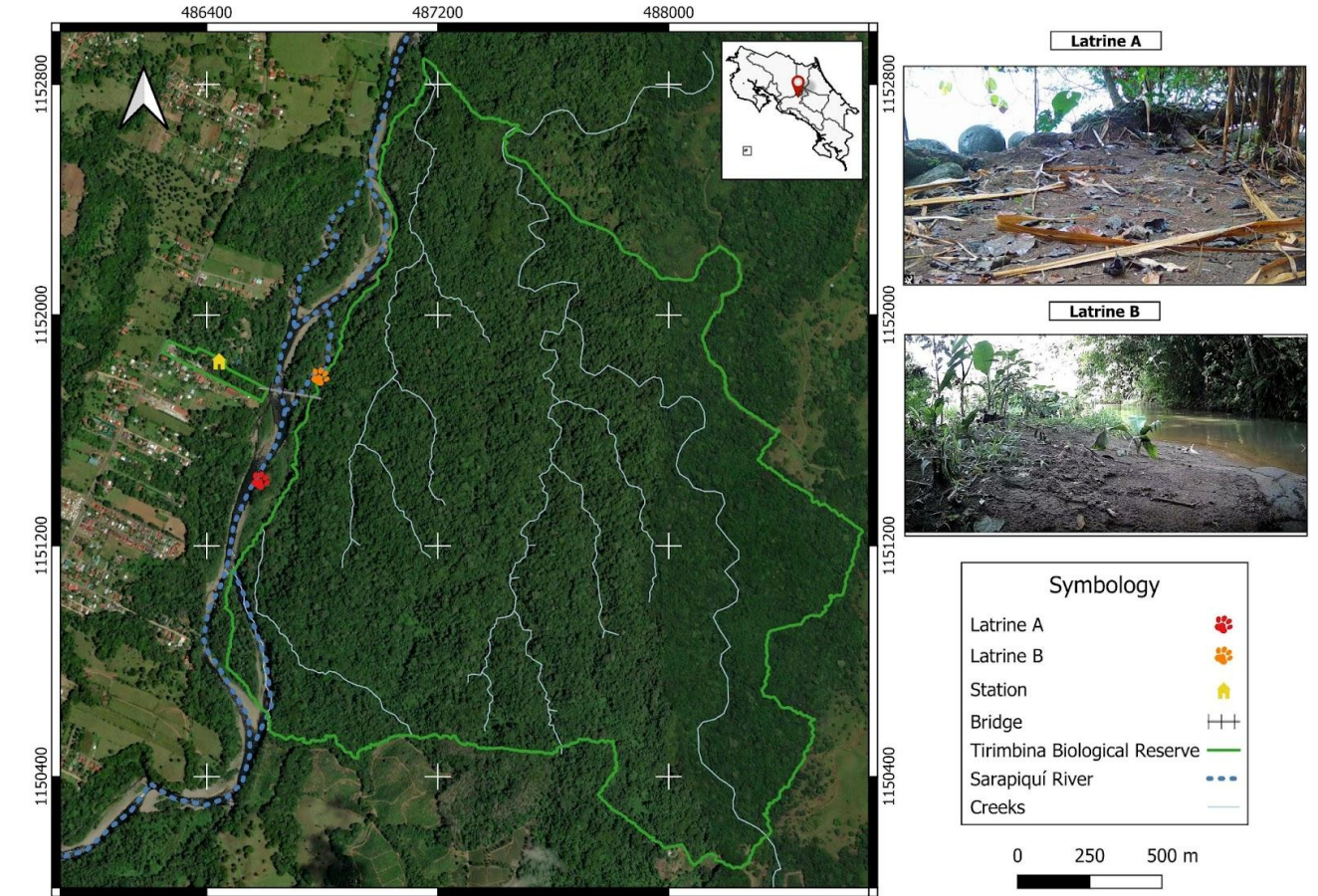


Figure 1. Map of the Tirimbina Biological Reserve showing the location of two Neotropical otter communal latrines where otter behavior data and records of other visiting species were collected.

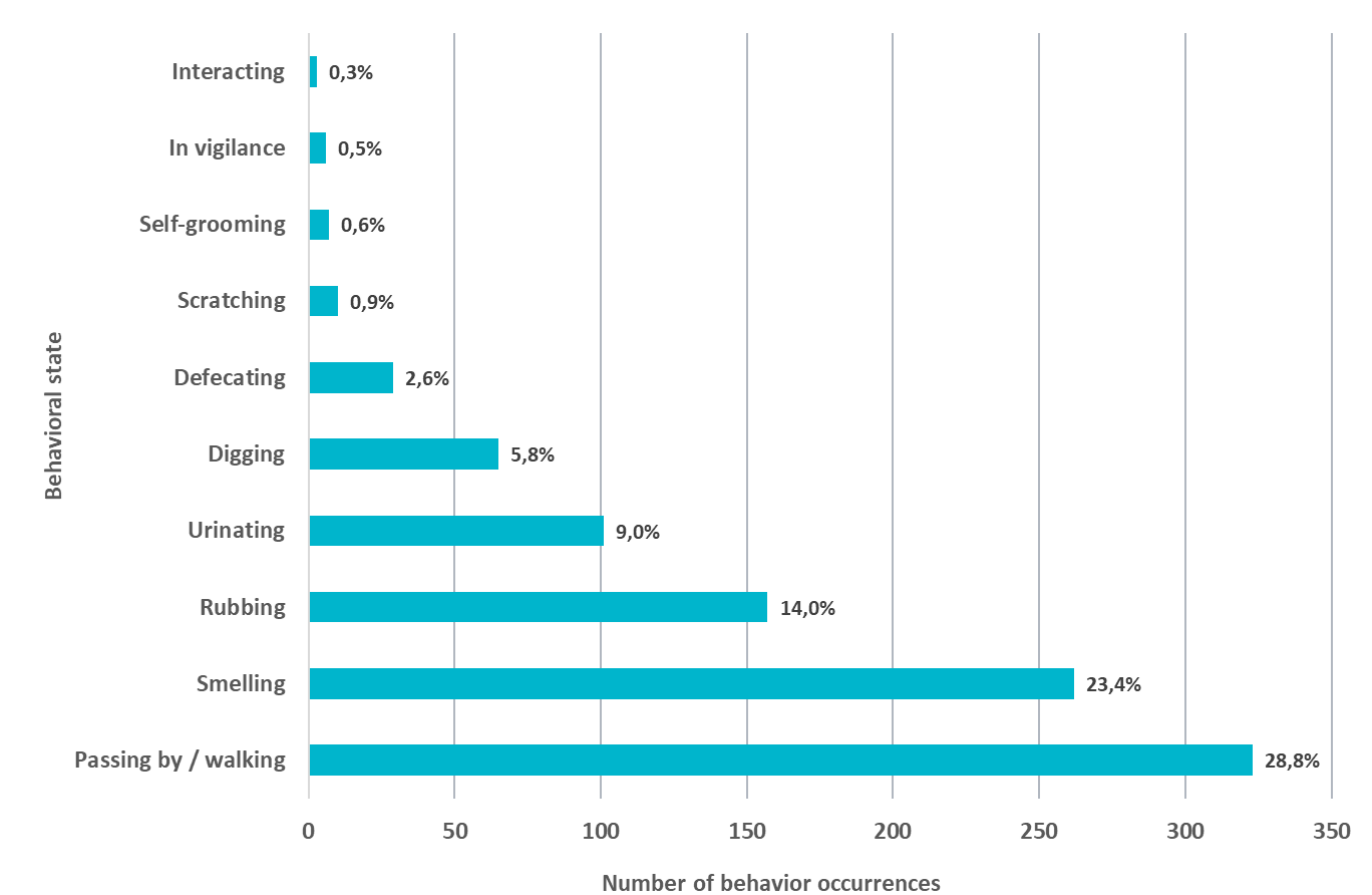


Figure 2. Histogram of the number of records of Neotropical otters showing single behavioral states at their communal latrines.

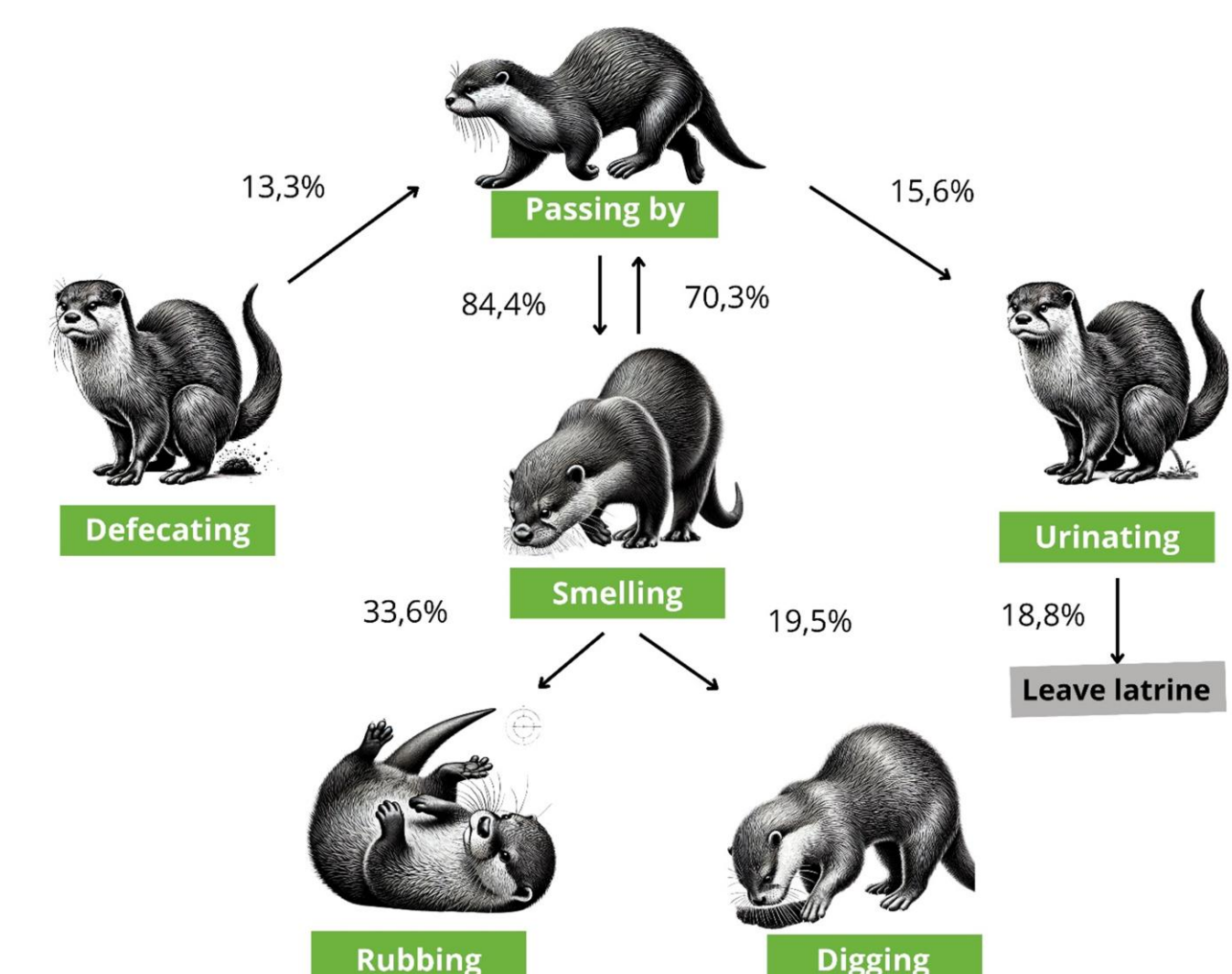


Figure 3. Flow chart of behavioral sequences observed in communal latrines of Neotropical otters.



Figure 4. Footage of some of the fauna visiting Neotropical Otter communal latrines.

References:

Laurentino, I. C., Sousa, R. T. M., Corso, G., Lobao-Soares, B., & Sousa-Lima, R. S. (2023). Behaviors of the solitary Neotropical otter (*Lontra longicaudis*) in communal latrines. *Aquatic Mammals*, 49(3), 265–273. <https://doi.org/10.1578/AM.49.3.2023.265>