

## REPORT

# EXPLORING “OTTERHOOD”: ENRICHMENT PREFERENCES IN A PAIR OF NORTH AMERICAN RIVER OTTERS (*Lontra canadensis*)

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**Abstract:** Given how essential environmental enrichment is for promoting the well-being of ex-situ animals, this ethologically-centered study was designed to better understand the enrichment preferences and behaviors of a male–female pair of North American river otters (*Lontra canadensis*) housed at the Prospect Park Zoo in Brooklyn, New York. Throughout fourteen sessions held across six months, these otters were offered six enrichment items of varying novelty, and their behaviors were recorded via one-minute scan sampling, yielding 840 minutes of observation per otter. The study assessed the otters' engagement with olfactory, structural, and occupational enrichments to explore the intersections of personhood and behavior. The findings indicated that enrichments not only mitigate stereotypic behaviors but also serve as a window to support more complex expressions of “otterhood”.

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**Keywords:** decolonial perspectives, ex-situ care, indigenous epistemologies, animal culture.

## INTRODUCTION

Logan and Nellie are a charismatic pair of North American river otters (*Lontra canadensis*) under human care at the Prospect Park Zoo. They swim, slide, and stand on their hind legs. One otter cuddles the other, the other one climbs a tree. A zookeeper shared that Logan taught Nellie how to climb trees, but who taught Logan? Who taught him how to balance pebbles and eggs on his head while swimming in their exhibit's pool (Video 1). Such moments could be simply recorded as “play” or “stereotypic” behaviour by some, but to those seeking to enrich the lives of river otters more expansively these moments guide our research. Environmental enrichment—the strategic addition of stimuli to ex-situ habitats—enhances behavioral diversity and reduces stereotypies in mammals (Shepherdson 2003; Swaisgood & Shepherdson 2005; Mason et al. 2007). For mustelids like *Lontra canadensis*, enrichment supports natural behaviors including swimming, foraging, and play (Nelson 2009).



**Video 1.** Logan swimming while balancing a rock on his head. (08/24/22). [[Youtube](#) / [Drive](#)]

I approached this study from both scientific and ethical lenses, inspired by multispecies justice (Celermajer et al. 2021) and Indigenous epistemologies that center kinship and reciprocity with nonhuman life (Kimmerer 2013; TallBear 2011; Despret 2016). What does it mean to not only study otters but to recognize “otterhood” and the expressive lives of otters under human care? In this study I aimed to explore what are the enrichment preferences of Logan and Nellie,

by hypothesizing that each otter would engage differently with each enrichment item (H1), Otter engagement would change between phases due to habituation (H2), The otters would display different behavior patterns on enrichment vs. control days (H3).

## ANIMALS, MATERIALS, & METHODS

### Otter Participants & Ethical Considerations

The participants were a pair (n=2) of ex-situ, born & raised, adult (age=2yo) *Lontra canadensis*, Logan (M/♂) & Nellie (F/♀), housed at the Prospect Park Zoo, in Brooklyn, NY.

This study was approved by the The Wildlife Conservation Society on Aug 17, 2022 and signed by Prospect Park Zoo Director Lonnie McCaskill and myself, José “Maya” Godoy-Reyes, as the principal investigator. This approval constitutes the required ethical statement for animal handling in accordance with institutional guidelines. The design and realization of this study was done in close adherence to the ethical and wellness considerations of the Wildlife Conservation Society (WCS) Grantee Standards of Conduct, the North American River Otter (*Lontra canadensis*) Husbandry Notebook, and Code of Professional Ethics of the Association of Zoos and Aquariums (AZA).

### Enrichment Materials

Six (6) enrichment items (Table 1; Figure 1) were offered to the otters: Pine Bark Nugget Substrate, Buoy & Apple Toy, Ice Cubes, Oregano & Mint Scents, Unopened Coconuts, and a Floating Raft Toy. Note that only the Unopened Coconuts and Oregano & Mint Scents were confirmed novel items; other enrichments had been previously introduced to varying degrees.

**Table 1.** Enrichment Items used in this study, their description, and their behavioral purpose.

Enrichment Item	Description	Behavioral Purpose
Pine Bark Nugget Substrate	A textured substrate of pine bark nuggets placed on the ground.	dig, forage, investigate, play, rub, scent mark
Buoy & Apple Floating Toys	Buoyant toys designed to promote playful interactions in the water.	manipulate, play, swim
Ice Cubes	Small blocks of ice that offer tactile stimulation and cooling effects.	chew, manipulate, play, swim
Oregano & Mint Scents	Novel water-based blend of herb scents sprayed in different areas of the otters’ enclosure to engage olfactory exploration.	investigate, sniff
Unopened Coconuts	Novel floating unopened coconuts with their coir fiber burnt.	manipulate, play
Floating Raft Toy	A raft-shaped toy that floats on water, encouraging interactive play.	climb, manipulate, play, swim





**Figure 1.** Enrichment Items (from Top Left to Bottom Right: Pine Bark Nuggets; Buoy & Apple; Ice-Cubes; Sprayed Scents Location; Floating Raft Toy; Unopened Coconuts).

### Scan Sampling

Behavior was recorded using instantaneous scan sampling at 1-minute intervals over 60-minute observation sessions (60 scans/day/otter; 840 scans/otter) and subsequently classified into four categories: locomotion, interaction, maintenance, and other (Table 4).

### Schedule

Data was collected on 14 designated study days split between two phases (Table 2-3).

**Table 2.** Phase 1, Schedule Details (August 15–25, 2022).

Date	Enrichment Type	Time (hh:mm)	Temperature (°C)	Precipitation
Aug 15	Bark Nuggets	9:18-10:17 a.m.	24.2	None
Aug 17	None (Control Day)	9:43-10:42 a.m.	25.0	None
Aug 18	Whole Coconuts	9:37-10:36 a.m.	26.1	None
Aug 21	Ice Cubes	9:28-10:27 a.m.	27.8	None
Aug 22	Buoy & Apple	10:17-11:16 a.m.	27.2	Light Rain
Aug 24	Scented Water	9:30-10:29 a.m.	26.7	None
Aug 25	Raft	10:01-11:00 a.m.	27.0	None



**Table 3.** Phase 2, Schedule Details (February 5–23, 2022).

Date	Enrichment Type	Time (hh:mm)	Temperature (°C)	Precipitation
Feb 5	Bark Nuggets	10:39-11:38 a.m.	1.7	None
Feb 7	Raft	9:42-10:41 a.m.	0.6	None
Feb 16	Buoy & Apple	9:43-10:42 a.m.	4.4	None
Feb 17	None (Control Day)	9:30-10:29 a.m.	5.6	None
Feb 20	Whole Coconuts	9:43-10:42 a.m.	3.3	None
Feb 22	Scented Water	9:15-10:14 a.m.	2.2	None
Feb 23	Ice Cubes	9:18-10:17 a.m.	1.1	None

Phases consisted of 6 enrichment days and 1 control day. Every session began around 9:00 a.m. following routine enclosure cleaning and enrichment introduction by keepers. Observations took place outside the otters' enclosure (Figure 2) starting around 9:30 a.m., when the otters were released from their separate holding pens. Each session was opened and closed by asking the otters for permission and expressing gratitude for their participation.



**Figure 2.** Observation station setup (from left to right: equipment backpack; stopwatch on iPhone; notebook for behavior recording; camcorder on tripod).

## RESULTS

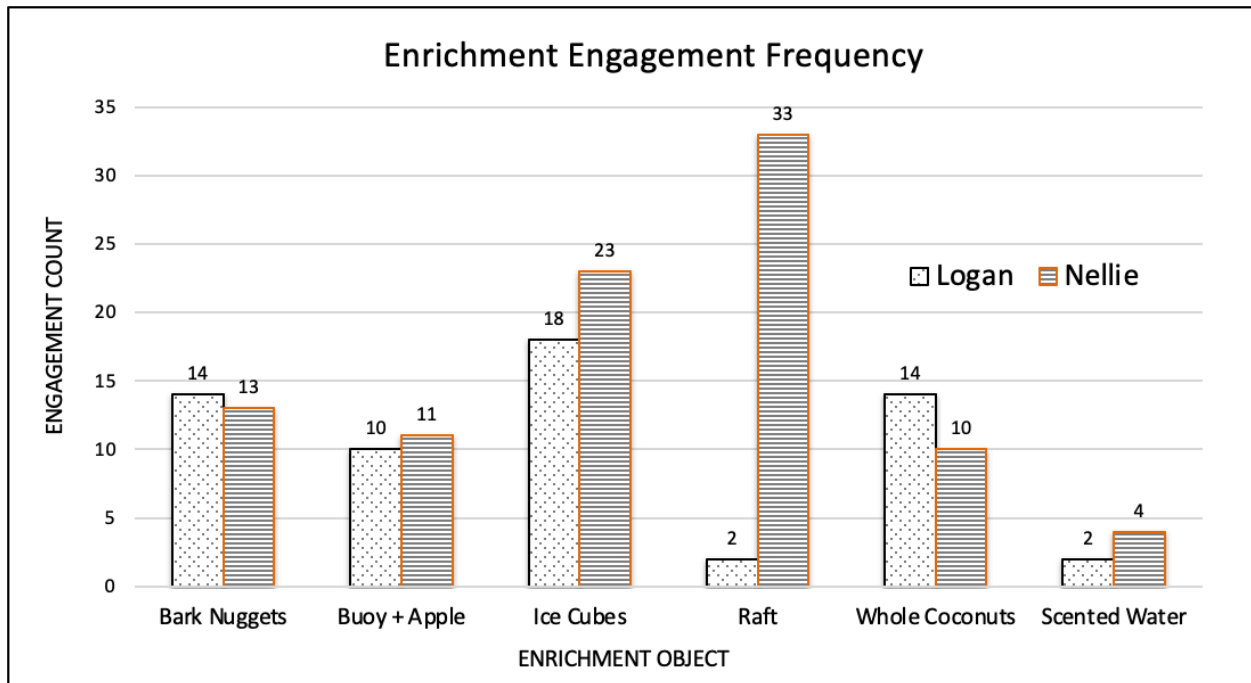
### Recorded Data

Using an ethogram, the behavioral scan-sample data was recorded and classified into four primary categories (Table 4). The frequency of engagement with each enrichment item was also plotted (Figure 3) to illustrate the otters' responses.

**Table 4:** Ethogram with Behavior Categorization.

Behavior	Description	Category
Alert	Otter stops and orients head/body toward a stimulus	Interaction
Break	Pauses activity, briefly disengages from current task	Interaction
Chase	Rapid pursuit of another otter or object	Locomotion
Chew	Uses teeth/jaws to gnaw on object or enrichment	Maintenance
Climb	Ascends structure or object using limbs	Locomotion
Cuddle	Lies closely pressed against another otter	Interaction
Dig	Uses forelimbs to move substrate or explore ground	Locomotion
Drink	Laps or sips water	Maintenance
Eat	Consumes food using mouth and/or paws	Maintenance
Explore	Moves through and investigates environment	Locomotion
Forage	Searches area for food or enrichment	Interaction
Groom [Other]	Uses paws or mouth to clean another otter	Interaction
Groom [Self]	Uses paws or mouth to clean own body	Maintenance
Inspect	Closely examines object or feature	Interaction
Interact	Engages with another otter, human, or enrichment	Interaction
Investigate	Approaches and examines something with interest	Interaction
Look	Gazes toward object/person/animal for extended moment	Interaction
Look Around	Scans environment with head movements	Interaction
Manipulate	Uses paws/mouth to move or handle object	Interaction
Move	Walks or travels on land	Locomotion
[Out of Sight]	Not visible to observer	Other
Pee	Releases urine	Maintenance
Play	Engages in spontaneous, expressive, and creative actions	Interaction
Poop	Defecates	Maintenance
Rest	Lies down or sleeps without active engagement	Maintenance
Rub	Presses or drags body/paws against surface	Maintenance
Run	Rapid movement across ground	Locomotion
Scent Mark	Rubbing or rolling to leave scent	Maintenance
Scratch	Uses claws to scrape body or surface	Maintenance
Share	Two otters use or access object/resource at same time	Interaction
Smell	Inhales to detect scent from object, space, or conspecific	Maintenance
Snarl	Shows teeth and vocalizes in defensive/aggressive display	Interaction
Sniff	Investigates closely with nose	Interaction

Socialize	Engages in affiliative interaction with conspecific	Interaction
Stand Up	Rears up on hind legs to view surroundings	Interaction
Stretch	Extends body or limbs in a deliberate motion	Locomotion
Swim	Moves through water using limbs and body	Locomotion
Transport	Carries object using mouth or paws	Interaction
Try to Break Out	Pushes, scratches, or gnaws at barrier/enclosure	Other
Wrestle	Engages in rough-and-tumble play with another otter	Interaction



**Figure 3.** Bar Graph of Enrichment Engagement frequency for each Otter.

### Statistics

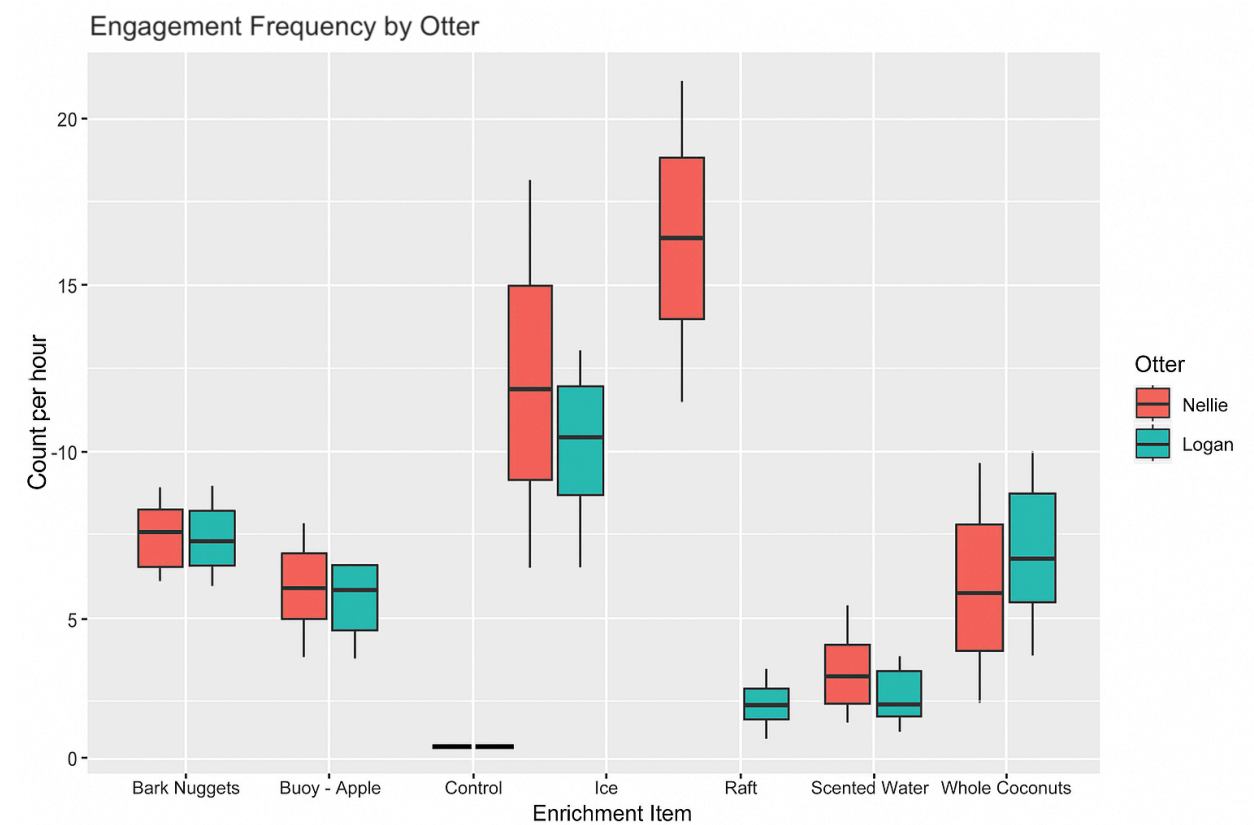
To investigate patterns in otter enrichment engagement frequency (H1), we calculated total interaction counts per enrichment type and individual across 14 focal observation sessions. We structured the dataset by enrichment item and used these values as dependent variables in a Generalized Linear Model (GLM) with a Poisson distribution, conducted in R (v4.5.0), to assess the effects of each otter, by each enrichment item, and their interaction on the frequency of enrichment engagement (Table 5). All predictor variables were included as main effects and in interaction terms to identify differences in how each otter responded to various enrichment types. Model residuals were checked for overdispersion and other assumptions, and results were presented as parameter estimates  $\pm$  standard error. To investigate otters' engagement frequencies over time (H2) and their behavior patterns in enrichment vs. control days (H3) we used



chi-square tests (Table 6-7). For all tests, significance levels were set at \*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$  and their averages were reported as  $M \pm SD$ .

### Otters' Enrichment Engagement Frequency Patterns

Engagement differences were visualized using a box plot and grouped by otter and enrichment type (Figure 4).



**Figure 4.** Box Plot of Enrichment Engagement Averages by Enrichment Item and Otter.

A Generalized Mixed Model (GLM) in R found statistically significant differences in enrichment engagement frequencies between the two otters (Table 5). For instance, there was a statistically significant difference in the frequency of engagement for the Raft Enrichment between Nellie ( $n = 33$ ) vs Logan ( $n = 2$ ) ( $P < 0.001$ ). The raft was also more appealing in terms of frequency overall compared to the other enrichment items ( $P < 0.01$ ), while items such as the Scented Water ( $n = 6$ ) had significantly lower engagement ( $P < 0.05$ ).

**Table 5.** Results of Generalised Linear Model (GLM) Test

Predictors	Estimate	SE	z Value	p Value
Intercept	1.872	0.277	6.749	<.001 ***
Otter (Logan)	0.074	0.385	0.192	0.847

Buoy & Apple	-0.167	0.410	-0.408	0.683
Control	-20.174	4042.906	-0.005	0.996
Ice Cubes	0.571	0.347	1.644	0.100
Raft	0.932	0.327	2.845	<b>.004 **</b>
Scented Water	-1.179	0.572	-2.061	<b>.039 *</b>
Whole Coconuts	-0.262	0.421	-0.624	0.533
Otter (Logan) × Buoy & Apple	-0.169	0.582	-0.291	0.771
Otter (Logan) × Control	-0.074	5717.532	0.000	1.000
Otter (Logan) × Ice Cubes	-0.319	0.497	-0.642	0.521
Otter (Logan) × Raft	-2.877	0.824	-3.493	<b>&lt;.001 ***</b>
Otter (Logan) × Scented Water	-0.767	0.948	-0.809	0.418
Otter (Logan) × Whole Coconuts	0.262	0.566	0.464	0.643

A chi-square test comparing total behavioral distributions during enrichment sessions between Logan and Nellie also showed a significant difference ( $\chi^2 = 23.105$ ,  $df = 5$ , (**P<0.001**)).

### Otters' Engagement Frequencies Over Time

Interaction behaviors declined for both otters from Phase 1 to Phase 2, while locomotion increased. Maintenance and Other behaviors showed mixed results (Table 6-7).

**Table 6:** Behavior Type counts and %s for Enrichment Days during both Phases

Behavior Category	Logan Phase 1 (n, %)	Logan Phase 2 (n, %)	Nellie Phase 1 (n, %)	Nellie Phase 2 (n, %)
Locomotion	124 (34.6%)	204 (46.2%)	161 (45.7%)	192 (52.3%)
Interaction	174 (48.6%)	111 (25.1%)	149 (42.3%)	91 (24.8%)
Maintenance	57 (15.9%)	42 (9.5%)	39 (11.1%)	69 (18.8%)
Other	3 (0.8%)	5 (1.1%)	3 (0.9%)	16 (4.4%)
Total	358 (100%)	442 (100%)	352 (100%)	368 (100%)

**Table 7.** Percentage change ( $\Delta\%$ ) from Phase 1  $\rightarrow \Delta\% \rightarrow$  to Phase 2

<b>Locomotion (n, %) Behavior: Increased</b>	<b>Interaction (n, %) Behavior: Decreased</b>
Logan: 124 (34.6%) $\rightarrow$ + <b>33.5%</b> $\rightarrow$ 204 (46.2%)	Logan: 174 (48.6%) $\rightarrow$ - <b>8.3%</b> $\rightarrow$ 111 (25.1%)
Nellie: 161 (45.7%) $\rightarrow$ + <b>14.4%</b> $\rightarrow$ 192 (52.3%)	Nellie: 149 (42.3%) $\rightarrow$ - <b>41.4%</b> $\rightarrow$ 91 (24.8%)

**Maintenance (n, %) Behavior: Mixed Results**

Logan: 57 (15.9%) → **-40.3%** → 42 (9.5%)  
 Nellie: 39 (11.1%) → **+69.4%** → 69 (18.8%)

**Other (n, %) Behavior: Mixed Results**

Logan: 3 (0.8%) → **+37.5%** → 5 (1.1%)  
 Nellie: 3 (0.9%) → **+388.9%** → 16 (4.4%)

Chi-square tests confirm significant differences in engagement across enrichment phases for Logan ( $\chi^2 = 11.314$ ,  $df = 5$ , **P<0.05**), and Nellie ( $\chi^2 = 22.651$ ,  $df = 5$ , **P<0.001**).

**Otters' Behavior Patterns in Enrichment vs. Control Days**

The behavior frequencies of control and enrichment days as well as their % change were recorded (Table 8).

**Table 8:** Behavior Frequency % and  $\Delta$  % Change for Control vs. Enrichment Days.

Behavior Category	Logan: Control Day %	Logan $\Delta$ %	Logan: Enrichment Day %	Nellie: Control Day %	Nellie $\Delta$ %	Nellie: Enrichment Day %
Locomotion	50.00%	-10.42%	39.58%	65.00%	-31.67%	33.33%
Interaction	45.00%	0.56%	45.56%	21.67%	27.36%	49.03%
Maintenance	5.00%	8.75%	13.75%	13.33%	1.67%	15.00%
Other	< 1.00%	1.11%	1.11%	< 1.00%	2.64%	2.64%

Chi-square tests confirm significant differences between control and enrichment days for Logan ( $\chi^2 = 8.821$ ,  $df = 3$ , **P<0.05**), and also Nellie ( $\chi^2 = 12.895$ ,  $df = 3$ , **P<0.01**).

**DISCUSSION**

All three hypotheses were supported: Logan and Nellie showed statistically significant differences in enrichment engagement frequency (H1), both otters exhibited significant behavioral changes between Phase 1 and Phase 2 (H2), and their behavior profiles differed significantly between enrichment and control days (H3).

Individual Enrichment Preferences (H1): The most notable difference between the otters' enrichment preferences was found in the Raft, where Nellie displayed significantly greater engagement compared to Logan. While I did not observe instances where Nellie reacted aggressively towards Logan if he tried to engage with the Raft, there is a possibility that a dispute, agreement, or other social dynamic occurred before this study —given that the raft was not a novelty item for either otter. As a result, Nellie could have monopolized access to the raft, limiting Logan's engagement. The varied responses to enrichment items affirm that otters under human care do not engage uniformly with the world around them. Floating enrichment, such as the Raft, Whole Coconuts, and the Buoy & Apple attracted particular interest due to their buoyancy—facilitating both exploration and play. Conversely, olfactory enrichments like Mint and Oregano Water received minimal interaction, reflecting the species' dietary realities as



carnivore-obligates with reduced ecological reliance on plant-based olfactory cues for foraging. The choice to include these plant scents was to explore whether the otters could have olfactory attractions not based on animal scent marking and food; further research is recommended.

Changes in Engagement Over Time (H2): Interaction behaviors decreased from Phase 1 to Phase 2, potentially reflecting habituation to the enrichment items. Habituation is commonly observed in enrichment studies and represents adaptive cognitive flexibility rather than enrichment failure. The decline in direct interaction behaviors suggests that both Logan and Nellie became familiar with the enrichment items' properties and potential uses, leading to more selective engagement. Simultaneously, locomotion increased, indicating sustained physical stimulation and curiosity. This pattern suggests that while the otters may have habituated to the novelty aspect of the enrichments, they might continue to derive physical and potentially cognitive benefits from their presence in the environment. Comparison across phases suggests a social dimension to enrichment use: reintroduced items in Phase 2 corresponded with increases in social behaviors, possibly indicating confidence and playfulness from the shared familiarity and learning experiences. The fact that social behaviors increased even as direct interactions decreased implies that the enrichment items may have served as social facilitators or focal points for interaction between Logan and Nellie, demonstrating that habituation to object novelty does not necessarily eliminate the enrichment's value.

Behavioral Changes On Enrichment Days (H3): There was a clear difference in the baseline behaviors of Logan and Nellie during control days versus enrichment days. Throughout the study, swimming emerged as the most dominant behavior, which aligns with the aquatic nature of river otters. Remarkably, Logan was observed balancing a pebble on his head while swimming (Video 1)—a behavior also noted with boiled eggs by zookeepers. This type of manipulation demonstrates acute cognitive complexity and inclination toward play that transcends survival-based motivations. Such behaviors support the growing literature on animal culture and ritualistic expression (Fuentes, 2020; Bekoff, 2018). A zookeeper reported that Logan taught Nellie how to climb trees (Video 2), which further supported the presence of social learning, a mechanism foundational to the transmission of adaptive behaviors and animal culture (Laland, 2004). Intersectional behavior analysis revealed that engagement type varied by item. Bark Nuggets prompted investigative and grooming behaviors, while Ice Cubes often elicited swimming and object manipulation behaviors.



**Video 2.** Nellie climbed a tree Again (02/07/22). [[Youtube](#) / [Drive](#)]

Where early ethology framed non-survival behaviors as stereotypic (Tinbergen, 1951), emerging research contends that such behaviors reflect rich cognitive and cultural life. This study aligns with a growing call for more-than-human perspectives in behavioral science. Decolonial thought (Escobar, 2018; Despret, 2016) and Indigenous epistemologies (Kimmerer, 2013; TallBear, 2011) can strengthen scientific rigor by offering methodologies that center relationality, reciprocity, and respect. These perspectives do not conflict with empirical inquiry but rather deepen it—broadening the lens through which we interpret behavioral expression. Beyond welfare, scholars have also called for deeper consideration of animal agency, personhood, and culture (Bekoff 2018; Fuentes 2020; Haraway 2016). Ritual-like actions such as these otters balancing food and rocks over their head hint at socially taught and learned behavior—key traits of culture (Laland 2004). Incorporating frameworks such as multispecies justice (Celermajor et al., 2021) furthers this approach by treating animals not as passive subjects but as agents embedded in cultural and ecological systems. Research from IUCN Otter Specialist Group (2004), Svábik (2019), Shyne (2006), and Irenäus (1989) contextualizes our findings within otter behavioral ecology. Recognizing otters' environmental interactions is critical not only for academic understanding but for ethical conservation strategies.

Neglecting the cognitive, emotional, and social capacities of otters risks reducing them to reductive models. As Maathai (2006) warned, environmental harm and social harm are intertwined. Similarly, failing to acknowledge otters' agency or cultural expression (Lynch, 2001) may limit welfare practices and miss opportunities for reciprocal learning. The observed ritualistic and playful behaviors in this study highlight the value of interpreting enrichment as not

merely preventative but as affirming of animal identity. These findings advocate for enrichment strategies that reframe enrichment from management tool to ethical practice—one that enables autonomy, well-being, and cultural expression (Reed-Smith, 2012; Claxton, 2011; De Waal, 2017). Drawing from classical ethology (Shepherdson et al., 1993; Kuczaj et al., 2002) and enriched by perspectives on agency (Haraway, 2016), this research contributes to a more expansive understanding of otterhood. Work on the cognitive ecology of animal movement (Kashetsky et al., 2021) reinforces the idea that environmental complexity, facilitated by meaningful enrichment, supports behavioral diversity. Thoughtfully designed enrichment replicates ecological challenges, fostering resilience, learning, and joy. These outcomes not only benefit the animals but challenge us to evolve the ways we think about care, kinship, and responsibility.

This study faced several key limitations that constrain the interpretation of results. The small sample size of only two otters across two sessions per enrichment item severely limited statistical power and increased individual variability. The scan sampling method, while standard for enrichment studies, underrepresented the otters' complex behavioral repertoire since Logan and Nellie frequently displayed rapid sequences of distinct behaviors within single minute intervals. Additionally, not all enrichment items were novel—only the Whole Coconuts and Mint & Oregano Water were confirmed as new stimuli—and the otters' detailed enrichment histories remain mostly unknown, potentially affecting engagement patterns. Environmental factors such as session timing, weather, seasonal variation, and visitor presence may have introduced uncontrolled variables influencing outcomes. Finally, findings from only two subjects cannot be generalized to the broader otter population without caution, and determining whether behavioral variations stem from sex, personality, or individual history would require larger sample sizes and greater subject diversity to support meaningful ecological and ethological conclusions.

## CONCLUSION

This study challenges outdated frameworks of animal behavior that reduce complex expressions to "play" or "stereotypy." Otters engage in meaningful, culturally relevant behaviors that reflect their lived experiences. To respect their agency is to recognize their right to explore, manipulate, and reimagine their environment on their own terms (Colmenares & Gómez, 1994; Hagos, 2023). "Otterhood" is not a static condition—it is relational, emergent, and context-specific. By refining enrichment strategies through robust ethological data and integrating decolonial, Indigenous, and multispecies perspectives, we can co-create environments that are not only functionally enriching but emotionally and cognitively fulfilling. Enrichment is more than enrichment—it is a portal into understanding what matters to otters. It is a tool for listening to them and learning from them. When approached ethically, it enables reciprocal relationships and reveals the evolving rituals and preferences that constitute otter culture and personhood. For those entrusted with animal care, the challenge is to move beyond general wellness checklists and more towards enrichment as a co-created, ethical, and playful practice—one rooted in kinship and curiosity.



## RECOMMENDATIONS

To deepen and broaden this research, the following recommendations are proposed: Expand behavioral categories to capture artistic, creative, and ritualistic behaviors as legitimate expressions of agency. Conduct cross-facility comparisons to examine regional, seasonal, or demographic variations in enrichment response and behavior. Integrate multispecies justice frameworks and Indigenous epistemologies to move beyond behaviorism and foster models of welfare that recognize cultural, emotional, and ecological complexity. Explore the role of social learning in enrichment response and examine how behaviors are transmitted among otters, assessing how these dynamics shape innovation, tradition, and ex-situ adaptation.

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**SUPPLEMENTARY MATERIAL**



**Supplementary Video 1.** Nellie's Vigorous Engagement with Raft Enrichment (08/25/22).  
[[Youtube](#) / [Drive](#)]



**Supplementary Video 2.** Bark Nugget Enrichment Day Highlight (05/02/22). [[Youtube](#) / [Drive](#)]



**RESUMEN: EXPLORANDO LA “NUTRIEDAD”: PREFERENCIAS DE ENRIQUECIMIENTO EN UNA PAREJA DE NUTRIAS DE RÍO NORTEAMERICANAS (*Lontra canadensis*)**

Dado lo esencial que es el enriquecimiento ambiental para promover el bienestar de los animales ex situ, este estudio centrado en la etología fue diseñado para comprender mejor las preferencias de enriquecimiento y los comportamientos de una pareja macho-hembra de nutrias de río norteamericanas (*Lontra canadensis*) alojadas en el zoológico de Prospect Park en Brooklyn, Nueva York. A lo largo de catorce sesiones realizadas durante seis meses, se ofrecieron a las nutrias seis objetos de enriquecimiento con distintos niveles de novedad, y sus comportamientos fueron registrados mediante muestreo de escaneo por minuto, obteniendo 840 minutos de observación por nutria. El estudio evaluó la interacción de las nutrias con enriquecimientos olfativos, estructurales y ocupacionales para explorar las intersecciones entre la personalidad y el comportamiento. Los hallazgos indicaron que los enriquecimientos no solo mitigan los comportamientos estereotipados, sino que también sirven como una ventana para apoyar expresiones más complejas de la “nutriedad”.

**RÉSUMÉ: EXPLORATION DE LA “LOUTRETÉ”: PRÉFÉRENCES D’ENRICHISSEMENT CHEZ UN COUPLE DE LOUTRES DE RIVIÈRE D’AMÉRIQUE DU NORD (*Lontra canadensis*)**

Étant donné l’importance de l’enrichissement environnemental pour le bien-être des animaux ex situ, cette étude d’approche éthologique a été conçue pour mieux comprendre les préférences et comportements d’enrichissement d’un couple mâle-femelle de loutres de rivière nord-américaines (*Lontra canadensis*) hébergées au zoo de Prospect Park à Brooklyn, New York. Au cours de quatorze séances réparties sur six mois, ces loutres ont reçu six objets d’enrichissement de nouveauté variable, et leurs comportements ont été enregistrés par échantillonnage instantané à la minute, totalisant 840 minutes d’observation par loutre. L’étude a évalué leur interaction avec des enrichissements olfactifs, structurels et occupationnels pour explorer les intersections entre la personnalité et le comportement. Les résultats ont montré que les enrichissements atténuent non seulement les comportements stéréotypés, mais offrent aussi un aperçu des expressions plus complexes de la “loutreté”.

**الملخص: استكشاف "هوية ثعلب الماء": تفضيلات الإثراء لدى زوج من ثعالب الماء الأمريكية الشمالية (*Lontra canadensis*)**

نظرًا لأهمية الإثراء البيئي في تعزيز رفاهية الحيوانات خارج موائها الطبيعية، تم تصميم هذه الدراسة المعتمدة على علم السلوك لفهم تفضيلات وسلوكيات الإثراء لزوج من ذكور وإناث ثعالب الماء الأمريكية الشمالية (*Lontra canadensis*) الموجودة في حديقة حيوان بروسبكت بارك في بروكلين، نيويورك. خلال أربعة عشر جلسة موزعة على ستة أشهر، قُدمت لثعالب الماء ستة أشياء للإثراء بدرجات متفاوتة من الجودة، وتم تسجيل سلوكياتها باستخدام تقنية أخذ العينات كل دقيقة، مما أدى إلى 840 دقيقة من المراقبة لكل حيوان. قامت الدراسة بتقييم تفاعل الثعالب مع الإثراء الشمي، والهيكلي، والوظيفي لاستكشاف

تقاطعات الشخصية والسلوك. أشارت النتائج إلى أن الإثراءات لا تخفف فقط من السلوكيات النمطية، بل تُمثل أيضًا نافذة لدعم تعبيرات أكثر تعقيدًا عن "هوية ثعلب الماء".

**RESUMO: EXPLORANDO A “LONTRICIDADE”: PREFERÊNCIAS DE ENRIQUECIMENTO EM UM PAR DE LONTRAS-DE-RIO DA AMÉRICA DO NORTE (*Lontra canadensis*)**

Dada a importância do enriquecimento ambiental para promover o bem-estar de animais mantidos ex situ, este estudo com foco etológico foi desenvolvido para compreender melhor as preferências e comportamentos de enriquecimento de um par macho-fêmea de lontras-do-norte (*Lontra canadensis*) alojadas no Zoológico do Prospect Park, no Brooklyn, Nova Iorque. Ao longo de quatorze sessões realizadas ao longo de seis meses, as lontras receberam seis objetos de enriquecimento com diferentes níveis de novidade, e seus comportamentos foram registrados por amostragem de varredura a cada minuto, totalizando 840 minutos de observação por lontra. O estudo avaliou o envolvimento das lontras com enriquecimentos olfativos, estruturais e ocupacionais para explorar as interseções entre individualidade e comportamento. Os resultados indicaram que os enriquecimentos não apenas mitigam comportamentos estereotipados, mas também servem como uma janela para apoiar expressões mais complexas da “lontrice”.