

The background of the entire image is a light cream color, decorated with a pattern of small, irregular dots in two colors: a warm terracotta orange and a muted, dusty purple. These dots are scattered across the page, with some forming small, dense clusters. On the right side, there is a dark purple rectangular box with rounded corners and a thin white border. Inside this box, the title and author information are written in white and gold text.

Feeding Behavior of Domestic Animals

— **Alivia Souther**

Exploring the Horse, Dog and
Rabbit

Introduction

- A single domestic rabbit, horse and dog were recorded via video to observe the feeding behaviors of each respective species.
- All subject were observed during normal feeding times in their normal environment (stall, house, cage).
- Objective: To observe the feeding behaviors of a domestic rabbit, horse and dog

Methods

Data Collection

- All of the data collected was from a period less than 10 minutes per species during feeding only. The videos were recorded standing outside of the cage/stall (with the exception of my dog) to allow the animals to be as comfortable as possible.
 - Rabbit observation time: 1 minute, 35 seconds
 - Dog observation time: 3 minutes, 16 seconds
 - Horse observation time: 7 minutes, 35 seconds

Methods

Animal Subjects & Housing



Mollie

- I. Mollie, an eight year old, female, Dutch/Rex cross rabbit was observed at normal feeding time (6pm).
- Two cups *Earthbound* brand Farm Spring Mix greens consisting of: baby spinach, red chard, baby kale, radicchio, green oak, Lolla Rosa, and red romaine.
- One flake of *Kaytee* sun- cured timothy hay and one cup *Wild Harvest Adult Rabbit Advanced Nutrition Diet* daily . Ad libitum.
- Ad libitum access to water.
- Mollie was observed in her normal housing- an open top, wire cage (approximately 2 x 5 ft.).

Methods

Animal Subjects & Housing



Lorelei

- II. Lorelei, a twelve year old, American Paint Horse mare was observed at normal feeding time (5pm).
- Two pounds Hi-Pro Performance sweet feed morning and evening with a single pump of *HylaLUBE* joint supplement in the evening. Three flakes of alfalfa hay each morning and evening.
- Ad libitum access to ten gallons of water.
- Lorelei was observed while eating her sweet feed mix in her 12x12 ft. stall.

Subjects

Animal Subjects & Housing

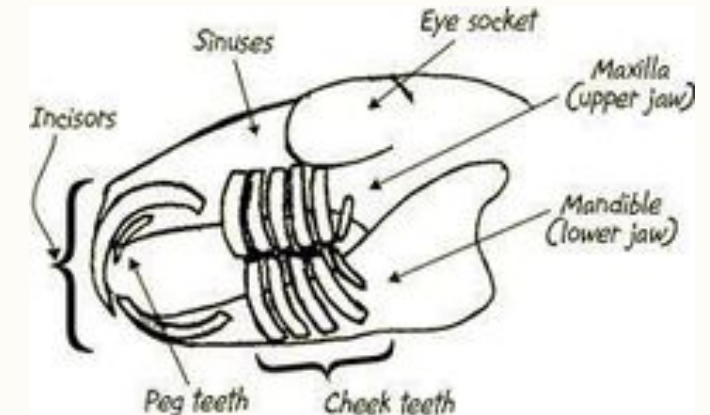


Whiskey

- **III.** Whiskey, a one year old, female, Cattle Dog mix was also observed at her normal feeding time (6pm).
- Two cups of *Taste of the Wild High Prairie Canine Formula with Roasted Bison and Roasted Venison* with 1 tsp *ETTA SAYS!* Liver Sprinkles and ¼ cup hot water.
- Ad libitum access to water.
- Whiskey was observed freely in a kitchen (free to roam and move around while eating).

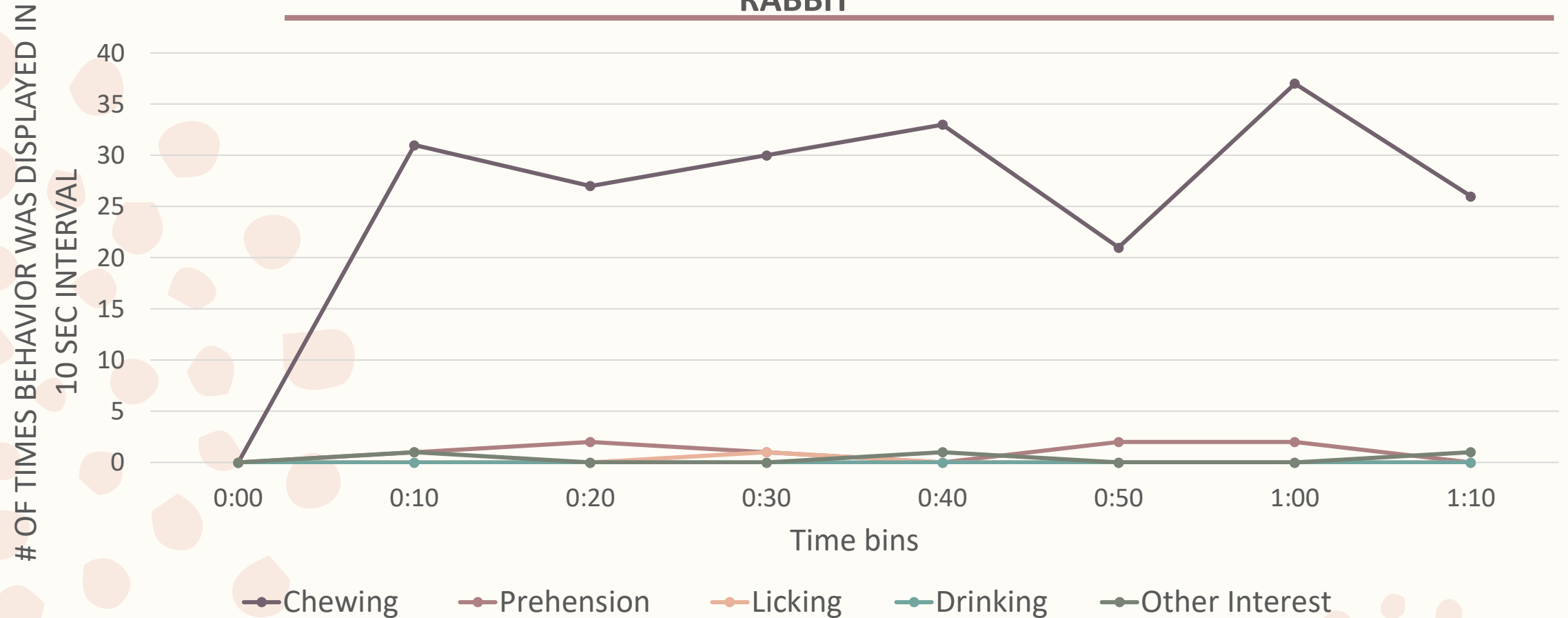
Rabbit Observation

BEHAVIOR	DEFINITION
Prehension	Grasping the food using the front incisors and lips to pull food into the mouth. The tongue may swirl to pull in forage; taking a bite
Mastication (chewing)	Opening and closing the mouth while grinding the food with the cheek teeth (left to right)
Licking	Using the tongue to wet the nose and lips, as well as to lubricate the outside of the mouth
Showing other interest	Attention directed to a stimuli not associated with feeding (i.e. looking at a person, walking around, thumping, grooming, etc.)

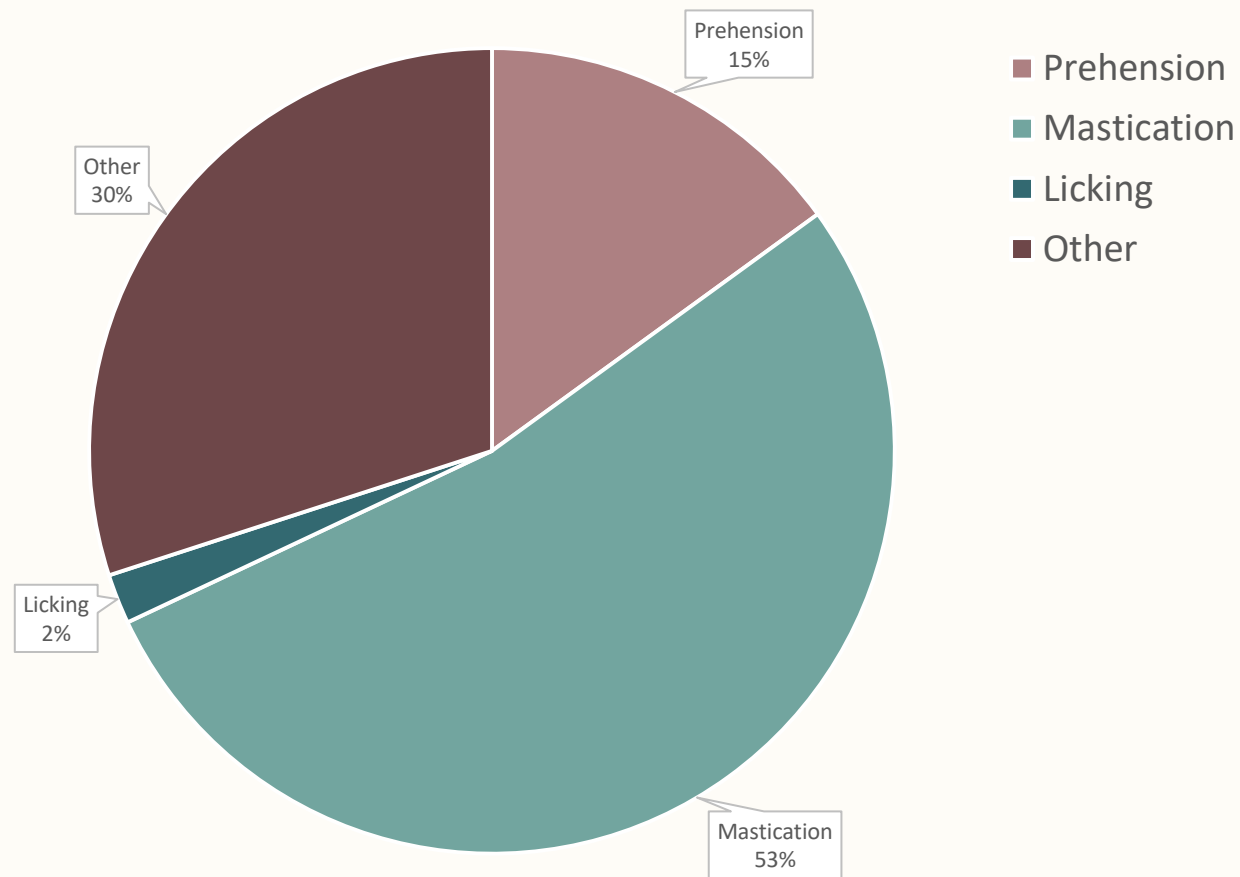


Results: Rabbit Observation

BEHAVIORS OBSERVED DURING FEEDING OF A DOMESTIC RABBIT



Results: Rabbit Observation



Rabbit Discussion



- **Prehension:** Rabbits use their lips, tongue and teeth to manipulate food into their mouths, before rapidly grinding.
 - Rabbits swirl their tongue occasionally to pull food into the mouth.
- **Mastication:** Mollie spent the majority of her time chewing/ grinding the food she ate → Rabbits have continuously erupting teeth designed for grinding plant material (Cheeke 160).
 - Mollie chewed 3 times/second on average
 - “Rabbits make 120 mastication movements per minute.” (Lebas 14)
 - Mollie displayed 179 movements in the first minute (analyzed by slow motion video).

Rabbit Discussion



- Feeding behavior was observed for less than two minutes →
- Rabbits are prey animals (Barrio et al)
 - Rabbits have a highly developed sense of smell that they rely heavily on for prey detection. This is followed by their eyesight.
 - Rabbits eyes are located on the side of head with only two small blind spots.

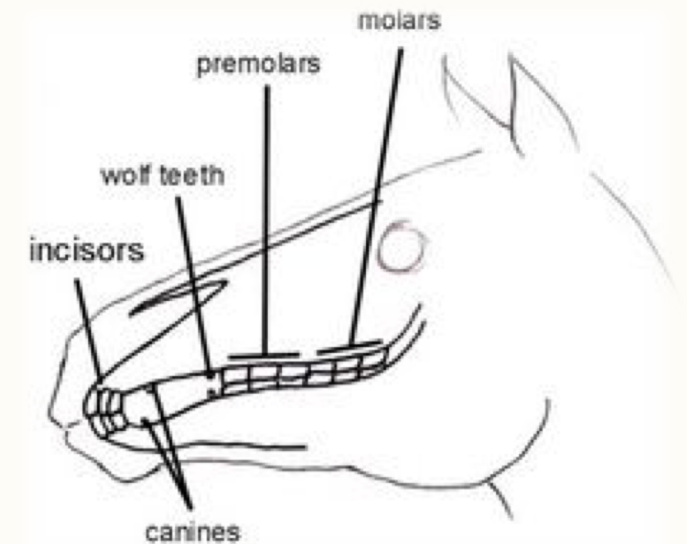
Rabbit Discussion

- 2. Rabbits are also crepuscular (Kennedy et al).
 - Most active dusk to dawn, especially when it comes to feeding.
 - Circadian rhythm is not natural; Mollie cannot burrow and sleep during the daytime
 - In a study from 1977 analyzing light and feeding patterns: complete absence of light (24 hour darkness)
 - increased feed intake dramatically compared to rabbits that were exposed to varying hours of light



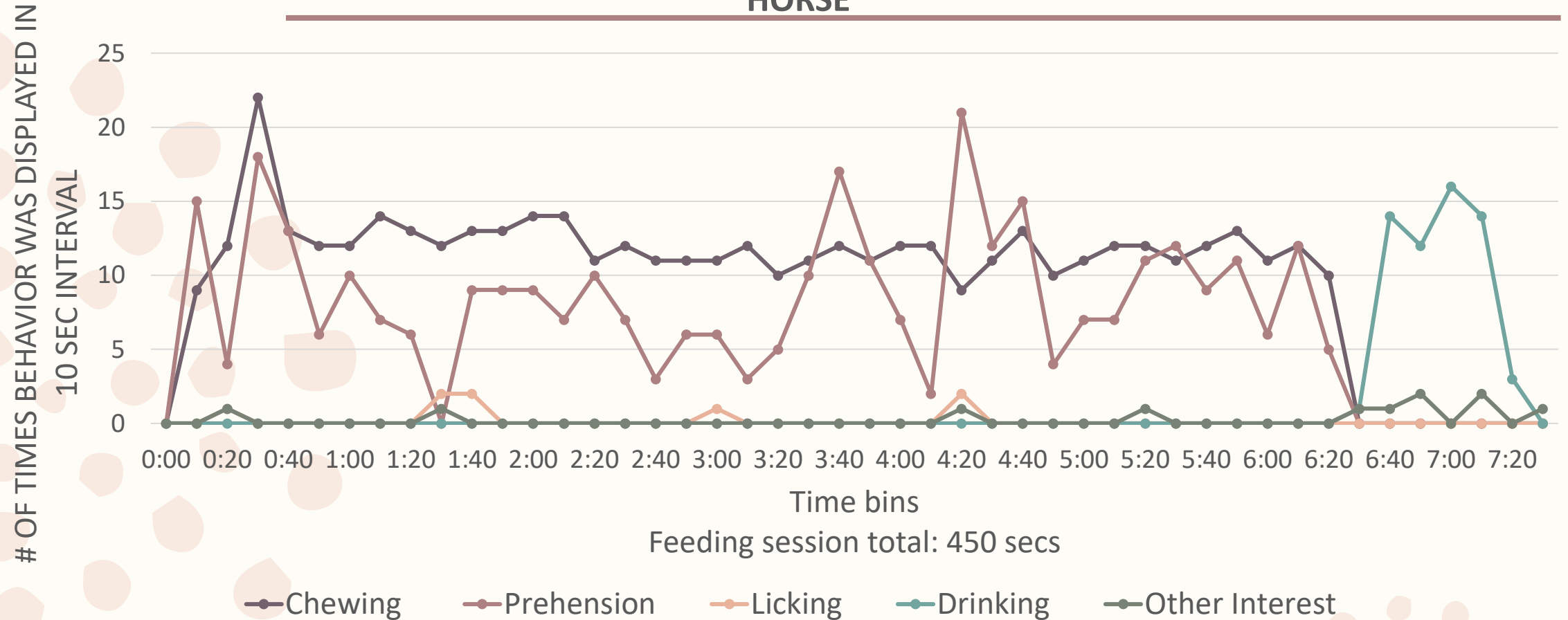
Horse Observation

BEHAVIOR	DEFINITION
Prehension	Grasping the food using the front incisors and lips, as well as sticking the tongue to the food particles to pull food into the mouth; taking a bite
Mastication (chewing)	Opening and closing the mouth while grinding the food left to right using the molars and pre-molars
Drinking	Intake of water by sucking and swallowing; lips pucker to allow intake
Licking	Using the tongue to wet the lips and lubricate the outside of the mouth
Showing other interest	Attention directed to a stimuli not associated with feeding (i.e. looking at a person, walking around, sniffing, etc.)

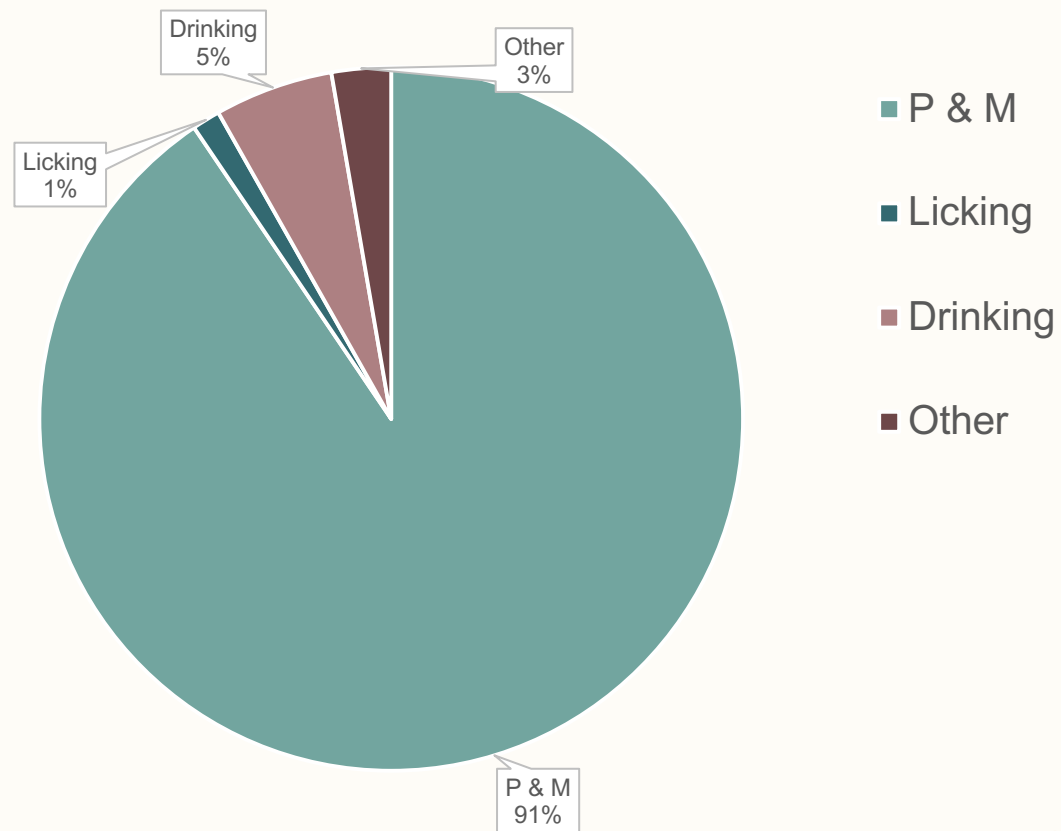


Results: Horse Observation

BEHAVIORS OBSERVED DURING FEEDING OF A DOMESTIC HORSE



Results: Horse Observation



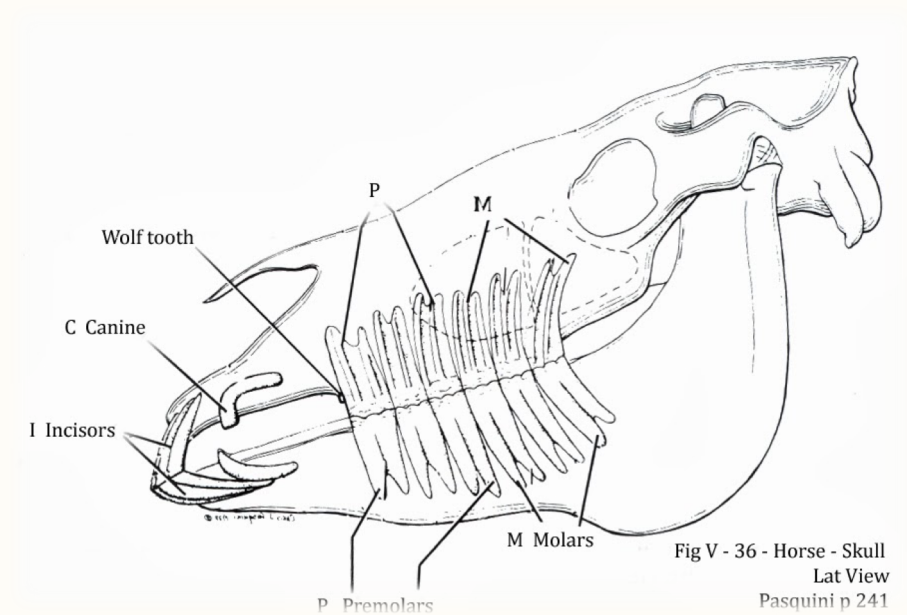
Horse Discussion

- **Prehension:**

- Before consuming food, Lorelei spread the feed across the pan with her nose. She takes random bites out of the pan.
- She uses her lips, tongue and front incisors to grasp food. She uses her tongue to stick to food particles to aid in prehension.

- **Mastication:**

- Lorelei uses her molars and pre-molars to grind (left to right).
- Horses are hindgut fermenters like rabbits.
- She stays alert while chewing → **prey animal**



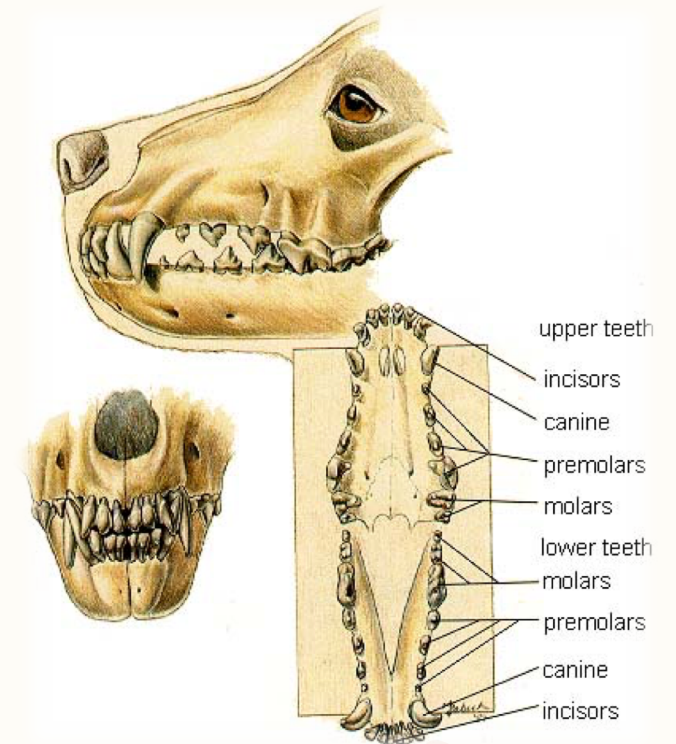
Horse Discussion



- Lorelei is kept on a property with no pasture access, so “grazing” is limited to owner-grazing in grass patches and consuming hay.
- Horses on pasture spend 60-80% of their time grazing (McDonnell 16)
- **Drinking:** Lorelei spent 38 seconds out of the total 7 minutes and 41 seconds of recorded time drinking water. This was after consuming most of her grain.
- Lorelei puckered her lips and sucked water in with her lips and tongue before swallowing the water.

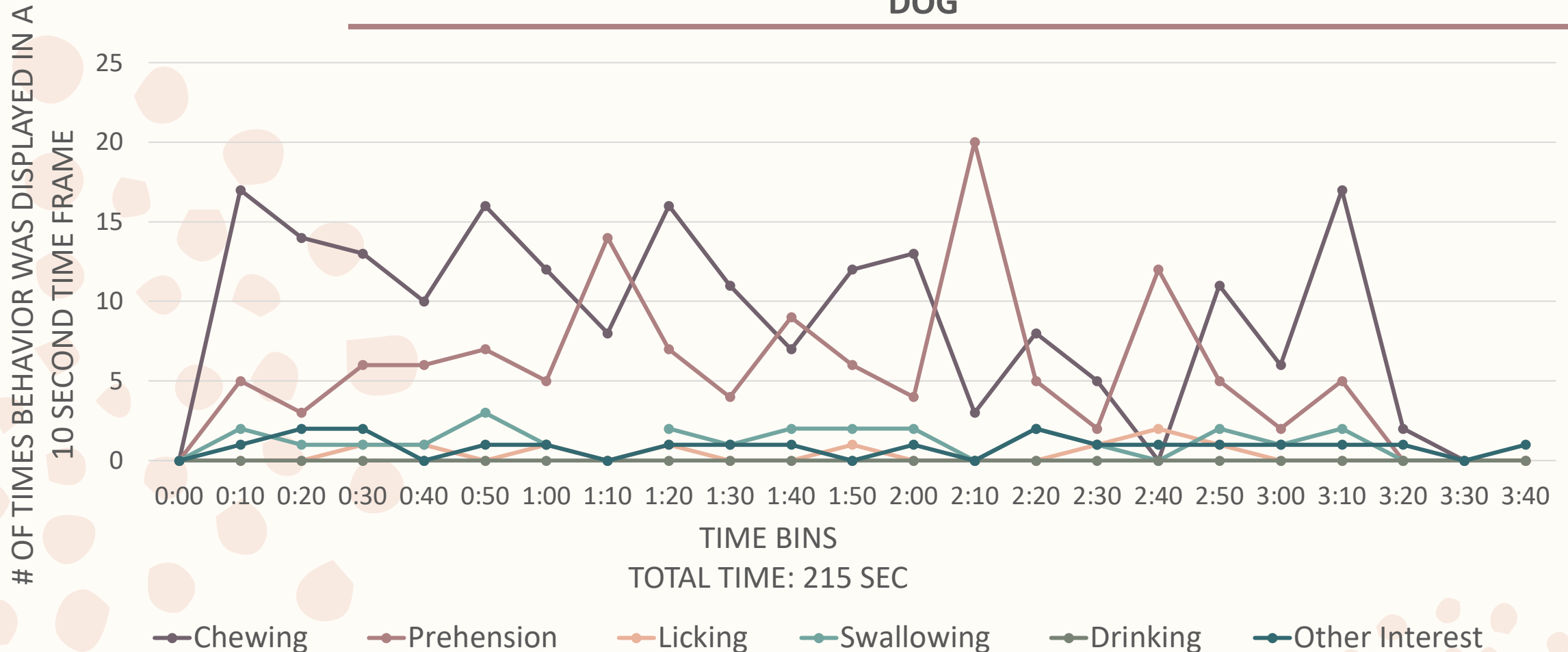
Dog Observation

BEHAVIOR	DEFINITION
Prehension	Grasping the food using the front incisors, canines and tongue to pull food into the mouth; taking a bite
Mastication (chewing)	Opening and closing the mouth while smashing the pre-molars, molars and carnassial teeth together (straight up and down or left to right)
Drinking	Intake of water by lapping (tongue curling to pick up water)
Swallowing	Intake of a bolus (food particles combined with saliva) of food
Licking	Using the tongue to wet the nose and lubricate the outside of the mouth
Showing other interest	Attention directed to a stimuli not associated with feeding (i.e. looking at a person, walking around, etc.)

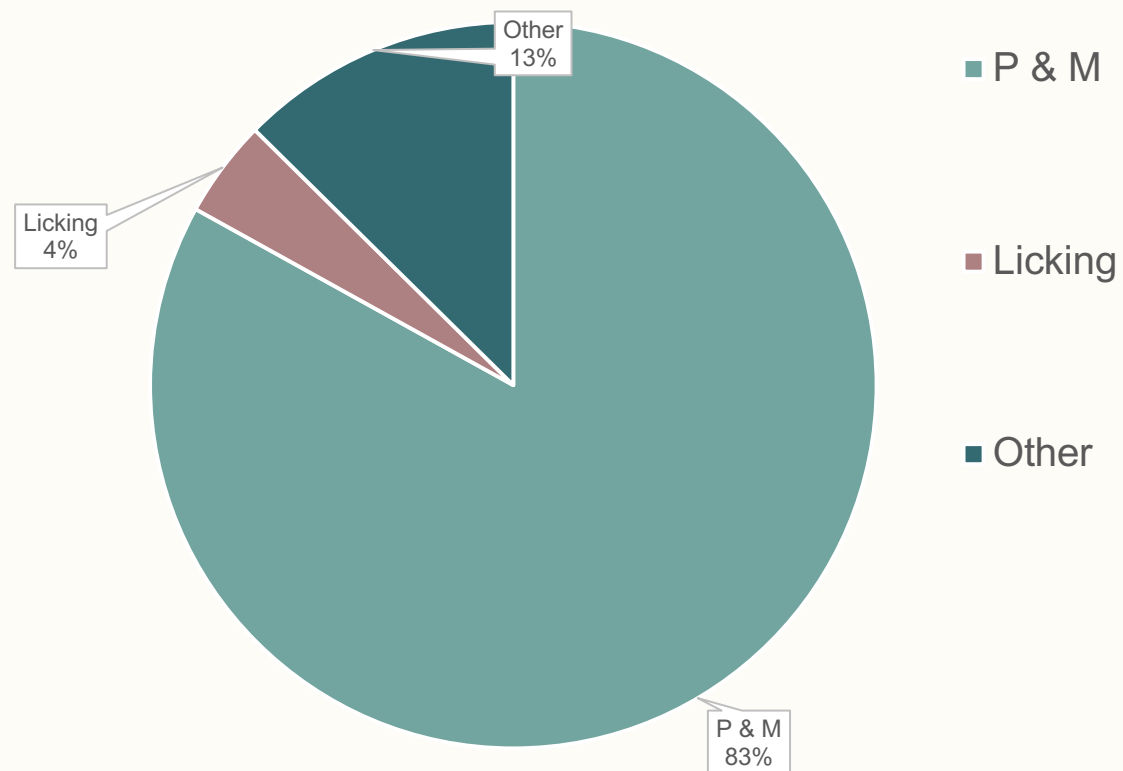


Results: Dog Observation

FEEDING BEHAVIORS OBSERVED DURING FEEDING OF A DOMESTIC DOG



Results: Dog Observation

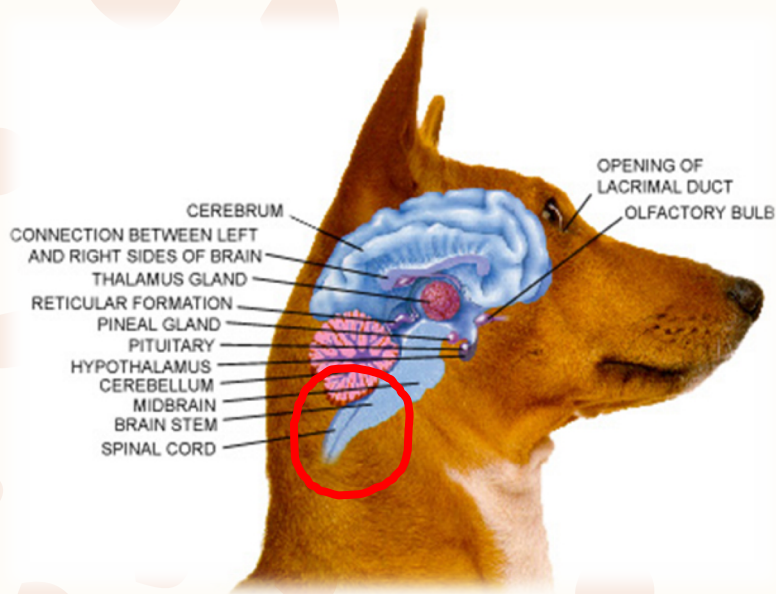


Dog Discussion



- Whiskey is not fed a “species appropriate” diet, but it is nutritionally balanced (according to Taste of the Wild brand).
- Whiskey consumed a large bowl of food very quickly. → This is similar to what wild dogs and wolves do in the wild. After finding a carcass or killing small prey, wild dogs and wolves would feed rapidly. This is an adaptation of scavenger carnivores to avoid predation or conflict themselves (Bradshaw). It may be several days before they come across food again.
- **Prehension:** Uses mainly the front incisors and the tongue.
 - More time was spent grasping food than chewing

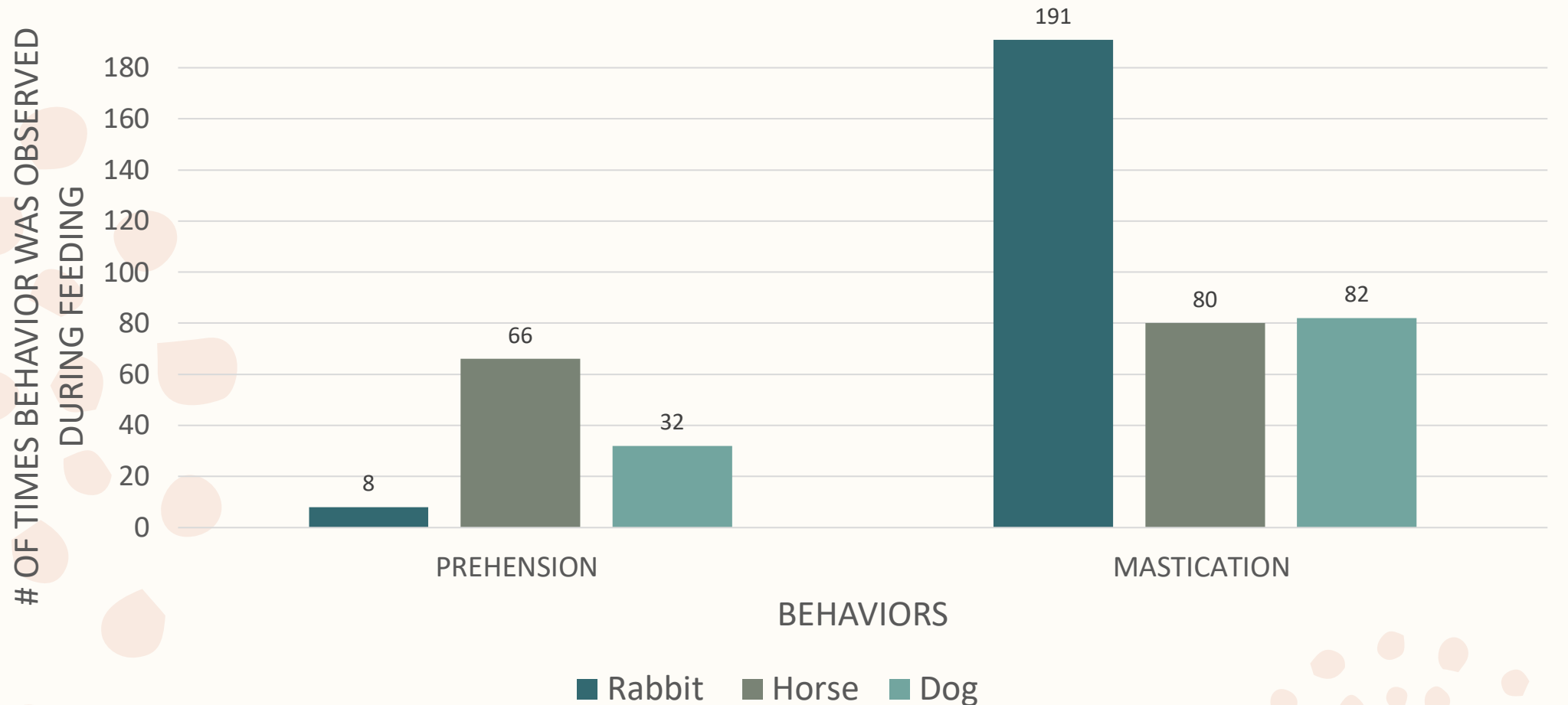
Dog Discussion



- **Mastication** (chewing and salivary breakdown): The Central Timing Network (a group of brain stem cells) controls the rhythmic chewing process.
- Whiskey (45-55 lbs) did a moderate to high amount of chewing during feeding. (201 times in 3:16 minutes) → A study in 2010 *Chewing rates among domestic dog breeds*, assessed the effect of breed, jaw length and body mass on chewing rates (Gernster et al).
 - Jaw length and breed did not affect chewing rates
 - However body mass was indicative of **chewing rate** (Chewing rate decreases as body mass decreases)

Discussion & Comparison

TIME SPENT EXHIBITING PREHENSION AND MASTICATION BEHAVIORS BY
THE RABBIT, HORSE AND DOG **IN THE FIRST OBSERVED MINUTE**



Conclusion

- All of the same basic behaviors were shown by all species
- Herbivores masticate for a longer time before swallowing compared to carnivores
- Herbivores rely heavily on their lips and tongue, carnivores rely more on their teeth
- All of the animals kept an eye on the camera and observer, drawing their attention away from feeding
- None of the animals consumed water during feeding. The horse consumed water after the feeding session.

References

Links to feedstuffs:

- <http://www.ettasays.com/specialty-items/>
- <https://www.kaytee.com/all-products/small-animal/hay/timothy-hay/timothy-hay>
- <https://www.tasteofthewildpetfood.com/dog-formulas/high-prairie-canine-formula-with-bison-and-roasted-venison/>
- <https://www.hiprofeeds.com/products/performance-textured-feed>

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