



Feeding Behavior

For Canis lupus familiaris, Felis silvestris catus, and Boa constrictor



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Introduction - Observed subjects

Canis lupus familiaris (n=1)

Felis silvestris catus (n=1)

Boa constrictor (n=1)





Black Lab 4 years Female, spayed Color point 7 years Male, neutered Snow 9 months Female



Canis lupus familiaris - Methods



Data collection

- Observed in home environment
- Filmed in slow motion
 - 30 frames per second
- Coded afterwards

Food consumed

- Brand: Pure Balance
 - Lamb and Rice
- 1 cup, dry kibble

Total time observed47 seconds

Total behaviors observed11 behaviors

Structures used to eat:

• Teeth, tongue, jaws, neck

Canis lupus familiaris - Ethogram

Term	Definition	Time, s*	Time , %*
Approach	Locomotion towards object	3s	6.38%
Bite	Using teeth to grab food	29s	61.70%
Chew	Using teeth to slice food into smaller bits for digestion	8s	17.02%
Eat	Consuming food using tongue and teeth	32s	68.09%
Head-jerk	Sudden backwards movement of head and neck	1s	2.13%
	during eating		
Investigate	Walking around environment alert and sniffing	8s	17.02%
Lick	Using tongue to pull in an object	31s	65.96%
Not in view	Dog is not in view of the camera	2s	4.26%
Stand	Dog is positioned with all legs extended	32s	68.09%
Survey	Observing the environment by turning neck, without	2s	4.26%
	locomotion		
Walk	Locomotion at a relaxed speed	13s	27.66%
		47s observed	

*Percentage and second times will not equal 100% as some behaviors occur simultaneously

Felis silvestris catus - Methods



Data collection

- Observed in home environment
- Filmed in slow motion
 - 30 frames per second
- Coded afterwards

Food consumed

- Brand: BLUE Healthy Gourmet
 - Chicken
- 3 oz. wet morsels provided
 - 2.13 oz. consumed

Total time observed

• 9 minutes, 47 seconds

Total behaviors observed

• 12 behaviors

Structures used to eat:

• Teeth, tongue, papillae, jaws, neck

Felis silvestris catus - Ethogram

Term	Definition	Time, s*	Time , %*
Approach	Locomotion towards object	10s	1.70%
Chew	Using teeth to slice food into smaller bits for digestion	190s	32.37%
Crouch	Cat is positioned low to the ground, all legs bent, hind legs sitting	349s	59.45%
Eat	Consuming food using tongue and teeth	431s	73.42%
Head-jerk	Sudden backwards movement of head and neck during eating	7s	1.19%
Investigate	Walking around environment alert and sniffing	21s	3.58%
Lick	Using tongue to pull in an object	255s	43.44%
Not in view	Cat is not in view of the camera	19s	3.24%
Sit	Cat is positioned with posterior to the ground, fore legs extended, hind legs bent	173s	29.47%
Sniff	Inhaling air through nose	33s	5.62%
Survey	Observing the environment by turning neck, without locomotion	20s	3.41%
Walk	Locomotion at a relaxed speed	18s	3.07%
		587s observed	

*Percentage and second times will not equal 100% as some behaviors occur simultaneously

Boa constrictor - Methods



Data collection

- Observed in home environment
- Filmed in slow motion
 - 30 frames per second
- Coded afterwards

Food consumed

- Fancy Rat
 - 2 weeks old, pre-killed
 - 26 grams

Total time observed

• 15 minutes, 10 seconds

Total behaviors observed

• 14 behaviors

Structures used to eat:

• Teeth, upper and lower jaws, first third of body and body muscles

Boa constrictor - Ethogram

Term	Definition	Time, s*	Time , %*
Bite-hold	Strong bite that holds prey in place	257s	28.24%
Coil	Wrapping around prey	1s	0.11%
Constrict	Squeezing a coiled prey	255s	28.02%
Contract	Rhythmic muscle contractions to move prey into the throat once in mouth	435s	47.80%
Eat	Consuming food using teeth, jaws, and body	480s	52.75%
Pterygoid walk	Repeated movement of left and right upper jaw over prey	300s	32.97%
Reposition	Adjusting the head after coiling and bite-hold for consumption	4s	0.43%
Stalk	Moving forward slowly towards prey	46s	5.05%
Stand	Front portion of body lifted vertically	11 4 s	12.53%
Strike	Opening mouth and moving with great speed towards prey, and biting	1s	0.11%
Strike position	Snake's neck is positioned in an "S" shape, body positioned for stability	32s	3.52%
Survey	Moving head and neck around to observe environment	24s	2.64%

*Percentage and second times will not equal 100% as some behaviors occur simultaneously

Boa constrictor skull







SNAKE JAW STRUCTURE



Pterygoid walk



Results - Figure 1



Results - Figure 2



Discussion – Literature Comparison

Material Found in Literature

- Wolves typically eat 1 large meal per day
 - Dogs evolved to eat more often, but still just as quickly (Bradshaw, 2006)
- Carnassial teeth of dogs and cats prevent them from normal mastication
 - Kibble is typically made small enough for the stomach to digest (Hudson & Hamilton, 2010)
- Cats eat multiple meals per day, like their ancestors
- Premeal cat behaviors
 - Vocalization, extra owner engagement, rubbing*, tail up
- Post-meal cat behaviors
 - Grooming*, less owner engagement, tail down
- Cats may not need to drink water (Beavers, 2003)

Not found in literature

- Head jerk
 - Zero gravity
 - Dog: 1 event
 - Cat: 7 events

Discussion – Literature Comparison

Material Found in Literature

- Hunting
- Catching
- Constricting
- Head anatomy evolved for swallowing food whole
 - Quadrate bone
 - 4 rows of teeth in upper jaw
 - Inner row: Pterygoid bones and teeth
- Pterygoid walk
- Contracting

References

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Hudson, L. C., & Hamilton, W. P. (2010). Atlas of feline anatomy for veterinarians. Jackson, WY.: Teton NewMedia.
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