

Coyote Diet on the Rolling Plains Quail Research Ranch, Texas.

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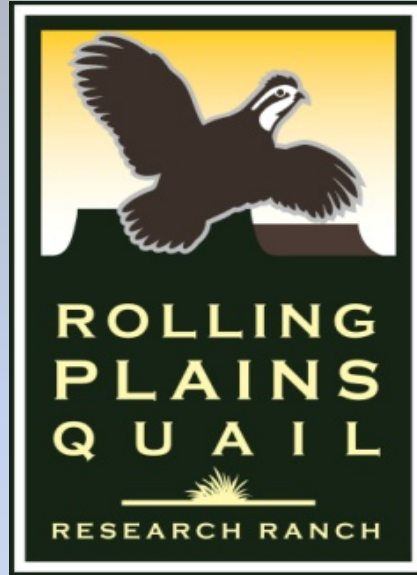
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Rolling Plains Quail Research Ranch Mission



To sustain Texas' wild quail hunting heritage for this and future generations.

Coyotes: Friend or Foe to Quail?

Our study area is specifically managed for quail.

“Everything points to quail” – Dr. Dale Rollins

Coyotes are often targeted for control.

How does quail-focused management influence coyote (*Canis latrans*) predation (+/-) on northern bobwhites (*Colinus virginianus*)?

Coyotes and Quail

Previous coyote diet research suggests that predation of northern bobwhites by coyotes tends to be an opportunistic event .

Previous Coyote Diet Research in the Rolling Plains of Texas

Foodniche of Coyotes in the Rolling Plains of Texas. By Meinzer et al.1975.

Researched coyote diets on native rangelands primarily used for cattle production.

Quail was a minor food item ranking 15th out of 17 food items reported.

Previous Coyote Diet Research

“Northern bobwhite appear to be an incidental prey item for coyotes in southern Texas.” (Henke, 2002)

12 of 407 coyote stomachs collected from 1994 to 1997, contained the remains of northern bobwhite or their eggs.

Coyotes and Quail

An exception to this is Lehmann (1946).

He reported that coyotes destroyed 80 of 189 (42%) bobwhite nests between 1942 and 1943.

Rader et al (2007) monitored the nests of 43 radiomarked bobwhites using 24-hr infrared video surveillance. Coyotes destroyed 11 of 43 nests (32%).

Objective

Document the seasonal and annual diets of coyotes on the Rolling Plains Quail Research Ranch (RPQRR) in order to provide data concerning coyote predation on quail and other species.

Study Area

The Rolling Plains Quail Research Ranch consists of 1,902 ha in Fisher County Texas.

Mesquite-dominated grasslands consisting of mid- and short- grass species .



Study Area

Prickly pear (*Opuntia* spp.) is abundant on most sites.

Common trees and mast-producing shrubs include:

Mesquite, Netleaf hackberry, Littleleaf sumac, Lotebush, Wolfberry, Chittam , Catclaws , and Agarito .

Study Area

30 year rainfall average for
Fisher County, Texas is
61.5 cm

RPQRR rainfall:
2009: 57.5 cm
2010: 64.2 cm



Methods

30 scats were collected monthly from December 2008 to December 2010 (N=720).

Scats were collected along 2, 18-km transects which represented each of the habitat types occurring on the ranch.



Methods

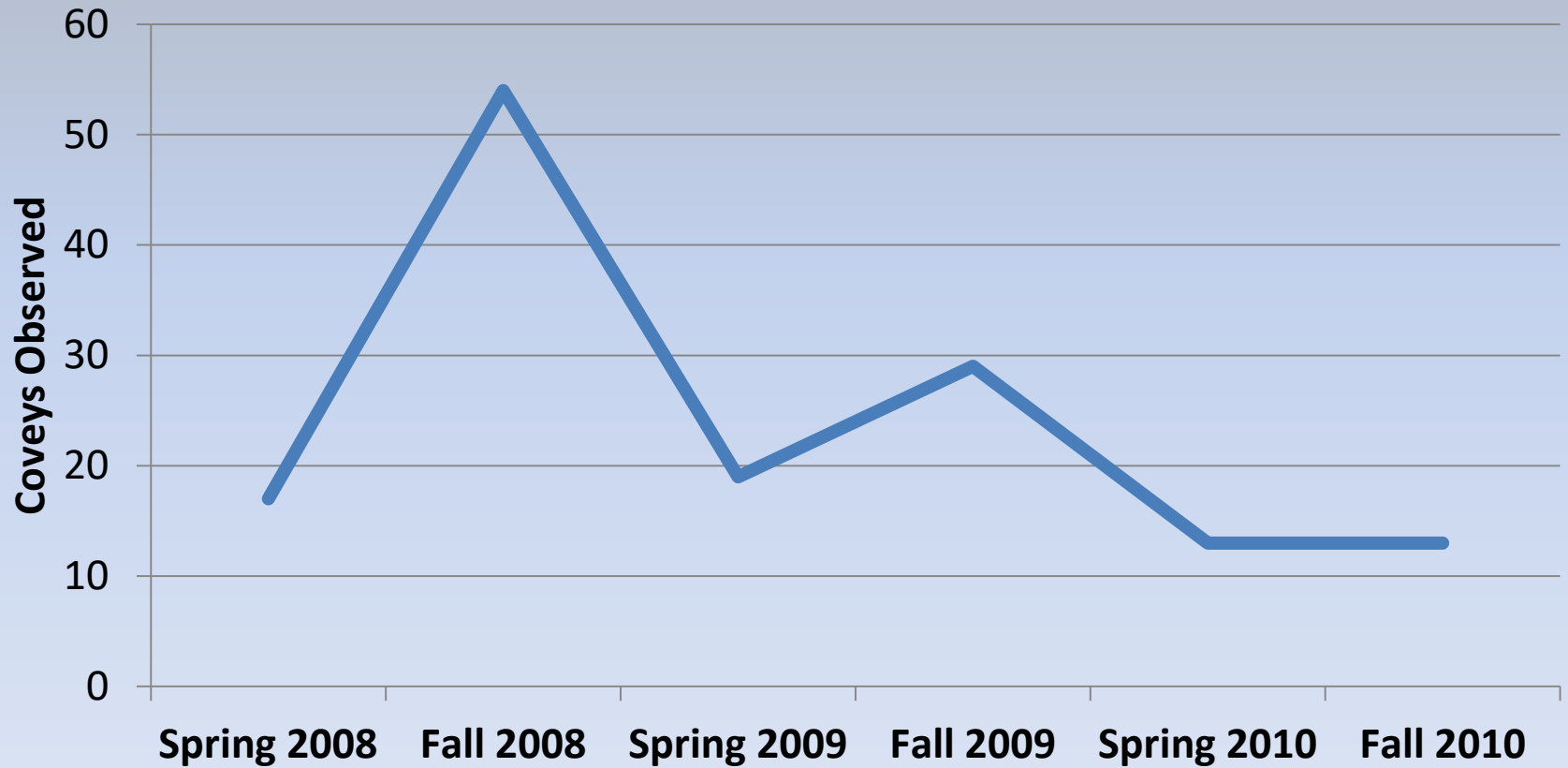
Followed general washing methodology reported by Johnson and Hansen (1979) with some modifications.

Food items identified macroscopically and microscopically.

A collection of reference materials was used to identify food remains in each scat.

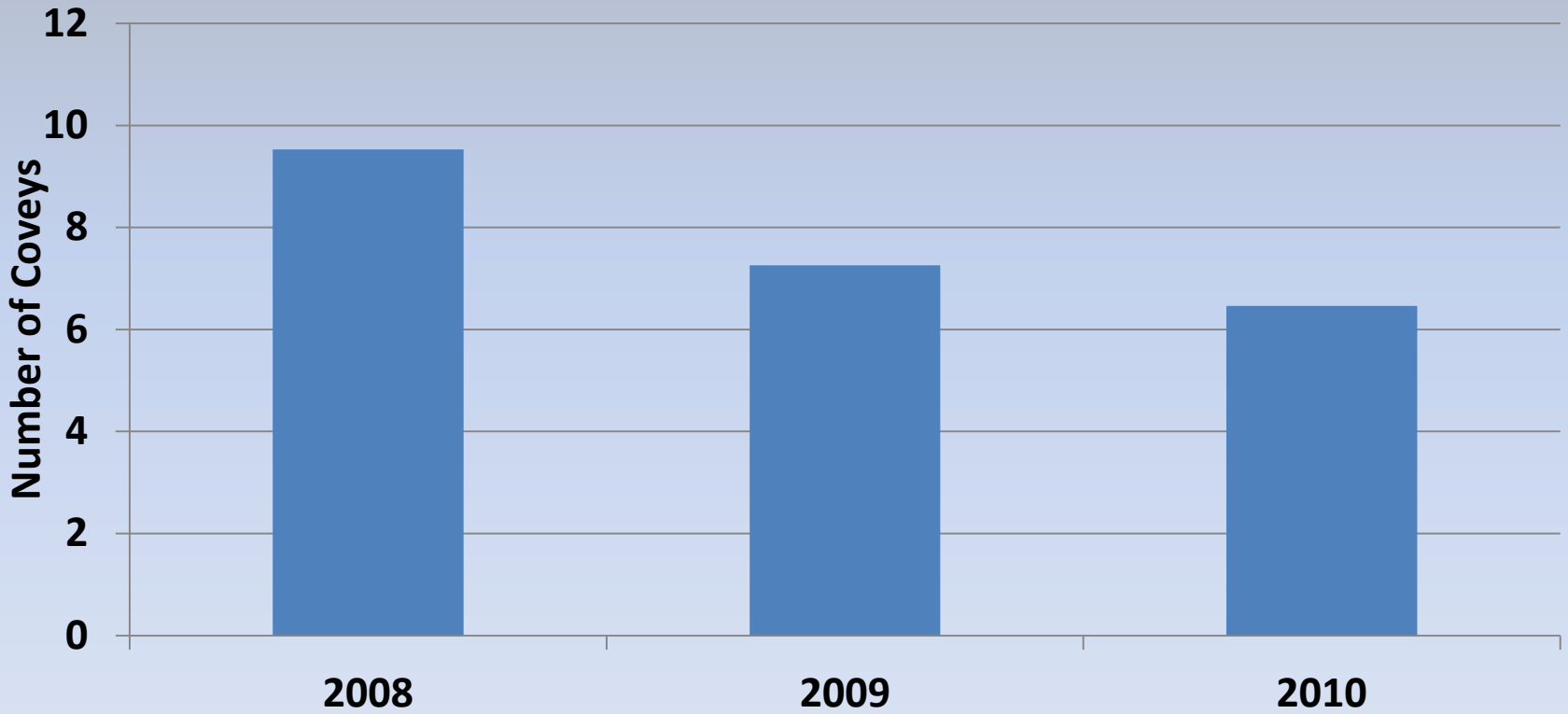
Quail Abundance on RPQRR

Helicopter Covey Counts



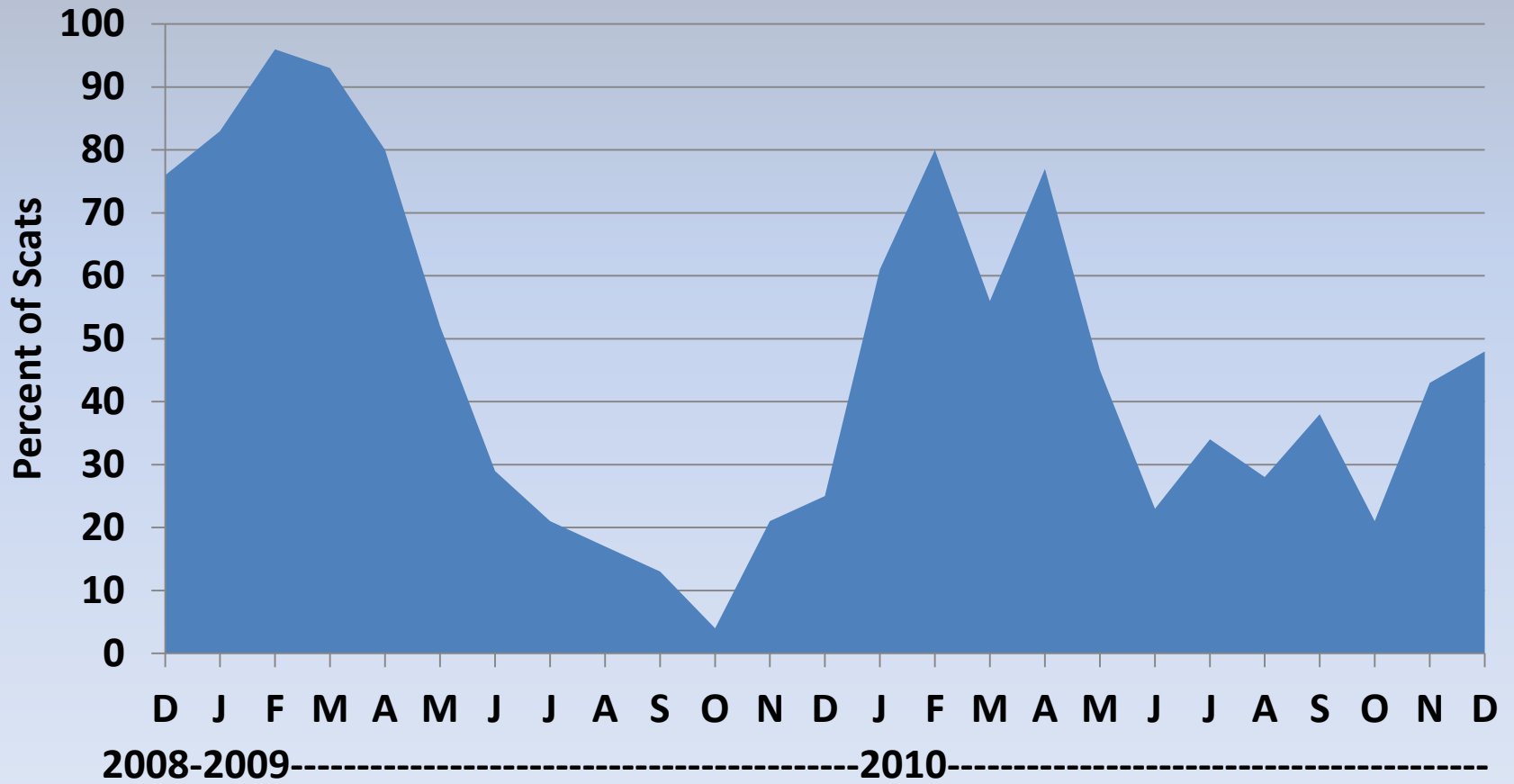
Quail Abundance on RPQRR

RPQRR Average Fall Covey Call Counts



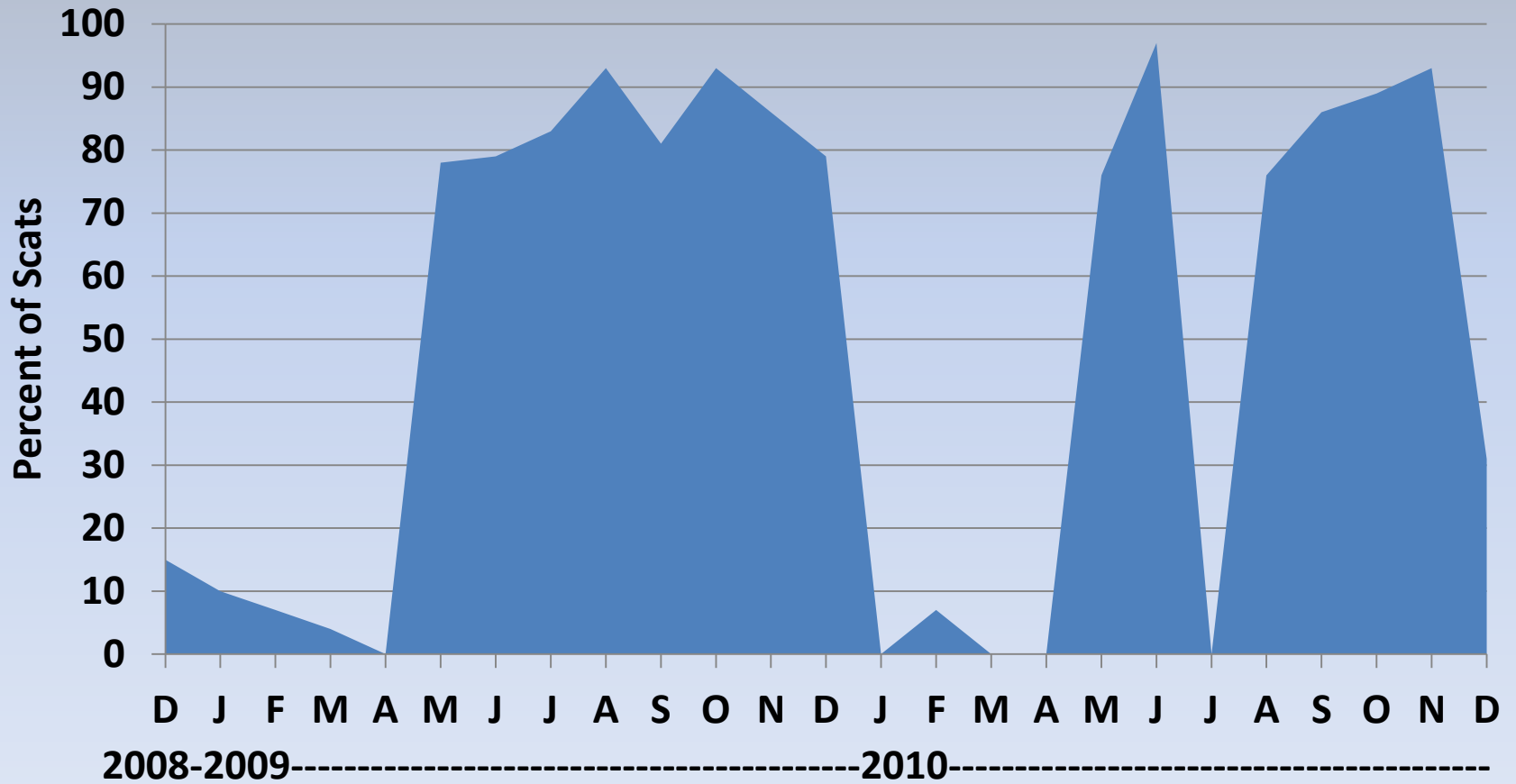
Results

Rodents



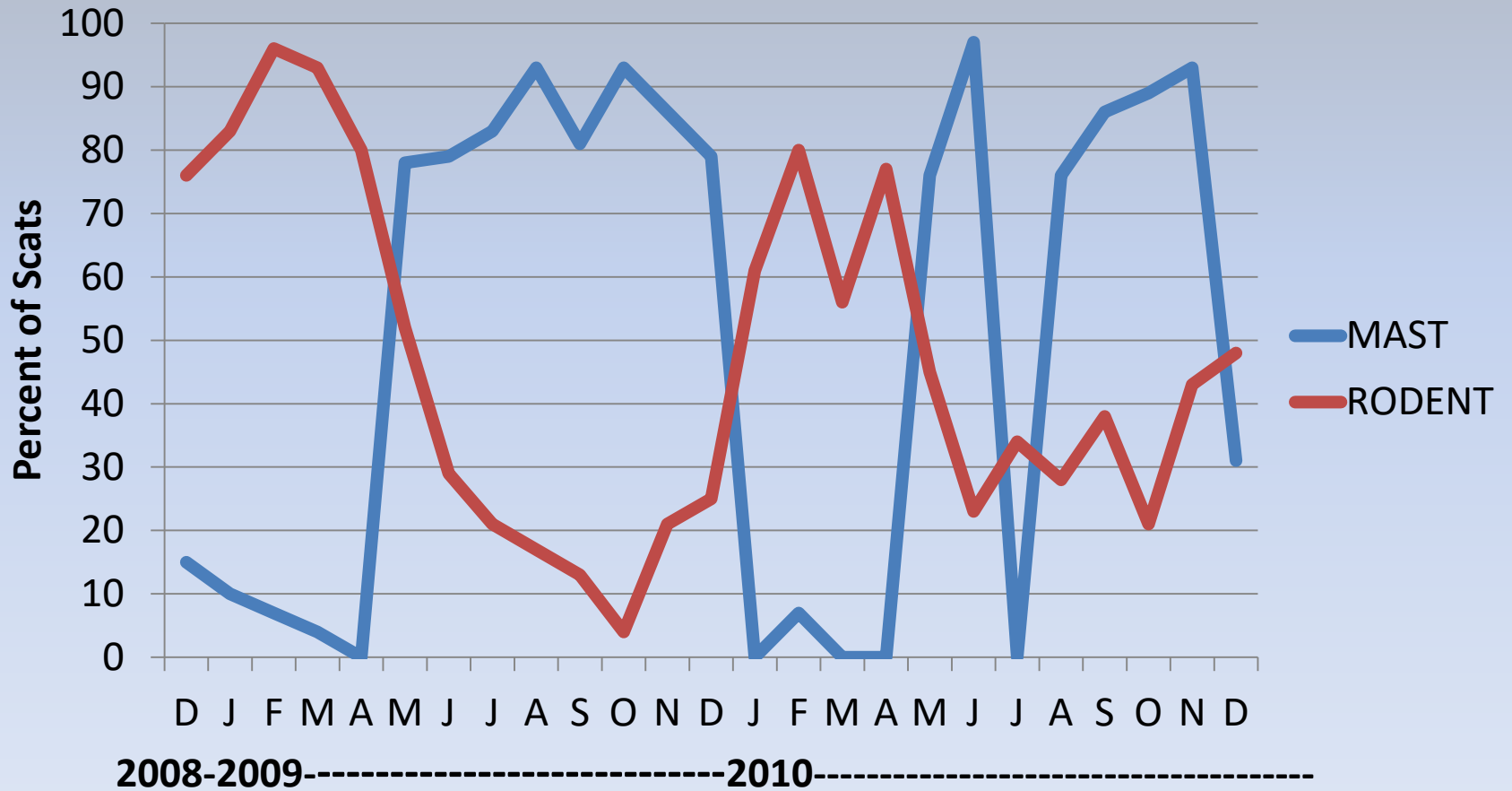
Results

Mast



Results

Coyote Consumption of Mast and Rodents



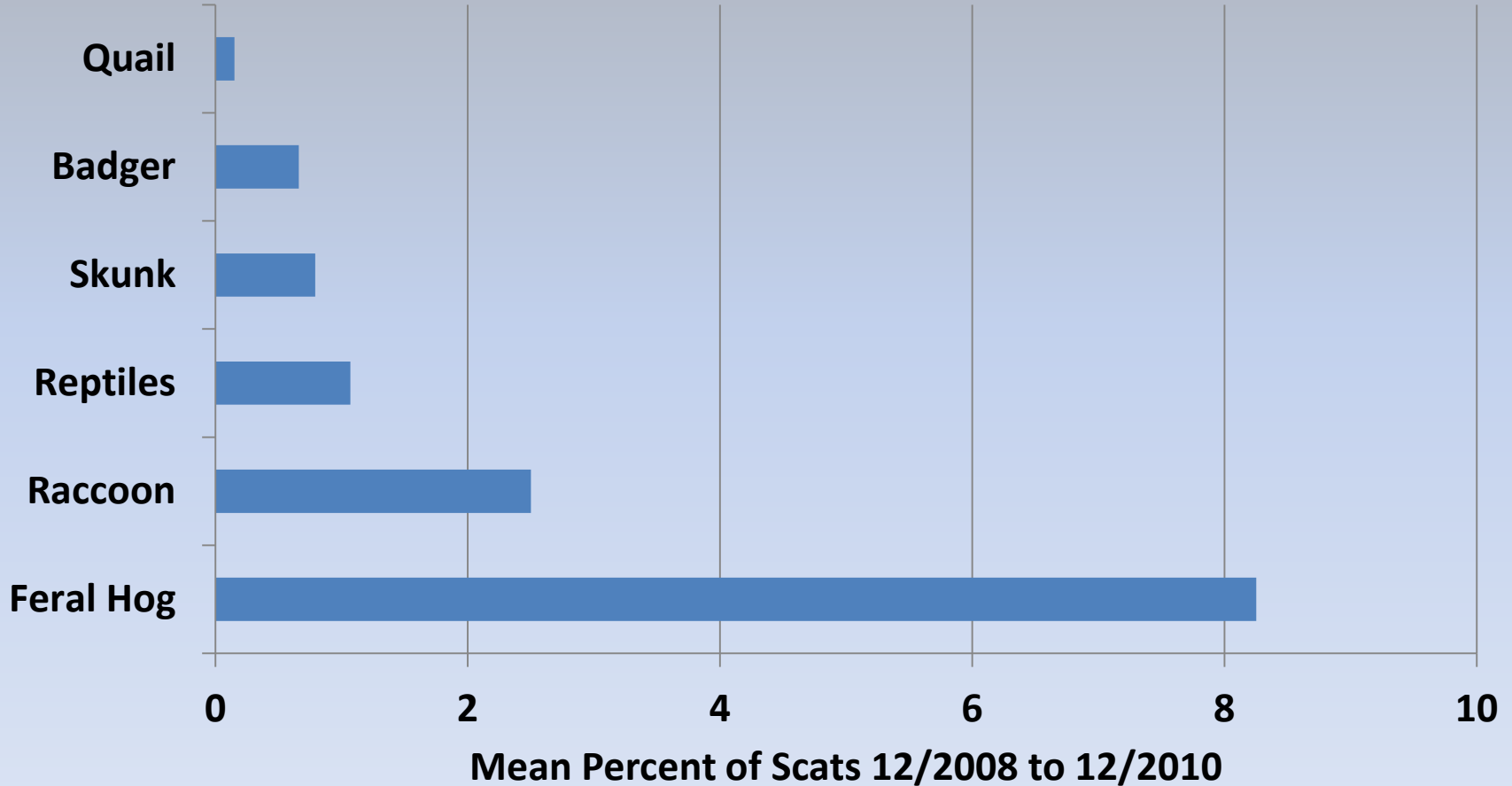
% of scats containing:

Food Items	YEAR		Total	Rank
	12/2008-2009	2010		
Rodents	47.0	46.0	46.5	1
Opuntia Fruit	35.0	30.0	33.0	2
Insects	7.2	23.4	15.3	3
Grass	10.0	8.0	9.0	4
Feral Hog	7.0	9.5	8.2	5
Mesquite Pods	14.0	2.0	8.0	6
Lotebush Berries	0.3	15.0	7.5	7
Deer	7.0	6.5	6.8	8
Other Birds	5.6	3.6	4.6	9

% of scats containing:

Food Items	YEAR		Total	Rank
	12/2008-2009	2010		
Leporids	4.2	3.0	3.6	10
Raccoon	1.9	3.0	2.5	11
Chittam Berries	2.5	0.0	1.3	12
Reptiles	1.3	0.8	1.1	13
Skunk	1.1	0.5	0.8	14
Badger	1.1	0.2	0.7	15
Juniper Berries	0.0	1.2	0.6	16
Hackberry	0.3	0.6	0.4	17
Bird Eggs	0.3	0.2	0.3	18
Acacia	0.3	0	0.2	19
Quail	0.3	0	0.2	19

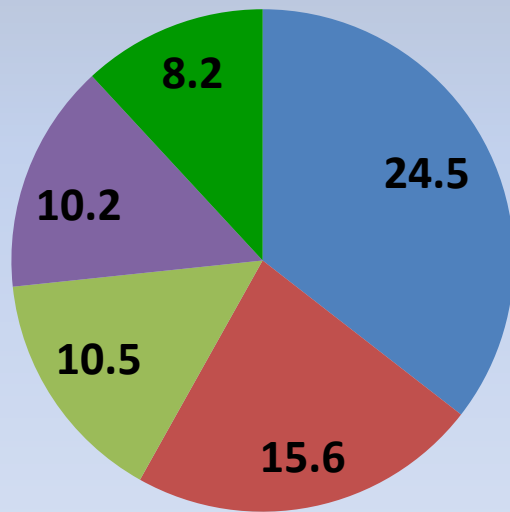
Coyote Consumption of Quail and its Predators



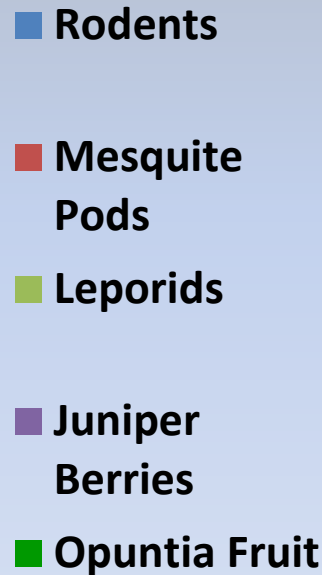
Comparison of Results

Top 5 diet items from Meinzer et al. 1975
06/1971 - 05/1973

223 Scats
Analyzed

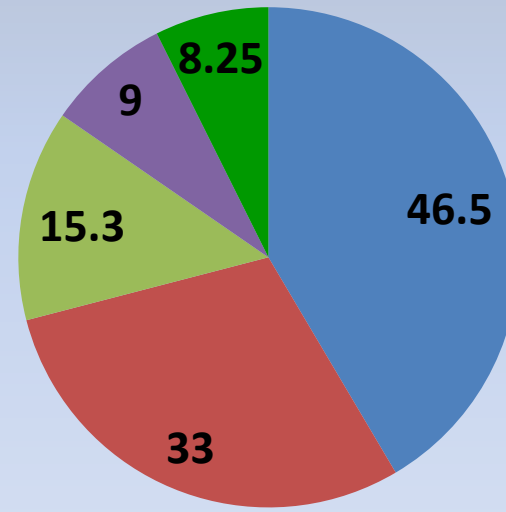


Total Mean Percent Volume



Top 5 diet items from RPQRR
12/2008 - 12/2010

720 Scats
Analyzed



Total Mean Percent of Scats



Conclusions

This research suggests that having a diversity of native fruits available on the landscape serves as a buffer species, which can be important in the survival of quail.

During our study coyotes consumed more predators of quail than quail themselves.

Management Implications

Land managers must consider the Hippocratic Oath: “First do no harm”.

Managers must evaluate the relationship between coyotes and quail on their property to determine if coyote control is warranted.

Based on our results, coyotes not only preyed on mesopredators but also on rodents and other species which may have competed with quail for resources.

Management Implications

Our results suggest that mast plays an important role in the diets of coyotes.

Species diversity of mast-producing shrubs should be maintained during brush control; land managers should be concerned about the importance of these plants to both coyotes and quail.

Acknowledgments

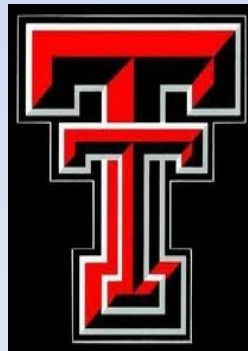
Rolling Plains Quail Research Ranch

Texas Tech University

Museum of Texas Tech University – Natural
Science Research Laboratory

Staff at RPQRR

Mark Peyton and Wyman Meinzer



Literature Cited

- Henke, S. E. 2002. Coyotes: friend or foe of northern bobwhite in southern Texas. Pages 50-67 in S. J. DeMaso, W. P. Kuvlesky, Jr., F. Hernandez, and M. E. Berger, eds. Quail V: Proceedings of the Fifth National Quail Symposium. Texas Parks and Wildlife Department, Austin, Texas.
- Johnson, M. K., and R. M. Hansen. 1979. Estimating coyote food intake from undigested residues in scats. *American Midland Naturalist* 102:363-367.

Literature Cited

Lehmann, V. W. 1946. Bobwhite quail reproduction in southwestern Texas. *Journal of Wildlife Management*. 10:111-123.

Meinzer, W. P., D. N. Ueckert, and J. T. Flinders. 1975. Foodniche of coyotes in the Rolling Plains of Texas. *Journal of Range Management* 28:22-27

Rader, M. J., T. W. Teinert, L. A. Brennan, F. Hernandez, N. J. Silvy, and X. B. Wu. 2007. Identifying predators and nest fates of bobwhites in southern Texas. *Journal of Wildlife Management* 71:1626-1630.

Questions?

