

Scaled Quail Food Preference in West Texas

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INTRODUCTION

The proper management of quail or any wildlife species requires knowledge of their habitat and dietary selection. Studies investigating diet selection of scaled quail (*Callipepla squamata*) has been performed in Arizona and New Mexico, but have been limited in Texas (Davis et al. 1975, Medina 1988). Identifying specific food preferences can allow proper management of this species in West Texas where scaled quail once flourished but have declined due to poor land use practices.

Locating areas that lack adequate plant species by scaled quail can provide opportunities for restoration. Enhancing plant species preferred across the landscape can provide viable populations for future establishment by dispersal and provide connectivity between scaled quail populations.

OBJECTIVES

The objective of this project is to determine food preference by identifying food contents found within the crops of scaled quail.

METHODS

Scaled quail were harvested by hunters in November and December 2015 from Presidio County, TX. Quail were located in areas without supplemental feed. Each crop was removed and frozen.

The contents from each respective crop were individually emptied into an aluminum pan and weighed (Figure 1). Each crop was placed in a convection drying oven at a temperature of 60° C. Crop contents were considered dry when weights were similar over a 24-hour period.

Contents of each crop were separated by seed, mast, vegetative, and insect. These components were identified by species or given a unique identification. Individual seeds, mast, and vegetation were individually counted to assess preference of food items. Plant species were then grouped into forbs, grasses, woody plant, succulents, and insects to evaluate overall selection.



Figure 1. Crop contents from a scaled quail harvested in Presidio County, TX.

PRELIMINARY RESULTS

A total of 227 quail were harvested. Only a subset of the crop contents from the harvested scaled quail has been analyzed due to the diversity of foodstuffs consumed. Thus far, crops have been analyzed from 15 harvested scaled quail. Juvenile scaled quail (n = 3) represented 73% of the harvest and 93% of harvested birds analyzed have been males (n = 14). A total of 88 different plant species were found among the crops. This resulted in an average of 17 different plant species per crop.

The sum of all seed, mast, vegetative, and insect components found in all crops were 25,805. The maximum number of all components found within 1 crop was 8,609 with the minimum number of food components found within 1 crop was 40. Forbs were the most common component, followed by woody plants, grasses, succulents, and insects (Figure 2). Seeds represented 51% of the food components (i.e. seeds, vegetative, insect) consumed.

The most prevalent occurring forbs found among the crops were Biglow's bahia (*Bahia bigelovii*), prairie verbena (*Glandularia wrightii*), and showy menodora (*Menodora scabra*) (Table 1). The forbs that had the most of number of seeds found within all crops were phacelia sp. (mostly *P. congesta*), followed by verbena, and deer pea vetch (*Vicia ludoviciana*) (Table 2).

Figure 2. Food components consumed by scaled quail.

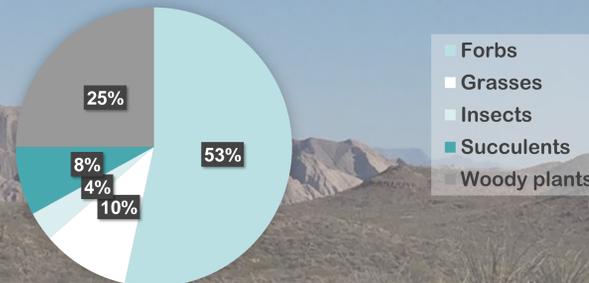


Table 1. Plant species with greatest number of seeds found in all crops contents.

Food component	Plant species	Number of seeds
Forbs	Phacelia sp.	9106
	Verbena sp.	5233
	Vetch sp.	1854
Grasses	Hall panicum	835
	Slim tridens	782
	Urochloa sp.	3
Woody plants	Ocotillo	401
	White thorn acacia	382
	Skeleton leaf golden eye	296



Figure 3. Verbena, hall panicum, and whitethorn acacia were the most commonly occurring seeds for each respective group of forbs, grasses, and woody plants.

Table 2. Total number of each plant species found in all crops.

Food component	Plant species	Number of occurrences in crop
Forbs	Anemone composite	10
	Prairie verbena	9
	Showy menodora	8
Grasses	Hall panicum	10
	Slim tridens	7
	Urochloa sp.	3
Woody plants	Whitethorn acacia	8
	Algerita	6
	Skelton leaf golden eye	4

CONCLUSION

This study has proven to be more difficult than initially expected due to the number of seeds and diversity of species encountered in the crops; so much so, that the dietary breadth of scaled quail in West Texas on our study site has trumped other studies. Preliminary results suggest that seeds from forbs are a substantial food item and a large component of a scaled quail diet. This agrees with prior literature (Ault and Stormer 1983, Medina 1988). Seeds from woody plants, grasses, and succulents are additionally important and may provide a nutritional bridge that occurs seasonally to meet energetic requirements. The variability of seed production for plant species will vary depending on rainfall. Woody plants and succulents are less susceptible to drought. Rainfall in prior and current year of the harvest of quail allowed germination of forbs and their seed production. Finally, due to the diversity and abundance of forbs in scaled quail diets, managers may be wise to carefully plan widespread applications of herbicides (i.e Spike) on the landscape that result in forb kill if the management of scaled quail is an important ranch objective.

FUTURE RESEARCH

We will continue to collect data from crop contents of scaled quail to provide an adequate sample size. Future results will also include vegetation sampling data collected in summer 2015 that will provide valuable information to indicate the availability of plants located in close proximity of harvested scaled quail.

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LITERATURE CITED

- Ault, S.C. and F.A. Stormer. 1983. Seasonal food selection by scaled quail in Northwest Texas. The Journal of Wildlife Management 47: 222-228.
- Davis, C.A., R.C. Barkley, and W.C. Haussamen. 1975. Scaled quail foods in southeastern New Mexico. The Journal of Wildlife Management 39: 496-502.
- Medina, A.L. 1988. Diets of scaled quail in southern Arizona. The Journal of Wildlife Management 52: 753-757.