

SEASONAL DIETS AND FORAGING SELECTIVITY OF WHITE-TAILED DEER  
IN THE ROLLING PLAINS ECOLOGICAL REGION  
OF TEXAS

THESIS

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By

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## **DEDICATION**

To my father, Robert, for his unwavering dedication to my future.

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## ABSTRACT

### SEASONAL DIETS AND FORAGING SELECTIVITY OF WHITE-TAILED DEER IN THE ROLLING PLAINS ECOLOGICAL REGION OF TEXAS

by

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The Rolling Plains is the largest ecological region in Texas with 41% classified as habitat for white-tailed deer (*Odocoileus virginianus*). A study of the seasonal food habits of white-tailed deer within the Rolling Plains using rumen samples for dietary analysis occurred from December 1999 to August 2001. A total of 317 deer were collected for rumen analysis. Collections were made quarterly at eight sites. Vegetation was sampled at the time of collections to profile food resources available to deer. I sampled herbaceous vegetation along 100-m transects using 0.25 m<sup>2</sup> Daubenmire quadrats. Woody vegetation was sampled using 100-m line intercepts during spring collections. Rumen contents were analyzed using the point-frame method. Plant fragments were identified to species by microscopic and microhistological techniques. Diets varied by season and collection site. Browse composed the largest portion (30%) of deer diets, followed by forbs (28%), grasses (19%), mast (18%), and supplemental/crop foods (4%). Honey mesquite (*Prosopis glandulosa*), Japanese brome (*Bromus japonicus*), sand shin oak (*Quercus havardii*), prickly pear cactus (*Opuntia*

*spp.*), and plains cottonwood (*Populus deltoides*) made up large portions of deer diets. Results of rumen and vegetational analyses were used to determine selective foraging by deer. Selected species included plains cottonwood, skunkbush (*Rhus aromatica*), Osage orange (*Maclura pomifera*), redberry juniper (*Juniperus pinchotii*), mistletoe (*Phoradendron tomentosum*), and black willow (*Salix nigra*). Other important forage species included Japanese brome, honey mesquite, prickly pear cactus, sand shin oak, prickly ash (*Zanthoxylum hirsutum*), and dayflower (*Commelina erecta*).

## INTRODUCTION

White-tailed deer (*Odocoileus virginianus*) are an important ecological, economic, and recreational species in Texas. Landowners receive substantial income from leasing their land for white-tailed deer hunting. Since more than 90% of Texas land is privately owned (Ramos 1999), private landowners manage the majority of white-tailed deer habitat.

The Rolling Plains Ecological Region of Texas (Fig.1) encompasses more than 112,000 km<sup>2</sup>, representing the largest ecological region of Texas (Lyndon B. Johnson School of Public Affairs 1978). It contains a vast assemblage of habitats, from limestone hills in the south to cottonwood-lined rivers in the north. Forty-one percent of this region is classified as white-tailed deer habitat (Young and Traweck 1998). Private landowners within the Rolling Plains have a large stake in the welfare of white-tailed deer, and with the assistance of state biologists, can positively influence the dynamics of the herd structure in this region.

In recent years, the white-tailed deer has expanded its range in the Rolling Plains. Concurrent with the range expansion has been an increase in the abundance of deer (Young and Traweck 1998). Bucks with trophy-size antlers have been harvested in the region. Habitat for the species is considered excellent on many ranches.

Knowledge of the food habits of white-tailed deer is crucial for managing this species (Litvaitis et al. 1996). The importance and seasonal use of plant species will allow landowners and biologists to enhance the quality of habitat and the health of white-tailed deer populations.

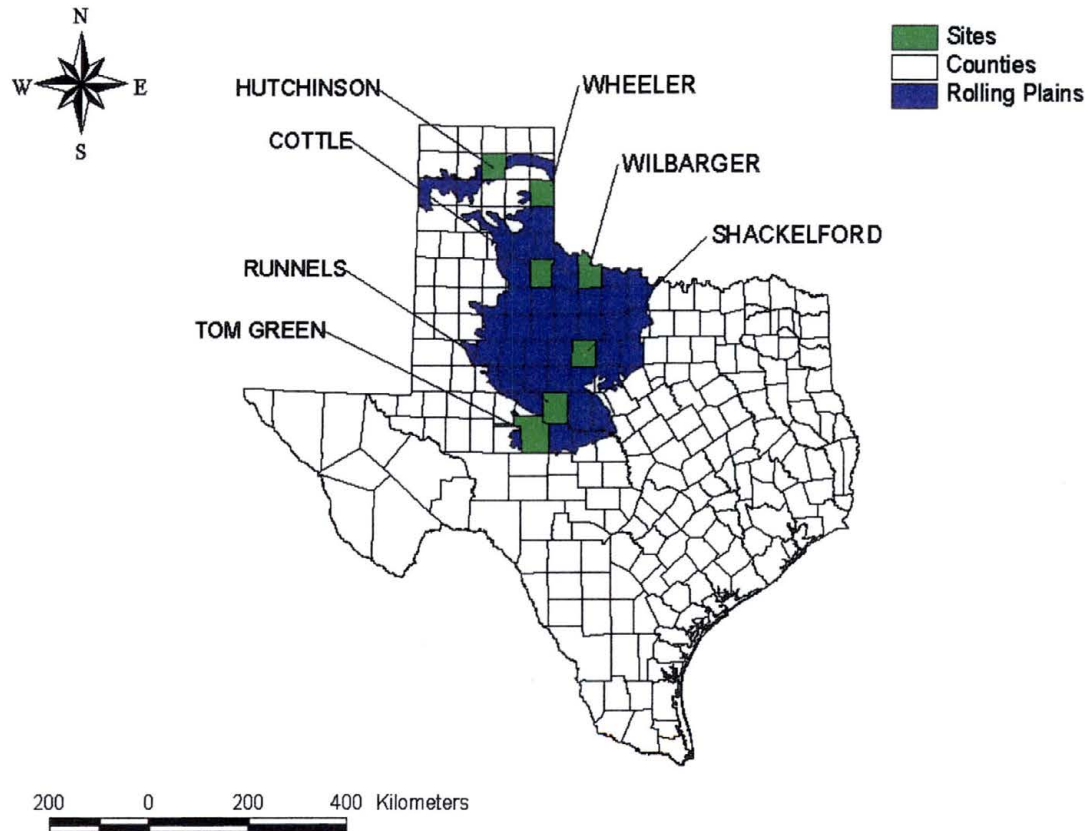


Figure 1. Map showing the locations of counties in the Rolling Plains Ecological Region where rumen samples were collected. Texas counties are outlined in black, the Rolling Plains Ecological Region shaded blue, and county study sites shaded in green.

## Literature Review

Currently, little is known about the foraging habits and food preferences of white-tailed deer in the Rolling Plains of Texas. One study of white-tailed deer diets in the Rolling Plains Ecological Region was conducted in parts of Haskell, Throckmorton, and Shackelford counties (Quinton and Horejsi 1977). Food habits of deer were assessed by fecal analysis in relation to different brush treatments on six sites. Browse species composed 53% of the annual diet, while forbs and grasses represented 45% and 2%, respectively. Mistletoe (*Phoradendron tomentosum*) and prickly pear cactus (*Opuntia spp.*) were the most important foods in the annual diet, accounting for 53% of items consumed.

Food habit studies for white-tailed deer have been conducted in other ecological regions of Texas. Poor (1999) reported that woody species (browse and mast) accounted for 53% of the annual diet of white-tailed deer in the Cross Timbers and Prairies Ecological Region, with forbs and grasses contributing 17% and 13.5%, respectively. A study in the Edwards Plateau (Waid et al. 1984) reported annual white-tailed deer diets of 56% browse, 35% forbs, and 9% grass. In another study in the Edwards Plateau by Warren and Krysl (1983), white-tailed deer diets were composed of browse, forbs and grasses at 68.6%, 24%, and 4.9%, respectively. Cross (1984) evaluated deer diets on burned and control sites at the Kerr Wildlife Management Area in the Edwards Plateau. Diet composition by forage class varied markedly by season. In winter, mast made up the majority of the diet (54.6%), but in early spring and summer declined to 9.8% and 5.9%, respectively. Browse accounted for 58.8% of the summer diet, 20% of the early spring diet, and 8.4% of the winter diet. Forbs made up 22.5% of the summer diet,

14.2% of the early spring diet, and 11.8% of the winter diet. Everitt and Gonzales (1979) reported diets of 61.1% cacti, 16.4% browse, 12.3% forbs, and 3.0% grasses in South Texas in late fall-early winter. Another South Texas study by Chamrad and Box (1968) reported diets of 68% forbs, 22% grasses, and 5% browse.

A comprehensive study of the food habits and preferences of white-tailed deer is overdue for the Rolling Plains Ecological Region. As can be seen by examining previous studies, white-tailed deer diet composition can differ markedly by locality, season, and year. Varying geology, soils, vegetative types, and climates between ecological regions influence deer foraging. As the studies on the Edwards Plateau illustrate, deer diets can vary within a region. To better understand deer diets within an ecological region, adequate data must be collected within that region. Also, diets must be examined seasonally to discern how white-tailed deer foraging habits may change based on seasonal fluctuations of forage availability and quality. The current study seeks to address this problem and provide critical information about deer food habits in the Rolling Plains to landowners and biologists. By gathering data from across the Rolling Plains on a seasonal basis, biologists and landowners will be able to tailor their deer management plans based on individual locations and seasons.

This study was initiated by Texas Parks and Wildlife Department (hereafter TPWD) to obtain basic natural history information for making informed decisions on the management of white-tailed deer in the Rolling Plains. My objectives of the study were: 1) to determine seasonal food habits of white-tailed deer within the Rolling Plains Ecological Region, 2) to develop a profile of food resources available to white-tailed deer

in the Rolling Plains Ecological Region, and 3) to determine selectivity for species of plants in the diet by white-tailed deer within the Rolling Plains Ecological Region.

## **METHODS**

### **Study Sites**

Personnel of TPWD assigned to the Panhandle and Possum Kingdom Regulatory Districts obtained landowner permission for access to study sites within the Rolling Plains Ecological Region. Originally, two study sites were to be chosen from each major soil association within the Rolling Plains. Pairing the sites in this manner would provide replicate data of white-tailed deer diets for each soil association and for specific regions of the Rolling Plains. These data would be used to compare and contrast deer diets by sub-region within the Rolling Plains, as habitats and vegetation would differ significantly between soil associations. However, we were not able to gain access to preferred study sites, so substitute areas were used. Eight study sites were chosen from across the Rolling Plains. Figure 1 depicts the counties in which sites were located. Though different from original plans, these study sites still provided broad coverage of the Rolling Plains Ecological Region, from the limestone derived soils of the southern Rolling Plains, to the Canadian River breaks in the north, to the Permian red soils of the central and northeast Rolling Plains. Several sites were close enough in proximity to group them together for analysis. Six of the study sites were privately owned ranches. As per landowners' requests, ranch names are not given but instead referred to by county. The two remaining areas were TPWD Wildlife Management Areas and are referred to by name.



## **San Angelo Wildlife Management Area**

San Angelo Wildlife Management Area (hereafter San Angelo WMA) is located next to O.C. Fisher reservoir in Tom Green County. Deer were collected on two management areas outside the park facilities that composed about 328 ha. Shallow, rocky clay loam soils dominated by honey mesquite (*Prosopis glandulosa*)/mixed grasslands occur on much of the site. Prickly pear cactus (*Opuntia* sp.) and tasajillo (*Opuntia leptocaulis*) are also common woody species. Sideoats grama (*Bouteloua curtipendula*), red grama (*Bouteloua trifida*), cane bluestem (*Bothriochloa barbinodis*), slim tridens (*Tridens muticus*), buffalograss (*Buchloe dactyloides*), and vine mesquite (*Panicum obtusum*) are common grasses on the site. Deeper clay loam soils persist on other upland sites, and are dominated by honey mesquite, agarito (*Berberis trifoliolata*), littleleaf sumac (*Rhus microphylla*), prickly pear cactus, tasajillo and lotebush (*Ziziphus obtusifolia*). Grasses on these sites include tobosa (*Hilaria mutica*), vine mesquite, curly mesquite (*Hilaria belangeri*), buffalograss, and sideoats grama.

## **Runnels County Site**

This Runnels County site contains about 6,300 ha on shallow soils over limestone and deeper clay loam soils in other areas. Honey mesquite dominates upland areas, along with hackberry (*Celtis reticulata*), gum bumelia (*Bumelia lanuginosa*), prickly pear cactus, littleleaf sumac, prickly ash (*Zanthoxylum hirsutum*), agarito, and lotebush. Common grasses include sideoats grama, buffalograss, Texas grama (*Bouteloua rigidiseta*), slim tridens, hairy grama (*Bouteloua hirsuta*), little bluestem (*Schizachyrium scoparium*), and purple three-awn (*Aristida purpurea*). Forb species include crotons

(*Croton spp.*), silverleaf nightshade (*Solanum elaeagnifolium*), bundleflowers (*Desmanthus spp.*), Indian mallow (*Abutilon incanum*), purple dalea (*Dalea purpurea*), and ragweeds (*Ambrosia spp.*). Cattle, sheep, and goats graze the ranch at a stocking rate of about one Animal Unit (AU) to 12 ha. Deer density on the ranch is about one deer to 4 ha.

### **Shackelford County Site**

This site is a 4,300-ha ranch located in Shackelford County. It has gently rolling terrain and several creek drainages. Soils are typically limestone dominated by woody species, such as honey mesquite, lotebush, prickly pear cactus, catclaw (*Acacia roemeriana*), prickly ash, and skunkbush (*Rhus aromatica*). Common grasses include sideoats grama, Texas wintergrass (*Stipa leucotricha*), buffalograss, little bluestem, and three-awn species (*Aristida spp.*). Croton, broomweed (*Xanthocephalum dracunculoides*), western ragweed (*Ambrosia psilostachya*), and silverleaf nightshade are common forbs. Cattle graze on the ranch at a stocking rate of one AU to about 14 ha. There is a rotational grazing system.

### **Wilbarger County Site**

This site is located in the northeast part of the Rolling Plains region in Wilbarger County. The ranch consists of over 197,000 ha. However, only a small portion of the site was used for deer collection. Most terrain is gently rolling and dominated by honey mesquite, lotebush, prickly pear cactus, tasajillo, gum bumelia, and western soapberry (*Sapindus saponaria*). Common forbs include heath aster (*Aster ericoides*), western

ragweed, croton, silverleaf nightshade, and lizard-tail (*Gaura parviflora*). Japanese brome (*Bromus japonicus*), Texas wintergrass, sideoats grama, sand dropseed (*Sporobolus cryptandrus*), and little bluestem are common grasses on the ranch. Cattle on the ranch are stocked at a rate of about one AU to 12 ha. There is a rotational grazing system.

### **Matador Wildlife Management Area**

The Matador Wildlife Management Area (hereafter Matador WMA) is a TPWD facility of about 11,000 ha located in Cottle County. Honey mesquite and sand sagebrush (*Artemisia filifolium*) typify upland areas, and western and northeastern areas of the facility contain sand shin oak (*Quercus havardii*) rangelands. Woody species include honey mesquite, sand sagebrush, gum bumelia, plains cottonwood (*Populus deltoides*), and redberry juniper (*Juniperus pinchotii*). Sideoats grama, sand dropseed, white tridens (*Tridens albescens*), Japanese brome and Texas wintergrass are common grass species. Common forb species include western ragweed, broomweed, lamb's quarters (*Chenopodium album*), wild buckwheat (*Eriogonum annuum*), sleepy daisy (*Xanthisma texanum*), and lazy daisy (*Aphanostephus ramosissimus*). Cattle are stocked on several pastures of the Area. They are grazed in a rotational system to mimic historic grazing by wild ungulates.

### **Cottle County Site**

This 31,500-ha ranch covers parts of several counties in the western Rolling Plains, but my study site was located in Cottle County. This area is flat to gently rolling and

contains sandy loam and deep sand sites. Honey mesquite and yucca (*Yucca sp.*) are typical woody species on the sandy loam sites, while sand shin oak, sandhill plum (*Prunus angustifolia*), and sand sagebrush are common on the deeper sands. Common grass species include little bluestem, sand dropseed, sand bluestem (*Andropogon gerardii*), sideoats grama, windmillgrass (*Chloris spp.*), and three-awns. Western ragweed, silverleaf nightshade, croton, broomweed, yellow woolly-white (*Hymenopappus flavescens*), wild buckwheat, and lizard-tail are typical forb species found on the ranch. Cattle graze on much of the ranch.

### **Wheeler County Site**

This 7,800-ha ranch is located in Wheeler County in the eastern panhandle of Texas. The land is gently sloping and contains seven range sites. Deep sand and sandy rangelands dominate the majority of the ranch. Woody species include sand shin oak, sandhill plum, and skunkbush on the sandy areas, with occasional plains cottonwood, hackberry, black willow (*Salix nigra*) and Osage orange (*Maclura pomifera*) in bottomland areas. Common grasses include little bluestem, sand dropseed, blue grama, buffalograss, Indiangrass (*Sorghastrum nutans*), and sand bluestem. Western ragweed, croton, bundleflowers, heath aster, and broomweed are typical forbs on this area. Cattle graze on the area at a stocking rate of no more than one AU to 10 ha. Some rye (*Secale cereale*) and wheat (*Triticum aestivum*) food plots are present on the ranch.

## Hutchinson County Site

This site is a 5,500-ha ranch located near the Canadian River in parts of Hutchinson and Roberts counties. The majority of the ranch is characterized by deep sand, sandy rangelands, and some sandy bottomland areas as well. Typical sandy rangeland woody species include sand sagebrush, sand shin oak, yucca, and skunkbush, while plains cottonwood, hackberry, willow, sandhill plum, and skunkbush occupy sandy bottomland areas. Common grasses on the ranch include vine mesquite, blue grama (*Bouteloua gracilis*), buffalograss, little bluestem, Canada wildrye (*Elymus canadensis*), and western wheatgrass (*Agropyron smithii*). Forb species include western ragweed, Illinois bundleflower (*Desmanthus illinoensis*), wild buckwheat, plumed thistle (*Cirsium undulatum*), and broomweed. Cattle graze on the ranch at a stocking rate of one AU per 11 ha. Cattle are rotated through 26 pastures. Some oats (*Avena sativa*), wheat, rye, and alfalfa (*Medicago sativa*) food plots are present on the ranch.

## Procedures

*Deer Collection.*—We collected five deer (Institutional Animal Care and Use Committee (IACUC) Permit #2001-05) randomly at each study site during each season beginning in fall 1999. Fall seasons included mid-September to mid-December, while winter seasons included mid-December to mid-March. Spring seasons were mid-March to mid-June. Summer seasons included mid-June to mid-September. Because of circumstances beyond my control, three samples were not collected. One sample was not collected during fall 1999, and two samples were not collected during summer 2001. A

total of 317 deer were taken. Deer were collected at night by centerfire rifle and spotlight with the assistance of TPWD personnel. Hunter harvested deer composed a large portion of deer collected during fall.

Once collected, deer were eviscerated and the rumen opened for sample collection. The contents of each rumen were homogenized by simple hand mixing. About one liter of material was removed, placed in storage bags, labeled, and frozen. Additionally, live and dressed weights, age, sex, and kidney fat index (Kistner 1980) were recorded for each deer. A small hair sample also was taken from each animal for genetic analysis by another researcher. During the spring collection, fetuses were removed from pregnant females. The number of fetuses was recorded, as well as sex and age (Armstrong 1950).

*Rumen Analysis.*--Frozen rumen samples were thawed and washed through various sieves (standard sizes #10, #14, and #18, USA Standard Sieve Series, Newark Wire Cloth Co.) to remove digestive liquids and separate plant fragments into different size classes (Chamrad and Box 1964). The samples were fixed in 10% formalin solution, labeled, and stored until analyzed. Sample contents were analyzed using a modified version of the point-frame method (Chamrad and Box 1964). In their study, Chamrad and Box used a point-frame of five pins dropped at 20 intervals, while I used 10 pins dropped at 10 intervals. Larger plant fragments were identified based on morphological features such as leaf margin, inflorescence, fruit, epidermis, and presence or absence of macro hairs. Smaller plant fragments were mounted on slides and identified using microhistological techniques (Baumgartner and Martin 1939, Dusi 1949, Davies 1958). Forbs and browse species were identified based on characters such as cell shape, size, stomata, and

macro/microhairs. Grasses were identified on the basis of stomata and guard cells, silica cells, cork cells, macro/microhairs, and long cells.

Food items found in rumen contents were assigned to one of seven forage classes:

(1) Browse, (2) Mast, (3) Forb, (4) Grass, (5) Sedge, (6) Supplemental/Crop, (7) Unknown. The distinction between browse and mast was different from typical dietary studies. When possible, I distinguished between the mast of woody species and the leaves, shoots, and twigs. I established the category supplemental/crop to define non-native, human-supplied foods such as corn (*Zea mays*), milo (*Sorghum bicolor*), and other cultivated or supplemented food items.

*Forage Availability and Vegetation Analysis.*—Vegetational surveys were performed seasonally at each site from fall 1999 through summer 2001, and usually occurred temporally and spatially with deer collection.

A randomly selected 100-m vegetative transect was used to sample herbaceous vegetation at each site using the Daubenmire technique (Daubenmire 1958). This technique allowed for calculations of frequency, dominance, and percent cover of plant species. Unidentified plants were collected and pressed for later identification. During spring, woody vegetation was sampled along a 100m line using the line intercept method (Dueser and Shugart 1978). This line was placed randomly at each collection site. Woody plants were identified to species.

### **Statistical Analysis/Mathematical Indices**

The vegetational analyses were used to assess the availability of foods on sample sites. I then compared these data to the rumen analysis from each collection site. I used Manly's alpha selection indices (Manly et al. 1972) and log-likelihood chi-square tests

(Neu et al. 1974, Manly et al. 1993) to compare the availability of foods at each site to foods identified in deer rumen; thus, illustrating the seasonal and local food selectivity of white-tailed deer in the Rolling Plains.

An average percent cover was calculated for each plant species recorded on transect lines. These data were converted to count data to develop a profile of the food resources available to white-tailed deer in the Rolling Plains Ecological Region. I recorded the number of Daubenmire frames in which a plant species had  $\geq 2\%$  coverage. Manly's alpha selection indices (Manly et al. 1972) and chi-square log-likelihood tests (Neu et al. 1974, Manly et al. 1993) were used to calculate the seasonal selectivity of food by deer. I calculated Manly's alpha values for foods with composition of  $\geq 1\%$  in the diet. Each food had a specific value based on its proportion in the diet and its availability in the environment. This calculated value was compared to that value for Manly's alpha which indicated non-selective feeding by deer. This value will change based upon the number of food items eaten. When Manly's alpha value for a particular food is above the critical value, that food is classified as selected by white-tailed deer.

Foods making up  $\geq 1\%$  in the diet were also evaluated using the chi-square log-likelihood test. A log-likelihood version of this test was used because available food resources were estimated by sampling. This test compares a food's availability in the environment to its proportion in the deer diet. This tests the hypothesis of proportional use of resources. The null hypothesis for these tests was that deer used food resources in proportion to their availability in the environment. As an extension to this test, I calculated 95% confidence intervals for the proportions of each food in the diet. When this confidence interval was above the food's availability, that food was being used



disproportionately more than its availability. Neu et al (1974) regarded these foods as preferred. Foods making up < 1% of the diet were grouped into a category of “others.” These foods had to be included in both the chi-square log-likelihood test and Manly’s alpha analyses. However, because the category is a composite of many foods, the results from analyses are meaningless. Often, supplemental foods made up large portions of deer diets but were not included in determining selectivity because they were non-native foods whose availability could not be measured.

As Manly’s alpha is a more conservative test and specifically designed to measure selectivity, I focused on those foods classified as selected by Manly’s alpha analysis. The foods classified as selected by the chi-square log-likelihood tests were considered important foods, even though they may not have been classified as selected by Manly’s alpha analysis.

### **Similarity of Sites**

Horn’s index of similarity (Horn 1966) was used to examine vegetative similarity between study sites. Based on the results of these indices, I grouped sites together. I pooled vegetative and rumen data for grouped sites and performed chi-square log-likelihood and Manly’s alpha analyses to determine foods selected by deer on these sites. By doing this, I determined how deer diet varied across the Rolling Plains.

## RESULTS

### Vegetational Analysis

More than 300 plant species were identified on vegetational lines during the two-year study. Japanese brome occurred most frequently, followed by western ragweed, plantains (*Plantago spp.*), peppergrass (*Lepidium virginicum*), purple three-awn, and Texas wintergrass. A complete list of plant species identified on vegetational lines is in Appendices 1 and 2.

### Rumen Analysis 1999-2000

During 1999-2000, rumen contents were collected from 159 deer. In all, 15,900 sample points were taken from rumen contents. Results of rumen analysis for the first year of the study are presented in Figure 2. Woody species (browse or mast) composed 57% of the diet. Overall, browse made up the largest portion (32%) of deer diets.

Overall, 159 plant species were identified in the analysis of rumen contents in 1999-2000 (Appendix 3). Figure 3 depicts the top 10 plant species most frequently consumed by deer during this period.

Twenty-one food items with  $\geq 1\%$  composition in the deer diet were included in analysis (Fig. 4). Chi-square log-likelihood analysis of the rumen and vegetative data for 1999-2000 showed 19 species consumed at levels above their availabilities ( $X^2 = 3486$ ,  $p = 0.00$ ). Many of these species had relatively low availability in the environment (Fig. 4).

Using Manly's alpha analysis, eight of the top 21 foods had values above the critical value of 0.045 and were classified as selected (Table 1). They included skunkbush, prickly ash, plains cottonwood, redberry juniper, Osage orange, mistletoe, lovegrasses (*Eragrostis spp.*), and black willow.

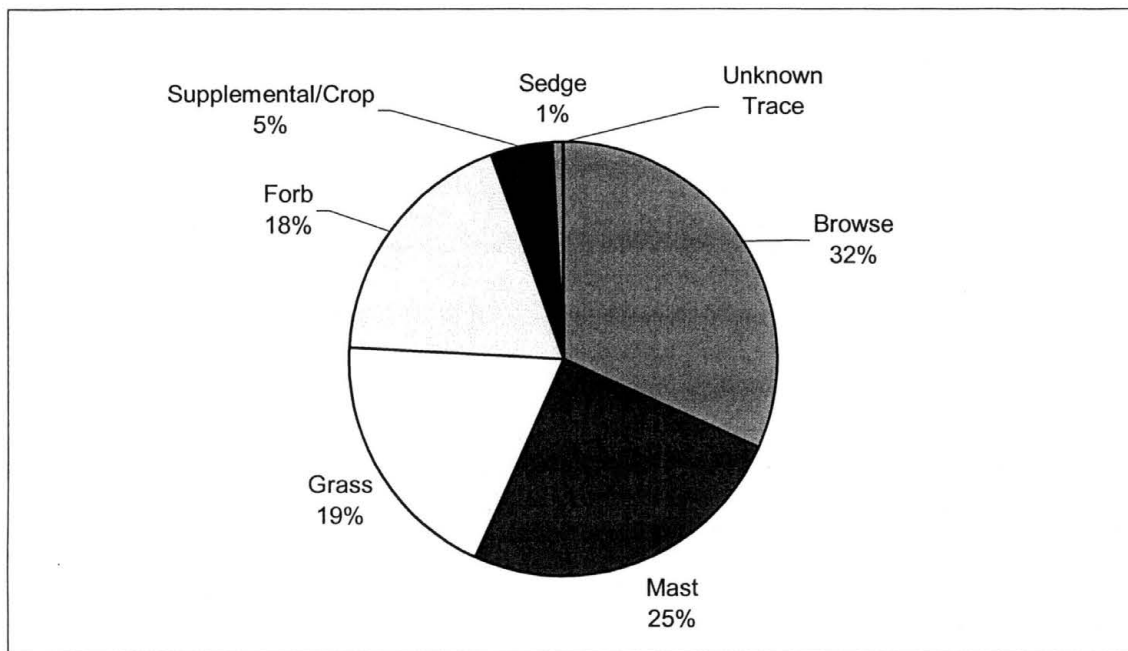


Figure 2. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains ecological Region in 1999-2000.

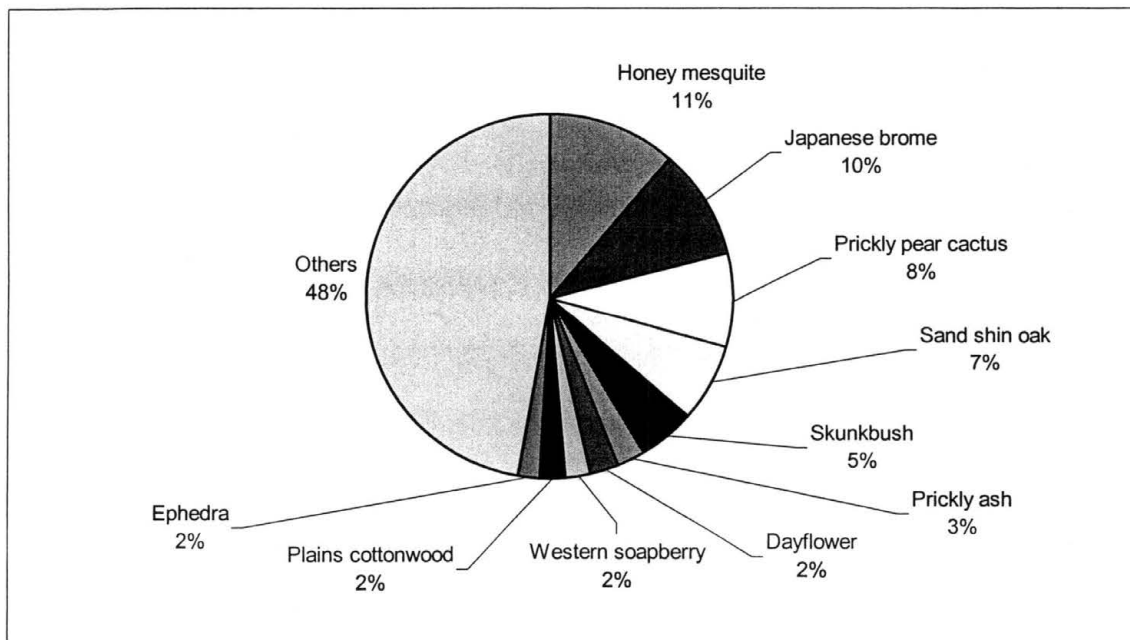


Figure 3. Percent composition of top ten food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in 1999-2000. Others includes all species making up less than 2% of the diet.

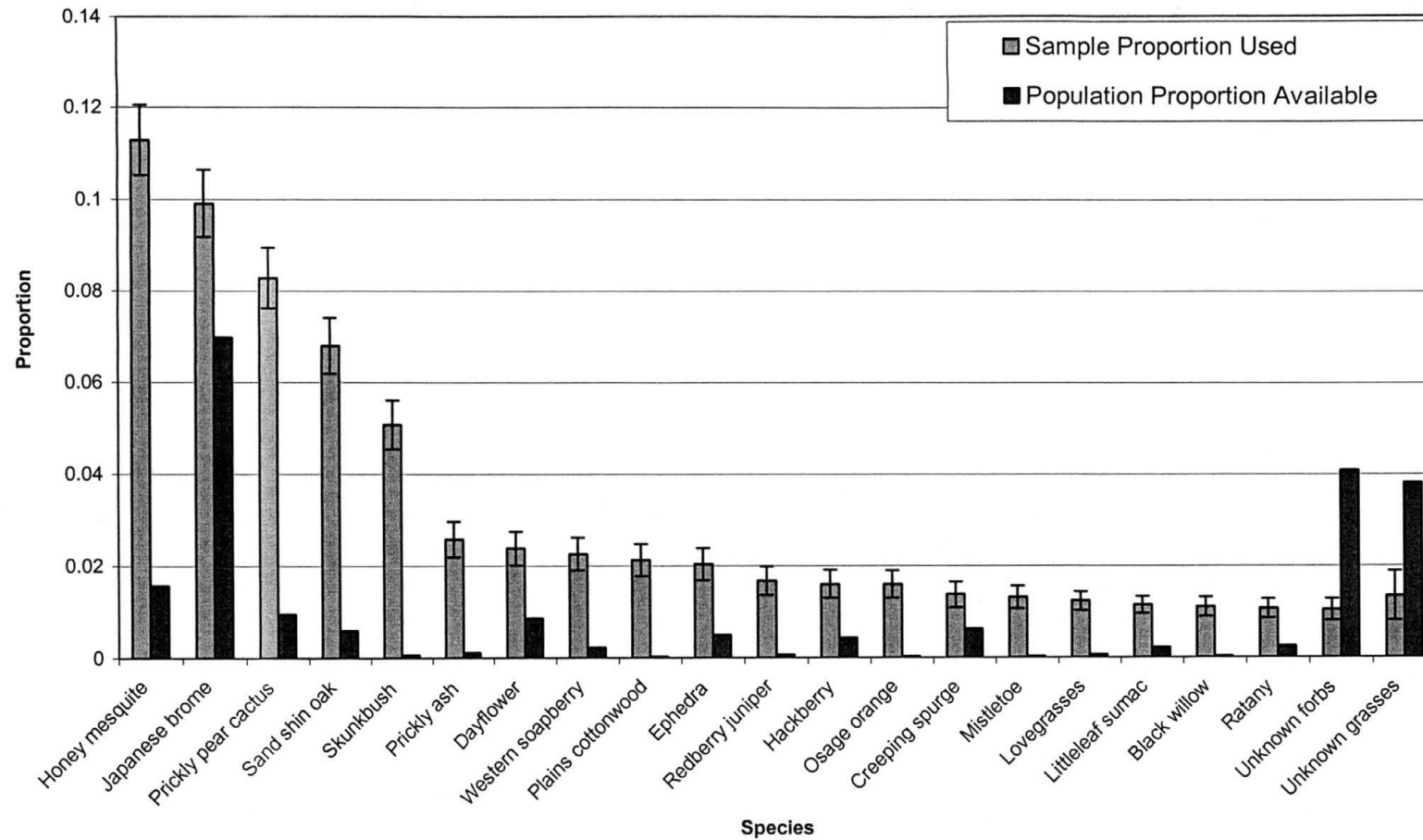


Figure 4. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in 1999-2000.

Table 1. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in 1999-2000. The critical Manly's alpha value for 20 categories of food items is 0.045. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Honey mesquite	0.017
Japanese brome	0.003
Prickly pear cactus	0.021
Sand shin oak	0.028
Skunkbush*	0.200
Prickly ash*	0.051
Dayflower	0.007
Western soapberry	0.025
Plains cottonwood*	0.167
Ephedra	0.010
Redberry juniper*	0.066
Hackberry	0.009
Osage orange*	0.125
Creeping spurge	0.005
Mistletoe*	0.103
Lovegrasses*	0.048
Littleleaf sumac	0.013
Black willow*	0.087
Ratany	0.010
Others	0.003

### Rumen Analysis 2000-2001

During 2000-2001, rumen samples were collected from 158 deer. Two samples from summer 2001 were not collected because of time constraints and deer inactivity. In all, 15,800 points were taken from rumen samples. Results of the rumen analysis for the second year differed from the previous in forage class consumption (Fig. 5). Forbs accounted for the largest percentage (38%) of deer diets. Browse consumption (29%) rated second in the overall diet, followed by grasses (19%), and mast (10%).

A total of 175 plant species were identified in the analysis of rumen contents for 2000-2001 (Appendix 4). Twelve species had a  $\geq 2\%$  composition in the diet (Fig. 6). Japanese brome and honey mesquite had the highest percent compositions (8%) of the diet.

The results of the chi-square log-likelihood analysis ( $X^2 = 5200$ ,  $p = 0.00$ ) of 22 food items in the rumens showed the use of two species, storksbill (*Erodium texanum*) and Texas wintergrass, by deer in proportion to their availability (Fig.7). The grass, purple three-awn, was the only species used disproportionately below its availability. The remaining 21 food items were used at levels above their respective availabilities in the environment.

In Manly's alpha analysis, only two food items, plains cottonwood (0.0586) and sand shin oak (0.046), had alpha values above the critical level (Table 2). These species were classified as selected by deer in the Manly's alpha analysis.

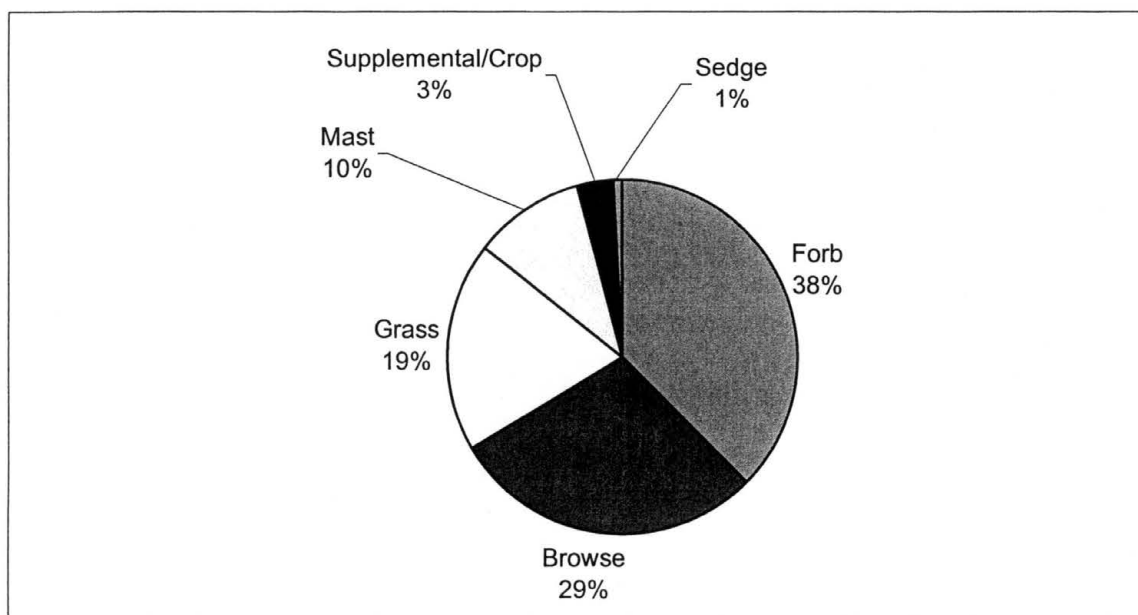


Figure 5. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains Ecological Region in 2000-2001.

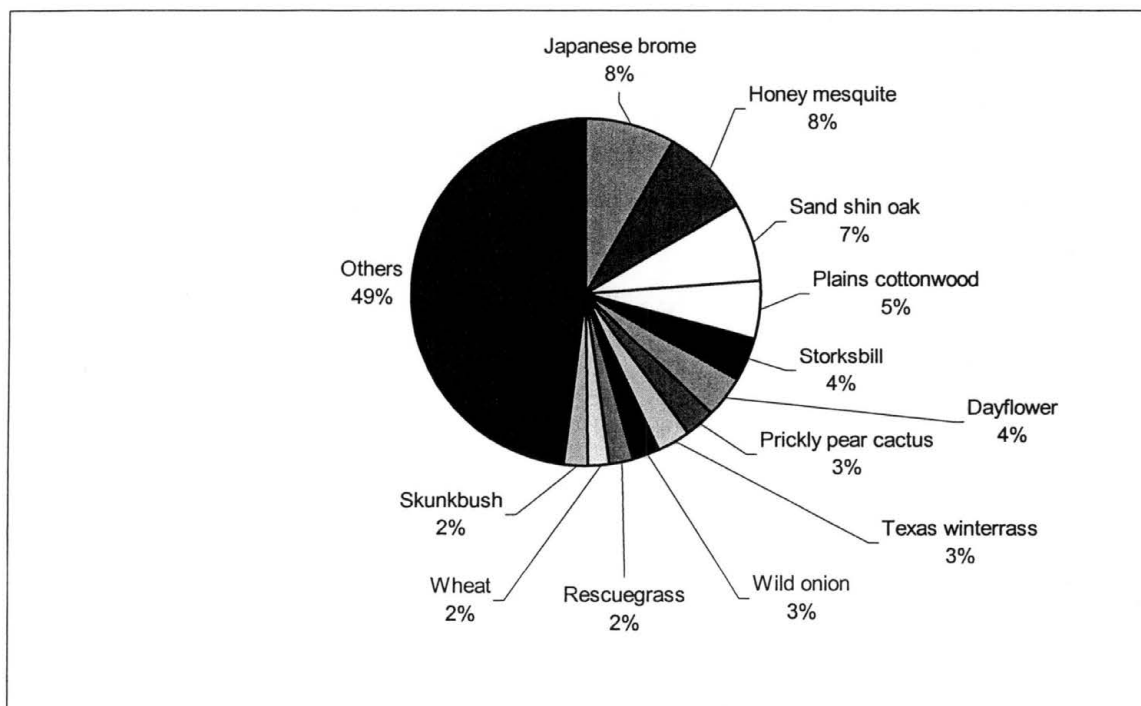


Figure 6. Percent composition of top twelve food items in the diets of white-tailed deer in the Rolling Plains Ecological Region in 2000-2001. Others includes all species making up less than 2% of the diet.



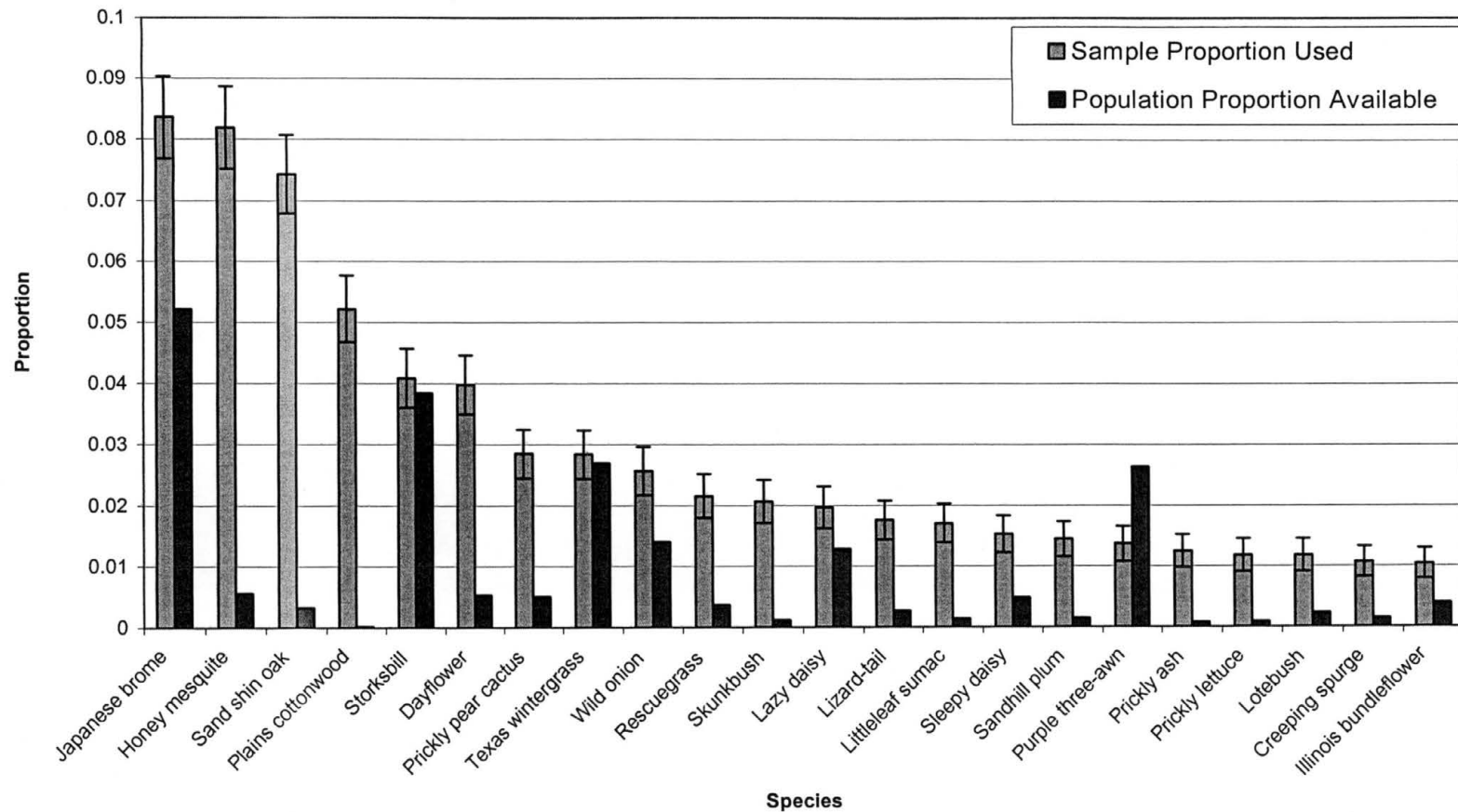


Figure 7. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in 2000-2001.

Table 2. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in 2000-2001. The critical Manly's alpha value for 23 categories of food items is 0.043. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Japanese brome	0.003
Honey mesquite	0.029
Sand shin oak*	0.046
Plains cottonwood*	0.685
Storksbill	0.002
Dayflower	0.015
Prickly pear cactus	0.011
Texas wintergrass	0.002
Wild onion	0.004
Rescuegrass	0.012
Skunkbush	0.034
Lazy daisy	0.003
Lizard-tail	0.014
Littleleaf sumac	0.025
Sleepy daisy	0.006
Sandhill plum	0.019
Purple three-awn	0.001
Prickly ash	0.033
Prickly lettuce	0.026
Lotebush	0.01
Creeping spurge	0.014
Illinois bundleflower	0.005
Others	0.001

### Rumen Analysis 1999-2001

During the two-year study, a total of 317 deer were collected and had their rumen contents examined. For the study, browse accounted for the largest percent (30%) of deer diets (Fig. 8). The percent composition for forbs (28%) was similar to browse.

A total of 239 plant species were identified in the rumen contents of deer during the study (Appendix 5). Honey mesquite (9%) and Japanese brome (9%) had the highest

percent compositions of deer diets (Fig. 9). Seven of the top 12 species were either browse or mast.

The results from the chi-square log-likelihood analysis ( $X^2 = 7912$ ,  $p = 0.00$ ) of 20 food items in rumens showed deer consumed two items, wild onion and rescuegrass, at levels proportionate to their availability (Fig. 10). Storksbill and Texas wintergrass were consumed at levels disproportionately below their availability. The remaining 15 food items were used at proportions above their availabilities in the environment.

Plains cottonwood (0.71) and skunkbush (0.069) had Manly's alpha values above the critical level (Table 3). These two food items were classified as selected items by deer in the Manly's alpha analysis. The remaining 17 items were classified as food items avoided by deer.

Based on forage class consumption, there were differences in the food habits of deer between the first and second year of the study (Fig. 11). A marked difference occurred in the year-to-year use of two forage classes, forb and mast.

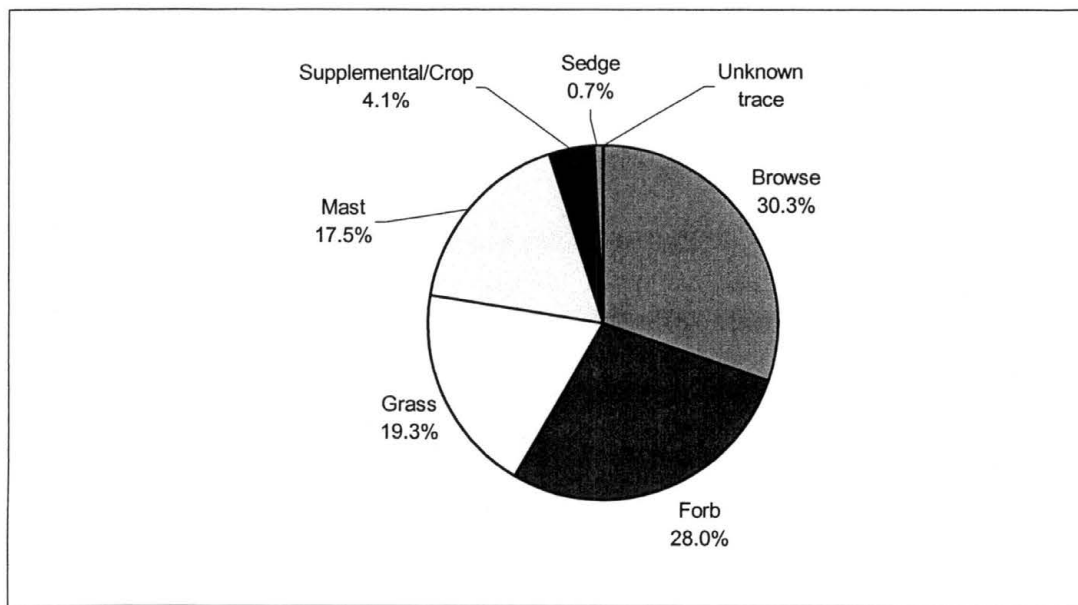


Figure 8. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains Ecological Region in 1999-2001.

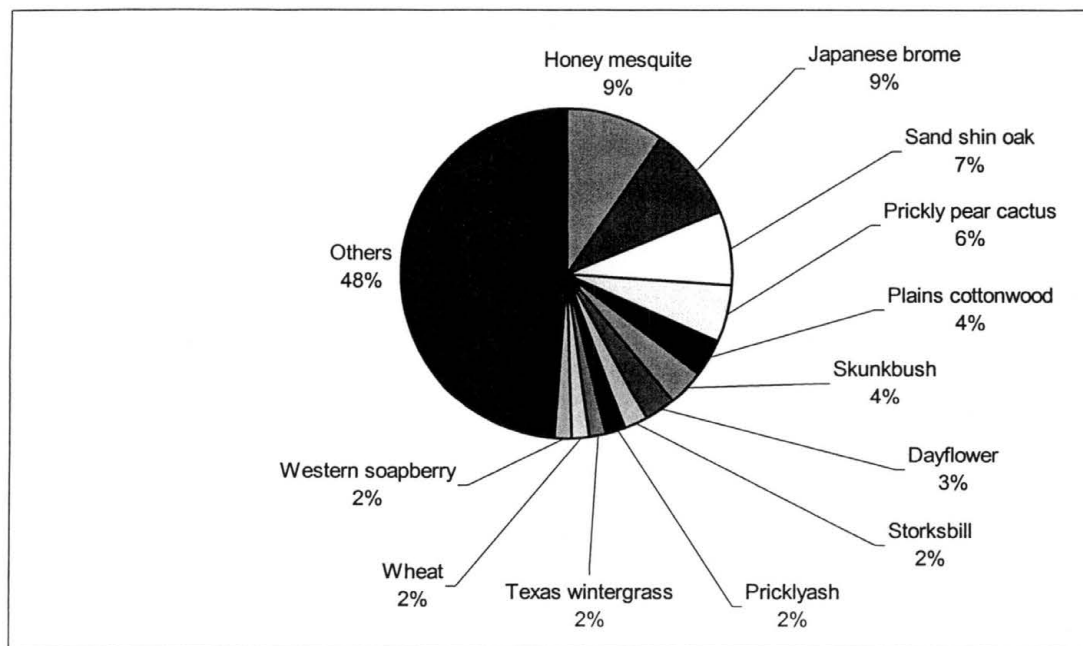


Figure 9. Percent composition of top twelve food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in 1999-2001. Others includes all species making up less than 2% of the diet.

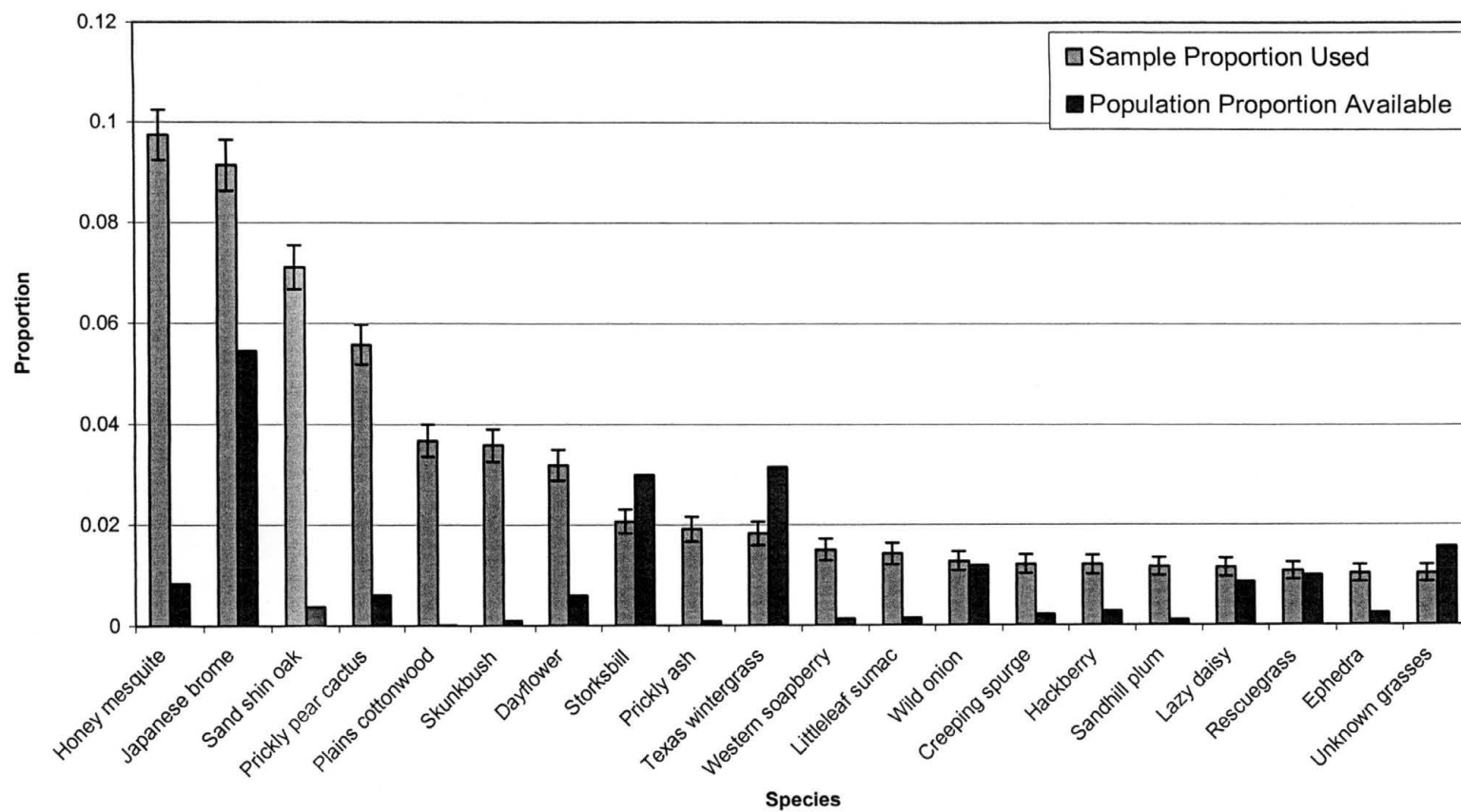


Figure 10. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in 1999-2001.

Table 3. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in 1999-2001. The critical Manly's alpha value for 21 categories of food items is 0.048. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Honey mesquite	0.021
Japanese brome	0.003
Sand shin oak	0.034
Prickly pear cactus	0.017
Plains cottonwood*	0.710
Skunkbush*	0.069
Dayflower	0.010
Storksbill	0.001
Prickly ash	0.041
Texas wintergrass	0.001
Western soapberry	0.021
Littleleaf sumac	0.017
Wild onion	0.002
Creeping spurge	0.010
Hackberry	0.008
Sandhill plum	0.019
Lazy daisy	0.002
Rescuegrass	0.002
Ephedra	0.008
Others	0.002

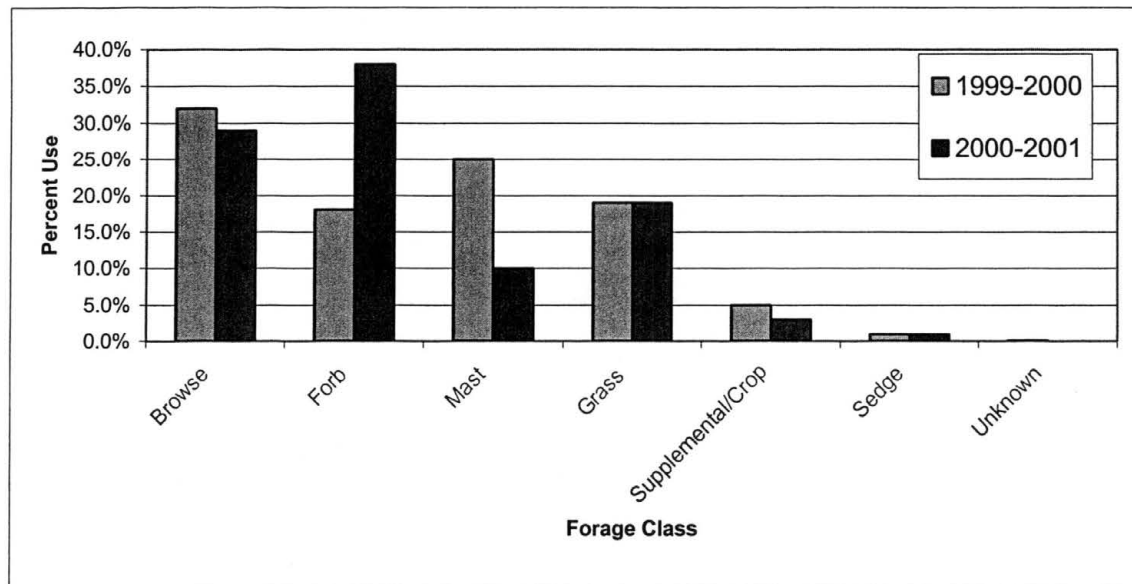


Figure 11. Histogram contrasting forage class consumption by white-tailed deer in the Rolling Plains Ecological Region of Texas in 1999-2000 and 2000-2001.

### Rumen Analysis - Fall 1999

During fall 1999, rumen samples were collected from 39 deer. Mast (38%) made up the largest portion of deer diets (Fig. 12). Browse and grass were consumed in nearly equal amounts.

For fall 1999, 59 plant species were identified in rumen contents (Appendix 6). Honey mesquite accounted for 14% of the diet (Fig. 13). Six of the top 10 food items were either browse or mast. Sixty other food items made up the remaining 30% of the fall 1999 deer diet.

The results from the chi-square log-likelihood analysis ( $X^2 = 529$ ,  $p = 0.00$ ) of 19 food items in rumens showed deer consumed Japanese brome and Scribner's dicantherium (*Dicanthelium oligosanthes*) at levels proportionate to their availability (Fig.14). Three food items were consumed disproportionately below their availability. These included Texas wintergrass, ryegrass (*Lolium perenne*), and lotebush. The remaining 12 food items were consumed at levels above their availability. These included seven of the 10 most frequently consumed species.

Prickly ash, Osage orange, skunkbush, black locust (*Robina pseudoacacia*), rush (*Juncus sp.*), and crownbeard (*Verbesina sp.*) had Manly's alpha values above the critical level (Table 4). These species were classified as selected species by deer. The remaining 13 food items were species avoided by deer.

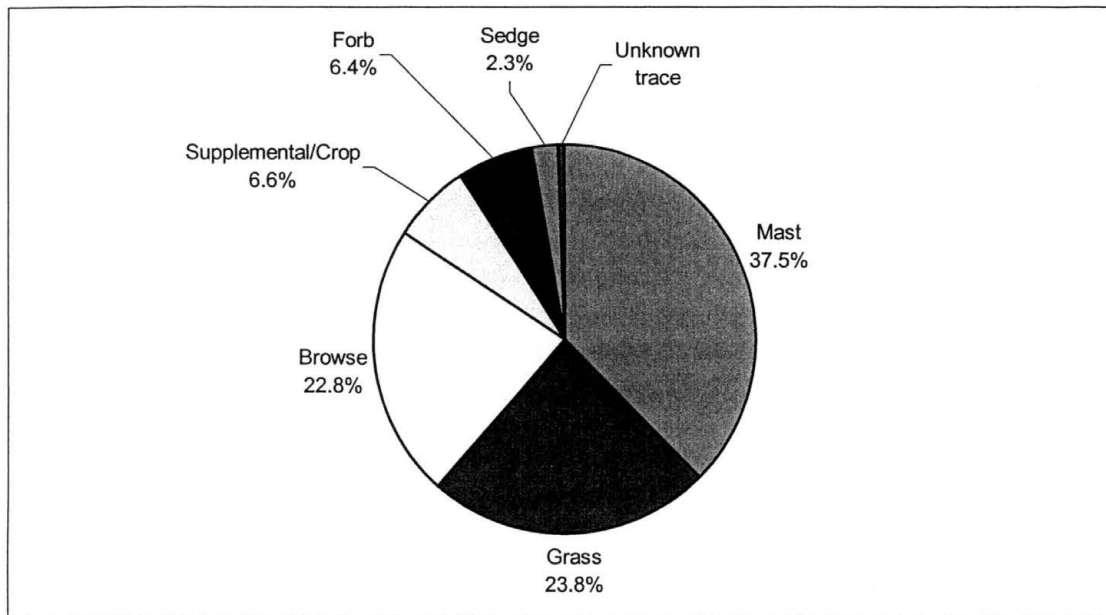


Figure 12. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains Ecological Region in fall 1999.

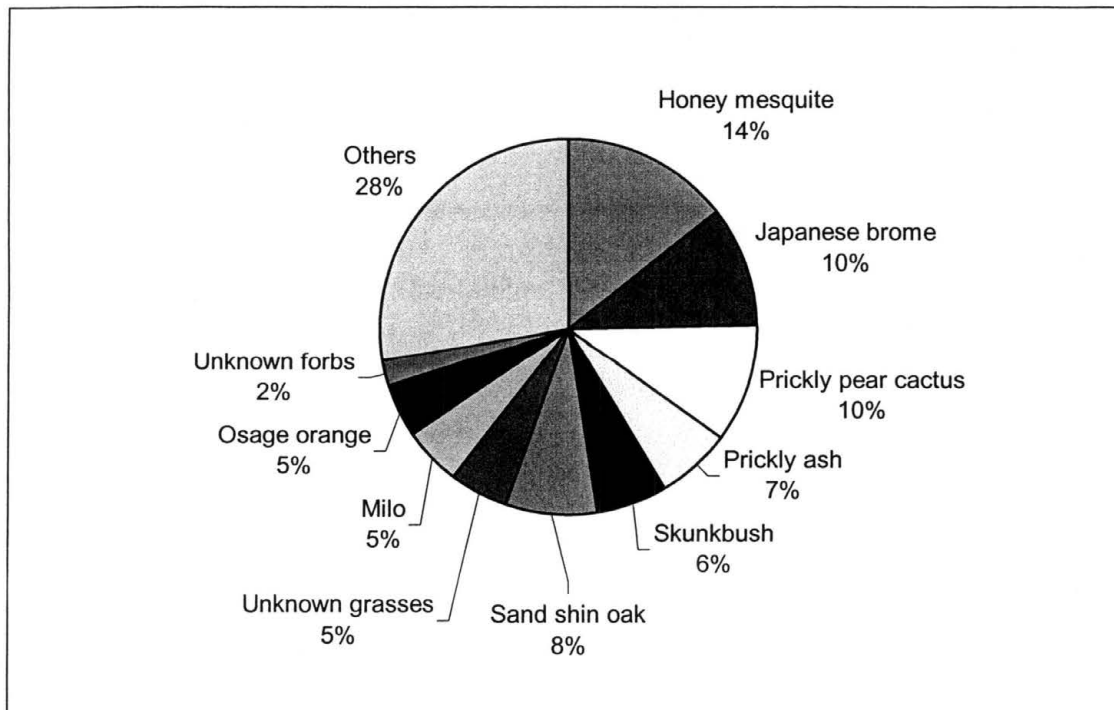


Figure 13. Percent composition of top ten food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in fall 1999. Others includes all species making up less than 2% of the diet.



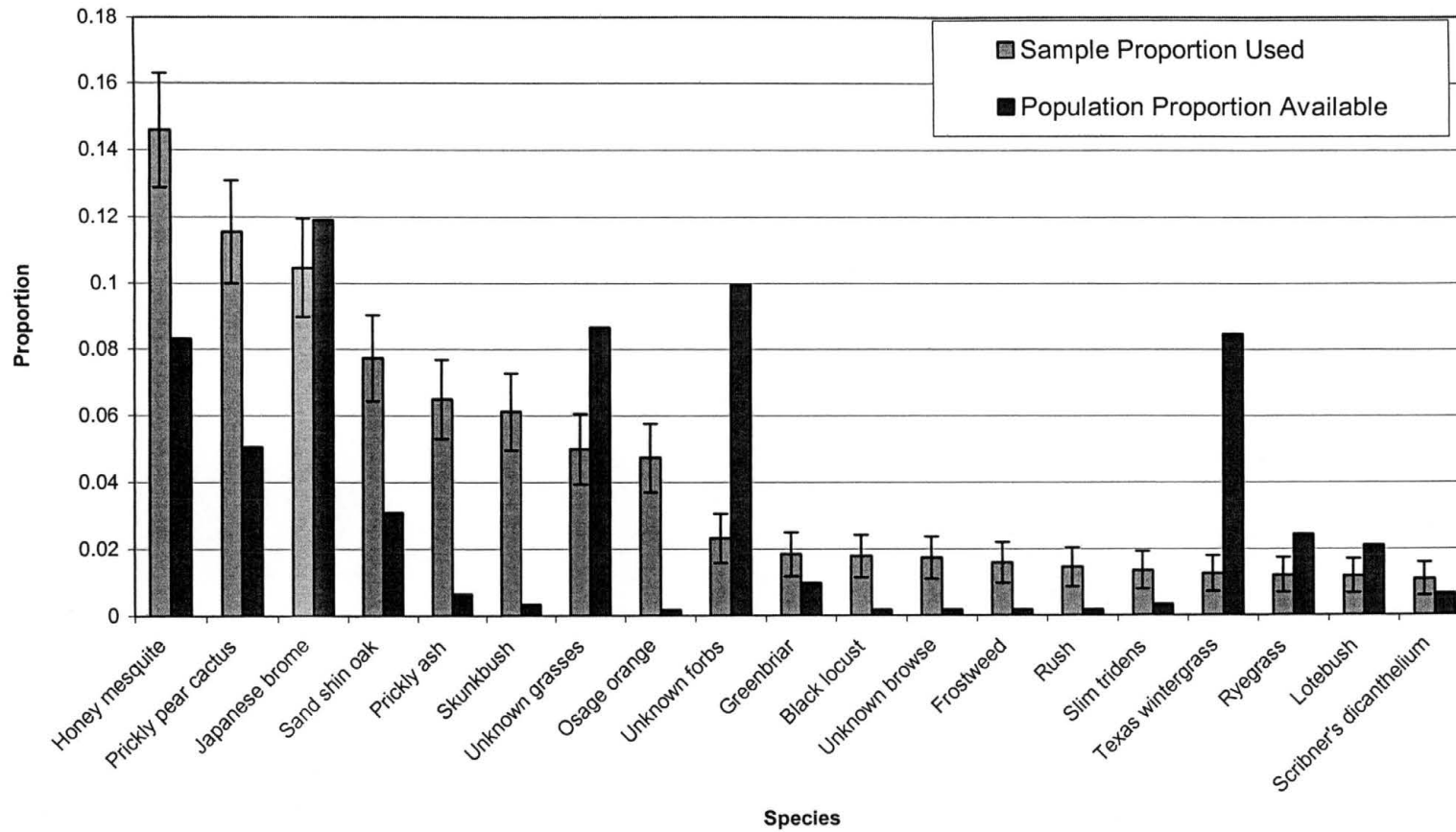


Figure 14. Results of chi-square log-likelihood test for use versus availability in the diets of white-tailed deer in the Rolling Plains Ecological Region in fall 1999.

Table 4. Manly's alpha selection indices for forage species occurring in the diets of white-tailed deer in the Rolling Plains Ecological Region in fall 1999. The critical Manly's alpha value for 20 categories of food plants is 0.050. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Honey mesquite	0.015
Prickly pear cactus	0.020
Japanese brome	0.008
Sand shin oak	0.022
Prickly ash*	0.086
Skunkbush*	0.162
Osage orange*	0.251
Greenbriar	0.016
Black locust*	0.095
Crownbeard*	0.084
Rush*	0.077
Slim tridens	0.036
Texas wintergrass	0.001
Ryegrass	0.004
Lotebush	0.005
Scribner's dicantherium	0.015
Others	0.103

### Rumen Analysis - Winter 2000

Rumen samples were collected from 40 deer during winter 2000. Grass composed the largest portion (41%) of the diet (Fig. 15). Browse and mast made up 46% of food items consumed.

A total of 48 plant species were identified in rumen contents of deer for winter 2000 (Appendix 7). Japanese brome ranked first (27%) in the top ten food items consumed during winter 2000 (Fig. 16). Honey mesquite and prickly pear cactus made up 20% of the diet.

Chi-square log-likelihood analysis ( $X^2 = 222$ ,  $p = 0.00$ ) of 12 items in rumens showed that two species, honey mesquite and sand shin oak, were used in proportion to their

occurrence in the environment (Fig. 17). Texas bluegrass (*Poa arachnifera*) use was below its availability. The remaining nine species were used at proportions above their estimated availability in the environment. Eight of the top 10 most frequently consumed species were used above their availability.

Three food items had Manly's alpha values above the critical level of 0.067, including lovegrasses, redberry juniper, and mistletoe (Table 5). These items were classified as selected species by deer in the Manly's alpha analysis. The remaining 9 food items were labeled avoided by deer in this analysis.

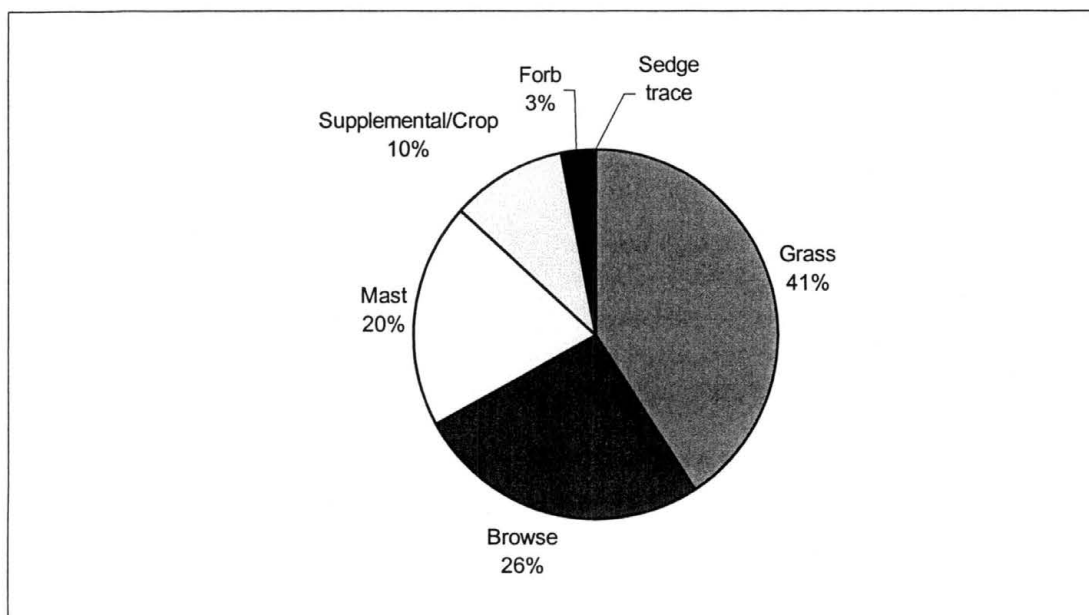


Figure 15. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains Ecological Region in winter 2000.

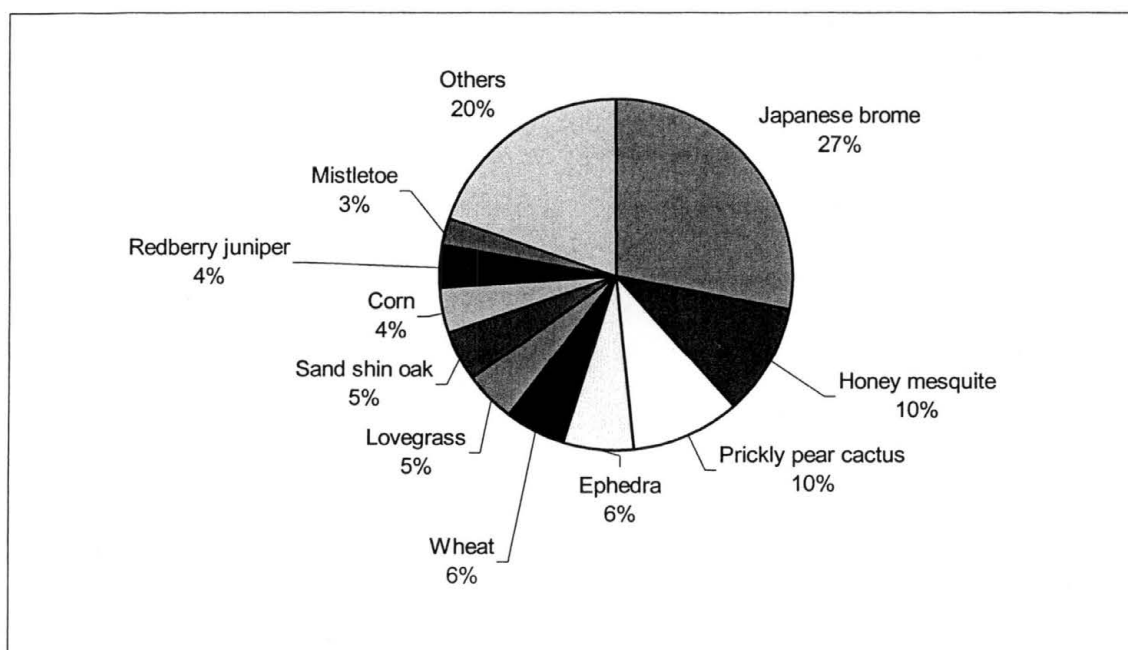


Figure 16. Percent composition of top ten food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in winter 2000. Others includes all species making up less than 2% of the diet.

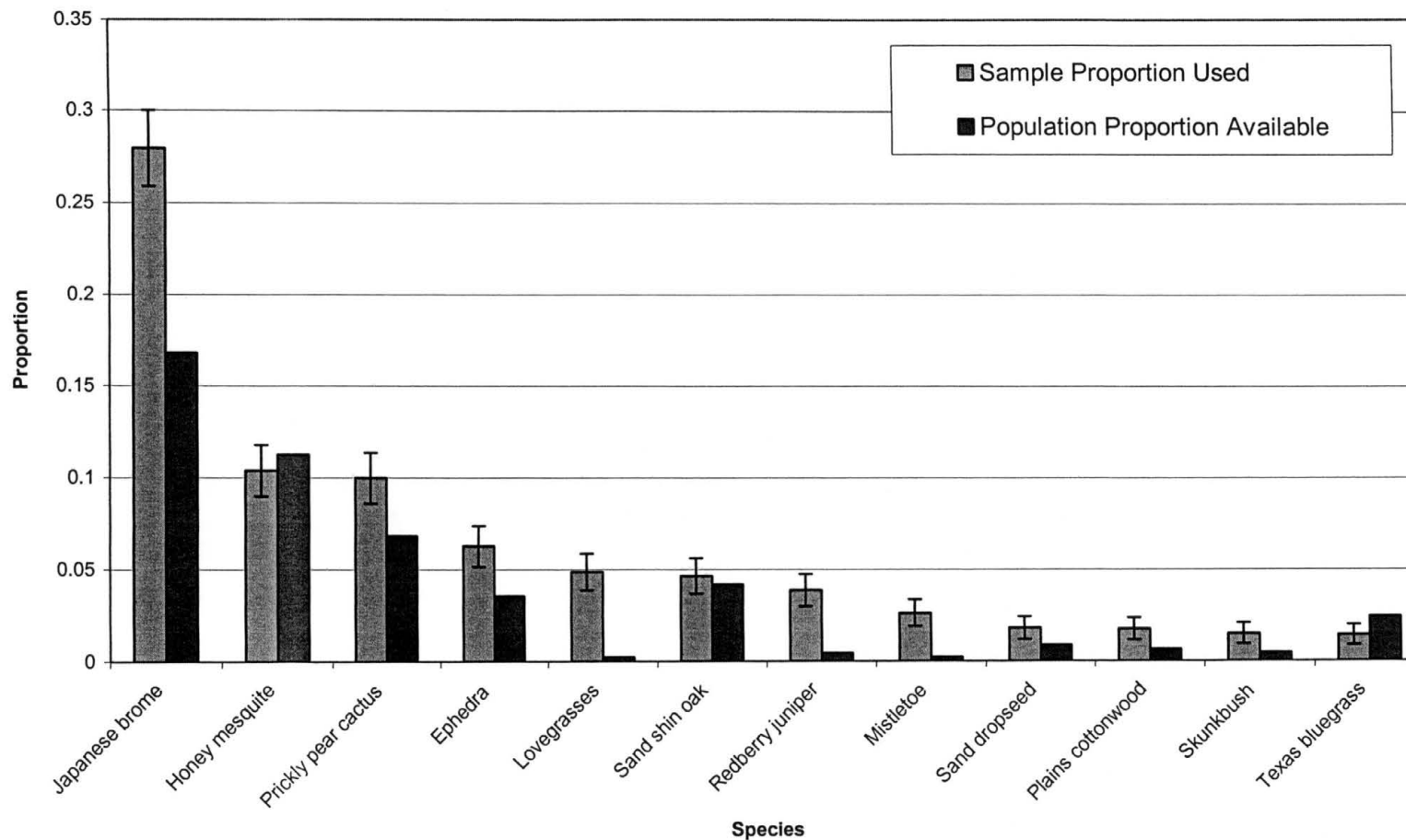


Figure 17. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in winter 2000.

Table 5. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in winter 2000. The critical Manly's alpha value for 13 categories of food plants is 0.077. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Japanese brome	0.028
Honey mesquite	0.016
Prickly pear cactus	0.025
Ephedra	0.030
Lovegrasses*	0.376
Sand shin oak	0.019
Redberry juniper*	0.149
Mistletoe*	0.202
Sand dropseed	0.035
Plains cottonwood	0.045
Skunkbush	0.058
Texas bluegrass	0.010
Others	0.007

### Rumen Analysis – Spring 2000

Rumen samples were collected from 40 deer during spring 2000. The percent composition for browse and forbs was similar in this season (Fig. 18), accounting for 75% of the diet when combined.

Eighty-four plant species were identified in the rumen contents for spring 2000 (Appendix 8). All top eleven species consumed by white-tailed deer during spring 2000 had a percent composition in the diet of less than 10% (Fig. 19). Seventy-six food items made up the remaining 50% of the spring 2000 deer diet.

Thirty foods occurred at a level of  $\geq 1\%$  in the spring diet (Fig. 20) and were included in chi-square log-likelihood analysis ( $X^2 = 1018$ ,  $p = 0.00$ ). Six foods were consumed at a level proportionate to their availability in the environment. These included ephedra (*Ephedra antispyhilitica*), lotebush, thin paspalum (*Paspalum setaceum*), heath aster,

peppergrass, and catchlaw. Four foods were consumed disproportionately below their availability, including Texas wintergrass, honey mesquite, Japanese brome, and silverleaf nightshade. The remaining 20 foods were eaten at levels beyond their availability in the environment.

The critical value of Manly's alpha for non-selective feeding was 0.031 for spring 2000. Nine food items had alpha values above 0.031, including skunkbush, western soapberry, sandhill plum, creek plum (*Prunus rivularis*), yucca, plains cottonwood, wild onion (*Allium sp.*), mistletoe, corn, and prairie acacia (*Acacia angustissima*) (Table 6). These items were classified as selected by deer by Manly's alpha analysis. The remaining 21 foods were avoided by deer.

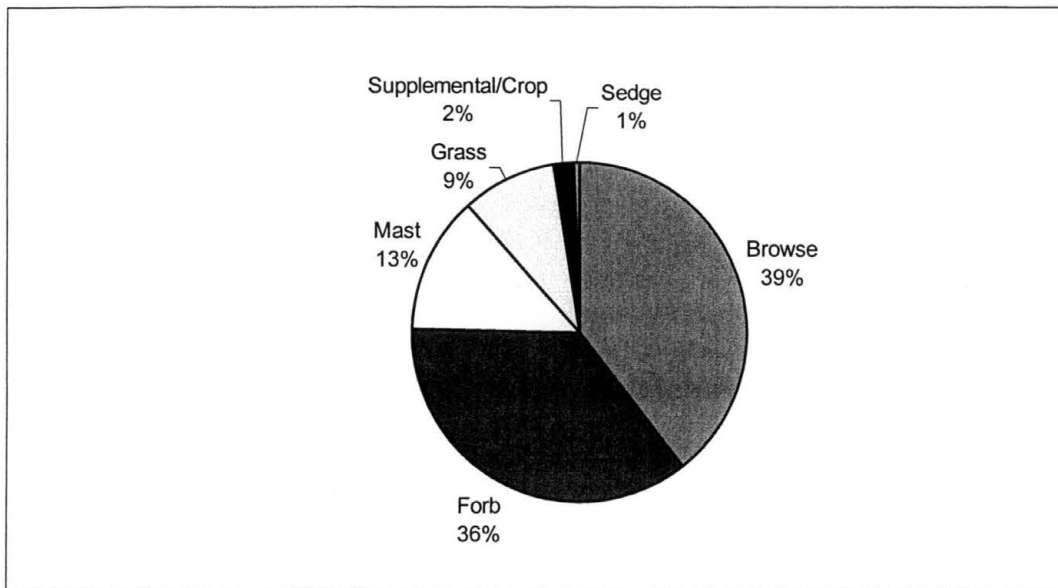


Figure 18. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains Ecological Region in spring 2000.

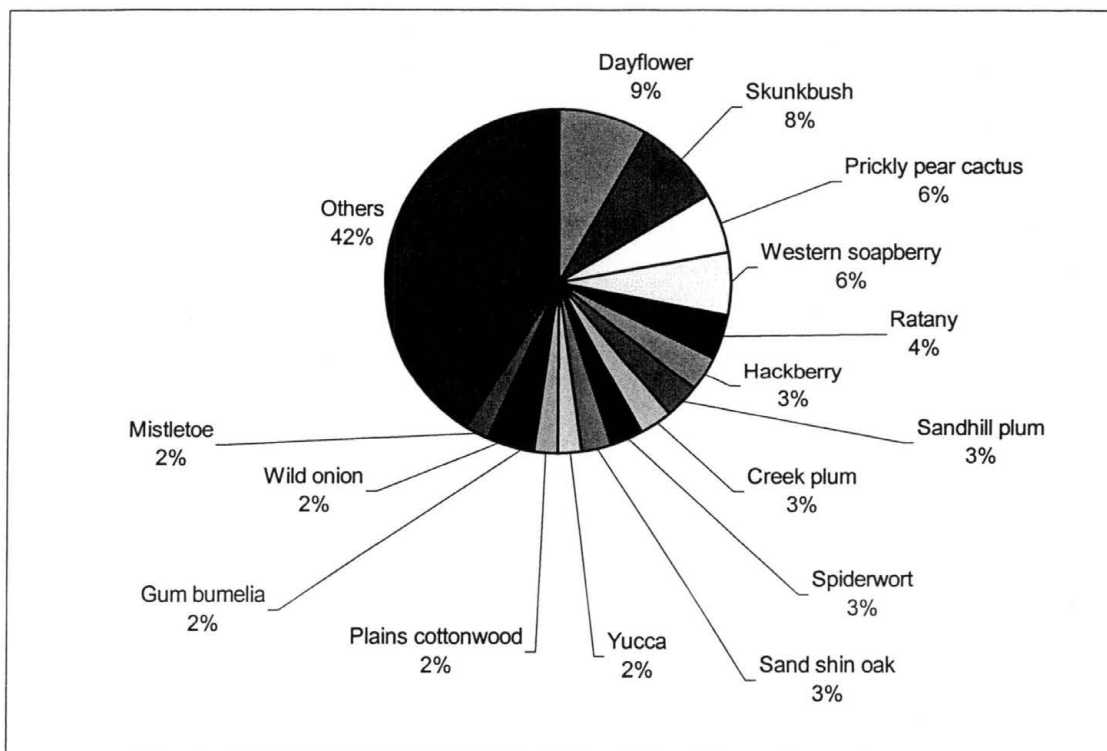


Figure 19. Percent composition of top eleven food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in spring 2000. Others includes all species making up less than 2% of the diet.



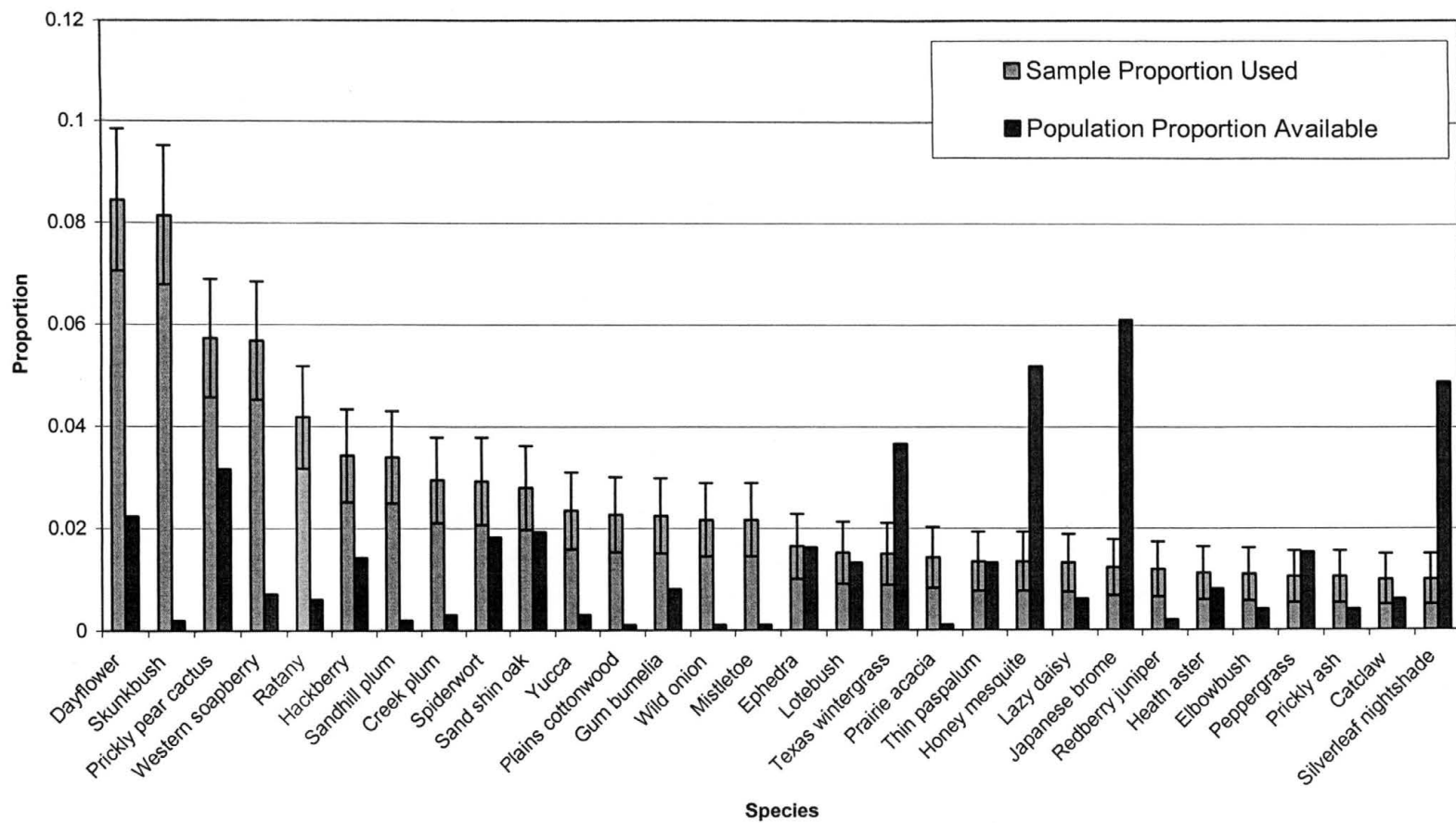


Figure 20. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in spring 2000.

Table 6. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in spring 2000. The critical Manly's alpha value for 31 categories of food plants is 0.032. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Dayflower	0.019
Skunkbush*	0.197
Prickly pear cactus	0.009
Western soapberry*	0.039
Ratany *	0.034
Hackberry	0.012
Sandhill plum*	0.082
Creek plum*	0.047
Spiderwort	0.008
Sand shin oak	0.007
Yucca*	0.038
Plains cottonwood*	0.110
Gum bumelia	0.014
Wild onion*	0.105
Mistletoe*	0.105
Ephedra	0.005
Lotebush	0.006
Texas wintergrass	0.002
Prairie acacia*	0.069
Thin paspalum	0.005
Honey mesquite	0.001
Lazy daisy	0.011
Japanese brome	0.001
Redberry juniper	0.029
Heath aster	0.007
Elbowbush	0.013
Peppergrass	0.003
Prickly ash	0.013
Catclaw	0.008
Silverleaf nightshade	0.001
Others	0.002

## Rumen Analysis – Summer 2000

Rumen samples were collected from 40 deer during summer 2000. Browse (38%) accounted for the largest portion of the overall diet (Fig. 21). Mast and forbs had almost equal use by deer.

Eighty-one plant species were identified in the rumen content analysis for summer 2000 (Appendix 9). Browse species were common in the top ten plants in the diet (Fig. 22). Seventy-nine other food items made up the remaining 34% of foods consumed during summer 2000.

Eighteen foods occurred at a level of  $\geq 1\%$  in the summer diet (Fig. 23) and were included in chi-square log-likelihood analysis ( $X^2 = 999$ ,  $p = 0.00$ ). Three species, hackberry, wild trailing bean (*Strophostyles leiosperma*), and dayflower (*Commelina erecta*), were consumed in proportion to their availability. Purple three-awn was eaten disproportionately below its availability. The remaining 14 species were consumed at levels above their availabilities.

The critical Manly's alpha value for non-selective feeding was 0.053 for summer 2000 (Table 7). Four species were classified as selected by deer, including skunkbush, plains cottonwood, creeping spurge (*Chamaesyce albomarginata*), and black willow. The remaining 14 foods were classified as avoided by deer.

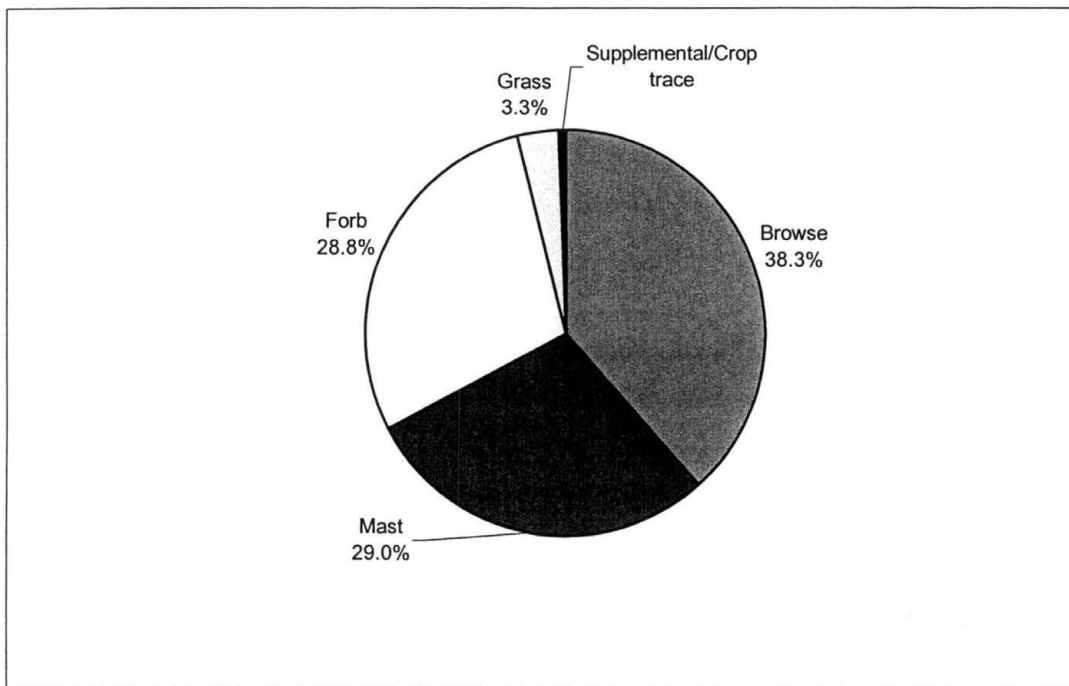


Figure 21. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains Ecological Region in summer 2000.

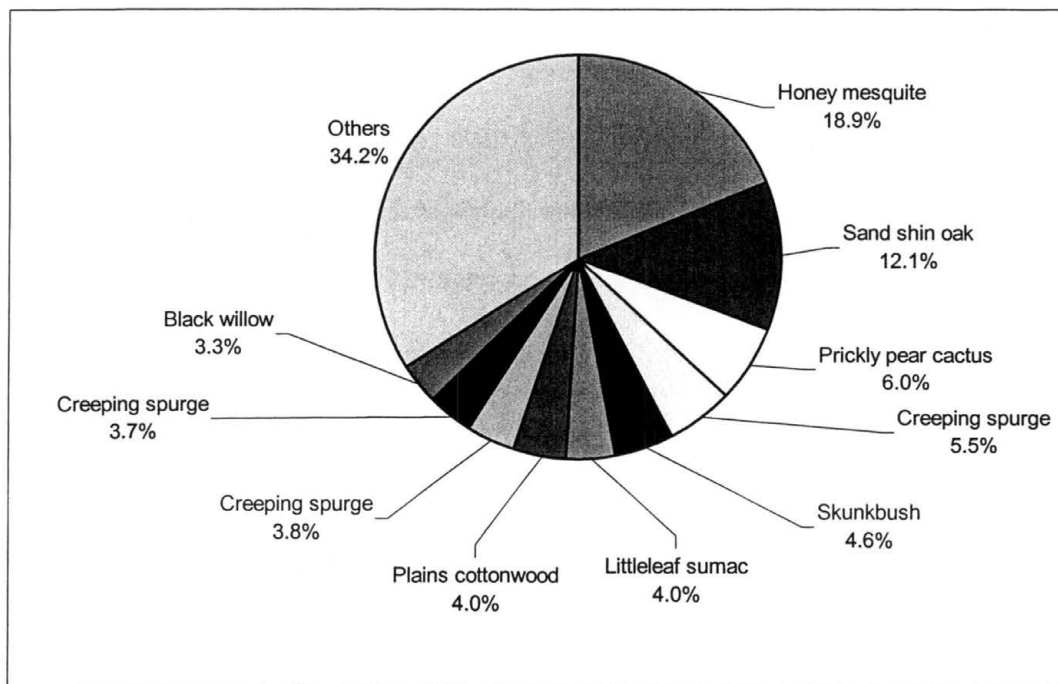


Figure 22. Percent composition of top ten food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in summer 2000. Others includes all species making up less than 3% of the diet.

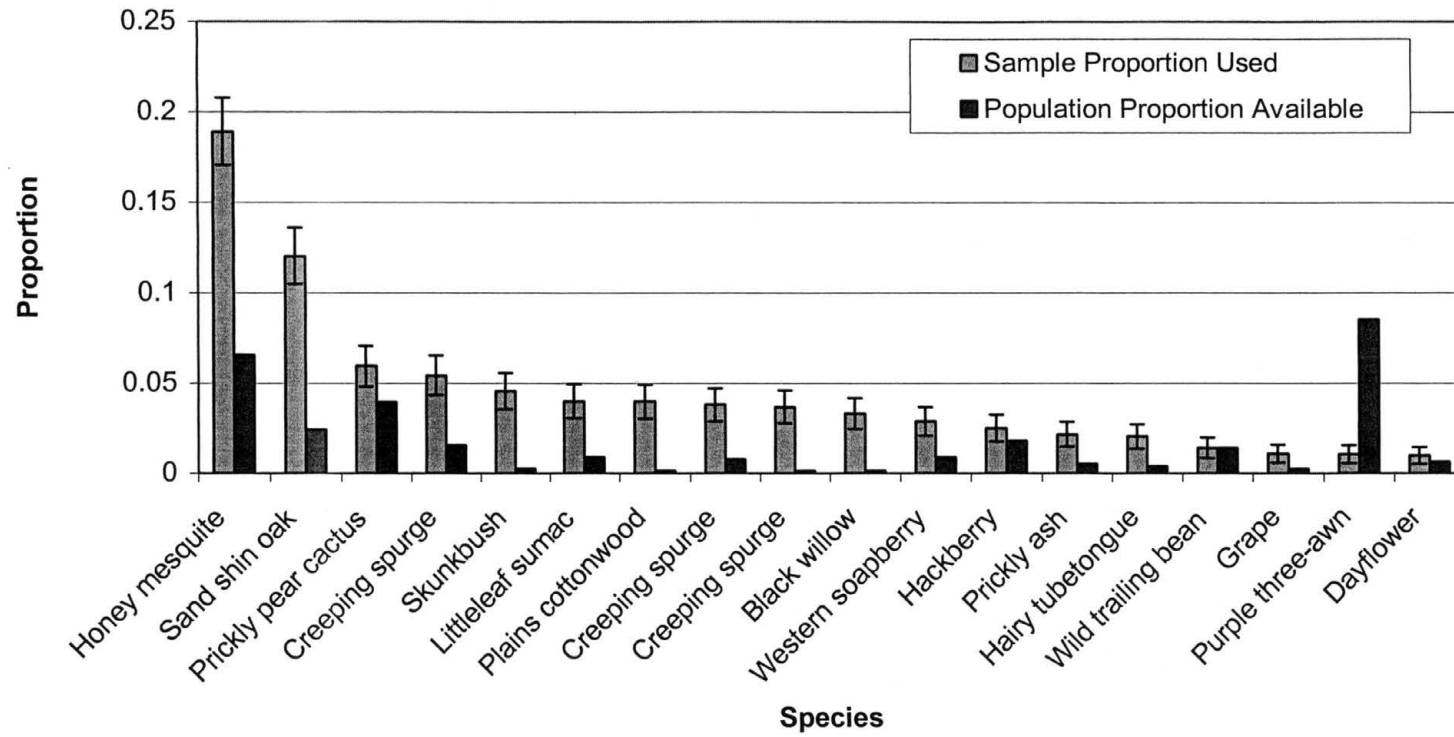


Figure 23. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in summer 2000.

Table 7. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in summer 2000. The critical Manly's alpha value for 19 categories of plant foods is 0.053. Selected species are indicated with an asterisk.

Food Item	Manly's Alpha
Honey mesquite	0.020
Sand shin oak	0.034
Prickly pear cactus	0.010
Creeping spurge	0.024
Skunkbush*	0.121
Littleleaf sumac	0.030
Plains cottonwood*	0.211
Creeping spurge	0.034
Creeping spurge*	0.195
Black willow*	0.176
Western soapberry	0.022
Hackberry	0.010
Prickly ash	0.029
Hairy tubetongue	0.036
Wild trailing bean	0.007
Grape	0.029
Purple three-awn	0.001
Dayflower	0.011
Others	0.002

### Rumen Analysis - Fall 2000

A total of 40 rumen samples were analyzed for fall 2000. Browse made up 47 % of the diet, followed by grass at 24% (Fig. 24). Forb species accounted for 18% of the fall diet, and supplemental/crop items made up 6%.

Sixty-three plant species were identified in the rumen content analysis from fall 2000 (Appendix 10). Sand shin oak made up the largest portion of the diet (16%), followed by Japanese brome (12%) (Fig. 25). Honey mesquite, plains cottonwood, and wild onion were consumed in equal amounts.

Sixteen items had  $\geq$  least 1% composition in the deer diet (Fig. 27). Chi-square log-likelihood analysis ( $X^2 = 1049$ ,  $p = 0.00$ ) of the rumens showed four species were consumed by deer in proportion to their availabilities, including Japanese brome, purple three-awn, crow poison (*Nothoscordum bivalve*), and agarito. Three plant species were used disproportionately below their availabilities, including Texas wintergrass, storksbill, and prickly pear cactus. The remaining nine foods were consumed above their availabilities in the environment.

Table 8 lists the top 16 food items and their associated alpha values as calculated by Manly's alpha. The critical alpha level for non-selective feeding was 0.053 for fall 2000. Two foods, plains cottonwood and sand shin oak, were classified as species selected by deer in the Manly's alpha analysis. The remaining 13 species were avoided by white-tailed deer.

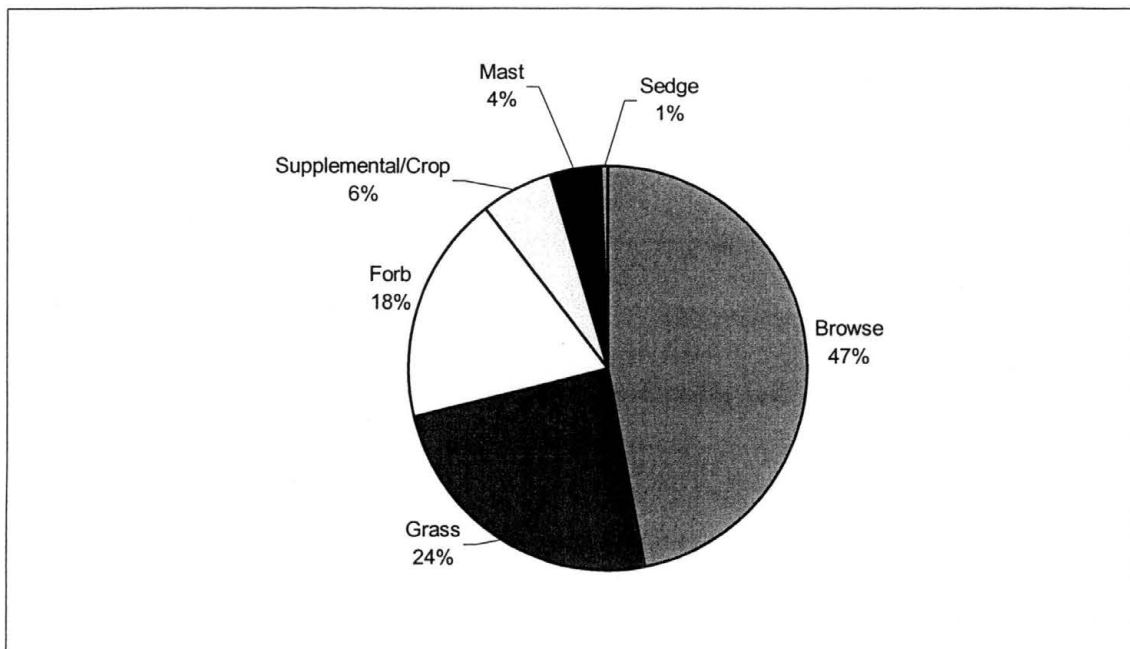


Figure 24. Percent composition of forage classes in the diets of white-tailed deer in the Rolling Plains Ecological Region in fall 2000.

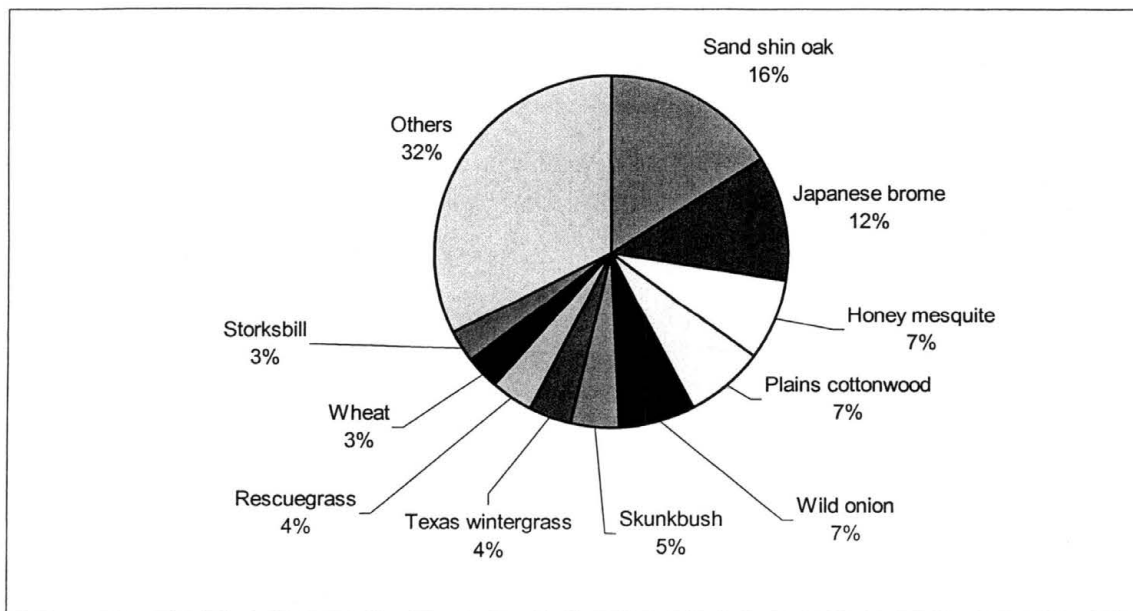


Figure 25. Percent composition of the top ten food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in fall 2000. Others includes all species making up less than 3% of the diet.



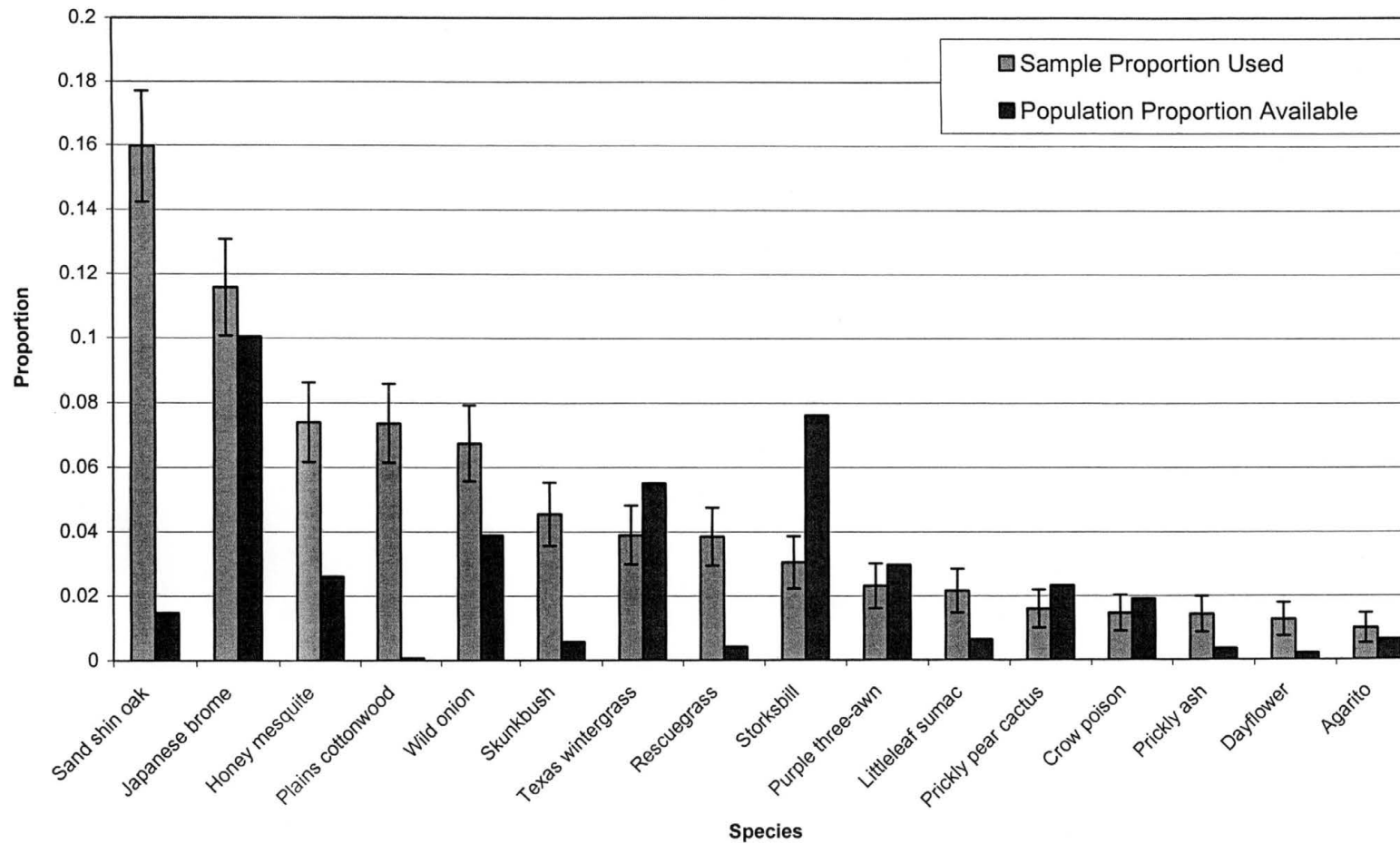


Figure 26. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in fall 2000.

Table 8. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in fall 2000. The critical Manly's alpha value for 17 categories of food plants is 0.059. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Sand shin oak*	0.069
Japanese brome	0.007
Honey mesquite	0.018
Plains cottonwood*	0.666
Wild onion	0.011
Skunkbush	0.051
Texas wintergrass	0.005
Rescuegrass	0.058
Storksbill	0.003
Purple three-awn	0.005
Littleleaf sumac	0.022
Prickly pear cactus	0.004
Crow poison	0.005
Prickly ash	0.026
Dayflower	0.038
Agarito	0.010
Others	0.003

### Rumen Analysis - Winter 2001

Forty rumen samples were collected and analyzed for winter 2001. Forty-one percent of food items consumed were grasses (Fig. 27). Forb species made up 29% of the diet, followed by browse at 25%.

Sixty-seven plant species were identified in the rumen content analysis for winter 2001 (Appendix 11). Japanese brome (20%) was the largest component of the diet (Fig. 28). Storksbill made up 13% of the diet, followed by plains cottonwood (10%) and honey mesquite (8%). Sixty-seven other food items made up the remaining 49% of the diet for winter 2001.

Chi-square log-likelihood analysis ( $X^2 = 1493$ ,  $p = 0.00$ ) of rumens showed three foods, purple three-awn, crow poison, and flatsedges (*Cyperus sp.*), were consumed by white-tailed deer in proportion to their estimated availabilities (Fig. 29). Filaree (*Erodium cicutarium*) was the only species consumed by deer at a level below its availability. The remaining 11 food items were used disproportionately above their availabilities.

The critical Manly's alpha value for non-selective feeding was 0.056 for winter 2001 (Table 9). Plains cottonwood and rescuegrass were classified as foods selected by deer in the Manly's alpha analysis. The remaining 13 food items were avoided by white-tailed deer during winter 2001.

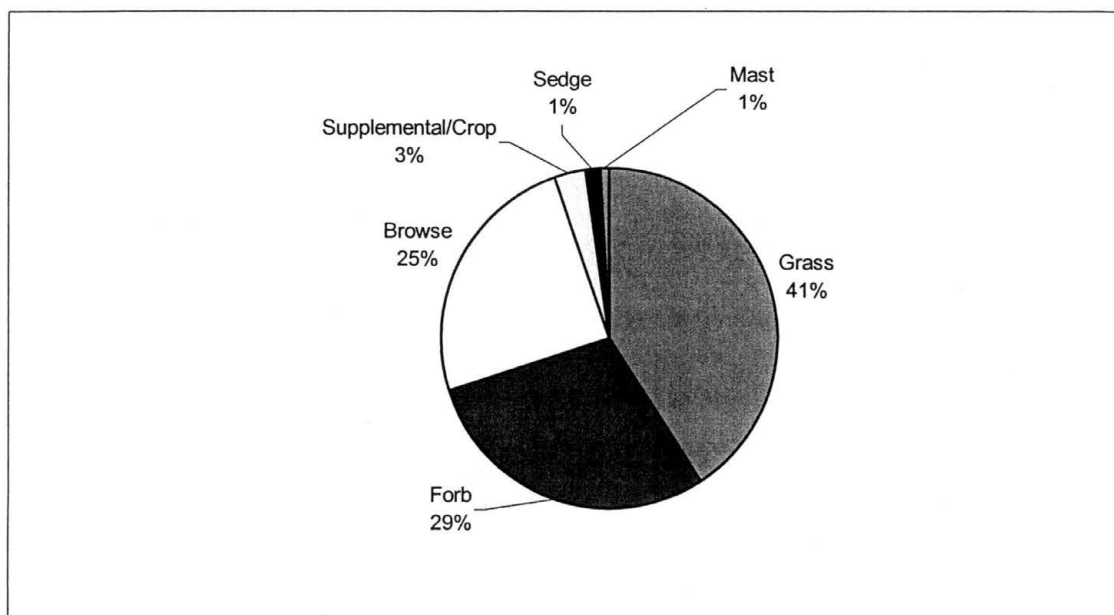


Figure 27. Percent composition of forage classes in white-tailed deer diets in the Rolling Plains Ecological Region in winter 2001.

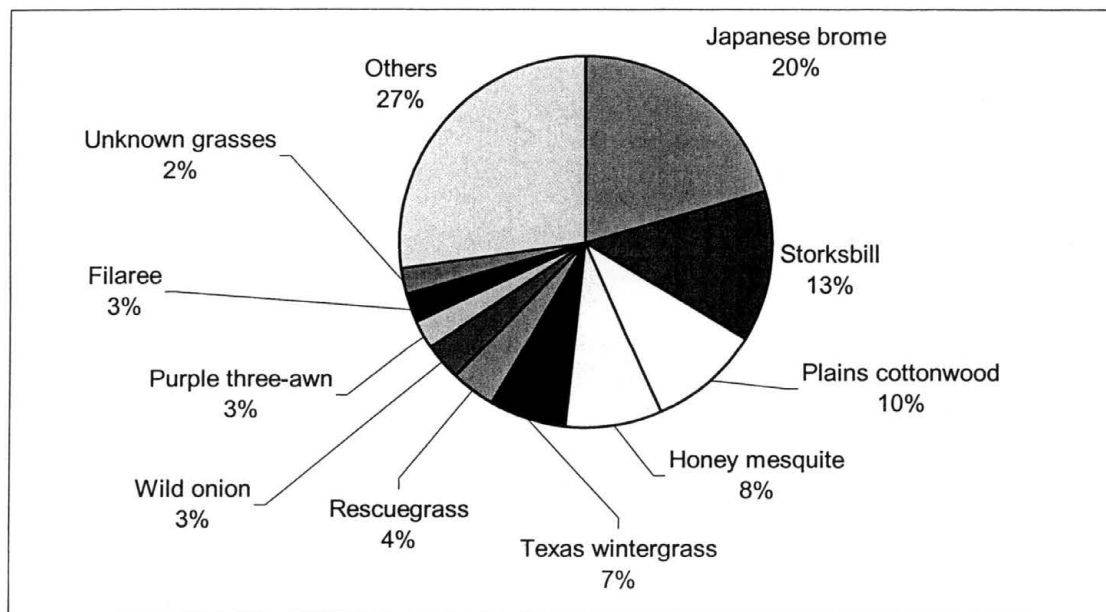


Figure 28. Percent composition of the top ten food items in the diets of white-tailed deer in the Rolling Plains Ecological Region in winter 2001. Others includes all species making up less than 2% of the diet.

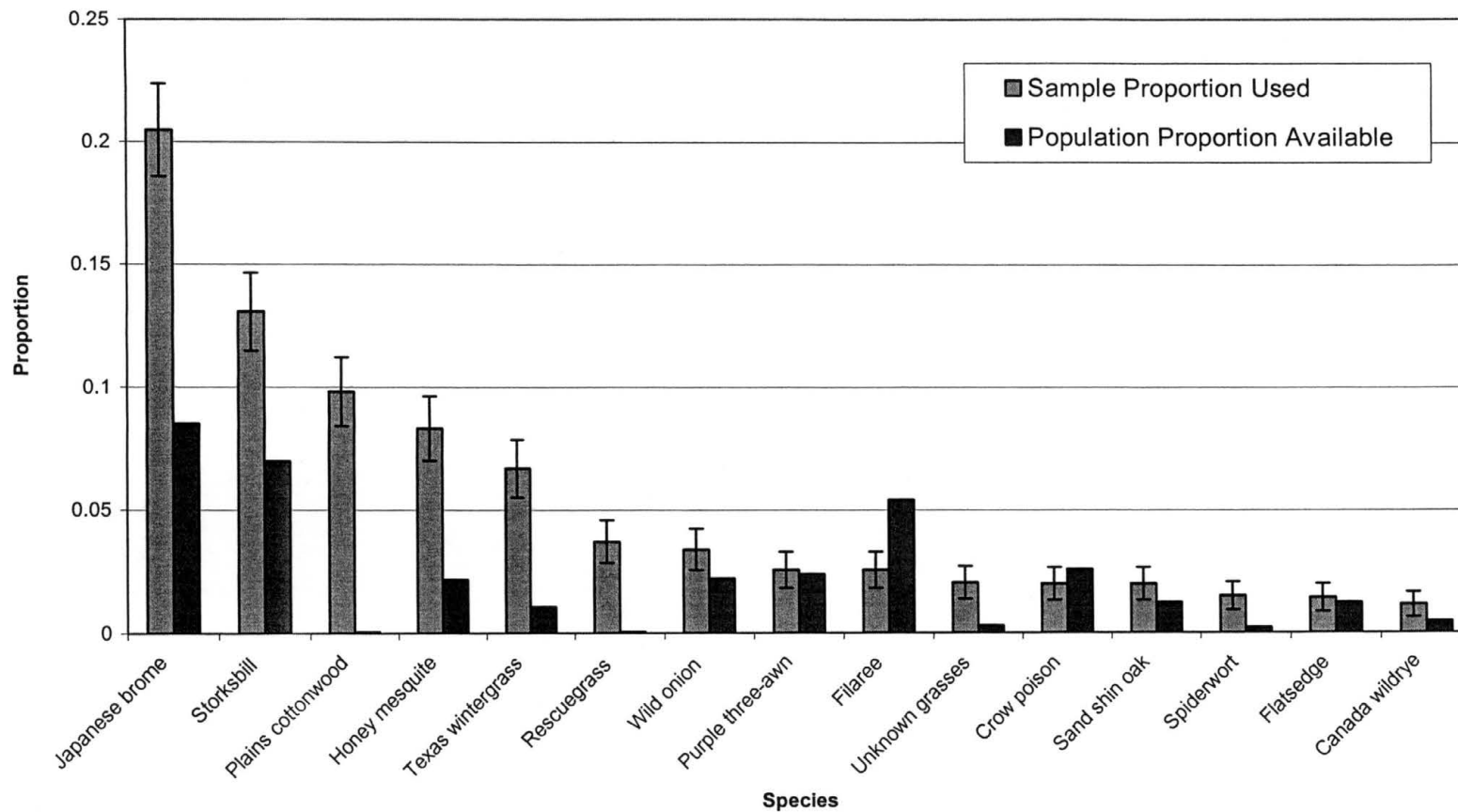


Figure 29. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in winter 2001.

Table 9. Manly's alpha selection indices for forage species occurring in the diets of white-tailed deer in the Rolling Plains Ecological Region in winter 2001. The critical Manly's alpha value for 15 categories of food plants is 0.063. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Japanese brome	0.009
Storksbill	0.007
Plains cottonwood*	0.625
Honey mesquite	0.014
Texas wintergrass	0.024
Rescuegrass*	0.237
Wild onion	0.006
Purple three-awn	0.004
Filaree	0.002
Crow poison	0.003
Sand shin oak	0.006
Spiderwort	0.024
Flatsedge	0.004
Canada wildrye	0.009
Others	0.027

### Rumen Analysis - Spring 2001

Rumen samples from 40 deer were collected for spring 2001. Forb species (65%) made up the majority of the diet (Fig. 30). Browse made up 19% of the diet.

One hundred seventeen plant species were identified in the rumen content analysis for spring 2001 (Appendix 12). Dayflower (9%) made up the largest portion of the diet (Fig. 32), followed by lazy daisy (8%). Most of the top species were forbs.

Results from the chi-square log-likelihood analysis ( $X^2 = 1821$ ,  $p = 0.00$ ) of the rumens showed that two species, cut-leaf evening primrose (*Oenothera lacinata*) and meadow flax (*Linum pratense*), were consumed by white-tailed deer in proportion to their availabilities (Fig. 32). Sideoats grama was consumed at a level below its availability. The remaining 24 food items were consumed disproportionately above their respective

availabilities. All 13 foods representing the top 50% of the diet were consumed above their availabilities.

The critical Manly's alpha value for non-selective feeding was 0.036 for spring 2001 (Table 10). Seven species, including dayflower, prickly lettuce, heath aster, Carolina snailseed (*Cocculus carolinus*), creeping spurge, plains cottonwood, and ironweeds (*Vernonia sp.*) were considered selected by deer using Manly's alpha analysis. The 20 remaining foods were avoided by white-tailed deer during spring 2001.

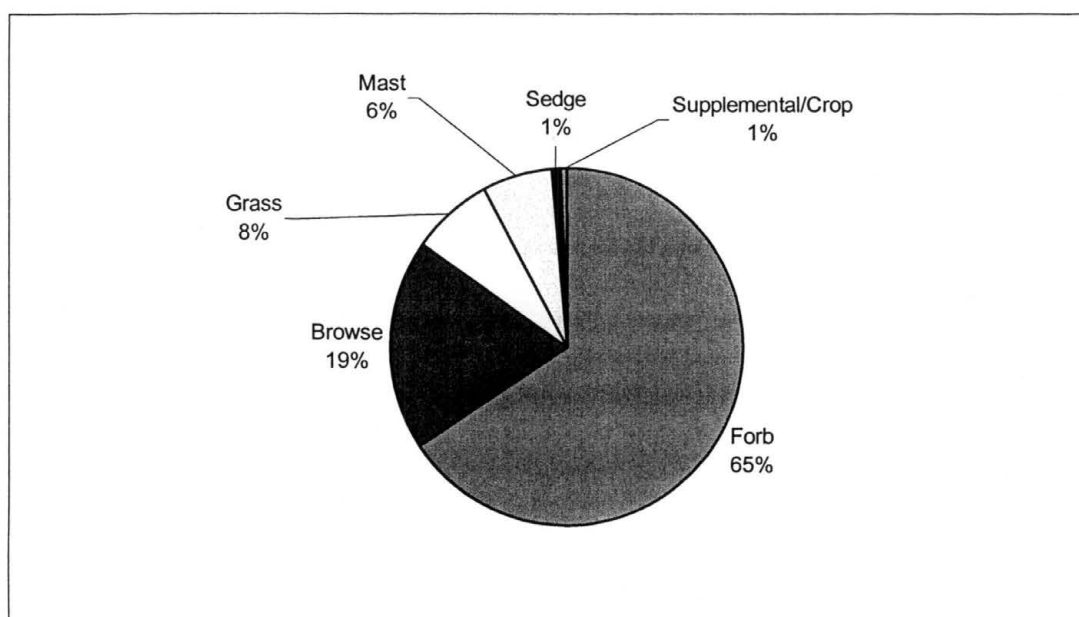


Figure 30. Percent composition of forage classes in the diets of white-tailed deer in the Rolling Plains Ecological Region in spring 2001.

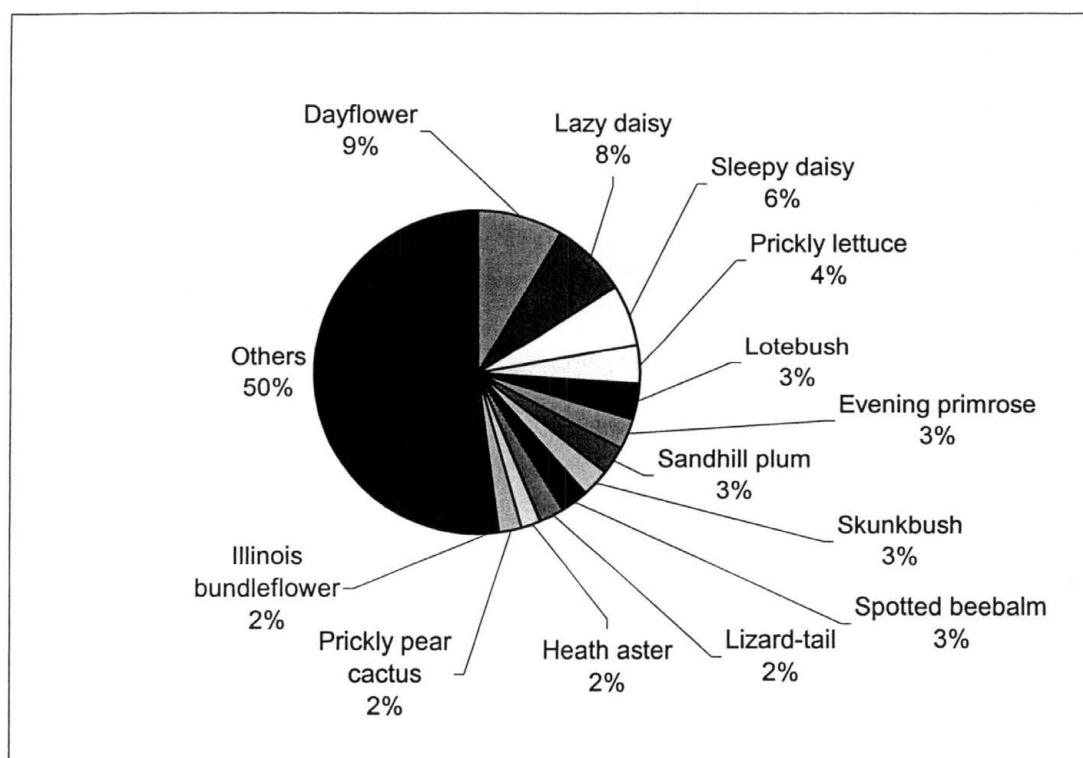


Figure 31. Percent composition of the top 13 food items in the diet of white-tailed deer in the Rolling Plains Ecological Region in spring 2001. Others includes all species making up less than 2% of the diet.



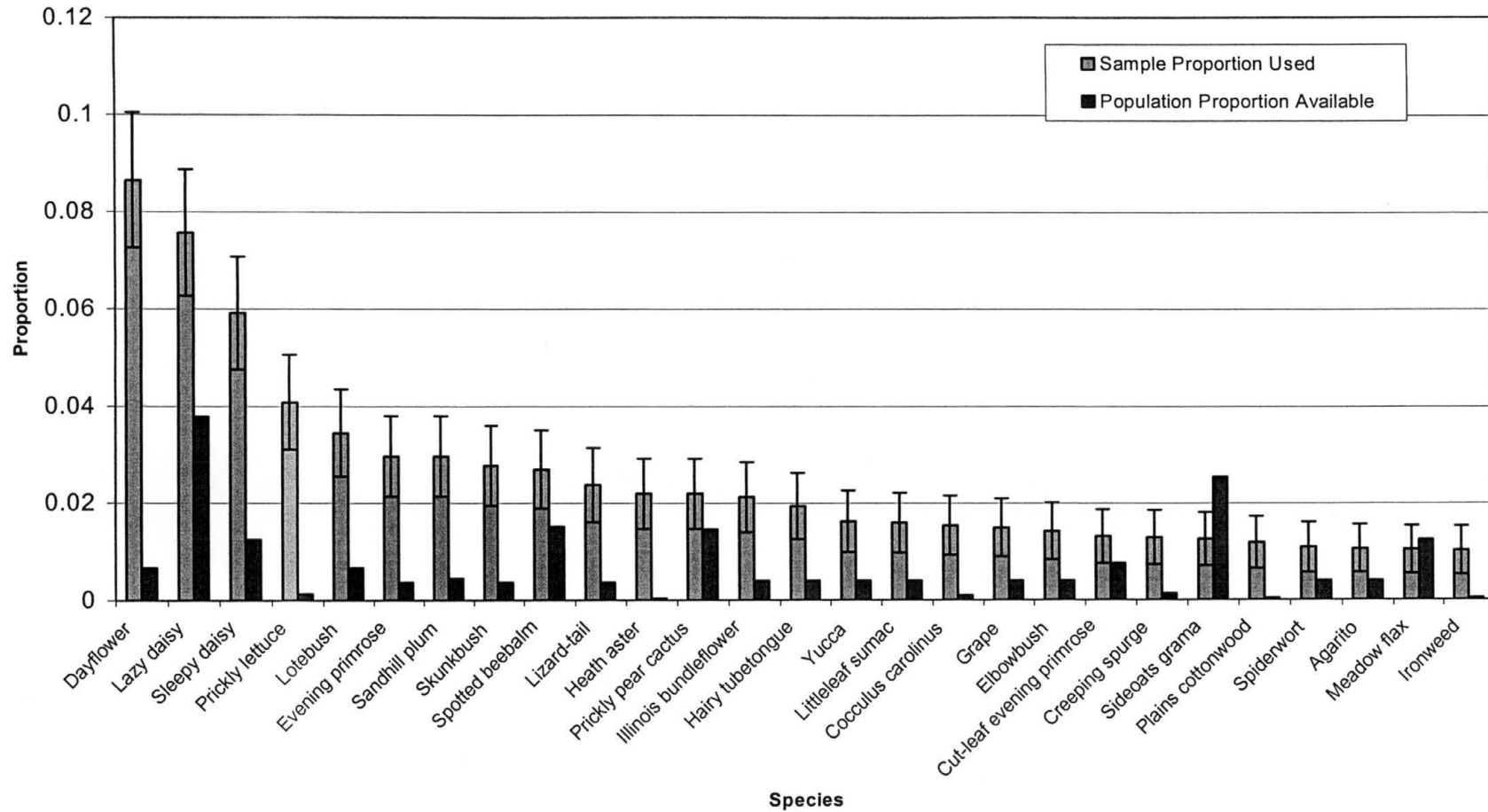


Figure 32. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in spring 2001.

Table 10. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in spring 2001. The critical Manly's alpha value for 28 categories of food plants is 0.036. Selected species are indicated with an asterisk.

Food Item	Manly's Alpha
Dayflower*	0.052
Lazy daisy	0.008
Sleepy daisy	0.019
Prickly lettuce*	0.122
Lotebush	0.021
Evening primrose	0.034
Sandhill plum	0.027
Skunkbush	0.031
Spotted beebalm	0.007
Lizard-tail	0.027
Heath aster*	0.198
Prickly pear cactus	0.006
Illinois bundleflower	0.021
Hairy tubetongue	0.020
Yucca	0.016
Littleleaf sumac	0.016
Carolina snailseed*	0.070
Grape	0.015
Elbowbush	0.014
Cut-leaf evening primrose	0.007
Creeping spurge*	0.039
Sideoats grama	0.002
Plains cottonwood*	0.108
Spiderwort	0.011
Agarito	0.011
Meadow flax	0.003
Ironweed*	0.092
Others	0.002

### Rumen Analysis - Summer 2001

Rumen samples from 38 deer were collected for summer 2001. Forb species made up the majority (38%) of the diet (Fig. 33). Woody species made up 54% of the summer diet.

Ninety-two plant species were identified in the rumen content analysis for summer 2001 (Appendix 13). Honey mesquite (17%) was eaten most frequently (Fig. 34). Sand shin oak accounted for 11% of the diet, followed by prickly pear cactus (7%) and dayflower (6%). Ninety-three food items made up the remaining 59% of the summer 2001 diet.

Results from the chi-square log-likelihood analysis of the rumens ( $X^2 = 956$ ,  $p = 0.00$ ) showed three species, Illinois bundleflower, broomweed (*Xanthocephalum sarothrae*), and lotebush, consumed by deer in proportion to their availabilities (Fig. 35). The remaining 14 species were eaten disproportionately above their respective availabilities. These included the top ten most frequently consumed foods.

The critical Manly's alpha value for non-selective feeding was 0.056 for summer 2001 (Table 11). Five species, including lizard-tail, creeping spurge, plains cottonwood, mateuphorbia (*Chamaesyce serpens*), and hairy tubetongue (*Siphonoglossa pilosella*) were species selected by deer using Manly's alpha analysis. The 12 remaining foods were avoided by white-tailed deer during summer 2001.

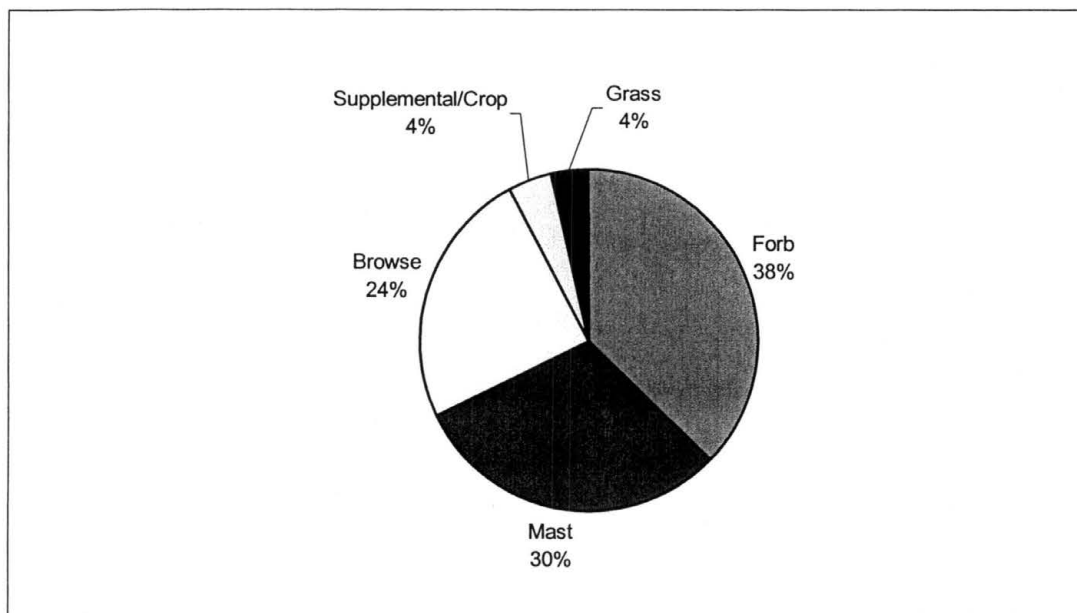


Figure 33. Percent composition of forage classes in the diets of white-tailed deer in the Rolling Plains Ecological Region in summer 2001.

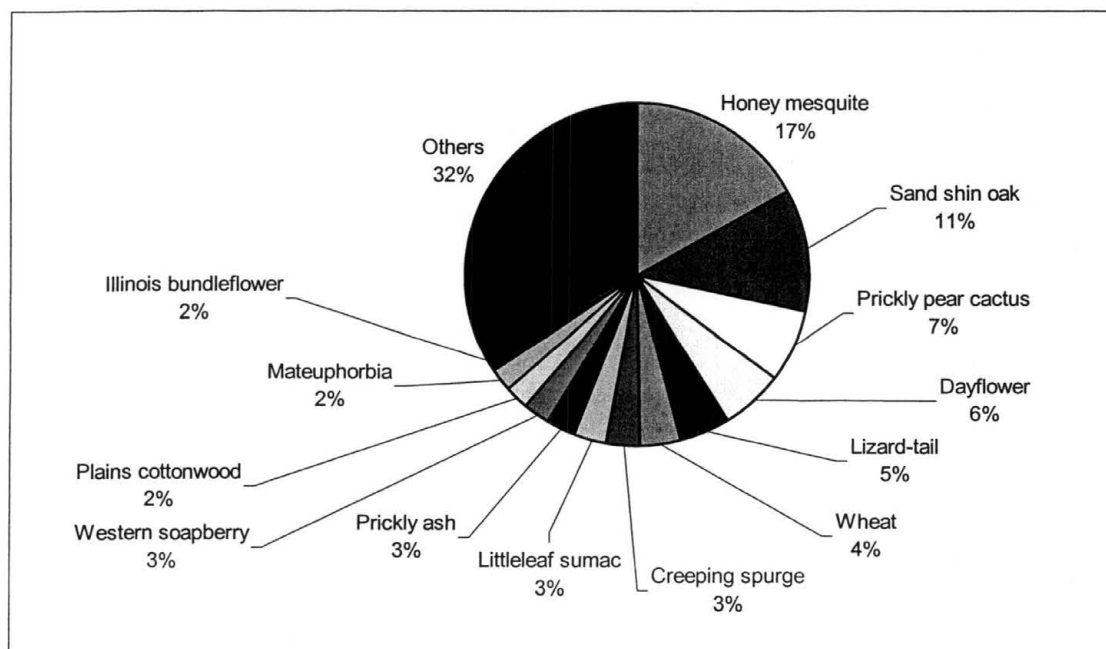


Figure 34. Percent composition of top 13 food items in the diets of white-tailed deer in the Rolling Plains Ecological Region in summer 2001. Others includes all species making up less than 2% of the diet.

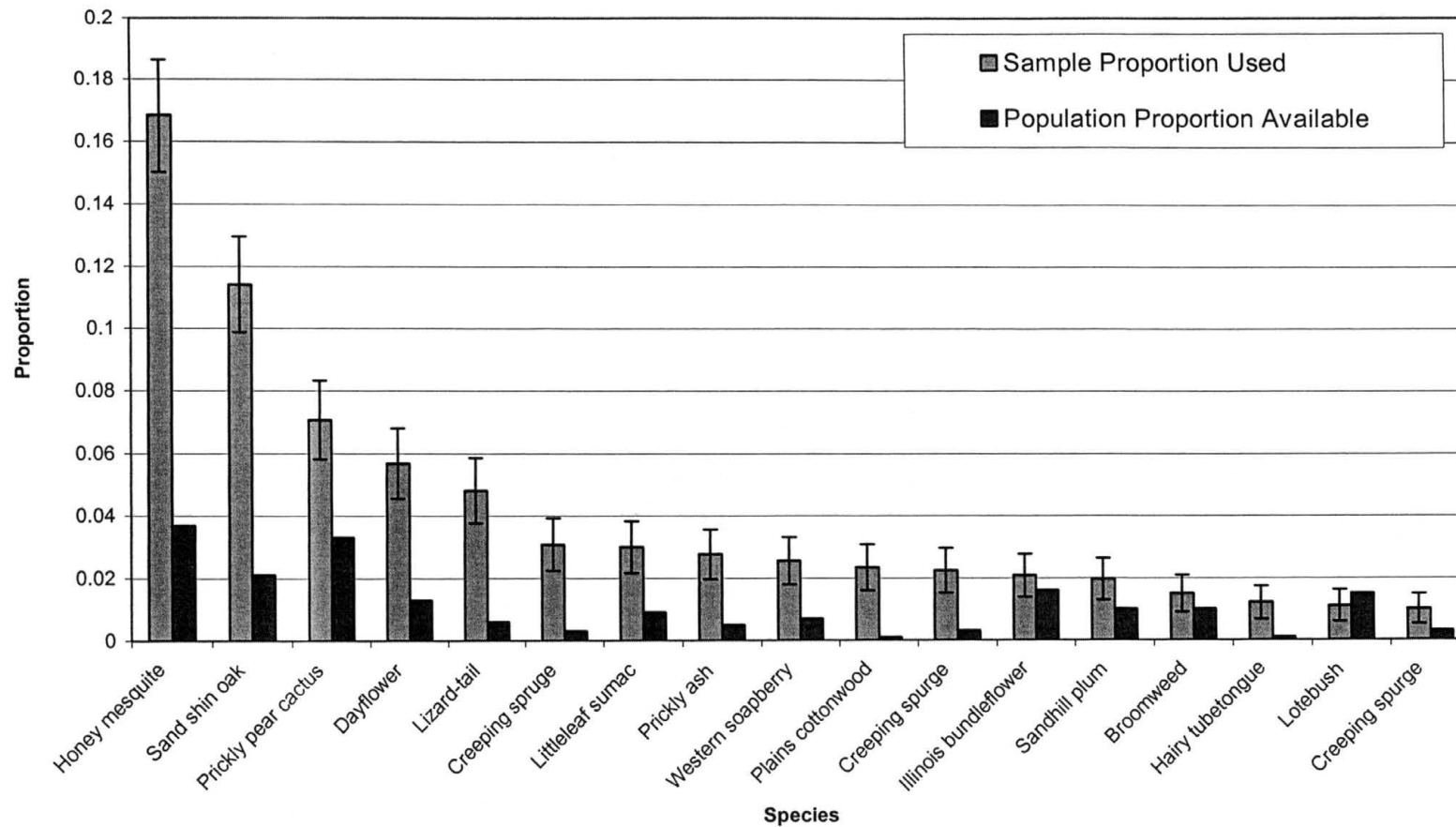


Figure 35. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer in the Rolling Plains Ecological Region in summer 2001.

Table 11. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer in the Rolling Plains Ecological Region in summer 2001. The critical Manly's alpha value for 18 categories of food plants is 0.056. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Honey mesquite	0.046
Sand shin oak	0.055
Prickly pear cactus	0.022
Dayflower	0.044
Lizard-tail*	0.081
Creeping spurge*	0.103
Littleleaf sumac	0.034
Prickly ash	0.056
Western soapberry	0.037
Plains cottonwood*	0.235
Mateuphorbia*	0.075
Illinois bundleflower	0.013
Sandhill plum	0.020
Broomweed	0.015
Hairy tubetongue*	0.122
Lotebush	0.007
Creeping spurge	0.034
Others	0.004

### Similarity of Sites

Horn's index of similarity was used to examine vegetative similarity between and among study sites (Table 12). Based on results of this analysis, study sites were grouped based on similarity of vegetation and overall habitat.

The Hutchinson County and Wheeler County sites were most similar to each other. The Matador WMA and Cottle County sites were most similar to each other. The San Angelo WMA, Runnels County, and Shackelford County sites were most similar to each other. The Wilbarger County site was dissimilar to all other sites and was not grouped

with any site. Based on these groupings, dietary analysis on pooled two-year data was performed on each group.

Table 12. Horn's similarity indices in cross comparisons of vegetation for study sites in the Rolling Plains Ecological Region. Index ranges from 0 to 1; as the index approaches 1, similarity increases.

	Hutchinson	Wheeler	Matador WMA	Cottle	Wilbarger	Shackelford	Runnels	San Angelo WMA
Hutchinson	1	0.78	0.74	0.7	0.68	0.62	0.6	0.59
Wheeler	0.78	1	0.71	0.73	0.66	0.56	0.55	0.54
Matador WMA	0.74	0.71	1	0.84	0.69	0.64	0.62	0.62
Cottle	0.7	0.73	0.84	1	0.68	0.64	0.65	0.62
Wilbarger	0.68	0.66	0.69	0.68	1	0.77	0.7	0.68
Shackelford	0.62	0.56	0.64	0.64	0.77	1	0.81	0.78
Runnels	0.6	0.55	0.62	0.65	0.7	0.81	1	0.83
San Angelo WMA	0.59	0.54	0.62	0.62	0.68	0.78	0.83	1

### Hutchinson/Wheeler Sites

Browse (39%) made up the largest component of deer diets on these northern most sites (Fig. 36). Forbs made up 21% of the overall diet, followed by grasses (18%) and mast (14%).

One hundred sixteen species were identified in rumen samples from these sites (Appendix 14). Plains cottonwood made up the largest portion (15%) of the diet (Fig. 37). Skunkbush and Japanese brome accounted for about the same amount of the diet.

Results of the chi-square log-likelihood test of rumens for these two sites ( $X^2 = 2706$ ,  $p = 0.00$ ) showed that 14 foods were used above their availabilities (Fig. 38). The critical Manly's alpha value for non-selective feeding was 0.050 for 1999-2001 on the Hutchinson/Wheeler sites (Table 13). Plains cottonwood, skunkbush, Osage orange, and

black willow were species selected by deer according to the results of Manly's alpha analysis. The remaining 15 food items were avoided by deer.

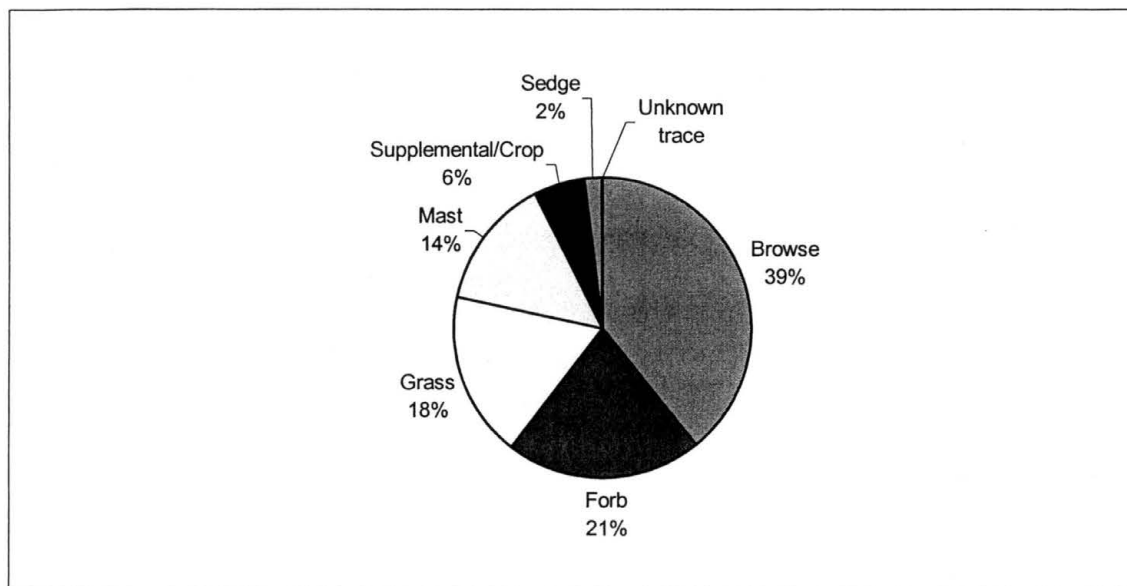


Figure 36. Percent composition of forage classes in white-tailed deer diets at Hutchinson/Wheeler sites in the Rolling Plains Ecological Region in 1999-2001.

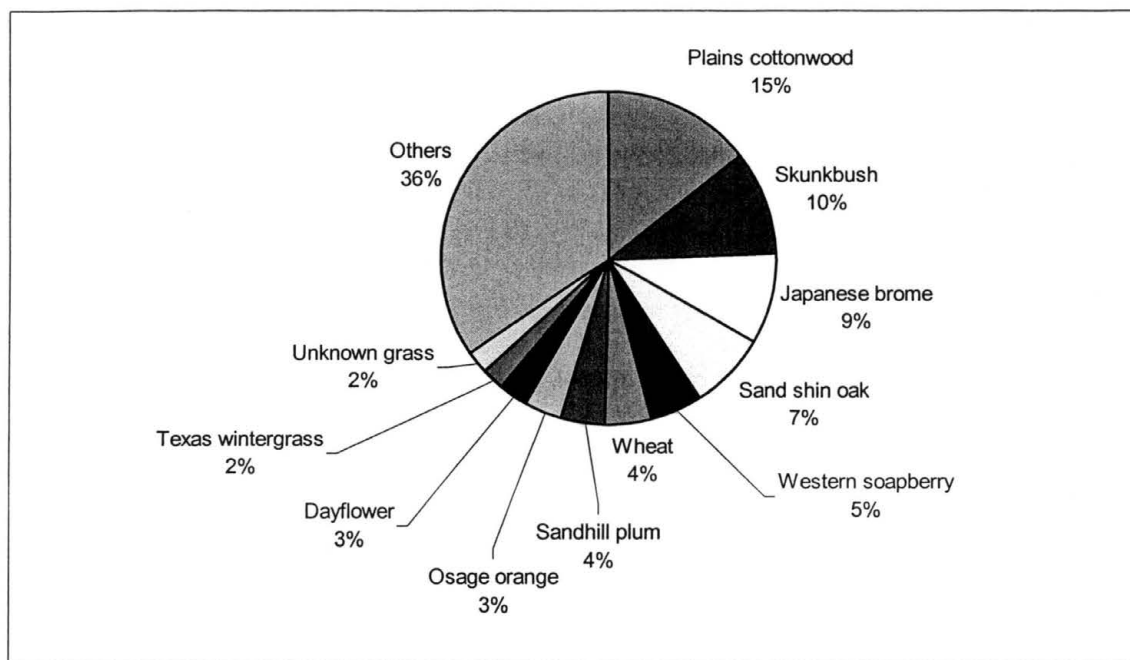


Figure 37. Percent composition of the top 11 food items in the diet of white-tailed deer at Hutchinson/Wheeler sites in the Rolling Plains Ecological Region in 1999-2001. Others includes all species making up less than 2% of the diet.



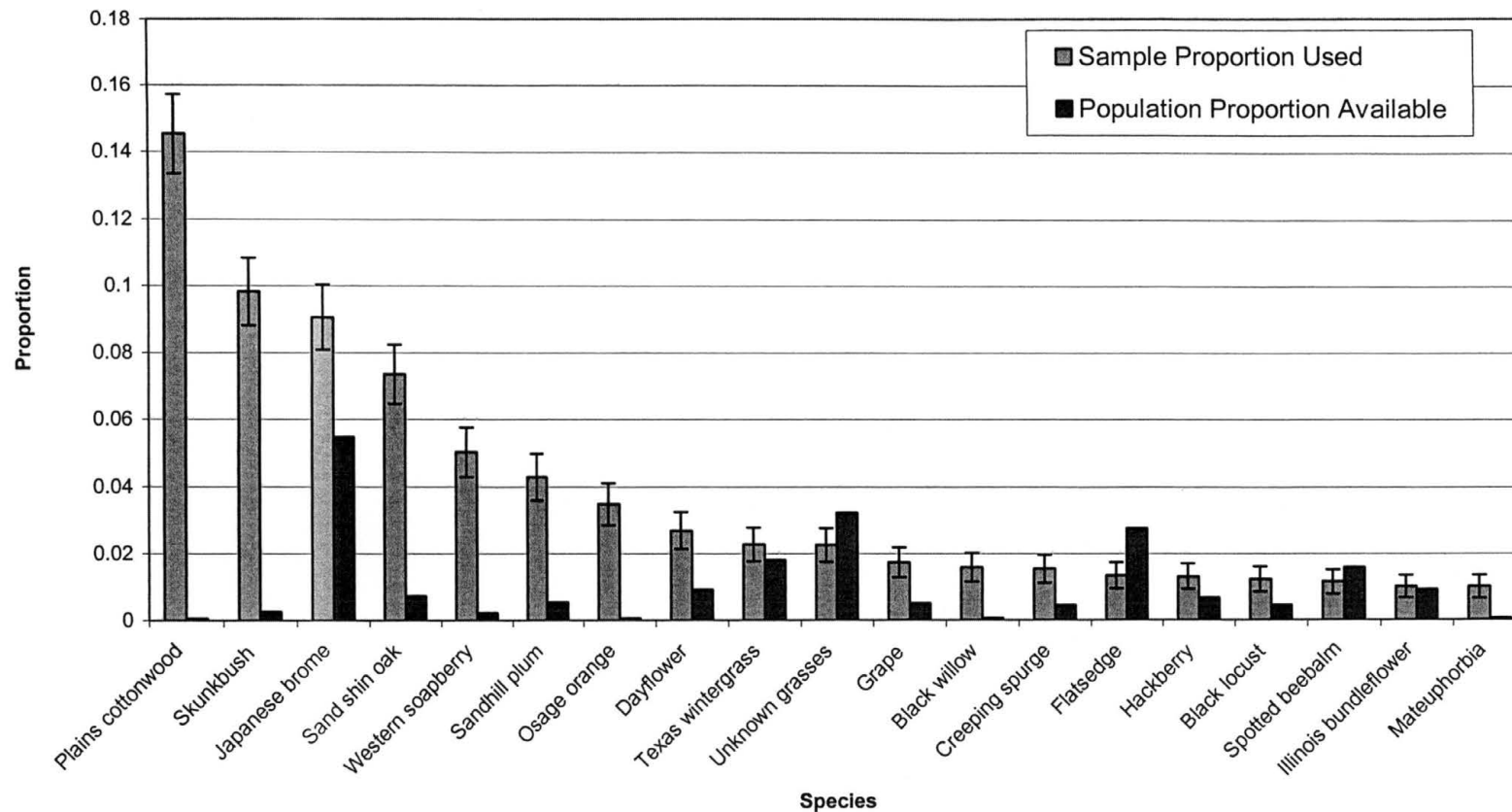


Figure 38. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer at Hutchinson/Wheeler sites in the Rolling Plains Ecological Region in 1999-2001.

Table 13. Manly's alpha selection indices for forage species occurring in the diets of white-tailed deer at Hutchinson/Wheeler sites in the Rolling Plains Ecological Region in 1999-2001. The critical Manly's alpha value for 20 categories of food plants is 0.050. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Plains cottonwood*	0.582
Skunkbush*	0.066
Japanese brome	0.003
Sand shin oak	0.018
Western soapberry	0.040
Sandhill plum	0.014
Osage orange*	0.139
Dayflower	0.005
Texas wintergrass	0.002
Grape	0.006
Black willow*	0.064
Creeping spurge	0.006
Flatsedge	0.001
Hackberry	0.004
Black locust	0.005
Spotted beebalm	0.001
Illinois bundleflower	0.002
Mateuphorbia	0.040
Others	0.002

### Matador WMA/Cottle Sites

Forb species (30%) composed the largest portion of deer diets on the Matador WMA and Cottle County sites (Fig. 39). Grasses and browse made up about equal amounts of the diet.

One hundred eight plant species were identified in rumen samples from these two sites in 1999-2001 (Appendix 15). Sand shin oak (21%) made up the largest component of the diet, followed by Japanese brome (13%) (Fig. 40). Honey mesquite and dayflower made up equal amounts of the diet.

Results from chi-square log-likelihood tests ( $X^2 = 2363$ ,  $p = 0.00$ ) showed that spiderwort (*Tradescantia occidentalis*) was consumed in proportion to its availability (Fig. 41). Five species, including rescuegrass (*Bromus uniloides*), purple three-awn, sand dropseed, Scribner's dicanthelium, and silverleaf nightshade were used below their availabilities. The remaining 10 species were used in amounts greater than their availabilities. The critical Manly's alpha value was 0.059 for the Matador WMA/Cottle sites (Table 14). Four species were classified as selected by deer using Manly's alpha analysis, including sand shin oak, lovegrasses, yucca, and creek plum.

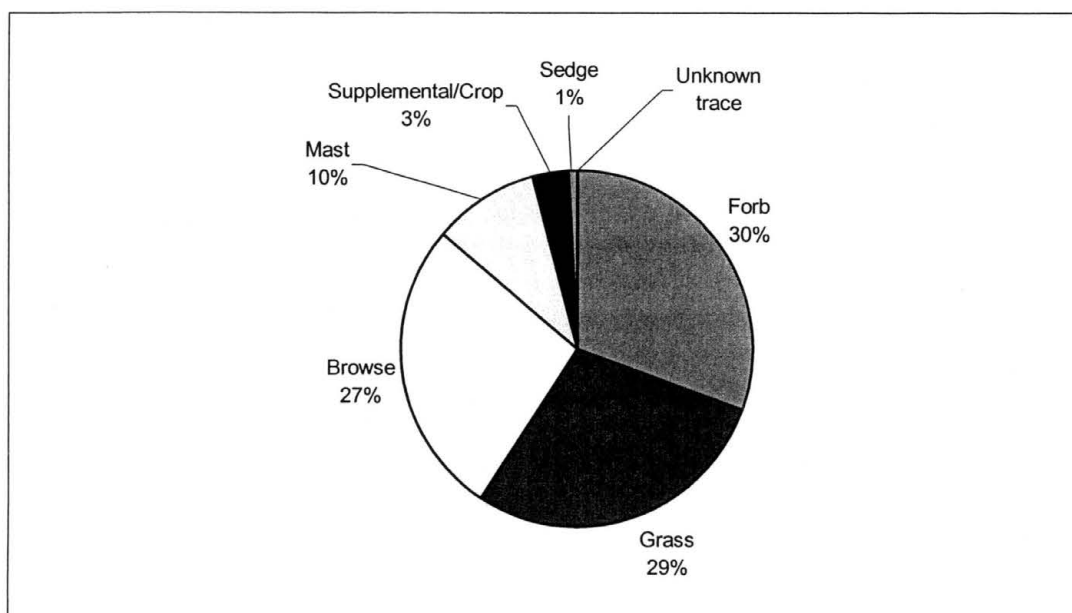


Figure 39. Percent composition of forage classes in white-tailed deer diets at Matador WMA/Cottle sites in the Rolling Plains Ecological Region in 1999-2001.

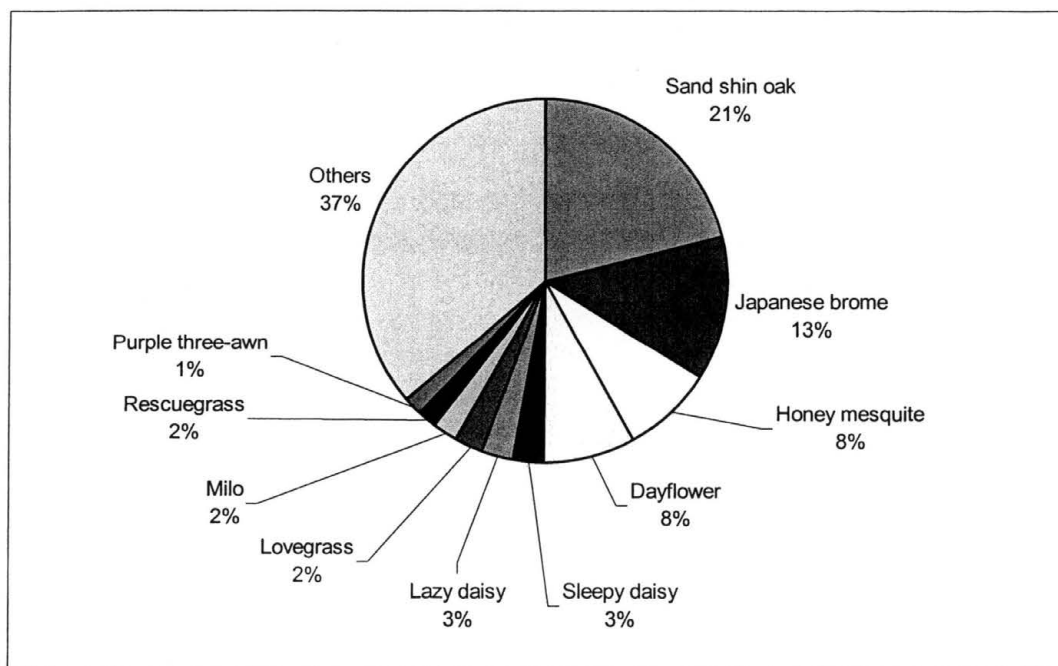


Figure 40. Percent composition of the top ten food items in the diet of white-tailed deer at Matador WMA/Cottle sites in the Rolling Plains Ecological Region in 1999-2001. Others includes 97 plant species making up less than 1.5% of the diet.

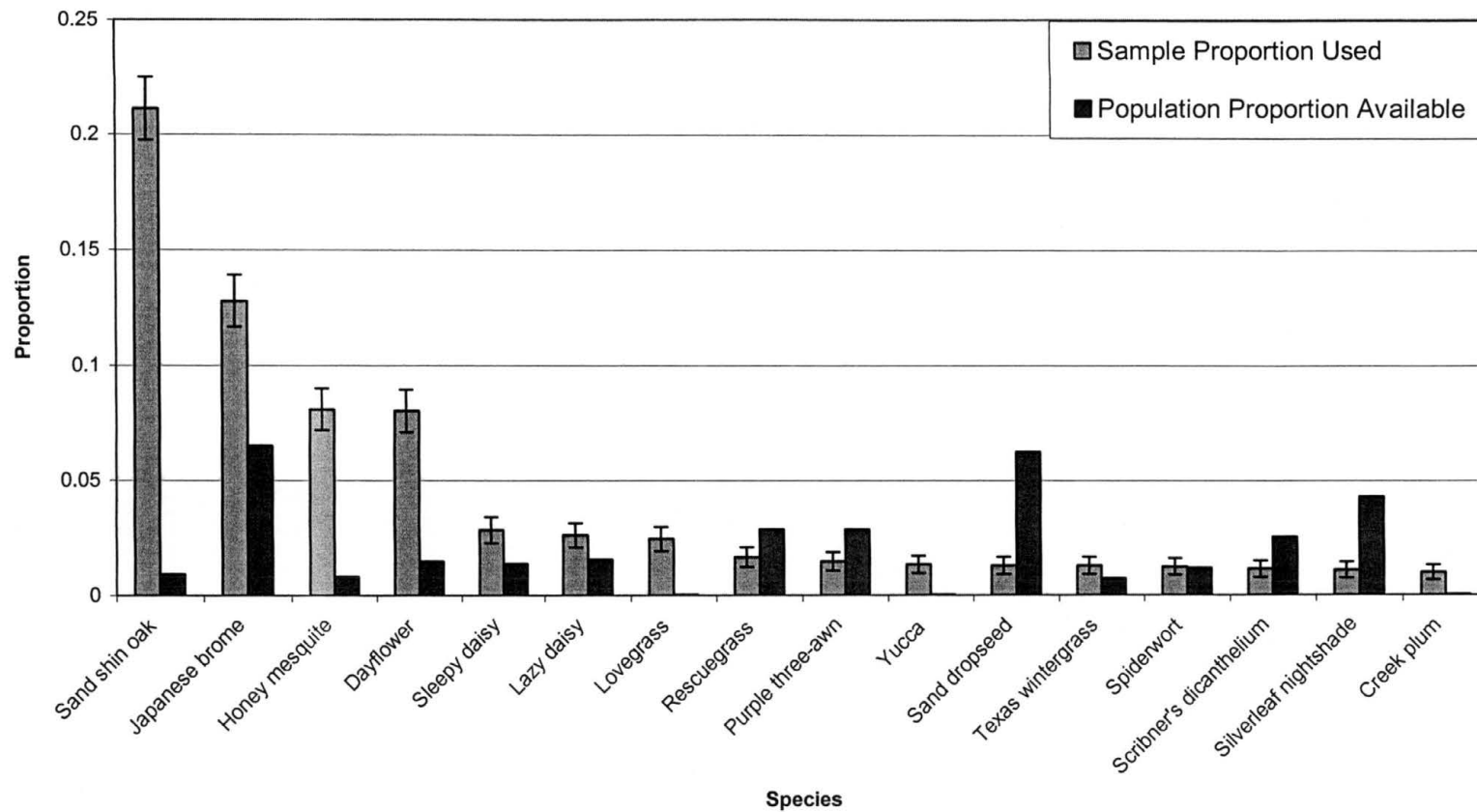


Figure 41. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer at Matador WMA/Cottle sites in the Rolling Plains Ecological Region in 1999-2001.

Table 14. Manly's alpha selection indices for forage species occurring in the diets of white-tailed deer at Matador WMA/Cottle sites in the Rolling Plains Ecological Region in 1999-2001. The critical Manly's alpha value for 17 categories of food plants is 0.059. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Sand shin oak*	0.131
Japanese brome	0.011
Honey mesquite	0.057
Dayflower	0.031
Sleepy daisy	0.012
Lazy daisy	0.010
Lovegrass*	0.368
Rescuegrass	0.003
Purple three-awn	0.003
Yucca*	0.200
Sand dropseed	0.001
Texas wintergrass	0.010
Spiderwort	0.006
Scribner's dicantherium	0.003
Silverleaf nightshade	0.001
Creek plum*	0.149
Others	0.003

### San Angelo WMA/Runnels/Shackelford Sites

Browse was consumed most frequently (35%) on these sites (Fig. 42). Forbs and mast were eaten in about the same amounts.

One hundred twenty-eight plants were identified in rumens from these three sites during 1999-2001 (Appendix 16). Honey mesquite (17%) made up the largest portion of the diet (Figure 43). Prickly pear cactus accounted for 12% of deer diets, while prickly ash and storksbill each made up 5%.

Results of chi-square log-likelihood tests ( $X^2 = 3398$ ,  $p = 0.00$ ) showed that Japanese brome and lazy daisy were consumed in proportion to their availabilities (Fig. 44). Four species were used below their availabilities, including storksbill, Texas wintergrass, wild

onion, and purple three-awn. The remaining 16 species were consumed in amounts greater than availabilities.

Six species were classified as selected by deer in Manly's alpha analysis, including honey mesquite, prickly ash, skunkbush, redberry juniper, mistletoe, and creeping spurge (Table 15).

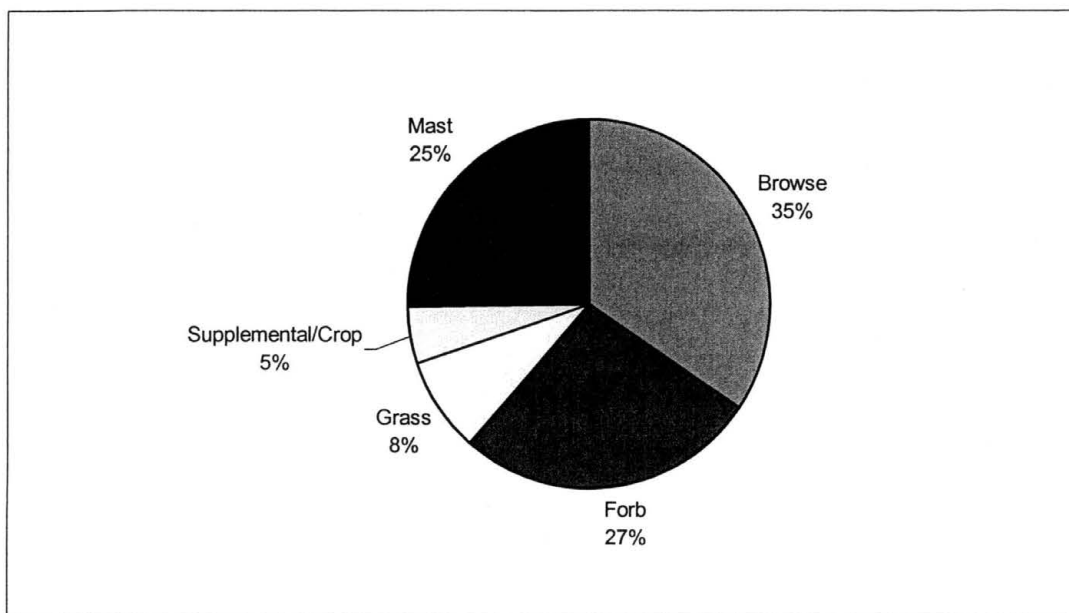


Figure 42. Percent composition of forage classes in white-tailed deer diets at San Angelo WMA/Runnels/Shackelford sites in the Rolling Plains Ecological Region in 1999-2001.

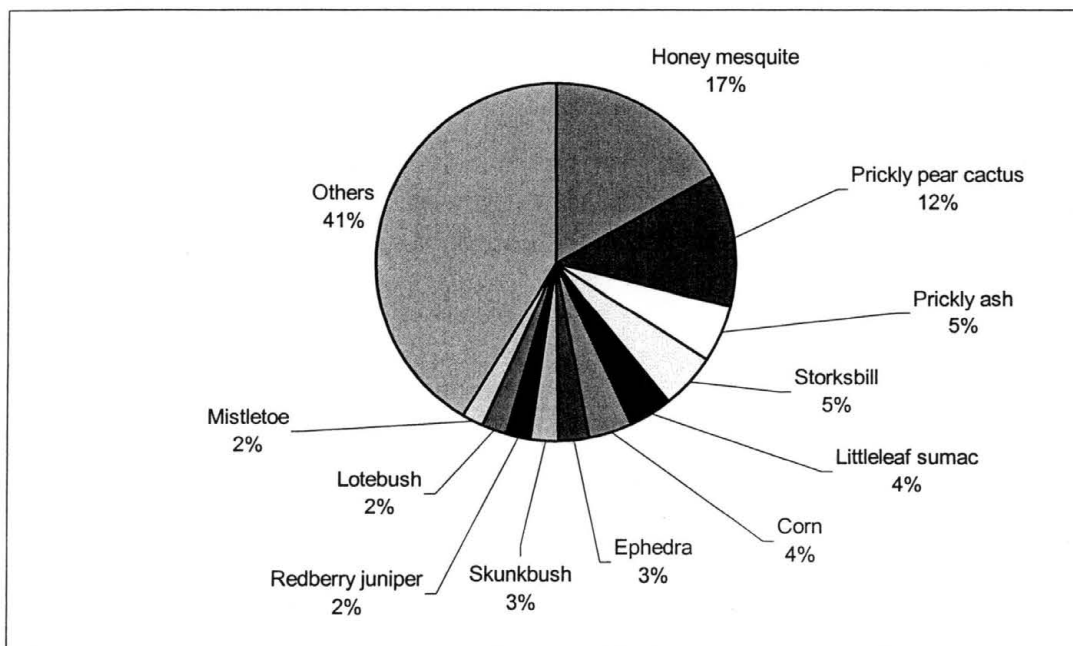


Figure 43. Percent composition of top 11 food items in the diet of white-tailed deer at San Angelo WMA/Runnels/Shackelford sites in the Rolling Plains Ecological Region in 1999-2001. Others includes all species making up less than 2% of the diet.



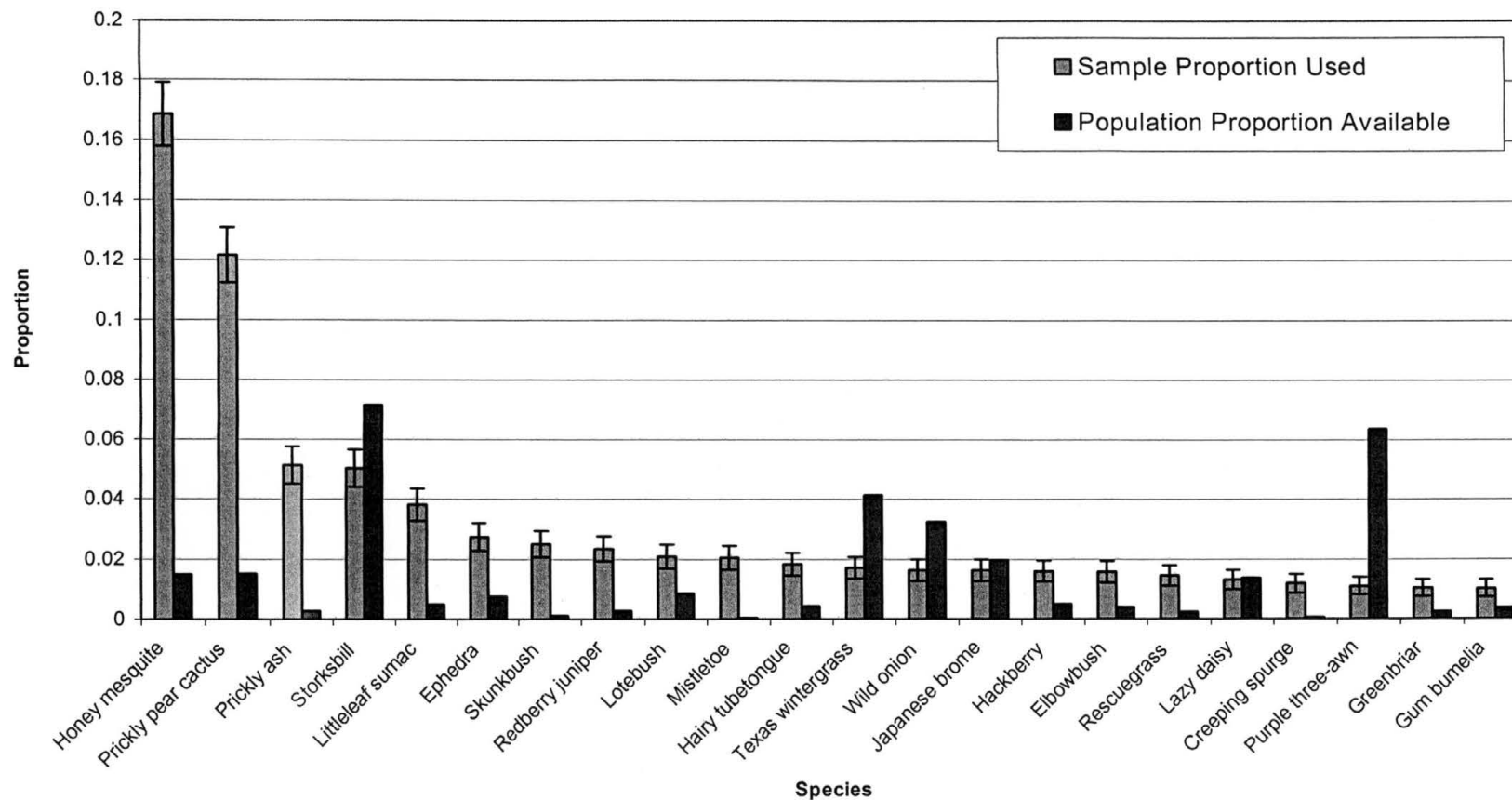


Figure 44. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer at San Angelo WMA/Runnels/ Shackelford sites in the Rolling Plains Ecological Region in 1999-2001.

Table 15. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer at San Angelo WMA/Runnels/Shackelford sites in the Rolling Plains in 1999-2001. The critical Manly's alpha value for 23 categories of food plants is 0.043. Selected species indicated with an asterisk.

Item	Manly's Alpha
Honey mesquite*	0.057
Prickly pear cactus	0.041
Prickly ash*	0.096
Storksbill	0.004
Littleleaf sumac	0.040
Ephedra	0.018
Skunkbush*	0.105
Redberry juniper*	0.044
Lotebush	0.012
Mistletoe*	0.343
Hairy tubetongue	0.022
Texas wintergrass	0.002
Wild onion	0.003
Japanese brome	0.004
Hackberry	0.017
Elbowbush	0.020
Rescuegrass	0.030
Lazy daisy	0.005
Creeping spurge*	0.099
Purple three-awn	0.001
Greenbriar	0.022
Gum bumelia	0.014
Others	0.002

### Wilbarger Site

Forb species made up the largest portion (40%) of deer diets at the Wilbarger study site (Fig. 45). Forb use was heaviest in spring and summer seasons. Grasses made up 35% of the overall diet, with highest use in fall and winter.

Seventy-two plants were identified in rumen analysis on the Wilbarger site during the study (Appendix 17). Japanese brome had the largest portion (24%) of the diet (Fig. 46). Honey mesquite made up 12% of the diet.

Results of the chi-square log-likelihood test ( $X^2 = 1185$ ,  $p = 0.00$ ) showed that two foods, heath aster and crow poison, were eaten in proportion to their availabilities (Fig. 47). Two grasses, Texas wintergrass and western wheatgrass, were used below their availabilities. The remaining 14 items were consumed in amounts greater than availability.

Results of Manly's alpha analysis showed that seven species were classified as selected by deer (Table 16). They included prickly pear cactus, dayflower, prickly lettuce (*Lactuca serriola*), ratany (*Krameria lanceolata*), creeping sparges, and black willow.

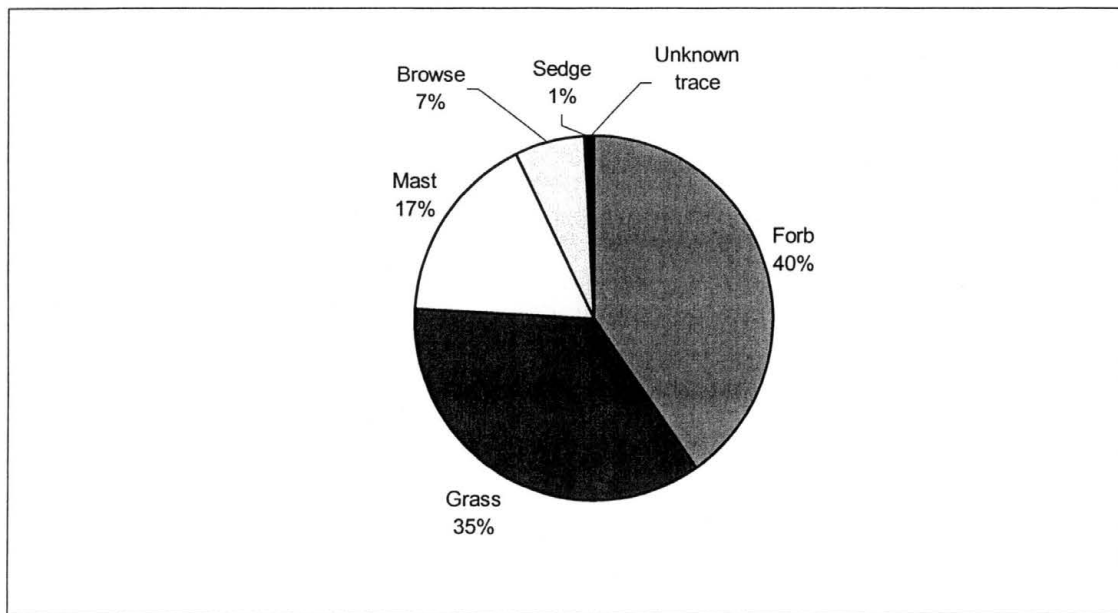


Figure 45. Percent composition of forage classes in white-tailed deer diets at the Wilbarger site in the Rolling Plains Ecological Region in 1999-2001.

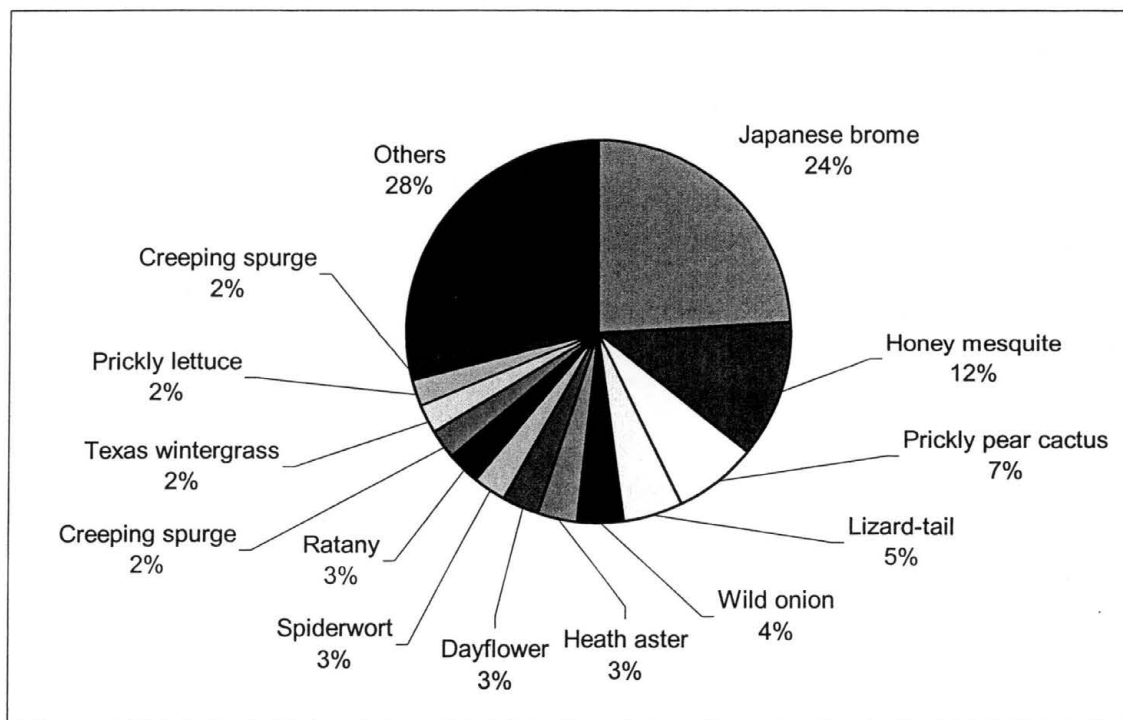


Figure 46. Percent composition of top 12 food items in the diets of white-tailed deer at the Wilbarger site in the Rolling Plains Ecological Region in 1999-2001. Others includes all species making up less than 2% of the diet.

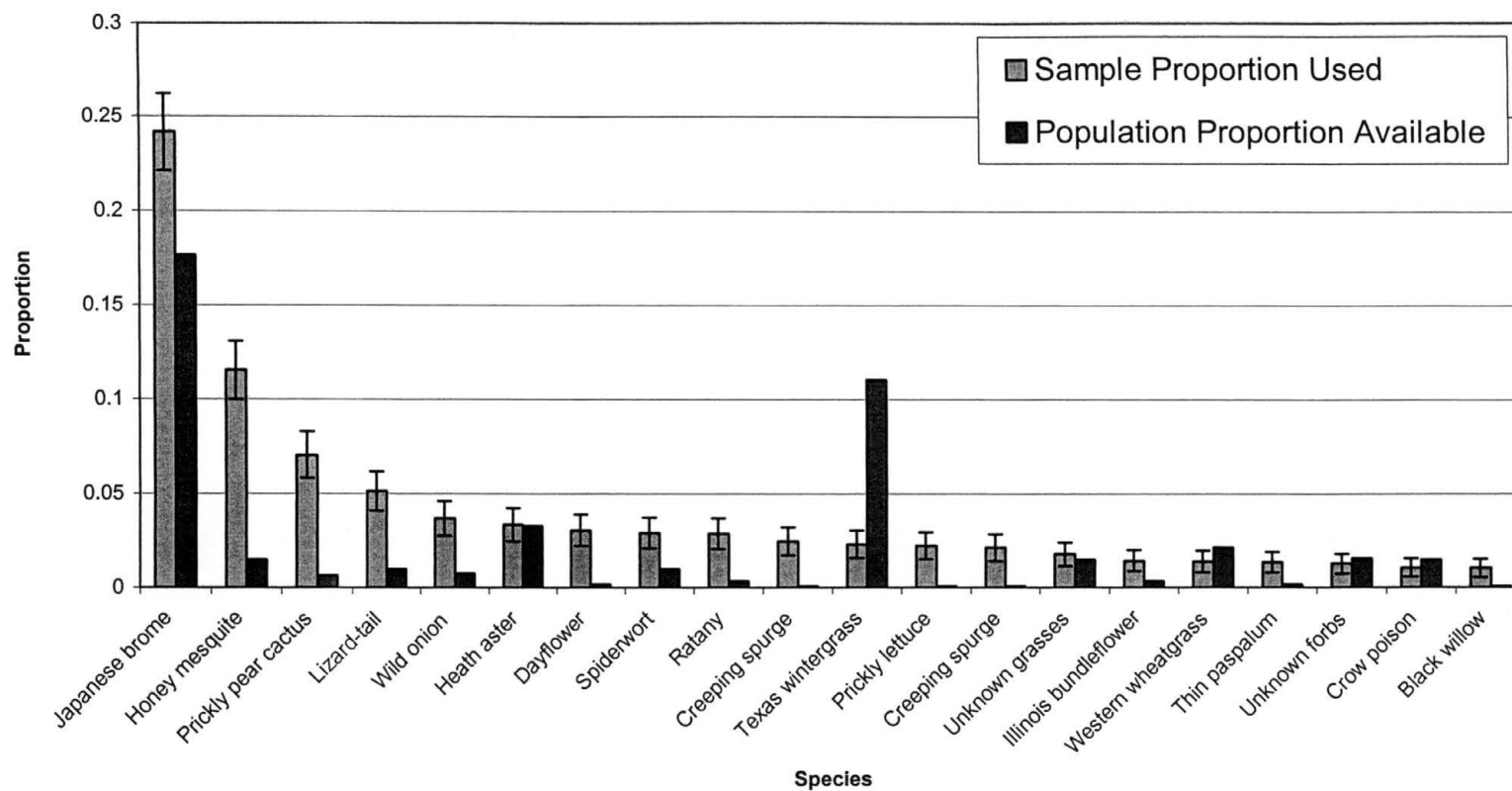


Figure 47. Results of chi-square log-likelihood test for use versus availability in the diet of white-tailed deer at the Wilbarger site in the Rolling Plains Ecological Region in 1999-2001.

Table 16. Manly's alpha selection indices for forage species occurring in the diet of white-tailed deer at the Wilbarger site in the Rolling Plains in 1999-2001. The critical Manly's alpha value for 21 categories of food plants is 0.048. Selected species are indicated with an asterisk.

Item	Manly's Alpha
Japanese brome	0.008
Honey mesquite	0.045
Prickly pear cactus*	0.062
Lizard-tail	0.030
Wild onion	0.029
Heath aster	0.006
Dayflower*	0.107
Spiderwort	0.017
Ratany*	0.051
Creeping spurge*	0.172
Texas wintergrass	0.001
Prickly lettuce*	0.157
Creeping spurge*	0.149
Illinois bundleflower	0.025
Western wheatgrass	0.004
Thin paspalum	0.047
Crow poison	0.004
Black willow*	0.072
Others	0.014

## DISCUSSION

### Precipitation

Precipitation likely influenced the results of the current study, as drought-like conditions were present during 1999-2000 on several of the ranches. Sites in the southern Rolling Plains had marked deficits in the average annual rainfall (Table 17) (National Oceanic and Atmospheric Administration 1999, 2000, 2001). The Shackelford County, Runnels County, and San Angelo WMA sites received an average of 18.4 cm below the annual average normal rainfall during 1999. Though deer collection did not

begin until December 1999, the lack of rainfall on these sites earlier in the year surely influenced forage available for consumption by white-tailed deer. Dry conditions persisted on these sites during 2000, with an average of 13.3 cm below the annual average rainfall. Conditions began to improve during 2001, when these sites received 5.2 cm below the annual average rainfall. The excessive use of mast and browse forage classes on these sites during the first year of my study strongly influenced the overall use of these forage classes when examining deer diets across the Rolling Plains. Improving rainfall and range conditions likely led to higher plant diversity and broader resource use by white-tailed deer. Rainfall totals on more northern sites were near or above the annual average during 1999-2000. Consequently, differences in plant availability and plant use by white-tailed deer were not as extreme.

Table 17. Annual precipitation amounts by year and departure from the annual average precipitation for study sites by county in the Rolling Plains Ecological Region from 1999-2001. Precipitation values are given in cm. Precipitation values from the Cottle County site were also used for Matador WMA.

Location (County)	1999		2000		2001	
	Precipitation (cm)	Departure from Annual Average (cm)	Precipitation (cm)	Departure from Annual Average (cm)	Precipitation (cm)	Departure from Annual Average (cm)
Hutchinson	61.29	8.03	75.34	22.07	49.56	-3.71
Wheeler	53.72	-2.34	74.27	18.21	47.37	-8.69
Cottle	64.62	7.90	58.72	-2.01	52.50	-4.22
Wilbarger	65.63	-6.68	77.70	5.38	58.01	-14.30
Shackelford	47.55	-17.90	43.36	-22.10	63.68	-1.78
San Angelo	34.34	-17.60	38.58	-13.36	47.04	-4.90
Runnels	39.50	-19.69	54.74	-4.45	50.39	-8.79

### **Supplemental Foods**

Though not included in analyses for selectivity, supplemental foods and cultivated crops often made up large portions of deer diets. This showed that deer regularly use these non-native species in place of native forage. When available, these supplemental foods may alter deer foraging habits.

### **Deer Diet 1999-2000**

Results from the 1999-2000 analysis of rumen contents showed that white-tailed deer in the Rolling Plains were primarily browsers. The previous study of deer diets in the Rolling Plains (Quinton and Horejsi 1977) showed an annual diet consisting of 53% browse (including mast). When mast is included with browse, the current study showed similar results (57%) for the first year. The current study also showed that forb species made up 18% of the first year's diet, compared to 45% in the 1977 study. Grasses composed a larger percentage of the first year diet (19%) than in the previous study (2%). Several factors likely influenced the diet of deer in 1999-2000. Browse may have been consumed at higher levels on several study sites because of lower availability of forb species. This lower availability was likely related to below average rainfall on these sites during 1999-2000. Browse and mast were consumed in high proportions on the San Angelo WMA, Runnels County, Shackelford County, and Wilbarger County sites. Another possible reason for the difference in the forage composition between these studies is simply the difference in study sites. The 1977 study was restricted to a small region in the east central portion of the Rolling Plains. The current study gathered data from a wider area of the Rolling Plains. Additionally, the earlier study addressed



influences of land disturbances on deer diets. These different land disturbances likely influenced deer diet.

Deer ate 159 plant species during 1999-2000, compared to 55 plant species found in the annual diet in the 1977 study. Ten species constituted 88% of the annual diet for the 1977 study. More plant species were consumed in the current study, as the top ten species made up 52% of the annual diet. Overall, honey mesquite and Japanese brome were the most common foods in the diet. Prickly pear cactus, a food used frequently in the previous study, was also an important food in the current study. The most common form of honey mesquite and prickly pear cactus consumed was the seed and fruits. Perhaps these high-energy food items are an important staple of deer diets, especially when forb availability is minimal. Eight of the top ten species eaten were either browse or mast species.

The results of both the chi-square log-likelihood tests and Manly's alpha analysis must be considered when assessing selectivity of foods by white-tailed deer. The log-likelihood analysis of first year data showed that 19 of 21 food items with  $\geq 1\%$  composition in the diet were consumed in amounts greater than availabilities. Neu et al. (1974) classified foods used above their availability as preferred foods based on the chi-square test. The results of Manly's alpha analysis showed that only eight foods were selected by deer. The eight species classified as selected by Manly's alpha were also consumed in amounts greater than their availability by the log-likelihood analysis. These data suggested that skunkbush, prickly ash, plains cottonwood, redberry juniper, Osage orange, mistletoe, lovegrasses, and black willow were not only important food items for white-tailed deer, but were actively selected as food by deer. A contradiction in analyses

might seem apparent in that 11 foods were classified as avoided by Manly's alpha analysis, yet were used in amounts greater than availabilities by the chi-square log-likelihood test. Manly's alpha is a more conservative method for classifying selected and avoided species. Perhaps, deer fed opportunistically on these 11 foods, and even though they may not be selected foods, they are still important components of the diet. The two analyses are not necessarily contradictory, but just different methodology. By using them in tandem, these analyses give a good indication of the plant species white-tailed deer seek. Differences between the analyses may also arise because of the absence of certain foods on particular study sites. For example, honey mesquite had high overall consumption, but was not present on the Hutchinson County and Wheeler County sites. This may have caused honey mesquite to be classified as avoided by deer in analysis of all sites together.

### **Deer Diet 2000-2001**

In the second year of the study, the region received more precipitation than in the first year. This likely influenced the proportions of forage classes and species consumed. Forb consumption increased to 38% in the second year, because of a greater abundance of plant cover. This is illustrated by the number of quadrats for plant species with at least 2% coverage. There were 3838 quadrats in the first year, compared to 7870 quadrats in the second year. Concurrently, mast consumption decreased to 10%. The remaining five forage classes were consumed in relatively equal proportions between years. These data suggested that white-tailed deer in the Rolling Plains may use forbs over mast when forb availability is not restricted.

Pooled data for the Rolling Plains showed similar species consumption between the two years. Japanese brome, honey mesquite, sand shin oak, and plains cottonwood composed a large portion of white-tailed deer diets in both years. Storksbill, dayflower, Texas wintergrass, wild onion, and rescuegrass were additions to the diet in the second year. Storksbill, Texas wintergrass, and wild onion had highest consumption in the fall and winter of the second year and were important forage species for deer. Overall, a slightly higher diversity of plants was found in the rumen analysis during the second year. This probably resulted from a higher availability of species during the year. These data suggested that white-tailed deer in the Rolling Plains consumed a broader range of species when plant availability was not limited. Again, the number of quadrats for plant species with  $\geq 2\%$  coverage was much higher in the second year.

Most of the plant species consumed by deer at a level of  $\geq 1\%$  were classified as selected species by the results of chi-square log-likelihood analysis. Storksbill, Texas wintergrass, and purple three-awn, though consumed in high amounts, were not selected species. Deer may have used these species opportunistically, and the high availabilities of these plants may have been responsible for their high proportions in the diet. Manly's alpha indices for the 2000-2001 season indicated that only plains cottonwood and sand shin oak were species selected by deer. The overall high number of plant species found in the rumen analysis probably influenced the designation of only two species as selected. The results of Manly's alpha are influenced by the number of resources (Krebs 1999), and since deer consumed 175 species, it was more difficult for any single species to achieve selected status in this analysis.

### **Deer Diet Two-Year Pooled**

Overall, white-tailed deer were browsers during the two-year study. Including mast, browse made up 48% of the diet, slightly lower than that found in the 1977 study (53%) (Quinton and Horejsi 1977). Grass made up a significant portion of white-tailed deer diets in the Rolling Plains during my study. Had normal rainfall occurred during both years, it is likely that the overall proportion of forb species in the diet would have been higher. My data suggest that white-tailed deer in the Rolling Plains may consume forbs at higher levels than other forage classes.

A few of the species consumed by white-tailed deer in the 1977 study were eaten in the current study. Mistletoe and prickly pear were important items in the annual diet of deer in the previous study, making up 53% of the diet. These foods were also used in the current study, but at much lower proportions. Again, this is likely because of the wider scope of the current study. Several of the study sites did not contain prickly pear or mistletoe, and thus had no availability. The larger sample size and number of plant species contributed to the higher diversity of plants consumed by deer during this study. I was surprised at the high consumption rate for some species by white-tailed deer. Prickly ash made up 2% of the overall diet. In some seasons, the species had a greater percent composition in the diet. This plant is a member of the citrus family and contains high levels of oils, a characteristic that would seem to make it less palatable (Diggs et al. 1999). Also, the dried, dead leaves of plains cottonwood and sand shin oak were consumed during several seasons. Apparently, deer may forage on these plants regardless of condition.

Most foods consumed at a level of  $\geq 1\%$  were classified as selected by the chi-square log-likelihood analysis. Storksbill, Texas wintergrass, wild onion, and rescuegrass were not selected, most likely because their availabilities were higher than other species. It seems these species were consumed opportunistically, but still they were an important part of the diet. Wild onion was considered a selected species in 2000-2001, while overall, it was not classified as a species selected by deer. This illustrates how selectivity can change based on season and availability. The pooling of data for both years and study sites influenced selectivity as well. This was further illustrated by Manly's alpha analysis, as only two plant species were identified as selected by deer. The results of analyses suggest that plains cottonwood and skunkbush were important species because they were classified as selected after pooling all study sites and seasons.

### **Deer Diet Fall 1999**

Mast made up the largest portion of the fall 1999 diet because of high levels of use at the San Angelo WMA, Runnels County, and Shackelford County sites. The higher consumption of honey mesquite and prickly pear cactus fruits on these sites caused the large, overall use of mast by deer. The elevated use of skunkbush and Osage orange fruit on the Hutchinson County and Wheeler County sites also contributed to the high proportion of mast in the diet. Deer substantially used cool season grasses such as Japanese brome and Texas wintergrass at several study sites, contributing to higher levels of grass in the fall diet compared to the annual diet.

An important factor affecting the composition of the diet was the disproportionate use of some species at one or two collection sites. Prickly ash made up 7% of the fall diet,

but only deer at the Runnels County and Shackelford County sites ate this species.

Skunkbush fruits had high consumption at the Hutchinson County site, and sand shin oak at the Matador WMA, Cottle County, and Wheeler County sites. Cultivated milo fields were present near the Cottle County site; consequently, this crop had high use by deer.

Because I had limited skills in identifying grass species in rumen contents at the beginning of the study, unknown grasses made up 5% of the fall diet.

Plant species such as honey mesquite, prickly pear cactus, Japanese brome, and sand shin oak, with high use by deer, also had relatively high availabilities. This suggests that deer may have used these foods opportunistically during fall 1999. However, with the exception of Japanese brome, these foods were classified as selected species by chi-square log-likelihood analysis.

### **Deer Diet Winter 2000**

In the 1977 study of deer diets on the Rolling Plains, the winter diet was composed of 73% browse. If mast is included with browse in the current study, browse composition was 46%. This is a marked difference between the two studies. Deer used a much wider variety of plant species (48) in winter 2000 than in the 1977 study, when deer consumed 20 plant species. The wider scope of the current study and larger sample size was the likely reason for the difference. In the 1977 study, six plants made up 96% of the diet, while the top six plants in winter 2000 composed 64% of the diet. Grass species were not reported as deer foods for the winter in the 1977 study, but this forage class made up 41% of the winter 2000 diet. Forb use was much lower in the current study (3%) than in the

1977 study (25%). The lack of precipitation, coupled with cooler temperatures and a shorter growing period, were likely causes for the small proportion of forb use in the diet.

Prickly pear cactus, honey mesquite, and mistletoe were common items in the winter diets for both Rolling Plains studies. However, in the 1977 study mistletoe made up 65% of the winter diet, while in my study, it made up 3% of the diet. Additionally, honey mesquite composed 5% of the diet in the 1977 study, but 10% in the current study. Prickly pear cactus made up 15% of the winter diet in 1977, and 10% in 2000. The availability of mistletoe was quite low on most sites. This combined with its arboreal position in trees may be the reason for low proportions in the diet. In the 1977 study, trees were bulldozed, placing the canopy within reach of foraging deer. Urness (1969) stated that mistletoe had high forage value and high digestibility, making it a desirable forage species for white-tailed deer. The elevated use of Japanese brome (27%) during winter 2000 presents a striking difference to the low use of grass in the 1977 study. The absence of certain browse species and succulent forbs on many study sites was a possible cause for this observation. The large amount of ephedra in the winter diet was attributable to the San Angelo WMA and Runnels County study sites. This plant had high use at these sites. This genus contains alkaloids (Diggs et al. 1999), which would seem to make ephedra an unlikely forage species. However, forage choices for deer were limited at these sites.

Based on the results of chi-square log-likelihood tests, most of the species consumed at a level of  $\geq 1\%$  during winter 2000 were selected species, except honey mesquite, sand shin oak, and Texas bluegrass. The relatively high availabilities of these plants compared to their use suggest they were eaten opportunistically. Mistletoe was classified as a

selected food by both analyses, supporting earlier studies that categorized mistletoe as an important deer food. The results of both the chi-square log-likelihood test and Manly's alpha analysis classified redberry juniper as a selected species. Deer typically ate the foliage of this species. Other studies have shown that white-tailed deer often used species of *Juniperus*. (Waid et al. 1984, Poor 1999).

### **Deer Diet Spring 2000**

The amount of browse (52% including mast) in the spring 2000 diet differed markedly from results (70%) of the 1977 study. Forb use (36%) was also higher during spring 2000 compared to spring in the 1977 study (27%). Grass made up a smaller proportion of the diet in the 1977 study (2%), but a higher proportion in the current study (9%). Deer ate more plant species in spring 2000 compared to the 1977 study. Eighty-four species were consumed by deer in the current study compared to just 28 in the 1977 study. The broader scope of the current study and the larger sample size resulted in a higher diversity of species. Several different vegetative types were present on the study sites, and thus, a broader selection of forage species were available for consumption by deer.

Just six plant species made up 80% of the spring diet in the 1977 study, while 31 species constituted 80% of the spring 2000 diet in this study. Mistletoe was the most important species in the spring diet in the 1977 study, composing 51% of the total diet. In the current study, mistletoe made up about 2% of the diet. Mistletoe availability was limited on several of the study sites; thus, its overall use was also limited. Mistletoe may be an important forage species on sites with large stands of honey mesquite, such as the



San Angelo WMA, Runnels County, and Shackelford County sites. Gum bumelia composed 12% of the spring diet in the 1977 study, but about 2% in the current study. Low availability of this plant may have restricted its use. Deer consumed prickly pear cactus in similar proportions in the 1977 study (7%) and spring 2000 (6%). Dayflower was not listed as a species used by deer in the 1977 study, but it constituted the largest portion of the spring 2000 diet. Skunkbush had high levels of use in some seasons in the 1977 study, but not during spring. Skunkbush composed 8% of the spring 2000 diet in this study. The regular use of western soapberry (6%) in the spring diet was unexpected because of saponins in fruits of this plant, which are considered poisonous to wildlife (Diggs et al. 1999).

The results of chi-square log-likelihood analysis indicated the majority of plant species with consumption  $\geq 1\%$  were considered selected species. Those species not selected required close analysis. The test results showed ephedra was a selected species in winter 2000, but use was in proportion to availability in spring 2000. Some species composed large portions of deer diets during other seasons (honey mesquite and Japanese brome) but were classified as avoided during spring 2000. The disparity between the availability and use of these plants was much higher during the spring compared to other seasons. With the presence of a higher diversity of plant species, data suggest that some species may become secondary forage species during spring. Creek plum and sandhill plum were classified as selected species by both chi-square log-likelihood and Manly's alpha analyses. Both species composed a substantial portion of the spring 2000 diet. Typically, deer consumed fruits of these species.

## Deer Diet Summer 2000

Browse use (67% including mast) during summer 2000 was much higher than browse use (45%) reported in the 1977 study (Quinton and Horejsi 1977). Forb use (29%), however, was much lower in summer 2000 than in the 1977 study (53%). Below average precipitation on several study sites was likely responsible for higher browse and mast use, coupled with lower forb availability. Grass use (3%) during summer 2000 was similar to the 1977 study (2%). Deer ate 81 plant species in summer 2000, compared to the 38 species consumed in summer in the 1977 study.

Four foods composed 70% of the summer diet in the 1977 study, while 12 species made up just over 70% of the summer 2000 diet. Prickly pear cactus, gum bumelia, Indian mallow, and skunkbush had high use in the 1977 study. Prickly pear cactus and skunkbush also had high use in the current study. Honey mesquite had more use in summer 2000 (19%) compared to the 1977 study (2%). The San Angelo WMA, Runnels County, and Shackelford County sites had excessive use of honey mesquite compared to other sites, making for a high overall proportion of honey mesquite in the diet. The limited availability of succulent forbs on sites in summer 2000 was probably the cause of such elevated use of honey mesquite. The frequent use of sand shin oak on the Cottle County and Wheeler County sites in the summer resulted in a higher overall use of sand shin oak for the Rolling Plains. The range conditions of these two sites were quite different. Plant diversity was higher on the Wheeler County site compared to the Cottle County site, yet sand shin oak still had high use at the Wheeler County site. This suggested that even with better range conditions, sand shin oak was a selected forage species. Several species in the genus *Chamaesyce* had much use in summer 2000. The

latex in some of these species is toxic, and the species are generally not eaten by wildlife (Diggs et al. 1999), yet these species composed 13% of the summer 2000 diet. This suggested that these toxic chemicals might not have a detrimental effect on white-tailed deer.

The selection of some plant species by deer changed from season to season. Many species selected in spring were selected in summer. There was a seasonal difference for dayflower. It was selected in spring 2000 but consumed in proportion to availability in summer 2000. Honey mesquite was a selected species in summer, while it was not selected in spring. Perhaps the higher availability of honey mesquite fruits during summer months was responsible for this trend. White-tailed deer selectivity for plant species can change based on season and the availability of plant species.

### **Deer Diet Fall 2000**

Browse use (47%) was substantially higher during fall 2000 than fall 1999 (38%) or in the 1977 study (24%). There was also a marked decrease in consumption of mast (38%) between fall 1999 and fall 2000 (4%). Forb use (18%) was higher in fall 2000 than the previous year (6.4%). Forb availability and consumption were higher during the second year of the study. When available, forb use may be higher than mast. Grass use remained stable between years, suggesting that white-tailed deer use grasses regularly during fall.

Deer consumed more plant species in fall 2000 compared to fall 1999. Sand shin oak constituted a large portion of the diet because of frequent use at the Cottle County and Matador WMA sites. Japanese brome was consumed at most sites, especially the

Wilbarger County site. As a result of this use, grass composed a larger portion of the overall fall diet. Prickly pear cactus made up 10% of the fall 1999 diet, but less than 2% of the fall 2000 diet. Prickly pear cactus could be a secondary food for white-tailed deer in fall, if forage availability is not restricted. Frequent consumption of skunkbush and plains cottonwood in fall 2000 occurred at the Wheeler County and Hutchinson County sites. These plants were important forage for deer in the extreme northern Rolling Plains region. Widespread use of honey mesquite contributed to its high composition in the fall 2000 diet. The species had higher consumption on some southern sites such as San Angelo WMA and Shackelford County. However, there was a noticeable difference in its use between fall 1999 (14%) and fall 2000 (7%). Greater overall forage availability may have caused a decrease in the use of honey mesquite in fall.

White-tailed deer selected fewer species during fall 2000 compared to fall 1999. The results of Manly's alpha analysis indicated selectivity for only two native species, plains cottonwood and sand shin oak, during fall 2000. These species were important to deer in fall, especially on sites in the northern Rolling Plains. Many species classified as selected by deer by the chi-square log-likelihood test in fall 1999 were also selected in fall 2000. These included sand shin oak, honey mesquite, skunkbush, and prickly ash. Texas wintergrass was used below its availability in fall of both years, suggesting that white-tailed deer typically avoid this species.

### **Deer Diet Winter 2001**

White-tailed deer frequently consumed grasses during winter 2001, much as they did during winter 2000. Grass made up 41% of the diet during both winters. Deer consumed

grass on most sites. There was a higher use of grass at the Matador WMA, Cottle County, Wheeler County, and Wilbarger County sites. There was a marked difference between years in the amount of forbs in the winter diet. Forbs composed only 3% of the winter 2000 diet, but increased to 29% in the winter 2001 diet. Additionally, mast consumption decreased from 20% in winter 2000 to 1% in winter 2001. Forb availability was higher during winter 2001, suggesting that when available, forbs may be selected over mast in the Rolling Plains. The similarity in the consumption of browse and grass between years implies that when necessary, white-tailed deer make specific adjustments to their diets, mainly in their consumption of mast and forb species.

Sixty-seven plant species were identified in the winter 2001 diet compared to 48 species in the winter 2000 diet. Deer consumed a broader range of plants from year to year. A broader variety of plants were available to deer in winter 2001. The elevated use of Japanese brome during this period was probably related to its high availability on sites. Japanese brome was available on most sites, and made up a large portion of plant communities. Deer may use Japanese brome as a food of opportunity. This may also apply to storksbill, which had high use during winter 2001. Its consumption on the San Angelo WMA, Shackelford County, and Runnels County sites was much higher than on the other sites. This plant species was very common during fall and winter. Plains cottonwood had low use during winter 2000, but the species made up 10% of the winter 2001 diet. The similar use of honey mesquite between years suggests that the species was a staple of white-tailed deer diets during winter.

The results of Manly's alpha analysis indicated fewer species were selected by deer during winter 2001 compared to winter 2000. A higher variety of plants may have been

available as forage. Deer were more selective in their foraging during winter 2001. Manly's alpha analysis showed that plains cottonwood and rescuegrass were the only food items selected by deer. Both of these plants were actively sought by deer during winter. Based on the results of the chi-square log-likelihood test, Japanese brome, storksbill, honey mesquite, Texas wintergrass, and wild onion were important components of the winter diet for white-tailed deer in the Rolling Plains.

### **Deer Diet Spring 2001**

There was a marked difference in forage class consumption between spring 2000 and spring 2001. The most obvious difference was the consumption of forbs, which changed from 36% of the spring 2000 diet to 65% of the spring 2001 diet. All sites had high use of forbs, especially the Wilbarger County, Cottle County, and Matador WMA sites, where forbs made up over 80% of diets. Range conditions improved between years on many sites, resulting in a higher diversity of forage species for deer. In turn, deer responded by consuming larger amounts of forbs, which were not available in the previous year. In tandem with the increase in forb use, browse consumption decreased from 39% in spring 2000 to 19% in spring 2001. Grass consumption was similar between years, composing about 9% of the diet. There was also a reduction in the consumption of mast from 13% in spring 2000 to 8% in spring 2001.

White-tailed deer consumed more species during spring 2001 (117) compared to spring 2000 (84). Deer used a broader range of plants because of the improved range conditions and wider selection of forage. Dayflower was the most important food in the spring diet, with much use on the Matador WMA, Cottle County, and Hutchinson County

sites. This plant species is rather succulent and may be easily digested. Lazy daisy was the second most important plant in the spring diet because of its frequent use on the Runnels County, Cottle County, and Matador WMA sites. Sleepy daisy was consumed often on the Cottle County and Matador WMA sites. Evening primrose may be an important species for southern areas of the Rolling Plains because of its higher use at southern sites. Most of the top plant species used by deer during spring were forbs.

The results of Manly's alpha analysis showed similar numbers of plant species selected by deer between the two springs (10 and 7, respectively). However, comparing the two springs with one another showed the importance of forbs in the diet. In the first year, three of 10 selected plant species were forbs. In spring 2001, all selected species were forbs. Again, forb availability was higher in spring 2001. Dayflower was mentioned earlier as having high use by deer, and the results of both chi-square log-likelihood and Manly's alpha analyses showed it was a selected species. An interesting plant species selected by deer was prickly lettuce. As the name implies, the leaves of this species are armed with prickles and would seem unpalatable to deer, but this was not the case. The results of chi-square log-likelihood and Manly's alpha analyses indicated that heath aster was classified as selected because of high consumption by deer. Interestingly, though forb availability was high in spring 2001, plains cottonwood was still a selected plant. However, deer dependence on this plant declined in spring.

### **Deer Diet Summer 2001**

The year-to-year contrast in deer diet was shown by the frequent use of forbs in summer 2001 compared to an almost exclusive browse diet in summer 2000. Again, forb

availability in summer 2001 was not as limited as during summer 2000. This allowed deer a broader range of plants to eat and suggested that deer will consume forbs over browse. Forb use was not as high in summer compared to spring. Also, mast consumption increased from the spring to summer as in 2000. As summer progressed, mast in the Rolling Plains became more available. This may explain the increased consumption by white-tailed deer. Similar grass consumption occurred in the summer season of both years. In summer, grass was a minor component of the diet with about 4% usage by deer. Strikingly, when each season was compared between years, grass use by deer was about the same. Grass use fluctuated through the year.

Ninety-two plant species were identified in rumen samples from summer 2001 compared to 82 in summer 2000. Many species were the same between years, including honey mesquite, sand shin oak, prickly pear cactus, and creeping spurge. Though new sand shin oak acorns were available during summer, deer most often consumed the foliage of this species. Lizard-tail was used frequently on the Wilbarger County and Cottle County sites.

The results of the chi-square log-likelihood and Manly's alpha analyses indicated that more species were selected during summer 2001 compared to summer 2000. Additionally, the majority of selected foods during summer 2001 were forbs as opposed to browse species, which were selected during summer 2000. Most foods classified as selected by the results of both chi-square log-likelihood and Manly's alpha analyses had also been selected in some previous seasons. These included creeping surge and plains cottonwood. Hairy tubetongue was a selected species during summer 2001. This plant



was used exclusively on the San Angelo WMA and Runnels County sites, and though limited in availability, was consumed frequently.

### **Grouped Study Sites**

*Hutchinson County/Wheeler County Sites.*--Deer were primarily browsers on these sites. This was unexpected because these sites had less woody cover than other sites. I expected forb use to be higher on these sites than the observed 21%. Perhaps deer on these sites spent more time foraging in areas with woody vegetation, such as creek and river bottoms, because of protective cover. Grass use on these sites was about the same as for the Rolling Plains region as a whole, implying that grass composed a stable part of deer diets. Mast use on these sites was lower than other sites, probably because of the absence of such species as honey mesquite and prickly pear cactus.

The excessive use of plains cottonwood at these two sites caused this species to influence the importance of this species in the representative deer diet for the Rolling Plains. The limited distribution of these trees to low areas, coupled with their frequent use by deer, suggested that this is an important species selected by white-tailed deer. Both the chi-square log-likelihood test and Manly's alpha selection index classified this species as selected by deer

The results of the chi-square log-likelihood and Manly's alpha analyses classified skunkbush as selected by deer. Based on use and indices scores, it was a food favored by deer on several sites. Other studies have shown this species to be used frequently by deer (Quinton and Horejsi 1977, Poor 1999).

Though Japanese brome constituted a large portion of the deer diet, it was not classified as selected by Manly's alpha analysis. There was not a large disparity between its use and availability. This species may be an important forage species for deer, especially in fall and winter, but based on high availability, its use was likely opportunistic.

Osage orange was classified as selected by the results of both chi-square log-likelihood and Manly's alpha analyses. However, excessive use by a few deer influenced these results. As this species is somewhat limited in distribution, it may be selected, but overall it was not a critical part of deer diet.

*Matador WMA/Cottle County Sites.*--Deer showed a broad use of forage classes on these sites, with forbs, browse, and grass being consumed in about equal amounts. Deer used grass at a high level in fall and winter. Grasses were an important part of deer diets in the Rolling Plains, and grasses composed a larger component of the diet here than at other sites.

Sand shin oak had elevated use on the Cottle County site and was one of only four woody species consumed at this site. The diversity of browse species at this site was limited, which probably caused the excessive use of a single species. Curiously, though, deer consumed sand shin oak leaves more frequently than acorns. Oak leaves typically have high levels of tannins. These chemicals in leaves are usually a deterrent to browsers (Diggs et al. 1999), but this was not the case in my study. The high use of Japanese brome and honey mesquite was not surprising, given their frequent use across the Rolling Plains. Spring and summer showed higher forb use, especially dayflower, sleepy daisy, and lazy daisy.

Across the study sites, sand shin oak was not a selected species. It was selected on these two sites. Selective status of the species changed based on location. The elevated use of lovegrasses during one season on the Cottle County site caused this grass to be classified as selected. Its non-use in other seasons suggested this grass might not be an important forage species. The close proximity of a milo field to our collection site influenced its presence in rumens. If available, deer will use milo in great quantities. Yucca plants were a prized food item for white-tailed deer on the Matador WMA site. Deer consumed both flower buds and leaves of this species, which was unexpected because of their tough, dry consistency.

*San Angelo WMA/Runnels County/Shackelford County Sites.*--Deer were primarily browsers on these sites. It is not surprising that browse and mast composed a large portion of deer diet at these sites because of below average precipitation. Forb availability was often limited. Near normal precipitation occurred in the second year at these sites, and forb consumption increased substantially. The results suggested that when available, forbs are preferred over browse and mast.

The wide availability of honey mesquite and prickly pear cactus on all sites contributed to excessive use of these species by deer, especially under sub-optimal range conditions. Extreme use of these species at the San Angelo WMA site influenced the overall dietary results of the study. Most of other commonly eaten species, such as prickly ash, storksbill, littleleaf sumac, ephedra, and skunkbush were important foods at all three sites. Most species eaten above 1% at these sites were classified as selected by chi-square log-likelihood tests but not by Manly's alpha selection index. As a group, these species composed a large part of the diet and were important components of deer

diets. Prickly ash, skunkbush, mistletoe, and creeping spurge were classified as selected by both Manly's alpha indices and the chi-square log-likelihood test.

*Wilbarger County Site.*-- Compared to other study sites, deer were primarily grazers at the Wilbarger County site. Grass use at the Wilbarger County site was higher than other study areas. Grass consumption was highest in fall and winter. However, in spring and summer, forbs composed about 82% of the diet. Browse use was low on the Wilbarger County site compared to other sites. Mast consumption was comparable to other sites.

The elevated consumption of Japanese brome by deer at the Wilbarger County site was likely due to the opportunistic consumption of this common grass. Over half of the items consumed in the fall and winter seasons were Japanese brome. Such excessive use of this grass was unexpected, as grass consumption by white-tailed deer in other Texas regions is typically low. These results suggest that grasses are a staple of white-tailed deer diets in the Rolling Plains, and their importance may differ by location, season and rainfall.

Lizard-tail was a staple of spring and summer diets at the Wilbarger County site. When available, this plant was used frequently by white-tailed deer. Most plants commonly consumed at the Wilbarger County site were also eaten at other sites.

The elevated use of honey mesquite and prickly pear cactus was expected, given their broad use across the Rolling Plains region. Prickly pear cactus was characterized as a selected species at the Wilbarger County site by both analyses. This was the only time the analyses indicated selection for this plant. This illustrates how the distribution of a plant will affect its designation for selectivity. Prickly pear was less abundant on the Wilbarger County site, resulting in the selected designation. Availability versus

consumption of prickly pear cactus at each site determined whether the species was a selected species. Some other plant species classified as selected by both analyses were also selected at other sites, including dayflower, ratany, and creeping spurge. Although many species were not classified as selected by Manly's alpha analyses, they were still important forage species because of usage above availability and their substantial portions in deer diets.

## **MANAGEMENT IMPLICATIONS**

Overall, white-tailed deer in the Rolling Plains are able to adapt to varying habitat and climatic conditions and use a wide range of food items. Forbs and woody species are important components of deer diets in the Rolling Plains. Their use will fluctuate based on season, location, and range conditions. When range conditions are good, forbs are an important component of deer diets. When range conditions deteriorate during periods of low rainfall, woody species become a staple in the diet. Prickly pear cactus and honey mesquite are often seen as noxious species and great efforts have been made to eradicate them from rangelands. However, these plants are beneficial and important food for deer, especially when range conditions are sub-optimal. Wholesale eradication of these species should not occur, especially in those areas where range conditions fluctuate regularly because of environmental factors.

Grass is a staple in deer diets in the Rolling Plains. When forb production wanes in drought years, grass supplements browse as an important forage class. During a drought, grazing pressure by livestock diminishes the amount of grass available to deer. The

difference in the amount of grass grazed by livestock could make a difference in birth weight of fawns, fawn survival, adult weight, and antler size.

Biologists and land managers would do well to manage their land for a wide diversity of plant species and avoid excess grazing pressure on the different forage classes by livestock. This practice should ensure adequate seasonal food resources for deer. Managers may also tailor habitat and deer management for more specific areas of the Rolling Plains. By knowing those plant species common to their geographic area that are frequently consumed by deer, managers can make specific plans for habitat management to produce ample amounts of these plants as forage for white-tailed deer. Managers will want to prevent overgrazing by livestock to allow adequate forb production. Managers will also want to control overpopulation of deer to prevent habitat degradation. Initiating a prescribed burning regime could help to reduce litter and encourage growth of palatable forb species. Disking or tilling to disturb the soil could stimulate forb production. Managers also can seed plant species important as deer forage.

The best prescription for habitat management for white-tailed deer in the Rolling Plains is to manage for the worst-case scenario. Such a management strategy will, in most years, produce quality, native forage for white-tailed deer.

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Appendix 1. List of non-woody plant species with frequencies for the species composing  $\geq 2\%$  in quadrats during seasonal vegetative sampling at eight localities in the Rolling Plains Ecological Region. The sampling method was a 0.25 m<sup>2</sup> Daubenmire quadrat. Taxonomy follows Diggs et al. 1999.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Abutilon incanum</i>	Indian Mallow	3
<i>Acacia angustissima</i>	Prairie Acacia	2
<i>Achillea millifolium</i>	Yarrow	15
<i>Acleisanthes longiflora</i>	Angel Trumpets	4
<i>Agropyron smithii</i>	Western Wheatgrass	154
<i>Agrostis</i> sp.	Bentgrass	1
<i>Allium drummondii</i>	Wild Onion	125
<i>Amaranthaceae</i>	Pigweed Family	3
<i>Amaranthus palmeri</i>	Redroot	4
<i>Amblyolepis setigera</i>	Huisache-daisy	16
<i>Ambrosia confertiflora</i>	Field Ragweed	82
<i>Ambrosia psilostachya</i>	Western Ragweed	450
<i>Ambrosia trifida</i>	Giant Ragweed	1
<i>Andropogon gerardii</i>	Sand Bluestem	22
<i>Anemone heterophylla</i>	Wind-flower	56
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	91
<i>Aphanostephus skirrhobasis</i>	Lazy Daisy	4
<i>Apiaceae</i>	Carrot Family	2
<i>Argythamnia humilis</i>	Wild Mercury	25
<i>Aristida longiseta</i>	Red Three-awn	7
<i>Aristida purpurea</i>	Purple Three-awn	343
<i>Aristida</i> sp.	Three-awn	4
<i>Aristida wrightii</i>	Wright Three-awn	16
<i>Artemisia filifolium</i>	Sand Sagebrush	1
<i>Artemisia ludoviciana</i>	Louisiana Sagewort	20
<i>Asclepias asperula</i>	Antelope-horns	1
<i>Asclepias</i> sp.	Milkweed	4
<i>Aster ericoides</i>	Heath Aster	76
<i>Aster</i> sp.	Aster	1
<i>Aster subulatus</i>	Slim Aster	13
<i>Asteraceae</i>	Sunflower Family	3
<i>Astragalus crassicaupus</i>	Ground Plum	2
<i>Astragalus nuttallianus</i>	Nuttall's Milk-vetch	55
<i>Astragalus pratensis</i>	Milk-vetch	1
<i>Astragalus</i> sp.	Milk-vetch	103
<i>Bifora americana</i>	Prairie Bishop's Weed	6
<i>Boraginaceae</i>	Borage Family	3

## Appendix 1. Continued.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Bothriochloa barbinodis</i>	Cane Bluestem	4
<i>Bothriochloa laguroides</i>	Silver Bluestem	46
<i>Bothriochloa sp.</i>	Bluestem	1
<i>Bouteloua curtipendula</i>	Sideoats Grama	202
<i>Bouteloua gracilis</i>	Blue Grama	105
<i>Bouteloua hirsuta</i>	Hairy Grama	21
<i>Bouteloua rigidiseta</i>	Texas Grama	33
<i>Bouteloua trifida</i>	Red Grama	2
<i>Bracharia ciliatissima</i>	Fringed Signal Grass	39
<i>Brassicaceae</i>	Mustard Family	67
<i>Bromus japonicus</i>	Japanese Brome	573
<i>Bromus unioloides</i>	Rescuegrass	104
<i>Buchloe dactyloides</i>	Buffalograss	227
<i>Callirhoe digitata</i>	Winecup	5
<i>Callirhoe involucrata</i>	Winecup	17
<i>Calylophus berlandieri</i>	Evening Primrose	9
<i>Calylophus Hartweggii</i>	Western Primrose	3
<i>Cardamine sp.</i>	Bittercress	2
<i>Carduus nutans</i>	Musk-thistle	7
<i>Cenchrus spinifex</i>	Sandbur	39
<i>Centaurea americana</i>	Basket-flower	9
<i>Centaureum texense</i>	Lady Bird's Centaury	17
<i>Chaerophyllum tainturieri</i>	Chervil	9
<i>Chamaecrista fasciculata</i>	Partridge Pea	1
<i>Chamaesaracha sordida</i>	False Nightshade	28
<i>Chamaesyce prostrata</i>	Creeping Spurge	23
<i>Chamaesyce sp.</i>	Creeping Spurge	70
<i>Chamaesyce villifera</i>	Hairy Euphorbia	1
<i>Chenopodium album</i>	Lamb's Quarters	64
<i>Chloris cucullata</i>	Hooded Windmillgrass	22
<i>Chloris verticillata</i>	Tumble Windmillgrass	48
<i>Cirsium texanum</i>	Texas Thistle	60
<i>Cirsium undulatum</i>	Plumed Thistle	64
<i>Cnidoscolus texanus</i>	Bull Nettle	5
<i>Cocculus carolinus</i>	Carolina Snailseed	6
<i>Commelina erecta</i>	Dayflower	63
<i>Convolvulus equitans</i>	Texas Bindweed	2
<i>Conyza canadensis</i>	Mare's Tail	26
<i>Conyza ramosissima</i>	Low Fleabane	1
<i>Coreopsis wrightii</i>	Golden Wave	3
<i>Croton capitatus</i>	Woolly Croton	33

## Appendix 1. Continued.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Croton monanthogynus</i>	Prairie-tea	8
<i>Croton sp.</i>	Croton	248
<i>Croton texensis</i>	Croton	1
<i>Cryptantha angustifolia</i>	Cryptantha	1
<i>Cucurbita foetidissima</i>	Buffalo Gourd	11
<i>Cuscuta sp.</i>	Dodder	5
<i>Cymopterus macrorhizus</i>	Big-Root Cymopterus	4
<i>Cynodon dactylon</i>	Bermudagrass	22
<i>Cyperus sp.</i>	Flatsedge	74
<i>Dalea aurea</i>	Golden Dalea	13
<i>Dalea lanata</i>	Wooly Dalea	1
<i>Dalea sp.</i>	Dalea	1
<i>Daucus pusillus</i>	Carrot	160
<i>Delphinium virescens</i>	Larkspur	6
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	28
<i>Desmanthus sp.</i>	Bundleflower	1
<i>Desmanthus velutinus</i>	Bundleflower	24
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	119
<i>Digitaria californica</i>	Arizona Cottontop	2
<i>Digitaria cognata</i>	Fall Witchgrass	31
<i>Digitaria sanguinalis</i>	Hairy Crabgrass	2
<i>Distichlis spicata</i>	Inland Saltgrass	5
<i>Dithyrea wislizeni</i>	Spectacle Pod	18
<i>Draba cunefolia</i>	Whitlow-grass	131
<i>Dracopis amplexicaulis</i>	Clasping-leaf Coneflower	1
<i>Dyschoriste linearis</i>	Snake-herb	35
<i>Dyssodia pentachaeta</i>	Parralena	12
<i>Echinochloa colona</i>	Jungle Rice	2
<i>Echinochloa crusgalli</i>	Barnyard Grass	1
<i>Eleocharis sp.</i>	Spiked Sedge	28
<i>Elymus canadensis</i>	Canada Wildrye	55
<i>Engelmannia pinnatifida</i>	Engelmann Daisy	10
<i>Equisetum hyemale</i>	Horsetail	50
<i>Eragrostis curvula</i>	Weeping Lovegrass	4
<i>Eragrostis intermedia</i>	Plains Lovegrass	10
<i>Eragrostis secundiflora</i>	Red Lovegrass	7
<i>Eragrostis sessilis-pica</i>	Tumble Lovegrass	23
<i>Eragrostis sp.</i>	Lovegrass	16
<i>Eragrostis trichodes</i>	Sand Lovegrass	8
<i>Erigeron modestus</i>	Fleabane	1
<i>Eriochloa sericea</i>	Texas Cupgrass	26

## Appendix 1. Continued.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Eriogonum annuum</i>	Wild Buckwheat	99
<i>Erioneuron pilosum</i>	Hairy Tridens	6
<i>Erodium cicutarium</i>	Filaree	221
<i>Erodium texanum</i>	Storksbill	315
<i>Eryngium leavenworthii</i>	Eryngo	3
<i>Euphorbia</i> sp.	Spurge	67
<i>Euphorbiaceae</i>	Spurge Family	4
<i>Eustoma grandiflorum</i>	Bluebell Gentian	1
<i>Evax prolifera</i>	Evax	8
<i>Evolvulus aslinoides</i>	Ojo de vibora	15
<i>Evolvulus Nuttallianus</i>	Shaggy Evolvulus	6
<i>Evolvulus sericeus</i>	Silky Evolvulus	1
<i>Fabaceae</i>	Legume Family	5
<i>Fimbristylis</i> sp.	Fimbristylis	6
<i>Froelichia gracilis</i>	Snake Cotton	11
<i>Funastrum cynanchoides</i>	Climbing Milkweed	2
<i>Gaillardia pulchella</i>	Firewheel	64
<i>Gaillardia suavis</i>	Pincushion Daisy	5
<i>Galium aparine</i>	Bedstraw	1
<i>Galium tinctorium</i>	Bedstraw	3
<i>Galium virgatum</i>	Bedstraw	32
<i>Gaura calcicola</i>	Limestone Gaura	4
<i>Gaura coccinea</i>	Scarlet Gaura	50
<i>Gaura parviflora</i>	Lizard-tail	17
<i>Gaura</i> sp.	Gaura	21
<i>Gaura suffulata</i>	Wild Honeysuckle	18
<i>Gaura triangulata</i>	Gaura	37
<i>Geranium carolinianum</i>	Wild Geranium	79
<i>Geranium texanum</i>	Texas Geranium	68
<i>Grindelia microcephala</i>	Gumweed	23
<i>Grindelia papposa</i>	Saw-leaf Daisy	11
<i>Hedeoma drummondii</i>	Mock Pennyroyal	9
<i>Hedeoma hispida</i>	Mock Pennyroyal	3
<i>Helenium amarum</i>	Bitterweed	2
<i>Helenium badium</i>	Brown Bitterweed	1
<i>Helenium microcephalum</i>	Small Sneezeweed	1
<i>Helianthus petiolaris</i>	Plains Sunflower	23
<i>Hermannia texana</i>	Mexican Mallow	7
<i>Heterotheca canescens</i>	Gray Golden Aster	21
<i>Heterotheca latifolia</i>	Camphor	73
<i>Hilaria belangeri</i>	Curly Mesquite	10

## Appendix 1. Continued.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Hilaria mutica</i>	Tobosa Grass	3
<i>Hoffmannseggia glauca</i>	Hog Potato	9
<i>Hordeum pusillum</i>	Little Barley	48
<i>Hordeum vulgare</i>	Barley	1
<i>Hybanthus verticillatus</i>	Green Violet	8
<i>Hymenopappus flavescens</i>	Yellow Woolly White	85
<i>Hymenopappus tenuifolius</i>	Woolly-white	17
<i>Hymenoxys linearifolia</i>	Bitterweed	13
<i>Hymenoxys odoratus</i>	Bitterweed	1
<i>Indigofera miniata</i>	Scarlet Pea	6
<i>Krameria lanceolata</i>	Ratany	18
<i>Kuhnia eupatorioides</i>	False Boneset	10
<i>Lactuca serriola</i>	Prickly Lettuce	9
<i>Lamiaceae</i>	Mint Family	3
<i>Lamium amplexicaule</i>	Henbit	1
<i>Lappula occidentalis</i>	Stickseed	3
<i>Lechea sp.</i>	Pinweed	1
<i>Lepidium densiflorum</i>	Peppergrass	371
<i>Lepidium virginicum</i>	Peppergrass	204
<i>Lesquerella densiflora</i>	Bladderpod	205
<i>Liatris mucronata</i>	Gayfeather	7
<i>Liatris punctata</i>	Dotted Gayfeather	27
<i>Lindheimera texana</i>	Texas Star	2
<i>Linum pratense</i>	Meadow Flax	76
<i>Linum rigidum</i>	Flax	17
<i>Linum rupestre</i>	Rock Flax	2
<i>Linum sp.</i>	Flax	3
<i>Lithospermum incisum</i>	Puccoon	9
<i>Lolium perenne</i>	Ryegrass	19
<i>Lupinus texensis</i>	Texas Bluebonnet	1
<i>Lythrium californicum</i>	Loosetrife	2
<i>Machaeranthera pinnatifida</i>	Yellow Spiny Daisy	10
<i>Marrubium vulgare</i>	Common Horehound	1
<i>Matelea biflora</i>	Purple Milkweed Vine	2
<i>Medicago minima</i>	Small Bur-clover	14
<i>Melampodium leucanthum</i>	Blackfoot Daisy	10
<i>Melilotus albus</i>	White Sweet Clover	41
<i>Melilotus indicus</i>	Yellow Sweet Clover	10
<i>Mentzelia multiflora</i>	Stickleaf	1
<i>Mentzelia nuda</i>	Sand Lily	5

## Appendix 1. Continued.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Monarda citriodora</i>	Horsemint	47
<i>Monarda punctata</i>	Spotted Beebalm	64
<i>Muhlenbergia asperifolia</i>	Muhly	19
<i>Muhlenbergia sp.</i>	Muhly	41
<i>Nama hispidum</i>	Sand Bells	14
<i>Nothoscordum bivalve</i>	Crow Poison	87
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	18
<i>Oenothera rhombipetala</i>	Four-point Evening Primrose	6
<i>Oenothera sp.</i>	Evening Primrose	39
<i>Oenothera triloba</i>	Evening Primrose	15
<i>Onagraceae</i>	Evening Primrose Family	1
<i>Oxalis dillenii</i>	Yellow Wood Sorrel	103
<i>Panicum hallii</i>	Hall's Panicum	23
<i>Panicum obtusum</i>	Vine Mesquite	64
<i>Panicum rigidulum</i>	Redtop Panicum	8
<i>Panicum sp.</i>	Panicum	25
<i>Panicum virgatum</i>	Switchgrass	42
<i>Parthenium hysterophorus</i>	False Ragweed	6
<i>Paspalum setaceum</i>	Thin Paspalum	47
<i>Paspalum sp.</i>	Paspalum	2
<i>Phacelia integrifolia</i>	Blue-curls	2
<i>Phalaris caroliniana</i>	Carolina Canarygrass	1
<i>Phyla nodiflora</i>	Frogfruit	6
<i>Phyllanthus polygonoides</i>	Knotweed Leaf-flower	4
<i>Phyllanthus sp.</i>	Leaf-flower	2
<i>Physalis cinarens</i>	Yellow Ground-cherry	12
<i>Physalis lobata</i>	Purple Ground Cherry	119
<i>Plantago sp.</i>	Plantain	447
<i>Poa arachnifera</i>	Texas Bluegrass	27
<i>Poa sp.</i>	Bluegrass	2
<i>Polanisia erosa</i>	Large Clammyweed	4
<i>Polygonaceae</i>	Knotweed Family	2
<i>Polygonum ramosissimum</i>	Knotweed	1
<i>Polygonum sp.</i>	Knotweed	5
<i>Pomaria jamesii</i>	James Rush-pea	1
<i>Pseudognaphalium stramineum</i>	Cudweed	13
<i>Psilostrophe sp.</i>	Psilostrophe	3
<i>Pyrrhopappus multicaulis</i>	Texas Dandelion	73
<i>Ratibida columnaris</i>	Mexican Hat	22
<i>Rhynchosida physocalyx</i>	Beaked Sida	9

## Appendix 1. Continued.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Rumex crispus</i>	Dock	9
<i>Salvia Engelmannia</i>	Engelmann's Salvia	16
<i>Salvia sp.</i>	Sage	2
<i>Salvia texana</i>	Texas Sage	1
<i>Schizachyrium scoparium</i>	Little Bluestem	161
<i>Schoenocaulon texanum</i>	Green Lily	1
<i>Schrankia illinoensis</i>	Sensitive Briar	1
<i>Schrankia sp.</i>	Sensitive Briar	2
<i>Schrankia uncinata</i>	Sensitive Briar	16
<i>Scrophulariaceae</i>	Figwort Family	4
<i>Scutellaria Drummondii</i>	Drummond's Skullcap	18
<i>Scutellaria wrightii</i>	Bushy Skullcap	18
<i>Secale cereale</i>	Rye	2
<i>Senna pumilio</i>	Dwarf Senna	4
<i>Senna Roemeriana</i>	Two-leaved Senna	7
<i>Senna sp.</i>	Senna	11
<i>Setaria geniculata</i>	Knotroot Bristlegrass	17
<i>Setaria leucopila</i>	Plains Bristlegrass	87
<i>Setaria sp.</i>	Bristlegrass	4
<i>Sida filicaulis</i>	Sida	39
<i>Sida sp.</i>	Sida	1
<i>Silene antirrhina</i>	Sleepy Catchfly	6
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	14
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	211
<i>Solanum rostratum</i>	Buffalo Bur	6
<i>Solidago gigantea</i>	Giant Goldenrod	1
<i>Solidago nemoralis</i>	Prairie Goldenrod	4
<i>Solidago petiolaris</i>	Goldenrod	8
<i>Sonchus asper</i>	Sow Thistle	3
<i>Sorghastrum nutans</i>	Yellow Indiangrass	10
<i>Sorghum alnum</i>	Sorghum	8
<i>Sorghum halepense</i>	Johnsongrass	21
<i>Spartina pectinata</i>	Prairie Cordgrass	1
<i>Sphaeralcea angustifolia</i>	Globe Mallow	2
<i>Sphaeralcea coccinea</i>	Scarlet Globe Mallow	64
<i>Sphaeralcea hastulata</i>	Orange Globe Mallow	1
<i>Sporobolus airoides</i>	Alkali Sacaton	4
<i>Sporobolus asper</i>	Meadow Dropseed	12
<i>Sporobolus cryptandrus</i>	Sand Dropseed	276
<i>Sporobolus pyramidatus</i>	Whorled Dropseed	3
<i>Sporobolus sp.</i>	Dropseed	13



## Appendix 1. Continued.

Scientific Name	Common Name	#Quadrats in which species had >2% ground coverage
<i>Stillingia texana</i>	Queen's Delight	1
<i>Stipa leucotricha</i>	Texas Wintergrass	331
<i>Strophostyles leiosperma</i>	Wild Trailing Bean	18
<i>Teucrium lacinatedum</i>	Cut-leaf Germander	14
<i>Thamnosma texana</i>	Dutchman's Breeches	3
<i>Thelesperma filifolium</i>	Greenthread	90
<i>Thelesperma simplisifolium</i>	Greenthread	11
<i>Tradescantia occidentalis</i>	Spiderwort	35
<i>Tradescantia ohioensis</i>	Spiderwort	1
<i>Tragia ramosa</i>	Noseburn	35
<i>Tragopogon dubius</i>	Goat's Beard	3
<i>Tridens albescens</i>	White Tridens	57
<i>Tridens flavus</i>	Purpletop	16
<i>Tridens muticus</i>	Slim Tridens	35
<i>Trifolium sp.</i>	Clover	3
<i>Triodanis perfoliata</i>	Venus' Looking Glass	11
<i>Tripsacum dactyloides</i>	Eastern Gammagrass	26
<i>Trisetum interruptum</i>	Prairie Trisetum	1
<i>Triticum aestivum</i>	Wheat	23
<i>Verbascum thapsus</i>	Common Mullein	1
<i>Verbena bipinnatifida</i>	Dakota Vervain	25
<i>Verbena canescens</i>	Gray Vervain	40
<i>Verbena Halei</i>	Texas Vervain	1
<i>Verbena pumila</i>	Pink Vervain	7
<i>Verbena sp.</i>	Vervain	2
<i>Vernonia marginata</i>	Ironweed	2
<i>Vicia sp.</i>	Vetch	3
<i>Vulpia octoflora</i>	Six-weeks Grass	30
<i>Xanthisma texanum</i>	Sleepy Daisy	38
<i>Xanthium strumarium</i>	Cocklebur	18
<i>Xanthocephalum dracunculoides</i>	Broomweed	199
<i>Xanthocephalum sarothrae</i>	Broomweed	43
<i>Zinnia grandiflora</i>	Plains Zinnia	4
Unknown Forbs	Unknown Forbs	202
Unknown Grasses	Unknown Grasses	165
BG	Bare Ground	2438
LL	Leaf Litter	3070

Appendix 2. List of woody plant species with frequencies for the species composing  $\geq 2\%$  of 10-m intervals during seasonal vegetative sampling at eight localities in the Rolling Plains Ecological Region. The sampling method was a 100-m line intercept. Taxonomy follows Diggs et al. 1999.

Scientific Name	Common Name	# of 10-m intervals in which a species made up >2%(0.2m)
<i>Acacia greggii</i>	Catclaw	8
<i>Acacia roemeriana</i>	Catclaw	8
<i>Aloysia gratissima</i>	Whitebrush	4
<i>Artemisia filifolium</i>	Sand Sagebrush	41
<i>Baccharis neglecta</i>	Willow Baccharis	2
<i>Berberis trifoliolata</i>	Agarito	24
<i>Bumelia lanuginosa</i>	Gum Bumelia	13
<i>Celtis reticulata</i>	Hackberry <2m height	29
<i>Celtis reticulata</i>	Hackberry >2m height	23
<i>Cephalanthus occidentalis</i>	Buttonbush	9
<i>Colubrina texensis</i>	Hog Plum	10
<i>Condalia hookeri</i>	Condalia	3
<i>Dalea formosa</i>	Indigo Bush	2
<i>Echinocereus sp.</i>	Lace Cactus	1
<i>Ephedra antisiphilitica</i>	Ephedra	25
<i>Forestiera pubescens</i>	Elbowbush	13
<i>Ilex decidua</i>	Possumhaw	1
<i>Juniperus pinchotii</i>	Redberry Juniper <2m	13
<i>Mimosa biuncifera</i>	Catclaw	14
<i>Mimosa borealis</i>	Pink Mimosa	6
<i>Opuntia leptocaulis</i>	Tasajillo	21
<i>Opuntia sp.</i>	Prickly Pear Cactus	64
<i>Populus deltoides</i>	Plains Cottonwood >2m height	8
<i>Populus deltoides</i>	Plains Cottonwood <2m height	1
<i>Prosopis glandulosa</i>	Honey Mesquite >2m height	53
<i>Prosopis glandulosa</i>	Honey Mesquite <2m height	88
<i>Prunus angustifolia</i>	Sandhill Plum	12
<i>Prunus rivularis</i>	Creek Plum	3
<i>Quercus havardii</i>	Sand Shin Oak	40
<i>Rhus aromatica</i>	Skunkbush	10
<i>Rhus microphylla</i>	Littleleaf Sumac	16
<i>Robina pseudoacacia</i>	Black Locust	10
<i>Sapindus saponaria</i>	Western Soapberry <2m height	14
<i>Sapindus saponaria</i>	Western Soapberry >2m height	13
<i>Smilax bona-nox</i>	Greenbriar	8
<i>Tamarix ramosissima</i>	Salt Cedar	2

## Appendix 2. Continued.

Scientific Name	Common Name	# of 10-m intervals in which a species made up >2%(0.2m)
<i>Toxicodendron radicans</i>	Poison Ivy	2
<i>Ulmus americana</i>	American Elm >2m height	2
<i>Vitis sp.</i>	Grape <2m height	11
<i>Vitis sp.</i>	Grape >2m height	6
<i>Yucca constricta</i>	Yucca	17
<i>Yucca sp.</i>	Yucca	13
<i>Zanthoxylum hirsutum</i>	Prickly Ash <2m height	9
<i>Zanthoxylum hirsutum</i>	Prickly Ash >2m height	1
<i>Ziziphus obtusifolia</i>	Lotebush	28

Appendix 3. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in 1999-2000. The percent frequency is based on a total of 15,900 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	1686	10.60%
<i>Bromus japonicus</i>	Japanese Brome	Grass	1575	9.91%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	1207	7.59%
<i>Quercus havardii</i>	Sand Shin Oak	Browse	795	5.00%
<i>Rhus aromatica</i>	Skunkbush	Browse	751	4.72%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	410	2.58%
<i>Commelina erecta</i>	Dayflower	Forb	378	2.38%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	338	2.13%
<i>Ephedra antisiphilitica</i>	Ephedra	Browse	322	2.03%
<i>Quercus havardii</i>	Shin Oak	Mast	287	1.81%
<i>Zea mays</i>	Corn	Supplemental/ Crop	286	1.80%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	265	1.67%
<i>Celtis reticulata</i>	Hackberry	Browse	254	1.60%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	245	1.54%
<i>Maclura pomifera</i>	Osage Orange	Mast	236	1.48%
<i>Triticum aestivum</i>	Wheat	Supplemental/ Crop	221	1.39%
<i>Sorghum bicolor</i>	Milo	Supplemental/ Crop	218	1.37%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	218	1.37%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	208	1.31%
<i>Eragrostis sp.</i>	Lovegrass	Grass	195	1.23%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	182	1.14%
<i>Salix nigra</i>	Black Willow	Browse	175	1.10%
<i>Krameria lanceolata</i>	Ratany	Forb	169	1.06%
<i>Chamaesyce sp.</i>	Creeping Spurge	Forb	153	0.96%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	148	0.93%
<i>Yucca constricta</i>	Yucca	Browse	145	0.91%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	130	0.82%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	124	0.78%
<i>Prunus rivularis</i>	Creek Plum	Browse	121	0.76%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	117	0.74%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	115	0.72%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	110	0.69%
<i>Smilax bona-nox</i>	Greenbriar	Browse	109	0.69%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	109	0.69%

## Appendix 3. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	95	0.60%
<i>Forestiera pubescens</i>	Elbowbush	Browse	92	0.58%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	89	0.56%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	87	0.55%
<i>Allium sp.</i>	Wild Onion	Forb	87	0.55%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	86	0.54%
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	Forb	86	0.54%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	81	0.51%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	76	0.48%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	73	0.46%
<i>Robina pseudoacacia</i>	Black Locust	Mast	70	0.44%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	65	0.41%
<i>Verbesina sp.</i>		Forb	62	0.39%
<i>Rhus aromatica</i>	Skunkbush	Mast	57	0.36%
<i>Poa arachnifera</i>	Texas Bluegrass	Grass	57	0.36%
<i>Strophostyles leiosperma</i>	Wild Trailing Bean	Forb	57	0.36%
<i>Juncus sp.</i>	Rush	Sedge	57	0.36%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	54	0.34%
<i>Tridens muticus</i>	Slim Tridens	Grass	53	0.33%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	53	0.33%
<i>Diospyros texana</i>	Persimmon	Browse	50	0.31%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	47	0.30%
<i>Lolium perenne</i>	Ryegrass	Grass	47	0.30%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	45	0.28%
<i>Bouteloua sp.</i>	Gramma	Grass	45	0.28%
<i>Aster ericoides</i>	Heath aster	Forb	45	0.28%
<i>Vitis sp.</i>	Grape	Browse	44	0.28%
<i>Arachis hypogaea</i>	Peanut	Supplemental/ Crop	43	0.27%
<i>Lepidium virginicum</i>	Peppergrass	Forb	43	0.27%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	41	0.26%
<i>Acacia roemeriana</i>	Catclaw	Browse	40	0.25%
<i>Cyperus sp.</i>	Flatsedge	Sedge	39	0.25%
<i>Schrankia sp.</i>	Sensitivebriar	Forb	38	0.24%
<i>Scutellaria laterifolia</i>	Skullcap	Forb	37	0.23%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	37	0.23%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	36	0.23%
<i>Fabaceae</i>	Legume Family	Forb	35	0.22%
<i>Desmanthus sp.</i>	Bundleflower	Forb	35	0.22%
<i>Bromus sp.</i>	Brome	Grass	35	0.22%
<i>Dalea sp.</i>	Dalea	Forb	33	0.21%

## Appendix 3. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Hymenoxys linearifolia</i>	Bitterweed	Forb	33	0.21%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	32	0.20%
<i>Eragrostis trichodes</i>	Sand Lovegrass	Grass	31	0.19%
<i>Panicum hallii</i>	Hall's Panicum	Grass	31	0.19%
<i>Physalis cinarascens</i>	Yellow Ground-cherry	Forb	30	0.19%
<i>Xanthocephalum sp.</i>	Broomweed	Forb	29	0.18%
<i>Ratibida columnaris</i>	Mexican Hat	Forb	29	0.18%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	28	0.18%
<i>Aristida sp.</i>	Three-awn	Grass	28	0.18%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	27	0.17%
<i>Phytolacca americana</i>	Pokeweed	Forb	27	0.17%
<i>Lepidium sp.</i>	Peppergrass	Forb	26	0.16%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	26	0.16%
<i>Astragalus sp.</i>	Milk-vetch	Forb	25	0.16%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	25	0.16%
<i>Sida filicaulis</i>	Sida	Forb	24	0.15%
<i>Abutilon sp.</i>	Indian-mallow	Forb	23	0.14%
<i>Linum rupestre</i>	Rock Flax	Forb	23	0.14%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	22	0.14%
<i>Morus sp.</i>	Mulberry	Browse	21	0.13%
<i>Plantago sp.</i>	Plantain	Forb	20	0.13%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	20	0.13%
<i>Panicum sp.</i>	Panic Grass	Grass	20	0.13%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	20	0.13%
<i>Linum sp.</i>	Flax	Forb	19	0.12%
<i>Malvastrum aurantiacum</i>	False Mallow	Forb	19	0.12%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Mast	18	0.11%
<i>Maclura pomifera</i>	Osage Orange	Browse	17	0.11%
<i>Gaura sp.</i>	Gaura	Forb	16	0.10%
<i>Prunus rivularis</i>	Creek Plum	Mast	16	0.10%
<i>Aster oblongifolius</i>	Aster	Forb	14	0.09%
<i>Gaura parviflora</i>	Lizard-tail	Forb	14	0.09%
<i>Tridens albescens</i>	White Tridens	Grass	14	0.09%
<i>Eleocharis sp.</i>	Spiked sedge	Sedge	14	0.09%
<i>Malva sp.</i>	Mallow	Forb	14	0.09%
<i>Indigofera miniata</i>	Scarlet-pea	Forb	13	0.08%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	13	0.08%
Malvaceae	Mallow Family	Forb	12	0.08%
<i>Acacia greggii</i>	Catclaw	Browse	12	0.08%
<i>Toxicodendron radicans</i>	Poison-ivy	Mast	11	0.07%

## Appendix 3. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Marsilea macropoda</i>	Water-clover	Forb	11	0.07%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	11	0.07%
<i>Hermannia texana</i>	Mexican Mallow	Forb	10	0.06%
<i>Andropogon hallii</i>	Sand Bluestem	Grass	9	0.06%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	9	0.06%
<i>Erodium texanum</i>	Storksbill	Forb	9	0.06%
<i>Verbena sp.</i>	Vervain	Forb	8	0.05%
<i>Grindelia nuda</i>	Gumweed	Forb	8	0.05%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	8	0.05%
<i>Sorghastrum nutans</i>	Yellow Indiangrass	Grass	7	0.04%
<i>Linum pratense</i>	Meadow Flax	Forb	7	0.04%
<i>Crataegus sp.</i>	Hawthorn	Browse	7	0.04%
<i>Scutellaria wrightii</i>	Skullcap	Forb	7	0.04%
<i>Dyschoriste linearis</i>	Snake Herb	Forb	7	0.04%
<i>Ulmus crassifolia</i>	Cedar Elm	Browse	7	0.04%
<i>Amaranthus sp.</i>	Pigweed	Forb	7	0.04%
<i>Liatris mucronata</i>	Gayfeather	Forb	6	0.04%
<i>Verbena canescens</i>	Gray Vervain	Forb	6	0.04%
<i>Celtis laevigata</i>	Sugarberry	Browse	6	0.04%
<i>Ambrosia trifida</i>	Giant Ragweed	Forb	6	0.04%
<i>Hordeum pusillum</i>	Little Barley	Grass	5	0.03%
<i>Fabaceae</i>	Legume Family	Browse	5	0.03%
<i>Lesquerella sp.</i>	Bladderpod	Forb	5	0.03%
<i>Equisetum hyemale</i>	Horsetail	Forb	5	0.03%
<i>Toxicodendron radicans</i>	Poison-ivy	Browse	5	0.03%
<i>Asteraceae</i>	Sunflower Family	Forb	5	0.03%
<i>Brassicaceae</i>	Mustard Family	Forb	5	0.03%
<i>Croton sp.</i>	Croton	Forb	5	0.03%
<i>Wedelia texana</i>	Orange Zexmenia	Forb	5	0.03%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	5	0.03%
<i>Mimosa sp.</i>	Catclaw	Browse	5	0.03%
<i>Gleditsia triacanthos</i>	Honeylocust	Browse	5	0.03%
<i>Lepidium densiflorum</i>	Peppergrass	Forb	5	0.03%
<i>Aster sp.</i>	Aster	Forb	4	0.03%
<i>Argythamnia sp.</i>	Wild Mercury	Forb	4	0.03%
<i>Senna sp.</i>	Senna	Forb	4	0.03%
<i>Conyza canadensis</i>	Mare's Tail	Forb	4	0.03%
<i>Dyssodia pentachaeta</i>	Parralena	Forb	4	0.03%
<i>Rubus sp.</i>	Dewberry	Browse	4	0.03%
<i>Acacia sp.</i>	Acacia	Browse	4	0.03%

## Appendix 3. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Bouteloua rigidiseta</i>	Texas Grama	Grass	4	0.03%
<i>Croton monanthogynus</i>	Croton	Forb	4	0.03%
<i>Helianthus sp.</i>	Sunflower	Forb	3	0.02%
<i>Chloris cucullata</i>	Hooded Windmillgrass	Grass	3	0.02%
<i>Scrophulariaceae</i>	Figwort Family	Forb	3	0.02%
<i>Heterotheca canescens</i>	Gray Golden Aster	Forb	3	0.02%
<i>Euphorbiaceae</i>	Spurge Family	Forb	3	0.02%
<i>Cyperaceae</i>	Sedge Family	Sedge	3	0.02%
<i>Cephalanthus occidentalis</i>	Buttonbush	Browse	2	0.01%
<i>Chamaecrista sp.</i>	Partridge Pea	Forb	2	0.01%
<i>Yucca sp.</i>	Yucca	Browse	2	0.01%
<i>Lamiaceae</i>	Mint Family	Forb	2	0.01%
<i>Bromus uniloides</i>	Rescuegrass	Grass	2	0.01%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	2	0.01%
<i>Galium sp.</i>	Bedstraw	Forb	2	0.01%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	2	0.01%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	2	0.01%
<i>Carex sp.</i>	Sedge	Sedge	2	0.01%
<i>Schrankia uncinata</i>	Sensitivebriar	Forb	2	0.01%
<i>Baccharis sp.</i>	Baccharis	Browse	1	0.01%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	1	0.01%
<i>Chamaesaracha sordida</i>	False Nightshade	Forb	1	0.01%
<i>Geranium carolinianum</i>	Wild Geranium	Forb	1	0.01%
<i>Chenopodiaceae</i>	Goosefoot Family	Forb	1	0.01%
<i>Physalis sp.</i>	Ground Cherry	Forb	1	0.01%
<i>Achillea millifolium</i>	Yarrow	Forb	1	0.01%
UG	Unknown Grasses	Grass	213	1.34%
UF	Unknown Forbs	Forb	166	1.05%
UB	Unknown Browse	Browse	88	0.55%
Unknown	Unknown	Unknown	19	0.12%
		<b>TOTALS</b>		
		Browse	5046	31.74%
		Mast	3946	24.82%
		Grass	3068	19.30%
		Forb	2938	18.48%
		Supplemental/ Crop	768	4.83%
		Sedge	115	0.72%
		Unknown	19	0.12%



Appendix 4. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in 2000-2001. The percent frequency is based on a total of 15,800 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Bromus japonicus</i>	Japanese Brome	Grass	1321	8.36%
<i>Quercus havardii</i>	Shin Oak	Browse	1043	6.60%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	825	5.22%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	707	4.47%
<i>Erodium texanum</i>	Storksbill	Forb	647	4.09%
<i>Commelina erecta</i>	Dayflower	Forb	629	3.98%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	587	3.72%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	449	2.84%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	446	2.82%
<i>Allium drummondii</i>	Wild Onion	Forb	406	2.57%
<i>Bromus unioloides</i>	Rescuegrass	Grass	341	2.16%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	329	2.08%
<i>Rhus aromatica</i>	Skunkbush	Browse	315	1.99%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	311	1.97%
<i>Gaura parviflora</i>	Lizard-tail	Forb	278	1.76%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	270	1.71%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	241	1.53%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	216	1.37%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	198	1.25%
<i>Zea mays</i>	Corn	Supplemental/Crop	188	1.19%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	186	1.18%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	169	1.07%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	165	1.04%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	164	1.04%
<i>Nothoscordum bivalve</i>	Crow Poison	Forb	138	0.87%
<i>Vitis sp.</i>	Grape	Browse	138	0.87%
<i>Monarda punctata</i>	Spotted Beebalm	Forb	134	0.85%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	131	0.83%
<i>Quercus havardii</i>	Shin Oak	Mast	131	0.83%
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	Forb	131	0.83%
<i>Celtis reticulata</i>	Hackberry	Browse	128	0.81%
<i>Calylophus berlandieri</i>	Evening Primrose	Forb	119	0.75%
<i>Chamaesyce serpens</i>	Mateuphorbia	Forb	119	0.75%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	110	0.70%
<i>Erodium cicutarium</i>	Filaree	Forb	109	0.69%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	101	0.64%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	98	0.62%

## Appendix 4. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Forestiera pubescens</i>	Elbowbush	Browse	97	0.61%
<i>Aster ericoides</i>	Heath Aster	Forb	95	0.60%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	92	0.58%
<i>Cyperus sp.</i>	Flatsedge	Sedge	86	0.54%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	84	0.53%
<i>Croton capitatus</i>	Woolly Croton	Forb	82	0.52%
<i>Yucca sp.</i>	Yucca	Browse	82	0.52%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	80	0.51%
<i>Xanthocephalum sarothrae</i>	Broomweed	Forb	71	0.45%
<i>Lepidium densiflorum</i>	Peppergrass	Forb	62	0.39%
<i>Krameria lanceolata</i>	Ratany	Forb	61	0.39%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	60	0.38%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	59	0.37%
<i>Berberis trifoliolata</i>	Agarito	Browse	54	0.34%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	51	0.32%
<i>Salix nigra</i>	Black Willow	Browse	50	0.32%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	48	0.30%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	48	0.30%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	48	0.30%
<i>Smilax bona-nox</i>	Greenbriar	Browse	47	0.30%
<i>Acacia greggii</i>	Catclaw	Browse	46	0.29%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	44	0.28%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	43	0.27%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	42	0.27%
<i>Chamaesyce maculata</i>	Creeping Spurge	Forb	42	0.27%
<i>Linum pratense</i>	Meadow Flax	Forb	42	0.27%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	42	0.27%
<i>Vernonia sp.</i>	Ironweed	Forb	41	0.26%
<i>Yucca constricta</i>	Yucca	Browse	40	0.25%
<i>Chloris verticillata</i>	Tumble Windmillgrass	Grass	39	0.25%
<i>Chamaesyce lata</i>	Creeping Spurge	Forb	38	0.24%
<i>Pyrhopappus multicaulis</i>	Texas Dandelion	Forb	37	0.23%
<i>Eleocharis sp.</i>	Spike Sedge	Sedge	35	0.22%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	35	0.22%
<i>Anemone heterophylla</i>	Wind-flower	Forb	34	0.22%
<i>Desmanthus velutinus</i>	Bundleflower	Forb	34	0.22%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	34	0.22%
<i>Sida filicaulis</i>	Sida	Forb	34	0.22%
<i>Geranium texanum</i>	Texas Geranium	Forb	33	0.21%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	32	0.20%

## Appendix 4. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Hordeum pusillum</i>	Little Barley	Grass	32	0.20%
<i>Berberis trifoliolata</i>	Agarito	Mast	29	0.18%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	29	0.18%
<i>Grindelia papposa</i>	Gumweed	Forb	29	0.18%
<i>Lithospermum incisum</i>	Puccoon	Forb	29	0.18%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	29	0.18%
<i>Plantago sp.</i>	Plantain	Forb	28	0.18%
<i>Robina pseudoacacia</i>	Black Locust	Mast	28	0.18%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	28	0.18%
<i>Pomaria jamesii</i>	James Rush Pea	Forb	27	0.17%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	26	0.16%
<i>Cirsium texanum</i>	Texas Thistle	Forb	26	0.16%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	26	0.16%
<i>Tridens albescens</i>	White Tridens	Grass	26	0.16%
<i>Erioneuron pilosum</i>	Hairy Tridens	Grass	24	0.15%
<i>Melilotus albus</i>	White Sweet Clover	Forb	24	0.15%
<i>Schrankia sp.</i>	Sensitive-briar	Forb	24	0.15%
<i>Talinum aurantiacum</i>	Orange Flameflower	Forb	24	0.15%
<i>Cucurbita foetidissima</i>	Buffalo Gourd	Forb	23	0.15%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	22	0.14%
<i>Triodanis perfoliata</i>	Venus' Looking Glass	Forb	22	0.14%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	21	0.13%
<i>Mimosa strigillosa</i>	Powderpuff	Forb	21	0.13%
<i>Parthenium hysterophorus</i>	False Ragweed	Forb	21	0.13%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	21	0.13%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	21	0.13%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	20	0.13%
Lamiaceae	Mint	Forb	19	0.12%
<i>Panicum hallii</i>	Hall's Panicum	Grass	19	0.12%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	19	0.12%
<i>Sorghastrum nutans</i>	Yellow Indiangrass	Grass	19	0.12%
<i>Hybanthus verticillatus</i>	Green Violet	Forb	18	0.11%
<i>Schrankia uncinata</i>	Sensitivebriar	Forb	18	0.11%
<i>Lepidium virginicum</i>	Peppergrass	Forb	17	0.11%
<i>Aloysia gratissima</i>	Whitebrush	Browse	16	0.10%
<i>Maclura pomifera</i>	Osage Orange	Mast	16	0.10%
<i>Salsola kali</i>	Russian Olive	Browse	16	0.10%
<i>Senna pumilio</i>	Dwarf Senna	Forb	16	0.10%
<i>Thelesperma filifolium</i>	Greenthread	Forb	16	0.10%
<i>Dalea frutescens</i>	Black Dalea	Browse	15	0.09%

## Appendix 4. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Diospyros texana</i>	Persimmon	Browse	15	0.09%
<i>Hilaria belangeri</i>	Curly Mesquite	Grass	15	0.09%
<i>Linum rupestre</i>	Rock Flax	Forb	15	0.09%
<i>Physalis longifolia</i>	Common Ground Cherry	Forb	15	0.09%
<i>Aphanostephus skirrhobasis</i>	Lazy Daisy	Forb	14	0.09%
<i>Linum rigidum</i>	Flax	Forb	14	0.09%
<i>Colubrina texensis</i>	Hog-plum	Browse	13	0.08%
<i>Croton sp.</i>	Croton	Forb	13	0.08%
<i>Fabaceae</i>	Legume Family	Supplemental/Crop	13	0.08%
<i>Croton fruticulosus</i>	Croton	Forb	12	0.08%
<i>Dalea lanata</i>	Wooly Dalea	Forb	12	0.08%
<i>Phyllanthus polygonoides</i>	Leaf-flower	Forb	12	0.08%
<i>Rhus aromatica</i>	Skunkbush	Mast	12	0.08%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	11	0.07%
<i>Convolvulus equitans</i>	Texas Bindweed	Forb	11	0.07%
<i>Equisetum hymale</i>	Horsetail	Forb	11	0.07%
<i>Machaeranthera pinnatifida</i>	Yellow Spiny Daisy	Forb	11	0.07%
<i>Monarda citriodora</i>	Horsemint	Forb	11	0.07%
<i>Dracopis amplexicaulis</i>	Clasping Coneflower	Forb	10	0.06%
<i>Chamaesaracha sp.</i>	False Nightshade	Forb	9	0.06%
<i>Cirsium undulatum</i>	Plumed Thistle	Forb	9	0.06%
<i>Eriochloa sericea</i>	Texas Cupgrass	Grass	9	0.06%
<i>Maclura pomifera</i>	Osage Orange	Browse	9	0.06%
<i>Phytolacca americana</i>	Pokeweed	Forb	9	0.06%
<i>Rhus lanceolata</i>	Flame-leaf Sumac	Browse	9	0.06%
<i>Amaranthus sp.</i>	Pigweed	Forb	8	0.05%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	8	0.05%
<i>Aristida wrightii</i>	Wright's Three-awn	Grass	8	0.05%
<i>Fabaceae</i>	Legume Family	Browse	8	0.05%
<i>Gleditsia triacanthos</i>	Honey Locust	Browse	8	0.05%
<i>Verbena canescens</i>	Gray Vervain	Forb	8	0.05%
<i>Chamaesyce geyeri</i>	Creeping Spurge	Forb	7	0.04%
<i>Chloris cucullata</i>	Hooded Windmillgrass	Grass	7	0.04%
<i>Conyza canadensis</i>	Mare's Tail	Forb	7	0.04%
<i>Grindelia microcephala</i>	Gumweed	Forb	7	0.04%
<i>Hoffmannseggia glauca</i>	Hog Potato	Forb	7	0.04%
<i>Mentzelia nuda</i>	Sand Lily	Forb	7	0.04%
<i>Scutellaria wrightii</i>	Bushy Skullcap	Forb	7	0.04%
<i>Tridens muticus</i>	Slim Tridens	Grass	7	0.04%
<i>Aster subulatus</i>	Slim Aster	Forb	6	0.04%

## Appendix 4. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Dyssodia pentachaeta</i>	Parralena	Forb	6	0.04%
<i>Fabaceae</i>	Legume Family	Forb	6	0.04%
<i>Heterotheca latifolia</i>	Camphorweed	Forb	6	0.04%
<i>Medicago minima</i>	Small Bur Clover	Forb	6	0.04%
<i>Teucrium lacinatedum</i>	Cut-leaf Germander	Forb	6	0.04%
<i>Amblyolepis setigera</i>	Huisache-daisy	Forb	5	0.03%
<i>Gaillardia pulchella</i>	Firewheel	Forb	5	0.03%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	5	0.03%
<i>Physalis cinarescens</i>	Yellow Ground Cherry	Forb	5	0.03%
<i>Sibara virginica</i>	Virginia Sibara	Forb	5	0.03%
<i>Trifolium sp.</i>	Clover	Forb	5	0.03%
<i>Acacia roemeriana</i>	Catclaw	Browse	4	0.03%
<i>Dithyrea wislizeni</i>	Spectacle Pod	Forb	4	0.03%
<i>Ephedra antisiphilitica</i>	Ephedra	Browse	4	0.03%
<i>Melilotus indicus</i>	Sour Clover	Forb	4	0.03%
<i>Phyla incisa</i>	Frog-fruit	Forb	4	0.03%
<i>Astragalus nuttallianus</i>	Nuttall's Milk-Vetch	Forb	3	0.02%
<i>Bouteloua hirsuta</i>	Hairy Grama	Grass	3	0.02%
<i>Dalea purpurea</i>	Purple Prairie-clover	Forb	3	0.02%
<i>Forestiera pubescens</i>	Elbowbush	Mast	3	0.02%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	2	0.01%
<i>Artemisia ludoviciana</i>	Louisiana Sagewort	Forb	2	0.01%
<i>Asclepias sp.</i>	Milkweed	Forb	2	0.01%
<i>Centaurium texense</i>	Lady Bird's Centaury	Forb	2	0.01%
<i>Draba cunefolia</i>	Whitlow-grass	Forb	2	0.01%
<i>Gnaphalium stramineum</i>	Cudweed	Forb	2	0.01%
<i>Heterotheca canescens</i>	Gray Golden Aster	Forb	2	0.01%
<i>Liatris punctata</i>	Gayfeather	Forb	2	0.01%
<i>Vitis sp.</i>	Grape	Mast	2	0.01%
<i>Brassica sp.</i>	Mustard	Forb	1	0.01%
<i>Dyschoriste linearis</i>	Snake Herb	Forb	1	0.01%
<i>Torilis arvensis</i>	Beggar's Lice	Forb	1	0.01%
<i>Vulpia octoflora</i>	Common Sixweeks Grass	Grass	1	0.01%
UB	Unknown Browse	Browse	46	0.29%
UF	Unknown Forb	Forb	76	0.48%
UG	Unknown Grass	Grass	114	0.72%

## Appendix 4. Continued.

<i>Scientific Name</i>	Common Name	Forage Class	# of hits	Percent Frequency
		<b>TOTALS</b>		
		Forb	5946	37.63%
		Browse	4552	28.81%
		Grass	3041	19.25%
		Mast	1610	10.19%
		Supplemental/Crop	530	3.35%
		Sedge	121	0.77%

Appendix 5. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in 1999-2001. The percent frequency is based on a total of 31,700 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Bromus japonicus</i>	Japanese Brome	Grass	2896	9.14%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	2393	7.55%
<i>Quercus havardii</i>	Shin Oak	Browse	1838	5.80%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	1653	5.21%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	1163	3.67%
<i>Rhus aromatica</i>	Skunkbush	Browse	1066	3.36%
<i>Commelina erecta</i>	Dayflower	Forb	1007	3.18%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	696	2.20%
<i>Erodium texanum</i>	Storksbill	Forb	656	2.07%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	608	1.92%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	579	1.83%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	550	1.74%
<i>Zea mays</i>	Corn	Supplemental/Crop	474	1.50%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	452	1.43%
<i>Quercus havardii</i>	Shin Oak	Mast	418	1.32%
<i>Allium drummondii</i>	Wild Onion	Forb	406	1.28%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	387	1.22%
<i>Celtis reticulata</i>	Hackberry	Browse	382	1.21%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	364	1.15%
<i>Bromus unioloides</i>	Rescuegrass	Grass	343	1.08%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	329	1.04%
<i>Ephedra antispyhilitica</i>	Ephedra	Browse	326	1.03%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	313	0.99%
<i>Gaura parviflora</i>	Lizard-tail	Forb	292	0.92%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	270	0.85%
<i>Maclura pomifera</i>	Osage Orange	Mast	252	0.79%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	249	0.79%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	242	0.76%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	234	0.74%
<i>Krameria lanceolata</i>	Ratany	Forb	230	0.73%
<i>Salix nigra</i>	Black Willow	Browse	225	0.71%
<i>Sorghum bicolor</i>	Milo	Supplemental/Crop	218	0.69%
<i>Siphonoglossa pilosella</i>	Hairy Tuber tongue	Forb	217	0.68%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	215	0.68%
<i>Eragrostis sp.</i>	Lovegrass	Grass	195	0.62%
<i>Forestiera pubescens</i>	Elbowbush	Browse	189	0.60%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	186	0.59%

## Appendix 5. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Yucca constricta</i>	Yucca	Browse	185	0.58%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	185	0.58%
<i>Vitis sp.</i>	Grape	Browse	182	0.57%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	175	0.55%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	164	0.52%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	159	0.50%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	157	0.50%
<i>Smilax bona-nox</i>	Greenbriar	Browse	156	0.49%
<i>Chamaesyce sp.</i>	Creeping Spurge	Forb	153	0.48%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	150	0.47%
<i>Aster ericoides</i>	Heath aster	Forb	140	0.44%
<i>Nothoscordum bivalve</i>	Crow Poison	Forb	138	0.44%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	137	0.43%
<i>Monarda punctata</i>	Spotted Beebalm	Forb	134	0.42%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	128	0.40%
<i>Cyperus sp.</i>	Flatsedge	Sedge	125	0.39%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	123	0.39%
<i>Prunus rivularis</i>	Creek Plum	Browse	121	0.38%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	120	0.38%
<i>Calylophus berlandieri</i>	Evening Primrose	Forb	119	0.38%
<i>Chamaesyce serpens</i>	Mateuphorbia	Forb	119	0.38%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	115	0.36%
<i>Erodium cicutarium</i>	Filaree	Forb	109	0.34%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	108	0.34%
<i>Dicanthelium oligosanthos</i>	Scribner's Dicanthelium	Grass	102	0.32%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	101	0.32%
<i>Robina pseudoacacia</i>	Black Locust	Mast	98	0.31%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	95	0.30%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	94	0.30%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	89	0.28%
<i>Allium sp.</i>	Wild Onion	Forb	87	0.27%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	85	0.27%
<i>Yucca sp.</i>	Yucca	Browse	84	0.26%
<i>Croton capitatus</i>	Woolly Croton	Forb	82	0.26%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	79	0.25%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	75	0.24%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	71	0.22%
<i>Xanthocephalum sarothrae</i>	Broomweed	Forb	71	0.22%
<i>Rhus aromatica</i>	Skunkbush	Mast	69	0.22%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	68	0.21%



## Appendix 5. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Lepidium densiflorum</i>	Peppergrass	Forb	67	0.21%
<i>Diospyros texana</i>	Persimmon	Browse	65	0.21%
<i>Schrankia</i> sp.	Sensitivebriar	Forb	62	0.20%
<i>Verbesina</i> sp.	Crownbeard	Forb	62	0.20%
<i>Lepidium virginicum</i>	Peppergrass	Forb	60	0.19%
<i>Tridens muticus</i>	Slim Tridens	Grass	60	0.19%
<i>Acacia greggii</i>	Catclaw	Browse	58	0.18%
<i>Sida filicaulis</i>	Sida	Forb	58	0.18%
<i>Juncus</i> sp.	Rush	Sedge	57	0.18%
<i>Poa arachnifera</i>	Texas Bluegrass	Grass	57	0.18%
<i>Strophostyles leiosperma</i>	Wild Trailing Bean	Forb	57	0.18%
<i>Berberis trifoliolata</i>	Agarito	Browse	54	0.17%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	53	0.17%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	51	0.16%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	51	0.16%
<i>Panicum hallii</i>	Hall's Panicum	Grass	50	0.16%
<i>Eleocharis</i> sp.	Spiked sedge	Sedge	49	0.15%
<i>Linum pratense</i>	Meadow Flax	Forb	49	0.15%
<i>Plantago</i> sp.	Plantain	Forb	48	0.15%
<i>Lolium perenne</i>	Ryegrass	Grass	47	0.15%
<i>Bouteloua</i> sp.	Gramma	Grass	45	0.14%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	45	0.14%
<i>Acacia roemeriana</i>	Catclaw	Browse	44	0.14%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	44	0.14%
<i>Arachis hypogaea</i>	Peanut	Supplemental/Crop	43	0.14%
<i>Chamaesyce maculata</i>	Creeping Spurge	Forb	42	0.13%
<i>Fabaceae</i>	Legume Family	Forb	41	0.13%
<i>Vernonia</i> sp.	Ironweed	Forb	41	0.13%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	40	0.13%
<i>Tridens albescens</i>	White Tridens	Grass	40	0.13%
<i>Chloris verticillata</i>	Tumble Windmillgrass	Grass	39	0.12%
<i>Chamaesyce lata</i>	Creeping Spurge	Forb	38	0.12%
<i>Linum rupestre</i>	Rock Flax	Forb	38	0.12%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	37	0.12%
<i>Hordeum pusillum</i>	Little Barley	Grass	37	0.12%
<i>Pyrrhopappus multicaulis</i>	Texas Dandelion	Forb	37	0.12%
<i>Scutellaria laterifolia</i>	Skullcap	Forb	37	0.12%
<i>Phytolacca americana</i>	Pokeweed	Forb	36	0.11%
<i>Bromus</i> sp.	Brome	Grass	35	0.11%
<i>Desmanthus</i> sp.	Bundleflower	Forb	35	0.11%

## Appendix 5. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Physalis cinarens</i>	Yellow Ground-cherry	Forb	35	0.11%
<i>Anemone heterophylla</i>	Wind-flower	Forb	34	0.11%
<i>Desmanthus velutinus</i>	Bundleflower	Forb	34	0.11%
<i>Dalea sp.</i>	Dalea	Forb	33	0.10%
<i>Geranium texanum</i>	Texas Geranium	Forb	33	0.10%
<i>Hymenoxys linearifolia</i>	Bitterweed	Forb	33	0.10%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	32	0.10%
<i>Eragrostis trichodes</i>	Sand Lovegrass	Grass	31	0.10%
<i>Berberis trifoliolata</i>	Agarito	Mast	29	0.09%
<i>Grindelia papposa</i>	Gumweed	Forb	29	0.09%
<i>Lithospermum incisum</i>	Puccoon	Forb	29	0.09%
<i>Ratibida columnaris</i>	Mexican Hat	Forb	29	0.09%
<i>Xanthocephalum sp.</i>	Broomweed	Forb	29	0.09%
<i>Aristida sp.</i>	Three-awn	Grass	28	0.09%
<i>Pomaria jamesii</i>	James Rush Pea	Forb	27	0.09%
<i>Cirsium texanum</i>	Texas Thistle	Forb	26	0.08%
<i>Lepidium sp.</i>	Peppergrass	Forb	26	0.08%
<i>Maclura pomifera</i>	Osage Orange	Browse	26	0.08%
<i>Sorghastrum nutans</i>	Yellow Indiangrass	Grass	26	0.08%
<i>Astragalus sp.</i>	Milk-vetch	Forb	25	0.08%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	24	0.08%
<i>Erioneuron pilosum</i>	Hairy Tridens	Grass	24	0.08%
<i>Melilotus albus</i>	White Sweet Clover	Forb	24	0.08%
<i>Talinum aurantiacum</i>	Orange Flameflower	Forb	24	0.08%
<i>Abutilon sp.</i>	Indian-mallow	Forb	23	0.000726
<i>Cucurbita foetidissima</i>	Buffalo Gourd	Forb	23	0.07%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	23	0.07%
<i>Triodanis perfoliata</i>	Venus' Looking Glass	Forb	22	0.07%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	21	0.07%
<i>Lamiaceae</i>	Mint Family	Forb	21	0.07%
<i>Mimosa strigillosa</i>	Powderpuff	Forb	21	0.07%
<i>Morus sp.</i>	Mulberry	Browse	21	0.07%
<i>Parthenium hysterophorus</i>	False Ragweed	Forb	21	0.07%
<i>Panicum sp.</i>	Panic Grass	Grass	20	0.06%
<i>Schrankia uncinata</i>	Sensitivebriar	Forb	20	0.06%
<i>Linum sp.</i>	Flax	Forb	19	0.06%
<i>Malvastrum aurantiacum</i>	False Mallow	Forb	19	0.06%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Mast	18	0.06%
<i>Croton sp.</i>	Croton	Forb	18	0.06%
<i>Hybanthus verticillatus</i>	Green Violet	Forb	18	0.06%

## Appendix 5. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Aloysia gratissima</i>	Whitebrush	Browse	16	0.05%
<i>Equisetum hyemale</i>	Horsetail	Forb	16	0.05%
<i>Gaura</i> sp.	Gaura	Forb	16	0.05%
<i>Prunus rivularis</i>	Creek Plum	Mast	16	0.05%
<i>Salsola kali</i>	Russian Olive	Browse	16	0.05%
<i>Senna pumilio</i>	Dwarf Senna	Forb	16	0.05%
<i>Thelesperma filifolium</i>	Greenthread	Forb	16	0.05%
<i>Amaranthus</i> sp.	Pigweed	Forb	15	0.05%
<i>Dalea frutescens</i>	Black Dalea	Browse	15	0.05%
<i>Hilaria belangeri</i>	Curly Mesquite	Grass	15	0.05%
<i>Physalis longifolia</i>	Common Ground Cherry	Forb	15	0.05%
<i>Aphanostephus skirrhobasis</i>	Lazy Daisy	Forb	14	0.04%
<i>Aster oblongifolius</i>	Aster	Forb	14	0.04%
<i>Linum rigidum</i>	Flax	Forb	14	0.04%
<i>Malva</i> sp.	Mallow	Forb	14	0.04%
<i>Scutellaria wrightii</i>	Bushy Skullcap	Forb	14	0.04%
<i>Verbena canescens</i>	Gray Vervain	Forb	14	0.04%
<i>Colubrina texensis</i>	Hog-plum	Browse	13	0.04%
<i>Fabaceae</i>	Legume Family	Browse	13	0.04%
<i>Fabaceae</i>	Legume Family	Supplemental/Crop	13	0.04%
<i>Gleditsia triacanthos</i>	Honey Locust	Browse	13	0.04%
<i>Indigofera miniata</i>	Scarlet-pea	Forb	13	0.04%
<i>Croton fruticulosus</i>	Croton	Forb	12	0.04%
<i>Dalea lanata</i>	Wooly Dalea	Forb	12	0.04%
<i>Malvaceae</i>	Mallow Family	Forb	12	0.04%
<i>Phyllanthus polygonoides</i>	Leaf-flower	Forb	12	0.04%
<i>Convolvulus equitans</i>	Texas Bindweed	Forb	11	0.03%
<i>Conyza canadensis</i>	Mare's Tail	Forb	11	0.03%
<i>Machaeranthera pinnatifida</i>	Yellow Spiny Daisy	Forb	11	0.03%
<i>Marsilea macropoda</i>	Water-clover	Forb	11	0.03%
<i>Monarda citriodora</i>	Horsemint	Forb	11	0.03%
<i>Toxicodendron radicans</i>	Poison-ivy	Mast	11	0.03%
<i>Chloris cucullata</i>	Hooded Windmillgrass	Grass	10	0.03%
<i>Dracopis amplexicaulis</i>	Clasping Coneflower	Forb	10	0.03%
<i>Dyssodia pentachaeta</i>	Parralena	Forb	10	0.03%
<i>Hermannia texana</i>	Mexican Mallow	Forb	10	0.03%
<i>Andropogon hallii</i>	Sand Bluestem	Grass	9	0.03%
<i>Chamaesaracha</i> sp.	False Nightshade	Forb	9	0.03%
<i>Cirsium undulatum</i>	Plumed Thistle	Forb	9	0.03%
<i>Eriochloa sericea</i>	Texas Cupgrass	Grass	9	0.03%

## Appendix 5. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Rhus lanceolata</i>	Flame-leaf Sumac	Browse	9	0.03%
<i>Aristida wrightii</i>	Wright's Three-awn	Grass	8	0.03%
<i>Dyschoriste linearis</i>	Snake Herb	Forb	8	0.03%
<i>Grindelia nuda</i>	Gumweed	Forb	8	0.03%
<i>Verbena sp.</i>	Vervain	Forb	8	0.03%
<i>Chamaesyce geyeri</i>	Creeping Spurge	Forb	7	0.02%
<i>Crataegus sp.</i>	Hawthorn	Browse	7	0.02%
<i>Grindelia microcephala</i>	Gumweed	Forb	7	0.02%
<i>Hoffmannseggia glauca</i>	Hog Potato	Forb	7	0.02%
<i>Mentzelia nuda</i>	Sand Lily	Forb	7	0.02%
<i>Ulmus crassifolia</i>	Cedar Elm	Browse	7	0.02%
<i>Ambrosia trifida</i>	Giant Ragweed	Forb	6	0.02%
<i>Aster subulatus</i>	Slim Aster	Forb	6	0.02%
<i>Celtis laevigata</i>	Sugarberry	Browse	6	0.02%
<i>Heterotheca latifolia</i>	Camphorweed	Forb	6	0.02%
<i>Liatris mucronata</i>	Gayfeather	Forb	6	0.02%
<i>Medicago minima</i>	Small Bur Clover	Forb	6	0.02%
<i>Teucrium lacinatedum</i>	Cut-leaf Germander	Forb	6	0.02%
<i>Amblyolepis setigera</i>	Huisache-daisy	Forb	5	0.02%
<i>Asteraceae</i>	Sunflower Family	Forb	5	0.02%
<i>Brassicaceae</i>	Mustard Family	Forb	5	0.02%
<i>Gaillardia pulchella</i>	Firewheel	Forb	5	0.02%
<i>Heterotheca canescens</i>	Gray Golden Aster	Forb	5	0.02%
<i>Lesquerella sp.</i>	Bladderpod	Forb	5	0.02%
<i>Mimosa sp.</i>	Catclaw	Browse	5	0.02%
<i>Sibara virginica</i>	Virginia Sibara	Forb	5	0.02%
<i>Toxicodendron radicans</i>	Poison-ivy	Browse	5	0.02%
<i>Trifolium sp.</i>	Clover	Forb	5	0.02%
<i>Wedelia texana</i>	Orange Zexmenia	Forb	5	0.02%
<i>Acacia sp.</i>	Acacia	Browse	4	0.01%
<i>Argythamnia sp.</i>	Wild Mercury	Forb	4	0.01%
<i>Aster sp.</i>	Aster	Forb	4	0.01%
<i>Bouteloua rigidiseta</i>	Texas Grama	Grass	4	0.01%
<i>Croton monanthogynus</i>	Croton	Forb	4	0.01%
<i>Dithyrea wislizeni</i>	Spectacle Pod	Forb	4	0.01%
<i>Melilotus indicus</i>	Sour Clover	Forb	4	0.01%
<i>Phyla incisa</i>	Frog-fruit	Forb	4	0.01%
<i>Rubus sp.</i>	Dewberry	Browse	4	0.01%
<i>Senna sp.</i>	Senna	Forb	4	0.01%
<i>Astragalus nuttallianus</i>	Nuttall's Milk-Vetch	Forb	3	0.01%

## Appendix 5. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Bouteloua hirsuta</i>	Hairy Grama	Grass	3	0.01%
<i>Cyperaceae</i>	Sedge Family	Sedge	3	0.01%
<i>Dalea purpurea</i>	Purple Prairie-clover	Forb	3	0.01%
<i>Euphorbiaceae</i>	Spurge Family	Forb	3	0.01%
<i>Forestiera pubescens</i>	Elbowbush	Mast	3	0.01%
<i>Helianthus sp.</i>	Sunflower	Forb	3	0.01%
<i>Scrophulariaceae</i>	Figwort Family	Forb	3	0.01%
<i>Artemisia ludoviciana</i>	Louisiana Sagewort	Forb	2	0.01%
<i>Asclepias sp.</i>	Milkweed	Forb	2	0.01%
<i>Carex sp.</i>	Sedge	Sedge	2	0.01%
<i>Centaureum texense</i>	Lady Bird's Centaury	Forb	2	0.01%
<i>Cephalanthus occidentalis</i>	Buttonbush	Browse	2	0.01%
<i>Chamaecrista sp.</i>	Partridge Pea	Forb	2	0.01%
<i>Draba cunefolia</i>	Whitlow-grass	Forb	2	0.01%
<i>Galium sp.</i>	Bedstraw	Forb	2	0.01%
<i>Gnaphalium stramineum</i>	Cudweed	Forb	2	0.01%
<i>Liatris punctata</i>	Gayfeather	Forb	2	0.01%
<i>Vitis sp.</i>	Grape	Mast	2	0.01%
<i>Achillea millifolium</i>	Yarrow	Forb	1	0.00%
<i>Baccharis sp.</i>	Baccharis	Browse	1	0.00%
<i>Brassica sp.</i>	Mustard	Forb	1	0.00%
<i>Chamaesaracha sordida</i>	False Nightshade	Forb	1	0.00%
<i>Chenopodiaceae</i>	Goosefoot Family	Forb	1	0.00%
<i>Geranium carolinianum</i>	Wild Geranium	Forb	1	0.00%
<i>Physalis sp.</i>	Ground Cherry	Forb	1	0.00%
<i>Torilis arvensis</i>	Beggar's Lice	Forb	1	0.00%
<i>Vulpia octoflora</i>	Common Sixweeks Grass	Grass	1	0.00%
UG	Unknown Grass	Grass	327	1.03%
UF	Unknown Forb	Forb	242	0.76%
UB	Unknown Browse	Browse	134	0.42%
Unknown	Unknown	Unknown	19	0.06%
		<b>TOTALS</b>		
		Browse	9598	30.28%
		Forb	8884	28.03%
		Grass	6109	19.27%
		Mast	5556	17.53%
		Supplemental/Crop	1298	4.09%
		Sedge	236	0.74%
		Unknown	19	0.06%

Appendix 6. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in fall 1999. The percent frequency is based on a total of 3,900 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	561	14.38%
<i>Bromus japonicus</i>	Japanese Brome	Grass	408	10.46%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	393	10.08%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	254	6.51%
<i>Rhus aromatica</i>	Skunkbush	Browse	239	6.13%
<i>Quercus havardii</i>	Sand Shin Oak	Mast	209	5.36%
<i>Sorghum bicolor</i>	Milo	Supplemental/Crop	194	4.97%
<i>Maclura pomifera</i>	Osage Orange	Mast	185	4.74%
<i>Quercus havardii</i>	Shin Oak	Browse	93	2.38%
<i>Smilax bona-nox</i>	Greenbriar	Browse	72	1.85%
<i>Robina pseudoacacia</i>	Black Locust	Mast	70	1.79%
<i>Verbesina sp.</i>	Crownbeard	Forb	62	1.59%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	57	1.46%
<i>Juncus sp.</i>	Rush	Sedge	57	1.46%
<i>Tridens muticus</i>	Slim Tridens	Grass	53	1.36%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	49	1.26%
<i>Lolium perenne</i>	Ryegrass	Grass	47	1.21%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	46	1.18%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	43	1.10%
<i>Arachis hypogaea</i>	Peanut	Supplemental/Crop	43	1.10%
<i>Diospyros texana</i>	Persimmon	Browse	35	0.90%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	32	0.82%
<i>Bromus sp.</i>	Brome	Grass	29	0.74%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	25	0.64%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	22	0.56%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	21	0.54%
<i>Zea mays</i>	Corn	Supplemental/Crop	21	0.54%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	17	0.44%
<i>Astragalus sp.</i>	Milk-vetch	Forb	14	0.36%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	14	0.36%
<i>Cyperus sp.</i>	Flatsedge	Sedge	14	0.36%
<i>Eleocharis sp.</i>	Spiked sedge	Sedge	14	0.36%
<i>Hymenoxys linearifolia</i>	Bitterweed	Forb	10	0.26%
<i>Andropogon hallii</i>	Sand Bluestem	Grass	9	0.23%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	8	0.21%
<i>Malvaceae</i>	Mallow	Forb	8	0.21%
<i>Verbena sp.</i>	Vervain	Forb	8	0.21%
<i>Erodium texanum</i>	Storcksbill	Forb	7	0.18%
<i>Ambrosia trifida</i>	Giant Ragweed	Forb	6	0.15%

## Appendix 6. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Sida filicaulis</i>	Sida	Forb	6	0.15%
<i>Fabaceae</i>	Legume Family	Browse	5	0.13%
<i>Asteraceae</i>	Sunflower Family	Forb	5	0.13%
<i>Wedelia texana</i>	Orange Zexmenia	Forb	5	0.13%
<i>Hordeum pusillum</i>	Little Barley	Grass	5	0.13%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	4	0.10%
<i>Croton sp.</i>	Croton	Forb	4	0.10%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	4	0.10%
<i>Bouteloua rigidisetia</i>	Texas Grama	Grass	4	0.10%
<i>Celtis reticulata</i>	Hackberry	Browse	3	0.08%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	3	0.08%
<i>Plantago sp.</i>	Plantain	Forb	3	0.08%
<i>Cyperaceae</i>	Sedge Family	Sedge	3	0.08%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	2	0.05%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	2	0.05%
<i>Euphorbiaceae</i>	Spurge Family	Forb	2	0.05%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	2	0.05%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	2	0.05%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	2	0.05%
<i>Panicum sp.</i>	Panicum	Grass	2	0.05%
<i>Carex sp.</i>	Sedge	Sedge	2	0.05%
<i>Baccharis sp.</i>	Baccharis	Browse	1	0.03%
<i>Salix nigra</i>	Black Willow	Browse	1	0.03%
<i>Chamaesaracha sordida</i>	False Nightshade	Forb	1	0.03%
<i>Chenopodiaceae</i>	Goosefoot Family	Forb	1	0.03%
<i>Geranium carolinianum</i>	Wild Geranium	Forb	1	0.03%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	1	0.03%
<i>Lepidium virginicum</i>	Peppergrass	Forb	1	0.03%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	1	0.03%
UG	Unknown Grasses	Grass	195	5.00%
UF	Unknown Forbs	Forb	91	2.33%
UB	Unknown Browse	Browse	68	1.74%
Unknown	Unknown	Unknown	19	0.49%
		<b>TOTALS</b>		
		Mast	1464	37.54%
		Grass	929	23.82%
		Browse	891	22.85%
		Supplemental/Crop	258	6.62%
		Forb	249	6.38%
		Sedge	90	2.31%
		Unknown	19	0.49%

Appendix 7. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in winter 2000. The percent frequency is based on a total of 4,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Bromus japonicus</i>	Japanese Brome	Grass	1118	27.95%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	351	8.78%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	347	8.68%
<i>Ephedra antispyhilitica</i>	Ephedra	Browse	251	6.28%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	221	5.53%
<i>Eragrostis sp.</i>	Lovegrass	Grass	195	4.88%
<i>Zea mays</i>	Corn	Supplemental/Crop	166	4.15%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	155	3.88%
<i>Quercus havardii</i>	Sand Shin Oak	Browse	142	3.55%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	105	2.63%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	72	1.80%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	70	1.75%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	65	1.63%
<i>Rhus aromatica</i>	Skunkbush	Browse	60	1.50%
<i>Poa arachnifera</i>	Texas Bluegrass	Grass	57	1.43%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	53	1.33%
<i>Quercus havardii</i>	Sand Shin Oak	Mast	44	1.10%
<i>Forestiera pubescens</i>	Elbowbush	Browse	37	0.93%
<i>Maclura pomifera</i>	Osage Orange	Mast	37	0.93%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	36	0.90%
<i>Eragrostis trichodes</i>	Sand Lovegrass	Grass	31	0.78%
<i>Panicum hallii</i>	Hall's Panicum	Grass	28	0.70%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	27	0.68%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	27	0.68%
<i>Lepidium sp.</i>	Peppergrass	Forb	26	0.65%
<i>Bouteloua sp.</i>	Grama	Grass	24	0.60%
<i>Sorghum bicolor</i>	Milo	Supplemental/Crop	24	0.60%
<i>Yucca constricta</i>	Yucca	Browse	21	0.53%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	20	0.50%
<i>Smilax bona-nox</i>	Greenbriar	Browse	19	0.48%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	15	0.38%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	14	0.35%
<i>Celtis reticulata</i>	Hackberry	Browse	13	0.33%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	11	0.28%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	9	0.23%
<i>Fabaceae</i>	Legume Family	Forb	8	0.20%
<i>Salix nigra</i>	Black Willow	Browse	7	0.18%
<i>Diospyros texana</i>	Persimmon	Browse	6	0.15%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	6	0.15%



## Appendix 7. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Sida filicaulis</i>	Sida	Forb	6	0.15%
<i>Bromus sp.</i>	Brome	Grass	6	0.15%
<i>Lepidium densiflorum</i>	Peppergrass	Forb	5	0.13%
<i>Croton monanthogynus</i>	Croton	Forb	4	0.10%
<i>Malvaceae</i>	Mallow Family	Forb	4	0.10%
<i>Cyperus sp.</i>	Flatsedge	Sedge	4	0.10%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	2	0.05%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	2	0.05%
<i>Chamaecrista sp.</i>	Partridge Pea	Forb	2	0.05%
<i>Erodium texanum</i>	Storksbill	Forb	2	0.05%
<i>Krameria lanceolata</i>	Ratany	Forb	2	0.05%
<i>Linum sp.</i>	Flax	Forb	2	0.05%
<i>Plantago sp.</i>	Plantain	Forb	2	0.05%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	2	0.05%
<i>Croton sp.</i>	Croton	Forb	1	0.03%
UG	Unknown Grass	Grass	16	0.40%
UF	Unknown Forb	Forb	14	0.35%
UB	Unknown Browse	Browse	6	0.15%
		<b>TOTALS</b>		
		Grass	1637	40.93%
		Browse	1041	26.03%
		Mast	794	19.85%
		Supplemental/Crop	411	10.28%
		Forb	113	2.83%
		Sedge	4	0.10%

Appendix 8. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in spring 2000. The percent frequency is based on a total of 4,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Commelina erecta</i>	Dayflower	Forb	338	8.45%
<i>Rhus aromatica</i>	Skunkbush	Browse	269	6.73%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	229	5.73%
<i>Krameria lanceolata</i>	Ratany	Forb	167	4.18%
<i>Celtis reticulata</i>	Hackberry	Browse	137	3.43%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	123	3.08%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	117	2.93%
<i>Quercus havardii</i>	Shin Oak	Browse	112	2.80%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	110	2.75%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	104	2.60%
<i>Prunus rivularis</i>	Creek Plum	Browse	102	2.55%
<i>Yucca constricta</i>	Yucca	Browse	94	2.35%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	91	2.28%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	87	2.18%
<i>Allium sp.</i>	Wild onion	Forb	87	2.18%
<i>Zea mays</i>	Corn	Supplemental/Crop	74	1.85%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	72	1.80%
<i>Ephedra antisiphilitica</i>	Ephedra	Browse	66	1.65%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	60	1.50%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	57	1.43%
<i>Rhus aromatica</i>	Skunkbush	Mast	57	1.43%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	54	1.35%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	53	1.33%
<i>Bromus japonicus</i>	Japanese Brome	Grass	49	1.23%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	48	1.20%
<i>Aster ericoides</i>	Heath aster	Forb	45	1.13%
<i>Forestiera pubescens</i>	Elbowbush	Browse	44	1.10%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	42	1.05%
<i>Lepidium virginicum</i>	Peppergrass	Forb	42	1.05%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	41	1.03%
<i>Acacia roemeriana</i>	Catclaw	Browse	40	1.00%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	40	1.00%
<i>Scutellaria laterifolia</i>	Skullcap	Forb	37	0.93%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	36	0.90%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	35	0.88%
<i>Salix nigra</i>	Black Willow	Browse	34	0.85%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	30	0.75%
<i>Ratibida columnaris</i>	Mexican Hat	Forb	29	0.73%
<i>Xanthocephalum sp.</i>	Broomweed	Forb	29	0.73%

## Appendix 8. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Aristida sp.</i>	Three-awn	Grass	28	0.70%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	28	0.70%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	26	0.65%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	24	0.60%
<i>Abutilon sp.</i>	Indian-mallow	Forb	23	0.58%
<i>Desmanthus sp.</i>	Bundleflower	Forb	23	0.58%
<i>Hymenoxys linearifolia</i>	Bitterweed	Forb	23	0.58%
<i>Linum rupestre</i>	Rock Flax	Forb	23	0.58%
<i>Physalis cinarens</i>	Yellow Ground-cherry	Forb	23	0.58%
<i>Morus sp.</i>	Mulberry	Browse	21	0.53%
<i>Dalea sp.</i>	Dalea	Forb	21	0.53%
<i>Bouteloua sp.</i>	Gramma	Grass	21	0.53%
<i>Cyperus sp.</i>	Flatsedge	Sedge	21	0.53%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	20	0.50%
<i>Malvastrum aurantiacum</i>	False Mallow	Forb	19	0.48%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	19	0.48%
<i>Panicum sp.</i>	Panic Grass	Grass	18	0.45%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Mast	18	0.45%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	18	0.45%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	17	0.43%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	17	0.43%
<i>Prunus rivularis</i>	Creek Plum	Mast	16	0.40%
<i>Aster oblongifolius</i>	Aster	Forb	14	0.35%
<i>Gaura parviflora</i>	Lizard-tail	Forb	14	0.35%
<i>Tridens albescens</i>	White Tridens	Grass	14	0.35%
<i>Acacia greggii</i>	Catclaw	Browse	12	0.30%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	11	0.28%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	11	0.28%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	10	0.25%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	9	0.23%
<i>Grindelia nuda</i>	Gumweed	Forb	8	0.20%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	8	0.20%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	8	0.20%
<i>Diospyros texana</i>	Persimmon	Browse	7	0.18%
<i>Amaranthus sp.</i>	Pigweed	Forb	7	0.18%
<i>Linum pratense</i>	Meadow Flax	Forb	7	0.18%
<i>Sorghastrum nutans</i>	Yellow Indiangrass	Grass	7	0.18%
<i>Fabaceae</i>	Legume Family	Forb	6	0.15%
<i>Linum sp.</i>	Flax	Forb	6	0.15%
<i>Sida filicaulis</i>	Sida	Forb	6	0.15%
<i>Gleditsia triacanthos</i>	Honeylocust	Browse	5	0.13%
<i>Mimosa sp.</i>	Catclaw	Browse	5	0.13%
<i>Lesquerella sp.</i>	Bladderpod	Forb	5	0.13%

## Appendix 8. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Rubus sp.</i>	Dewberry	Browse	4	0.10%
<i>Argythamnia sp.</i>	Wild Mercury	Forb	4	0.10%
<i>Aster sp.</i>	Aster	Forb	4	0.10%
<i>Conyza canadensis</i>	Mare's Tail	Forb	4	0.10%
<i>Hermannia texana</i>	Mexican Mallow	Forb	4	0.10%
<i>Senna sp.</i>	Senna	Forb	4	0.10%
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	Forb	4	0.10%
<i>Heterotheca canescens</i>	Gray Golden Aster	Forb	3	0.08%
<i>Chloris cucullata</i>	Hooded Windmillgrass	Grass	3	0.08%
<i>Bromus uniloides</i>	Rescuegrass	Grass	2	0.05%
UF	Unknown Forb	Forb	33	0.83%
UB	Unknown Browse	Browse	3	0.08%
		<b>TOTALS</b>		
		Browse	1582	39.55%
		Forb	1426	35.65%
		Mast	528	13.20%
		Grass	369	9.23%
		Supplemental/Crop	74	1.85%
		Sedge	21	0.53%

Appendix 9. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in summer 2000. The percent frequency is based on a total of 4,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	756	18.90%
<i>Quercus havardii</i>	Sand Shin Oak	Browse	448	11.20%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	238	5.95%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	218	5.45%
<i>Rhus aromatica</i>	Skunkbush	Browse	183	4.58%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	161	4.03%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	160	4.00%
<i>Chamaesyce sp.</i>	Creeping Spurge	Forb	153	3.83%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	148	3.70%
<i>Salix nigra</i>	Black Willow	Browse	133	3.33%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	107	2.68%
<i>Celtis reticulata</i>	Hackberry	Browse	101	2.53%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	87	2.18%
<i>Siphonoglossa pilosella</i>	Hairy Tuber tongue	Forb	82	2.05%
<i>Strophostyles leiosperma</i>	Wild Trailing Bean	Forb	57	1.43%
<i>Vitis sp.</i>	Grape	Browse	44	1.10%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	43	1.08%
<i>Commelina erecta</i>	Dayflower	Forb	40	1.00%
<i>Schrankia sp.</i>	Sensitivebriar	Forb	38	0.95%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	37	0.93%
<i>Quercus havardii</i>	Sand Shin Oak	Mast	34	0.85%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	33	0.83%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	30	0.75%
<i>Yucca constricta</i>	Yucca	Browse	30	0.75%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	30	0.75%
<i>Phytolacca americana</i>	Pokeweed	Forb	27	0.68%
<i>Zea mays</i>	Corn	Supplemental/Crop	25	0.63%
<i>Fabaceae</i>	Legume Family	Forb	21	0.53%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	21	0.53%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	20	0.50%
<i>Prunus rivularis</i>	Creek Plum	Browse	19	0.48%
<i>Smilax bona-nox</i>	Greenbriar	Browse	18	0.45%
<i>Maclura pomifera</i>	Osage Orange	Browse	17	0.43%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	16	0.40%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	16	0.40%
<i>Gaura sp.</i>	Gaura	Forb	16	0.40%
<i>Plantago sp.</i>	Plantain	Forb	15	0.38%
<i>Malva sp.</i>	Mallow	Forb	14	0.35%

## Appendix 9. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Maclura pomifera</i>	Osage Orange	Mast	14	0.35%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	13	0.33%
<i>Indigofera miniata</i>	Scarlet-pea	Forb	13	0.33%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	12	0.30%
<i>Dalea sp.</i>	Dalea	Forb	12	0.30%
<i>Desmanthus sp.</i>	Bundleflower	Forb	12	0.30%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	12	0.30%
<i>Forestiera pubescens</i>	Elbowbush	Browse	11	0.28%
<i>Astragalus sp.</i>	Milk-vetch	Forb	11	0.28%
<i>Linum sp.</i>	Flax	Forb	11	0.28%
<i>Marsilea macropoda</i>	Water-clover	Forb	11	0.28%
<i>Toxicodendron radicans</i>	Poison-ivy	Mast	11	0.28%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	9	0.23%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	9	0.23%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	7	0.18%
<i>Crataegus sp.</i>	Hawthorn	Browse	7	0.18%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	7	0.18%
<i>Ulmus crassifolia</i>	Cedar Elm	Browse	7	0.18%
<i>Dyschoriste linearis</i>	Snake Herb	Forb	7	0.18%
<i>Physalis cinarens</i>	Yellow Ground-cherry	Forb	7	0.18%
<i>Scutellaria wrightii</i>	Skullcap	Forb	7	0.18%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	7	0.18%
<i>Celtis laevigata</i>	Sugarberry	Browse	6	0.15%
<i>Hermannia texana</i>	Mexican Mallow	Forb	6	0.15%
<i>Liatris mucronata</i>	Gayfeather	Forb	6	0.15%
<i>Sida filicaulis</i>	Sida	Forb	6	0.15%
<i>Verbena canescens</i>	Gray Vervain	Forb	6	0.15%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	6	0.15%
<i>Ephedra antisiphilitica</i>	Ephedra	Browse	5	0.13%
<i>Toxicodendron radicans</i>	Poison-ivy	Browse	5	0.13%
<i>Brassicaceae</i>	Mustard Family	Forb	5	0.13%
<i>Equisetum hyemale</i>	Horsetail	Forb	5	0.13%
<i>Dicanthelium oligosanthos</i>	Scribner's Dicanthelium	Grass	5	0.13%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	5	0.13%
<i>Acacia sp.</i>	Acacia	Browse	4	0.10%
<i>Dyssodia pentachaeta</i>	Parralena	Forb	4	0.10%
<i>Helianthus sp.</i>	Sunflower	Forb	3	0.08%
<i>Scrophulariaceae</i>	Figwort Family	Forb	3	0.08%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	3	0.08%
<i>Panicum hallii</i>	Hall's Panicum	Grass	3	0.08%
<i>Cephalanthus occidentalis</i>	Buttonbush	Browse	2	0.05%

## Appendix 9. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Diospyros texana</i>	Persimmon	Browse	2	0.05%
<i>Yucca sp.</i>	Yucca	Browse	2	0.05%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	2	0.05%
<i>Galium sp.</i>	Bedstraw	Forb	2	0.05%
<i>Lamiaceae</i>	Mint Family	Forb	2	0.05%
<i>Schrankia uncinata</i>	Sensitivebriar	Forb	2	0.05%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	2	0.05%
<i>Achillea millifolium</i>	Yarrow	Forb	1	0.03%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	1	0.03%
<i>Euphorbiaceae</i>	Spurge Family	Forb	1	0.03%
<i>Physalis sp.</i>	Ground Cherry	Forb	1	0.03%
UF	Unknown Forbs	Forb	28	0.70%
UB	Unknown Browse	Browse	11	0.28%
UG	Unknown Grasses	Grass	2	0.05%
		<b>TOTALS</b>		
		Browse	1532	38.30%
		Mast	1160	29.00%
		Forb	1150	28.75%
		Grass	133	3.33%
		Supplemental/Crop	25	0.63%

Appendix 10. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in fall 2000. The percent frequency is based on a total of 4,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Quercus havardii</i>	Sand Shin Oak	Browse	625	15.63%
<i>Bromus japonicus</i>	Japanese Brome	Grass	463	11.58%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	295	7.38%
<i>Allium drummondii</i>	Wild Onion	Forb	270	6.75%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	245	6.13%
<i>Rhus aromatica</i>	Skunkbush	Browse	182	4.55%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	156	3.90%
<i>Bromus unioloides</i>	Rescuegrass	Grass	154	3.85%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	125	3.13%
<i>Erodium texanum</i>	Storksbill	Forb	122	3.05%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	93	2.33%
<i>Zea mays</i>	Corn	Supplemental/Crop	89	2.23%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	87	2.18%
<i>Opuntia</i> sp.	Prickly Pear Cactus	Mast	64	1.60%
<i>Nothoscordum bivalve</i>	Crow Poison	Forb	59	1.48%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	57	1.43%
<i>Commelina erecta</i>	Dayflower	Forb	51	1.28%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	51	1.28%
<i>Berberis trifoliolata</i>	Agarito	Browse	40	1.00%
<i>Celtis reticulata</i>	Hackberry	Browse	38	0.95%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	36	0.90%
<i>Croton capitatus</i>	Woolly Croton	Forb	33	0.83%
<i>Vitis</i> sp.	Grape	Browse	32	0.80%
<i>Robina pseudoacacia</i>	Black Locust	Mast	28	0.70%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	27	0.68%
<i>Lithospermum incisum</i>	Puccoon	Forb	27	0.68%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	26	0.65%
<i>Cyperus</i> sp.	Flatsedge	Sedge	26	0.65%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	23	0.58%
<i>Salix nigra</i>	Black Willow	Browse	23	0.58%
<i>Lepidium densiflorum</i>	Peppergrass	Forb	22	0.55%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	17	0.43%
<i>Aloysia gratissima</i>	Whitebrush	Browse	16	0.40%
<i>Senna pumilio</i>	Dwarf Senna	Forb	16	0.40%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	16	0.40%
<i>Hilaria belangeri</i>	Curly Mesquite	Grass	15	0.38%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	15	0.38%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	14	0.35%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	14	0.35%



## Appendix 10. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Quercus havardii</i>	Sand Shin Oak	Mast	14	0.35%
<i>Colubrina texensis</i>	Hog-plum	Browse	13	0.33%
<i>Forestiera pubescens</i>	Elbowbush	Browse	13	0.33%
<i>Fabaceae</i>	Legume Family	Supplemental/Crop	13	0.33%
<i>Diospyros texana</i>	Persimmon	Browse	12	0.30%
<i>Geranium texanum</i>	Texas Geranium	Forb	12	0.30%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	11	0.28%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	11	0.28%
<i>Yucca constricta</i>	Yucca	Browse	10	0.25%
<i>Chamaesaracha sp.</i>	False Nightshade	Forb	9	0.23%
<i>Eriochloa sericea</i>	Texas Cupgrass	Grass	9	0.23%
<i>Gleditsia triacanthos</i>	Honey Locust	Browse	8	0.20%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	8	0.20%
<i>Erodium cicutarium</i>	Filaree	Forb	7	0.18%
<i>Monarda punctata</i>	Spotted Beebalm	Forb	7	0.18%
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	Forb	7	0.18%
<i>Fabaceae</i>	Legume Family	Browse	6	0.15%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	6	0.15%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	6	0.15%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	6	0.15%
<i>Trifolium sp.</i>	Clover	Forb	5	0.13%
<i>Acacia greggii</i>	Catclaw	Browse	4	0.10%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	4	0.10%
<i>Smilax bona-nox</i>	Greenbriar	Browse	4	0.10%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	4	0.10%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	4	0.10%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	3	0.08%
<i>Fabaceae</i>	Legume Family	Forb	3	0.08%
<i>Plantago sp.</i>	Plantain	Forb	2	0.05%
<i>Vulpia octoflora</i>	Common Sixweeks Grass	Grass	1	0.03%
UB	Unknown Browse	Browse	37	0.93%
UG	Unknown Grasses	Grass	31	0.78%
UF	Unknown Forbs	Forb	18	0.46%
		<b>TOTALS</b>		
		Browse	1874	46.85%
		Grass	971	24.28%
		Forb	737	18.43%
		Supplemental/Crop	227	5.68%
		Mast	165	4.13%
		Sedge	26	0.65%

Appendix 11. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in winter 2001. The percent frequency is based on a total of 4,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Bromus japonicus</i>	Japanese Brome	Grass	819	20.48%
<i>Erodium texanum</i>	Storksbill	Forb	523	13.08%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	393	9.83%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	329	8.23%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	268	6.70%
<i>Bromus uniloides</i>	Rescuegrass	Grass	149	3.73%
<i>Allium drummondii</i>	Wild Onion	Forb	136	3.40%
<i>Erodium cicutarium</i>	Filaree	Forb	102	2.55%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	102	2.55%
<i>Quercus havardii</i>	Sand Shin Oak	Browse	79	1.98%
<i>Nothoscordum bivalve</i>	Crow Poison	Forb	79	1.98%
<i>Zea mays</i>	Corn	Supplemental/Crop	61	1.53%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	60	1.50%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	58	1.45%
<i>Cyperus sp.</i>	Flatsedge	Sedge	57	1.43%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	46	1.15%
<i>Chloris verticillata</i>	Tumble Windmillgrass	Grass	36	0.90%
<i>Anemone heterophylla</i>	Wind-flower	Forb	34	0.85%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	30	0.75%
<i>Celtis reticulata</i>	Hackberry	Browse	29	0.73%
<i>Salix nigra</i>	Black Willow	Browse	27	0.68%
<i>Tridens albescens</i>	White Tridens	Grass	25	0.63%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	22	0.55%
<i>Parthenium hysterophorus</i>	False Ragweed	Forb	21	0.53%
<i>Croton capitatus</i>	Woolly Croton	Forb	20	0.50%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	19	0.48%
<i>Hordeum pusillum</i>	Little Barley	Grass	19	0.48%
<i>Plantago sp.</i>	Plantain	Forb	18	0.45%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	18	0.45%
<i>Yucca sp.</i>	Yucca	Browse	17	0.43%
<i>Smilax bona-nox</i>	Greenbriar	Browse	16	0.40%
<i>Commelina erecta</i>	Dayflower	Forb	16	0.40%
<i>Pyrrhopappus multicaulis</i>	Texas Dandelion	Forb	16	0.40%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	15	0.38%
<i>Cirsium texanum</i>	Texas Thistle	Forb	15	0.38%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	13	0.33%
<i>Vitis sp.</i>	Grape	Browse	13	0.33%

## Appendix 11. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Lepidium densiflorum</i>	Peppergrass	Forb	13	0.33%
<i>Lepidium virginicum</i>	Peppergrass	Forb	13	0.33%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	13	0.33%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	12	0.30%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	11	0.28%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	11	0.28%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	10	0.25%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	10	0.25%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	9	0.23%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	9	0.23%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	8	0.20%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	8	0.20%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	6	0.15%
<i>Cirsium undulatum</i>	Plumed Thistle	Forb	6	0.15%
<i>Croton fruticosus</i>	Croton	Forb	6	0.15%
<i>Medicago minima</i>	Small Bur Clover	Forb	6	0.15%
<i>Dalea frutescens</i>	Black Dalea	Browse	5	0.13%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	5	0.13%
<i>Sibara virginica</i>	Virginia Sibara	Forb	5	0.13%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	5	0.13%
<i>Ephedra antisiphilitica</i>	Ephedra	Browse	4	0.10%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	4	0.10%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	4	0.10%
<i>Panicum hallii</i>	Hall's Panicum	Grass	4	0.10%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	4	0.10%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	4	0.10%
<i>Geranium texanum</i>	Texas Geranium	Forb	3	0.08%
<i>Erioneuron pilosum</i>	Hairy Tridens	Grass	3	0.08%
<i>Fabaceae</i>	Legume Family	Browse	2	0.05%
<i>Draba cunefolia</i>	Whitlow-grass	Forb	2	0.05%
<i>Monarda citriodora</i>	Horsemint	Forb	2	0.05%
<i>Brassica sp.</i>	Mustard	Forb	1	0.03%
UG	Unknown Grass	Grass	81	2.03%
UB	Unknown Browse	Browse	6	0.15%
UF	Unknown Forb	Forb	5	0.13%

## Appendix 11. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
		<b>TOTALS</b>		
		Grass	1633	40.83%
		Forb	1171	29.28%
		Browse	986	24.65%
		Supplemental/Crop	119	2.98%
		Sedge	57	1.43%
		Mast	34	0.85%

Appendix 12. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in spring 2001. The percent frequency is based on a total of 4,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Commelina erecta</i>	Dayflower	Forb	346	8.65%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	303	7.58%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	237	5.93%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	163	4.08%
<i>Calylophus berlandieri</i>	Evening Primrose	Forb	119	2.98%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	117	2.93%
<i>Monarda punctata</i>	Spotted Beebalm	Forb	108	2.70%
<i>Rhus aromatica</i>	Skunkbush	Browse	99	2.48%
<i>Gaura parviflora</i>	Lizard-tail	Forb	95	2.38%
<i>Aster ericoides</i>	Heath Aster	Forb	88	2.20%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	85	2.13%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	84	2.10%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	79	1.98%
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	Forb	78	1.95%
<i>Yucca sp.</i>	Yucca	Browse	65	1.63%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	64	1.60%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	62	1.55%
<i>Vitis sp.</i>	Grape	Browse	60	1.50%
<i>Forestiera pubescens</i>	Elbowbush	Browse	54	1.35%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	53	1.33%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	52	1.30%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	51	1.28%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	48	1.20%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	44	1.10%
<i>Linum pratense</i>	Meadow Flax	Forb	42	1.05%
<i>Vernonia sp.</i>	Ironweed	Forb	41	1.03%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	40	1.00%
<i>Bromus japonicus</i>	Japanese Brome	Grass	39	0.98%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	38	0.95%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	38	0.95%
<i>Celtis reticulata</i>	Hackberry	Browse	36	0.90%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	36	0.90%
<i>Eleocharis sp.</i>	Spike Rush	Sedge	35	0.88%
<i>Chamaesyce serpens</i>	Mateuphorbia	Forb	34	0.85%
<i>Krameria lanceolata</i>	Ratany	Forb	34	0.85%
<i>Berberis trifoliolata</i>	Agarito	Mast	29	0.73%
<i>Acacia greggii</i>	Catclaw	Browse	28	0.70%
<i>Lepidium densiflorum</i>	Peppergrass	Forb	27	0.68%

## Appendix 12. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	25	0.63%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	25	0.63%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	23	0.58%
<i>Yucca constricta</i>	Yucca	Browse	23	0.58%
<i>Quercus havardii</i>	Sand Shin Oak	Browse	22	0.55%
<i>Triodanis perfoliata</i>	Venus' Looking Glass	Forb	22	0.55%
<i>Zea mays</i>	Corn	Supplemental/Crop	22	0.55%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	21	0.53%
<i>Chamaesyce maculata</i>	Creeping Spurge	Forb	21	0.53%
<i>Pyrrhopappus multicaulis</i>	Texas Dandelion	Forb	21	0.53%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	21	0.53%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	20	0.50%
<i>Sorghastrum nutans</i>	Yellow Indiangrass	Grass	19	0.48%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	19	0.48%
<i>Geranium texanum</i>	Texas Geranium	Forb	18	0.45%
<i>Schrankia uncinata</i>	Sensitivebriar	Forb	18	0.45%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	17	0.43%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	17	0.43%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	16	0.40%
<i>Cucurbita foetidissima</i>	Buffalo Gourd	Forb	16	0.40%
<i>Grindelia papposa</i>	Gumweed	Forb	16	0.40%
<i>Thelesperma filifolium</i>	Greenthread	Forb	16	0.40%
<i>Linum rupestre</i>	Rock Flax	Forb	15	0.38%
<i>Melilotus albus</i>	White Sweet Clover	Forb	15	0.38%
<i>Aphanostephus skirrhobasis</i>	Lazy Daisy	Forb	14	0.35%
<i>Berberis trifoliolata</i>	Agarito	Browse	14	0.35%
<i>Croton capitatus</i>	Woolly Croton	Forb	14	0.35%
<i>Linum rigidum</i>	Flax	Forb	14	0.35%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	14	0.35%
<i>Xanthocephalum sarothrae</i>	Broomweed	Forb	14	0.35%
<i>Croton sp.</i>	Croton	Forb	13	0.33%
<i>Smilax bona-nox</i>	Greenbriar	Browse	13	0.33%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	12	0.30%
<i>Bromus unioloides</i>	Rescuegrass	Grass	12	0.30%
<i>Rhus aromatica</i>	Skunkbush	Mast	12	0.30%
<i>Cirsium texanum</i>	Texas Thistle	Forb	11	0.28%
<i>Convolvulus equitans</i>	Texas Bindweed	Forb	11	0.28%
<i>Machaeranthera pinnatifida</i>	Yellow Spiny Daisy	Forb	11	0.28%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	10	0.25%
<i>Dalea frutescens</i>	Black Dalea	Browse	10	0.25%
<i>Dracopis amplexicaulis</i>	Clasping Coneflower	Forb	10	0.25%

## Appendix 12. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	9	0.23%
<i>Monarda citriodora</i>	Horsemint	Forb	9	0.23%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	9	0.23%
<i>Sida filicaulis</i>	Sida	Forb	9	0.23%
<i>Aristida wrightii</i>	Wright's Three-awn	Grass	8	0.20%
<i>Desmanthus velutinus</i>	Bundleflower	Forb	8	0.20%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	8	0.20%
<i>Plantago sp.</i>	Plantain	Forb	8	0.20%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	8	0.20%
<i>Verbena canescens</i>	Gray Vervain	Forb	8	0.20%
<i>Chloris cucullata</i>	Hooded Windmillgrass	Grass	7	0.18%
<i>Conyza canadensis</i>	Mare's Tail	Forb	7	0.18%
<i>Equisetum hymale</i>	Horsetail	Forb	7	0.18%
<i>Grindelia microcephala</i>	Gumweed	Forb	7	0.18%
<i>Mentzelia nuda</i>	Sand Lily	Forb	7	0.18%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	7	0.18%
<i>Scutellaria wrightii</i>	Bushy Skullcap	Forb	7	0.18%
<i>Tridens albescens</i>	White Tridens	Grass	7	0.18%
<i>Tridens muticus</i>	Slim Tridens	Grass	7	0.18%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	6	0.15%
<i>Croton fruticulosus</i>	Croton	Forb	6	0.15%
<i>Dyssodia pentachaeta</i>	Parralena	Forb	6	0.15%
<i>Heterotheca latifolia</i>	Camphorweed	Forb	6	0.15%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	6	0.15%
<i>Teucrium lacinatum</i>	Cut-leaf Germander	Forb	6	0.15%
<i>Amblyolepis setigera</i>	Huisache-daisy	Forb	5	0.13%
<i>Gaillardia pulchella</i>	Firewheel	Forb	5	0.13%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	5	0.13%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	4	0.10%
<i>Dithyrea wislizeni</i>	Spectacle Pod	Forb	4	0.10%
<i>Lepidium virginicum</i>	Peppergrass	Forb	4	0.10%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	4	0.10%
<i>Astragalus nuttallianus</i>	Nuttall's Milk-Vetch	Forb	3	0.08%
<i>Bouteloua hirsuta</i>	Hairy Grama	Grass	3	0.08%
<i>Cirsium undulatum</i>	Plumed Thistle	Forb	3	0.08%
<i>Cyperus sp.</i>	Flatsedge	Sedge	3	0.08%
<i>Dalea purpurea</i>	Purple Prairie-clover	Forb	3	0.08%
<i>Fabaceae</i>	Legume Family	Forb	3	0.08%
<i>Forestiera pubescens</i>	Elbowbush	Mast	3	0.08%
<i>Asclepias sp.</i>	Milkweed	Forb	2	0.05%
<i>Centaurium texense</i>	Lady Bird's Centaury	Forb	2	0.05%

## Appendix 12. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Erodium texanum</i>	Storksbill	Forb	2	0.05%
<i>Lithospermum incisum</i>	Puccoon	Forb	2	0.05%
<i>Panicum hallii</i>	Hall's Panicum	Grass	2	0.05%
<i>Torilis arvensis</i>	Beggar's Lice	Forb	1	0.03%
UF	Unknown Forbs	Forb	24	0.61%
UG	Unknown Grasses	Grass	2	0.05%
		<b>TOTALS</b>		
		Forb	2622	65.55%
		Browse	764	19.10%
		Grass	301	7.53%
		Mast	253	6.33%
		Sedge	38	0.95%
		Supplemental/Crop	22	0.55%



Appendix 13. Diet of white-tailed deer by forage class in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in summer 2001. The percent frequency is based on a total of 3,800 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	627	16.50%
<i>Quercus havardii</i>	Sand Shin Oak	Browse	317	8.34%
<i>Opuntia</i> sp.	Prickly Pear Cactus	Mast	268	7.05%
<i>Commelina erecta</i>	Dayflower	Forb	216	5.68%
<i>Gaura parviflora</i>	Lizard-tail	Forb	183	4.82%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	146	3.84%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	117	3.08%
<i>Quercus havardii</i>	Sand Shin Oak	Mast	117	3.08%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	114	3.00%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	105	2.76%
<i>Populus deltoides</i>	Plains Cottonwood	Browse	89	2.34%
<i>Chamaesyce serpens</i>	Mateuphorbia	Forb	85	2.24%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	79	2.08%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	76	2.00%
<i>Xanthocephalum sarothrae</i>	Broomweed	Forb	57	1.50%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	52	1.37%
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	Forb	46	1.21%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	42	1.11%
<i>Chamaesyce lata</i>	Creeping Spurge	Forb	38	1.00%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	35	0.92%
<i>Rhus aromatica</i>	Skunkbush	Browse	34	0.89%
<i>Vitis</i> sp.	Grape	Browse	33	0.87%
<i>Forestiera pubescens</i>	Elbowbush	Browse	30	0.79%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	30	0.79%
<i>Krameria lanceolata</i>	Ratany	Forb	27	0.71%
<i>Pomaria jamesii</i>	James Rush Pea	Forb	27	0.71%
<i>Desmanthus velutinus</i>	Bundleflower	Forb	26	0.68%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	26	0.68%
<i>Bromus unioloides</i>	Rescuegrass	Grass	26	0.68%
<i>Celtis reticulata</i>	Hackberry	Browse	25	0.66%
<i>Sida filicaulis</i>	Sida	Forb	25	0.66%
<i>Schrankia</i> sp.	Sensitive-briar	Forb	24	0.63%
<i>Talinum aurantiacum</i>	Orange Flameflower	Forb	24	0.63%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	23	0.61%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	23	0.61%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	21	0.55%
<i>Chamaesyce maculata</i>	Creeping Spurge	Forb	21	0.55%

## Appendix 13. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Mimosa strigillosa</i>	Powderpuff	Forb	21	0.55%
<i>Erioneuron pilosum</i>	Hairy Tridens	Grass	21	0.55%
<i>Lamiaceae</i>	Mint	Forb	19	0.50%
<i>Monarda punctata</i>	Spotted Beebalm	Forb	19	0.50%
<i>Hybanthus verticillatus</i>	Green Violet	Forb	18	0.47%
<i>Salsola kali</i>	Russian Olive	Browse	16	0.42%
<i>Maclura pomifera</i>	Osage Orange	Mast	16	0.42%
<i>Zea mays</i>	Corn	Supplemental/Crop	16	0.42%
<i>Croton capitatus</i>	Woolly Croton	Forb	15	0.39%
<i>Physalis lobata</i>	Purple Ground Cherry	Forb	15	0.39%
<i>Physalis longifolia</i>	Common Ground Cherry	Forb	15	0.39%
<i>Acacia greggii</i>	Catclaw	Browse	14	0.37%
<i>Smilax bona-nox</i>	Greenbriar	Browse	14	0.37%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	13	0.34%
<i>Grindelia papposa</i>	Gumweed	Forb	13	0.34%
<i>Hordeum pusillum</i>	Little Barley	Grass	13	0.34%
<i>Dalea lanata</i>	Woolly Dalea	Forb	12	0.32%
<i>Phyllanthus polygonoides</i>	Leaf-flower	Forb	12	0.32%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	11	0.29%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	11	0.29%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	10	0.26%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	10	0.26%
<i>Maclura pomifera</i>	Osage Orange	Browse	9	0.24%
<i>Rhus lanceolata</i>	Flame-leaf Sumac	Browse	9	0.24%
<i>Melilotus albus</i>	White Sweet Clover	Forb	9	0.24%
<i>Phylotacca americana</i>	Pokeweed	Forb	9	0.24%
<i>Amaranthus sp.</i>	Pigweed	Forb	8	0.21%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	8	0.21%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	8	0.21%
<i>Yucca constricta</i>	Buckley Yucca	Browse	7	0.18%
<i>Aster ericoides</i>	Heath Aster	Forb	7	0.18%
<i>Chamaesyce geyeri</i>	Creeping Spurge	Forb	7	0.18%
<i>Cucurbita foetidissima</i>	Buffalo Gourd	Forb	7	0.18%
<i>Hoffmannseggia glauca</i>	Hog Potato	Forb	7	0.18%
<i>Aster subulatus</i>	Slim Aster	Forb	6	0.16%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	6	0.16%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	6	0.16%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	5	0.13%
<i>Physalis cinarens</i>	Yellow Ground Cherry	Forb	5	0.13%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	5	0.13%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	5	0.13%

## Appendix 13. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Acacia roemeriana</i>	Catclaw	Browse	4	0.11%
<i>Equisetum hyemale</i>	Horsetail	Forb	4	0.11%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	4	0.11%
<i>Melilotus indicus</i>	Sour Clover	Forb	4	0.11%
<i>Phyla incisa</i>	Frog-fruit	Forb	4	0.11%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	4	0.11%
<i>Diospyros texana</i>	Persimmon	Browse	3	0.08%
<i>Chloris verticillata</i>	Tumble Windmillgrass	Grass	3	0.08%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	3	0.08%
<i>Tridens albescens</i>	White Tridens	Grass	3	0.08%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	2	0.05%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	2	0.05%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	2	0.05%
<i>Artemisia ludoviciana</i>	Louisiana Sagewort	Forb	2	0.05%
<i>Gnaphalium stramineum</i>	Cudweed	Forb	2	0.05%
<i>Heterotheca canescens</i>	Gray Golden Aster	Forb	2	0.05%
<i>Liatris punctata</i>	Gayfeather	Forb	2	0.05%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	2	0.05%
<i>Vitis sp.</i>	Grape	Mast	2	0.05%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	1	0.03%
<i>Dyschoriste linearis</i>	Snake Herb	Forb	1	0.03%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	1	0.03%
UF	Unknown Forbs	Forb	29	0.76%
UB	Unknown Browse	Browse	3	0.08%
		<b>TOTALS</b>		
		Forb	1416	37.26%
		Mast	1158	30.47%
		Browse	928	24.42%
		Supplemental/Crop	162	4.26%
		Grass	136	3.58%

Appendix 14. Diet of white-tailed deer by forage class at Hutchinson/Wheeler County sites in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in 1999-2001. The percent frequency is based on a total of 8,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Populus deltoides</i>	Plains Cottonwood	Browse	1163	14.54%
<i>Bromus japonicus</i>	Japanese Brome	Grass	726	9.08%
<i>Rhus aromatica</i>	Skunkbush	Browse	717	8.96%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	355	4.44%
<i>Quercus havardii</i>	Sand Shin Oak	Browse	330	4.13%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	282	3.53%
<i>Quercus havardii</i>	Sand Shin Oak	Mast	259	3.24%
<i>Maclura pomifera</i>	Osage Orange	Mast	252	3.15%
<i>Commelina erecta</i>	Dayflower	Forb	215	2.69%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	192	2.40%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	182	2.28%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	151	1.89%
<i>Vitis sp.</i>	Grape	Browse	136	1.70%
<i>Salix nigra</i>	Black Willow	Browse	127	1.59%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	123	1.54%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	120	1.50%
<i>Cyperus sp.</i>	Flatsedge	Sedge	107	1.34%
<i>Celtis reticulata</i>	Hackberry	Browse	105	1.31%
<i>Robina pseudoacacia</i>	Black Locust	Mast	98	1.23%
<i>Monarda punctata</i>	Spotted Beebalm	Forb	92	1.15%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	81	1.01%
<i>Chamaesyce serpens</i>	Mateuphorbia	Forb	80	1.00%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	76	0.95%
<i>Rhus aromatica</i>	Skunkbush	Mast	69	0.86%
<i>Strophostyles leiosperma</i>	Wild Trailing Bean	Forb	57	0.71%
<i>Poa arachnifera</i>	Texas Bluegrass	Grass	57	0.71%
<i>Chamaesyce sp.</i>	Creeping Spurge	Forb	54	0.68%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	44	0.55%
<i>Arachis hypogaea</i>	Peanut	Supplemental/Crop	43	0.54%
<i>Chamaesyce maculata</i>	Creeping Spurge	Forb	42	0.53%
<i>Linum pratense</i>	Meadow Flax	Forb	40	0.50%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	39	0.49%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	38	0.48%
<i>Yucca sp.</i>	Yucca	Browse	37	0.46%
<i>Scutellaria laterifolia</i>	Skullcap	Forb	37	0.46%
<i>Phytolacca americana</i>	Pokeweed	Forb	36	0.45%
<i>Eleocharis sp.</i>	Spike Rush	Sedge	35	0.44%

## Appendix 14. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Schrankia sp.</i>	Sensitivebriar	Forb	34	0.43%
<i>Yucca constricta</i>	Yucca	Browse	33	0.41%
<i>Sorghum bicolor</i>	Milo	Supplemental/Crop	32	0.40%
<i>Grindelia papposa</i>	Gumweed	Forb	29	0.36%
<i>Ratibida columnaris</i>	Mexican Hat	Forb	29	0.36%
<i>Physalis cinarens</i>	Yellow Ground-cherry	Forb	28	0.35%
<i>Lepidium virginicum</i>	Peppergrass	Forb	27	0.34%
<i>Maclura pomifera</i>	Osage Orange	Browse	26	0.33%
<i>Fabaceae</i>	Legume Family	Forb	26	0.33%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	26	0.33%
<i>Lepidium sp.</i>	Peppergrass	Forb	26	0.33%
<i>Pyrrhopappus multicaulis</i>	Texas Dandelion	Forb	26	0.33%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	25	0.31%
<i>Melilotus albus</i>	White Sweet Clover	Forb	24	0.30%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	23	0.29%
<i>Triodanis perfoliata</i>	Venus' Looking Glass	Forb	22	0.28%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	22	0.28%
<i>Morus sp.</i>	Mulberry	Browse	21	0.26%
<i>Lamiaceae</i>	Mint Family	Forb	21	0.26%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	21	0.26%
<i>Bromus unioloides</i>	Rescuegrass	Grass	19	0.24%
<i>Equisetum hyemale</i>	Horsetail	Forb	16	0.20%
<i>Gaura sp.</i>	Gaura	Forb	16	0.20%
<i>Xanthocephalum sarothrae</i>	Broomweed	Forb	16	0.20%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	16	0.20%
<i>Physalis longifolia</i>	Common Ground Cherry	Forb	15	0.19%
<i>Hilaria belangeri</i>	Curly Mesquite	Grass	15	0.19%
<i>Zea mays</i>	Corn	Supplemental/Crop	15	0.19%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	14	0.18%
<i>Aphanostephus skirrhobasis</i>	Lazy Daisy	Forb	14	0.18%
<i>Aster oblongifolius</i>	Aster	Forb	14	0.18%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	14	0.18%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	14	0.18%
<i>Salsola kali</i>	Russian Olive	Browse	13	0.16%
<i>Astragalus sp.</i>	Milk-vetch	Forb	13	0.16%
<i>Indigofera miniata</i>	Scarlet-pea	Forb	13	0.16%
<i>Fabaceae</i>	Legume Family	Supplemental/Crop	13	0.16%
<i>Dalea lanata</i>	Wooly Dalea	Forb	12	0.15%
<i>Erodium cicutarium</i>	Filaree	Forb	12	0.15%
<i>Gaura parviflora</i>	Lizard-tail	Forb	12	0.15%

## Appendix 14. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Plantago sp.</i>	Plantain	Forb	12	0.15%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	11	0.14%
<i>Erodium texanum</i>	Storksbill	Forb	11	0.14%
<i>Geranium texanum</i>	Texas Geranium	Forb	11	0.14%
<i>Machaeranthera pinnatifida</i>	Yellow Spiny Daisy	Forb	11	0.14%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	11	0.14%
<i>Chloris verticillata</i>	Tumble Windmillgrass	Grass	11	0.14%
<i>Hordeum pusillum</i>	Little Barley	Grass	11	0.14%
<i>Toxicodendron radicans</i>	Poison-ivy	Mast	11	0.14%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	10	0.13%
<i>Allium drummondii</i>	Wild onion	Forb	9	0.11%
<i>Andropogon hallii</i>	Sand Bluestem	Grass	9	0.11%
<i>Amaranthus sp.</i>	Pigweed	Forb	8	0.10%
<i>Grindelia nuda</i>	Gumweed	Forb	8	0.10%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	8	0.10%
<i>Crataegus sp.</i>	Hawthorn	Browse	7	0.09%
<i>Aster ericoides</i>	Heath Aster	Forb	7	0.09%
<i>Chamaesyce geyeri</i>	Creeping Spurge	Forb	7	0.09%
<i>Hoffmannseggia glauca</i>	Hog Potato	Forb	7	0.09%
<i>Mentzelia nuda</i>	Sand Lily	Forb	7	0.09%
<i>Sorghastrum nutans</i>	Yellow Indiangrass	Grass	7	0.09%
<i>Smilax bona-nox</i>	Greenbriar	Browse	6	0.08%
<i>Aster subulatus</i>	Slim Aster	Forb	6	0.08%
<i>Croton capitatus</i>	Woolly Croton	Forb	6	0.08%
<i>Xanthocephalum sp.</i>	Broomweed	Forb	6	0.08%
<i>Fabaceae</i>	Legume Family	Browse	5	0.06%
<i>Toxicodendron radicans</i>	Poison-ivy	Browse	5	0.06%
<i>Desmanthus sp.</i>	Bundleflower	Forb	5	0.06%
<i>Lesquerella sp.</i>	Bladderpod	Forb	5	0.06%
<i>Tridens muticus</i>	Slim Tridens	Grass	5	0.06%
<i>Argythamnia sp.</i>	Wild Mercury	Forb	4	0.05%
<i>Aster sp.</i>	Aster	Forb	4	0.05%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	4	0.05%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	4	0.05%
<i>Melilotus indicus</i>	Sour Clover	Forb	4	0.05%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	4	0.05%
<i>Erioneuron pilosum</i>	Hairy Tridens	Grass	4	0.05%
<i>Cirsium undulatum</i>	Plumed Thistle	Forb	3	0.04%
<i>Helianthus sp.</i>	Sunflower	Forb	3	0.04%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	3	0.04%

## Appendix 14. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	3	0.04%
<i>Cephalanthus occidentalis</i>	Buttonbush	Browse	2	0.03%
<i>Chamaecrista sp.</i>	Partridge Pea	Forb	2	0.03%
<i>Heterotheca canescens</i>	Gray Golden Aster	Forb	2	0.03%
<i>Linum sp.</i>	Flax	Forb	2	0.03%
<i>Monarda citriodora</i>	Horsemint	Forb	2	0.03%
<i>Vitis sp.</i>	Grape	Mast	2	0.03%
<i>Baccharis sp.</i>	Baccharis	Browse	1	0.01%
<i>Asteraceae</i>	Sunflower Family	Forb	1	0.01%
<i>Verbena sp.</i>	Vervain	Forb	1	0.01%
<i>Vulpia octoflora</i>	Common Sixweeks Grass	Grass	1	0.01%
UG	Unknown Grasses	Grass	181	4.25%
UB	Unknown Browse	Browse	77	0.96%
UF	Unknown Forbs	Forb	31	0.39%
Unknown	Unknown	Unknown	8	0.10%
		<b>TOTALS</b>		
		Browse	3137	39.21%
		Forb	1684	21.05%
		Grass	1447	18.09%
		Mast	1124	14.05%
		Supplemental/Crop	458	5.73%
		Sedge	142	1.78%
		Unknown	8	0.10%

Appendix 15. Diet of white-tailed deer by forage class at Matador WMA/Cottle County sites in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in 1999-2001. The percent frequency is based on a total of 7,900 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Quercus havardii</i>	Sand Shin Oak	Browse	1508	19.09%
<i>Bromus japonicus</i>	Japanese Brome	Grass	1011	12.80%
<i>Commelina erecta</i>	Dayflower	Forb	634	8.03%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	451	5.71%
<i>Xanthisma texanum</i>	Sleepy Daisy	Forb	226	2.86%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	208	2.63%
<i>Eragrostis sp.</i>	Lovegrass	Grass	195	2.47%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	188	2.38%
<i>Sorghum bicolor</i>	Milo	Supplemental/Crop	186	2.35%
<i>Quercus havardii</i>	Sand Shin Oak	Mast	159	2.01%
<i>Bromus uniloides</i>	Rescuegrass	Grass	133	1.68%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	117	1.48%
<i>Yucca constricta</i>	Yucca	Browse	106	1.34%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	103	1.30%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	103	1.30%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	99	1.25%
<i>Dicanthelium oligosanthes</i>	Scribner's Dicanthelium	Grass	91	1.15%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	87	1.10%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	65	0.82%
<i>Prunus rivularis</i>	Creek Plum	Browse	63	0.80%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	63	0.80%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	61	0.77%
<i>Allium drummondii</i>	Wild Onion	Forb	58	0.73%
<i>Juncus sp.</i>	Rush	Sedge	57	0.72%
<i>Celtis reticulata</i>	Hackberry	Browse	56	0.71%
<i>Gaura parviflora</i>	Lizard-tail	Forb	55	0.70%
<i>Rhus aromatica</i>	Skunkbush	Browse	53	0.67%
<i>Chamaesyce sp.</i>	Creeping Spurge	Forb	51	0.65%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	51	0.65%
<i>Tridens albescens</i>	White Tridens	Grass	49	0.62%
<i>Eriogonum annuum</i>	Wild Buckwheat	Forb	47	0.59%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	47	0.59%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	46	0.58%
<i>Bouteloua sp.</i>	Grama	Grass	45	0.57%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	44	0.56%
<i>Monarda punctata</i>	Spotted Beebalm	Forb	42	0.53%



## Appendix 15. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Allium sp.</i>	Wild Onion	Forb	39	0.49%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	39	0.49%
<i>Chenopodium album</i>	Lamb's Quarters	Forb	36	0.46%
<i>Erodium texanum</i>	Storksbill	Forb	35	0.44%
<i>Bromus sp.</i>	Brome	Grass	35	0.44%
<i>Lepidium virginicum</i>	Peppergrass	Forb	31	0.39%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	31	0.39%
<i>Eragrostis trichodes</i>	Sand Lovegrass	Grass	31	0.39%
<i>Salix nigra</i>	Black Willow	Browse	30	0.38%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	29	0.37%
<i>Krameria lanceolata</i>	Ratany	Forb	28	0.35%
<i>Aristida sp.</i>	Three-awn	Grass	28	0.35%
<i>Chloris verticillata</i>	Tumble Windmillgrass	Grass	28	0.35%
<i>Panicum hallii</i>	Hall's Panicum	Grass	28	0.35%
<i>Pomaria jamesii</i>	James Rush Pea	Forb	27	0.34%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	26	0.33%
<i>Hordeum pusillum</i>	Little Barley	Grass	26	0.33%
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	26	0.33%
<i>Elymus canadensis</i>	Canada Wildrye	Grass	25	0.32%
<i>Prunus angustifolia</i>	Sandhill Plum	Browse	23	0.29%
<i>Abutilon sp.</i>	Indian-mallow	Forb	23	0.29%
<i>Cucurbita foetidissima</i>	Buffalo Gourd	Forb	23	0.29%
<i>Xanthocephalum sp.</i>	Broomweed	Forb	23	0.29%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	22	0.28%
<i>Mimosa strigillosa</i>	Powderpuff	Forb	21	0.27%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	21	0.27%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	20	0.25%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	20	0.25%
<i>Chamaesyce serpens</i>	Mateuphorbia	Forb	20	0.25%
<i>Malvastrum aurantiacum</i>	False Mallow	Forb	19	0.24%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	19	0.24%
<i>Hybanthus verticillatus</i>	Green Violet	Forb	18	0.23%
<i>Panicum sp.</i>	Panic Grass	Grass	18	0.23%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	16	0.20%
<i>Prunus rivularis</i>	Creek Plum	Mast	16	0.20%
<i>Croton sp.</i>	Croton	Forb	15	0.19%
<i>Linum sp.</i>	Flax	Forb	15	0.19%
<i>Eleocharis sp.</i>	Spiked sedge	Sedge	14	0.18%
<i>Diospyros texana</i>	Persimmon	Browse	13	0.16%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	13	0.16%

## Appendix 15. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Nothoscordum bivalve</i>	Crow Poison	Forb	13	0.16%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	12	0.15%
<i>Croton fruticosus</i>	Croton	Forb	12	0.15%
<i>Dalea sp.</i>	Dalea	Forb	12	0.15%
<i>Sida filicaulis</i>	Sida	Forb	12	0.15%
<i>Conyza canadensis</i>	Mare's Tail	Forb	11	0.14%
<i>Zea mays</i>	Corn	Supplemental/Crop	11	0.14%
<i>Vitis sp.</i>	Grape	Browse	10	0.13%
<i>Chloris cucullata</i>	Hooded Windmillgrass	Grass	10	0.13%
<i>Calylophus berlandieri</i>	Evening Primrose	Forb	9	0.11%
<i>Malvaceae</i>	Mallow Family	Forb	9	0.11%
<i>Monarda citriodora</i>	Horsemint	Forb	9	0.11%
<i>Gleditsia triacanthos</i>	Honey Locust	Browse	8	0.10%
<i>Physalis cinarens</i>	Yellow Ground-cherry	Forb	7	0.09%
<i>Scutellaria wrightii</i>	Skullcap	Forb	7	0.09%
<i>Forestiera pubescens</i>	Elbowbush	Browse	6	0.08%
<i>Erodium cicutarium</i>	Filaree	Forb	6	0.08%
<i>Helianthus petiolaris</i>	Plains Sunflower	Forb	6	0.08%
<i>Heterotheca latifolia</i>	Camphorweed	Forb	6	0.08%
<i>Teucrium lacinatedum</i>	Cut-leaf Germander	Forb	6	0.08%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	6	0.08%
<i>Prunus angustifolia</i>	Sandhill Plum	Mast	6	0.08%
<i>Brassicaceae</i>	Mustard Family	Forb	5	0.06%
<i>Cirsium texanum</i>	Texas Thistle	Forb	5	0.06%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	5	0.06%
<i>Wedelia texana</i>	Orange Zexmenia	Forb	5	0.06%
<i>Smilax bona-nox</i>	Greenbriar	Browse	4	0.05%
<i>Dithyrea wislizeni</i>	Spectacle Pod	Forb	4	0.05%
<i>Dyssodia pentachaeta</i>	Parralena	Forb	4	0.05%
<i>Senna sp.</i>	Senna	Forb	4	0.05%
<i>Thelesperma filifolium</i>	Greenthread	Forb	4	0.05%
<i>Croton capitatus</i>	Woolly Croton	Forb	3	0.04%
<i>Fabaceae</i>	Legume Family	Forb	3	0.04%
<i>Gaillardia pulchella</i>	Firewheel	Forb	3	0.04%
<i>Cyperus sp.</i>	Flatsedge	Sedge	3	0.04%
<i>Asteraceae</i>	Sunflower Family	Forb	2	0.03%
<i>Draba cunefolia</i>	Whitlow-grass	Forb	2	0.03%
<i>Plantago sp.</i>	Plantain	Forb	2	0.03%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	2	0.03%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	1	0.01%

## Appendix 15. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Unknown</i>	Unknown	Unknown	1	0.01%
<i>UF</i>	Unknown Forbs	Forb	78	0.99%
<i>UG</i>	Unknown Grasses	Grass	26	0.33%
<i>UB</i>	Unknown Browse	Browse	12	0.15%
		<b>TOTALS</b>		
		Forb	2420	30.63%
		Grass	2260	28.61%
		Browse	2125	26.90%
		Mast	758	9.59%
		Supplemental/Crop	262	3.32%
		Sedge	74	0.94%
		Unknown	1	0.01%

Appendix 16. Diet of white-tailed deer by forage class at San Angelo WMA/Runnels/Shackelford County sites in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in 1999-2001. The percent frequency is based on a total of 11,800 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	1559	13.21%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	1324	11.22%
<i>Zanthoxylum hirsutum</i>	Prickly-ash	Browse	608	5.15%
<i>Erodium texanum</i>	Storksbill	Forb	595	5.04%
<i>Rhus microphylla</i>	Littleleaf Sumac	Browse	452	3.83%
<i>Zea mays</i>	Corn	Supplemental/Crop	448	3.80%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	429	3.64%
<i>Ephedra antispyllitica</i>	Ephedra	Browse	326	2.76%
<i>Rhus aromatica</i>	Skunkbush	Browse	296	2.51%
<i>Juniperus pinchotii</i>	Redberry Juniper	Browse	279	2.36%
<i>Phoradendron tomentosum</i>	Mistletoe	Browse	242	2.05%
<i>Siphonoglossa pilosella</i>	Hairy Tubetongue	Forb	217	1.84%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	202	1.71%
<i>Allium drummondii</i>	Wild Onion	Forb	192	1.63%
<i>Bromus japonicus</i>	Japanese Brome	Grass	192	1.63%
<i>Celtis reticulata</i>	Hackberry	Browse	189	1.60%
<i>Ziziphus obtusifolia</i>	Lotebush	Browse	185	1.57%
<i>Forestiera pubescens</i>	Elbowbush	Browse	183	1.55%
<i>Bromus unioloides</i>	Rescuegrass	Grass	171	1.45%
<i>Aphanostephus ramosissimus</i>	Lazy Daisy	Forb	156	1.32%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	140	1.19%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	130	1.10%
<i>Triticum aestivum</i>	Wheat	Supplemental/Crop	130	1.10%
<i>Smilax bona-nox</i>	Greenbriar	Browse	122	1.03%
<i>Cocculus carolinus</i>	Carolina Snailseed	Forb	116	0.98%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	111	0.94%
<i>Calylophus berlandieri</i>	Evening Primrose	Forb	110	0.93%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	102	0.86%
<i>Krameria lanceolata</i>	Ratany	Forb	87	0.74%
<i>Nothoscordum bivalve</i>	Crow Poison	Forb	83	0.70%
<i>Croton capitatus</i>	Woolly Croton	Forb	73	0.62%
<i>Verbesina sp.</i>	Crownbeard	Forb	62	0.53%
<i>Ziziphus obtusifolia</i>	Lotebush	Mast	62	0.53%
<i>Physalis lobata</i>	Purple Ground-cherry	Forb	61	0.52%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	60	0.51%
<i>Acacia greggii</i>	Catclaw	Browse	58	0.49%
<i>Xanthocephalum sarothrae</i>	Broomweed	Forb	55	0.47%

## Appendix 16. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Tridens muticus</i>	Slim Tridens	Grass	55	0.47%
<i>Berberis trifoliolata</i>	Agarito	Browse	54	0.46%
<i>Erodium cicutarium</i>	Filaree	Forb	53	0.45%
<i>Diospyros texana</i>	Persimmon	Browse	52	0.44%
<i>Chamaesyce</i> sp.	Creeping Spurge	Forb	48	0.41%
<i>Yucca</i> sp.	Yucca	Browse	47	0.40%
<i>Lolium perenne</i>	Ryegrass	Grass	47	0.40%
<i>Yucca constricta</i>	Yucca	Browse	46	0.39%
<i>Sida filicaulis</i>	Sida	Forb	46	0.39%
<i>Acacia roemeriana</i>	Catclaw	Browse	44	0.37%
<i>Opuntia leptocaulis</i>	Tasajillo	Browse	44	0.37%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	43	0.36%
<i>Vernonia</i> sp.	Ironweed	Forb	41	0.35%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	40	0.34%
<i>Chamaesyce lata</i>	Creeping Spurge	Forb	38	0.32%
<i>Linum rupestre</i>	Rock Flax	Forb	38	0.32%
<i>Ambrosia confertiflora</i>	Field Ragweed	Forb	37	0.31%
<i>Commelina erecta</i>	Dayflower	Forb	36	0.31%
<i>Anemone heterophylla</i>	Wind-flower	Forb	34	0.29%
<i>Desmanthus velutinus</i>	Bundleflower	Forb	34	0.29%
<i>Setaria leucopila</i>	Plains Bristlegrass	Grass	34	0.29%
<i>Hymenoxys linearifolia</i>	Bitterweed	Forb	33	0.28%
<i>Lepidium densiflorum</i>	Peppergrass	Forb	33	0.28%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	33	0.28%
<i>Allium</i> sp.	Wild onion	Forb	32	0.27%
<i>Prunus rivularis</i>	Creek Plum	Browse	31	0.26%
<i>Lithospermum incisum</i>	Puccoon	Forb	29	0.25%
<i>Berberis trifoliolata</i>	Agarito	Mast	29	0.25%
<i>Salix nigra</i>	Black Willow	Browse	27	0.23%
<i>Talinum aurantiacum</i>	Orange Flameflower	Forb	24	0.20%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	23	0.19%
<i>Desmanthus</i> sp.	Bundleflower	Forb	23	0.19%
<i>Cirsium texanum</i>	Texas Thistle	Forb	21	0.18%
<i>Dalea</i> sp.	Dalea	Forb	21	0.18%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	21	0.18%
<i>Parthenium hysterophorus</i>	False Ragweed	Forb	21	0.18%
<i>Gaura parviflora</i>	Lizard-tail	Forb	20	0.17%
<i>Plantago</i> sp.	Plantain	Forb	18	0.15%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Mast	18	0.15%
<i>Schrankia</i> sp.	Sensitivebriar	Forb	17	0.14%

## Appendix 16. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Aloysia gratissima</i>	Whitebrush	Browse	16	0.14%
<i>Senna pumilio</i>	Dwarf Senna	Forb	16	0.14%
<i>Dalea frutescens</i>	Black Dalea	Browse	15	0.13%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	15	0.13%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	15	0.13%
<i>Vitis sp.</i>	Grape	Browse	14	0.12%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	14	0.12%
<i>Linum rigidum</i>	Flax	Forb	14	0.12%
<i>Malva sp.</i>	Mallow	Forb	14	0.12%
<i>Verbena canescens</i>	Gray Vervain	Forb	14	0.12%
<i>Colubrina texensis</i>	Hog-plum	Browse	13	0.11%
<i>Panicum obtusum</i>	Vine Mesquite	Grass	13	0.11%
<i>Phyllanthus polygonoides</i>	Leaf-flower	Forb	12	0.10%
<i>Thelesperma filifolium</i>	Greenthread	Forb	12	0.10%
<i>Convolvulus equitans</i>	Texas Bindweed	Forb	11	0.09%
<i>Marsilea macropoda</i>	Water-clover	Forb	11	0.09%
<i>Xanthocephalum dracunculoides</i>	Broomweed	Forb	11	0.09%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	10	0.08%
<i>Hermannia texana</i>	Mexican Mallow	Forb	10	0.08%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	10	0.08%
<i>Oenothera lacinata</i>	Cut-leaf Evening Primrose	Forb	10	0.08%
<i>Rhus lanceolata</i>	Flame-leaf Sumac	Browse	9	0.08%
<i>Chamaesaracha sp.</i>	False Nightshade	Forb	9	0.08%
<i>Panicum hallii</i>	Hall's Panicum	Grass	9	0.08%
<i>Fabaceae</i>	Legume Family	Browse	8	0.07%
<i>Dyschoriste linearis</i>	Snake Herb	Forb	8	0.07%
<i>Aristida wrightii</i>	Wright's Three-awn	Grass	8	0.07%
<i>Ulmus crassifolia</i>	Cedar Elm	Browse	7	0.06%
<i>Fabaceae</i>	Legume Family	Forb	7	0.06%
<i>Verbena sp.</i>	Verbena	Forb	7	0.06%
<i>Celtis laevigata</i>	Sugarberry	Browse	6	0.05%
<i>Dyssodia pentachaeta</i>	Parralena	Forb	6	0.05%
<i>Liatris mucronata</i>	Gayfeather	Forb	6	0.05%
<i>Gleditsia triacanthos</i>	Honeylocust	Browse	5	0.04%
<i>Mimosa sp.</i>	Catclaw	Browse	5	0.04%
<i>Amblyolepis setigera</i>	Huisache-daisy	Forb	5	0.04%
<i>Sibara virginica</i>	Virginia Sibara	Forb	5	0.04%
<i>Trifolium sp.</i>	Clover	Forb	5	0.04%
<i>Acacia sp.</i>	Catclaw	Browse	4	0.03%
<i>Rubus sp.</i>	Dewberry	Browse	4	0.03%

## Appendix 16. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Croton monanthogynus</i>	Croton	Forb	4	0.03%
<i>Grindelia microcephala</i>	Gumweed	Forb	4	0.03%
<i>Salsola kali</i>	Russian Olive	Browse	3	0.03%
<i>Croton sp.</i>	Croton	Forb	3	0.03%
<i>Dalea purpurea</i>	Purple Prairie-clover	Forb	3	0.03%
<i>Heterotheca canescens</i>	Gray Golden Aster	Forb	3	0.03%
<i>Scrophulariaceae</i>	Figwort Family	Forb	3	0.03%
<i>Scutellaria wrightii</i>	Bushy Skullcap	Forb	3	0.03%
<i>Bouteloua hirsuta</i>	Hairy Grama	Grass	3	0.03%
<i>Forestiera pubescens</i>	Elbowbush	Mast	3	0.03%
<i>Asclepias sp.</i>	Milkweed	Forb	2	0.02%
<i>Asteraceae</i>	Sunflower Family	Forb	2	0.02%
<i>Centaurea texense</i>	Lady Bird's Centaury	Forb	2	0.02%
<i>Euphorbiaceae</i>	Spurge Family	Forb	2	0.02%
<i>Gaillardia pulchella</i>	Firewheel	Forb	2	0.02%
<i>Galium sp.</i>	Bedstraw	Forb	2	0.02%
<i>Gnaphalium stramineum</i>	Cudweed	Forb	2	0.02%
<i>Linum sp.</i>	Flax	Forb	2	0.02%
<i>Malvaceae</i>	Mallow Family	Forb	2	0.02%
<i>Bouteloua gracilis</i>	Blue Grama	Grass	2	0.02%
<i>Brassica sp.</i>	Mustard	Forb	1	0.01%
<i>Lepidium virginicum</i>	Peppergrass	Forb	1	0.01%
<i>Torilis arvensis</i>	Beggar's Lice	Forb	1	0.01%
UF	Unknown Forbs	Forb	82	0.70%
UG	Unknown Grasses	Grass	49	0.42%
UB	Unknown Browse	Browse	29	0.25%
		<b>TOTALS</b>		
		Browse	4075	34.53%
		Forb	3164	26.81%
		Grass	988	8.37%
		Supplemental/Crop	578	4.90%
		Mast	2995	25.38%

Appendix 17. Diet of white-tailed deer by forage class at the Wilbarger County site in the Rolling Plains Ecological Region of Texas based on the number of point-frame hits (percent frequency) for plant species in 1999-2001. The percent frequency is based on a total of 4,000 potential points.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Bromus japonicus</i>	Japanese Brome	Grass	967	24.18%
<i>Prosopis glandulosa</i>	Honey Mesquite	Mast	383	9.58%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Mast	278	6.95%
<i>Gaura parviflora</i>	Lizard-tail	Forb	205	5.13%
<i>Allium drummondii</i>	Wild onion	Forb	147	3.68%
<i>Aster ericoides</i>	Heath aster	Forb	133	3.33%
<i>Commelina erecta</i>	Dayflower	Forb	122	3.05%
<i>Tradescantia occidentalis</i>	Spiderwort	Forb	116	2.90%
<i>Krameria lanceolata</i>	Ratany	Forb	115	2.88%
<i>Chamaesyce prostrata</i>	Creeping Spurge	Forb	98	2.45%
<i>Stipa leucotricha</i>	Texas Wintergrass	Grass	92	2.30%
<i>Lactuca serriola</i>	Prickly Lettuce	Forb	89	2.23%
<i>Chamaesyce albomarginata</i>	Creeping Spurge	Forb	85	2.13%
<i>Prosopis glandulosa</i>	Honey Mesquite	Browse	79	1.98%
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	Forb	57	1.43%
<i>Agropyron smithii</i>	Western Wheatgrass	Grass	55	1.38%
<i>Paspalum setaceum</i>	Thin Paspalum	Grass	54	1.35%
<i>Nothoscordum bivalve</i>	Crow Poison	Forb	42	1.05%
<i>Salix nigra</i>	Black Willow	Browse	41	1.03%
<i>Erodium cicutarium</i>	Filaree	Forb	38	0.95%
<i>Lepidium densiflorum</i>	Peppergrass	Forb	34	0.85%
<i>Celtis reticulata</i>	Hackberry	Browse	32	0.80%
<i>Prunus rivularis</i>	Creek Plum	Browse	27	0.68%
<i>Ambrosia psilostachya</i>	Western Ragweed	Forb	26	0.65%
<i>Buchloe dactyloides</i>	Buffalograss	Grass	24	0.60%
<i>Panicum obtusum</i>	Vine mesquite	Grass	24	0.60%
<i>Smilax bona-nox</i>	Greenbriar	Browse	24	0.60%
<i>Aristida purpurea</i>	Purple Three-awn	Grass	23	0.58%
<i>Geranium texanum</i>	Texas Geranium	Forb	22	0.55%
<i>Vitis sp.</i>	Grape	Browse	22	0.55%
<i>Bromus unioloides</i>	Rescuegrass	Grass	20	0.50%
<i>Erioneuron pilosum</i>	Hairy Tridens	Grass	20	0.50%
<i>Schrankia uncinata</i>	Sensitivebriar	Forb	20	0.50%
<i>Chamaesyce serpens</i>	Mateuphorbia	Forb	19	0.48%
<i>Sorghastrum nutans</i>	Yellow Indiangrass	Grass	19	0.48%
<i>Sapindus saponaria</i>	Western Soapberry	Mast	18	0.45%
<i>Acacia angustissima</i>	Prairie Acacia	Forb	16	0.40%



## Appendix 17. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Allium sp.</i>	Wild Onion	Forb	16	0.40%
<i>Plantago sp.</i>	Plantain	Forb	16	0.40%
<i>Cyperus sp.</i>	Flatsedge	Sedge	15	0.38%
<i>Erodium texanum</i>	Storcksbill	Forb	15	0.38%
<i>Astragalus sp.</i>	Vetch	Forb	12	0.30%
<i>Sporobolus cryptandrus</i>	Sand Dropseed	Grass	12	0.30%
<i>Dicanthelium oligosanthos</i>	Scribner's Dicanthelium	Grass	11	0.28%
<i>Pyrrhopappus multicaulis</i>	Texas Dandelion	Forb	11	0.28%
<i>Schrankia sp.</i>	Sensitive-briar	Forb	11	0.28%
<i>Dracopis amplexicaulis</i>	Clasping Coneflower	Forb	10	0.25%
Unknown	Unknown	Unknown	10	0.25%
<i>Bumelia lanuginosa</i>	Gum Bumelia	Browse	9	0.23%
<i>Eriochloa sericea</i>	Texas Cupgrass	Grass	9	0.23%
<i>Linum pratense</i>	Meadow Flax	Forb	9	0.23%
<i>Amaranthus sp.</i>	Pigweed	Forb	7	0.18%
<i>Argythamnia humilis</i>	Wild Mercury	Forb	7	0.18%
<i>Bouteloua curtipendula</i>	Sideoats Grama	Grass	7	0.18%
<i>Desmanthus sp.</i>	Bundleflower	Forb	7	0.18%
<i>Sapindus saponaria</i>	Western Soapberry	Browse	7	0.18%
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	Forb	7	0.18%
<i>Ambrosia trifida</i>	Giant Ragweed	Forb	6	0.15%
<i>Cirsium undulatum</i>	Plumed Thistle	Forb	6	0.15%
<i>Medicago minima</i>	Small Bur Clover	Forb	6	0.15%
<i>Fabaceae</i>	Legume Family	Forb	5	0.13%
<i>Bouteloua rigidiseta</i>	Texas Grama	Grass	4	0.10%
<i>Lesquerella densiflora</i>	Bladderpod	Forb	4	0.10%
<i>Opuntia sp.</i>	Prickly Pear Cactus	Browse	4	0.10%
<i>Phyla incisa</i>	Frog-fruit	Forb	4	0.10%
<i>Scutellaria wrightii</i>	Bushy Skullcap	Forb	4	0.10%
<i>Astragalus nuttallianus</i>	Nuttall's Milk-Vetch	Forb	3	0.08%
<i>Cyperaceae</i>	Sedge Family	Sedge	3	0.08%
<i>Grindelia microcephala</i>	Gumweed	Forb	3	0.08%
<i>Artemisia ludoviciana</i>	Louisiana Sagewort	Forb	2	0.05%
<i>Carex sp.</i>	Sedge	Sedge	2	0.05%
<i>Liatris punctata</i>	Gayfeather	Forb	2	0.05%
<i>Panicum sp.</i>	Panicum	Grass	2	0.05%
<i>Achillea millifolium</i>	Yarrow	Forb	1	0.03%
<i>Chamaesaracha sordida</i>	False Nightshade	Forb	1	0.03%
<i>Chenopodiaceae</i>	Goosefoot Family	Forb	1	0.03%
<i>Euphorbiaceae</i>	Spurge Family	Forb	1	0.03%

## Appendix 17. Continued.

Scientific Name	Common Name	Forage Class	# of hits	Percent Frequency
<i>Geranium carolinianum</i>	Wild Geranium	Forb	1	0.03%
<i>Lepidium virginicum</i>	Peppergrass	Forb	1	0.03%
<i>Malvaceae</i>	Mallow Family	Forb	1	0.03%
<i>Physalis sp.</i>	Ground Cherry	Forb	1	0.03%
UG	Unknown Grasses	Grass	71	1.78%
UF	Unknown Forbs	Forb	51	1.28%
UB	Unknown Browse	Browse	16	0.40%
		<b>TOTALS</b>		
		Forb	1616	40.40%
		Grass	1414	35.35%
		Mast	679	16.98%
		Browse	261	6.53%
		Sedge	20	0.50%
		Unknown	10	0.25%

## VITA

Kyle Mitchell Burke was born in Dallas, Texas, on January 31, 1977, the son of Robert Paul Burke and Deborah Jean Mitchell. After completing his work at Bishop Lynch High School, Dallas, Texas, in 1995, he entered Colorado State University in Ft. Collins, Colorado. He transferred to Texas A&M University in August 1996, and received the degree of Bachelor of Science in Wildlife and Fisheries Sciences in May 1999. He later worked as a Summer Ranger for the U.S. Army Corps of Engineers, as well as a Research Technician on endangered Florida Key deer. He entered the Graduate School of Southwest Texas State University, Biology Department, San Marcos, Texas, in August 2000. While at Southwest Texas State University, he was a Research Technician for the Biology Department.

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