

KEY PLANTS FOR QUAIL IN THE ROLLING PLAINS

RICKY LINEX, Range Management Specialist, Natural Resources Conservation Service, 4400 Buffalo Gap Road, Suite 4000, Abilene, TX 79606; 915-692-8238, ext. 3; rlinex@txabilene.fsc.usda.gov

Abstract: We are living in the age of the greatest interest in managing for wildlife. However, wildlife management really does not intend to manage a bobwhite quail (*Colinus virginianus*), a whitetail deer (*Odocoileus virginianus*) or Rio Grande turkey (*Meleagris gallapavo intermedia*). These are wild animals that can exist on their own if the food; water & cover triangle is in harmony. Wildlife management is really managing the habitat in which the animal lives and not so much the animal itself. If we can improve the animal's habitat requirements then we have also helped the animal. For a wildlife manager to improve the food component on a parcel of land, one should be able to identify which plants are important as food and cover. Western ragweed (*Ambrosia psilostachya*) and annual broomweed (*Xanthocephalum dracunculoides*), though of little value to a cattleman, are the seeds of choice for quail in the Rolling Plains area of Texas.

Introduction

Quail hunters frequently open the crop of harvested birds to examine the seeds and insects chosen by the birds. Most hunters can identify wheat (*Triticum aestivum*), sunflower seeds (*Helianthus sp.*) plus a few insects, but to intensively manage the habitat for quail, hunters and landowners need to know most if not all of the important food plants found in the area. The Natural Resources Conservation Service in Abilene initiated a study in the fall of 1991 requesting hunters to save the crops(craws) of quail harvested during the 1991-92 and 1992-93 hunting season. Seeds identified from this study reveals the variety of plants used by quail as food sources.

Key Food Plants

Survey results indicate quail are very selective in that they chose the largest seeds available during the November-December period and were less selective as seeds became scarce during the January-February period. Western ragweed, the scourge of ranchers and those with allergies, is the dominant perennial forb taken each year. Annual broomweed, if moisture the previous fall was adequate, will show up as the dominant annual forb found in quail crops. Other perennials that are frequently chosen include Bundleflower (*Desmanthus sp.*), Puccoon (*Lithospermum sp.*), Erect dayflower (*Commelina erecta*), Perennial croton (*Croton sp.*) and seeds from Buffalo gourd (*Cucurbita foetidissima*) after a cow or vehicle crushes the gourd making the seeds available. Annual forbs are found more frequently in crops but their availability is dependant upon rainfall resulting in a variety of plants some years and very few during

drier than normal winter and spring periods. The rainfall pattern for the spring of 1999 resulted in an explosion of American basketflower (*Centaurea americana*) over rangeland areas of the Rolling Plains. This plant should show up regularly in crops this fall. Other annual forbs include several of the annual croton or doveweed species, Sunflower, Curlycup gumweed (*Grindelia squarrosa*), Sawleaf daisy (*Prionopsis ciliata*), Nuttall milkvetch (*Astragalus nuttallianus*), Buffalobur (*Solanum rostratum*), Pricklypoppy (*Argemone sp.*), Lambsquarter (*Chenopodium album*), Snow-on-the-Mountain (*Euphorbia marginata*), Filaree (*Erodium sp.*), Spurge (*Euphorbia sp.*), Vetch (*Vicia sp.*) and Carolina geranium (*Geranium carolinianum*). Other forbs are commonly taken when available which should lead a wildlife manager to think in terms of managing for a variety of plants to insure that some seeds will always be available. Whether you are managing a native rangeland area or you are considering putting in a food plot for quail, maintaining a variety of plants will provide a more dependable food supply. Mother Nature uses a shotgun approach to seeding plants resulting in a variety of plants being available to produce seeds throughout the year.

Woody plants offer a source of food as well as cover to quail. The lowly mesquite (*Prosopis glandulosa*) produces large quantities of seed in the beans that are eaten by cattle and other animals. The animal's digestive juices strips the starchy outer pod from the bean resulting in a clean slick seed laying in the fresh dung pile where quail will scratch the seeds out. Bumelia or Chittamwood (*Bumelia lanuginosa*) is classified as a shrub with some plants reaching a height of 25 feet. Bumelia often is found growing in

small thickets in areas where additional water is available. The seed of *Bumelia* is one of the larger seeds preferred by quail. The thickets also offer loafing cover as well as areas harboring insects needed by the chicks. Hackberry (*Celtis sp.*), Pricklyash (*Zanthoxylum hirsutum*), Sumacs (*Rhus sp.*), Lotebush (*Zizphus obtusifolia*), Wolfberry (*Lycium sp.*), Carolina snailseed (*Cocculus carolinus*), Elbowbush (*Forestiera pubescens*) and Oaks (*Quercus sp.*) are woodies whose seed is readily chosen by quail. The ripening tunas or fruit of prickly pear and tasajillo (*Opuntia sp.*) provide a good source of seeds. The purple cheeks and throat of quail in the fall offers proof of their use of pear tunas.

Quail will eat grass seeds if available and if the seed is a hard, slick seed free of the awns or fuzz common with bluestem type seeds. Grasses commonly taken include Plains bristlegrass (*Setaria macrostachya*), Hall's panicum (*Panicum hallii*), Johnsongrass (*Sorghum halepense*), Browntop panic (*Panicum fasciculatum*), Kleingrass (*Panicum coloratum*), Fringeleaf signalgrass (*Paspalum sp.*) and Rescuegrass (*Bromus unioloides*). Some years the crops of quail harvested in February will be found containing mostly 1/2 inch clippings of rescuegrass and wildrye but few seeds. Greens, as these clippings are called, furnish vitamin A but contributes less energy and are not considered as desirable a food source as seeds of Western ragweed or croton. This

may be a case of the birds foraging for whatever they can find, as seeds become scarce during late winter.

Quail will make use of spilled grain from the harvest of cultivated crops such as wheat, sorghums, sunflower, sesame, cowpeas and millets. Wheat is a common seed found in the crops of quail in the early summer where quail have access to wheat fields. A lot of research has been done relating what quail eat during the fall and winter months in conjunction with hunting season. Wildlife managers also need to know what quail are eating other months of the year. It is interesting during the spring and summer months to pick up a quail killed on the highway and examine the crop contents. There are seeds produced early (May-June) such as Algerita (*Mahonia trifoliolata*) and Ephedra (*Ephedra antisyphilitica*) that may not be abundant in the fall and winter but are important for early summer use by quail. Wildlife managers need to tread lightly with brush control in that most of the other woody species associated with mesquite and cedar produce seed, fruit or cover useable by quail. What you may call scrub brush, the low growing thorny shrub such as Lotebush or *Bumelia*, is valuable for quail production and should not be dozed. If its not a mesquite or cedar, leave it alone and leave it for wildlife.

KEY FOOD PLANTS FOR QUAIL IN THE ROLLING PLAINS

Annual Forbs (Weeds)

Common Broomweed*
Sunflower*#
Giant Ragweed or Bloodweed*
Crotons or Doveweed*
Buffalobur*
Pigweed or Carelessweed*
Toothed Spurge*
Prostrate Spurges*
Pricklypoppy*
Clammyweed*
Snow-on-the-Mountain
Cowpen Daisy
Nuttall Milkvetch
Lambsquarter
Russian Thistle or Tumbleweed
Partridge Pea#

Perennial Forbs (Weeds)

Western Ragweed*#
Broom Snakeweed*
Sand Lilly*
Perennial Croton*
Bundleflowers*#
Dayflower*
Small Wildbean*
Prairie Acacia
Buffalogourd
Western Indigo
Low Menodora
Indian Mallow
Sida
Texas Nightshade

Grasses

Plains Bristlegrass*#
Johnsongrass*#
Browntop Panic*
Reverchon Bristlegrass
Hall's Panicum
Kleingrass
Fringed Signalgrass
Fringleaf Paspalum
Texas Panicum
Rescuegrass

Seed and Fruit of Woody Plants

Mesquite*
Bumelia*
Oak Sp.*#
Pricklypear
Tasajillo
Hackberry#
Sumacs#
Wolfberry

Cultivated Crops

Wheat*#
Sorghums*#
Sunflower#
Sesame#
Cowpeas#
Browntop Millet#
Proso Millet#
German or Foxtail Millet#
Pearl Millet#

* The most common and most valuable plants

Plants which seed or seedlings are commercially available

Compiled by Steve Nelle, Biologist, Natural Resources Conservation Service, San Angelo