



Natural Resources Conservation Service (NRCS)



# **White-Tailed Deer Management in South Texas**



**United States  
Department of  
Agriculture**

## **Habitat Requirements**

**Food:** Deer require a high quality food supply that is usually made up of browse, mast and forbs. Refer to Table 1 below for a listing of important native and naturalized deer food plants. Grasses normally make up only a minor part of the yearlong diet; however they may be seasonally important. Basic nutritional requirements for good body growth, reproduction and antler development are thought to be: at least 16% crude protein; 65% TDN; 0.3% phosphorus; and 0.6 % calcium in the diet. Nutritional requirements for maintenance are substantially less than this. Deer will consume about 3.5% of their body weight per day in forage on a dry weight basis. A 100 pound deer would therefore require nearly 1300 pounds of forage per year. One deer is normally considered to be about .15 animal unit or 7 deer per animal unit. Populations with larger than normal body weights and a high ratio of males to females may have a greater animal unit equivalency.

**Table 1. Important Deer Food Plants**

Class I Browse (1st Choice)	Guayacan, Coma, Hackberry, Kidneywood, Cedar Elm, Bernardia, Fourwing saltbush, Manzanita, Vine Ephedra, Granjeno
Class II Browse (2nd Choice)	Colima, Anaqua, Huisache, Wright acacia, Live oak, Littleleaf sumac, Chomonque, Guajillo, Catclaw Acacia, Ratany, Snake eyes, Bumelia Blackbrush, Twisted acacia, Brasil, Lotebush, Texas persimmon Hogplum, Anachahuita, Cenizo, Ebony, Tenaza, Palo verde, Retama,
Class III Browse (3rd Choice)	Mesquite, Creosotebush, Whitebrush, Coyotillo, Mountain laurel, Allthorn, Knifeleaf condalia, Shrubby bluesage, Narrowleaf Foresteria Agarito, Amargosa, Dessert Yaupon, Green Condalia, Wolfberry
Class I Perennial Forbs (GOOD)	Winecup, Dayflower, Primroses, Texas nightshade, Rain lilly, Bloodberry, Heath Aster, Spiderwort, Nodviolet, Engelmann daisy, Illinois bundleflower, Velvet bundleflower, Hairy tubetongue, Trailing ratany
Class II Perennial Forbs (FAIR)	Bush sunflower, Wood sorrel, Western indigo, Berlander trumpet, Mistflower, Zornia, Windflower, Least snoutbean, Rock daisy, Sensitivebriar, Crow poison, Knotweed leafflower, Texas bindweed, Low menodora, Sida, Squarebud daisy, Wild onion, Indian mallow, Ruellia, Evolvulus, Noseburn, False nightshade, Verbena, Lindheimer tephrosia, Milkpea, Texas snoutbean, Globe mallow, Dalea, Field ragweed, Western ragweed, Wild mercury, Frogfruit, False mallow, Gayfeather, American snoutbean, Twinevine, Morning glory, Orange zexmania, Copperleaf, Neptunia, Perennial spurge, Texas salvia, Sticky seloa, Turks cap, Prairie clover
Class III Perennial Forbs (POOR)	Goldaster, Goldenweed, Rush pea, Rat ear coldenia, Dogweed, Ericameria, Bullnettle, Broom snakeweed, Texas senna, Queen's delight, Jicama, Silver leaf nightshade, Prairie coneflower, Frostweed, Leatherstem, Mentzelia
Annual Forbs of Seasonal Importance	Wild vetch, Draba, Nuttall peavine, Burclover, Tumbleweed, Annual tetraeneuris, Prairie aster, Flax, Tallow weed, Filaree, Lambsquarter, Annual broomweed, Pigweed, Sleepydaisy, Thistle, Portulaca, Annual croton, Pellitory, Bluecurls, Annual spurge, Kochia, Wildcarrot, Indian blanket, Milkvetch, Tansymustard, Bladderpod, Pepperweed, Lazy daisy, Gaura, Huisache daisy, Sunflower, Carolina geranium



**Cover:** Deer need large parts of their range in protective cover, usually in the form of moderate to dense woody vegetation. Where woody cover is sparse, tall grass cover or rough topography may partially compensate. Prime deer habitat will usually have much more than half of the landscape covered by moderate to dense woody vegetation. Deer will occupy land with much less cover, but numbers will be considerably lower. Fawning cover consists of dense areas of tall grass usually mixed with low growing shrubs to provide concealment from predators. Mature bucks seem to have a need for larger areas of very dense cover as compared to younger bucks or does.

**Water:** Permanent water is considered a necessary component of deer habitat. Deer normally drink water daily, although at times, their water needs can be met with cactus or succulent vegetation. Water placement for livestock will usually suffice for deer. Permanent water should be available close to cover and spaced no more than 1 to 1.5 miles apart, preferably closer.

### **Habitat Arrangement**

Cover and food should be intermixed so that deer can forage in close proximity to protective cover. Deer will readily feed in open areas that are within 100 to 200 feet of woody cover. The more nutritional stress that deer are experiencing, the further from cover they will venture. Deer will sometimes travel a mile or more away from cover to feed, especially during drought, but they will do so primarily at night.



### **Habitat Size**

Individual deer normally range in areas of 500 to 1,000 acres. Females have a smaller home range than males. Males have a much larger range during the breeding season (October – January). In general, large areas of habitat are needed to sustain viable populations that have surplus animals available for harvest. Smaller tracts of habitat will be used periodically as deer travel from tract to tract along corridors.



## *Habitat Management Techniques*

**Food:** The ability of habitat to supply food for deer is accomplished primarily by keeping the number of deer in balance with the stable long-term carrying capacity of the habitat. Control of the population is achieved by hunting, especially of the female segment of the herd. In some areas, natural predation will keep the deer population at or below carrying capacity. Excessive deer numbers result in overgrazing of choice food plants, degradation of habitat and smaller, nutritionally deficient deer. Field dressed weights of deer in each age class (1.5, 2.5, 3.5, etc.) will reflect the adequacy of the food supply and signify whether or not the population is within the carrying capacity of a particular habitat. Proper record-keeping is essential.

Examination of key perennial forbs and browse plants (Reference Table 1) will also indicate whether deer numbers are in balance with the food supply. Light use on key forbs and browse would indicate a population that is below carrying capacity. Moderate use (no more than 50% of the current year's available production) would indicate a population that is at or near carrying capacity. Heavy use would indicate overpopulation and the need to reduce deer numbers.

The deer food supply is also greatly affected by the kinds and numbers of livestock or exotic wildlife that occupy the same habitat. Goats, sheep and most exotics have food habits that overlap with deer diets. This overlap in food habits usually leads to competition for preferred food plants. This competition decreases the available food supply for deer. If the objective is to maximize the food supply for deer, reduction or elimination of goats, sheep and exotics is recommended. Evaluation of deer weights and examination of key food plants as described above will help determine if changes in kinds or numbers of livestock or exotics are needed.

Even though cattle are primarily grass eaters, forbs and browse often makes up 10 to 20% of their diet. Due to the large total forage requirement (estimated to be 26 pounds per day for 1,000 pound cow), cattle can consume large amounts of forbs and browse and can compete with deer, especially in dry periods or winter when green grass is scarce. Where deer habitat is also used for livestock grazing, providing regular rest periods from grazing will enhance the deer food supply. This is best accomplished with a systematic grazing rotation where livestock are grouped together and moved among two or more pastures. Generally, deer food plants are favored by shorter graze periods and longer rest periods. Include desirable forbs or shrubs in range planting mixtures such as Engelmann daisy, Bush sunflower, Maximilian sunflower, Illinois bundleflower, alfalfa or Fourwing saltbush. (Refer to Table 2)

Utilize prescribed burning to improve the deer food supply:

- Remove accumulations of old grass which inhibit forb growth.
- Stimulate basal sprouting of browse plants.
- Increase in nutritional value of forbs and browse (short term).
- Stimulate the germination of certain browse and forb species.



Use mechanical renovation techniques such as roller chopping, chaining, or dragging to stimulate basal sprouting of woody plants and increase availability and production of browse. Where overstory canopy is too dense to allow understory browse and forbs, create openings or thinning of canopy to stimulate the production of deer food. Protect mature mast producing trees such as oak, mesquite and pecan. Use selective control of less desirable woody species to enhance the production of more desirable species. Use mechanical methods of brush management instead of chemical methods in order to minimize the damage to desirable forbs and browse and to stimulate forb production.

High fences are often used to enable closer management of deer herds. Where deer populations are excessive, high fences can be effectively used to reduce the deer population within the fenced habitat. Special care must be taken to insure a proper harvest of deer takes place each year within high fenced herds.

Where native food plants are not present in sufficient quantities to accomplish management objectives, food plots may be used. Dryland food plots are feasible if suitable soils are present, the correct species are used and the level of management is sufficient. Exclusion of deer during establishment is sometimes needed for best success. Weed control, moisture conservation and adequate fertility are also needed for best results. The acreage of food plots in relation to the number of deer is an important consideration. Too few acres will insure that deer will concentrate on the plots, grazing them short before they are well established, thus providing only limited forage. A rule of thumb is to plant between .25 and .5 acres of food plots per deer in order to significantly increase the food supply. This usually amounts to 2 to 10% of the area in food plot production. Soil testing and Nutrient Management guidelines should be used to determine fertilizer needs.

There are three primary kinds of food plots used for deer. (Refer to Table 2)

- Perennial food plots using perennial forbs or certain woody species do not require annual tillage and planting, but do require closer management. These species are slower to establish than annuals and they cannot tolerate continuous heavy use by deer or livestock. With proper management, they can provide large amounts of high quality forage all year long.
- Cool season annual food plots are planted in late summer or early fall and provide forage for late fall, winter and early spring. They usually consist of one or more small grains often in combination with one or more legumes.
- Warm season annual food plots are planted in spring and provide forage for late spring, summer and early fall. They usually consist of one or more legumes or other warm season forages.



**Lab lab**

Small fields or plots of small grain are often planted primarily to attract deer during the hunting season. These shooting plots are usually too small to provide substantial nutrition but are valuable in helping managers achieve the needed harvest, especially of females.

Fertilization of areas that contain key deer food plants is sometimes used to boost the production or quality of foliage or mast. This practice may increase the utilization on desirable plants to the point of excessive and detrimental use.



**Cowpeas**



Supplemental feeding of deer is not normally considered a habitat management practice, but it is commonly used to enhance the quality of the deer diet. Protein and minerals, especially phosphorus, are the most commonly supplemented nutrients. Commonly used supplements include commercially produced pellets (16 - 24% crude protein), whole cottonseed, peas, soybeans, alfalfa pellets, alfalfa hay, and peanut hay. If deer numbers are kept within carrying capacity of the habitat, then the feeding of deer to boost their nutrition should have little or no adverse effect on the habitat. Without proper harvest, supplemental feeding will usually cause the deer population to increase above the natural carrying capacity of the habitat due to increased reproduction. The feeding of corn is commonly practiced prior to and during the deer hunting season as a means to attract deer and increase the harvest. This practice is considered baiting and not supplemental feeding. It can be a valuable habitat management tool since it helps improve harvest efficiency which can help keep a population within carrying capacity.

**Cover:** Do all brush management in a pattern to retain woody cover interspersed between clearings. Patterns of openings within woody cover can be in the form of alternating strips, checkerboard blocks, random odd sized openings or contoured bands. Key cover areas such as creek bottoms, draws, headers, canyons and saddles should be left intact.

Clearings should normally be 150 to 400 feet wide in order for deer to make good use of clearings. Smaller and/or narrower clearings provide better deer habitat. Conduct selective clearing where more desirable trees and shrubs are maintained within cleared areas.

Wooded areas left for cover should be wide enough to fully conceal deer from either side during the winter after leaves have fallen. Depending on the density of cover, this will often need to be 300 to 800 feet wide.

The percentage of an area that should be left in woody cover will vary depending on landowner objectives, the deer density desired, the method of clearing and the existing density and distribution of woody cover. Generally, clearing of 25% to 50% of the acreage will maintain good deer habitat if the remaining acreage has moderate to thick cover. Clearing at this level may cause some reduction in deer numbers. Clearing 50% to 75% of the acreage will generally result in a significant decrease in deer population. Leave some large continuous tracts of moderate to dense woody cover to serve as sanctuaries for mature bucks. Conservative grazing management that retains at least moderate amounts of taller grass maximizes fawning cover. If fawning cover is inadequate due to heavy grazing, a period of 1 to 3 years of rest will hasten the recovery of a desirable grass cover. Good fawning cover can decrease the impact of predation.



**Water:** Deer use water developments that were installed for livestock. When livestock are moved out of an area, be sure to keep water maintained. Earthen depressions that catch overflow from livestock watering facilities are desirable for deer and other wildlife since succulent green forage will be present at the edge of the water. Where traditional water development such as wells, pipelines, troughs or ponds are not feasible, water for deer can be provided with rainfall catchment and storage facilities known as guzzlers. If a high fence is constructed which alters the availability of water, new water sources may need to be installed.

**Table 2. Commercially Available Seed Used for Food Plots or to Enhance Deer Food Supply**

Seed Rate Lbs/Acre <sup>1</sup>		Rows <sup>2</sup>	Planting Dates	Planting Depth In.	Comments
Broad-cast or Drilled					

**Perennials<sup>3</sup>**

Illinois bundleflower <sup>4</sup> (W)	13.6	NR	12/1 - 4/15	1/4 - 1/2	
Bush sunflower (W)	2.6	NR	12/1 - 4/15	1/4 - 1/2	
Maximilian sunflower (W)	3	NR	12/1 - 4/15	1/4 - 1/2	shred to improve leafiness
Engelmann daisy (C)	15	NR	9/1 - 4/15	1/4 - 1/2	Needs cold stratification
Alfalfa <sup>4</sup> (CW) "Ladak"	20	NR	9/1 - 4/15	1/4 - 1/2	short-lived (4 -8 yr)
Roundhead lespedeza	5	NR	12/1 - 4/15	1/4 - 1/2	
Fourwing saltbush (CW)	15.5	NR	9/1 - 4/15	1/4 - 1/2	evergreen shrub

**Warm Season Annuals**

Lablab <sup>4</sup>	30	10	4/1 - 5/31	1/4	requires intensive mgt.
Cowpea <sup>4</sup>	30	15	4/1 - 5/31	1 - 2	usually dies midsummer
Mungbean <sup>4</sup>	30	15	4/1 - 5/31	1 - 2	
Guar <sup>4</sup>	15	10	4/1 - 5/31	1 - 2	
Grain sorghum <sup>6</sup>	15	8	4/1 - 5/31	1 - 2	seedheads eaten
Pigweed <sup>5</sup>	1.5	NR	4/1 - 5/31	1/4 - 1/2	
Kochia <sup>5</sup>	1.5	NR	4/1 - 5/31	1/4 - 1/2	shred to improve leafiness

**Cool Season Annuals**

Wheat	60-90	20 - 30	9/1 - 11/30	1 - 2	more cold hardy
Oats	60-90	20 - 30	9/1 - 11/30	1 - 2	less cold hardy
Rye	60-90	20 - 30	9/1 - 11/30	1 - 2	
Triticale	60-90	20 - 30	9/1 - 11/30	1 - 2	
Ryegrass	12	NR	9/1 - 11/30	0 - 1/4	can overseed
Yellow sweetclover <sup>4</sup>	5	NR	9/1 - 11/30	1/4 - 1/2	biennial, "Madrid"
White sweetclover <sup>4</sup>	5	NR	9/1 - 11/30		"Hubam"
Hairy vetch	20	9	9/1 - 11/30	1 - 2	
Austrian winterpeas	18	12	9/1 - 11/30	1 - 2	extremely high palatability
Bur medic <sup>4</sup>	3	NR	9/1 - 11/30	1/4 - 1/2	good reseeder
Button medic <sup>4</sup>	10	NR	9/1 - 11/30	1/4 - 1/2	good reseeder
Turnips	3.5	NR	9/1 - 2/28	1/4 - 1/2	leaves and turnips eaten
Tyfon (turnip cross)	3.5	NR	9/1 - 2/28	1/4 - 1/2	may winterkill
Rose clover 'Overton R18' <sup>4</sup>	10	NR	9/1 - 2/28	0 - 1/4	best results east of I-35
Berseen clover 'Bigbee' <sup>4</sup>	14	NR	9/1 - 3/15	0 - 1/4	best results east of I-35
Arrowleaf clover 'Yucchi' <sup>4</sup>	10	NR	9/1 - 2/28	1/4 - 1/2	best results east of I-35

Footnotes:

- 1 Seeding rates based on the use of PLS when available, otherwise, use good quality commercial seed.
- 2 Row planting (20-40 inch rows) should be used only when weed control will be carried out between rows. NR - Row planting not normally recommended
3. (W) – warm season forage production (C) – cool season forage production (CW) – provides some forage during both cool and warm season
4. All legumes should be inoculated with the proper strain of Rhizobium for best production.
5. These species are also important agricultural weeds and should not be used in farming areas.
6. White or yellow seeded varieties with lower tannin content are preferred.

## References

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**Prepared by  
Garry Stephens  
USDA-NRCS  
Wildlife Biologist  
13434 Leopard St., Suite A14  
Corpus Christi, TX 78410  
(361) 241-0609 ext. 121  
Garry.stephens@tx.usda.gov**

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