Key Food Plants for Deer in the Edwards Plateau Region

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Deer are primarily forb and browse consumers. Key plant species are those plants that are readily taken by deer and are abundant. Browse plants are usually key indicator plants because of their availability during drought or other stress periods.

Forages are divided into winter and summer forages. Summer forages are further classified as preferred, moderately preferred, low moderate and poor.

Key Food Plants for Deer

Studies of the food habits of deer have indicated that deer seem to prefer forbs whenever they are available. As these forbs become unavailable, deer shift their diets more to browse. For practical management purposes, deer are not grass consumers except when grasses are young and tender.

The real key to a deer's plant preference is its digestive processes. A deer does not readily digest plants high in ligin fiber as well as domestic animals and most common exotics found in Texas do. Most plants in the young, tender growing stage are low in ligin fiber. As the plant becomes more mature, it contains a greater percentage of fiber. Therefore, deer usually seek out plants low in ligin fiber.

Most ruminant animals require at least a 12 percent protein diet for adequate growth. A 16 to 20 percent protein diet is better. Because of their less efficient digestive processes as compared to domestic livestock and common exotics, deer have to be more selective in their choices of foods. Higher protein plants are usually chosen over lower protein plants. Plants that are more digestible are chosen over those less digestible.

Certain plants only become desirable to deer at certain stages of growth, presumably because of chemical changes within the plant. Common poke-berry *(Phytolacca americana)* is a good example of this phenomenon. It is usually eaten by deer only after it reaches a mature stage. There is evidence that the turpines in some plants such as ashe juniper ("cedar") act as growth inhibitors which actually inhibit the deer's ability to digest the plant.

Other plant species contain specific mineral compounds that are used by deer. Different soil sites have different mineral compositions that are made available to plants. A species that grows on one range site may be highly sought after by deer, while the same species on a different site may be only occasionally eaten by deer. A good example of this would be the high use of prickly pear by deer in South Texas as compared to the low usage in the Edwards Plateau.

With this fundamental understanding of the kinds of foods a deer prefers, we need to understand a problem a researcher in the Hill Country is faced with when he studies and has to make judgements about deer food habits. All of the research conducted in the Edwards Plateau has been on ranges that have a long history of overpopulation by both deer and domestic livestock, and more recently by exotic animals. Most of the really preferred food plants have long since been depleted in quantity. Because of their scarcity, it is difficult to make a determination as to their importance in the deer diet. The importance of a plant is not only related to its preference by a deer but also to its abundance and availability.

Forbs are seasonal plants whose abundance is based on rainfall patterns. This is more true for annual forbs than perennial forbs. Some of the key forbs for deer are listed in Appendix 1. However, the real key plants for deer management are the deep rooted, drought resistant browse species. They are the staple food items in the deer diet. At this time, most Hill Country deer browse plants can be divided into two broad categories. They are winter forage and summer forage. Winter forages are evergreen plants. Summer forages are deciduous (plants which drop their leaves in the fall). Live oak is a good indicator of winter grazing. Generally speaking, live oak should not be grazed during the summer period, and it should be grazed less than 50 percent during the winter period. Nutritionally, live oak is a poor deer food. It is important because of its abundance and the fact that it is an evergreen.

Summer forages are usually deciduous trees. They can be divided into four groups based on deer preference. The groups are (1) preferred; (2) moderately preferred; (3) low moderate; and (4) poor. Preferred plants are those that generally receive moderate to heavy grazing, even on lightly stocked ranges. An abundance of young plants of any of the preferred species indicates a low population of browsing animals.

Moderately preferred species are those readily eaten by deer but are not as desirable to deer as the

preferred species. Two key species of moderately preferred plants are shinoak and hackberry. Heavy grazing on moderately preferred species in the early summer period indicates an overpopulation of browsing animals such as deer or goats. As a general rule, moderately preferred species such as shinoak should not be more than 50 percent grazed by the end of the summer period.

Low moderate browse species such as whitebrush and elbow bush are not preferred by deer, but will be moderately grazed as overpopulation begins to deplete the more desirable species. Deer will not be in a good state of health if this category of plants is being heavily used.

Poor browse plants are those eaten by deer only under extreme conditions. Usually these plants are chosen only when other plants on the range are depleted. Losses of deer due to malnutrition will be occurring. Good examples of these types of deer food are cedar, algarita and mountain laurel.

In this discussion only the forage of the plant is being referred to. The fruit of the plant is not considered for management purposes, since fruit crops are erratic and are difficult to manage. Deer readily consume acorns when available. Acorns contain only about 8 percent protein but are high in energy and are highly digestible. Deer also eat both persimmon and cedar fruits, even on moderately stocked ranges.

Appendix 1

Browse Plant Check List for White-tailed Deer

1. Winter Browse Plants (these plants should not be grazed during the summer period)
   - Live oak
   - Possumhaw holly
   - Evergreen sumac
   - Smilax (greenbriar)
   - Madrone

2. Summer Browse

Preferred	Moderately Preferred[1]	Low Moderate	Poor
Texas Oak	Hackberry	Soapberry	Mesquite
Texas sophora	Blackhaw virburnum	Elbowbush	Cedar
Elm	Redbud	R. acacia	Lotebush
Honeysuckle	Creepers	Fragrant mimosa	Persimmon
Cherry	Mulberry	Pricklyash	Algarita
Kidneywood	Shin oak	Silk tassel	Mountain laural
	Blackjack oak	Whitebrush	
	Lacy oak	Baccharis	
	Skunkbush sumac		
	Flameleaf sumac		
	Grape		
	Bumelia		

3. Good Forb Indicator Plants
   - Illinois bundleflower
   - Knotweed leafflower
   - Whorled nodviolet
   - Four o'clock sp.
   - Indian mallow
   - Arrowleaf sida

4. Poor Forb Plants for Deer
   - Broomweed
   - Ragweed
   - Coneflower
   - Thistles
   - Snow-on-the-mountain
   - Crotons
   - Sunflowers
   - Queens delight
   - Mealycup sage

[1]Moderately preferred browse species should not be heavily grazed (over 50% leaf removal) by the end of the August period.