

# Managing Grasslands for Wildlife

-Whitetails, Bobwhites & Turkeys

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# Habitat Management = Wildlife Management

□ Ever been on a Deer Roundup?



A photograph of a brown duck and its ducklings in a grassy field. The duck is in the center, and several ducklings are scattered around it. The background is a soft-focus green field.

# Habitat Requirements

Food

Cover

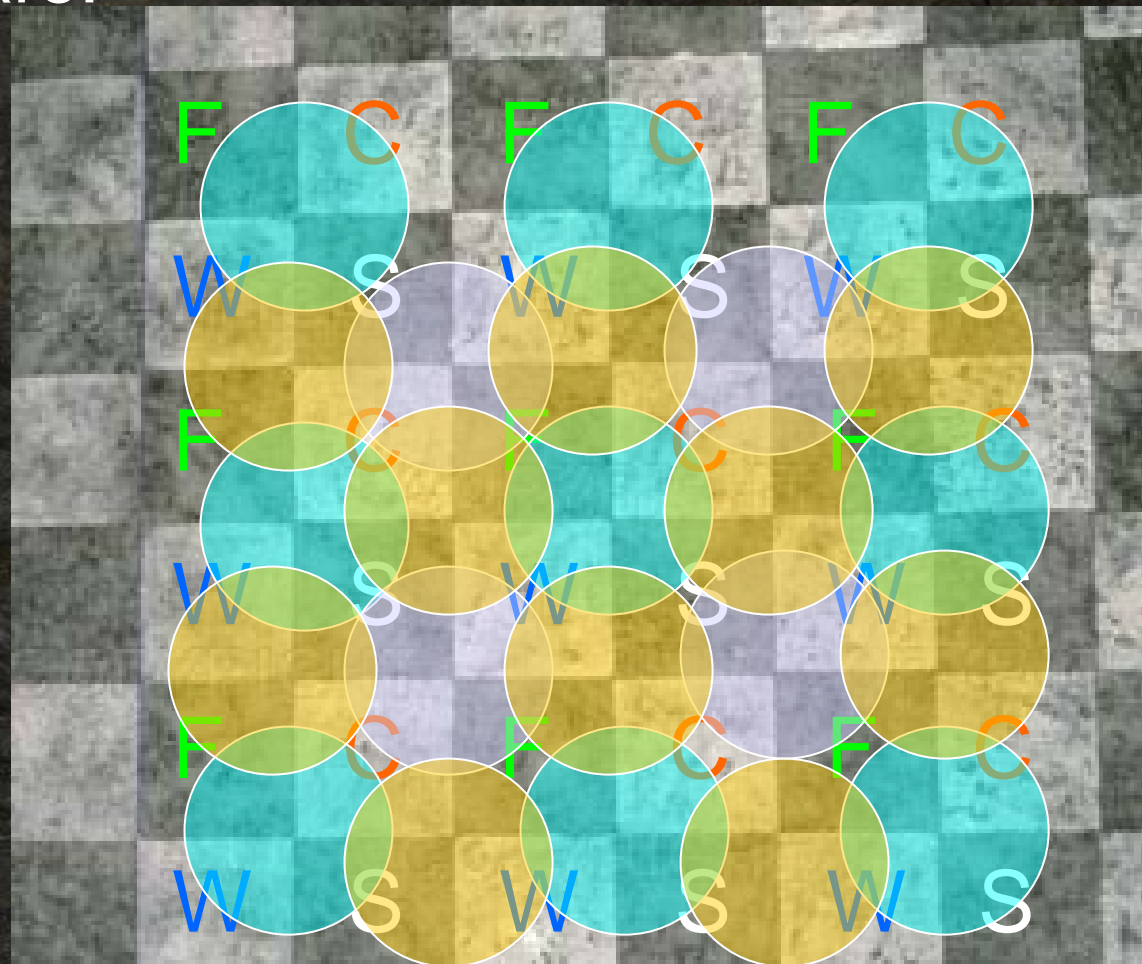
Water

Space (Habitat Arrangement)

# Habitat Management = Successful Wildlife Management

Fundamental habitat requirements for  
all wildlife species are:

Food,  
Cover,  
Water, &  
Space  
in a beneficial  
arrangement.



# Deer Food

Is it possible to manage for deer food?

Can ranch management decisions really affect the abundance and/or quality of deer food?

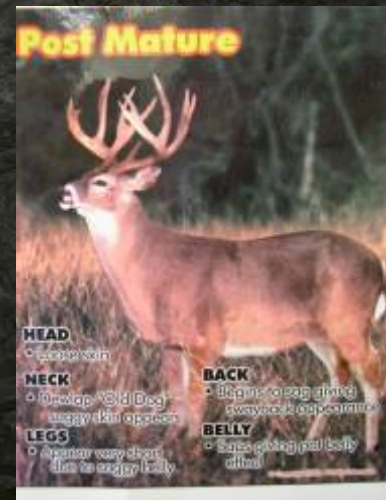
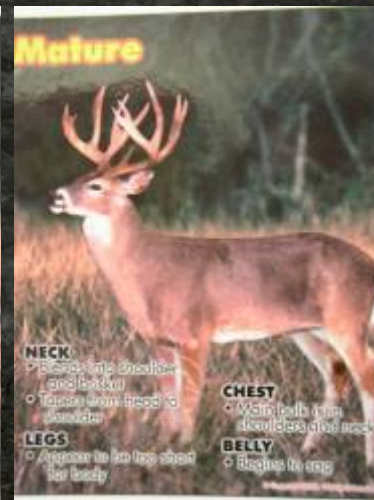
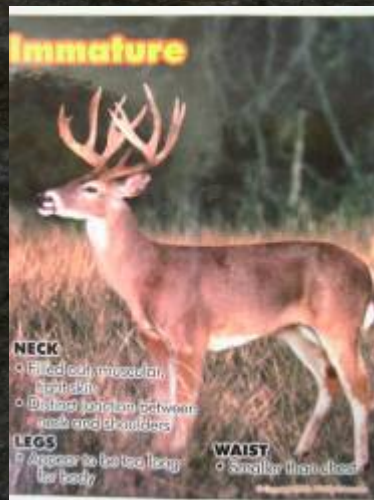
Answer: **POSITIVELY YES**

Ranch management decisions affecting deer food:  
Brush Control,  
Grazing Management,  
Hunting Management

For Deer: You are what you eat!  
Years of research and practical deer management has proven that the key factor in the production of deer is NUTRITION.

Important Keys of Deer Management:

1. Nutrition
2. Age
3. Genetics



# Understanding What Deer Food Is

Deer food is, with some exceptions,  
**Range-produced forage that is adequate in  
nutritional quality.**

Deer require a high quality diet. 2X as high in protein  
content and significantly higher  
TDN (total digestible nutrients) as a cow.

Deer normally choose the highest quality plants  
that grow in a pasture.

# Nutritional Analysis

Crude Protein - 14 to 20%

Total Digestible Nutrients - 60 to 70%  
needed for good deer nutrition.

Primary mineral needs are calcium and phosphorus.

Native rangeland is lacking in phosphorus but normally has adequate or excessive calcium levels.

Desired levels of mineral in the diet are .5 to .7% calcium,  
and .3 to .6% phosphorus.



□ Deer feed on:

**Forbs** - herbaceous broad-leafed plants.  
Highly preferred when available.

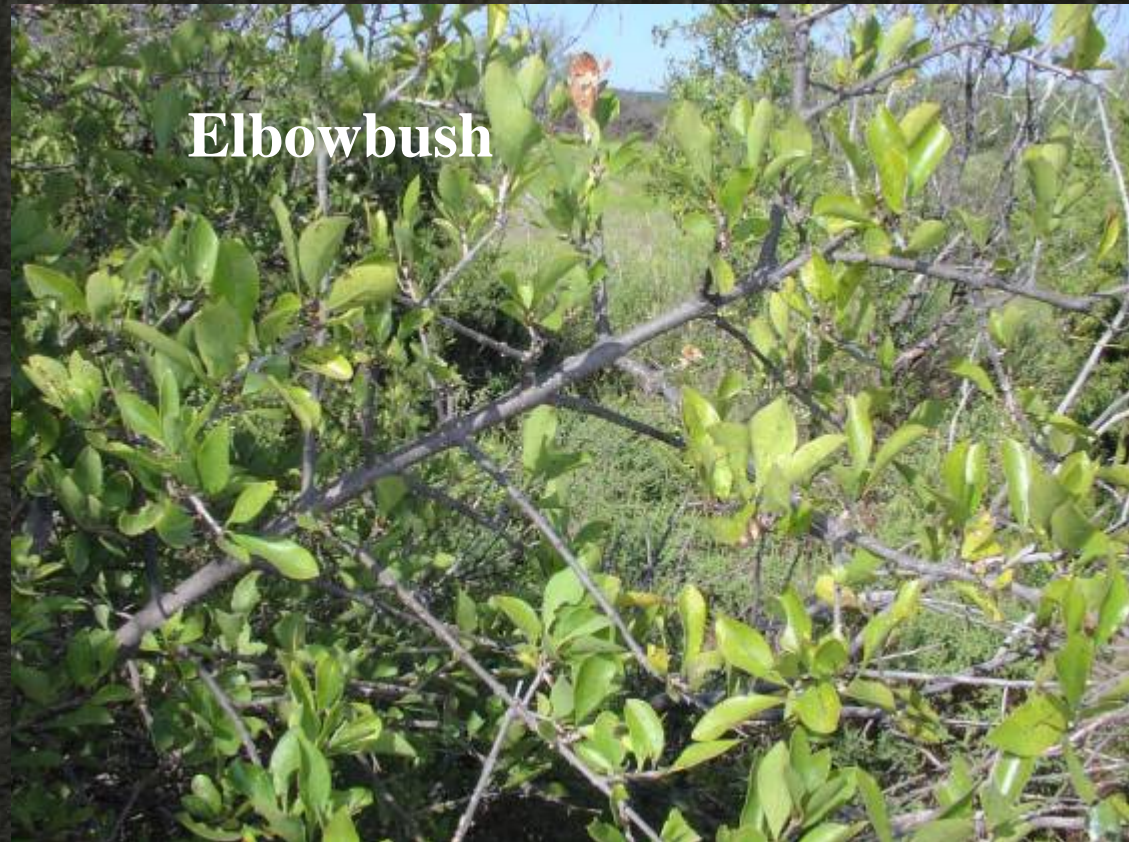
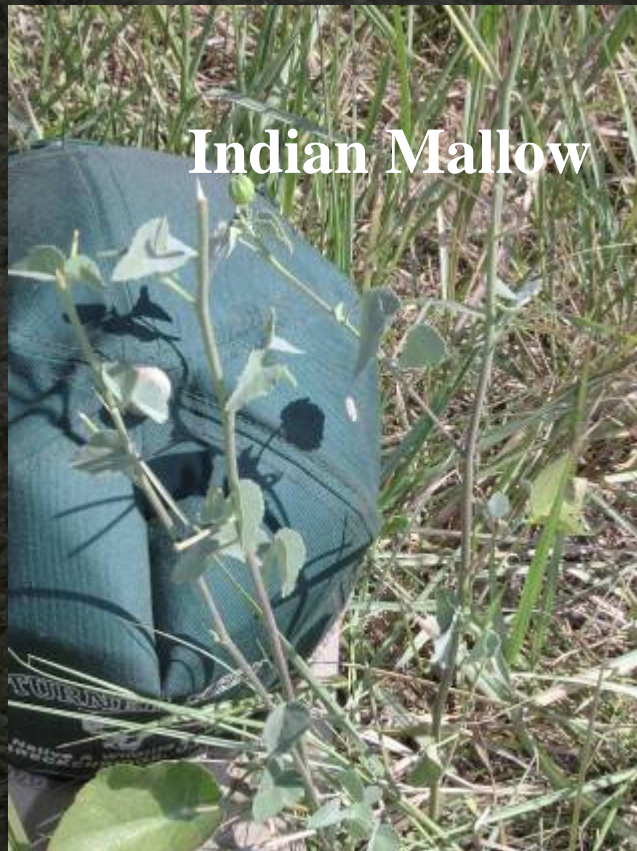


**Browse** - leaves, twigs and fruit of woody plants.



# Deer Diet

Forbs usually comprise the quality component of the food supply, while browse usually makes up the bulk of the diet since it is more abundant.



## Deer Food, continued

Grasses make up less than 10% of the diet except during brief periods. (Cool season wildryes, Texas wintergrass, post burn regrowth).

The three most important considerations for deer food are **quality**, **quantity**, and **availability**.

# Food consumed per day!

Deer generally consume about 3.5% of their body weight per day in food (on a dry weight basis), varies seasonally.

100 pound doe would eat:

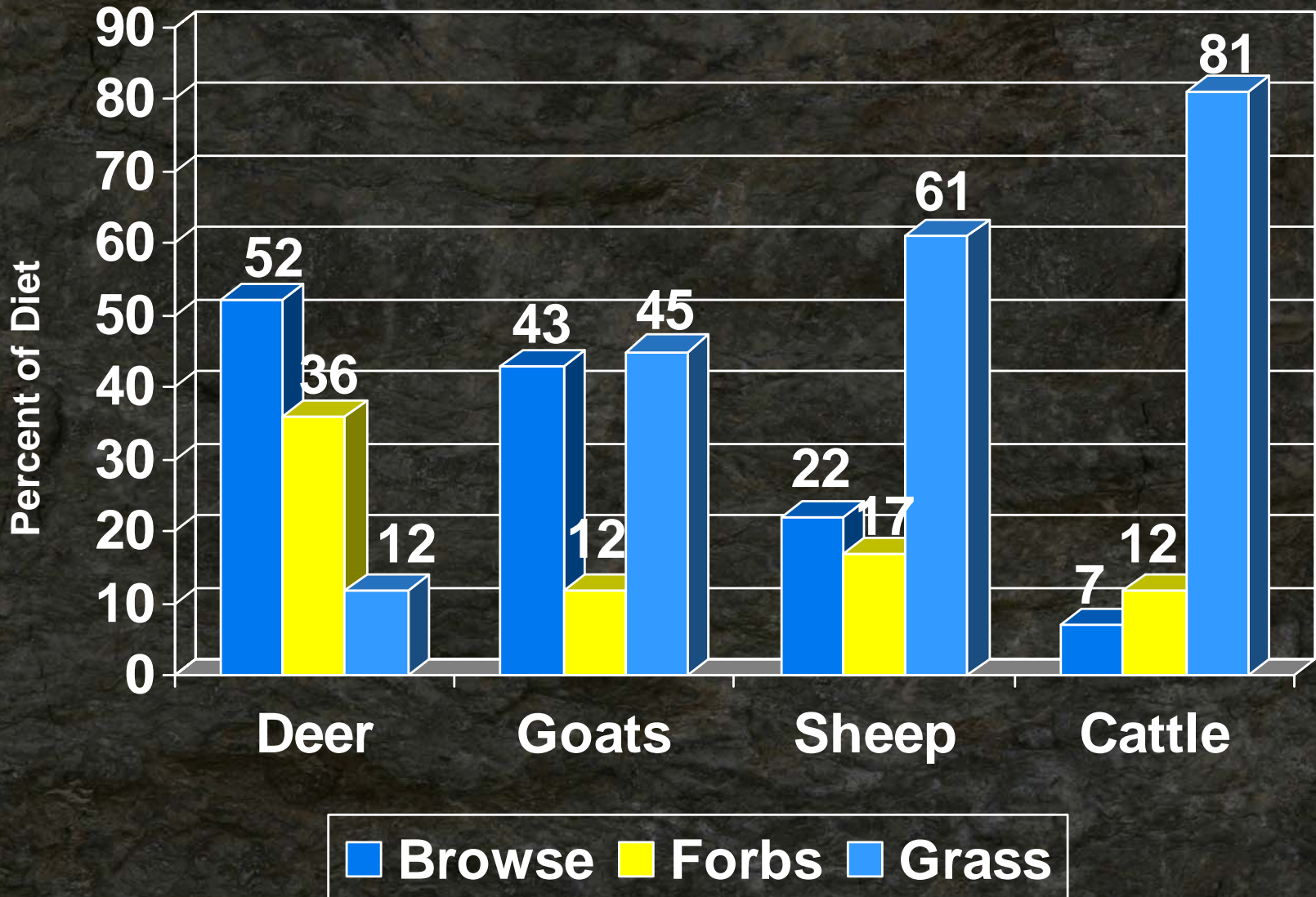
3.5 lbs. daily

105 lbs. monthly

almost 1300 lbs/year

Excess deer numbers severely impact the quality and quantity of available food.





Average diet composition by forage class (browse, forbs, and grasses) of white-tailed deer and cattle in the Edwards Plateau and south Texas, and goats and sheep in the Edwards Plateau. Deer are primarily browsers, cattle eat mainly grass, goats prefer browse and forbs, and sheep eat grass and forbs. Adapted from Lyons, Forbes, and Machen (1996).

# Livestock Numbers and Class

Competition for deer food varies with the class of livestock and numbers of livestock.

## Class of livestock:

- Cattle – Least competitive (under proper management)
- Sheep – Competitive
- Goats – Greatest competition
- Exotic wildlife – Greatest competition are deer size exotic's.

## Number of livestock:

- Proper stocking rate is critical – NRCS can help determine rate
1. Stocking rate must be flexible.
  2. "Golden Rule of Range Management" – Take half, leave half  
Will reveal if your stocking rate is correct. (First of April)

## Rule of Thumb –

For every two sheep, goats or exotics, one less deer can be properly fed.

Consider:

1,150 lb cow consumes 2.6% of its Body weight (air dry weight) in forage each day  
= 30 lbs of grasses, forbs and browse consumed daily.

A cow taking in 10% of her diet in forbs and browse will consume 3 lbs daily. (85% of one deer's food needs)

In overgrazed situations where grass is in short supply, cattle will consume more forbs and browse to meet their 2.6% level.

In extremely overgrazed situations up to 50% of the diet may be forbs and browse = 15 lbs. (equivalent to the food needs of 4.29 deer)

# Deer Numbers

Excessive deer numbers

- = decreased deer quality
- = habitat deterioration.
- = results in die-offs.

A ranch grazing cattle, sheep and goats will not support as many deer as a ranch grazing cattle only.

A ranch overstocked with cattle will not support as many deer as a ranch properly stocked with cattle.

A ranch that has done extensive amounts of brush control or in large blocks will carry fewer deer than a ranch that has done moderate amounts of brush in patterns.



# What Influences Deer Food Plants

## Factors beyond a land managers control:

- Soil Type
- General Climate
- Drought
- Severe Freezes
- Wildfires
- Population Explosions-  
rabbits, termites,  
or grasshoppers.



Ringgold/Nocona wildfire 1-1-06

All of the above things affect range plant production and ultimately deer food production.

# What Influences Deer Food Plants

## Factors controlled by land managers:

- Brush Management – pattern, extent and method.
- Livestock Numbers and Class
- Grazing Systems
- Deer Numbers

Proper decision-making regarding these factors will Buffer and greatly reduce the impact of the “Mother Nature” factors listed previous.

# Competition

The principle of competition has two distinct applications in habitat management.

**Animal competition** refers to one animal being in competition for a resource(food) which is in limited supply.

In deer management,  
the most competitive animal **is another deer**.

Goats, sheep and exotics compete for desired forage plants. By contrast, animals whose feeding habits are different than deer may complement deer.

Cattle, managed at the proper stocking rate, generally eat plants(grass) which are not preferred by deer.

**Plant competition** refers to plants competing with each other for resources in limited supply such as moisture, nutrients and sunlight. Suppressing plants which have little use to deer will allow more useful plants to respond to increased moisture, sunlight, or nutrients.

# Diversity

The principle of diversity has long been recognized as crucial to deer habitat. The greater the diversity of plants, the more likely it is that deer will be able to select a diet that meets their desired level of nutrition and the less likely that seasonal food shortages will occur.

A habitat full of lablab is not nearly as good as a habitat full of 30 different species of forbs, shrubs, vines, trees and grasses.

# Preference

July  
2002

Deer are very picky eaters. They selectively choose which plants and even which particular leaves are eaten. They will browse and repeatedly re-browse the same desirable plants while leaving less desirable plants essentially untouched. Over time, this selectivity favors the lesser plants at the expense of the best plants.

July  
2004



July  
2006

# Browsing Exclosure Cages

Cages should be 4 foot square or larger.

Square or circular in shape is not important.

Place around sprouting species or woody's being overused.

Shin oak

Spanish oak Live oak

Bumelia

Hackberry





**Cage installed in winter of 1995**

**August 1996**





October 2033



Spanish Oak browsing

# Grazing Systems

Livestock Numbers + Grazing System used = Available Deer Food

All deer food plants, perennial forbs and browse, respond positively to periodic rest and negatively to continuous grazing.

Simply put, grazing systems reflect the frequency and duration of rest (deferment) periods and grazing periods.

Systems that provide frequent or long rest periods will allow faster improvement in the production of good deer food plants.

In Texas grazing systems providing >50% rest are providing the best deer habitat.

# Grazing Systems

Beneficial to Deer –

- 3 Or 4 pasture-one herd - Ratio of time-grazed to time-rested is  $> .$  Faster improvement to deer food plants.

- 4 pasture-3 herd (Merrill System) offers good compromise

  - Range Improvement

  - Wildlife production

  - Livestock production

(A 4 month rest is rest is rotated through the pastures on a fixed schedule. At the end of 4 years, each pasture has been rested once during each month of the year)

# Bobwhite Habitat Management



Ask not **What has happened to the Quail,**  
But **What has Happened to Quail Habitat!**

# Is This Good Quail Habitat?



# Loss of Habitat

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# Habitat Components

## FOOD -

- Diet is made up of slick hard seeds of forbs, grasses and woodies. Insects are also chosen when available and "green's" will be eaten during winter.



- Juvenile bobwhite's consume 85% insects & 15% vegetation (seeds, fruits, leaves, stems)
- Adult bird's diet is 85% vegetation & 15% insects.
- 25-50% bare ground is necessary for quail movement to find seed and insects.



# Habitat Components

Six different specific kinds of cover have been identified and described for quail:

1. Nesting
2. Brooding
3. Screening
4. Loafing
5. Roosting
6. Escape



# Habitat Components

## Cover

- Nesting cover - Residual clumps of grass left ungrazed or lightly grazed from the previous year.

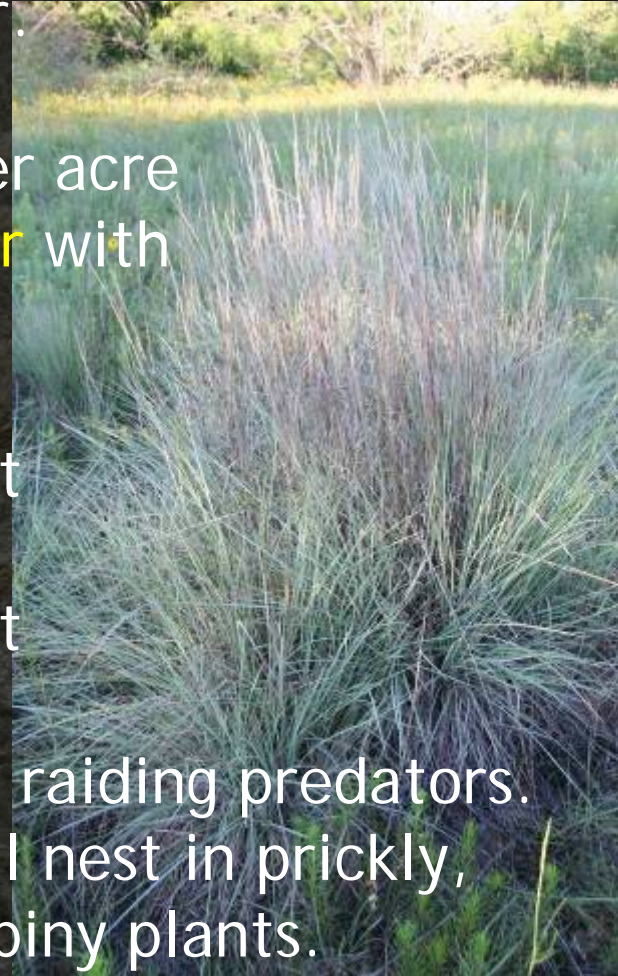
Basketball size clumps with 250 clumps per acre being **minimum for adequate nesting cover** with 500-1000 per acre near ideal density.

250 clumps/ acre = one clump every 13 feet

500 clumps/ acre = one clump every 9 feet

1000 clumps/ acre = one clump every 7 feet

- More nesting sites makes it harder on nest raiding predators.
- If bunchgrass clumps are lacking, quail will nest in prickly, pear, low growing yucca and other spiny plants.



# Habitat Components

## 250 Bunchgrass Clumps/Acre






Screening Cover  
as a visual  
and lego

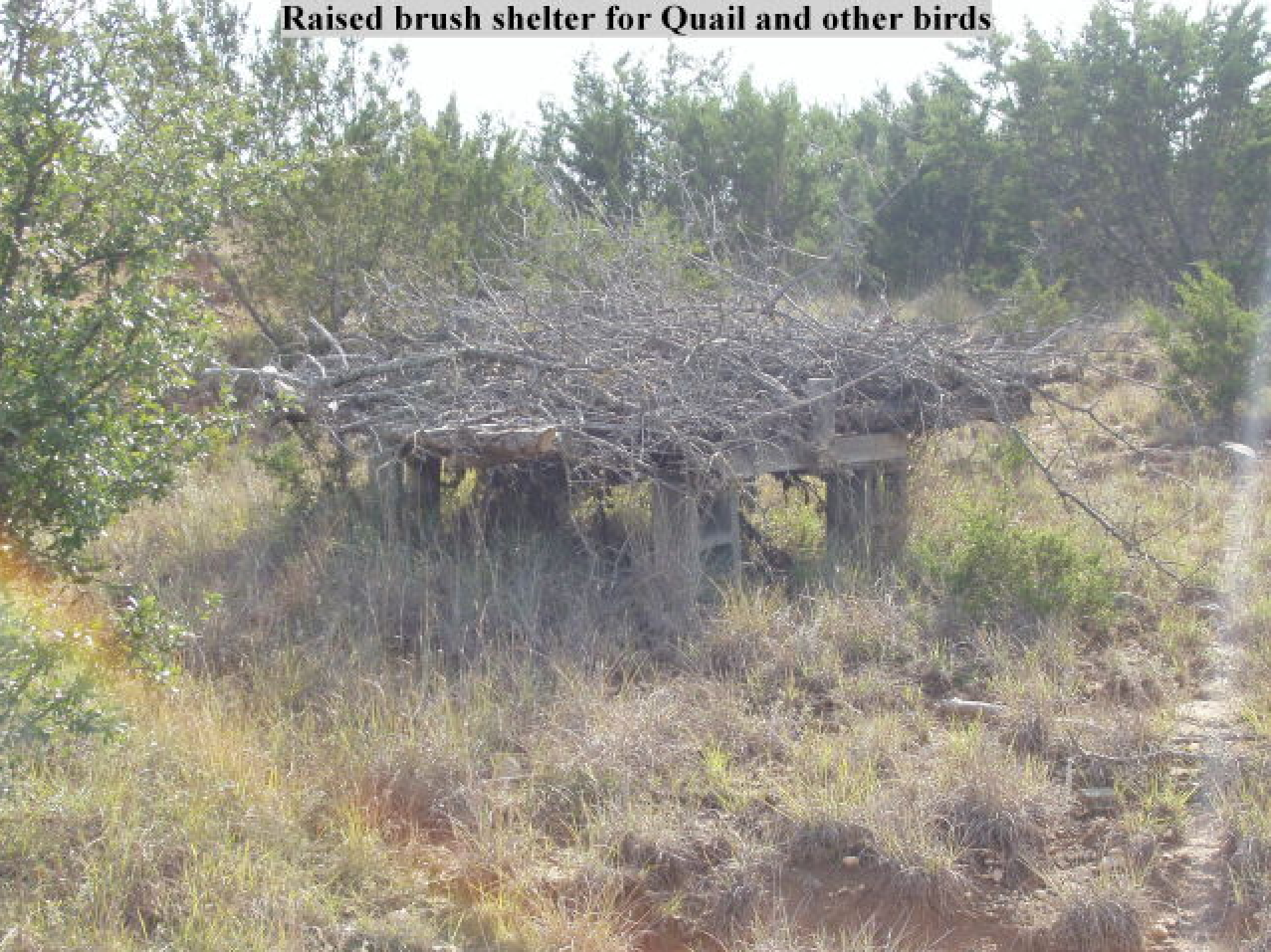


# Habitat Components

A wide-angle photograph of a grassy field with scattered shrubs and a fallen log in the foreground. The field is filled with tall, dry grasses and numerous small, green shrubs of varying sizes. In the foreground, a large, weathered log lies on the ground. The background shows a flat, open landscape under a clear sky.

Loafing Cover - Low growing shrubs and brush provide safe cover for covey to "loaf" after feeding. Motts of interconnected shrubs that are dense above, but somewhat open beneath and >50 Sq Ft are ideal loafing areas. Areas also offer protection from adverse winter weather.

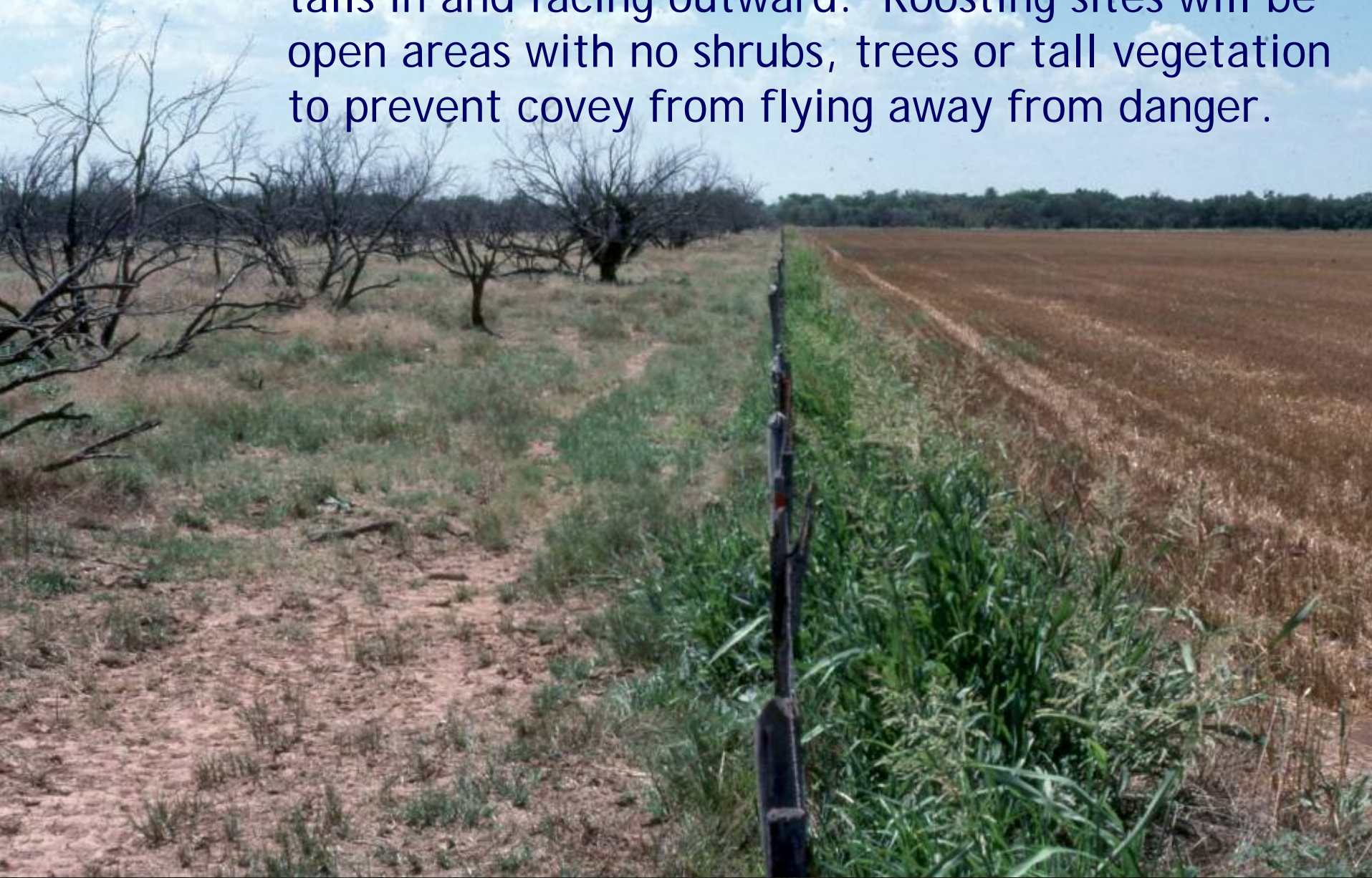
**Raised brush shelter for Quail and other birds**



# Half-Cutting Mesquites



**Roosting Cover** - Covey roost on ground in a circle with tails in and facing outward. Roosting sites will be open areas with no shrubs, trees or tall vegetation to prevent covey from flying away from danger.





# Habitat Components

Escape Cover - Combination areas of grasses, forbs and shrubs that flushed birds can fly into and disappear.



# Habitat Components

**Water** - Quail can meet their daily water requirement from three different sources:

1. Free water from ponds, creeks, troughs or dew. Such water is desirable but not an essential part of quail habitat.
2. Succulent vegetation, fleshy fruits and insects contain a high percentage of water.
3. Metabolic water is a by-product of the chemical breakdown of carbohydrates in the digestion process.

Nesting hens require extra water during the egg laying period.

# Habitat Components

A landscape photograph showing a savanna or grassland environment. The foreground is dominated by tall, dry grasses. In the middle ground, there are several scattered trees of varying sizes and densities. A small, dark animal, possibly a quail, is visible in the distance, partially obscured by the trees. The background shows a rolling horizon with more trees under a clear sky.

## Space - Habitat Arrangement

The proper interspersion of food and cover is especially critical for suitable quail habitat. Suitable foraging, nesting, brood-rearing, loafing and escape cover, each located within close proximity to one another, is essential to attract bobwhites to and maintain existing populations in an area. In good quail habitat, birds will not have to venture more than 50-100 feet from low shrubby cover.

# Habitat Size

To maintain a viable long-term population of quail, Fred Guthery, considered the Dean of Northern Bobwhites, has suggested that about 800 birds may be the minimum required. Takes about 3 acres to support one bird. In central to west Texas, 2500 to 5000 acres of suitable and contiguous habitat may be required to maintain this population of quail.

Bobwhites usually live in areas of 20-40 acres. Therefore, if Bobwhite habitat is desired across a 1000-acre tract, all habitat components would need to be present on each and every 40-acre area.

The checkerboard effect of food, cover and space is very important for quail survival.

# Habitat Management Techniques



Shallow disking grassland areas in late winter (February-March) will increase quantity and variety of warm season forbs that benefit quail and doves.

Fall disking (September-October) will stimulate cool season annuals and can be alternated with disking in late winter.

Disked strips should be minimum 10-15 feet wide.

Optional: whirlybird 1 lb/acre of native sunflower in the strip

# Grazing Management

- **Grazing can promote lower successional plants increasing the food supply for quail, turkey and doves**
- **Grazing must be planned to be successful**

# Grazing Management



**Spot graze 2-5 acre areas by herding animals on small areas  
placement of water/feed to concentrate grazing  
Fire and grazing can develop low successional plots  
Burned/grazed plots should be rotated every year so that a 4-6 year cycle of burning/grazing is maintained.**

# Habitat Management Techniques

A photograph showing a prescribed fire burning through a brushy area. The fire is bright orange and yellow, consuming the vegetation. In the background, there are several bare, dark trees against a hazy, overcast sky. The ground in the foreground is covered with dry, brown brush and some small green plants.

Prescribed burning can improve areas for quail by opening up the brush canopy, reducing litter and allowing lower successional plants to germinate.



# Habitat Management for Wild Turkey

Beneficial practices and management for deer and quail => turkeys

Nesting cover

Loafing cover

Thermal cover

Food

Water

Space



# What's the Tally?

Habitat management is a result of all of the following factors controlled by land managers:

Brush Management – pattern, extent and method.

Livestock Numbers and Class

Grazing Systems

Deer Numbers

1. Habitat management is essential, not optional.
2. Advanced, highly successful deer management involves doing the basics very well.
3. A land stewardship ethic should take precedence over everything else.
4. "Good nutrition is the key to good deer management" - Donnie Harmel
5. "The most cost effective way to **increase** the deer food supply is to **reduce** the number of animals on the range" - Al Brothers
6. Focus on the weakest link.
7. Deer need brush - they eat it and they live in it.
8. Be cautious when considering new, locally unproven techniques.
9. Habitat management tools are neither good nor bad - it's how skillfully they are applied that counts.

## Quotable Quotes on Deer Management

- "There is no free lunch; deer herd problems which exist now have taken many years to develop, and the problems cannot be solved in one or two years".
- **Al Brothers and Murphey E. Ray, Jr.**
- "Spike bucks are not the problem, but are a symptom of malnutrition."  
"Genetic improvement cannot correct nutritional deficiencies."  
**Horace Gore**
- "As the pasture goes, so goes the head." **Steve Nelle**
- "Kill does until you scare yourself into thinking you have taken too many - then you may be close." **Al Brothers**
- "Raising your herd's nutritional plane is much more effective and immediate in producing large antlers than culling."
- **Stuart Stedman**

If you can see the legs of quail  
in your pasture, you might have a  
Grazing Management  
Problem !!!





The END

Photo by Steve Nelle