

**These Old Range Site Descriptions are being provided for use in locations where Ecological sites currently do not exist. They should not be used when ESD's are available, either Oklahoma ESD's or other state developed ESD's.**

**To view Old Range Descriptions, open the bookmarks section on the left and click on the site to be viewed. This will take you to the specific site description. Always check to ensure the proper county is included in the location.**

**Please note, some of the Land Resource Areas (MLRA's) have now changed names and some soils may be listed that have also changed. This requires use of new MLRA map and soils correlation information for each county.**

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: ALKALI BOTTOMLAND

2. General Site Description and Location

a. Description

Bottomlands which support saltgrass and other alkali tolerant plants. Some small areas are barren of vegetation. Often the alkali or slickspot areas are intermixed with more productive loamy bottomland.

b. Location of site

(1) Land resource area: Central Rolling Red Plains and Central Rolling Red Prairie

(2) Counties: Comanche, Cotton, Garfield, Grant, Jefferson, Kingfisher, Kiowa, Noble, and Stephens in Oklahoma

3. Climate

This site extends across the state from north to south within a broad precipitation range of 28 to 35 inches. Most of the rainfall occurs during the spring and fall. About 25 percent comes in May and June and 15 to 20 percent in September and October. Rainfall is normally erratic during July and August. This pattern results in a dominance of warm season grasses.

4. Topography and Elevation

This site occurs on nearly level to gently sloping bottomlands. Elevation ranges from 800 to 1200 feet.

5. Soils

a. These are deep alluvial soils with crusty loamy to clayey surface horizons and dense loamy to clayey subsoils. The subsoil condition along with surface crusting results in very slow infiltration, and vegetation suffers particularly during drouthy periods. These restrictions to production are partially offset by overflow.

b. Soils in the site are: Solonetz bottomlands and Port-slickspot complex.

Note: Port-slickspot is a complex of Port and slickspots. This description applies only to the slickspot portion.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Principal climax decreaser grasses are switchgrass, alkali sacaton, western wheatgrass, and vine-mesquite. At least 50 percent of the vegetation should be decreaser species. Increasers include blue grama, inland saltgrass, and buffalo grass.

b. Total annual yield

(1) Total yields of native plants in pounds air-dry per acre

(a) Favorable climatic periods - 3,200 lbs.

(b) Unfavorable periods - 1,800 lbs.

(2) Yields are estimates based on limited clipping information.

c. Total herbage yields

Same as total annual yield.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: BLACKCLAY PRAIRIE (34" - 40" ppt.)

2. General Site Description and Location

a. Description

Nearly level to sloping prairie. The soils are deep, neutral to calcareous, and fine textured. They have slow internal drainage.

b. Location of site

(1) Land resource area: Grand Prairie

(2) Counties: Bryan, Carter, Johnston, Love, Marshall, and Murray in Oklahoma

3. Climate

The climate is moist subhumid with average annual rainfall from 34 to 40 inches. The heaviest precipitation occurs during the months of April, May, and June with a fair distribution throughout the other months. The frost-free growing season averages about 225 days.

4. Topography and Elevation

Nearly level to sloping, often with concave surfaces. Approximate elevations vary from 600 to 950 feet.

5. Soils

a. Very dark gray to black Grumusols (Vertisols) developed from limestone, chalk, or marl. These are clays and clay loams with slow internal drainage and fair aeration. Good granular structure enables this soil to have a plant-soil-moisture relationship favorable for the growth of high producing tall grasses. This along with the high moisture holding capacity and high fertility level is responsible for this being a productive upland site.

b. Soils in the site are: San Saba clay and clay loam and Denton clay loam.

c. Complete soil descriptions are available in the Soil Survey Description Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Principal climax decreaser grasses are little bluestem, big bluestem, Indiangrass, switchgrass, and some eastern gamagrass. Common increasers are meadow dropseed, sideoats grama, and buffalograss. Decreaser grasses comprise about 85 percent of the climax cover.

b. Annual range forage production potential

(1) Total herbage yields in pounds air-dry per acre in

(a) Favorable climatic periods - 7,000 lbs.

(b) Unfavorable periods - 3,500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: BLACKCLAY PRAIRIE (41"± ppt.)

2. General Site Description and Location

a. Description

Nearly level to sloping prairie. The soils are deep, neutral to calcareous, and fine textured. They have slow internal drainage.

b. Location of site

(1) Land resource area: Grand Prairie

(2) Counties: Atoka, Choctaw, and McCurtain in Oklahoma

3. Climate

The climate is humid with average annual rainfall ranging from 41 to 45 inches. Average annual rainfall is highest during the period April, May, and June and lowest in February. However, with the exception of February (2.68"), long-time precipitation averages exceed 3 inches during every month in the year. (USDA Yearbook, Climate and Man.) The frost-free growing season averages about 225 days.

4. Topography and Elevation

Nearly level to sloping, often with concave surfaces. Elevation ranges from 500 to 575 feet.

5. Soils

a. Very dark gray to black Grumusols (Vertisols) developed from limestone, chalk, or marl. These are clays and clay loams with slow internal drainage and fair aeration. Good granular structure enables this soil to have a plant-soil-moisture relationship favorable for the growth of high producing tall grasses. This along with the high moisture holding capacity and high fertility level is responsible for this being a productive upland site.

b. Soils in the site are: San Saba clay and clay loam and Denton clay loam.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Tall midgrass climax. Principal decreaser grasses are big bluestem, eastern gamagrass, Indiangrass, little bluestem, and switchgrass. Prairie and meadow dropseed and sideoats grama are increasers on the site. Some woody plants including hawthorn, bois d'arc, coralberry, and elm are common to the site. These should not exceed 5 percent of the cover.

b. Annual range forage production potential

(1) Total herbage yields in pounds air-dry per acre in

(a) Favorable climatic periods - 7,000 lbs.

(b) Unfavorable periods - 3,500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: BREAKS

2. General Site Description and Location

a. Description

Escarpments and steep rocky slopes, including narrow valleys.

b. Location of site

(1) Land resource area: High Plains

(2) County: Northwest Cimarron County in Oklahoma

3. Climate

Semi-arid climate with an average precipitation of 16 to 17 inches. Annual rainfall occurs mostly from April through September. There are extreme fluctuations from year to year with periodic drouths. Spring and summer precipitation (April - October) averages about 12.5 inches. Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas.

Native warm season plants predominate in this climate. Drouth begins the latter part of April. Grasses green up intermittently as the irregular rains occur. Optimum growing season is approximately 170 days. Evaporation rates are high and humidity is low. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of -23 degrees. The maximum summer temperature on record is 109 degrees.

4. Topography and Elevation

Steep, rocky slopes, bluffs and ridges of sandstone and basaltic rock. Elevation ranges from 4500 to 5000 feet.

5. Soils

a. Soils of this site are mapped as Rough Stonyland. Included are the very shallow and bare rock areas along the caprock; also narrow valley floors of deep soils measuring less than 200 feet in width. There are many crevices and pockets of moderately productive soil. The steepness and stoniness of this site restricts grazing use. The steep rocky slopes are underlain by soft and hard sandstone.

- b. Soils in the site are: Rough Stonyland
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Decreaser grasses on this site include big bluestem, cane bluestem, little bluestem, Arizona cottontop, switchgrass, Indiangrass, and New Mexico needlegrass. These comprise about 45 percent of the climax vegetation. Common increaser grasses include hairy grama, black grama, silver bluestem, wolftail, red threeawn and rough tridens. Woody species represent approximately 10 percent of the plant cover, which include Gambel oak, pinyon-pine, and mountain mahogany.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1000 lbs.
    - (b) Unfavorable periods - 600 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: BREAKS
2. General Site Descriptions and Location

- a. Description

Escarpments and rough canyonlike areas of redbeds with some narrow valley floors. This country greatly restricts livestock travel.

- b. Location

- (1) Land resource area: Rolling Red Plains

- (2) Counties: Harper, Woods, Major, Woodward, Ellis, Roger Mills, Custer, Washita, Greer, Beckham, Harmon, Jackson, Tillman, Cotton, Blaine and Dewey Counties in Oklahoma.

3. Climate

The average annual precipitation ranges from 22 to 30 inches. About 75 percent of this occurs during the frost-free period which varies from 200 to 220 days north to south. Summers are hot and normally there is a drouth period during the last two weeks in July and the first part of August. The characteristic high intensity storms result in high water losses from this steep broken site. As a result, there is often active gullying.

4. Topography and Elevation

Rough broken topography with steep sided gullies and escarpments. Elevation ranges from 1000 to 2200 feet above sea level.

5. Soils

- a. Rough broken areas consisting of sandstone or silty rock. There is sandstone, gyp, dolomite, or limestone caprock associated with this site. The dominant slopes are steep and most soils are shallow and very shallow. Some colluvial areas provide the major forage production on the site.

- b. Soils in the site are: rough brokenland, Quinlan material; and rough brokenland, Vernon.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Principal climax grasses are little bluestem, sand bluestem, and sideoats grama. Most common forbs are Louisiana sagewort, nailwort, bluets, and compassplant. Prairieclover, sensitive-brier, dalea sp., and bundleflower sp. are common legumes. Principal woody plant is skunkbush. The decreaser species, plus sideoats grama, should comprise 60 percent of the climax vegetation.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1800 lbs.
    - (b) Unfavorable periods - 1200 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: BREAKS

2. General Site Description and Location

a. Description

Steep prairie bluffs or escarpments supporting mid or tall grass climax. This site is usually difficult for livestock travel.

b. Location of site

(1) Land resource area: Bluestem Hills, Reddish Prairie, and Cherokee Prairie

(2) Counties: Kay, Osage, Noble, Pawnee, Payne, and Creek Counties in Oklahoma.

3. Climate

Average annual precipitation varies from 33 inches on the west to 38 on the east. Approximately 70 percent of the moisture falls during the warm season, which is usually about 200 days.

4. Topography and Elevation

This site is found on steep escarpment and canyonlike areas. The slopes are occasionally altered in decline by small, nearly level benches. Elevation varies from 900 to 1200 feet from east to west.

5. Soils

a. Rough brokenland, usually Sogn-Summit stony complex in the Bluestem Hills land resource area. The slope profile consists of rock outcrops and deep soil pockets. Soils are shallow and very shallow. The deeper soils usually occur between the rock outcrops and at the base of slopes where colluvial material has been deposited. Runoff is excessive, but lateral seepage along the rock outcrops make some areas favorable for herbage production.

b. Soils in the site are: Rough brokenland and Sogn-Summit stony complex.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Dominant climax vegetation varies from tall grasses on the deeper soils to short and mid grasses on the shallow and very shallow soils.

Tall grasses include big bluestem, little bluestem, Indian-grass, switchgrass, and traces of Canada wildrye, Virginia wildrye and eastern gamagrass. Short and mid grasses are composed of blue grama, hairy grama and sideoats grama. The taller grasses constitute about 50 to 60 percent of the total vegetation and the shorter grasses 20 to 30 percent when in excellent condition. Woody plants such as blackberry, skunk-bush, and Jerseytea will usually be present on slopes facing the north and northeast.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3500 lbs.  
(b) Unfavorable periods - 2000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

Kansas Trap Pasture, located three miles north of the K. S. Adams ranch, which is in Osage County, Oklahoma and Cowley County, Kansas.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: BOULDER RIDGE
2. General Site Description and Location

- a. Description

Ridges made up of granite stones and boulders occurring as foothills in the Wichita Mountains area. Vegetation is usually mid and tall grasses, but may occasionally include some oak trees and other woody species.

- b. Location of site

- (1) Land resource area: Granitic Hills
- (2) Counties: Comanche, Caddo, Kiowa, Jackson, and Greer Counties in Oklahoma

3. Climate

The climate is dry subhumid with average rainfall of 26 to 30 inches. About 70 percent of the rainfall occurs during the warm growing season. Frost-free growing season averages about 215 days. Winters are usually open and dry.

4. Topography and Elevation

The topography is made up of ridges, hills, and footslopes. The slopes range from gently sloping to moderately steep. Elevation ranges from 1300 to 2000 feet.

5. Soils

- a. Soils in this site consist primarily of granite stones and boulders with medium textured soil material filling the interspaces. Moisture penetration is favorable. Because of the large amount of stony material in the soil mass, the moisture storage is limited to approximately 60 to 80 percent. Plant roots can easily penetrate the solum.
- b. Soils in the site are: Cobbly colluvial land (granitic).
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The climax vegetation consists of approximately 70 percent decreaseers such as little bluestem, big bluestem, Indiangrass, switchgrass, wildrye, legumes, and forbs. About 30 percent is made up of increasers including blue grama, sideoats grama, hairy grama, meadow dropseed, and increasing forbs. Prolonged heavy use opens the turf to invasion by annual threeawn, Japanese brome, sixweeks fescue, silver bluestem, buffalograss, perennial threeawn, sand dropseed and weedy forbs. Some areas may be invaded by post oak, blackjack oak, and mesquite.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 4000 lbs.
    - (b) Unfavorable periods - 2000 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: Clay Prairie

2. General Site Description and Location

a. Description

Nearly level to gently sloping prairie. The soils are deep, calcareous, and fine textured with very sticky surfaces. They have very slow internal drainage.

b. Location of site

(1) Land resource area: Grand Prairie

(2) Counties: Love, Carter, Murray, Johnson, Pontotoc, Choctaw, Marshall, Bryan, and Atoka Counties in Oklahoma.

3. Climate

The climate is moist subhumid to humid, with average rainfall from 34 to 42 inches. The heaviest precipitation occurs during the months of April, May, and June with a fair distribution throughout the other months. The frost-free growing season averages about 225 days.

4. Topography and Elevation

Nearly level to gently sloping, often with concave surfaces and slopes usually less than 2 percent.

5. Soils

a. Very dark gray to black clayey Rendzinas developed from limestone, chalk, and marl. These are dense clays having very slow internal drainage and poor aeration.

While moisture holding capacity is high, these soils have a high wilting point and tend to be drouthy.

b. Soils in the site are: San Saba clay and Houston Black clay.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Principal climax decreaser grasses are little bluestem, Indian-grass, and big bluestem. Common increasers are buffalograss, prairie dropseed, and meadow and tall dropseed. Decreaser grasses comprise about 65 percent of the climax cover.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 5000 lbs.

(b) Unfavorable periods - 2000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: CLAYPAN PRAIRIE (North Central)

2. General Site Description and Location

a. Description

Prairie soils underlain with dense clay subsoil that restricts root growth and moisture penetration, which somewhat limits forage production. The topsoil becomes saturated during wet periods and extremely dry during drouth periods.

b. Location of site

(1) Land resource area: Reddish Prairie

(2) Counties: Garfield, Noble, Kay, Blaine, Kingfisher, Pawnee, Logan, Payne, Canadian, Oklahoma, and Cleveland Counties in Oklahoma.

3. Climate

Dry subhumid on the west, to moist subhumid on the eastern boundary. Average annual precipitation from 28 to 34 inches, with 75 percent coming during the summer growing season of 200 to 220 days.

4. Topography and Elevation

The site generally occurs on nearly level to moderately sloping areas. Elevation varies from 1000 to 1500 feet from east to west.

5. Soils

a. The site is comprised of silt loam to clay loam surface soils (8 to 12 inches in depth) and compact blocky clay subsoils. The three characteristic soils are Tabler, a level upland soil often slightly depressed and subject to seasonal wetness; Kirkland, and Renfrow, occurring on gentle slopes and having adequate surface drainage.

b. Soils in the site are: Tabler, Kirkland and Renfrow, (silt loams).

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

Stage 2 - Claypan Prairie (North Central) - RP

6. Climax Vegetation

a. Predominate climax grasses are big bluestem, little bluestem, Indiangrass, and switchgrass. These tall grasses comprise about 50 percent of the total vegetation. The shorter sub-dominate grasses such as sideoats grama, blue grama and buffalograss generally constitute about 30 to 40 percent of the vegetation. Abuse due to over grazing will result in rapid reduction of the tall grasses and an increase of the shorter sub-dominants. With continued abuse, buffalograss and blue grama become dominant with an overstory of weedy forbs and annual threeawn usually present.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4000 lbs.
- (b) Unfavorable periods - 2000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: CLAYPAN PRAIRIE (Southern, RP)

2. General Site Description and Location

a. Description

Claypan Prairie range site is found on level to moderately sloping areas. The surface soil becomes saturated in wet periods, and is extremely dry during a drouth. Vegetation is largely limited to rather low producing plants that have the ability to escape drouth by going dormant or reproducing by seed.

b. Location of site

(1) Land resource area: Southern Reddish Prairie

(2) Counties: Grady, McClain, Garvin, Carter, Jefferson and Stephens Counties in Oklahoma

3. Climate

The climate is subhumid with average rainfall of 30 to 36 inches. Some 70 percent of the rainfall occurs during the warm growing season. Frost-free growing season ranges from 215 to 230 days. Winters are usually open and dry.

4. Topography and Elevation

Topography is nearly level to moderately sloping, and usually occurs on divides and upper slopes between natural drains. Elevation ranges from about 750 to 1200 feet.

5. Soils

a. Soils in this site are deep but produce more like shallow soils. They have a silt loam surface soil with a very compact blocky clay subsoil. This subsoil restricts penetration of moisture and roots, and causes poor internal drainage and poor aeration.

b. Soils in the site are: Kirkland silt loam, Kirkland-Renfrow silt loam, Renfrow silt loam, and Waurika silt loam.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax vegetation consists of approximately 60 percent decreasers including sideoats grama, blue grama, western wheatgrass, and tall dropseed. Switchgrass, vine mesquite, and wildrye may occur in minor amounts but are quite limited in this climate because of the poor plant-soil-moisture relationship. Little bluestem is not usually found on this site.

Principal increasers are buffalograss, windmillgrass, tumblegrass, gummy lovegrass, silver bluestem, and hairy grama. These increasers make up about 20 to 30 percent of the total climax vegetation. A downward trend from climax vegetation will bring about a rapid invasion of annual threeawn, Japanese brome grass, little barley, Texas grama, Texas wintergrass, red threeawn, and weedy forbs. Other common invaders are prickly-pear, cactus, and mesquite.

Due to the drouthy nature and poor aeration of the soils, this site is not capable of high production. Recovery is very slow after the vegetation has deteriorated.

b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3500 lbs.  
(b) Unfavorable periods - 1400 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: CLAYPAN PRAIRIE
2. General Site Description and Location

- a. Description

Level to moderately sloping soils, underlain with dense clay subsoil. The dense clay restricts moisture penetration and root growth and also limits production of forage. Under good management the predominant grasses are little bluestem, switchgrass, big bluestem, and Indiangrass. The topsoil becomes very wet during rainy seasons and extremely dry during drouth periods.

- b. Location of site

- (1) Land resource area: Cherokee Prairie and Bluestem Hills
- (2) Counties: Osage, Lincoln, Okfuskee, Hughes, Pontotoc, Coal, Atoka, Pittsburg, Pushmataha, LeFlore, Latimer, Haskell, McIntosh, Okmulgee, Creek, Tulsa, Washington, Nowata, Rogers, Craig, Ottawa, Delaware, Mayes, Wagoner, and Muskogee Counties in Oklahoma.

3. Climate

Moist subhumid to humid climate, with precipitation varying from 36 inches annually in the west to 44 in the eastern counties. About 65 to 70 percent of the annual rainfall occurs in the 7-month growing season, April through October. Winter moisture is usually in the form of rainfall. Occasional snowfalls of 3 to 6 inches occur but the grass is not usually covered more than 3 to 4 days.

4. Topography and Elevation

Nearly level to moderately sloping. Elevation varies from 500 to 1100 feet.

5. Soils

- a. Soils have a silt loam surface and a very compact clay subsoil. The very slowly permeable subsoil restricts moisture penetration and root growth.
- b. Soils in the site are: Parsons silt loam, Cherokee silt loam, Irving silt loam, Switzer, Woodson, and Dwight.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The composition of plants in excellent condition class is about 50 percent decreaseers, such as little bluestem, big bluestem, switchgrass, Indiangrass, gayfeathers, and perennial decreaseer legumes. The other 50 percent of the vegetation is increaseer plants, such as meadow dropseed, tall dropseed, Scribner's panicum, heathaster, ashy sunflower, wildindigo, and slimflower scurfpea.

As the condition declines invader plants appearing are ragweeds, bitter sneezeweed, narrowleaf sumpweed, croton, splitbeard bluestem, broomsedge, and many other annual weeds and grasses.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4500 lbs.

- (b) Unfavorable periods - 2000 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: CLAYPAN PRAIRIE
2. General Site Description and Location

- a. Description

Nearly level to moderately sloping prairie. The soils are deep with fine to medium textured surface, with dense, compact clay subsoils. Under good management the predominant grasses are little bluestem, big bluestem, Indiangrass, and switchgrass. The extremes in moisture conditions reduce density of the stand as well as productivity. Mismanagement causes rapid deterioration of the vegetation.

- b. Location of site

- (1) Land resource area: Grand Prairie
- (2) Counties: Love, Carter, Murray, Johnston, Pontotoc, Choctaw, McCurtain, Marshall, Bryan, and Atoka Counties in Oklahoma.

3. Climate

The climate is subhumid to humid, with average rainfall of 34 to 40 inches. The heaviest precipitation usually occurs during the months of April-May-June, with a fair distribution throughout the other months. The frost-free growing season ranges from 215 to 230 days.

4. Topography and Elevation

Nearly level to moderately sloping topography. Elevation ranges from about 550 to 1000 feet.

5. Soils

- a. Soils are deep but produce more like the shallow soils. They have a clay loam to silt loam surface with a very compact blocky clay subsoil. This subsoil restricts penetration of moisture and roots and causes poor internal drainage and poor aeration.
- b. Soils in the site are: Durant clay loam, Kirkland silt loam, Renfrow silt loam, and Brewer silt loam.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The climax vegetation consists of approximately 50 percent decreaseers, that include little bluestem, big bluestem, Indian-grass, switchgrass, and native legumes such as sensitivebrier. Increaseers are fringeleaf paspalum, Scribner's panicum, Texas wintergrass, meadow dropseed, fall witchgrass, yellow neptunia, and western ragweed, and make up the other 50 percent of vegetation.

A downward trend from climax vegetation results in a rapid invasion of Japanese brome, little barley, deervetch, annual threawn, bitter sneezeweed, croton, and many others.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4000 lbs.  
(b) Unfavorable periods - 1600 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Description

Work Unit \_\_\_\_\_

1. Range Site Name: DEEP SAND (16" - 19" ppt.)

2. General Site Description and Location

a. Description

Deep upland sands occurring on gently rolling or low dune topography.

b. Location of site

(1) Land Resource area: High Plains

(2) Counties: Cimarron and Texas Counties in Oklahoma

3. Climate

Semi-arid climate with an average precipitation of 16 to 19 inches west to east. Most of the rainfall occurs from May through October, with each month receiving 1.5 inches or more during that period. There are wide fluctuations in precipitation and normal or average rainfall seldom occurs. There are more years with below average rainfall than above average. Winter precipitation averages less than .75 inch per month and comes in the form of both snow and rain.

Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas. The growing season of native warm season plants extends from April to the middle of October. Optimum growing season is 180 days. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of -23 degrees. The maximum summer temperature on record is 112 degrees. Summer humidity is low and evaporation high. The great extremes in climate result in considerable change of vegetation composition even under the best of management.

4. Topography and Elevation

This site is on flat to gently sloping uplands. Elevation ranges from 3000 to 4500 feet.

5. Soils

- a. Sands with subsoil of sandy loams to sandy clay loams. The intake rate of moisture is high and there is very little runoff. Forage production is limited by the low water holding capacity of the soils. However, moisture is readily available to plants. During the windy season these soils may blow, due to low clay content to hold the soil particles together. During this time the vegetation is often injured by blowing sand.
- b. Soils in the site are: Dalhart loamy fine sand; Dalhart loamy fine sand, eroded; Otero loamy fine sand; Vona-Tivoli loamy fine sand; and Vona loamy fine sand.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma Handbook.

6. Climax Vegetation

- a. The site supports a mixture of sand bluestem, little bluestem, switchgrass and sideoats grama. Total plant cover of these decreaser plants should be about 65 percent of the composition. The dominant increaser grasses include blue grama, sand dropseed, and sand paspalum. Sand sagebrush is the principal woody increaser. Common invader plants are false buffalograss, purple sandgrass, red lovegrass, and sand flatsedge.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 3000 lbs.
    - (b) Unfavorable periods - 1200 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DEEP SAND
2. General Site Description and Location

- a. Description

Deep upland sands occurring on gently rolling or low dune topography.

- b. Location of site

- (1) Land resource area: Rolling Red Plains
- (2) Counties: Beaver, Harper, Ellis, Roger Mills, Major, Beckham, Harmon, Woodward, Woods, Dewey, Cotton, Tillman, Jackson, Custer, Kiowa, Washita, and Greer Counties in Oklahoma.

3. Climate

The climate is characterized by hot, often dry summers; mild autumns; mild to cold winters; and moist, cool spring periods. There is a 9-inch spread in average precipitation, varying from 21 to 29 inches. More important to grass growth and management is the wide variance in annual and seasonal rainfall. Extremes range from lows of 10 inches of annual rainfall to highs of 45 inches. Drouth cycles of below average rainfall ranging from 3 to 5 years duration, with occasional longer periods, occur at unpredictable intervals. Above normal rainfall cycles are generally shorter in duration than the drouth periods.

Range forage yields fluctuate with these cycles but following prolonged drouth production recovery of the desirable grasses normally lag one or two years behind the time rainfall returns to normal or above. Likewise, production is often maintained at relatively high levels for the first year of drouth following a favorable climatic period, thus allowing the operator a little time for herd adjustment if it appears the drouth will continue. There is considerable change in the relative amounts of various plant species due to these fluctuating climatic cycles. Generally the shorter more xeric plants such as blue grama tend to assume greater importance during drouth, while during favorable periods this site displays a tall and mid grass aspect, principally little bluestem and sand bluestem.

Warm season grasses are dominant due to the favorable late spring, early summer and fall precipitation. Average warm season rainfall (April-September) varies from 15 to 20 inches. Thus, approximately

75 percent of the total precipitation occurs during this 6-month period. January average temperatures over a 25-year period ranged from 35 to 41 degrees, with a July average of 82 to 84 degrees. Temperature extremes are from a high of 120 degrees to a low of -13. High summer temperatures often result in much death loss to grasses, particularly where grazing has greatly reduced soil cover and weakened range plants.

4. Topography and Elevation

This site occurs on gently undulating, low hummocky, to steeply rolling uplands. Elevation ranges from 1000 feet in Cotton County to 2500 in Beaver County.

5. Soils

- a. Sands with subsoils of sandy loams to sandy clay loams. Intake of moisture is high and there is very little runoff. Moisture storage capacity is low but soil moisture is easily available to plants. The readily available moisture and deep sandy profile encourages the deep rooted grasses along with some woody vegetation. However, due to the soils relatively low water holding capacity there is much fluctuation in kinds and amounts of range vegetation, as the climate characteristically fluctuates between arid and subhumid conditions. The drouth resistant kinds of woody vegetation also reflects the wide range and rapid change in available moisture.
- b. Soils in the site are: Pratt loamy fine sand, Pratt-Tivoli loamy fine sand, Enterprise loamy fine sand, and Likes loamy fine sand.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax cover is principally little bluestem and sand bluestem. Switchgrass and Indiangrass are also common to the site. These decreaser species represent approximately 40 to 50 percent of the vegetation. The more common increasers are blue grama, sand lovegrass, sand dropseed, fall witchgrass, and Texas bluegrass. Sand flatsedge (Cyperus schweinitzi) is an important grasslike species. The woody increasers are sand sagebrush and skunkbush, and should not exceed 10 percent of the total vegetation.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 3500 lbs.

(b) Unfavorable periods - 1400 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

### Work Unit

1. Range Site Name: DEEP SAND

2. General Site Description and Location

a. Description

This is a tall grass prairie site on gently rolling or low dune topography.

b. Location of site

(1) Land resource area: Reddish Prairie

(2) Counties: Alfalfa, Grant, Major, Garfield, Blaine, Caddo, Jefferson, Kingfisher, Grady, Comanche, and Stephens Counties in Oklahoma

3. Climate

Average annual precipitation ranges from 28 to 32 inches, with most of it occurring during the spring and fall. Occasional drouths are to be expected. Hot, dry winds often restrict forage production during July and August. The average summer growing season ranges from 205 to 215 days. This climate favors warm season plants.

4. Topography and Elevation

This site occurs on nearly level to gently rolling slopes. Elevation ranges from 900 to 1300 feet above sea level.

5. Soils

a. Soils within this site are deep, coarse textured, and rapidly permeable. The insoak rate is rapid and permeation is deep, which favors deep rooted plants. They are slightly acid on the surface and neutral to basic in the subsoil. These soils are not considered excessively drouthy.

b. Soils in the site are: Pratt loamy fine sand, Cobb loamy fine sand, and Derby loamy fine sand.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Principal climax decreaser grasses are sand bluestem, little bluestem, switchgrass and Indiangrass. Big sandreed is also commonly associated with the more unstable areas. The principal increaser grasses are hairy grama, blue grama, and sideoats grama.

The principal woody vegetation is skunkbush, sandplum and sand-sage. Some post oak, blackjack oak, and associated species have invaded, particularly along site transition areas.

Decreaser plants should comprise about 65 percent of the composition. Woody plants should not exceed 10 percent.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4000 lbs.  
(b) Unfavorable periods - 1800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DEEP SAND SAVANNAH (Western RR)

2. General Site Description and Location

a. Description

Loamy and coarse deep sands occurring on nearly level to rolling uplands. Shinnery oak is usually found on this site and increases as the grass stand is reduced.

b. Location of site

(1) Land resource area: Western Rolling Red Plains

(2) Counties: Ellis, Woodward, Roger Mills, Beckham, Harmon, Greer, and Jackson Counties of Oklahoma.

3. Climate

Annual average precipitation ranges from approximately 22 to 25 inches across the range site. Important to kinds and amounts of vegetation is the wide fluctuation of annual and seasonal rainfall. Extreme annual precipitation has ranged from highs of 45 to lows of 12 inches. Average frost-free period is from 200 to 220 days, with 75 percent of the total precipitation falling in this period. Summer drouths of three weeks or longer duration are frequent. During favorable climatic periods the site can support a productive stand of mid and tall grasses. There is normally some thinning out of these tall grasses during long drouth cycles. Short summer drouths during late July and August often prevent seed production particularly of little bluestem, and retard range recovery.

4. Topography and Elevation

Topography is gently undulating, hummocky to low dune. Elevation ranges from 1400 to 2400 feet above sea level.

5. Soils

a. This site includes moderately acid to acid upland soils that are very sandy. The soil profiles are fine sand, 12 to 36 inches or more in depth, over loamy fine sand to sandy clay loam subsoils. They have high insoak rates and allow little runoff. Moisture holding capacity is fair. These soils are rather infertile and very susceptible to wind erosion. The rapid infiltration and deep percolation of water in these soils make this site most suitable for deep rooted forage and woody plant species.

- b. Soils in the site are: Nobscot fine sand, Brownfield fine sand, and Nobscot-Brownfield fine sand.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Little bluestem and sand bluestem are the most important grasses in the climax cover. Less important decreasers are switchgrass and Indiangrass. Wild lespedezas, Virginia tephrosia, and other legumes are common here. Decreaser range plants represent 45 to 55 percent of the climax vegetation. Shinnery oak is the major increaser woody species. Woody species should not exceed 10 percent of the climax cover.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 3900 lbs.
    - (b) Unfavorable periods - 1600 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DEEP SAND SAVANNAH (26" - 31" ppt.)

2. General Site Description and Location

a. Description

Loamy and coarse sands that yield moisture to plants readily. Post oak, blackjack oak, and other woody plants characterize the site and increase greatly under improper management.

b. Location of site

- (1) Land resource area: Eastern Rolling Red Plains and Western Cross Timbers.
- (2) Counties: Major, Dewey, Blaine, Garfield, Grant, Canadian, Alfalfa, Kingfisher, Caddo, and Comanche Counties in Oklahoma.

3. Climate

Annual average precipitation of this range site is 26 to 31 inches. Important to kinds and amounts of vegetation is the wide fluctuation of annual and seasonal rainfall. Extreme annual precipitation has ranged from highs of 57 inches to lows of 15 inches. Average frost-free period is about 210 days, with 75 percent of the annual rainfall falling in this period. Summer drouths of three weeks or longer duration are frequent. During favorable climatic periods the site can support a productive stand of mid and tall grasses. There is normally some thinning out of these tall grasses during long drouth cycles. Short summer drouths during late July and August often prevent seed production of little bluestem and retard range recovery.

4. Topography and Elevation

Elevation ranges from 1000 to 1600 feet across the site. The topography is rolling, becoming dune on some of the Nobscot areas.

5. Soils

- a. This site includes moderately acid to acid upland soils that are very sandy. The soil profiles are fine sand, 12 to 36 inches or more in depth, over loamy fine sand to sandy clay loam subsoils. They have high insoak rates and allow little runoff.

Moisture holding capacity is fair. These soils are rather infertile and very susceptible to wind erosion. The rapid infiltration and deep percolation of water in these soils make this site most suitable for deep rooted forage and woody plant species.

- b. Soils in the site are; Nobscot fine sand, Brownfield fine sand, Nobscot-Brownfield fine sand, and Eufaula fine sand.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Sand bluestem and little bluestem are the most important grasses in the climax cover. Less common decreasers are switchgrass and Indiangrass. A thin stand of post oak and blackjack oak brush is normal for the site and in the western part some shinnery oak occurs. Wild lespedezas and other legumes are normally quite common in high range conditions. Increaser grasses include sideoats grama, hairy grama, blue grama, sand lovegrass, sand paspalum and purpletop. Decreaser range plants represent 45 to 55 percent of the total climax vegetation.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 4200 lbs.
    - (b) Unfavorable periods - 1750 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DEEP SAND SAVANNAH (32" - 39" ppt.)

2. General Site Description and Location

a. Description

This site varies from nearly level to moderately steep coarse textured upland soils. Vegetation is a mixture of hardwood brush and tall prairie grasses. The largest areas occur on the north side of major rivers.

b. Location of site

- (1) Land resource area: Cross Timbers and some western extensions of the Forested Coastal Plains.
- (2) Counties: Jefferson, Love, Marshall, Johnson, Murray, Carter, Stephens, Garvin, Pontotoc, Hughes, Tulsa, Okmulgee, Pottawatomie, Seminole, Cleveland, McClain, Grady, Okiahoma, Lincoln, Payne, Logan, Osage, Kay, and Pawnee Counties in Oklahoma.

3. Climate

Subhumid on the west to moist subhumid on the east, as described by C. W. Thornthwaite. Sixty-five to 70 percent of the average annual precipitation comes during the warm season, April 1 to September 30. Moisture received during the growth period encourages the growth of the warm season species.

4. Topography and Elevation

Usually gently sloping to moderately steep topography. Elevations above sea level vary from approximately 1000 feet on the west to 700 on the east.

5. Soils

- a. These deep sandy permeable soils take in moisture readily and, under climax conditions, there is usually very little runoff. It is the deep sandy profile for root development and readily available moisture that encourages growth of woody species. However, since the soils are low in fertility and moisture holding capacity, the vegetation is a mixture of woods and prairie.

- b. Soils in the site are: Dougherty, Stidham, Eufaula and Derby.

Dougherty and Stidham are red-yellow padzolic soils. The upper 14 to 20 inches of the surface is a loamy fine sand. The B<sub>2</sub> horizon is a red or yellowing red sandy clay loam. Eufaula loamy fine sand differs from the above, having a fine sand or a loamy fine sand at least 36 inches thick. Below three feet some areas have a thin alluviated B horizon. The Derby series occur along the western most edge of this site. They have developed a darker and thicker surface horizon.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. When in excellent condition class, this site supports a vegetative cover composed of 75 percent grasses and forbs, along with a 25 percent crown canopy of woody species. Forage species by category are: Eighty percent climax decreasers, with the principal ones being big bluestem, sand bluestem, Indiangrass, little bluestem, switchgrass, broadleaf uniola and beaked panicum; increasers - purpletop, tall dropseed, Scribner's panicum and sand lovegrass; invaders that come in with prolonged mismanagement are broomsedge bluestem, splitbeard bluestem, showy partridgepea, ragweeds, and white snakeroot.

Principal woody species are post oak, blackjack oak, hickory, winged elm and persimmon. When prolonged heavy grazing use occurs, the decreaser plants thin out and the space vacated fills in with oak sprouts. In this condition, this site is sometimes mistakenly classified as forest land. Treatment by mechanical or chemical means is required in addition to good management to restore productive potential.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3800 lbs.  
(b) Unfavorable periods - 1900 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DEEP SAND SAVANNAH (40'+ ppt.)

### 2. General Site Description and Location

#### a. Description

This site varies from nearly level to moderately steep, coarse textured soils. Vegetation is principally a mixture of hardwood brush and tall prairie grasses.

#### b. Location of site

- (1) Land resource area: Forested Coastal Plains and Ouachita Highlands with some eastern extensions of Cross Timbers.
- (2) Counties: Atoka, Bryan, Choctaw, Coal, Latimer, Haskell, LeFlore, Pushmataha, Pittsburg, McIntosh, Wagoner, Okfuskee, and Mayes Counties in Oklahoma.

### 3. Climate

Moist subhumid with annual precipitation varying from 40 inches on the west to 45 on the eastern extreme of the site. The frost-free period of 190 to 215 days which comes during the highest rainfall period favors growth of warm season species.

### 4. Topography and Elevation

Gently to steeply rolling topography. Elevation ranges from 500 to 700 feet.

### 5. Soils

- a. Deep loose sands with rapid internal drainage. There is very little surface runoff. These soils are inherently low in fertility and in moisture holding capacity.

While soil depth and lack of runoff favor woody plants in this precipitation zone, the lack of water storage capacity and rapid internal drainage result in a mixture of woody plants and grasses.

- b. Soils in the site are: Eufaula, Stidham, and Dougherty. These are fine sands to loamy fine sands.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. In climax condition this site supports a vegetation cover composed of about 60 percent grasses, forbs, and legumes, along with a 40 percent canopy of woody species.

Principal climax herbaceous species include Indiangrass, big bluestem, little bluestem, low panicums, switchgrass, wildrye sp., perennial lespedezas, Virginia tephrosia, and perr. sunflower.

Woody plants include post oak, blackjack oak, red oak, hickory, ash, persimmon, sassafras, coralberry, and willow. Woody species increase greatly under grazing abuse and this often leads to mistakenly identifying such areas as forest land.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3200 lbs.  
(b) Unfavorable periods - 1800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DUNE (Panhandle)
2. General Site Description and Location

- a. Description

Dunes of loose fine sand that require very careful management for soil protection. These areas become active dunes quite readily when vegetative cover has been depleted by grazing or other means.

- b. Location of site

- (1) Land resource area: High Plains and Rolling Red Plains of the panhandle.
    - (2) Counties: Cimarron, Texas, and Beaver Counties of Oklahoma.

3. Climate

Semi-arid climate with an average precipitation of 17 to 20 inches. About 75 percent of the annual rainfall occurs from May through October with each month receiving 1.5 inches or more. There are extreme fluctuations in rainfall from year to year with periods of drouth. Twenty-five percent of the years have fallen below 14.3 inches total rainfall (Dalhart, Texas). More years of below average rainfall can be expected than those above average. Winter precipitation averages less than .75 inch per month and comes in the form of snow and some rain.

Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas.

The growing season of the native warm season plants is from the last of April until the middle of October. The optimum growing season is 180 days. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of 23 degrees below zero. The maximum summer temperature on record is 112 degrees. Summer humidity is low and evaporation high. These climatic factors, coupled with a soil low in water holding capacity and lacking in fertility, result in widely fluctuating cover conditions.

4. Topography and Elevation

Topography is steeply hummocky, somewhat unstabilized uplands throughout which blowouts are scattered. Elevation ranges from 2500 to 4000 feet.

5. Soils

- a. Soils are deep, loose, neutral to alkaline fine sands. Except for small inclusions of other soils, which usually occur in depressions, these soils have profiles of fine sand extending to depths of 5 feet or more. Their very rapid insoak and permeability rates allow little runoff. The waterholding capacity and relative fertility are very low. The soils are very susceptible to wind erosion and this site, under the best conditions, often includes small areas of active dunes or blowouts. The loose sandy nature of these soils encourages rhizomatous and fleshy rooted plants capable of surviving the great extremes of moisture and temperature that characterize this site.
- b. Soils in the site are: Tivoli fine sand with some inclusion of Tivoli loamy fine sands.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The site supports a mixture of decreaser grasses such as sand bluestem, little bluestem, big sandreed, giant and spike dropseed, switchgrass, and sand lovegrass. These climax grasses should make up 40 percent of the vegetation. The dominant increaser grasses include sand dropseed, fall witchgrass, and sand paspalum. Principal woody plants are sand sagebrush, skunkbush, and hackberry. Lemon scurfpea, blowoutgrass, big sandreed, and silky prairieclover are often the first plants to stabilize active blowouts or dunes. Invaders are red lovegrass, sandbur, purple sandgrass, red threeawn, and annual wild-buckwheat.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1200 lbs.
    - (b) Unfavorable periods - 600 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

Pioneer Memorial Park Association. West half (1/2) of Section 6,  
Township 4, Range 24 West, Beaver County; 1 mile north of Beaver,  
Oklahoma, west of Highway 270.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DUNE

2. General Site Description and Location

a. Description

Dunes of loose coarse sand which are difficult to keep stabilized under the best of management. Productivity is low.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Harper, Ellis, Woods, Major, Dewey, Greer, and Woodward counties of Oklahoma.

3. Climate

Average annual precipitation ranges from approximately 21 to 26 inches. Warm season rainfall (April through September) is about 70 to 75 percent of the total rainfall. The average frost-free period is approximately 200 days. Most of the vegetation is warm season plants.

4. Topography and Elevation

Topography is steeply hummocky, somewhat unstabilized uplands with blowouts scattered throughout the area. Elevation ranges from 1300 to 2500 feet.

5. Soils

a. Soils are deep, loose, neutral to alkaline fine sands. Except for small inclusions of other soils, which usually occur in depressions, these soils have profiles of fine sand extending to depths of 5 feet or more. Their very rapid insoak and permeability rates allow little runoff. The waterholding capacity and relative fertility are very low. The soils are very susceptible to wind erosion and this site often includes small areas of active dunes or blowouts. The loose sand soil encourages rhizomatous and fleshy rooted plants capable of surviving the great extremes of moisture and temperature.

b. Soils in the site are: Tivoli fine sand.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soils Series of Oklahoma handbook.

6. Climax Vegetation

a. The site supports a mixture of decreaser grasses such as sand bluestem, little bluestem, big sandreed, and switchgrass. These climax grasses should make up 60 percent of the vegetation. Dominant increaser grasses include blue grama, sand dropseed and sand paspalum. Principal woody plants are sand sagebrush and skunkbush. Lemon scurfpea, blowoutgrass, and big sandreed are the first plants to stabilize active blowouts or dunes. Invaders are red lovegrass, purple sandgrass, red threeawn, and annual wildbuckwheat.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 1600 lbs.
- (b) Unfavorable periods - 800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: DUNE

2. General Site Description and Location

a. Description

Dunes of loose coarse sand that require careful management for soil protection. Production is moderate to low.

b. Location of site

(1) Land resource area: Reddish Prairie

(2) Counties: Major, Garfield, Kingfisher, Canadian, Blaine, and Grant Counties in Oklahoma.

3. Climate

There is a range from 27 to 31 inches average annual precipitation across the geographical area of this site. Warm season rainfall, April through September, is about 70 percent of the total precipitation. Average frost-free period is approximately 200 days. This climate produces a predominance of warm season vegetation.

4. Topography and Elevation

Topography is steeply hummocky uplands. Elevation ranges from 1000 to 1500 feet.

5. Soils

a. Soils are deep, loose, neutral to alkaline fine sands. Except for small inclusions of other soils, which usually occur in depressions, these soils have profiles of fine sand extending to depths of 5 feet or more. Their very rapid insoak and permeability rate allows little runoff. Water holding capacity and relative fertility are very low. Soils are very susceptible to wind erosion and often include small areas of active dunes or blowouts. Their loose sandy texture encourages rhizomatous and fleshy rooted plants capable of surviving the great extremes of moisture and temperature that characterize this site.

b. Soils in the site are: Tivoli fine sand.

c. Complete soils descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. This site supports big sandreed, sand bluestem, little bluestem, sand lovegrass and switchgrass. These decreasers make up 60 percent of the climax vegetation. Common increaser grasses are sand paspalum, fall witchgrass, red lovegrass, hairy grama, and sand dropseed. Invaders include sandbur, purple sandgrass, gummy lovegrass, tumble lovegrass, skunkbush and sandsage. Woody species normally comprise 10 percent of the cover.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2200 lbs.
    - (b) Unfavorable periods - 1200 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: EDGEROCK (28" - 32" ppt.)

2. General Site Description and Location

a. Description

Rolling limestone hills, with exposed bedrock uplifted to form characteristic rows. The intervening areas of soils are mostly very shallow. Some joints in the bedrock and soil pockets support an open stand of mid grasses intermixed with short grasses.

b. Location of site

(1) Land resource area: Grand Prairie associated with the Wichita Mountains area.

(2) Counties: Comanche, Kiowa, and Caddo Counties in Oklahoma

3. Climate

The highest rainfall period (approximately 75 percent of the annual precipitation) occurs from April through October. This is also the period of highest temperature and highest moisture losses through evaporation. There is normally a summer drouth period during July and August. Winters are normally open and dry. Due to high intensity storms in this site, very careful grazing management is necessary on this rocky site.

4. Topography and Elevation

These limestone hills rise rather abruptly from the gently rolling plains. They form a low range of scattered hills along the north side of the Wichita Mountains. Slopes are smooth and rounded. Elevation ranges from 1500 to 2000 feet.

5. Soils

a. This site includes dark colored shallow and very shallow soils developed on steeply inclined limestone beds. The surface soils are loamy to clayey and are underlain by hard, consolidated limestone at 5 to 12 inches. Occasional seams or cracks in the limestone allow deeper root penetration. Up to 40 percent of the site is barren limestone outcrop. The soils are very drouthy and are suitable for shallow, drouth resistant forage plants.

- b. Soils in the site are: Tarrant soils
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The cover is principally mid grasses. Little bluestem and sideoats grama are the major species, making up some 40 percent of the climax. Decreasers represent about 50 percent of the total vegetation. Other common plants are hairy grama, buffalo-grass, sand dropseed, puffsheath dropseed, hairy tridens and pricklypear.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1800 lbs.
    - (b) Unfavorable periods - 1000 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: EDGEROCK (32"+ ppt.)

2. General Site Description and Location

a. Description

Rolling limestone hills, with exposed bedrock uplifted to form characteristic rows. The intervening areas of soils are mostly very shallow. Some joints in the bedrock and soil pockets support an open stand of tall and mid grasses intermixed with short grasses.

b. Location of site

(1) Land resource area: Grand Prairie associated with the Arbuckle Mountains area.

(2) Counties: Carter and Johnston Counties in Oklahoma

3. Climate

The annual precipitation ranges from 34 to 38 inches. The heaviest rainfall usually occurs during the months of April, May and June, with a fair distribution throughout the other months. Summer drouths are common. The average frost-free growing season is about 210 days.

4. Topography and Elevation

Topography varies from gently rolling to steep. Elevation ranges from 900 to about 1500 feet.

5. Soils

a. Soils in this site are very stony, dark colored and shallow, developed on steeply inclined beds of limestone. Much of the surface (up to 30 percent) is covered by limestone outcrops and large stones. Most of the soil is from 8 to 16 inches deep, but occasional cracks and seams in the limestone allow deeper root penetration.

b. Soils in the site are: Tarrant soils

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Climax cover is principally mid and tall grasses with some short grasses. Decreasers make up about 60 to 70 percent of the vegetation, which include little bluestem, Indiangrass, big bluestem, and switchgrass. Increaseers are sideoats grama, hairy grama, Scribner's panicum, meadow dropseed, and a few forbs and woody plants. These make up 30 to 40 percent of the cover. Invader plants include Japanese brome, annual threeawn, annual broomweed, puffsheath dropseed, and silver bluestem.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 3000 lbs.

(b) Unfavorable periods - 1600 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

UNITED STATES DEPARTMENT OF AGRICULTURE  
Soil Conservation Service  
Oklahoma City, Oklahoma

January 7, 1964

TO: A. T. Elder, Area Conservationist  
SCS, Woodward, Oklahoma

FROM: Clarence E. Kingery, Range Conservationist

SUBJECT: RANGE - Sites - Eroded Prairie

Copies of the technical range site description for Eroded Prairie  
(34" - 39" ppt.) are attached. They should be included in the book

Oklahoma Technical Range Site Descriptions.

Attachments

cc:  
N. E. Rowley

*C. E. Kingery*

*see*

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*C. E. Kingery*

## II-E-2 - Technical Range Site Descriptions

### Work Unit

1. Range Site Name: ERODED PRAIRIE (34" - 39" ppt.)

2. General Site Description and Location

a. Description

Formerly cultivated severely eroded deep loamy lands. The soils are those of the loamy prairie where erosion has resulted in reduced yields and a changed plant composition.

b. Location of site

(1) Land resource area: Cherokee Prairie and the eastern extension of the Central Rolling Red Prairie

(2) Counties: Creek, Hughes, Lincoln, Okfuskee, Okmulgee, Payne, Pottawatomie, Pontotoc, Seminole, Tulsa, Washington

3. Climate

Moist subhumid with annual average precipitation varying from 34 to 39 inches. The frost-free period is 190 to 210 days. A high percent of the rainfall occurs during the warm season which encourages summer growth vegetation. Cool season grasses are relatively unimportant.

4. Topography and Elevation

Gently rolling to steep slopes. This site often lies along footslopes. Elevations vary from 700 to 1050 feet.

5. Soils

a. Severely eroded prairie soils that are moderately permeable. Erosion has removed much of the original surface soil and there are frequent gullies that expose the more clayey soil horizons. The surface is low in organic matter and crusts severely. The gully sides are usually low in fertility and do not take in or retain moisture well.

b. Representative soil in this site is eroded loamy land.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend.

6. Climax Vegetation

- a. Plant cover includes little bluestem and Indiangrass along with some big bluestem and switchgrass. Native legumes are abundant. While climax grasses common to the site are similar to the loamy prairie range site, productivity is much lower.

Important increaser grasses include jointtail, meadow and tall dropseed, and hairy grama.

Decreaser species should comprise 50 to 60 percent of the vegetation.

- b. Total annual yield in pounds air-dry per acre

	Herbaceous Species	Woody Species	Total Annual Yield
(1) Favorable years	3000 lbs.	0	3000 lbs.
(2) Unfavorable years	1500 lbs.	0	1500 lbs.

Note: Yields are approximate--based on limited data.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: ERODED RED CLAY

2. General Site Description and Location

a. Description

Steep to gently sloping unstable red clays, usually below breaks. Vegetation is normally sparse.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Woods, Woodward, Beckham, Major, Harmon, Greer, Kiowa, Blaine, and Jackson Counties in Oklahoma

3. Climate

The average annual precipitation varies from 19 to 29 inches. Approximately 75 percent of the rainfall occurs during the warm season. Much of it comes in storms of high intensity and short duration, and is particularly erosive on this site. Occasional drouths are to be expected. Hot dry winds often curtail forage production during July and August. The average annual frost-free season ranges from 190 to 225 days.

4. Topography and Elevation

This site is in areas of clayey redbeds having broken topography and is typified by small gently sloping areas separated by narrow areas of steep, broken land and deep vertical sided gullies. Elevation varies from 1100 to 1700 feet above sea level.

5. Soils

a. Soils in this site have shallow, clayey surface soils over raw clay redbed materials, and have many intermingling barren areas of redbed exposure. The site is very drouthy as nearly all precipitation is lost through runoff and evaporation, which often restricts vegetation to desert type plants.

b. Soils in the site are: Badlands and clay outcrop Vernon soil material.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Sideoats grama is normally the major decreaser grass, although the vegetation is quite variable. Alkali sacaton and silver bluestem are common to this site; also little bluestem and sand bluestem may be found locally. Vine mesquite and western wheatgrass are found where extra moisture is available.

Decreasers should represent at least 40 percent of the vegetation. Forbs common here are Oklahoma sundrop, halfshrub sundrop, tenpetal mentzelia, nailwort, and bluets. Spreading saltbush is a characteristic annual. A number of poisonous legumes are found here, including creamy and Missouri loco, and silky sophora. Other common legumes are James rushpea, trailing ratany and prairieclover. A desirable browse plant, particularly in Major County is fourwing saltbush. Mesquite brush is the usual woody invader species.

Active erosion on this site results in an unstable plant community which is difficult to classify into the usual decreaser, increaser and invader categories.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 600 lbs.  
(b) Unfavorable periods - 200 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

West of Orienta, approximately 12 miles on north side of State Highway 15.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: ERODED RED CLAY
2. General Site Description and Location

- a. Description

Broken steep to moderately sloping raw red clays and siltstone areas with sparse vegetative cover.

- b. Location of site

- (1) Land resource area: Reddish Prairie
    - (2) Counties: Grant, Garfield, Kingfisher, Blaine, Garvin, McClain, Oklahoma, Noble, and Canadian Counties in Oklahoma

3. Climate

The average annual precipitation ranges from 28 to 32 inches, with most of it occurring during the spring and fall. Occasional drouths are to be expected. Hot, dry winds often restrict forage production during July and August. The climate favors warm season forage plants. The average summer growing season ranges from 205 to 215 days.

4. Topography and Elevation

This site occurs in areas of limy red clay soils usually on steep slopes. Elevation ranges from 1000 to 1400 feet above sea level.

5. Soils

- a. Very shallow, clayey surface soils over unweathered calcareous shale or shaly clay (redbeds). Approximately 30 percent of this site is composed of barren areas of exposed redbeds. Surface runoff is rapid, the soil is very susceptible to erosion, and is very drouthy.
  - b. Soils in the site are: Clayey Vernon soil material.
  - c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Sideoats grama, little bluestem, and hairy grama are the principal climax grasses. Common forbs are nailwort, bluets, pricklypear, and tenpetal mentzelia. Decreaser vegetation should comprise at least 40 percent of the total vegetation.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 800 lbs.
    - (b) Unfavorable periods - 400 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: ERODED SANDYLAND

2. General Site Description and Location

a. Description

Formerly cultivated severely eroded deep sandy lands. Includes both Deep Sands and Deep Sand Savannah soils. There are gullies and blowouts on this site. Fertility is low and water losses high.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Ellis, Roger Mills, Beckham, Greer, and Harmon Counties in Oklahoma.

3. Climate

Average annual precipitation is approximately 22 to 25 inches. Important to kinds and amounts of vegetation is the wide fluctuation of annual and seasonal rainfall. Extreme annual precipitation has ranged from highs of 45 to lows of 12 inches. Average frost-free period is from 200 to 220 days, with 75 percent of the total precipitation falling in this period. Summer drouths of three weeks or longer duration are frequent. During favorable climatic periods the site can support a productive stand of mid and tall grasses. There is normally some thinning out of these tall grasses during long drouth cycles. Short summer drouths during late July and August often prevent seed production, particularly of little bluestem, and retard range recovery.

4. Topography and Elevation

Topography is gently to steeply rolling, and sometimes hummocky to low dune. Elevation ranges from 1600 to 2000 feet.

5. Soils

a. Loamy fine sands to fine sands, with loamy fine sand to sandy clay loam subsoils. Insoak rates are high, however, there is often much water loss when cover is removed. Fertility is depleted due to erosion.

- b. Soils in the site are: Severely eroded sandy upland.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Sand bluestem and little bluestem are the most important grasses in the climax cover. Less common decreaseers are switchgrass, sand lovegrass, and Canada wildrye. Decreasers represent about 50 percent of the climax vegetation. Red lovegrass, gummy lovegrass, sand dropseed, and fall witchgrass are common to the site. Common annuals are annual wild-buckwheat and sandbur.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2800 lbs.
    - (b) Unfavorable periods - 1500 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

### 1. Range Site Name: ERODED SANDY SAVANNAH

### 2. General Site Description and Location

#### a. Description

Severely eroded Cross Timbers sandyland formerly in cultivation. There are many deep gullies and fertility is low. Very little brush has returned.

#### b. Location of site

(1) Land resource area: Cross Timbers

(2) Counties: Noble, Payne, Creek, Okfuskee, Seminole, Lincoln, Love, Logan, Oklahoma, Cleveland, McClain, Grady, Stephens, Pontotoc, Carter, Murray, and Garvin Counties in Oklahoma.

### 3. Climate

Average annual rainfall ranges from approximately 31 inches on the western line to 37 on the east side. The summer growing season is about 195 to 210 days. The warm season, during which 75 percent of the precipitation normally occurs, is particularly favorable to summer grasses. High rainfall during May and June stimulates very rapid grass growth and peak livestock weight gains. High intensity storms are common, particularly during the April-May-June period and runoff is high, especially if ground cover is depleted.

### 4. Topography and Elevation

Topography is gently to steeply rolling. Elevation ranges from 900 to 1100 feet.

### 5. Soils

a. This site includes severely eroded, sandy, slightly acid soils of the uplands. It was originally a deep partially timbered soil with a sandy surface and a sandy clay loam subsoil over soft sandstone. The original surface soil has largely been lost by erosion, leaving a soil that has a sandy clay loam surface texture and is only moderately deep to soft sandstone. Outcrops of the sandstone occur occasionally in the area and deep, steep-sided gullies are common. Because of the gullies and lower in-soak the soil has become excessively drained and produces a drouthy, infertile site.

- b. Soils in the site are: Stephenville severely eroded
- c. Complete soil descriptions may be found in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Principal grasses are little bluestem, and Indiangrass with some return of switchgrass and big bluestem. At least 50 percent of the cover should be represented by these species. Invader species, including splitbeard and silver bluestem, are normally present in quantities up to 15 percent.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2500 lbs.
    - (b) Unfavorable periods - 1700 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: ERODED SHALLOW SAVANNAH

2. General Site Description and Location

a. Description

Severely eroded shallow and very shallow sandy formerly cultivated areas in the Cross Timbers. Very little brush has returned to this site.

b. Location of site

(1) Land resource area: Cross Timbers

(2) Counties: Noble, Payne, Creek, Okfuskee, Seminole, Logan, Lincoln, Oklahoma, Cleveland, McClain, Grady, Stephens, Carter, Love, Murray, and Garvin Counties in Oklahoma.

3. Climate

Average annual rainfall ranges from approximately 33 inches on the western line to 39 on the east. The summer growing season is approximately 195 to 210 days. This warm season, during which 75 percent of the precipitation normally occurs, is particularly favorable to summer grasses. High rainfall during May and June stimulates very rapid grass growth and peak livestock weight gains. High intensity storms are common, particularly during the April-May-June period and runoff is high, especially if the ground cover is depleted.

4. Topography and Elevation

This is gently sloping to steeply rolling country. Slopes range from 3 to 20 percent. The elevation at Pawhuska is 879 feet, which is typical for the entire site area.

5. Soils

a. Soils in this site are shallow and very shallow, slightly acid sandy upland soils developed over noncalcareous, soft sandstone. They are light colored and infertile with little water storage capacity. The roots of woody species, mostly oak, penetrate the soft sandstone but the soil depth is very limited for most forage plants. Sandstone outcrops are common and other areas of sandstone have been exposed by erosion.

- b. Soils in the site are: Darnell soils, eroded.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The principal desirable grass is little bluestem. Indiangrass and switchgrass are the most common tall grasses. At least 50 percent of the cover should be made up of climax decreasers. Invaders include red lovegrass, mourning lovegrass, and split-beard bluestem. These and other invaders should not exceed 20 percent of the vegetation.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2000 lbs.
    - (b) Unfavorable periods - 1200 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: GRANITE HILLS
2. General Site Description and Location

- a. Description

Granite hills rising abruptly out of gently sloping plains. It includes minor amounts of the Boulder Ridge site, but is mainly Hilly, Stony land with some Mountain Escarpments.

- b. Location of site

- (1) Land resource area: Granitic Soils

- (2) Counties: Greer, Kiowa, and Jackson Counties in Oklahoma

3. Climate

Average annual rainfall is approximately 26 inches. From 55 to 60 percent of the years recorded are below the average rainfall. Wide variations in both annual and seasonal precipitation are typical of the weather pattern. The frost-free period averages 212 days. Approximately 75 percent of the yearly precipitation falls during April through October, yet there is normally a drouth period in July and August when range forage becomes more or less dormant. Total annual rainfall during the growing season varies from 60 to 90 percent. There is very little snowfall. Wind movement is rather high, and windy days are most common from late February through May.

4. Topography and Elevation

Steep granite hills rise rather abruptly from the surrounding plains. There are very little gentle sloping footslopes connected with this site. Elevations are from 1500 to 2000 feet.

5. Soils

- a. This site includes shallow and very shallow granitic soils on rough mountainous topography. Ridgetops contain 40 percent or more of granite outcrops. There are some soils along footslopes consisting of rounded granitic stones with medium textured soil material filling the interspaces. Moisture penetration is favorable along the seams and deep soil pockets of this site, but large areas of bare rock result in much runoff.

- b. Soils in the site are: Granite outcrops
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The climax vegetation consists of approximately 50 percent decrease grasses such as little bluestem, big bluestem, switchgrass and tall dropseed. Sideoats grama and both forms of hairy grama are important increasers. Woody species occur along the deeper seams and fault lines. This site represents the farthest northern extent of live oak.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1200 lbs.
    - (b) Unfavorable periods - 900 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: GRAVELLY BOTTOMLAND

2. General Site Description and Location

a. Description

This site is made up of stream beds and frequently flooded bottoms. The soil is gravelly or cherty, highly variable in the nature of the alluvium. This soil occurring along streams has been recently deposited and redisturbed by water erosion. It is a very unstable site, and is variable in productivity and kinds of vegetation.

b. Location of site.

(1) Land resource area: Ouachita Highlands

(2) Counties: Haskell, Sequoyah, LeFlore, Latimer, Atoka, Pittsburg, and Pashmataha Counties in Oklahoma.

3. Climate

Average annual rainfall varies from 42 to 48 inches. However, due to overflows, the moisture received is much greater. Since this soil is in the bottoms, there is no influence from slopes or exposure. Overhead or run in water furnishes considerable more moisture to the site than precipitation alone indicates.

4. Topography and Elevation

Flat to gently sloping topography. Elevation ranges from 500 to 700 feet above sea level.

5. Soils

a. This is more a land type than a stable soil series. Much of the profile interspersed with gravel and rounded stones encourages subsurface drainage, thus furnishing less moisture for plant growth than the adjacent deep permeable bottomland or the deep uplands in the same rainbelt.

b. Soils in the site are: Non-arable loamy alluvium and very gravelly alluvial lands.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax vegetation is difficult to describe on the land type. It is unstable, being disturbed by erosion, scouring and flooding. The usual vegetation is a mixture of grasses, upland woody species such as oaks and elms, and lowland woody species such as buttonbush, American elm, sycamore, river birch, and dwarf willow.

Herbaceous plants such as switchgrass, uniola, wildryes, big bluestem, panicums, and Indiangrass, along with perennial legumes and forbs make up 40 to 70 percent of the plant cover.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 2000 lbs.  
(b) Unfavorable periods - 1000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: GYP

2. General Site Description and Location

a. Description

This is an upland prairie site. These are gypsum outcrops and shallow gyp beds.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Harper, Woods, Ellis, Woodward, Major, Blaine, Custer, Washita, Caddo, Kiowa, and Beckham Counties in Oklahoma.

3. Climate

Average annual precipitation ranges from 22 to 30 inches. Most of it occurs during the spring and fall, and much of it in storms of high intensity and of short duration. Summers are usually hot and dry. The average warm growing season ranges from 200 to 215 days.

4. Topography and Elevation

The slopes are generally rolling and dissected by deep drainageways. This site sometimes occurs as knobs in gently rolling topography. Elevation ranges from 1300 to 2000 feet.

5. Soils

a. Soils of this site are a complex of shallow dark colored loamy or clayey soils over soft white gypsum intermingled with barren gyp outcrops. Small areas of deeper loamy alluvial and colluvial soils are found in this site. About 20 to 50 percent of the area is suitable for good forage production and 50 to 80 percent is very low production to barren.

b. Soils in the site are: Cottonwood series.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Principal decreaser grass is little bluestem. Important increaser grasses are blue grama, sideoats grama, rough tridens, hairy tridens, and sand dropseed. This site usually has a high percent of forbs, the principal one being hairy goldaster.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 1800 lbs.

(b) Unfavorable periods - 1000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HARDLAND (Western Cimarron County)

2. General Site Description and Location

a. Description

Nearly level to gently rolling loamy lands dominated by a cover of a short grass vegetation

b. Location of site

(1) Land resource area - High Plains

(2) Counties: Western half of Cimarron County of Oklahoma

3. Climate

Semi-arid climate with an average precipitation of 16 to 17 inches. Annual rainfall occurs mostly from April through September. There are extreme fluctuations from year to year, with periodic drouths. Spring and summer precipitation, April through October, averages about 12.5 inches. Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas.

Native warm season plants predominate in this climate. Drouth begins the latter part of April. Grasses green up intermittently as the irregular rains occur. Optimum growing season is approximately 170 days. Evaporation rates are high and humidity is low. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of -23 degrees. The maximum summer temperature on record is 109 degrees.

4. Topography and Elevation

This site occurs on flat to gently sloping uplands. Elevation ranges from 4000 to 5000 feet.

5. Soils

a. Soils are silt loam, clay loam, and loams that are 18 inches or more in depth to parent materials. If unprotected by vegetation these soils are susceptible to slight wind and water erosion from intense storms. They are slowly to very slowly permeable.

- b. Soils in the site are: Richfield clay loam, Richfield loam; Richfield silt loam; Berthoud loam; Regnier clay loam, and Carnero loam.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The site supports the short grasses of the High Plains, mainly blue grama, buffalograss and galletagrass. Mid grasses such as vine mesquite, western wheatgrass, silver bluestem, and sideoats grama may be found principally in drainageways and other areas receiving extra moisture.
  - . Vegetation is composed principally of the following decreaseers, sideoats grama, vine mesquite, western wheatgrass, and silver bluestem. Increaseers are blue grama, buffalograss, sand dropseed, galletagrass, purple threeawn. Invaders are red threeawn, ring muhly, hairy tridens, western ragweed, yucca, and annuals. The decreaseers are usually in minor amounts, whereas increaseers make up about 70 percent of the ground cover.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1600 lbs.
    - (b) Unfavorable periods - 600 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

North of Boise City, in Strong's pasture, and the cemetery west of the highway. Grazed during the winter only in the pasture, and the cemetery relict for 40 years.

Revised to Deep Hardland  
077 A4001 OK  
6/05

II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HARDLAND (Panhandle)

2. General Site Description and Location

a. Description

Flat to gently sloping upland. It is characteristically short grass country.

b. Location of site

(1) Land resource area: High Plains

(2) Counties: Texas, Beaver, and East Half of Cimarron Counties in Oklahoma

3. Climate

Semi-arid climate with an average precipitation of 17 to 20 inches. About 74 percent of the annual rainfall occurs from May through October, with each month receiving 1.5 inches or more. There are extreme fluctuations in rainfall from year to year with periodic drouths. About 25 percent of the years have fallen below 14.3 inches total rainfall (Dalhart, Texas). More years of below average rainfall can be expected than those above the average. Winter precipitation averages less than .75 inch per month, and comes in the form of snow and rain.

Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas.

The growing season for native warm season plants is from the latter part of April until the middle of October. Optimum growing season is 180 days. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of -23 degrees. The maximum summer temperature on record is 112 degrees. Summer humidity is low and evaporation high. All of these climatic factors, coupled with a drouthy but fertile soil, contributes to a hardy drouth resistant vegetation which fluctuates widely in production.

4. Topography and Elevation

This site occurs on flat to gently sloping uplands. Elevation ranges from 2500 to 4000 feet.

5. Soils

- a. Soils that characterize this site are silt loams, clay loams, and loams that are 18 inches or more in depth to parent materials. They are very slowly to slowly permeable. If unprotected by vegetation, they are susceptible to some wind and water erosion from intense storms.
- b. Soils in the site are: Richfield clay loam; Richfield loam; Richfield silt loam; Richfield loam, thick surface phase; Ulysses-Richfield complex; Ulysses clay loam; Dalhart-Ulysses loams; Berthoud loam; Zita clay loam; Pullman clay loam; Bippus clay loam; Lofton clay loam; Mansker loam; Mansker clay loam; Dalhart-Mansker loam; and Mansic clay loam.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The site supports the short grasses of the High Plains, mainly blue grama and buffalograss. Mid grasses such as vine mesquite, western wheatgrass, and sideoats grama may be found in drainage-ways, and other areas receiving extra moisture.

Decreasers include blue grama, sideoats grama, vine-mesquite, and western wheatgrass. Increasesers are buffalograss, silver bluestem, and purple threeawn. Invaders consist of red three-awn, sand dropseed, hairy tridens, western ragweed, broom snakeweed, yucca, and annuals. Decreasers make up 60 to 70 percent of the vegetation and the remainder is increasesers.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 2000 lbs.
- (b) Unfavorable periods - 800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

Northeast 1/4, Section 10, 3N, 25E, CM. Grazed lightly, mostly during the winter months. Picture is available at the SCS Work Unit office in Beaver, Oklahoma.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HARDLAND (North RR)

2. General Site Description and Location

a. Description

Moderately sloping to level heavy uplands with slow water intake.

b. Location of site

(1) Land resource area: Northern Rolling Red Plains

(2) Counties: Harper, Ellis, Woodward, Woods, Major, and Dewey Counties in Oklahoma.

3. Climate

Average precipitation varies from 21 to 28 inches, with wide fluctuation in annual and seasonal rainfall. Periodic drouths result in drastically lowered yield on this relatively drouthy site. Warm season grasses are dominant due to approximately 75 percent of the annual precipitation coming in the spring-summer-fall period.

4. Topography and Elevation

This site lies on the flatter areas within the upland drainage pattern. Elevation ranges from 1400 to 1900 feet.

5. Soils

a. These soils are deep and fine textured. Although they have a relatively slow moisture intake, the usual gentle slopes allow water to infiltrate when the grass cover is well managed.

b. Soils in the site are: Hollister, Richfield, Mansic, and St. Paul clay loams and silt loams.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. The climax cover has a mixed grass aspect. Sand bluestem, little bluestem, sideoats grama and switchgrass are common decreaseers. Sideoats grama and blue grama make up about 50 percent of the climax cover. Under continued grazing abuse, buffalograss increases and becomes important although it is only a minor part of the climax vegetation. Western ragweed and red threawn are common invaders.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 3000 lbs.

(b) Unfavorable periods - 1500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HARDLAND (South RR)

### 2. General Site Description and Location

#### a. Description

This is a deep, productive, slowly permeable, heavy upland prairie site. Slopes range from moderate to nearly level. It has a mixed short and mid grass aspect when in top range condition.

#### b. Location of site

(1) Land resource area: South Rolling Red Plains

(2) Counties: Beckham, Greer, Washita, Kiowa, Harmon, Comanche, Cotton, Tillman, Jackson, and Caddo Counties in Oklahoma.

### 3. Climate

Average annual precipitation varies from 22 to 30 inches across the site. From 55 to 60 percent of the years recorded are below average rainfall. Wide variations in both annual and seasonal precipitation are typical of the weather pattern. Although about 75 percent of the yearly rainfall comes during April through October, there is normally a drouthy period in July and August when range forage becomes more or less dormant. This amount will vary from 60 to 90 percent. There is very little snowfall. Wind movement is rather high. Windy days are most common from late February through May.

### 4. Topography and Elevation

The slopes of this site vary from gentle to moderate. Elevation ranges from 1000 to 1300 feet.

### 5. Soils

a. The soils are deep loams with rather impervious subsoils. The blocky clay subsoils restrict water intake and root penetration.

b. Soils in the site are: Tillman, LaCasa, Hollister and Foard.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax grasses for this site include sand bluestem, little bluestem, switchgrass, western wheatgrass, and sideoats grama. Blue grama, buffalograss, vine-mesquite, and meadow dropseed are common increasers. Approximately 55 percent of the climax cover is made up by decreaser plants.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2900 lbs.
    - (b) Unfavorable periods - 1500 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HEAVY BOTTOMLAND

2. General Site Description and Location

a. Description

Clay and clay loam bottomlands that are somewhat drouthy, but the range profits from some overflow water.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Harmon, Greer, Kiowa, Jackson, Tillman, Comanche, Cotton, and Caddo Counties in Oklahoma.

3. Climate

Average annual precipitation varies from 22 to 30 inches. A wide variance in both annual and season precipitation is typical of the weather pattern. From 55 to 60 percent of the years recorded are below the average rainfall.

The frost-free period averages 212 days. Although approximately 75 percent of the yearly precipitation falls during this period, April through October, there is normally a drouthy period in July and August when range forage becomes more or less dormant. Total annual precipitation that falls during the growing season varies from approximately 60 to 90 percent. There is very little snowfall. Wind movement is rather high. Windy days are most common from late February through May.

4. Topography and Elevation

The site occurs on nearly level to smoothly sloping bottomlands.  
m Elevation ranges from 1000 to 1800 feet.

5. Soils

a. This site includes deep, clayey, and clay soils. They are neutral to calcareous and relatively fertile.

b. Soils in the site are: Milley, clay, Spur clay loam, and Port clay loam.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend and Oklahoma Soil Series handbook.

6. Climax Vegetation

a. Climax grasses include sand bluestem, switchgrass, little bluestem, sideoats grama, vine-mesquite, and western wheatgrass. Decreaser grasses make up some 55 percent of the vegetation. Common increasers are blue grama, buffalograss, and longspike tridens. A common invader forb is curlycup gumweed. The principal woody invader is mesquite.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 4500 lbs.

(b) Unfavorable periods - 2000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HEAVY BOTTOMLAND (Central)

2. General Site Description and Location

a. Description

Clay bottomlands that are drouthy, but excessively wet during high rainfall periods.

b. Location of site

- (1) Land resource area: Reddish Prairie, Bluestem Hills and Western Cross Timbers.
- (2) Counties: Grant, Kay, Osage, Garfield, Noble, Pawnee, Payne, Kingfisher, Blaine, Canadian, Oklahoma, Lincoln, Grady, McClain, Cleveland, Pottawatomie, Garvin, Stephens, Jefferson, Murray, Carter, and Love Counties in Oklahoma

3. Climate

Average annual precipitation varies from 30 to 38 inches. This site is characterized by hot, often dry summers; mild autumms; mild to cold winters; and moist, cool spring periods. Some 70 percent of the total rainfall occurs during the period of April through October. High intensity rains result in occasional and sometimes frequent overflow on this site.

4. Topography and Elevation

Gently sloping to flat lands lying along the larger drainageways. Elevation ranges from 800 to 1300 feet.

5. Soils

- a. Poorly drained clayey alluvial soils. Surface soils are clay or silty clay, with clay and heavy clay subsoils. Drainage and permeability are very slow. These soils are only moderately productive due to drouthiness, very slow water intake, and poor drainage.
- b. Soils of the site are: Miller, Osage, Lela, and Brewer.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Mid-tall grass climax. Switchgrass, prairie cordgrass, Virginia wildrye, western wheatgrass, and vine mesquite are characteristic grasses. Buffalograss, longspike tridens, and white tridens are common to the site. Texas wintergrass is commonly found, particularly in the southern counties. Mesquite is a common invader.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 5500 lbs.

(b) Unfavorable periods - 2500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HEAVY BOTTOMLAND (Eastern)

2. General Site Description and Location

a. Description

Deep clay bottomland often overflowed. This site is drouthy, but often excessively wet during high rainfall periods.

b. Location of site

- (1) Land resource area: Cherokee Prairie, Eastern Cross Timbers, Grand Prairie, Forested Coastal Plains and Ouachita Highlands.
- (2) Counties: Washington, Nowata, Craig, Ottawa, Mayes, Rogers, Tulsa, Creek, Okmulgee, Muskogee, Cherokee, Haskell, Latimer, McIntosh, Okfuskee, Seminole, Hughes, Pittsburg, Pushmataha, Choctaw, Atoka, Coal, Pontotoc, Johnston, and Bryan Counties in Oklahoma.

3. Climate

Moist subhumid to humid with mean annual precipitation ranging from approximately 38 to 43 inches. About 70 percent of the moisture comes in the summer growing season of 195 to 220 days. Most frequent overflows are during May and June.

4. Topography and Elevation

Gently sloping to flat flood plains, generally occurring along the larger streams. Elevation generally ranges from 400 to 700 feet above sea level.

5. Soils

- a. Nearly level, deep, poorly drained, very slowly permeable, clayey alluvial soils subject to rather frequent flooding. These are silt loam or clay surface soils with a dense clay substrata. Philo is less clayey and better drained than the other soils in this site.
- b. Soils in the site are: Brewer, Philo, Pledger, Roebuck, Lela, Lightning and Osage. (largely clays).

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Tall grass-hardwood association. The average hardwood canopy varies from 10 to 70 percent. On the more open areas big bluestem, Indiangrass, switchgrass, eastern gamagrass and prairie cordgrass are the principal decreasers. On areas where the canopy of elm, ash, oak, walnut, and pecan shade much of the soil surface the wildryes, Canada and Virginia, become abundant. Increaser vegetation on the site includes meadow dropseed, broomsedge bluestem, ironweed, white snakeroot and scrubby hardwoods.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 7000 lbs.
- (b) Unfavorable periods - 4000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: HILLY, STONY LAND
2. General Site Description and Location

- a. Description

Rough rocky slopes, ridges, and hills in the Wichita Mountains area. Vegetation varies from short grass on very shallow soil to mid and tall grass in rock seams and deep soil pockets.

- b. Location of site

- (1) Land resource area: Granitic Soils
- (2) Counties: Comanche, Caddo, Kiowa, Jackson, and Greer Counties in Oklahoma

3. Climate

The climate is dry subhumid with average rainfall of 26 to 30 inches. About 70 percent of the rainfall occurs during the warm growing season. Frost-free growing season averages about 215 days. Winters are usually open and dry.

4. Topography and Elevation

The topography is made up of rough, granitic mountain slopes, ridges, and hills. Slopes vary from gently sloping to steep. Elevation ranges from about 1300 to 2500 feet.

5. Soils

- a. This site includes shallow and very shallow granitic soils on rough, mountainous topography. The soils are dark colored loams 5 to 15 inches deep over bedrock granite. Occasional small deeper pockets of soil occur in depressions or crevices. Barren granite outcrops are common and may occupy up to 30 percent of the surface area. These soils are rather drouthy, and normally are excessively drained because of steep topography.
- b. Soils in the site are: Rough stony land, granitic.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The climax vegetation in the deep soil areas consists of approximately 70 percent decreaser plants such as little bluestem, big bluestem, Indiangrass, switchgrass, sideoats grama, and tall dropseed. About 30 percent is made up of increasers such as hairy grama, blue grama, buffalograss, perennial threeawn, and forbs. Some areas will have woody plants such as post oak, blackjack oak, mountain walnut, and others.

Climax vegetation of the very shallow soil areas consists of approximately 60 percent decreaser plants such as blue grama, sideoats grama, hairy grama, and purple threeawn. About 40 percent increasers can be expected in the climax. These are mostly buffalograss, hairy tridens, Texas grama, and annuals.

Prolonged heavy use results in invasion of deep soil areas by silver bluestem, sand dropseed, meadow dropseed, annual threeawn, broomweed, and western ragweed. Woody species will increase in some areas. Very shallow areas will be invaded by sixweeks fescue, Japanese brome, and puffsheath dropseed.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 1800 lbs.  
(b) Unfavorable periods - 1000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

Change to mixedland slopes 077EY061 TX

II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LIMY SANDY PLAINS

2. General Site Description and Location

a. Description

Deep moderately sandy uplands lying on caliche beds that occur on gently rolling topography. The soils are open and can support a mid-tall grass cover but, because of the caliche outcrops, the cover is not uniformly dense.

b. Location of site

- (1) Land resource area: Rolling Red Plains and High Plains
- (2) Counties: Beaver, Texas, Cimarron, Harper and Ellis Counties in Oklahoma.

3. Climate

Average yearly precipitation ranges from 20 to 24 inches. About 75 percent of this falls during the average 195-day frost-free period. Summer drouth occurs normally in the latter part of July and during August. High evaporation during the entire summer lowers the effectiveness of the precipitation.

4. Topography and Elevation

This site lies on the gently rolling uplands. Elevation ranges from 1800 to 3000 feet.

5. Soils

- a. This site comprises deep, limy upland soils of moderately coarse to medium texture. The Otero soils are the sandier, having fine sandy loam surface soils over very limy fine sandy loam to loam subsoils. The Mansic soils have loam to friable clay loam surface soils over limy clay loam subsoils. Both have moderate to rapid insoak rates and moderate to high moisture holding capacity. Fertility is low to moderate. When eroded the fertility level is very low. Both soils are fairly susceptible to erosion, with wind erosion being more active on the Otero and water erosion on the Mansic.. While these soils are deep and friable, the high calcareous content encourages the kind of vegetation found on the shallow soils. This is particularly true on the more limy areas.

- b. Soils in the site are: Otero-Mansic complex; Otero soils; Mansic-Otero complex; and Mansker fine sandy loam.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Little bluestem and sideoats grama are the principal grasses. Smaller amounts of sand bluestem, hairy grama, and a variety of climax legumes and forbs make up the cover.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2300 lbs.
    - (b) Unfavorable periods - 1000 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

North half of 8-2-27

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY BOTTOMLAND

2. General Site Description and Location

a. Description

Dark loamy bottomlands subject to occasional overflow from the streams and from water off the slopes above.

b. Location of site

(1) Land resource area: High Plains

(2) Counties: Cimarron, Texas, and Beaver Counties of Oklahoma.

3. Climate

Average precipitation on this site is from 16 inches in the west to 22 on the east edge. About 75 percent of this falls during the frost-free period of approximately 190 days. Summers are hot and usually there is a summer drouth period centering in August.

4. Topography and Elevation

Gently sloping to flat lands lying along the larger drainageways. Elevation varies from 2200 to 4000 feet.

5. Soils

a. Soils are deep, dark, loamy, alkaline to calcareous alluvium. The surface soils are fine sandy loam to silt loam, 8 to 18 inches deep over calcareous loamy, often stratified subsoils. They are open and porous, having moderate to rapid insoak and permeability rates. Moisture holding capacity is moderate to high. These soils generally receive runoff water from surrounding land and may be flooded occasionally by adjacent streams. This makes for higher range production than the loamy upland soils.

b. Soils in the site are: Spur and Canadian

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Switchgrass, sand bluestem, little bluestem, and Indiangrass are the most important climax species. Other grasses of lesser importance in the climax cover are western wheatgrass, vine mesquite, Canada wildrye and sideoats grama. Buffalo-grass, blue grama, windmillgrass and weeds are characteristic of the low condition cover. Decreasers make up about 70 percent of cover in the climax.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 3500 lbs.

(b) Unfavorable periods - 1700 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY BOTTOMLAND
2. General Site Description and Location

- a. Description

Bottomlands subject to occasional overflow from the streams and water off the slopes above. Though there is little subirrigated effect, the site is a productive one since it receives this extra water on the surface.

- b. Location of site

- (1) Land resource area: Rolling Red Plains
- (2) Counties: Harper, Woods, Ellis, Woodward, Major, Roger Mills, Dewey, Custer, Blaine, Beckham, Caddo, Kiowa, Washita, Harmon, Greer, Comanche, Jackson, Tillman, and Cotton Counties in Oklahoma

3. Climate

Average precipitation runs from 20 inches in Beaver County to 30 in Cotton County. About 75 percent of this falls during the frost-free period, which varies from 195 to 220 days north to south. Summers are hot and usually there is a summer drouth period in August. This climate and soil results in a high producing summer range. However, the additional moisture received from runoff also causes growth of more cool season forage than is found on the Loamy Prairie site.

4. Topography and Elevation

Gently sloping to flat lands lying along the larger drainageways. Elevation varies from 1000 to 2500 feet above sea level.

5. Soils

- a. This site is comprised of deep, neutral to alkaline, loamy alluvial soils. The soil profiles have sandy loam to silt loam A horizon over loamy, frequently stratified, calcareous subsoils. Inclusions of clayey or sandy soils are common but will make up less than 15 percent of the area. Insoak rates are moderate to rapid, with good moisture storage capacity. These permeable soils are relatively fertile and high yielding. Their topographic position is such that they normally receive runoff water from surrounding land.

Some of these soils may be flooded by adjacent streams and occasionally overwashed with stream sediment.

- b. Soils in the site are: Port loam, Port silt loam, Norwood loam, Norwood silt loam, Reinach loam, Yahola fine sandy loam, and Yahola loam.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Sand bluestem, big bluestem, switchgrass and little bluestem are the most important climax species. These, along with Indiangrass are decreasers. Lesser elements in the climax are western wheatgrass, vine-mesquite, tall dropseed, eastern gamagrass, Canada wildrye, and sideoats grama. Buffalograss, blue grama, windmillgrass and weeds are characteristic of low condition cover. Decreasers will make up approximately 80 percent of cover in the climax.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in:
    - (a) Favorable climatic periods - 5500 lbs.
    - (b) Unfavorable periods - 2000 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY BOTTOMLAND (Central)

2. General Site Description and Location

a. Description

Deep productive loamy bottomlands subject to frequent or occasional overflow from the streams and runoff from hill-sides.

b. Location of site

(1) Land resource area: Reddish Prairie, Bluestem Hills, Cross Timbers, Western Cherokee Prairie, and Grand Prairie.

(2) Counties: Jefferson, Caddo, Stephens, Grady, Canadian, Kingfisher, Logan, Garfield, Grant, Kay, Osage, Noble, Pawnee, Payne, Creek, Lincoln, Oklahoma, Pottawatomie, Bryan, Cleveland, McClain, Garvin, Seminole, Pontotoc, Johnston, Marshall, Love, Carter, and Murray Counties in Oklahoma.

3. Climate

Average annual precipitation varies from 27 to 38 inches. Overflow, coupled with the deep friable nature of this site, results in uniform kinds of vegetation over a broad climatic range.

4. Topography and Elevation

This site ranges from gently sloping and level bottomlands with some low breaks between first and second bottoms to steep creek and river banks with lateral drainways. Elevation ranges from 700 to 1200 feet.

5. Soils

a. This site includes deep, dark, loamy alluvial soils on the level floodplains of larger streams. Surface soils are loams, and silt loam over deep, sometimes stratified alluvial deposits of loams, sandy loams, or clay loams. The soils are neutral to calcareous and are friable and permeable. They are fertile and have good insoak rate, as well as high moisture storage capacity. They are occasionally overflowed and sometimes receive excess water from adjacent slopes. Soils in this site are very productive.

- b. Soils in the site are: Dale, Cleora, Gowen, Norwood, Port, Canadian, Reinach, Yahola, and Kaw loams and silt loams.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Dominant vegetation is tall warm-season grasses, and cool-season mid grasses. Elm, willow, pecan, oak, cottonwood, green ash, and coralberry are commonly found along the stream banks. The principal decreaser grasses are big bluestem, switchgrass, Indiangrass, eastern gamagrass, Florida paspalum, and little bluestem. Important cool season grasses are Canada wildrye, Virginia wildrye, Texas bluegrass, and western wheatgrass. Forbs are common, with the principal ones being a number of species of sunflower, including Maximilian, stiff, and Jerusalem-artichoke.

Decreaser grasses represent some 75 percent of the climax vegetation. Woody vegetation should not exceed 10 percent.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 8500 lbs.
- (b) Unfavorable periods - 4500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY BOTTOMLAND (Northeast)

2. General Site Description and Location

a. Description

Highly productive deep loamy bottomland soils. Because of their position and depth, they receive and store more moisture than is normal for the area. Because of this fact they support post climax tall grasses. When in excellent condition, eastern gamagrass, big bluestem, and switchgrass predominate.

b. Location of site

(1) Land resource area: Cherokee Prairie

(2) Counties: Nowata, Craig, Rogers, Washington, Ottawa, Mayes, Tulsa, Wagoner, and Muskogee Counties in Oklahoma.

3. Climate

Moist subhumid on the west, varying to humid on the east. Average annual precipitation ranges from 38 to 42 inches from west to east. Nearly 70 percent of the moisture occurs during the growing season of approximately 200 days.

4. Topography and Elevation

This site occurs on nearly level to slightly depressed bottomlands. The elevation varies from 600 feet in Muskogee County to 700 feet in Washington County.

5. Soils

a. Nearly level, deep, permeable and moderately permeable soils subject to occasional flooding. Excellent plant-soil-moisture relationship. The Cleora and Mason soils are well drained sandy loam and clay loam surface soils, with a clay loam or silty clay loam substrata.

b. Soils in the site are: Cleora, Verdigris, Mason, Dale clay loam, Yahola silt loam, Port silt loam, Kaw, and Reinach loam.

c. Complete soil descriptions are available in the Soil Survey Description Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Plant cover varies from an open climax of tall grasses to a savannah climax. Grasses consist of big bluestem, Indian-grass, switchgrass, eastern gamagrass, prairie cordgrass, beaked panicum, Canada wildrye, and Virginia wildrye. The hardwoods include American elm, green ash, pecan, and oak species. Goldenrod, wholeleaf rosinweed, leadplant, blacksamson, and Maximilian sunflower are a few of the important forbs characteristic of the site. Principal increaser plants are tall dropseed, ironweed, and woody species.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air-dry per acre in
    - (a) Favorable rainfall periods - 10,000 lbs.
    - (b) Unfavorable periods - 6,000 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY PLAINS
2. General Site Description and Location

- a. Description

Gently sloping to unevenly sloping upland with some low limy knobs. The moderately deep soils support a mixture of medium height and short grasses.

- b. Location of site

- (1) Land resource area: Rolling Red Plains
- (2) Counties: Harper, Ellis, Roger Mills, and Woodward Counties in Oklahoma

3. Climate

Average annual precipitation varies between approximately 20 to 24 inches, but a considerable percentage of this is in the form of light showers which provide little moisture for plant growth. There are wide fluctuations in annual and seasonal rainfall, but as a rule 70 to 80 percent of the precipitation occurs during the May to October growing season. High wind velocity through much of the year and high temperatures during the summer lead to an average annual evaporation loss of about 72 inches.

Droughts, sometimes severe and prolonged enough to temporarily change the composition of the range, are factors which add to the variability of range herbage production.

4. Topography and Elevation

Gently sloping to irregularly sloping upland with some low knobs. Elevations vary between 2000 and 2400 feet.

5. Soils

Strongly calcareous, moderately deep soil. Surface texture is loam with a moderate to fine granular structure which gradually grades into a clay loam subsoil. Seams and streaks of loam that are almost pure lime occur at depths generally below 12 inches. This represents some 10 percent of the soil mass at 24 inches, and at 36 inches it comprises about 30 percent.

The limy nature of the subsurface results in a rather low water holding capacity. The amount of the moisture in the subsoil is seldom at field capacity.

The moderate permeability of this soil and rather low water holding capacity of the subsoil results in a varied and intermediate height grassland vegetation which fluctuates widely in composition with changes in the climatic cycle.

6. Climax Vegetation

a. The most important decreaser grass is little bluestem. Sideoats grama is the principal increaser grass and comprises 30 to 40 percent of the vegetation. Blue grama, Buffalograss, and hairy grama tend to take over following prolonged heavy use. Red threeawn, broom snakeweed, and hairy tridens are common invading species. Decreasers make up about 30 percent of the cover in the top range condition. A great variety of climax forbs are native to this site; and since they withstand grazing use, they make up a considerable part of the range forage production.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

(a) Favorable climatic periods - 3000 lbs.

(b) Unfavorable periods - 1500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY PRAIRIE
2. General Site Description and Location

- a. Description

This is a productive range site composed of deep loamy upland soils. Slopes are gentle to steeply rolling. Under good range conditions, little bluestem and sandy bluestem dominate the site and there is very little woody vegetation.

- b. Location of site

- (1) Land resource area: Rolling Red Plains
- (2) Counties: Harper, Woods, Ellis, Woodward, Major, Dewey, Custer, Roger Mills, Beckham, Washita, Greer, Kiowa, Harmon, Jackson, and Tillman Counties in Oklahoma.

3. Climate

The climate is characterized by hot, often dry summers; mild autumns; mild to cold winters; and moist, cool spring periods. There is a 9-inch spread in average precipitation within this site, varying from 21 to 29 inches. More important, however, to grass growth and management is the wide fluctuation in annual and seasonal rainfall. Extremes range from lows of 10 inches to highs of 45 inches annually. Drouth cycles of below average rainfall range from 3 to 5 years, with occasional longer periods, and occur at unpredictable intervals. Above normal rainfall cycles are generally shorter in duration than the drouth periods.

Range forage yields fluctuate with these cycles but following prolonged drouth, production recovery of desirable grasses normally lags one or two years behind the time rainfall returns to normal or above. Likewise, production is often maintained at relatively high levels for the first year of drouth following a favorable climatic period, thus allowing the operator a little time for herd adjustment if it appears the drouth will continue. There is considerable change in the relative amounts of various plant species due to these fluctuating climatic cycles. Generally the shorter, more xeric plants such as blue grama tend to assume greater importance during drouth, while during favorable periods this site displays a tall and mid grass aspect, principally little bluestem and sand bluestem. Due to the favorable late spring-early summer-fall rainfall, the warm season grasses are dominant. Average warm season rainfall, April to September, varies from 15 to 20 inches.

Thus, approximately 75 percent of the total precipitation occurs during this 6-month period. January average temperatures over a period of 25 years ranged from 35 to 41 degrees, with a July average range of 82 to 84 degrees. Temperature extremes are from a high of 120 degrees to a low of -13. High summer temperatures often result in much death loss to grasses, particularly where grazing has greatly reduced soil cover and weakened the range plants.

4. Topography and Elevation

Slopes range from nearly level to steep. Elevation extremes are from approximately 1300 to 1900 feet above sea level.

5. Soils

- a. Deep, loamy upland soils of medium permeability. All soils have high water holding capacity and good soil-plant-moisture relationship. Soils are moderately to highly productive and well suited to deep rooted forage plants, but do not supply enough moisture for extensive woody vegetation.
- b. Soils in the site are: Woodward, Carey, Acme, Enterprise very fine sandy loam, Enterprise silt loam, and Enterprise loam.

6. Climax Vegetation

- a. Climax vegetation on this site is composed primarily of little bluestem and sand bluestem, with an understory of sideoats grama and blue grama. Some other important grasses are tall dropseed, switchgrass, Indiangrass, and western wheatgrass. Legumes are of minor importance with leadplant, Illinois bundleflower and scurfpea being the main ones. Climax forbs include Maximilian sunflower, Louisiana sagewort, and heath aster.

Common decreaser grasses are little bluestem, switchgrass, sand bluestem and Indiangrass. Common increaser grasses are sideoats grama, buffalograss and blue grama. Common perennial invader grasses are sand dropseed, windmillgrass and silver bluestem. Woody plants are not significant on this site. Minor amounts of sandsage, skunkbush, hackberry and coralberry may be found but are normally invaders.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4200 lbs.
- (b) Unfavorable periods - 1800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY PRAIRIE (29" - 35" ppt.)

2. General Site Description and Location

a. Description

This is a productive range site composed of deep loamy upland soils. Slopes are gentle to steeply rolling. Under the best range conditions little bluestem and big bluestem dominate the site and there is very little woody vegetation.

b. Location of site

(1) Land resource area: Central and Western Reddish Prairie

(2) Counties: Garfield, Grant, Kay, Noble, Payne, Logan, Kingfisher, Canadian, Grady, Caddo, Stephens, Jefferson, McClain, Cleveland and Oklahoma Counties in Oklahoma.

3. Climate

This site is characterized by hot, often dry summers; mild autumns; mild to cold winters; and most, cool spring periods. There is a 7-inch precipitation range across this site. Due to the fluctuating climatic cycles, there is some change in relative amounts of various grass species, although changes are not as pronounced as in the Loamy Prairie site of the Rolling Red Plains.

Warm season grasses are dominant due to the favorable late spring, early summer, and fall precipitation. Approximately 70 percent of the total precipitation occurs during the April through October period. High intensity storms are common and this emphasizes the need for good range management to encourage insoak.

4. Topography and Elevation

The slopes are gently to steeply rolling. Elevation ranges from 800 to 1200 feet.

5. Soils

a. This site includes deep, neutral to slightly acid, loamy upland soils with slow to medium permeability. The insoak rates are moderate to rapid and all soils have high water holding capacity and good soil-plant-moisture relationship. These are moderately to highly productive soils and well suited for deep rooted forage plants.

- b. Soils in the site are: Vanoss, Wichita, Zaneis, Bethany, Grant, Nash, Carey, Carmen, Chickasha very fine sandy loam, Enterprise very fine sandy loam, Norge, Pond Creek, St. Paul, and Kingfisher.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Vegetation is composed primarily of little bluestem, big bluestem, Indiangrass, and switchgrass. These decreasers along with Canada wildrye represent about 70 percent of the vegetation. Principal increaser grasses are sideoats grama and blue grama. Leadplant, wildindigo, scurfpea, and prairie acacia are common legumes.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 5000 lbs.
    - (b) Unfavorable periods - 2500 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY PRAIRIE (36" - 39" ppt.)

2. General Site Description and Location

a. This site produces the "true prairie" tall grass vegetation. It is generally known as bluestem ranges and meadows. The topography is almost level to gently rolling. Soils are deep and moderately permeable.

b. Location of site

(1) Land resource area: Bluestem Hills, Reddish Prairie (eastern edge), and Cherokee Prairie (western).

(2) Counties: Washington, Tulsa, Okmulgee, Pontotoc, Pottawatomie, Seminole, Hughes, Okfuskee, Creek, Lincoln, Payne, Pawnee, Kay, and Osage Counties in Oklahoma.

3. Climate

Moist subhumid with mean annual precipitation ranging from slightly less than 36 inches on the west to 39 inches plus on the eastern edge of the area. Approximately 70 percent of the moisture comes in the summer growing season of 195 to 205 days duration.

4. Topography and Elevation

This site is on level to gently rolling slopes. Elevation varies from 800 feet on the east to 1100 feet on the west.

5. Soils

a. Deep granular porous, usually dark brown to almost black on the surface. The physical characteristics provide good capacity for moisture storage and root development. These are highly productive upland soils.

b. Soils in the site are: Bates loam, Dennis silt loam, Labette clay loam, Newtonia silt loam, Okemah silt loam, Taloka, Choteau, Chickasha, Vanoss, Zaneis, Summit, Teller, and Peck.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax plant cover is principally tall grasses. Big bluestem, little bluestem, Indiangrass, and switchgrass make up about 70 percent of the vegetation.

Increaser plants such as jointtail, purpletop, tall dropseed and sideoats grama make up about 30 percent of the plant cover. Those that readily invade when the better grasses have been thinned out by abuse are splitbeard, broomsedge, windmillgrass, buffalograss, and silver bluestem. Common invaders are common broomweed, narrowleaf sunweed, western ragweed, and Baldwin ironweed.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 6000 lbs.  
(b) Unfavorable periods - 3000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY PRAIRIE (40"+ ppt.)

2. General Site Description and Location

a. This is the "true prairie" tall grass area of east central and northeast Oklahoma. It is generally known as bluestem ranges and bluestem meadows. The soil is deep, moderately permeable, level to gently rolling.

b. Location of site

(1) Land resource area: Cherokee Prairie, Ozark Highlands, and eastern edge of Bluestem Hills.

(2) Counties: Ottawa, Craig, Nowata, Tulsa, Rogers, Mayes, Wagoner, Okmulgee, Muskogee, McIntosh, Sequoyah, Haskell, Pittsburg, Adair, Cherokee and Delaware Counties in Oklahoma.

3. Climate

Moist subhumid with annual average precipitation varying from 40 inches on the west to 46 on the eastern edge. Frost-free period of 190 to 210 days which comes during the wet season favors warm season grass production.

4. Topography and Elevation

On level to gently rolling slopes. Elevation varies from 500 to 700 feet.

5. Soils

a. Nearly level to gently rolling granular, porous and permeable dark brown to black on the surface. The physical characteristics provide good capacity for moisture storage and root development. These are highly productive upland soils.

b. Soils in the site are: Dennis, Bates, Okemah, Newtonia, Riverton, Eldorado, Craig, Fitzhugh, Choteau, Taloga, Peck, Summit, and Labette.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax plant cover is primarily true prairie grasses such as big bluestem, little bluestem, Indiangrass and switchgrass. These make up 70 to 80 percent of the cover when in excellent condition.

Increaser plants such as jointtail, purpletop, and dropseeds make up 20 to 30 percent of the cover. Those that readily invade as pastures decline are broomsedge, splitbeard windmillgrass, silver bluestem, and buffalograss. Weedy invaders are western and lanceleaf ragweed, narrowleaf sumpweed, common broomweed and Baldwin ironweed.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 7000 lbs.  
(b) Unfavorable periods - 3500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY PRAIRIE (40"± ppt. Southern)

2. General Site Description and Location

a. Description

This site produces the true prairie tall grass species. It is generally referred to as bluestem range or bluestem meadowland. The soils are deep, dark colored, and moderately permeable.

b. Location of site

- (1) Land resource area: Cherokee Prairies, Ouachita Highland (prairie areas occurring within the general location) of southeast Oklahoma.
- (2) Counties: Latimer, Atoka, Pushmataha, Choctaw, McCurtain, and LeFlore Counties in Oklahoma.

3. Climate

Humid, with average annual precipitation varying from 40 inches in the west to above 50 in the eastern part of the area. Moisture is well distributed throughout the year. About 45 percent of the annual precipitation comes during the cool season and 55 percent during the warm season. Average annual snowfall is less than 3 inches in the extreme southeast corner of the state. The summers are long with occasional very high day temperature.

In late spring the southeastern part of Oklahoma and the adjoining states receive more rain than any other part of the country east of the Rocky Mountains.

4. Topography and Elevation

Occurring on gently rolling to level slopes. Elevation varies from about 400 to 650 feet.

5. Soils

- a. These are highly productive uplands. Nearly level to gently rolling granular, porous, permeable soils. Dark brown to black on the surface, indicative of being developed under a grass cover. The deep profile and other favorable physical characteristics provide an average or better than average capacity for moisture storage and plant root development.

- b. Soils in the site are: Summit, Okemah, Taloka, Dennis, Bates, and Newtonia.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Native vegetation cover consists of decreaser plants. These are big bluestem, little bluestem, Indiangrass, switchgrass, and prairie dropseed, and represent about 80 percent of climax cover. Increaser species are jointtail, purpletop, tall dropseed, and meadow dropseed, and, when in excellent condition, represent about 20 percent of the vegetation.

Invaders that readily come into the stand as the better plants thin out are broomsedge, splitbeard bluestem, narrowleaf sumpweed, ragweeds, croton, white snakeroot, and ironweed.

- b. Annual range herbage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 6500 lbs.
- (b) Unfavorable periods - 3250 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: LOAMY PRAIRIE (Southern)

2. General Site Description and Location

a. Description

This site produces the "true prairie" tall grass vegetation. The topography is almost level to rolling. The soil is deep and moderately permeable.

b. Location of site

(1) Land resource area: Grand Prairie, Southern Cherokee Prairie, and Granitic soils.

(2) Counties: Garvin, Murray, Carter, Love, Pontotoc, Johnston, Bryan, and Coal Counties in Oklahoma.

3. Climate

Moist subhumid with annual precipitation ranging from 34 to 42 inches. The most intense rainfall usually occurs in the spring and early summer while warm season grasses are making rapid growth. The average number of frost-free days ranges from 210 to 230.

4. Topography and Elevation

This site occurs on level to rolling slopes. Elevation varies from 600 to 1200 feet.

5. Soils

a. Deep, loamy soils with brown to black surface. The physical characteristics of this soil provide good capacity for moisture storage and root development. These are the most productive upland soils.

b. Soils in the site are: Denton, Newtonia, Teller, and Okemah.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax plant cover is principally tall grasses. Decreaser plants including big bluestem, Indiangrass, switchgrass, and little bluestem make up about 80 percent of the vegetation. There are a few small woody plants such as leadplant and prairie rose.

Increaser plants are meadow dropseed and sideoats grama, and make up about 20 percent of the plant cover. Common invaders are splitbeard bluestem, broomsedge bluestem, silver bluestem, windmillgrass, tumblegrass, Japanese brome, common broomweed, western ragweed, annual threawn, and many others.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 6000 lbs.  
(b) Unfavorable periods - 3000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: MOUNTAIN ESCARPMENTS

2. General Site Description and Location

a. Description

Mountain tops and escarpments made up of rough massive granite formations. Vegetation varies from tall grass and brush in occasional soil pockets and crevices to short grass and annuals on shallow soil areas. A high percent of the site is exposed rock with mosses and lichens.

b. Location of site

(1) Land resource area: Granitic Soils

(2) Counties: Comanche, Caddo, Kiowa, Jackson, and Greer Counties in Oklahoma

3. Climate

The climate is dry subhumid with average rainfall of 26 to 30 inches. About 70 percent of the rain falls during the warm growing season. Frost-free growing season averages about 215 days. Winters are usually open and dry.

4. Topography and Elevation

Topography is made up of rough to extremely rough granitic mountain tops and escarpments areas. Elevation ranges from about 1500 to 2500 feet. This site occupies the highest elevation of the area and is subject to the ravages of wind, storm, and searing summer sun.

5. Soils

a. This site includes areas of rough mountainous land containing 40 percent or more barren granite outcrops. Scattered pockets of dark colored loamy soils occur in depressions and crevices. This, with large areas of very shallow dark colored, loamy lithosols, make up the soils found in this site. The pockets of deeper soils are productive and have a favorable soil-plant-moisture relationship. The lithosols are drouthy and excessively drained.

b. Soils in the site are: Granitic outcrop

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The climax vegetation in the seams and deep soil pockets consists of about 60 to 70 percent decreaser plants such as big bluestem, little bluestem, Indiangrass, switchgrass, and sideoats grama. Decreasers make up about 40 to 50 percent of the total cover. Hairy grama, buffalograss, rough tridens, purple threeawn, and woody plants are the main increasers. The very shallow areas support blue grama, hairy grama, hairy tridens, nailwort, big bluets, cactus, and many annuals.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 800 lbs.
    - (b) Unfavorable periods - 400 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: RED CLAY FLATS

2. General Site Description and Location

a. Description

Flood plain and silt fans lying below outcrops of clayey red-beds. This is an extremely drouthy and low producing site because of soil compaction and high water losses.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Woods, Woodward, Major, Blaine, Canadian, Washita, Custer, Greer, Beckham, Harmon, Jackson, Kiowa, Tillman, and Cotton Counties in Oklahoma.

3. Climate

Average precipitation ranges from 20 to 30 inches. About 75 percent of this falls during the frost-free period, which varies from 200 to 220 days from north to south. Summers are normally hot, with low humidity and high evaporation rates. This climate favors summer grasses, but normally there is some fall precipitation which, coupled with low winter evaporation losses, encourages some growth of cool season plants, particularly western wheatgrass.

4. Topography and Elevation

Gently sloping to flat lands. Elevation ranges from 1000 to 1900 feet.

5. Soils

a. Soils in this site are deep, red, calcareous clays with little organic matter accumulation or other horizonation. They occur on nearly level to gently sloping fans and flood plains below areas of eroded red clays. They have a very slow insoak rate and are seldom moistened below one foot. The site is infertile, drouthy, and low producing.

b. Soils in the site are: Treadway clay

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Vegetation is normally patchy and usually located in areas where water concentrates. Common decreaser grasses are vine-mesquite, western wheatgrass, sideoats grama, blue grama, and white tridens. Some sand bluestem, little bluestem, and switchgrass are present. Decreasers make up 40 to 50 percent of the vegetation. Buffalograss is a common increaser. Pricklypear is the principal increaser forb. The most common invader is mesquite.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 1000 lbs.
- (b) Unfavorable periods - 400 lbs.

(2) Yield estimates are based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: RED CLAY PRAIRIE

2. General Site Description and Location

a. Description

Red clay soils on rolling and broken topography with some gentle slopes which support a fair cover of predominately mid grasses. Grazing abuse results in soil and water losses.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Woodward, Woods, Major, Tillman, Cotton, Greer, Harmon, Comanche, Blaine, Caddo, and Kiowa Counties in Oklahoma.

3. Climax

The average annual precipitation varies from 19 to 29 inches. Approximately 75 percent of the rainfall occurs during the warm season, and much of it comes in storms of high intensity and short duration. These rains are particularly erosive on this site. Occasional drouths are to be expected. Hot, dry winds often curtail forage production during July and August. The average annual frost-free season ranges from 190 to 225 days.

4. Topography and Elevation

Gently sloping to rolling topography. Elevation ranges from 1100 to 1700 feet above sea level.

5. Soils

a. This site includes reddish calcareous clayey soils of the gently sloping to rolling uplands. Surface soils are reddish brown clay 6 to 12 inches thick over red calcareous clay that grades to relatively unweathered Permian clay beds at 10 to 40 inches below the surface. Surface soils are granular to fine blocky in structure and have fair insoak rate. Permeability is very slow. Much moisture is lost through runoff and the soil is not normally moistened below 15 to 20 inches.

b. Soils in the site are: Stamford clay and Vernon

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The principal climax decreaser is little bluestem. The next grass of importance is sideoats grama which acts somewhat as an increaser. In addition to sideoats grama, other increasers are hairy grama and rough tridens. Common mesquite and cactus are invaders.

- b. Annual range forage production potential

- (1) Total herbage yield in pounds air dry per acre in

- (a) Favorable climatic periods - 2200 lbs.
- (b) Unfavorable periods - 1000 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Description

Work Unit \_\_\_\_\_

1. Range Site Name: RED CLAY PRAIRIE
2. General Site Description and Location

- a. Description

Rolling red clay soils on moderate to steep slopes and broken topography. These soils support a fairly productive cover of bluestem and sideoats grama but deteriorate rapidly under grazing abuse.

- b. Location of site

- (1) Land resource area: Reddish Prairie
- (2) Counties: Alfalfa, Grant, Kay, Major, Garfield, Noble, Pawnee, Payne, Blaine, Kingfisher, Logan, Canadian, Pontotoc, Oklahoma, Grady, Cleveland, McClain, Garvin, Stephens, and Jefferson Counties in Oklahoma.

3. Climate

The climate is characterized by hot, often dry summers; mild autumns; mild to cold winters; and moist cool spring periods. There is an annual precipitation range of 28 to 36 inches within the area of this site, however, it is mostly in the 30-to 34-inch rainfall zone. There is a wide fluctuation in average annual precipitation. Extremes range from 15 to 45 inches in total annual rainfall. High intensity storms are common, particularly during the April-May-June period and, if ground cover is depleted, runoff is high.

4. Topography and Elevation

Gently to steeply rolling uplands, including some deep ravines and steep escarpments. Elevation ranges from 900 to 1100 feet.

5. Soils

- a. This site includes reddish calcareous clayey soils of the gently sloping to rolling uplands. They have reddish brown clay surface soils from 6 to 12 inches thick over red calcareous clay that grades to relatively unweathered Permian clay beds at 10 to 40 inches below the surface. Surface soils are granular to fine blocky in structure and have fair insoak rates. Permeability within the soil is very slow. Much moisture is lost through runoff, and the soil is not normally moistened below 15 to 20 inches.

- b. Soils in the site are: Stamford clay and Vernon
- c. Complete soil descriptions may be found in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Principal climax decreaser grasses are little bluestem, big bluestem, and Indiangrass, and should comprise 40 to 50 percent of the vegetation cover. Important increaser grasses are prairieclover, trailing ratany, prairie bundleflower, psoralea sp., and bigtop dalea.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2700 lbs.
    - (b) Unfavorable periods - 1600 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: RED SHALE
2. General Site Description and Location

- a. Description

This is a rolling upland prairie site. It is predominately a mid-short grass climax. Soils are generally shallow with low red shale or sandstone and shale hills common to this site.

- b. Location of site

- (1) Land resource area: Rolling Red Plains
- (2) Counties: Ellis, Roger Mills, Beckham, Washita, and Custer Counties in Oklahoma

3. Climate

Average annual precipitation ranges from 22 to 28 inches, with most of it occurring during the spring and fall. Much of it comes in storms of high intensity and short duration. About 75 percent of the high intensity flood producing storms occur in April-May-June. The summer rainfall is also characterized by torrential showers. Average summer growing season is approximately 215 days. The summer humidity is low and evaporation rates are high.

4. Topography and Elevation

The site usually contains large areas of steep and rough broken-land with considerable areas where erosion has removed all of the soil material. Steep gullied areas cutting through the shale and siltstone often reach far back into the higher plains. Some relatively smooth areas are found, usually along the divides. Elevation ranges from 1500 to 2000 feet.

5. Soils

- a. This site is in the Doxey member of the Quartermaster formation of the Permian redbeds. This formation is made up of brick-red, gypsiferous shales within which are lenticular beds of sandstone and gypsum. It is characterized by Vernon soils over siltstone and shales. Deeper soils of the Woodward and Quinlan series are associated with the site. Except for the small areas of deeper profile, the soils are low in moisture holding capacity and very low in fertility.

These soil characteristics result in restricted root development and low forage production. Runoff is high and there is active geologic erosion.

- b. Soils in the site are: Rough brokenland Vernon-Quinlan, and Vernon-Quinlan silt loam very shallow.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Principal climax grasses are sideoats grama and little bluestem. Sand bluestem is present in the deeper soil inclusions. These climax dominants should make up at least 45 percent of the cover. Decreaser legumes and forbs such as prairieclover, catclaw sensitivebrier, and halfshrub sundrop represent 5 to 10 percent of the vegetation. Common increaser grasses include hairy tridens, hairy grama, buffalograss, and blue grama.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1000 lbs.
    - (b) Unfavorable periods - 500 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY BOTTOMLAND
2. General Site Description and Location

- a. Description

Sandyland located on first and second bottoms. These are often rather unstable areas due to overflow sedimentation and wind erosion. There are some cottonwood and willow along with a variety of tall and mid grasses. Barren streambeds are not included.

- b. Location of site

- (1) Land resource area: High Plains
    - (2) Counties: Cimarron, Texas, and Beaver Counties in Oklahoma

3. Climate

Semi-arid climate with an average precipitation of 17 to 20 inches. About 75 percent of the annual rainfall occurs from May through October with each month receiving 1.5 inches or more. There are extreme fluctuations in rainfall from year to year with periodic drouths. About 25 percent of the years have fallen below 14.3 inches total rainfall (Dalhart, Texas). More years of below average rainfall can be expected than those above average. Winter precipitation averages less than .75 inch per month, and comes in the form of snow and some rain.

Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas.

The growing season of the native warm season plants is from the latter part of April until the middle of October. The optimum growing season is 180 days. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of -23 degrees. Summer humidity is low and evaporation high. While vegetation on this site tends to fluctuate with these wide variations in climate, the site usually profits from some overflow and occasional subirrigation which encourages growth of the taller grasses.

4. Topography and Elevation

This site has a wide range of topography. Wind action occasionally causes low dune and floods scour and hummock the surface, or deposit silt and sand uniformly. Often the site will be fairly smooth, particularly on the second bottom. Elevation ranges from 2500 to 4000 feet.

5. Soils

- a. Soils in this site are light colored, calcareous sandy alluvial with very sandy subsoils. They occupy the level to undulating flood plains of large streams. Surface soils are fine sandy loam to fine sand, but include minor areas of heavier soils. The underlying strata are very coarse and drouthy. The water table is from 4 to 20 feet below the surface and provides little moisture for forage plants. The insoak and permeability rates are very rapid and the site produces little runoff. It is occasionally overflowed by the adjacent stream, and bank cutting and scouring are common. These soils are very susceptible to wind erosion.
- b. Soils in the site are: Lincoln soils
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Sand bluestem, little bluestem, Indiangrass, and switchgrass are the principal climax grasses. Minor amounts of big sandreed, tall dropseed, sideoats grama, and Canada wildrye are present. Because of the unstable nature of some of this site, definite estimates on percentage of decreaseers or increaseers are difficult to determine. As a general rule the decreaseer species should represent 40 to 50 percent of the total vegetation.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2500 lbs.
    - (b) Unfavorable periods - 1500 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY BOTTOMLAND
2. General Site Description and Location

- a. Description

Sandylands located on first or second bottoms. These are often rather unstable areas due to overflow sedimentation and wind erosion. There is some cottonwood and willow along with a variety of tall and mid grasses. Barren streambeds are not included.

- b. Location of site

- (1) Land resource area: Rolling Red Plains
    - (2) Counties: Harper, Woods, Major, Woodward, Ellis, Dewey, Blaine, Caddo, Custer, Washita, Roger Mills, Beckham, Greer, Kiowa, Jackson, Harmon, Tillman and Cotton Counties in Oklahoma.

3. Climate

The average annual precipitation runs from 22 to 30 inches. About 75 percent of this falls during the frost-free period which varies from 200 to 220 days north to south. Summers are hot and usually there is a drouth period centering in the latter part of July and the first half of August. This climate results primarily in summer range, although some shade from woody vegetation encourages a fair amount of cool season grasses and other plants on this site.

4. Topography and Elevation

This site ranges from gently sloping and flat bottomlands to low dune and hummocky topography. Elevation varies from 1000 to 2000 feet.

5. Soils

- a. This site includes sandy, neutral to calcareous, alluvial soils of nearly level, low terraces and floodplains of streams draining areas that are predominately grassland. Surface soils are brown to light reddish brown or pale brown loamy fine sand to fine sandy loam. The underlying strata are loamy fine sand to sand with occasional minor layers of silt loam to clay loam and are calcareous.

These soils are drouthy and susceptible to wind erosion. Depth of the water table is normally greater than four feet. Forage produced here shows little evidence of subirrigation. Soils are frequently to rarely overflowed.

- b. Soils in the site are: Lincoln soils, Canadian fine sandy loam Brazos, and Yahola loamy fine sand.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Sand bluestem, little bluestem, Indiangrass, and switchgrass are the principal climax grasses. Minor amount of big sandreed, tall dropseed, sideoats grama, and Canada wildrye are also present.

Because of the unstable nature of some of this site, definite estimates on percentage of decreaseers or increaseers are difficult to determine. As a rule the decreaseer species should represent 40 to 50 percent of the total vegetation.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3000 lbs.
- (b) Unfavorable periods - 1800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY BOTTOMLAND

2. General Site Description and Location

a. Description

Sandylands location on first and second bottoms. There are some unstable areas in the site due to overflow sediments and wind erosion. Cottonwood, willow and tamarisk are sometimes present in varying amounts. Barren stream beds are not included.

b. Location of site

(1) Land resource area: Reddish Prairie and Cross Timbers

(2) Counties: Alfalfa, Grant, Kay, Osage, Garfield, Major, Love, Blaine, Kingfisher, Logan, Payne, Pawnee, Canadian, Hughes, Oklahoma, Cleveland, Caddo, Grady, McClain, Cotton, Pontotoc, Jefferson, Pottawatomie, and Lincoln Counties in Oklahoma.

3. Climate

Average annual precipitation varies from 27 to 38 inches. Overflow coupled with the deep sandy nature of the site results in uniform kinds of vegetation over a broad climatic range.

4. Topography and Elevation

This site ranges from gently sloping and flat bottomlands to low dune and hummocky topography. Elevation ranges from 1000 to 2000 feet.

5. Soils

a. Sandy alluvial soils that may be moderately acid to calcareous. Surface soils are fine sandy loams to fine sand, and are reddish brown to pale brown in color. The underlying strata are loamy fine sand to fine sand with occasional minor layers of finer textured materials. They are drouthy and susceptible to wind erosion. These soils occupy nearly level, low terraces and flood-plains that are rarely to frequently overflowed. The soils in this site, as well as the forage plants produced, show little effect of subirrigation.

b. Soils in the site are: Lincoln soils, Canadian fine sandy loam, Yahola loamy fine sand, Pulaski loamy fine sand, and Brazos.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Principal climax grasses are sand bluestem, Indiangrass, little bluestem, and switchgrass (both bottomland and upland varieties). Decreasers normally represent 50 to 60 percent of the climax cover.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3800 lbs.
- (b) Unfavorable periods - 2000 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY PLAINS (16" - 19" ppt.)

2. General Site Description and Location

a. Description

Deep moderately sandy uplands occurring on hummocky or gently rolling topography. The deep sandy nature of this site permits good forage production of the mid and tall grasses. Some sagebrush and yucca are usually found on this site.

b. Location of site

(1) Land resource area: High Plains

(2) Counties: Cimarron and Texas Counties in Oklahoma

3. Climate

Semi-arid climate with an average precipitation ranging from 16 to 19 inches west to east. Annual rainfall occurs mostly from May through October, with each month receiving 1.5 inches or more during that period. There are wide fluctuations in precipitation, and normal or average rainfall seldom occurs. There are more years with below average rainfall than above average. Winter precipitation averages less than .75 inch per month and comes in the form of both snow and rain.

Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas. The growing period for native warm season plants extends from April to the middle of October. Optimum growing season is 180 days. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of -23 degrees. Summer humidity is low and evaporation high. The great extremes in climate result in considerable change of vegetation composition even under the best of management.

4. Topography and Elevation

Gently rolling or hummocky topography occurring on uplands. Elevation varies from 3000 to 4500 feet.

5. Soils

- a. Soils in this site are deep moderately sandy, neutral but non-calcareous upland soils. Surface soils of fine sandy loam over loamy non-calcareous subsoils. The insoak and permeability rate is medium and moisture holding capacity is moderate to low. These soils are susceptible to wind erosion and also to some water erosion.
- b. Soils in the site are: Dalhart fine sandy loam
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax cover in top range condition is made up principally of the decreaser grasses such as sand bluestem, little bluestem, and an increaser, sideoats grama. Lesser elements in the cover are western wheatgrass, vine-mesquite and blue grama.

Hairy grama, buffalograss, sand dropseed and weeds are characteristic of low condition cover. Yucca and sand sagebrush often are important when range is in low condition. The bluestems and sideoats grama will make up 65 percent of the cover under climax conditions.

- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 2300 lbs.
    - (b) Unfavorable periods - 800 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY PLAINS (20" - 22" ppt.)

2. General Site Description and Location

a. Description

Deep moderately sandy uplands occurring on hummocky or gently to steeply rolling topography. Some sandsage brush is associated with this site.

b. Location of site

(1) Land resource area: High Plains and Rolling Red Plains

(2) Counties: Beaver County in Oklahoma

3. Climate

The average precipitation on this site is from 20 to 22 inches. About 75 to 80 percent of this falls during the average frost-free period of approximately 195 days. Summers are hot and usually there is a summer drouth period centering in August.

4. Topography and Elevation

Gently to steeply rolling or hummocky topography occurring on uplands. Elevation varies from 2200 to 2800 feet.

5. Soils

a. Deep moderately sandy, neutral to alkaline soils, with a fine sandy loam surface soil of 8 to 16 inches thick. In the Pratt series the subsoil is light sandy clay loam over fine sandy loam parent materials, and the soils are generally non-calcareous throughout the profile. The Carwile series, which occupies depressed areas, have mottled sandy clay subsoils that are somewhat calcareous. Both soils have rapid insoak rates, and there is little runoff. Moisture holding capacity varies from moderately low for the Pratt to moderately high to high for the Carwile. These soils are fairly fertile and productive for range forage and will support a mixture of mid-tall-short grasses.

b. Soils in the site are: Pratt fine sandy loam, Otero-Pratt fine sandy loam, Carwile fine sandy loam, and some Dalhart fine sandy loam.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Cover in top range condition is made up principally of sand and little bluestem and sideoats grama. Blue grama, western wheatgrass and vine mesquite are less important plants in the climax. Buffalograss, blue grama, sand dropseed, and weeds are characteristic of low condition cover. The decreaser grasses and sideoats grama will make up 70 percent of cover when range is in top condition. Scattered areas of sagebrush are common on this site.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 2800 lbs.
- (b) Unfavorable periods - 1000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

In section 34 -5- 26

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY PRAIRIE (or PLAINS)

2. General Site Description and Location

a. Description

Deep moderately sandy uplands occurring on hummocky or gently to steeply rolling topography. Some sandsage brush is usually associated with this site.

b. Location of site

(1) Land resource area: Rolling Red Plains

(2) Counties: Harper, Woods, Ellis, Woodward, Dewey, Roger Mills, Custer, Beckham, Washita, Harmon, Greer, Kiowa, Tillman, Jackson, and west half of Major, Counties in Oklahoma.

3. Climate

The climate is characterized by hot, often dry summers; mild autumns; mild to cold winters; and moist cool spring periods. There is a 9-inch spread in average precipitation within this site, varying from 21 to 29 inches. More important than average precipitation to grass growth and management is the wide fluctuation in annual and seasonal rainfall. Extremes range from lows of 10 inches to highs of 45 inches. Drouth cycles of below average rainfall ranging from 3 to 5 years duration, with occasional longer periods, occur at unpredictable intervals. Above normal rainfall cycles are generally shorter in duration than the drouth periods.

Range forage yields fluctuate with these cycles but following prolonged drouth, production recovery of the desirable grasses normally lags one or two years behind the time rainfall returns to normal or above. Likewise, production is often maintained at relatively high levels for the first year of drouth following a climatic period, thus allowing the operator a little time for herd adjustment if it appears the drouth will continue. Due to these fluctuating climatic cycles, there is considerable change in the relative amounts of various plant species. Generally the shorter, more xeric plants, such as blue grama tend to assume greater importance during drouth while during favorable periods this site displays a tall and mid grass aspect, principally little bluestem and sand bluestem.

The warm season grasses are dominant due to the favorable late spring-early summer and fall precipitation. Average warm season rainfall, April to September, varies from 15 to 20 inches. Thus, approximately 75 percent of the total precipitation occurs during this 6-month period.

January average temperatures over a 25-year period ranged from 35 to 41 degrees, with a July average of 82 to 84. Temperature extremes are from a high of 120 degrees to a low of -13. High summer temperatures often result in much death loss to grasses, particularly where grazing has greatly reduced soil cover and weakened range plants.

4. Topography and Elevation

Gently to steeply rolling or hummocky topography occurring on uplands. Elevation ranges from 1300 to 2400 feet.

5. Soils

- a. These are deep, permeable soils with fine sandy loam A horizons. Subsoils allow deep plant root and water penetration. Runoff from this site is low and water holding capacity is from fair to moderate. Potential for this site is high for forage production.
- b. Soils in the site are: Fine sandy loams, including Pratt, Miles, Enterprise, Carwile, Dill, Dalhart, Springer, Minco and Reinach.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma.

6. Climax Vegetation

- a. Principal decreaser grasses are sand bluestem, little bluestem, Indiangrass, and switchgrass. Principal increaser grasses are sideoats grama, and blue grama. Sand dropseed is a common invader. Decreasers and sideoats grama should comprise about 75 percent of plant composition.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 4000 lbs.
    - (b) Unfavorable periods - 2000 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY PRAIRIE (26" - 30" ppt.)

2. General Site Description and Location

a. Description

Deep, moderately sandy uplands occurring on hummocky or gently to steeply rolling topography. Some skunkbush and other woody species are usually associated with this site.

b. Location of site

(1) Land resource area: Reddish Prairie

(2) Counties: Alfalfa, Major, Blaine, Kingfisher, Caddo, and Canadian Counties in Oklahoma.

3. Climate

The average annual precipitation ranges from 28 to 32 inches. Most of the rainfall occurs during the spring and fall. Occasional drouths are to be expected. Hot dry winds slow forage production during July and August. The average warm growing season ranges from 205 to 215 days. The climate favors warm season forage plants.

4. Topography and Elevation

Gently to steeply rolling or hummocky topography occurring on uplands. Elevation ranges from 1000 to 1300 feet above sea level.

5. Soils

a. These are deep, permeable soils with fine sandy loam A horizons. The subsoils allow deep plant root and water penetration. Run-off is low and water holding capacity is fair to moderate. The potential for range forage production is high.

b. Soils in the site are: Fine sandy loams, including Minco, Cobb, Pratt, Enterprise, Albion, Shellabarger, Carwile, and Chickasha.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The principal decreaser grasses are sand bluestem, little bluestem, switchgrass and Indiangrass. Principal increaser grasses are sideoats grama and blue grama. Sand dropseed is a common invader grass.

Skunkbush is a common woody increaser. Decreaser species will make up 70 percent of the climax cover.

b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4500 lbs.  
(b) Unfavorable periods - 2000 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY SAVANNAH (28" - 32" ppt.)

2. General Site Description and Location

a. Description

Gently to steeply sloping productive fine sandy loams that support mid and tall grasses mixed with post oak, blackjack oak and associated woody vegetation.

b. Location of site

- (1) Land resource area: Western Cross Timbers
- (2) Counties: Caddo, Grady, Comanche, Canadian, and Blaine Counties of Oklahoma.

3. Climate

Annual precipitation varies from 28 to 32 inches. Approximately 70 percent of the rainfall occurs from April through October, which favors warm season vegetation. However, the good soil moisture capacity of this site encourages a moderate production of cool season vegetation. The characteristic high intensity storms are particularly damaging on this site if a good cover of vegetation is not maintained.

4. Topography and Elevation

Gently to steeply rolling areas and footslopes. Elevation ranges from 1100 to 1600 feet.

5. Soils

- a. Deep, friable, reddish brown to brown fine sandy loam soils of uplands and gently sloping fans. The slightly acid to mildly alkaline surface soils are underlain by noncalcareous fine sandy loam, loam, or sandy clay loam subsoils. The parent materials are friable, reddish, noncalcareous fine sandy loam to light sandy clay loam. The effective depth of the soil is generally more than five feet. Runoff is slow to moderately rapid and permeability is moderately rapid to medium. Moisture holding capacity is moderate to high. Water erosion is a hazard on the more sloping soils with gullies fairly common, and wind erosion hazard is moderate on all unprotected soils.

- b. Soils in the site are: "Noble" fine sandy loam, and Cobb fine sandy loam.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Mid-tall grassland site, intermixed with scattered oak, cedar, and other woody species.

Principal decreaser grasses are sand bluestem and little bluestem. Also common to the site are Indiangrass, switchgrass, Texas bluegrass and flatsedge sp. Sideoats grama is a major increaser grass. Decreasers represent about 65 percent of the total vegetation. Woody vegetation should not exceed 10 percent of the climax cover.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4500 lbs.
- (b) Unfavorable periods - 2500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II\_E\_2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY SAVANNAH (33" - 36" ppt.)

2. General Site Description and Location

a. Description

Gently to steeply sloping productive sandyland, that supports mid and tall grasses mixed with some post oak, blackjack oak and associated woody vegetation.

b. Location of site

(1) Land resource area: Central Cross Timbers and Granitic Soils

(2) Counties: Kay, Payne, Garfield, Noble, Pawnee, Logan, Lincoln, Oklahoma, Cleveland, Pottawatomie, McClain, Garvin, Stephens, Murray, Jefferson, Carter, Love, and Marshall Counties in Oklahoma.

3. Climate

Annual precipitation varies from 33 to 36 inches. Approximately 70 percent of the rainfall occurs from April through October, which favors warm season vegetation. However, the good soil moisture capacity of this site, along with the tree shade influence on evaporation rates encourages a moderate production of cool season grasses and sedges. If a good cover of vegetation is not maintained, the high intensity storms are particularly damaging.

4. Topography and Elevation

Gently to steeply rolling uplands and footslopes. Elevation ranges from about 700 to 1100 feet.

5. Soils

a. These are deep permeable, deep to moderately deep medium textured soils. They are very susceptible to severe water and wind erosion unless good cover is maintained. Range forage productivity is moderate to high under proper grazing management. The Chigley soils are somewhat lower in productivity and further studies are needed on kinds and amounts of vegetation produced on this soil.

b. Soils in the site are: Stephenville, Windthorst, Gilson, Chigley and "Noble".

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Principal decreaser grasses are little bluestem, Indiangrass, big bluestem, and switchgrass. These species should comprise at least 45 percent of the total vegetation cover. Common cool season plants are Canada and Virginia wildrye, Texas bluegrass, and flatsedge species.

Woody species include post oak, blackjack oak, hickory, ash, elm, bumelia, coralberry, persimmon, poisonivy, grape and hackberry. These species should not exceed 20 percent of the total cover.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4500 lbs.
- (b) Unfavorable periods - 2500 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY SAVANNAH (37" - 40" ppt.)

2. General Site Description and Location

a. Description

Moderately sloping to steep sandy soils supporting mid and tall grass cover mixed with some post oak, blackjack oak, and associated woody species.

b. Location of site

(1) Land resource area: Eastern Cross Timbers and Granitic Soils.

(2) Counties: Osage, Creek, Tulsa, Okfuskee, Okmulgee, Seminole, Hughes, Pontotoc, Coal, and Johnston Counties in Oklahoma.

3. Climate

Annual precipitation varies from 37 to 40 inches. Approximately 70 percent of the rainfall occurs from April through October, which favors warm season vegetation. However, the good soil moisture capacity, along with the tree shade influence on evaporation rates, encourages a moderate production of cool season grasses and sedges. The characteristic high intensity storms are particularly damaging on this site if a good cover of vegetation is not maintained.

4. Topography and Elevation

Gently undulating to steeply rolling uplands. Elevation ranges from 700 to 1100 feet.

5. Soils

a. These are deep, medium textured, permeable to slowly permeable soils. They are very susceptible to severe water and wind erosion damage unless a good cover of vegetation is maintained. Range forage productivity is moderate to high under proper grazing management.

The Chigley and Gilson soils are somewhat lower in productivity and further studies are needed on kinds and amounts of vegetation produced on these soils.

- b. Soils in the site are: Stephenville, Stidham, Gilson, Chigley, and Heartsells.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. The principal decreasers are little bluestem, Indiangrass, big bluestem, and switchgrass. They represent about 40 percent of the climax cover.

Other warm season grasses include purpletop, sideoats grama, bearded skeletongrass, tall dropseed, and hidden dropseed. Common cool season plants include Canada wildrye, Virginia wildrye, Texas bluegrass, and flatsedge species. Important legumes are Virginia tephrosia, slender lespedeza, roundhead lespedeza, trailing lespedeza and tickclover.

Woody species comprise approximately 25 percent of the total cover. Principal species are post oak, blackjack oak, hickory, ash, elm, bumelia, coralberry, greenbrier, poisonivy, Virginia creeper, and grape.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 5000 lbs.
- (b) Unfavorable periods - 3000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SANDY SAVANNAH

### 2. General Site Description and Location

#### a. Description

Nearly level to steeply sloping sandy uplands supporting a cover of tall and mid grasses mixed with oak, hickory, and some scrub pine. This grades into forest at approximately the 45-inch precipitation line.

#### b. Location of site

(1) Land resource area: Forested Coastal Plains and Ouachita Highlands with some eastern Cross Timbers areas.

(2) Counties: Wagoner, Muskogee, Sequoyah, McIntosh, Haskell, Pittsburg, Atoka, Bryan, ~~Choctaw~~, ~~Latimer~~, Pushmataha, McCurtain and LeFlore Counties in Oklahoma

### 3. Climate

Average annual precipitation varies from 40 inches on the west edge of the Ouachitas to 50 inches on the eastern edge. Frost-free period is from 200 to 220 days annually. Approximately 55 percent of the moisture is received during the warm season. The high percent received during the winter favors the production of cool season forage plants such as wildryes, flatsedges and sedges. Snow is rare, of short duration, and the winters are mild.

### 4. Topography and Elevation

Nearly level to rolling topography. Some small areas are hilly with choppy slopes. Elevation ranges from 550 to 700 feet.

### 5. Soils

a. Deep fine sandy loam, red and yellow podzolic soils underlain with sandy clay to firm clay subsoils. The deeper horizons are typically sandy clay or interbedded layers of sands and clays. These soils have good soil-plant-moisture relationship and, if properly managed, are moderately productive range lands. In this climate the deep solum and permeable nature of the soil encourages growth of tall grasses mixed with woody vegetation.

- b. Soils in the site are: Ruston, Boswell, Bowie, Cuthbert, Enders, and Kirwin. Some Heartells and Stidham are also included. Certain soils of this group, such as Boswell and Cuthbert, need further study.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Mixed tall grasses and low grade hardwoods, with some scrub pine. Principal decreaser grasses are big bluestem, Indiangrass, little bluestem and switchgrass, in approximately that order of importance. These grasses represent about 50 percent of the total climax cover.

Principal cool season winter forage plants are Canada and Virginia wildrye, low panicums, and carex species. Woody species comprise about 30 percent of the total vegetation cover. Main species are post oak, blackjack oak, southern red oak, hickory, persimmon, and sassafras, grading into pine and hardwood forest at approximately 45 inches precipitation.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4000 lbs.
- (b) Unfavorable periods - 2500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SAVANNAH BREAKS ( 33" - 40" ppt.)

2. General Site Description and Location

a. Description

Rangeland having steep rocky slopes. Deep soil pockets encourage growth of an open stand of oak with a bluestem mixture in the understory. Forage production is restricted due to shallowness of the soil and 20 to 25 percent of the surface being covered by rock.

Under good range management the post oak and blackjack oak remains an open stand with a tall grass mixture of big bluestem, little bluestem, Indiangrass, and switchgrass.

b. Location of site

(1) Land resource area: Cross Timbers

(2) Counties: Osage, Creek, Okfuskee, Washington, Seminole, Rogers, Pontotoc, Love, Carter, Pottawatomie, Lincoln, Payne, and Pawnee Counties in Oklahoma.

3.

3. Climate

Moist subhumid on the west to humid on the east side. Annual precipitation varies from 33 to 43 inches, of which nearly 75 percent occurs during the summer growing season.

4. Topography and Elevation

These are steep stony areas usually 30 percent or greater slopes. Elevation varies from 900 to 1300 feet above sea level.

5. Soils

a. Very steep, shallow and very shallow soils in this site. In places the surface is mulched with stone and some ledges which restrict forage production. It has poor plant-soil-moisture relationship. Because of stones, steepness of slopes, and shallow soil much of the rainfall is lost in runoff.

- b. Soils in the site are: Rough Stony Land (Darnell)
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Mid-tall grasses and oak-hickory climax. Big bluestem, little bluestem and Indiangrass comprise about 40 to 50 percent of the total vegetation. The canopy of woody species will generally constitute 15 to 20 percent. Abuse caused by overgrazing and fire results in a gradual thickening of the woody species and a reduction in grass. The taller grasses are restricted to the deeper soils while low growing perennials and annual grasses will occupy the very shallow soils. Hairy grama, Scribner's panicum and several muhly grasses, including rock, hairawn, and nimblewill, are typical of the low growing increaser type vegetation.

b. Annual range forage production potential

(1) Total herbage yield in pounds air dry per acre in

- (a) Favorable climatic periods - 1800 lbs.
- (b) Unfavorable periods - 500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SAVANNAH BREAKS
2. General Site Description and Location

- a. Description

Steep to very steep rocky slopes, with large sandstones on or near the surface. Most of the rock ledges occur in horizontal beds, commonly found on hillsides banded with shale. Much of the mountain area of southeastern Oklahoma is included in this site. Areas of steeply tipped (60 degrees or more) parent material afford growing conditions capable of producing short-leaf pine forest and, therefore, is not a range site.

- b. Location of site

- (1) Land resource area: Ouachita Highland (only on horizontally bedded sandstone and usually associated with Pottsville shales).
- (2) Counties: Pittsburg, Atoka, Latimer, Pushmataha, Choctaw, McCurtain, LeFlore, Haskell, McIntosh, Muskogee, Sequoyah, Cherokee and Adair Counties in Oklahoma.

- c. Climate

Average annual precipitation varies from 40 inches on the western edge of the Ouachitas to 50 on the east side. Frost-free period will range from 200 to 220 days annually. Approximately 55 percent of the moisture is received during the warm season. The high percent of moisture received during the winter favors production of cool season forage plants such as wildryes, flatsedges and sedges. Snow is rare and of short duration, and the winters are mild. Average temperature is 39.9 degrees in January at Sallisaw in Sequoyah County.

4. Topography and Elevation

Mountainous escarpments that are usually steeper than 30 percent slopes. Elevation varies from 600 to 2600 feet above sea level.

5. Soils

- a. This site is very steep, and usually very shallow soil development. Much exposed sandrock on these slopes and ledges. The large percent of bare rock on the surface restricts forage production. Steep slopes inhibit the travel of domestic grazing animals. Surface runoff is rapid.

The Hector soil is usually associated with Pottsville, which is shallow light brown clay loam over clay-shales, and is mapped as a complex, Hector-Pottsville.

- b. Soils in the site are: Hector steep stony land (usually interbanded with Pottsville).
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax grasses are little bluestem, big bluestem, Indiangrass, switchgrass, wildryes, and "low" panicums. They comprise about 65 percent of the vegetation.

Browse and forbs comprise about 10 percent, which are huckleberry, Jerseytea, asters, and perennial legumes. Trees are post oak, blackjack oak, red oak, hickory, winged elm and shortleaf pine, and represent about 10 percent of the cover.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3500 lbs.  
(b) Unfavorable periods - 1750 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW

2. General Site Description and Location

a. Description

Composed of shallow, gentle to steeply rolling rangeland which is often difficult to graze. Caliche is exposed, or normally close to the surface.

b. Location of site

(1) Land resource area - High Plains

(2) Counties: Cimarron, Texas, Harper, Beaver, and Ellis Counties in Oklahoma.

3. Climate

Semi-arid climate with an average annual precipitation of 17 to 22 inches. About 74 percent of the annual rainfall occurs from May through October, with each month receiving 1.5 inches or more. There are extreme fluctuations in rainfall with periodic drouths. About 25 percent of the years have fallen below 14.3 inches total rainfall (Dalhart, Texas). More years of below average rainfall can be expected than those above average. Winter precipitation averages less than .75 inch per month and comes in the form of snow and some rain.

Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas.

The growing season of native warm season plants is from the latter part of April until the middle of October. The optimum growing season is 180 days. Winters are characterized by frequent northers (wind) producing severe cold, with a recorded low of -23 degrees. The maximum summer temperature on record is 112 degrees. Summer humidity is low and evaporation high.

4. Topography and Elevation

Gently to steeply rolling rangeland. Elevation varies from 2000 to 4000 feet.

## 5. Soils

- a. This site is comprised of shallow and very shallow loamy soils interspersed with many small, barren exposures of the underlying caliche. These soils have moderate insoak rates but very low moisture holding capacity because of the extremely limited depth. There are minor inclusions of deeper soils, usually Mansker, that are more productive. These characteristics, combined with the climate result in a thin stand of mid grasses. Much of the ground is barren.
- b. Soils in the site are: Potter soils
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

## 6. Climax Vegetation

- a. Vegetation is intermediate between the short and mid grasses of the Hardland and the mid and tall grasses of the Deep Sands and Sandy Bottomlands. Principal decreaser grasses are little bluestem and sand bluestem. Sideoats grama is an important part of the vegetation and, although it represents some 30 percent of the cover, it increases under grazing pressure. Bluestems and sideoats grama represent 50 to 60 percent of the climax. Hairy grama is a common increaser, and blue grama acts as an increaser.

Forbs are numerous on this site. Common ones include Plains zinnia, nailwort, yucca, smallflower gaura, skullcap, dotted gayfeather, halfshrub sundrop, stemless actinea, and broom snakeweed. Broom snakeweed is the principal increaser. This forb should not exceed 5 percent of the vegetation. Common legumes are prairieclover, trailing ratany, wild-alfalfa, Lambert's crazyweed, woolly loco, and bigtop dalea.

- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 1800 lbs.
    - (b) Unfavorable periods - 1100 lbs.
  - (2) Yields are estimates based on limited clipping information.

## 7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW PRAIRIE (North RR)

2. General Site Description and Location

a. Description

This is a mid-tall grass site often associated with the Breaks and Loamy Prairie sites of the Permian Redbeds. Cover varies from sparse to moderately dense as the differences in soil depth influence plant growth. On the whole it is a low producing site but is often so mixed with the Loamy Prairie site that it has to be mapped in a shallow-loamy complex.

b. Location of site

(1) Land resource area: Northern Rolling Red Plains

(2) Counties: Harper, Woods, Major, Woodward, Ellis, Caddo, Roger Mills, Custer, Beckham, Dewey, and Washita Counties in Oklahoma.

3. Climate

Average annual precipitation ranges from 22 to 28 inches. About 75 percent of this falls during the approximately 200-day frost-free period. Summer drouth, centering in August, and high evaporation during the summer lowers the effectiveness of the rainfall.

4. Topography and Elevation

For the most part this is a site of the steeper slopes, although is is all accessible to livestock. Ordinarily the site makes up a portion of the escarpments and dissected areas of the Permian redbeds. Elevation ranges from 1300 to 2500 feet.

5. Soils

a. This site is made up of Quinlan loam, a soil having not over 15 inches of solum above sandstone or sandy shales. It is a youthful soil and, because of its depth, the water holding capacity is low. It is inclined to be drouthy.

b. Soil in the site: Quinlan

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Little bluestem is the principal climax grass. Small amounts of sand bluestem, sideoats grama, and hairy grama, and a variety of climax legumes and forbs make up the cover. Sideoats grama and hairy grama are the principal increasers.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 2500 lbs.
- (b) Unfavorable periods - 900 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW PRAIRIE (South RR)

2. General Site Description and Location

a. Description

Dolomitic limestone beds interbedded with red clays lying on smooth to rolling topography. Some shallow sandstone areas are included in the site. The shallow soil depth restricts grass production.

b. Location of site

(1) Land resource area: Southern Rolling Red Plains

(2) Counties: Beckham, Greer, Harmon, Jackson, and Kiowa Counties in Oklahoma.

3. Climate

The average annual precipitation ranges from 22 to 25 inches. About 75 percent of this falls during the frost-free period of approximately 210 days. Summer drouths, commonly occurring in late July and August, and high evaporation lowers the effectiveness of the precipitation. The low water holding capacity and relatively high runoff on this site contributes to low productivity.

4. Topography and Elevation

Topography is gently sloping to steeply rolling. Elevation ranges from 1300 to 1800 feet.

5. Soils

a. This site includes very shallow and shallow calcareous, loamy soils of undulating to rolling Permian uplands. The surface soils range from fine sandy loam to silt loam and are red and calcareous. The depth to underlying bedrock, which may be dolomitic limestone or calcareous sandy or silty redbeds, ranges from 2 to 20 inches and is mostly 5 to 15 inches. The soils developed from limestone frequently have stony surfaces with occasional limestone outcrops. Soils here are drouthy and susceptible to water erosion. Insoak and permeability rates are moderate, but the shallowness and topography allow considerable runoff.

b. Soils in the site are: Harmon and Quinlan

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Common decreaser grasses are little bluestem and sand bluestem, although the density is relatively low. Principal increasers are sideoats grama and hairy grama. Common legumes are rushpea sp., prairieclover, prairie bundleflower, and catclaw sensitive-brier.

Decreasers make up approximately 45 percent of the climax vegetation.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 1800 lbs.
- (b) Unfavorable periods - 1000 lbs.

(2) Yield estimates are based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW PRAIRIE (Central)

2. General Site Description and Location

a. Description

Gently sloping to moderately steep shallow prairie soils. Rock ~~usually~~ appears on the surface, often over 15 to 20 percent of the area, and occurs in the profile. The site occurs along ridges or ledges, often adjacent to Loamy or Red Clay Prairie sites.

b. Location of site

- (1) Land resource area: Cherokee Prairie (western), Bluestem Hills, Reddish Prairie, and Western Grand Prairie.
- (2) Counties: Osage, Pawnee, Garfield, Logan, Noble, Comanche, Oklahoma, Kay, Creek, Payne and Lincoln Counties in Oklahoma.

3. Climate

Moist subhumid with annual precipitation ranging from 34 to 40 inches from west to east. Approximately 75 percent of the moisture occurs during the summer growing season which varies from 200 to 210 days.

4. Topography and Elevation

Found on moderate to steep slopes. Elevation ranges from 800 to 1300 feet.

5. Soils

- a. Shallow soils found on rather steep slopes developed from sandstone, shale or limestone. The Collinsville and Lucien soils have loam textured surface soils and were developed on noncalcareous sandstone and shaly sandstones. The Talihina soils have a clay loam or clay surface soil and were developed from shales. There is a fair plant-soil-moisture relationship.
- b. Soils in the site are: Collinsville, Collinsville-Talihina, and Lucien. Also included are some gravelly and stony limestone soils.

- c. Complete soils descriptions are available in the Soil Survey Descriptive Legend, or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Predominately a mid-tall grass climax. Little bluestem, big bluestem, Indiangrass and switchgrass comprise approximately 50 to 60 percent of the vegetation. Meadow dropseed and Scribner's panicum increase on the deeper soils under grazing abuse. Numerous decreaser legumes such as catclaw sensitive-brier, Illinois bundleflower, Virginia tephrosia, leadplant, and white, purple, and roundhead prairieclovers occur on this site.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3000 lbs.

- (b) Unfavorable periods - 1500 lbs.

- (2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW PRAIRIE (Eastern)

2. General Site Description and Location

a. Description

Rocky sandstone and limestone slopes and ridges in the Bluestem Hills and Cherokee Prairies. There is some very shallow ledge rock and shale associated with this site.

b. Location of site

(1) Land resource area: Bluestem Hills and Cherokee Prairies

(2) Counties: Washington, Nowata, Craig, Ottawa, Delaware, Mayes, Rogers, Tulsa, Wagoner, Muskogee, McIntosh, Okmulgee, Okfuskee, Seminole, Hughes, Pittsburg, with small areas in nearby counties in Oklahoma.

3. Climate

Moist subhumid to humid, having annual precipitation from 38 inches in the west to 44 in the eastern counties. Some 65 to 70 percent of the rainfall occurs in the 7 months growing season, April through October. Winter moisture is mostly rainfall. Occasional snowfalls of 3 to 6 inches occur but the grass is not usually covered more than three of four days.

4. Topography and Elevation

Steeply to gently sloping hills and ridges. Elevation ranges from 700 to 1200 feet.

5. Soils

a. Shallow soils found on rather steep slopes developed from sandstone and shale. The Collinsville soil has a loam surface textured soil and developed from noncalcareous sandstone. The Talihina, Eram and Sogn-Summit complex soils have a clay loam or clay surface soil and were developed from shale and limestone. Plant-soil-moisture relationship is fair.

b. Soils in the site are: Collinsville, Eram, Talihina, Sogn-Summit complex.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax decreaser grasses are little bluestem, big bluestem, Indiangrass, switchgrass, and Canada wildrye. Increases include sideoats grama, tall dropseed, meadow dropseed, blue grama, and buffalograss.

Woody species occurring in minor amounts include coralberry, hackberry, winged elm, and persimmon. Under mismanagement these woody species increase rapidly.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3200 lbs.  
(b) Unfavorable periods - 1800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: Shallow Prairie (South Central)

2. General Site Description and Location

a. Description

Gently sloping to moderately steep shallow prairie soils. Rocks may appear on the surface. Rock, shale, gravel, or limy clay occurs at 20 inches or less below the surface. The vegetation includes short, mid, and tall grasses.

b. Location of site

- (1) Land resource area: Grand Prairie and South Cherokee Prairie.
- (2) Counties: Garvin, Murray, Carter, Love, Pontotoc, Johnston, Marshall, Coal, and Atoka Counties in Oklahoma.

3. Climate

Moist subhumid with precipitation ranging from 34 to 42 inches. The most intense rainfall occurs in the late spring and early summer while warm season vegetation is making rapid growth. Frost-free growing season averages about 210 to 230 days.

4. Topography and Elevation

This site is found on ridges, slopes, and above escarpments. Slopes may vary from nearly level to steep. Elevation ranges from about 600 to 1200 feet.

5. Soils

- a. Shallow soils developed from either limestone, shale, claybeds, or limy clays. Texture varies from loamy soils developed from limestone to clays. There may be some rocks on the surface, and rocks or gravel within the soil profile.
- b. Soils in the site are: Denton (shallow phase), Sumpter, Ellis, and Gravelly, stony limestone soils.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Predominately a mid-tall grass climax with some short grass. Little bluestem, switchgrass, Indiangrass, and big bluestem make up about 50 to 60 percent of the vegetation. The balance consists of sideoats grama, hairy grama, tall grama, meadow dropseed, and numerous other grasses and forbs.

Grazing abuse is accompanied by invasion of silver bluestem, western ragweed, annual broomweed, Japanese brome, and other weedy grasses and forbs. Pricklypear cactus, mesquite, and junipers may also invade the site.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3000 lbs.  
(b) Unfavorable periods - 1500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW SAVANNAH (28" - 32" ppt.)

2. General Site Description and Location

a. Description

Rocky, shallow, sandy, steep rolling uplands having a grassland cover intermixed with blackjack oak, post oak and associated woody vegetation. There are steep sides canyons or gullies and areas of bare rock associated with this site.

b. Location

(1) Land resource area: Cross Timbers

(2) Counties: Caddo, Grady, Blaine, and Comanche Counties in Oklahoma.

3. Climate

The climate is characterized by hot, often dry summers; mild autumns; mild to cold winters; and moist cool spring periods. Average annual precipitation ranges from 28 to 32 inches. There is a wide fluctuation in yearly precipitation, as well as seasonal rainfall. Extremes in annual rainfall are 17 and 46 inches. The growing season, April through October, will vary in total annual rainfall from 60 to 80 percent. High intensity storms are common, particularly during the April-May-June period and if ground cover is depleted runoff is high.

4. Topography and Elevation

Rolling to steeply rolling uplands, including occasional steep sided ravines and canyons. Elevation ranges from 1000 to 1200 feet.

5. Soils

a. Shallow noncalcareous fine sandy loam soils derived from sandstone. Soil depth varies from 20 inches to bare rock. These soils have good plant-soil-moisture relationship, which encourages growth of tall and mid grasses along with some woody vegetation. The deep rooted plants penetrate into rock crevices and deep soil pockets. However, the shallow nature of this site produces a rather thin stand of vegetation, and many areas are barren rock.

- b. Soils in the site are: Darnell soils
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Mid-tall grass savannah. Little bluestem, sand bluestem and sideoats grama are the more important grasses. While sideoats grama is a decreaser on the very shallow spots, it is considered an increaser for this site. Decreasers grasses and legumes comprise about 50 percent of the climax vegetation.

Principal legumes are Stueve's lespedeza, roundhead lespedeza, Virginia tephrosia and prairieclover. Post oak, blackjack oak and associated woody species represent about 10 percent of the climax cover. Buckeye, a common woody shrub which is sometimes poisonous to livestock, is common to this site.

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 2800 lbs.
- (b) Unfavorable periods - 1400 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW SAVANNAH (33" - 39" ppt.)

2. General Site Description and Location

a. Description

Rolling savannah country, with post oak and blackjack oak vegetation. The medium textured soils are a mixture of exposed ledge rock and very shallow intermixed with some deep soil. The oak species and associated hardwoods have generally increased on the deeper soils and presently there are very few locations where open savannah conditions exist except along the rocky, very shallow areas where scattered oaks grow along the rock crevices.

b. Location of site

- (1) Land resource area: Central and Eastern Cross Timbers
- (2) Counties: Jefferson, Love, Marshall, Johnston, Carter, Stephens, Garvin, Murray, Pontotoc, McClain, Cleveland, Pottawatomie, Seminole, Hughes, Okfuskee, Lincoln, Oklahoma, Logan, Payne, Creek, Okmulgee, Noble, Pawnee, Osage, Washington, and Tulsa Counties in Oklahoma.

3. Climate

Average annual rainfall ranges from 33 inches on the west to 39 on the east. Optimum growing season is approximately 195 to 210 days. During this warm season 75 percent of the precipitation occurs and is particularly favorable to summer grasses. The high rainfall during May and June stimulates very rapid grass growth and peak livestock weight gains. High intensity storms are common, particularly during the April-May-June period and, if ground cover is depleted, runoff is high.

4. Topography and Elevation

This is gently sloping to steeply rolling country, with slopes from 3 to 20 percent. The elevation at Pawhuska is 879 feet, which is typical of the entire site.

5. Soils

- a. The soils are sandy and have favorable textural characteristics for plant growth. The principal productivity limitations are shallow depth which limits moisture storage capacity. Stoniness also limits the area of productivity. Typically, 25 percent of the site produces very little vegetation.
- b. Soils in this site are: Darnell and Hector
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma Handbook.

6. Climax Vegetation

- a. This savannah site should normally have a 15 percent coverage of post oak, blackjack oak, and other associated scrub woody species of no commercial value. Principal grasses are little bluestem, big bluestem, switchgrass, Indiangrass, and Canada wildrye, and should represent 55 to 65 percent of the vegetation. Common increaser grasses are hairy grama, tall dropseed, and meadow dropseed. Common invader grasses are splitbeard and silver bluestem. Legumes are abundant but do not comprise more than 5 percent of the total vegetation. The most common species are Stuves lespedeza, roundhead lespedeza, slender lespedeza, prairieclover, and Virginia tephrosia.
- b. Annual range forage production potential
  - (1) Total herbage yields in pounds air dry per acre in
    - (a) Favorable climatic periods - 3200 lbs.
    - (b) Unfavorable periods - 1400 lbs.
  - (2) Yields are estimates based on limited clipping information.

7. Type Location

One-half mile north from the John Zinc ranch turnoff on the Skiatook highway, on the west side of the road. There are no available grazing records but the present owners say the pasture has been lightly grazed year-long for at least 10 years. There is approximately 25 percent oak brush cover.

Another type location lies about 3 miles north of the above site, on the George Daniel ranch along the east side of a formerly cultivated field which borders the county road.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SHALLOW SAVANNAH (40<sup>11</sup>+ ppt.)

2. General Site Description and Location

a. Description

This site is rugged topography in the low mountainous ridges, usually in an easterly-westerly direction. The ridges have horizontal beds of sandstone, shale, and some slate. The horizontal bedding of sandstone and the presence of shale limits moisture storage capacity, reducing the total available moisture below the average for this climatic zone. Scrubby oaks intermingled with tall grasses are characteristic of this site.

b. Location of site

(1) Land resource area: Ouachita Highlands

(2) Counties: Atoka, Pittsburg, Hughes, McIntosh, Haskell, Bryan, Cherokee, Adair, Sequoyah, LeFlore, Latimer, Pushmataha, and McCurtain Counties in Oklahoma.

3. Climate

Average annual rainfall is 38 inches on the west to 45 on the east. Precipitation from April through September represents 55 to 60 percent of the total moisture. The high rainfall months of April-May-June favor the production of warm season tall grasses. High temperature and lighter rainfall in July-August-September suppresses development of woody species to the extent that woodland products are not economically feasible on these shallow soils.

4. Topography and Elevation

Rolling to moderately steep ridges with slopes of 6 to 30 percent. Foothill elevation begins at 400 feet and the ridges rise to 1200 feet. A few peaks will rise to 2600 feet.

5. Soils

a. Shallow, medium textured, light brown soil over sandstone. Part of the profile is shallow, light colored loam over shale. The horizontal beds of sandstone restricts water storage capacity and limits plant root development. Soil-plant-moisture relationship is fair. The topsoil is erosive if cover is removed.

- b. Soils in the site are: Hector stony loam; Hector-Talihina; and Hector-Pottsville.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. When in excellent condition this site produces an open stand of post oak, blackjack oak, and associated hardwoods, with an understory of tall grasses. Oak species will average 15 to 20 percent of the composition; big bluestem, little bluestem and Indiangrass about 70 percent; and other grasses and brush about 10 to 15 percent.

When the condition declines, grasses thin out and are replaced by oak sprouts. The site may develop the appearance of a forest, however, the brush will not reach commercial woodland size. Shortleaf pine trees are found on the dry edge of the humid zone but are sub-marginal for woodland products, occurring in rangeland (not a forest site).

- b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 3500 lbs.
- (b) Unfavorable periods - 1750 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

McAlester - Naval Ammunition Depot, Outlease "A", north end of the lease. Grazed moderately 1957 - 1959.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SLICKSPOT

2. General Site Description and Location

a. Description

Crusted upland "alkali spots". These solonetz soils usually occur in mixture with Claypan and Loamy Prairie.

b. Location

- (1) Land resource area: Rolling Red Plains and Reddish Prairie
- (2) Counties: Grant, Garfield, Kingfisher, Blaine, Canadian, Noble, Payne, Logan, Pawnee, Oklahoma, Cleveland, McClain, Caddo, Comanche, Jefferson, Stephens, and Cotton Counties in Oklahoma.

3. Climate

This site extends across the state from north to south within a broad precipitation range of 28 to 35 inches. Most of the rainfall occurs during the spring and fall, with 25 percent in May and June and some 15 to 20 percent coming in September and October. Precipitation is normally erratic during July and August. The rainfall patten results in a dominance of warm season grasses.

4. Topography and Elevation

Topography is nearly level to moderately sloping. Elevation ranges from 800 to 1400 feet.

5. Soils

- a. Soils of this site occur in complexes. These solonetz spots are the depressed areas, and are light colored on the surface. Normally the surface soil is 2 to 4 inches thick over compact clay. Insoak is very slow and soil aeration is unfavorable for plant growth. Crusting over restricts grass yields.
- b. Soils in the site are: Kingfisher slickspot complex; Tabler slickspot complex; Zaneis slickspot complex; and Norge slickspot complex.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Decreaser grasses common to this site include alkali sacaton, switchgrass, white tridens, tall dropseed and blue grama. These and other decreaseers represent about 50 percent of the total vegetation. Common increaseers are whorled dropseed, purple threeawn, mourning lovegrass, gummy lovegrass, and fall witchgrass. Yellow neptunia is a common decreaseer legume. Common forbs are rhombopod, pricklypear, curlycup gumweed, wax goldenweed, and hairy goldaster.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 1300 lbs.
- (b) Unfavorable periods - 800 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: SMOOTH CHERT SAVANNAH

2. General Site Description and Location

a. Description

Cherty upland soils of the Ozark Highlands on the more gently sloping ridges and footslopes. Inseparable variations in soil and climate within the site create a widely varying mixture of woods and prairie. Typically, under good management, trees are in open stand intermixed with an abundance of tall grasses.

3. b. Location of site

(1) Land resource area: Ozark Highlands

(2) Counties: Ottawa, Craig, Mayes, Delaware, Adair, Cherokee and Sequoyah Counties in Oklahoma.

3. Climate

Average annual rainfall varies from approximately 42 inches on the west to 48 on the eastern side of the area. The growing season continues from early April through October, when 65 percent of the annual rainfall occurs. When this site is on northerly slopes more moisture is conserved by lower temperatures during the summer and woody species are thus favored over the grasses.

4. Topography and Elevation

The more gently sloping areas are usually the Baxter and Stilwell soil series, and the steeper areas are dominately Bodine. Elevation varies from 600 to 1500 feet.

5. Soils

a. Nearly level to moderately steep, deep, medium textured, well drained upland soils. Mostly silt loam surface with clay loam subsoils. The subsoils usually contain chert to the extent that water holding capacity and plant nutrients are very low.

b. Soils in the site are: Bodine chert and stony silt loams, Baxter cherty silt loam and silt loam, and Stilwell silt loam and cherty silt loam.

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Climax native grasses are principally big bluestem, little bluestem, and Indiangrass. Browse and forbs include Jersey-tea, St. Johnswort, goldenrods, asters, and perennial legumes.

The tree stand is variable within this site. There are some fair to low grade commercial woodland stands on favorable and well managed areas. Average climax woody coverage is approximately 35 percent. Trees include post oak, blackjack oak, elm, shortleaf pine, white oak, red oak, and hickory. Some shrubby species are sumac, coralberry, grape, Virginia creeper, hawthorne, and black haw. The principal invader woody plants are persimmon and sassafras.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 4200 lbs.
- (b) Unfavorable periods - 2250 lbs.

- (2) Yields are estimates based on limited clipping information.

- c. Site index for shortleaf pine

<u>Soil</u>	<u>Slope</u>	<u>Average site index</u>
Bodine cherty silt loam	BD	48 feet
Bodine stony silt loam	BE	51 "
Baxter cherty silt loam	AB	53 "
Baxter silt loam	B	66 "
Stilwell gravelly silt loam	CD	60 "

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: STEEP CHERT SAVANNAH

2. General Site Description and Location

a. Description

Rough, steep, cherty land of the Ozark Highlands. Chert fragments are present on the surface and through the soil profile. Inseparable variations in soil, climate, and topography create a widely varying mixture of woods and prairie.

b. Location of site

(1) Land resource area: Ozark Highlands

(2) Counties: Ottawa, Craig, Mayes, Adair, Cherokee, and Sequoyah Counties in Oklahoma.

3. Climate

Average annual precipitation varies from about 42 inches on the west to 48 on the eastern edge of this area. Major portion of the rainfall comes during the frost-free period of 200 days, about April 10 to October 30. Cool season plants are in the minority.

4. Topography and Elevation

Steep to very steep cherty hillsides and breaks along narrow valleys. The surface is well covered with chert fragments. Slopes vary from 15 to 20 percent, being so steep that grazing animals experience difficulty in using this site. Elevation varies from 500 to 1500 feet.

5. Soils

a. Cherty, freely permeable to very freely permeable soils occurring on steep to very steep slopes. Rapid internal drainage through the chert beds provides somewhat less moisture for plant growth than the annual rainfall would seem to afford.

b. Soils in the site are: Bodine stony silt loam, 15 to 50 percent slopes

- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Typically, this site supports an open stand of trees including post oak, red oak, shortleaf pine, blackjack oak, white oak, elm, and hickory, with an understory of tall and mid grasses along with many palatable legumes and forbs.

Woody shrub species include mountain laurel, redbud, huckleberry, dogwood, poisonivy, grape, rubus species, and Virginia creeper. South slopes support more shortleaf pine, while northern slopes are favorable to hardwoods.

Principal climax grasses are Indiangrass, big bluestem, and little bluestem. Under climax conditions it is estimated woody species average about 45 percent of the cover, although some favorable areas tend to forest while other more drouthy areas favor a dominance of prairie plants.

- b. Annual range forage production potential

(1) Total herbage yield in pounds air dry per acre in

- (a) Favorable climatic periods - 3500 lbs.
- (b) Unfavorable periods - 2000 lbs.

(2) Yields are estimates based on limited clipping information.

- c. Site index for shortleaf pine

<u>Soils</u>	<u>Slope</u>	<u>Average Site Index</u>
Bodine stony silt loam	15 - 50%	56 feet

7. Type Location

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: STONY LOAM

2. General Site Description and Location

a. Description

The site is flat to strongly rolling stony soils associated with the breaks.

b. Location of site

(1) Land resource area - High Plains

(2) Counties: Western Cimarron County of Oklahoma

3. Climate

Semi-arid climate with an average annual precipitation of 16 to 17 inches, which occurs mostly from April through September. There are extreme fluctuations from year to year with periodic drouths. Spring and summer precipitation averages about 12.5 inches.

Average wind velocities are extremely high in the Southern Great Plains in comparison to the rest of the United States. High winds during February, March, and April cause erosion on unprotected areas.

Native warm season plants predominate in this climate. Drouth begins the latter part of April. Grasses green up intermittently as the irregular rains occur. Optimum growing season is approximately 170 days. Evaporation rates are high and humidity is low. Winters are characterized by frequent northers (wind) producing severe cold with a recorded low of -23 degrees. The maximum summer temperature on record is 109 degrees.

4. Topography and Elevation

Topography is steeply to rolling upland rangeland. Elevation is about 4500 feet.

5. Soils

a. Soils in this site are shallow to very shallow, rocky, loamy to moderately sandy and calcareous. The underlying bedrock, which is sandstone or sandy shale for Travacilla and basalt for Apache, is exposed in many place.

These soils have moderate insoak rates but, because of limited depth, have low moisture holding capacity. The shallow rooted, drouth resistant plants are best adapted to this site. Inclusions of deeper loamy soils are more productive.

- b. Soils in the site are: Travesilla and Apache
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. This site supports a greater variety of grasses and forbs than are ordinarily found on rangeland in this High Plains area. Big bluestem, little bluestem, switchgrass, and sideoats grama share the cover with blue grama, black grama and hairy grama. When heavily grazed the tall and mid grasses give way rapidly to silver bluestem, threeawn, blue grama, and hairy grama. In the climax cover decreaseers are bluestem, switchgrass, and sideoats grama and make up about 65 percent of the vegetation.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 1500 lbs.
- (b) Unfavorable periods - 500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

Cimarron Trust Company ranch, in Northwest Cimarron County.

1. Range Site Name: SUBIRRIGATED (Moderately Saline)2. General Site Description and Location

## a. Description

Flat bottomlands along the major streams as well as smaller areas more or less sloping along the smaller tributaries. Under good management, tall grasses predominate on the site and it produces most of the native prairie hay of western Oklahoma.

## b. Location

- (1) Land resource area: High Plains, Rolling Red Prairie and Western Reddish Prairies.
- (2) Counties: Grant, Garfield, Kingfisher, Blaine, Washita, Kiowa, Tillman and all counties west of this line in Oklahoma.

3. Climate

There is a broad range of precipitation across the area where this site is found. This ranges from 17 inches in eastern Cimarron County to 30 inches in Kingfisher County. The warm growing season varies from 190 to 225 days and there is considerable variation in temperature. However, these variations do not significantly change the kinds of vegetation on this site. The major influence is the presence of a permanent moisture zone within the root zone of climax vegetation.

4. Topography and Elevation

The topography is nearly level to gently sloping. Elevation varies from 4000 feet in the west to 1000 feet in Kingfisher County.

5. Soils

- a. This site is characterized by moderately saline soils having a high water table. Surface soils are fine sandy loam to clay loam. Underlying strata varies from clay to sandy loam with sand encountered generally at 5 to 7 feet. The water table normally varies from 2 to 5 feet. The moderately saline nature of this soil does not seriously restrict range forage production but does generally encourage the more salt tolerant species.

- b. Soils in the site are: Las Animas, <sup>Deleted</sup> Spur soils, subirrigated, subirrigated lowland, and Sweetwater.
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. When in top range condition, the major part of this site will be dominated by switchgrass. However, in some instances, the site is dominated by Eastern gamagrass. Typically there are minor species such as saltgrass, alkali sacaton, alkali mahly and Canada wildrye in the composition. Plains bluegrass and western wheatgrass are common cool-season grasses. Common reedgrass and prairie cordgrass are commonly found in the top range condition. Heavy grazing use results in a decrease of the best tall grasses with an increase in alkali sacaton, inland saltgrass, tall dropseed, and silver bluestem. Inland saltgrass often is dominant on heavily grazed areas.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 10,000 lbs.  
(b) Unfavorable climatic periods - 6,000 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location

1. Range Site Name: SUBIRRIGATED (Saline)2. General Site Description and Location

## a. Description

Mostly, nearly level valleys not subject to frequent flooding. The surface is commonly irregular with high and low spots usually varying from 3 to 8 inches which causes some differences in kinds of vegetation. While the high water table results in dependable production, the amount of salts present restricts growth during dry periods. This effect is greatest on the shallower rooted and, also, less salt tolerant species.

## b. Location of site

(1) Land resource area: Eastern part of the Central Rolling Red Plains and the Central Rolling Red Prairie

(2) Counties: Alfalfa, Blaine, Canadian, Garfield, and Grant

3. Climate

This site extends across the state from north to south within a precipitation range of approximately 28 to 35 inches. Heaviest rainfall periods are during the spring and fall. About 25 percent falls in May and June and 15 to 20 percent in September and October. Rainfall is normally erratic during July and August. This results in a dominance of warm season vegetation.

4. Topography and Elevation

This is normally nearly level valleys not subject to flooding. Minor areas are moderately sloping. Micro-relief irregularities are typical of the site.

5. Soils

a. These soils are Solonetz and are developed from stratified old alluvium. They have a loam A horizon and a clay loam to light clay B horizon. The friable C horizon is loamy and generally stratified. They have a fluctuating high water table. The table fluctuates between 2 and 10 feet which makes the vegetation somewhat susceptible to drouth. This is particularly true of the shallower rooted species.

b. Representative soil in this site is Drummond.

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. Vegetation is highly varied including alkali sacaton, switchgrass, inland saltgrass, western wheatgrass, and vine-mesquite. Little bluestem, big bluestem, tall dropseed, blue grama, and buffalograss are present but are confined largely to the "high islands" in the irregular micro-relief topography. Inland saltgrass is the major increaser species. Other increasers are whorled dropseed and buffalograss.

b. Total annual yield

(1) Total yields of native plants in pounds air-dry per acre

	<u>Herbage</u>	<u>Total all Species</u>
(a) Favorable climatic periods	7000	7000
(b) Unfavorable periods	4500	4500

(2) Yields are estimates based on limited clipping information.

7. Type Location

112098

II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

- 1. Range Site Name: VERY SHALLOW
- 2. General Site Description and Location

a. Description

Nearly level, gently sloping, very shallow soil. Surface usually 6 to 10 inches deep over limestone. Bedrock severely restricts moisture capacity and limits root development. Under good management the predominant grasses are grammas with tall grasses in the deeper soil pockets.

b. Location of site

- (1) Land resource area: Bluestem Hills and Cherokee Prairie
- (2) Counties: Osage, Washington, Nowata, Craig, Rogers, <sup>112098</sup> Mayes, Tulsa, Pawnee, and Kay Counties in Oklahoma.

*added Payne County*

3. Climate

Moist subhumid on the west varying to humid on the east. Average annual precipitation ranges from 33 to 43 inches from west to east. Nearly 75 percent of the moisture occurs during the 200-day growing season, April to October.

4. Topography and Elevation

Nearly level to gently sloping areas. Elevation varies from 700 to 1200 feet east to west.

5. Soils

- a. Very shallow, nearly level soil developed from limestone. Some limestone on the surface soil. The plant-soil relationship is poor. Narrow bands of deeper soils occur in the occasional crevices in the parent bedrock.
- b. Soils in the site are: Sogn series
- c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

- a. Moisture and root penetration are very limited. Grasses that require less moisture, such as blue grama, hairy grama, and side-oats grama, are predominant here. The bands of deeper soils that occur in the crevices support a tall grass climax of big bluestem, little bluestem, Indiangrass and switchgrass. These tall grasses constitute only about 10 percent of the total vegetation, which the short grasses comprise from 50 to 60 percent. Annual grasses, along with perennial forbs such as cobaea penstemon, willowleaf sunflower, and dotted gayfeather are abundant during years of normal rainfall.

Vegetative cover varies greatly with the amount of rainfall on this site. Consequently, a fixed composition percentage of the various climax species is difficult to determine. A series of years with below normal precipitation causes a great reduction in the number and size of plants. Whereas, vegetation will respond to abundant rainfall and demonstrate excellent vigor and increase in number.

- b. Annual range forage production potential

- (1) Total herbage yields in pounds air dry per acre in
- (a) Favorable climatic periods - 2500 lbs.
  - (b) Unfavorable periods - 500 lbs.
- (2) Yields are estimates based on limited clipping information.

7. Type Location

- a. Unfenced area west of airport on the north side of Highway 60, six miles west of Pawhuska.
- b. North end of unfenced meadow, north of the county road, two miles west of Foraker in Osage County.

## II-E-2 - Technical Range Site Descriptions

Work Unit \_\_\_\_\_

1. Range Site Name: VERY SHALLOW

2. General Site Description and Location

a. Description

Nearly level to gently sloping, very shallow prairie soils. The soil is usually about 6 to 10 inches deep over horizontal limestone formations. It is common for some rock to be on the surface. The dominant vegetation is mid and short grasses.

b. Location of site

(1) Land resource area: Grand Prairie

(2) Counties: Garvin, Murray, Carter, Love, Pontotoc, Coal, Johnston, Marshall, Atoka, Bryan, McCurtain, and Choctaw Counties in Oklahoma.

3. Climate

Moist subhumid with rainfall average from 34 to 42 inches. The highest intensity rains occur in late spring and early summer while plants are making their most active growth. The average frost-free growing season is from 210 to 230 days.

4. Topography and Elevation

Nearly level to gently sloping areas. Commonly found on ridges and just above escarpments. The elevation varies from 600 to 1200 feet.

5. Soils

a. Very shallow, level to gently rolling prairie soils developed from horizontal limestone formations. Some limestone may be on the surface. Low moisture holding capacity contributes to excess runoff during high intensity rains and limits plant growth during drouths.

b. Soils in the site are: Tarrant series

c. Complete soil descriptions are available in the Soil Survey Descriptive Legend or in the Soil Series of Oklahoma handbook.

6. Climax Vegetation

a. The low moisture storage capacity of this site limits the vegetation to species that can escape drouth by going dormant or by reproduction from seed. The dominant grasses are hairy grama, tall grama and Texas grama. Sideoats grama is common but often restricted to crevices or deeper soil pockets. Little bluestem and tall grasses may be found in these more favorable places also. Annuals such as puffsheath dropseed and evax are very common. Vegetative growth on this site varies greatly from wet to dry years.

b. Annual range forage production potential

(1) Total herbage yields in pounds air dry per acre in

- (a) Favorable climatic periods - 2000 lbs.
- (b) Unfavorable periods - 500 lbs.

(2) Yields are estimates based on limited clipping information.

7. Type Location