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Nevada Youth Range Judging Manual

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Adapted from:

“Judging Rangeland for Livestock & Wildlife Values”
T.G. Bidwell and M.E. Moseley

“Range Judging in Utah ‘A Manual,’” M.G. Francis

“Mule Deer Habitat Guidelines,” R.M. Kerr

Produced by University of Nevada Cooperative Extension

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INTRODUCTION

Rangelands are used by both wildlife and livestock. In most cases, rangeland use has been evaluated for either wildlife or livestock. Few manuals attempt to evaluate range for use by both wildlife and livestock together.

This manual is designed to help youth understand that rangeland can be evaluated and management decisions can be made that will benefit both wildlife and livestock. The principles described in this manual follow the basic concepts of state and transition models of range management as outlined in the Natural Resources Conservation Service (NRCS) National Range and Pasture Handbook. The materials are simplified to provide an understandable process for instructing youth from 7th through 12th grades in basic range management concepts and techniques. This manual is not intended to be an in-depth technical guideline for analyzing and planning rangelands in the state, although the basic principles are applicable. For further or more detailed assistance with rangeland management or analysis issues, contact the nearest offices of the Natural Resources Conservation Service for private lands questions, Bureau of Land Management or United States Forest Service for federal lands questions, University of Nevada Cooperative Extension for education and information programs, or other state agencies or private consultants.

The material from this manual has been pilot-tested with students from the Future Farmers of America (FFA) and 4-H classes at Lincoln County High School and Pahrangat Valley High School. With the help of teachers, the students have successfully been able to evaluate range sites across Lincoln County, the State of Nevada, and the Nation. Over 100 students have been involved with the pilot program.

Results of the Pilot Program

- Students' overall knowledge of range management has increased from 25% correct to 75-80% correct on plant identification and range management practices with the use of this material.
- Students were taught in the classroom and during after-school sessions. Because of the extra time involved, students taught after school in extended field trips were in the upper percentages of correctness.
- The material has been modified slightly over the past two years to make this manual more user friendly.

Special Instructions:

1. Students need to start a plant identification book for collecting, pressing and mounting plants from the list. They should add to this book yearly.
2. This manual must be used as a starting point with input from knowledgeable people.
3. The instruction can utilize local plants, resource people and sites. Also, resources are available from the University of Nevada-Reno Herbarium and different agencies within a given county.

UNIT ONE

ECOLOGICAL SITES

AND

PLANT SUCCESSION

UNIT ONE

ECOLOGICAL SITES AND PLANT SUCCESSION

The State of Nevada contains many highly diverse ecosystems. These range from hot desert where freezing temperatures are rare and soils never freeze, to alpine tundra conditions in the high mountains throughout the state, to cold desert sagebrush valleys which accumulate snow and freezing temperatures during winter months. Major Land Resource Areas (MLRA) are established by the NRCS to organize natural resources information on a nation-wide scale and are used as the framework within which the identification and classification of vegetative communities have been made throughout the United States. MLRA's are geographic units that are characterized by a particular pattern of associated soil types, natural vegetation, and climate conditions, including precipitation patterns and seasonal distribution of rainfall. Nevada contains all, or major portions of, eight of these regions (MLRA's 23, 24, 25, 26, 27, 28b, 29, and 30) (**See Appendix**). In addition, there are small portions of three MLRA's in Nevada which are not covered in this manual. Each MLRA contains unique vegetative communities called ecological/range sites; currently, Nevada has approximately 860 ecological/range sites described statewide. "A Flora of Nevada," by John T. Kartesz, 1988, lists over 3,000 species in over 100 represented taxa, suggesting Nevada has one of the more diverse floras in the United States.

ECOLOGICAL SITES/RANGE SITES

An ecological/range site is an area of land with a combination of soil, climate, topographic, and natural vegetation features that set it apart significantly from adjacent areas. Ecological sites are characterized in terms of soil properties, topography, slope, plant production, and plant composition. Vegetation on a particular site will vary in composition and production from one geographical region to another and from year to year because of changes in precipitation.

Because of the large number and complexity of sites within the state, we have selected five vegetative communities that have been identified and described as an ecological/range site in each of the eight separate major MLRA's. Each MLRA has an ecological/range site description enclosed that lists the vegetation commonly found on that site in that MLRA. For example, if this manual is being used for instructing students in range or setting up a contest in the Ely area, the MLRA map in the **Appendix** would be consulted, showing that Ely is located in MLRA 28b. For all instruction purposes or contest(s) in this area, the appropriately named ecological/range site descriptions for MLRA 28b are found in the **Appendix**. The five vegetative communities are described as follows:

SALINE BOTTOM: These sites generally have slopes ranging from 0% to 4%. They often have a seasonally high water table ranging from 20 to 60 inches deep. Because the water table is slightly deeper, these sites generally have a composition of 15% to as high as 25% shrubs, one of which is black greasewood. The only exception to greasewood occurrence on these sites is in MLRA 30 where the major shrub is big saltbush. Black greasewood does not occur in MLRA 30.

SALINE MEADOW: These sites generally have slopes ranging from 0% to 4%. They often have a water table close to the surface for short periods during the spring, reducing the percentage of shrubs that occur on the sites to less than 8% of the vegetative composition. The dominant grass on these sites is alkali sacaton, except in MLRA 23 where it is Nevada bluegrass. Alkali sacaton rarely occurs in MLRA 23.

LOAMY, LIMY, LOAMY SLOPE: These sites range in slope from 2% to as high as 75%. They are dominated by big sagebrush in all except MLRA 30, where white bursage and creosote bush are the dominant shrubs. The understory on these sites is composed of a variety of bunchgrasses. Soils are generally well drained and do not have a water table readily accessible by plant roots. This commonly represents the majority of the shrub/bunchgrass sites in the state. Big sagebrush does not occur in MLRA 30.

RIPARIAN WOODLAND: These sites range in slope from 0% to as high as 15%. The sites are readily identified by the fact that a water table is accessible to large water loving trees or shrubs. Trees or shrubs such as willow, cottonwood or quaking aspen are common. These sites are generally located along perennial streams and water bodies and in the bottom of ephemeral channels where the water table is within a plant's reach.

UPLAND WOODLAND: These sites range in slope from as little as 2% to over 75%. The conifers, especially pinyon and/or juniper, are the most common trees dominating these sites. Other sites in the state may contain ponderosa pine, white fir, bristlecone pine, and other species, but are much less common and are confined to high mountains. Soils are well drained. An exception to a conifer overstory occurs in MLRA 30 where Joshua tree dominates the equivalent site.

SIMILARITY INDEX

The **SIMILARITY INDEX (SI)** of the ecological/range site is dictated by many factors. Historically, herbivory by mammals and invertebrates above and below the soil surface, extensive fires, and periods of drought were major disturbances to the land. The kinds of plants that are present on an ecological site may be desirable or undesirable for a particular use. For example, if cattle have been grazed at a heavy stocking rate on a site for a long period of time, some of the plants that will have increased over that period of time are not preferred by cattle. These plants are called increasers. Plants that have decreased over this period of time are called decreaseers and are preferred by cattle. Any disturbance of the ecological site will affect the SI. Disturbances are a natural occurrence on all sites.

For contest purposes, the SI will be determined by comparing the present vegetation, expressed as a percentage (species composition by weight at the end of the growing season in an ungrazed condition), to the presumed original dominant plants on that site historically and before European settlement. Specific ecological/range site descriptions can be obtained from NRCS.

For example, if we are determining the SI for a loamy, limy, loamy slope site (See Range Site Descriptions in the **Appendix**), we would first review the list of vegetation and the percent composition by weight of these plants from the left two columns of the Range Site Description form. This is the best available description of the site in its natural state with minimal disturbance. Note that only native plant species are acceptable when accounting for the presence of "other grasses, forbs or shrubs."

The third column on the Range Site Description form is titled Observed Composition. Contest participants determine the current percent composition by weight of each of the plant species and enter their observation in the appropriate line. Percent composition by weight may be determined through techniques such as estimates, pace point transect information, or others. These observations may be higher or lower than the figures shown in the second column for that

plant due to factors such as grazing management, disturbance, lack of use, or others. The third column should total 100%.

The far right column is filled in with the percent listed in the Observed Composition column unless the value in the observed column exceeds the maximum value listed in the second column. The value listed in the Percent Counting Toward SI column **can not** exceed the value in the Site Composition Maximum column. The fourth column down should then be totaled. The value calculated may be as high as 100% but will generally be less. This value is the **SIMILARITY INDEX** and is entered on the contest form.

The Similarity Index is not a determination of condition of the site or the value of the plants growing on it. For example, an intermediate wheatgrass seeding would have a SI of less than 25% when compared to a native sagebrush/bunchgrass plant community. However, intermediate wheatgrass is very desirable and is excellent forage for livestock. The SI simply indicates how similar the current vegetative community is to what was determined to be the historic natural vegetative community.

HABITAT RATING

The **DESIRED PLANT COMMUNITY (DPC)** is the SI that meets the land manager's objective(s). For example, a land manager may want parts of the management unit to have an SI of 30% to 40% to provide food (annual forbs and legumes) for wildlife. Other parts of the management unit may need to be in a SI of 60% to 70% for wildlife cover and forage for cattle. Estimating the percent composition of grasses, grass-like plants, forbs, legumes, and shrubs/trees should be done at the end of the growing season. The contest is generally held in Nevada in the fall.

Habitat ratings for cattle and mule deer will be determined by comparing the habitat requirements of the animal to the plant community existing on the site. Management practices (**See Unit Five**) will be used to adjust the SI to attain the objective(s).

Plants that were purposely brought in for beneficial uses will be referred to as Introduced Plants (example, crested wheatgrass). Plants that are undesirable will be listed as Invasive whether they are native or introduced.

UNIT TWO

BEEF CATTLE

HABITAT EVALUATION

UNIT TWO

BEEF CATTLE HABITAT EVALUATION

Cattle can graze or browse many different kinds of plants (herbaceous and woody) depending on preference, plant availability, and nutritional status of the animal. Cattle grazing in native plant communities, rangeland or forestland, is compatible with land stewardship provided that it is done in a proper manner. Proper grazing management means balancing the needs of the plant community in meeting or maintaining the DPC with the needs of the grazing animal. The elements of proper grazing management include maintaining the herd at or below carrying capacity and using prescribed grazing. Some rangelands and forestlands are more suited to managing for wildlife such as mule deer than cattle because of the economic and environmental costs of changing the habitat for cattle production.

The purpose of this evaluation guide is to systematically evaluate habitat on the site for its value to cattle. The evaluation guide is designed to assist in inventorying and analyzing existing habitat conditions, to determine an overall habitat value, and identify the limiting factor for cattle. These values will indicate the overall quality of habitat that rangeland or forestland provides in its existing condition. The evaluation guide will also identify weak or missing elements (limiting factors) that are limiting cattle numbers so that management alternatives can then be developed to improve the habitat for cattle. In an actual management situation, both economic and ecological considerations must be evaluated.

BACKGROUND INFORMATION ON THE HABITAT EVALUATION GUIDE COMPONENTS

Beef cattle restrict their home range to an area that provides their needs for food, water, and shelter, or that is controlled by fencing. The actual size and shape of the home range is controlled by how far the animal can travel and the quality of the various habitat elements within the home range. Actual home ranges are not marked by permanent boundaries (except for fencing) nor are they the same from season to season. Beef cattle prefer open areas that provide good air flow and thermal cover (either shade in warm weather or windbreaks during cold weather). However, they will use shrub or forested areas if that is all that is available or if environmental conditions are favorable.

HABITAT REQUIREMENTS

FORAGE FACTORS: Food preference is acquired through grazing experience and nutritional status of the animal. Beef cattle are opportunistic foragers and adapt to a wide variety of conditions. Because they are ruminants, they can digest lower quality forages that are not usable by monogastrics. In general, diet requirements are higher for young grazing animals and declines with maturity except in certain reproductive stages.

Forage Criteria

Forage Condition for Cattle: Beef cattle prefer certain grasses, forbs, legumes, woody browse and mast. Preferred plants decline in vigor and dominance over time if they are not properly grazed.

Forage Diversity: Beef cattle will eat many different plants during the year. Grazing preferences change with season of the year and stage of plant growth. Having a variety of grasses, forbs, legumes, and woody plants available makes it more likely that the diet is properly balanced.

Forage Utilization: In general, nutritional quality is highest at the beginning of the growing season and declines as the season progresses. However, forage quality is also related to forage utilization. As a plant is grazed from leaves to stem, quality declines. Thus, over-utilization of forage causes a decline in quality. If plants are lightly to moderately grazed and then rested to allow re-growth, the re-growth will be of higher quality than ungrazed plants.

DISTRIBUTION FACTORS: Beef cattle move within their home range based on many interacting factors. The main factors include slope of the land, brush and tree cover, availability of water, wind direction, and shade or windbreaks. Cattle movements and grazing patterns can be damaging to the soil and vegetation, depending on the extent and severity of disturbance by hoof action, trailing, rubbing, and grazing.

Distribution Criteria

Forage Accessibility: Beef cattle prefer to graze on level ground. As the slope increases or the surface of the ground becomes rough or rocky, grazing use declines.

Grazing Restraint: Beef cattle prefer to graze in open areas that allow easy movement and provide comfortable environmental conditions (e.g., cool summer air temperature, air movement, relatively low fly numbers). Increasing brushy canopy cover tends to restrict movements, reduce air movement, and increase fly populations.

Water: Beef cattle prefer to graze around water if forage is available. They move away from water for thermal protection (shade – summer, windbreak – winter) or when forage becomes unavailable. In the mid-west, cattle seldom will move over two miles to meet their forage requirements. However, animals adapted to western desert rangeland communities will range farther from water sources, but will seldom move over four miles to meet forage requirements.

INSTRUCTIONS FOR COMPLETING THE BEEF CATTLE HABITAT EVALUATION FORM

GENERAL INSTRUCTIONS

An overall habitat quality value and an overall limiting factor for beef cattle can be calculated from the values assigned to each habitat requirement. A formula uses the requirement values to derive an overall habitat quality value. The overall limiting factor value is determined by selecting the lowest limiting factor value assigned to any of the requirements. This value represents the general quality of habitat and the factor that is limiting the beef cattle population within the home range.

The following procedures describe the method for inventorying existing habitat conditions, rating the habitat criteria, and calculating the habitat quality and limiting factor values. The system is based primarily on the kinds, amounts, condition, and arrangement of plants.

RATINGS

Ratings for the various habitat criteria range from 0 (poor) to 40 (excellent). The number of ratings per criteria depend on the number of variables that can be practically measured and levels of management that can be practically applied.

EXAMPLE

While completing the beef habitat evaluation form, a contestant arrived at the following answers:

A.1-40; A.2-30; A.3-20. The lowest of these three questions is 20 and would be entered in the Forage Factors box of the formula on page two of the evaluation form.

B.1-40; B.2-30; B.3-35. The lowest of these three questions is 30 and would be entered in the Distribution Factors box of the formula on page two.

C.-0. This value is 0 and is entered in the Site Integrity box of the formula.

The habitat rating is calculated by adding together the three values entered in the formula and dividing this total by 3. The corresponding number is the habitat rating and is entered on the contest form along with the lowest of the three factors in the formula described above. Only the lowest factor is listed the first time the evaluation is done.

BEEF CATTLE HABITAT EVALUATION

Size of Home Range or Evaluation Area (Ac.) _____

Pasture _____ Pasture Number _____

Habitat Management Unit Number _____

Essential habitat components needed for survival and propagation of the species. For beef cattle, evaluate (A) forage and (B) distribution factors.

A. FORAGE FACTORS: Forage of annual and perennial grass, forbs, and woody plants.

Circle Correct Value

1. Forage Condition - How abundant are the preferred food-producing plants?

Site has 76-100% by weight of desirable forage plants for beef cattle	<u>40</u>
Site has 51-75% by weight of desirable forage plants for beef cattle	<u>30</u>
Site has 26-50% by weight of desirable forage plants for beef cattle	<u>20</u>
Site has 0-25% by weight of desirable forage plants for beef cattle	<u>10</u>

2. Forage Diversity – How diverse is the food producing plant community?
(plant types = grasses, forbs, legumes, and woody plants)

Food plants represented by all 4 of the major plant types	<u>40</u>
Food plants represented by 3 of the 4 major plant types	<u>30</u>
Food plants represented by 2 of the 4 major plant types	<u>20</u>
Food plants represented by 1 of the 4 major plant types	<u>10</u>

3. Forage Utilization – How tall are the leaves of the marked utilization plant?

	Tallgrass	Midgrass	Shortgrass	
Light to none	(>14")	(>6")	(>4")	<u>30</u>
Moderate	(10-14")	(4-6")	(2-4")	<u>40</u>
Heavy	(6-10")	(2-4")	(1-2")	<u>20</u>
Severe	(<6")	(<2")	(<1")	<u>10</u>
	Example: basin wildrye	Example: needleandthread	Example: galleta grass	

Lowest score of 3 rated criteria – Limiting Factor for Forage Factors

B. DISTRIBUTION FACTORS: Physical factors that limit the grazing animal.

Circle Correct Value

1. Grazing Accessibility – How available are the forage plants to grazing animals?

Slope less than 10%	<u>40</u>
Slope 10-15% and smooth	<u>35</u>
Slope 10-15% and rough (exposed surface rock)	<u>30</u>
Slope 16-25% and smooth	<u>30</u>
Slope 16-25% and rough (exposed surface rock)	<u>15</u>
Slope greater than 25% and smooth	<u>10</u>
Slope greater than 25% and rough (exposed surface rock)	<u>5</u>

2. Grazing Restraint – How much woody canopy cover is there?

Brush canopy cover less than 15%	<u>40</u>
Brush canopy cover 15-30%	<u>30</u>
Brush canopy cover 31-50%	<u>20</u>
Brush canopy cover greater than 50%	<u>10</u>

3. Water – How far is water from the grazing site? (Given)

Distance less than ½ mile	<u>40</u>
Distance from ½ - 1 mile	<u>35</u>
Distance from 1 - 1 ½ miles	<u>30</u>
Distance from 1 ½ - 2 miles	<u>20</u>
Distance from 2 – 3 miles	<u>15</u>
Distance from 3 – 4 miles	<u>10</u>
Distance greater than 4 miles or not available in the grazing unit	<u>0</u>

Lowest score of 3 rated criteria for Distribution Factors

C. SITE INTEGRITY – invading plants

Are invading plants present?

no	<u>40</u>
yes	<u>0</u>

Lowest score of 1 rated criteria = Limiting Factor for Site Integrity

OVERALL HABITAT VALUE: Add the limiting factor value for each criteria and divide by 3.

$$\frac{\begin{matrix} \text{(A) Forage} \\ \text{Factors} \end{matrix} \quad \square \quad + \quad \begin{matrix} \text{(B) Distribution} \\ \text{Factors} \end{matrix} \quad \square \quad + \quad \begin{matrix} \text{(C) Site} \\ \text{Integrity} \end{matrix} \quad \square}{3} = \square \text{ Overall Habitat Value for Existing Conditions}$$

HABITAT RATING

Excellent _____ (31-40) Good _____ (21-30) Fair _____ (11-20) Poor _____ (<11)

UNIT THREE

MULE DEER

HABITAT EVALUATION

UNIT THREE

MULE DEER HABITAT EVALUATION

Mule Deer (Odocoileus hemionus) are well adapted to semiarid lands. The small size of the mule deer's seasonal home range gives it the ability, at least in small herds, to tolerate to some extent human beings and their facilities and will probably assure its continued importance as a big game animal in the western United States.

The present accelerated "development" of the West makes it imperative that biologists manage mule deer habitat if any significant herds are to remain after much important historic habitat has been lost.

HISTORICAL

Although the Spanish and French were the first white men to see mule deer, these large-eared ungulates were not described until Lewis and Clark left descriptions in 1804. Apparently, miners and others who followed the trappers west were nearly as hard on mule deer herds as they were on bison.

Deer seem to achieve maximum densities in areas of disturbed vegetation which produce palatable shrubs or tree reproduction as secondary stages in plant succession. Logging, fire, and grazing are the three principal influences.

HABITATS AND THEIR USE

Mule deer are principally animals of forest, woodland, or brush types. This is probably because of their innate requirement to remain close to visual or escape cover. Examples indicate that where vegetation does not provide sufficient cover, the habitat will be sufficient for mule deer only if topographic cover replaces vegetation cover or supplements limited vegetation. Even tall dense grass can provide escape cover for mule deer.

In addition to vegetation, regional and local topography play important roles in the development and use of habitat by mule deer, as with other ungulates. One of the most important values of varying topography within a habitat area is that differences in elevation can offset adverse weather or climatic conditions, since several elevation levels offer better possibilities for favorable conditions in time of drought, heavy snow, etc. In an undifferentiated land area such as a flat plain, if conditions are bad in one place, they are bad all over. Where no one particular elevation induced vegetation cover type provides complete year-round requirements, the mixture of these elevation-zoned cover types formed by diverse topography will provide total yearlong requirements.

If the habitat manager were attempting to improve occupied mule deer range which was in the spruce-fir cover type and utilized in early summer, he would probably try to increase succulent forbs and cool season grasses for does with nursing fawns. He would generally not try to increase browse plants. If he were improving spring holding areas, he would be encouraging succulent forbs and cool season grasses and maintaining meadows in good condition for pre-fawning conditioning of pregnant females. If he were trying to improve crucial winter ranges in the pinyon-juniper woodland, he would encourage browse in woodland parks or clearings for the maintenance of the total deer herd.

It is not uncommon for mule deer to travel significant distances in migration. The interstate deer herd which ranges between a winter area in California and its summer range principally in Oregon may travel between 50 and 100 miles. Shorter migrations are necessary where topographic change drops from summer to winter range in a short distance.

Some mule deer do not migrate. This is because either they have never learned to do so, there is no change in cover types or weather within practical distance, or old migration routes were cut off. These animals must survive with the habitat they have at hand and make it do yearlong. Sometimes they seasonally share it with migrants from other areas.

Vegetative Inventory – An inventory of vegetation quality (species composition), quantity (cover or density), structure (percent overhead cover and horizontal canopy layering), production (pounds per acre of forage by species), and age and form class characterization by habitat site is usually necessary for evaluation of deer range.

Water Inventory – The mule deer habitat manager will need to know the location, general quality, and approximate quantity of water available on deer ranges. Many times just knowing that a perennial stream traverses a deer range is sufficient. In more arid areas, however, information on water becomes more critical to management.

Human Disturbance – A habitat manager needs to know the extent and penetration of man and his facilities within mule deer range. Human-caused disturbances will have an impact on mule deer habitat all over the West where new roads, housing areas, power lines, sewage plants, water works, etc. are foreseen. Major impacts will be: cutting of migration routes by new roads, or widening and traffic increase on old roads; disturbances by recreationists in fawning areas; elimination of lower winter ranges to land subdivision, new towns or cities, or other construction or industry; disturbance on the winter ranges by snowmobiles, etc.

The home range of deer is small, perhaps less than ½ mile diameter on winter range and less than ¾ mile on summer range in more productive areas and 1 to 2 ½ miles in diameter in desert areas. All necessary seasonal vegetation (forage and cover) types, as well as water, must fall into the home range circle. Since mule deer home ranges are limited (as compared to elk), it is probably particularly important that the deer be within easy ranging distance of adequate forage. For this reason, deer range characterized as 60 percent forage area and 40 percent cover would approach optimum.

In forested areas, scientific studies have concluded that clearcuts, rather than thinning or partial cuts, are more suited to deer use because of the better and larger volume of forage produced. Proper logging is beneficial to deer as long as enough protective cover is left. Un-harvested islands of 10 to 30 acres are recommended for clearings. This is of limited importance in Nevada. At this time, few areas are commercially logged. Chainings, however, are similar in effect.

Perhaps the shape of the opening is as important as the size, particularly for large openings. Although suggestions vary, it is probably reasonable to limit the width of clear cuts for deer habitat to a maximum of approximately 1200-1600 feet across on winter range and 1050 feet across on summer range (spruce-fir). If the edge is uneven in shape, the length of the opening may be extended considerably.

A mosaic or mottled pattern leaving cover connected between feeding areas offers the best cover design. This is somewhat similar to the pattern left by a cool, fast burning fire. Connecting cover should be from 600 feet to 1200 feet across. In addition to leaving islands of cover, an optimum cover width might be 900 feet. The heaviest use in spruce-fir forest is between 400 and 450 feet in from the edge. A series of openings of various widths connected by corridors 900 feet wide or better would seem to offer optimum design. Significantly larger areas could be left for bedding and escape from cold winds, storms, and disturbance if these are locally necessary. In needleleaf forests other than pinyon and juniper, down timber outside of the opening may become a problem if it is over 18" high and should be removed where it appears that it may block access to the clearing.

Although deer are somewhat opportunistic in their feeding habits, for broad practical understanding of their food needs, the following list will give a basic concept of the seasonal major requirements.

- Winter Season – browse species for winter body maintenance
- Late Winter and Spring – browse species plus succulent species (usually forbs and cool season grasses) to build up body condition and preparation for fetus production.
- Late Spring and Summer – succulent species, especially forbs and grass for lactating females and general body condition.
- Fall – succulents and browse for body conditioning and fat storage prior to winter. This season is especially important for quality forage if the winter range is small or poor in production. Local studies or information of food habits is essential. An elementary understanding of the physiological requirements of deer as related to forage availability is helpful. Further reading on this is recommended.

The mule deer habitat evaluation form is completed using the same process as described for beef cattle in the example on page 14. For mule deer, each factor has only one question. The most limiting factor and the habitat rating are determined using the same process.

MULE DEER HABITAT EVALUATION

Size of Home Range or Evaluation Area (Ac.) _____

Pasture _____ Pasture Number _____

Habitat Management Unit Number _____

A. FORAGE QUALITY RATING (adjusted for quantity)

Using a locally constructed table of plants by species from the plant list in the Appendix and using percent composition listing for ecological/range site from the site descriptions in the **Appendix**, determine if:

	Circle or Fill in Correct Value
desirable species are present in quantities over 45%	<u>40</u>
desirable species make up at least 35% to 44% of the composition	<u>30</u>
25% to 34% of the composition is made up of desirable species	<u>20</u>
undesirable species are 75% or more of the composition	<u>10</u>

(Do not use these scores for final rating summation. Use the adjusted figure described below.)

The above score must be adjusted to reflect the amount of forage available. From the vegetation inventory, take the total cover density (by pace transect, usually) if the total cover density is:

ADJUSTED SCORE FORAGE QUALITY

- more than 36%, subtract nothing from the above score and enter at left
 - 21% to 35%, subtract 2 points from the above score and enter at left
 - 11% to 20%, subtract 4 points from the above score and enter at left
 - 0% to 10%, subtract 6 points from the above score and enter at left
- Circled Value

B. FOOD AREA TO COVER AREA RATIO

List those habitat sites opposite their acreage which are considered food areas, and similarly, those which are considered cover (all types including fawning cover, escape cover, or thermal cover). Use areas known to be within the occupied herd area only.

herd area being rated is composed of 60% food patches and 40% cover (trees or shrubs in groups and over 20 feet high are mainly considered cover types)	<u>40</u>
cover or food area percentages vary 10% - 19% from above	<u>30</u>
cover or food area percentages vary 20% - 29% from above	<u>20</u>
cover or food area percentages vary 30% + from above	<u>10</u>

Circled Value

C. FORAGE AREA SIZE (Given)

food patches 40-60 acres in size (2-40 acres in spruce-fir)	<u>40</u>
food patches more than 60 acres in size, less than 1/5 mile across	<u>30</u>
food patches 1/5 to 1/2 mile across	<u>20</u>
food patches greater than 1/2 mile across	<u>10</u>

Circled Value

D. WATER AVAILABILITY

average distance between permanent water sources of acceptable quality is 2 ½ miles or less	<u>40</u>
average distance between permanent waters of acceptable quality is 2 ½ to 4 miles	<u>30</u>
average distance between permanent waters more than 4 miles, or snow must be substituted for long period (1 month or more)	<u>20</u>
permanent acceptable waters are scarce	<u>10</u>

Circled Value

E. DISTURBANCE OR INTERFERENCE RATING (Given)

These influences can be observed in a general way and are a subjective judgment of the rater, but where major interference or disturbance is indicated, it should be narratively explained.

Historic crucial, reproduction and/or migration areas are undisturbed by an influx of people and/or their facilities, with little change in the last ten years. Few, if any, conflicts of hazards are documented.	<u>40</u>
Historic crucial, reproduction and/or migration areas have been slightly disturbed in the last ten years; only a few new roads or facilities have been constructed; a small number of conflicts or hazards are obvious enough to be documented.	<u>30</u>
Historic crucial, reproduction and/or migration areas have been noticeably disturbed in the last ten years. Conflicts and hazards can easily be identified and documented.	<u>20</u>
Historic crucial, reproduction and/or migration areas have been severely disturbed in the last ten years. Many conflicts and hazards can be identified and documented.	<u>10</u>

Circled Value

F. SITE INTEGRITY: Invading Plants

Are invading plants present?	
No	<u>40</u>
Yes	<u>0</u>

Circled Value

(A) Forage Quality (B) Food Area to Cover Ratio (C) Forage Size (D) Water Availability (E) Disturbance or Interference (F) Site Integrity

$$\frac{\boxed{} + \boxed{} + \boxed{} + \boxed{} + \boxed{} + \boxed{}}{6} = \boxed{} \text{ Overall Habitat Value for Existing Conditions}$$

HABITAT RATING

Excellent _____ (31-40) Good _____ (21-30) Fair _____ (11-20) Poor _____ (<11)

UNIT FOUR

PLANT IDENTIFICATION LIST

Unit Four contains a total of 103 plant species most common to all the ecological/range sites identified in this manual. Because of the extremely diverse nature of Nevada and the large number of plant species present, it was difficult to include all of the plants listed on the enclosed site descriptions found in the **Appendix**. Those plants not listed in Unit Four are of minor importance to management and of such limited abundance that their presence or absence on a site should not change the site SI rating. If there is a possibility that a change in the SI would occur, instructions for setting up the contest include the requirement for individuals selecting the contest sites to have specimens of those plants not listed on hand for everyone's review the morning of the contest.

Plants in this section and the Plant Characteristics list in the **Appendix** marked with an asterisk (*) are legumes.

UNIT FOUR

PLANT IDENTIFICATION LIST

GRASSES

- | | | |
|-----|-------------------------|--------------------------------|
| 1. | alkali sacaton | <i>Sporobolus airoides</i> |
| 2. | basin wildrye | <i>Leymus cinereus</i> |
| 3. | bluebunch wheatgrass | <i>Pseudoroegneria spicata</i> |
| 4. | cheatgrass | <i>Bromus tectorum</i> |
| 5. | crested wheatgrass | <i>Agropyron cristatum</i> |
| 6. | desert needlegrass | <i>Stipa speciosa</i> |
| 7. | foxtail brome | <i>Bromus rubens</i> |
| 8. | galleta | <i>Hilaria jamesii</i> |
| 9. | inland saltgrass | <i>Distichlis spicata</i> |
| 10. | intermediate wheatgrass | <i>Elytriga intermedium</i> |
| 11. | Idaho fescue | <i>Festuca idahoensis</i> |
| 12. | Indian ricegrass | <i>Oryzopsis hymenoides</i> |
| 13. | needleandthread | <i>Hesperostipa comata</i> |
| 14. | Sandberg's bluegrass | <i>Poa secunda</i> |
| 15. | sand dropseed | <i>Sporobolus cryptandrus</i> |
| 16. | squirreltail | <i>Elymus elymoides</i> |
| 17. | Thurber needlegrass | <i>Stipa thurberiana</i> |
| 18. | bush muhly | <i>Muhlenbergia porteri</i> |
| 19. | big galleta | <i>Hilaria rigida</i> |
| 20. | Nevada bluegrass | <i>Poa nevadensis</i> |
| 21. | western wheatgrass | <i>Pascopyrum smithii</i> |
| 22. | creeping wildrye | <i>Leymus triticoides</i> |
| 23. | mountain brome | <i>Bromus marginatus</i> |

GRASS-LIKE PLANTS

- | | | |
|-----|--------|--------------------|
| 24. | rushes | <i>Juncus spp.</i> |
| 25. | sedges | <i>Carex spp.</i> |

FORBS

- | | | |
|-----|-------------|---------------------------|
| 26. | aster | <i>Aster spp.</i> |
| 27. | balsamroot | <i>Balsamorhiza spp.</i> |
| 28. | buttercup | <i>Ranunculus spp.</i> |
| 29. | dandelion | <i>Taraxacum spp.</i> |
| 30. | fiddleneck | <i>Amsinckia spp.</i> |
| 31. | filaree | <i>Erodium cicutarium</i> |
| 32. | globemallow | <i>Sphaeralcea spp.</i> |
| 33. | groundsel | <i>Senecio spp.</i> |
| 34. | hawksbeard | <i>Crepis spp.</i> |
| 35. | wild iris | <i>Iris missouriensis</i> |
| 36. | lupine* | <i>Lupinus spp.</i> |
| 37. | mulesear | <i>Wyethia spp.</i> |
| 38. | paintbrush | <i>Castilleja spp.</i> |
| 39. | penstemon | <i>Penstemon spp.</i> |

40.	phlox	<i>Phlox spp.</i>
41.	ragweed	<i>Ambrosia spp.</i>
42.	Russian thistle	<i>Salsola kali</i>
43.	tansymustard	<i>Descurainia spp.</i>
44.	thistle	<i>Cirsium spp.</i>
45.	wild buckwheat	<i>Eriogonum spp.</i>
46.	wild onion	<i>Allium spp.</i>
47.	yarrow	<i>Achillea lanulosa</i>
48.	kochia	<i>Kochia spp.</i>
49.	dock	<i>Rumex spp.</i>
50.	clover*	<i>Trifolium spp.</i>
51.	cinquefoil	<i>Potentilla spp.</i>
52.	meadowrue	<i>Thalictrum spp.</i>
53.	geranium	<i>Geranium spp.</i>

SHRUBS AND TREES

54.	big sagebrush	<i>Artemisia tridentata</i> vars. <i>wyomingensis, tridentata, vaseyana</i>
55.	bitterbrush	<i>Purshia tridentata</i>
56.	buckbrush	<i>Ceanothus spp.</i>
57.	bud sagebrush	<i>Artemisia spinescens</i>
58.	currant	<i>Ribes spp.</i>
59.	creosotebush	<i>Larrea divaricata</i>
60.	desert peach	<i>Prunus andersonii</i>
61.	fourwinged saltbush	<i>Atriplex canescens</i>
62.	ephedra	<i>Ephedra spp.</i>
63.	little rabbitbrush	<i>Chrysothamnus viscidiflorus</i>
64.	black sagebrush	<i>Artemisia nova</i>
65.	manzanita	<i>Arctostaphylos spp.</i>
66.	mountain mahogany	<i>Cercocarpus ledifolius</i>
67.	pinyon pine	<i>Pinus monophylla</i>
68.	big saltbush	<i>Atriplex lentiformis</i>
69.	quaking aspen	<i>Populus tremuloides</i>
70.	rubber rabbitbrush	<i>Ericameria nauseosa</i>
71.	serviceberry	<i>Amelanchier utahensis</i>
72.	shadscale	<i>Atriplex confertifolia</i>
73.	snakeweed	<i>Gutierrezia sarothrae</i>
74.	snowberry	<i>Symphoricarpos spp.</i>
75.	spiny hopsage	<i>Grayia spinosa</i>
76.	Utah juniper	<i>Juniperus osteospeima</i>
77.	wild rose	<i>Rosa spp.</i>
78.	willow	<i>Salix spp.</i>
79.	winterfat (white sage)	<i>Ceratoides lanata</i>
80.	wolfberry	<i>Lycium spp.</i>
81.	screwbean mesquite*	<i>Prosopis pubescens</i>
82.	honey mesquite*	<i>Prosopis juliflora</i>
83.	Fremont cottonwood	<i>Populus fremontii</i>
84.	white bursage	<i>Ambrosia dumosa</i>
85.	desert willow	<i>Chilopsis linearis</i>

86.	silver buffaloberry		<i>Sheperdia argentea</i>
87.	blackbrush		<i>Coleogyne ramossissima</i>
88.	Stansbury's cliffrose		<i>Purshia stansburiana</i>
89.	salt cedar		<i>Tamarisk spp.</i>
90.	Gambel oak		<i>Quercus gambelii</i>

POISONOUS AND MECHANICALLY INJURIOUS PLANTS

91.	chokecherry	shrub	<i>Prunus virginiana</i>
92.	cocklebur	forb	<i>Xanthium spp.</i>
93.	death camus	forb	<i>Zigadenus spp.</i>
94.	greasewood	shrub	<i>Sarcobatus vermiculatus</i>
95.	halogeton	forb	<i>Halogeton glomeratus</i>
96.	larkspur	forb	<i>Delphinium spp.</i>
97.	locoweed (milkvetch)*	forb	<i>Astragalus spp.</i>
98.	milkweed	forb	<i>Asclepias spp.</i>
99.	sandbur	grass	<i>Cenchrus spp.</i>
100.	horsetail	forb	<i>Equisetum spp.</i>
101.	thorn skeletonweed	forb	<i>Lygodesmia spp.</i>
102.	joshua tree	?	<i>Yucca brevifolia</i>
103.	horsebrush	shrub	<i>Tetradymia spp.</i>

UNIT FIVE

GUIDE TO MANAGEMENT PRACTICES

UNIT FIVE

GUIDE TO MANAGEMENT PRACTICES

Management practices for the Beef Cattle Habitat Evaluation are related to each of the seven questions that must be answered under the three evaluation criteria of Forage, Distribution and Invasive Plants. For the Mule Deer Habitat Evaluation, management practices are tied to each of the six evaluation criteria. Management practices are selected one at a time by evaluating and fixing the lowest evaluation criteria and then recalculating the formula until the habitat rating meets the stated objective level. Below is an example using the information for completing the Beef Cattle Habitat Evaluation given on page 14.

A.1-40; A.2-30; A.3-20. The lowest of these three questions is 20 and would be entered in the Forage Factors box of the formula on page two of the evaluation form.

B.1-40; B.2-30; B.3-35. The lowest of these three questions is 30 and would be entered in the Distribution Factors box of the formula on page two of the evaluation form.

C.-0. This value is 0 and is entered in the Site Integrity box of the formula.

The habitat rating is calculated by adding together the three values that are entered in the formula and dividing this total by 3. The corresponding number is the habitat rating and is entered as the habitat rating on the contest form, along with the lowest of the three factors in the formula described above. Only the lowest factor is listed the first time the evaluation is done.

As an example, the contestant is given the objective for beef cattle of 32. The lowest evaluation criteria is C, Site Integrity, with a score of 0, and the habitat rating when calculated out is $20+30+0/3=16.6$. “Apply Invader Plant Control” under the management practices for Beef Cattle is marked and 40 is entered into the formula for criteria C (because any management practice applied is assumed to fix that problem completely) and recalculate the formula. The new result is $20+30+40/3=30$. This has greatly improved the site but has not yet met the objective. The next lowest evaluation criteria, which is A. 3, would be selected and “Decrease Stocking Rate for Beef Cattle” on the Management practices should be selected. This is done because utilization was too high on the site. The formula using the value for A. 2 as the lowest value of the A factors should then be recalculated. The result is now $30+30+40/3=33.3$. This exceeds the objective for beef cattle and no other management practices are marked. The same process is used for the Mule Deer Management practices, with the exception that any additional management practices needed to meet the objective will be a new evaluation criteria since there is only one question under each criteria, unlike the Beef Cattle Evaluation that has as many as three questions per criteria.

GUIDE TO MANAGEMENT PRACTICES FOR BEEF CATTLE

- 1. CONTINUE PRESENT MANAGEMENT** – Use when the current management objective is met by the present condition of the site.
- 2. BEGIN A PLANNED GRAZING SYSTEM** – Use when forage production and/or forage diversity is the limiting factor. Do not use if there is abandoned cropland.
- 3. APPLY FORB OR GRASS CONTROL** – Use when forage production is the limiting factor because of undesirable forbs or grasses.
- 4. APPLY WOODY PLANT CONTROL** – Use when forage production, forage diversity, or grazing restraint is the limiting factor because of woody plants.
- 5. DECREASE STOCKING RATE FOR BEEF CATTLE** – Use when forage utilization is the limiting factor because of overgrazing.
- 6. INCREASE STOCKING RATE FOR BEEF CATTLE** – Use when forage utilization is the limiting factor because of undergrazing.
- 7. CHANGE THE KIND OF GRAZING/BROWSING ANIMAL** – Use when grazing accessibility or grazing restraint is the limiting factor because of terrain or woody canopy cover.
- 8. DEVELOP WATER FOR BEEF CATTLE** – Use when water is the limiting factor because of distance to water.
- 9. APPLY INVADER PLANT CONTROL** – Use when invader plants are the limiting factor because of their presence on the site. Use to maintain the integrity of the ecological site when any invading herbaceous or woody plant occurs. Invading plants include locally exotic (e.g. Utah juniper, etc.) or introduced plants (e.g. cheatgrass, Russian thistle, etc.). Control may be in the form of prescribed fire, herbicide, biological, mechanical, or grazing/browsing. Often, combinations of the above treatments are required. Some invading plants are difficult to control with existing technology.
- 10. PLANT ADAPTED FORAGE SPECIES** – Use when forage production is the limiting factor due to abandoned cropland and the Similarity Index is 10% or less. This usually occurs on land that has been farmed. Defer grazing until the Desired Plants Community is established. Control weeds by mowing, spraying, or flashgrazing.

Note: Distance to water, and if there is abandoned cropland, will be given.

GUIDE TO MANAGEMENT PRACTICES FOR MULE DEER

- 11. CONTINUE PRESENT MANAGEMENT** – Use when the current management objective is met by the present condition of the site.
- 12. IMPROVE FORAGE QUALITY FOR MULE DEER** – Use when forage quality is the limiting factor for mule deer habitat.
- 13. IMPROVE FOOD AREA TO COVER RATIO** – Use when the ratio of food-producing areas to other types of cover is the limiting factor for mule deer distribution.
- 14. IMPROVE FORAGE AREA SIZE** – Use when overall size of foraging areas is the limiting factor.
- 15. IMPROVE WATER AVAILABILITY** – Use when distance to water is the limiting factor for mule deer distribution.
- 16. DISTURBANCE OR INTERFERENCE RATING** – Use when habitat fragmentation from recent human activities is the limiting factor for mule deer movement between major habitat components.
- 17. APPLY INVADER PLANT CONTROL** – Use when invader plants are the limiting factor because of their presence on the site. Use to maintain the integrity of the ecological site when any invading herbaceous or woody plant occurs. Invading plants include locally exotic (e.g. Utah juniper, etc.) or introduced plants (e.g. cheatgrass, Russian thistle, etc.). Control may be in the form of prescribed fire, herbicide, biological, mechanical, or grazing/browsing. Often, combinations of the above treatments are required. Some invading plants are difficult to control with existing technology.

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Abiotic component – basic inorganic and organic compounds of the environment.

Annual plant – a plant that completes its life cycle in one year.

Biotic component – living organisms.

Biological diversity – is the richness, abundance, and variability of the native plant and animal species and communities and the ecological processes that link them with one another and with soil, air, and water. Human quality of life and survival depend on the conservation of biological diversity.

Carrying capacity – the number of animals that a given area of land can sustain over a long period of time without damage to the environment.

Complementary forage – a forage (usually introduced) that is planted to make up for deficiencies in the main forage base.

Cool season plant – a plant that completes most of its growing season in the fall and ends in the spring. Summer growth may occur, depending on elevation and rainfall.

Ecological principle – recognition of the mutual relationships among organisms and between the organisms and their environment.

Ecosystem – the basic functional unit in ecology, it includes both organisms (biotic communities) and abiotic environment, each influencing the properties of the other and both necessary for maintenance of life as we have it on the earth.

Edge – where two or more vegetation types meet.

Energy flow – movement of energy from one trophic level (e.g. green plants) to another (e.g. whitetailed deer).

Extirpation – locally extinct.

Forb – an herbaceous plant that has a hollow stem and broad leaves. Flowers are usually large, colored, and showy.

Graminoid – a grass-like herbaceous plant that resembles grass but generally has solid stems without elongated internodes. Leaf veins are parallel, but the leaves are three-ranked. Stems are often triangular, and the flowers are small and inconspicuous.

Grass – an herbaceous plant that has both hollow and solid stems with nodes. Leaves are two-ranked and have parallel veins, which are typical of monocots. Flowers are small and inconspicuous.

Habitat appraisal guide – a systematic approach to evaluating habitat for animals.

Herbaceous – of, like, or consisting of herbs; green and leaf-like.

Introduced plant – a plant that has been brought in from another region; usually from overseas and a weed in an ecological sense.

Invader plant – a plant that was not native to the site under pre-European settlement conditions. A weed in an ecological sense.

Landscape – an expanse of land that can be viewed from one vantage point.

Land stewardship – taking care of the land, including all of its components; soil, plants, animals, water, air.

Legume – herbaceous trees, shrubs or forbs capable of fixing nitrogen in the soil. These plants are characterized by a pea-shaped flower and compound leaves. Examples are locust trees, mesquite, lupine, clover, alfalfa.

Limiting Factor – the habitat component that limits the population from becoming larger.

Mast – fruits from trees and shrubs, usually referred to as hard mast, such as acorns, or soft mast, such as persimmons.

Native plant – a plant that naturally occurred on the site under pre-European settlement conditions.

Niche – an organism's place and function in the environment.

Perennial plant – a plant that lives for more than one year.

Plant community – an assemblage of plants.

Prescribed fire – a fire burning under a prescribed set of weather (air temperature, relative humidity, and wind speed) and fuel conditions (fuel moisture, fuel load, fuel architecture).

Prescribed grazing – animals grazing under a prescribed stocking rate, density (for rotational grazing), and time interval.

Riparian zone – a corridor along a stream with distinct soils and vegetation.

Ruminant – a mammal with a compartmentalized stomach (more than one compartment) such as bison or cattle.

Shrub – a woody plant with secondary growth originating from aerial stems which live throughout the year, although they may be dormant part of the time. Leaves are often broad and not veined. Flowers are often showy.

Stocker cattle – a steer or heifer calf being grazed to an appropriate weight to enter a feedlot.

Warm season plant – a plant that begins its growing season in the spring and ends in the fall.

APPENDIX

NEVADA RANGE EVALUATION SCORE CARD

NAME _____ CONTESTANT # _____

(Check one)

FFA-Chapter Name _____ 4-H-County Name _____

INSTRUCTIONS: Place an X in the box that corresponds with the correct site and factor or description observed. Double check your answers, making sure that the X is only in one box.

<p>Ecological Sites</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="3" style="text-align: center;">Site Number</th> </tr> <tr> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> </tr> </thead> <tbody> <tr><td>Saline Bottom</td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>Saline Meadow</td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>Loamy, Limy, Loamy Slope</td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td><td style="text-align: center;"><input type="checkbox"/></td></tr> <tr><td>Riparian 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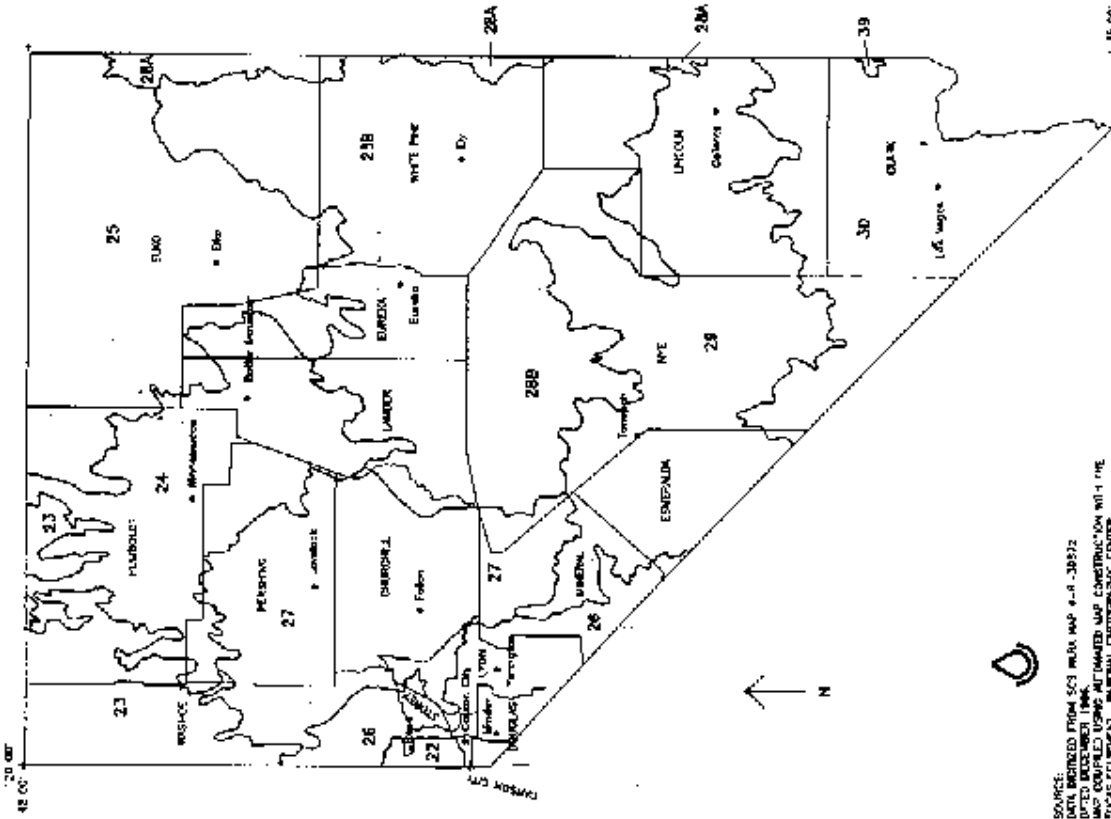
CONTESTANT NAME _____

CHAPTER _____

**NEVADA STATE 4-H/FFA RANGE CONTEST
PLANT IDENTIFICATION**

INSTRUCTIONS: Identify the plant sample and place an X in the appropriate boxes to evaluate forage and cover characteristics for mule deer and cattle.

	Name of Plant	Perennial = P Annual = A Cool Season = C Warm Season = W Native = N Introduced = IT Invader = IV Desirable = De Undesirable = Un							<u>Mule Deer</u>				<u>Cattle</u>	
		P	A	C	W	N	IT	IV	Food		Cover		Food	
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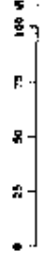
LEGEND

REGION D

WESTERN RANGE AND IRRIGATED REGION

- 22 SIERRA NEVADA RANGE
- 23 HUMBOLDT HIGH PLATEAU
- 24 HUMBOLDT AREA
- 25 SYNTHETIC HIGH PLATEAU
- 26 CARSON BASIN AND MOUNTAINS
- 27 FALLON-LOVELOCK AREA
- 28A GREAT SALT LAKE AREA
- 28B CENTRAL NEVADA BASIN AND RANGE
- 29 SOUTHERN NEVADA BASIN AND RANGE
- 30 SONORAN BASIN AND RANGE
- 39 ARIZONA AND NEW MEXICO MOUNTAINS

MAJOR LAND RESOURCE AREAS
NEVADA



SOURCE:
DATA DERIVED FROM SCS MAPS MAP 4-R-38872
(DATED DECEMBER 1984).
MAP COMPILED USING AIR-MAILED MAP CONSTRUCTION WITH THE
POLAR EQUIPMENT, NATIONAL GEOSPATIAL CENTER,
FORT MONROE, VIRGINIA 22060.

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA: 23

DESCRIPTION:

This site occurs on basin floors and axial-stream floodplains. Slopes are typically less than 2 percent. Elevations are from 4500 to 6000 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 53 degrees F. The average growing season is about 90 to 130 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
basin wildrye	50-60	_____	_____
Nevada bluegrass	10-20	_____	_____
Lemmon alkaligrass	2-8	_____	_____
inland saltgrass	2-8	_____	_____
other perennial grasses	2-8**	_____	_____
bottlebrush squirreltail		_____	_____
Baltic rush		_____	_____
alkali sacaton		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
povertyweed		_____	_____
thelypody		_____	_____
miterwort		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

black greasewood	5-10	_____	_____
threadleaf rubber rabbitbrush	2-5	_____	_____
other shrubs	2-10**	_____	_____
seepweed		_____	_____
Torrey quailbush		_____	_____
silver buffaloberry		_____	_____
shadscale		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 23

DESCRIPTION:

This site occurs on nearly level floodplains and inset fans. Elevations are from 4500 to 5800 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 53 degrees F. The average growing season is about 90 to 130 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
Nevada bluegrass	40-50	_____	_____
Lemmon alkaligrass	20-3	_____	_____
inland saltgrass	5-20	_____	_____
basin wildrye	2-8	_____	_____
other perennial grasses	5-15**	_____	_____
Baltic rush		_____	_____
sedge		_____	_____
alkali sacaton		_____	_____
western wheatgrass		_____	_____
creeping wildrye		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Forbs

other perennial forbs	10-20**	_____	_____
King ivesia		_____	_____
aster		_____	_____
cinquefoil		_____	_____

**Allow no more than 3% of each species of this group and no more than 20% in aggregate.

Shrubs

other shrubs	T-5**	_____	_____
black greasewood		_____	_____
rabbitbrush		_____	_____
threadleaf rubber rabbitbrush		_____	_____
alkali rabbitbrush		_____	_____

**Allow no more than 2% of each species of this group and no more than 5% in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 23

DESCRIPTION:

This site occurs on summits and sideslopes of hills and piedmont slopes on all exposures. Slopes range from 2 to 30 percent, but slope gradients of 4 to 15 percent are most typical. Elevations are 4500 to 5500 feet. Average annual precipitation is 8 to 10 inches. Mean annual air temperature is 45 to 53 degrees F. The average growing season is about 90 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
Thurber needlegrass	20-40	_____	_____
Indian ricegrass	5-15	_____	_____
Webber ricegrass	2-8	_____	_____
bottlebrush squirreltail	2-5	_____	_____
Sandberg bluegrass	2-5	_____	_____
other perennial grasses	2-8**	_____	_____
basin wildrye		_____	_____
desert needlegrass		_____	_____
needleandthread		_____	_____
bluebunch wheatgrass		_____	_____
other annual grasses	1-3	_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	5-10**	_____	_____
lupine		_____	_____
phlox		_____	_____
eriogonum		_____	_____
biscuitroot		_____	_____
other annual forbs	1-3	_____	_____

**Allow no more than 2% of each species of this group and no more than 10% in aggregate.

Shrubs and Trees

Wyoming big sagebrush	20-30	_____	_____
spiny hopsage	2-5	_____	_____
other shrubs and trees	2-10**	_____	_____
Douglas rabbitbrush		_____	_____
horsebrush		_____	_____
ephedra		_____	_____
Utah juniper		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOODLAND – MLRA: 23

DESCRIPTION:

This site is composed of one to several quaking aspen clones, each with a common genetic makeup and individual phenological and physiological characteristics. An overstory canopy of about 35 percent is assumed to be representative of tree dominance on this site in the pristine environment. Medium height shrubs, tall herbs and grasses frequently form an open and, often intermittent, layer beneath the tree canopy. An even lower herbaceous layer is always part of the understory. Sufficient light is able to penetrate the canopies to support abundant understory vegetation.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
Nevada bluegrass	10-24	_____	_____
sedge	10-24	_____	_____
rush	5-9	_____	_____
mountain brome	1-5	_____	_____
Idaho fescue	1-5	_____	_____
meadowrue	10-24	_____	_____
groundsel	10-24	_____	_____
yarrow	1-5	_____	_____
Woods rose	5-9	_____	_____
quaking aspen	5-9	_____	_____

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 23

DESCRIPTION:

An overstory canopy of 25 percent is assumed to be representative of tree dominance on this site in the pristine environment. Wildfire is recognized as a natural disturbance that strongly influenced the structure and composition of the climax vegetation of this woodland site.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
bluebunch wheatgrass	25-50	_____	_____
Thurber needlegrass	5-9	_____	_____
Cusick bluegrass	10-24	_____	_____
Canby bluegrass	5-9	_____	_____
Sandberg bluegrass	1-5	_____	_____
sedge	1-5	_____	_____
basin wildrye	1-5	_____	_____
bottlebrush squirreltail	1-5	_____	_____
Idaho fescue	1-5	_____	_____
prairie junegrass	1-5	_____	_____
tapertip hawksbeard	1-5	_____	_____
arrowleaf balsamroot	1-5	_____	_____
rockcress	1-5	_____	_____
bisquitroot	1-5	_____	_____
spiny phlox	1-5	_____	_____
low sagebrush	10-24	_____	_____
antelope bitterbrush	1-5	_____	_____
snowberry	<1	_____	_____
Utah serviceberry	<1	_____	_____
currant	<1	_____	_____
green ephedra	<1	_____	_____
Douglas rabbitbrush	<1	_____	_____
western juniper	1-5	_____	_____

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA: 24

DESCRIPTION:

This site occurs on lake plain terraces, stream terraces and on the margin of axial-stream flood-plains. The ground surface is typically level, but slopes may reach 2 percent on the perimeters of the site. Elevations are from 4000 to 5500 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 53 degrees F. The average growing season is about 90 to 130 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
basin wildrye	50-60	_____	_____
alkali sacaton	5-15	_____	_____
inland saltgrass	2-8	_____	_____
other perennial grasses	2-8**	_____	_____
alkaligrass		_____	_____
alkali bluegrass		_____	_____
bottlebrush squirreltail		_____	_____
Baltic rush		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
povertyweed		_____	_____
thelypody		_____	_____
miterwort		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

black greasewood	5-15	_____	_____
rubber rabbitbrush	2-5	_____	_____
other shrubs	2-10**	_____	_____
seepweed		_____	_____
sickle saltbush		_____	_____
Torrey quailbush		_____	_____
silver buffaloberry		_____	_____
shadscale		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 24

DESCRIPTION:

This site occurs on nearly level floodplains and inset fans. Elevations are from 4000 to 5500 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 53 degrees F. The average growing season is about 90 to 130 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
alkali sacaton	15-40	_____	_____
alkali muhly	10-20	_____	_____
alkali bluegrass	5-15	_____	_____
inland saltgrass	5-10	_____	_____
alkali cordgrass	5-10	_____	_____
basin wildrye	2-5	_____	_____
other perennial grasses	5-10**	_____	_____
western wheatgrass		_____	_____
meadow barley		_____	_____
Baltic rush		_____	_____
creeping wildrye		_____	_____
alkaligrass		_____	_____

**Allow no more than 2% of each species of this group and no more than 10% in aggregate.

Forbs

arrowgrass	1-3	_____	_____
other perennial forbs	5-15**	_____	_____
povertyweed		_____	_____
dock		_____	_____
shootingstar		_____	_____
groundsel		_____	_____
aster		_____	_____
cinquefoil		_____	_____
camas		_____	_____

**Allow no more than 2% of each species of this group and no more than 15% in aggregate.

Shrubs

other shrubs	T-5**	_____	_____
silver buffaloberry		_____	_____
willow		_____	_____
rabbitbrush		_____	_____
rubber rabbitbrush		_____	_____
alkali rabbitbrush		_____	_____
black greasewood		_____	_____
Woods rose		_____	_____

**Allow no more than 2% of each species of this group and no more than 5% in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 24

DESCRIPTION:

This site occurs on lower mountains, hills and piedmont slopes of all exposures. Slopes range from 2 to 75 percent, but slope gradients of 4 to 30 percent are most typical. Elevations are 5000 to 6500 feet. Average annual precipitation is 8 to 10 inches. Mean annual temperatures are 45 to 53 degrees F. The average growing season is about 90 to 130 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
Thurber needlegrass	40-50	_____	_____
bluebunch wheatgrass	2-10	_____	_____
other perennial grasses	5-15**	_____	_____
Indian ricegrass		_____	_____
basin wildrye		_____	_____
Webber ricegrass		_____	_____
bottlebrush squirreltail		_____	_____
needleandthread		_____	_____
Sandberg bluegrass		_____	_____

**Allow no more than 5% of each species of this group and no more than 15% in aggregate.

Forbs

globemallow	1-3	_____	_____
other perennial forbs	2-8**	_____	_____
erionogonum		_____	_____
prickly gilia		_____	_____
milkvetch		_____	_____
phlox		_____	_____
foothill death camas		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

Wyoming big sagebrush	25-35	_____	_____
spiny hopsage	2-5	_____	_____
other shrubs	2-8**	_____	_____
littleleaf horsebrush		_____	_____
broom snakeweed		_____	_____
Douglas rabbitbrush		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOODLAND – MLRA: 24

DESCRIPTION:

An overstory canopy of 20 to 35 percent is assumed to be representative of tree dominance on this site in a pristine environment. All aspen communities are multi-layered. Sufficient light is able to penetrate the canopy to support abundant undergrowth. Most aspen stands are even-aged because of the rapid reproduction by suckering after major disturbance. Uneven-aged stands are likely to form under stable conditions where the overstory gradually disintegrates with disease or age and is replaced by suckers. Uneven-aged stands also occur where individual clones gradually expand into adjacent grasslands or shrublands.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
Idaho fescue	1-5	_____	_____
mountain brome	1-5	_____	_____
Nevada bluegrass	10-24	_____	_____
slender wheatgrass	10-24	_____	_____
sedge	10-24	_____	_____
rush	5-9	_____	_____
groundsel	1-5	_____	_____
meadowrue	5-9	_____	_____
yarrow	1-5	_____	_____
Woods rose	1-5	_____	_____
quaking aspen	5-9	_____	_____

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 24

DESCRIPTION:

An overstory canopy of 20 to 35 percent is assumed to be representative of tree dominance on this site in the pristine environment. Wildfire is recognized as a natural disturbance that strongly influenced the structure and composition of the climax vegetation of this woodland site.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
bluebunch wheatgrass	10-24	_____	_____
Thurber needlegrass	10-24	_____	_____
Indian ricegrass	5-9	_____	_____
Sandberg bluegrass	10-24	_____	_____
bottlebrush squirreltail	1-5	_____	_____
phlox	5-9	_____	_____
milkvetch	5-9	_____	_____
antelope bitterbrush	10-24	_____	_____
Wyoming big sagebrush	10-24	_____	_____
Utah juniper	1-5	_____	_____

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA: 25

DESCRIPTION:

This site occurs on lake plain terraces, stream terraces and on the margin of axial-stream flood-plains. The ground surface is typically level, but slopes may reach 2 percent on the perimeters of the site. Elevations are from 4000 to 5500 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 53 degrees F. The average growing season is about 90 to 130 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
basin wildrye	50-60	_____	_____
alkali sacaton	5-15	_____	_____
inland saltgrass	2-8	_____	_____
other perennial grasses	2-8**	_____	_____
alkaligrass		_____	_____
alkali bluegrass		_____	_____
bottlebrush squirreltail		_____	_____
Baltic rush		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
povertyweed		_____	_____
thelypody		_____	_____
miterwort		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

black greasewood	5-15	_____	_____
rubber rabbitbrush	2-5	_____	_____
other shrubs	2-10**	_____	_____
seepweed		_____	_____
sickle saltbush		_____	_____
Torrey quailbush		_____	_____
silver buffaloberry		_____	_____
shadscale		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 25

DESCRIPTION:

This site occurs on nearly level floodplains and inset fans. Elevations are from 4000 to 5500 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 53 degrees F. The average growing season is about 90 to 130 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
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Grasses and Grass-like Plants

alkali sacaton	15-40	_____	_____
alkali muhly	10-20	_____	_____
alkali bluegrass	5-15	_____	_____
inland saltgrass	5-10	_____	_____
alkali cordgrass	5-10	_____	_____
basin wildrye	2-5	_____	_____
other perennial grasses	5-10**	_____	_____
western wheatgrass		_____	_____
meadow barley		_____	_____
Baltic rush		_____	_____
creeping wildrye		_____	_____
alkaligrass		_____	_____

**Allow no more than 2% of each species of this group and no more than 10% in aggregate.

Forbs

arrowgrass	1-3	_____	_____
other perennial forbs	5-15**	_____	_____
povertyweed		_____	_____
dock		_____	_____
shootingstar		_____	_____
groundsel		_____	_____
aster		_____	_____
cinquefoil		_____	_____
camas		_____	_____

**Allow no more than 2% of each species of this group and no more than 15% in aggregate.

Shrubs

other shrubs	T-5**	_____	_____
silver buffaloberry		_____	_____
willow		_____	_____
rabbitbrush		_____	_____
rubber rabbitbrush		_____	_____
alkali rabbitbrush		_____	_____
black greasewood		_____	_____
Woods rose		_____	_____

**Allow no more than 2% of each species of this group and no more than 5 % in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 25

DESCRIPTION:

This site occurs on hills, erosional fan remnants and partial ballenas on all exposures. Slopes range from 2 to 50 percent, but slope gradients of 4 to 30 percent are most typical. Elevations are 4500 to 6000 feet. Average annual precipitation is 8 to 10 inches. Mean annual air temperature is 43 to 50 degrees F. The average growing season is about 70 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
bluebunch wheatgrass	25-40	_____	_____
Thurber needlegrass	15-25	_____	_____
Sandberg bluegrass	2-5	_____	_____
other perennial grasses	2-10**	_____	_____
bottlebrush squirreltail		_____	_____
needleandthread		_____	_____
basin wildrye		_____	_____
Webber needlegrass		_____	_____
thickspike wheatgrass		_____	_____
Indian ricegrass		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Forbs

other perennial forbs	5-15**	_____	_____
globemallow		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Shrubs

Wyoming big sagebrush	15-25	_____	_____
other shrubs	2-10**	_____	_____
rabbitbrush		_____	_____
spiny hopsage		_____	_____
horsebrush		_____	_____
antelope bitterbrush		_____	_____
winterfat		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOODLAND – MLRA: 25

DESCRIPTION:

An overstory canopy of 20 to 35 percent is assumed to be representative of tree dominance on this site in a pristine environment. All aspen communities are multi-layered. Sufficient light is able to penetrate the canopy to support abundant undergrowth. Most aspen stands are even-aged because of the rapid reproduction by suckering after major disturbance. Uneven-aged stands are likely to form under stable conditions where the overstory gradually disintegrates with disease or age and is replaced by suckers. Uneven-aged stands also occur where individual clones gradually expand into adjacent grasslands or shrublands.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
Idaho fescue	1-5	_____	_____
mountain brome	1-5	_____	_____
Nevada bluegrass	10-24	_____	_____
slender wheatgrass	10-24	_____	_____
sedge	10-24	_____	_____
rush	5-9	_____	_____
groundsel	1-5	_____	_____
meadowrue	5-9	_____	_____
yarrow	1-5	_____	_____
Woods rose	1-5	_____	_____
quaking aspen	5-9	_____	_____

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 25

DESCRIPTION:

An overstory canopy of 20 to 35 percent is assumed to be representative of tree dominance on this site in the pristine environment. Wildfire is recognized as a natural disturbance that strongly influenced the structure and composition of the climax vegetation of this woodland site.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
bluebunch wheatgrass	10-24	_____	_____
Thurber needlegrass	10-24	_____	_____
Indian ricegrass	5-9	_____	_____
Sandberg bluegrass	10-24	_____	_____
bottlebrush squirreltail	1-5	_____	_____
phlox	5-9	_____	_____
milkvetch	5-9	_____	_____
antelope bitterbrush	10-24	_____	_____
Wyoming big sagebrush	10-24	_____	_____
Utah juniper	1-5	_____	_____

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA: 26

DESCRIPTION:

This site occurs on axial-stream floodplains and valley floor. Slopes range from 0 to 2 percent. Elevations are 4000 to 5000 feet. Average annual precipitation is 8 to 10 inches. Mean annual air temperature is 49 to 51 degrees F. The average growing season is about 90 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
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Grasses and Grass-like Plants

basin wildrye	50-60	_____	_____
inland saltgrass	5-15	_____	_____
alkali sacaton	5-10	_____	_____
creeping wildrye	5-10	_____	_____
other perennial greases	5-10**	_____	_____
bottlebrush squirreltail		_____	_____
western wheatgrass		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Forbs

other perennial forbs	2-8%	_____	_____
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**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

black greasewood	5-15	_____	_____
rubber rabbitbrush	2-5	_____	_____
other shrubs	2-8**	_____	_____
shadscale		_____	_____
spiny hopsage		_____	_____
alkali seepweed		_____	_____

**Allow no more than 3% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 26

DESCRIPTION:

This site occurs on alluvial flats, lake plains and axial-stream floodplains. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 3500 to 5000 feet. Average annual precipitation is 4 to 8 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 100 to 140 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
alkali sacaton	30-45	_____	_____
inland saltgrass	10-15	_____	_____
Baltic rush	5-10	_____	_____
basin wildrye	2-5	_____	_____
western wheatgrass	2-5	_____	_____
other perennial grasses	5-15**	_____	_____
alkali bluegrass		_____	_____
sedge		_____	_____
common reed		_____	_____
arrowgrass		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Forbs

other perennial forbs	5-15**	_____	_____
western dock		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Shrubs

other shrubs	2-8**	_____	_____
black greasewood		_____	_____
seepweed		_____	_____
rubber rabbitbrush		_____	_____
silver buffaloberry		_____	_____
Torrey quailbush		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 26

DESCRIPTION:

This site occurs on piedmont slopes, rock pediments and low hills. Slopes range from 2 to 30 percent, but slope gradients of 4 to 15 percent are most typical. Elevations are 4400 to 5800 feet. Mean annual precipitation is 8 to 10 inches. Mean annual air temperature is 48 to 50 degrees F. The average growing season is about 90 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
desert needlegrass	35-50	_____	_____
Thurber needlegrass	2-10	_____	_____
Indian ricegrass	2-8	_____	_____
needleandthread	2-5	_____	_____
other perennial grasses	5-10**	_____	_____
Sandberg bluegrass		_____	_____
bottlebrush squirreltail		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Forbs

perennial forbs	2-8**	_____	_____
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**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

Wyoming big sagebrush	20-30	_____	_____
ephedra	2-5	_____	_____
green ephedra		_____	_____
Nevada ephedra		_____	_____
spiny hopsage	2-5	_____	_____
other shrubs	5-10**	_____	_____
littleleaf horsebrush		_____	_____
Douglas rabbitbrush		_____	_____
Anderson peachbrush		_____	_____
Utah juniper		_____	_____

**Allow no more than 2% of each species of this group and no more than 15% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOOKLAND – MLRA: 26

DESCRIPTION:

Overstory tree canopy composition is 100 percent Fremont cottonwood. Understory vegetative composition is about 90 percent grasses and grass-like plants and 10 percent forbs when the average overstory canopy is medium (40 to 65 percent). Average understory production ranges from 1500 to 3000 pounds per acre with a medium canopy cover. Understory production includes the total annual production of all species within 4 ½ feet of the ground surface.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
creeping wildrye	>50	_____	_____
basin wildrye	5-9	_____	_____
western wheatgrass	10-24	_____	_____
inland saltgrass	5-9	_____	_____
sedge	1-5	_____	_____
rush	1-5	_____	_____
basin big sagebrush	<1	_____	_____
brickellbush	<1	_____	_____
Anderson peachbrush	<1	_____	_____
desert gooseberry	<1	_____	_____
silver buffaloberry	<1	_____	_____
Woods rose	<1	_____	_____
willow	1-5	_____	_____
Fremont cottonwood	5-9	_____	_____

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 26

DESCRIPTION:

An overstory canopy of about 25 percent is assumed to be representative of tree dominance on this site in the pristine environment. Wildfire is recognized as a natural disturbance that strongly influenced the structure and composition of the climax vegetation of this woodland site.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
Thurber needlegrass	10-24	_____	_____
Indian ricegrass	5-9	_____	_____
muttongrass	10-24	_____	_____
bottlebrush squirreltail	1-5	_____	_____
Sandberg bluegrass	5-9	_____	_____
needleandthread	<1	_____	_____
desert needlegrass	<1	_____	_____
lupine	1-5	_____	_____
milkvetch	1-5	_____	_____
tapertip hawksbeard	1-5	_____	_____
arrowleaf balsamroot	1-5	_____	_____
rockcress	5-9	_____	_____
phlox	1-5	_____	_____
Wyoming big sagebrush	10-24	_____	_____
mountain big sagebrush *	<1	_____	_____
antelope bitterbrush	5-9	_____	_____
green ephedra	1-5	_____	_____
Douglas rabbitbrush	1-5	_____	_____
singleleaf pinyon	5-9	_____	_____
Utah juniper	1-5	_____	_____

*Mountain big sagebrush only occurs on this site at higher elevations.

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA: 27

DESCRIPTION:

This site occurs on alluvial flats, lake plains, and axial-stream floodplains. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 3500 to 5500 feet. Average annual precipitation is 4 to 8 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 120 to 220 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
basin wildrye	50-60	_____	_____
inland saltgrass	5-10	_____	_____
creeping wildrye	5-10	_____	_____
alkali sacaton	2-10	_____	_____
other perennial grasses	2-8**	_____	_____
Baltic rush		_____	_____
western wheatgrass		_____	_____
alkali bluegrass		_____	_____
alkaligrass		_____	_____
bottlebrush squirreltail		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
thelypody		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

black greasewood	5-15	_____	_____
rubber rabbitbrush	2-5	_____	_____
other shrubs	2-8**	_____	_____
shadscale		_____	_____
Torrey quailbush		_____	_____
seepweed		_____	_____

**Allow no more than 3% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 27

DESCRIPTION:

This site occurs on alluvial flats, lake plains and axial-stream floodplains. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 3500 to 5000 feet. Average annual precipitation is 4 to 8 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 100 to 140 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
alkali sacaton	30-45	_____	_____
inland saltgrass	10-15	_____	_____
Baltic rush	5-10	_____	_____
basin wildrye	2-5	_____	_____
western wheatgrass	2-5	_____	_____
other perennial grasses	5-15**	_____	_____
alkali bluegrass		_____	_____
sedge		_____	_____
common reed		_____	_____
arrowgrass		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Forbs

other perennial forbs	5-15**	_____	_____
western dock		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Shrubs

other shrubs	2-8**	_____	_____
black greasewood		_____	_____
seepweed		_____	_____
rubber rabbitbrush		_____	_____
silver buffaloberry		_____	_____
Torrey quailbush		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 27

DESCRIPTION:

This site occurs on sideslopes of rock pediments, rolling hills, and lower mountains on all exposures. At lower elevations, this site is restricted to steep, northerly aspects. Slopes range from 15 to 75 percent, but slope gradients of 30 to 50 percent are most typical. Elevations are 5000 to 6500 feet. Average annual precipitation is 8 to 10 inches. Mean annual air temperature is 42 to 50 degrees F. The average growing season is about 90 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
Thurber needlegrass	25-35	_____	_____
Indian ricegrass	5-15	_____	_____
Sandberg bluegrass	2-8	_____	_____
other perennial grasses	2-8**	_____	_____
needleandthread		_____	_____
desert needlegrass		_____	_____
bottlebrush squirreltail		_____	_____
basin wildrye		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
globemallow		_____	_____
phlox		_____	_____
erigonum		_____	_____
penstemon		_____	_____
prickly gilia		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

Wyoming big sagebrush	25-35	_____	_____
spiny hopsage	2-8	_____	_____
Nevada ephedra	2-5	_____	_____
other shrubs	5-10**	_____	_____
Douglas rabbitbrush		_____	_____
littleleaf horsebrush		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOODLAND – MLRA: 27

DESCRIPTION:

An overstory canopy of 40 to 65 percent Fremont cottonwood is assumed to be representative of tree dominance on this site in the pristine environment. This site is dominated by Fremont cottonwood. Fremont cottonwood is also the principal understory tree. Willows and Woods rose are the principal understory shrubs. Creeping wildrye, western wheatgrass, inland saltgrass and rushes and sedges are the most prevalent understory grasses and grass-like plants.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
creeping wildrye	>50	_____	_____
western wheatgrass	10-24	_____	_____
inland saltgrass	1-5	_____	_____
basin wildrye	1-5	_____	_____
bluegrass	1-5	_____	_____
horsetail	1-5	_____	_____
sedge	1-5	_____	_____
Baltic rush	1-5	_____	_____
clover	<1	_____	_____
dock	<1	_____	_____
yarrow	<1	_____	_____
Woods rose	<1	_____	_____
willow	1-5	_____	_____
Fremont cottonwood	5-9	_____	_____

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 27

DESCRIPTION:

An overstory canopy cover of 20 to 35 percent is assumed to be representative of tree dominance on this site in the pristine environment. Wildfire is recognized as a natural disturbance that strongly influenced the structure and composition of the climax vegetation of this woodland site.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
Thurber needlegrass	10-24	_____	_____
Canby bluegrass	5-9	_____	_____
Sandberg bluegrass	1-5	_____	_____
Indian ricegrass	1-5	_____	_____
bottlebrush squirreltail	1-5	_____	_____
tapertip hawksbeard	1-5	_____	_____
arrowleaf balsamroot	1-5	_____	_____
Wyoming big sagebrush	25-50	_____	_____
ephedra	<1	_____	_____
singleleaf pinyon	5-9	_____	_____
Utah juniper	1-5	_____	_____

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA 28b

DESCRIPTION:

This site occurs on lake plain terraces, stream terraces and on the margins of axial-stream floodplains. Slopes range from 0 to 4 percent. Elevations are 5300 to 6200 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 50 degrees F. The average growing season is 100 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
basin wildrye	40-60	_____	_____
alkali sacaton	15-40	_____	_____
inland saltgrass	2-5	_____	_____
western wheatgrass	2-5	_____	_____
other perennial grasses	5-15**	_____	_____
alkali cordgrass		_____	_____
alkali bluegrass		_____	_____
Baltic rush		_____	_____
mat muhly		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Forbs

perennial forbs	2-8**	_____	_____
povertyweed		_____	_____
thelypody		_____	_____
milkvetch		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

black greasewood	5-15	_____	_____
rubber rabbitbrush	2-5	_____	_____
other shrubs	2-8**	_____	_____
shadscale		_____	_____
alkali rabbitbrush		_____	_____
sickle saltbush		_____	_____

**Allow no more than 3% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 28b

DESCRIPTION:

This site occurs along axial-stream floodplains, and around seeps and springs of basin floors. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 5000 to 6300 feet. Average annual precipitation is 6 to 10 inches. Mean annual air temperature is 45 to 50 degrees F. The average growing season is 100 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like Plants</u>			
alkali sacaton	40-50	_____	_____
alkali cordgrass	10-15	_____	_____
sedge	5-10	_____	_____
Baltic rush	2-8	_____	_____
bluegrass	2-8	_____	_____
inland saltgrass	2-5	_____	_____
alkaligrass	2-5	_____	_____
other perennial grasses	10-15**	_____	_____
western wheatgrass		_____	_____
basin wildrye		_____	_____
alkali muhly		_____	_____
mat muhly		_____	_____
foxtail barley		_____	_____

**Allow no more than 5% of each species of this group and no more than 15% in aggregate.

Forbs

other perennial forbs	5-15**	_____	_____
dock		_____	_____
cinquefoil		_____	_____
groundsel		_____	_____
wild iris		_____	_____
povertyweed		_____	_____
shootingstar		_____	_____

**Allow no more than 2% of each species of this group and no more than 15% in aggregate.

Shrubs

other shrubs	2-8**	_____	_____
black greasewood		_____	_____
rubber rabbitbrush		_____	_____
alkali rabbitbrush		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 28b

DESCRIPTION:

This site occurs on fan piedmonts, rock pediments and low rolling hills. Slopes range from 2 to 50 percent, but slope gradients of 4 to 15 percent are most typical. Elevations are 5000 to 6500 feet. Average annual precipitation is 8 to 10 inches. Mean annual air temperature is 45 to 50 degrees F. The average growing season is 100 to 120 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
Indian ricegrass	20-30	_____	_____
needleandthread	10-20	_____	_____
bottlebrush squirreltail	2-8	_____	_____
Sandberg bluegrass	2-5	_____	_____
other perennial grasses	2-8**	_____	_____
western wheatgrass		_____	_____
basin wildrye		_____	_____

**Allow no more than 3% of each species of this group and no more than 8% in aggregate.

Forbs

globemallow	2-5	_____	_____
other perennial forbs	2-5**	_____	_____
phlox		_____	_____
paintbrush		_____	_____

**Allow no more than 2% of each species of this group and no more than 5% in aggregate.

Shrubs and Trees

Wyoming big sagebrush	25-35	_____	_____
rabbitbrush	2-5	_____	_____
Douglas rabbitbrush		_____	_____
rubber rabbitbrush		_____	_____
other shrubs and trees	5-10**	_____	_____
fourwing saltbush		_____	_____
Nevada ephedra		_____	_____
spiny hopsage		_____	_____
Utah juniper		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOODLAND – MLRA: 28b

DESCRIPTION:

This site is composed of one to several quaking aspen clones, each with a common genetic makeup and individual phenological and physiological characteristics. An overstory canopy of about 35 percent is assumed to be representative of tree dominance on this site in the pristine environment. Medium height shrubs, tall herbs and grasses frequently form an open and, often intermittent, layer beneath the tree canopy. An even lower herbaceous layer is always part of the understory. Sufficient light is able to penetrate the canopies to support abundant understory vegetation.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
Nevada bluegrass	10-24	_____	_____
slender wheatgrass	10-24	_____	_____
Columbia needlegrass	5-9	_____	_____
bentgrass spp.	<1	_____	_____
creeping wildrye	1-5	_____	_____
basin wildrye	1-5	_____	_____
mountain brome	1-5	_____	_____
sedge	10-24	_____	_____
rush	5-9	_____	_____
meadowrue	10-24	_____	_____
groundsel	10-24	_____	_____
yarrow	1-5	_____	_____
currant spp.	1-5	_____	_____
Woods rose	5-9	_____	_____
quaking aspen	5-9	_____	_____

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 28b

DESCRIPTION:

An overstory canopy of 20 to 35 percent is assumed to be representative of tree dominance on this site in the pristine environment. Wildfire is recognized as a natural disturbance that strongly influenced the structure and composition of the climax vegetation of this woodland site.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
bluebunch wheatgrass	10-24	_____	_____
Thurber needlegrass	10-24	_____	_____
Indian ricegrass	5-9	_____	_____
basin wildrye	5-9	_____	_____
Canby bluegrass	5-9	_____	_____
Sandberg bluegrass	1-5	_____	_____
bottlebrush squirreltail	1-5	_____	_____
tapertip hawksbeard	1-5	_____	_____
arrowleaf balsamroot	1-5	_____	_____
mountain big sagebrush	25-50	_____	_____
antelope bitterbrush	1-5	_____	_____
serviceberry	1-5	_____	_____
ephedra	<1	_____	_____
singleleaf pinyon	5-9	_____	_____
Utah juniper	1-5	_____	_____

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA: 29

DESCRIPTION:

This site occurs on alluvial flats, lake plains, or axial stream floodplains. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 3000 to 5500 feet. Average annual precipitation is 3 to 8 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 120 to 220 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
basin wildrye	25-35	_____	_____
alkali sacaton	20-40	_____	_____
inland saltgrass	2-10	_____	_____
Baltic rush	1-5	_____	_____
other perennial grasses	2-8**	_____	_____
Nevada bluegrass		_____	_____
alkaligrass		_____	_____
bottlebrush squirreltail		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
thelypody		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs

black greasewood	5-15	_____	_____
rabbitbrush	1-5	_____	_____
alkali rabbitbrush		_____	_____
threadleaf rubber rabbitbrush		_____	_____
other shrubs	2-8**	_____	_____
shadscale		_____	_____
Torrey quailbush		_____	_____
seepweed		_____	_____
Parry saltbush		_____	_____

**Allow no more than 3% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 29

DESCRIPTION:

This site occurs on alluvial flats, lake plains and axial-stream floodplains. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 3500 to 5500 feet. Average annual precipitation is 3 to 8 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 120 to 220 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses and Grass-like</u>			
alkali sacaton	25-40	_____	_____
inland saltgrass	10-15	_____	_____
Baltic rush	5-15	_____	_____
basin wildrye	2-5	_____	_____
common reed	2-5	_____	_____
alkali cordgrass	2-5	_____	_____
other perennial grasses	5-15**	_____	_____
alkali bluegrass		_____	_____
sedge		_____	_____
arrowgrass		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Forbs

other perennial forbs	5-15**	_____	_____
thistle		_____	_____
western dock		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Shrubs

other shrubs	2-8**	_____	_____
black greasewood		_____	_____
seepweed		_____	_____
rabbitbrush		_____	_____
rubber rabbitbrush		_____	_____
alkali rabbitbrush		_____	_____
Parry saltbush		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 29

DESCRIPTION:

This site occurs on piedmont slopes, rock pediments, and low rolling hills on all exposures. Slopes range from 0 to 30 percent, but slope gradients of 2 to 15 percent are most typical. Elevations are 4800 to 6500 feet. Average annual precipitation is 8 to 10 inches. Mean annual air temperature is 49 to 55 degrees F. The average growing season is about 120 to 170 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
Indian ricegrass	20-35	_____	_____
needleandthread	5-15	_____	_____
desert needlegrass	2-8	_____	_____
other perennial grasses	5-10**	_____	_____
bottlebrush squirreltail		_____	_____
galleta		_____	_____
Sandberg bluegrass		_____	_____
threeawn		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
phlox		_____	_____
princes plume		_____	_____
other annual forbs	1-3	_____	_____
desert trumpet		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs and Trees

Wyoming big sagebrush	25-35	_____	_____
fourwing saltbush	2-5	_____	_____
Nevada ephedra	2-5	_____	_____
other shrubs and trees	5-15**	_____	_____
Anderson wolfberry		_____	_____
spiny hopsage		_____	_____
winterfat		_____	_____
Douglas rabbitbrush		_____	_____
Stansbury cliffrose		_____	_____
banana yucca		_____	_____
Utah juniper		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOODLAND – MLRA: 29

DESCRIPTION:

This site occurs on inset fans and stream terraces. It is on the edges and banks of perennial streams and is within the channel of ephemeral streambeds. Slopes range from 2 to 15 percent, but slope gradients of 2 to 8 percent are most typical. Elevations are 5500 to over 7500 feet. Average annual precipitation is 10 to 14 inches. Mean annual air temperature is 49 to 60 degrees F. The average growing season is about 120 to 190 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
basin wildrye	10-15	_____	_____
wheatgrass	5-10	_____	_____
western wheatgrass		_____	_____
thickspike wheatgrass		_____	_____
needleandthread	2-5	_____	_____
other perennial grasses	5-10**	_____	_____
Nevada bluegrass		_____	_____
alkali sacaton		_____	_____
bluegrass		_____	_____
slender wheatgrass		_____	_____
bottlebrush squirreltail		_____	_____
Indian ricegrass		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Forbs

other perennial forbs	5-15**	_____	_____
milkvetch		_____	_____
lupine		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

Shrubs

basin big sagebrush	20-25	_____	_____
rubber rabbitbrush	5-10	_____	_____
Nevada ephedra	2-5	_____	_____
other shrubs	15-25**	_____	_____
Anderson wolfberry		_____	_____
rose		_____	_____
desert peachbrush		_____	_____
cottonwood		_____	_____
willow		_____	_____

**Allow no more than 5% of each species of this group and no more than 25% in aggregate.

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 29

DESCRIPTION:

An overstory canopy cover of about 25 percent is assumed to be representative of tree dominance on this site in the pristine environment. This site is dominated by singleleaf pinyon and Utah juniper. Mountain big sagebrush is the principal understory shrub. Muttongrass is the most prevalent understory grass.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
muttongrass	10-24	_____	_____
Sandberg bluegrass	5-9	_____	_____
Indian ricegrass	<1	_____	_____
bottlebrush squirreltail	5-9	_____	_____
Thurber needlegrass	1-5	_____	_____
threeawn	1-5	_____	_____
pine needlegrass	1-5	_____	_____
milkvetch	5-9	_____	_____
goldenweed	1-5	_____	_____
eriogonum	<1	_____	_____
penstemon	<1	_____	_____
mountain big sagebrush	10-24	_____	_____
Utah serviceberry	1-5	_____	_____
green ephedra	5-9	_____	_____
antelope bitterbrush	1-5	_____	_____
Stansbury cliffrose	5-9	_____	_____
rabbitbrush	<1	_____	_____
pricklypear	1-5	_____	_____
singleleaf pinyon	5-9	_____	_____
Utah juniper	1-5	_____	_____

RANGE SITE DESCRIPTION - SALINE BOTTOM – MLRA: 30

DESCRIPTION:

This site occurs on alluvial flats and axial stream floodplains on all exposures. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 1000 to 5400 feet. Average annual precipitation is 3 to 12 inches. Mean annual air temperature is 55 to 76 degrees F. The average growing season is about 140 to 360 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
alkali sacaton	20-40	_____	_____
inland saltgrass	5-15	_____	_____
Baltic rush	2-10	_____	_____
sedge	1-5	_____	_____
other perennial grasses	5-10**	_____	_____
other annual grasses	1-3	_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Forbs

other perennial forbs	3-10**	_____	_____
green molly kochia		_____	_____
iodinebush		_____	_____
seepweed		_____	_____
other annual forbs	2-7	_____	_____
pigweed		_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Shrubs

big saltbush	5-15	_____	_____
fourwing saltbush	2-5	_____	_____
rubber rabbitbrush	2-5	_____	_____
wolfberry	2-5	_____	_____
other shrubs	5-15**	_____	_____
creosotebush		_____	_____
shadscale		_____	_____
pricklypear		_____	_____
ash		_____	_____
screwbean mesquite		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

RANGE SITE DESCRIPTION - SALINE MEADOW – MLRA: 30

DESCRIPTION:

This site occurs on alluvial flats, lake plains, or axial-stream floodplains on all exposures. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 1000 to 5400 feet. Average annual precipitation is 3 to 12 inches. Mean annual air temperature is 55 to 7556 degrees F. The average growing season is about 140 to 360 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
alkali sacaton	30-50	_____	_____
inland saltgrass	10-15	_____	_____
rush	10-20	_____	_____
sedge	2-5	_____	_____
giant reed	1-3	_____	_____
other perennial grasses	5-15**	_____	_____
alkali cordgrass		_____	_____
alkali bluegrass		_____	_____

**Allow no more than 5% of each species of this group and no more than 15% in aggregate.

Forbs

other perennial forbs	5-15**	_____	_____
dock		_____	_____
thistle		_____	_____
sumpweed		_____	_____

**Allow no more than 5% of each species of this group and no more than 15% in aggregate.

Shrubs

other shrubs	1-5**	_____	_____
willow		_____	_____
screwbean mesquite		_____	_____

**Allow no more than 3% of each species of this group and no more than 5% in aggregate.

RANGE SITE DESCRIPTION - LOAMY, LIMY, LOAMY SLOPE – MLRA: 30

DESCRIPTION:

This site occurs on piedmont slopes and alluvial plains on all exposures. Slopes range from 2 to 30 percent, but slope gradients of 2 to 15 percent are most typical. Elevations are 1800 to 4500 feet. Average annual precipitation is 5 to 8 inches. Mean annual air temperature is 56 to 65 degrees F. The average growing season is about 190 to 240 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
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Grasses

big galleta	T-8	_____	_____
other perennial grasses	T-8**	_____	_____
bush muhly		_____	_____
Indian ricegrass		_____	_____
desert needlegrass		_____	_____
fluffgrass		_____	_____
other annual grasses	T-10	_____	_____
sixweeks grama		_____	_____

**Allow no more than 3% of each species of this group and no more than 8% in aggregate.

Forbs

other perennial forbs	2-5**	_____	_____
desert globemallow		_____	_____
other annual forbs	T-20	_____	_____

**Allow no more than 2% of each species of this group and no more than 5% in aggregate.

Shrubs

white bursage	25-50	_____	_____
creosotebush	10-25	_____	_____
range ratany	2-5	_____	_____
Nevada ephedra	T-5	_____	_____
other shrubs	5-15**	_____	_____
Spanish dagger		_____	_____
Anderson wolfberry		_____	_____
Fremont dalea		_____	_____
white brittlebush		_____	_____
Virgin River encelia		_____	_____
buckhorn cholla		_____	_____
desert senna		_____	_____
wirelettuce		_____	_____
white ratany		_____	_____

**Allow no more than 3% of each species of this group and no more than 15% in aggregate.

RANGE SITE DESCRIPTION - RIPARIAN WOODLAND – MLRA: 30

DESCRIPTION:

This site occurs on the edges and banks of perennial streams which are on inset fans and axial stream channels on all exposures. Slopes range from 0 to 4 percent, but slope gradients of 0 to 2 percent are most typical. Elevations are 500 to 5400 feet. Average annual precipitation is 3 to 8 inches. Mean annual air temperature is 55 to 76 degrees F. The average growing season is about 140 to 360 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
alkali sacaton	5-10	_____	_____
rush	2-5	_____	_____
big galleta	1-4	_____	_____
common reed	1-3	_____	_____
other perennial grasses	3-8**	_____	_____
other annual grasses	1-5	_____	_____
feather fingergrass		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Forbs

cattail	1-3	_____	_____
other perennial forbs	2-8**	_____	_____
dock		_____	_____
other annual forbs	1-3	_____	_____
eriogonum		_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs and Trees

willow	5-10	_____	_____
mesquite	5-15	_____	_____
desert willow	5-15	_____	_____
screwbean mesquite	5-10	_____	_____
arrowweed pluchea	5-10	_____	_____
big saltbush	1-5	_____	_____
baccharis	3-5	_____	_____
other shrubs	10-15**	_____	_____
saltbush		_____	_____
cottonwood		_____	_____

**Allow no more than 5% of each species of this group and no more than 15% in aggregate.

RANGE SITE DESCRIPTION - UPLAND WOODLAND – MLRA: 30

DESCRIPTION:

This site occurs on fan piedmonts, alluvial fans and alluvial plains on all exposures. Slopes range from 2 to 50 percent, but slope gradients of 2 to 15 percent are most typical. Elevations are 3300 to 6200 feet. Average annual precipitation is 8 to 12 inches. Mean annual air temperature is 55 to 65 degrees F. The average growing season is about 140 to 210 days.

Common Name	% Site Composition Maximum	% Observed Composition	% Counted Toward SI
<u>Grasses</u>			
big galleta	5-15	_____	_____
black grama	5-15	_____	_____
Indian ricegrass	2-5	_____	_____
desert needlegrass	2-5	_____	_____
bush muhly	2-5	_____	_____
other perennial grasses	5-10**	_____	_____
threeawn		_____	_____
fluffgrass		_____	_____
other annual grasses	2-8	_____	_____

**Allow no more than 3% of each species of this group and no more than 10% in aggregate.

Forbs

other perennial forbs	2-8**	_____	_____
other annual forbs	1-5	_____	_____

**Allow no more than 2% of each species of this group and no more than 8% in aggregate.

Shrubs and Trees

Joshua tree	5-15	_____	_____
creosotebush	5-15	_____	_____
blackbrush	5-15	_____	_____
white burrobrush	2-5	_____	_____
ephedra	2-5	_____	_____
other shrubs	10-20**	_____	_____
shadscale		_____	_____
Fremont dalea		_____	_____
pricklypear		_____	_____
range ratany		_____	_____

**Allow no more than 5% of each species of this group and no more than 20% in aggregate.

PLANT LIST

	Name of Plant	Perennial=P Annual=A Cool Season=C Warm Season=W Native = N Introduced = IT Invader = IV Desirable = De Undesirable = Un							Wildlife				Cattle	
		P	A	C	W	N	IT	IV	Food		Cover		Food	
									De	Un	De	Un	De	Un
1	alkali sacaton	x			x	x				x		x	x	
2	basin wildrye	x		x		x				x	x		x	
3	bluebunch wheatgrass	x		x		x			x			x	x	
4	cheatgrass		x	x			x	x		x		x		x
5	crested wheatgrass	x		x			x			x		x	x	
6	desert needlegrass	x		x		x				x		x	x	
7	foxtail brome		x	x			x	x		x		x		x
8	galleta	x			x	x				x		x	x	
9	inland saltgrass	x			x	x				x		x		x
10	intermediate wheatgrass	x		x			x			x	x		x	
11	Idaho fescue	x		x		x			x			x	x	
12	Indian ricegrass	x		x		x			x			x	x	
13	needleandthread	x		x		x				x		x	x	
14	Sandberg's bluegrass	x		x		x			x			x	x	
15	sand dropseed	x			x	x				x		x	x	
16	squirreltail	x		x		x				x		x	x	
17	Thurber needlegrass	x		x		x			x			x	x	
18	bush muhly	x			x	x			x			x	x	
19	big galleta	x			x	x				x		x	x	
20	Nevada bluegrass	x		x		x			x			x	x	
21	western wheatgrass	x		x		x			x			x	x	
22	creeping wildrye	x		x		x			x			x	x	
23	mountain brome	x		x		x			x			x	x	
24	rushes	x		x		x				x		x		x
25	sedges	x		x		x				x	x		x	
26	aster	x			x	x			x	x		x		x
27	balsamroot	x		x		x			x			x	x	
28	buttercup =	varies		x		x			x			x		x
29	dandelion	x		x			x	x	x			x		x
30	fiddleneck =		x		x	x				x		x		x
31	fileree		x	x			x		x			x	x	
32	globemallow	x			x	x			x			x	x	
33	groundsel =	x		x		x				x		x	x	
34	hawksbeard	x		x		x			x			x	x	
35	wild iris =	x		x		x				x		x		x
36	lupine* =	x		x		x			x			x	x	
37	mulesear	x		x		x			x			x		x
38	paintbrush	x		x	x	x				x		x		x
39	penstemon	x		x	x	x			varies			x		x
40	phlox	x		x		x				x		x		x
41	ragweed	x			x	x				x		x		x
42	Russian thistle =		x		x		x	x		x		x		x
43	tansymustard =		x		x	x		x		x		x		x
44	thistle	x			x		x	x		x		x		x
45	wild buckwheat	x		x		x				x		x		x

	Perennial=P Annual=A Cool Season=C Warm Season=W Native = N Introduced = IT Invader = IV Desirable = De Undesirable = Un									<u>Wildlife</u>				<u>Cattle</u>	
		Name of Plant	P	A	C	W	N	IT	IV	Food		Cover		Food	
										De	Un	De	Un	De	Un
46	wild onion =	x		x		x				x		x		x	
47	yarrow	x				x	x				x		x		x
48	kocia	x				x	x		x	x		x		x	
49	dock =		x		?		x				x		x		x
50	clover*	x		x		x		x	x	x		x		x	
51	cinquefoil	x		x			x				x		x		x
52	meadowrue	x				?		x			x		x		x
53	geranium	x				x	x			x			x		x
54	big sagebrush	x		x			x			x		x		x	
55	bitterbrush	x		x			x			x		x		x	
56	buckbrush	x		x			x			x		x		varies	
57	bud sagebrush	x		x			x						x	x	
58	currant	x		x			x			x		x			x
59	creosotebush	x				varies					x		x		x
60	desert peach	x		x			x				x		x	x	
61	fourwing saltbrush	x		x			x			x		x		x	
62	ephedra	x		x			x			x		x		x	
63	little rabbitbrush	x		x			x		x		x		x		x
64	black sagebrush	x		x			x			x		x		x	
65	manzanita	x		x			x				x	x			x
66	mountain mahogany	x		x			x			x		x		x	
67	pinyon pine	x		x			x		x		x	x			x
68	big saltbush	x		x			x				x		x	x	
69	quaking aspen	x		x			x				x	x		x	
70	rubber rabbitbrush	x		x			x		x		x	x			x
71	serviceberry	x		x			x			x		x		x	
72	shadscale	x		x			x				x		x	x	
73	snakeweed	x		x			x		x		x		x		x
74	snowberry	x		x			x			x		x		x	
75	spiny hopsage	x		x			x				x		x		x
76	Utah juniper	x		x			x		x		x				x
77	wild rose =	x		x			x			x		x			x
78	willow	x		x			x				x	x		x	
79	winterfat (white sage)	x		x			x				x		x	x	
80	wolfberry	x		x			x				x		x		x
81	screwbean mesquite* =	x		x			x				x	x		x	
82	honey mesquite* =	x		x			x		x		x			x	
83	Fremont cottonwood	x		x			x				x	x			x
84	white bursage	x		x			x				x		x		x
85	desert willow	x		x			x				x	x			x
86	silver buffaloberry	x		x			x				x	x			x
87	blackbrush	x		x			x			x		x			x
88	Stansbury's cliffrose	x		x			x			x		x		x	
89	salt cedar	x		x				x	x		x	x			x
90	Gamble oak =	x		x			x			x		x			x
91	chokecherry =	x		x			x				x	x			x
92	cocklebur =		x			x		x	x		x		x		x
93	death camas =	x				x	x				x		x		x

	Perennial=P Annual=A Cool Season=C Warm Season=W Native = N Introduced = IT Invader = IV Desirable = De Undesirable = Un									<u>Wildlife</u>				<u>Cattle</u>	
		Name of Plant	P	A	C	W	N	IT	IV	Food		Cover		Food	
										De	Un	De	Un	De	Un
94	greasewood =	x		x		x				x		x		x	
95	halogeton =		x		x		x	x		x		x		x	
96	larkspur =	x		x		x			x			x	x		
97	locoweed (mildvetch)* =	x		x		x				x		x		x	
98	milkweed =	x			x	x				x		x		x	
99	sandbur =		x		x	x				x		x		x	
100	horsetail =	x		x		x				x		x		x	
101	thorn skeletonweed =		x		x		x	x		x		x		x	
102	joshua tree =	x		x		x				x	x			x	
103	horsebush =	x		x		x				x		x		x	

= Denotes that the plant is either mildly to strongly poisonous or mechanically injurious due to thorns or spines.

* Denotes that the plant is a legume.

Plant characteristics are well documented for grasses as listed in the Reference section. Characteristics for cool and warm season shrubs are available for about half the listed plants. Cool and warm season information for many of the forbs is extremely limited. These items may be revised in subsequent printings.

HOW THE CONTEST IS CONDUCTED

Judging rangeland is a four-step process. Contestants are asked to:

1. Determine the site and site index (SI).
2. Determine the value of the site for beef cattle and mule deer.
3. Identify plants and give their value for beef cattle and mule deer.
4. Make management recommendations based on the resource value ratings stated in the objectives.
5. Contestants are allowed 20 minutes at each location.

CONTEST SET-UP

1. Select Five Locations (Note that site 1 will be set up as a practice site and is not included in the contest.)

Location 1 – Determine the ecological site.

Determine the stage of plant succession on the site.

Determine the resource value rating of the site for beef cattle.

Determine the resource value rating of the site for mule deer.

Make management recommendations based on the stated objective(s).

Location 2 – Determine the ecological site.

Determine the stage of plant succession on the site.

Determine the resource value rating of the site for beef cattle.

Determine the resource value rating of the site for mule deer.

Make management recommendations based on the stated objective(s).

Location 3 – Determine the ecological site.

Determine the stage of plant succession on the site.

Determine the resource value rating of the site for beef cattle.

Determine the resource value rating of the site for mule deer.

Make management recommendations based on the stated objective(s).

Location 4 – Plant Identification – 10 plants

Location 5 – Plant Identification – 10 plants

For Locations 1 – 3, Ecological/Range Sites, mark the site boundary with pink flags and:

- (1) Mark a selected plant with an orange flag close to the edge of the site boundary for judging utilization by beef cattle.
- (2) Place the soil pit outside of the site boundary. Place the slope stakes 100 feet apart.

For Location 4, Plant Identification Site, flag 10 different species.

For Location 5, Plant Identification Site, flag 10 different species.

The Contestant is given the following forms and score cards:

- (1) A management scenario and objective for the Location, including a placard showing - distance from water

- acreage of food patches around the site
 - a list of major disturbances around the site (see mule deer evaluation item #16)
 - specimens of any plants present on the site that are not included on the Contest Plant List. These will be available before the contest for inspection.
- (2) 1 Rangeland Evaluation Score Card
 - (3) 1 Plant Identification and Evaluation Score Card
 - (4) 1 Beef Cattle Habitat Evaluation Form
 - (5) 1 Mule Deer Habitat Evaluation Form
 - (6) Appropriate NRCS Ecological Site Guides

SCORING

A team consists of four individuals, with scores of the top three combined for the total team score. Individuals can compete in a separate category.

The total possible score for site 2 and site 3 is 100 points each and 160 points for the total plant identification. Total possible points equals 360.

For the site scoring, divide the number of required answers into 100 to determine the points per correct answer for that site. Give 0 points for wrong answers. Allow 2 points for each correct plant and 1 point for each of the 6 correct characteristics. Allow 0 points for characteristics if the plants are not identified correctly.

CONTEST EXAMPLE

The Contestant is given the following:

1. Management Scenario and Objective (example)

A large ranch in eastern Nevada has just been sold to an out-of-state party who would like to develop a year round cow-calf cattle grazing operation and lease hunting for mule deer. The primary objective is mule deer hunting with cattle grazing as a secondary land use. Other important information includes the following: (1) there is a slight limitation of forage quality for mule deer, (2) water availability is 3 miles away and (3) invasive weeds are present. The manager's objective is to have an average habitat rating on the ranch of 35 for mule deer and 25 for beef cattle.

2. Determine the **ECOLOGICAL SITE** - The contestant checks the soil pit and determines that the soil is less than 20 inches deep and that the woody plants from the Ecological/Range Site Guide make up at least 20% of the plants within the staked boundary. The contestant determines that this is an upland woodland site and checks the appropriate box on the SITE card.
3. Determine the **SIMILARITY INDEX (SI)** - The contestant uses the SITE GUIDE to determine what plants are allowable and what percent of the site these plants make up of the total composition by weight. The contestant determines that the SI for this site is 44% and marks the appropriate box on the SITE card.
4. Evaluate the site for **BEEF CATTLE** – The contestant determines the value of the site for beef cattle by using the beef cattle habitat appraisal guide. The contestant then determines that the rating for beef cattle habitat is 20 and the limiting factor is C, site integrity. The contestant marks the appropriate boxes on the BEEF CATTLE HABITAT EVALUATION card.
5. Evaluate the site for **MULE DEER** – The contestant determines the value of the site for Mule Deer using the Mule Deer habitat appraisal guide. The contestant determines that the rating for Mule Deer habitat is 30 and the limiting factor is C, site integrity. The contestant marks the appropriate boxes on the MULE DEER HABITAT EVALUATION card.
6. Make management recommendations based on the manager's objectives - In this example we have the following information:

	Objective	Observed
MULE DEER	35	30
BEEF CATTLE	25	20

The site is deficient for both mule deer and beef cattle.

The limiting factor for mule deer is site integrity due to invading weeds and exotic species. The contestant selects the management practice #17 for Mule Deer, Apply Invader Plant Control.

This practice will raise E.17 to 40. This score must then be recalculated to see if the objective has been met.

The limiting factor for beef cattle is C.9, site integrity, because exotic weeds and introduced plants are present on the site.

The contestant selects the management practice #9 for Beef Cattle, Apply Invader Plant Control. This practice will raise C.9 to 40. This score must then be recalculated to see if the objective has been met.

NOTE: If the initial practices checked do not raise the score to the stated objectives, then the next limiting factor must be addressed. Continue to mark (check) management practices for cattle and mule deer until the objective is met (See page 28).

7. Plant Identification - Observe the 20 marked plants and identify with the common name and associated characteristics.

REFERENCES AND RESOURCES

REFERENCES AND RESOURCES

- Annual Progress Report, Project 688 (1969) Richard Delmas, Jerald D. Tower, Paul T. Tueller (p1-4).
- California “Deer Management Handbook,” 1954, California Department of Fish and Game (p1-164).
- “Food Habits & Nutrition of Mule Deer on Nevada Ranges,” Paul T. Tueller (1979) (p1-104) Project W 48-5, Study 1, Job 2.
- “Judging Rangeland for Livestock and Wildlife Values,” Terrence G. Bidwell, Mark E. Mosely, Oklahoma State University 2nd Edition #149 (1997) (p1-48).
- “Management Guidelines for Selected Deer Habitats in Nevada,” Paul T. Tueller & Leslie A. Monroe, Publication No. R 104 (p1-185).
- “Mule Deer Habitat Guidelines,” Richard M. Kerr, Technical Note (1979) (p1-61) U.S. Department of Interior – Bureau of Land Management.
- “National Range & Pasture Handbook”, US Department of Agriculture, Natural Resources Conservation Service, Grazing Lands Technology Institute, September 1997.
- “Occurrence of C₃ & C₄ Photosynthetic Pathways in North American Grasses,” S.S. Waller and J.K. Lewis, Journal of Range Management 32 (1), January 1979, (p12-28).
- “Range Judging in Utah, A Manual,” Mark G. Francis (1979) (p1-29) Utah State University.
- “Range Plant Handbook,” Publication PB168-589, U.S. Department of Agriculture, Forest Service, March 1937.
- “The Oak Creek Mule Deer Herd in Utah,” W. Leslie Robinette, Norman V. Hancock, and Dale A. Jones. Publication No. 77-15 (1977) Utah State Division of Wildlife Resource (p1-148).