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190

SUBJECT: ECS - BIOLOGY - ELK

Purpose. To distribute information about elk, their habitat needs, and suggestions for habitat planning and management.

Effective Date. When received.

Filing Instructions. File in Biology Technical Note binder.

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Enclosure

Distribution:

AC - 1

DC - 1

WNTC, Portland, OR - 1

Ecological Sciences Division, Washington, D.C. - 2

Adjoining States - AZ, CO, OK, TX, UT - 1 ea.

## ELK

The Rocky Mountain elk is the largest big game animal found in New Mexico. There were originally two species of elk found in New Mexico, the Rocky Mountain and the now extinct Merriam's elk. Merriam's elk occupied the southern mountains of New Mexico and were exterminated around 1900. In 1912 there were an estimated 60 Rocky Mountain elk left in New Mexico. Today, after successfully restocking and transplanting Rocky Mountain elk, the herds have increased within the state to about 15,000 animals. Elk now occupy most of the range in New Mexico suitable for them.

Elk are primarily found in the higher mountains and parks during the summer. In the fall, elk migrate downward, as the snow deepens, into the ponderosa pine and pinyon-juniper ranges. They begin migrating upward following the budding of browse plants.

There is considerable variation in color among elk. Most mature elk are typically brown over most of their body. A conspicuous rump patch of light colored hair is characteristic of both sexes.

Antlers of mature bulls are shed each year in late February and March. New antler growth begins in May. By July, most bulls have completed their antler growth and begin rubbing off the velvety skin that covers them. They rub their antlers on trees and shrubs until they are polished.

Elk are gregarious animals usually observed in herds of 5 to 15 head or more. Larger bulls live apart from the herd except during the breeding season. Bugling indicates that the rutting or breeding season has begun, usually in early September. The breeding season reaches a peak in late September and tapers off in October. Bulls will gather a number of cows together and attempt to hold as many of them as possible, in a harem. Both yearling bulls and cows are sexually mature but normally do not breed until their second year of age. Most calves are born during late May and June.

Hunter success in New Mexico varies from 10% with bow and muzzle loader to 100% in some units on rifle hunts each year with an average of 27%. There are approximately 4,600 elk harvested each year.

### Habitat Needs

Food: Protein and other essential nutritional constituents of forage are most abundant in growing plant tissue. Elk shift their feeding locations and food preferences in response to the periods of plant growth within their

seasonal ranges. Elk show a preference for grasses during all seasons. In the summer and fall grasses make up 80% of their diet. Grasses are the first to provide succulent forage in the spring. Forbs are produced during the summer as are the growing parts of woody browse plants. During the winter months shrubs may make up 80% of the elk's diet. Dormant browse constitutes a maintenance diet only. The addition of forbs and grasses into the elk's winter ranges is a valuable management objective.

High Value Foods Are:

Forbs: geranium, aster, western yarrow, mulesears, lupine, elkslip, marshmarigold, dandelion, penstemon, clovers

Grasses: Muttongrass, junegrass, orchard grass, mountain brome, fescue, bluegrass, wheatgrasses, needlegrass, bottlebrush, squirreltail, sedges and rushes

Browse: serviceberry, sagebrush, aspen, chokecherry, Douglas fir, willow, snowberry, mountain mahogany, shrubby cinquefoil, oak, sumac, elderberry, winterfat, bitterbrush

Studies indicate that the average elk will consume approximately two pounds of forage (air-dry) per 100 pounds of body weight each day.

Water: Elk will drink water daily from springs, ponds and other structures providing surface water. Some supplemental moisture is obtained from succulent plants and snow. Small water holes or wallows provide mud baths for the males to roll in. This is an important action associated with the beginning of the breeding season.

Cover: Cover is important to elk. In wooded areas elk find safety from the hunter and other dangers. Cover provides shade and escape from insects and protection from severe weather. Riparian areas are particularly important.

Suggestions for Habitat Planning and Management

Winter Range: Winter range is the measure of the potential size of an elk herd. On dual use areas, (cattle-elk) the use by elk declines as cattle use increases. This is not just a forage competition factor, but seems to be a inter-specific behavior aversion.

1. Exclude livestock by deferment or fencing. Install an improved grazing system which maintains at least 50% of the current years growth of grasses, forbs, and woody browse. Rotate livestock so that some foothill pastures are not grazed in any single year. Avoid fall and winter livestock use of pastures which are used by elk at those seasons.

2. Establish fenced plantings, larger than 20 acres, of grasses and legumes which will provide green feed in winter or early spring. The following seed mixture has proven successful in the Rocky Mountain Resource Area.

<u>Species</u>	<u>Pure Live Seed - 1 acre</u>
"Potomac" orchardgrass	5 lbs.
*Luna pubescent wheatgrass	2.5 lbs.
*Amur intermediate wheatgrass	2.5 lbs.
Rambler alfalfa	1 lbs.
TOTAL	11 lbs. Pls/ac

\*On sites with 16 inches or more annual precipitation increase "Amur" intermediate wheatgrass and decrease "Luna" pubescent wheatgrass. If site is droughty drop "Amur" and increase "Luna".

3. Leave unharvested portions of hayfields and seeded pastures.

4. To provide for freedom of movement the top wire of fences should be not higher than 42 inches above the ground. Smooth wire would be preferred. In addition, lay down fences should be considered where appropriate.

Summer Range:

1. Control tree invasions into mountain meadows.
2. Add forbs and browse to reseeding mixtures used for stabilizing logged areas.
3. Develop clear cut areas in even aged stands of trees of 10 to 20 acres in size and widths not over 1200 feet.
4. Modify brush control projects which are planned to clear more than 400 acres. Clear strips no wider than 400 yards. Strips of 200 yards should be left to provide cover and browse.
5. Develop water so that elk will not have to travel over one mile in any direction.
6. Protect aspen groves from overgrazing by livestock.
7. Delay moving livestock into mountain pastures used for elk calving until after July.

Management: Long term elk use patterns show preference for those areas of ponderosa pine stands having higher herbage yields, lower timber basal areas, and containing some juniper.

Good management of timber and rangeland is essential if adequate forage is to be available during all seasons of use. Elk are found over large areas of timber, mountainous range and open land. It is important that vegetational preference and seasonal use of elk are determined.

Mortality: The highest death loss in elk herds is caused by entanglement in fences and dietary deficiencies on abused winter ranges. Predation is very minor. A worm-like parasite, transmitted by a horsefly, has caused a high rate of mortality among elk calves.

Harvest: Adequate harvest of elk, both bulls and cows, should be carried out to protect and maintain the forage supply thus insuring a productive habitat.