

Research Natural Area

Name: Haynes Canyon

Location:

State: NM County: Otero Forest: Lincoln District: Clouderoff  
T. 16S R. 11&12E S. 1, 12; 6, 7

Geology:

Description:

Canyon bottom and lower slopes underlain by the Yeso Formation: limestone, dolomite; red, yellow, and gray shales and siltstones; anhydrite, gypsum and minor halite; yellowish fine-grained sandstones

Upper slopes underlain by the San Andres Formation: gray to olive gray limestone with minor dolomite; interbedded quartz sandstone.

Reference:

Pray, Lloyd C., 1961, Geology of the Sacramento Mountains Escarpment, Otero County, New Mexico: New Mexico Bur. Mines & Mineral Resources Bull. 35, 144 p., maps.

Climate:

TES Gradient: LSC 6/4

Precipitation: \_\_\_ Annual: 27 in. Warm season (May - Oct.) = 67 % 7900-9500  
Cool Season (Nov. - Apr.) = 33 %

Mean Annual Snow: 59 in.

Mean Temperature: Annual 39 °F Jul. 54 °F Jan. 24 °F

Freeze Free Period: \_\_\_ days

Mean Temperature: Annual \_\_\_ °F Jul. \_\_\_ °F Jan. \_\_\_ °F

Freeze Free Period: \_\_\_ days

Trewartha climate type: E = Boreal

Reference: Forest Service, 1986. Terrestrial Ecosystem Handbook  
Appendix B: D50A F3 R3

Soils:

ESTABLISHMENT RECORD

for

HAYNES CANYON RESEARCH NATURAL AREA

within

Lincoln National Forest

Otero County, New Mexico

## INTRODUCTION

The Haynes Canyon Research Natural Area (RNA) comprises approximately 610 acres (246.9 hectares) in the Sacramento Mountains, in south-central New Mexico. The proposed RNA is located in the Lincoln National Forest, in Otero County, and is National Forest land reserved from the public domain.

Mixed conifer forest has been noted as an important biotic community for protection within the RNA program (USFS Regional Guide, 1983: Table 3-1). Haynes Canyon was identified by the Lincoln National Forest as an outstanding example of the Abies concolor/Acer glabrum vegetation type within this community. This area was formerly part of the Cloudcroft Experimental Forest (now disestablished), a designation which provided the area with many years of protection from economic development.

### Land Management Planning

The need for representation of this biotic community was identified in the Southwestern Regional Guide (August 1983). The Lincoln National Forest Plan (USFS 1986a) recommends that approximately 610 acres (246.9 hectares) of Management Area 2F be designated for establishment as a Research Natural Area. The environmental analysis conducted as part of the planning process supports the recommendation to establish this Research Natural Area.

### JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

Haynes Canyon Research Natural Area was identified primarily as an outstanding example of a mixed conifer forest, close to its southern limit within the National Forest system. This is an important forest ecosystem in the Southwest.

The area is proposed as a research natural area on the basis of its optimal environment for white fir. Tall, open old growth stands of the Abies concolor/Acer glabrum habitat type alternate with younger seral stages in a patchwork mosaic suggesting erratic patterns of past wildfires. This forest offers a variety of opportunities for the study of successional patterns. Present successional trends strongly suggest a nearly pure forest of fir to be developing within the older stands.

### PRINCIPAL DISTINGUISHING FEATURES

This area contains mixes of white fir (Abies concolor) habitat types on mostly steep mountain topography with elevations between 7900 and 9500 feet (2410 to 2900 m). Forests of white fir/Rocky Mountain maple habitat type occur generally on the north-facing slopes. South-facing slopes are populated mostly by gambel oak stages of white fir/gambel oak habitat type. The lower slopes and forested ravines contain stands of the white fir/bigtooth maple habitat type. In the narrow canyon bottoms, bluegrass

(*Poa pratensis*) sod extends between stringers of Douglas-fir (*Pseudotsuga menziesii*), occasional ponderosa pine (*Pinus ponderosa*), and white fir.

#### LOCATION (Lincoln National Forest)

This area is approximately 2 miles (3.2 km) southwest of Cloudercroft, in south-central New Mexico (Map 1). The RNA can be found on the High Rolls quadrangle (USGS 7.5' map), Township 16 S, Range 11 and 12 E, Sections 1, 6, 7, and 12, latitude 32 55' N, longitude 105 46' W. Easy access to the RNA is afforded by all-weather, paved road.

The boundaries follow mostly natural topographic features (Map 3). The east boundary is Forest Road 64. The north boundary is along the top of a ridge just south of Deerhead Canyon from Forest Road 64 westerly to the intersection of private property, then south along the Forest boundary to the boundary of section 12, and then west 660 feet to the canyon bottom on the boundary between Forest and private land. The west boundary proceeds south from this point in the canyon bottom and follows a ridge to a summit at 8811 feet, then proceeding southwesterly along this gentle ridgetop to the boundary of sections 12 and 13. The south boundary follows the gentle divide to a minor summit in the southwest corner of section 7, as shown on Map 3, and then proceeds northerly to Forest Road 64.

Routes to the proposed RNA originate in Cloudercroft, a town at the crest of the Sacramento Mountains on U.S. Highway 82, about 19 miles (30.6 km) east of Alamogordo and 94 miles (151.2 km) west of Artesia. From Cloudercroft, take N.M. Highway 24 south, turning off to the right at mile 1.8 (2.9 km) on Forest Road 64 to Sunspot (Maps 2 and 3). At mile 1.8 (2.9 km) on this road (3.6 miles or 5.8 km from Cloudercroft), there is an unmaintained picnic area and a primitive road takes off to the right (west), entering the RNA. This road is closed to vehicle travel but provides easy walking access into Haynes Canyon proper. Forest Trail 105 crosses this road and provides access to the north and south portions of the RNA. Alternate access to the north end of the RNA uses Forest Trail 105 from where it leaves Forest Road 64 at a gravel pit approximately 3 miles (4.8 km) south of Cloudercroft.

Slopes leading into Haynes Canyon are steep and sometimes brushy. The north and east-facing slopes especially have much downed timber. Cross-country travel is arduous but reasonably negotiable.

#### AREA BY COVER TYPES

The distribution of cover types was determined from field surveys conducted in the summer of 1986 and from interpretation of 1981 aerial photography. Table 1 outlines the estimated total area of vegetation types based on the Society of American Foresters forest type system (Eyre 1980) and the Kuchler Potential Natural Vegetation system (Kuchler 1964). Map 4 depicts the distribution of the single SAF type, plus a shrub type not covered in the SAF forest categories, on the candidate research natural area. Since the SAF/Kuchler systems do not adequately address the diversity of plant communities found here, Map 5 is included to depict habitat types occurring in the area.

Table 1. Estimated Areas of Vegetation Types in the Haynes Canyon Research Natural Area.

<u>Type</u>	Society of American Foresters <u>Cover Type</u> <sup>1</sup>	<u>Küchler PNV Type</u> <sup>2</sup>	Surface Area	
			<u>Acres</u>	<u>Hectares</u>
Interior Douglas-fir	SAF 210	K-17 Pine -Douglas-fir	570	230.7
Mountain Mahogany	[none]	K-17	40	16.2
TOTAL:			610	246.9

<sup>1</sup>Eyre 1980.

<sup>2</sup>Küchler 1964.

#### PHYSICAL AND CLIMATIC CONDITIONS

Most of the Haynes Canyon RNA lies within Section 12, T 16S, R 11E, with boundaries generally following watershed features. The northern portion of the RNA is a ridge along the south half of Section 1, T 16S, R 11E. The eastern boundary is Forest Road 64, mostly in Section 7, T 16S, R 12E. The headwaters of two tributaries to Haynes Canyon join and reach a low elevation point of approximately 7900 feet (2407.9 m) in the north west corner of the RNA. Elevation reaches a high of slightly greater than 9000 feet (2743 m) in the southeastern corner.

Haynes Canyon is located within a substantial mountain mass of subhumid to humid climate. The nearest long range weather station is at Cloudcroft, 2 miles (3.2 km) to the northeast. Considerable precipitation falls at this elevation, more than can be evaporated or used by the forests. Much of this is a vital contribution to lower elevation moisture levels via stream flow. Just over two-thirds of the annual precipitation falls within the warm months of May to October, frequently from local orographic and convectional storms. The average annual rainfall is 27 inches (686 mm). Cool season precipitation includes cyclonic snow storms, with an average annual snowfall of 59 inches (149.9 cm). Mean annual temperature is 39° F (3.9° C), with a July average of 54° F (12.2° C) and a January average of 24° F (-4.4° C).

## DESCRIPTION OF VALUES

Flora

A broad survey of habitat types (HT), based upon Forest and Woodland Habitat Types of Southern New Mexico and Central Arizona (USFS 1986b) for woodland communities and Alexander *et al.* (1986) for coniferous forest communities, was conducted during the field work. A brief review follows. These publications should be consulted for a more detailed characterization of the vegetative make-up of these types.

The canyon bottoms are codominated by white fir (Abies concolor) and bigtooth maple (Acer grandidentatum). Douglas-fir (Pseudotsuga menziesii), often huge old-growth trees, is often a codominant and aspen (Populus tremuloides) is occasional to common. Gambel oak (Quercus gambelii) in tree form is regularly present. Other common trees and shrubs include Robinea neomexicana, Sambucus neomexicana, Holodiscus dumosus, Rosa sp., Physocarpus monogynus, and Ribes sp. Bluegrass (Poa pratensis) sod often extends between stringers of conifers. The only other grass here is Bromus ciliatus. A great variety of forbs are abundant to luxuriant. This is the Abies concolor/Acer grandidentatum habitat type (ABCO/ACGR HT), mostly Holodiscus dumosus phase.

Above these canyon bottoms on north and east-facing slopes, Rocky Mountain maple (Acer glabrum) replaces bigtooth maple, and gambel oak, where present, tends to be a low shrub rather than a tree. Douglas-fir is a successional dominant. In old-growth stands the fir reaches magnificent proportions for the Southwest in this Abies concolor/Acer glabrum habitat type. Southwestern white pine (Pinus strobiformis) is well established on these slopes. Shrubs, including Holodiscus dumosus and Jamesii americana, tend to be sparse. Forbs are typically plentiful, and Bromus ciliatus is the only grass of any abundance. All of the ABCO/ACGL HT is considered to be Holodiscus dumosus phase.

An Abies concolor/Quercus gambelii habitat type (ABCO/QUGA HT, HODU phase) takes over above the canyon bottoms on south and west-facing slopes, many of which appear to be old burns. White fir remains dominant here while Douglas-fir and southwestern white pine are codominants. Ponderosa pine (Pinus ponderosa) occurs as occasional large relict trees, and seral aspen is scattered throughout. This is a highly shrubby plant community, with Quercus gambelii and Holodiscus dumosus often abundant and Robinea neomexicana, Symphoricarpos oreophilus and Philadelphus microphyllus common components. Forbs typically represent less than 20 per cent of the ground cover, and grasses, including Bromus ciliatus, Sitanion hystrix and Stipa robusta, tend to be sparse.

On the steep, south-facing slopes at the northwest corner of the RNA well above the canyon bottom is a large stand of a predominantly mountain mahogany shrub community. Other common components are Pinus edulis, Fendlera rupicola, Philadelphus microphyllus, Rosa sp., Rhamnus betulaeifolia, and Yucca baccata. Forbs and grasses are sparse in this Pinus edulis/Cercocarpus montanus habitat type (PIED/CEMO HT).

Between the PIED/CEMO HT and the canyon bottom is an ecotone of Douglas-fir, Gambel oak in tree form, southwestern white pine, and ponderosa pine. Above the PIED/CEMO HT, at the top of the ridge, the RNA contains a thin strip of Pinus ponderosa/Quercus gambelii habitat type (PIPO/QUGA HT) where ponderosa, pinyon, and gambel oak are all reproducing as dominants.

There are no known endangered, threatened, or sensitive plant species on the proposed RNA, although the golden bladderpod (Lesquerella aurea), a state sensitive species, has been recorded in the vicinity.

The following plant list was compiled from field observations on September 18, 1986. Because of the lateness of the season, the list is very incomplete, especially for forbs.

Abbreviated Plant List for Haynes Canyon RNA<sup>1</sup>

Latin NameCommon Name<sup>2</sup>

## GRASSES AND GRASS-LIKE PLANTS:

<u>Bromus ciliatus</u>	Hairy brome
<u>Dactylis glomerata</u>	Orchardgrass
<u>Danthonia</u> sp.	Oatgrass
<u>Poa pratensis</u>	Kentucky bluegrass
<u>Sitanion hystrix</u>	Bottlebrush squirreltail
<u>Stipa robusta</u>	Sleepygrass

## FORBS:

<u>Achillea lanulosa</u>	Western yarrow
<u>Allium</u> sp.	Onion
<u>Castilleja</u> sp.	Paintbrush
<u>Fragaria americana</u>	Strawberry
<u>Geranium caespitosum</u>	Purple geranium
<u>Geranium</u> sp.	Geranium
<u>Iris missouriensis</u>	Flag
<u>Lathyrus arizonicus</u>	Arizona peavine
<u>Oreochrysum parryi</u>	Parry goldenweed
<u>Pseudocymopterus montanus</u>	Mountain parsley
<u>Pterospora andromedea</u>	Woodland pinedrops
<u>Senecio wootonii</u>	Groundsel
<u>Silene laciniata</u>	Mexican silene
<u>Smilacina racemosa</u>	False Solomon's seal
<u>Thalictrum fendleri</u>	Meadowrue
<u>Trifolium</u> sp.	Clover
<u>Vicia</u> sp.	Vetch
<u>Viola canadensis</u>	Canada violet

## HALF-SHRUBS, SHRUBS, AND TREES:

<u>Abies concolor</u>	White fir
<u>Acer glabrum</u>	Rocky Mountain maple
<u>Acer grandidentatum</u>	Bigtooth maple
<u>Arctostaphylos uva-ursi</u>	Kinnikinnick
<u>Artemisia franserioides</u>	Ragweed sagebrush
<u>Brickellia</u> sp.	Flythicket
<u>Cercocarpus montanus</u>	True cercocarpus
<u>Fendlera rupicola</u>	Cliff Fendlerbush
<u>Fraxinus cuspidata</u>	Fragrant ash
<u>Holodiscus dumosus</u>	Ocean spray
<u>Jamesia americana</u>	Cliff jamesia
<u>Juniperus monosperma</u>	One-seed juniper
<u>Philadelphus microphyllus</u>	Littleleaf mockorange
<u>Physocarpus monogynus</u>	Mountain ninebark
<u>Pinus edulis</u>	Pinyon pine



<u>Pinus ponderosa</u>	Ponderosa pine
<u>Pinus strobiformis</u>	Southwestern white pine
<u>Populus tremuloides</u>	Quaking aspen
<u>Pseudotsuga menziesii</u>	Douglas-fir
<u>Quercus gambelii</u>	Gambel oak
<u>Rhamnus betulaeifolia</u>	Birchleaf buckthorn
<u>Rhamnus smithii</u>	Buckthorn
<u>Ribes spp.</u>	Currant
<u>Robinia neomexicana</u>	New Mexico locust
<u>Rosa sp.</u>	Rose
<u>Rubus sp.</u>	Raspberry
<u>Sambucus neomexicana</u>	New Mexico elder
<u>Symphoricarpus oreophilus</u>	Mountain snowberry
<u>Vaccinium sp.</u>	Whortleberry
<u>Yucca baccata</u>	Datil yucca

<sup>1</sup>Observed by Bill Dunmire (The Nature Conservancy) on September 18, 1986

<sup>2</sup>Common names used according to USDA, Forest Service 1974, or Martin & Hutchins 1981.

#### Fauna

This area contains potential habitat for the federally endangered bald eagle, and the following state sensitive species: Sacramento Mountain salamander (Aneides hardyi), black-striped chipmunk (Eutamias minimus atristriatus), and meadow jumping mouse (Zapus hudsonius luteus). None of these species has been observed directly in the RNA.

Haynes Canyon provides important spring, summer, and fall habitat for mule deer, the only ungulate known to occur in this area. At the lower end of the RNA, Haynes Creek has a perennial or semi-perennial flow; a variety of riparian animal species potentially reside there.

The following animal list was derived from the RUN WILD III data base (Lehmkuhl and Patton 1982; Patton 1979) from the following habitat types, for Otero County, New Mexico:

1. Douglas-fir - white fir series
2. Riparian deciduous forest biome; mixed broadleaf association

These habitat types currently in the data base most closely correspond to those occurring in the proposed RNA.

Potential Animal List for Haynes Canyon RNA

AMPHIBIANS:

Frog, Rio Grande leopard	<u>Rana berlandieri</u>
Salamander, Sacramento Mountain	<u>Aneides hardyi</u>
Salamander, tiger	<u>Ambystoma tigrinum</u>
Spadefoot, western	<u>Scaphiopus hammondi</u>
Toad, red-spotted	<u>Bufo punctatus</u>
Toad, Woodhouse's	<u>Bufo woodhousei</u>

BIRDS:

Barn-owl, common	<u>Tyto alba</u>
Creeper, brown	<u>Certhia americana</u>
Crow, American	<u>Corvus brachyrhynchos</u>
Dove, mourning	<u>Zenaida macroura</u>
Dove, white-winged	<u>Zenaida asiatica</u>
Eagle, golden	<u>Aquila chrysaetos</u>
Falcon, peregrine	<u>Falco peregrinus</u>
Finch, house	<u>Carpodacus mexicanus</u>
Flycatcher, Hammond's	<u>Empidonax hammondi</u>
Flycatcher, vermilion	<u>Pyrocephalus rubinus</u>
Goshawk, northern	<u>Accipiter gentilis</u>
Grosbeak, black-headed	<u>Pheucticus melanocephalus</u>
Grosbeak, evening	<u>Coccothraustes vespertinus</u>
Hawk, Cooper's	<u>Accipiter cooperii</u>
Hawk, red-tailed	<u>Buteo jamaicensis</u>
Hawk, zone-tailed	<u>Buteo albonotatus</u>
Hummingbird, rufous	<u>Selasphorus rufus</u>
Junco, dark-eyed	<u>Junco hyemalis</u>
Kestrel, American	<u>Falco sparverius</u>
Kinglet, golden-crowned	<u>Regulus satrapa</u>
Kinglet, ruby-crowned	<u>Regulus calendula</u>
Magpie, black-billed	<u>Pica pica</u>
Martin, purple	<u>Progne subis</u>
Nighthawk, common	<u>Chordeiles minor</u>
Nuthatch, whitebreasted	<u>Sitta carolinensis</u>
Oriole, hooded	<u>Icterus cucullatus</u>
Owl, flammulated	<u>Otus flammeolus</u>
Owl, spotted	<u>Strix occidentalis</u>
Phoebe, black	<u>Sayornis nigricans</u>
Quail, Gambel's	<u>Callipepla gambelii</u>
Siskin, pine	<u>Carduelis pinus</u>
Sparrow, Lincoln's	<u>Melospiza lincolni</u>
Sparrow, song	<u>Melospiza melodia</u>
Sparrow, white-crowned	<u>Zonotrichia leucophrys</u>
Swallow, barn	<u>Hirundo rustica</u>
Warbler, Virginia's	<u>Vermivora virginiae</u>
Warbler, Wilson's	<u>Wilsonia pusilla</u>
Warbler, yellow	<u>Dendroica petechia</u>
Woodpecker, hairy	<u>Picoides villosus</u>

Woodpecker, Lewis'  
Wren, winter

Melanerpes lewis  
Troglodytes troglodytes

MAMMALS:

Bat, Brazilian free-tailed  
Bat, hoary  
Bat, pallid  
Bear, black  
Bobcat  
Chipmunk, gray-footed  
Deer, mule  
Deer, white-tailed  
Fox, gray  
Gopher, Botta's pocket  
Lion, mountain  
Mouse, pinyon  
Mouse, western harvest  
Myotis, cave  
Myotis, fringed  
Myotis, little brown  
Myotis, long-legged  
Raccoon  
Ringtail  
Skunk, hog-nosed  
Skunk, striped  
Squirrel, rock

Tadarida brasiliensis  
Lasiurus cinereus  
Antrozous pallidus  
Ursus americanus  
Felis rufus  
Tamias canipes  
Odocoileus hemionus  
Odocoileus virginianus  
Urocyon cinereoargenteus  
Thomomys bottae  
Felis concolor  
Peromyscus truei  
Reithrodontomys megalotis  
Myotis velifer  
Myotis thysanodes  
Myotis lucifugus  
Myotis volans  
Procyon lotor  
Bassariscus astutus  
Conepatus mesoleucus  
Mephitis mephitis  
Spermophilus variegatus

REPTILES:

Lizard, short-horned  
Lizard, collared  
Lizard, eastern fence  
Lizard, side-blotched  
Lizard, tree  
Rattlesnake, blacktail  
Rattlesnake, western  
Skink, great plains  
Skink, many-lined  
Snake, blackneck garter  
Snake, corn  
Snake, gopher  
Snake, ringneck  
Snake, smooth green  
Snake, western hognose  
Snake, western terrestrial garter  
Whipsnake, striped  
Whiptail, Chihuahuan spotted  
Whiptail, western

Phrynosoma douglassi  
Crotaphytus collaris  
Sceloporus undulatus  
Uta stansburiana  
Urosaurus ornatus  
Crotalus molossus  
Crotalus viridis  
Eumeces obsoletus  
Eumeces multivirgatus  
Thamnophis cyrtopsis  
Elaphe guttata  
Pituophis melanoleucus  
Diadophis punctatus  
Opheodrys vernalis  
Heterodon nasicus  
Thamnophis elegans  
Masticophis taeniatus  
Cnemidophorus exsanguis  
Cnemidophorus tigris

### Geology

Haynes Canyon is located high in the Sacramento Mountains, which were formed in the latter Cenozoic by uplift along a major fault line. The Sacramento section of the Basin and Range Plateau is composed of mature block mountains with gently tilted strata, block plateaus, and extensive bolsons.

The Haynes Canyon bottom and lower slopes are underlain by the Yeso Formation, with components of limestone and dolomite; red, yellow, and gray shales and siltstones; anhydrite, gypsum and minor halite; and yellowish fine-grained sandstones. The upper slopes are underlain by the San Andres Formation, including gray to olive-gray limestone with minor dolomite, and interbedded quartz sandstone (Pray 1961).

### Soils

Haynes Canyon is situated in an association of Haploborolls-Cryoborolls (NMSU 1978:124-125), in an extensive area of high mountainous land in Otero and Lincoln counties, ranging in altitude from 7000 feet (2134 m) in the foothills to 12,003 feet (3659 m) on Sierra Blanca. The soils are typically dark-colored with a moderate to high content of organic matter and mildly alkaline to slightly acid in reaction. The surface layers commonly contain a few gravel and stones. The soils are forming dominantly in materials weathered residually from the underlying limestone bedrock or in colluvial or alluvial sediments from such rocks.

According to Forest Service classification (Terrestrial Ecosystem Survey), soils found under forest canopy in Haynes Canyon are mainly Eutric Glossoboralfs, fine, mixed. The narrow canyon bottoms exhibit cumulic soils with gully incision; these soils, supporting a grass sod, are dominantly Pachic Udic Haploborolls, fine-loamy, mixed.

### Lands

A small part of the proposed RNA in the northeast corner was included within the original Lincoln Forest created on 4/24/1907. The bulk of the land, on the western two thirds of the RNA, was acquired by authority of the General Exchange Act from the Hughes Bros., on 12/27/1939. The remaining portion on the eastern border was acquired by exchange from the state of New Mexico on 12/3/1951; these lands retain a vested interest by the state for minerals and road rights-of-way.

### Cultural

No cultural resource surveys have been conducted within this RNA. Surveys that have been conducted nearby indicate that there is low probability for cultural remains. Prehistoric sites at this elevation generally consist of small, low-density lithic scatters, and are thought to be the remains of temporary-use hunting and gathering camps. Historic remains from ranching and logging activities also may be found. No habitation sites are expected to occur within the area.

## IMPACTS AND POSSIBLE CONFLICTS

### Mineral Resources

No known mineral resources exist in this area. A few oil and gas lease applications are pending for land to the west and south of the area, but none have been made for the proposed RNA. The process for recommending withdrawal of the area from mineral entry has been started and will continue if Haynes Canyon is designated as an RNA.

### Grazing

The proposed RNA is within the Sacramento Allotment, but there has been essentially no grazing within the RNA due to the steep slopes and dense forest vegetation. Unmaintained fence exists around part of the area. Since the amount of grazing in the vicinity is negligible, new fencing is not proposed at this time.

### Timber

This area has about 200 acres (80.9 hectares) of white fir and 350 acres (141.6 hectares) of mixed conifer type forest. The timber lands will be excluded from the timber base if the area is designated as an RNA.

Total forest: 550 acres (222.5 hectares)  
Total commercial forest: 550 acres (222.5 hectares)

### Watershed Values

The area is contained within the Westside Sacramento watershed, a fifth order watershed. Intermittent streams in the proposed RNA drain into Haynes Canyon, which drains into Fresno Canyon. The water from Fresno Canyon contributes to the Alamogordo City water supply. The water from the proposed RNA represents a small percent of this contribution.

### Recreation Values

About 1.75 miles (2.8 km) of the Rim Trail, a National Recreation Trail, passes through the middle of the proposed RNA. The trail receives high use by motorcyclists and vehicles less than 40 inches (102 cm) wide, and low use by hikers. Big game hunters use the area in the fall. Very little recreational use occurs in the winter. No conflicts between recreation use and potential research projects are anticipated.

### Wildlife and Plant Values

The area contains potential habitat for bald eagle, an endangered species. There is potential habitat for the following state sensitive animal species: spotted owl, Sacramento Mountain salamander, black-striped chipmunk (Eutamias minimus atristriatus), meadow jumping mouse (Zapus hudsonius luteus); and for the Federally listed (Threatened) plant, purple thistle (Cirsium vinaceum), and for the sensitive plant species golden bladderpod (Lesquerella aurea), and tall milkvetch (Astragalus altus).

Wilderness, Wild and Scenic River, National Recreation Area Values

None of the above congressionally designated areas have been proposed for the Haynes Canyon RNA or vicinity; however, the area contains part of a National Recreation Trail.

Transportation Plans

The eastern side of the proposed RNA is bounded by Forest Road 64, soon to be designated a state highway. An old jeep trail bisects the area, but recently it has been closed to vehicles from both sides of the RNA. Unauthorized vehicles use the jeep trail occasionally.

Utility Corridor Plans

There is a utility corridor along Forest Road 64, which forms the eastern boundary of the RNA. No corridors exist or are planned within the RNA.

### MANAGEMENT PLAN

The Lincoln National Forest Plan prescribes that there will be no harvest of firewood or other wood products, and no livestock grazing on Research Natural Areas. The Rim Trail is open to single-track motor vehicles less than 40 inches (101.6 cm) wide. Elsewhere, nonmotorized, low intensity, dispersed recreation activities are permitted provided they do not significantly modify the area, or threaten or impair the research or educational value of the area. No new trails or roads may be constructed, and recreation signs or marking are prohibited within the area. No flora, fauna, or other materials may be collected other than for research approved by the Station Director.

#### 1. Vegetation Management

Vegetation manipulation is allowed only when needed to preserve the vegetation for which the area is being established. The Forest Plan provides that unplanned ignitions of 10 acres (4 hectares) or less will be suppressed, unless research purposes require other suppression objectives. Suppression action will be limited to the use of hand tools; fire retardant chemicals are prohibited unless necessary to protect life and property outside the study area.

### ADMINISTRATIVE RECORDS AND PROTECTION

Administration and protection of the Haynes Canyon RNA will be the responsibility of the Lincoln National Forest. The District Ranger, Cloudcroft District, Cloudcroft, NM has direct responsibility.

The Director of the Rocky Mountain Forest and Range Experiment Station, or his designee, will be responsible for any studies or research conducted in the area, and requests to conduct research in the area will be referred to him. He, or his designee, will evaluate research proposals and coordinate all studies and research in the area with the District Ranger. All plant and animal specimens collected in the course of research conducted in the area will be properly preserved and maintained within university or federal agency herbaria and museums, approved by the Rocky Mountain Station Director.

Records for the Haynes Canyon RNA will be maintained in the following offices:

- Regional Forester, Southwestern Region, Albuquerque, NM
- Rocky Mountain Station, Fort Collins, CO
- Lincoln National Forest, Alamogordo, NM
- District Ranger, Cloudcroft District, Cloudcroft, NM

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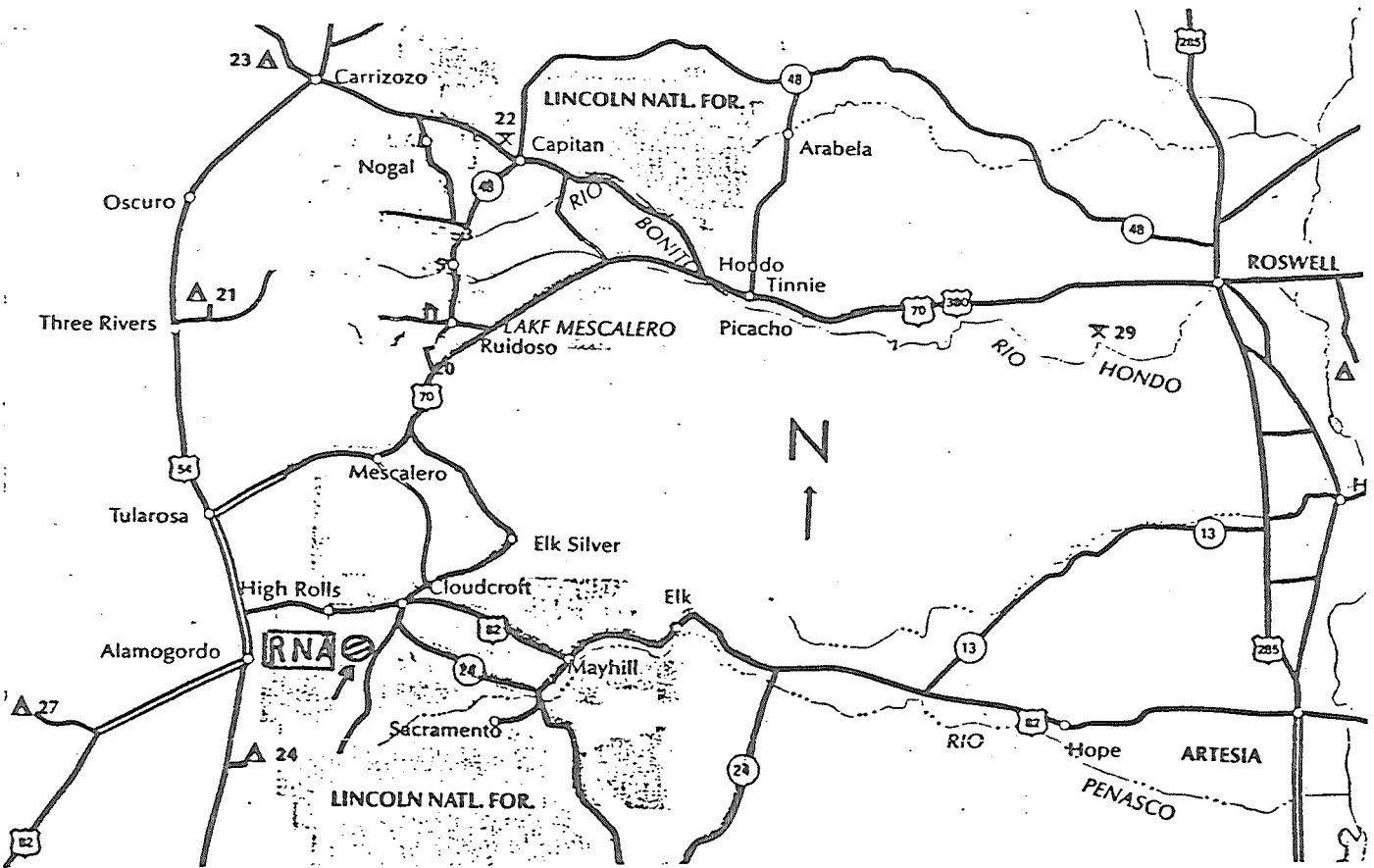
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- USDA Forest Service. 1986b. Forest and woodland habitat types (plant associations) of southern New Mexico and central Arizona (north of the Mogollon Rim). Edition 2. USDA Forest Service, Southwestern Region, Albuquerque. 71 pp.

DESIGNATION ORDER

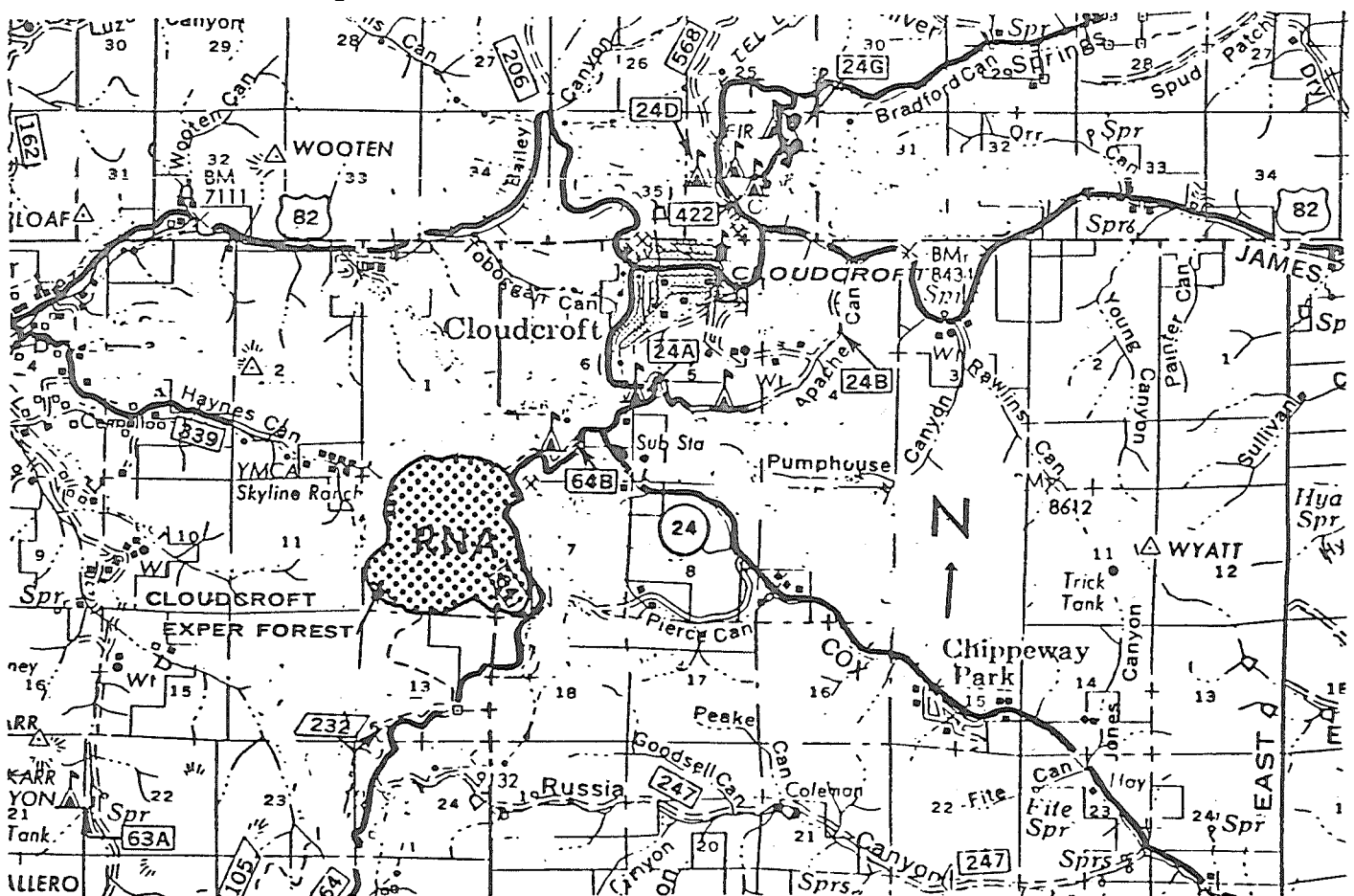
By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 2.60(a) and 36 CFR 251.23, I hereby designate as the Haynes Canyon Research Natural Area the lands described in the following establishment record prepared by William W. Dunmire and Mollie S. Toll, dated October 19, 1987. These lands shall hereafter be administered as a research natural area subject to the above regulations and instructions issued thereunder.

\_\_\_\_\_  
Chief

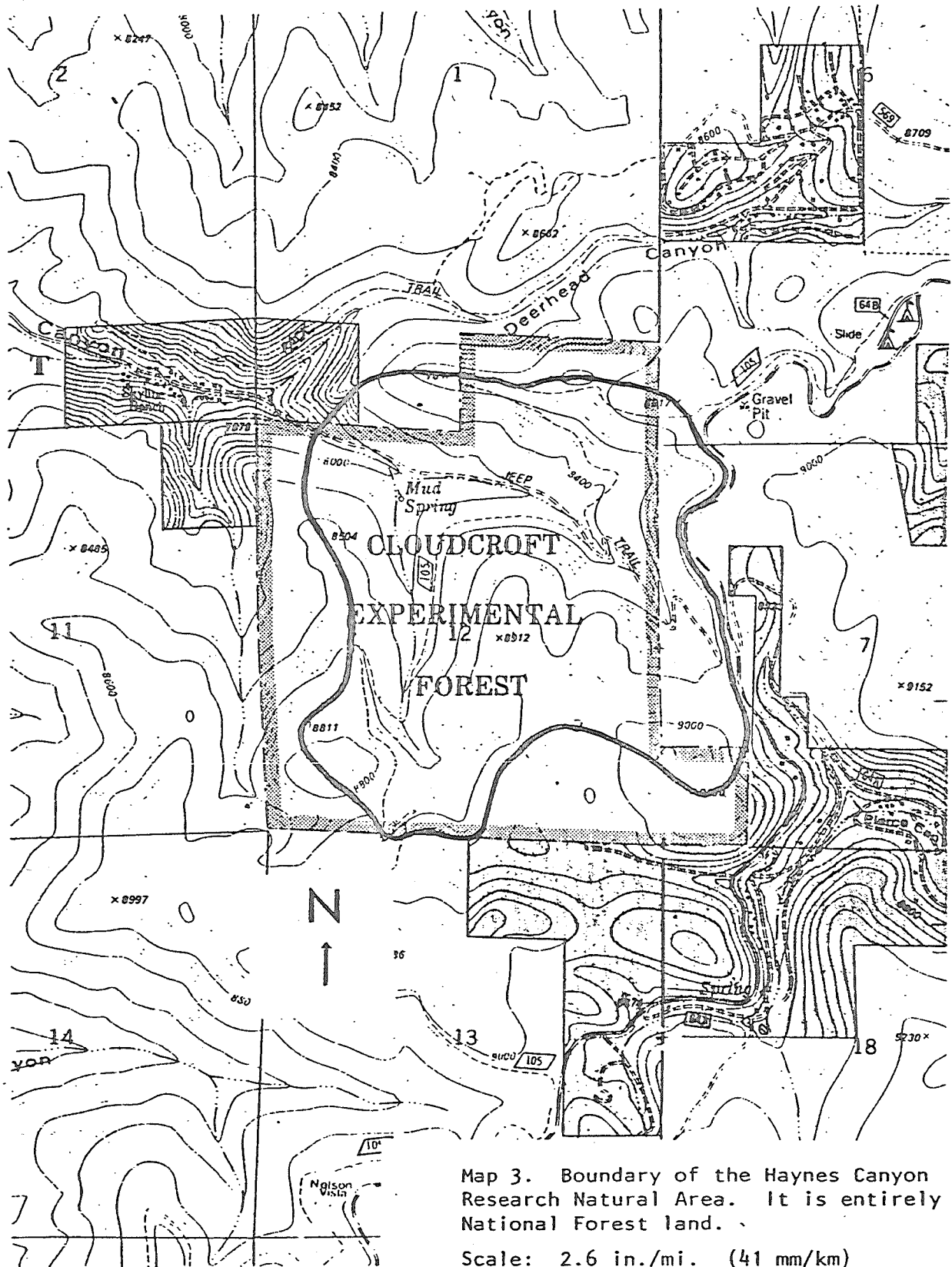
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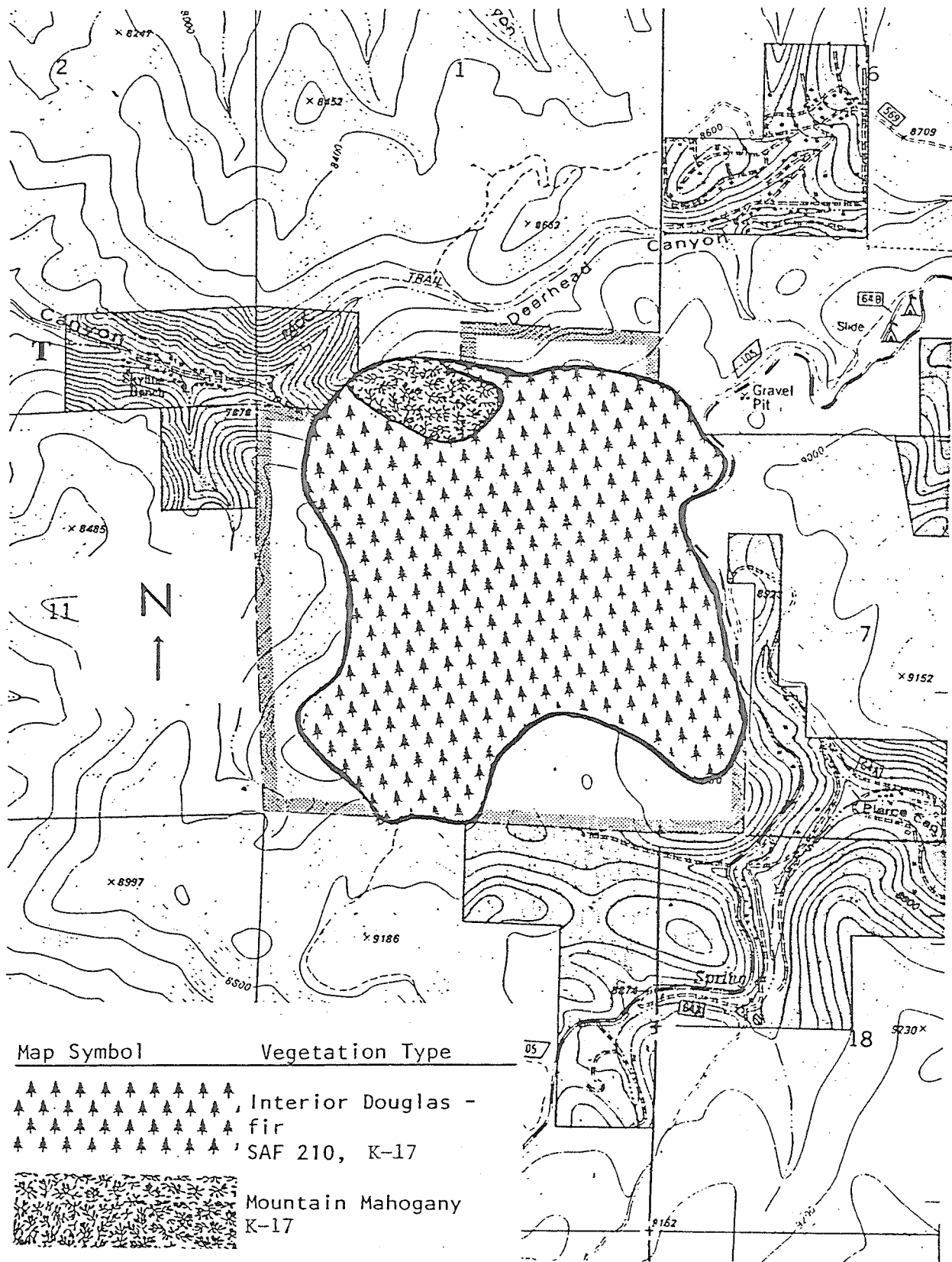
Map 1. Location of RNA (South Central New Mexico)



Map 2. Access Route to Haynes Canyon RNA

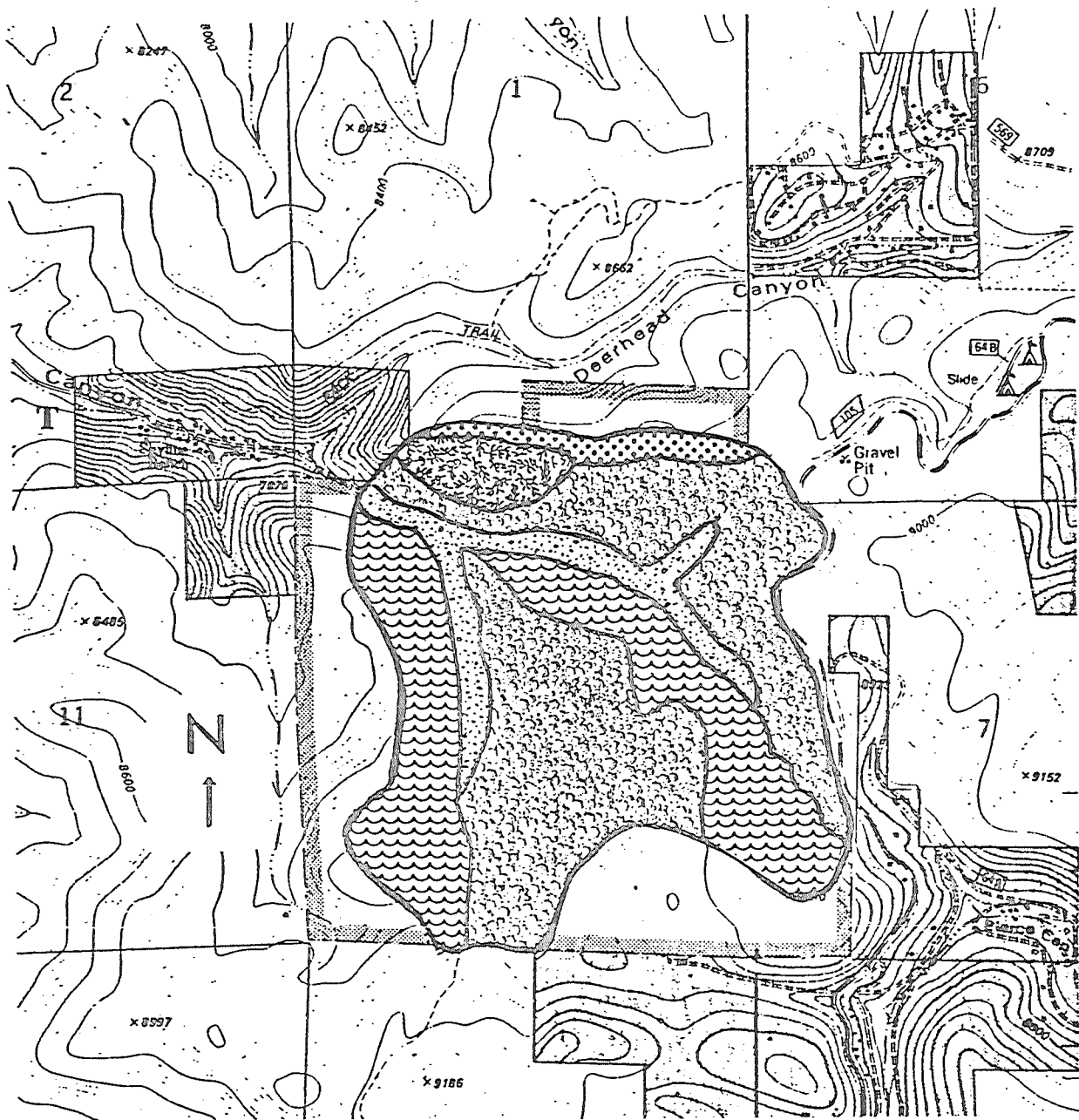


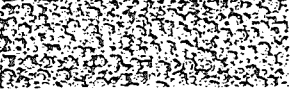
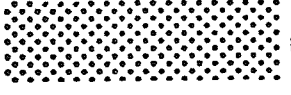
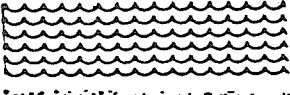
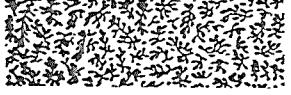

Map 3. Boundary of the Haynes Canyon Research Natural Area. It is entirely National Forest land.  
 Scale: 2.6 in./mi. (41 mm/km)



Map Symbol	Vegetation Type
	Interior Douglas - fir SAF 210, K-17
	Mountain Mahogany K-17

Map 4. Distribution of vegetation types in the Haynes Canyon Research Natural Area.



Map Symbol	Habitat Type	Map Symbol	Habitat Type
	ABCO/QUGA HT		PIPO/QUGA HT
	ABCO/ACGL HT		PIED/CEMO HT
	ABCO/ACGR HT		

Map 5. Distribution of habitat types in the Haynes Canyon Research Natural Area.



Photo 1. West from Forest Road 64 toward Haynes Canyon RNA. East boundary of RNA is just beyond road in the foreground.



Photo 2. North-facing slopes on south side of RNA exhibit old-growth stands of white fir in this Abies concolor/Acer glabrum Habitat Type.



Photo 3. Upper end of Haynes Canyon Drainage exhibits a forest canopy of white fir, Douglas-fir, Rocky Mountain maple, southwestern white pine and aspen. Understory includes New Mexico locust and New Mexico elder.



Photo 4. Haynes Canyon bottom above Mud Spring with white fir, bigtooth maple and occasional southwestern white pine and aspen. This is classic ABCO/ACGR Habitat Type.





Photo 5. White fir-Rocky Mountain maple forest on steep, northeast-facing slope with understory of Holodiscus dumosus, Robinia neomexicana, and Jamesia americana. Classic ABCO/ACGL Habitat Type.



Photo 6. A large stand of predominately mountain-mahogany shrub community occurs on the south-facing slopes of the northwest corner of the RNA. Shrubs here include Cercocarpus montanus, Philadelphus microphyllus, Fendlera rupicola, Rhamnus smithii and Quercus gambelii.

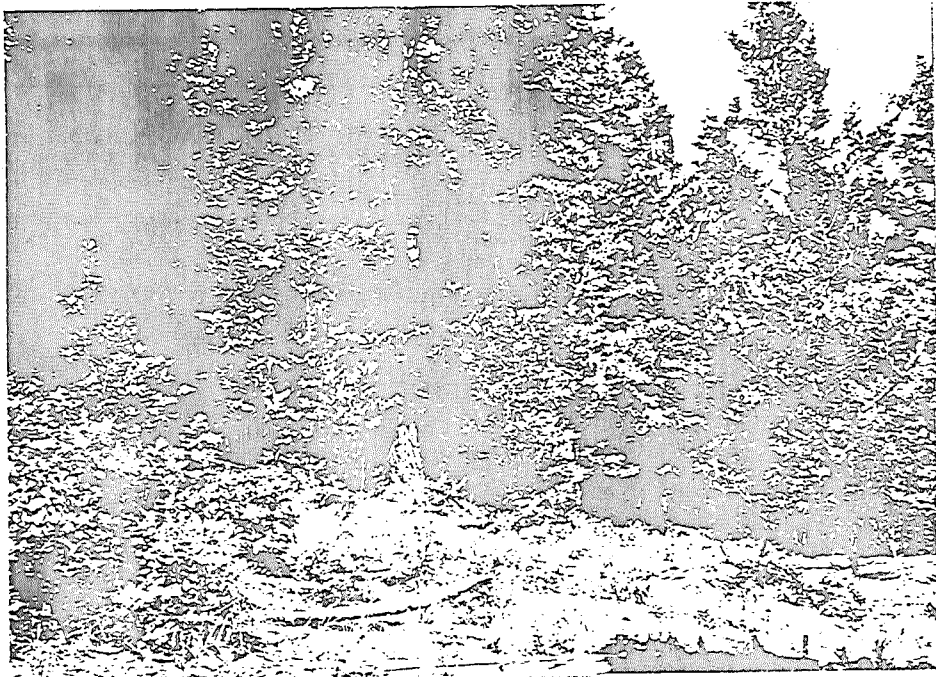


Photo 7. South and west-facing slopes tend to favor an Abies concolor/Quercus gambelii Habitat Type. The overstory of this shrubby community here also includes Douglas-fir and southwestern white pine.

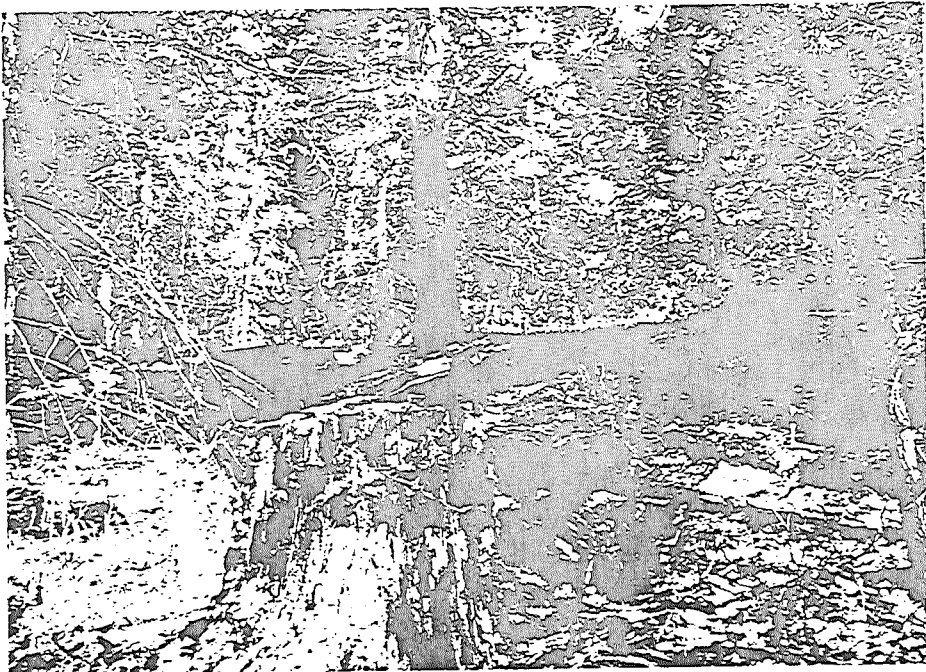


Photo 8. Occasional old stumps are the remaining evidence of logging last done around 1910 on the proposed Haynes Canyon RNA.

U.S. FOREST SERVICE  <b>PHOTOGRAPHIC RECORD</b> (See FSM 1643.52)	PHOTOGRAPHER William W. Dunmire	DATE SUBMITTED Oct. 23, 1987
	HEADQUARTERS UNIT	LOCATION

WO   
  RO   
  DIV.   
  FOREST   
  DISTRICT   
  PHOTOGRAPHER   
 Date \_\_\_\_\_

**INSTRUCTIONS:** Submit to Washington Office in quadruplicate. Permanent numbers will be assigned and the forms will be distributed as follows: (1) Washington Office, (2) RO or Station, (3) Forest or Center and (4) Photographer.

PHOTOGRAPH NUMBER	SELECTED FOR W.O. PHOTO LIBRARY	DATE OF EXPOSURE	LOCATION (State, Forest, District and County)	CONCISE DESCRIPTION OF VIEW	NEGATIVE (Show size and BW for black and white or C for color)
(2)	(3)	(4)	(5)	(6)	(7)
			<u>ALL:</u> New Mexico Lincoln NF Sacramento Mtns. Dist. Otero Co.		<u>ALL:</u> 24x36mm color slides
		9-18-86		West toward Haynes Canyon RNA from Forest Road 64. Photo point is from gravel pit just east of northeast boundary of RNA.	
		9-18-86		North-facing slopes on south sides of Haynes Canyon RNA from upper portion of trail no. 105.	
		9-18-86		Upper Haynes Canyon bottom on jeep road (closed to public), east end of Haynes Canyon RNA at approximately 8,600 feet (2,621 M) elevation.	
		9-18-86		Haynes Canyon south tributary approximately at 8,200 feet (2,499 M) elevation.	
		9-18-86		Steep north-facing slope above tributary of Haynes Canyon near west boundary of Haynes Canyon RNA. White fir-Rocky Mountain maple Habitat Type.	
		9-18-86		Mountain-mahogany shrub community on south-facing slopes at northwest corner of Haynes Canyon RNA.	
		9-18-86		West-facing slope above Haynes Canyon, east edge of Haynes Canyon RNA, exhibits white fir/Gambel oak Habitat Type.	
		9-18-86		Old stump at southeast corner of Haynes Canyon RNA (last logging activity was about 1910).	

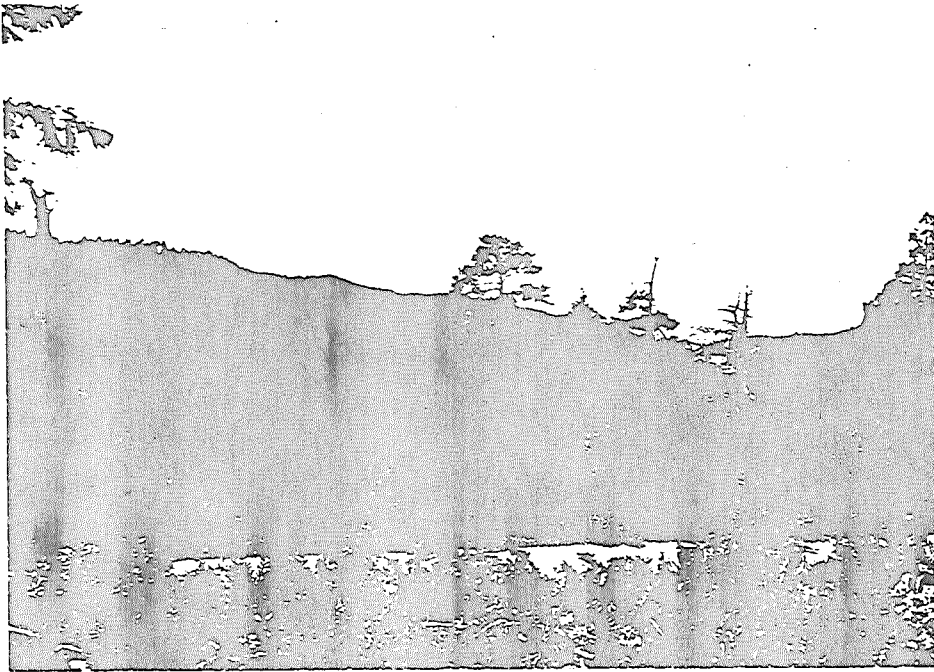


Photo 1. West from Forest Road 64 toward Haynes Canyon RNA. East boundary of RNA is just beyond road in the foreground.

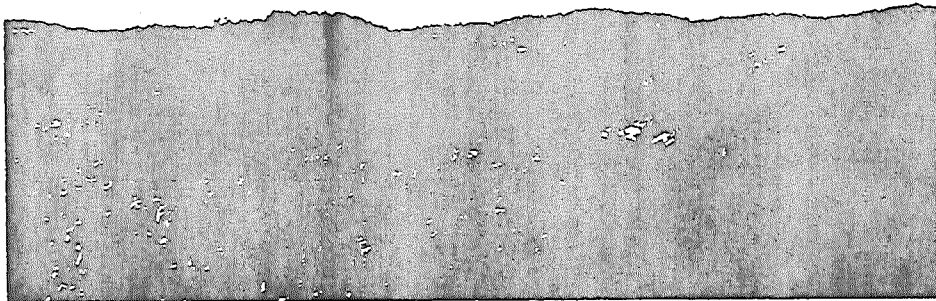


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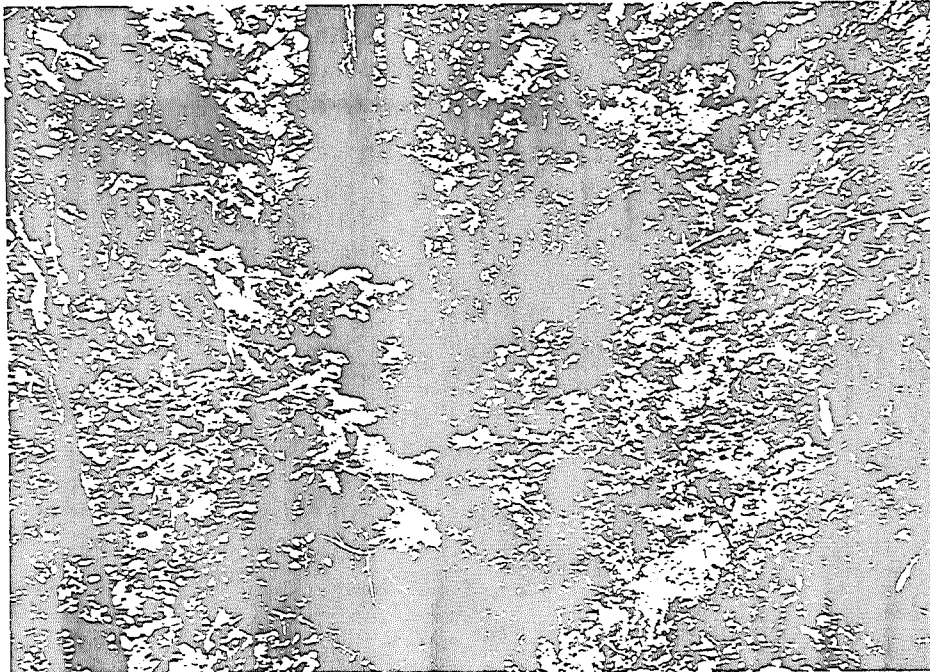


Photo 5. White fir-Rocky Mountain maple forest on steep, northeast-facing slope with understory of Holodiscus dumosus, Robinia neomexicana, and Jamesia americana. Classic ABCO/ACGL Habitat Type.

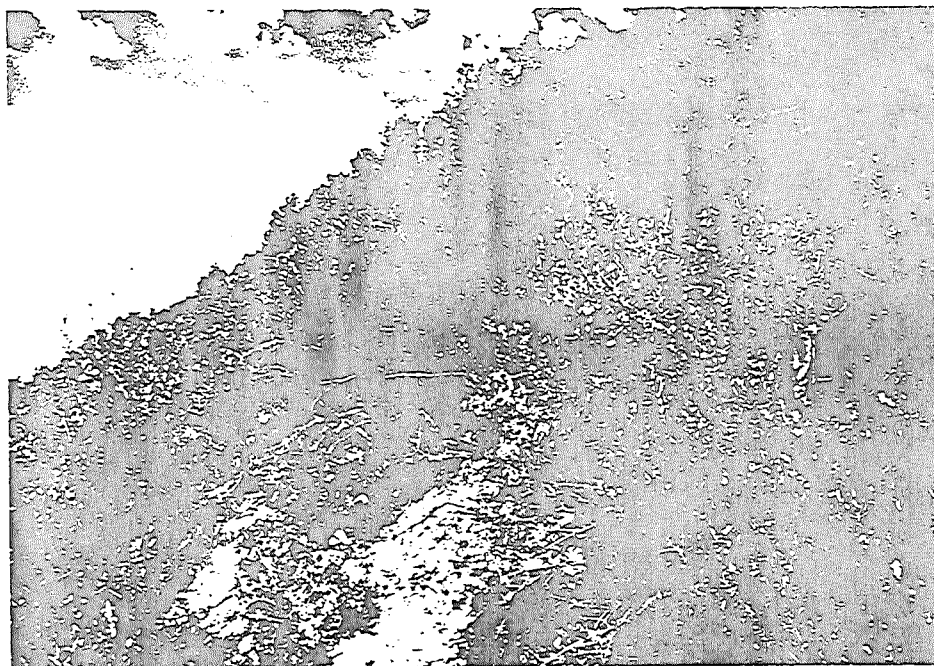


Photo 6. A large stand of predominately mountain-mahogany shrub community occurs on the south-facing slopes of the northwest corner of the RNA. Shrubs here include Cercocarpus montanus, Philadelphus microphyllus, Fendlera rupicola, Rhamnus smithii and Quercus gambelii.

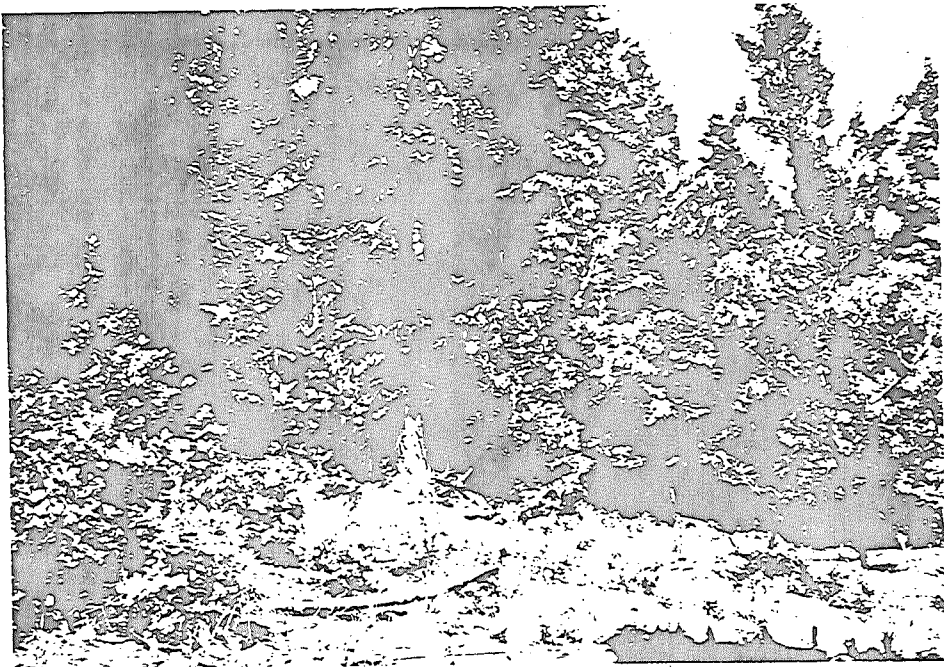


Photo 7. South and west-facing slopes tend to favor an Abies concolor/Quercus gambelii Habitat Type. The overstory of this shrubby community here also includes Douglas-fir and southwestern white pine.



Photo 8. Occasional old stumps are the remaining evidence of logging last done around 1910 on the proposed Haynes Canyon RNA.

USDA-FOREST SERVICE  <b>PHOTOGRAPHIC RECORD</b> (See FSM 1643.52)	PHOTOGRAPHER William W. Dunmire	DATE SUBMITTED Oct. 23, 1987
	HEADQUARTERS UNIT	LOCATION

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

WO   
  RO   
  DIV.   
  FOREST   
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INSTRUCTIONS: Submit to Washington Office in quadruplicate. Permanent numbers will be assigned and the forms will be distributed as follows: (1) Washington Office, (2) RO or Station, (3) Forest or Center and (4) Photographer.

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TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				ALL: New Mexico Lincoln NF Sacramento Mtns. Dist. Otero Co.		ALL: 24x36mm color slides
1.			9-18-86		West toward Haynes Canyon RNA from Forest Road 64. Photo point is from gravel pit just east of northeast boundary of RNA.	
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8.			9-18-86		Old stump at southeast corner of Haynes Canyon RNA (last logging activity was about 1910).	





ESTABLISHMENT REPORT  
HAYNES CANYON RESEARCH NATURAL AREA

USDA FOREST SERVICE  
SOUTHWESTERN REGION  
LINCOLN NATIONAL FOREST  
CLOUDCROFT RANGER DISTRICT  
OTERO COUNTY, NEW MEXICO

Prepared by: \_\_\_\_\_ Date \_\_\_\_\_  
William W. Dunmire, The Nature Conservancy  
Mollie S. Toll, Department of Biology,  
University of New Mexico

Recommended by: \_\_\_\_\_ Date \_\_\_\_\_  
Max E. Goodwin, District Ranger  
Cloudcroft Ranger District

Recommended by: \_\_\_\_\_ Date \_\_\_\_\_  
James R. Abbott, Forest Supervisor  
Lincoln National Forest

Recommended by: \_\_\_\_\_ Date \_\_\_\_\_  
John W. Russell, Chairman  
Southwestern Research Natural Area Committee

Recommended by: \_\_\_\_\_ Date \_\_\_\_\_  
Sotero Muniz, Regional Forester  
Southwestern Region

Recommended by: \_\_\_\_\_ Date \_\_\_\_\_  
Charles M. Loveless, Station Director  
Rocky Mountain Forest and Range Experiment Station

ESTABLISHMENT RECORD

for

HAYNES CANYON RESEARCH NATURAL AREA

within

Lincoln National Forest

Otero County, New Mexico

## INTRODUCTION

The Haynes Canyon Research Natural Area (RNA) comprises approximately 610 acres (246.9 hectares) in the Sacramento Mountains, in south-central New Mexico. The proposed RNA is located in the Lincoln National Forest, in Otero County, and is National Forest land reserved from the public domain.

Mixed conifer forest has been noted as an important biotic community for protection within the RNA program (USFS Regional Guide, 1983: Table 3-1). Haynes Canyon was identified by the Lincoln National Forest as an outstanding example of the Abies concolor/Acer glabrum vegetation type within this community. This area was formerly part of the Cloudcroft Experimental Forest (now disestablished), a designation which provided the area with many years of protection from economic development.

## LAND MANAGEMENT PLANNING

The need for representation of this biotic community was identified in the Southwestern Regional Guide (August 1983). The Lincoln National Forest Plan (USFS 1986a) recommends that approximately 610 acres (246.9 hectares) of Management Area 2F be designated for establishment as a Research Natural Area. The environmental analysis conducted as part of the planning process supports the recommendation to establish this Research Natural Area.

## JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

Haynes Canyon Research Natural Area was identified primarily as an outstanding example of a mixed conifer forest, close to its southern limit within the National Forest system. This is an important forest ecosystem in the Southwest.

The area is proposed as a research natural area on the basis of its optimal environment for white fir. Tall, open old growth stands of the Abies concolor/Acer glabrum habitat type alternate with younger seral stages in a patchwork mosaic suggesting erratic patterns of past wildfires. This forest offers a variety of opportunities for the study of successional patterns. Present successional trends strongly suggest a nearly pure forest of fir to be developing within the older stands.

## PRINCIPAL DISTINGUISHING FEATURES

This area contains mixes of white fir (Abies concolor) habitat types on mostly steep mountain topography with elevations between 7900 and 9500 feet (2410 to 2900 m). Forests of white fir/Rocky Mountain maple habitat type occur generally on the north-facing slopes. South-facing slopes are populated mostly by gambel oak stages of

white fir/gambel oak habitat type. The lower slopes and forested ravines contain stands of the white fir/bigtooth maple habitat type. In the narrow canyon bottoms, bluegrass (*Poa pratensis*) sod extends between stringers of Douglas-fir (*Pseudotsuga menziesii*), occasional ponderosa pine (*Pinus ponderosa*), and white fir.

## LOCATION

This area is approximately 2 miles (3.2 km) southwest of Cloudcroft, in south-central New Mexico (Map 1). The RNA can be found on the High Rolls quadrangle (USGS 7.5' map), Township 16S, Range 11 and 12E, Sections 1, 6, 7, and 12, latitude 32° 55' N, longitude 105° 46' W. Easy access to the RNA is afforded by an all-weather, paved road.

Beginning at the 1/4 section corner of sections 12 and 13, T. 16S., R. 11E., NMPM.

THENCE, N 88 02'W, 1291 feet to the W 1/16 corner of sections 12 and 13;  
 THENCE, N 36 30'W, 1670 feet to a point;  
 THENCE, N 34 14'E, 1610 feet to the CW 1/16 corner of section 12';  
 THENCE, N 27 00'W, 1475 feet to a point;  
 THENCE, N 01 06'W, 1337 feet to the WW 1/64 corner of sections 1 and 12,  
 THENCE, N 86 38'W, 658 feet to the W 1/16 corner of sections 1 and 12;  
 THENCE, north, 660 feet to a point;  
 THENCE, S 86 42'E, 3952 feet the SS 1/64 corner of sections 1 and 6;  
 THENCE, S 45 00'E, 750 feet more or less to a point that lies 200 feet west of the western right-of-way line of State Highway No. 6563;  
 THENCE, along a line 200 feet west of the western right-of-way of said Highway No. 6563 a distance of one mile to the intersection with the meridional centerline of the SW 1/4 of section 7;  
 THENCE, S 00 15' W, 250 feet more or less to the SW 1/16 corner of section 7;  
 THENCE, S 45 00'W, 950 feet to a point;  
 THENCE, N 41 13'W, 895 feet to the S 1/16 corner of sections 12 and 7;  
 THENCE, N 87 18'W, 1294 feet to the SE 1/16 corner of section 12;  
 THENCE, S 44 09'W, 1813 feet to the 1/4 section corner of sections 12 and 13, the point of beginning.

Routes to the proposed RNA originate in Cloudcroft, a town at the crest of the Sacramento Mountains on U.S. Highway 82, about 19 miles (30.6 km) east of Alamogordo and 94 miles (151.2 km) west of Artesia. From Cloudcroft, take N.M. Highway 24 south, turning off to the right at mile 1.8 (2.9 km) on Forest Road 64 to Sunspot (Maps 2 and 3). At mile 1.8 (2.9 km) on this road (3.6 miles or 5.8 km from Cloudcroft), there is an unmaintained picnic area and a primitive road takes off to the right (west), entering the RNA. This road is closed to vehicle travel but provides easy walking access into Haynes Canyon proper. Forest Trail 105 crosses this road and provides access to the north and south portions of the RNA. Alternate access to the

north end of the RNA uses Forest Trail 105 from where it leaves Forest Road 64 at a gravel pit approximately 3 miles (4.8 km) south of Cloudcroft.

Slopes leading into Haynes Canyon are steep and sometimes brushy. The north- and east-facing slopes especially have much downed timber. Cross-country travel is arduous but reasonably negotiable.

### AREA BY COVER TYPES

The distribution of cover types was determined from field surveys conducted in the summer of 1986 and from interpretation of 1981 aerial photography. Table 1 outlines the estimated total area of vegetation types based on the Society of American Foresters forest type system (Eyre 1980) and the Küchler Potential Natural Vegetation system (Küchler 1964). Map 4 depicts the distribution of the single SAF type, plus a shrub type not covered in the SAF forest categories, on the candidate research natural area. Since the SAF/Küchler systems do not adequately address the diversity of plant communities found here, Map 5 is included to depict habitat types occurring in the area.

Table 1. Estimated Areas of Vegetation Types in the Haynes Canyon Research Natural Area.

<u>Type</u>	<u>Society of American Foresters Cover Type<sup>1</sup></u>	<u>Küchler PNV Type<sup>2</sup></u>	<u>Surface Area</u>	
			<u>Acres</u>	<u>Hectares</u>
Interior Douglas-fir	SAF 210	K-17 Pine -Douglas-fir	570	230.7
Mountain Mahogany	[none]	K-17 Seral, Pine - Douglas-fir	40	16.2
		TOTAL:	610	246.9

<sup>1</sup>Eyre 1980.

<sup>2</sup>Küchler 1964.

## PHYSICAL AND CLIMATIC CONDITIONS

Most of the Haynes Canyon RNA lies within Section 12, T 16S, R 11E, with boundaries generally following watershed features. The northern portion of the RNA is a ridge along the south half of Section 1, T 16S, R 11E. The eastern boundary is Forest Road 64, mostly in Section 7, T 16S, R 12E. The headwaters of two tributaries to Haynes Canyon join and reach a low elevation point of approximately 7900 feet (2407.9 m) in the north west corner of the RNA. Elevation reaches a high of slightly greater than 9000 feet (2743 m) in the southeastern corner.

Haynes Canyon is located within a substantial mountain mass of subhumid to humid climate. The nearest long range weather station is at Cloudcroft, 2 miles (3.2 km) to the northeast. Considerable precipitation falls at this elevation, more than can be evaporated or used by the forests. Much of this is a vital contribution to lower elevation moisture levels via stream flow. Just over two-thirds of the annual precipitation falls within the warm months of May to October, frequently from local orographic and convectional storms. The average annual rainfall is 27 inches (686 mm). Cool season precipitation includes cyclonic snow storms, with an average annual snowfall of 59 inches (149.9 cm). Mean annual temperature is 39° F (3.9° C), with a July average of 54° F (12.2° C) and a January average of 24° F (-4.4° C).

## DESCRIPTION OF VALUES

### Flora

A broad survey of habitat types (HT), based upon Forest and Woodland Habitat Types of Southern New Mexico and Central Arizona (USFS 1986b) for woodland communities and Alexander *et al.* (1986) for coniferous forest communities, was conducted during the field work. A brief review follows. These publications should be consulted for a more detailed characterization of the vegetative make-up of these types.

The canyon bottoms are codominated by white fir (Abies concolor) and bigtooth maple (Acer grandidentatum). Douglas-fir (Pseudotsuga menziesii), often huge old-growth trees, is often a codominant and aspen (Populus tremuloides) is occasional to common. Gambel oak (Quercus gambelii) in tree form is regularly present. Other common trees and shrubs include Robinea neomexicana, Sambucus neomexicana, Holodiscus dumosus, Rosa sp., Physocarpus monogynus, and Ribes sp. Bluegrass (Poa pratensis) sod often extends between stringers of conifers. The only other grass here is Bromus ciliatus. A great variety of forbs are abundant to luxuriant. This is the Abies concolor/Acer grandidentatum habitat type (ABCO/ACGR HT), mostly Holodiscus dumosus phase.

Above these canyon bottoms on north- and east-facing slopes, Rocky Mountain maple (Acer glabrum) replaces bigtooth maple, and gambel oak, where present, tends to be a low shrub rather than a tree. Douglas-fir is a successional dominant. In old-growth stands the fir reaches magnificent proportions for the Southwest in this Abies concolor/Acer glabrum habitat type. Southwestern white pine (Pinus strobiformis) is well established on these slopes. Shrubs, including Holodiscus dumosus and Jamesii americana, tend to be sparse. Forbs are typically plentiful, and Bromus ciliatus is the only grass of any abundance. All of the ABCO/ACGL HT is considered to be Holodiscus dumosus phase.

An Abies concolor/Quercus gambelii habitat type (ABCO/QUGA HT, HODU phase) takes over above the canyon bottoms on south and west-facing slopes, many of which appear to be old burns. White fir remains dominant here while Douglas-fir and southwestern white pine are codominants. Ponderosa pine (Pinus ponderosa) occurs as occasional large relict trees, and seral aspen is scattered throughout. This is a highly shrubby plant community, with Quercus gambelii and Holodiscus dumosus often abundant and Robinea neomexicana, Symphoricarpos oreophilus and Philadelphus microphyllus common components. Forbs typically represent less than 20 per cent of the ground cover, and grasses, including Bromus ciliatus, Sitanion hystrix and Stipa robusta, tend to be sparse.

On the steep, south-facing slopes at the northwest corner of the RNA well above the canyon bottom is a large stand of a predominantly mountain mahogany shrub community. Other common components are Pinus edulis, Fendlera rupicola, Philadelphus microphyllus, Rosa sp., Rhamnus betulaefolia, and Yucca baccata. Forbs and grasses are sparse in this Pinus edulis/Cercocarpus montanus habitat type (PIED/CEMO HT).

Between the PIED/CEMO HT and the canyon bottom is an ecotone of Douglas-fir, Gambel oak in tree form, southwestern white pine, and ponderosa pine. Above the PIED/CEMO HT, at the top of the ridge, the RNA contains a thin strip of Pinus ponderosa/Quercus gambelii habitat type (PIPO/QUGA HT) where ponderosa, pinyon, and gambel oak are all reproducing as dominants. There are no known endangered, threatened, or sensitive plant species on the proposed RNA, although the golden bladderpod (Lesquerella aurea), a state sensitive species, has been recorded in the vicinity.

The following plant list was compiled from field observations on September 18, 1986. Because of the lateness of the season, the list is very incomplete, especially for forbs.



Abbreviated Plant List for Haynes Canyon RNA<sup>1</sup>

Latin Name

Common Name<sup>2</sup>

GRASSES AND GRASS-LIKE PLANTS:

<u>Bromus ciliatus</u>	Hairy brome
<u>Dactylis glomerata</u>	Orchardgrass
<u>Danthonia</u> sp.	Oatgrass
<u>Poa pratensis</u>	Kentucky bluegrass
<u>Sitanion hystrix</u>	Bottlebrush squirreltail
<u>Stipa robusta</u>	Sleepygrass

FORBS:

<u>Achillea lanulosa</u>	Western yarrow
<u>Allium</u> sp.	Onion
<u>Castilleja</u> sp.	Paintbrush
<u>Fragaria americana</u>	Strawberry
<u>Geranium caespitosum</u>	Purple geranium
<u>Geranium</u> sp.	Geranium
<u>Iris missouriensis</u>	Flag
<u>Lathyrus arizonicus</u>	Arizona peavine
<u>Oreochrysum parryi</u>	Parry goldenweed
<u>Pseudocymopterus montanus</u>	Mountain parsley
<u>Pterospora andromedea</u>	Woodland pinedrops
<u>Senecio wootonii</u>	Groundsel
<u>Silene laciniata</u>	Mexican silene
<u>Smilacina racemosa</u>	False Solomon's seal
<u>Thalictrum fendleri</u>	Meadowrue
<u>Trifolium</u> sp.	Clover
<u>Vicia</u> sp.	Vetch
<u>Viola canadensis</u>	Canada violet

HALF-SHRUBS, SHRUBS, AND TREES:

<u>Abies concolor</u>	White fir
<u>Acer glabrum</u>	Rocky Mountain maple
<u>Acer grandidentatum</u>	Bigtooth maple
<u>Arctostaphylos uva-ursi</u>	Kinnikinnick
<u>Artemisia franserioides</u>	Ragweed sagebrush
<u>Brickellia</u> sp.	Flythicket
<u>Cercocarpus montanus</u>	True cercocarpus

<u>Fendlera rupicola</u>	Cliff Fendlerbush
<u>Fraxinus cuspidata</u>	Fragrant ash
<u>Holodiscus dumosus</u>	Ocean spray
<u>Jamesia americana</u>	Cliff jamesia
<u>Juniperus monosperma</u>	One-seed juniper
<u>Philadelphus microphyllus</u>	Littleleaf mockorange
<u>Physocarpus monogynus</u>	Mountain ninebark
<u>Pinus edulis</u>	Pinyon pine
<u>Pinus ponderosa</u>	Ponderosa pine
<u>Pinus strobiformis</u>	Southwestern white pine
<u>Populus tremuloides</u>	Quaking aspen
<u>Pseudotsuga menziesii</u>	Douglas-fir
<u>Quercus gambelii</u>	Gambel oak
<u>Rhamnus betulaeifolia</u>	Birchleaf buckthorn
<u>Rhamnus smithii</u>	Buckthorn
<u>Ribes spp.</u>	Currant
<u>Robinia neomexicana</u>	New Mexico locust
<u>Rosa sp.</u>	Rose
<u>Rubus sp.</u>	Raspberry
<u>Sambucus neomexicana</u>	New Mexico elder
<u>Symphoricarpus oreophilus</u>	Mountain snowberry
<u>Vaccinium sp.</u>	Whortleberry
<u>Yucca baccata</u>	Datil yucca

<sup>1</sup>Observed by Bill Dunmire (The Nature Conservancy) on September 18, 1986

<sup>2</sup>Common names used according to USDA, Forest Service 1974, or Martin & Hutchins 1981.

### Fauna

This area contains potential habitat for the federally endangered bald eagle, and the following state sensitive species: Sacramento Mountain salamander (Aneides hardyi), black-striped chipmunk (Eutamias minimus atristriatus), and meadow jumping mouse (Zapus hudsonius luteus). None of these species has been observed directly in the RNA.

Haynes Canyon provides important spring, summer, and fall habitat for mule deer, the only ungulate known to occur in this area. At the lower end of the RNA, Haynes Creek has a perennial or semi-perennial flow; a variety of riparian animal species potentially reside there.

The following animal list was derived from the RUN WILD III data base (Lehmkuhl and Patton 1982; Patton 1979) from the following habitat types, for Otero County, New Mexico:

1. Douglas-fir - white fir series
2. Riparian deciduous forest biome; mixed broadleaf association

These habitat types currently in the data base most closely correspond to those occurring in the proposed RNA.

### Potential Animal List for Haynes Canyon RNA

#### AMPHIBIANS:

Frog, Rio Grande leopard  
Salamander, Sacramento Mountain  
Salamander, tiger  
Spadefoot, western  
Toad, red-spotted  
Toad, Woodhouse's

Rana berlandieri  
Aneides hardyi  
Ambystoma tigrinum  
Scaphiopus hammondi  
Bufo punctatus  
Bufo woodhousei

#### BIRDS:

Barn-owl, common  
Creeper, brown  
Crow, American  
Dove, mourning  
Dove, white-winged  
Eagle, golden  
Falcon, peregrine  
Finch, house  
Flycatcher, Hammond's  
Flycatcher, vermilion  
Goshawk, northern  
Grosbeak, black-headed  
Grosbeak, evening  
Hawk, Cooper's  
Hawk, red-tailed  
Hawk, zone-tailed

Tyto alba  
Certhia americana  
Corvus brachyrhynchos  
Zenaida macroura  
Zenaida asiatica  
Aquila chrysaetos  
Falco peregrinus  
Carpodacus mexicanus  
Empidonax hammondi  
Pyrocephalus rubinus  
Accipiter gentilis  
Pheucticus melanocephalus  
Coccythraustes vespertinus  
Accipiter cooperii  
Buteo jamaicensis  
Buteo albonotatus

Hummingbird, rufous  
 Junco, dark-eyed  
 Kestrel, American  
 Kinglet, golden-crowned  
 Kinglet, ruby-crowned  
 Magpie, black-billed  
 Martin, purple  
 Nighthawk, common  
 Nuthatch, whitebreasted  
 Oriole, hooded  
 Owl, flammulated  
 Owl, spotted  
 Phoebe, black  
 Quail, Gambel's  
 Siskin, pine  
 Sparrow, Lincoln's  
 Sparrow, song  
 Sparrow, white-crowned  
 Swallow, barn  
 Warbler, Virginia's  
 Warbler, Wilson's  
 Warbler, yellow  
 Woodpecker, hairy  
 Woodpecker, Lewis'  
 Wren, winter

#### MAMMALS:

Bat, Brazilian free-tailed  
 Bat, hoary  
 Bat, pallid  
 Bear, black  
 Bobcat  
 Chipmunk, gray-footed  
 Deer, mule  
 Deer, white-tailed  
 Fox, gray  
 Gopher, Botta's pocket  
 Lion, mountain  
 Mouse, pinyon  
 Mouse, western harvest  
 Myotis, cave  
 Myotis, fringed  
 Myotis, little brown

Selasphorus rufus  
Junco hyemalis  
Falco sparverius  
Regulus satrapa  
Regulus calendula  
Pica pica  
Progne subis  
Chordeiles minor  
Sitta carolinensis  
Icterus cucullatus  
Otus flammeolus  
Strix occidentalis  
Sayornis nigricans  
Callipepla gambelii  
Carduelis pinus  
Melospiza lincolni  
Melospiza melodia  
Zonotrichia leucophrys  
Hirundo rustica  
Vermivora virginiae  
Wilsonia pusilla  
Dendroica petechia  
Picoides villosus  
Melanerpes lewis  
Troglodytes troglodytes

Tadarida brasiliensis  
Lasiurus cinereus  
Antrozous pallidus  
Ursus americanus  
Felis rufus  
Tamias canipes  
Odocoileus hemionus  
Odocoileus virginianus  
Urocyon cinereoargenteus  
Thomomys bottae  
Felis concolor  
Peromyscus truei  
Reithrodontomys megalotis  
Myotis velifer  
Myotis thysanodes  
Myotis lucifugus

Myotis, long-legged  
 Raccoon  
 Ringtail  
 Skunk, hog-nosed  
 Skunk, striped  
 Squirrel, rock

Myotis volans  
Procyon lotor  
Bassariscus astutus  
Conepatus mesoleucus  
Mephitis mephitis  
Spermophilus variegatus

#### REPTILES:

Lizard, short-horned  
 Lizard, collared  
 Lizard, eastern fence  
 Lizard, side-blotched  
 Lizard, tree  
 Rattlesnake, blacktail  
 Rattlesnake, western  
 Skink, great plains  
 Skink, many-lined  
 Snake, blackneck garter  
 Snake, corn  
 Snake, gopher  
 Snake, ringneck  
 Snake, smooth green  
 Snake, western hognose  
 Snake, western terrestrial garter  
 Whipsnake, striped  
 Whiptail, Chihuahuan spotted  
 Whiptail, western

Phrynosoma douglassi  
Crotaphytus collaris  
Sceloporus undulatus  
Uta stansburiana  
Urosaurus ornatus  
Crotalus molossus  
Crotalus viridis  
Eumeces obsoletus  
Eumeces multivirgatus  
Thamnophis cyrtopsis  
Elaphe guttata  
Pituophis melanoleucus  
Diadophis punctatus  
Opheodrys vernalis  
Heterodon nasicus  
Thamnophis elegans  
Masticophis taeniatus  
Cnemidophorus exsanguis  
Cnemidophorus tigris

#### Geology

Haynes Canyon is located high in the Sacramento Mountains, which were formed in the latter Cenozoic by uplift along a major fault line. The Sacramento section of the Basin and Range Plateau is composed of mature block mountains with gently tilted strata, block plateaus, and extensive bolsons.

The Haynes Canyon bottom and lower slopes are underlain by the Yeso Formation, with components of limestone and dolomite; red, yellow, and gray shales and siltstones; anhydrite, gypsum and minor halite; and yellowish fine-grained sandstones. The upper slopes are underlain by the San Andres Formation, including gray to olive-gray limestone with minor dolomite, and interbedded quartz sandstone (Pray 1961).

## Soils

Haynes Canyon is situated in an association of Haploborolls- Cryoborolls (NMSU 1978:124-125), in an extensive area of high mountainous land in Otero and Lincoln counties, ranging in altitude from 7000 feet (2134 m) in the foothills to 12,003 feet (3659 m) on Sierra Blanca. The soils are typically dark-colored with a moderate to high content of organic matter and mildly alkaline to slightly acid in reaction. The surface layers commonly contain a few gravel and stones. The soils are forming dominantly in materials weathered residually from the underlying limestone bedrock or in colluvial or alluvial sediments from such rocks. According to Forest Service classification (Terrestrial Ecosystem Survey), soils found under forest canopy in Haynes Canyon are mainly Eutric Glossoboralfs, fine, mixed. The narrow canyon bottoms exhibit cumulic soils with gully incision; these soils, supporting a grass sod, are dominantly Pachic Udic Haploborolls, fine-loamy, mixed.

## Lands

A small part of the proposed RNA in the northeast corner was included within the original Lincoln Forest created on 4/24/1907. The bulk of the land, on the western two thirds of the RNA, was acquired by authority of the General Exchange Act from the Hughes Bros., on 12/27/1939. The remaining portion on the eastern border was acquired by exchange from the state of New Mexico on 12/3/1951; these lands retain a vested interest by the state for minerals and road rights-of-way.

## Cultural

No cultural resource surveys have been conducted within this RNA. Surveys that have been conducted nearby indicate that there is low probability for cultural remains. Prehistoric sites at this elevation generally consist of small, low-density lithic scatters, and are thought to be the remains of temporary-use hunting and gathering camps. Historic remains from ranching and logging activities also may be found. No habitation sites are expected to occur within the area.

## **IMPACTS AND POSSIBLE CONFLICTS**

### Mineral Resources

No known mineral resources exist in this area. A few oil and gas lease applications are pending for land to the west and south of the area, but none have been made for the proposed RNA. The process for recommending withdrawal of the area from mineral entry has been started and will continue if Haynes Canyon is designated as an RNA.

### Grazing

The proposed RNA is within the Sacramento Allotment, but there has been essentially no grazing within the RNA due to the steep slopes and dense forest vegetation. Unmaintained fence exists around part of the area. Since the amount of grazing in the vicinity is negligible, new fencing is not proposed at this time.

### Timber

This area has about 200 acres (80.9 hectares) of white fir and 350 acres (141.6 hectares) of mixed conifer type forest. The timber lands will be excluded from the timber base if the area is designated as an RNA.

Total forest: 550 acres (222.5 hectares)

Total commercial forest: 550 acres (222.5 hectares)

### Watershed Values

The area is contained within the Westside Sacramento watershed, a fifth order watershed. Intermittent streams in the proposed RNA drain into Haynes Canyon, which drains into Fresno Canyon. The water from Fresno Canyon contributes to the Alamogordo City water supply. The water from the proposed RNA represents a small percent of this contribution.

### Recreation Values

About 1.75 miles (2.8 km) of the Rim Trail, a National Recreation Trail, passes through the middle of the proposed RNA. The trail receives high use by motorcyclists and vehicles less than 40 inches (102 cm) wide, and low use by hikers. Big game hunters use the area in the fall. Very little recreational use occurs in the winter. No conflicts between recreation use and potential research projects are anticipated since recreational use does not detract from the values for which an RNA is established.

### Wildlife and Plant Values

The area contains potential habitat for bald eagle, an endangered species. There is potential habitat for the following state sensitive animal species: spotted owl, Sacramento Mountain salamander, black-striped chipmunk (Eutamias minimus atristriatus), meadow jumping mouse (Zapus hudsonius luteus); and for the Federally listed (Threatened) plant, purple thistle (Cirsium vinaceum), and for the sensitive plant species golden bladderpod (Lesquerella aurea), and tall milkvetch (Astragalus altus).

### Wilderness, Wild and Scenic River, National Recreation Area Values

None of the above congressionally designated areas have been proposed for the Haynes Canyon RNA or vicinity; however, the area contains part of a National Recreation Trail.

### Transportation Plans

The eastern side of the proposed RNA is bounded by Forest Road 64, soon to be designated a state highway. An old jeep trail bisects the area, but recently it has been closed to vehicles from both sides of the RNA. Unauthorized vehicles use the jeep trail occasionally.

### Utility Corridor Plans

There is a utility corridor along Forest Road 64, which forms the eastern boundary of the RNA. No corridors exist or are planned within the RNA.

## MANAGEMENT PLAN

The Lincoln National Forest Plan prescribes that there will be no harvest of firewood or other wood products, and no livestock grazing on Research Natural Areas. The Rim Trail is open to single-track motor vehicles less than 40 inches (101.6 cm) wide. Elsewhere, nonmotorized, low intensity, dispersed recreation activities are permitted provided they do not significantly modify the area, or threaten or impair the research or educational value of the area. No new trails or roads may be constructed, and recreation signs or marking are prohibited within the area. No flora, fauna, or other materials may be collected other than for research approved by the Station Director.

### 1. Vegetation Management

Vegetation manipulation is allowed only when needed to preserve the vegetation for which the area is being established. The Forest Plan provides that unplanned ignitions of 10 acres (4 hectares) or less will be suppressed, unless research purposes require other suppression objectives. Suppression action will be limited to the use of hand tools; fire retardant chemicals are prohibited unless necessary to protect life and property outside the study area.



## ADMINISTRATIVE RECORDS AND PROTECTION

Administration and protection of the Haynes Canyon RNA will be the responsibility of the Lincoln National Forest. The District Ranger, Cloudcroft District, Cloudcroft, NM has direct responsibility.

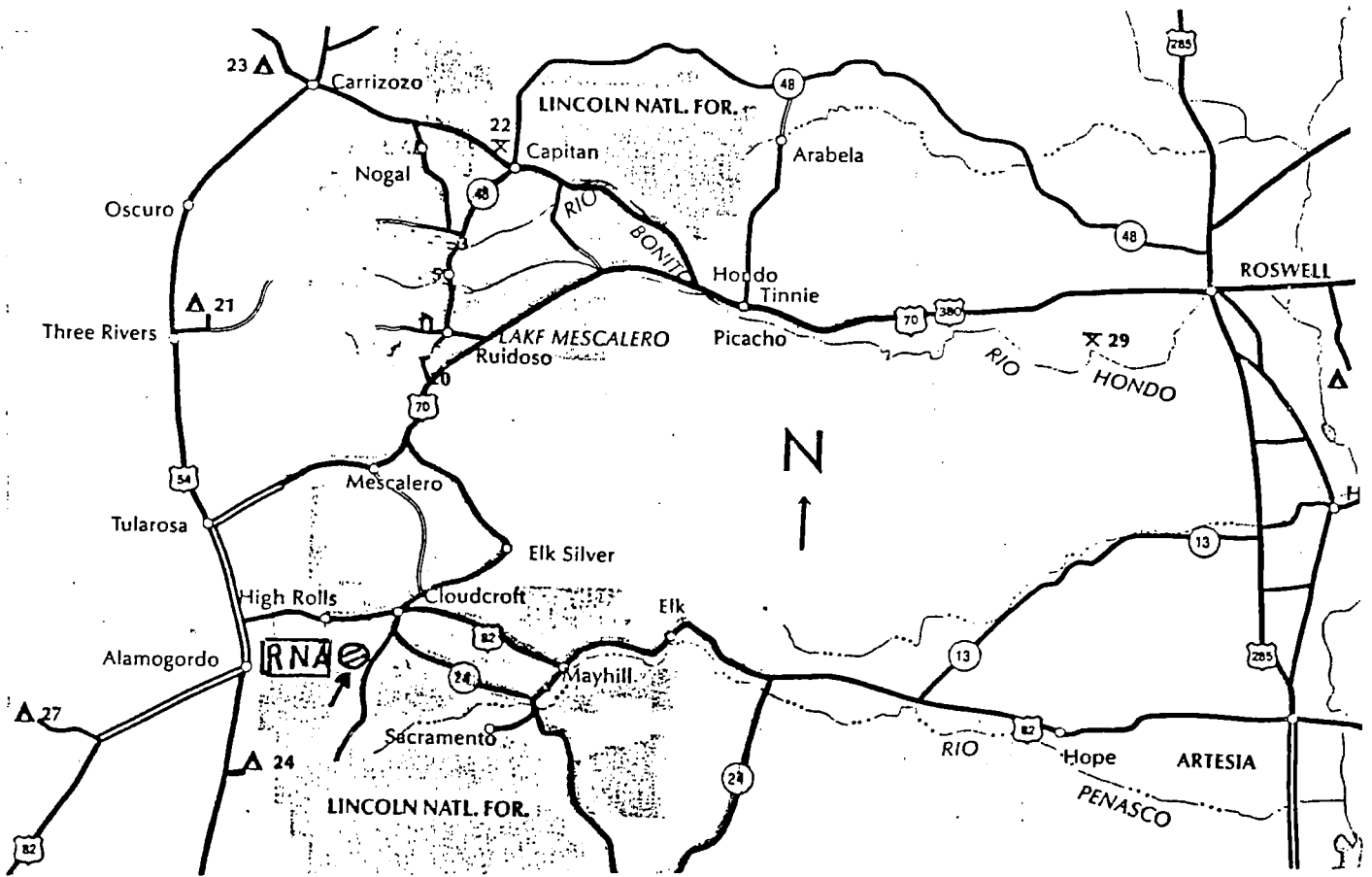
The Director of the Rocky Mountain Forest and Range Experiment Station, or his designee, will be responsible for any studies or research conducted in the area, and requests to conduct research in the area will be referred to him. He, or his designee, will evaluate research proposals and coordinate all studies and research in the area with the District Ranger. All plant and animal specimens collected in the course of research conducted in the area will be properly preserved and maintained within university or federal agency herbaria and museums, approved by the Rocky Mountain Station Director.

Records for the Haynes Canyon RNA will be maintained in the following offices:  
Regional Forester, Southwestern Region, Albuquerque, NM  
Rocky Mountain Station, Fort Collins, CO  
Lincoln National Forest, Alamogordo, NM  
District Ranger, Cloudcroft District, Cloudcroft, NM

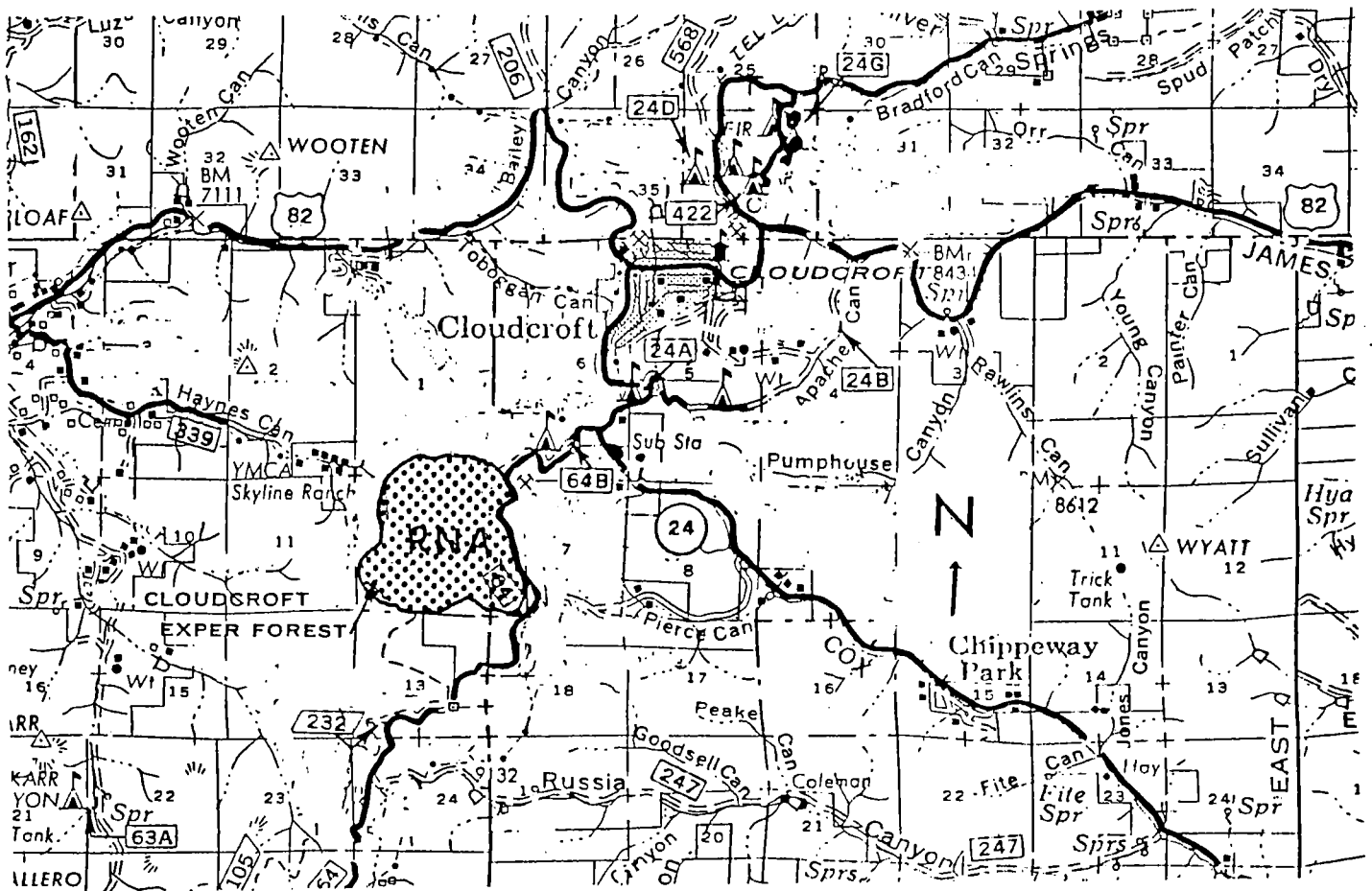
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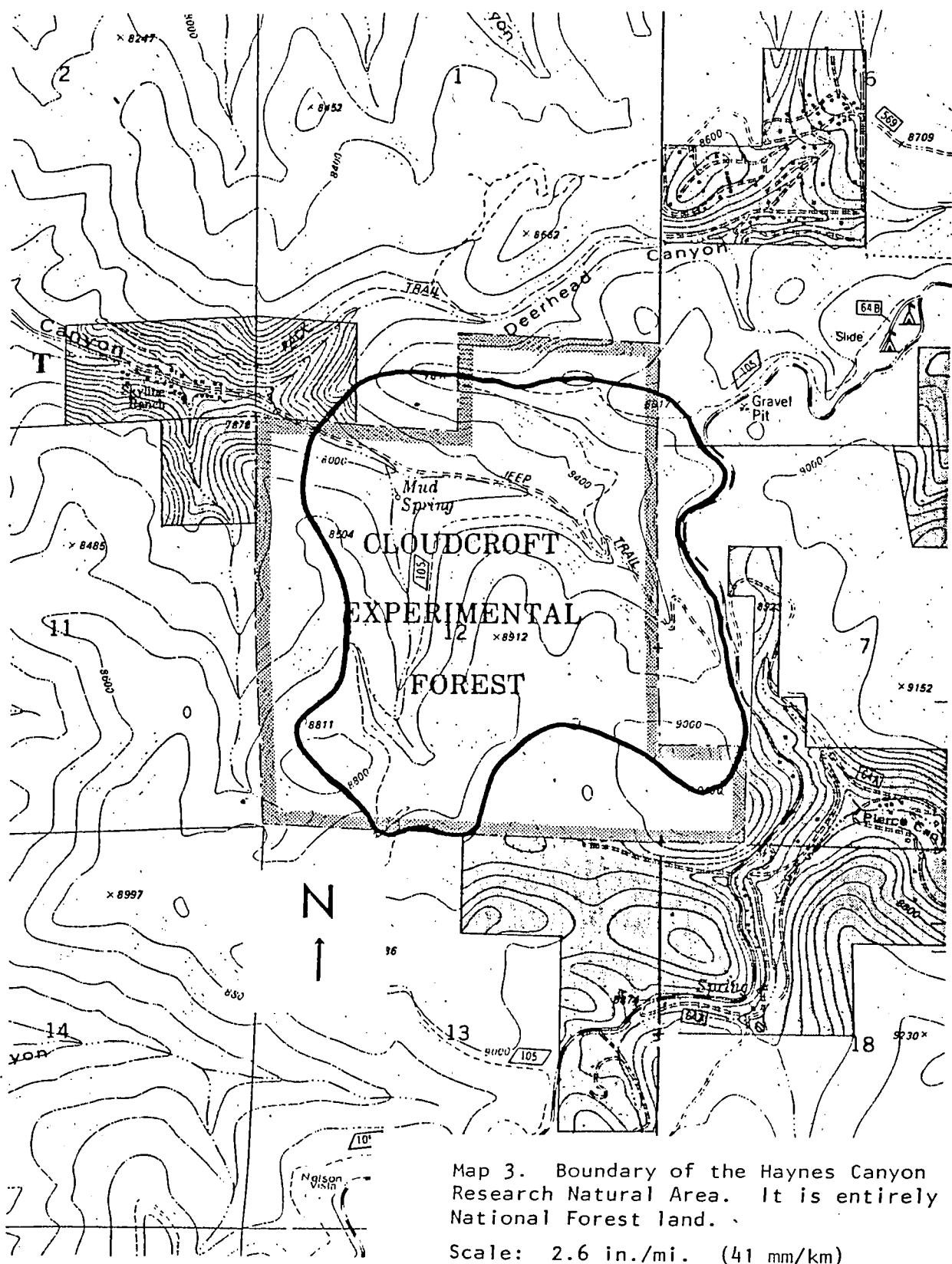
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Map 1. Location of RNA (South Central New Mexico)



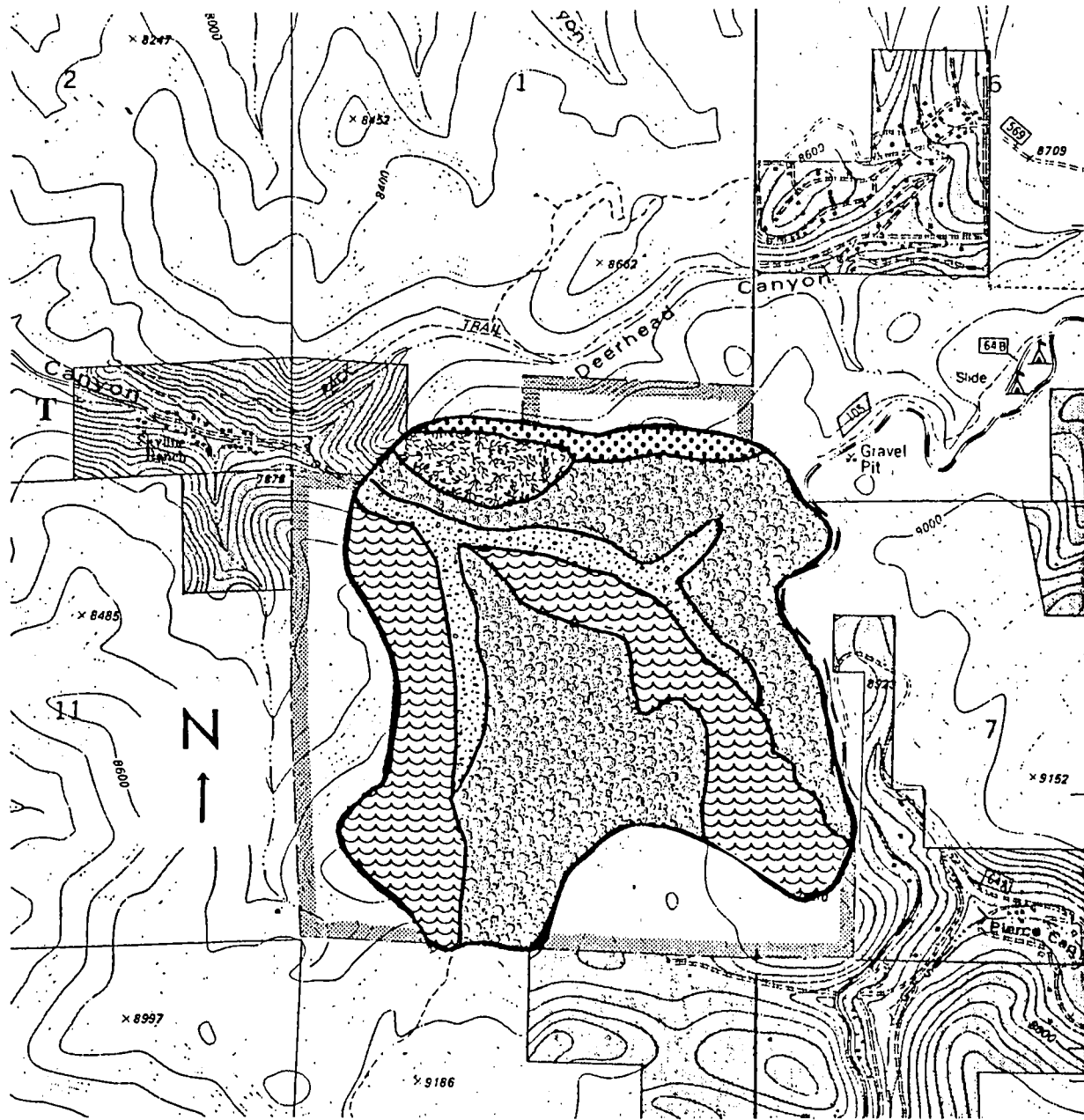
Map 2. Access Route to Haynes Canyon RNA




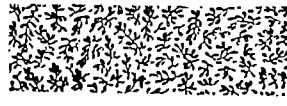



Map 3. Boundary of the Haynes Canyon Research Natural Area. It is entirely National Forest land.

Scale: 2.6 in./mi. (41 mm/km)





Map Symbol	Habitat Type	Map Symbol	Habitat Type
	ABCO/QUGA HT		PIPO/QUGA HT
	ABCO/ACGL HT		PIED/CEMO HT
	ABCO/ACGR HT		

Map 5. Distribution of habitat types in the Haynes Canyon Research Natural Area.

## DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 2.42 and 36 CFR 251.23, I hereby establish the Haynes Canyon Research Natural Area. The Haynes Canyon Research Natural Area shall be comprised of lands described in the section of the Establishment Report entitled "Location."

1) Regional Forester, Sotero Muniz, recommended the establishment of the Haynes Canyon Research Natural Area in the Lincoln National Forest Land and Resource Plan. That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. The results of the Regional Forester's analysis are documented in the Final Environmental Impact Statement for the National Forest Land and Resource Management Plan and the Establishment Record which are available to the public.

2) The Haynes Canyon Research Natural Area will be managed in compliance with all relevant laws, regulations, and manual direction regarding Research Natural Areas. The Haynes Canyon Research Natural Area will be administered in accordance with the management direction identified in the Establishment Record.

3) The Lincoln National Forest Land and Resource Management Plan is hereby amended to be consistent with the management direction identified in the Establishment Record and this designation order. Directions of the Lincoln National Forest Land and Resource Management Plan are replaced by the directions of the Establishment Record. This direction will remain in effect unless amended pursuant to 36 CFR 219.10. This is a nonsignificant amendment of the Lincoln National Forest Land and Resource Management Plan.

The Forest Supervisor of the Lincoln National Forest shall notify the public of this amendment and will mail a copy of the Designation Order and amended direction to all persons on the Lincoln Land and Resource Management Plan mailing list.

Based on the environmental analysis documented in the National Forest Land and Resource Management Plan and the Establishment Record I find that the designation of the Haynes Canyon Research Natural Area is not a major federal action significantly affecting the quality of the human environment.

This decision is subject to appeal pursuant to 36 CFR 217. A Notice of Appeal must be in writing and submitted to:

The Secretary of Agriculture  
14th & Independence Ave., S.W.  
Washington, D.C. 20250



Any appeal of this decision must include the information required by 36 CFR Part 217.9 including the reasons for appeal. Two (2) copies of the Notice of Appeal must be filed with the Secretary of Agriculture within 45 days from the date of legal notice of this decision. Review by the Secretary is wholly discretionary. If the Secretary has not decided within 15 days of receiving the Notice of Appeal to review the Chief's decision, appellants will be notified that the Chief's decision is the final administrative decision of the U.S. decision of the U.S. Department of Agriculture (36 CFR 217.7(a)).

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Chief

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Date

## DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 2.42 and 36 CFR 251.23, I hereby establish the Haynes Canyon Research Natural Area. The Haynes Canyon Research Natural Area shall be comprised of the following land: Beginning at the 1/4 section corner of sections 12 and 13, T. 16S., R 11E., NMPM.

THENCE, N 88 02'W, 1291 feet to the W 1/16 corner of sections 12 and 13;

THENCE, N 36 30'W, 1670 feet to a point;

THENCE, N 34 14'E, 1610 feet to the CW 1/16 corner of section 12';

THENCE, N 27 00'W, 1475 feet to a point;

THENCE, N 01 06'W, 1337 feet to the WW 1/64 corner of sections 1 and 12,

THENCE, N 86 38'W, 658 feet to the W 1/16 corner of sections 1 and 12;

THENCE, north, 660 feet to a point;

THENCE, S 86 42'E, 3952 feet the SS 1/64 corner of sections 1 and 6;

THENCE, S 45 00'E, 750 feet more or less to a point that lies 200 feet west of the western right-of-way line of State Highway No. 6563;

THENCE, along a line 200 feet west of the western right-of-way of said Highway No. 6563 a distance of one mile to the intersection with the meridional centerline of the SW 1/4 of section 7;

THENCE, S 00 15' W, 250 feet more or less to the SW 1/16 corner of section 7;

THENCE, S 45 00'W, 950 feet to a point;

THENCE, N 41 13'W, 895 feet to the S 1/16 corner of sections 12 and 7;

THENCE, N 87 18'W, 1294 feet to the SE 1/16 corner of section 12;

THENCE, S 44 09'W, 1813 feet to the 1/4 section corner of sections 12 and 13, the point of beginning.

Regional Forester, Sotero Muniz, recommended the establishment of the Haynes Canyon Research Natural Area in the Lincoln National Forest Land and Resource Plan. That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. The results of the Regional Forester's analysis are documented in the Final Environmental Impact Statement for the National Forest Land and Resource Management Plan and the Establishment Record which are available to the public.

The Haynes Canyon Research Natural Area will be managed in compliance with all relevant laws, regulations, and manual direction regarding Research Natural Areas. The Haynes Canyon Research Natural Area will be administered in accordance with the management direction identified in the Establishment Record. The Lincoln National Forest Land and Resource Management Plan is hereby amended to be consistent with the management direction

identified in the Establishment Record and this designation order. Directions on pages\_\_ of the Lincoln National Forest Land and Resource Management Plan are replaced by the directions on pages\_\_\_ of the Establishment Record. This direction will remain in effect unless amended pursuant to 36 CFR 219.10. This is a nonsignificant amendment of the Lincoln National Forest Land and Resource Management Plan.

The Forest Supervisor of the Lincoln National Forest shall notify the public of this amendment and will mail a copy of the Designation Order and amended direction to all persons on the Lincoln Land and Resource Management Plan mailing list.

Based on the environmental analysis documented in the National Forest Land and Resource Management Plan and the Establishment Record I find that the designation of the Haynes Canyon Research Natural Area is not a major federal action significantly affecting the quality of the human environment.

This decision is subject to appeal pursuant to 36 CFR 211.18. A Notice of Appeal must be in writing and submitted to:

Chief  
USDA, Forest Service  
P.O. Box 96090  
Washington, D.C. 20013-6090

The Notice of Appeal must be submitted within 45 days form the date of this decision. Within five days of receipt, the Chief will transmit the Notice of Appeal and a copy of the Designation order to the Secretary of Agriculture for review at the Secretary's discretion. The appeal will be deemed denied if the Secretary takes no action within ten days of receiving the appeal.

\_\_\_\_\_  
Chief

\_\_\_\_\_  
Date



Photo 1. West from Forest Road 64 toward Haynes Canyon RNA. East boundary of RNA is just beyond road in the foreground.



Photo 2. North-facing slopes on south side of RNA exhibit old-growth stands of white fir in this Abies concolor/Acer glabrum Habitat Type.



Photo 3. Upper end of Haynes Canyon Drainage exhibits a forest canopy of white fir, Douglas-fir, Rocky Mountain maple, southwestern white pine and aspen. Understory includes New Mexico locust and New Mexico elder.



Photo 4. Haynes Canyon bottom above Mud Spring with white fir, bigtooth maple and occasional southwestern white pine and aspen. This is classic ABCO/ACGR Habitat Type.



Photo 5. White fir-Rocky Mountain maple forest on steep, northeast-facing slope with understory of Holodiscus dumosus, Robinia neomexicana, and Jamesia americana. Classic ABCO/ACGL Habitat Type.



Photo 6. A large stand of predominately mountain-mahogany shrub community occurs on the south-facing slopes of the northwest corner of the RNA. Shrubs here include Cercocarpus montanus, Philadelphus microphyllus, Fendlera rupicola, Rhamnus smithii and Quercus gambelii.



Photo 7. South and west-facing slopes tend to favor an Abies concolor/Quercus gambelii Habitat Type. The overstory of this shrubby community here also includes Douglas-fir and southwestern white pine.



Photo 8. Occasional old stumps are the remaining evidence of logging last done around 1910 on the proposed Haynes Canyon RNA.