Research Natural Area

Name: Clayton Pass

Location:

State: NM County: Colfax Forest: Carson District: Questa
T. 30N R. 16E S. 33 (Us)

Geology:

Description:

Area underlain by the Dakota Sandstone: coarse-grained, massive, cross-bedded, pale-orange to yellowish-brown, chert-bearing quartz sandstone; quartz-pebble conglomerate; dark-gray, fissle, carbonaceous shale; thin, interbedded coal.

Reference:

New Mexico State Highway Department, , Geology And Aggregate Resources District V; map 8: nm Hwy Dept., Santa Fe, nm

Climate:

TES Gradient: LSC 7/-1
Precipitation: ___ Annual: 29 in. Warm season (May - Oct.)= 61 %
Cool Season (Nov. - Apr.)= 39 %
Mean Annual Snow: 67 in.

Mean Temperature: Annual 36 °F Jul. 54 °F Jan. 16 °F
Freeze Free Period: 70 days

Mean Temperature: Annual ___ °F Jul. ___ °F Jan. ___ °F
Freeze Free Period: ___ days

Trewartha's climate type: E Boreal

Reference: Forest Service, 1986, Terrestrial Ecosystem Handbook; Appendix B: USDA FS R3

Soils:

ESTABLISHMENT REPORT

CLAYTON PASS RESEARCH NATURAL AREA

USDA FOREST SERVICE
SOUTHWESTERN REGION
CARSON NATIONAL FOREST
QUESTA RANGER DISTRICT
COLFAX COUNTY, NEW MEXICO

Prepared by: _____ Date 7/1/87
William W. Dunmire, The Nature Conservancy
Mollie S. Toll, Department of Biology,
University of New Mexico

Recommended by: _____ Date 12/21/87
Ron Thibedeau, District Ranger
Questa Ranger District

Recommended by: _____ Date 1/4/88
John Bedell, Forest Supervisor
Carson National Forest

Recommended by: _____ Date 1/5/88
John W. Russell, Chairman
Southwestern Research Natural Area Committee

Recommended by: _____ Date 4/15/88
Sotero Muniz, Regional Forester
Southwestern Region

Recommended by: _____ Date May 16, 1988
Charles M. Loveless, Station Director
Rocky Mountain Forest and Range
Experiment Station

The abovesigned certify that all applicable land management planning and environmental analysis requirements have been met and that boundaries are clearly identified in accordance with FSM 4063.21, Mapping and Recordation and FSM 4063.41 5.e(3) in arriving at this recommendation.

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 Clayton Pass Research Natural Area the lands described in the following establishment record prepared by William W. Dunmire and Mollie S. Toll, dated July 1, 1987. These lands shall hereafter be administered as a research natural area subject to the above regulations and instructions issued thereunder.

_____ _____

Chief Date

ESTABLISHMENT RECORD

for

CLAYTON PASS RESEARCH NATURAL AREA

within

Carson National Forest

Colfax County, New Mexico

INTRODUCTION

The Clayton Pass Research Natural Area (RNA) comprises approximately 300 acres (121.4 hectares) of bristlecone pine forest in north-central New Mexico. The proposed RNA is located in the Questa Ranger District, in Colfax County, and is all acquired National Forest land.

In the search for an example of bristlecone pine (Pinus aristata) forest, Clayton Pass provided a particularly apt illustration, together with a minimal use history. The area contains vigorous stands of bristlecone pine, with both robust individuals of great age and juvenile specimens. A task group of the Regional RNA Committee visited this and several other candidate forest areas in July, 1982, and concurred that this was the only available example meeting all the requirements.

Land Management Planning

The need for representation of this biotic community was identified in the Southwestern Regional Guide (August 1983), although this particular site was not identified by name. The Carson National Forest Plan, implemented December 8, 1986, does not include the Valle Vidal portion of the Forest. The Little Costilla Peak, McCrystal Meadow, and Clayton Pass proposed Research Natural Areas are within the Valle Vidal. The Forest is presently working on an amendment to the Forest Plan to include the Valle Vidal. It is anticipated that the environmental analysis (or EIS) prepared for the amendment will support the establishment of the three proposed Research Natural Areas. In the meantime the areas are designated for protection in the Multiple Use Area Guide for the Valle Vidal which has been approved by the Regional Forester. The management of the Valle Vidal will be governed by the Multiple Use Area Guide until the Forest Plan is amended to include the Unit.

JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

The proposed Clayton Pass Research Natural Area was identified primarily as an outstanding example of a bristlecone pine forest ecosystem. This is an important and widespread ecosystem in the Southwest. The need to include such an ecosystem within the RNA network of the Southwestern Region has been stated in the Regional Guide (USFS 1983).

Bristlecone pine is present in the proposed RNA as healthy stands, mostly on south- and southeast-facing slopes from 10,000 to 10,600 feet (3050 to 3230 m) elevation, with specimens of three foot (91 cm) diameter trunks not uncommon; as an invader into Thurber fescue (Festuca thurberi) and Kentucky bluegrass (Poa pratensis) meadows; and as a regenerating component of aspen (Populus tremuloides) groves. Bristlecone pine is reproducing well and apparently has occupied the proposed RNA for some time. Clayton Pass provides a unique example of several manifestations of bristlecone pine growth in New Mexico, including the Americna Forest Association

Champion tree, and merits inclusion in the RNA system. A prime consideration in managing this proposed RNA will be to maintain unmodified conditions and natural processes, by protecting against any activities that might directly or indirectly alter these characters.

PRINCIPAL DISTINGUISHING FEATURES

The highest elevations are found on steep slopes at the western edge of the RNA facing south and southeast. These contain vigorous stands of bristlecone pine. The lowest elevations, on more gradual slopes, are Thurber fescue (Festuca thurberi) and Kentucky bluegrass (Poa pratensis) meadows invaded by bristlecone pine within the last century. Intermediate slopes (facing south, southeast, and southwest) contain bristlecone pine stands of mixed age, including the largest specimens. There are aspen (Populus tremuloides) stands present which show signs of regeneration of bristlecone pine.

LOCATION

Clayton Pass is situated in north central New Mexico, in the Valle Vidal unit of the Carson National Forest, roughly 25 miles (40.2 km) northeast of Questa, New Mexico. The RNA can be located on the Ash Mountain Quadrangle (USGS 15') at latitude 36±47', longitude 105±14', Township 30 N, Range 16 E, Sections 33 and 34 (Map 1). A small portion of the RNA extends into Township 29 N, Range 16 E, Section 4. Clayton Pass RNA is approximately rectangular. Elevation ranges from a high of 11,000 feet (3352.8 m) at the northwest corner, sloping rapidly to the south and more gradually to the east, to a low of 9890 feet (3014.5 m) at the southeast corner. The proposed RNA comprises approximately 300 acres (121.4 hectares).

The RNA is easily accessible most of the year when Forest Road 1950 to the Valle Vidal unit is open. However, this road is not plowed in winter, and travelers should check with the Questa Ranger District Station before planning a trip to this area.

From the town of Costilla, New Mexico, approximately 44 miles (70.8 km) north of Taos, New Mexico, near the Colorado border, take County Road 96 where it departs to the east from State Route 3 (Maps 2 and 3). Pavement ends after 6 miles (9.6 km), but the well-graveled road continues for 17 miles (27.4 km) from Costilla, at which point it becomes Forest Road 1950. At mile 18.4 (29.6 km) take the right fork to Shuree and continue to Clayton Pass Corrals, which are in a low saddle 26.4 miles (42.5 km) from the town of Costilla. Park at the corrals and walk onto the lower end of the RNA.

Most of the terrain in this RNA is open park-like bristlecone pine forest or grassland, and is easily traversed.

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 areas 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 SAF types, plus a grassland type not covered in the SAF forest categories, on the candidate research natural area.

Table 1. Estimated Areas of Vegetation Types in the Clayton Pass Research Natural Area.

Area Type	Society of American Foresters Cover Type[1]	Küchler PNV Type[2]	Surface Acres	H ectares
Bristlecone Pine	SAF 209	K-22 Great Basin Pine Forest	135	54.6
Aspen	SAF 217	K-22	125	50.6
Thurber Fescue Grassland	[none]	K-52 Alpine Meadows	40	16.2
		TOTAL:	300	121.4

[1]Eyre 1980.
[2]Küchler 1964.

PHYSICAL AND CLIMATIC CONDITIONS

Areas of this elevational range in northern New Mexico are generally classified as subhumid to humid in climate, and receive the greatest annual precipitation in the state. Average annual rainfall for Clayton Pass is 29 inches (737 mm), and average snowfall 67 inches (170.2 cm). Precipitation in the mountains comes in all seasons to a greater extent than it does in the arid and semiarid climates of New Mexico. Warm season rainfall (May to October), frequently from local orographic or convectional storms, accounts for 61% of the annual cycle of precipitation, with 39% falling as rain and as snow from cyclonic storms between November and April. Mean annual temperature

is a cool 36ł F (2.5ł C), with a July average of 54ł F (13.8ł C) and a January average of 16ł F (-4.0ł C).

DESCRIPTION OF VALUES

Flora

A broad survey of habitat types (HT) was conducted during the 1986 field work. A brief review follows; for a more detailed description of the vegetative makeup of these types, see DeVelice et al (1986).

The area currently supports three vegetation types, bristlecone pine forest, aspen in nearly pure seral stands, and patches of Thurber fescue grassland (Table 1, Map 4). Bristlecone pine is regenerating to some degree in most of the stands where aspen dominates the overstory, and pine is also an invader into the grassland meadows. Potential climax for virtually the entire area, therefore, is considered to be Pinus aristata/Festuca thurberi Habitat Type (PIAR/FETH HT).

Bristlecone pines found in this research natural area are noteworthy for size and vigor. A number of trees measure over 3 feet (91.4 cm) dbh, and one, with a circumference at breast height of 132.2 inches (335.8 cm), may be the largest bristlecone pine recorded in the Rocky Mountains. Another specimen at 19 inches (48.3 cm) dbh and 61 feet (18.6 m) tall is about 300 years old at breast height age. Occasional bristlecone snags suggest that the area has long been a bristlecone pine site.

Other trees, including Engelmann spruce (Picea engelmannii), subalpine fir (Abies lasiocarpa), Douglas-fir (Pseudotsuga menziesii), and Rocky Mountain maple (Acer glabrum) occur mostly on the steeper southeast and southwest-facing slopes, but even here tend to be poorly represented. Nowhere within the RNA does spruce-fir appear to be developing into a climax closed forest.

The extremely steep southeast-facing slopes on the western edge of the RNA support a shrubby undergrowth dominated by mountain snowberry (Symphorocarpos oreophilus) at the lower end and ocean spray (Holodiscus dumosus) above. Cliff jamesia (Jamesia americana) and currant (Ribes sp.) are also common here.

Except for seral aspen groves, the moderate lower slopes are mostly open park-like bristlecone pine forest. The grassy undergrowth is principally composed of oatgrass (Danthonia sp.), Thurber fescue, and Kentucky bluegrass, with many other grasses present. Forbs comprise about 5 per cent of the vegetation on these slopes, and shrubs are almost absent. Very old fire scars are evident throughout the area.

The southwest-facing slope on the southeast boundary of the RNA consists of a mix of conifers, including occasional white fir (Abies concolor) and limber pine (Pinus flexilis) in addition to the other species cited above. Even here, however, bristlecone pine is well represented with over 5 per cent of the cover. Except for occasional brome grass (Bromus sp.), there is little grass on these slopes. Forest fleabane (Erigeron eximius) and other forbs are abundant here.

No threatened, endangered, or unique plants are known to occur in Clayton Pass.

The following plant list was compiled from field observations by Reggie Fletcher (Regional Botanist, USFS Southwestern Region) on July 28, 1982, and by Bill Dunmire (The Nature Conservancy) and Jeff Redders (Soil Scientist, USFS Southwestern Region) on August 26, 1986.

Abbreviated Plant List for Clayton Pass RNA

Latin Name	Common Name	Reference[1]	
GRASSES AND GRASS-LIKE PLANTS:			
Agropyron smithii	Western wheatgrass		BD/JR
Agropyron trachycaulum	Slender wheatgrass	RF	BD/JR
Agrostis scabra	Rough bentgrass	RF	BD/JR
Blepharoneuron tricholepis	Pine dropseed	RF	BD/JR
Bromus anomalus	Nodding brome	RF	BD/JR
Bromus ciliatus	Hairy brome		BD/JR
Carex arapahoensis	Sedge	RF	
Carex brevior	Sedge	RF	
Carex eleocharis	Sedge	RF	
Carex foena	Sedge	RF	
Carex heliophila	Prairie Sedge	RF	
Carex oreocharis	Sedge	RF	
Carex rossii	Sedge	RF	
Carex simulata	Sedge	RF	
Danthonia californica	California oatgrass	RF	
Danthonia parryi	Parry danthonia	RF	BD/JR
Deschampsia caespitosa	Tufted hairgrass		BD/JR
Elymus canadensis	Canada wildrye		BD/JR
Festuca arizonica	Arizona fescue	RF	BD/JR
Festuca ovina var. ovina	Sheep fescue	RF	BD/JR
Festuca thurberi	Thurber fescue	RF	BD/JR
Koeleria cristata	Junegrass	RF	BD/JR
Muhlenbergia montana	Mountain muhly	RF	BD/JR
Phleum alpinum	Alpine timothy	RF	BD/JR
Poa fendleriana	Muttongrass	RF	BD/JR
Poa interior	Inland bluegrass	RF	
Poa pratensis	Kentucky bluegrass	RF	BD/JR
Sitanion hystrix	Bottlebrush squirreltail	RF	BD/JR
Stipa columbiana	Columbia needlegrass	RF	BD/JR
Trisetum montanum	Rocky Mountain trisetum	RF	BD/JR
FORBS:			
Achillea lanulosa ssp. alpicola	Western yarrow	RF	BD/JR
Allium cernuum	Nodding onion	RF	
Allium textile	Onion	RF	
Androsace septentrionalis	Rock jasmine	RF	BD/JR
Antennaria obovata	Pussytoes	RF	
Antennaria parvifolia	Rocky Mountain pussytoes	RF	BD/JR
Antennaria rosea	Rose pussytoes	RF	BD/JR
Aquilegia caerulea	Colorado columbine	RF	
Arabis drummondii	Drummond rockcress	RF	
Arenaria fendleri var. fendleri	Fendler sandwort	RF	
Arenaria fendleri var. brevifolia Arenaria parvifolia	Fendler sandwort	RF Sandwort	R F
Astragalus adsurgens	Milkvetch	RF	

var. robustior			
Astragalus agrestis	Purple milkvetch	RF	
Astragalus alpinus	Alpine milkvetch	RF	
Astragalus hallii var. hallii	Milkvetch	RF	
Astragalus scopulorum	Rocky Mountain milkvetch	RF	
Calochortus gunnisonii	Gunnison mariposalily	RF	
Campanula rotundifolia	Bluebell	RF	BD/JR
Castilleja miniata	Indian paintbrush	RF	BD/JR
Ceratium arvense	Starry mouse-ear	RF	
Chenopodium desiccatum var. desiccatum	Goosefoot	RF	
Chrysopsis villosa	Hairy goldaster		BD/JR
Cirsium pallidum	Yellow thistle	RF	BD/JR
Descurainia richardsonii ssp. procera	Western tansymustard	RF	
Draba rectifructa	Whitlowgrass	RF	
Epilobium angustifolium	Blooming Sally	RF	BD/JR
Erigeron eximius	Fleabane		BD/JR
Erigeron flagellaris	Trailing fleabane	RF	
Erigeron subtrinervis	Three-nerve fleabane	RF	
Erigeron vetensis	Fleabane	RF	
Eriogonum jamesii	Wee Mary buckwheat	RF	BD/JR
Erysimum capitatum	Western wallflower	RF	BD/JR
Fragaria americana	Strawberry		BD/JR
Fragaria ovalis	Wild strawberry	RF	BD/JR
Galium boreale	Northern bedstraw	RF	BD/JR
Gentiana plebia	Gentian	RF	
Geranium caespitosum	Purple geranium	RF	BD/JR
Geranium nervosum	Geranium	RF	
Geranium richardsonii	Big Dick geranium	RF	BD/JR
Haplopappus parryi	Parry goldenweed	RF	BD/JR
Helenium hoopesii	Orange sneezeweed		BD/JR
Helianthella parryi	Parry Wood-sunflower	RF	BD/JR
Helianthella quinquenervis	Nodding Wood-sunflower	RF	BD/JR
Ipomopsis aggregata	Skyrocket		BD/JR
Iris missouriensis	Flag	RF	BD/JR
Lappula redowski	Stickseed	RF	
Lathyrus arizonicus	Arizona peavine	RF	BD/JR
Linum lewisii	Blue flax	RF	
Mirabilis oxybaphoides	Four o'clock	RF	
Moldavica parvifolia	False dragonhead	RF	
Oenothera sp.	Evening-primrose	RF	
Oreoxis bakeri	Oreoxis	RF	
Orthocarpus luteus	Yellow owlclover	RF	
Osmorhiza longistylis	Sweetroot	RF	
Oxybaphus linearis var. linearis	Desert four o'clock	RF	
Oxytropis lambertii	Lambert crazyweed	RF	
Oxytropis splendens	Crazyweed	RF	
Pedicularis grayi	Woodbetony	RF	
Penstemon barbatus	Beardlip	RF	
Penstemon strictus ssp. strictus	Rocky Mountain beard tongue	RF	

Potentilla hippiana var. diffusa	Horse cinquefoil	RF	BD/JR
Potentilla pennsylvanica	Pennsylvania cinquefoil	RF	BD/JR
Potentilla pulcherrima	Beauty cinquefoil	RF	BD/JR
Pseudocymopterus montanus	Mountain parsley	RF	BD/JR
Pyrola sp.	Mule floret	RF	
Saxifraga bronchialis	Spotted saxifrage	RF	
Senecio eremophilus var. kingii	Groundsel	RF	
Senecio fendleri	Notchedleaf groundsel	RF	BD/JR
Senecio neomexicanus	New Mexican groundsel	RF	BD/JR
Silene scouleri ssp. pringlei	Scours catchfly	RF	BD/JR
Smilacina stellata	Starry smilax	RF	BD/JR
Solidago missouriensis	Missouri goldenrod	RF	BD/JR
Solidago spathulata var. nana	Dwarf alpine goldenrod	RF	BD/JR
Stachys palustris ssp. pilosa	Woundwort	RF	
Swertia radiata	Deers-ears swertia	RF	BD/JR
Taraxacum officinale	Dandelion	RF	BD/JR
Thalictrum fendleri	Meadowrue	RF	BD/JR
Thermopsis pinetorum	Piney goldenpea	RF	BD/JR
Tragopogon dubius	Yellow salsify	RF	BD/JR
Trifolium dasyphyllum	Alpine clover	RF	BD/JR
Vicia americana var. truncata	American vetch	RF	BD/JR
Viguiera mulltflora	Showy goldeneye	RF	BD/JR
Woodsia plummerae	Rockfern	RF	BD/JR

HALF-SHRUBS, SHRUBS, AND TREES:

Abies concolor	White fir		BD/JR
Abies lasiocarpa	Subalpine fir		BD/JR
Acer glabrum	Rocky Mountain maple		BD/JR
Artemisia franserioides	Ragweed sagebrush	RF	BD/JR
Artemisia frigida	Fringed sagebrush	RF	BD/JR
Artemisia ludoviciana	Louisiana wormwood	RF	BD/JR
Clematis pseudoalpina	Mountain clematis	RF	BD/JR
Holodiscus dumosus	Ocean spray	RF	BD/JR
Jamesia americana	Cliff jamesia	RF	BD/JR
Juniperus communis	Common juniper	RF	BD/JR
Physocarpus monogynus	Mountain ninebark	RF	BD/JR
Picea engelmannii	Engelmann spruce	RF	BD/JR
Pinus aristata	Bristlecone pine	RF	BD/JR
Pinus flexilis	Limber pine		BD/JR
Populus tremuloides	Quaking aspen	RF	BD/JR
Potentilla fruticosa	Shrubby cinquefoil	RF	BD/JR
Pseudotsuga menziesii	Douglas-fir		BD/JR
Ribes cereum	Wax currant	RF	BD/JR
Ribes leptanthum	Trumpet gooseberry	RF	BD/JR
Rosa nuntkana	Rose	RF	
Rosa woodsii var. macounii	Macoun rose	RF	BD/JR
Symphoricarpus oreophilus	Mountain snowberry	RF	BD/JR

[1]Common names used according to USDA, Forest Service 1974, or Martin & Hutchins 1981.
[2]RF = observed by Reggie Fletcher (Regional Botanist, USFS Southwest Region) on July 28, 1982
BD/JR = observed by Bill Dunmire (The Nature Conservancy) and Jeff Redders (Soil Scientist, USFS Southwest Region) on August 26, 1986

Fauna

No rare, endangered, or sensitive animal species are known to inhabit this area. This open, park-like forest and grassland provides important spring and summer elk range. Mule deer also regularly frequent the area. There is no perennial or open stream water on this RNA, and therefore riparian animal species are absent.

The following animal list was derived from the Run Wild III computer-stored data base (Lehmkuhl and Patton 1982; Patton 1979) from the following habitat types, for Colfax county, New Mexico:

1. Sub-alpine conifer forest biome; bristlecone-limber pine series
2. Sub-alpine conifer forest biome; Populus tremuloides subclimax
3. Montane grassland biome; mixed meadow series

These habitat types currently in the data base most closely correspond to those occurring in the proposed RNA. The following species are potentially present.

Abbreviated Animal List for Clayton Pass R.N.A.

Common Name	Latin Name
BIRDS:	
Blackbird, Brewer's	Euphagus cyanocephalus
Blackbird, redwinged	Agelaius phoeniceus
Bluebird, mountain	Sialia currucoides
Bluebird, western	Sialia mexicana
Bushtit	Psaltriparus minimus
Chickadee, black-capped	Parus atricapillus
Chickadee, mountain	Parus gambeli
Creeper, brown	Certhia americana
Crossbill, red	Loxia curvirostra
Dove, mourning	Zenaida macroura
Eagle, golden	Aquila chrysaetos
Finch, Cassin's	Carpodacus cassinii
Finch, house	Carpodacus mexicanus
Flicker, northern	Colaptes auratus
Flycatcher, olive-sided	Contopus borealis
Flycatcher, western	Empidonax difficilis
Flycatcher, willow	Empidonax traillii
Goldfinch, lesser	Carduelis psaltria
Goshawk, northern	Accipiter gentilis
Grosbeak, black-headed	Pheucticus melanocephalus
Grosbeak, evening	Coccothraustes vespertinus
Grosbeak, pine	Pinicola enucleator
Grouse, blue	Dendragapus obscurus
Hawk, Cooper's	Accipiter cooperii
Hawk, red-tailed	Buteo jamaicensis
Hawk, sharp-shinned	Accipiter striatus
Hummingbird, black-chinned	Archilochus alexandri
Hummingbird, broad-tailed	Selasphorus platycercus
Hummingbird, rufous	Selasphorus rufus
Jay, gray	Perisoreus canadensis
Jay, Steller's	Cyanocitta stelleri
Junco, dark-eyed	Junco hyemalis
Kestrel, American	Falco sparverius
Killdeer	Charadrius vociferus
Kinglet, golden-crowned	Regulus satrapa
Kinglet, ruby-crowned	Regulus calendula
Nighthawk, common	Chordeiles minor
Nutcracker, Clark's	Nucifraga columbiana
Nuthatch, pygmy	Sitta pygmaea
Nuthatch, red-breasted	Sitta canadensis
Nuthatch, white-breasted	Sitta carolinensis
Owl, great horned	Bubo virginianus
Owl, northern saw-whet	Aegolius acadicus
Pipit, water	Anthus spinoletta
Raven, common	Corvus corax
Robin, American	Turdus migratorius
Sapsucker, Williamson's	Sphyrapicus thyroideus
Sapsucker, yellow-bellied	Sphyrapicus varius

Siskin, pine	Carduelis pinus
Snipe, common	Gallinago gallinago
Solitaire, Townsend's	Myadestes townsendi
Sparrow, chipping	Spizella passerina
Sparrow, vesper	Pooecetes gramineus
Sparrow, white-crowned	Zonotrichia leucophrys
Swallow, barn	Hirundo rustica
Swallow, cliff	Hirundo pyrrhonota
Swallow,tree	Tachycineta bicolor
Swallow, violet-green	Tachycineta thalassina
Swift, white-throated	Aeronautes saxatalis
Tanager, western	Piranga ludoviciana
Thrush, hermit	Catharus guttatus
Towhee, rufous-sided	Pipilo erythrophthalmus
Turkey, wild	Meleagris gallopavo
Vireo, solitary	Vireo solitarius
Vireo, warbling	Vireo gilvus
Vulture, turkey	Cathartes aura
Warbler, Wilson's	Wilsonia pusilla
Waxwing, cedar	Bombycilla cedrorum
Woodpecker, downy	Picoides pubescens
Woodpecker, hairy	Picoides villosus
Woodpecker, three-toed	Picoides tridactylus
Wren, rock	Salpinctes obsoletus

MAMMALS:

Badger	Taxidea taxus
Bat, big brown	Eptesicus fuscus
Bat, hoary	Lasiurus cinereus
Bat, silver-haired	Lasionycteris noctivagans
Bear, black	Ursus americanus
Bobcat	Felis rufus
Chipmunk, Colorado	Tamias quadrivittatus
Cottontail, Nuttall's	Sylvilagus nuttallii
Coyote	Canis latrans
Deer, mule	Odocoileus hemionus
Elk	Cervus elaphus
Ermine	Mustela erminea
Gopher, northern pocket	Thomomys talpoides
Lion, mountain	Felis concolor
Marmot, yellow-bellied	Marmota flaviventris
Mouse, deer	Peromyscus maniculatus
Mouse, western harvest	Reithrodontomys megalotis
Myotis, fringed	Myotis thysanodes
Myotis, long-eared	Myotis evotis
Myotis, long-legged	Myotis volans
Porcupine	Erethizon dorsatum
Raccoon	Procyon lotor
Rat, hispid cotton	*Sigmodon hispidus*
Shrew, Merriam's	Sorex merriami
Shrew, vagrant	Sorex vagrans
Skunk, striped	Mephitis mephitis
Squirrel, golden-mantled ground	Spermophilus lateralis

Squirrel, red	Tamiasciurus hudsonicus
Squirrel, thirteen-lined ground	Spermophilus tridecemlineatus
Vole, heather	Phenacomys intermedius
Vole, long-tailed	Microtus longicaudus
Vole, meadow	Microtus pennsylvanicus
Vole, Mexican	Microtus mexicanus
Vole, montane	Microtus montanus
Weasel, long-tailed	Mustela frenata
Woodrat, Mexican	Neotoma mexicana
Woodrat, white-throated	Neotoma albigula

REPTILES:

Snake, ringneck	Diadophis punctatus
Snake, smooth green	Opheodrys vernalis
Snake, western terrestrial garter	Thamnophis elegans

Geology

The Cimarron Range extends to the southeast as a spur of the Sangre de Cristo Mountains, and is bordered on the west by the down-faulted Moreno Valley, on the east by the Raton Basin, and on the south by the lava-covered Ocate Plateau. Elevations range from 7500' (2290 m) to 12,500' (3810 m). The Cimarron Range is a north-plunging anticlinal mountain mass on which sedimentary rocks dip eastward off a pre-Cambrian core (Goodknight 1976:137). North of Cimarron Canyon, a thick stack of mid-Tertiary igneous sills, dividing Paleozoic and Mesozoic sedimentary rocks, makes up the bulk of the range.

The area is underlain by Dakota sandstone. Elements of this include coarse-grained, massive, cross-bedded, pale-orange to yellowish brown chert-bearing quartz sandstone; quartz-pebble conglomerate; dark-gray, fissle, carbonaceous shale; and thin, interbedded coal.

Soils

The major soil association found in the Clayton Pass RNA is Marosa- Nambe, consisting of moderately steep soils on north-facing mountain slopes, from 9000 to 11,000 feet or 2743.2 to 3352.8 m (Hacker and Carleton 1982). These soils formed in colluvium and residuum of acid igneous rock. This association is about 45 per cent Marosa gravelly sandy loam (found at lower elevations) and 30 per cent Nambe gravelly sandy loam (found at higher elevations). Rock outcrop makes up about 15 per cent of this association, and Cryaquolls make up approximately 10 per cent.

Soils are dominantly classed as Dystric Cryochrepts, loamy-skeletal, mixed. Extremely cobbly phases of this soil appear to favor nearly pure stands of aspen.

Lands

This land was donated by the Vermejo Park Corporation to the National Forest Service on December 30, 1981. The Vermejo Park Corporation retains outstanding water use rights, and Kaiser Industries retains outstanding coal rights. There are no known rights-of-way within the proposed boundaries.

Cultural Resources

A small portion of the southern end of the RNA was examined in cursory fashion for cultural resources. No historic or prehistoric sites or isolated activities were discovered. At considerably lower elevations in Carson National Forest, scattered archeological sites have been located; these include small Archaic and Basketmaker campsites, small Puebloan farming units, and historic ranches and lumber camps. It is possible that land in the vicinity of Clayton Pass may have been utilized for transient camps during prehistoric times, and isolated flakes may be found. Upon establishment as an RNA, the area will be withdrawn from any archeological research that would in any way modify the existing site.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources

The proposed RNA is within an area that Exxon Corporation wished to prospect for leasable minerals. Exxon withdrew their lease application in 1986. Coal rights in the area are owned by Kaiser Steel; however, there is little likelihood of coal reserves in this area, based on a study by the National Park Service in 1979. Upon establishment as an RNA, the area will be withdrawn from mineral entry.

Grazing

No impacts or conflicts, as the area has been closed to grazing.

Timber

This area has about 285 acres of bristlecone pine with aspen.

Total forested acres: approximately 285 (115.3 hectares)
Commercial forested acres: approximately 0

Watershed Values

This area drains into the Middle Ponil Creek, which eventually drains into the Cimarron River. The distance from the RNA to the confluence with the Cimarron River is approximately 34 miles (54.7 km).

Recreation Values

Recreation use in this area is very light due to its lack of attractive features. Use consists of big game hunting. Forest Road 1950 is on the southern boundary of the area. This road receives moderate use for recreation and administrative traffic. The entire area is closed to recreation use from May 1 to June 30 for wildlife habitat protection.

Wildlife and Plant Values

Deer and elk are regularly observed in or near the RNA. No threatened, endangered or sensitive species are known to occur in the area.

Wilderness, Wild and Scenic River, National Recreation Area Values

None of the above congressionally designated areas have been proposed for the Clayton Pass RNA or vicinity.

Transportation Plans

Forest Road 1950 roughly parallels the southern boundary of the area.

Utility Corridor Plans

No existing or potential utility corridor plans exist in the vicinity of this RNA.

MANAGEMENT PLAN

The Carson National Forest Plan (USFS 1986) prescribes that there will be no harvest of timber or firewood and no assigned grazing capacity on Research Natural Areas. The prescriptions also prohibit off-road vehicle travel, open campfires, the introduction of non-native plant or animal species, road or trail construction, and recreational use if degradation results. However, non-motorized 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 flora, fauna, or other materials may be collected other than for research approved by the Station Director, with the exception of those animals harvested with a valid New Mexico hunting license.

Vegetation Management

The Forest Plan provides that prescribed fire, using planned and unplanned ignitions, is allowed in the Clayton Pass RNA to maintain fire dependent ecosystems. A fire management plan for the RNA will be developed at a later time.

ADMINISTRATIVE RECORDS AND PROTECTION

Administration and protection of the Clayton Pass RNA will be the responsibility of the Carson National Forest. The District Ranger, Questa District, Questa, 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 Clayton Pass RNA will be maintained in the following offices:

Regional Forester, Southwestern Region, Albuquerque, NM
Rocky Mountain Station, Fort Collins, CO
Carson National Forest, Taos NM
District Ranger, Questa Ranger District, Questa, NM

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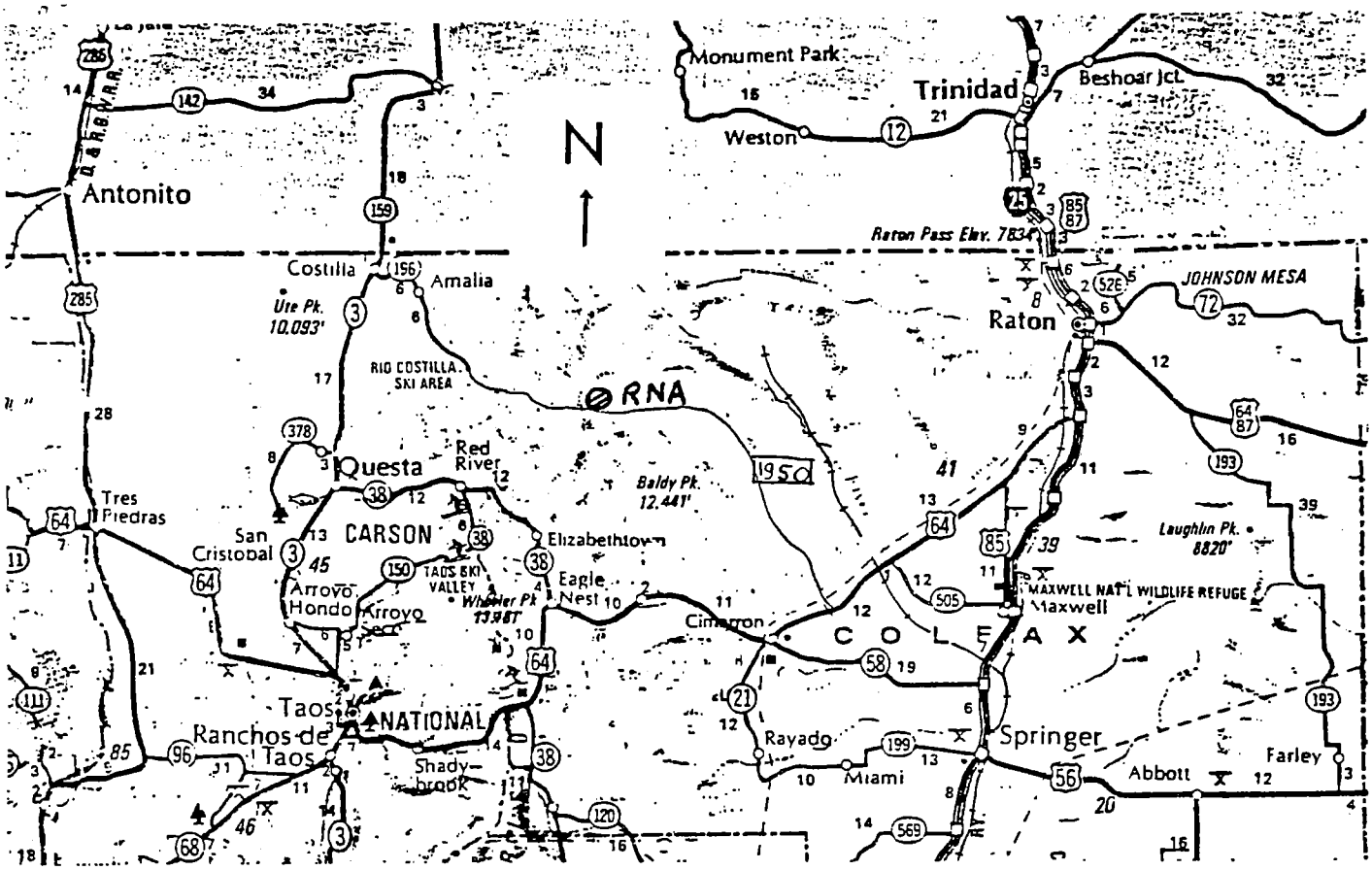
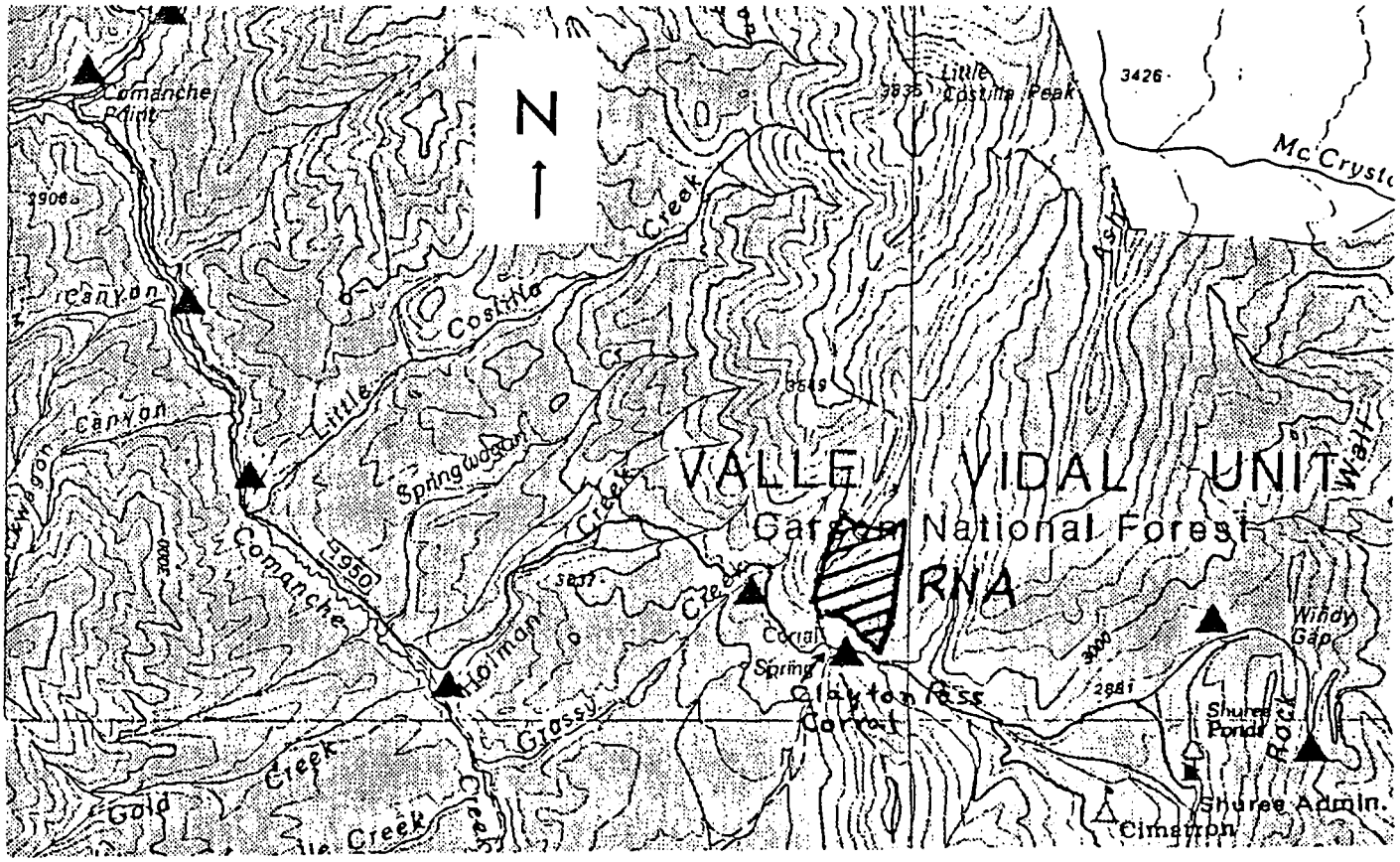
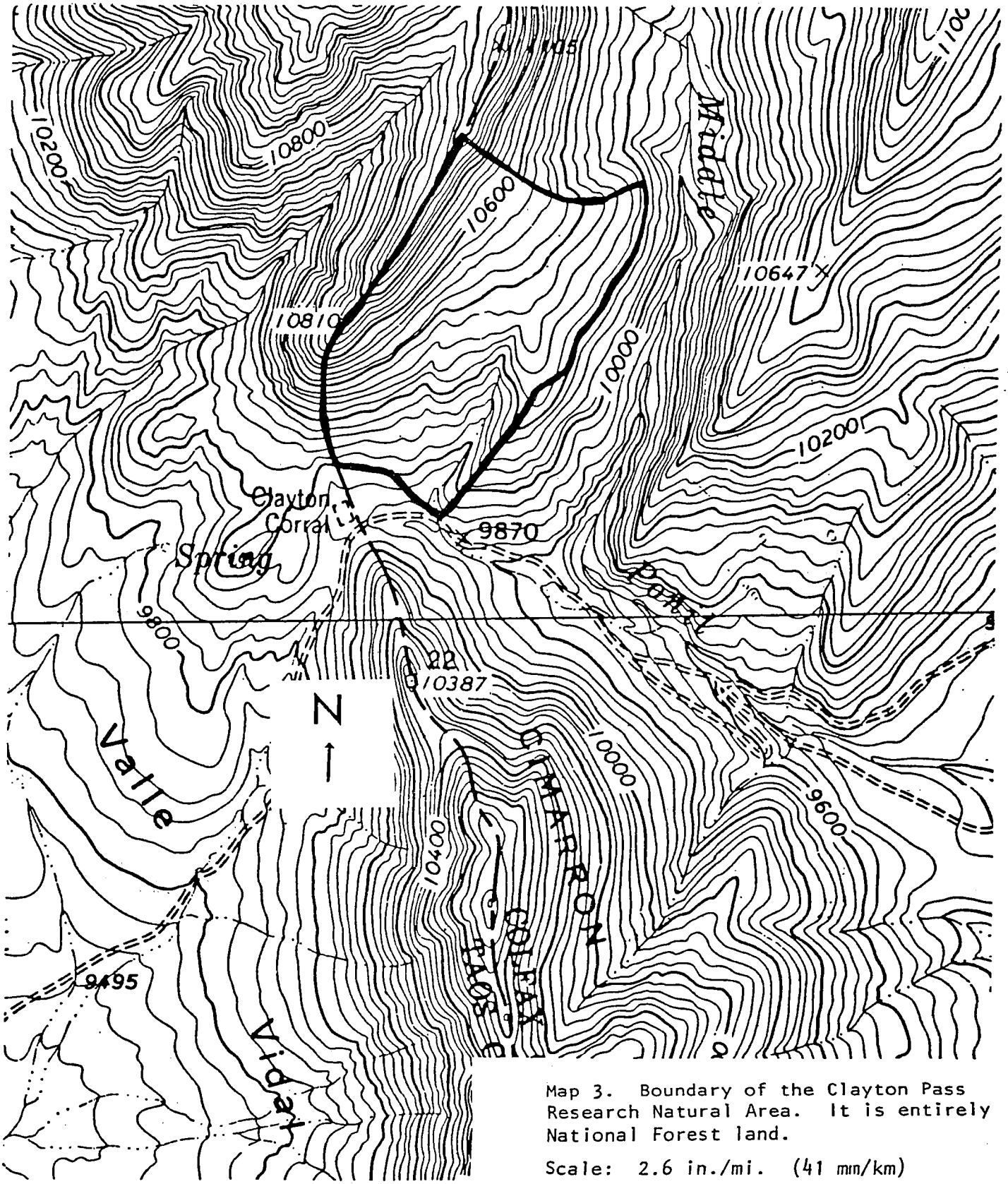


Map 1. Location of RNA (North Central New Mexico)

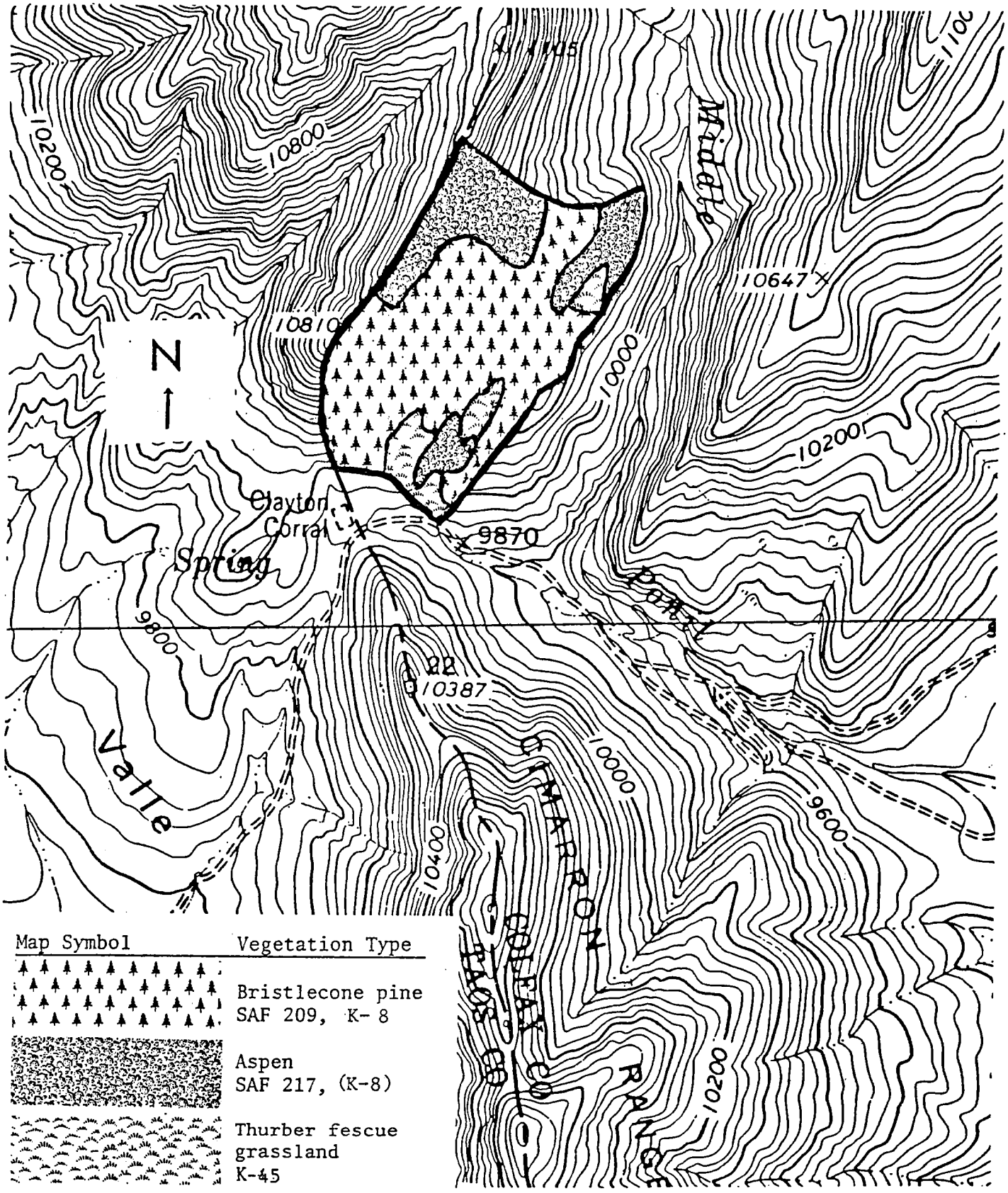


Map 2. Access Route to Clayton Pass RNA
Scale: 0.82 in./mi. (1.29 cm/km)



Map 3. Boundary of the Clayton Pass Research Natural Area. It is entirely National Forest land.

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



Map 4. Distribution of vegetation types in the Clayton Pass Research Natural Area.

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 Clayton Pass Research Natural Area the lands described in the following establishment record prepared by William W. Dunmire and Mollie S. Toll, dated July 1, 1987. These lands shall hereafter be administered as a research natural area subject to the above regulations and instructions issued thereunder.

_____ _____

Chief Date

ESTABLISHMENT RECORD

for

CLAYTON PASS RESEARCH NATURAL AREA

within

Carson National Forest

Colfax County, New Mexico

INTRODUCTION

The Clayton Pass Research Natural Area (RNA) comprises approximately 300 acres (121.4 hectares) of bristlecone pine forest in north-central New Mexico. The proposed RNA is located in the Questa Ranger District, in Colfax County, and is all acquired National Forest land.

In the search for an example of bristlecone pine (Pinus aristata) forest, Clayton Pass provided a particularly apt illustration, together with a minimal use history. The area contains vigorous stands of bristlecone pine, with both robust individuals of great age and juvenile specimens. A task group of the Regional RNA Committee visited this and several other candidate forest areas in July, 1982, and concurred that this was the only available example meeting all the requirements.

Land Management Planning

The need for representation of this biotic community was identified in the Southwestern Regional Guide (August 1983), although this particular site was not identified by name. The Carson National Forest Plan, implemented December 8, 1986, does not include the Valle Vidal portion of the Forest. The Little Costilla Peak, McCrystal Meadow, and Clayton Pass proposed Research Natural Areas are within the Valle Vidal. The Forest is presently working on an amendment to the Forest Plan to include the Valle Vidal. It is anticipated that the environmental analysis (or EIS) prepared for the amendment will support the establishment of the three proposed Research Natural Areas. In the meantime the areas are designated for protection in the Multiple Use Area Guide for the Valle Vidal which has been approved by the Regional Forester. The management of the Valle Vidal will be governed by the Multiple Use Area Guide until the Forest Plan is amended to include the Unit.

JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

The proposed Clayton Pass Research Natural Area was identified primarily as an outstanding example of a bristlecone pine forest ecosystem. This is an important and widespread ecosystem in the Southwest. The need to include such an ecosystem within the RNA network of the Southwestern Region has been stated in the Regional Guide (USFS 1983).

Bristlecone pine is present in the proposed RNA as healthy stands, mostly on south- and southeast-facing slopes from 10,000 to 10,600 feet (3050 to 3230 m) elevation, with specimens of three foot (91 cm) diameter trunks not uncommon; as an invader into Thurber fescue (Festuca thurberi) and Kentucky bluegrass (Poa pratensis) meadows; and as a regenerating component of aspen (Populus tremuloides) groves. Bristlecone pine is reproducing well and apparently has occupied the proposed RNA for some time. Clayton Pass provides a unique example of several manifestations of bristlecone pine growth in New Mexico, including the American Forestry Association Champion tree, and merits inclusion in the RNA system. A

prime consideration in managing this proposed RNA will be to maintain unmodified conditions and natural processes, by protecting against any activities that might directly or indirectly alter these characters.

PRINCIPAL DISTINGUISHING FEATURES

The highest elevations are found on steep slopes at the western edge of the RNA facing south and southeast. These contain vigorous stand of bristlecone pine. The lowest elevations, on more gradual slopes, are Thurber fescue (Festuca thurberi) and Kentucky bluegrass (Poa pratensis) meadows invaded by bristlecone pine within the last century. Intermediate slopes (facing south, southeast, and southwest) contain bristlecone pine stands of mixed age, including the largest specimens. There are aspen (Populus tremuloides) stands present which show signs of regeneration of bristlecone pine.

LOCATION (Carson National Forest)

Clayton Pass is situated in north central New Mexico (Map 1) in the Valle Vidal unit of the Questa Ranger District, roughly 25 miles (40.2 km) northeast of Questa, New Mexico. The RNA can be located on the Ash Mountain Quadrangle (USGS 15') at latitude 36 47', longitude 105 14", Township 30 N, Range 16 E, Sections 33 and 34. A small protion of the RNA extends into Township 29 N, Range 16 E, Section 4. **Commencing from a point 0.25 miles east of Clayton Corral (Map 3) the boundary proceeds northerly along a ridge to about the 10,200 ft contour and then follows this contour about 0.5 miles. The boundary then proceeds westerly up a small ridge to a point at 11,000 ft on a conspicuous high ridgetop. From here the boundary continues southwesterly along the ridgetop to a point at 10,810 feet. It then follows south to a point at 10,000 ft about 500 feet north of Clayton Corral and from this point returns to the point of origin.** Elevation ranges from a high of 11,000 ft (3350 m) at the northeast corner, to a low of 9890 ft (3010 m) at the southeast corner.

To access the area from the town of Costilla, New Mexico, approximately 44 miles (70.8 km) north of Taos, New Mexico, near the Colorado border, take County Road 96 where it departs to the east from State Route 3. Pavement ends after 6 miles (9.6 km), but the well-graveled road continues for 17 miles (27.4 km) from Costilla, at which point it becomes Forest Road 1950. At mile 18.4 (29.6 km) take the right fork and continue to Clayton Pass Corrals, which are in a low saddle 26.4 miles (42.5 km) from the town of Costilla. Park at the corrals and walk into the lower end of the RNA.

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 areas 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 SAF types, plus a grassland type not covered in the SAF forest categories, on the candidate research natural area.

Table 1. Estimated Areas of Vegetation Types in the Clayton Pass Research Natural Area.

Type	Society of American Foresters Cover Type[1]	Küchler PNV Type[2]	Surface Area Acres	Hectares
Bristlecone Pine	SAF 209	K-.8 Great Basin Pine Forest	135	54.6
Aspen	SAF 217	K-.8	125	50.6
Thurber Fescue Grassland	[none]	K-45 Alpine Meadows	40	16.2
		TOTAL:	300	121.4

[1]Eyre 1980.
[2]Küchler 1964.

PHYSICAL AND CLIMATIC CONDITIONS

Areas of this elevational range in northern New Mexico are generally classified as subhumid to humid in climate, and receive the greatest annual precipitation in the state. Average annual rainfall for Clayton Pass is 29 inches (737 mm), and average snowfall 67 inches (170.2 cm). Precipitation in the mountains comes in all seasons to a greater extent than it does in the arid and semiarid climates of New Mexico. Warm season rainfall (May to October), frequently from local orographic or convectional storms, accounts for 61% of the annual cycle of precipitation, with 39% falling as rain and as snow from cyclonic storms between November and April. Mean annual temperature is a cool 36° F (2.5° C), with a July average of 54° F (13.8° C) and a January average of 16° F (-4.0° C).

DESCRIPTION OF VALUES

Flora

A broad survey of habitat types (HT) was conducted during the 1986 field work. A brief review follows; for a more detailed description of the vegetative makeup of these types, see DeVelice et al (1986).

The area currently supports three vegetation types, bristlecone pine forest, aspen in nearly pure seral stands, and patches of Thurber fescue grassland (Table 1, Map 4). Bristlecone pine is regenerating to some degree in most of the stands where aspen dominates the overstory, and pine is also an invader into the grassland meadows. Potential climax for virtually the entire area, therefore, is considered to be Pinus aristata/Festuca thurberi Habitat Type (PIAR/FETH HT).

Bristlecone pines found in this research natural area are noteworthy for size and vigor. A number of trees measure over 3 feet (91.4 cm) dbh, and one, with a circumference at breast height of 132.2 inches (335.8 cm), may be the largest bristlecone pine recorded in the Rocky Mountains. Another specimen at 19 inches (48.3 cm) dbh and 61 feet (18.6 m) tall is about 300 years old at breast height age. Occasional bristlecone snags suggest that the area has long been a bristlecone pine site.

Other trees, including Engelmann spruce (Picea engelmannii), subalpine fir (Abies lasiocarpa), Douglas-fir (Pseudotsuga menziesii), and Rocky Mountain maple (Acer glabrum) occur mostly on the steeper southeast and southwest-facing slopes, but even here tend to be poorly represented. Nowhere within the RNA does spruce-fir appear to be developing into a climax closed forest.

The extremely steep southeast-facing slopes on the western edge of the RNA support a shrubby undergrowth dominated by mountain snowberry (Symphorocarpos oreophilus) at the lower end and ocean spray (Holodiscus dumosus) above. Cliff jamesia (Jamesia americana) and currant (Ribes sp.) are also common here.

Except for seral aspen groves, the moderate lower slopes are mostly open park-like bristlecone pine forest. The grassy undergrowth is principally composed of oatgrass (Danthonia sp.), Thurber fescue, and Kentucky bluegrass, with many other grasses present. Forbs comprise about 5 per cent of the vegetation on these slopes, and shrubs are almost absent. Very old fire scars are evident throughout the area.

The southwest-facing slope on the southeast boundary of the RNA consists of a mix of conifers, including occasional white fir (Abies concolor) and limber pine (Pinus flexilis) in addition to the other species cited above. Even here, however, bristlecone pine is well represented with over 5 per cent of the cover. Except for occasional brome grass (Bromus sp.), there is little grass on these slopes. Forest fleabane (Erigeron eximius) and other forbs are abundant here.

No threatened, endangered, or unique plants are known to occur in Clayton Pass.

The following plant list was compiled from field observations by Reggie Fletcher (Regional Botanist, USFS Southwestern Region) on July 28, 1982, and by Bill Dunmire (The Nature Conservancy) and Jeff Redders (Soil Scientist, USFS Southwestern Region) on August 26, 1986.

Abbreviated Plant List for Clayton Pass RNA

Latin Name	Common Name	Reference[1]	
GRASSES AND GRASS-LIKE PLANTS:			
Agropyron smithii	Western wheatgrass		BD/JR
Agropyron trachycaulum	Slender wheatgrass	RF	BD/JR
Agrostis scabra	Rough bentgrass	RF	BD/JR
Blepharoneuron tricholepis	Pine dropseed	RF	BD/JR
Bromus anomalus	Nodding brome	RF	BD/JR
Bromus ciliatus	Hairy brome		BD/JR
Carex arapahoensis	Sedge	RF	
Carex brevior	Sedge	RF	
Carex eleocharis	Sedge	RF	
Carex foena	Sedge	RF	
Carex heliophila	Prairie Sedge	RF	
Carex oreocharis	Sedge	RF	
Carex rossii	Sedge	RF	
Carex simulata	Sedge	RF	
Danthonia californica	California oatgrass	RF	
Danthonia parryi	Parry danthonia	RF	BD/JR
Deschampsia caespitosa	Tufted hairgrass		BD/JR
Elymus canadensis	Canada wildrye		BD/JR
Festuca arizonica	Arizona fescue	RF	BD/JR
Festuca ovina var. *ovina*	Sheep fescue	RF	BD/JR
Festuca thurberi	Thurber fescue	RF	BD/JR
Koeleria cristata	Junegrass	RF	BD/JR
Muhlenbergia montana	Mountain muhly	RF	BD/JR
Phleum alpinum	Alpine timothy	RF	BD/JR
Poa fendleriana	Muttongrass	RF	BD/JR
Poa interior	Inland bluegrass	RF	
Poa pratensis	Kentucky bluegrass	RF	BD/JR
Sitanion hystrix	Bottlebrush squirreltail	RF	BD/JR
Stipa columbiana	Columbia needlegrass	RF	BD/JR
Trisetum montanum	Rocky Mountain trisetum	RF	BD/JR
FORBS:			
Achillea lanulosa ssp. *alpicola*	Western yarrow	RF	BD/JR
Allium cernuum	Nodding onion	RF	
Allium textile	Onion	RF	
Androsace septentrionalis	Rock jasmine	RF	BD/JR
Antennaria obovata	Pussytoes	RF	
Antennaria parvifolia	Rocky Mountain pussytoes	RF	BD/JR
Antennaria rosea	Rose pussytoes	RF	BD/JR
Aquilegia caerulea	Colorado columbine	RF	
Arabis drummondii	Drummond rockcress	RF	
Arenaria fendleri var. *fendleri*	Fendler sandwort	RF	
Arenaria fendleri var. *brevifolia*	Fendler sandwort	RF	

Arenaria parvifolia	Sandwort	RF	
Astragalus adsurgens var. robustior	Milkvetch	RF	
Astragalus agrestis	Purple milkvetch	RF	
Astragalus alpinus	Alpine milkvetch	RF	
Astragalus hallii var. hallii	Milkvetch	RF	
Astragalus scopulorum	Rocky Mountain milkvetch	RF	
Calochortus gunnisonii	Gunnison mariposalily	RF	
Campanula rotundifolia	Bluebell	RF	BD/JR
Castilleja miniata	Indian paintbrush	RF	BD/JR
Ceratium arvense	Starry mouse-ear	RF	
Chenopodium desiccatum var. desiccatum	Goosefoot	RF	
Chrysopsis villosa	Hairy goldaster		BD/JR
Cirsium pallidum	Yellow thistle	RF	BD/JR
Descurainia richardsonii ssp. procera	Western tansymustard	RF	
Draba rectifructa	Whitlowgrass	RF	
Epilobium angustifolium	Blooming Sally	RF	BD/JR
Erigeron eximius	Fleabane		BD/JR
Erigeron flagellaris	Trailing fleabane	RF	
Erigeron subtrinervis	Three-nerve fleabane	RF	
Erigeron vetensis	Fleabane	RF	
Eriogonum jamesii	Wee Mary buckwheat	RF	BD/JR
Erysimum capitatum	Western wallflower	RF	BD/JR
Fragaria americana	Strawberry		BD/JR
Fragaria ovalis	Wild strawberry	RF	BD/JR
Galium boreale	Northern bedstraw	RF	BD/JR
Gentiana plebia	Gentian	RF	
Geranium caespitosum	Purple geranium	RF	BD/JR
Geranium nervosum	Geranium	RF	
Geranium richardsonii	Big Dick geranium	RF	BD/JR
Haplopappus parryi	Parry goldenweed	RF	BD/JR
Helenium hoopesii	Orange sneezeweed		BD/JR
Helianthella parryi	Parry Wood-sunflower	RF	BD/JR
Helianthella quinquenervis	Nodding Wood-sunflower	RF	BD/JR
Ipomopsis aggregata	Skyrocket		BD/JR
Iris missouriensis	Flag	RF	BD/JR
Lappula redowski	Stickseed	RF	
Lathyrus arizonicus	Arizona peavine	RF	BD/JR
Linum lewisii	Blue flax	RF	
Mirabilis oxybaphoides	Four o'clock	RF	
Moldavica parvifolia	False dragonhead	RF	
Oenothera sp.	Evening-primrose	RF	
Oreoxis bakeri	Oreoxis	RF	
Orthocarpus luteus	Yellow owlclover	RF	
Osmorhiza longistylis	Sweetroot	RF	
Oxybaphus linearis var. linearis	Desert four o'clock	RF	
Oxytropis lambertii	Lambert crazyweed	RF	
Oxytropis splendens	Crazyweed	RF	
Pedicularis grayi	Woodbetony	RF	

Penstemon barbatus	Beardlip	RF	
Penstemon strictus ssp. strictus	Rocky Mountain beard	RF	
Potentilla hippiana var. diffusa	tongue Horse cinquefoil	RF	BD/JR
Potentilla pennsylvanica	Pennsylvania cinquefoil	RF	BD/JR
Potentilla pulcherrima	Beauty cinquefoil	RF	BD/JR
Pseudocymopterus montanus	Mountain parsley	RF	BD/JR
Pyrola sp.	Mule floret	RF	
Saxifraga bronchialis	Spotted saxifrage	RF	
Senecio eremophilus var. kingii	Groundsel	RF	
Senecio fendleri	Notchedleaf groundsel	RF	BD/JR
Senecio neomexicanus	New Mexican groundsel	RF	BD/JR
Silene scouleri ssp. pringlei	Scours catchfly	RF	BD/JR
Smilacina stellata	Starry smilax	RF	BD/JR
Solidago missouriensis	Missouri goldenrod	RF	BD/JR
Solidago spathulata var. nana	Dwarf alpine goldenrod	RF	BD/JR
Stachys palustris ssp. pilosa	Woundwort	RF	
Swertia radiata	Deers-ears swertia	RF	BD/JR
Taraxacum officinale	Dandelion	RF	BD/JR
Thalictrum fendleri	Meadowrue	RF	BD/JR
Thermopsis pinetorum	Piney goldenpea	RF	BD/JR
Tragopogon dubius	Yellow salsify	RF	BD/JR
Trifolium dasyphyllum	Alpine clover	RF	BD/JR
Vicia americana var. truncata	American vetch	RF	BD/JR
Viguiera mulltflora	Showy goldeneye	RF	BD/JR
Woodsia plummerae	Rockfern	RF	BD/JR

HALF-SHRUBS, SHRUBS, AND TREES:

Abies concolor	White fir		BD/JR
Abies lasiocarpa	Subalpine fir		BD/JR
Acer glabrum	Rocky Mountain maple		BD/JR
Artemisia franserioides	Ragweed sagebrush	RF	BD/JR
Artemisia frigida	Fringed sagebrush	RF	BD/JR
Artemisia ludoviciana	Louisiana wormwood	RF	BD/JR
Clematis pseudoalpina	Mountain clematis	RF	BD/JR
Holodiscus dumosus	Ocean spray	RF	BD/JR
Jamesia americana	Cliff jamesia	RF	BD/JR
Juniperus communis	Common juniper	RF	BD/JR
Physocarpus monogynus	Mountain ninebark	RF	BD/JR
Picea engelmannii	Engelmann spruce	RF	BD/JR
Pinus aristata	Bristlecone pine	RF	BD/JR
Pinus flexilis	Limber pine		BD/JR
Populus tremuloides	Quaking aspen	RF	BD/JR
Potentilla fruticosa	Shrubby cinquefoil	RF	BD/JR
Pseudotsuga menziesii	Douglas-fir		BD/JR
Ribes cereum	Wax currant	RF	BD/JR
Ribes leptanthum	Trumpet gooseberry	RF	BD/JR

Rosa nuntkana	Rose	RF	
Rosa woodsii var. macounii	Macoun rose	RF	BD/JR
Symphoricarpus oreophilus	Mountain snowberry	RF	BD/JR

[1]Common names used according to USDA, Forest Service 1974, or Martin & Hutchins 1981.
[2]RF = observed by Reggie Fletcher (Regional Botanist, USFS Southwest Region) on July 28, 1982
BD/JR = observed by Bill Dunmire (The Nature Conservancy) and Jeff Redders (Soil Scientist, USFS Southwest Region) on August 26, 1986

Fauna

No rare, endangered, or sensitive animal species are known to inhabit this area. This open, park-like forest and grassland provides important spring and summer elk range. Mule deer also regularly frequent the area. There is no perennial or open stream water on this RNA, and therefore riparian animal species are absent.

The following animal list was derived from the Run Wild III computer-stored data base (Lehmkuhl and Patton 1982; Patton 1979) from the following habitat types, for Colfax county, New Mexico:

1. Sub-alpine conifer forest biome; bristlecone-limber pine series
2. Sub-alpine conifer forest biome; Populus tremuloides subclimax
3. Montane grassland biome; mixed meadow series

These habitat types currently in the data base most closely correspond to those occurring in the proposed RNA. The following species are potentially present.

Abbreviated Animal List for Clayton Pass R.N.A.

Common Name	Latin Name
BIRDS:	
Blackbird, Brewer's	Euphagus cyanocephalus
Blackbird, redwinged	Agelaius phoeniceus
Bluebird, mountain	Sialia currucoides
Bluebird, western	Sialia mexicana
Bushtit	Psaltriparus minimus
Chickadee, black-capped	Parus atricapillus
Chickadee, mountain	Parus gambeli
Creeper, brown	Certhia americana
Crossbill, red	Loxia curvirostra
Dove, mourning	Zenaida macroura
Eagle, golden	Aquila chrysaetos
Finch, Cassin's	Carpodacus cassinii
Finch, house	Carpodacus mexicanus
Flicker, northern	Colaptes auratus
Flycatcher, olive-sided	Contopus borealis
Flycatcher, western	Empidonax difficilis
Flycatcher, willow	Empidonax traillii
Goldfinch, lesser	Carduelis psaltria
Goshawk, northern	Accipiter gentilis
Grosbeak, black-headed	Pheucticus melanocephalus
Grosbeak, evening	Coccothraustes vespertinus
Grosbeak, pine	Pinicola enucleator
Grouse, blue	Dendragapus obscurus
Hawk, Cooper's	Accipiter cooperii
Hawk, red-tailed	Buteo jamaicensis
Hawk, sharp-shinned	Accipiter striatus
Hummingbird, black-chinned	Archilochus alexandri
Hummingbird, broad-tailed	Selasphorus platycercus
Hummingbird, rufous	Selasphorus rufus
Jay, gray	Perisoreus canadensis
Jay, Steller's	Cyanocitta stelleri
Junco, dark-eyed	Junco hyemalis
Kestrel, American	Falco sparverius
Killdeer	Charadrius vociferus
Kinglet, golden-crowned	Regulus satrapa
Kinglet, ruby-crowned	Regulus calendula
Nighthawk, common	Chordeiles minor
Nutcracker, Clark's	Nucifraga columbiana
Nuthatch, pygmy	Sitta pygmaea
Nuthatch, red-breasted	Sitta canadensis
Nuthatch, white-breasted	Sitta carolinensis
Owl, great horned	Bubo virginianus
Owl, northern saw-whet	Aegolius acadicus
Pipit, water	Anthus spinoletta
Raven, common	Corvus corax
Robin, American	Turdus migratorius

Sapsucker, Williamson's	Sphyrapicus thyroideus
Sapsucker, yellow-bellied	Sphyrapicus varius
Siskin, pine	Carduelis pinus
Snipe, common	Gallinago gallinago
Solitaire, Townsend's	Myadestes townsendi
Sparrow, chipping	Spizella passerina
Sparrow, vesper	Pooecetes gramineus
Sparrow, white-crowned	Zonotrichia leucophrys
Swallow, barn	Hirundo rustica
Swallow, cliff	Hirundo pyrrhonota
Swallow,tree	Tachycineta bicolor
Swallow, violet-green	Tachycineta thalassina
Swift, white-throated	Aeronautes saxatalis
Tanager, western	Piranga ludoviciana
Thrush, hermit	Catharus guttatus
Towhee, rufous-sided	Pipilo erythrophthalmus
Turkey, wild	Meleagris gallopavo
Vireo, solitary	Vireo solitarius
Vireo, warbling	Vireo gilvus
Vulture, turkey	Cathartes aura
Warbler, Wilson's	Wilsonia pusilla
Waxwing, cedar	Bombycilla cedrorum
Woodpecker, downy	Picoides pubescens
Woodpecker, hairy	Picoides villosus
Woodpecker, three-toed	Picoides tridactylus
Wren, rock	Salpinctes obsoletus

MAMMALS:

Badger	Taxidea taxus
Bat, big brown	Eptesicus fuscus
Bat, hoary	Lasiurus cinereus
Bat, silver-haired	Lasionycteris noctivagans
Bear, black	Ursus americanus
Bobcat	Felis rufus
Chipmunk, Colorado	Tamias quadrivittatus
Cottontail, Nuttall's	Sylvilagus nuttallii
Coyote	Canis latrans
Deer, mule	Odocoileus hemionus
Elk	Cervus elaphus
Ermine	Mustela erminea
Gopher, northern pocket	Thomomys talpoides
Lion, mountain	Felis concolor
Marmot, yellow-bellied	Marmota flaviventris
Mouse, deer	Peromyscus maniculatus
Mouse, western harvest	Reithrodontomys megalotis
Myotis, fringed	Myotis thysanodes
Myotis, long-eared	Myotis evotis
Myotis, long-legged	Myotis volans
Porcupine	Erethizon dorsatum
Raccoon	Procyon lotor
Rat, hispid cotton	Sigmodon hispidus

Shrew, Merriam's	Sorex merriami
Shrew, vagrant	Sorex vagrans
Skunk, striped	Mephitis mephitis
Squirrel, golden-mantled ground	Spermophilus lateralis
Squirrel, red	Tamiasciurus hudsonicus
Squirrel, thirteen-lined ground	Spermophilus tridecemlineatus
Vole, heather	Phenacomys intermedius
Vole, long-tailed	Microtus longicaudus
Vole, meadow	Microtus pennsylvanicus
Vole, Mexican	Microtus mexicanus
Vole, montane	Microtus montanus
Weasel, long-tailed	Mustela frenata
Woodrat, Mexican	Neotoma mexicana
Woodrat, white-throated	Neotoma albigula

REPTILES:

Snake, ringneck	Diadophis punctatus
Snake, smooth green	Opheodrys vernalis
Snake, western terrestrial garter	Thamnophis elegans

Geology

The Cimarron Range extends to the southeast as a spur of the Sangre de Cristo Mountains, and is bordered on the west by the down-faulted Moreno Valley, on the east by the Raton Basin, and on the south by the lava-covered Ocate Plateau. Elevations range from 7500' (2290 m) to 12,500' (3810 m). The Cimarron Range is a north-plunging anticlinal mountain mass on which sedimentary rocks dip eastward off a pre-Cambrian core (Goodknight 1976:137). North of Cimarron Canyon, a thick stack of mid-Tertiary igneous sills, dividing Paleozoic and Mesozoic sedimentary rocks, makes up the bulk of the range.

The area is underlain by Dakota sandstone. Elements of this include coarse-grained, massive, cross-bedded, pale-orange to yellowish brown chert-bearing quartz sandstone; quartz-pebble conglomerate; dark-gray, fissle, carbonaceous shale; and thin, interbedded coal.

Soils

The major soil association found in the Clayton Pass RNA is Marosa-Nambe, consisting of moderately steep soils on north-facing mountain slopes, from 9000 to 11,000 feet or 2743.2 to 3352.8 m (Hacker and Carleton 1982). These soils formed in colluvium and residuum of acid igneous rock. This association is about 45 per cent Marosa gravelly sandy loam (found at lower elevations) and 30 per cent Nambe gravelly sandy loam (found at higher elevations). Rock outcrop makes up about 15 per cent of this association, and Cryaquolls make up approximately 10 per cent.

Soils are dominantly classed as Dystric Cryochrepts, loamy-skeletal, mixed. Extremely cobbly phases of this soil appear to favor nearly pure stands of aspen.

Lands

This land was donated by the Vermejo Park Corporation to the National Forest Service on December 30, 1981. The Vermejo Park Corporation retains outstanding water use rights, and Kaiser Industries retains outstanding coal rights. There are no known rights-of-way within the proposed boundaries.

Cultural Resources

A small portion of the southern end of the RNA was examined in cursory fashion for cultural resources. No historic or prehistoric sites or isolated activities were discovered. At considerably lower elevations in Carson National Forest, scattered archeological sites have been located; these include small Archaic and Basketmaker campsites, small Puebloan farming units, and historic ranches and lumber camps. It is possible that land in the vicinity of Clayton Pass may have been utilized for transient camps during prehistoric times, and isolated flakes may be found. Upon establishment as an RNA, the area will be withdrawn from any archeological research that would in any way modify the existing site.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources

The proposed RNA is within an area that Exxon Corporation wished to prospect for leasable minerals. Exxon withdrew their lease application in 1986. Coal rights in the area are owned by Kaiser Steel; however, there is little likelihood of coal reserves in this area, based on a study by the National Park Service in 1979. Upon establishment as an RNA, the area will be withdrawn from mineral entry.

Grazing

No impacts or conflicts, as the area has been closed to grazing.

Timber

This area has about 285 acres of bristlecone pine with aspen.

Total forested acres: approximately 285 (115.3 hectares)
Commercial forested acres: approximately 0

Watershed Values

This area drains into the Middle Ponil Creek, which eventually drains into the Cimarron River. The distance from the RNA to the confluence with the Cimarron River is approximately 34 miles (54.7 km).

Recreation Values

Recreation use in this area is very light due to its lack of attractive features. Use consists of big game hunting. Forest Road 1950 is on the southern boundary of the area. This road receives moderate use for recreation and administrative traffic. The entire area is closed to recreation use from May 1 to June 30 for wildlife habitat protection.

Wildlife and Plant Values

Deer and elk are regularly observed in or near the RNA. No threatened, endangered or sensitive species are known to occur in the area.

Wilderness, Wild and Scenic River, National Recreation Area Values

None of the above congressionally designated areas have been proposed for the Clayton Pass RNA or vicinity.

Transportation Plans

Forest Road 1950 roughly parallels the southern boundary of the area.

Utility Corridor Plans

No existing or potential utility corridor plans exist in the vicinity of this RNA.

MANAGEMENT PLAN

The Carson National Forest Plan (USFS 1986) prescribes that there will be no harvest of timber or firewood and no assigned grazing capacity on Research Natural Areas. The prescriptions also prohibit off-road vehicle travel, open campfires, the introduction of non-native plant or animal species, road or trail construction, and recreational use if degradation results. However, non-motorized 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 flora, fauna, or other materials may be collected other than for research approved by the Station Director, with the exception of those animals harvested with a valid New Mexico hunting license.

Vegetation Management

The Forest Plan provides that prescribed fire, using planned and unplanned ignitions, is allowed in the Clayton Pass RNA to maintain fire dependent ecosystems. A fire management plan for the RNA will be developed at a later time.

ADMINISTRATIVE RECORDS AND PROTECTION

Administration and protection of the Clayton Pass RNA will be the responsibility of the Carson National Forest. The District Ranger, Questa District, Questa, 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 Clayton Pass RNA will be maintained in the following offices:

Regional Forester, Southwestern Region, Albuquerque, NM
Rocky Mountain Station, Fort Collins, CO
Carson National Forest, Taos NM
District Ranger, Questa Ranger District, Questa, NM

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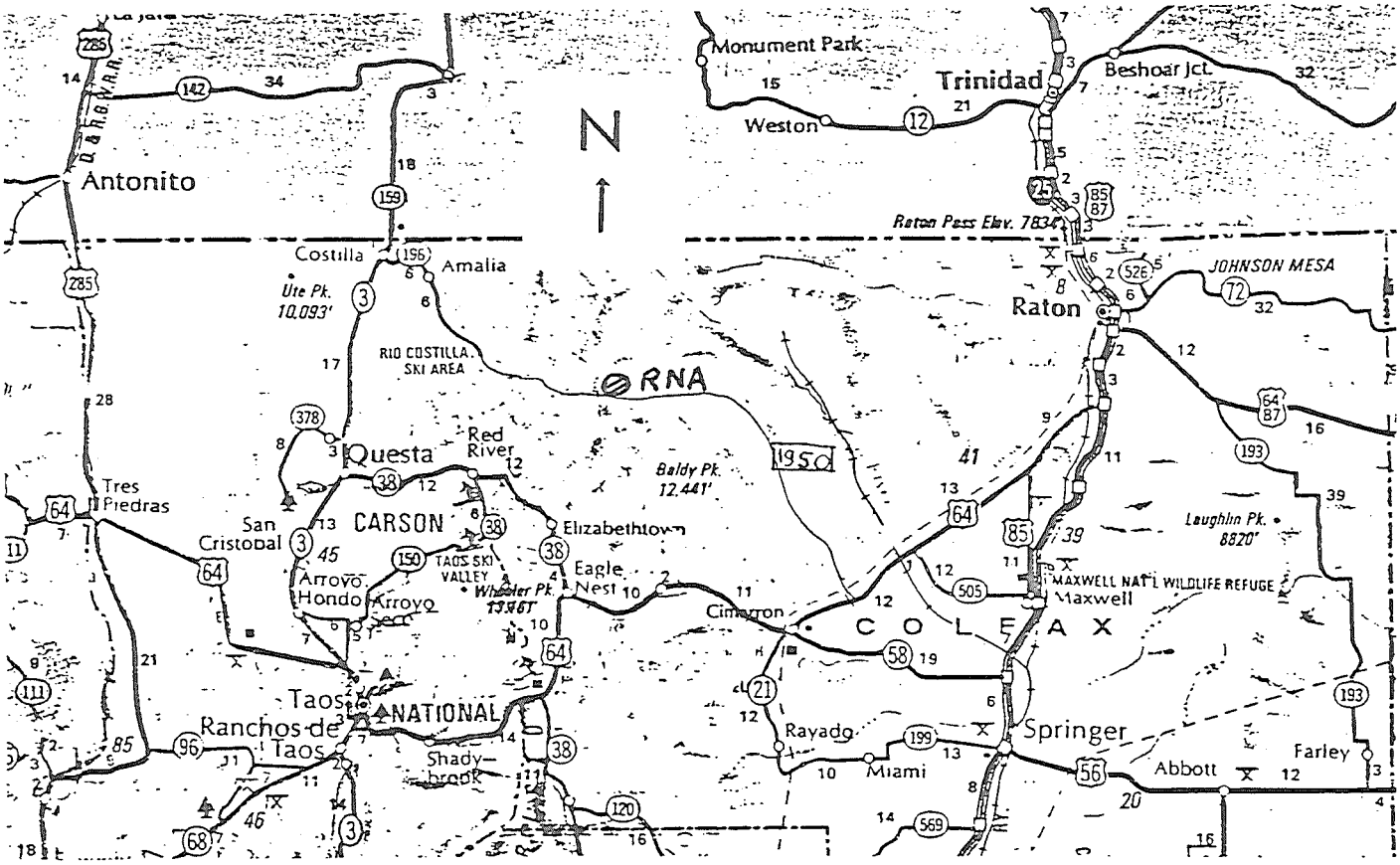
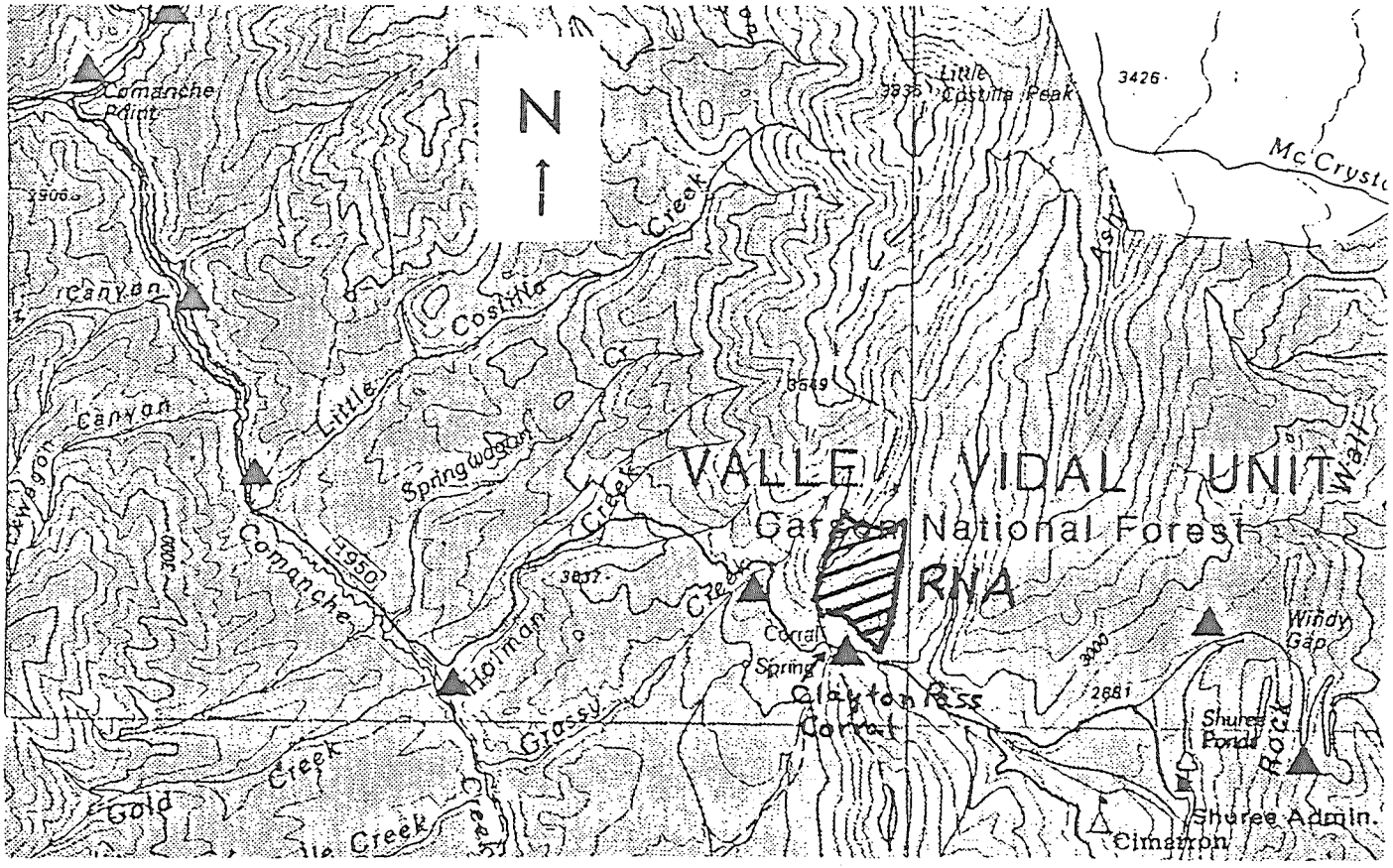
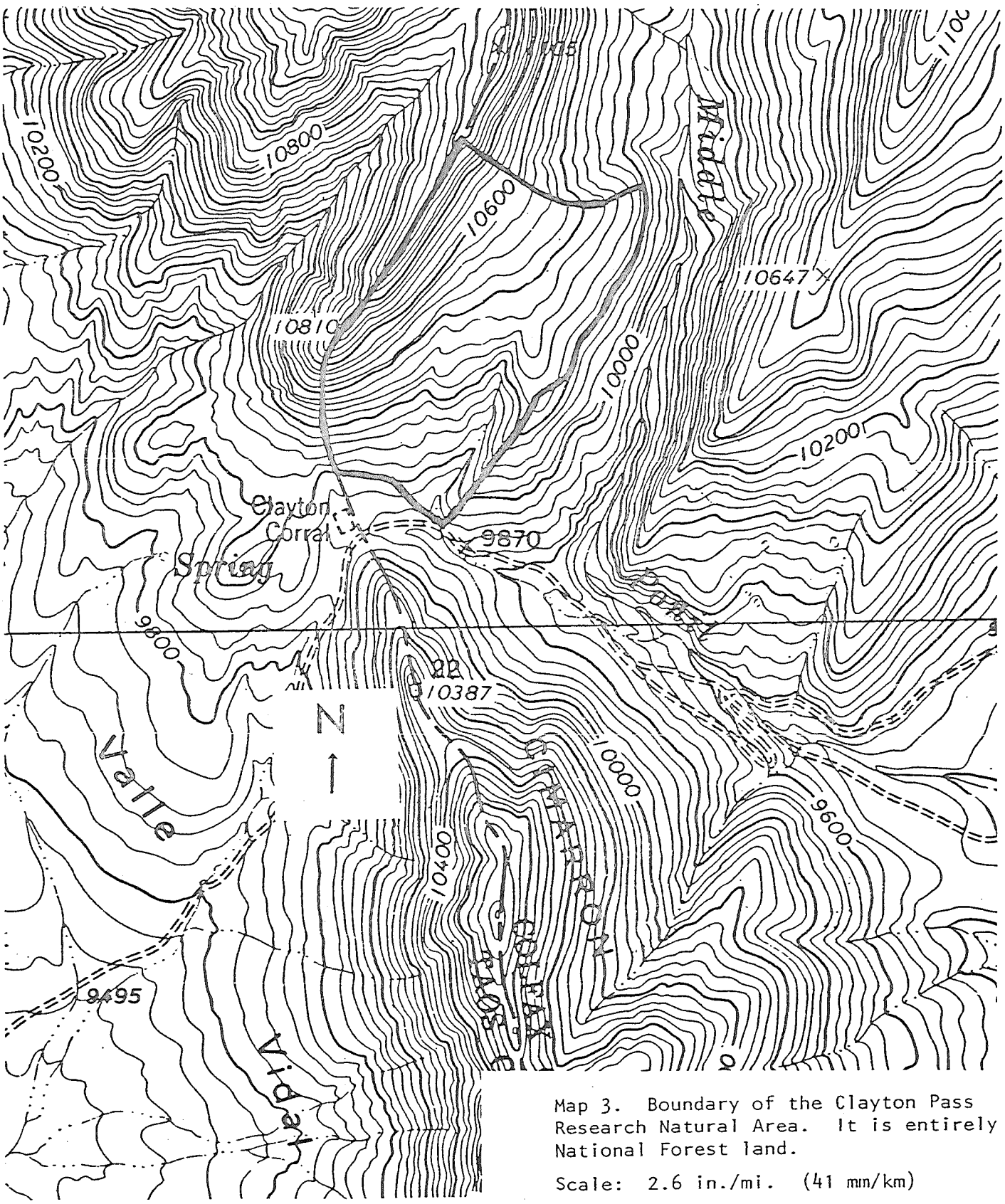


Map 1. Location of RNA (North Central New Mexico)

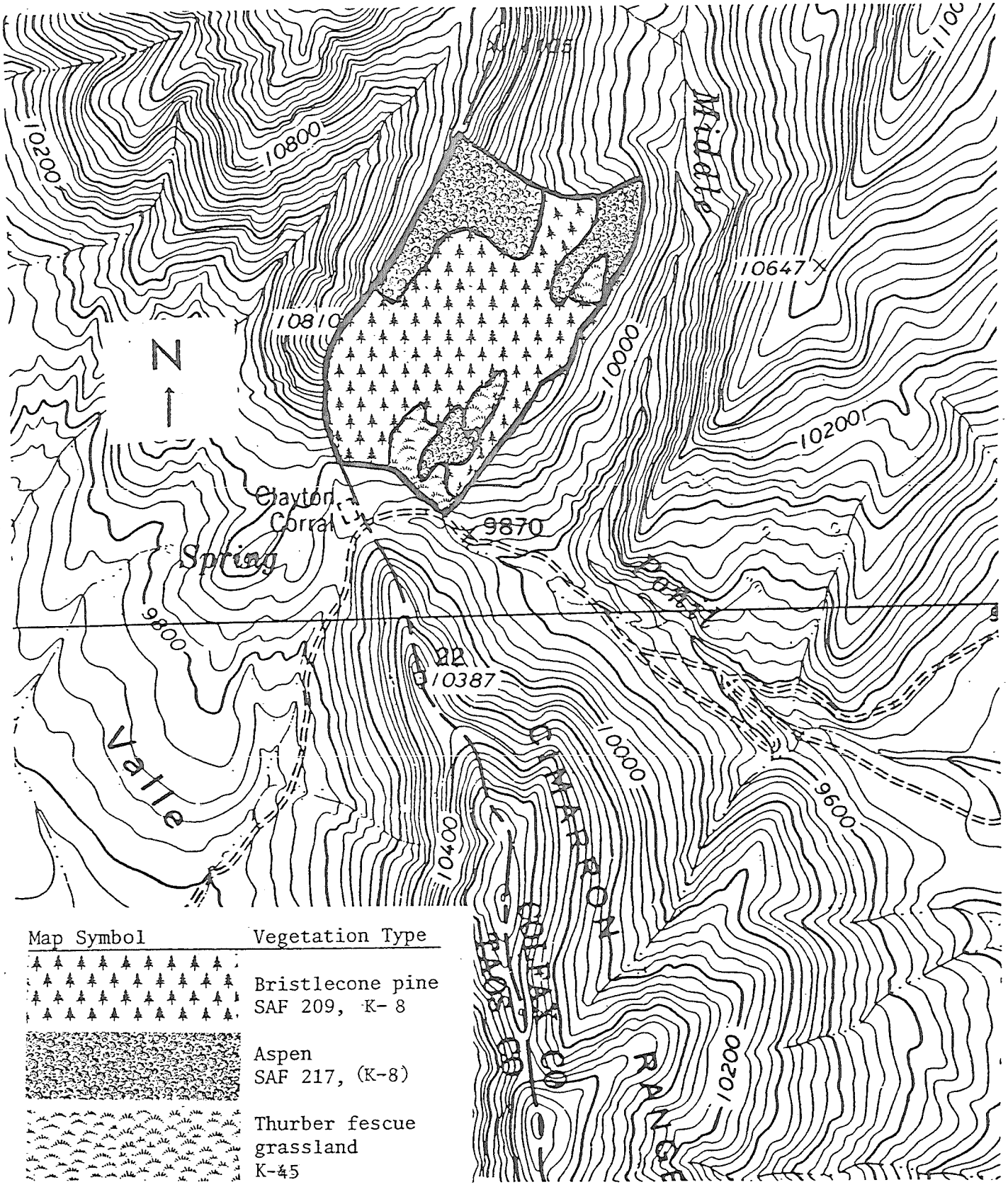


Map 2. Access Route to Clayton Pass RNA
Scale: 0.82 in./mi. (1.29 cm/km)



Map 3. Boundary of the Clayton Pass Research Natural Area. It is entirely National Forest land.

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



Map 4. Distribution of vegetation types in the Clayton Pass Research Natural Area.

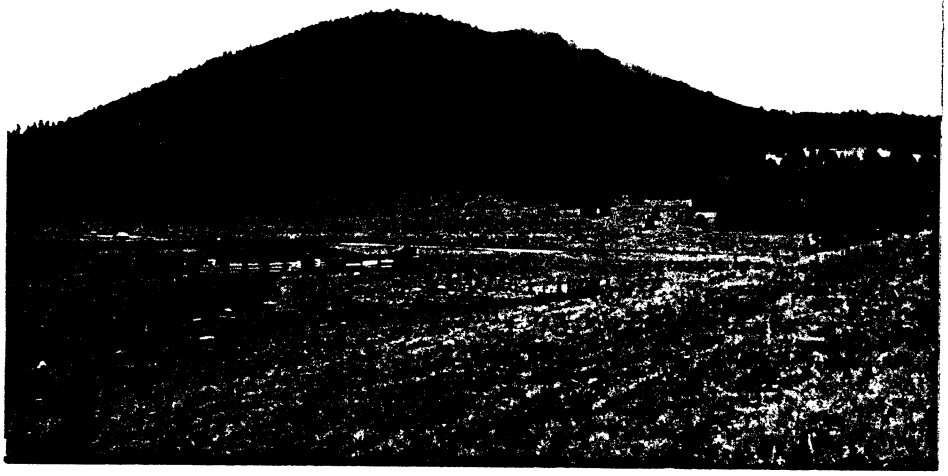


Photo 1. North toward the southwest ridge of the RNA on distant skyline; Clayton Pass corrals (outside the RNA) in mid-foreground.

Photo 2. North toward center of Clayton Pass RNA. South boundary of RNA is just across Forest Road 1950 seen in the foreground.

Photo 3. Pinus aristata parkland with Festuca thurberi/Danthonia (PIAR/FETH HT), typical of the RNA.

Photo 4. Bristlecone pine reproduction under seral aspen stand indicating potential climax of PIAR/FETH Habitat Type.

Photo 5. One of many massive bristlecone pines found on the RNA, this one close to 4-foot DBH.

Photo 6. Carson National Forest Supervisor John Bedell measures an enormous bristlecone pine.

Photo 7. The southeast-facing slope below the northwest ridge exhibits a mixture of bristlecone pine and aspen. Except for the rocky ridge in the distance, most of the area depicted is within the RNA.

Photo 8. The northwest-facing slope near the southeast boundary of the RNA exhibits a mix of Picea engelmannii and Pinus aristata among several other conifers along with Populus tremuloides.

Mailed to Russ Burns 9/28/87

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643,52)

PHOTOGRAPHER: William W. Dunmire

DATE SUBMITTED: 7/1/87

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				ALL: New Mexico Carson NF Questa Dist. Colfax Co.		ALL: 24x36mm color slides
1.			8-28-86		North toward southwest ridge of Clayton Pass RNA; Clayton Pass corrals in foreground.	
2.			8-28-86		North toward RNA across Forest Road 1950.	
3.			7-09-86		Bristlecone pine/Thurber fescue park land.	
4.			8-26-86		Bristlecone pine reproducing under seral aspen canopy.	
5.			8-26-86		Immense Pinus aristata, one of several over 4-foot DBH on RNA.	
6.			7-09-86		Forest Supervisor John Bedell measuring huge bristlecone pine.	
7.			8-26-86		Southeast from northwest ridge on west boundary of RNA.	
8.			8-26-86		Northwest-facing slope on southeast boundary of RNA with mix of conifers and aspen.	