SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Canelo Research Natural Area

Coronado National Forest

Santa Cruz County, Arizona

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A. INTRODUCTION

The Canelo Research Natural Area (CRNA) comprises approximately 350 acres (142 hectares) of the Coronado National Forest within the National Audubon Research Sanctuary in southeast Arizona. The entire CRNA is located in the Sierra Vista Ranger District in Santa Cruz County on reserved public domain National Forest System land. The CRNA has been under special use permit by the National Audubon Society Research Sanctuary under authority of a memorandum of understanding with the Forest Service dated July 28, 1982.

(1) Land Management Planning

The Coronado National Forest planning documents, the Environmental Impact Statement and Forest Plan (USDA Forest Service, 1986a & 1986b), include the CRNA. The environmental analysis conducted as part of the planning process supports the recommendation to establish this Research Natural Area.

B. OBJECTIVES

The objectives of placing this area within the RNA system are:

1. To provide representation of the oak woodlands of southern Arizona and southwestern New Mexico.

2. To serve as a benchmark area to evaluate grazing management in adjacent areas.

3. To monitor long-term ecological changes in oak woodland communities in the absence of grazing.

C. JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

The need for representation of oak woodlands was identified in the Southwestern Regional Guide (USDA Forest Service, 1983) although this particular site was not identified by name. The CRNA is an outstanding example of open oak woodland.

Benchmark and research opportunities provide additional justification for this RNA. The absence of livestock has permitted a rich mosaic of grass species which provides a good comparison with adjacent grazed areas in similar habitats. The area has already been subjected to a variety of research studies through the Audubon Research Sanctuary.

D. PRINCIPAL DISTINGUISHING FEATURES

The CRNA is an excellent example of open oak (encinal) woodlands which occur throughout much of southern Arizona and

extreme southwestern New Mexico. Turkey Creek, which flows through the western portion of the RNA receives perennial flow and supports a unique riparian habitat dominated by deer grass (Muhlenbergia rigens) with a scattered overstory of deciduous broadleaf trees. The stream provides habitat for Gila chub (Gila intermedia) and Mexican garter snake (Thamnopsis eques), two species under consideration for Federal listing as threatened or endangered (USDI Fish and Wildlife Service, 1990). The absence of livestock has permitted a rich mosaic of perennial grasses to become established as the dominant herbaceous cover throughout the RNA.

E. LOCATION

The CRNA is located within the Sierra Vista Ranger District of the Coronado National Forest in Santa Cruz County, Arizona (Figs. 1 & 2) and is under special use permit by the National Audubon Research Sanctuary under authority of a memorandum of understanding with the Forest Service dated July 28, 1982. The CRNA consists of approximately 350 acres (142 hectares). The elevation ranges from about 4,000 to 5,100 feet (1,220 to 2,066 meters). The area is at latitude 31° 33.5′ north and longitude 110° 30.5′ west.

The Canelo Research Natural Area is a tract of land within the administrative boundary of the Coronado National Forest in Santa Cruz County, State of Arizona, and more particularly described as follows:

Commencing at the corner to Sections 33 and 34, Township 21 South, Range 18 East and Sections 3 and 4, Township 22 South, Range 18 East, Gila and Salt River Meridian.

THENCE, southerly along the section line common to Section 33 and 34, T.21S., R 18E. approximately .11 miles (.18 km) to the Point of Beginning, which is a point of intersection of the Section line and a southwest-northeast fenceline;

THENCE, southwesterly approximately .38 miles (.61 km) along said fenceline and a ridge to a hilltop with a contour elevation of 5025 ft (1532.6 m);

THENCE, southerly approximately .19 miles (.31 km) along said fenceline to a knob with a contour elevation of 4975 ft (1425.9 m);

THENCE, southeasterly approximately .13 miles (.21 km) along said fenceline to the junction of Turkey Creek and an unnamed side drainage that flows easterly;

THENCE, southeasterly approximately .15 miles (.24 km) along said fenceline to a fence corner at an approximate contour elevation of 4950 ft (1509.8 m);

THENCE, southwesterly approximately .17 miles (.27 km) along said fenceline to a fence corner with a approximate contour elevation of 4950 ft (1509.8 m);

THENCE, southeasterly approximately .40 miles (.64 km) along said fenceline and a ridge to a hilltop with a contour elevation of 5075 ft (1547.9 m);

THENCE, southeasterly approximately .19 miles (.31 km) along the said fenceline and hilltop to the northside of Forest Road 827;
THENCE, northeasterly approximately .19 miles (.31 km) along the northside and westside of said road to a hilltop with a contour elevation of 5125 ft (1563.1 m);
THENCE, northerly approximately .89 miles (1.43 km) along same ridge to a point on an east-west fenceline at the northerly edge of a saddle with a contour elevation of 5000 ft (1525.0 m);
THENCE, westerly approximately .10 miles (.16 km) along said fenceline to a side drainage that flows northwesterly to Turkey Creek;
THENCE, westerly approximately .06 miles (.10 km) along said fenceline to a point on a unnamed ridge with a contour elevation of 4925 ft (1502.1 m);
THENCE, northwesterly approximately .15 miles (.24 km) along said fenceline to a point in Turkey Creek;
THENCE, northwesterly approximately .12 miles (.19 km) along said fenceline and an unnamed ridge to the south side of a hilltop;
THENCE, northwesterly approximately .21 miles (.34 km) along a said fenceline to a fence intersection;
THENCE, southwesterly approximately .04 miles (.06 km) from said fence intersection to the Point of Beginning.
To reach the CRNA proceed south on Arizona State Highway 83 18.6 miles (29.9 km) from the junction of Highway 83 with Arizona State Highway 82 in the town of Sonoita to Forest Service Road 827. Turn north and drive 1.5 miles (2.4 km) north to a unsigned dirt road turnoff to the west. Drive past the stock tank and proceed up the hill 0.2 miles (0.3 km). At the hill's crest the dirt road parallels the eastern boundary of the RNA.

F. AREA BY COVER TYPES

Information on cover types was provided by Dr. Mark R. Stromberg, former manager of the Audubon Research Sanctuary and by field reconnaisance.

Küchler

Oak-juniper woodland, K-027 (Küchler, 1966).

Society of American Foresters

Western Live Oak, SAF 241 (Eyre, 1980).

Habitat Types or Plant Associations

The vegetation cover type over the entire site, excluding the narrow riparian zone, is the Quercus oblongifolia[1]/Bouteloua spp. (Blue oak/mixed grama) habitat type (Moir, 1986). The narrow riparian zone found on the RNA is not covered by existing USFS habitat types for the Southwestern Region. This area is too small (< 5 acres (< 2 hectares)) to map.

G. PHYSICAL AND CLIMATIC CONDITIONS

The CRNA is typified by gently rolling topography with low ridges separated by small canyons. Slopes are mostly from 0 - 15%. Turkey Creek flows through the western portion of the RNA and is perennial. Bedrock is exposed in many places along the creek.

Air temperatures at the Research Sanctuary weather station, located 1.5 miles (6.9 km) to the north, have been recorded since about 1972 and the nearby U.S. Weather station at Canelo, located 0.5 miles (0.8 km) to the southwest, has records for nearly 100 years. Mean daily maximum and minimum temperatures for each month were calculated from the Canelo temperature data from 1981 to 1985. Temperatures rarely exceed 102°F (38.9°C) in June and lows rarely drop below 20°F (6.7°C). Record highs and lows from Canelo are 103°F (39.4°C) and -15°F (- 26.1°C), respectively. Annual precipitation on the Research Sanctuary is approximately 17 inches (43.2 cm). Precipitation is distinctly bimodal, with over half of the annual total falling during the summer monsoon, July-September. Summer rainfall occurs as sharp, high intensity thundershowers, as opposed to gentler winter rainfall which is usually associated with Pacific frontal storms. Snowfall occurs infrequently and does not remain on the ground for more than a few days.

H. DESCRIPTION OF VALUES

(1) Flora

The primary feature of the CRNA is the open oak woodland dominated by Mexican blue oak, with Emory oak (Quercus emoryi), and Arizona white oak (Quercus arizonica) present as minor climax associates. Alligator juniper (Juniperus deppeana) is scattered throughout the site. The only important shrub on the site is cassia (Cassia leptadenia). Perennial grasses dominate the herbaceous layer. Gramas (Bouteloua curtipendula, B. gracilis and

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[1] *In this Establishment Record all trees are named following Little, E.L.Jr. 1979. Checklist of United States trees (native and naturalized). Agricultural Handbook No. 541. USDA. Washington, DC. All other plants are named following Lehr, J.H. 1978.*

B. chondrosioides) are the most common grasses in association with plains lovegrass (Eragrostis intermedia), sprangle top (Heteropogon contorta) and three-awns (Aristida spp.). Monitoring studies indicate that plains lovegrass has increased dramatically since livestock have been removed (Bock and Bock, 1987). The open oak canopy with a well-developed perennial grass understory leads some researchers to refer to this woodland type as an oak-savanna. Along the ridgeline in the eastern portion of the CRNA, the oaks drop out and a perennial grassland community dominated by the aforementioned species prevails. Important forbs throughout the site are Bahia absinthifolia and Dyschoriste decumbens.

Of particular note in the CRNA is the riparian community along Turkey Creek. The unique habitat is dominated by a nearly monotypic stand of deer grass (Muhlenbergia rigens). Several deciduous broadleaf trees are scattered the length of the stream and include Fremont cottonwood (Populus fremontii), Goodding willow (Salix gooddingii) and velvet ash (Fraxinus pennsylvanica var velutina).

Huachuca water umbel (Liaiopsis schaffneriana var. recurva), a Category 2 species is found on the RNA. No other threatened or endangered plant species are known from this site. The following plant list was compiled for the CRNA based on information provided by Mark Stromberg for the Audubon Research Sanctuary.

Plant List For Canelo RNA

Latin Name	Common Name	Habitat
TREES		
Chilopsis linearis	desert willow	R
Fraxinus pennsylvanica var *velutina*	velvet ash	R
Juglans major	walnut	R
Juniperus deppeana	alligator juniper	O
Populus fremontii	Fremont cottonwood	R
Quercus arizonica	Arizona white oak	O
Quercus emoryi	emory oak	O
Quercus oblongifolia	Mexican blue oak	O
Salix gooddingii	Goodding willow	R
Salix lasiolepsis	Pacific willow	R
GRASSES AND GRASS-LIKE PLANTS		
Andropogon barbinoides	beardgrass	O
Aristida divaricata	poverty three-awn	O
Aristida ternipes	spider grass	O
Bouteloua chondrosoides	grama	O
Bouteloua curtipendula	side oats grama	O,R
Bouteloua gracilis	blue grama	O
Bouteloua hirsuta	hairy grama	O
Eragrostis intermedia	plains lovegrass	O,R
Heteropogon contorta	sprangle top	O
Hilaria belangeri	curly mesquite grass	O
Muhlengergia rigens	deer grass	R
Oryzopsis spp.	indian ricegrass	R
SHRUBS AND WOODY LIANAS		
Acacia angustissima	acacia	O
Apodanthera undulata	melon loco	O
Baccharis pteroniodes	yerba-de-pasmo	O,R
Cassia leptadenia	cassia	O
Desmanthus cooleyi	bundleflower	O
Haplopappus spinulosus	no common name	O
Haplopappus tenuisectus	burroweed	O
Mimosa biuncifera	wait-a-minute	O
Mimosa dysocarpa	gatuno	O
Senecio longilobus	groundsel	R

HERBS

Bahia absinthifolia	*no common name*	*O*
Brayulinea densa	*small matweed*	*O*
Croton corymbulosus	*leather weed*	*O*
Dyschoriste decumbens	*no common name*	*O*
Evolvulus sericeus	*no common name*	*O*
Nemasytylis tenuis	*slender shell flower*	*R*
Sida procumbens	*sida*	*O*

** O = Oak Savanna; R = Riparian*

(2) Fauna

Turkey Creek is noteworthy for the absence of non-native fish, an increasingly rare stream environment in the Southwest. Dr. Stromberg indicates that Gila topminnow (Poeciliopsis occidentalis occidentalis), a Federally listed endangered fish was introduced just upstream of the CRNA boundary by a private landowner in mid-1986 (pers. comm.) and may now occur in the RNA. Gila chub (Gila intermedia), A USFWS Category 2 fish (USDI Fish & Wildlife Service, 1990), has also been documented from Turkey Creek.

Vertebrate species known from the Audubon Research Sanctuary: Nomenclature and authority follow that of Banks et al. (1987).

MAMMALS

Badger	*Taxidae taxus*
Bat, Allen's big-eared	*Plecotus pyhllotis*
Bat, big brown	*Eptesicus fuscus*
Bat, ghost-faced	*Mormoops megalophylla*
Bat, hoary	*Lasiurus cinearus*
Bat, little Brown	*Myotis lucifugus occultus*
Bat, Mexican free-tailed	*Tadarida brasiliensis mexicanus*
Bat, pallid	*Antrozous pallidus*
Bat, pocketed free-tailed	*Tadarida femerosacca*
Bat, red	*Lasiuris borealis*
Bat, Sanborn's long-nosed	*Leptonycteris sanborni*
Bat, silver-haired	*Lsionycterus noctivabans*
Bat, southern yellow	*Lasiuris ega*
Bat, spotted	*Euderma maculatum*
Bat, Townsend's big-eared	*Plecotus townsendii*
Bat, western mastiff	*Eumops perotis*
Bear, black	*Ursus americanus*
Bobcat	*Lynx rufus*
Coatimundi	*Nasua nasua*
Cottontail, desert	*Sylvilagus audubonii*
Cottontail, eastern	*Sylvilagus floridanus*
Coyote	*Canis latrans*
Deer, Coues' white-tailed	*Odocoileus virgineaus couesi*
Deer, mule	*Odocoileus hemionius*

Fox, gray	*Urocyon cinereoargenteus*
Fox, kit	*Vulpes macrotis*
Jackrabbit, antelope	*Lepus alleni*
Jackrabbit, black-tailed	*Lepus californicus eremicus*
Jackrabbit, white-tailed	*Lepus townsendii*
Lion, mountain	*Felis concolor*
Mouse, brush	*Peromyscus boylii*
Mouse, cactus	*Peromyscus eremicus*
Mouse, deer	*Peromyscus maniculatus*
Mouse, fulvous harvest	*Reithrodontomys fulvescens*
Mouse, hispid pocket	*Perognathus hispidus*
Mouse, Merriam's pocket	*Dipodomys merriami*
Mouse, northern grasshopper	*Onychomys leucogaster*
Mouse, northern pygmy	*Baiomys taylori*
Mouse, plains harvest	*Reithrodontomys montanus*
Mouse, rock pocket	*Perognathus intermedius*
Mouse, silky pocket	*Perognathus flavus flavus*
Mouse, southern grasshopper	*Onychomys torridus*
Mouse, western harvest	*Reithrodontomys megalotis*
Mouse, white-footed	*Peromyscus leucopus*
Myotis, California	*Myotis californicus*
Myotis, cave	*Myotis velifer*
Myotis, fringed	*Myotis thysanodes*
Myotis, long-legged	*Myotis volans*
Myotis, small-footed	*Myotis ciliolabrum mwlnorinus*
Myotis, southwestern	*Myotis auriculus apache*
Myotis, Yuma	*Myotis yumanensis*
Peccary, collared	*Tayasuu tajacu*
Pipistrelle, western	*Pipistrellus herperus*
Pocket Gopher, Canelo Hills	*Thomomys umbrinus caneloensis*
Pocket Gopher, Huachuca Southern	*Thomomys umbrinus proximus*
Porcupine	*Erethizon dorsatum*
Prairie Dog, black-tailed	*Cynomys ludovicianus*
arizonensis	
Pronghorn	*Antilocapra americana*
Raccoon	*Procyon lotor*
Rat, Arizona cotton	*Sigmodon arizonae*
Rat, Ord's kangaroo	*Dipodomys ordii*
Rat, Yellow-nosed cotton	*Sigmodon ochrognathus*
Rat, Zacatecan or tawny-bellied cotton	*Sigmodon fulviventer minimus*
Ringtail	*Bassariscus astutus*
Shrew, desert	*Notiosorex crawfordi*
Skunk, hog-nosed	*Conepatus mesoleucus*
Skunk, hooded	*Mephitis macroura*
Skunk, striped	*Mephitis mephitis*
Skunk, western spotted	*Spilogale gracilis*
Squirrel, Arizona gray	*Sciuris arizonensis huachuca*
Squirrel, rock	*Spermophilus variegatus*
Squirrel, spotted ground	*Spermophilus spilosoma*
Woodrat, Mexican	*Neotoma mexicana*
Woodrat, white-throated	*Neotoma albigula*

AMPHIBIANS

Frog, Chiricahua leopard	*Rana chiricahua*
Frog, lowland leopard	*Rana yavapaiensis*
Spadefoot, Couch's	*Scaphiopus couchii*
Spadefoot, western	*Scaphiopus hammondi*
Toad, red spotted	*Bufo punctatus*
Treefrog, canyon	*Hyla arenicolor*

REPTILES

Coachwhip, Sonoran	*Masticophis flagellum cingulum*
Kingsnake, Mexican or black	*Lampropeltus getulus nigritus*
Kingsnake, Huachuca (Arizona) Mountain	*Lampropeltus pyromelana woodini*
Lizard, bunch grass	*Scleroporus scalaris*
Lizard, Clark's spiny	*Scleroporus clarkii*
Lizard, common collared	*Crotaphytus collaris*
Lizard, lesser earless	*Holbrookia maculata*
Lizard, Madrean (Arizona) alligator	*Gerrhonotus king*
Lizard, regal horned	*Phrynosoma solare*
Lizard, round-tailed horned	*Phrynosoma modestum*
Lizard, southern prairie (fence)	*Scleroporus undulatus consobrinus*
Lizard, tree	*Urosaurus ornatus*
Rattlesnake, black-tailed	*Crotalus molossus*
Rattlesnake, Mojave	*Crotalus scutulatus*
Rattlesnake, rock	*Crotalus lepidus*
Rattlesnake, western diamondback	*Crotalus atrox*
Skink, mountain	*Eumeces callicephalus*
Skink, Great Plains	*Eumeces obsoletus*
Snake, Big Bend patch-nosed	*Salvadora hexalepis deserticola*
Snake, black-necked garter	*Thamnophis crytopsis*
Snake, gopher	*Pituophis melanoleucus*
Snake, Mexican garter	*Thamnophis eques*
Snake, night	*Hypsiglena torquata*
Snake, western coral	*Micruroides euryxanthus*
Snake, western hognose	*Heterodon nasicus*
Snake, western patch-nosed	*Salvadora hexalepis*
Turtle, desert box	*Terrapene ornata*
Turtle, Sonoran mud	*Kinosternon sonoriensis*
Whipsnake, Sonoran mountain	*Masticophis bilineatus bilineatus*
Whiptail, Arizona desert	*Cnemodophorus tigris gracilis*
Whiptail, Chihuahaun spotted	*Cnemodophorus exanguis*
Whiptail, desert grassland	*Cnemidophorus uniparens*
Whiptail, giant spotted	*Cnemidophorus burti stictogrammus*
Whiptail, Gila spotted	*Cnemodophorus flagellicaudus*
Whiptail, little striped	*Cnemidophorus inornatus*

Whiptail, Sonoran spotted	*Cnemodophorus sonorae*
BIRDS	
Avocet, American	*Recurvirostra americana*
Blackbird, Brewer's	*Euphagus cyanocephalus*
Blackbird, red-winged	*Agelaius phoeniceus*
Blackbird, yellow-headed	*Xanthocephalus xanthocephalus*
Bluebird, eastern	*Sialia sialis*
Bluebird, mountain	*Sialia currucoides*
Bluebird, western	*Sialia mexicana*
Bunting, indigo	*Passerina cyanea*
Bunting, lark	*Calamospiza melanocorys*
Bunting, lazuli	*Passerina amoena*
Bunting, varied	*Passerina versicolor*
Cardinal, northern	*Cardinalis cardinalis*
Chat, yellow-breasted	*Icteria virens*
Coot, American	*Fulica americana*
Cowbird, bronzed	*Molothrus aeneus*
Cowbird, brown-headed	*Molothrus aster*
Creeper, brown	*Certhia americana*
Cuckoo, yellow-billed	*Coccyzus americanus*
Curlew, long-billed	*Numenius americanus*
Dove, common Ground	*Columbina passerina*
Dove, Inca	*Coumbina inca*
Dove, mourning	*Zenaida macroura*
Dove, white-winged	*Zenaida asiatica*
Dowitcher, long-billed	*Limnodromus scolopaceus*
Eagle, bald	*Haliaeetus leucocephalus*
Eagle, golden	*Aquila chrysaetos*
Egret, snowy	*Egretta thula*
Falcon, prairie	*Falco mexicanus*
Finch, cassin's	*Carpodacus cassinii*
Finch, house	*Carpodacus mexicanus*
Finch, purple	*Carpodacus purpureus*
Flicker, northern	*Colaptes auratus*
Flycatcher, ash-throated	*Myiarchus cinerascens*
Flycatcher, brown-crested	*Myiarchus tyrannulus*
Flycatcher, dusky	*Empidonax oberholseri*
Flycatcher, dusky-capped	*Myiarchus tuberculifer*
Flycatcher, gray	*Empidonax wrightii*
Flycatcher, Hammond	*Empidonax hammondii*
Flycatcher, Nutting's	
Flycatcher, olive-sided	*Contopus borealis*
Flycatcher, sulphur-bellied	*Miodynastes luteiventris*
Flycatcher, vermilion	*Pyrocephalus rubinus*
Flycatcher, willow	*Empidonax traillii*
Gnatchatcher, blue-gray	*Polioptila caerulea*
Goldfinch, American	*Carduelis tristis*
Goldfinch, Lawrence's	*Carduelis lawrencei*
Goldfinch, lesser	*Carduelis psaltria*

Goshawk, northern	*Accipiter gentilis*
Grackle, great-tailed	*Quiscalus mexicanus*
Grebe, pied-billed	*Podilymbus podiceps*
Grosbeak, black-headed	*Pheucticus melanocephalus*
Grosbeak, blue	*Guiraca caerulea*
Harrier, northern	*Circus cyaneus*
Hawk, Cooper's	*Accipiter cooperi*
Hawk, ferruginous	*Buteo regalis*
Hawk, gray	*Buteo nitidus*
Hawk, red-tailed	*Buteo jamaicensis*
Hawk, rough-legged	*Buteo lagopus*
Hawk, sharp-shinned	*Accipiter striatus*
Hawk, Swainson's	*Buteo swainsoni*
Hawk, zone-tailed	*Buteo albonotatus*
Heron, black crowned night-	*Nycticorax nycticorax*
Heron, great blue	*Ardea herodias*
Heron, green-backed	*Butorides striatus*
Hummingbird, Allen's	*Selasphorus sasin*
Hummingbird, Anna's	*Calypte anna*
Hummingbird, black-chinned	*Archilochus alexandri*
Hummingbird, blue-throated	*Lampornis clemenciae*
Hummingbird, broad-billed	*Cynanthus latirostris*
Hummingbird, broad-tailed	*Selasphorus platycercus*
Hummingbird, Costa's	*Calypte costae*
Hummingbird, magnificent	*Eugenes fulges*
Hummingbird, rufous	*Selasphorus rufus*
Ibis, white-faced	*Plegadis chihi*
Jay, gray-breasted	*Aphelocoma ultramarina*
Junco, dark-eyed	*Junco hyemalis*
Junco, yellow-eyed	*Junco phaeonotus*
Kestrel, American	*Falco sparverius*
Killdeer	*Charadirius vociferus*
Kingbird, Cassin's	*Tyrannus vociferans*
Kingbird, tropical	*Tyrannus melancholicus*
Kingbird, western	*Tyrannus verticalis*
Kingfisher, belted	*Ceryle alcyon*
Kinglet, golden-crowned	*Regulus satrapa*
Kinglet, ruby-crowned	*Regulus calendula*
Kite, black-shouldered	*Elanus caeruleus*
Lark, horned	*Eremophila alpestris*
Longspur, chestnut-collared	*Calcarius ornatus*
Longspur, McCown's	*Calcarius mccownii*
Mallard	*Anas platyrhynchos*
Martin, purple	*Progne subis*
Meadowlark, eastern	*Sturnella magna*
Meadowlark, western	*Sturnella neglecta*
Merlin	*Falco columbarius*
Mockingbird, northern	*Mimus polyglottos*
Nighthawk, common	*Chordeiles minor*
Nighthawk, lesser	*Chordeiles acutipennis*
Nutcracker, Clark's	*Nucifraga colubiana*

Nuthatch, red-breasted	*Sitta canadensis*
Nuthatch, white-breasted	*Sitta carolinensis*
Oriole, hooded	*Icterus cucullatus*
Oriole, northern	*Icterus galbula*
Oriole, Scott's	*Icterus parisorum*
Owl, burrowing	*Athene cunicularia*
Owl, common barn	*Tyto alba*
Owl, elf	*Micrathene whitneyi*
Owl, great horned	*Bubo viginianus*
Owl, northern pygmy-	*Glaucidium gnoma*
Owl, short-eared	*Asio flammeus*
Owl, western screech-	*Otus kennicottii*
Owl, whiskered screech-	*Otus trichopsis*
Pewee, western wood-	*Contopus sordidulus*
Phainopepla	*Phainopepla nitens*
Phalarope, Wilson's	*Phalaropus tricolor*
Phoebe, black	*Sayornis nigricans*
Phoebe, Say's	*Sayornis saya*
Pigeon, band-tailed	*Columba fasciata*
Pipit, Spraque's	*Anthus spragueii*
Pipit, water	*Anthus spinoletta*
Plover, mountain	*Charadrius montanus*
Poorwill, common	*Phalaenoptilus nuttallii*
Pyrrhuloxia	*Cardinalis sinuatus*
Quail, Montezuma	*Cyrtonyx montezumae*
Quail, scaled	*Callipepla squamata*
Rail, Virginia	*Rallus limicola*
Raven, Chihuahuan	*Corvus cryptoleucus*
Raven, common	*Corvus corax*
Redstart, painted	*Myioborus pictus*
Roadrunner, greater	*Geococcyx californianus*
Robin, American	*Turdus migratorius*
Sandpiper, least	*Calidris minutilla*
Sandpiper, spotted	*Actitis macularia*
Sandpiper, western	*Calidris mauri*
Sapsucker, red-breasted	*Sphyrapicus ruber*
Sapsucker, Williamson's	*Sphyrapicus thyroideus*
Sapsucker, yellow-bellied	*Sphyrapicus varius*
Scaup, lesser	*Aythya affinis*
Shrike, loggerhead	*Lanis ludovicianus*
Shrike, northern	*Lanis excubitor*
Siskin, pine	*Carduelis pinus*
Snipe, common	*Gallinago gallinago*
Solitaire, Townsend's	*Myadestes townsendi*
Sora	*Parzana carolina*
Sparrow, Baird's	*Ammodramus bairdii*
Sparrow, black-chinned	*Spizella atrogularis*
Sparrow, black-throated	*Amphispiza bilineata*
Sparrow, Botteri's	*Aimophila botterii*
Sparrow, Brewer's	*Spizella breweri*
Sparrow, Cassin's	*Aimophila cassinii*

Sparrow, chipping	*Spizella passerina*
Sparrow, grasshopper	*Ammodramus savannarum*
Sparrow, house	*Passer domesticus*
Sparrow, lark	*Chondestes grammacus*
Sparrow, Lincoln's	*Melospiza lincolnii*
Sparrow, rufous-crowned	*Aimophila ruficeps*
Sparrow, sage	*Amphispiza belli*
Sparrow, savannah	*Passerculus sandwichensis*
Sparrow, song	*Melospiza melodia*
Sparrow, vesper	*Pooecetes gramineus*
Sparrow, white-crowned	*Zonotrichia leucophyrys*
Sparrow, white-throated	*Zonotrichia albicollis*
Starling, European	*Sturnus vulgaris*
Stilt, black-necked	*Himantopus mexicanus*
Swallow, barn	*Hirundo rustica*
Swallow, cliff	*Hirundo pyrrhonota*
Swallow, northern rough-winged	*Stelgidopteryx serripennis*
Swallow, tree	*Tachycineta bicolor*
Swallow, violet-green	*Tachycineta thalassina*
Swift, white-throated	*Aeronautes saxtalis*
Swift, Vaux's	*Chaetura vauxi*
Tanager, western	*Piranga ludoviciana*
Tanager, summer	*Piranga rubra*
Tanager, hepatic	*Piranga flava*
Teal, blue-winged	*Anas discors*
Teal, cinnamon	*Anas cyanoptera*
Teal, green-winged	*Anas crecca*
Thrasher, Bendire's	*Toxostoma bendirei*
Thrasher, brown	*Toxostoma rufum*
Thrasher, crissal	*Toxostoma dorsale*
Thrasher, curve-billed	*Toxostoma curvirostre*
Thrasher, sage	*Oreoscoptes montanus*
Thrush, hermit	*Catharus guttatus*
Thrush, Swainson's	*Catharus ustulatus*
Titmouse, bridled	*Parus wollweberi*
Towhee, Abert's	*Pipilo abertie*
Towhee, brown	*Pipilo fuscus*
Towhee, green-tailed	*Pipilo chlorurus*
Towhee, rufous-sided	*Pipilo erythophthalmus*
Vireo, Bell's	*Vireo bellii*
Vireo, Hutton's	*Vireo huttoni*
Vireo, red-eyed	*Vireo olivaceous*
Vireo, solitary	*Vireo solitarius*
Vireo, warbling	*Vireo gilvus*
Vulture, turkey	*Cathartes aura*
Warbler, black-throated Gray	*Dendroica nigrescens*
Warbler, hermit	*Dendroica occidentalis*
Warbler, Lucy's	*Vermivora luciae*
Warbler, MacGillivray's	*Oporornis tolmiei*
Warbler, Nashville	*Vermivora ruficapilla*
Warbler, orange-crowned	*Vermivora celata*

Warbler, Townsend's	*Dendroica townsendi*
Warbler, Virginia's	*Vermivora virginiae*
Warbler, Wilson's	*Wilsonia pusilla*
Warbler, yellow	*Dendroica petechia*
Warbler, yellow-rumped	*Dendroica coronata*
Waterthrush, northern	*Seirus noveboracensis*
Waxwing, cedar	*Bombycilla cedrorum*
Willet	*Catoptrophorus semipalmatus*
Woodpecker, acorn	*Melanerpes formicivorus*
Woodpecker, Gila	*Melanerpes uropygialis*
Woodpecker, hairy	*Picoides villosus*
Woodpecker, ladder-backed	*Picoides scalaris*
Woodpecker, Lewis's	*Melanerpes lewis*
Woodpecker, Strickland's	*Picoides stricklandi*
Wren, Bewick's	*Thryomanes bewickii*
Wren, cactus	*Campylorhynchus brunneicapillus*
Wren, canyon	*Catherpes mexicanus*
Wren, house	*Troglodytes aeodon*
Wren, rock	*Salpinctes obsoletus*
Wren, winter	*Troglodytes troglodytes*
Yellowthroat, common	*Geothlypis trichas*
Yellowlegs, greater	*Tringa melanoleuca*

(3) Geology

The area is underlain by undifferentiated Tertiary and Cretaceous age sandstone, shale and limestone sediments (Arizona Highway Department, 1960).

(4) Soils

Soils are mainly Typic Haphistalfs, loamy-skeletal, mixed, mesic (USDA Forest Service, 1986c).

(5) Lands

All lands within the CRNA are controlled by the Coronado National Forest. No private inholdings are involved.

(6) Cultural

No archaeological surveys have been conducted within the area and no cultural resources have been recorded in Forest Service files. Surveys in surrounding areas such as O'Donnell Canyon and Lyle Canyon have located prehistoric sites. These included small temporary hunting and gathering camps, large late prehistoric villages, and historic mining locales. Overall site density in the RNA is considered to be relatively low although the probability of small prehistoric sites being present is high.

(7) Other

No other significant natural values which have not already been discussed occur in the CRNA.

I. IMPACTS AND POSSIBLE CONFLICTS

(1) Mineral Resources

No known mineral resources exist in the area.

(2) Grazing

No impacts or conflicts exist since this area was closed at the same time the Research Ranch was closed to grazing in 1974.

(3) Timber

The area, comprised mainly of several species of oak, would be used for fuelwood harvest only. No commercial timber will be impacted.

(4) Watershed Values

There will be no change in watershed management and values under RNA designation versus current management.

(5) Recreation Values

The major recreation use of the area is big game hunting. This will not be affected.

(6) Wildlife and Plant Values

The area is currently under a no grazing administration. Use is by wildlife only. The exclusion of grazing has allowed the area to remain an excellent example of Mexican blue oak savanna. Inclusion of this area as a RNA will insure the continuation of this exemplary woodland community.

(7) Special Management Area Values

The HCRNA does not contain any congressionally designated special management areas, nor lie adjacent to any, so no conflicts with such areas exist.

(8) Transportation Plans

There are no roads in the area, and there are no conflicts with existing transportation plans. No roads shall be built within or adjacent to the CRNA.

J. MANAGEMENT PRESCRIPTION

The CRNA is recommended in the Coronado National Forest Plan Management Area 8 (see Appendix). Management emphasis is to provide opportunities for nondisruptive research and education. Use restrictions will be imposed as necessary to keep the area in its climax state.

(1) Vegetation Management

No harvest of forest products including fuelwood. Rangeland will be managed at Level A (no grazing). Prescribed fire will be used to reduce risks and enable lightning to play its natural role.

K. ADMINISTRATION RECORDS AND PROTECTION

Administration and protection of the CRNA is the responsibility of the Coronado National Forest. The District Ranger, Sierra Vista Ranger District, (5990 S. Hwy 92, Hereford, AZ 85615) has direct responsibility.

Records for the CRNA will be maintained in the following offices:

Regional Forester, Southwestern Region, Albuquerque, NM

Rocky Mountain Forest & Range Experiment Station, Fort Collins, CO

Coronado National Forest, Tucson, AZ

District Ranger, Sierra Vista Ranger District, Sierra Vista, AZ

L. ARCHIVING

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. Requests to conduct research in the area should be referred to him at 240 W. Prospect Rd., Ft. Collins, CO 80526-2098. He, or his designee, will evaluate research proposals and coordinate all studies and research in the area with the District Ranger and the RNA research coordinator. Plant specimens collected in the course of research in the area will be maintained at the University of Arizona, College of Agriculture herbaria in Tucson, Arizona, or at the Forest Supervisor's office. Animal specimens will be maintained at the Arizona State University, Department of Zoology vertebrate museum in Tempe, Arizona.

M. REFERENCES

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USDA Forest Service. 1984. Progress report, Research Natural Areas: recommended representations for important ecosystems on National Forest System Land in the Southwestern Region. USDA Forest Service, Southwestern Region, Albuquerque, NM. 90 pp.

USDA Forest Service. 1986a. Environmental Impact Statement for the Coronado National Forest Plan. USDA Forest Service, Southwestern Region, Albuquerque, NM. 275 pp.

USDA Forest Service. 1986b. Coronado National Forest Plan. USDA Forest Service, Southwestern Region, Albuquerque, NM. 130 pp.

USDA Forest Service. 1986c. Terrestrial Ecosystem Handbook. Appendix B, USDA Forest Service, Southwestern Region, Albuquerque, NM.

USDI Fish and Wildlife Service. 1990. Endangered and threatened wildlife and plants; review of vertebrate wildlife; notice of review. Federal Register Vol.55 No.35:6184-6229.

NOTE: For a complete list of research studies conducted on the Audubon Research Sanctuary, please contact the Research Sanctuary Manager.

Canelo Hills

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 Canelo Research Natural Area. The Canelo Research Natural Area shall be comprised of the following land:
Located in Sections 33 and 34, Township 21 South, Range 18 East and Sections 3 and 4, Township 22 South, Range 18 East, Gila and Salt River Meridian.
THENCE, southerly along the section line common to Section 33 and 34, T.21S., R 18E. approximately .11 miles to the Point of Beginning, which is a point of intersection of the Section line and a southwest-northeast fenceline;
THENCE, southwesterly approximately .38 miles along said fenceline and a ridge to a hilltop with a contour elevation of 5025';
THENCE, southerly approximately .19 miles along said fenceline to a knob with a contour elevation of 4975';
THENCE, southeasterly approximately .13 miles along said fenceline to the junction of Turkey Creek and an unnamed side drainage that flows easterly;
THENCE, southeasterly approximately .05 miles along said fenceline to the South 1/16 corner of Sections 33 and 34, T. 21S., R. 18E.;
THENCE, southeasterly approximately .10 miles along said fenceline to a fence corner at an approximate contour elevation of 4950';
THENCE, southwesterly approximately .13 miles along said fenceline to a point on the Township line between the closing corner of Section 3 and 4, T.22S., R. 18E., and the standard corner of Section 33 and 34, T.21S., R 18E.;
THENCE, southwesterly approximately .04 miles along said fenceline to a fence corner with a approximate contour elevation of 4950;
THENCE, southeasterly approximately .03 miles along said fenceline to a point approximately .06 miles south along the section line from the closing corner to Section 3 ad 4, T. 22S., R. 18E.;
THENCE, southeasterly approximately .37 miles along said fenceline and a ridge to a hilltop with a contour elevation of 5075';
THENCE, southeasterly approximately .19 miles along the said fenceline and hilltop to the northside of a two-track road;
THENCE, northeasterly approximately .19 miles along the northside and westside of said two-track road to a hilltop with a contour elevation of 5125';
THENCE, northerly approximately .34 miles along the westside of said two-track road and an unnamed ridge to a point which is the intersection of said fenceline, ridge, and the Township line common to Section 34, T. 21S., R 18S., and Section 3, T. 22S., R. 18E., and approximately .49 miles easterly of the Closing Corner to Section 3 and 4, T. 22S., R. 18E.;

THENCE, northerly approximately .55 miles along the westside of said two-track road and ridge to a east-west fenceline at the northerly edge of a saddle with a contour interval shown as 5000';
THENCE, westerly approximately .10 miles along said fenceline to a side drainage that flows northeasterly to Turkey Creek;
THENCE, westerly approximately .06 miles along said fenceline to a point on a unnamed ridge with a contour elevation of 4925';
THENCE, northwesterly approximately .15 miles along said fenceline to a point in Turkey Creek;
THENCE, northwesterly approximately .12 miles along said fenceline and an unnamed ridge to the south side of a hilltop;
THENCE, northwesterly approximately .21 miles along a said fenceline to a fence intersection;
THENCE, southwesterly approximately .04 miles from said fence intersection to the Point of Beginning..

Regional Forester, Sotero Muniz, recommended the establishment of the Canelo Research Natural Area in the Coronado 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 Canelo Research Natural Area will be managed in compliance with all relevant laws, regulations, and manual direction regarding Research Natural Areas. The Canelo Research Natural Area will be administered in accordance with the management direction identified in the Establishment Record.
The Coronado 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 Coronado 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 Coronado National Forest Land and Resource Management Plan.

The Forest Supervisor of the Coronado 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 Coronado 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 Canelo 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

Figure 1. Oak savanna of Blue and Emory oaks with a rich understory of perennial grasses, looking west. Canelo Research Natural Area.

Figure 2. Turkey Creek at Canelo Research Natural Area. Dense sward of deer grass (Muhlenbergia rigens) and occasional deciduous trees.

Decision Notice
Finding of No Significant Impact
Designation Order

Canelo Research Natural Area
Coronado National Forest
Sierra Vista Ranger District
Santa Cruz County, Arizona

By virtue of the authority vested in me by the Secretary of Agriculture under regulations at 7 CFR 2.42, 36 CFR 251.23, and 36 CFR Part 219, I hereby establish the Canelo Research Natural Area (RNA). The Canelo Research Natural Area shall be comprised of 350 acres (142 hectares) of lands in Santa Cruz County, Arizona, on the Sierra Vista Ranger District of the Coronado National Forest, as described in the section of the Establishment Record entitled "Location".

The Regional Forester recommended the establishment of the Canelo RNA in the Record of Decision for the Coronado National Forest Land and Resource Management Plan (Forest Plan) in 1986. That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. Results of the Regional Forester's analysis are documented in the Forest Plan and Final Environmental Impact Statement, which are available to the public.

The Regional Forester has reexamined the Canelo area to ensure the environmental effects of establishing the RNA have not changed since 1986. This analysis is documented in the attached environmental assessment. Based on the analysis in the environmental assessment, it is my decision to adopt Alternative A, to establish the Canelo RNA. Alternative A is selected because it provides long-term protection and recognition of oak woodlands of southern Arizona and southwestern New Mexico. Canelo RNA will be managed in compliance with all relevant laws, regulation, and Forest Service Manual direction regarding RNA's and in accordance with the management direction identified in the Forest Plan.

The alternative considered was Alternative B, the "No Action" alternative which would continue management of the Canelo Research Natural Area as a "proposed" RNA. Alternative B was not selected because it would only provide short-term protection for these lands. Alternative B is consistent with the Forest Plan. Although the proposed action (Alternative A) is consistent with the management direction, it is not consistent with the land allocation for the Canelo Area in the Forest Plan. The Coronado Forest Plan is hereby amended to change the allocation of the acreage of the Canelo area from "Proposed" to Established RNA. This is a non-significant amendment of the Forest Plan (36 CFR 219.10 [f]).

Legal notice of this decision will appear in the Federal Register. The Forest Supervisor of the Coronado National Forest shall notify the public of this decision and mail a copy of the Decision Notice and Designation Order to all persons on the Coronado National Forest mailing list.

It has been determined through the environmental assessment that the proposed action is not a major Federal action that would significantly affect the quality of the human environment; therefore, an environmental impact statement is not needed. This determination is based on the following factors (40 CFR 1508.27):

A. Context.

Although this is an addition to the national system of RNA's both short-term and long-term physical and biological effects are limited to the local area.

B. Intensity.

1. There are no known effects on public health and safety.

2. There are no known effects on historic or cultural resources, actual or eligible National Register of Historic places sites, Park lands, prime farmlands, wetland, wild and scenic rivers. Effects on ecologically critical areas are minimal.

3. Effects on the human environment are not uncertain, do not involve unique or unknown risks, and are not likely to be highly controversial.

4. The action is not likely to establish a precedent for future actions with significant effects.

5. There are no known cumulative effects.

6. The proposed action would not adversely affect an endangered or threatened species or its critical habitat.

7. The proposed action is consistent with Federal, State, and local laws and requirements for the protection of the environment.

This decision is subject to appeal pursuant to 36 CFR 217. Two (2) copies of the Notice of Appeal must be in writing and submitted to:

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

The Notice of Appeal prepared pursuant to 36 CFR 217.9(b) must be submitted 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. Department of Agriculture (36 CFR 217.17[d]).

_____ _____

Chief Date

Environmental Assessment
Canelo Research Natural Area

Coronado National Forest
Sierra Vista Ranger District
Santa Cruz County, Arizona

Proposed Action

The proposed action is to establish the Canelo RNA. The acreage was identified as a "proposed" Research Natural Area (RNA) in the Land and Resource Management Plan (Forest Plan) for the Coronado National Forest. It will be managed according to the direction provided in the Forest Plan (Management Area 8). The proposed action, formal designation of the area as an RNA by the Chief of the Forest Service, will amend the Forest Plan.

Purpose and Need for Action

The purpose of establishing the Canelo RNA is to contribute to a series of RNA's designated to "illustrate adequately or typify for research or education purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance" (36 CFR 251.23). Canelo RNA was proposed in 1986 to include distinctive populations of southern Arizona oaks: Mexican blue oaks, emory oak, and Arizona white oak. An evaluation by the Regional RNA Committee, pursuant to direction in Forest Service Manual (FSM) 4063.04b, identified that establishment of the RNA was needed to represent this habitat type of oak. Establishing the Canelo RNA provides long-term protection and recognition of southern Arizona and southwestern New Mexico oaks.

The establishment of the Canelo RNA was identified in the Forest Plan as a "proposed" RNA based on the relatively undisturbed conditions of the oak woodlands in the area at that time. Comments received from interested and affected members of the public supported the establishment of the proposed RNA. Site conditions and public concerns have been reviewed; no important changes have occurred.

Conditions and environmental effects of designation are the same as described in the EIS for the Forest Plan. Site specific conditions and effects are as follows:

-The proposed RNA is within an area currently managed as a National Audubon Research Sanctuary. Grazing has been eliminated in the Research Ranch since 1982 and there will be no change to this management.

-The Canelo Research Natural Area is in the process of being withdrawn from mineral entry.

-Recreation use is light and limited to existing trails.

-No threatened or endangered plants or animals are known to occur within the area.

Designation of alternate RNA's for protection of this type was considered during Forest Plan development. The establishment of the Canelo site was determined at that time to provide the most appropriate site for inclusion in the national network for protection of southwestern oak woodland.

Alternatives and Environmental Consequences

Alternative A, Proposed Action

Alternative A would establish the Canelo RNA, comprising 350 acres (142 hectares). This alternative will provide long-term protection for the area. Management of the area will limit recreation use to non-motorized dispersed recreation at a low intensity and reduced service level, and no harvest of forest products (including fuelwood) will be allowed. Wildfires outside the area that endanger the area will be extinguished in an appropriate manner, as will person-caused fires within the area. Unplanned ignitions within the area will receive appropriate suppression action. Use restrictions will be imposed as necessary to keep areas in their natural or unmodified condition (Forest Plan). Canelo RNA is in the process of being withdrawn from mineral entry.

The environmental consequences of Alternative A are described in the EIS for the Coronado Forest Plan. There are no adverse or irreversible environmental effects. Irretrievable effects result from resource outputs either reduced or lost as a result of special area designation. There are no significant cumulative effects of establishing the RNA.

Alternative B, No Action

This alternative continues management according to direction in the Forest Plan for the "proposed" RNA. Only short-term protection of the area, dependent on the life of the Forest PLan, will be provided. Management of the area will be the same as in Alternative A. Management emphasis is to provide opportunities for nondisruptive research and education. Use restrictions will be imposed as necessary to keep the area in an unmodified or natural condition.

The environmental consequences of Alternative B, the "No Action" alternative are as described in the EIS for the Coronado Forest Plan. No adverse or irreversible environmental effects are anticipated. Irretrievable effects result from resource outputs either reduced or lost as a result of special area designation.

Agencies and Persons Consulted

In the process of updating information to determine whether or not conditions had changed since adoption of the Forest Plan, several groups and individuals who may have additional information regarding the extension of Pole Bridge Canyon RNA were contacted. Representatives from the national office of The Nature Conservancy, the Arizona Chapter of The Nature Conservancy, Arizona Heritage Program, Arizona Game and Fish Department, and Arizona Cattle Growers groups. Documentation of the contacts made and summaries of the comments are attached to this Environmental Assessment.

TITLE PAGE

Establishment Record for Canelo
Research Natural Area within Coronado
National Forest, Santa Cruz County, Arizona.

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Canelo Research Natural Area

Coronado National Forest

Santa Cruz County, Arizona

Prepared by Andrew D. Laurenzi Date 12/8/87
Mark H. Cochran, The Arizona Nature Conservancy
Andrew W. Laurenzi, The Arizona Nature Conservancy

Recommended by Jerry A. Deiter Date 4/28/88
Jerry Deiter, District Ranger,
Sierra Vista Ranger District

Recommended by R.B. Tippeconnic Date 5.16.88
R.B. Tippeconnic, Forest Supervisor,
Coronado National Forest

Recommended by John W Russell Date 5-26-88
John W. Russell, Chairperson,
Southwestern Research Natural
Area Committee

Recommended by David J. Gully Date 6/16/88
for Sotero Muniz, Regional Forester,
Southwestern Region

Recommended by Charles M. Loveless Date Sept. 28, 1988
Charles M. Loveless, Station Director,
Rocky Mountain Forest and Range
Experiment Station

A. INTRODUCTION

The Canelo Research Natural Area (CRNA) comprises approximately 350 acres (142 hectares) of the Coronado National Forest within the National Audubon Research Sanctuary in southeast Arizona. The entire CRNA is located in the Sierra Vista Ranger District in Santa Cruz County on reserved public domain National Forest System land. The CRNA has been under special use permit by the National Audubon Society Research Sanctuary under authority of a memorandum of understanding with the Forest Service dated July 28, 1982.

(1) Land Management Planning

The Coronado National Forest planning documents, the Environmental Impact Statement and Forest Plan (USDA Forest Service, 1986a & 1986b), include the CRNA. The environmental analysis conducted as part of the planning process supports the recommendation to establish this Research Natural Area.

B. OBJECTIVES

The objectives of placing this area within the RNA system are:

1. To provide representation of the oak woodlands of southern Arizona and southwestern New Mexico.
2. To serve as a benchmark area to evaluate grazing management in adjacent areas.
3. To monitor long-term ecological changes in oak woodland communities in the absence of grazing.

C. JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

The need for representation of oak woodlands was identified in the Southwestern Regional Guide (USDA Forest Service, 1983) although this particular site was not identified by name. The CRNA is an outstanding example of open oak woodland.

Benchmark and research opportunities provide additional justification for this RNA. The absence of livestock has permitted a rich mosaic of grass species which provides a good comparison with adjacent grazed areas in similar habitats. The area has already been subjected to a variety of research studies through the Audubon Research Sanctuary.

D. PRINCIPAL DISTINGUISHING FEATURES

The CRNA is an excellent example of open oak (encinal) woodlands which occur throughout much of southern Arizona and

extreme southwestern New Mexico. Turkey Creek, which flows through the western portion of the RNA receives perennial flow and supports a unique riparian habitat dominated by deer grass (Muhlenbergia rigens) with a scattered overstory of deciduous broadleaf trees. The stream provides habitat for Gila chub (Gila intermedia) and Mexican garter snake (Thamnopsis eques), two species under consideration for Federal listing as threatened or endangered (USDI Fish and Wildlife Service, 1990). The absence of livestock has permitted a rich mosaic of perennial grasses to become established as the dominant herbaceous cover throughout the RNA.

E. LOCATION

The CRNA is located within the Sierra Vista Ranger District of the Coronado National Forest in Santa Cruz County, Arizona (Figs. 1 & 2) and is under special use permit by the National Audubon Research Sanctuary under authority of a memorandum of understanding with the Forest Service dated July 28, 1982. The CRNA consists of approximately 350 acres (142 hectares). The elevation ranges from about 4,000 to 5,100 feet (1,220 to 2,066 meters). The area is at latitude 31° 33.5′ north and longitude 110° 30.5′ west.

The Canelo Research Natural Area is a tract of land within the administrative boundary of the Coronado National Forest in Santa Cruz County, State of Arizona, and more particularly described as follows:

Commencing at the corner to Sections 33 and 34, Township 21 South, Range 18 East and Sections 3 and 4, Township 22 South, Range 18 East, Gila and Salt River Meridian.
THENCE, southerly along the section line common to Section 33 and 34, T.21S., R 18E. approximately .11 miles (.18 km) to the Point of Beginning, which is a point of intersection of the Section line and a southwest-northeast fenceline;
THENCE, southwesterly approximately .38 miles (.61 km) along said fenceline and a ridge to a hilltop with a contour elevation of 5025 ft (1532.6 m);
THENCE, southerly approximately .19 miles (.31 km) along said fenceline to a knob with a contour elevation of 4975 ft (1425.9 m);
THENCE, southeasterly approximately .13 miles (.21 km) along said fenceline to the junction of Turkey Creek and an unnamed side drainage that flows easterly;
THENCE, southeasterly approximately .15 miles (.24 km) along said fenceline to a fence corner at an approximate contour elevation of 4950 ft (1509.8 m);
THENCE, southwesterly approximately .17 miles (.27 km) along said fenceline to a fence corner with a approximate contour elevation of 4950 ft (1509.8 m);
THENCE, southeasterly approximately .40 miles (.64 km) along said fenceline and a ridge to a hilltop with a contour elevation of 5075 ft (1547.9 m);

THENCE, southeasterly approximately .19 miles (.31 km) along the said fenceline and hilltop to the northside of Forest Road 827;
THENCE, northeasterly approximately .19 miles (.31 km) along the northside and westside of said road to a hilltop with a contour elevation of 5125 ft (1563.1 m);
THENCE, northerly approximately .89 miles (1.43 km) along same ridge to a point on an east-west fenceline at the northerly edge of a saddle with a contour elevation of 5000 ft (1525.0 m);
THENCE, westerly approximately .10 miles (.16 km) along said fenceline to a side drainage that flows northwesterly to Turkey Creek;
THENCE, westerly approximately .06 miles (.10 km) along said fenceline to a point on a unnamed ridge with a contour elevation of 4925 ft (1502.1 m);
THENCE, northwesterly approximately .15 miles (.24 km) along said fenceline to a point in Turkey Creek;
THENCE, northwesterly approximately .12 miles (.19 km) along said fenceline and an unnamed ridge to the south side of a hilltop;
THENCE, northwesterly approximately .21 miles (.34 km) along a said fenceline to a fence intersection;
THENCE, southwesterly approximately .04 miles (.06 km) from said fence intersection to the Point of Beginning.
To reach the CRNA proceed south on Arizona State Highway 83 18.6 miles (29.9 km) from the junction of Highway 83 with Arizona State Highway 82 in the town of Sonoita to Forest Service Road 827. Turn north and drive 1.5 miles (2.4 km) north to a unsigned dirt road turnoff to the west. Drive past the stock tank and proceed up the hill 0.2 miles (0.3 km). At the hill's crest the dirt road parallels the eastern boundary of the RNA.

F. AREA BY COVER TYPES

Information on cover types was provided by Dr. Mark R. Stromberg, former manager of the Audubon Research Sanctuary and by field reconnaisance.

Küchler

Oak-juniper woodland, K-027 (Küchler, 1966).

Society of American Foresters

Western Live Oak, SAF 241 (Eyre, 1980).

Habitat Types or Plant Associations

The vegetation cover type over the entire site, excluding the narrow riparian zone, is the Quercus oblongifolia[1]/Bouteloua spp. (Blue oak/mixed grama) habitat type (Moir, 1986). The narrow riparian zone found on the RNA is not covered by existing USFS habitat types for the Southwestern Region. This area is too small (< 5 acres (< 2 hectares)) to map.

G. PHYSICAL AND CLIMATIC CONDITIONS

The CRNA is typified by gently rolling topography with low ridges separated by small canyons. Slopes are mostly from 0 - 15%. Turkey Creek flows through the western portion of the RNA and is perennial. Bedrock is exposed in many places along the creek.

Air temperatures at the Research Sanctuary weather station, located 1.5 miles (6.9 km) to the north, have been recorded since about 1972 and the nearby U.S. Weather station at Canelo, located 0.5 miles (0.8 km) to the southwest, has records for nearly 100 years. Mean daily maximum and minimum temperatures for each month were calculated from the Canelo temperature data from 1981 to 1985. Temperatures rarely exceed 102°F (38.9°C) in June and lows rarely drop below 20°F (6.7°C). Record highs and lows from Canelo are 103°F (39.4°C) and -15°F (- 26.1°C), respectively. Annual precipitation on the Research Sanctuary is approximately 17 inches (43.2 cm). Precipitation is distinctly bimodal, with over half of the annual total falling during the summer monsoon, July-September. Summer rainfall occurs as sharp, high intensity thundershowers, as opposed to gentler winter rainfall which is usually associated with Pacific frontal storms. Snowfall occurs infrequently and does not remain on the ground for more than a few days.

H. DESCRIPTION OF VALUES

(1) Flora

The primary feature of the CRNA is the open oak woodland dominated by Mexican blue oak, with Emory oak (Quercus emoryi), and Arizona white oak (Quercus arizonica) present as minor climax associates. Alligator juniper (Juniperus deppeana) is scattered throughout the site. The only important shrub on the site is cassia (Cassia leptadenia). Perennial grasses dominate the herbaceous layer. Gramas (Bouteloua curtipendula, B. gracilis and

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[1] *In this Establishment Record all trees are named following Little, E.L.Jr. 1979. Checklist of United States trees (native and naturalized). Agricultural Handbook No. 541. USDA. Washington, DC. All other plants are named following Lehr, J.H. 1978.*

B. chondrosioides) are the most common grasses in association with plains lovegrass (Eragrostis intermedia), sprangle top (Heteropogon contorta) and three-awns (Aristida spp.). Monitoring studies indicate that plains lovegrass has increased dramatically since livestock have been removed (Bock and Bock, 1987). The open oak canopy with a well-developed perennial grass understory leads some researchers to refer to this woodland type as an oak-savanna. Along the ridgeline in the eastern portion of the CRNA, the oaks drop out and a perennial grassland community dominated by the aforementioned species prevails. Important forbs throughout the site are Bahia absinthifolia and Dyschoriste decumbens.

Of particular note in the CRNA is the riparian community along Turkey Creek. The unique habitat is dominated by a nearly monotypic stand of deer grass (Muhlenbergia rigens). Several deciduous broadleaf trees are scattered the length of the stream and include Fremont cottonwood (Populus fremontii), Goodding willow (Salix gooddingii) and velvet ash (Fraxinus pennsylvanica var velutina).

Huachuca water umbel (Liaiopsis schaffneriana var. recurva), a Category 2 species is found on the RNA. No other threatened or endangered plant species are known from this site. The following plant list was compiled for the CRNA based on information provided by Mark Stromberg for the Audubon Research Sanctuary.

Plant List For Canelo RNA

Latin Name	Common Name	Habitat
TREES		
Chilopsis linearis	*desert willow*	*R*
Fraxinus pennsylvanica var velutina	*velvet ash*	*R*
Juglans major	*walnut*	*R*
Juniperus deppeana	*alligator juniper*	*O*
Populus fremontii	*Fremont cottonwood*	*R*
Quercus arizonica	*Arizona white oak*	*O*
Quercus emoryi	*emory oak*	*O*
Quercus oblongifolia	*Mexican blue oak*	*O*
Salix gooddingii	*Goodding willow*	*R*
Salix lasiolepsis	*Pacific willow*	*R*
GRASSES AND GRASS-LIKE PLANTS		
Andropogon barbinoides	*beardgrass*	*O*
Aristida divaricata	*poverty three-awn*	*O*
Aristida ternipes	*spider grass*	*O*
Bouteloua chondrosoides	*grama*	*O*
Bouteloua curtipendula	*side oats grama*	*O,R*
Bouteloua gracilis	*blue grama*	*O*
Bouteloua hirsuta	*hairy grama*	*O*
Eragrostis intermedia	*plains lovegrass*	*O,R*
Heteropogon contorta	*sprangle top*	*O*
Hilaria belangeri	*curly mesquite grass*	*O*
Muhlenbergia rigens	*deer grass*	*R*
Oryzopsis spp.	*indian ricegrass*	*R*
SHRUBS AND WOODY LIANAS		
Acacia angustissima	*acacia*	*O*
Apodanthera undulata	*melon loco*	*O*
Baccharis pteroniodes	*yerba-de-pasmo*	*O,R*
Cassia leptadenia	*cassia*	*O*
Desmanthus cooleyi	*bundleflower*	*O*
Haplopappus spinulosus	*no common name*	*O*
Haplopappus tenuisectus	*burroweed*	*O*
Mimosa biuncifera	*wait-a-minute*	*O*
Mimosa dysocarpa	*gatuno*	*O*
Senecio longilobus	*groundsel*	*R*

HERBS

Bahia absinthifolia	*no common name*	*O*
Brayulinea densa	*small matweed*	*O*
Croton corymbulosus	*leather weed*	*O*
Dyschoriste decumbens	*no common name*	*O*
Evolvulus sericeus	*no common name*	*O*
Nemasytylis tenuis	*slender shell flower*	*R*
Sida procumbens	*sida*	*O*

** O = Oak Savanna; R = Riparian*

(2) Fauna

Turkey Creek is noteworthy for the absence of non-native fish, an increasingly rare stream environment in the Southwest. Dr. Stromberg indicates that Gila topminnow (Poeciliopsis occidentalis occidentalis), a Federally listed endangered fish was introduced just upstream of the CRNA boundary by a private landowner in mid-1986 (pers. comm.) and may now occur in the RNA. Gila chub (Gila intermedia), A USFWS Category 2 fish (USDI Fish & Wildlife Service, 1990), has also been documented from Turkey Creek.

Vertebrate species known from the Audubon Research Sanctuary: Nomenclature and authority follow that of Banks et al. (1987).

MAMMALS

Badger	*Taxidae taxus*
Bat, Allen's big-eared	*Plecotus pyhllotis*
Bat, big brown	*Eptesicus fuscus*
Bat, ghost-faced	*Mormoops megalophylla*
Bat, hoary	*Lasiurus cinearus*
Bat, little Brown	*Myotis lucifugus occultus*
Bat, Mexican free-tailed	*Tadarida brasiliensis mexicanus*
Bat, pallid	*Antrozous pallidus*
Bat, pocketed free-tailed	*Tadarida femerosacca*
Bat, red	*Lasiuris borealis*
Bat, Sanborn's long-nosed	*Leptonycteris sanborni*
Bat, silver-haired	*Lsionycterus noctivabans*
Bat, southern yellow	*Lasiuris ega*
Bat, spotted	*Euderma maculatum*
Bat, Townsend's big-eared	*Plecotus townsendii*
Bat, western mastiff	*Eumops perotis*
Bear, black	*Ursus americanus*
Bobcat	*Lynx rufus*
Coatimundi	*Nasua nasua*
Cottontail, desert	*Sylvilagus audubonii*
Cottontail, eastern	*Sylvilagus floridanus*
Coyote	*Canis latrans*
Deer, Coues' white-tailed	*Odocoileus virgineaus couesi*
Deer, mule	*Odocoileus hemionius*

Fox, gray	*Urocyon cinereoargenteus*
Fox, kit	*Vulpes macrotis*
Jackrabbit, antelope	*Lepus alleni*
Jackrabbit, black-tailed	*Lepus californicus eremicus*
Jackrabbit, white-tailed	*Lepus townsendii*
Lion, mountain	*Felis concolor*
Mouse, brush	*Peromyscus boylii*
Mouse, cactus	*Peromyscus eremicus*
Mouse, deer	*Peromyscus maniculatus*
Mouse, fulvous harvest	*Reithrodontomys fulvescens*
Mouse, hispid pocket	*Perognathus hispidus*
Mouse, Merriam's pocket	*Dipodomys merriami*
Mouse, northern grasshopper	*Onychomys leucogaster*
Mouse, northern pygmy	*Baiomys taylori*
Mouse, plains harvest	*Reithrodontomys montanus*
Mouse, rock pocket	*Perognathus intermedius*
Mouse, silky pocket	*Perognathus flavus flavus*
Mouse, southern grasshopper	*Onychomys torridus*
Mouse, western harvest	*Reithrodontomys megalotis*
Mouse, white-footed	*Peromyscus leucopus*
Myotis, California	*Myotis californicus*
Myotis, cave	*Myotis velifer*
Myotis, fringed	*Myotis thysanodes*
Myotis, long-legged	*Myotis volans*
Myotis, small-footed	*Myotis ciliolabrum mwlnorinus*
Myotis, southwestern	*Myotis auriculus apache*
Myotis, Yuma	*Myotis yumanensis*
Peccary, collared	*Tayasuu tajacu*
Pipistrelle, western	*Pipistrellus herperus*
Pocket Gopher, Canelo Hills	*Thomomys umbrinus caneloensis*
Pocket Gopher, Huachuca Southern	*Thomomys umbrinus proximus*
Porcupine	*Erethizon dorsatum*
Prairie Dog, black-tailed	*Cynomys ludovicianus*
arizonensis	
Pronghorn	*Antilocapra americana*
Raccoon	*Procyon lotor*
Rat, Arizona cotton	*Sigmodon arizonae*
Rat, Ord's kangaroo	*Dipodomys ordii*
Rat, Yellow-nosed cotton	*Sigmodon ochrognathus*
Rat, Zacatecan or tawny-bellied cotton	*Sigmodon fulviventer minimus*
Ringtail	*Bassariscus astutus*
Shrew, desert	*Notiosorex crawfordi*
Skunk, hog-nosed	*Conepatus mesoleucus*
Skunk, hooded	*Mephitis macroura*
Skunk, striped	*Mephitis mephitis*
Skunk, western spotted	*Spilogale gracilis*
Squirrel, Arizona gray	*Sciuris arizonensis huachuca*
Squirrel, rock	*Spermophilus variagatus*
Squirrel, spotted ground	*Spermophilus spilosoma*
Woodrat, Mexican	*Neotoma mexicana*
Woodrat, white-throated	*Neotoma albigula*

AMPHIBIANS

Frog, Chiricahua leopard	*Rana chiricahua*
Frog, lowland leopard	*Rana yavapaiensis*
Spadefoot, Couch's	*Scaphiopus couchii*
Spadefoot, western	*Scaphiopus hammondi*
Toad, red spotted	*Bufo punctatus*
Treefrog, canyon	*Hyla arenicolor*

REPTILES

Coachwhip, Sonoran	*Masticophis flagellum cingulum*
Kingsnake, Mexican or black	*Lampropeltus getulus nigritus*
Kingsnake, Huachuca (Arizona) Mountain	*Lampropeltus pyromelana woodini*
Lizard, bunch grass	*Scleroporus scalaris*
Lizard, Clark's spiny	*Scleroporus clarkii*
Lizard, common collared	*Crotaphytus collaris*
Lizard, lesser earless	*Holbrookia maculata*
Lizard, Madrean (Arizona) alligator	*Gerrhonotus king*
Lizard, regal horned	*Phrynosoma solare*
Lizard, round-tailed horned	*Phrynosoma modestum*
Lizard, southern prairie (fence)	*Scleroporus undulatus consobrinus*
Lizard, tree	*Urosaurus ornatus*
Rattlesnake, black-tailed	*Crotalus molossus*
Rattlesnake, Mojave	*Crotalus scutulatus*
Rattlesnake, rock	*Crotalus lepidus*
Rattlesnake, western diamondback	*Crotalus atrox*
Skink, mountain	*Eumeces callicephalus*
Skink, Great Plains	*Eumeces obsoletus*
Snake, Big Bend patch-nosed	*Salvadora hexalepis deserticola*
Snake, black-necked garter	*Thamnophis crytopsis*
Snake, gopher	*Pituophis melanoleucus*
Snake, Mexican garter	*Thamnophis eques*
Snake, night	*Hypsiglena torquata*
Snake, western coral	*Micruroides euryxanthus*
Snake, western hognose	*Heterodon nasicus*
Snake, western patch-nosed	*Salvadora hexalepis*
Turtle, desert box	*Terrapene ornata*
Turtle, Sonoran mud	*Kinosternon sonoriensis*
Whipsnake, Sonoran mountain	*Masticophis bilineatus bilineatus*
Whiptail, Arizona desert	*Cnemodophorus tigris gracilis*
Whiptail, Chihuahaun spotted	*Cnemodophorus exanquis*
Whiptail, desert grassland	*Cnemidophorus uniparens*
Whiptail, giant spotted	*Cnemidophorus burti stictogrammus*
Whiptail, Gila spotted	*Cnemodophorus flagellicaudus*
Whiptail, little striped	*Cnemidophorus inornatus*

Whiptail, Sonoran spotted	*Cnemodophorus sonorae*
BIRDS	
Avocet, American	*Recurvirostra americana*
Blackbird, Brewer's	*Euphagus cyanocephalus*
Blackbird, red-winged	*Agelaius phoeniceus*
Blackbird, yellow-headed	*Xanthocephalus xanthocephalus*
Bluebird, eastern	*Sialia sialis*
Bluebird, mountain	*Sialia currucoides*
Bluebird, western	*Sialia mexicana*
Bunting, indigo	*Passerina cyanea*
Bunting, lark	*Calamospiza melanocorys*
Bunting, lazuli	*Passerina amoena*
Bunting, varied	*Passerina versicolor*
Cardinal, northern	*Cardinalis cardinalis*
Chat, yellow-breasted	*Icteria virens*
Coot, American	*Fulica americana*
Cowbird, bronzed	*Molothrus aeneus*
Cowbird, brown-headed	*Molothrus aster*
Creeper, brown	*Certhia americana*
Cuckoo, yellow-billed	*Coccyzus americanus*
Curlew, long-billed	*Numenius americanus*
Dove, common Ground	*Columbina passerina*
Dove, Inca	*Coumbina inca*
Dove, mourning	*Zenaida macroura*
Dove, white-winged	*Zenaida asiatica*
Dowitcher, long-billed	*Limnodromus scolopaceus*
Eagle, bald	*Haliaeetus leucocephalus*
Eagle, golden	*Aquila chrysaetos*
Egret, snowy	*Egretta thula*
Falcon, prairie	*Falco mexicanus*
Finch, cassin's	*Carpodacus cassinii*
Finch, house	*Carpodacus mexicanus*
Finch, purple	*Carpodacus purpureus*
Flicker, northern	*Colaptes auratus*
Flycatcher, ash-throated	*Myiarchus cinerascens*
Flycatcher, brown-crested	*Myiarchus tyrannulus*
Flycatcher, dusky	*Empidonax oberholseri*
Flycatcher, dusky-capped	*Myiarchus tuberculifer*
Flycatcher, gray	*Empidonax wrightii*
Flycatcher, Hammond	*Empidonax hammondii*
Flycatcher, Nutting's	
Flycatcher, olive-sided	*Contopus borealis*
Flycatcher, sulphur-bellied	*Miodynastes luteiventris*
Flycatcher, vermilion	*Pyrocephalus rubinus*
Flycatcher, willow	*Empidonax traillii*
Gnatchatcher, blue-gray	*Polioptila caerulea*
Goldfinch, American	*Carduelis tristis*
Goldfinch, Lawrence's	*Carduelis lawrencei*
Goldfinch, lesser	*Carduelis psaltria*

Goshawk, northern	*Accipiter gentilis*
Grackle, great-tailed	*Quiscalus mexicanus*
Grebe, pied-billed	*Podilymbus podiceps*
Grosbeak, black-headed	*Pheucticus melanocephalus*
Grosbeak, blue	*Guiraca caerulea*
Harrier, northern	*Circus cyaneus*
Hawk, Cooper's	*Accipiter cooperi*
Hawk, ferruginous	*Buteo regalis*
Hawk, gray	*Buteo nitidus*
Hawk, red-tailed	*Buteo jamaicensis*
Hawk, rough-legged	*Buteo lagopus*
Hawk, sharp-shinned	*Accipiter striatus*
Hawk, Swainson's	*Buteo swainsoni*
Hawk, zone-tailed	*Buteo albonotatus*
Heron, black crowned night-	*Nycticorax nycticorax*
Heron, great blue	*Ardea herodias*
Heron, green-backed	*Butorides striatus*
Hummingbird, Allen's	*Selasphorus sasin*
Hummingbird, Anna's	*Calypte anna*
Hummingbird, black-chinned	*Archilochus alexandri*
Hummingbird, blue-throated	*Lampornis clemenciae*
Hummingbird, broad-billed	*Cynanthus latirostris*
Hummingbird, broad-tailed	*Selasphorus platycercus*
Hummingbird, Costa's	*Calypte costae*
Hummingbird, magnificent	*Eugenes fulges*
Hummingbird, rufous	*Selasphorus rufus*
Ibis, white-faced	*Plegadis chihi*
Jay, gray-breasted	*Aphelocoma ultramarina*
Junco, dark-eyed	*Junco hyemalis*
Junco, yellow-eyed	*Junco phaeonotus*
Kestrel, American	*Falco sparverius*
Killdeer	*Charadirius vociferus*
Kingbird, Cassin's	*Tyrannus vociferans*
Kingbird, tropical	*Tyrannus melancholicus*
Kingbird, western	*Tyrannus verticalis*
Kingfisher, belted	*Ceryle alcyon*
Kinglet, golden-crowned	*Regulus satrapa*
Kinglet, ruby-crowned	*Regulus calendula*
Kite, black-shouldered	*Elanus caeruleus*
Lark, horned	*Eremophila alpestris*
Longspur, chestnut-collared	*Calcarius ornatus*
Longspur, McCown's	*Calcarius mccownii*
Mallard	*Anas platyrhynchos*
Martin, purple	*Progne subis*
Meadowlark, eastern	*Sturnella magna*
Meadowlark, western	*Sturnella neglecta*
Merlin	*Falco columbarius*
Mockingbird, northern	*Mimus polyglottos*
Nighthawk, common	*Chordeiles minor*
Nighthawk, lesser	*Chordeiles acutipennis*
Nutcracker, Clark's	*Nucifraga colubiana*

Nuthatch, red-breasted	Sitta canadensis
Nuthatch, white-breasted	Sitta carolinensis
Oriole, hooded	Icterus cucullatus
Oriole, northern	Icterus galbula
Oriole, Scott's	Icterus parisorum
Owl, burrowing	Athene cunicularia
Owl, common barn	Tyto alba
Owl, elf	Micrathene whitneyi
Owl, great horned	Bubo virginianus
Owl, northern pygmy-	Glaucidium gnoma
Owl, short-eared	Asio flammeus
Owl, western screech-	Otus kennicottii
Owl, whiskered screech-	Otus trichopsis
Pewee, western wood-	Contopus sordidulus
Phainopepla	Phainopepla nitens
Phalarope, Wilson's	Phalaropus tricolor
Phoebe, black	Sayornis nigricans
Phoebe, Say's	Sayornis saya
Pigeon, band-tailed	Columba fasciata
Pipit, Spraque's	Anthus spragueii
Pipit, water	Anthus spinoletta
Plover, mountain	Charadrius montanus
Poorwill, common	Phalaenoptilus nuttallii
Pyrrhuloxia	Cardinalis sinuatus
Quail, Montezuma	Cyrtonyx montezumae
Quail, scaled	Callipepla squamata
Rail, Virginia	Rallus limicola
Raven, Chihuahuan	Corvus cryptoleucus
Raven, common	Corvus corax
Redstart, painted	Myioborus pictus
Roadrunner, greater	Geococcyx californianus
Robin, American	Turdus migratorius
Sandpiper, least	Calidris minutilla
Sandpiper, spotted	Actitis macularia
Sandpiper, western	Calidris mauri
Sapsucker, red-breasted	Sphyrapicus ruber
Sapsucker, Williamson's	Sphyrapicus thyroideus
Sapsucker, yellow-bellied	Sphyrapicus varius
Scaup, lesser	Aythya affinis
Shrike, loggerhead	Lanis ludovicianus
Shrike, northern	Lanis excubitor
Siskin, pine	Carduelis pinus
Snipe, common	Gallinago gallinago
Solitaire, Townsend's	Myadestes townsendi
Sora	Parzana carolina
Sparrow, Baird's	Ammodramus bairdii
Sparrow, black-chinned	Spizella atrogularis
Sparrow, black-throated	Amphispiza bilineata
Sparrow, Botteri's	Aimophila botterii
Sparrow, Brewer's	Spizella breweri
Sparrow, Cassin's	Aimophila cassinii

Sparrow, chipping	*Spizella passerina*
Sparrow, grasshopper	*Ammodramus savannarum*
Sparrow, house	*Passer domesticus*
Sparrow, lark	*Chondestes grammacus*
Sparrow, Lincoln's	*Melospiza lincolnii*
Sparrow, rufous-crowned	*Aimophila ruficeps*
Sparrow, sage	*Amphispiza belli*
Sparrow, savannah	*Passerculus sandwichensis*
Sparrow, song	*Melospiza melodia*
Sparrow, vesper	*Pooecetes gramineus*
Sparrow, white-crowned	*Zonotrichia leucophyrys*
Sparrow, white-throated	*Zonotrichia albicollis*
Starling, European	*Sturnus vulgaris*
Stilt, black-necked	*Himantopus mexicanus*
Swallow, barn	*Hirundo rustica*
Swallow, cliff	*Hirundo pyrrhonota*
Swallow, northern rough-winged	*Stelgidopteryx serripennis*
Swallow, tree	*Tachycineta bicolor*
Swallow, violet-green	*Tachycineta thalassina*
Swift, white-throated	*Aeronautes saxtalis*
Swift, Vaux's	*Chaetura vauxi*
Tanager, western	*Piranga ludoviciana*
Tanager, summer	*Piranga rubra*
Tanager, hepatic	*Piranga flava*
Teal, blue-winged	*Anas discors*
Teal, cinnamon	*Anas cyanoptera*
Teal, green-winged	*Anas crecca*
Thrasher, Bendire's	*Toxostoma bendirei*
Thrasher, brown	*Toxostoma rufum*
Thrasher, crissal	*Toxostoma dorsale*
Thrasher, curve-billed	*Toxostoma curvirostre*
Thrasher, sage	*Oreoscoptes montanus*
Thrush, hermit	*Catharus guttatus*
Thrush, Swainson's	*Catharus ustulatus*
Titmouse, bridled	*Parus wollweberi*
Towhee, Abert's	*Pipilo abertie*
Towhee, brown	*Pipilo fuscus*
Towhee, green-tailed	*Pipilo chlorurus*
Towhee, rufous-sided	*Pipilo erythophthalmus*
Vireo, Bell's	*Vireo bellii*
Vireo, Hutton's	*Vireo huttoni*
Vireo, red-eyed	*Vireo olivaceous*
Vireo, solitary	*Vireo solitarius*
Vireo, warbling	*Vireo gilvus*
Vulture, turkey	*Cathartes aura*
Warbler, black-throated Gray	*Dendroica nigrescens*
Warbler, hermit	*Dendroica occidentalis*
Warbler, Lucy's	*Vermivora luciae*
Warbler, MacGillivray's	*Oporornis tolmiei*
Warbler, Nashville	*Vermivora ruficapilla*
Warbler, orange-crowned	*Vermivora celata*

Warbler, Townsend's	*Dendroica townsendi*
Warbler, Virginia's	*Vermivora virginiae*
Warbler, Wilson's	*Wilsonia pusilla*
Warbler, yellow	*Dendroica petechia*
Warbler, yellow-rumped	*Dendroica coronata*
Waterthrush, northern	*Seirus noveboracensis*
Waxwing, cedar	*Bombycilla cedrorum*
Willet	*Catoptrophorus semipalmatus*
Woodpecker, acorn	*Melanerpes formicivorus*
Woodpecker, Gila	*Melanerpes uropygialis*
Woodpecker, hairy	*Picoides villosus*
Woodpecker, ladder-backed	*Picoides scalaris*
Woodpecker, Lewis's	*Melanerpes lewis*
Woodpecker, Strickland's	*Picoides stricklandi*
Wren, Bewick's	*Thryomanes bewickii*
Wren, cactus	*Campylorhynchus brunneicapillus*
Wren, canyon	*Catherpes mexicanus*
Wren, house	*Troglodytes aeodon*
Wren, rock	*Salpinctes obsoletus*
Wren, winter	*Troglodytes troglodytes*
Yellowthroat, common	*Geothlypis trichas*
Yellowlegs, greater	*Tringa melanoleuca*

(3) Geology

The area is underlain by undifferentiated Tertiary and Cretaceous age sandstone, shale and limestone sediments (Arizona Highway Department, 1960).

(4) Soils

Soils are mainly Typic Haphistalfs, loamy-skeletal, mixed, mesic (USDA Forest Service, 1986c).

(5) Lands

All lands within the CRNA are controlled by the Coronado National Forest. No private inholdings are involved.

(6) Cultural

No archaeological surveys have been conducted within the area and no cultural resources have been recorded in Forest Service files. Surveys in surrounding areas such as O'Donnell Canyon and Lyle Canyon have located prehistoric sites. These included small temporary hunting and gathering camps, large late prehistoric villages, and historic mining locales. Overall site density in the RNA is considered to be relatively low although the probability of small prehistoric sites being present is high.

(7) Other

No other significant natural values which have not already been discussed occur in the CRNA.

I. IMPACTS AND POSSIBLE CONFLICTS

(1) Mineral Resources

No known mineral resources exist in the area.

(2) Grazing

No impacts or conflicts exist since this area was closed at the same time the Research Ranch was closed to grazing in 1974.

(3) Timber

The area, comprised mainly of several species of oak, would be used for fuelwood harvest only. No commercial timber will be impacted.

(4) Watershed Values

There will be no change in watershed management and values under RNA designation versus current management.

(5) Recreation Values

The major recreation use of the area is big game hunting. This will not be affected.

(6) Wildlife and Plant Values

The area is currently under a no grazing administration. Use is by wildlife only. The exclusion of grazing has allowed the area to remain an excellent example of Mexican blue oak savanna. Inclusion of this area as a RNA will insure the continuation of this exemplary woodland community.

(7) Special Management Area Values

The HCRNA does not contain any congressionally designated special management areas, nor lie adjacent to any, so no conflicts with such areas exist.

(8) Transportation Plans

There are no roads in the area, and there are no conflicts with existing transportation plans. No roads shall be built within or adjacent to the CRNA.

J. MANAGEMENT PRESCRIPTION

The CRNA is recommended in the Coronado National Forest Plan Management Area 8 (see Appendix). Management emphasis is to provide opportunities for nondisruptive research and education. Use restrictions will be imposed as necessary to keep the area in its climax state.

(1) Vegetation Management

No harvest of forest products including fuelwood. Rangeland will be managed at Level A (no grazing). Prescribed fire will be used to reduce risks and enable lightning to play its natural role.

K. ADMINISTRATION RECORDS AND PROTECTION

Administration and protection of the CRNA is the responsibility of the Coronado National Forest. The District Ranger, Sierra Vista Ranger District, (5990 S. Hwy 92, Hereford, AZ 85615) has direct responsibility.

Records for the CRNA will be maintained in the following offices:

Regional Forester, Southwestern Region, Albuquerque, NM

Rocky Mountain Forest & Range Experiment Station, Fort Collins, CO

Coronado National Forest, Tucson, AZ

District Ranger, Sierra Vista Ranger District, Sierra Vista, AZ

L. ARCHIVING

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. Requests to conduct research in the area should be referred to him at 240 W. Prospect Rd., Ft. Collins, CO 80526-2098. He, or his designee, will evaluate research proposals and coordinate all studies and research in the area with the District Ranger and the RNA research coordinator. Plant specimens collected in the course of research in the area will be maintained at the University of Arizona, College of Agriculture herbaria in Tucson, Arizona, or at the Forest Supervisor's office. Animal specimens will be maintained at the Arizona State University, Department of Zoology vertebrate museum in Tempe, Arizona.

M. REFERENCES

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Banks, R. C., R. W. McDiarmid, and A. L. Gardner (editors). 1987. Checklist of vertebrates of the United States, the U. S. Territories, and Canada. U.S. Fish and Wildlife Service, Resource Publication 166, Washington, D.C. 79 pp

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Bock, C.E. and J.H. Bock. 1979. Relationships of the collared peccary to sacaton grassland. J. Wildl. Manage. 43(3):813-816.

Bock, C.E. and J.H. Bock. 1987. Habitat relationships of some native perennial grasses in southeastern Arizona. Desert Plants 8(1):3-14.

Bonham, C.D. 1972. Ecological inventory information storage-retrieval system for the Research Ranch, Elgin Arizona. Range Sci. Dept., Colorado State Univ., Fort Collins, CO, Sci. Ser. 14, 93 p.

Eyre, F.H., ed. 1980. Forest cover types of the United States and Canada. Society of American Foresters, Washington, D.C. 148 pp.

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Moir, W.H. 1986. Forests and woodlands of southern Arizona (south of the Mogollon Rim) and southwestern New Mexico, U.S.A. Training Manual. Edition 1. USDA Forest Service, Southwestern Region, Albuquerque, NM.

Stacey, P.B. and C.E. Bock. 1978. Social plasticity in the Acorn Woodpecker. Science 202:1298-1300.

USDA Forest Service. 1979. Checklist of United States Trees (native and naturalized). Agricultural Handbook No. 541. Washington, D.C.

USDA Forest Service. 1983. Regional guide for the Southwestern Region. USDA Forest Service, Southwestern Region, Albuquerque, NM.

USDA Forest Service. 1984. Progress report, Research Natural Areas: recommended representations for important ecosystems on National Forest System Land in the Southwestern Region. USDA Forest Service, Southwestern Region, Albuquerque, NM. 90 pp.

USDA Forest Service. 1986a. Environmental Impact Statement for the Coronado National Forest Plan. USDA Forest Service, Southwestern Region, Albuquerque, NM. 275 pp.

USDA Forest Service. 1986b. Coronado National Forest Plan. USDA Forest Service, Southwestern Region, Albuquerque, NM. 130 pp.

USDA Forest Service. 1986c. Terrestrial Ecosystem Handbook. Appendix B, USDA Forest Service, Southwestern Region, Albuquerque, NM.

USDI Fish and Wildlife Service. 1990. Endangered and threatened wildlife and plants; review of vertebrate wildlife; notice of review. Federal Register Vol.55 No.35:6184-6229.

NOTE: For a complete list of research studies conducted on the Audubon Research Sanctuary, please contact the Research Sanctuary Manager.

APPENDIX*The following pages have been reproduced from the Coronado National Forest Plan.*

LEGAL DESCRIPTION

Case Name/No. Canelo RNA

Forest/District Coronado/Sierra Vista

Type of Case Research Natural Area Establishment

This documents that the attached legal description for the case referenced above was reviewed by me for use in an area designation.

The legal description that describes the Canelo Research Natural Area is acceptable, and no potential problems were noted during my review.

Reviewed by: _____ Date: 10-14-92
Forest Land Surveyor

E. LOCATION

The CRNA is located within the Sierra Vista Ranger District of the Coronado National Forest in Santa Cruz County, Arizona (Figs. 1 & 2) and is under special use permit by the National Audubon Research Sanctuary under authority of a memorandum of understanding with the Forest Service dated July 28, 1982. The CRNA consists of approximately 350 acres (142 hectares). The elevation ranges from about 4,000 to 5,100 feet (1,220 to 2,066 meters). The area is at latitude 31° 33.5′ north and longitude 110° 30.5′ west.

The Canelo Research Natural Area is a tract of land within the administrative boundary of the Coronado National Forest in Santa Cruz County, State of Arizona, and more particularly described as follows:

Commencing at the corner to Sections 33 and 34, Township 21 South, Range 18 East and Sections 3 and 4, Township 22 South, Range 18 East, Gila and Salt River Meridian.
THENCE, southerly along the section line common to Section 33 and 34, T.21S., R 18E. approximately .11 miles (.18 km) to the Point of Beginning, which is a point of intersection of the Section line and a southwest-northeast fenceline;
THENCE, southwesterly approximately .38 miles (.61 km) along said fenceline and a ridge to a hilltop with a contour elevation of 5025 ft (1532.6 m);
THENCE, southerly approximately .19 miles (.31 km) along said fenceline to a knob with a contour elevation of 4975 ft (1425.9 m);
THENCE, southeasterly approximately .13 miles (.21 km) along said fenceline to the junction of Turkey Creek and an unnamed side drainage that flows easterly;
THENCE, southeasterly approximately .15 miles (.24 km) along said fenceline to a fence corner at an approximate contour elevation of 4950 ft (1509.8 m);
THENCE, southwesterly approximately .17 miles (.27 km) along said fenceline to a fence corner with a approximate contour elevation of 4950 ft (1509.8 m);
THENCE, southeasterly approximately .40 miles (.64 km) along said fenceline and a ridge to a hilltop with a contour elevation of 5075 ft (1547.9 m);
THENCE, southeasterly approximately .19 miles (.31 km) along the said fenceline and hilltop to the northside of Forest Road 827;
THENCE, northeasterly approximately .19 miles (.31 km) along the northside and westside of said road to a hilltop with a contour elevation of 5125 ft (1563.1 m);
THENCE, northerly approximately .89 miles (1.43 km) along same ridge to a point on an east-west fenceline at the northerly edge of a saddle with a contour elevation of 5000 ft (1525.0 m);
THENCE, westerly approximately .10 miles (.16 km) along said fenceline to a side drainage that flows northwesterly to Turkey Creek;
THENCE, westerly approximately .06 miles (.10 km) along said fenceline to a point on a unnamed ridge with a contour elevation of 4925 ft (1502.1 m);
THENCE, northwesterly approximately .15 miles (.24 km) along said fenceline to a point in Turkey Creek;
THENCE, northwesterly approximately .12 miles (.19 km) along said fenceline and an unnamed ridge to the south side of a hilltop;
THENCE, northwesterly approximately .21 miles (.34 km) along a said fenceline to a fence intersection;
THENCE, southwesterly approximately .04 miles (.06 km) from said fence intersection to the Point of Beginning.

To reach the CRNA proceed south on Arizona State Highway 83 18.6 miles (29.9 km) from the junction of Highway 83 with Arizona State Highway 82 in the town of Sonoita to Forest Service Road 827. Turn north and drive 1.5 miles (2.4 km) north to a unsigned dirt road turnoff

to the west. Drive past the stock tank and proceed up the hill 0.2 miles (0.3 km). At the hill's crest the dirt road parallels the eastern boundary of the RNA.

Earl Aldon

United States Department of Agriculture | Forest Service | Region 3 | 517 Gold Avenue, SW Albuquerque, NM 87102

Reply To: 4060 Research Facilities

Date: October 24, 1985

Subject: Proposed Canelo Research Natural Area

To: Forest Supervisor, Coronado National Forest

On September 9, 1985, Earl Aldon, Reggie Fletcher, and Larry Schmidt of the Regional Research Natural Area (RNA) Task Group, together with Mark Stromberg of the Research Ranch Sanctuary, Andy Laurenzi of the Nature Conservancy, and Chuck Kennedy and Mike Borens of your staff evaluated the proposed Canelo RNA.

This proposed RNA consists of approximately 350 acres of National Forest within the Appleton-Whittell Research Ranch Sanctuary. The area is in Sections 33 and 34, T. 21 S., R. 18 E., and Section 3, T. 22 S., R. 18 E. The elevation ranges from about 4,800 to 5,100 feet. The primary purpose of the RNA would be to obtain a representation of mexican blue oak (Quercus oblongifolia) woodland.

Mexican blue oak is the lowest oak encountered on an elevational gradient up the mountains of Southeast Arizona. In the adjacent Huachuca Mountains this oak is normally found between 4,800 and 5,200 feet grading into emory (Q. emoryi) and then arizona white oak (Q. arizonica).

The slopes of Turkey Creek comprising the proposed RNA provide an excellent example of an open mexican blue oak woodland. In the drainage bottoms, lower slopes, and occasionally on the upper slopes Arizona white oak is found in varying amounts. As expected, there is ample evidence of hybridization.

The absence of livestock has permitted a rich mosaic of grass species and provides a good comparison with adjacent grazed areas in similar habitats. The open oak canopy provides an excellent contrast to the dense oak woodland on granite a few miles to the south.

The proposed area qualifies for and is suitable as a RNA. Designation would not require any change in existing management or fencing. The area has already been subjected to a variety of research studies. A list of research projects provided by Mark Stromberg is enclosed.

Since the emphasis of the Appleton-Whittell Research Ranch already is research, there is some question as to whether the proposed area needs designation as a RNA. The benefit of placing this area with the RNA system is in advertising the availability of this community for study.

Map 1 provided by Mike Borens roughly delineates the proposed RNA. If the area is formally proposed, the northern boundary should be extended north to the Forest boundary as shown on Map 2. This would simplify any future

fencing needs and generally make the boundaries more definitive while only adding approximately 100 acres.

John W Russell

J. W. RUSSELL
Director of Land Management Planning

Enclosures

cc:
Andy Laurenzi
Mark Stromberg
RNA Task Group

RESEARCH PROJECTS ON THE PROPOSED CANELO RESEARCH NATURAL AREA

1. Kenney, W., J. Bock, C. Bock. 1985. Response of the shrub Baccharis pteronioides to livestock exclosure in southeastern Arizona. Amer. Midland Natur. in presr (effects of small fire in RNA on B. pter).

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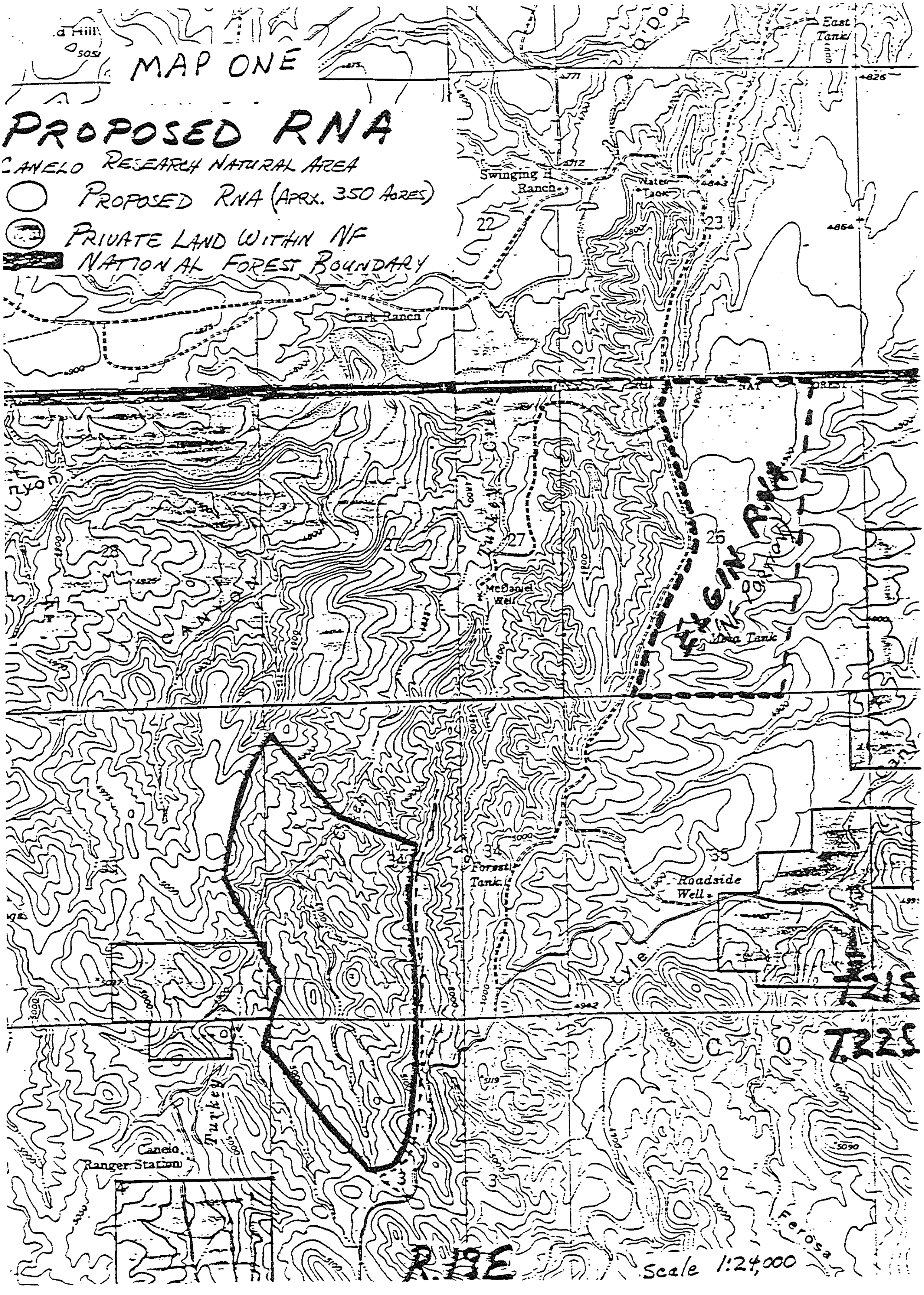
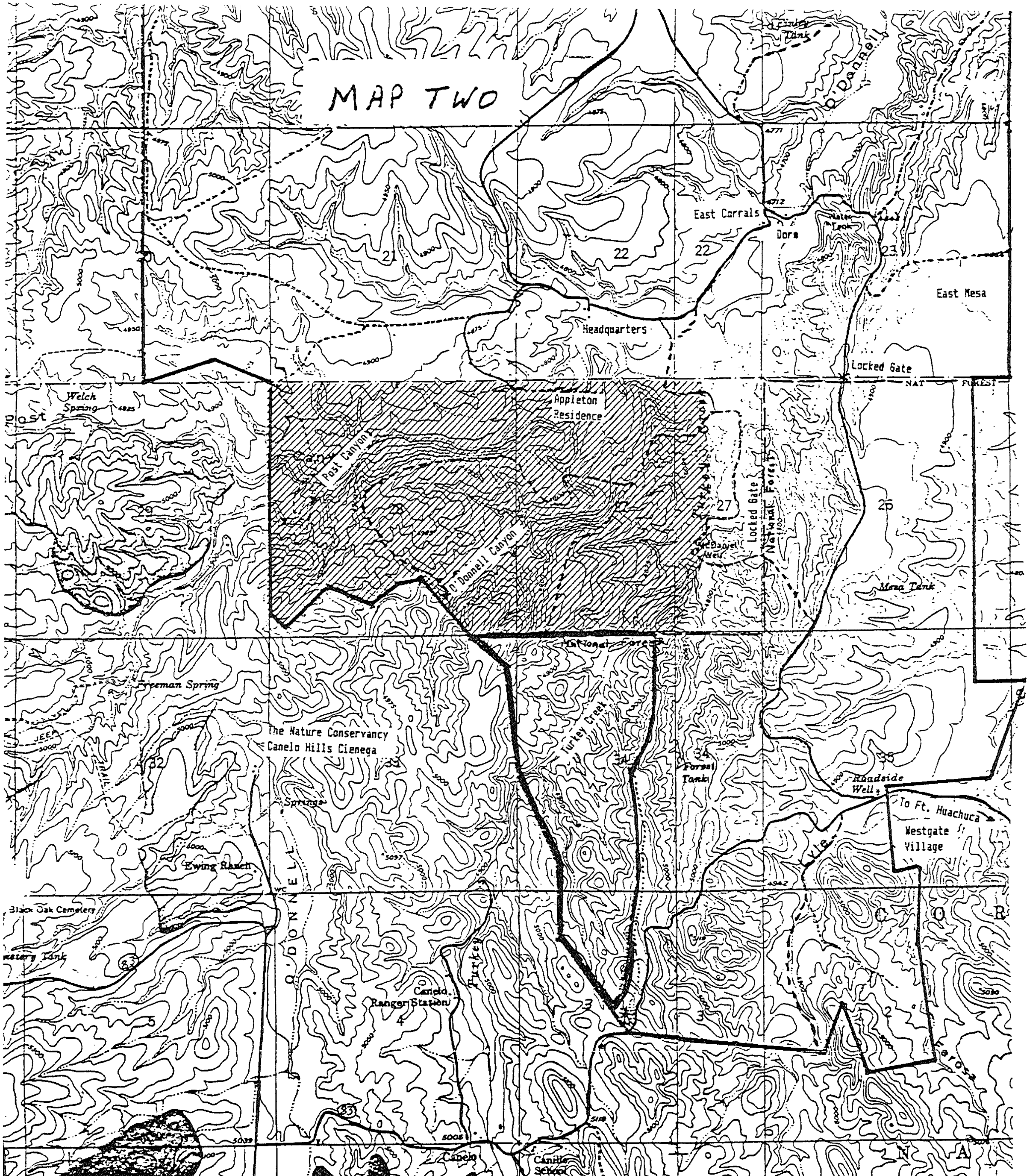

MAP ONE
PROPOSED RNA
CANELO RESEARCH NATURAL AREA
PROPOSED RNA (APRX. 350 ACRES)
PRIVATE LAND WITHIN NF
NATIONAL FOREST BOUNDARY
East Tank
Swinging H Ranch
Water Tank
Clark Ranch
McDaniel Well
Forest Tank
Roadside Well
Canelo Ranger Station
Turkey
T.21S
T.22S
R.19E
Scale 1:24,000

MAP TWO


East Corrals
Dora
East Mesa
Headquarters
Locked Gate
Welch Spring
Appleton Residence
Post Canyon
O'Donnell Canyon
Locked Gate
National Forest
Mesa Tank
National Forest
Freeman Spring
The Nature Conservancy
Canelo Hills Cienega
Turkey Creek
Forest Tank
Roadside Well
To Ft. Huachuca
Westgate Village
Springs
Ewing Ranch
Black Oak Cemetery
Canelo Ranger Station
Canelo
Canille School
O'Donnell

Canelo EA

Environmental Assessment
Canelo Research Natural Area

Coronado National Forest
Sierra Vista Ranger District
Santa Cruz County, Arizona

Proposed Action

The proposed action is to establish the Canelo RNA. The acreage was identified as a "proposed" Research Natural Area (RNA) in the Land and Resource Management Plan (Forest Plan) for the Coronado National Forest. It will be managed according to the direction provided in the Forest Plan (Management Area 8). The proposed action, formal designation of the area as an RNA by the Chief of the Forest Service, will amend the Forest Plan.

Purpose and Need for Action

The purpose of establishing the Canelo RNA is to contribute to a series of RNA's designated to "illustrate adequately or typify for research or education purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance" (36 CFR 251.23). Canelo RNA was proposed in 1986 to include distinctive populations of southern Arizona oaks: Mexican blue oaks, emory oak, and Arizona white oak. An evaluation by the Regional RNA Committee, pursuant to direction in Forest Service Manual (FSM) 4063.04b, identified that establishment of the RNA was needed to represent this habitat type of oak. Establishing the Canelo RNA provides long-term protection and recognition of southern Arizona and southwestern New Mexico oaks.

The establishment of the Canelo RNA was identified in the Forest Plan as a "proposed" RNA based on the relatively undisturbed conditions of the oak woodlands in the area at that time. Comments received from interested and affected members of the public supported the establishment of the proposed RNA. Site conditions and public concerns have been reviewed; no important changes have occurred.

Conditions and environmental effects of designation are the same as described in the EIS for the Forest Plan. Site specific conditions and effects are as follows:

-The proposed RNA is within an area currently managed as a National Audubon Research Sanctuary. Grazing has been eliminated in the Research Ranch since 1982 and there will be no change to this management.

-The Canelo Research Natural Area is in the process of being withdrawn from mineral entry.

-Recreation use is light and limited to existing trails.

-No threatened or endangered plants or animals are known to occur within the area.

Designation of alternate RNA's for protection of this type was considered during Forest Plan development. The establishment of the Canelo site was determined at that time to provide the most appropriate site for inclusion in the national network for protection of southwestern oak woodland.

Alternatives and Environmental Consequences

Alternative A, Proposed Action

Alternative A would establish the Canelo RNA, comprising 350 acres (142 hectares). This alternative will provide long-term protection for the area. Management of the area will limit recreation use to non-motorized dispersed recreation at a low intensity and reduced service level, and no harvest of forest products (including fuelwood) will be allowed. Wildfires outside the area that endanger the area will be extinguished in an appropriate manner, as will person-caused fires within the area. Unplanned ignitions within the area will receive appropriate suppression action. Use restrictions will be imposed as necessary to keep areas in their natural or unmodified condition (Forest Plan). Canelo RNA is in the process of being withdrawn from mineral entry.

The environmental consequences of Alternative A are described in the EIS for the Coronado Forest Plan. There are no adverse or irreversible environmental effects. Irretrievable effects result from resource outputs either reduced or lost as a result of special area designation. There are no significant cumulative effects of establishing the RNA.

Alternative B, No Action

This alternative continues management according to direction in the Forest Plan for the "proposed" RNA. Only short-term protection of the area, dependent on the life of the Forest PLan, will be provided. Management of the area will be the same as in Alternative A. Management emphasis is to provide opportunities for nondisruptive research and education. Use restrictions will be imposed as necessary to keep the area in an unmodified or natural condition.

The environmental consequences of Alternative B, the "No Action" alternative are as described in the EIS for the Coronado Forest Plan. No adverse or irreversible environmental effects are anticipated. Irretrievable effects result from resource outputs either reduced or lost as a result of special area designation.

Agencies and Persons Consulted

In the process of updating information to determine whether or not conditions had changed since adoption of the Forest Plan, several groups and individuals who may have additional information regarding the extension of Pole Bridge Canyon RNA were contacted. Representatives from the national office of The Nature Conservancy, the Arizona Chapter of The Nature Conservancy, Arizona Heritage Program, Arizona Game and Fish Department, and Arizona Cattle Growers groups. Documentation of the contacts made and summaries of the comments are attached to this Environmental Assessment.

Supplemental Public Contacts

During the months of August-September 1993, the following groups, agencies, and individuals were contacted, by phone, regarding the establishment of the Canelo Research Natural Area. No negative comments regarding the establishment of this RNA were received. Phone contacts were made by Emilia Parra, Forest Botanist on the Coronado National Forest.

Arizona Chapter of Nature Conservancy - Andy Laurenzi, Peter Warren
Tucson Audubon Society - Doug Koppinger
Arizona State Parks, Natural Areas Association Committee - Jean Tripiano
National Audubon Research Sanctuary - Dr. Michael Morrison, Research Director, and Mr. Bill Branan, Sanctuary Manager.
Mr. Rulkin Jelks, permittee for the Post Canyon and Sycamore Allotments on the Sierra Vista Ranger District.
Mrs. Marie Pyeatt, co-permitee for the Manila Allotment on the Sierra Vista Ranger District.

United States Department of Agriculture | Forest Service | Region 3 | 517 Gold Avenue, SW Albuquerque, NM 87102

Reply To: 4060 Research Facilities **Date:** October 24, 1985

Subject: Proposed Canelo Research Natural Area

To: Forest Supervisor, Coronado National Forest

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J. W. RUSSELL
Director of Land Management Planning

Enclosures

cc:
Andy Laurenzi
Mark Stromberg
RNA Task Group

RFletcher:sjb

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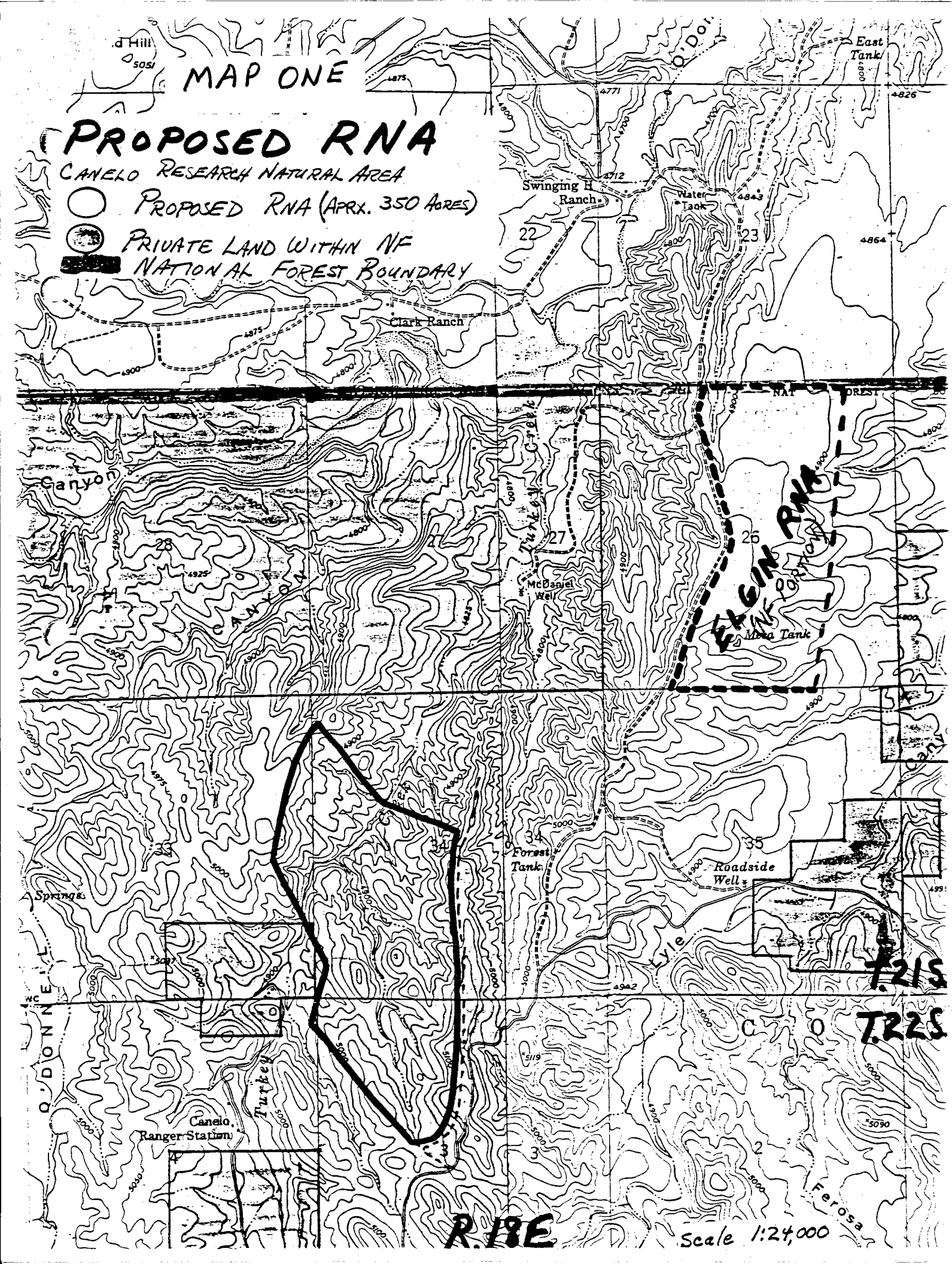
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PROPOSED RNA
CANELO RESEARCH NATURAL AREA
PROPOSED RNA (APRX. 350 ACRES)
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NATIONAL FOREST BOUNDARY
Swinging H Ranch
Water Tank
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McDaniel Well
Mesa Tank
ELGIN RNA
Forest Tank
Roadside Well
Springs
Lyle
O'DONNELL
Canelo Ranger Station
Turkey
Ferosa
T.21S
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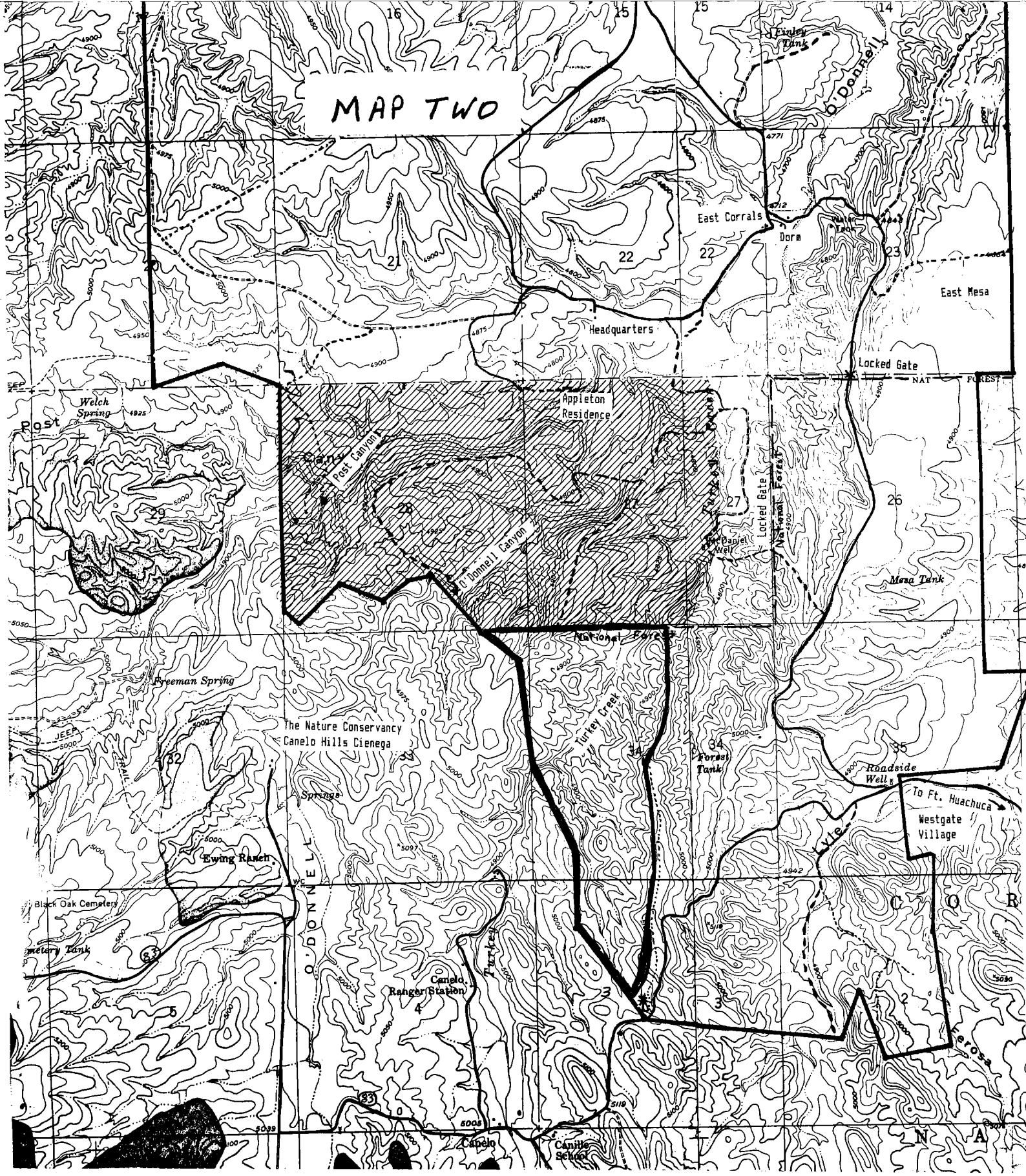
R.18E
Scale 1:24,000


MAP TWO
Finley Tank
O'Donnell
East Corrals
Dorm
Water Tank
East Mesa
Headquarters
Locked Gate
NAT FOREST
Welch Spring
Post
Appleton Residence
Post Canyon
Turkey Creek
O'Donnell Canyon
Daniel Well
Locked Gate
National Forest
Mesa Tank
National Forest
Freeman Spring
The Nature Conservancy
Canelo Hills Cienega
Turkey Creek
Forest Tank
Roadside Well
To Ft. Huachuca
Westgate
Village
Lyle
Ewing Ranch
Black Oak Cemetery
Cemetery Tank
O'DONNELL
Canelo Ranger Station
Turkey
Canelo
Canelo School
Lerosa
C O R
N A

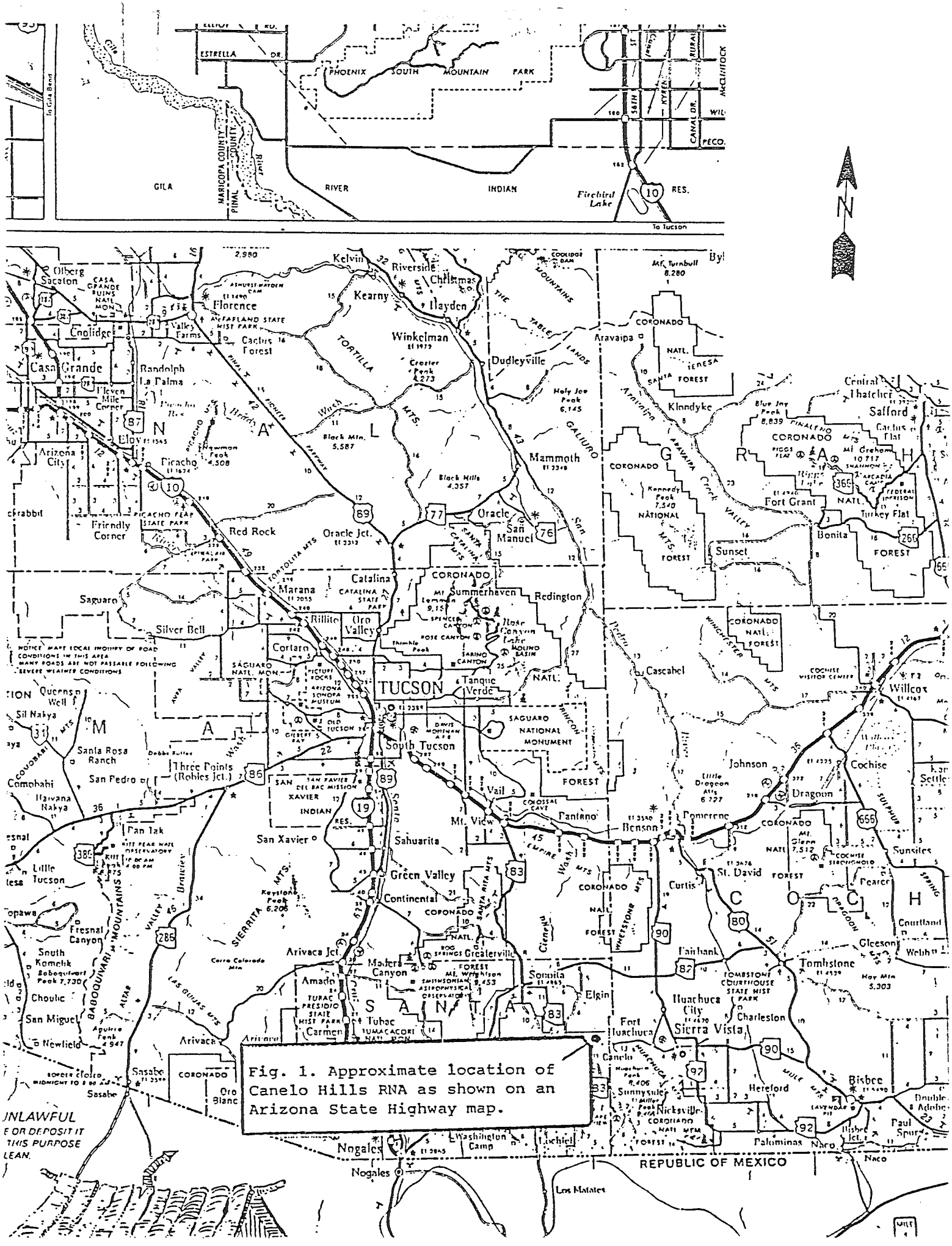


Fig. 1. Approximate location of Canelo Hills RNA as shown on an Arizona State Highway map.

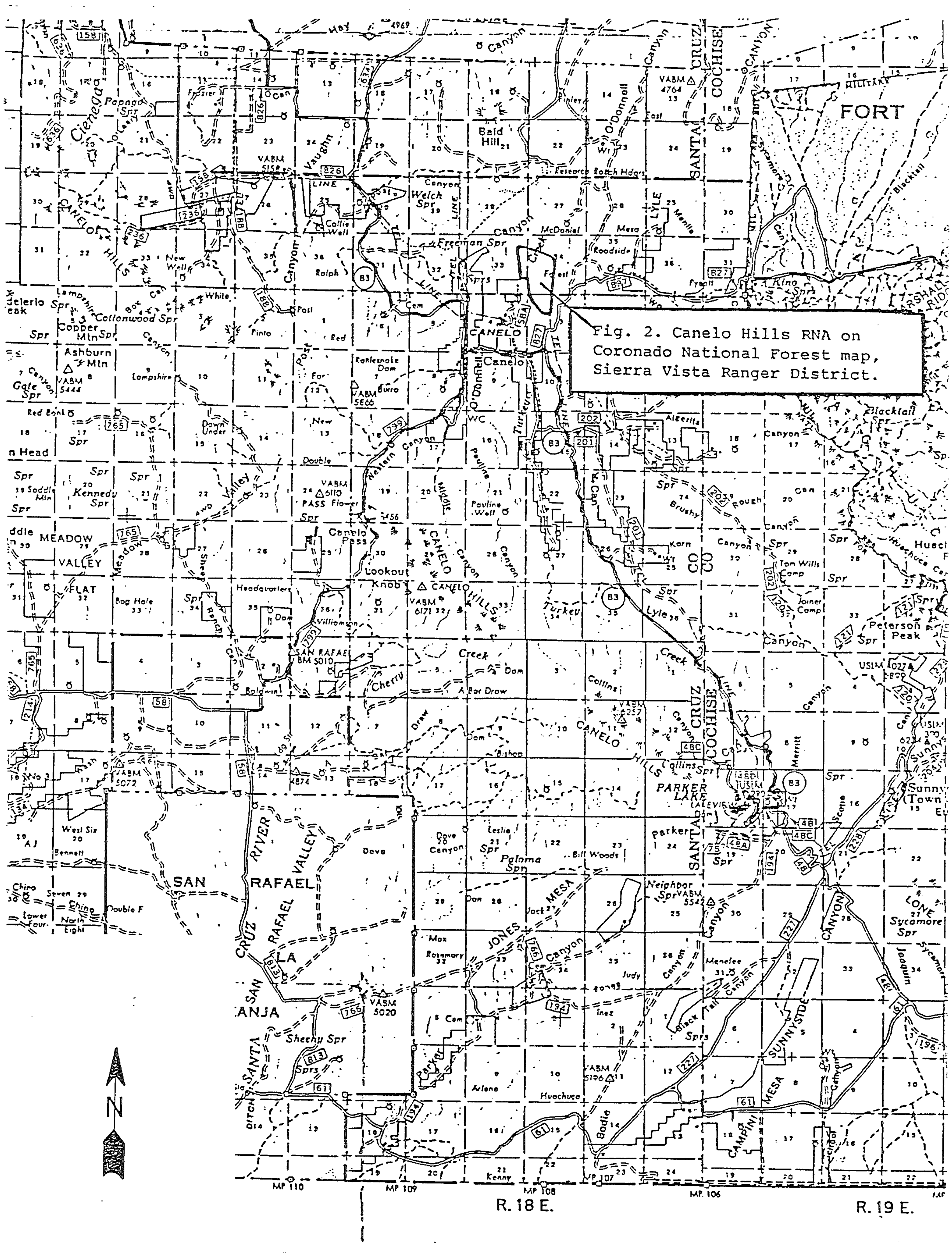


Fig. 2. Canelo Hills RNA on Coronado National Forest map, Sierra Vista Ranger District.

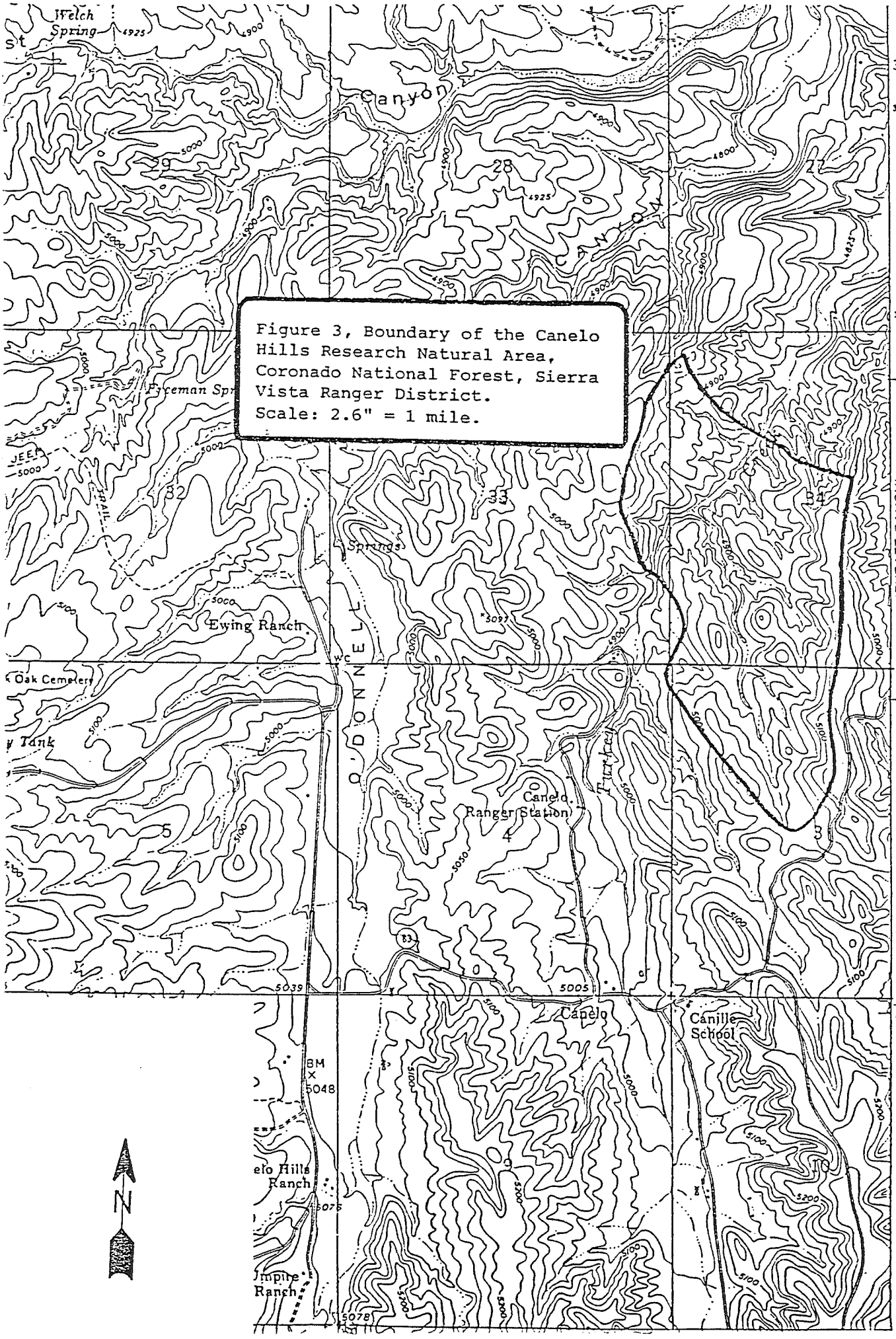
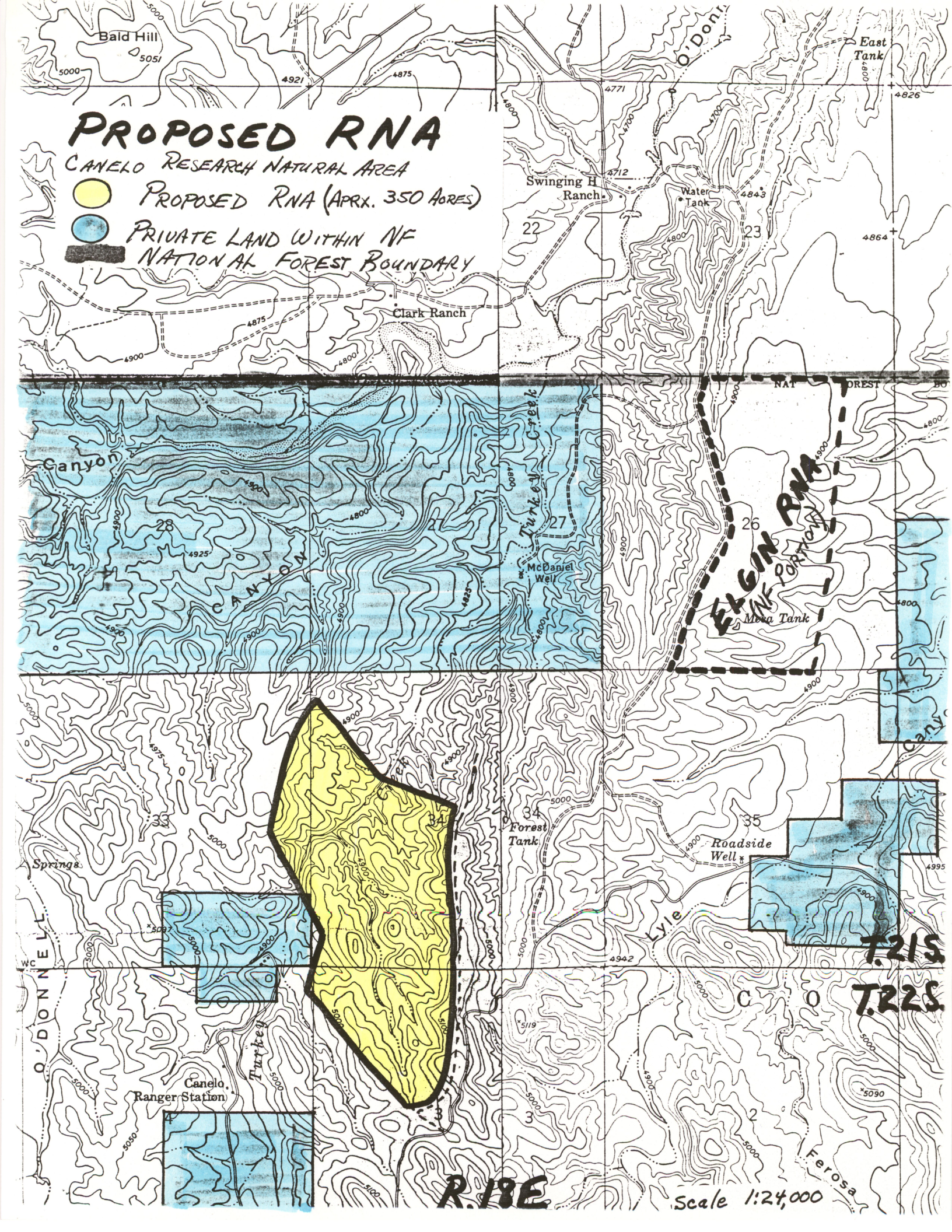
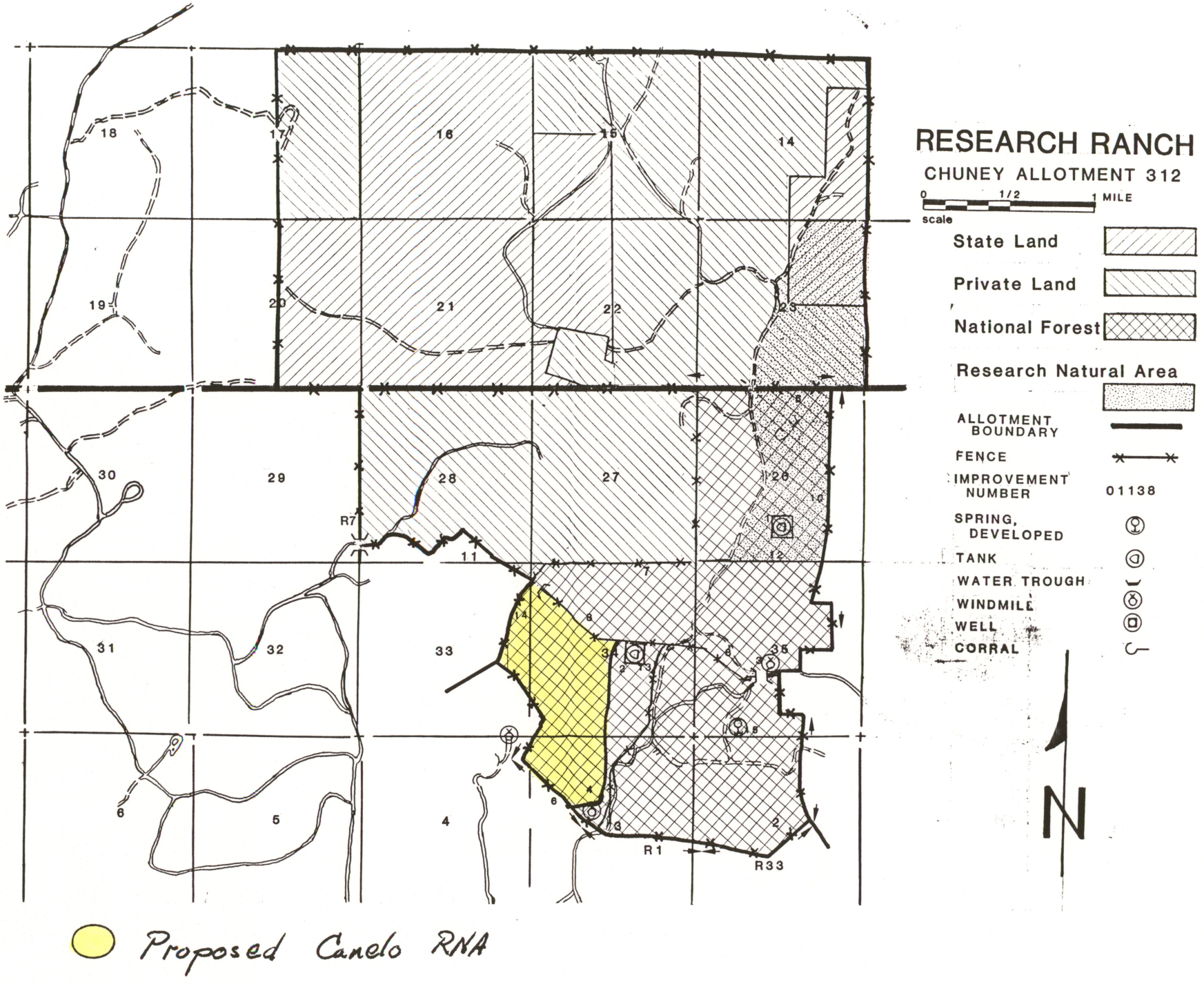


Figure 3, Boundary of the Canelo Hills Research Natural Area, Coronado National Forest, Sierra Vista Ranger District. Scale: 2.6" = 1 mile.


PROPOSED RNA
CANELO RESEARCH NATURAL AREA
PROPOSED RNA (APRX. 350 ACRES)
PRIVATE LAND WITHIN NF
NATIONAL FOREST BOUNDARY
Bald Hill
5051
East Tank
Swinging H Ranch
Water Tank
Clark Ranch
Turkey Creek
McDaniel Well
ELGIN RNA
Mesa Tank
Forest Tank
Roadside Well
Springs
Lyle
O'DONNELL
Canelo Ranger Station
Turkey
Ferosa
T.21S.
T.22S.
R.18E.
Scale 1:24,000


RESEARCH RANCH
CHUNEY ALLOTMENT 312
0 1/2 1 MILE
scale
State Land
Private Land
National Forest
Research Natural Area
ALLOTMENT BOUNDARY
FENCE
IMPROVEMENT NUMBER 01138
SPRING, DEVELOPED
TANK
WATER TROUGH
WINDMILL
WELL
CORRAL
N
R7
R1
R33
Proposed Canelo RNA


10-15-77 USI 24 6130 50 577-221

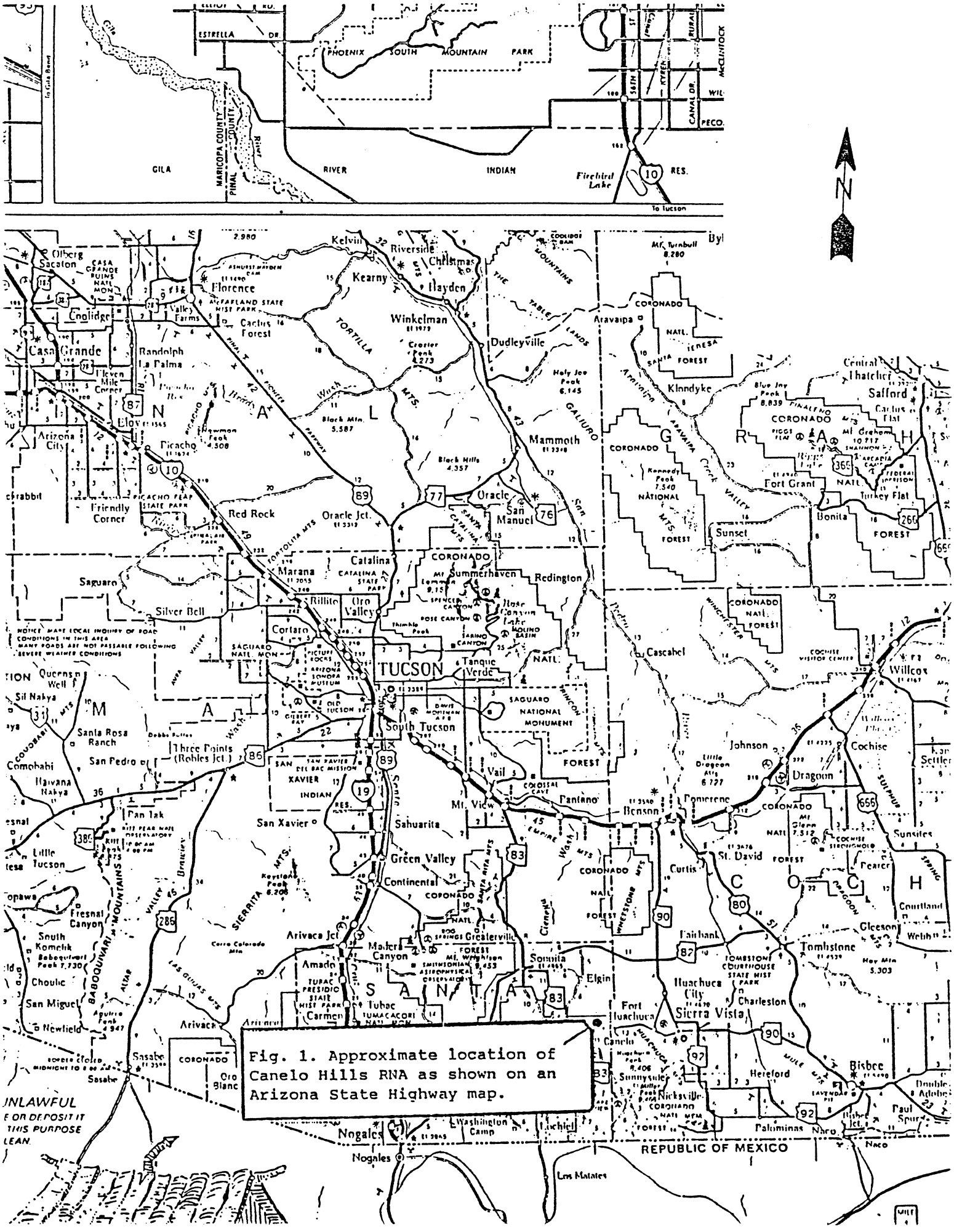


Fig. 1. Approximate location of Canelo Hills RNA as shown on an Arizona State Highway map.

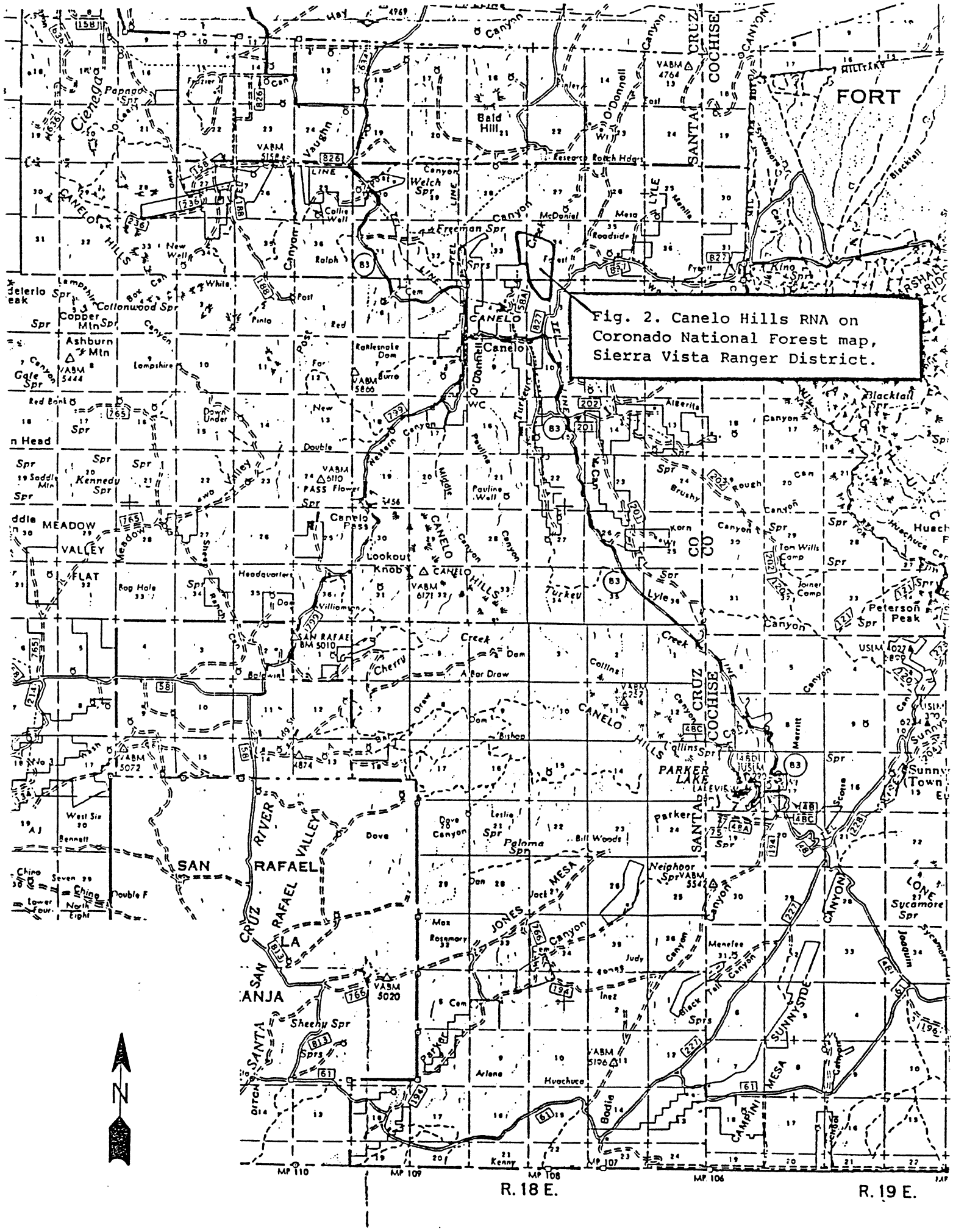


Fig. 2. Canelo Hills RNA on Coronado National Forest map, Sierra Vista Ranger District.
CANELO HILLS
SAN RAFAEL VALLEY
SANTA CRUZ COCHISE CO
FORT
MEADOW VALLEY
PARKER LAKE
JONES CANYON
SUNNYSIDE CANYON
CAMPINI MESA
R. 18 E.
R. 19 E.
MP 110
MP 109
MP 108
MP 107
MP 106
N

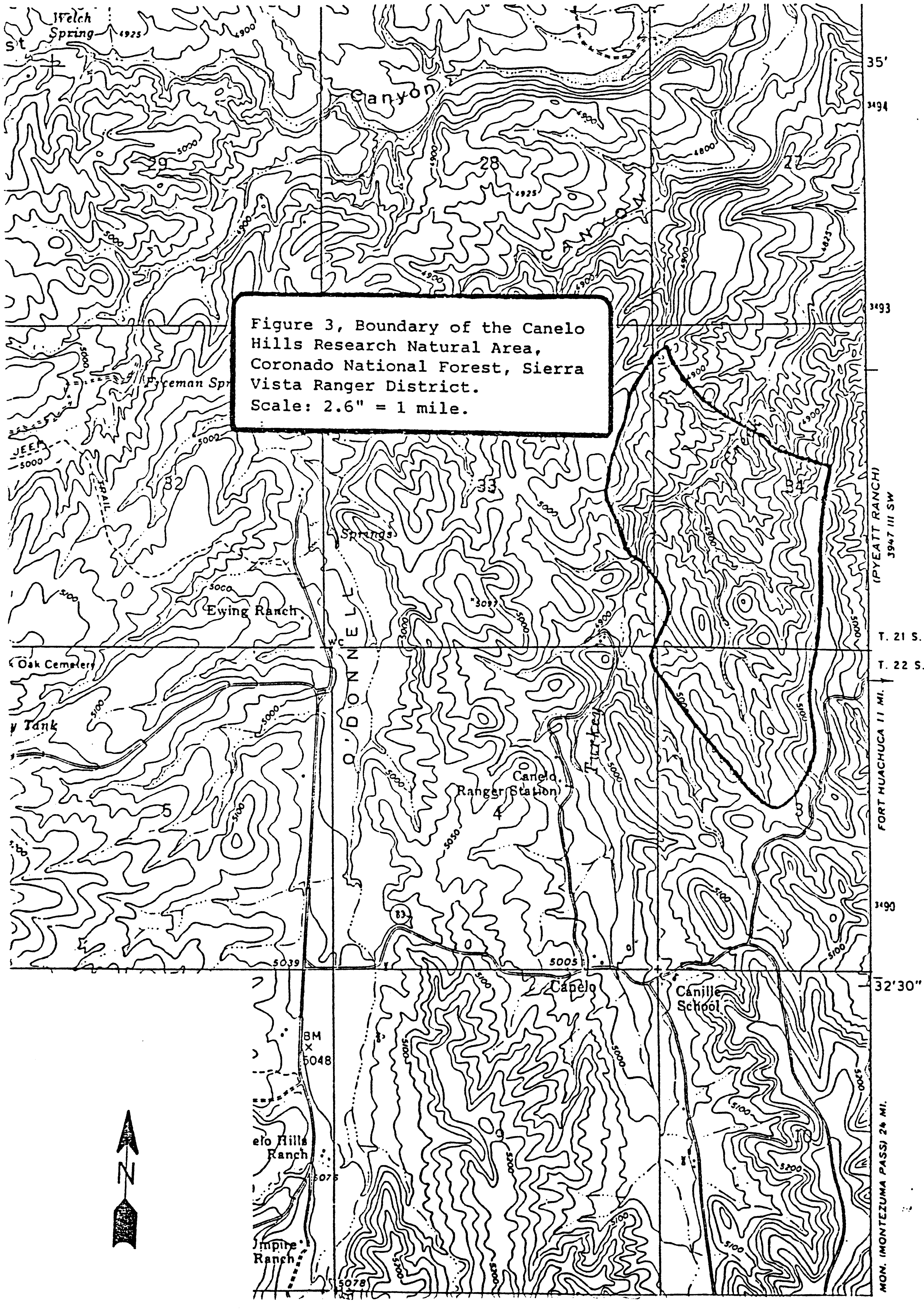


Figure 3, Boundary of the Canelo Hills Research Natural Area, Coronado National Forest, Sierra Vista Ranger District. Scale: 2.6" = 1 mile.

The Nature Conservancy®
Arizona Chapter

Patagonia-Sonoita Creek Preserve
P.O. Box 815 Patagonia, Arizona 85624 (602) 394-2400

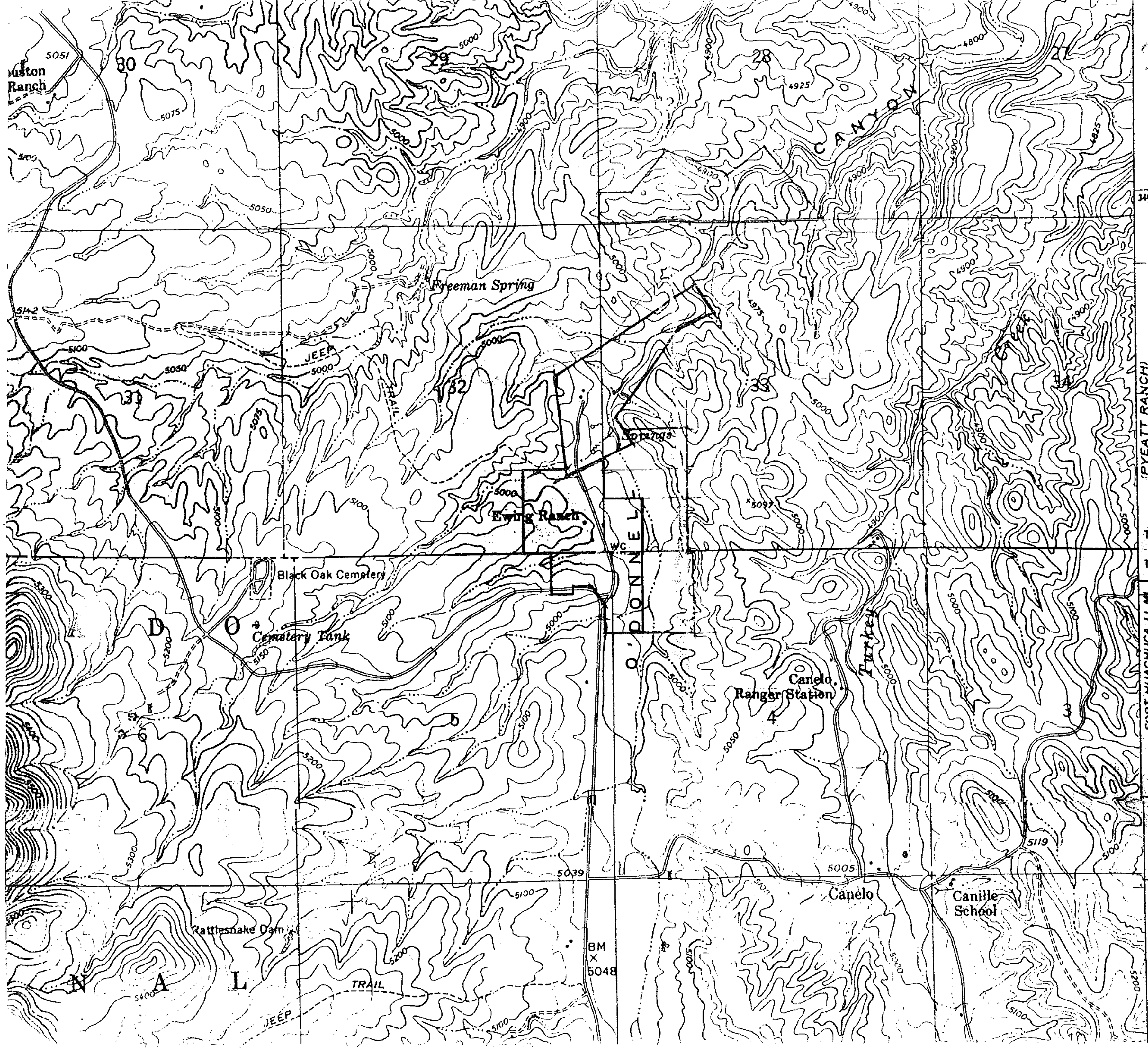
JENNIFER,

I sent the MAPS ONCE IN A TUBE AND they CAME BACK MANGLED, SO here's A BOX.

ED

Quercus emoryi /
Dichondra
Community @ Canelo Hills Preserve

STATE OFFICE: 300 East University Blvd. Suite 230 Tucson, Arizona 85705 (602) 622-3861 Fax (602) 620-1799
PHOENIX OFFICE: 2255 North 44th Street Suite 100 Phoenix, Arizona 85008 (602) 220-0490 Fax (602) 225-0541



Jay Wilbur
Vaughn Loop
rd
Cost House
ranch

PRESERVE Boundary

United States Department of Agriculture | Forest Service | Region 3 | 517 Gold Avenue, SW Albuquerque, NM 87102

Reply To: 4060 Research Facilities

Date: October 24, 1985

Subject: Proposed Canelo Research Natural Area

Range Management
NOV 05 1985

To: Forest Supervisor, Coronado National Forest

RANGE MANAGEMENT		
Initials		
Action × Info ✓		
Snyder		
Harrison		
Dalen		
Partido		
Fletcher		
Moir	✓	
Nunez		
Jaramillo		
Geberl		

On September 9, 1985, Earl Aldon, Reggie Fletcher, and Larry Schmidt of the Regional Research Natural Area (RNA) Task Group, together with Mark Stromberg of the Research Ranch Sanctuary, Andy Laurenzi of the Nature Conservancy, and Chuck Kennedy and Mike Borens of your staff evaluated the proposed Canelo RNA.

This proposed RNA consists of approximately 350 acres of National Forest within the Appleton-Whittell Research Ranch Sanctuary. The area is in Sections 33 and 34, T. 21 S., R. 18 E., and Section 3, T. 22 S., R. 18 E. The elevation ranges from about 4,800 to 5,100 feet. The primary purpose of the RNA would be to obtain a representation of mexican blue oak (Quercus oblongifolia) woodland.

Mexican blue oak is the lowest oak encountered on an elevational gradient up the mountains of Southeast Arizona. In the adjacent Huachuca Mountains this oak is normally found between 4,800 and 5,200 feet grading into emory (Q. emoryi) and then arizona white oak (Q. arizonica).

The slopes of Turkey Creek comprising the proposed RNA provide an excellent example of an open mexican blue oak woodland. In the drainage bottoms, lower slopes, and occasionally on the upper slopes Arizona white oak is found in varying amounts. As expected, there is ample evidence of hybridization.

The absence of livestock has permitted a rich mosaic of grass species and provides a good comparison with adjacent grazed areas in similar habitats. The open oak canopy provides an excellent contrast to the dense oak woodland on granite a few miles to the south.

The proposed area qualifies for and is suitable as a RNA. Designation would not require any change in existing management or fencing. The area has already been subjected to a variety of research studies. A list of research projects provided by Mark Stromberg is enclosed.

Since the emphasis of the Appleton-Whittell Research Ranch already is research, there is some question as to whether the proposed area needs designation as a RNA. The benefit of placing this area with the RNA system is in advertising the availability of this community for study.

Map 1 provided by Mike Borens roughly delineates the proposed RNA. If the area is formally proposed, the northern boundary should be extended north to the Forest boundary as shown on Map 2. This would simplify any future

fencing needs and generally make the boundaries more definitive while only adding approximately 100 acres.

John W Russell

J. W. RUSSELL
Director of Land Management Planning

Enclosures

cc:
Andy Laurenzi
Mark Stromberg
RNA Task Group

RESEARCH PROJECTS ON THE PROPOSED CANELO RESEARCH NATURAL AREA

1. Kenney, W., J. Bock, C. Bock. 1985. Response of the shrub Baccharis pteronioides to livestock exclosure in southeastern Arizona. Amer. Midland Natur. in presr (effects of small fire in RNA on B. pter).

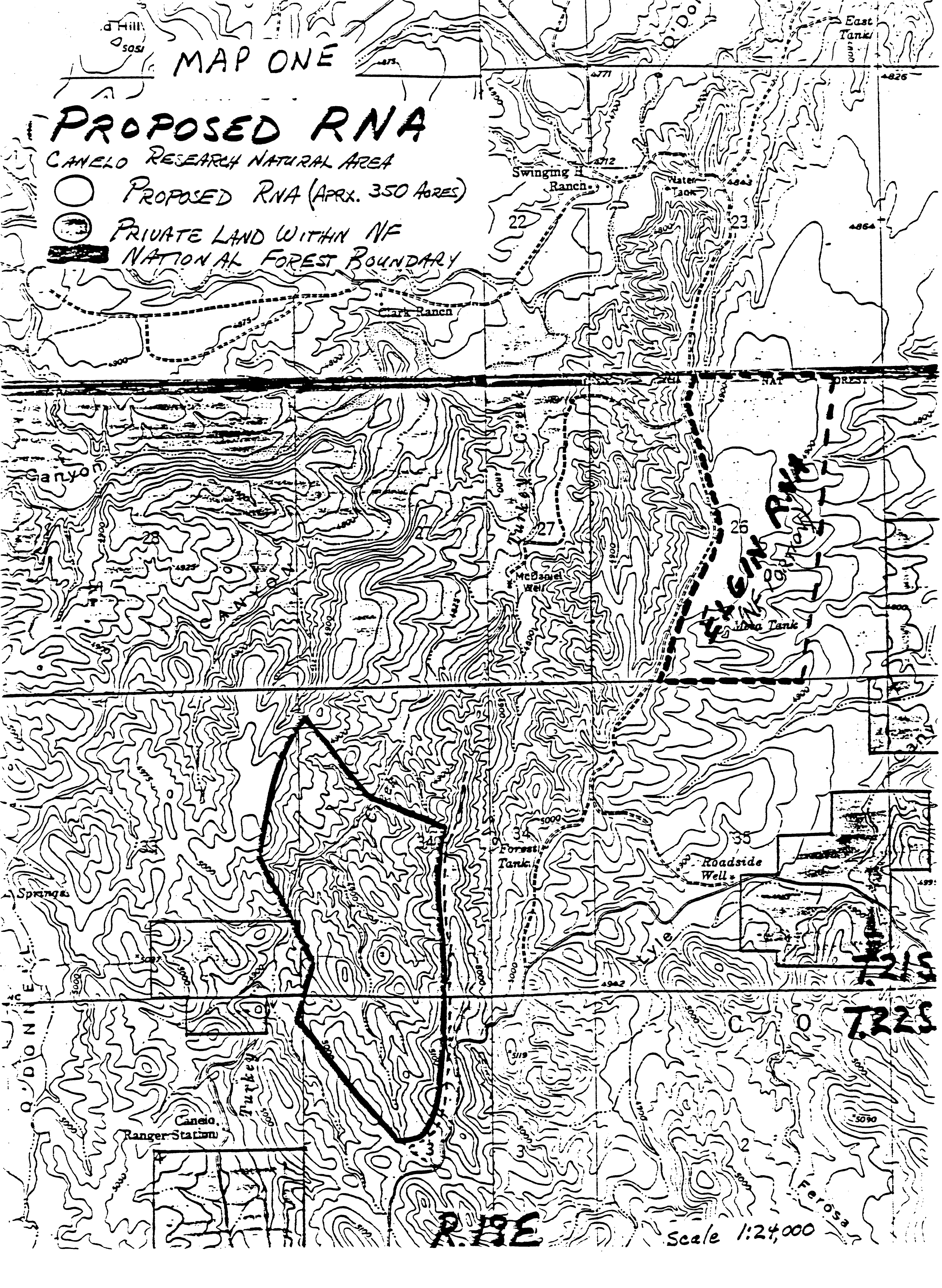
2. Bock, C. E., J. H. Bock. 1979. Relationships of the collared peccary to sacaton grassland. J. Wildl. Manage. 43(3):813-13. (Upland feeding, behavior, effect of upland fire on habitat use.)

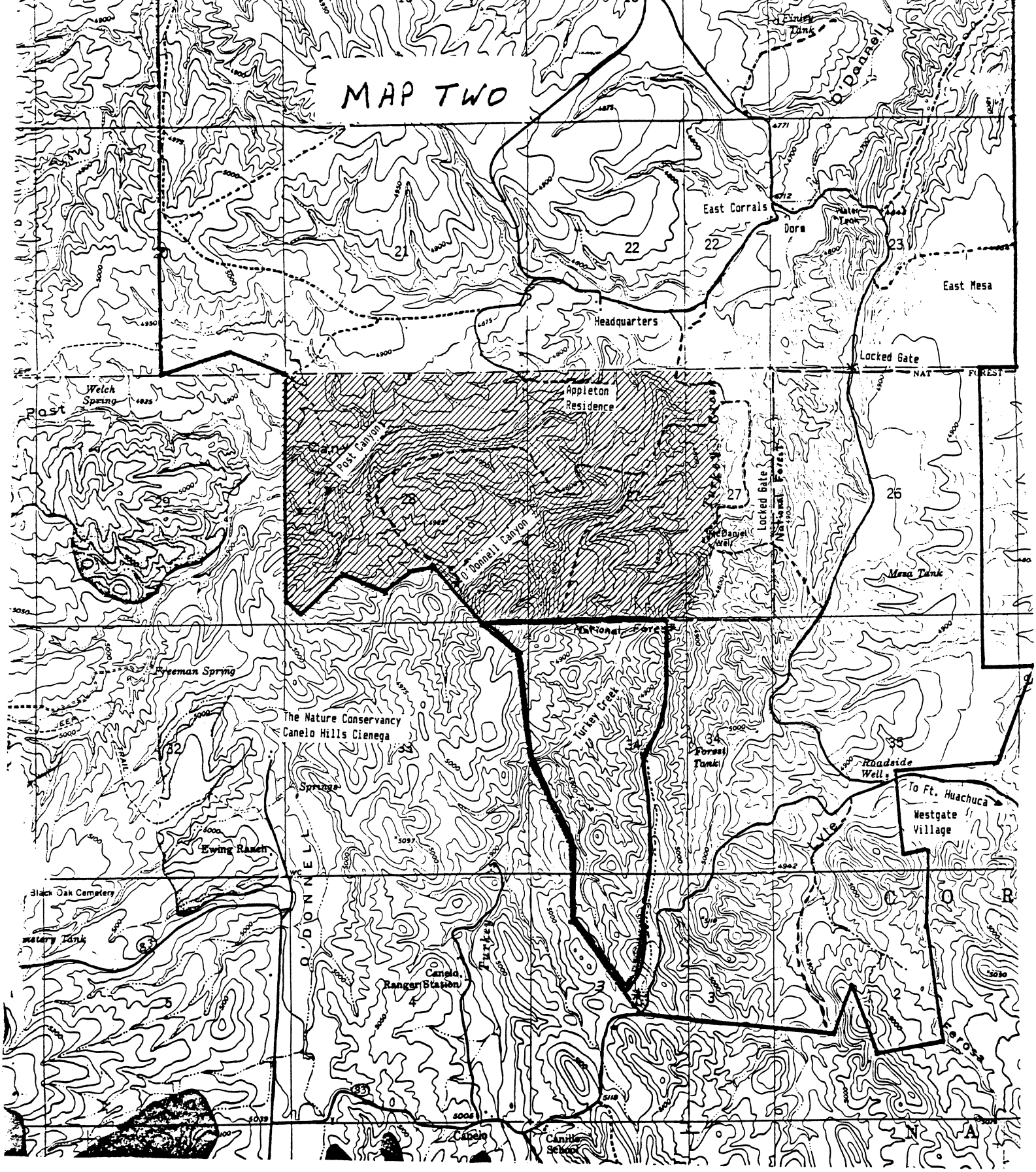
3. Stacey, P. B. and C. E. Bock. 1978. Social plasticity in the Acorn Woodpecker. Science 202:1298-1300. (Banded individuals, watched territory, social organization, acorn storage sites, etc. Used much of RNA area.)

4. Bock, J. H., C. E. Bock. Patterns in reproduction in Wright's Sycamore in Proceedings of North Amer. Riparian Conference. Tucson, Az. March 1985 (in press). (Plotted sycamore seedling survivorship up Turkey Creek; to just below where we were, but still in RNA.)

5. Tom Elias--ongoing project--flora of the sanctuary. He found a plant there, only place on sanctuary--Salix exigua. No rare spp. Nice stand of Muehlenbergia rigens all along wet bottom.

6. Bock, C. E. and Tom Strong. 1985--ongoing project: Habitat relationships of riparian birds in southeastern Arizona. Studying breeding and wintering birds on sanctuary and adjacent areas. USFS funded project.


MAP ONE
PROPOSED RNA
CANELO RESEARCH NATURAL AREA
PROPOSED RNA (APRX. 350 ACRES)
PRIVATE LAND WITHIN NF
NATIONAL FOREST BOUNDARY
Swinging H Ranch
Water Tank
Clark Ranch
East Tank
Canyon
McDaniel Well
Mesa Tank
Forest Tank
Roadside Well
Springs
Turkey
Canelo Ranger Station
O'DONNELL
Ferosa
T.21S
T.22S
R.19E
Scale 1:24,000


MAP TWO
Finley Tank
O'Donnell
East Corrals
Dorm
East Mesa
Headquarters
Locked Gate
NAT FOREST
Welch Spring
Post
Appleton Residence
Post Canyon
O'Donnell Canyon
Turkey Creek
McDaniel Well
Locked Gate
National Forest
Mesa Tank
National Forest
Freeman Spring
The Nature Conservancy
Canelo Hills Cienega
Springs
Ewing Ranch
Black Oak Cemetery
Forest Tank
Roadside Well
To Ft. Huachuca
Westgate
Village
O'DONNELL
Canelo Ranger Station
Turkey Creek
Canelo
Canelo School
C O R
N A

Bibliography of
REPORTS, PUBLICATIONS, and THESES

National Audubon Society Appleton-Whittell Research Ranch Sanctuary
Box 44, Elgin, Arizona 85611 602-455-5522 FAX 602-455-9201

MISSION: *The Appleton-Whittell Research Ranch Sanctuary – a living laboratory managed by the National Audubon Society – formulates, tests, and demonstrates methods to restore and safeguard the bioregion; providing assistance to policy makers and citizens in the protection and stewardship of our native ecosystems, natural resources, and quality of life.*

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●●●

1-6-95.

Reggie:

Although not all of this research was done specifically at the Canelo RNA, the Research Ranch encompasses the RNA - so, here's a list of work that has been done in the area.

- mima -

PS - How's it going? I saw a note from T. Skinner that you thought I had left already. Our baby is due in March, I will be working until then - then taking 1 year off.

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER	DATE SUBMITTED
Becky Nankivell	09/07/92
HEADQUARTERS UNIT	**LOCATION**

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-11

☐ 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)
TEMP. (1)	PERMANENT (To be filled in by the WO) (2)	(3)	(4)	(5)	(6)	(7)
				All: AZ, Coronado NF, Sierra Vista Canelo RNA District, Santa Cruz County		All 24 x 36 color slide
1.			9/2/92		View of oak savannah (Quercus oblongifolia/Bouteloua spp. habitat type) from northern boundary of RNA looking SW. Canelo Hills in the background.	
2.			9/2/92		Bottomland along Turkey Creek drainage. Salix lasiolepsis and Muhlenbergia rigens are dominant shrub and perennial grass cover.	
3.			9/2/92		Narrow riparian corridor along Turkey Creek drainage. Muhlenbergia rigens is dominant herbaceous cover.	
4.			9/2/92		Additional view of oak savannah (Quercus oblongifolia/Bouteloua spp. habitat type) from the northeast boundary looking SW. Quercus oblongifolia and Quercus emoryi are dominant tree cover.	
5.			9/2/92		Interior view of oak savannah (Quercus oblongifolia/Bouteloua spp. habitat type). Quercus emoryi dominant tree cover. White-tailed deer (Odocoileus virginianus ssp coues in center of the photo.	

Subridge note

To T.Subirge:R03F01a CC E.Aldon:R03a
CC G.Henke:R03a

deleted from DC 9/15/98

From: REGGIE A. FLETCHER
Postmark: Nov 17,93 7:44 AM
Status: Certified Urgent
Subject: RNA

Message:

Tom, If you decide to to with aliquot part descriptions just include a statement something like "Aliquot part survey description was utilized for survey accuracy. Management pertinent to the Research Natural Area will be restricted to that area within the watershed as depicted on Map___. The small amount of area delineated in the aliquot part description lying outside the watershed is not pertinent to the purpose of the RNA. Therefore that some small areas included in the aliquot part description have received management treatments different from the RNA watershed in some instances does not detract from the purpose of the RNA. Management activities similar to those conducted in the past may continue in these small areas outside the watershed proper." I don't know if this will get us by the WO but it is worth a shot. If you can, a figure of how much area is outside the watershed but included in the alquot part description may be helpful, something like the maximum is 100 yards outside the watershed boundary. Of course, this would be only for those segments of your RNA's that are delineated by watershed boundary. I do need to know an approximate date when the NEPA on these will be completed so we can get them in to the WO. This I do need immediately so I can pass on to the RF and DRF. Reggie

Canelo Comments

deleted from DB 9/10/98

COMMENTS ON CANELO RNA
Peg Boland

EA

Page 2, Alternative A, first paragraph--"Canelo RNA is in the process of being withdrawn from mineral entry." Might be wise to add "Effects of mineral withdrawal will be considered in the environmental analysis of the proposed decision to withdraw minerals."

Whitmore Comments
12/27/93

1. Reggie, this one is just about done. A wee bit of effort and I'll be able to include it in my next batch to the Federal Register--I hope! Any chance I can have your response to the two items below, and a new EA page based on Peg's comment, by mid-January??

2. Lousy maps! Send me originals or color photocopies.

3. No acreage for Kuchler & SAF types!

Cheers!

--Les--