Research Natural Areas

USDA Forest Service, Rocky Mountain, Intermountain, Southwestern and Great Plains States

SEARCH RNAs BY County GO

G.A. PEARSON

General Information

S.USNAHP*82

ABOUT RNAS

HOME ABOUT **USING OPPORTUNITES** REFERENCES CONTACT US **RELATED SITES** CREDITS

cooperative project of the

USDA Forest Service Northern Region, Rocky Mountain Region, Southwestern Region, Intermountain Region, Rocky Mountain Research Station, and the

Montana Natural Heritage Program

Created: 1950

- Size: 154 (acres)

Elevation

7325 - 7450ft

Range:

Location: Gus Pearson RNA is located on the south

slope of the San Francisco Peaks about 9

miles northwest of Flagstaff.

Site Description

This is an extremely small RNA that supports old growth ponderosa pine forest. The area has become fragmented due to competing land uses and has been subject to fire suppression. Lack of natural fire regimes has resulted in development of doghair thickets of ponderosa pine in the understory. Fragmentation has occurred in the area with installation of two powerlines and associated roads.

Climate and Environmental Information

Data not Available

Vegetation - G.A. Pearson

Interior Ponderosa Pine (SAF 237,

HOME | ABOUT |

USING RNAS

RNA **OPPORTUNITES**

RNA **REFERENCES**

CONTACT

RELATED SITES

SEND US A COMMENT

REPORT ON THE ESTABLISHMENT OF THE G. A. PEARSON NATURAL AREA

Purpose

To preserve permanently in natural state for scientific, research, and educational use a virgin stand of pure ponderosa pine representing commercial old-growth stands as they occur on the Coconino Plateau in northern Arizona

Description of Area

Location Embracing 154 acres, the area is located about 9 miles northwest of Flagstaff, Arizona, and is within the boundaries of both the Fort Valley Experimental Forest (Unit II) and the Coconino National Forest. Boundaries and topographic features are shown on attached map.

Location by legal subdivision is as follows:

Township 22 north, Range 6 east, G. and S. R. B. and M. Section 22. E½ SW¼	Area (Acres) 80
NW1/4 SE1/4	40
SW ¹ / ₄ SE ¹ / ₄ , less 6 acres in southwest corner enclosed by Fort Valley headquarters fence	34
Total area	154

Natural Features Area is situated on the lower south slope of the San Francisco Peaks with elevations varying from 7,330 to 7,450 feet. Two intermittent drainages traverse the area in a general northwest-southeast direction. Soil is a rocky clay loam derived from volcanic basalt with scattered rock outcrops. Annual precipitation averages 23 inches.

Forest Values: The Entire area in timbered, bearing a pure uneven-aged stand of ponderosa pine. Site quality is about average for the Coconino Plateau (V+). Timber volume averages about 13,500 board feet per acre with three-fourths of the volume in mature and overmature "yellow pines" and the remainder in immature "blackjacks". The various age classes occur in typical group arrangement. Sawtimber size trees (11.6" or larger d.b.h) occupy 55 percent of the area, poles 5 percent, seedlings and saplings 33 percent, and 7 percent of the area

is classified as nonstocked. Seedlings and saplings are mostly of 1919 origiin. A few snags have been cut from time to time for fuelwood but no commercial timber cutting has occurred. Adjoining stands on the north, west, and east have been cut by several experiment methods, varying from clear-cutting to light salvage. The preservation of the virgin area will enhance the value of these studies by providing a direct contrast of conditions and trends in undisturbed stands. Eighty acres of the tract comprise a virgin growth plot where individual tree records have been maintained since 1925.

Agricultural value. None, too rocky for cultivation.

Grazing Value. Grazing capacity about one cow for a 4-months' grazing season. Area is currently open to cattle using the Maxwell Springs allotment and to exempt stock owned by one of the Fort Valley ranchers. No springs, tanks, or other sources of water for livestock are located within the area.

Mineral value No mining claims are located within the area and so far as known no mineral value exists.

Value for other public uses: The area has been a part of the Fort Valley Experimental Forest since January 1936 and its high value for experimental work is recognized. Absence of water or outstanding scenic features limit recreational values.

Transportation facilities Area adjoins the headquarters of the Forest Valley
Experimental Forest and is readily accessible. The county highway from Flagstaff to Kendrick Park passes through the east half and secondary forest roads extend through the west half. These features will facilitate the conduct of scientific studies, increase the demonstrational values of the area, and aid in its protection from fire, trespass, or other damaging uses.

<u>Improvements</u>. Other than roads and fence along the southern boundary, no permanent improvements exist in the area. A weather station near the east boundary was abandoned in 1946.

Existing permits A special-use permit to Coconino County covers the right-of-way for the Flagstaff-Kendrick Park road. Grazing on the natural area is now administered by the Coconino National Forest under permit covering the Maxwell Springs allotment. This permit will be revised in 1956. When the natural area is fenced, control of grazing will be assumed by the Experiment Station. Because of its heavily timbered character, forage is scant and exclusion of the natural area will have little or not effect on the carrying capacity of the allotment. No other permits granting use of occupancy of the area in existence.

Public sentiment Public sentiment will likely favor the creation of the natural area because it represents one of the few virgin stands remaining within 10 to 15 miles of the City of Flagstaff. The timber volumes on the area were not included in

establishing the cutting budget for the "Flagstaff federal sustained yield unit" and there should be no conflict with lumber producing interests.

Plant of Management

Administration. Administration of the natural area will be in conformity with regulation U-4 and the instructions on pages 40a-41, GA-A3, of the Forest Service Manual. As opportunity affords the area should be fenced to exclude domestic livestock. Hunting will be permitted, at least until such time as the deer population in the vicinity, now excessive, is reduced to normal. The experiment Station will assume primary responsibility for initiating and supervising scientific studies on the natural area.

Fire Protection Responsibility for fire protection will rest primarily on the administrative staff of the Coconino National Forest. Intensive plans for adequately protecting both the natural area and the adjoining high-value lands within the Fort Valley Experimental Forest will be worked out by the Forest in cooperation with the Experiment Station and will be subject to approval of the Forest Supervisor and the Director.

Reporting Officer

Date

Approved

Forest Supervisor

Date

Director, Southwestern Date Forest and Range Experiment Station

Regional Forester

Date

AN ORDER ESTABLISHING THE G. A. PEARSON NATURAL AREA OUT OF CERTAIN LANDS WITHIN THE FORT VALLEY EXPERIMENTAL FOREST AND THE COCONINO NATIONAL FOREST, ARIZONA

By virtue and authority vested in me by the Regulation U-4 of the regulations of the Secretary of Agriculture relating to the occupancy, use, protection, and administration of the national forests, I do hereby designate as the G. A. PEARSON NATURAL AREA the following described lands.

Township 22 north, Range 6 east, G. and S. R. B. and M.

Section 22: $E\frac{1}{2}$ SW $\frac{1}{4}$ (80 a.) NW $\frac{1}{4}$ SE $\frac{1}{4}$ (40 a.) SW $\frac{1}{4}$ SE $\frac{1}{4}$, less 6 acres in southwest corner enclosed by Fort Valley headquarters fence (34a.)

Total 154 acres

Said lands shall hereafter be administered as a natural area, subject to the provisions of said regulations and the instructions thereunder.

Acting Chief, Forest Service

Date

G. A. PEARSON NATURAL AREA

ABSTRACT

The G. A. Pearson Natural Area, established in 1950 by the U.S. Forest Service, encompasses 154 acres (62 ha) in the Fort Valley Experimental Forest approximately 8 miles northwest of Flagstaff, Coconino County, Arizona. The site lies at 35° 15′ N. Lat. and 111° 45′ E. Long. The natural area represents a pure stand of old growth ponderosa pine that to some extent has been utilized for avifauna and floristic studies.

Location

The G. A. Pearson Natural Area was established to preserve a stand of pure old growth ponderosa pine (*Pinus ponderosa*) which characterizes the original forest on the Coconino Plateau in northern Arizona. The 154 acre tract is located in the Fort Valley Experimental Forest, Coconino County, Arizona, and is administered by the Rocky Mountain Forest and Range Experiment Station (Flagstaff, Arizona), Coconino National Forest. The natural area occupies a portion of section 22, T. 22N., R. 6E., Gila and Salt River Baseline and Meridian. (See Figure 1).

Access and Accommodations

The natural area is located approximately 8 miles northwest of Flagstaff, Arizona, on U.S. Highway 180, which passes through the northern portion of the area. Several small, primitive roads traverse the area. Forest Service Road 222, which passes through the southern portion of the area is the only maintained, usable road.

The nearest commercial accommodations are in Flagstaff. There are no campgrounds located within the natural area, however, improved forest campgrounds are located nearby in adjacent portions of the Coconino National Forest.

Climate

The climate is cool with two wet seasons separated by drier periods. Averaging 23 inches annually, most precipitation occurs as snow during the winter that comes from storms moving into the area from the Pacific Ocean. These storms produce cold, cloudy weather for several days at a time with intermittent snow and rain showers. The average snowfall in the area is approximately 90 inches over a five month period. In late spring drought conditions predominate. The summer rains during July and August normally fall from moist, unstable air flowing into Arizona from the Gulf of Mexico. The resultant thunderstorms are of moderate intensity and short duration. The autumn is generally dry and clear with occasional thunderstorms (Green and Sellers, 1964).

Topography and Landform

The natural area occupies gently sloping topography on the lower, south-facing portion of the San Francisco Mountain lava flows. Elevations range from 7,325 to 7,450 feet. Geologically the area consists of a basaltic lava bedrock of Cenozoic age covered with Quaternary gravel, sand, silt and clay (Hunt, 1956 and Robinson, 1913). There are no streams or springs located in the natural area.

Biota

The primary vegetation of the natural area consists of a pure uneven aged stand of ponderosa pine. U.S. Forest Service reports indicate that old growth trees (11.6 inches or larger diameter at breast height) occupy 55% of the area; poles 5%; seedlings and saplings 33%; and 7% of the area is

nonstocked. The average height of the forest is 42 feet with an absolute density of 200 trees per acre (Carothers, Haldeman, Balda, 1973). The sparse understory shrub association consists primarily of buck-brush (*Ceanothus fendleri*) and Arizona rose (*Rosa arizonica*) with an occasional common juniper (*Juniperus communis*) present. A quantitative list of the dominant trees and shrubs is compiled in Table 1 along with a qualitative list of herbaceous species noted on the natural area in Table 2.

A tentative list of mammals believed to inhabit the natural area as residents or transients is provided in Table 3. Haldeman, Balda and Carothers (1973) conducted an indepth study of the avian species composition and nesting populations in the natural area (See Table 3). A total of 69 bird species was noted in the ponderosa pine forest. Twenty-three species were observed to nest on the natural area while several others were known to nest out of the natural area boundaries but in the same type of plant community. The most abundant nesting species, comprising 52 percent of the total nesting pairs, were the Violet-green Swallow, Pygmy Nuthatch, Gray-headed Junco, Mountain Chickadee and the Robin. During winter observations only 10 species of the original nesting populations were noted.

History of Disturbance

Human disturbance of the natural area is confined mostly to road construction and highway maintenance of U.S. 180. Several dead trees have been cut from time to time for fuel wood, but no commercial timber cutting has occurred. The area is open to limited grazing, however the present or past status of cattle utilization of the area is unknown. If grazing has occurred there has evidently been little conspicuous, long lasting damage through overgrazing. Permanent water is a considerable distance from the natural area suggesting that livestock have never been attracted to the area.

Research History

Extensive observations of the avifauna and floral community of the natural area were made in Haldeman, Balda and Carothers' study of species composition and breeding populations in the San Francisco Mountain area. No additional research is presently known to be in progress.

The G. A. Pearson Natural Area is also a part of the Fort Valley Experimental Forest, much of which is similar in floral association and environment. The possibility exists of using other parts of the forest for experimentation and using the natural area as a control site. Other opportunities include the study of community composition, structure and productivity of a rather homogeneous environment.

Maps and Aerial Photographs

Special maps applicable to the natural area include: Topography - 7 1/2' Humphry's Peak, Arizona quadrangle, scale 1:24,000, issued by the U.S. Geological Survey in 1966. The Rocky Mountain Forest and Range Experiment Station, Forestry Sciences Laboratory, Flagstaff, Arizona 86001, can provide details on the most recent aerial photo coverage and forest type maps for the area.

TABLE 1. Shrubs, Saplings and Trees of the G. A. Pearson Natural Area (from Haldeman, Balda and Carothers, 1973).

Shrub and Sapling Species	Density (per acre)	Relative Density (%)	Relative Frequency (%)	Frequency
Pinus ponderosa	1453	94	69	53
Ceanothus fendleri	75	5	13	10
Rosa arizonica	15	0.9	9	7
Juniperus communis	3	0.2	9	7

TABLE 2. Herbaceous species of the G. A. Pearson Natural Area (from Haldeman, Balda and Carothers, 1973).

GRAMINEAE - Grass Family	
Festuca arizonica	fescue
Poa pratensis	
Poa fendleriana	
Sitanion longifolium	
Hordeum jubatum	•
Koeleria cristata	
Blapheroneuron tricholepis	
Bouteloua gracilis	
LILIACEAE - Lily Family	•
Iris missouriensis	Rocky Mountain iris
RANUNCULACEAE - Crowfoot Family	•
Thalictrum fendleri	meadow-rue
ROSACEAE - Rose Family	
Potentilla crinita	cinquefoil
Geum triflorum	
LEGUMINOSAE - Pea Family	
Lupinus palmeri	lupine
Lotus wrightii	deer-vetch
Astragalus humistratus	milk-vetch
Oxytropis lambertii	loco-weed
Vicia pulchella	vetch
Vicia americana	
GERANIACEAE - Geranium Family	
Geranium caespitosum	cranesbill
EUPHORBIACEAE - Spurge Family	
Euphorbia palmeri	spurge
MALVACEAE - Mallow Family	
Sidalcea neomexicana	checker-mallow
UMBELLIFERAE - Parsley Family	
Pseudocymopterus montanus	Pseudocymopterus
POLEMONIACEAE - Phlox Family	
Gilia aggregata	skyrocket gilia

TABLE 2 (Continued(

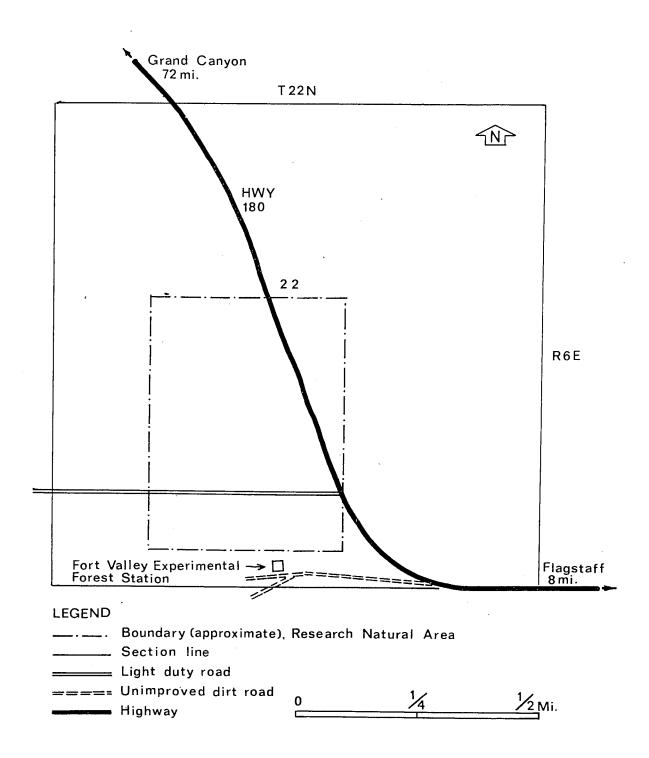
BORAGINACEAE - Borage Family	
Lithosperum multiflorum	. aromwell
SCROPHULARIACEAE - Figwort Family	3
Verbascum thapsus	mullein
Penstemon barbatus	beardtongue
Castilleja integra	paint-brush
RUBIACEAE - Madder Family	p
Houstonia wrightii	Houstonia
COMPOSITAE - Sunflower Family	
Townsendia exscapa	Townsendia
Erigeron flagellaris	fleabane
Achillea lanulosa	varrow
Senecio multilobatus	groundsel
Senecio actinella	groundsel
Tragopogon dubius	goats-beard
Taraxacum officinale	dandelion

TABLE 3. Birdş and mammals of the G. A. Pearson Natural Area. Bird data are from Haldeman et. al. (1973). Birds marked by an asterisk are known to breed in the area. The mammal list was taken from Lowe (1964).

Birds	
* Goshawk	Accinitar gentilis
* Mourning Dove	Zenaida macroura
Great Horned Owl	Ruho virginianus
* Broad-tailed Hummingbird	Selasphorus platuaraus
* Red-shafted Flicker	Colantos aurotus
Yellow-bellied Sapsucker	Sphyropious veries
* Hairy Woodpecker	Dondro com a villa sua
Northern Three-toed Woodpecker	Pionides tride to I
* Western Flycatcher	Francis
* Western Wood Pewee	Empidonax dificilis
* Violet-green Swallow	Tartus de la continuación de la
* Steller's Jay	Tacnycineta thalassina
Common Crow	
Clark's Nutcracker	Corvus brachyrhynchos
Clark's Nutcracker * Mountain Chickadee	
* White-hreasted Nuthatch	· · · · · · · · · · · · Parus gambeli
* White-breasted Nuthatch	Sitta carolinensis
Red-breasted Nuthatch*	Sitta canadensis
* Pygmy Nuthatch	Sitta pygmaea
* Brown Creeper	· · · · · · · · · · · Certhia familiaris
* Robin	Turdus migratorius
* Hermit Thrush	Catharus guttatus
* Western Bluebird	Sialia mexicana
Mountain Bluebird	Sialia currucoides
* Solitary Vireo	Vireo solitarius
* Audubon's Warbler	Dendroica coronata
* Grace's Warbler	Dendroica graciae
* Black-headed Greeheek	Euphagus cyanocephalus
* Black-headed Grosbeak	Pheucticus melanocephalu,

TABLE 3 (Continued)

1.	Birds (Continued) Evening Grosbeak Cassin's Finch * Pine Siskin * Gray-headed Junco	Spinus pinus
11.	Mammals Merriam's shrew Vagrant shrew Black-tailed Jack Rabbit Nuttall's cottontail Golden-mantled ground squirrel Tassel-eared squirrel Deer mouse White-footed mouse Porcupine Coyote Bobcat Mule Deer	Sorex vagrans Lepus californicus Sylvilagus nuttallii Spermophilus lateralis Sciurus aberti Peromyscus maniculatus Peromyscus leucopus Erethizon dorsatum Canis latrans Lynx rufus



G. A. PEARSON NATURAL AREA, COCONINO CO., ARIZONA

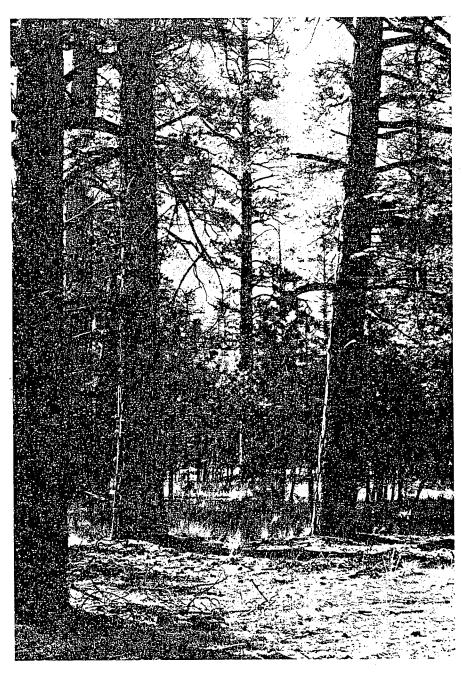


Photo 1. The G. A. Pearson Research Natural Area showing various size classes of ponderosa pine.



Photo 2. Uneven aged stands of ponderosa pine on the G. A. Pearson Natural Area.

LITERATURE CITED

Burt, W. H. and R. P. Grossenheider

1964. A field guide to the mammals. Houghton Mifflin Co., Boston.

Daubenmire, R.

1968. Plant Communities. Harper and Row, New York.

Green, C. R. and W. D. Sellers

1964. Arizona Climate. University of Arizona Press, Tucson.

Haldeman, J. R., R. P. Balda and S. W. Carothers

1973. Breeding birds of a ponderosa pine forest and a fir, pine, aspen forest in the San Francisco Mountains area, Arizona. *In* S. W. Carothers, J. R. Haldeman and R. P. Balda. Breeding birds of the San Francisco Mountain Area and the White Mountains, Arizona. Museum of Northern Arizona Technical Series No. 12:1-21. Northern Arizona Society of Science and Art Inc., Flagstaff.

Hunt, C. B.

1956. Cenozoic Geology of the Colorado Plateau. Geological Survey Professional Paper No. 279. U.S. Government Printing Office, Washington, D.C.

Kearney, T. H. and R. H. Peebles

1960. Arizona Flora, 2nd ed. University of California Press, Berkeley.

Lowe, C. H., Jr., ed.

1964. The Vertebrates of Arizona. University of Arizona Press, Tucson.

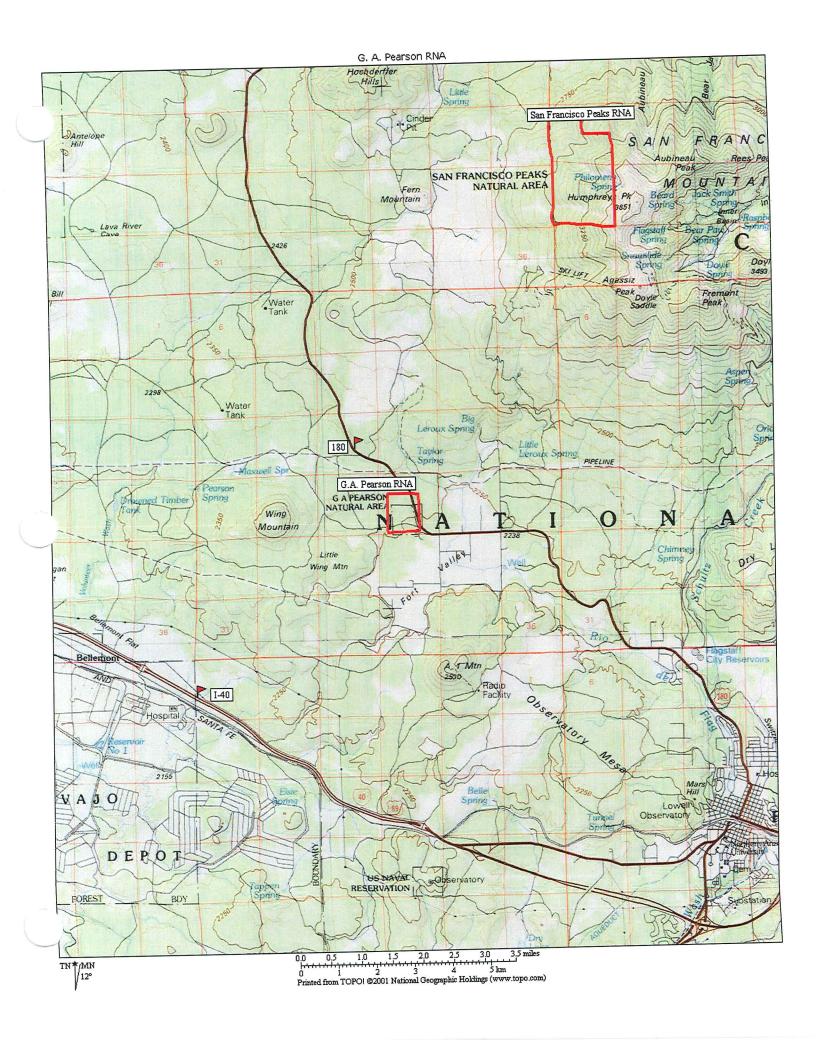
Robinson, H. H.

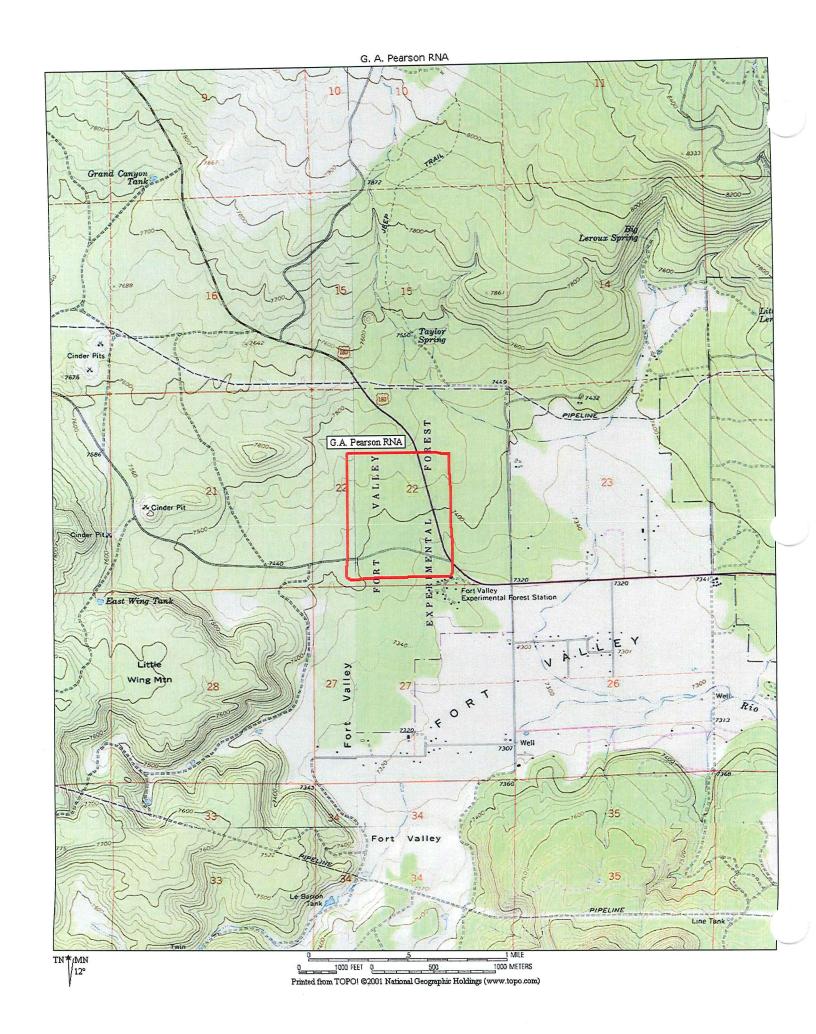
1913. The San Francisco volcanic field, Arizona: U.S.G.S. Professional Paper 76, 210 pp.

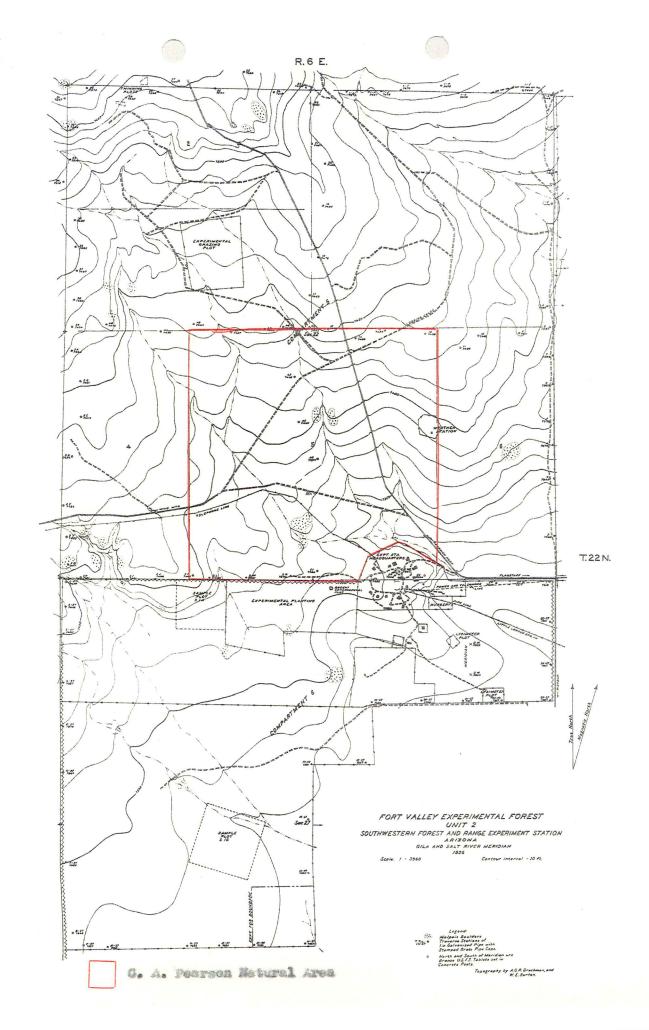
Society of American Foresters Committee on Natural Areas

Proposed Natural Area

Nama od Pr	oposod Nagural :	irea G	A. Kea	NAN-	
Location:	State Ch		County C	A Comment	
and to the ten to an to an a	Radresc Town	Logitat	Z	, 0, 100,	
	Wedrese Federal) / (l, State or co	unty_highway_	Nott US 1	80
Permanence	Afforded Throug	(]	Agula aw, regulations and of Directions	m, will, endowmen tors, etc.)	t,
Name of Li	ministration Un	(National For	est, hational e, university	park, national w	ildlife
Listing of	Timber Types on	n Area:			
	2.37	Acres 154		Average Age	
No company de la company d				to There is the second description of the se	
where the characteristic state of the characteristic state	and the second s				
	in, water, buffe: , etc. Total:	154			
Range in E	Mevation: Low_	7325 To 101	— Feet High_ llwn	7450 Fee	t
	(Level, ro	lling sceep, b	proken, etc.)		
Geology	(Volcanic,	alluvial, mor	aine, etc.)		
Averaga Ka	eight and Diamet	er of each maj	or species:		
200	cles	Ave	erage Height	Average Diam	eter
Pord	wate purl	Angeline and the	100	26	
<u> </u>	by GJ	Schuhet	Titl	e Project for	Lin
Mauling at	240	W. Prope	of EgytSta	Date 1-27-	69
		ollins. Co			







Unfortunately, three allotments converge in the suggested sites. We foresee management conflicts and much refencing in order to set up an RNA here. One weir is almost useless since a highway and old borrow pit interfere with the natural hydrological cycle. Also, the range seemed, at best, in a fair condition. The bottoms, especially were taken over by iris and bluegrass, replacing the more productive and ecologically diverse mixed sedge communities.

The Arizona fescue meadow at Profanity Ridge on Escudilla Mountain remains our choice for this example of montane grassland.

9. Forest Lakes Old Growth Ponderosa Pine

This site was suggested by the Heber Ranger District as a possible RNA. Nearly pristine yellowpine old-growth covers about 600 or so acres in vicinity of Forest Lake Estates (private residence area on patented mining claims). We found this to be truly an exceptional and noteworthy area. The forest meets description of the ponderosa pine/screwleaf muhly-Arizona fescue habitat type. Site index is high II and low I in the bottoms. The forest appears two-aged: an overstory of old yellowpine greater than 250 years and regeneration, often as thickets, of saplings less than 100 years.

While research opportunities here are enormous, we regretfully decline to suggest this site as an RNA within the Region's present need. Our basic reason is that as of now the representation of ponderosa pine ecosystems appears filled. Similar ponderosa pine/bunchgrass ecosystems are within the Gus Pearson, Monument Canyon, and proposed Rocky Gulch RNA's.

We hope this area can continue to serve a useful old-growth function within the Forest Plan. Possible prescriptions as an old-growth requirement for wildlife and as historic or cultural value can be developed. The Task Group suggests that you might consult with Stet Edmunds, Timber Staff, Carson NF. Stet identified a tract of similar old-growth yellowpine on the Mt. Taylor District of the Cibola NF while he was ranger there. Its recreational and wildlife possibilities exceeded its timber returns.

10. Double Cabin

Double Cabin is a site somewhat over 100 acres where neariy pristine ponderosa pine and mixed conifer ecosystems exist as old growth. The ecosystems appear to be ponderosa pine/Arizona fescue on the drier site, white fir/Arizona fescue on the wetter.

Like Forest Lakes ponderosa pine, this area is unusual and of natural area quality. The Region does not contain any example of the white fir/Arizona fescue within its RNA network (minor acreages of this ecosystem can be found on north-facing slopes in Monument Canyon RNA in New Mexico).

However, the proposed site is too small for qualification as RNA, and edge effects upon the old-growth stands would affect much anticipated research there. Again, the old stands might well serve a useful wildlife requirement within that area.