

R(L)
Natural Area
Coconino

OAK CREEK CANYON NATURAL AREA

Purpose

To preserve in natural condition a representation of canyon types of vegetation in northern Arizona. Oak Creek Canyon, because of its endless variety of sites as to altitude, slope exposure, and gradient, contains nearly all the species of conifers and broadleaf trees indigenous to northern Arizona, as well as a great variety of shrubs, herbs and algae. Animal life exhibits a corresponding range of species.

Description

Location

West Fork of Oak Creek. The area may be described as occupying the canyon from the point of Buzzards Ridge down to the west and north boundaries of the old Thomas Ranch. It includes parts of Sections 20, 27, 28, 29 and 34, T. 19 North, R.6 East G. . S.R. Meridian. The area is approximately 940 acres.

Dominant Cover Types

Both rims of the canyon are in the western yellow pine type. Since the canyon is from 1000 to 1800? Feet deep, a great variety of sites occur, one to altitude and direction of slope exposure. Because of the frequent changes in plant cover it would be impossible without a detailed survey, to give the acreage of different forest types or plant associations. Among the tree species represented are western yellow pine, Douglas fir, white fir, pinon, juniper, sycamore, alder, maple, and several species of oak.

Physiography and Climate

The altitude ranges from about 5000 feet in the canyon bottom to about 6500 feet on the rims. Differences in altitude alone could cause a range of several degrees in temperature, but the greatest variation is due to the influence of nearly vertical walls intercepting the sun's rays on one side and reflecting and concentrating their effect on the other. In some places rainfall drains off because of the steep slope or because of absence of soil; in others it penetrates deep layers of soil or gravel; in still others it is augmented by underground seepage. The canyon bottom is watered by a clear stream which has channeled its way through beds of sandstone.

Forest Value

Commercial timber values are negligible.

Agricultural Value

There are no tillable lands within the area.

Grazing Values

On account of the precipitous walls, stock can enter the canyon only at the upper and lower end. Practically no stock graze in the canyon now. Grazing values are very low.

Mineral Values

So far as known, there are no mineral values.

Value for Other Public Uses

Aside from its scientific interest, the highest values to the public are for recreation and water supply. The canyon contains some of the choicest beauty spots in the Southwest, but they are at present accessible only to those who are physically able to make the strenuous walk required to reach them. Several summer home sites were laid out in the lower part of the area some twelve or fifteen years ago, but none have been leased, probably because they are too difficult to access. The water used for irrigation in the main canyon below, and eventually flows into the Verde river. It is not sufficient in quantity to warrant power development or the building of storage reservoirs.

Transportation Facilities

No roads have been built through the canyon. A little used, undeveloped trail goes about a mile up the canyon. A highway being built through the main Oak Creek Canyon makes it possible to drive within about a half mile of the lower border of the proposed natural area.

Public Sentiment

Instructors and students of the Arizona State Teachers College have requested the establishment of the area. Others of the scientific mind in Flagstaff have expressed themselves favorably. The general public probably will be little interested one way or another.

Plan of Management

The primary aim should be to keep the area as nearly as possible in a natural state. This implies first of all the exclusion of commercial exploitation. No special uses of any kind should be permitted within the area.

Exclusion of domestic grazing animals is desired, as far as this can be accomplished without expensive fencing. Very few cattle drift into the canyon at present because there are but two places where they can descend the precipitous walls. Unless grazing use should increase, no restriction is contemplated. If at any time complete exclusion becomes desirable, this can be effected by building a few short lines of fence.

No roads or trails should be built into the canyon unless it should be found necessary to do a small amount of trail work for fire protection purposes.

Approved:

Forest Supervisor

Director, Southwestern Forest Range Exp. Station

Regional Forester

Washington, D.C.

October 15. 1931.

By virtue of the authority vested in me by the Reg. L-20 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 Oak Creek Canyon Natural Area the Lands described in the report dated _____, 19____, by _____; said lands shall hereafter be administered as a Natural Area Subject to the provisions of said regulation and the instructions thereunder.

Forester.

REVISION REPORT

Oak Creek Canyon Research Natural Area

Coconino National Forest

Coconino County, Arizona

Narrative Report

The Oak Creek Canyon Research Natural Area was established on October 15, 1931. At that time, private land at the mouth of the West Fork Canyon curtailed access to the canyon and the Research Natural Area boundary was made concurrent with the private land. Recently, the private land had been acquired by the United States and the old lodge on the tract is somewhat of a historical object. The tract was acquired with land and Water Conservation Funds with the understanding that it would be a key recreation area. It is planned to develop the tract and the lodge as a VIS center. The lower end of the West Fork Canyon contains some of the most spectacular scenery in the Oak Creek Canyon. It will be very accessible from the development area and will be a great attraction to the public. To prevent pollution of the stream, some sanitary facilities must be installed in the lower end of the West Fork to accommodate this heavy use. Under the circumstances, it is proposed that the Research Natural Area boundary be moved to a point approximately 1½ miles from the mouth of the West Fork. Hikers are not likely to go above this point and the Research Natural Area will not lose its usefulness in this deletion.

The original designation was on the basis of artificial boundaries which are not meaningful. The proposed revision is based on the canyon rims and well-defined ridges, according to the map attached hereto. Administration will be greatly facilitated by this revision, and there will be no loss in effectiveness of the area for research purposes.

The location of the new area is described as being in secs 19, 20, 21, 27,28,29,32, and 33. T. 6 E.

The principal cover type has been described as SAF-237, Interior ponderosa pine. Our most recent examination shows this to be in error. By far the largest area is covered with a very thin soil mantle and contains considerable rock exposure. The sparse vegetation that there is, is probably best described as mountain mahogany-oak scrub (K-37). The second most important type is mixed conifer-Interior Douglas fir, SAF-210. Interior ponderosa pine (SAF-237) is the third most important cover type. Following are the acreages by type.

Brush and rock – 891 acres
(SAF 210) Interior Douglas fir (mixed conifer) – 627 acres

(SAF 237) Interior ponderosa pine – 112 acres
Riparian hardwood – 55 acres
Bare rock – 23 acres

Total – 1,717 acres

The riparian hardwood type is probably most similar to the red alder (SAF-221) in that the principal species is alder (*Alnus oblongifolia*). The other important types listed in the Research Natural Area of 1963 Publication are correct except for the igneous (G-16). This type was not in the originally established area and is not in the new area.

Summarizing the advantages and the disadvantages of the amended area

Advantages

1. Will permit the construction of minimum sanitation facilities in the lower canyon for the use of hikers.
2. Administration of the Research Natural Area and adjacent National Forest will be greatly facilitated through the clarification of the boundary, thus resulting in less chance of disturbance of the natural condition.

Disadvantages

1. The area will not be as accessible for scientific study along the creek bottom.

Approval of the proposed revision of the Oak Creek Canyon Research Natural Area is recommended since there will be no change in the basic values which the area was originally established to preserve.

Forest Supervisor, Coconino

Regional Forester

Director, Rocky Mtn. Station

Director, Div. of R&L, W O

for Deputy Chief, Research

Chief

DESCRIPTION

The proposed boundary is more precisely described as beginning at a point in the West Fork of Oak Creek which is approximately 1.19 miles from the mouth of the Canyon and is located just east of a drain from the northeast which joins the Creek in the north end of a well defined horseshoe bend in the Creek; thence eastward and southeastward into the West Fork, thence southward along this drain a short distance to a subdrain from the east, thence up the subdrain to the crest of the divide between West Fork and Oak Creek, thence northward along this ridge to its intersection with the rim rock edging the Harding Point plateau, thence westward and northwestward along this rim rock to a point where the rim intersects a rock formation which drops to the Canyon dividing Harding Point from Howard Pocket, thence down the Canyon to its junction with the West Fork, crossing the West Fork and mounting the ridge to the rim rock on East Buzzard Point, thence southward along the rim rock to its intersection with a ridge dropping into Barney Spring Canyon a short distance below its junction with a large drain from the west, thence crossing the Barney Spring to its intersection with the rim rock forming the edge of the Barney Pasture plateau, thence southeastward along this rim to a rock formation located near the north line of Section 32 and extending into the canyon draining the west side of Buckhead Ridge, thence crossing this canyon rim rock forming the northernmost point of Buckhead Ridge, thence along this rim southeastward to its intersection with a rock formation located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 32, which drops into the main canyon draining the east side of Buckhead Ridge, thence crossing this canyon and up a rock formation to its intersection with the rim rock forming the edge of the East Pocket plateau, thence along this rim eastward, northward and eastward to its intersection with a ridge which drops into the West Fork and to the point of beginning.

West Fork Canyon

Appendix

Willow – *Salix exigua*
Willow – *Salix tayifolia*
Cherry – *Prunus emarginata*
Alder – *Alnus oblongifolia*
Hophornbeam – *Ostrya knowltonii*
Maple – *Acer glabrum*
Boxelder – *Acer negundo*
Bigtooth maple – *Acer grandidentatum*
Walnut – *Juglans major*
Ash – *Fraxinus lowellii*
Gamble oak – *Quercus gambelii*
Hawthorn – *Crataegus erythropoda*
Ponderosa pine – *Pinus ponderosa*
White fir – *Abies concolor*
Douglas fir – *Pseudotsuga menziesii*
Red cedar – *Juniperus scopulorum*
Alligator juniper – *Juniperus deppeana*
Locust – *Robinia neomexicana*
Grape – *Vitis arizonica*
Poison Ivy – *Toxicodendron radicans*
Woodbine – *Parthenocissus inserta*
Snowberry – *Symphoricarpos rotundifolius*
Dogwood – *Cornus stolonifera*
Rose – *Rosa arizonica*
Blackberry – *Rubus macropetalus*
Raspberry – *Rubus strigosus*
Thimbleberry – *Rubus parviflorus*
Oregon grape – *Manonia repens*
Gooseberry – *Ribes* sp.
Myrtle boxleaf – *Pachystima mysinites*
Sumac – *Rhus glabra*
Mountain mahogany – *Cercocarpus montanus*
Garrya – *Garrya wrightii*
Manzanita – *Arctostaphylos pringlei*
Greenleaf manzanita – *Arctostaphylos patula*
Serviceberry – *Amelanchier polycarpa*
Senecio – *Senecio* sp.
Bracken – *Pteridium aquilinum*
Maidenhair fern – *Adiantum pedatum*
Vetch – *Lathyrus arizonicus*
Lupine – *Lupinus argenteus*
False Solomonseal – *Smilacina racemosa*

Dandelion – *Taraxacum officinale*
Geranium – *Geranium* sp
Spider lily – *Tradescantia pinctorum*
Columbine – *Aquilegia caerulea*
Columbine – *Aquilegia micrantha*
Turkey pea – *Thermopsis pinetorum*
Carrot – *Lomatium dissectum*
Skunk cabbage – *Veratum californicum*
Violets – *Viola* sp
Dock – *Rumex* sp
Mint – *Mentha* sp.
Fern
Thistle – *Cirsium neomexicanum*
Mullein – *Verbascum virgatum*
Clematis – *Clematis ligusticifolia*
Sweet clover – *Trifolium* sp
Monkey flower – *Mimulus langsdorfii*
Larkspur – *Delphinium* sp
Phlox – *Phlox* sp
Paintbrush – *Castilleja* sp
Agave – *Agave* sp
Nettle – *Urtica serra*
Milkweed
Meadowrue – *Thalictrum fenleri*
Beargrass – *Nolina* sp
Carex
Horsetail rush – *Equisetum hyemale*
Juncus
Moss
Beardless bunchgrass – *Blepharoneuron tricholepis*
Junegrass – *Koeleria cristata*

Trout
Bear
Suckers
Thrush

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General Information S.USNAHP*83

- Created: 1931
- Size: 1717 (acres)
- Elevation Range: 5400 - 6700ft
- Location: *Oak Creek Canyon RNA lies along the West Fork of Oak Creek Canyon between Flagstaff and Sedona, Arizona. The RNA is within the Secret Mountain Wilderness.*

Site Description

Oak Creek Canyon RNA features a mixed deciduous riparian community with bigtooth maple (*Acer grandidentatum*), box elder (*Acer negundo*) and velvet ash (*Fraxinus velutina*). Rugged uplands support a variety of conifers and woody species including mountain mahogany. The presence of perennial water in Oak Creek has resulted in high recreational use of the area.

Climate and Enviromental Information

Data not Available

Vegetation - Oak Creek Canyon

Interior Ponderosa Pine (SAF 237) Mountain Mahogany-Oak Scrub (K 31)

A 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

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WEST FORK OF OAK CREEK CANYON NATURAL AREA

ABSTRACT

The West Fork Natural Area, established by the U.S. Forest Service, encompasses 940 acres (370 ha) in West Fork Canyon, a major branch of Oak Creek Canyon. The natural area is a deeply incised canyon of precipitous cliffs and gentle benches, geologically characteristic of the Mogollon Rim. Three major floral associations, chaparral, mixed conifer, and riparian, plus the faunal composition make up the natural area's complex and diversified biota. The area has been utilized extensively for research and recreation.

Location

The West Fork of Oak Creek Canyon is a research natural area established by the U.S. Forest Service in the Coconino National Forest, Coconino County, Arizona. The natural area is a deeply incised canyon with irregular boundaries encompassing 940 acres, in portions of Sections 20, 27, 28, 29 and 34, Range 6E., Township 19N., 12 miles North of Sedona, Coconino County, Arizona.

Access and Accommodations

U.S. Highway Alternate 89 passes within one-half mile of the confluence of West Fork and Oak Creek in the southeastern corner of the natural area (See Figure 1). This highway provides the closest vehicular access route, as there are no roads or trails built into the natural area. Several developed campgrounds are located in Oak Creek Canyon and accommodations can be obtained at several motels near the natural area as well as in Sedona and nearby Flagstaff.

Climate

The West Fork Natural Area (WFNA) and adjoining Oak Creek Canyon has a climate characteristic of the Mogollon Rim area in which it lies. The physiography of the vicinity has a marked effect on precipitation and temperature. West Fork, receiving an annual average of 25 inches of rainfall, has two seasons of precipitation, one in summer and the other in winter. Most of the summer rains come from afternoon showers and thundershowers that develop in July and August from moist unstable tropical air flowing up the Verde River Valley from the Gulf of Mexico. The showers start abruptly, continue intermittently for a brief period, then slowly taper off and cease altogether. Afternoon showers normally do not last for more than a few minutes, the thundershowers a few hours.

Winter precipitation comes largely from storms that enter the state from the Pacific Ocean. The storms are not as violent as those of summer, but usually last longer and spread over a larger area. Although most of the winter precipitation occurs as rain, a large part of it falls as snow on the steep slopes of the Mogollon Rim.

Daily temperature fluxes may exceed 50° F. with seasonal extremes of 100° F. at Sedona to below 0° F. on the rim. These large variations result mainly from differences in elevation. In summer the average daily temperature is about 75° F., while the winter temperature averages between 35° and 40° F. (Green and Sellers, 1964).

Topography and Landform

West Fork is a major branch of Oak Creek Canyon, which lies in a transition zone that separates the Colorado Plateaus province to the northeast from the Basin and Range province to the southwest. This transition zone, known as the Mogollon Rim is a rather abrupt southward facing escarpment, having an average height of about 4,000 feet.

In the immediate region of West Fork is a large complex north-south vertical fault dissecting the rim. Oak Creek Canyon has been carved in this principal fault, but branching from it are a number of lesser faults. An unusual feature displayed by the Oak Creek fault and some of its associated faults is a geologic phenomenon known as "reverse drag" or contrary bending. Geologically, the term "drag" describes the bending of the rock strata adjacent to the fracture. Normally when faulting occurs, the rock strata of the uplifted portion are bent down. The portion that moves down generally bends upward. The unusual feature of the faults in and around the West Fork is that where drag or bending occurs, the relations are exactly opposite to the normal faulting system (Mears, 1950), (See Appendix A).

The geologic structure of WFNA is simple; the rocks are flat lying and consist principally of unaltered sedimentary rocks, capped in places by basalt. Much of the stratigraphic section in the canyon consists of limestone, siltstone, and sandstone of Paleozoic age, overlain in places by Tertiary basalt flows. Quarternary alluvial sand and gravel deposits are found on the floor of the canyon (Twenter and Metzger, 1963).

The canyon walls of WFNA are formed into an alternating series of steep cliffs and gentle benches, depending on a particular sedimentary formation's hardness and resistance to erosion. In some areas the precipitous cliffs are as much as 300 feet high. Many small canyons and narrow gorges branch off both sides of the canyon. The geologic formations of West Fork are listed in Table 1.

The canyon lies in a northwesternly direction, therefore the slope exposure varies, encompassing all directions. The area averages one-quarter mile in width and ranges in elevation from 5,000 feet at its convergence with Oak Creek Canyon to 6,500 feet at its head. Spring fed from the Mogollon Rim, the perennial West Fork drains southwest to Oak Creek thence to the Verde River in the Verde Valley. The water flow surfaces intermittently throughout the canyon due to heavy unconsolidated gravel, sand and silt throughout.

Biota

The vegetation of WFNA is highly varied and complex in its species composition (See Table 2). The latter results from the great variety of slope exposures, gradients, elevations and levels of aridity. Generally speaking, there are three basic vegetative communities at WFNA. The three are chaparral, mixed coniferous associations and broadleaf riparian associations. Each is distinctive in its floral and faunal composition and each will be discussed separately.

Chaparral (Photo 2) is the most xeric plant community at WFNA. It occurs on dry, south-facing slopes and is composed of densely branched, leathery-leaved, drought resistant shrubs. No single plant species dominates this community although shrub live oak (*Quercus turbinella*), silk-tassel (*Garrya wrightii*), manzanita (*Arctostaphylos pungens*) and mountain mahogany (*Cercocarpus montanus*) are all common components. Rocky bench areas support a few century plants (*Agave parryi*) and prickly pear cacti (*Opuntia engelmannii*) as well as some pinyon (*Pinus* sp.) and junipers (*Juniperus* sp.).

Common vertebrates of the chaparral formation include Rock Squirrel (*Spermophilus variegatus*), Cliff Chipmunk (*Eutamias dorsalis*), Rufous-sided Towhee (*Pipilo erythrophthalmus*), Lazuli Bunting (*Passerina amoena*) and Black-chinned Sparrow (*Spizella atrogularis*). Wintering Mule Deer (*Odocoileus hemionus*) browse the chaparral plants and Bobcats (*Lynx rufus*) hunt small game in the dense plant growth.

The mixed coniferous associations of Douglas fir (*Pseudotsuga menziesii*) and Ponderosa pine (*Pinus ponderosa*) occur in the shaded portions of the canyon bottom, on north and east-facing slopes and in narrow, protected side canyons. In some instances, the latter are vegetated entirely by Douglas fir. The understory vegetation of this plant association is fairly well developed and consists largely of Gambel oak (*Quercus gambeli*), New Mexico locust (*Robinia neomexicana*) and braken fern (*Pteridium aquilinum*) which is most common in open areas with considerable exposure to sunlight.

Some mammals are more or less restricted to the coniferous associations including Merriam's Shrew (*Sorex merriami*), Abert's Squirrel (*Sciurus aberti*), Gray-collared Chipmunk (*Eutamias cinereicollis*) and Golden-mantled Ground Squirrel (*Spermophilus lateralis*). Steller's Jays (*Cyanocitta stelleri*), Pygmy Nuthatches (*Sitta pygmaea*), Hermit Thrushes (*Catharus guttatus*) and Western Tanagers (*Piranga ludoviciana*) are characteristic birds. No reptiles are restricted to this habitat type although Eastern Fence Lizards (*Sceloporus undulatus*), Short-horned Lizards (*Phrynosoma douglasi*), and Gopher Snakes (*Pituophis melanoleucus*) are likely to be found.

The riparian or streamside vegetation is the prominent floral component of West Fork (See Photo 1). A mesophytic association of box elder (*Acer negundo*), big tooth maple (*Acer grandidentatum*) and Gambel oak forms a discontinuous canopy on the alluvial benches in the canyon bottom. Arizona grape (*Vitis arizonica*), Virginia creeper (*Parthenocissus inserta*), California buckthorn (*Rhamnus californica*) and New Mexican locust form the dominant undergrowth where substantial light filters through the canopy.

Both box elder and New Mexican alder (*Alnus oblongifolia*) are predominant tree species along the water course, with an occasional walnut (*Juglans major*) and big-tooth maple occurring occasionally along the stream. Prominent shrubs which form dense stands along the stream include rock spiraea (*Holodiscus dumosa*), hop-hornbeam (*Ostrya knowltoni*), dogwood (*Cornus stolonifera*) and box wood (*Pachystima myrsinites*). Sedge (*Carex* spp.), horsetail (*Equisetum laevigatum*), and yellow monkey flower (*Mimulus guttatus*) predominate in tight clumps on the muddy banks, among rocks and on islands of soil in the stream itself.

The riparian vegetation is further complicated by the fact that many elements from the other two plant communities are frequently found in the riparian area. This situation pertains, naturally, to the vertebrate fauna as well, although some forms are typically associated with the riparian broadleaf vegetation and some forms as Red-spotted Toad (*Bufo punctatus*), Woodhouse's Toad (*Bufo woodhousei*), Tiger Salamander (*Ambystoma tigrinum*), Leopard Frog (*Rana pipiens*) and the Canyon Tree Frog (*Hyla arenicolor*) are restricted to the riparian areas because of their dependency on water. Bird species that are most common in riparian vegetation are Bridled Titmouse (*Parus wollweberi*), Yellow Warbler (*Dendroica petechia*), Bullock's Oriole (*Icterus galbula*) and Wied's Crested Flycatcher (*Myiarchus tyrannulus*). Raccoons (*Procyon lotor*), Striped Skunks (*Mephitis mephitis*) and Arizona Gray Squirrels (*Sciurus arizonensis*) are most common in this zone because of the water, forage and available nest sites (squirrel).

The ichthyofauna of West Fork is like that of adjoining Oak Creek in that it is primarily artificial. Moderate numbers of Brown Trout (*Salmo trutta*) and Rainbow Trout (*Salmo gairdneri*) are planted during the summer months by the Arizona Game and Fish Department. Small numbers of the following native fish should be present in the permanent drainages; Colorado Chub (*Gila robusta*), Speckled Dace (*Rhinichthys osculus*), Spike Dace (*Meda fulgida*), Sonora Sucker (*Catostomus insignis*) and Gila Sucker (*Pantosteus clarki*).

Past records indicate that the Gila Trout (*Salmo gila*) and the Colorado River Squawfish (*Ptychocheilus lucius*) were at one time present. Exotic fish species that have been introduced into West Fork area are listed in Table 3.

Research History

The natural area has been subject to extensive botanical research involving vascular and non-vascular plants. A. B. Johnsen (1963) did taxonomic research on the bryological and lichenological aspects of the canyon, as well as composition and taxonomic studies concerning the vascular plant associations. The Museum of Northern Arizona has conducted an indepth study of the ecology of Oak Creek Canyon for the U.S. Forest Service which included a portion of the natural area (See Aitchison and Theroux, 1972).

Maps and Aerial Photographs

Special maps applicable to the natural include: Topography - 7 1/2 Duttonhill Quadrangle, Arizona, 1963; 7 1/2 Wilson Mountain Quadrangle, Arizona, 1969; 7 1/2 Mountaineer Quadrangle, Arizona, 1962; 7 1/2 Munds Park Quadrangle, Arizona, 1965, scale 1:24000, issued by the U.S. Geological Survey. The District Ranger, Coconino National Forest, Sedona, can provide details on the most recent aerial photographs, if any. Forest type maps can also be obtained from the Ranger.

TABLE 1. Generalized section of geologic formations in the West Fork Natural Area.*

Age	Stratigraphic Unit	Depth** (±)	Description
Quaternary and Tertiary	Basalt	0-100	Gray to black olivine basalt. Volcanic flows interspersed throughout.
Permian	Kaibab Limestone	300	Massive white to light gray limestone or dolomitic lime- stone containing nodules and thin beds of chert and some beds of calcareous sandstone. Forms cliffs.
	Toroweap Sandstone	200	Fine-grained pale orange sandstone.
	Coconino Sandstone	500	Buff, fine-grained, massive sandstone with conspicuous large scale crossbedding.
Permian and Pennsylvanian	Supai Formation	1550	<u>Lower member</u> composed of thin beds of red sandstone and red mudstone. <u>Middle member</u> composed of red conglomerate, mudstone, lime- stone, silt stone and sandstone. <u>Upper member</u> composed of red sandstone and silt stone. Cross-bedded, forms cliffs.
Mississippian	Redwall Limestone	250	Coarse-grained crystalline chert, white to light gray massive limestone, some beds contain fossils (crinoids, brachiopods, corals, etc.); forms steep cliffs.

*Adapted from Twenter, F. R. and D. G. Metzger, 1963; Mendenhall, W. C., 1925; Hunt, C. B., 1956.

**General estimate made from literature.

TABLE 2. A list of plants collected or noted in West Fork Natural Area on 22 July 1973. Common and scientific names follow Kearney and Peebles, 1969.

EQUISETACEAE - Horsetail Family	
<i>Equisetum laevigatum</i>	horsetail
POLYPODIACEAE - Fern Family	
<i>Adiantum pedatum</i>	maiden hair fern
<i>Pellaea atropurpurea</i>	cliff break
<i>Pteridium aquilinum</i>	bracken fern
PINACEAE - Pine Family	
<i>Pinus ponderosa</i>	ponderosa pine
<i>Pseudotsuga menziesii</i>	Douglas fir
<i>Pinus edulis</i>	pinyon pine
CUPRESSACEAE - Cypress Family	
<i>Juniperus sp.</i>	<i>juniper</i>
GRAMINEAE - Grass Family	
<i>Agropyron desertorum</i>	wheat grass
<i>Dactylis glomeratus</i>	orchard grass
<i>Bromus sp.</i>	brome grass
CYPERACEAE - Sedge Family	
<i>Carex sp.</i>	sedge
COMMELINACEAE - Spiderwort Family	
<i>Tradescantia pinetorum</i>	spiderwort
LILIACEAE - Lily Family	
<i>Zigadenus elegans</i>	death camas
<i>Yucca baccata</i>	banana yucca
AMARYLLIDACEAE - Amaryllis Family	
<i>Agave parryi</i>	century plant
JUGLANDACEAE - Walnut Family	
<i>Juglans major</i>	Arizona walnut
BETULACEAE - Birch Family	
<i>Ostrya knowltoni</i>	hop-hornbeam
FAGACEAE - Beech Family	
<i>Quercus gambelii</i>	Gambel's oak
<i>Quercus turbinella</i>	shrub live oak
POLYGONACEAE - Buckwheat Family	
<i>Eriogonum sp.</i>	buckwheat
CHENOPODIACEAE - Goose Foot Family	
<i>Chenopodium album</i>	lamb's quarters
RANUNCULACEAE - Crowfoot Family	
<i>Aconitum columbianum</i>	monk's hood
<i>Thalictrum fendleri</i>	meadow-rue
<i>Delphinium geraniifolium</i>	larkspur
<i>Cimicifuga arizonica</i>	big bane
<i>Aquilegia chrysantha</i>	yellow columbine
CRUCIFERAE - Mustard Family	
<i>Sisymbrium linearifolium</i>	sisymbrium (mustard)
ROSACEAE - Rose Family	
<i>Agrimonia gryposepala</i>	agrimony
<i>Cercocarpus montanus</i>	mountain mahogany
<i>Holodiscus dumosus</i>	rock spiraea
<i>Potentilla thurberi</i>	red cinquefoil
<i>Cowania mexicana</i>	cliff rose
<i>Amelanchier sp.</i>	serviceberry

TABLE 2 (Continued)

LEGUMINOSAE - Pea Family	
<i>Lotus wrightii</i>	deer vetch
<i>Lupinus</i> sp.	Lupine
<i>Robinia neomexicana</i>	New Mexico locust
GERANIACEAE - Geranium Family	
<i>Geranium richardsonii</i>	white crane's bill
ANACARDIACEAE - Cashew Family	
<i>Rhus trilobata</i>	squaw-bush
CELASTRACEAE - Bittersweet Family	
<i>Pachystima myrsinites</i>	box leaf
ACERACEAE - Maple Family	
<i>Acer grandidentatum</i>	big-tooth maple
<i>Acer negundo</i>	box elder
RHAMNACEAE - Buckthorn Family	
<i>Rhamnus californica</i>	California buckthorn
VITACEAE - Grape Family	
<i>Parthenocissus inserta</i>	Virginia creeper
<i>Vitis arizonica</i>	Arizona grape
MALVACEAE - Mallow Family	
<i>Sidalcea neomexicana</i>	checker-mallow
GUTTIFERAE - Hypericum Family	
<i>Hypericum formosum</i>	St. John's wort
VIOLACEAE - Violet Family	
<i>Viola canadensis</i>	violet
CORNACEAE - Dogwood Family	
<i>Garrya wrightii</i>	silk-tassle
<i>Cornus stolonifera</i>	dogwood
ERICACEAE - Heather Family	
<i>Arctostaphylos pungens</i>	point-leaf manzanita
ASCLEPIADACEAE - Milkweed Family	
<i>Asclepias</i> sp. milkweed	milkweed
POLEMONIACEAE - Phlox Family	
<i>Gilia aggregata</i>	skyrocket gilia
<i>Polemonium pauciflorum</i>	Jacob's ladder
<i>Linanthastrum nuttallii</i>	linanthastrum
BORAGINACEAE - Borage Family	
<i>Macromeria viridiflora</i>	macromeria
LABIATAE - Mint Family	
<i>Monarda menthaefolia</i>	bee-balm
SCROPHULARIACEAE - Figwort Family	
<i>Mimulus guttatus</i>	yellow monkey-flower
<i>Penstemon barbatus</i>	scarlet beardtongue
<i>Verbascum thapsus</i>	common jullein
COMPOSITAE - Sunflower Family	
<i>Erigeron platyfilus</i>	fleabane
<i>Rudbeckia laciniata</i>	cut-leaf cone flower
<i>Cirsium arizonicum</i>	Arizona thistle
<i>Achillea lanulosa</i>	yarrow
<i>Anaphalis margaritacea</i>	pearly everlasting
<i>Solidago</i> sp.	goldenrod

TABLE 3. Exotic fish species that have been introduced into West Fork Natural Area (Aitchison and Theroux, 1972).

Arctic Grayling	<i>Thymallus arcticus</i>
Carp	<i>Cyprinus carpio</i>
Fathead Minnow	<i>Pimephales promelas</i>
Red Shiner	<i>Notropis lutrensis</i>
Channel Catfish	<i>Ictalurus punctatus</i>
Yellow Bullhead	<i>Ictalurus natalis</i>
Black Bullhead	<i>Ictalurus melas</i>
Flathead Catfish	<i>Pilodictis olivaris</i>
Mosquito Fish	<i>Gambusia affinis</i>
Largemouth Bass	<i>Micropterus salmoides</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
Green Sunfish	<i>Lepomis cyanellus</i>
Bluegill	<i>Lepomis macrochirus</i>

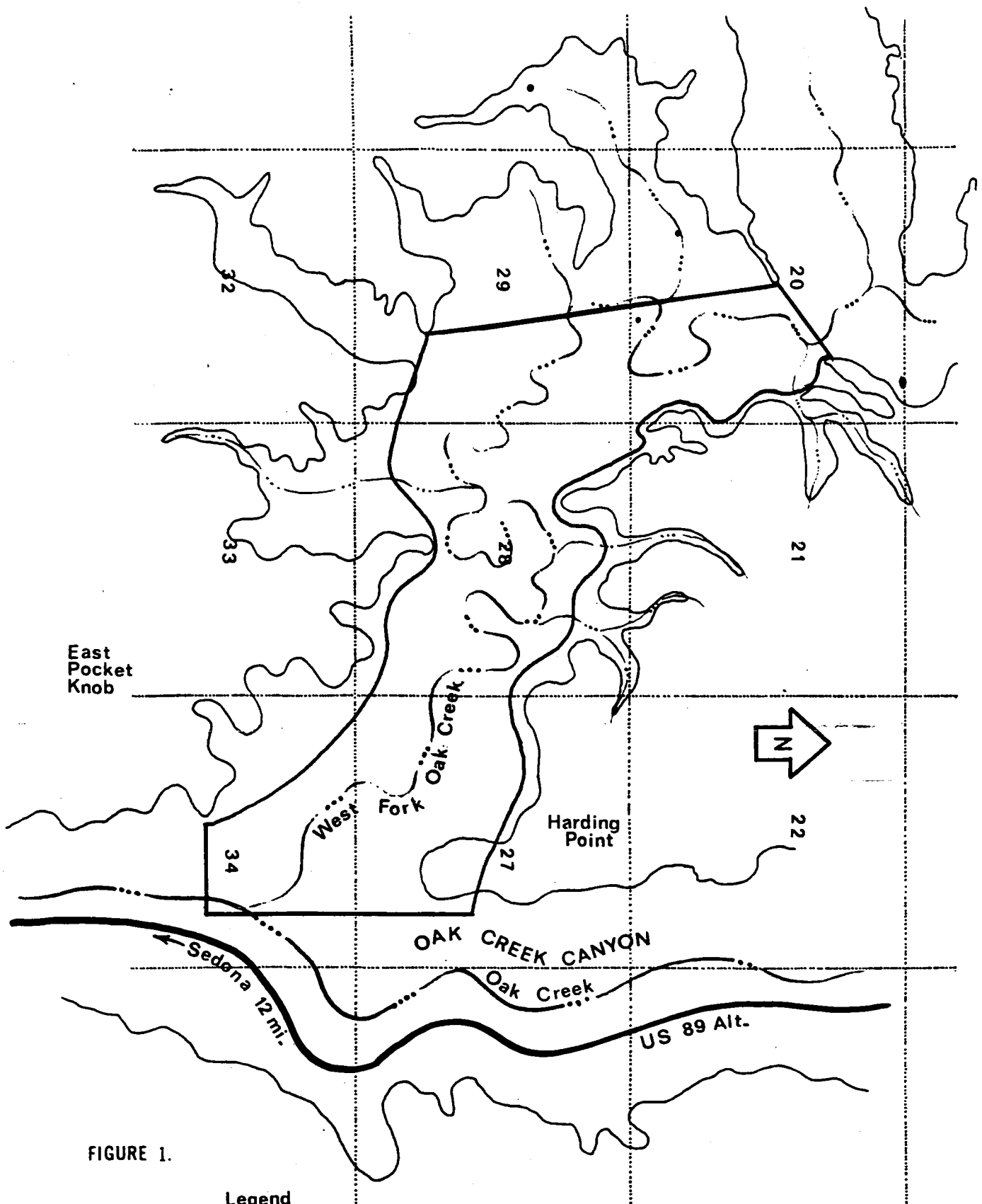







FIGURE 1.

Legend

-  Boundary, WEST FORK NATURAL AREA
-  Section line
-  Highway
-  Canyon rim
-  Stream

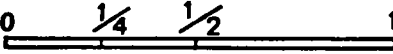
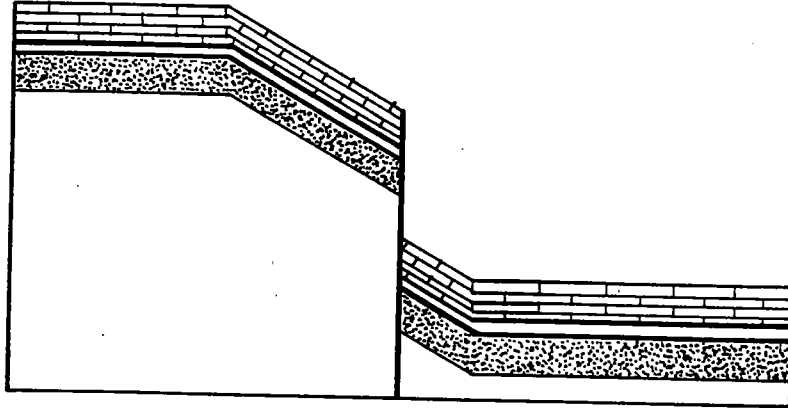
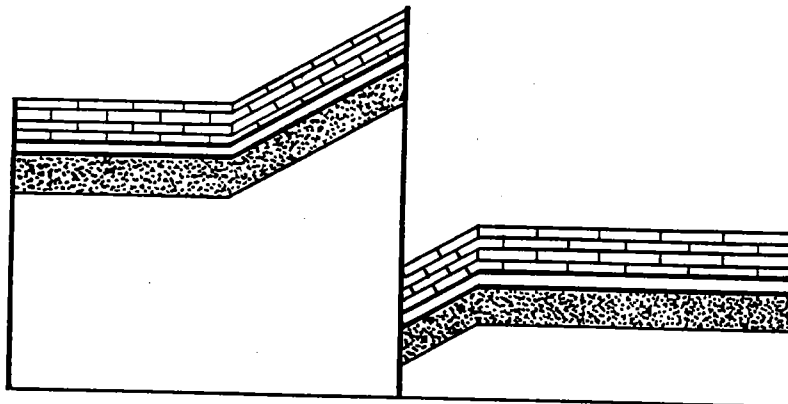


FIGURE 2



Falt showing normal drag or bending of rock strata.



Fault showing reverse drag or contrary bending as exhibited in Oak Creek Canyon and West Fork Natural Area.

*Adapted from Mears, 1950.

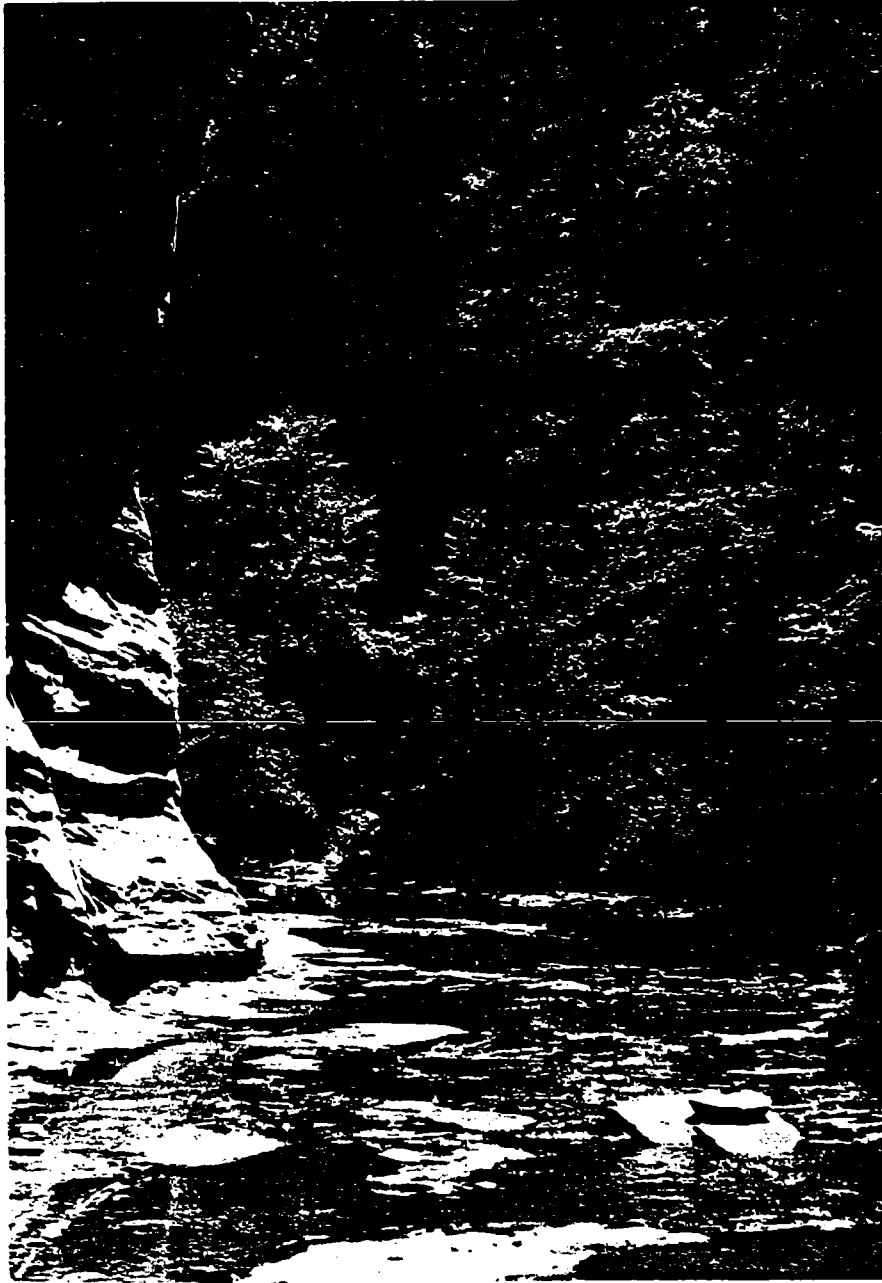


Photo 1. The West Fork of Oak Creek showing riparian vegetation and Douglas Fir. Note the pavement-like streambed.

FIGURE 2

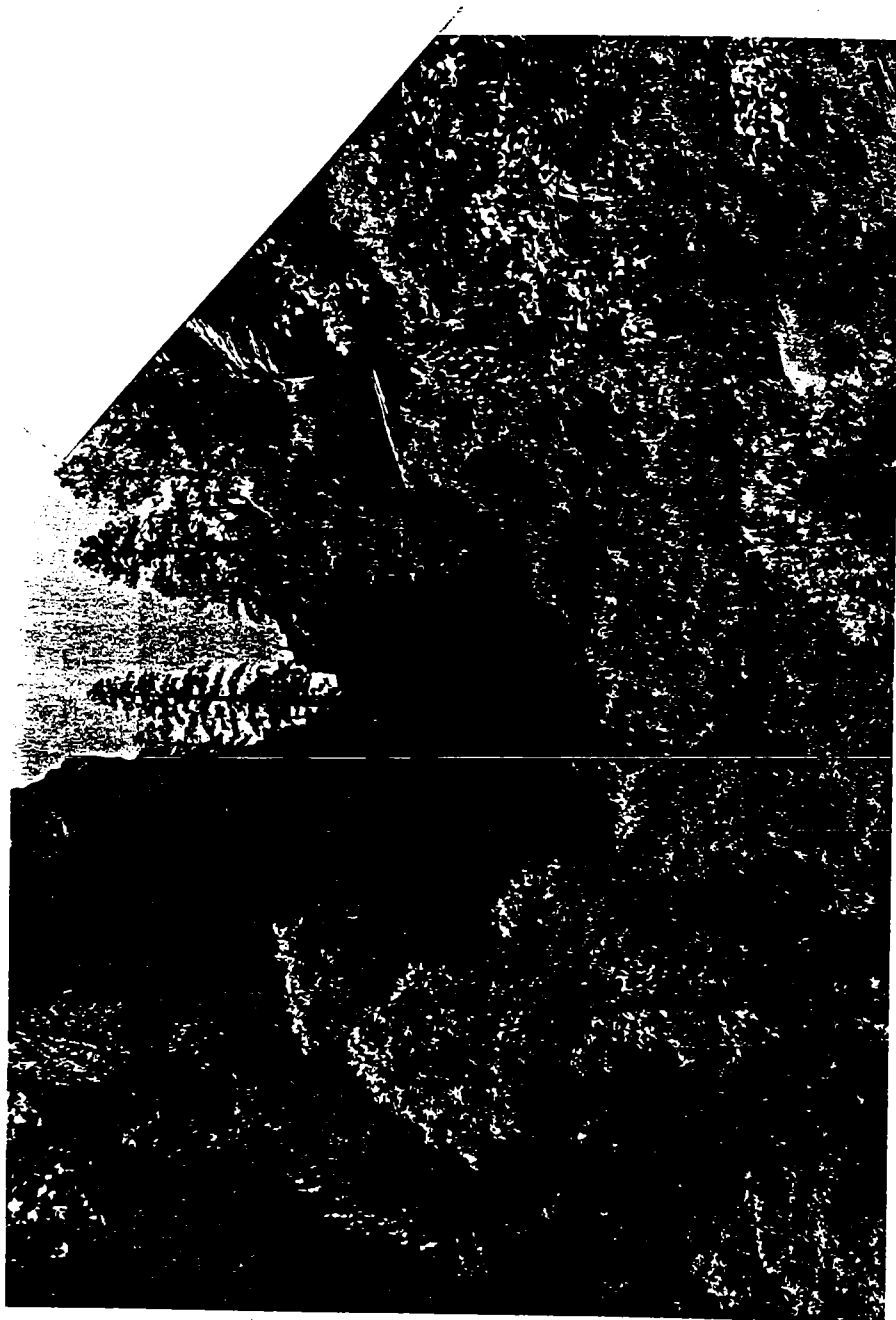
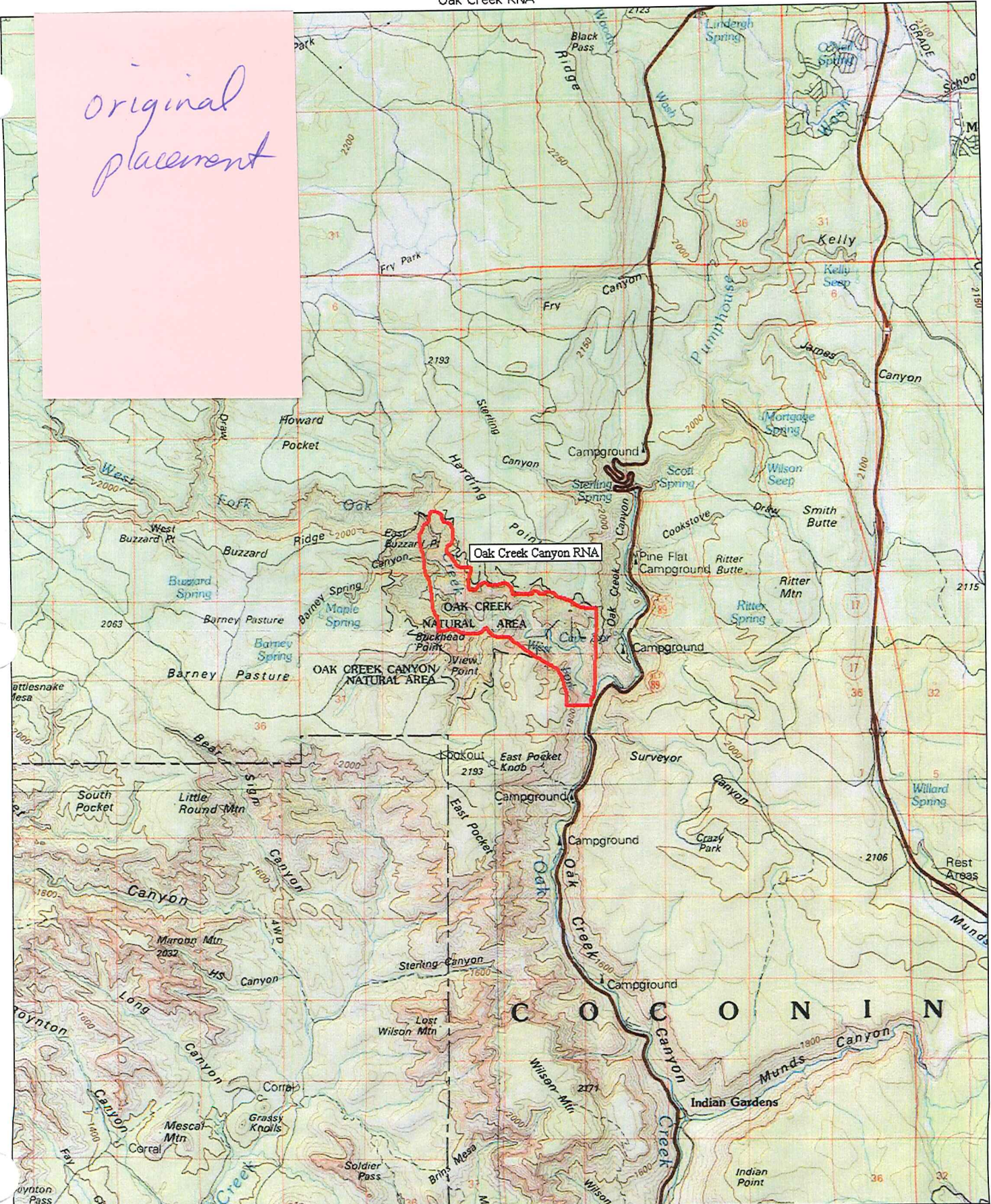


Photo 2. A small side canyon with southwesterly exposure. Note low growing, shrubby chaparral Species on the right side of the photo.

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original placement



Oak Creek Canyon RNA

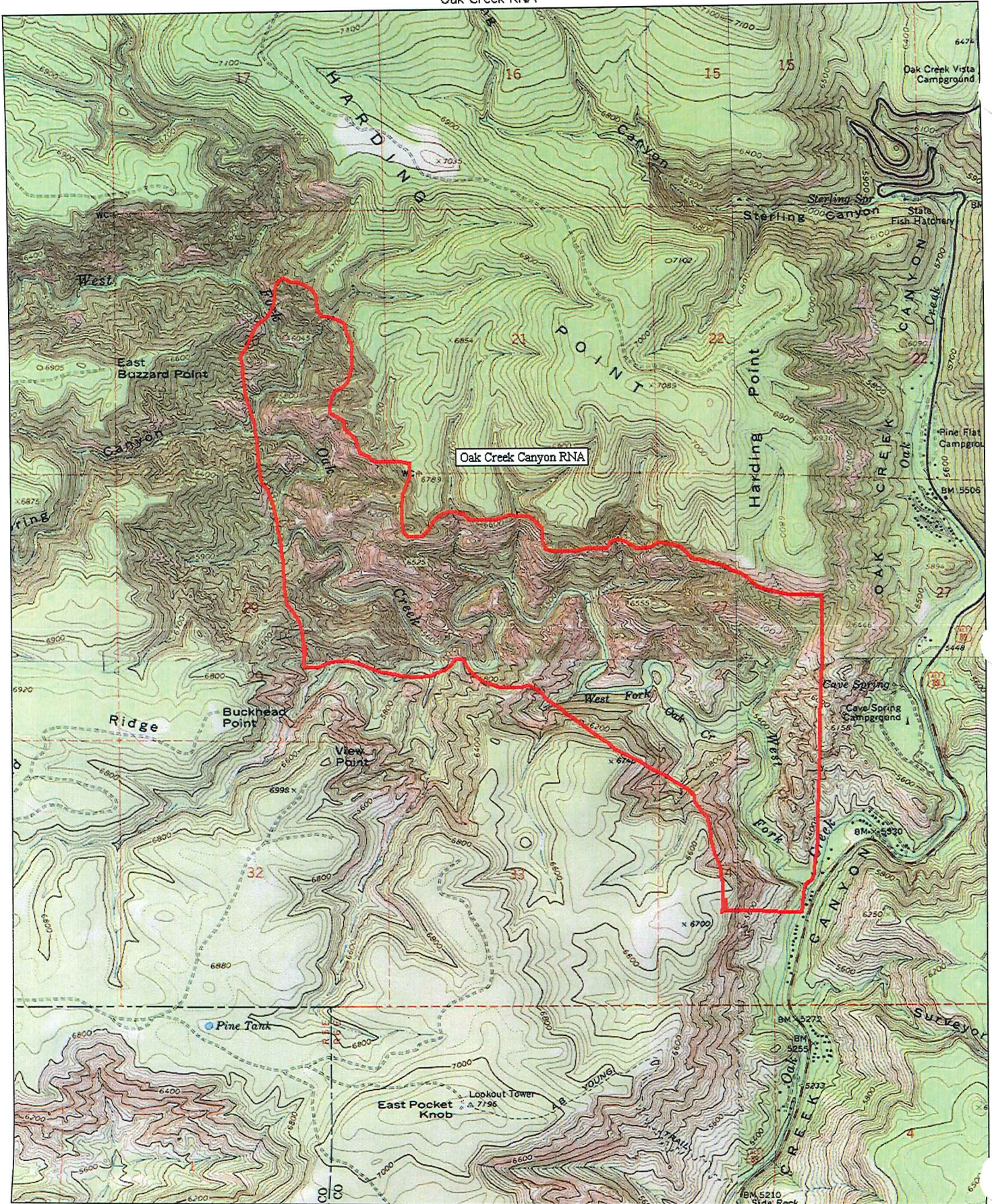
OAK CREEK NATURAL AREA

C O C O N I N

TN MN
12°

0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 miles
0 1 2 3 4 5 km
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Oak Creek RNA

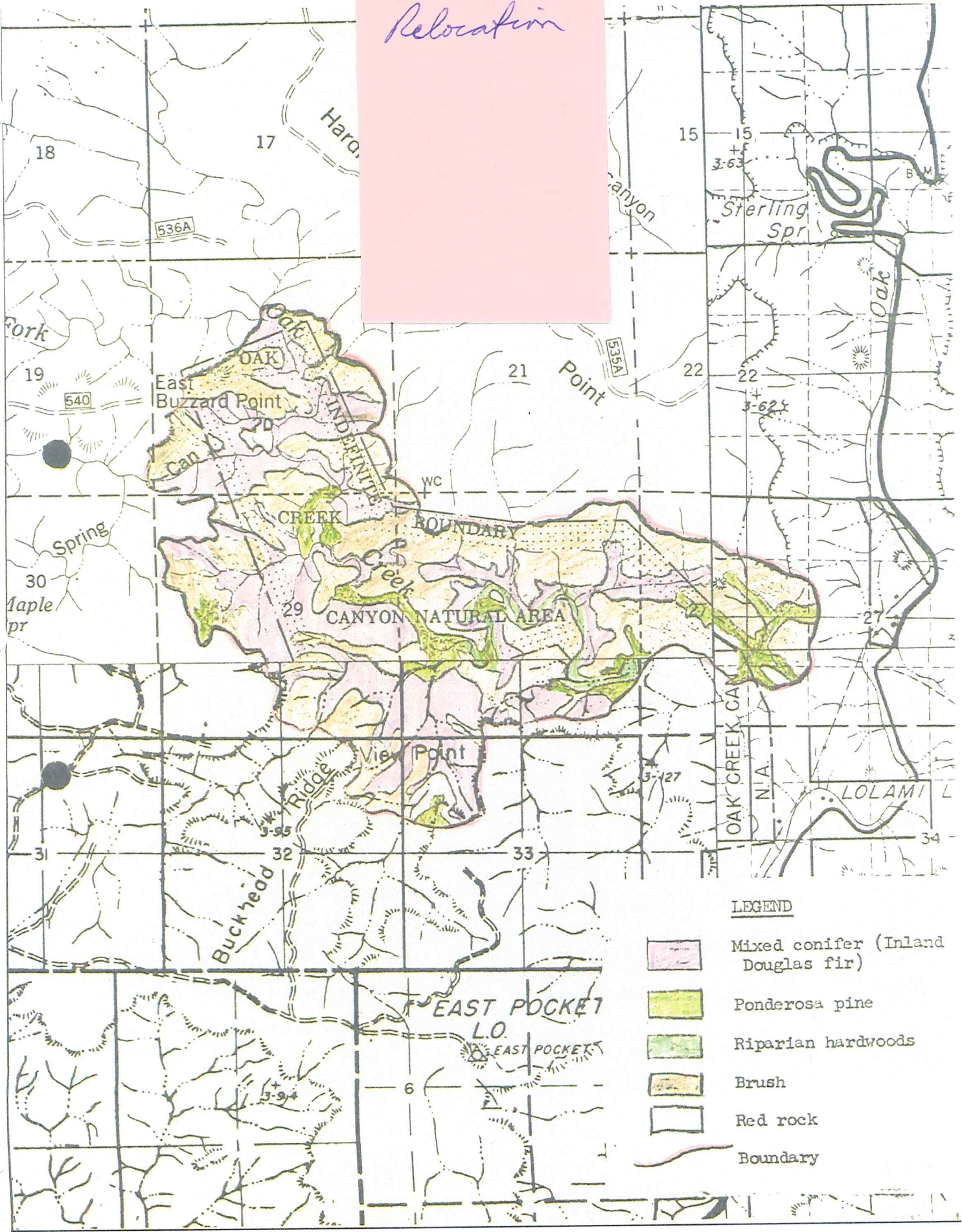


TN 12° MN







0 1000 FEET 0 500 1000 METERS

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Relocation



LEGEND

-  Mixed conifer (Inland Douglas fir)
-  Ponderosa pine
-  Riparian hardwoods
-  Brush
-  Red rock
-  Boundary

Society of American Foresters
Committee on Natural Areas

Proposed Natural Area

Name of Proposed Natural Area Oak Creek Canyon

Location: State Arizona County Coconino

Nearest Town Selona

Nearest Federal, State or county highway S US 89A

Permanence Afforded Through What Means Regulation
(law, regulation, will, endowment,
Board of Directors, etc.)

Name of Administration Unit Coconino Natl Forest P.O. Box 1268
(National Forest, national park, national wildlife
refuge, State, university, etc.) F. Loggstaff Arizona
86001

Listing of Timber Types on Area:

<u>S.A.F. Type No.</u>	<u>Acres</u>	<u>Average Age</u>
<u>337</u>	<u>940</u>	<u>250</u>
<u>235</u>	<u>along stream bottoms</u>	
Barren, water, buffer zone, etc.		
Total:	<u>940</u>	

Range in Elevation: Low 5000 Feet High 6500 Feet

Topography Steep Canyons
(Level, rolling steep, broken, etc.)

Geology Sedimentary
(Volcanic, alluvial, moraine, etc.)

Average Height and Diameter of each major species:

<u>Species</u>	<u>Average Height</u>	<u>Average Diameter</u>
<u>Pinus ponderosa</u>	<u>65</u>	<u>25"</u>

Submitted by _____ Title _____

Mailing Address Forest Supervisor Date 2-11-69

Box 1268
F. Loggstaff, Arizona 86001