Research Natural Areas

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

SEARCH RNAs BY

County

GO

ABOUT RNAs

HOME
ABOUT
USING
OPPORTUNITES
REFERENCES
CONTACT US
RELATED SITES
CREDITS

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

BUCKHORN MOUNTAIN

General Information — S.USNAHP*94

- Created: 1988
- Size: 2810 (acres)
- Elevation Range: 3800 - 6612ft
- Location: *The RNA is located on the Tonto National Forest in the vicinity of Four Peaks in the southern part of the Matazal Mountains of central Arizona. Approximately two-thirds of the RNA lies within the Four Peaks Wilderness. The entire RNA lies within the Three Bar Wildlife Study Area.*

Site Description

Buckhorn Mountain RNA supports a variety of chaparral plant communities within rugged topography of northeast trending drainages. These communities are largely dominated by scrub live oak (Quercus turbinella). Isolated stands of Arizona pine forest occur along the ridge tops. Terrain within the RNA is very steep and slopes may exceed 80%.

Climate and Enviromental Information

Data not Available

Vegetation - Buckhorn Mountain

Interior Ponderosa Pine (SAF 237, K18)
Chaparral

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 Buckhorn Mountain Research Natural Area. The Buckhorn Mountain Research Natural Area shall be comprised of the following land: Beginning at the intersection of Forest Trail Nos. 130 and 132 on the top of Buckhorn Mountain with a shown elevation of 6612 feet and lying within Four Peaks Wilderness;

THENCE, generally easterly on Forest Trail No. 130 along the hydrographic divide between tributaries to Buckhorn Creek to the north and tributaries to Bronco Creek and Hackberry Creek to the south, for approximately 1.03 miles to a point with a contour elevation of 5520 feet, where Trail 130 turns south from northeast;

THENCE, northeasterly on the hydrographic divide between tributaries to Buckhorn Creek on the north and Hackberry Creek on the south, for approximately 0.32 miles to a point with contour elevation of 5360 feet;

THENCE, north easterly on the hydrographic divide between tributaries to Buckhorn Creek on the north ad south, for approximately 0.11 miles to the Wilderness boundary,

THENCE, continuing on said hydrographic divide, outside Four Peaks Wilderness, for approximately 0.09 miles to a point having a contour elevation of 5120 feet;

THENCE, easterly along a ridge between a dry ravine to the north and a tributary to Buckhorn Creek to the south, for approximately 0.28 miles to where said ridge ends in the confluence of the ravine and tributary at a contour elevation of 4560 feet;

THENCE, east on a straight line for approximately 0.12 miles to the intersection with the aforementioned Trail No. 130;

THENCE, northerly on said Trail No. 130 for approximately 0.33 miles, to the top of hydrographic divide between Buckhorn Creek on the south and an unnamed intermittent stream on the north, where said trail bears east at a contour elevation of 4440 feet;

THENCE, north westerly on said hydrographic divide for approximately 0.98 miles to the top of Camelback Peak having a shown elevation of 5663 feet and being an angle point on the Four Peaks Wilderness boundary, with approximate longitude of 111° 16′ 20" west and latitude of 33° 40′ 18" north;

THENCE, continuing outside the wilderness boundary, northeasterly on the hydrographic divide between Mills Canyon to the east and an unnamed intermittent steam drainage from Camelback Spring for approximately 0.62 miles to a point having a contour elevation of 4400 feet;

THENCE, northwest on a small ridge for approximately 0.11 miles to the thread of said intermittent steam draining from Camelback Spring at a contour elevation of 4120 feet;

THENCE, northwest for approximately 0.06 miles to the top of a small ridge, between dry ravines draining into said intermittent stream, at a contour elevation of 4200 feet;

THENCE, westerly on the top of said ridge for approximately 0.30 miles to a point at an approximate elevation of 4860 feet o the hydrographic divide between said intermittent stream draining from Camelback Spring to Baldy Canyon on the east and an unnamed intermittent tributary; to Baldy Canyon the west;
THENCE, southwesterly on said hydrographic divide for approximately 0.47 miles to the summit of a small knob with a contour elevation of 5560 feet, and an angle point on the Four Peaks Wilderness boundary;
THENCE, continuing outside the Wilderness Boundary, northerly on a hydrographic divide between unnamed intermittent tributaries to Baldy Canyon on the east and west, for approximately 0.59 miles to a summit with a shown elevation of 4634 feet;
THENCE, northerly on a hydrographic divide between said unnamed intermittent tributary on the west and dry ravines draining into Baldy Creek to the east, for approximately 0.59 miles to the junction of said west tributary at an approximate elevation of 3700 feet;
THENCE, northwest approximately 0.09 miles to Forest Trail No. 132 on the top of a hydrographic divide between Baldy Canyon on the south and an unnamed intermittent tributary to Baldy Canyon on the north;
THENCE, generally westerly along said hydrographic divide for approximately 0.94 miles to the Four Peaks Wilderness boundary at an approximate elevation of 4940 feet;
THENCE, generally southwesterly along said hydrographic divide within the Four Peaks Wilderness, for approximately 1.03 miles to the summit of a small knob having a shown elevation of 6447 feet;
THENCE, southeast along the top of Buckhorn Ridge, a hydrographic divide between Baldy Canyon to the northeast and Alder Creek to the southwest, and also being the boundary line between Gila County and Tonto Basin Ranger District to the northeast and Maricopa County and Mesa Ranger District to the southwest for approximately 0.35 to the intersection with Forest Trail No. 130 in Black Bear Saddle;
THENCE, continuing southeast on said Trail No. 130 on said Buckhorn Ridge for approximately 1.93 miles to the top of Buckhorn Mountain and the point of beginning;.

Regional Forester, Sotero Muniz, recommended the establishment of the Buckhorn Mountain Research Natural Area in the Tonto 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 Buckhorn Mountain Research Natural Area will be managed in compliance with all relevant laws, regulations, and manual direction regarding Research Natural Areas. The Buckhorn Mountain Research Natural Area will be administered in accordance

with the management direction identified in the Establishment Record.
The Tonto 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 Tonto 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 Tonto National Forest Land and Resource Management Plan.

The Forest Supervisor of the Tonto 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 Tonto 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 Buckhorn Mountain 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

ESTABLISHMENT RECORD

for

BUCKHORN MOUNTAIN RESEARCH NATURAL AREA

within

Tonto National Forest
Gila County, Arizona

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Buckhorn Mountain Research Natural Area

Tonto National Forest

Gila County, Arizona

Prepared by Andrew Laurenzi Date 7/6/87
Mark H. Cochran, The Nature Conservancy
Andrew W. Laurenzi, The Nature Conservancy

Recommended by Fred S Salinas Date 5/9/88
Fredrick S. Salinas, Acting District Ranger
Tonto Basin Ranger District

Recommended by [signature] Date 5-16-88
James L. Kimball, Forest Supervisor,
Tonto National Forest

Recommended by John W Russell Date 5-24-88
John W. Russell, Chairperson,
Southwestern Research Natural
Area Committee

Recommended by David Kelly 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

INTRODUCTION

Buckhorn Mountain Research Natural Area (RNA) contains 2,810 acres (1,137 hectares) in the Tonto Basin Ranger District of the Tonto National Forest, in Gila County, Arizona, on reserved public domain National Forest System land. Buckhorn Mountain RNA lies in the vicinity of Four Peaks in the southern part of the Mazatzal Mountains of central Arizona. Approximately two-thirds of Buckhorn Mountain RNA is within the Four Peaks Wilderness, and the entire RNA is located in the Three Bar Wildlife Study Area. The Arizona Game and Fish Department conducts research on big game in the Three Bar Wildlife Area and the Forest Service has performed watershed manipulation studies there.

Land Management Planning. The Southwest Regional Guide (USDA Forest Service [USFS], 1983) and the current Tonto National Forest Plan (USFS, 1985a) include Buckhorn Mountain RNA. The environmental analysis conducted as part of the planning process supports the recommendation to establish Buckhorn Mountain RNA (USFS, 1985b).

OBJECTIVES

Buckhorn Mountain RNA was recommended in the Southwestern Region RNA Progress Report (USFS, 1984) as an undisturbed land area representative of Arizona chaparral. The objectives for management of Buckhorn Mountain RNA are as follows:

1. To provide a minimally disturbed example of Arizona chaparral community for research and educational purposes.

2. To serve as a baseline area to measure long-term ecological changes.

3. To provide comparison with management techniques on adjacent lands.

JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

Interior (Arizona) chaparral is an important vegetation type in Arizona which is estimated to cover 3.46 million acres (1.4 million hectares) in the state (Hibbert et al., 1974). Interior chaparral, comprised of scrub live oak and associated chaparral plants, covers significant portions of both the Tonto and Prescott National Forests in central Arizona. It is, therefore, appropriate that chaparral vegetation types are represented in the RNA program of the Southwestern Region. Buckhorn Mountain RNA is an excellent choice to fulfill this need and was selected as an undisturbed representative of Interior chaparral ecosystems.

There has been considerable manipulative research on central Arizona chaparral types (e.g. Bolander, 1982). Much attention has been given to converting chaparral to grassland, to increasing water yield, to understanding fire effects, and otherwise obtaining better commodity harvests from chaparral vegetation. Many of these studies have been conducted in the Three Bar Wildlife Area where Buckhorn Mountain RNA has served as a control watershed (Hibbert et al., 1974). Therefore, an added value of this RNA concerns its control function as an unmanipulated baseline area to compare against experimentation. Further, within the Buckhorn Mountain RNA are two chaparral watersheds (Baldy Canyon and upper Buckhorn Creek). In the event of fire it is unlikely that both watersheds would be equally burned, and thus researchers would have opportunities to study fire succession and physiology of various chaparral species in both watersheds (USFS, 1984).

PRINCIPAL DISTINGUISHING FEATURES

Buckhorn Mountain RNA is an excellent example of an unmanipulated Interior (Arizona) chaparral community (133.3 in Bolander, 1982). The site includes several vegetation cover types that are characteristic of Interior chaparral at its upper elevational limits on steep slopes. Isolated stands of ponderosa pine Forest (122.3 in Bolander, 1982) occur on the ridge tops.

LOCATION

Access to Buckhorn Mountain RNA is from Arizona Highway 188 (Figs. 1 and 2). From the junction of Highway 188 with the Beeline highway (Arizona Highway 87) travel southerly 25.4 miles (41 kilometers) to Forest Road 445 (Three Bar Wildlife Area turnoff). Proceed 3.2 miles (5.1 kilometers) to the junction with Forest Service Road 445A, 0.1 mile (0.2 km) east of the junction is the trailhead for Forest Trail 132. Proceed westerly on Forest Trail 132 for 2.7 miles (4.4 kilometers) to Buckhorn Mountain RNA. Forest Trail 132 continues through Buckhorn Mountain RNA along Baldy Canyon and intersects with Forest Trail 130, which follows Buckhorn Ridge. The trailhead is accessible by 2-wheel drive vehicle, from there to the RNA, access is by foot or on horseback.

Buckhorn Mountain RNA is located within the Tonto Basin Ranger District of Tonto National Forest in Gila County, Arizona. The center of the RNA is near 33° 41′ North latitude, and 111° 17′ West longitude. It is within protracted Sections 13, 14, 15, 22, 23, 24, 25, and 26 of Township 4 North, Range 10 East and Sections 19, 20, 29, and 30 of Township 4 North, Range 11 East, Gila and Salt River Meridian, Arizona (Fig. 3).

The boundaries of Buckhorn Mountain RNA are more particularly described as follows:

BEGINNING at the intersection of Forest Trails 130 and 132 on the top of Buckhorn Mountain with a shown elevation of 6,612 feet (2,015 meters) and lying within Four Peaks Wilderness;

THENCE, generally easterly on Forest Trail 130 along the hydrographic divide between tributaries to Buckhorn Creek to the north and tributaries to Bronco Creek and Hackberry Creek to the south, for approximately 1.03 miles (1.7 kilometers) to a point with a contour elevation of 5,520 feet (1,682 meters), where Forest Trail 130 turns south from northeast;

THENCE, northeasterly on the hydrographic divide between tributaries to Buckhorn Creek on the north and Hackberry Creek on the south, for approximately 0.32 miles (0.5 kilometers) to a point with contour elevation of 5,360 feet (1,634 meters);

THENCE, northeasterly on the hydrographic divide between tributaries to Buckhorn Creek on the north and south, for approximately 0.11 miles (0.18 kilometers) to the Wilderness boundary,

THENCE, continuing on said hydrographic divide, outside Four Peaks Wilderness, for approximately 0.09 miles (0.14 kilometers) to a point having a contour elevation of 5,120 feet (1,561 meters);

THENCE, easterly along a ridge between a dry ravine to the north and a tributary to Buckhorn Creek to the south, for approximately 0.28 miles (0.45 kilometers) to where said ridge ends in the confluence of the ravine and tributary at a contour elevation of 4,560 feet (1,390 meters);

THENCE, east on a straight line for approximately 0.12 miles (0.19 kilometers) to the intersection with the aforementioned Forest Trail 130;

THENCE, northerly on said Forest Trail 130 for approximately 0.33 miles (0.53 kilometers), to the top of hydrographic divide between Buckhorn Creek on

the south and an unnamed intermittent stream on the north, where said Forest Trail 130 bears east at a contour elevation of 4,440 feet (1,353 meters);

THENCE, northwesterly on said hydrographic divide for approximately 0.98 miles 1.58 kilometers) to the top of Camelback Peak having a shown elevation of 5,663 feet (1,726 meters) and being an angle point on the Four Peaks Wilderness boundary, with approximate longitude of 111° 16' 20" West and latitude of 33° 40' 18" North;

THENCE, continuing outside the Wilderness boundary, northeasterly on the hydrographic divide between Mills Canyon to the east and an unnamed intermittent steam drainage from Camelback Spring for approximately 0.62 miles (1.0 kilometers) to a point having a contour elevation of 4,400 feet (1,341 meters);

THENCE, northwest on a small ridge for approximately 0.11 miles (0.18 kilometers) to the thread of said intermittent steam draining from Camelback Spring at a contour elevation of 4,120 feet (1,256 meters);

THENCE, northwest for approximately 0.06 miles (0.1 kilometers) to the top of a small ridge, between dry ravines draining into said intermittent stream, at a contour elevation of 4,200 feet (1,280 meters);

THENCE, westerly on the top of said ridge for approximately 0.30 miles (0.48 kilometers) to a point at an approximate elevation of 4,860 feet (1,481 meters) on the hydrographic divide between said intermittent stream draining from Camelback Spring to Baldy Canyon on the east and an unnamed intermittent tributary to Baldy Canyon on the west;

THENCE, southwesterly on said hydrographic divide for approximately 0.47 miles (0.76 kilometers) to the summit of a small knob with a contour elevation of 5,560 feet (1,695 meters), and an angle point on the Four Peaks Wilderness boundary;

THENCE, continuing outside the Wilderness boundary, northerly on a hydrographic divide between unnamed intermittent tributaries to Baldy Canyon on the east and west, for approximately 0.59 miles (0.95 kilometers) to a summit with a shown elevation of 4,634 feet (1,412 meters);

THENCE, northerly on a hydrographic divide between said unnamed intermittent tributary on the west and dry ravines draining into Baldy Creek to the east, for approximately 0.59 miles (0.95 kilometers) to the junction of said west tributary at an approximate elevation of 3,700 feet (1,128 meters);

THENCE, northwest approximately 0.09 miles (0.14 kilometers) to Forest Trail 132 on the top of a hydrographic divide between Baldy Canyon on the south and an unnamed intermittent tributary to Baldy Canyon on the north;

THENCE, generally westerly along said hydrographic divide for approximately 0.94 miles (1.51 kilometers) to the Four Peaks Wilderness boundary at an approximate elevation of 4,940 feet (1,506 meters);

THENCE, generally southwesterly along said hydrographic divide within the Four Peaks Wilderness, for approximately 1.03 miles (1.66 kilometers) to the summit of a small knob having a shown elevation of 6,447 feet (1,965 meters);

THENCE, southeast along the top of Buckhorn Ridge, a hydrographic divide between Baldy Canyon to the northeast and Alder Creek to the southwest, and also being the boundary line between Gila County and Tonto Basin Ranger District to the northeast and Maricopa County and Mesa Ranger District to the southwest for approximately 0.35 miles (0.56 kilometers) to the intersection with Forest Trail 130 in Black Bear Saddle;

THENCE, continuing southeast on said Forest Trail 130 on said Buckhorn Ridge for approximately 1.93 miles (3.11 kilometers) to the top of Buckhorn Mountain and the point of BEGINNING.

Lands herein described and topographic features referred to are based on the 7.5-minute United States Geological Survey Quadrangle Sheet FOUR PEAKS, ARIZONA, dated 1964. Elevation ranges from a low in the northeast corner of ca. 3,700 feet (1,128 meters) to the summit of Buckhorn Mountain at 6,612 feet

(2,015 meters). Buckhorn Mountain RNA contains 2,810 acres (1,137 hectares), more or less.

Buckhorn Mountain RNA has an irregular shape since its boundaries follow rugged topographic features associated with the eastern slopes of the Four Peaks area of the Mazatzal Mountains. The north and east boundaries follow ridgelines to Camelback Peak and Buckhorn Mountain. The other boundaries follow prominent ridgelines to Buckhorn Mountain and from there down the north ridge of Baldy Canyon to 3,700 feet (1,128 meters) elevation where the boundary meets the northeast boundary. The upper drainages of Buckhorn Creek and Baldy Canyon are included within the RNA.

AREA BY COVER TYPES

Information on cover types was obtained from a vegetation study of the Three Bar Wildlife Area that encompasses the proposed RNA (Warren and Treadwell 1980).

Küchler. The coniferous forest cover type is K-18, Arizona Pine Forest (Küchler, 1964). The shrubland is not considered.

Society of American Foresters. The coniferous cover type forest is SAF-237, Interior Ponderosa Pine Forest. The shrubland is not considered.

Habitat Types or Plant Associations. The coniferous forest is representative of two habitat types described for the Ponderosa pine series in central Arizona: Ponderosa Pine/Gambel Oak and Ponderosa Pine/Arizona Oak (Muldavin et al., 1986). Habitat types for shrubland have not been developed for Arizona. Using the classification system proposed by Brown et al. (1979), Warren and Treadwell (1980) described two plant associations within Buckhorn Mountain RNA, Emory Oak/Scrub Oak/Deerbrush and Scrub Oak/Birchleaf Mountain Mahogany/Sugar Sumac, which may correspond to Arizona Oak/Yellowleaf Silktassel/Emory Oak and Scrub Oak/Birchleaf Mountain Mahogany associations described by Carmichael et al. (1978) for the Mazatzal Mountains (Fig. 4). Table 1 provides an estimate of the total surface area of each cover type.

Table 1. Estimated areas of vegetative cover types in Buckhorn Mountain Research Natural Area.

USFS Type[1]	SAF Type[2]	Küchler Type[3]	Surface Area Acres (Hectares)
Interior Chaparral	None	None	2,402 (972)
Arizona Pine Forest	SAF-237	K-18	408 (165)
Total			2,810 (1,137)

[1] Warren and Treadwell, 1980; based on Brown et al., 1979.
[2] Eyre, 1980.
[3] Küchler, 1966.

PHYSICAL AND CLIMATIC CONDITIONS

Buckhorn Mountain RNA encompasses the steep northeasterly tending ephemeral drainages of Buckhorn Mountain at the southern end of the Mazatzal Mountains. The area is within a transitional zone between two major physiographic provinces in Arizona, Basin and Range Province and Colorado Plateau Province. Buckhorn Mountain RNA extends from the ridgeline at an elevation of 6,612 feet (2,015 meters) to 3,700 feet (1,128 meters) over the steep, northeasterly slopes of two major drainages that head in the RNA, Buckhorn Creek and Baldy Canyon. Five perennial springs occur within Buckhorn Mountain RNA.

The average annual precipitation in the area is 20 inches (50 centimeters) with 12 inches (30 centimeters) falling as snow (USFS, 1986). Climate information is provided for the general area only as there is no nearby weather station. Precipitation is distinctly bimodal with significant but irregular amounts falling during the summer "monsoon" season that occurs during July through September. Summer rainfall occurs as sharp, high intensity thunderstorms, as opposed to gentler, winter rainfall that is generally associated with Pacific frontal storms. Spring is the driest time of the year and is one of the major factors accounting for the presence of chaparral vegetation.

DESCRIPTION OF VALUES

Flora. Warren and Treadwell (1980) described and mapped the vegetation associations within Buckhorn Mountain RNA using aerial photography along with detailed field documentation. The following description was taken from their report. Their classification is based on a digitized system proposed by Brown et al. (1979).

Interior Chaparral 133.3. Two chaparral plant associations (cover types) were mapped in the Buckhorn Mountain RNA. The primary chaparral association is Emory Oak/Scrub Oak/Deerbrush association (133.3611). Other characteristic species of this association are: silktassels, manzanitas, and Arizona white oak. This association consists of dense stands of evergreen shrubs and small trees with scattered deciduous shrubs. The shrubs are typically 4 to 8 feet (1.2 to 2.4 meters) tall and the trees 8 to 20 feet (2.4 to 6.1 meters). This plant association covers ca. 2,309 acres (935 hectares), about 82 percent, of Buckhorn Mountain RNA. Descriptions by Carmichael et al. (1978) of ten associations within the Interior chaparral ecosystem suggest that their Arizona Oak/Yellowleaf Silktassel/Emory Oak association is closest to the association described above from Warren and Treadwell (1980).

On the lower slopes at the northeast boundary a Scrub Oak/Birchleaf Mountain Mahogany/Sugar Sumac association (133.3121) extends into Buckhorn Mountain RNA. Other characteristic species of this association are deerbrush, Wright's buckwheat, wait-a-minute bush, hollyleaf buckthorn, and silktassel. This association is common on hillslopes northeast of Buckhorn Mountain from 3,000 to 4,000 feet (915 to 1,220 meters) elevation, but only accounts for about 93 acres (38 hectares) of Buckhorn Mountain RNA. This type corresponds to the Shrub Oak/Birchleaf Mountain Mahogany described by Carmichael et al. (1978) and is one of the most extensive Interior chaparral types.

Ponderosa Pine Forest 122.3. On the high north facing slopes of Buckhorn Ridge are isolated patches of the Ponderosa Pine/Arizona White Oak/Deerbrush association (122.3242). This is a moderately open forest of evergreen needle-leaved and broad-leaved trees with an understory of deciduous and evergreen shrubs. The trees are 15 to 60 feet (5 to 18 meters) tall and

the shrubs 3 to 10 feet (1 to 3 meters) tall. Emory oak and alligator juniper are common in this association. This association corresponds to the Ponderosa Pine/Arizona Oak habitat type (Muldavin et al., 1986).

Three patches of the Gambel Oak/New Mexican Locust/Ponderosa Pine association occur on the northeast facing slopes around Black Bear and Dan Neal Springs. These are dense thickets of large deciduous shrubs and small deciduous trees with occasional evergreen, needle- leaved trees. This association corresponds to the Ponderosa Pine/Gambel Oak habitat type (Muldavin et al., 1986). Flora of Buckhorn Mountain RNA has not been thoroughly collected, described or studied. No threatened, endangered or sensitive plants are known from this site. Observations by Warren and Treadwell (1980) during their vegetation mapping study of the Three Bar Wildlife Area resulted in the list of plants provided in Table 2.

Table 2. Abbreviated plant list for Buckhorn Mountain Research Natural Area. Nomenclature and authority follow that of Lehr (1978).

Latin Name	Common Name	Cover[1]
SHRUBS		
Acacia greggii	Cat-claw	CH
Agave parryi	Agave	CH & PP
Alnus oblongifolia	Arizona alder	PP
Amelanchier bakeri	Service berry	CH & PP
Arctostaphylos pringlei	Pringle manzanita	CH & PP
Arctostaphylos pungens	Pointleaf manzanita	CH & PP
Berberis haematocarpa	Red barberry	CH
Berberis repens	Creeping mahonia	PP
Ceanothus fendleri	Fendler ceanothus	CH & PP
Ceanothus greggii	Desert ceanothus	CH
Ceanothus integerrimus	Deerbrush	CH & PP
Cercocarpus montanus	Alderleaf mountain-mahogany	CH
Dasylirion wheeleri	Sotol	CH
Eriodictyon angustifolium	Narrowleaf yerbasanta	CH
Fremontodendron californica	Flannel bush	CH
Garrya flavescens	Yellowleaf silktassel	CH & PP
Garrya wrighti	Wright silktassel	CH & PP
Gutierrezia sarothrae	Broom snakeweed	CH
Lonicera sp.	Honeysuckle	PP
Lonicera interrupta	Chaparral honeysuckle	CH
Mimosa biuncifera	Wait-a-minute	CH
Nolina microcarpa	Beargrass, Sacahuista	CH & PP
Opuntia phaeacantha	Engelmann prickly pear	CH
Prosopis glandulosa	Honey mesquite	CH
Quercus turbinella	Shrub live oak	CH
Rhamnus californica	California buckhorn	CH
Rhamnus crocea	Hollyleaf buckhorn	CH & PP
Rhus ovata	Sugar sumac	CH
Rhus trilobata	Squawbush, Skunkbush sumac	CH
Symphoricarpos sp.	Snowberry	PP
Yucca baccata	Banana yucca, Datil	CH & PP
TREES		
Celtis reticulata	Netleaf hackberry, Palo blanco	CH

Table 2. Continued

Fraxinus lowellii	Lowell ash	CH
Juglans arizonica	Arizona walnut	CH & PP
Juniperus depeana	Alligator juniper	CH & PP
Pinus ponderosa	Ponderosa pine	CH & PP
Pinus monophylla	Singleleaf pinyon, One-needle pinyon	PP
Prunus virens	Southwestern black cherry	PP
Psuedotsuga menziesii	Douglas-fir	PP
Ptelea trifoliated	Hoptree	CH & PP
Quercus arizonica	Arizona white oak	CH & PP
Quercus emoryi	Emory oak	CH & PP
Quercus gambelii	Gambel oak	PP
Robinia neomexicana	Locust	CH & PP
FORBS		
Artemisia ludoviciana	Louisiana sagebrush	CH
Commandra pallida	Bastard toadflax	CH & PP
Eriogonum wrightii	Wright buckwheat	CH
Geranium sp.	Geraniums, crane's bills	PP
Hydrophyllum sp.	Water leaf	PP
Lathyrus sp.	Peavine	PP
Lupinus sp.	Lupine	PP
Thalictrum fendleri	Meadowrue	PP
GRASSES		
Poa sp.	Bluegrass	PP

[1]CH = Chaparral; PP = Ponderosa Pine

Fauna. Buckhorn Mountain RNA is within an area where desert bighorn sheep were reintroduced in the early 1980's. There are no state or federally listed threatened or endangered species known to occur in the area. Animal populations are typical of those found in Arizona chaparral. The animal list in Table 3 was derived from the RUN WILD III computer-stored data base (Lehmkuhl and Patton 1982) for the Interior Chaparral biome (323.0 = 133.3).

Table 3. An abbreviated animal list for Buckhorn Mountain Research Natural Area. Nomenclature and authority follow that of Banks et al. (1987).

Common Name	Scientific Name
BIRDS	
Bunting, lazuli	*Passerina amoena*
Bushtit	*Psittacula krameri*
Cowbird, brown-headed	*Molothrus ater*
Dove, mourning	*Zenaida macroura*
Dove, white-winged	*Zenaida asiatica*
Finch, house	*Carpodacus mexicanus*
Flicker, northern	*Colaptes auratus*
Flycatcher	*Myiarchus tuerculifer*
Gnatcatcher, blue-gray	*Polioptila caerulea*
Grosbeak, black-headed	*Pheucticus melanocephalus*
Hawk, red-tailed	*Buteo jamaicensis*

Table 3. Continued.

Hummingbird, broad-tailed	*Cynanthus latirostrus*
Jay, scrub	*Aphelocoma coerulescens*
Junco, dark-eyed	*Junco hyemalis*
Kestrel, American	*Falco sparverius*
Mockingbird, northern	*Mimus polyglottos*
Oriole, Scott's	*Icterus parisorum*
Poorwill, common	*Phalaenoptilus nuttallii*
Quail, Gambel	*Callipepla gambilii*
Raven	*Corvus corax*
Roadrunner	*Geococcyx californianus*
Shrike, loggerhead	*Lanius ludovicianus*
Sparrow, black-chinned	*Spizella atrogularis*
Sparrow, black-throated	*Amphispiza bilineata*
Sparrow, golden-crowned	*Zonotrichia atricapilla*
Sparrow, rufous-crowned	*Aimophila ruficeps*
Thrasher, crissal	*Toxostoma dorsale*
Titmouse, bridled	*Parus wollweberi*
Towhee, brown	*Pipilo fuscus*
Towhee, green-tailed	*Pipilo chlorurus*
Towhee, rufous-sided	*Pipilo erythrophthalmus*
Vulture, turkey	*Cathartes aura*
Warbler, black-throated gray	*Dendroica nigrescens*
Warbler, Virginia's	*Vermivora virginiae*
Waxwing, cedar	*Bombycilla cedrorum*
Wren, canyon	*Catherpes mexicanus*
Wren, rock	*Salpinctes obsoletus*

MAMMALS

Badger	*Taxidea taxus*
Bat, big brown	*Eptisicus fuscus*
Bat, Brazilian free-tailed	*Tadarida brasiliensis*
Bear, black	*Ursus americanus*
Chipmunk, cliff	*Eutamias dorsalis*
Cottontail, desert	*Sylvilagus auduboni*
Cottontail, eastern	*Sylvilagus floridanus*
Cottontail, Nuttall's	*Sylvilagus nuttallii*
Coyote	*Canis latrans*
Deer, mule	*Odocoileus hemionus*
Deer, white-tailed	*Odocoileus virginianus*
Fox, gray	*Urocyon cinereoargenteus*
Jackrabbit, black-tailed	*Lepus californicus*
Lion, mountain	*Felis concolor*
Mouse, brush	*Peromyscus boylii*
Mouse, deer	*Peromyscus maniculatus*
Mouse, western harvest	*Reithrodontomys megalotis*
Myotis, California	*Myotis californicus*
Myotis, fringed	*Myotis thysanodes*
Myotis, long-legged	*Myotis ovotis*
Peccary, collared	*Tayassu tajacu*
Pipistrelle, western	*Pipistrellus hesperus*
Porcupine	*Erethizon dorsatum*
Rat, Merriam's kangaroo	*Dipodomys merriami*
Ringtail	*Bassariscus astutus*
Sheep, mountain	*Ovis canadensis*
Skunk, hog-nosed	*Conepatus mesoleucus*
Skunk, striped	*Mephitis mephitis*
Squirrel, rock	*Spermophilus variegatus*

Table 3. Continued.

Woodrat, Mexican	*Neotoma mexicana*
Woodrat, white-throated	*Neotoma albigula*
REPTILES	
Coachwhip	*Masticophis flagellum*
Kingsnake, common	*Lampropeltis getulus*
Kingsnake, Sonoran mountain	*Lampropeltis pyromelana*
Lizard, Arizona	*Gerrhonotus kingii*
Lizard, Clark's spiny	*Sceloporus clarkii*
Lizard, collared	*Crotaphytus collaris*
Lizard, eastern fence	*Sceloporus undulatus*
Lizard, tree	*Urosaurus ornatus*
Rattlesnake, blacktail	*Crotalus molossus*
Rattlesnake, western	*Crotalus viridis*
Skink, Gilbert's	*Eumeces gilberti*
Snake, blackneck garter	*Thamnophis cyrtopsis*
Snake, glossy	*Arizona elegans*
Snake, gopher	*Pituophis melanoleucus*
Snake, longnose	*Rhinocepheilus lecontei*
Snake, lyre	*Trimorphodon biscutatus*
Snake, night	*Hypsiglena torquata*
Snake, ringneck	*Diadophis punctatus*
Snake, western patchnose	*Salvadora hexalepis*
Whipsnake, Sonoran	*Masticophis bilineatus*
Whipsnake, striped	*Masticophis taeniatus*
Whiptail, western	*Cnemidophorus tigris*
AMPHIBIANS	
Spadefoot, western	*Scaphiopus hammondi*

Geology. The entire area is underlain by pre-cambrian granite (Arizona Highway Department, 1961).

Soils. Soils are fairly uniform and consistent throughout the area. The upper slopes and ridgetops are occupied by Lethic Ustorthents, loamy-skeletal, mixed and mesic. The lower slopes are dominantly Typic Ustochrepts, loamy-skeletal, mixed and mesic. These are shallow to deep soils, somewhat excessively drained, with low inherent fertility (Broderick, 1974).

Lands. Buckhorn Mountain RNA is wholly reserved National Forest System lands.

Cultural. No archeological sites have been reported within the boundaries of Buckhorn Mountain RNA however, several sites have been identified adjacent to it. Several single-room and two multi-room masonry structures are located along the drainage south of Mills Canyon, east of Buckhorn Mountain. In addition, similar sites are recorded along Granite Spring Trail near the southern boundary.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources. No known significant mineral resources exist within this area. The Bureau of Land Management records indicate that three lode mining claims are currently located within the Four Peaks Wilderness portion

of Buckhorn Mountain RNA. The Four Peaks Wilderness was legislatively established and withdrawn from mineral entry on August 28, 1984. If validity is sustained on these claims, which were filed before that date, claim activity may be approved subject to appropriate mitigation and reclamation measures identified during the NEPA process. To date the claimant has not filed a Plan of Operations for the subject claims and has not indicated that he plans to do so in the future.

Grazing. The area has been closed to grazing since 1946 after revocation of the term grazing permit in 1937. The area had temporary grazing between 1942 and 1946. The area was closed to grazing then to allow continued recovery of the range. It is currently used as a research area by the Arizona Game and Fish Department with complete exclusion of livestock grazing.

Timber. Buckhorn Mountain consists of 2,402 acres (972 hectares) of the chaparral-oak vegetative type and 408 acres (165 hectares) of the oak-ponderosa pine vegetative type. The land is classified as unsuitable for timber, as access to non-wilderness portions of Buckhorn Mountain RNA is limited. Fuel-wood harvest potential is very limited.

Watershed Values. Buckhorn Mountain RNA is composed of two drainage basins. The north portion drains into Roosevelt Lake by way of Vineyard Canyon, Mills Canyon, and Rock Creek via Baldy Canyon, while drainage to the south is into Apache Lake, via Buckhorn, Bronco and Hackberry Creeks, a series of ephemeral and intermittent streams.

Recreation Values. Recreation use within and adjacent to this area consists of hiking, horseback riding, big game and small game hunting, and dispersed camping. As this low intensity recreation use is primarily occurring along the established trail system corridors, these uses will probably not conflict with potential research projects.

Wildlife and Plant Values. Buckhorn Mountain RNA falls within an area where desert bighorn sheep was re-introduced in the early 1980's. No conflicts are expected in the maintenance of suitable habitat for the sheep. No Threatened, Endangered or Sensitive plant species are known to occur in the area.

Special Management Area Values. Approximately two-thirds of Buckhorn Mountain RNA is located within the Four Peaks Wilderness. Establishment of the RNA will have no effect on the purpose or management of the Wilderness.

Transportation Plans. Access to and through Buckhorn Mountain RNA is provided by two lightly used maintained trails. Previously, an unmaintained travelway provided access to the edge of RNA, but is now impassable by vehicles. Motorized vehicle use is currently not a problem due to rough terrain. Although minor trail re-alignments are planned, new trail construction projects are not.

Utility Corridor Plans. No existing or potential utility corridor plans exist in the vicinity of Buckhorn Mountain RNA.

MANAGEMENT PRESCRIPTION

Buckhorn Mountain RNA is in Management Area 6D of the Tonto National Forest Plan (USFS, 1985a) (Appendix 1). 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.

Vegetation Management. No harvest of forest products, including fuelwood, is permitted. Unplanned ignitions will receive appropriate suppression action. Unplanned ignitions outside the area that threaten the area will be suppressed.

ADMINISTRATION RECORDS AND PROTECTION

Administration and protection of the Buckhorn Mountain RNA will be the responsibility of Tonto National Forest. The District Ranger, Tonto Basin Ranger District, Roosevelt, Arizona has direct responsibility.

The Director of the Rocky Mountain Forest and Range Experiment Station will be responsible for any studies or research conducted in the area, and requests to conduct research in the area should be referred to the Director. The Director will evaluate research proposals and coordinate all studies and research in the area with the District Ranger and the RNA research coordinator. The Regional Forester will approve studies on that part of the RNA located within the Four Peaks Wilderness. All plant and animal specimens collected in the course of research conducted in the area will be properly preserved and maintained within university or federal agency herbaria and museums, as approved by the Rocky Mountain Station Director.

Records for the Buckhorn Mountain RNA will be maintained in the following offices of the USDA Forest Service:

Southwestern Region, Albuquerque, NM
Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO
Tonto National Forest, Phoenix, AZ
Tonto Basin Ranger District, Roosevelt, AZ

REFERENCES

Arizona Highway Department. 1961. Arizona materials inventory, aggregate sources and geology of Gila County. Arizona Highway Department, Phoenix.

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.

Bolander, D. H. 1982. Chaparral in Arizona. Pages 60-63 *in* C. E. Conrad and W. C. Oechel (Technical Coordinators). Dynamics and management of Mediterranean-type ecosystems. USDA Forest Service General Technical Report PSW-58. 637 pp.

Broderick, H. J. 1974. Tonto Basin Area. Soil Resource Inventory. Tonto National Forest. Southwestern Region, USDA Forest Service, Albuquerque, N.M. 103 pp.

Brown, D. E., C. H. Lowe, and C. P. Pase. 1980. A digitized systematic classification for ecosystems with an illustrated summary of the natural vegetation of North America. USDA Forest Service, General Technical Report RM-73. 93 pp.

Carmichael, R. S., O. D. Knipe, C. P. Pase, and W. W. Brady. 1978. Arizona chaparral: plant associations and ecology. USDA Forest Service, Research Paper RM-202. 16 pp.

Establishment Record, Buckhorn Mtn. RNA

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

Hibbert, A. R., E. A. Davis, and D. G. Scholl. 1974. Chaparral conversion potential in Arizona. Part 1: Water yield response and effects on other resources. USDA Forest Service, Research Paper RM-126. 36 pp.

Küchler, A. W. 1964. Potential natural vegetation of the coterminous United States. American Geographical Society, Special Publication 36. 119 pp.

Küchler, A. W. 1966. Potential natural vegetation. U.S. Department of Interior, Geological Survey. 1969. Washington, D.C.

Lehmkuhl, J. F., and D. R. Patton. 1982. Run Wild, Wildlife/Habitat relationships: user's manual for the Run Wild III data storage and retrieval system. USDA Forest Service, Southwestern Region, Wildlife Unit Technical Report. 68 pp.

Lehr, J. H. 1978. A catalogue of the flora of Arizona. Desert Botanical Garden, Phoenix, AZ. 203 pp.

Muldavin, E., R. L. DeVelice, and W. A. Dick-Peddie. 1986. Forest habitat types of the Prescott, Tonto and western Coronado National Forests, Arizona. Final Report, Cooperative Agreement No. 28-K3-307. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.

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

USDA Forest Service (USFS). 1984. Progress report, Research Natural Areas: recommended representations for important ecosystems on National Forest System land in the Southwestern Region. USDA Forest Service, Region 3, Albuquerque, NM. 90 pp.

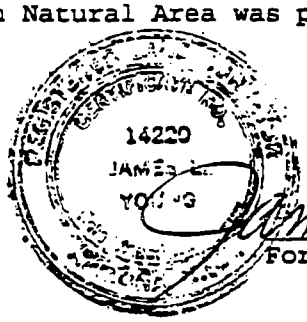
USDA Forest Service (USFS). 1985a. Tonto National Forest Plan. USDA Forest Service, Southwestern Region, Albuquerque, NM.

USDA Forest Service (USFS). 1985b. Environmental Impact Statement for Tonto National Forest Plan. USDA Forest Service, Southwestern Region, Albuquerque, NM.

USDA Forest Service (USFS), 1986. Terrestrial Ecosystem Handbook. Appendix B. USDA Forest Service, Southwestern Region, Albuquerque, NM.

Warren, P. L., and B. D. Treadwell. 1980. Vegetation of the Three-Bar Wildlife Study Area, Mazatzal Mountains, Arizona. Office of Arid Lands Studies, University of Arizona, Tucson.

I certify the enclosed boundary description of the Buckhorn Mountain Research Natural Area was prepared under my direct supervision.



Seal

James L. Young
Forest Land Surveyor

Feb. 9, 1993
Date

Buckhorn Mountain RNA
Tonto National Forest
Gila County, Arizona

The boundaries of Buckhorn Mountain RNA are more particularly described as follows:

BEGINNING at the intersection of Forest Trails 130 and 132 on the top of Buckhorn Mountain with a shown elevation of 6,612 feet (2,015 meters) and lying within Four Peaks Wilderness;

THENCE, generally easterly on Forest Trail 130 along the hydrographic divide between tributaries to Buckhorn Creek to the north and tributaries to Bronco Creek and Hackberry Creek to the south, for approximately 1.03 miles (1.7 kilometers) to a point with a contour elevation of 5,520 feet (1,682 meters), where Forest Trail 130 turns south from northeast;

THENCE, northeasterly on the hydrographic divide between tributaries to Buckhorn Creek on the north and Hackberry Creek on the south, for approximately 0.32 miles (0.5 kilometers) to a point with contour elevation of 5,360 feet (1,634 meters);

THENCE, northeasterly on the hydrographic divide between tributaries to Buckhorn Creek on the north and south, for approximately 0.11 miles (0.18 kilometers) to the Wilderness boundary,

THENCE, continuing on said hydrographic divide, outside Four Peaks Wilderness, for approximately 0.09 miles (0.14 kilometers) to a point having a contour elevation of 5,120 feet (1,561 meters);

THENCE, easterly along a ridge between a dry ravine to the north and a tributary to Buckhorn Creek to the south, for approximately 0.28 miles (0.45 kilometers) to where said ridge ends in the confluence of the ravine and tributary at a contour elevation of 4,560 feet (1,390 meters);

THENCE, east on a straight line for approximately 0.12 miles (0.19 kilometers) to the intersection with the aforementioned Forest Trail 130;

THENCE, northerly on said Forest Trail 130 for approximately 0.33 miles (0.53 kilometers), to the top of hydrographic divide between Buckhorn Creek on the south and an unnamed intermittent stream on the north, where said Forest Trail 130 bears east at a contour elevation of 4,440 feet (1,353 meters);

THENCE, northwesterly on said hydrographic divide for approximately 0.98 miles 1.58 kilometers) to the top of Camelback Peak having a shown elevation of 5,663 feet (1,726 meters) and being an angle point on the Four Peaks Wilderness boundary, with approximate longitude of 111° 16′ 20" West and latitude of 33° 40′ 18" North;

THENCE, continuing outside the Wilderness boundary, northeasterly on the hydrographic divide between Mills Canyon to the east and an unnamed intermittent steam drainage from Camelback Spring for approximately 0.62 miles (1.0 kilometers) to a point having a contour elevation of 4,400 feet (1,341 meters);

THENCE, northwest on a small ridge for approximately 0.11 miles (0.18 kilometers) to the thread of said intermittent steam draining from Camelback Spring at a contour elevation of 4,120 feet (1,256 meters);

THENCE, northwest for approximately 0.06 miles (0.1 kilometers) to the top of a small ridge, between dry ravines draining into said intermittent stream, at a contour elevation of 4,200 feet (1,280 meters);

THENCE, westerly on the top of said ridge for approximately 0.30 miles (0.48 kilometers) to a point at an approximate elevation of 4,860 feet (1,481 meters) on the hydrographic divide between said intermittent stream draining from Camelback Spring to Baldy Canyon on the east and an unnamed intermittent tributary to Baldy Canyon on the west;

THENCE, southwesterly on said hydrographic divide for approximately 0.47 miles (0.76 kilometers) to the summit of a small knob with a contour elevation of 5,560 feet (1,695 meters), and an angle point on the Four Peaks Wilderness boundary;

THENCE, continuing outside the Wilderness boundary, northerly on a hydrographic divide between unnamed intermittent tributaries to Baldy Canyon on the east and west, for approximately 0.59 miles (0.95 kilometers) to a summit with a shown elevation of 4,634 feet (1,412 meters);

THENCE, northerly on a hydrographic divide between said unnamed intermittent tributary on the west and dry ravines draining into Baldy Creek to the east, for approximately 0.59 miles (0.95 kilometers) to the junction of said west tributary at an approximate elevation of 3,700 feet (1,128 meters);

THENCE, northwest approximately 0.09 miles (0.14 kilometers) to Forest Trail 132 on the top of a hydrographic divide between Baldy Canyon on the south and an unnamed intermittent tributary to Baldy Canyon on the north;

THENCE, generally westerly along said hydrographic divide for approximately 0.94 miles (1.51 kilometers) to the Four Peaks Wilderness boundary at an approximate elevation of 4,940 feet (1,506 meters);

THENCE, generally southwesterly along said hydrographic divide within the Four Peaks Wilderness, for approximately 1.03 miles (1.66 kilometers) to the summit of a small knob having a shown elevation of 6,447 feet (1,965 meters);

THENCE, southeast along the top of Buckhorn Ridge, a hydrographic divide between Baldy Canyon to the northeast and Alder Creek to the southwest, and also being the boundary line between Gila County and Tonto Basin Ranger District to the northeast and Maricopa County and Mesa Ranger District to the southwest for approximately 0.35 miles (0.56 kilometers) to the intersection with Forest Trail 130 in Black Bear Saddle;

THENCE, continuing southeast on said Forest Trail 130 on said Buckhorn Ridge for approximately 1.93 miles (3.11 kilometers) to the top of Buckhorn Mountain and the point of BEGINNING.

Lands herein described and topographic features referred to are based on 7.5' United States Geological Survey Quadrangle Sheet FOUR PEAKS, ARIZONA, dated 1964. Elevation ranges from a low in the northeast corner of ca. 3,700 feet (1,128 meters) to the summit of Buckhorn Mountain at 6,612 feet (2,015 meters). Buckhorn Mountain RNA contains 2,810 acres (1,137 hectares), more or less.

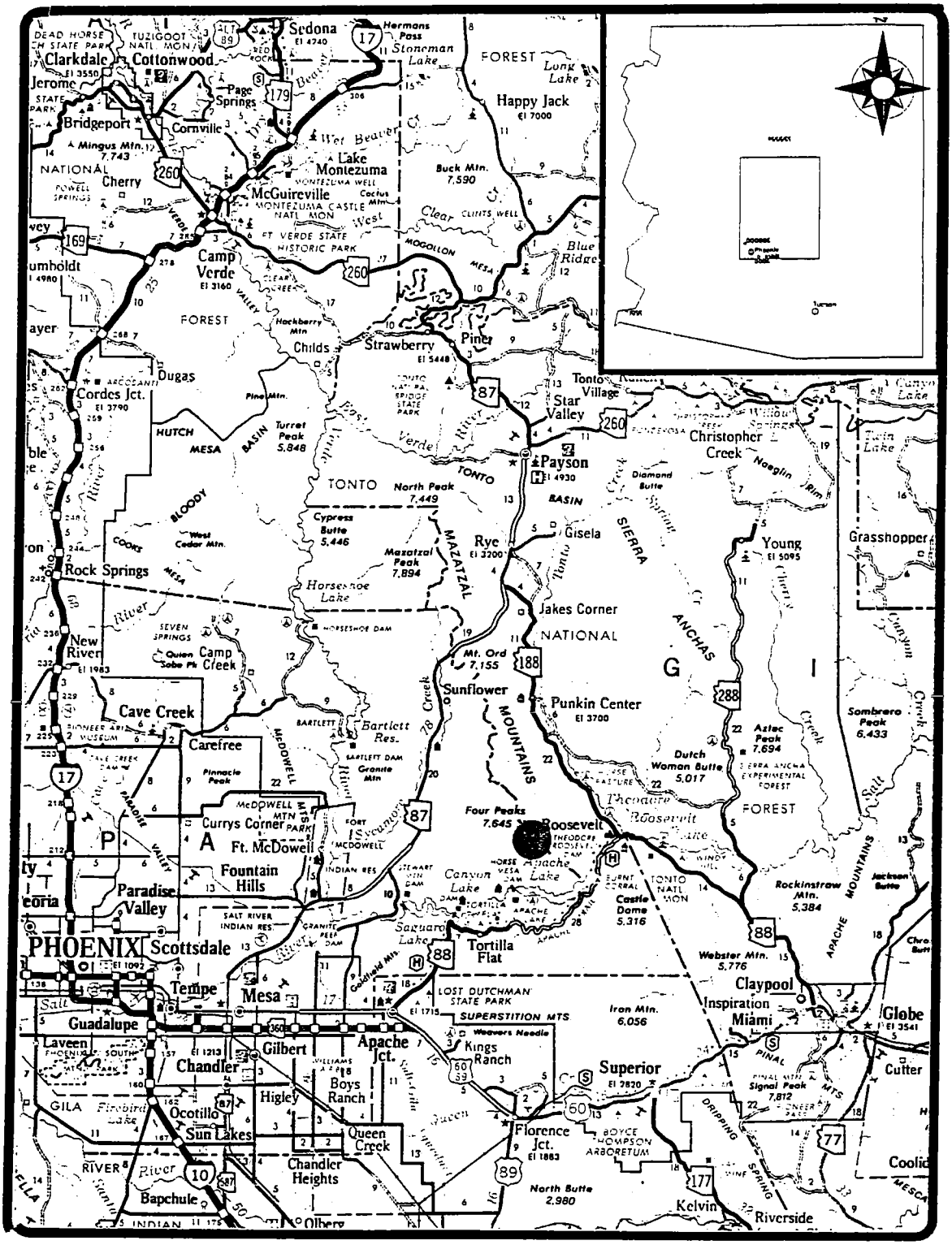


Figure 1. General location of Buckhorn Mountain Research Natural Area, Arizona, showing nearby cities. Scale: 1 inch=16 miles (1 centimeter=10 kilometers).

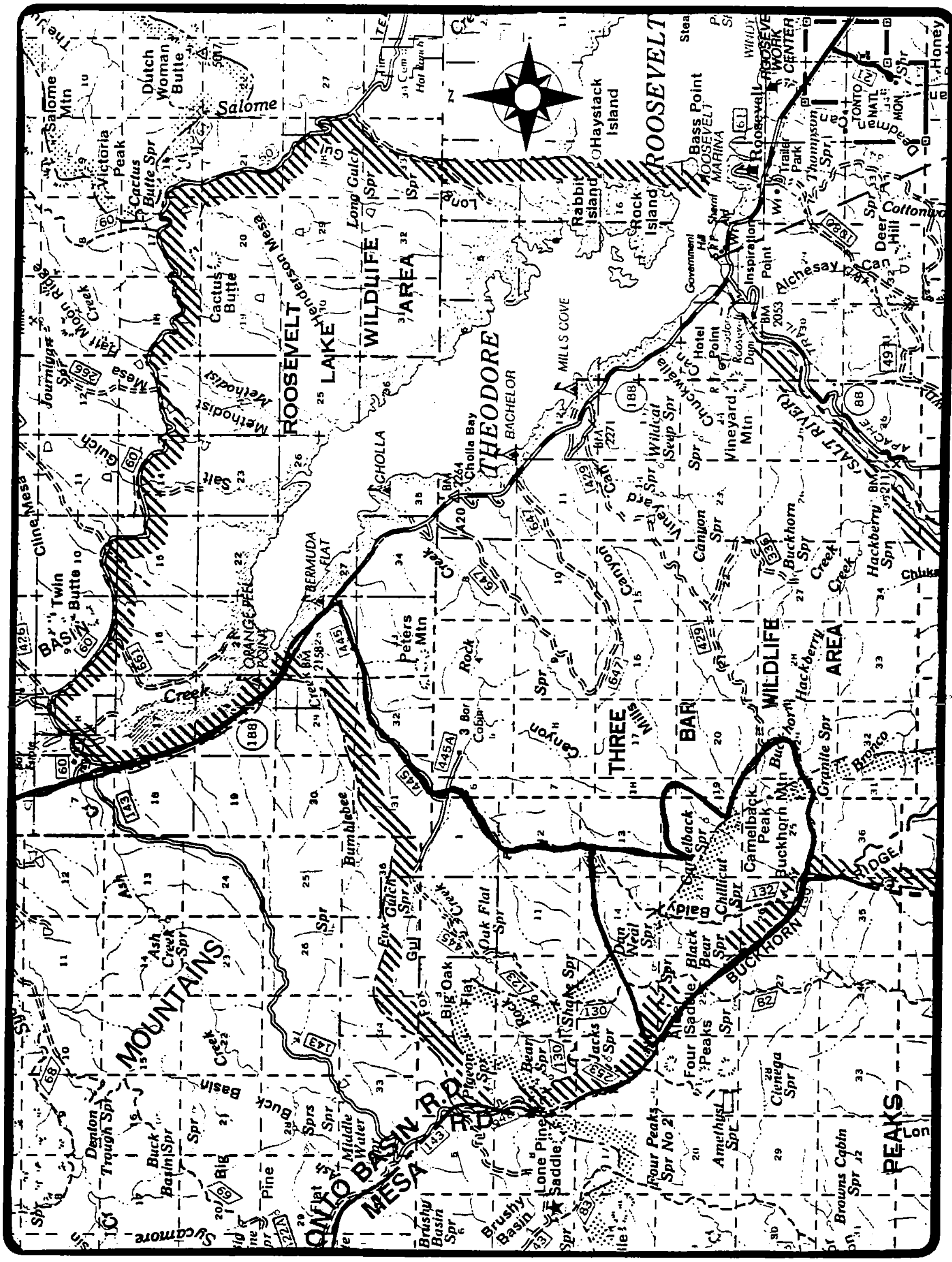


Figure 2. Vicinity map of Buckhorn Mountain Research Natural Area, Arizona, showing recommended access. Scale: 1 inch=2 miles (1 centimeter=1.27 kilometers).

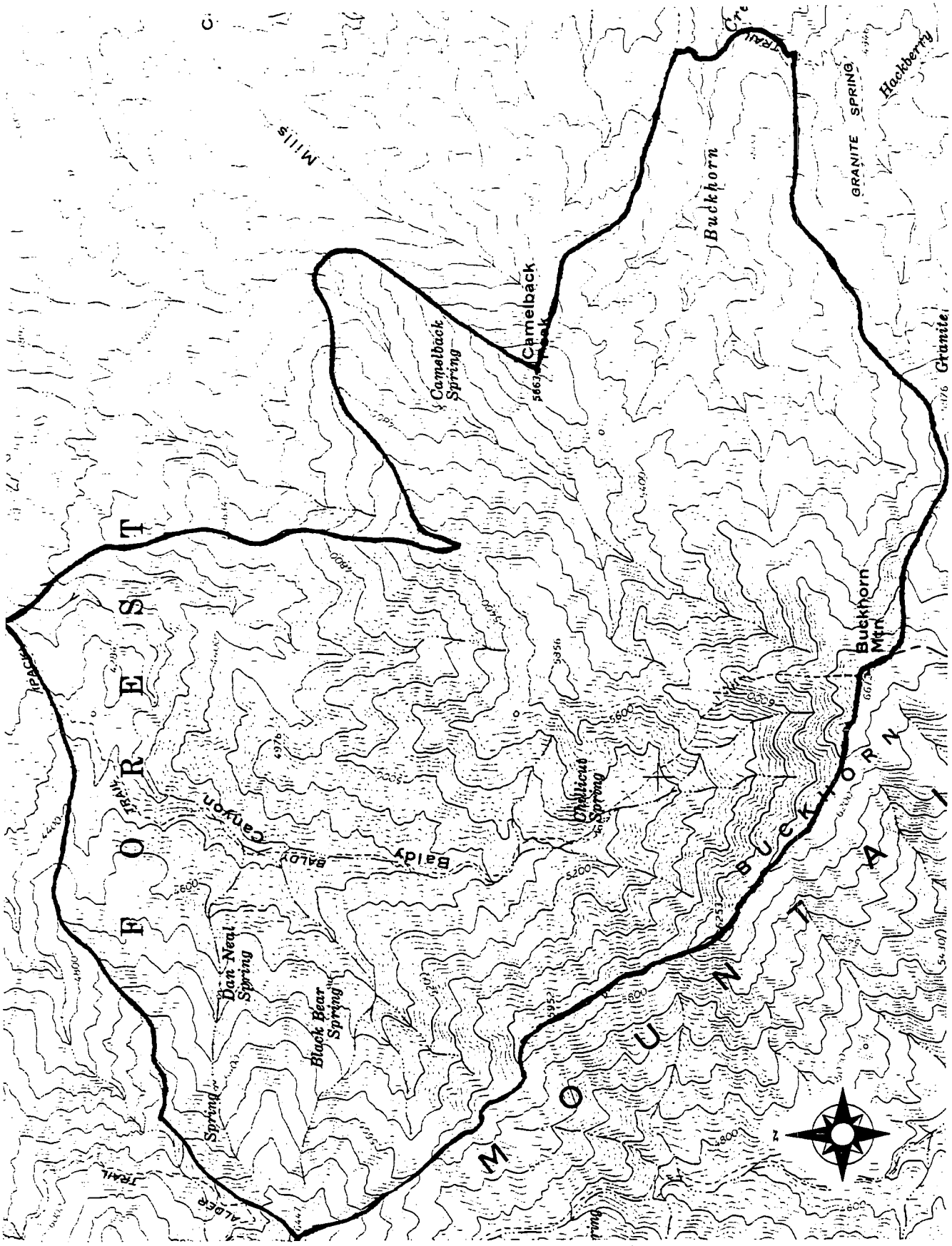


Figure 3. Boundary map of Buckhorn Mountain Research Natural Area, Arizona, with elevations shown in feet. Scale: 2.64 inches=1 mile (42 millimeters=1 kilometer).

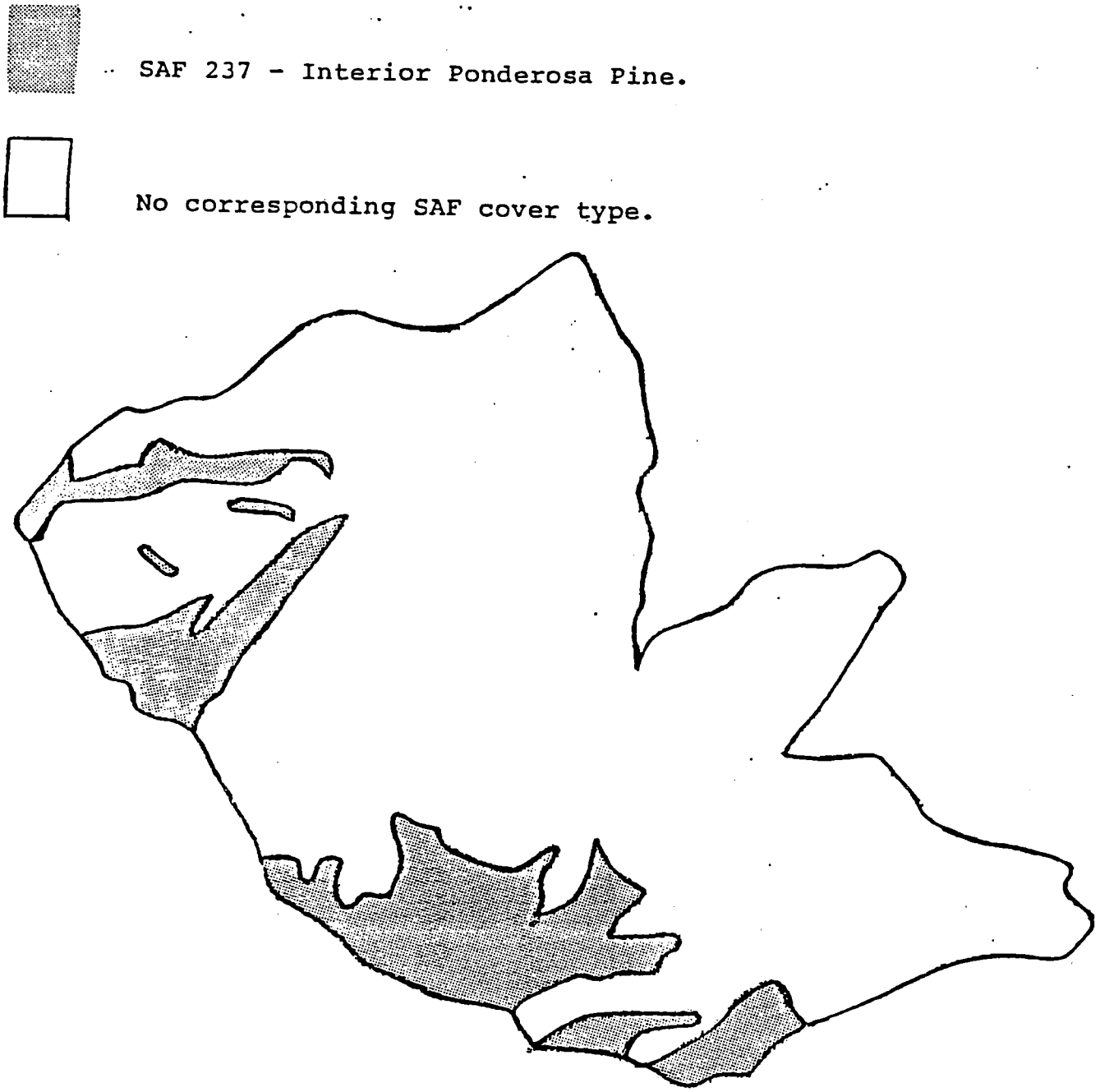


Figure 5. Distribution of SAF cover types in the Buckhorn Mountain RNA, Tonto National Forest, Roosevelt Ranger District.

1. Emory oak/Scrub oak/Deerbrush Association
2. Scrub oak/Mountain mahogany/Sugar sumac Association
3. Ponderosa Pine/Arizona white oak/ Deerbrush Association
4. Ponderosa Pine/Gambel oak/New Mexican locust Association

Figure 4. Distribution of plant associations in the Buckhorn Mountain RNA, Tonto National Forest, Roosevelt Ranger District as mapped by Warren and Treadwell (1980).

Decision Notice
Finding of No Significant Impact
Designation Order

Buckhorn Mountain Research Natural Area
Tonto National Forest
Tonto Basin Ranger District
Gila 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 Buckhorn Mountain Research Natural Area (RNA). It shall be comprised of 2,810 acres (1,137 hectares) of lands in Gila County, Arizona, on the Tonto Basin Ranger District of the Tonto National Forest, as described in the section of the Establishment Record entitled "Location".

The Regional Forester recommended the establishment of this RNA in the Record of Decision for the Tonto National Forest Land and Resource Management Plan (Forest Plan) in 1985. 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 Buckhorn Mountain area to ensure the environmental effects of establishing the area as an RNA have not changed since 1985. 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 Buckhorn Mountain as an RNA. Alternative A is selected because it provides long-term protection and recognition of Arizona chaparral forest type. Buckhorn Mountain 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 Buckhorn Mountain as a "proposed" RNA. Alternative B was not selected because it would only provide short-term protection of the Buckhorn Mountain area. 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 Buckhorn Mountain area in the Forest Plan. The Tonto Forest Plan is hereby amended to change the allocation of the Buckhorn Mountain 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 Tonto 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 Tonto 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]).

Jerry A. Sesco
Chief

11/17/93
Date

Environmental Assessment
Buckhorn Mountain Research Natural Area

Tonto National Forest
Tonto Basin Ranger District
Gila County, Arizona

Proposed Action

The proposed action is to establish the Buckhorn Mountain "proposed" Research Natural Area (RNA) identified in the Land and Resource Management Plan (Forest Plan) for the Tonto National Forest as the Buckhorn Mountain RNA, and to manage it according to the direction provided in the Forest Plan (Management Area 6D, page 177). The proposed action, formal designation of the RNA by the Chief of the Forest Service, will amend the Forest Plan.

Purpose and Need for Action

The purpose of establishing the Buckhorn Mountain 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). Buckhorn Mountain RNA contributes to this series of RNA's by providing an example of Arizona chaparral as discussed in the Forest Plan, page 177. An evaluation by the Regional RNA Committee, pursuant to direction in Forest Service Manual (FSM) 4063.04b, of the need for RNA's identified this type as suitable and desirable for inclusion in the national network. Establishment of the Buckhorn Mountain RNA provides long-term protection and recognition of Arizona chaparral.

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

Conditions and environmental effects of designation are the same as described on page 171 of the EIS for the Forest Plan. Site specific conditions and effects are as follows:

- -The area has been closed to grazing since 1946. Slopes are primarily greater than 81%, and there is no capacity range.
- -No known significant mineral resources exist within the area.
- -The lands are considered unsuitable for timber; fuelwood harvest potential is limited due to steep slopes and rough terrain.
- -Recreation use is light and limited to existing trails.
- -Rough terrain limits motorized vehicle use.
- -Two-thirds of the area is within Four Peaks Wilderness.
- -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. Buckhorn Mountain was determined at that time to provide the most appropriate site for inclusion in the national network for protection of Arizona chaparral.

Alternatives and Environmental Consequences

Alternative A, Proposed Action

Alternative A would designate a 2,810-acre (1,137 hectares) area as the Buckhorn Mountain RNA. 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, only minimal range improvements will be developed (i.e., boundary fences and appropriate interior fences), 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, page 177). The Wilderness portion of the RNA was withdrawn from mineral entry on August 28, 1984; the remainder will be withdrawn from mineral entry should future and as-yet-unknown information be found to require withdrawal for the protection and management of the basic objectives and purposes of the RNA.

The environmental consequences of Alternative A are described in the EIS for the Tonto Forest Plan (page 171). 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 (page 177) 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 Tonto Forest Plan (page 171). 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 Buckhorn Mountain 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 Association were contacted. No additional concerns were raised by these groups. Documentation of the contacts made and summaries of the comments are attached to this Environmental Assessment.

MESSAGE SCAN FOR JERRY STEFFERUD

To RNA

From: REGGIE A. FLETCHER:R03A
Postmark: Apr 01,93 8:41 AM Delivered: Apr 01,93 8:46 AM
Status: Certified Confidential Previously read Urgent
Subject: Forwarded:

Comments:
From: REGGIE A. FLETCHER:R03A
Date: Apr 01,93 8:41 AM
Enclosed is a summary of contacts Gerald Henke made with the livestock industry on our submitting the draft RNA establishment reports to the Chief for his signature. While it is not spelled out in the summary, Gerald informs me that none of the persons contacted voiced objections to proceeding with those RNA's in the Forest Plans in either state. For new RNA's we will need to contact these individuals once again and if boundaries are changed to any degree we will need to do likewise. Please consider these contacts as adequate for public involvement for these individuals and the organizations they represent. This should be placed in the project file for all of the draft ER's covered by Forest Plans as of this date and for which we are doing public involvement.
Reggie Fletcher, Regional Ecologist April, 1, 1993

Previous comments:
From: GERALD HENKE
Date: Mar 31,93 2:48 PM
names added

----------X----------

RESEARCH NATURAL AREAS'S

Discussions have occured within the past two months with the Arizona Cattle Growers' Association (C.B. Lane) and individuals that attended the annual meeting of the New Mexico Range Improvement Task Force concerning those identified Research Natural Areas in Forest Land and Resource Management Plans in Region 3. Discussions focused around the present National Forest public involvement process and that those identified Research Natural Areas in Forest Plans would be forwarded to the Chief's for inclusion into the National Research Natural Areas system. One such discussion with the Arizona Cattle Growers occured by phone on March 30, 1993 while the conversation with the New Mexico Range Improvement Task Force (John Fowler, Jim Knight, Kirk McDaniel, Karl Wood, Dean John Owens) and attendees (David Kincade, Bill Ball, Stearling Carter, Ray Margo, Linden Parker) of that meeting occured on February 18, 1993.

As supplementary material to public involvement on formalizing the proposed Research Natural Areas which are contained in current Forest Land and Resource Management Plans through signature of the Chief of the Forest Service, the following record is provided. On August 13-14, 1992, John Humke, representing the national office of The Nature Conservancy; Dan Campbell, Peter Warren and Mark Heitlinger, representing the Arizona Chapter of The Nature Conservancy; Fenton Kay representing the Arizona Heritage Program, Arizona Game and Fish Department; Rick Johnson and Bill Waldman representing the New Mexico chapter of The Nature Conservancy and the New Mexico Natural Heritage Program met with Larry Henson, Regional Forester, Forrest Carpenter, Deputy Regional Forester, Teresa Prendusi, Regional Botanist, Art Briggs, Director Land Management Planning and Reggie Fletcher, Regional Ecologist.

Among the topics discussed was the pursuit of the formalization of the Region's proposed Research Natural Areas. The Nature Conservancy and Heritage Program officials urged the Region's representatives to pursue whatever means necessary to satisfy the new RNA establishment report requirements in order to obtain the Chief's signature. The representatives also encouraged continued investigation into the possibility of locating additional suitable RNA's and securing their establishment.

Reggie Fletcher
Regional Ecologist

MESSAGE DISPLAY FOR JERRY STEFFERUD

To J.STEFFERUD

From: EDDIE ALFORD
Mark: Mar 30,93 1:52 PM Delivered: Mar 30,93 1:52 PM
Status: Previously read
Subject: Forwarded: Reply to: RESEARCH NATURAL AREAS

Comments:
From: EDDIE ALFORD:R03F12A
Date: Mar 30,93 1:52 PM
WILL YOU COMPILE AND FORWARD TO REGGIE? THANKS

Previous comments:
From: Dennis Roy:R03F12D06A
Date: Mar 18,93 3:08 PM
EDDIE, THE ID TEAM FOR THE TONTO BASIN ALLOTMENT DISCUSSED THE HAUFER WASH RNA DURING THEIR MEETINGS ON 10/10/90 AND 4/8/92. THESE MEETINGS WERE ATTENDED BY COMMUNITY REPRESENTATIVES, PERMITTEES, AG&F, CONSERVATION GROUPS, ETC.. NO ADDITIONAL CONCERNS WERE RAISED. THIS MORNING I DISCUSSED THE BUCKHORN MOUNTAIN RNA WITH THE LOCAL AG&F WILDLIFE MANAGER, RON HOREJSI. THE RNA IS LOCATED WITHIN THE THREE BAR WILDLIFE AREA, THUS THEY ARE THE ONLY PEOPLE I THOUGHT MIGHT HAVE SOME INPUT. RON HAD NO CONCERNS.
DENNIS.

Message:
From: EDDIE ALFORD:R03F12A
Date: Mar 10,93 10:57 AM
/ ou know, the Regional Forest set a deadline to get proposed RNAs nated or make other decisions. Any way there is a Regional Team ing on this headed up by Reggie Fletcher. To support the EA, they have asked us to make some telephone calls to ask if there are additional concerns on the RNA boundaries. I'm asking you to make telephone calls to locals that have shown an interest or would be affected by the RNAs. The RO has done this for organizations such as Nature Conservancy, Cattle Growers, Sierra Club, Wilderness Society as well as State and Federal Agencies. Please ask if there are new issues, and just touch base with them on your prespective RNAs, don't open a can of worms. They should know that the issue as to whether or not there will be an RNA was in the Forest Plan. We just want to know if there has been a change in issues or status? Then record the

---

APPENDIX

The following pages have been reproduced
from the Tonto National Forest Plan.

MANAGEMENT AREA 6D

Prescription: #40

Description:Buckhorn Mountain Research Natural Area located around Camelback Peak - Buckhorn Mountain area within the Four Peaks Wilderness and Three Bar Wildlife Area. Vegetation consists of 2,318 acres of chaparral-juniper type and 492 acres of juniper-Ponderosa pine in the Camelback area. There is no capacity range. Slopes are primarily greater than 81%. Total management area size is 2,810 acres.

Analysis Areas: 1305, 1541, 5305,

Management Emphasis: Manage to provide opportunities for nondisruptive research and education. Use restrictions will be imposed as necessary to keep areas in their natural or unmodified condition. There will be no harvest of forest products, including fuelwood.

Wildfires outside the natural area which 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.

Timber Suitability: All acres unsuitable.

Decision Units	Activities	Applicable Analysis Areas	Standards and Guidelines
DU 1, 2	A03	All	VQO of preservation will be met.
DU 1	A15	All	Manage dispersed recreation at low intensity reduced service level. ORV use prohibited. Post all boundaries outside wilderness. Manage ROS Classes (see Appendix E) according to existing inventory as follows: ROS CLASS — % of MGMT. AREA SP — 80 SPM — 20 TOTAL — 100
DU 17, 18	D05	All	Minimal range improvements developed, i.e., boundary fences and appropriate interior fences. Little change is expected in range condition during the first decade.
DU 42	J04	All	Process recommendations for withdrawals for locatable minerals outside the wilderness boundary by 1988. Issue no surface occupancy stipulations for leasing activities.
DU 56	P08, P09	All	Unplanned ignitions will receive appropriate suppression action. Fires burning outside which threaten area will be suppressed.

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 Buckhorn Mountain Research Natural Area. The Buckhorn Mountain Research Natural Area shall be comprised of the following land: Beginning at the intersection of Forest Trail Nos. 130 and 132 on the top of Buckhorn Mountain with a shown elevation of 6612 feet and lying within Four Peaks Wilderness;

THENCE, generally easterly on Forest Trail No. 130 along the hydrographic divide between tributaries to Buckhorn Creek to the north and tributaries to Bronco Creek and Hackberry Creek to the south, for approximately 1.03 miles to a point with a contour elevation of 5520 feet, where Trail 130 turns south from northeast;

THENCE, northeasterly on the hydrographic divide between tributaries to Buckhorn Creek on the north and Hackberry Creek on the south, for approximately 0.32 miles to a point with contour elevation of 5360 feet;

THENCE, north easterly on the hydrographic divide between tributaries to Buckhorn Creek on the north ad south, for approximately 0.11 miles to the Wilderness boundary,

THENCE, continuing on said hydrographic divide, outside Four Peaks Wilderness, for approximately 0.09 miles to a point having a contour elevation of 5120 feet;

THENCE, easterly along a ridge between a dry ravine to the north and a tributary to Buckhorn Creek to the south, for approximately 0.28 miles to where said ridge ends in the confluence of the ravine and tributary at a contour elevation of 4560 feet;

THENCE, east on a straight line for approximately 0.12 miles to the intersection with the aforementioned Trail No. 130;

THENCE, northerly on said Trail No. 130 for approximately 0.33 miles, to the top of hydrographic divide between Buckhorn Creek on the south and an unnamed intermittent stream on the north, where said trail bears east at a contour elevation of 4440 feet;

THENCE, north westerly on said hydrographic divide for approximately 0.98 miles to the top of Camelback Peak having a shown elevation of 5663 feet and being an angle point on the Four Peaks Wilderness boundary, with approximate longitude of 111° 16′ 20" west and latitude of 33° 40′ 18" north;

THENCE, continuing outside the wilderness boundary, northeasterly on the hydrographic divide between Mills Canyon to the east and an unnamed intermittent steam drainage from Camelback Spring for approximately 0.62 miles to a point having a contour elevation of 4400 feet;

THENCE, northwest on a small ridge for approximately 0.11 miles to the thread of said intermittent steam draining from Camelback Spring at a contour elevation of 4120 feet;

THENCE, northwest for approximately 0.06 miles to the top of a small ridge, between dry ravines draining into said intermittent stream, at a contour elevation of 4200 feet;

THENCE, westerly on the top of said ridge for approximately 0.30 miles to a point at an approximate elevation of 4860 feet o the hydrographic divide between said intermittent stream draining from Camelback Spring to Baldy Canyon on the east and an unnamed intermittent tributary; to Baldy Canyon the west;
THENCE, southwesterly on said hydrographic divide for approximately 0.47 miles to the summit of a small knob with a contour elevation of 5560 feet, and an angle point on the Four Peaks Wilderness boundary;
THENCE, continuing outside the Wilderness Boundary, northerly on a hydrographic divide between unnamed intermittent tributaries to Baldy Canyon on the east and west, for approximately 0.59 miles to a summit with a shown elevation of 4634 feet;
THENCE, northerly on a hydrographic divide between said unnamed intermittent tributary on the west and dry ravines draining into Baldy Creek to the east, for approximately 0.59 miles to the junction of said west tributary at an approximate elevation of 3700 feet;
THENCE, northwest approximately 0.09 miles to Forest Trail No. 132 on the top of a hydrographic divide between Baldy Canyon on the south and an unnamed intermittent tributary to Baldy Canyon on the north;
THENCE, generally westerly along said hydrographic divide for approximately 0.94 miles to the Four Peaks Wilderness boundary at an approximate elevation of 4940 feet;
THENCE, generally southwesterly along said hydrographic divide within the Four Peaks Wilderness, for approximately 1.03 miles to the summit of a small knob having a shown elevation of 6447 feet;
THENCE, southeast along the top of Buckhorn Ridge, a hydrographic divide between Baldy Canyon to the northeast and Alder Creek to the southwest, and also being the boundary line between Gila County and Tonto Basin Ranger District to the northeast and Maricopa County and Mesa Ranger District to the southwest for approximately 0.35 to the intersection with Forest Trail No. 130 in Black Bear Saddle;
THENCE, continuing southeast on said Trail No. 130 on said Buckhorn Ridge for approximately 1.93 miles to the top of Buckhorn Mountain and the point of beginning;.

Regional Forester, Sotero Muniz, recommended the establishment of the Buckhorn Mountain Research Natural Area in the Tonto 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 Buckhorn Mountain Research Natural Area will be managed in compliance with all relevant laws, regulations, and manual direction regarding Research Natural Areas. The Buckhorn Mountain Research Natural Area will be administered in accordance

with the management direction identified in the Establishment Record.
The Tonto 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 Tonto 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 Tonto National Forest Land and Resource Management Plan.

The Forest Supervisor of the Tonto 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 Tonto 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 Buckhorn Mountain 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

United States Department of Agriculture | Forest Service | R-3

Reply to: 4060 Research Facilities

Date: November 1, 1982

Subject: Proposed Research Natural Area-Tonto N.F.

To: RNA Committee

Enclosed is our report and recommendations upon reviewing the proposed RNA program for the Tonto National Forest. The field review was conducted July 26-30, 1982, by Larry Schmidt, Will Moir, and Dave Stewart plus various district staff of the Tonto National Forest. We feel that Dave Stewart did an outstanding job in preparing for and conducting this review with us. It is clear that the Tonto's staff has good understanding of the Federal Research Natural Area program and the contributions that RNA lands can make to improved forest management.

We sincerely appreciate the efforts of the Tonto's staff in making this a successful review.

LARRY SCHMIDT
RNA Task Group Leader

Enclosure

Buckhorn Mountain RNA

Ecosystems: Arizona chaparral (133.31 Scrub oak); see Carmichael et al 1978. Terrestrial Ecosystem Survey primary gradient 18, Ustic/Mesic, Quercus turbinella, Arctostaphylos pungens.

Lands around Buckhorn Mountain in the Four Peaks vicinity of the Mazatzal Mountains are extensively mantled by dense chaparral. A variety of chaparral plant associations exist on the steep, rugged topography of the northeasterly trending drainages of Buckhorn Mountain. The proposed RNA (see map) is accessible via Granite Springs and Baldy Canyon trails. The designated area is appropriate insofar as scrub oak (Quercus turbinella) and associated chaparral plant associations comprise a significant portion of both the Tonto and Prescott National Forests in central Arizona.

Because of typicalness, extensiveness, and current lack of adequate representation in Region 3's RNA Program, the chaparral ecosystems contained in this area make Buckhorn Mountain RNA a choice designation in fulfillment of our RNA needs.

There has been considerable manipulative research on central Arizona chaparral types (e.g. Bolander 1982). Much attention has been given to converting chaparral to grassland, to increasing water yield, to fire effects, and otherwise obtaining better commodity harvests from such difficult vegetation. A small area of prescribed burn conversion experiment exists nearby along Buckhorn Ridge above Granite Springs. Therefore, one research value of this RNA concerns its control function as unmanipulated baseline to compare against experimentation.

There are several boundary considerations for the Tonto National Forest planning staff to consider (see map).

1. Use existing trails as boundaries. The upper segments of Granite Springs and Baldy Canyon trails can be employed along the south and west as both access and boundary. The north and east boundary follows approximately a 4200-4400 foot contour cutting across drainages.

2. Same as above, except north and east boundary follow ridgelines to Camelback Peak and Buckhorn Mountain. This would include upper drainges of Buckhorn Creek and Camelback Spring within the RNA as well as one tributary to Baldy Canyon.

3. North and east boundary as above (No. 2) but other boundaries follow prominent ridgelines to Buckhorn Mountain and from there along Buckhorn Ridge to very near Alder Saddle and from there down the north ridge of Baldy Canyon to 3560 feet elevation where the boundary meets the northeast boundary.

We recommend No. 3 because this would include within the RNA two complete chaparral watersheds (Baldy Canyon and upper Buckhorn Creek). In the event of fire, it is improbable that both watersheds would be equally burned, and thus researchers would have good opportunity to study fire succession and fire physiology of different chaparral species in both watersheds.

Some dominant plants of these chaparral association include pointleaf and pringle manzanitas, birchleaf mountain mahogany, sugar sumac, turbinella oak, deerbrush ceanothus, yerbasanta, Datil yucca (Yucca baccata), and silk-tassels. The plant associations (Carmichael et al 1978) are clearly influenced by aspect and elevation. Charred snags in the area the RNA Task Force visited indicated a history of wildfire.

References

Bolander, Donald H. 1982. Chaparral in Arizona. Pp. 60-63 IN: C.E. Conrad and W.C. Oechel (Tech. Coor.) Dynamics and management of Mediterranean-type ecosystems. USDA For. Serv. Gen. Tech. Rep PSW-58, 637 p.

Carmichael, R.S., O.D. Knipe, C.P. Pase, W.W. Brady. 1978. Arizona Chaparral: plant associations and ecology. USDA For. Serv. Res. Pap. RM-202, 16 p.

Date: January 30, 1989
Prepared By: Esteban Muldavin

SMA SITE (ECOLOGICAL) SUMMARY

Site (Special Management Area) Name Buckhorn Marsh

State New Mexico
County Grant

Acres 50 (primary)
USGS Quad Buckhorn 7.5

Directions to the Site: From Silver City travel north on US 180 to the village of Buckhorn. The site lies approximately one mile south and to the east of the town, along Duck Creek.

Site Description Buckhorn Marsh is a small wetland dominated by Fremont cottonwood (*Populus fremontii*) and Goodding willow (*Salix gooddingii*), with Arizona walnut (*Juglans major*) and velvet ash (*Fraxinus velutina*) as common associates. Undergrowth shrubs include seep willow (*Baccharis glutinosa*), coffee berry (*Rhamnus californica*) and sandbar willow (*Salix exigua*). The more hydric areas support cattail (*Thypha latifolia*), rushes (*Juncus* spp.), Goodding willow, and spikerush (*Eleocharis*).

Element Summary Table

Element Class/Code	Element Name (Scientific, common	Element Rank	EO Rank
PA	*Populus fremontii/Salix gooddingii* (Freemont cottonwood/Goodding willow)	[G2S2]	A B

Summary of Ecological Significance Wetlands and riparian areas throughout the southwest are considered threatened. This is the largest wetland land area between the San Francisco and Gila Rivers (Duck Creek is a tributary to the Gila). A survey by John Hubbard and Bill Isaacs in 1977 identifies the site as a Unique Wildlife Ecosystem Study Site (attached).

Other Values and Significance Good wildlife habitat. John Hubbard and Bill Isaacs report the Gila woodpecker (NM II) from the site.

Special Management Area Boundary Explanation The primary boundary includes the wetlands and riparian areas. The secondary extends further upstream to include more of the bottom land along Duck Creek as a buffer.

Date: January 30, 1989
Prepared By: E. Muldavin

SMA VISIT SUMMARY

SITE NAME: Buckhorn Marsh

OWNER(S): Ernest T. Brown
Buckhorn Trading Post
Buckhorn, NM

(505) 535-9161
535-2988
388-3445 (Office)

Tom Drumond
Buckhorn, NM
(nephew of Ernest Brown)

NARRATIVE ACCOUNT OF VISIT: The site was briefly visited on November 11, 1988. Only the dominant species were recorded, and a more thorough inventory is needed. I spoke extensively with Ernest T. Brown who is sincerely interested in developing a preserve on the site (it was his suggestion, not mine). He owns most above the bottom land along Duck Creek in the area of Buckhorn. His nephew, Tom Drumond , recently purchased some property from him just south east of the main marsh area. Brown indicated that his nephew would probably be willing to cooperate in a the development of a preserve. I told Brown that TNC would be contacting him.

WAS OWNER AWARE OF TARGET OCCURRENCE?

YES X NO____

DID THEY REALIZE THAT THEY WERE IMPORTANT?

YES X NO____

OWNER(S) INITIAL ATTITUDE TOWARD DESIGNATION:

X POSITIVE _____UNCERTAIN ____REQUESTED TIME TO CONSIDER _____NEGATIVE

DID OWNER EXPRESS ATTITUDE TOWARD TNC? yes CHARACTERIZE: positive

ESTIMATED DOLLAR VALUE OF TRACT: Unknown

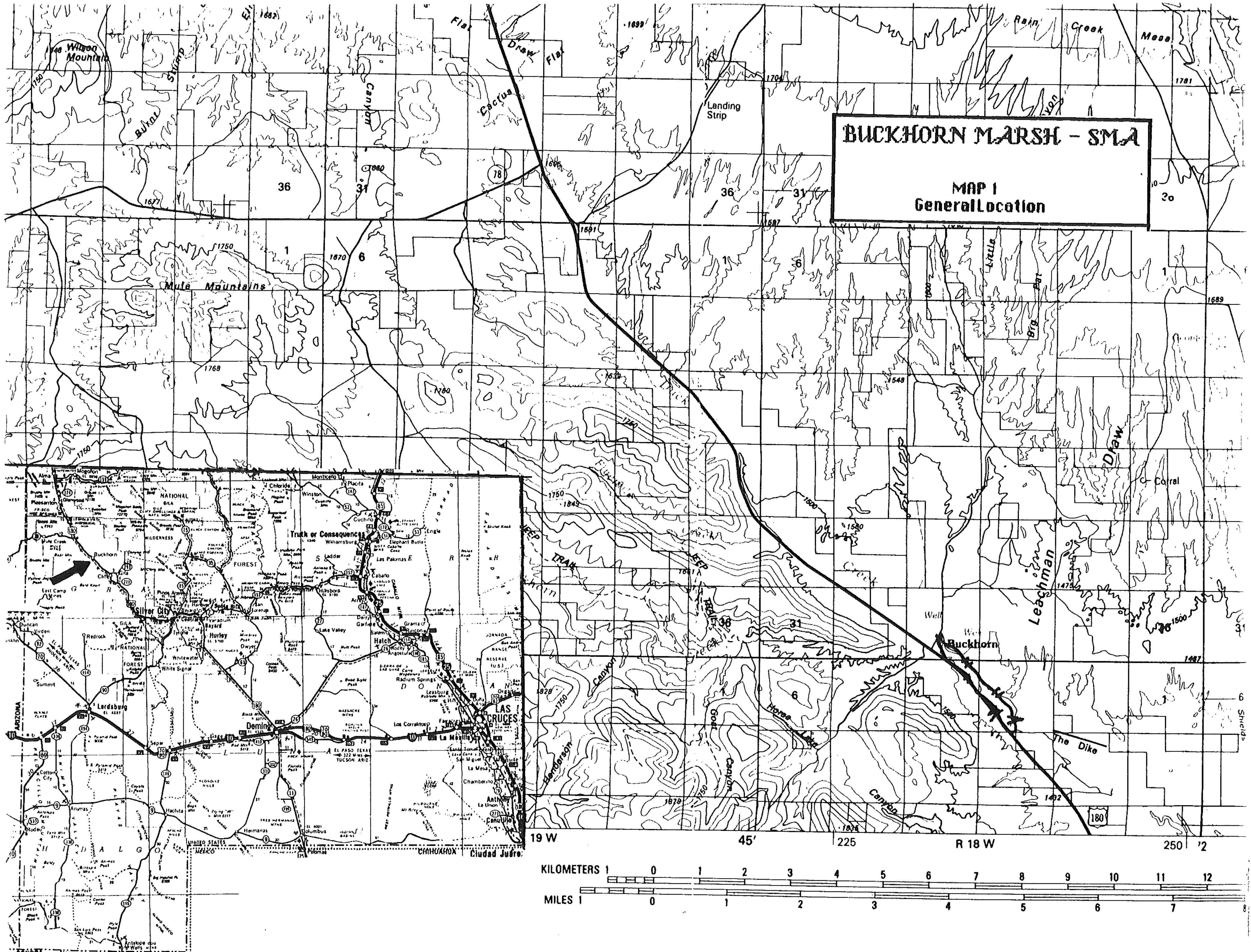
HOW IS TRACT USED NOW? fishing and occasional grazing

THREATS TO OCCURRENCE, IF ANY:

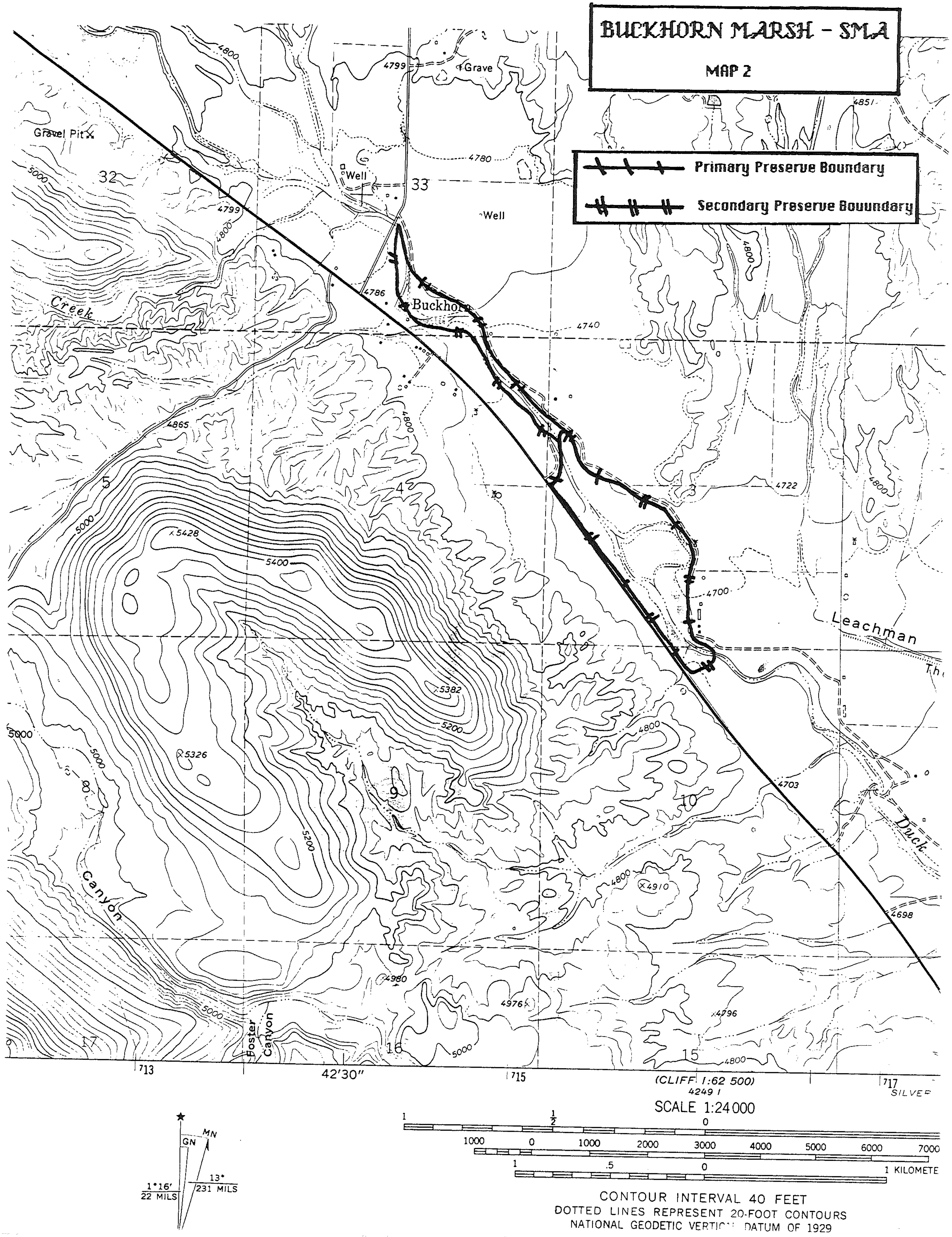
IMMEDIATE: Grazing

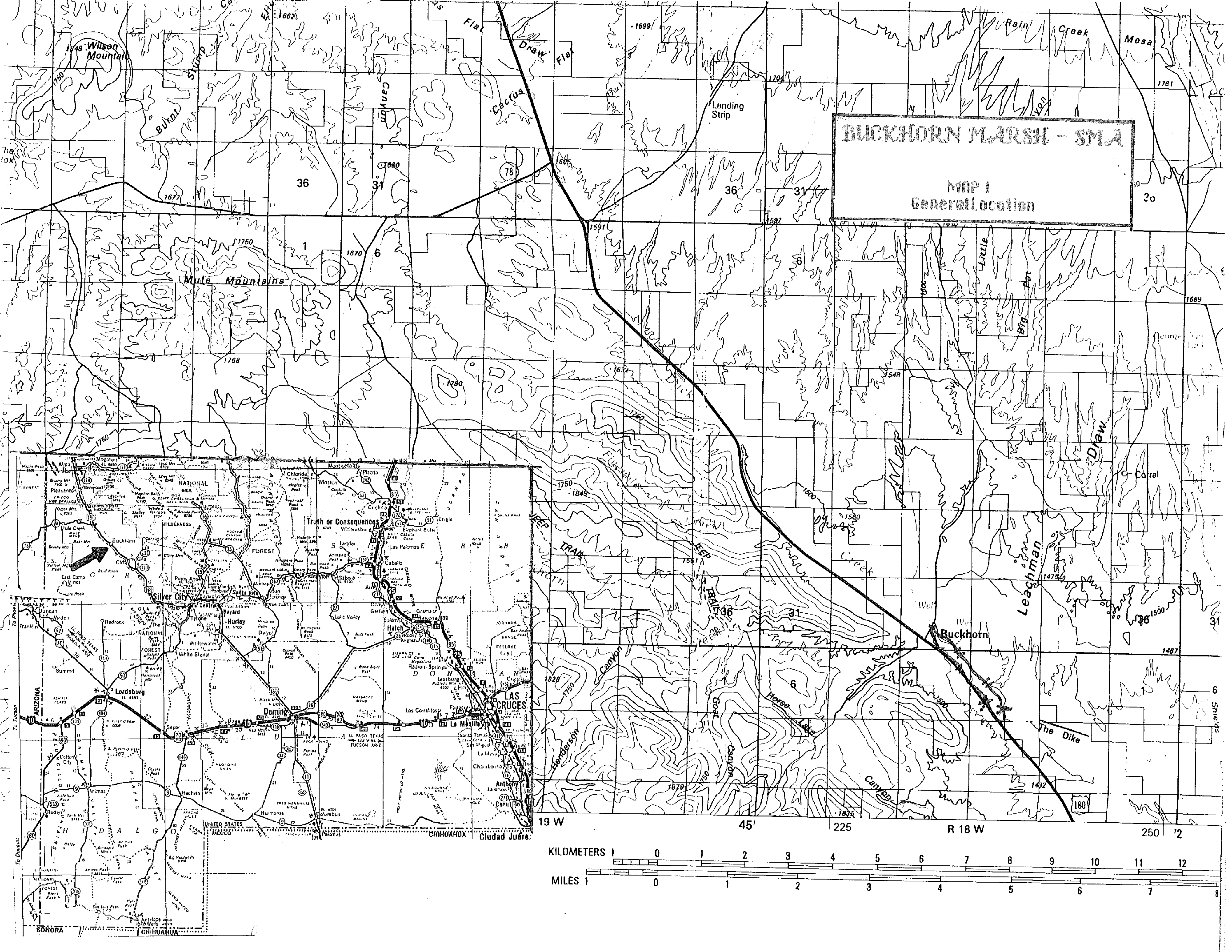
LONG RANGE: Grazing, altercation of the hydrological regime.

MANAGEMENT ISSUES, IF ANY: Brown spoke of the possibilities of catfish farming on part of the marsh. How compatible this will be with a preserve needs to be evaluated. Grazing will need to be excluded entirely to foster tree reproduction and ensure long term defensibility. The site is small and is completely dependent on the maintenance of the present hydrological regime. Any altercations which depletes the either ground or surface waters will degrade the site, and ultimately destroy it.

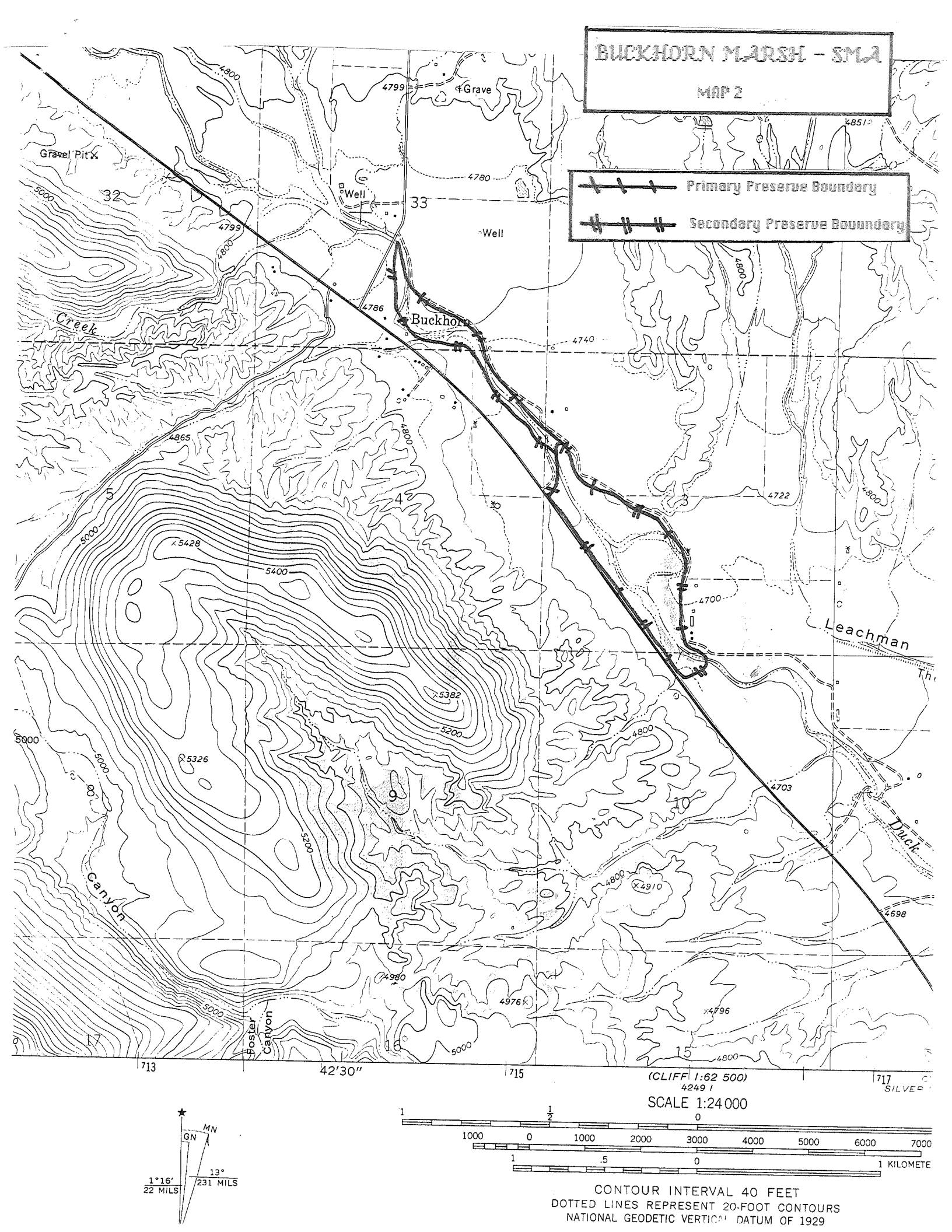


BUCKHORN MARSH - SMA
MAP 1
General Location
Wilson Mountain
Mule Mountains
Landing Strip
Cactus
Flat
Draw
Canyon
Rain Creek
Mesa
Little
Big
Leachman
Draw
Corral
Buckhorn
Well
The Dike
Horse
Goat
Canyon
Henderson
JEEP TRAIL
180
78
19 W
45′
225
R 18 W
250
KILOMETERS 1 0 1 2 3 4 5 6 7 8 9 10 11 12
MILES 1 0 1 2 3 4 5 6 7 8
Truth or Consequences
Silver City
Lordsburg
Deming
LAS CRUCES
Hatch
Hurley
Buckhorn
Cliff
Ciudad Juárez
ARIZONA
CHIHUAHUA
SONORA

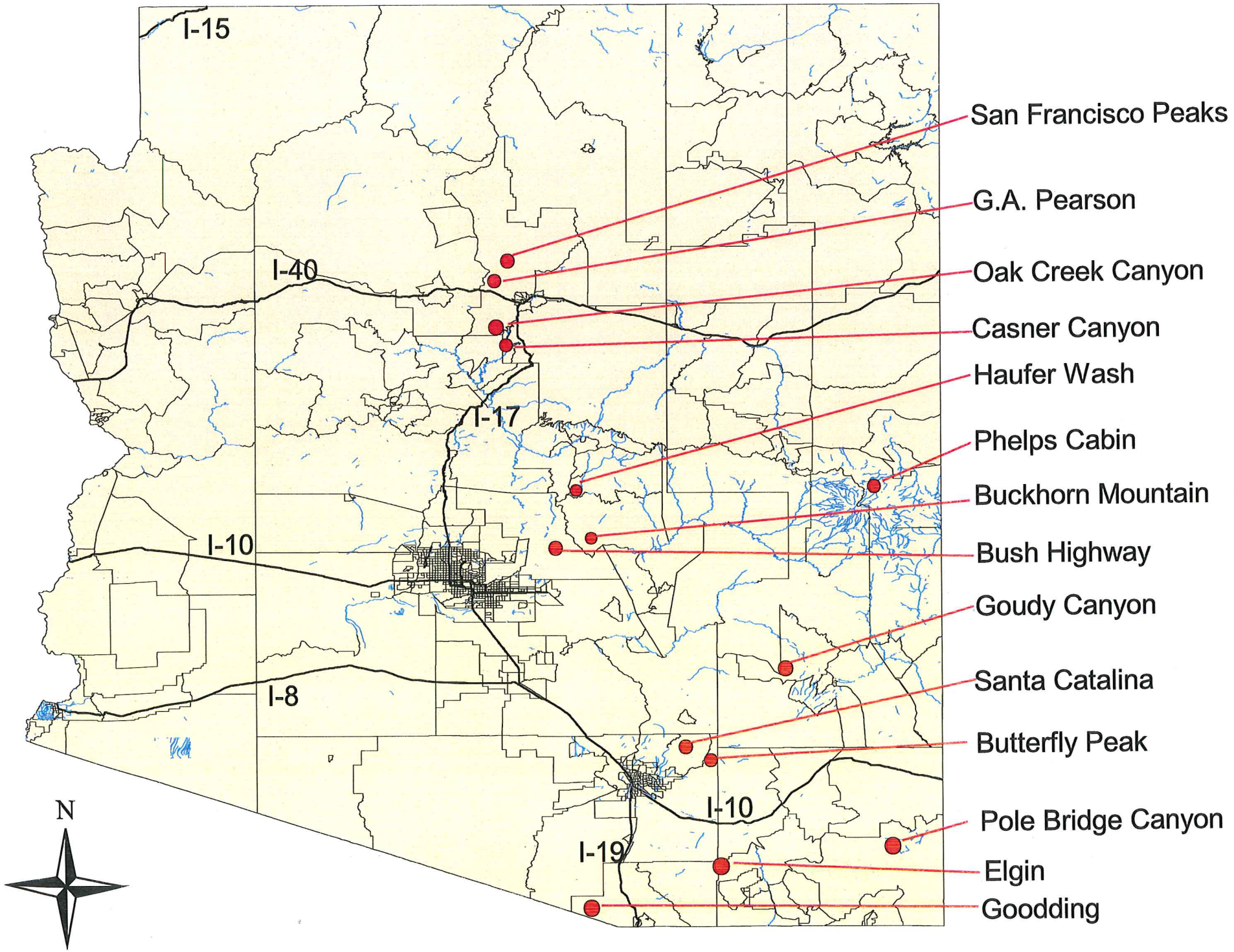

BUCKHORN MARSH - SMA
MAP 2
Primary Preserve Boundary
Secondary Preserve Bouundary
Gravel Pit
Grave
Well
Well
Buckhorn
Creek
Leachman
Duck
Canyon
Foster Canyon
32
33
5
4
3
8
9
10
17
16
15
4799
4780
4851
4800
5000
4786
4740
4865
4722
5428
5400
4700
5382
5200
5326
4703
4910
4698
4980
4976
4796
713
42'30"
715
717
(CLIFF 1:62 500)
4249 I
SILVER
SCALE 1:24000
1
1/2
0
1000
0
1000
2000
3000
4000
5000
6000
7000
.5
1 KILOMETE
GN
MN
1°16'
22 MILS
13°
231 MILS
CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS



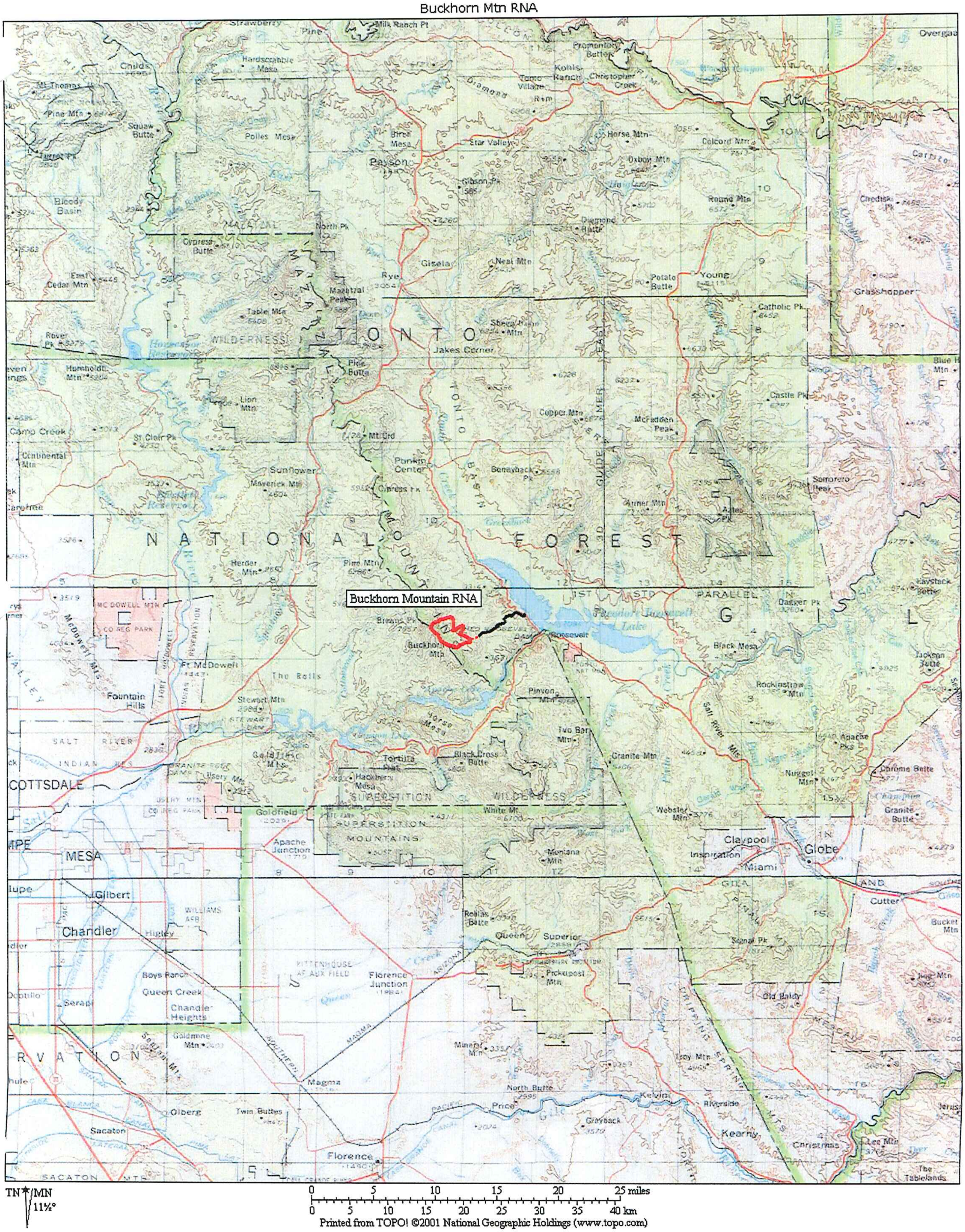
BUCKHORN MARSH - SMA
MAP 1
General Location
Wilson Mountain
Mule Mountains
Cactus Flat
Draw
Landing Strip
Rain Creek
Mesa
Little
Big Pat
Leachman Draw
Corral
Buckhorn
Well
The Dike
Shields
Henderson Canyon
Goat Canyon
Horse Lake
JEEP TRAIL
78
180
19 W
45'
225
R 18 W
250
KILOMETERS 1 0 1 2 3 4 5 6 7 8 9 10 11 12
MILES 1 0 1 2 3 4 5 6 7 8
Silver City
Deming
Lordsburg
Truth or Consequences
LAS CRUCES
Hatch
Ciudad Juarez
ARIZONA
SONORA
CHIHUAHUA


BUCKHORN MARSH - SMA
MAP 2
Primary Preserve Boundary
Secondary Preserve Boundary
Gravel Pit
Well
Well
Grave
Buckhorn
Creek
Leachman
Canyon
Foster Canyon
Duck
32
33
5
4
8
9
10
15
16
17
4800
4799
4780
4786
4740
4865
4722
4700
4703
4698
4980
4976
5000
5200
5400
5428
5382
5326
4910
4796
713
42'30"
715
717
(CLIFF 1:62 500)
4249 I
SILVER
SCALE 1:24000
1000 0 1000 2000 3000 4000 5000 6000 7000
1 KILOMETE
MN
GN
1°16'
22 MILS
13°
231 MILS
CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

RESEARCH NATURA AREAS OF ARIZONA

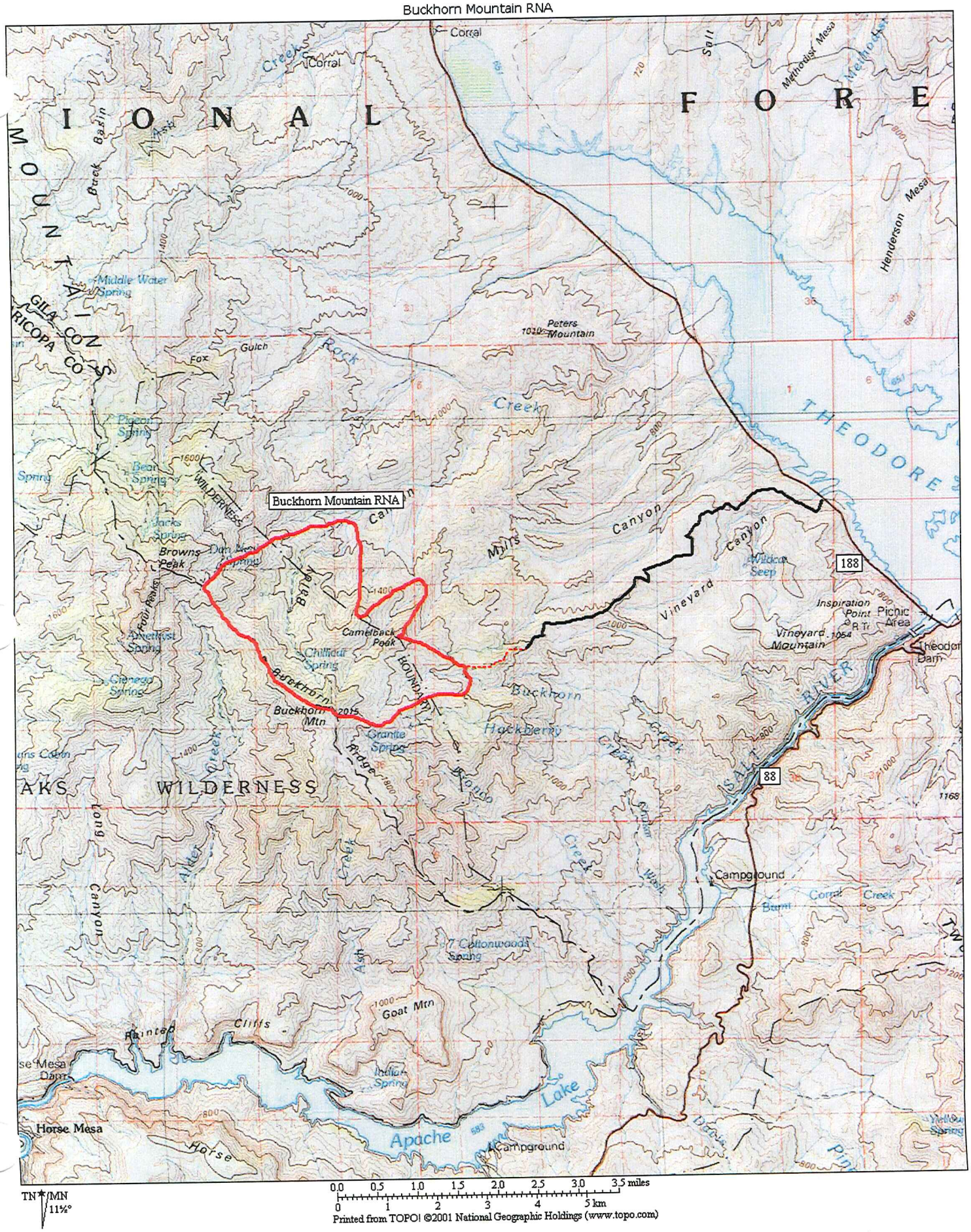


Buckhorn Mtn RNA

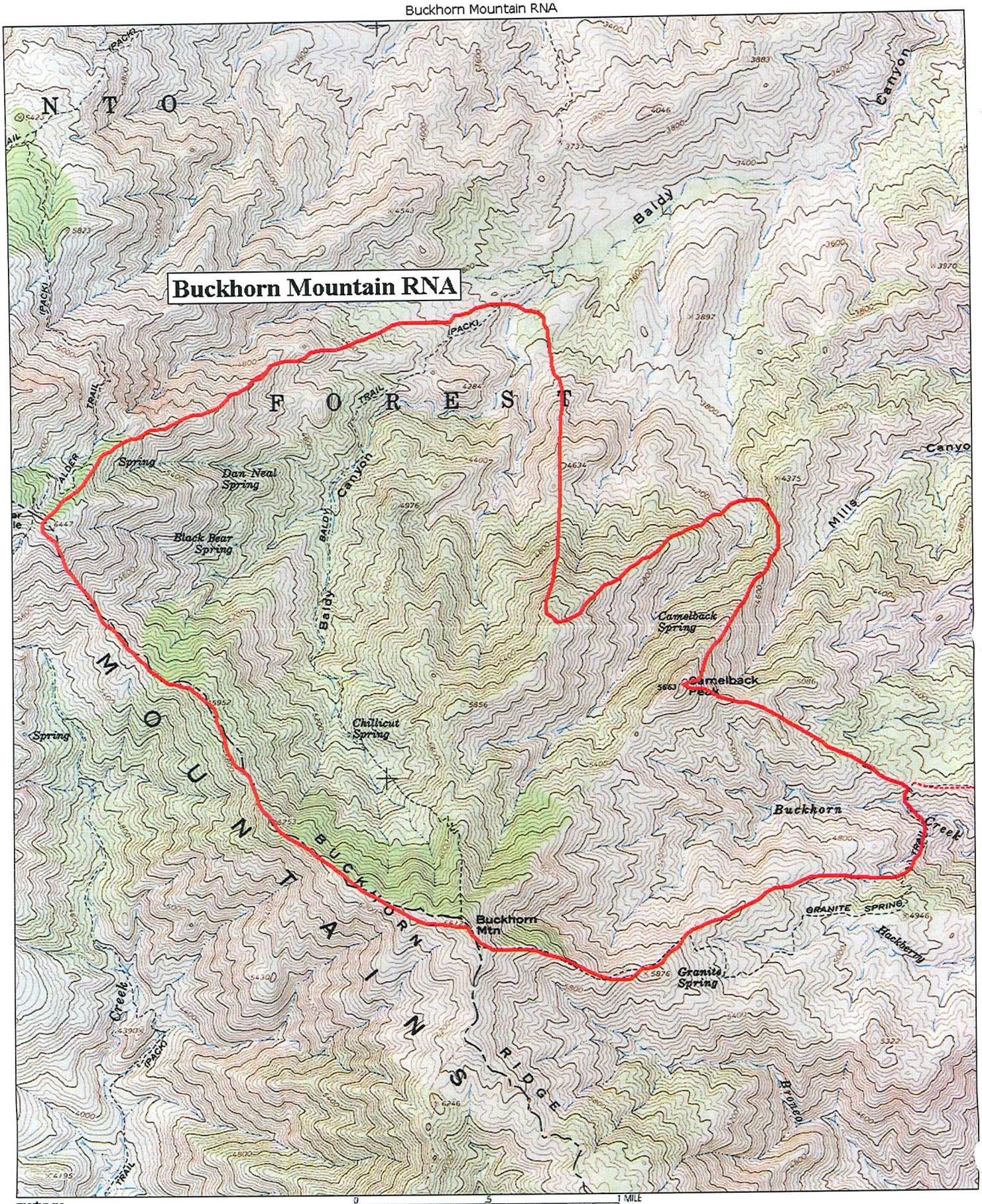


Printed from TOPO! ©2001 National Geographic Holdings (www.topo.com)

Buckhorn Mountain RNA



Buckhorn Mountain RNA



USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD

(See FSM 1643.52)

PHOTOGRAPHER: Jerome Stefferud | DATE SUBMITTED: 10/92

HEADQUARTERS UNIT: Tonto NF | LOCATION: Phoenix AZ

INITIAL DISTRIBUTION OF PRINTS AND FORM 1800-11

☐ 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 TEMP. (1)	PERMANENT (To be filled in by the WO) (2)	SELECTED FOR W.O. PHOTO LIBRARY (3)	DATE OF EXPOSURE (4)	LOCATION (State, Forest, District and County) (5)	CONCISE DESCRIPTION OF VIEW (6)	NEGATIVE (Show size and BW for black and white or C for color) (7)
	1152		30Jul92	AZ, Tonto NF, Tonto Basin RD, Gila Co.	Three Bar Wildlife Area. Western diamondback rattler Crotalus atrox.	C 3½x5
	1153		"	"	Buckhorn Mt. RNA. View from eastern boundary on Baldy Canyon Trail looking west towards Buckhorn Mtn.	"
	1154		"	"	Buckhorn Mt. RNA. From near eastern border on Baldy Canyon Trail, looking SE down Baldy Canyon towards Tonto Basin.	"
	1155		"	"	Buckhorn Mt. RNA. From Baldy Canyon Trail looking ENE.	"
	1161		"	"	Buckhorn Mt. RNA. Chaparral vegetation from Baldy Canyon Trail ca. 0.5 mile E of Chillicut Spring.	"
	1162		"	"	Buckhorn Mt. RNA. From Baldy Canyon Trail looking W up Baldy Canyon towards Buckhorn Mt.	"
	1163		"	"	Buckhorn Mt. RNA. From Baldy Canyon Trail looking W across Baldy Canyon towards Buckhorn Mt.	"
	1167		02Aug92	"	View W towards Four Peaks and Buckhorn Mt. RNA from AZ Hiway 288.	"
	1156		30Jul92	"	Buckhorn Mt. RNA. Chaparral vegetation including sotol and sycamore in background.	"
	1157		"	"	Buckhorn Mt. RNA. Looking W across Baldy Canyon from Baldy Canyon Trail.	"
	1158		"	"	Buckhorn Mt. RNA. General view of chaparral vegetation and alligator juniper.	"
	1159		"	"	Buckhorn Mt. RNA. Alligator juniper in chaparral vegetation.	"
	1160		"	"	Buckhorn Mt. RNA. Spring stream from Chillicut Spring on NE side of Buckhorn Mt.	"

↘ Slides also provided.

Ref Number:1152
Three Bar Wildlife Area, Tonto NF, AZ. 30 July 1992. On road to Buckhorn RNA. Crotalus atrox, Western diamondback rattlesnake, "coon tail rattler". August 1992: 13

Ref Number:1153
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View from eastern boundary on Baldy Canyon Trail looking west towards Buckhorn Mountain. August 1992: 15

Ref Number:1154
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. From near eastern border on Baldy Canyon Trail, looking southeasterly down Baldy Canyon towards Tonto basin. August 1992: 16

Ref Number:1155
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. From Baldy Canyon trail looking east-northeasterly. August 1992: 17

Ref Number:1156
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View of chaparral vegetation, including sotol and sycamore in background. August 1992: 18

Ref Number:1162
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View from Baldy Canyon trail looking westerly up Baldy Canyon towards Buckhorn Mountain. August 1992: 25

Ref Number:1163
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View from Baldy Canyon trail looking westerly across Baldy Canyon towards Buckhorn Mountain. August 1992: 26

Ref Number:1187
Tonto NF, AZ. 02 August 1992. View westerly towards Four Peaks from Arizona State Highway 288. August 1992: 1

Ref Number:1157
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View from Baldy Canyon trail looking westerly across Baldy Canyon. August 1992: 19

Ref Number:1158
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View showing juniper. August 1992: 20

Ref Number:1159
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View showing juniper. August 1992: 21

Ref Number:1160
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. Photo of spring stream from Chillicut Spring on northeast side of Buckhorn Mountain in Baldy Canyon. Vegetation includes Typha, alligator juniper, sycamore. August 1992: 22

Ref Number:1161
Buckhorn Mountain RNA, Tonto NF, AZ. 30 July 1992. View of chaparral vegetation from Baldy Canyon trail ca. 1/2 mile east of Chillicut Spring. August 1992: 24