

W H E R E I Z Z I T ? ? ?
(ARIZONA'S ELUSIVE COUNTY BOUNDARIES)

~~To Be~~ Presented at the
TWENTY SIXTH ARIZONA LAND SURVEYORS' CONFERENCE

University of Arizona, Tucson, Arizona

Saturday, April 7, 1979

BY

Richard A. Pinkerton, Cartographer

Photogrammetry and Mapping Services

ARIZONA DEPARTMENT OF TRANSPORTATION

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BIOGRAPHICAL SKETCH

Richard A. Pinkerton is a Cartographer in the County Mapping Branch of Photogrammetry and Mapping Services, Arizona Department of Transportation. His responsibilities include the areas of planning, base map compilation, and information acquisition. Through his activities in these areas during the past twenty five years, he has become very knowledgeable of the problem areas involving the cadastral system and administrative boundaries throughout the state.

Arizona's boundaries go back to 1850 with the creation of the Territory of New Mexico. The north boundary of New Mexico Territory followed the 37th parallel from the west boundary of Texas west to include what is now the southern part of the State of Nevada, intersecting the diagonal line which now forms the California-Nevada state boundary. The western boundary followed this diagonal line to its intersection with the Colorado River at the 35th parallel, then followed the center of the river to the International Boundary with Mexico.

The Surveyor General's Office for New Mexico Territory opened in Santa Fe, NMT, in 1854. Initial surveys were accomplished in the eastern portion of the territory. The Initial Monument for Arizona Public Land Surveys was one of the original International Boundary Monuments set in 1851. This monument, just south of the confluence of the Gila and Salt Rivers, was rebuilt in March, 1867, by Deputy Surveyor W.H. Pierce. During 1867, the surveying district of Arizona Territory was attached to that of California, and all records were transferred to the office of the Surveyor General at San Francisco. At this time the white population of Arizona was about 7000. The office of the Surveyor General of Arizona opened in Tucson in 1870, John Wasson, Surveyor General.

The first survey of a portion of a county boundary, as later to be defined by the Territorial Legislature, was accomplished by WF & GP Ingalls. The contract was awarded July 10, 1868, through the San Francisco office, and authorized surveys of townships one and two south, ranges six and seven east. (The east boundary of range seven east is the east boundary of Maricopa County in those two townships.)

Prior to the establishment of Arizona Territory in 1863, Mowry, in

1860, who was elected but not admitted as first and second delegate to Congress, created a map of Arizona proposing the establishment of four counties; Castle Dome, Ewell, Mesilla, and Dona Ana. The bill, which would have created the Territory of Arizona with these four counties was known as the Gwin Measure, which was introduced in Congress but never passed. (See Figure 1)

On achieving territorial status, the legislature was constituted and began its many law making activities, not the least of which was the creation of our various counties. We will call the legislative activities "The Carving Knife", with the "First Cuts" being the creation of the original four counties: Yavapai (The Mother of Counties), Pima, Mohave (Spelled Mojave in the Howell Code until an ignorant clerk misspelled it in the final legislative bill), and Yuma, the only county to retain its original boundaries. (See Figure 2)

Following the "First Cuts" came the "Trimming", the later counties, of which Pah Ute was the first, being established by the Second Territorial Legislature in 1865, and lost to Nevada through Act of Congress, May 9, 1866. The act creating this county was finally repealed by the Sixth Territorial Legislature, February, 1871. (See Figures 3 and 4)

Maricopa County was the next creation, in 1871, with addition of the southern tip in 1873. (See Figures 5 and 6) Pinal followed in 1875, being formed from parts of Maricopa and Pima Counties. (See Figure 7) Apache County was formed from Yavapai County in 1879, at which time Maricopa County gained some additional area from Yavapai County and lost a small area to Pinal and Apache Counties. (See Figure 8) The big year for creating counties was 1881, with the creation of Gila, Graham and Cochise Counties; Apache, Pinal, Maricopa, and Pima Counties all losing area at this time. (See Figure 9) "Mother Yavapai" reached her current configuration in 1891, when Coconino County (Called Frisco, then Tusayan, but enacted as Coconino) was formed and an additional area was taken to enlarge Gila County to its present configuration. (See Figure 10)

We could refer to Navajo County as the "Adjournment County" as the bill creating it was enacted minutes before adjournment at midnight, March 21, 1895, following a two month battle with a hostile minority in the legislature. There had been strong sentiment to call it "Colorado County". (See Figure 11)

Santa Cruz County followed in 1899, bringing Pima County to its current configuration. (See Figure 12) The final county to be created was Greenlee County, in 1909, but not organized until January 1, 1911. (See Figure 13)

No counties have been created since the granting of statehood; however, the possibility of additional counties being created does

exist. Over the last several years attempts have been made to create new counties, both through the legislative process and the county election approach. The only legislative action to succeed was a revision in the Cochise-Santa Cruz County boundary several years ago.

Had all of the county boundaries described by the legislature during the formation of our counties continued to exist, we would today have twenty four counties and their boundaries to contend with. (See Figure 14) Instead, we have our existing fourteen counties. (See Figure 15)

The "Carving Knife" has not always been sharp. The "Dull Knife" (the weakness of description) has existed, at times, during the carving of the counties. What may have been apparent and important at the time the county was created, has today been lost to the effects of time. Original errors also exist in the statutes. For example, who could today define where the Mineral Creek Mill stood on February 8, 1881, or what point at the mill was used to define a point on the boundary between Gila and Pinal Counties? Act No. 17 of the Eleventh Territorial Legislature, creating Gila County, defined "A point two hundred and fifty yards west of the Mineral Creek Mill", which, to begin with, is, in itself, a point subject to question; add to this an original error in the statutes, carried forth since the creation of Gila County. This error, in the Pinal County description, describes the same point as being "two hundred and fifty yards east of the Mineral Creek Mill". Another example is the description of a point on the Apache-Navajo County boundary, being described as the "Southwest corner of the Navajo Indian Reservation". That was correct in 1895; today, however, the reservation corner is many miles southwest of the 1895 position, falling in Coconino County just a few miles from Flagstaff.

We need to "Sharpen the Knife", and have the legislature bring these statutes up-to-date; and, in some instances, the wisest move may be to totally redefine the boundary. The need will become more apparent as we cover the "Shifting Scene".

We will refer to the effects of nature, man and time as the "Shifting Scene". The first shifting scene is the stream, the "Fluxible Boundary". A number of our county boundaries either follow streams or are keyed to the intersections of streams. The Coconino-Mohave County boundary follows Kanab Creek and the Colorado River, in part. The Mohave-Yuma County boundary follows the Bill Williams and Santa Maria Rivers. We have the Agua Fria, Gila, San Carlos, Verde, Black and Salt Rivers forming portions of county boundaries. The Gila-Maricopa-Pinal County boundary utilizes two stream intersections as controlling points; Tonto Creek/Salt River and Gila River/San Pedro River. Both of these intersections would be impossible to define today in their true positions as existed in 1881. The "fluxuation" of the main channel of the Bill Williams River has, in some areas, exceeded one-half mile.

The second shifting scene is the "Effects of Time", not only as applies to the shifting of the stream, but, as also applies to the changes in man-made features and administrative boundaries on which some of our county boundaries are based. We have the southwest corner of the Navajo Indian Reservation and the Mineral Creek Mill as previously mentioned. We also have the Coconino-Yavapai County boundary described as being "one mile northerly of and parallel to the center of the right of way of the Atchison, Topeka and Santa Fe Railroad", a line impossible to pin point. The railroad center line, as it existed in 1891, included a number of curves in the Ashfork-Crookton area, and, to complicate matters further, a good portion of this alignment has been abandoned and dismantled. (See Figure 16) Another change, an administrative boundary, affected the western boundaries of Mohave and Yuma Counties, when the western boundary of Arizona was changed by the Arizona-Nevada and Arizona-California Boundary Compacts, as ratified by Congress.

The "Big Goof" is next on the shifting scene. This comes to the forefront as more and more surveys are accomplished in those areas where the GLO contract surveys were adopted as county boundaries. What was thought to be a reasonably straight line is not. The most apparent of these "Goofs" discovered is along the Apache-Navajo County boundary in townships thirteen and fourteen north. Of course, this is much more extensive than just an area along the county boundary, as it extends throughout several townships and ranges in an area roughly covering from Snowflake to Concho to Hunt.

Finally, on the shifting scene, comes the "Datum Change". Boundaries, as described by latitude and longitude, and in some cases surveyed during the late 1800's and early 1900's, aren't in the same position today. We have passed through the Datum Change of 1927 and are facing the upcoming North American Datum Change of 1983. The N.A.D. of 1927 produced some notable shifts in latitude and longitude. The N.A.D. of 1983 will produce even greater shifts.

We now come to the "Where Izzit?"; what has been found, or, not found. A few county boundaries are covered by reasonable good, usable survey data. Others have been surveyed many years ago and the records can not be located. Still others are covered by weak or erratic surveys. Many miles of county boundary have never been surveyed. (See Table 1 and Figure 17)

A problem exists. It is a major survey problem which only the surveyor can thoroughly appreciate and understand. Several types of action are necessary to resolve this problem, as it extends beyond the realm of the surveyor alone. All surveys involving county boundaries must be monumented and documented. A master file must be established and maintained, where county boundary information can be repositied and disseminated. (Possibly at the Geodesy Section, Photogrammetry and mapping Services, Arizona Dept. of Transportation) Legislative action is necessary to correct and update the statutes pertaining to county boundaries, and to provide proper legal status for

surveys of county boundaries. The legislative action will require much organized effort to accomplish meaningful results. It may require the surveyors working with ACSM, ASPE, Arizona Association of County Engineers, Arizona Association of Assessing Officers and similiar organizations. It may require a Governor's Commission or a legislative subcommittee. Whatever it will take to get the job done, and done right.

The surface has been but barely touched. Consider that our subject here encompasses thousands of miles of county boundaries within the State of Arizona, the majority of which require surveying and re-definition. THE LAND SURVEYOR MUST BECOME INVOLVED IN ACHIEVING THE PROPER SOLUTION TO THIS PROBLEM; IT IS A PROFESSIONAL PROBLEM.

REFERENCES:

Arizona Revised Statutes, Title 11
Arizona Department of Transportation, Various location surveys
Arizona Supreme Court Cases, as reported 19Ariz475,26Ariz74,267Pac601
Act 17,Eleventh Territorial Legislature
Book No.18,County Bdy Surv.,May 23,1912;Graham/Greenlee County Surv.
Interstate Compact Defining the Boundary Between Ariz and Calif
Interstate Compact Defining the Boundary Between Ariz and Nevada
Johnson's Map 1863
Maricopa-Yavapai County Bdy Survey, Thompson,1924
Maricopa-Yuma County Boundary Survey, Atwood and Barlow,1918
Surveys by Lacy Greer and Robert Shaw,T.13-14N.,R.23E.
USGLO/BLM, Various Plats and Notes of Survey

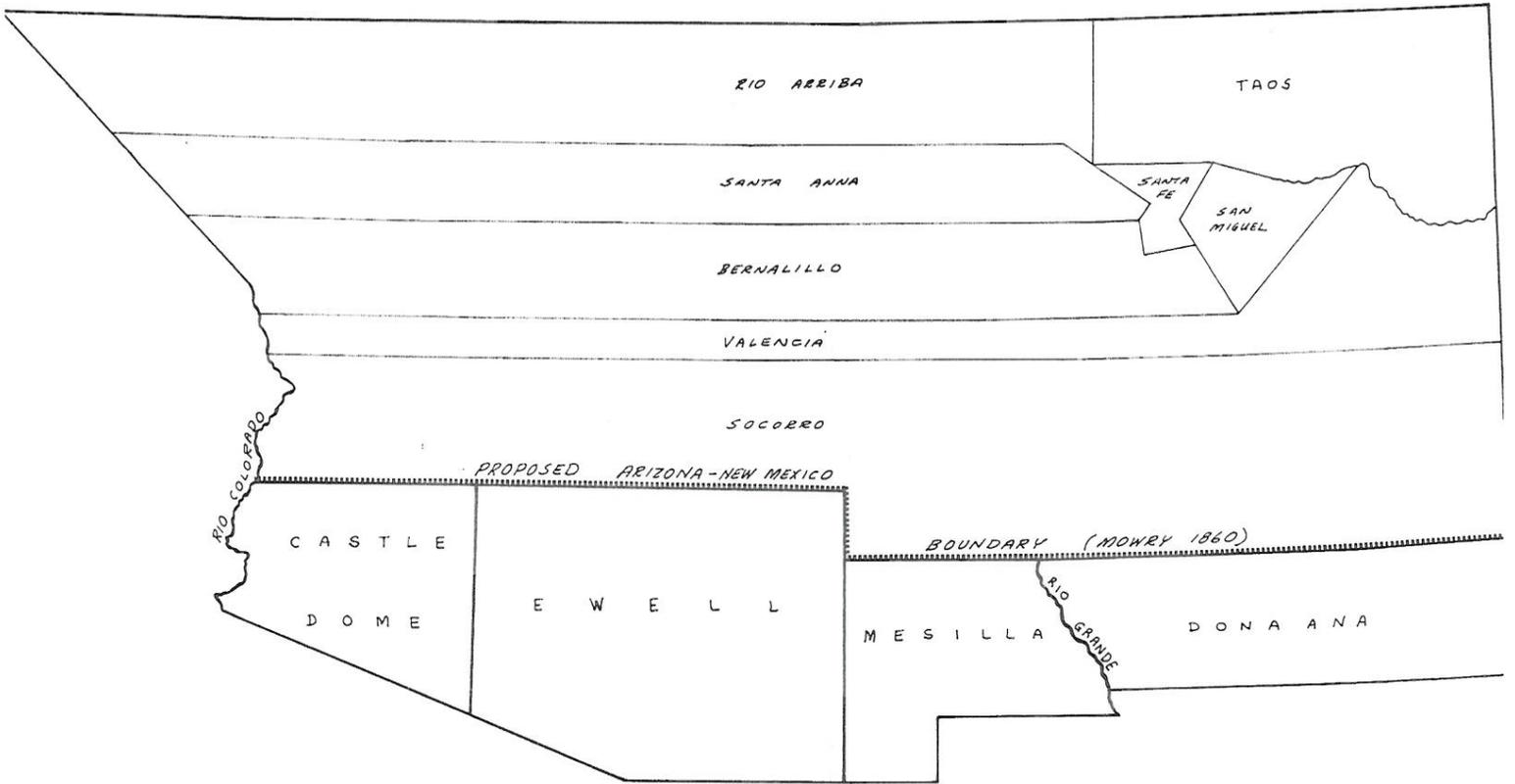


FIGURE 1



FIGURE 2

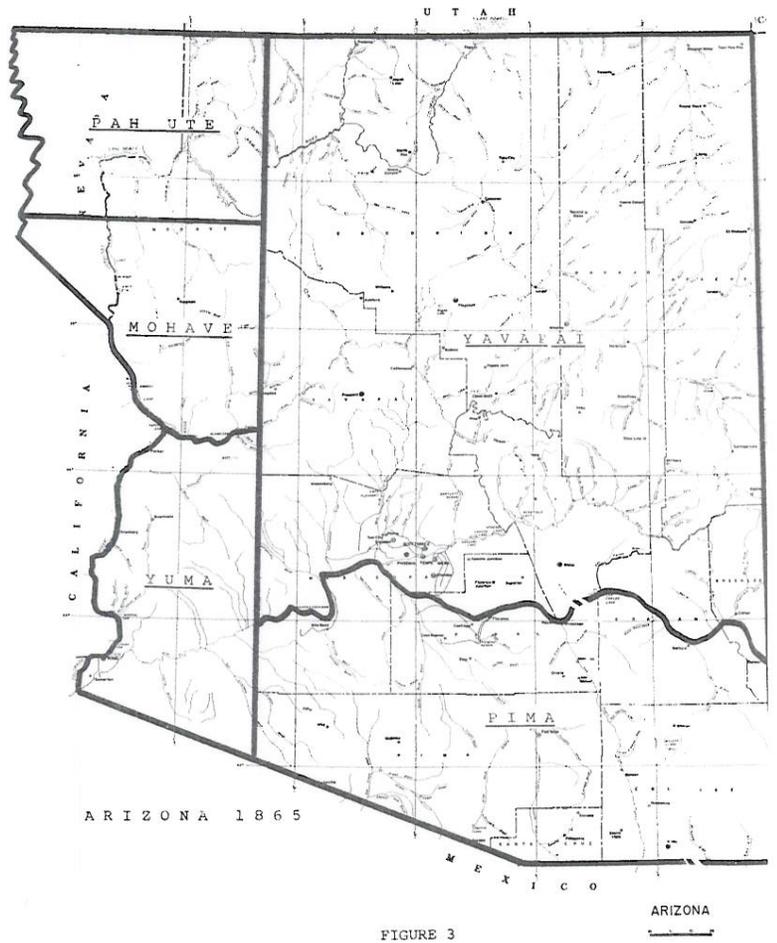


FIGURE 3

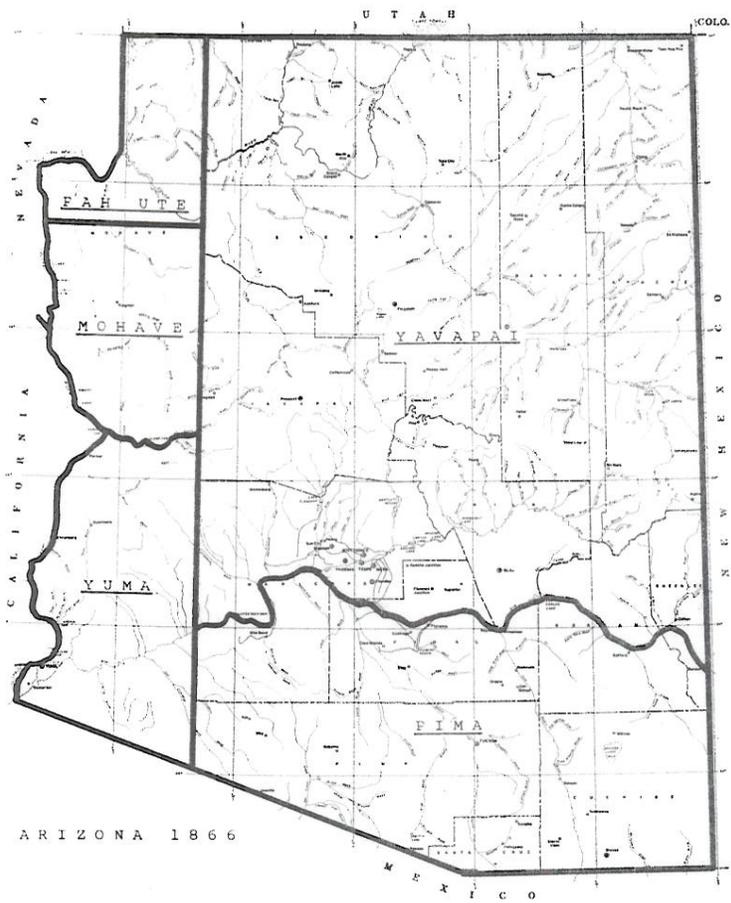


FIGURE 4

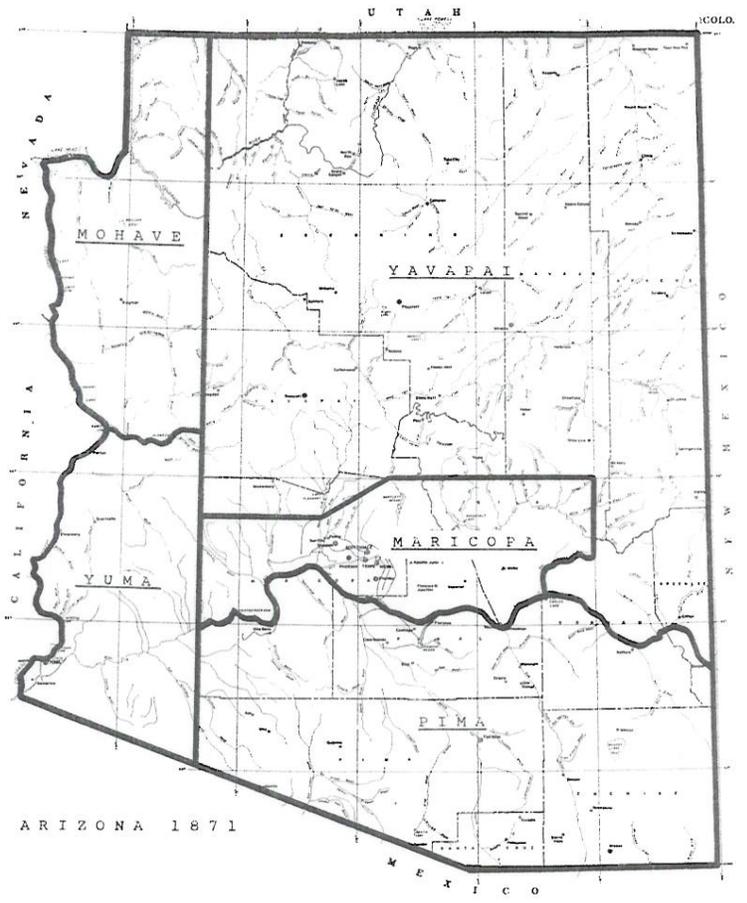


FIGURE 5

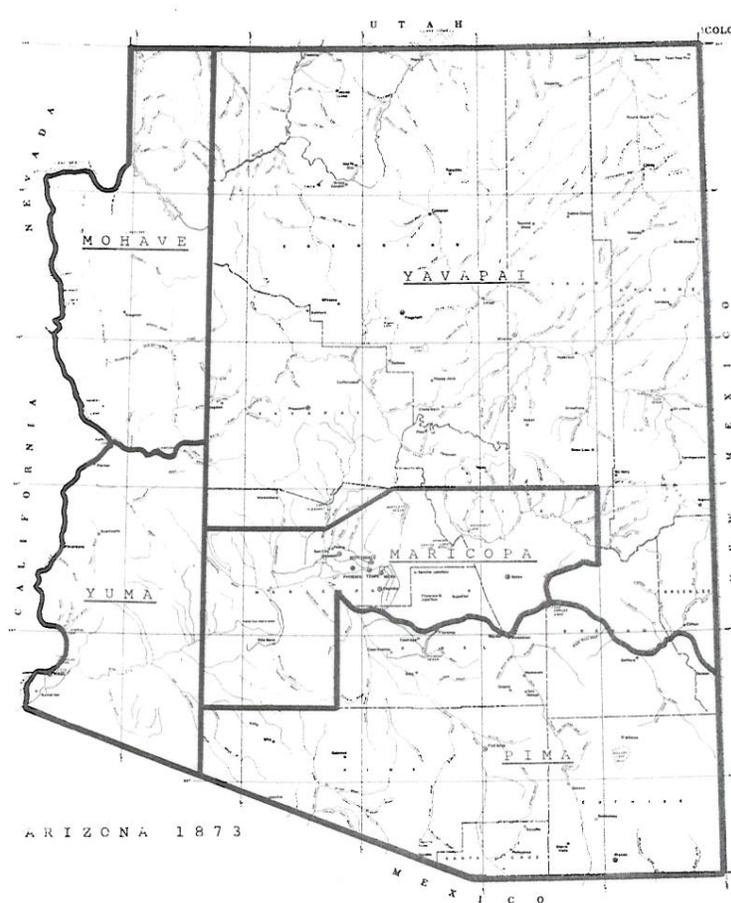


FIGURE 6

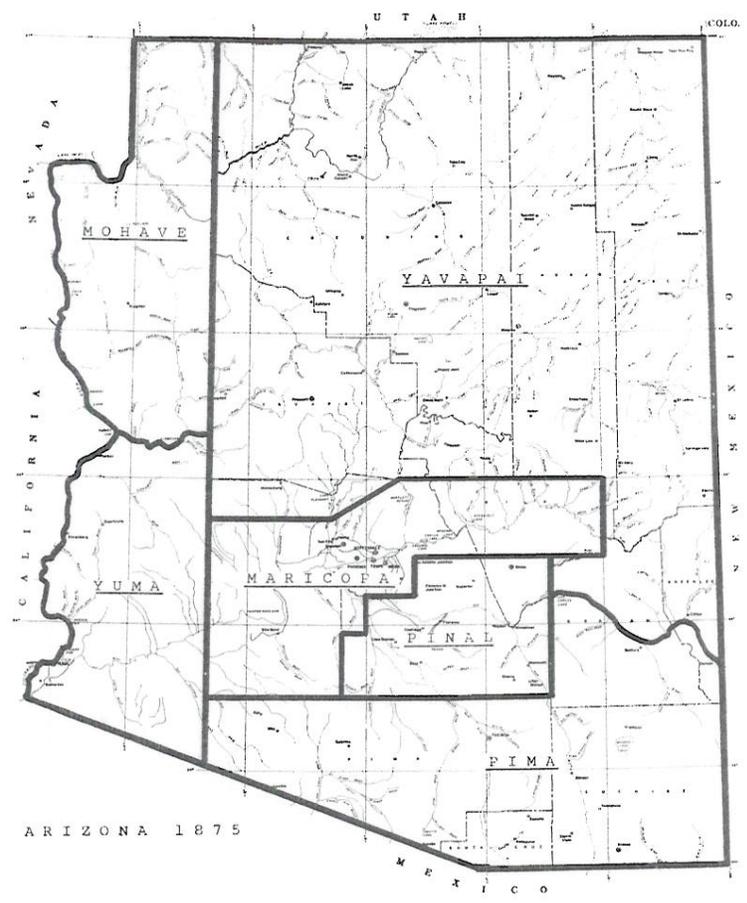
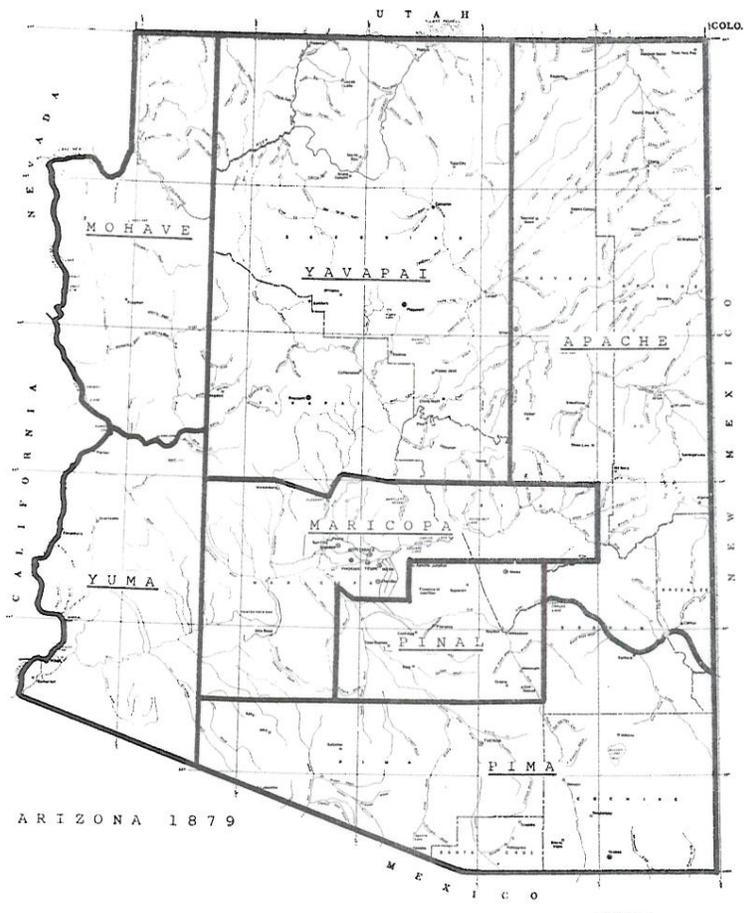


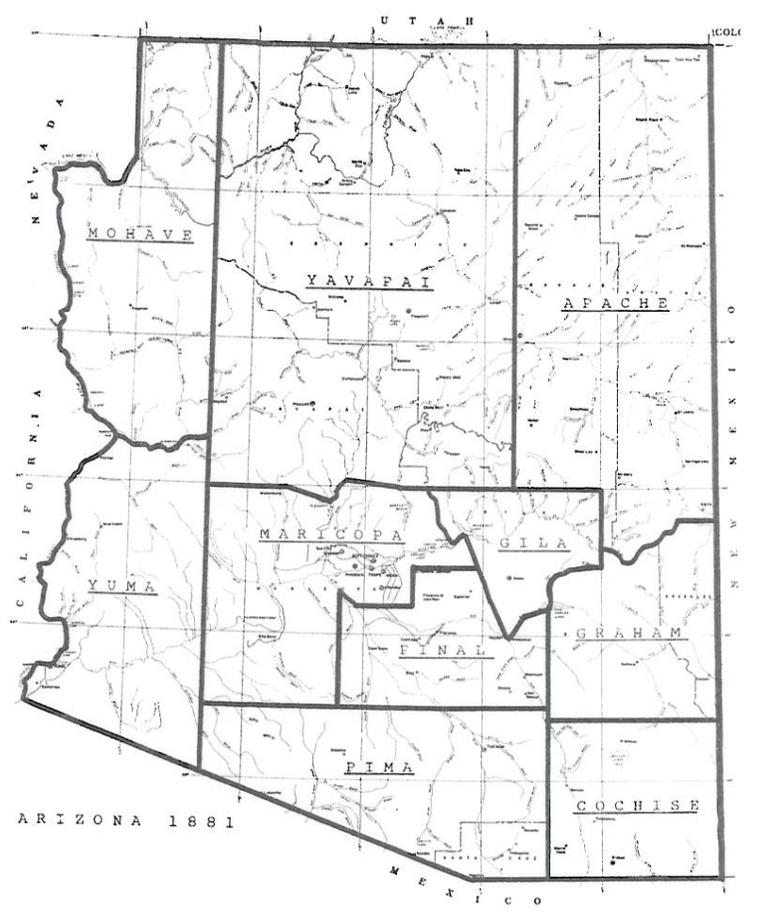
FIGURE 7



ARIZONA 1879

FIGURE 8

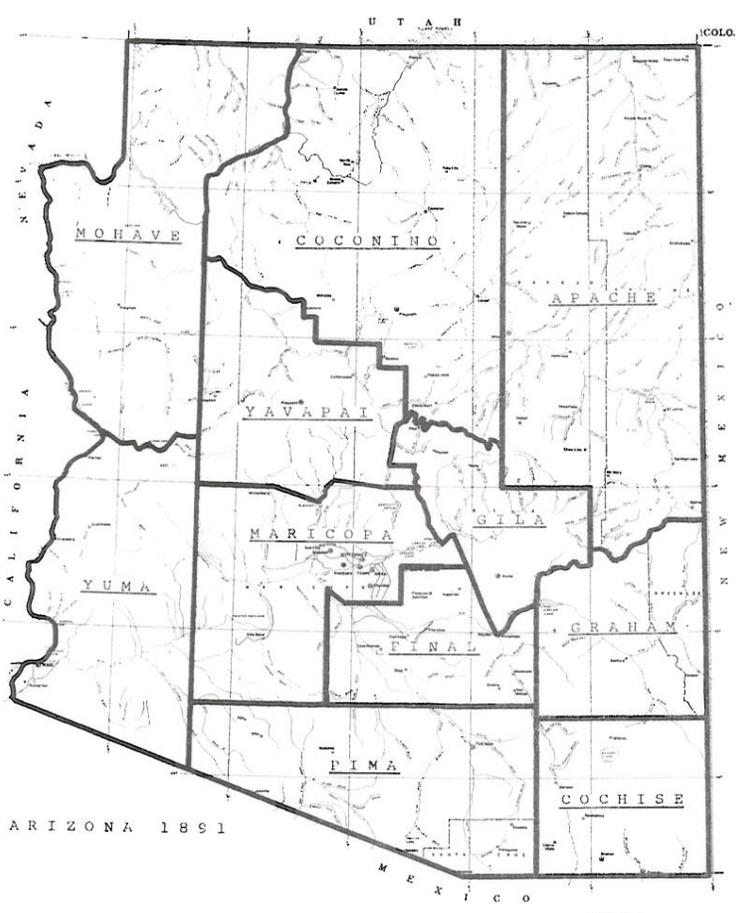
ARIZONA



ARIZONA 1881

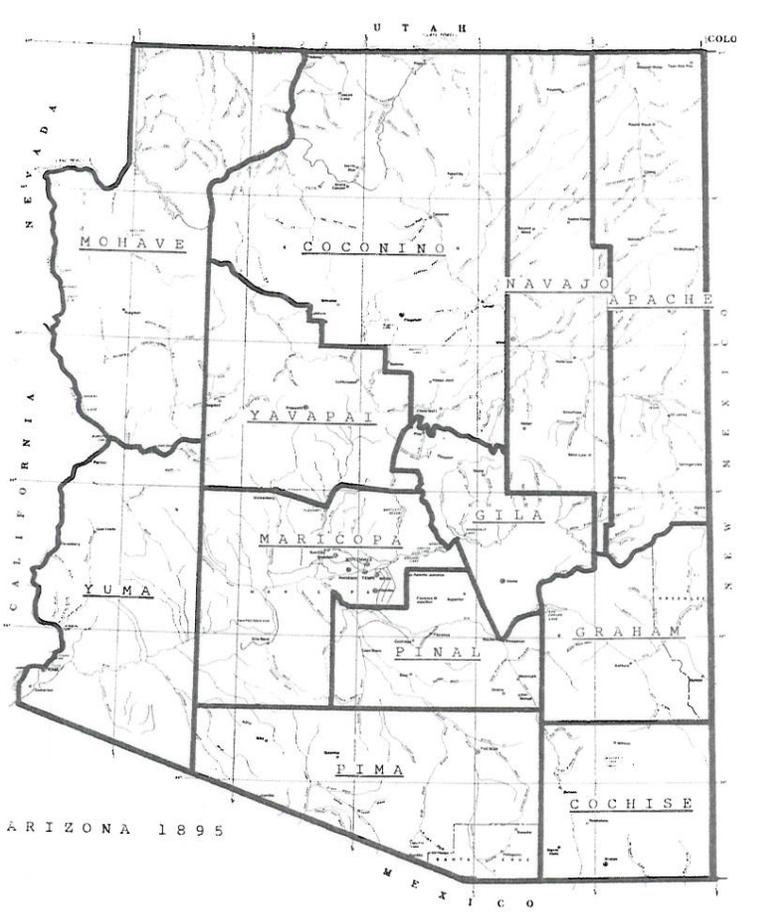
FIGURE 9

ARIZONA



ARIZONA 1891

ARIZONA



ARIZONA 1895

ARIZONA

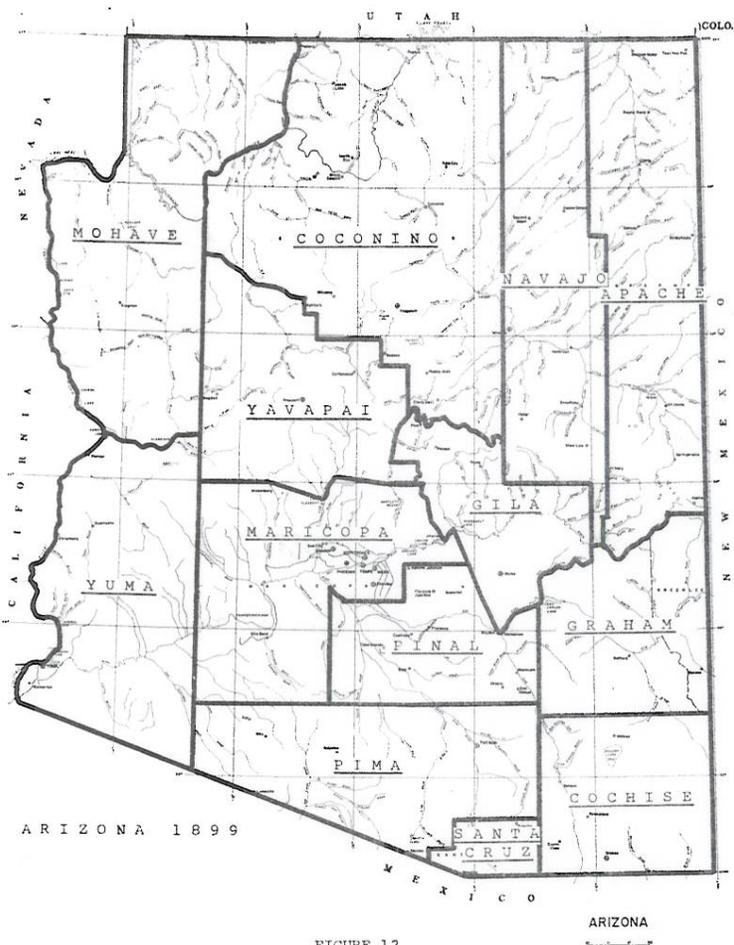


FIGURE 12

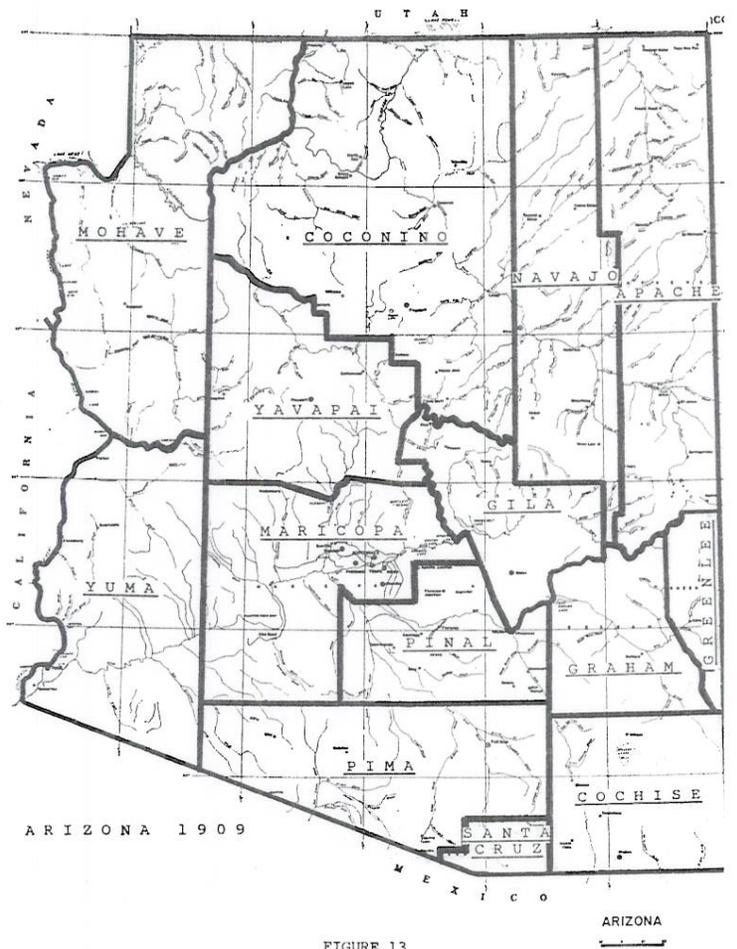


FIGURE 13

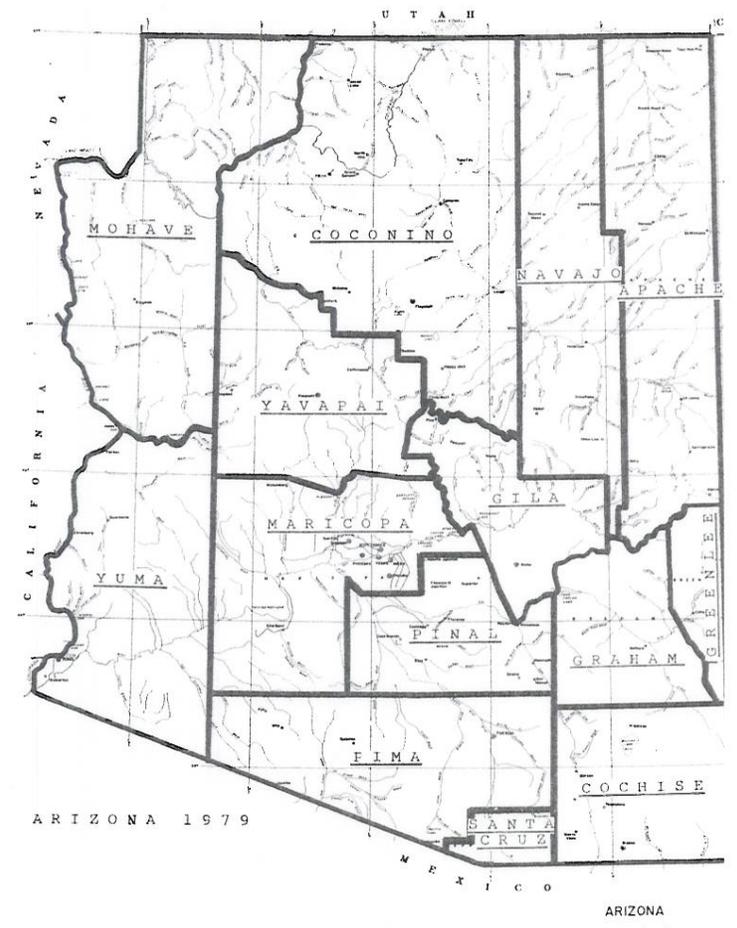
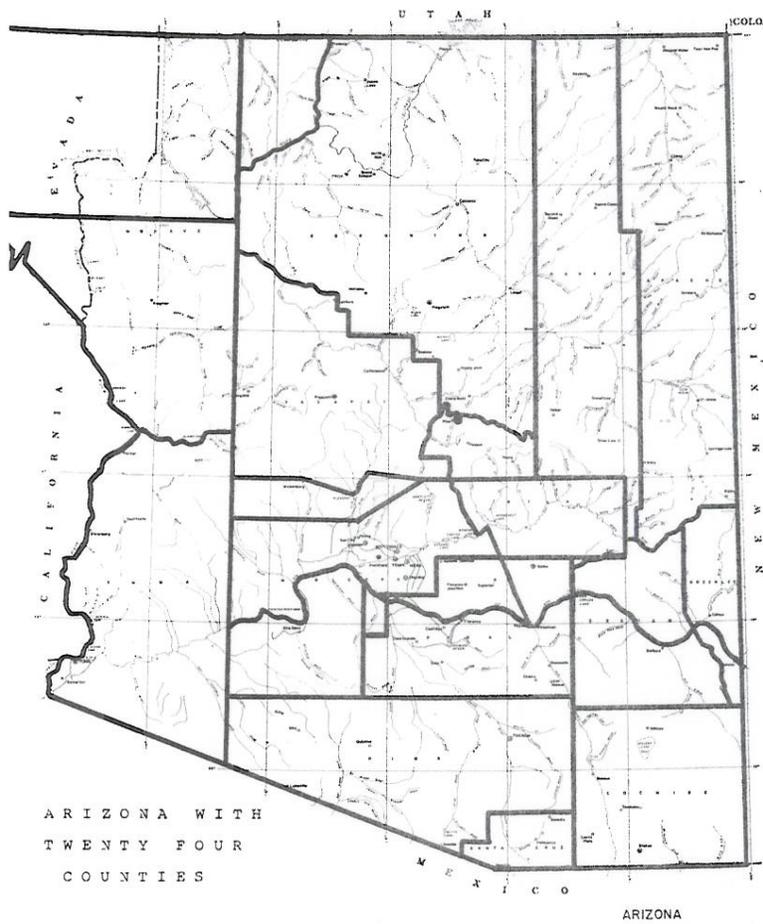


FIGURE 14

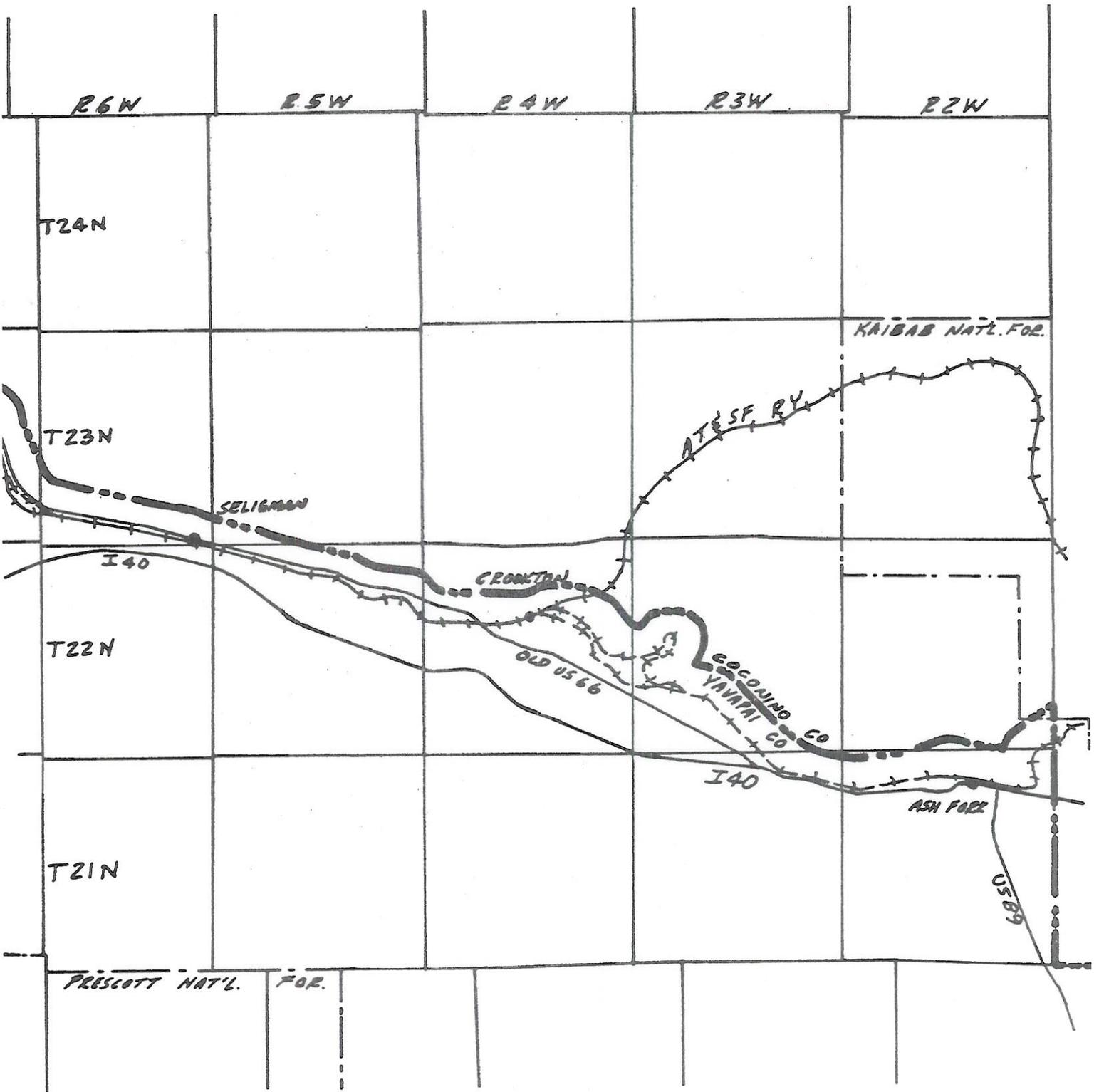
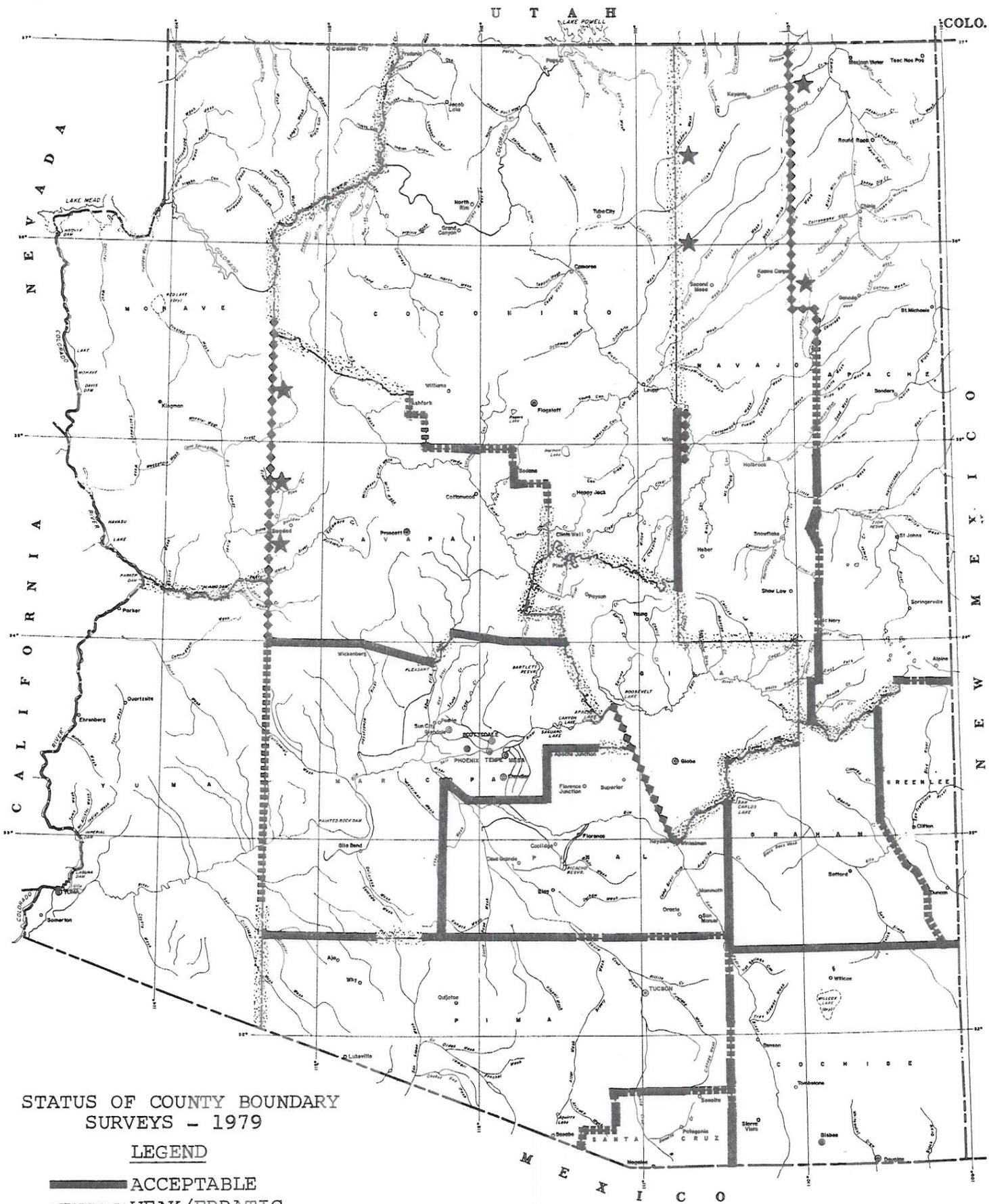


FIGURE 16



STATUS OF COUNTY BOUNDARY SURVEYS - 1979

LEGEND

- ACCEPTABLE
- - - - - WEAK/ERRATIC
- ◆◆◆◆ NO RECORDS FOUND
- ★ MONUMENTS TIED
- UNSURVEYED

ARIZONA



FIGURE 17

TABLE 1

TABULATION OF COUNTY BOUNDARY SURVEYS AND INFORMATION

<u>COUNTY BOUNDARY</u>	<u>SURVEYS AND RELATIVE INFORMATION</u>
Apache-Navajo	Reference made in 26 Ariz 74 to this boundary having been surveyed from north boundary of state to second standard parallel north. No records located. Retracement of boundary in Townships 13 & 14 North by ADOT, Greer, and Shaw during period 1958-1970.
Coconino-Navajo	Surveys by ADOT and unidentified surveyor.
Coconino-Yavapai	Based on Railroad centerline of right of way, railroad now abandoned and dismantled.
Gila-Pinal	Original error in statutes. Boundary surveyed and monumented, no records located.
Graham-Greenlee	Surveyed by Tunis & Tinsley, 1912. Monuments recovered by ADOT & BLM. Survey erratic. The portion north of the southeast corner of the San Carlos Indian Reservation, surveyed by USGLO in 1913 as east boundary of reservation, usable
Maricopa-Yavapai	Surveyed by Thompson, 1924. Tied to horizontal control net.
Maricopa-Yuma	Surveyed by Atwood and Barlow, 1918, through T.9 S. Survey ordered by Arizona Supreme Court. (19 Ariz 475) Survey weak.
Mohave-Yavapai	ARS 1887 contains act in its appendix. para. 10-17, ordering survey to be conducted. Disposition of records not covered. Bearing trees have been found, records have not. A later survey of the west boundary of Yavapai County was made in 1908. Monuments have been recovered by ADOT & BLM. No trace of records.
Various	USGLO/BLM surveys exist for most of the county boundaries described as following the cadastral system. The majority of these surveys are acceptable.

