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**FIELD SUMMARY REPORT  
GILA AND SALT RIVERS**

Date of Field Trip:

12/01/87 - 12/11/87

Personnel:

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1:100,000 maps from which selected USGS topographic quadrangles have been chosen:

El Centro, NE	Mesa NE, NW, SE, SW
AJO NW, NE	Clifton NW, SW
Phoenix SW, SE	Silver City NW

Collateral Data:

USGS topographical quadrangle maps  
Soil surveys where available

Photography:

✓ The CIR (color infrared) photography is produced by NHAP at a scale of 1:58,000. There are two principal sets of photography. The first set is <sup>delete</sup> ~~from~~ May and June of 1981 and 1980, respectively. Less than ten percent of the first set is from July, 1980 or September, 1981. These photos cover the following 1:100,000 scale maps: El Centro NE, Ajo NW, Phoenix SE-SW, and Mesa NW-SW. The second principal set consist of photographs from June and July of 1983 and June of 1984. The remaining ten percent of this set is from Septem<sup>e</sup>r of 1984. These photographs represent coverage for

✓ *FP* the final 1:100,000 maps: Mesa NE-SE, Clifton NW-SW, Silver City NW and Ajo NE. Emulsion and resolution qualities are good. Climatic conditions at the time of photography seem typical for the time of the year. All photo signatures reviewed during field reconnaissance reflect emulsion and resolution qualities throughout the project area.

Ecoregion and Physiography:

✓ Both the Gila and Salt Rivers traverse several different ecoregions. However, the two projects are within the Dry Domain, Semiarid Steppe Division and Arid Desert Division, according to Bailey's Description of the Ecoregions of the United States (1980). This section of the report will deal first with the Salt River system and its tributaries and then the Gila River.

✓ The beginning of the Salt River drainage system starts with the Black River, <sup>place at end of section</sup> ~~which flows west~~ <sub>and</sub> located in the Clifton NW 1:100,000 map. Approximately 80% of this system (Salt River) is located in the <sup>upper case</sup> Upper Gila Mountains Forest Province (no sections). This ecoregion is characterized by steep foothills and mountains which may range from 1,000 feet to over 3,000 feet in local relief. The elevation above sea level (a.s.l.) is 6,000-11,000 feet. The progression through various zones have mixed grasses in the foothills along with

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- ✓ chapp<sup>a</sup>eral brush oak, juniper woodland, and pinyon juniper woodland up to 7,000 feet. Open forest of ponderosa pine
- ✓ with pinyon-juniper. Above 8,000 feet Douglas fir and Aspen
- ✓ are found with some limbar<sup>e</sup> pine<sub>x</sub> which i<sup>lower case</sup>-habits dryer and rockier places.

The North Fork White River and East Fork White River combine to create the southwest flowing White River which converges with the Black to form the Salt River. ✓

Where the Salt River flows into Theodore Roosevelt Lake is the beginning of open high mountains with local relief exceeding 3,000 feet.

Tonto Creek flows south into the north end of the lake but is not part of the study area. Theodore Roosevelt Lake is

the first of four reservoirs situated <sup>in a series of</sup> one ~~right~~ below the other on the Salt River. <sup>lower case</sup> ~~The~~ Apache Lake, Canyon Lake and <sup>lets</sup>

Saguaro Lake complete the chain of reservoirs.

At Saguaro Lake there is an ecoregion break between the Semiarid Steppe (East) and Arid Desert (West) Divisions. The

final 20% of the Salt River <sup>system</sup> flows through the American Desert Province, Creosote Bush-Bur<sup>2 words</sup>sage Section. This

province is characterized by gently undulating plains. Occasional buttes and low mountains are also in evidence

throughout these extensive plains. Elevation may range from 1,000 to 3,000 feet. Vegetation is thin with bare ground

between plants. Cacti and other thorny shrubs appear as do thornless shrubs and herbs. The slopes of the mountain may

be inhabited by paloverde, saguaro and ocotillo. The Verde River flows into the Salt River eight miles west of Saguaro Lake. The Verde flows from the <sup>lower</sup> ~~case~~ North out of Horseshoe Reservoir, south into Bartlett Reservoir, moving from the Upper Gila Mountain Forest Province to the American Desert Province.

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Just below the confluence of the Verde and Salt Rivers is the Granite Reef Dam. This dam diverts water into two main canals (Arizona and Southern) for the Phoenix Metro area and surrounding <sup>a</sup> farms. These canals then transport water to several other canals which dissect the valley floor.

✓ The Gila River flows west from New Mexico into Arizona near the town of Duncan. From this point west to North and South Butte, the Gila River is in the Semiarid Steppe Division, Mexican Highlands Shrub Steppe Province. This province includes areas of high grassy plains and isolated hills and mountains. The plains may reach elevations from 4,000-7,000 feet above sea level. The local relief of the mountains may exceed 3,000 feet. Within the province there are four distinctive vegetation zones. The first is the Desert Zone which may include saguaro, paloverde, and creosote bush. The high plains consist of short grasses (grama) and some tall grasses are in evidence too. Mesquite, yucca, and cacti will grow in open stands in the submountain zone. There are some

to Yuma is through the Arid Desert Division, American Desert Province.

Within this province, extensive undulating plains with some hills and/or low mountains is the primary landscape. Local relief may range from 1000-3000 feet. The Gila and Chocolate Mountains are the western border for this relief. To the west of these ranges toward Yuma, elevations may vary from 100-300 feet. Vegetation is thin with bare ground between plants. Cacti and thorny shrubs appear as do some thornless shrubs and herbs. The slopes of the mountain may be inhabited by palo verde, saguaro, Ocotillo. Most of the desert mountains can be devoid of vegetation.

oaks and juniper which grow in this zone. The mountain zone is primarily pines on the upper parts of the higher mountains.

The remaining course of the Gila, from North and South Butte to Yuma, is through the

*See attached page.*

Vegetation:

Variety of wetland species in both project areas is limited. This is due to insufficient amounts of precipitation and soil types. Both rivers ~~show~~ <sup>have</sup> vegetation changes as they traverse several ecoregion breaks. *These changes are noted particularly with upland species as opposed to wetland species.*

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Forested wetlands (PF01) are sparse in both project areas. Cottonwood (Populus sp.) is the dominant specie for intermittently flooded and temporary situations. Arizona sycamore (Platanus wrightii) and water birch (Betula occidentalis) were found in temporary situations and more frequently in the Salt River drainage. The water birch was seen exclusively in the Salt River study area. Willow (Salix sp.) is common in both the temporary and seasonally flooded situations. Signatures for all trees are red with shade differences depending upon wetland and upland locations. The brighter colors generally denote wetland conditions. The scrub/shrub (PSS1) community of broadleaved deciduous plants

consist of the aforementioned trees below twenty (20) feet in height. Willow and seep willow (Baccharis sp.) are the primary shrubs along the <sup>lower side</sup> Gila. Alder (Alnus sp.) and willow dominate the upper reaches of the Salt and Black River. The <sup>lower side</sup> alder begins to thin out when the elevation lowers from 9,000 to approximately 5,000 feet (asl). The alder may occur in either temporary or seasonal conditions. Mesquite

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~~(Prosopis sp.) is rarely delineated in any situation, and the exceptions being, when located on bases of flats which are flooded such is the case in this project, either by river or reservoirs at high water levels.~~

✓ The few areas of mesquite delineated were those subject to periodic inundation due to their position in the <sup>lower case</sup> River channel or flood plain. Typically the mesquite is mapped as upland. The signature for all these shrub is pink-red. The pink signature is common for alder and its associated meadows. Varying shades of red may indicate its wetland condition. Mesquite has a signature of dull red or brown and associated with upper terraces of floodplains. Normally it is found to the upland side of a stand of salt cedar which is located on a river's edge.

Salt cedar is the dominant plant of both study areas. Found in intermittently flooded and temporary situation alongside rivers, it may be seasonally inundated when associated with reservoirs. In these situations, the salt cedar will invade an area exposed by drawdown, outcompeting other vegetation.

When the reservoir is at a normal pool level the invading may be seasonally flooded. The signature for salt cedar is uniform height, smooth red tone. Easily discernable from mesquite, it can be mistaken for willow in some instances. Salt cedar is not found in the upper portions of the Salt River or the Black River. All of the preceding forest and shrub species can be found in riparian communities, impoundments and reservoirs.

Within the project area all emergents are of the persistent type (PEM1). The following species may be found in both study areas: ~~Cocklebur~~ <sup>delete</sup> (~~Xanthium strumarium~~ <sup>v. a.</sup>), <sup>C</sup> Juncus sp., and pioneer species around reservoirs. These are found in temporary situations. Seasonal emergents will include Carex sp., smartweed (Polygonum sp.) and Juncus sp. <sup>Only</sup> Typha sp. and Bullrush (Scirpus sp.) are typical semipermanently flooded species.

Emergent species found only in Salt River study are western wheatgrass ( ), and some unknown grasses. Due to the time of year, livestock grazing and a recent snow in Clifton NW, positive identification of several plants (mostly grasses) was not possible. These grasses occur in the meadows of <sup>large base</sup> Clifton NW <sup>which</sup> ~~and~~ are temporarily to seasonally flooded.

The meadows of the Clifton NW (8,000 feet - 10,000 feet) map are unique with their pink to bright red signatures.

<sup>lower case</sup> Consisting of grasses, sedges and Juncus, these meadows range from temporarily flooded to seasonally flooded. Fed primarily by seeps and springs, these meadows are readily seen on the photography. The zonation between temporary and seasonal flooding is not as easily defined. While in the field this zonation seemed easier to identify. As previously

stated, winter had already set in which meant frozen ponds and lakes. This kept us from being able to identify Potamogeton sp. and possibly Polygonum sp. Dark grainy signatures may denote AB3 ← (rooted vacular aquatic bed). Although there are some light signatures in the deeper parts of some ponds. These are thought to be aquatic beds. In the lower elevations, Lemna sp. is evident along the Salt and Gila.

#### Climate:

The climates within the project are all dry with low precipitation amounts during the year. The Upper Gila Mountains Forest Province has the most variable climate due to the rising elevation of the mountains. Average temperatures may range from 40° F in the upper mountains to 55° F in the lower foothills. Precipitation averages, however, increase with higher elevations. Thunderstorms may

occur in the summer and rains also take place in early autumn and winter. The mountains receive their precipitation primarily in the form of snow. The Mexican Highlands Shrub Steppe Province climate is semiarid with most of the precipitation falling from convectional summer storms. Twelve inches is the average annual precipitation. Temperature averages for the year may range from 55° F to 70° F. The winter months may have extreme cold weather.

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Finally, the American Desert Province, which is the driest of all the other provinces. Here the annual average temperature ranges between 60° F to 75° F. Winters are mild with an occasional chance of frost. Rain in the winter is widespread, although summer rains are from thunderstorms. It should be noted that rainfall is sporadic and does not occur regularly.

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Average precipitation may vary with two to ten inches per year, but can go upwards of 25 inches on the mountain slopes. Evaporation within the province is usually high during the summer months.

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