DRAFT

MEMORANDUM

Date: April 5, 2000

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: **Prioritization of Streams for Conservation in Pima County**

Summary

The attached report contributes to the Riparian Protection Element of the Sonoran Desert Conservation Plan by describing a number of streams within watershed planning units and prioritizing these streams according to their existing contribution to the overall conservation of biological diversity in Pima County. Streams that ranked in the top 20 by the following parameters are recommended for priority consideration in identifying areas for further analysis by the scientists assisting in the development of the Sonoran Desert Conservation Plan:

- perennial stream length and intermittent stream length
- area of hydro-mesoriparian vegetation and of xeroriparian Class A vegetation
- area of shallow groundwater
- presence of native fish.

Over 50 percent of the priority streams within the County are found within the Altar Valley and the Cienega Rincon area.

SDCP Planning Unit	Number of Priority Streams	Percentage of Total
1. Middle San Pedro	8	12
2. Cienega Rincon	17	26
3. Upper Santa Cruz	3	4
4. Middle Santa Cruz	9.5	15
5. Tortolita Fan	5.5	8
6A. Altar Valley	18	28
6B. Avra Valley	2	3
7. Tohono Nation	1	2
8. Western Pima Co.	1	2
Total	65	100

Perennial Stream Length -- Perennial stream lengths are the greatest in these areas:

- Sabino Canyon in the Middle Santa Cruz subarea (15 miles);
- Upper Cienega Creek of the Cienega Rincon subarea (7.7 miles);
- Santa Cruz River in the Middle Santa Cruz and Tortolita Fan subareas (6.8 miles);
- Buehman Canyon of the Middle San Pedro subarea (5.2 miles);
- Canada del Oro in the Tortolita Fan subarea (4.2 miles); and
- Arivaca Creek within the Altar Valley subarea (2.7 miles).

Intermittent Stream Length -- Intermittent stream lengths are the greatest in these areas:

- Tanque Verde Creek the Middle Santa Cruz subarea (17.2 miles);
- Santa Cruz River in the Middle Santa Cruz and Tortolita Fan subareas (15.7 miles);
- Agua Verde Creek of the Cienega Rincon subarea (15 miles);
- Bear Canyon the Middle Santa Cruz subarea (12.3 miles);
- Rincon Creek of the Cienega Rincon subarea (11.3 miles);
- San Pedro River of the Middle San Pedro subarea (10.6 miles);
- Ventana Canyon of the Middle Santa Cruz subarea (9.3 miles);
- Sutherland Wash in the Tortolita Fan subarea (6.5 miles);
- Molino Canyon in the Middle Santa Cruz subarea (5.2 miles);
- Lower Cienega Creek in the Cienega Rincon subarea (4.8 miles); and
- Romero Canyon in the Middle Santa Cruz subarea (4.8 miles).

Hydro-mesoriparian Habitat -- Hydro-mesoriparian habitat covers that greatest area in:

- Santa Cruz River in the Middle Santa Cruz and Tortolita Fan subareas (3499 acres);
- San Pedro River of the Middle San Pedro subarea (2306 acres);
- Tanque Verde Creek in the Middle Santa Cruz subarea (1115 acres);
- Arivaca Creek within the Altar Valley subarea (1051 acres);
- Agua Caliente Canyon in the Middle Santa Cruz subarea (1011 acres);
- Sopori Wash in the Altar Valley subarea (970 acres);
- Upper Cienega Creek in the Cienega Rincon subarea (897 acres); and
- Sabino Creek in the Middle Santa Cruz subarea (839 acres).

Xeroriparian -- This habitat, associated with upland species, covers the greatest area in:

- Sabino Wash in the Altar Valley subarea (353 acres);
- Agua Verde Creek in the Cienega Rincon subarea (291.3 acres);
- Penitas Wash in the Altar Valley subarea (230 acres);
- Buehman Canyon of the Middle San Pedro subarea (228.4 acres);
- Mescal Arroyo in the Cienega Rincon subarea (218.3 acres);
- Upper Cienega Creek in the Cienega Rincon subarea (159.8 acres);
- Thomas Canyon in the Altar Valley subarea (194.8 acres); and
- Medera Canyon in the Upper Santa Cruz subarea (105 acres).

Shallow Groundwater -- Shallow groundwater covers that greatest area in:

- Tanque Verde Creek in the Middle Santa Cruz subarea (5528 acres);
- Arivaca Creek within the Altar Valley subarea (3311 acres);
- Upper Cienega Creek in the Cienega Rincon subarea (2911 acres);
- Agua Caliente Canyon in the Middle Santa Cruz subarea (2863 acres);
- San Pedro River of the Middle San Pedro subarea (2102 acres);
- Sabino Creek in the Middle Santa Cruz subarea (1753 acres);
- Lower Cienega Creek in the Cienega Rincon subarea (1651 acres);
- Sopori Wash in the Altar Valley subarea (1551 acres);
- Gardner Canyon in the Cienega Rincon subarea (1210 acres);
- Agua Verde Creek in the Cienega Rincon subarea (1057 acres); and
- Davidson Canyon in the Cienega Rincon subarea (907 acres).

Number of Recorded Native Fish Species -- The following streams have more than 1 recorded native fish species:

- San Pedro River of the Middle San Pedro subarea (6 native fish species);
- Buehman Canyon of the Middle San Pedro subarea (3 native fish species);
- Upper Cienega Creek of the Cienega Rincon subarea (3 native fish species);
- Mattie Canyon of the Cienega Rincon subarea (3 native fish species);
- Sabino Canyon in the Middle Santa Cruz subarea (3 native fish species);
- Davidson Canyon of the Cienega Rincon subarea (2 native fish species);
- Canada del Oro in the Tortolita Fan subarea (2 native fish species).

Conclusion

The priority streams analysis provides a basis for developing the Riparian Element of the Sonoran Desert Conservation Plan not only by describing the relative resource values of the different streams within Pima County, but also by conveying a sense of the overall fragile nature of these streams. The chart below shows that only a few streams -- whether perennial or intermittent -- have a reach of more than two miles. Next week a more detailed analysis will be issued as part of a report entitled *Overview of Pima County's Watersheds and Watercourses*. Results of riparian mapping efforts by the consulting team will also be available.

Watershed within Pima County	Number of Streams in Study with more than 2 miles of Perennial Flow	Number of Streams in Study with more than 2 miles of Intermittent Flow
Tortolita Fan	3 (shares Santa Cruz)	3 (shares Santa Cruz)
Middle Santa Cruz	2 (shares Santa Cruz)	7 (shares Santa Cruz)
Cienega-Rincon	2	7
Middle San Pedro	2	5
Altar Valley	1	2
Upper Santa Cruz	0	1
Avra Valley	0	0

PRIORITIZATION OF STREAMS FOR CONSERVATION PIMA COUNTY, ARIZONA

By David Scalero and Julia Fonseca

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose

The overall biological goal of the Sonoran Desert Conservation Plan (SDCP) is to "ensure the long-term survival of the full spectrum of plants and animals indigenous to Pima County through maintaining or improving the habitat conditions and ecosystem functions necessary for their survival." Natural hydrologic processes along streams are one type of ecosystem function needed to support riparian habitats.

The purpose of this report is to provide an interim basis for prioritizing streams in terms of their contributions to the overall conservation of biologic diversity in Pima County, Arizona. The report is undertaken as part of the riparian protection and restoration element of the SDCP.

This prioritization is intended to serve as an interim planning tool that could be used by land stewards, organizations and decision-makers to conserve our riparian heritage. In addition, it is being provided to the consultants responsible for completing the habitat element of the SDCP for future refinement. As they develop new information, we expect the prioritizations to change. In addition, the prioritization is to be introduced in the subarea planning effort to draw attention to certain hydrologic and vegetative associated with streams in those areas.

1.2 Location

The planning area is defined as Pima County, excluding the Tohono O'Odham Nation and Goldwater Gunnery Range.

1.3 Limitations to the Prioritization

The findings below are critical to understanding how this information can and cannot be used.

- The river reach is the unit by which the prioritization is organized. Reaches vary in length from 0.007 to 17.2 miles in length.

- Hydrologic and riparian vegetation data were missing or incomplete for Pima County streams. As a result, some important resources may have been overlooked for lack of information. The prioritization is based on ranking stream reaches by available information in one or more criteria categories.

- The prioritization relied on information from a variety of sources. Where possible, errors were identified and corrected, but no new fieldwork was undertaken to improve the database.

- The prioritization does not consider restoration potential or threats to conservation. The purpose was for ranking streams to be preserved based on existing characteristics.

2.0 METHODS OF PRIORITIZATION

2.1 Criteria

Dr. William Shaw and members of the Science Technical Advisory Team (STAT) suggested that the following criteria be used to rank the relative significance of riparian and aquatic resources along watercourses in Pima County:

1. Presence of native fish.
2. Extensive areas of leguminous tree forest, native floodplain grassland or deciduous broadleaf forest or marsh.
3. Presence of endemic or threatened or endangered species.

This information is not uniformly available for the planning area at this time. RECON Consultants, Inc. (RECON) will develop information on wildlife species distribution and Harris Environmental Group will identify riparian vegetation information. Their work will allow our prioritization to be recast using these or other criteria developed by the STAT.

2.2 Methods

We considered the STAT's preferred criteria in light of available data and evaluated streams based on these available data:

1. Availability of water
2. Area of high-density or hydromesic vegetation
3. Number of fish species recorded

Availability of water was based on the stream flow lengths obtained by the Pima Association of Governments (PAG) during their study of perennial and intermittent streams for Pima County (PAG, 2000). The data were obtained by PAG using literature searches, field notes and field observations. Some information was obtained from people who called in or sent information by E-mail. These data were used only when field verified by PAG staff. All other data has not been field verified to the limited budget and time constraints of this study. In total, PAG listed 55 perennial reaches and 82 intermittent streams along 74 different streams in Pima County.

As with perennial and intermittent streams, areas of shallow groundwater were determined using the data available from PAG (PAG, 2000). For some streams, groundwater areas were suspected to occur based on the presence of riparian vegetation provided by the U. S. Forest Service Riparian Area Survey and Evaluation System. These areas were recorded as points by PAG and no acreage was available. Although

continuing technical advances would allow acreage to be determined for these areas, PAG was only directed to determine acreage for the high threat zones. A "Y" is displayed in Column 8 of Table 1 for areas where no acreage was determined. The term "N/A" in this column is used for all the other streams to indicate a lack of information due to the short amount of time for the study. It is likely that shallow groundwater zones occur along other streams for with data has not yet become available.

Acreage of Hydro-mesoriparian and Class A Riparian habitats were determined using Pima County's Riparian Habitat Classification Maps (scale: 1" = 1000'). Hydroriparian habitats are defined as habitats generally associated with perennial watercourses, with plant communities dominated by obligate or preferential wetland species such as cottonwood and willow. Mesoriparian habitats are generally associated with perennial or intermittent streams or shallow groundwater. Plant communities may be dominated by species found in drier habitats (e.g. mesquite) but also contain some preferential species such as ash or netleaf hackberry. Class A Riparian, or Xeroriparian A, habitats are associated with ephemeral streams where the total vegetative volume is greater than 0.85 cubic meters per square meter as specified in the Floodplain and Erosion Hazard Management Ordinance No. 1994-FC2. Xeroriparian habitats typically contain plant species found in upland habitats, however, the plants are typically larger or occur at higher densities than adjacent uplands. Acreage of hydromesic vegetation for the Santa Cruz River was derived from a report prepared by Dr. Marc Baker, a botanist from Southwest Botanical Research (Baker, 2000). It should be noted that a portion of this acreage includes some very low density mesquite.

The number of fish species recorded along each stream was determined using two different sources. The first source was data obtained by PAG (PAG, 2000). This source provides information on the presence of fish and, in many cases, included specific names of fish species present. Several streams contained non-native species and are indicated by endnotes in the table. The second source of information was the "Arizona Rivers Assessment" produced by Arizona State Parks and the National Park Service (AZ State Parks, 1995). This report includes a series of tables which show the number of native fish species present along various streams in Arizona, including Pima County. The assessment only incorporated input from questionnaires of land and wildlife managers; no new data were collected or developed.

3.0 RESULTS

Table 1 summarizes the streams that ranked in the top 20 in any of these parameters:

- perennial stream length
- intermittent stream length
- area of hydro-mesoriparian vegetation
- area of Xeroriparian Class A vegetation
- area of shallow groundwater
- presence of native fish

Fifty-three of the original seventy-four streams identified by the PAG analysis ranked in the top 20 by at least one parameter. Twenty-one failed to rank in the top 20. Twelve streams were added to the list based on the acreage of dense riparian habitat (Class A) determined using Pima County's Riparian Habitat Classification maps.

The total of sixty-five priority streams are identified for conservation efforts based on the criteria above. The majority of these streams are located in the Cienega Creek and Altar Valley sub-areas. Percentages for each subarea are listed in Table 2.

With the exception of Quitobaquito, no riparian areas were identified as priority streams in Sub-area 8. This is because of our reliance on indicators that are dependent on water availability.

This water-scarce area receives less precipitation than the other sub-areas, so no hydromesic or xeroriparian Class A vegetation was mapped along watercourses outside of existing reserves. However, streamside habitats are no less important here than elsewhere.

For the purpose of geographic and biologic representation, the following streams are proposed for consideration as "priority" streams for Sub-area 8:

- **Kuakatch Wash:** a lush xeroriparian wash of significance to the Cactus Ferruginous Pygmy-Owl and the Mexican Leaf-cutter Ant.

- **Growler Wash:** the largest xeroriparian watercourse in the sub-area; also supports habitat for the Cactus Ferruginous Pygmy-Owl, at least through Organ Pipe Cactus National Monument

- **Cuerda de Leña:** a large xeroriparian watercourse south of Why; its name means "cord of wood" and it contains many blue palo verde trees

- **Rio Cornez:** a large xeroriparian watercourse located north of Ajo

- **Alamo Canyon:** located in the Ajo Mountains; it used to have cottonwoods, but now has willows and deergrass in a few wet spots and an interesting assemblage of unusual trees (Ajo Oak, Sonoran Rosewood and Cohuila Juniper) and shrubs in the upper elevations which is unique in the United States.

- **Cherioni Wash:** a tributary to Growler Wash which is similar to Cuerda de Leña, at least through the Valley of the Ajo.

- **Aguajita Wash** and **Aguajita Spring:** the wash has a well developed riparian area and the spring supports *Scirpus americanus* and other wetland obligates; a mesquite bosque surrounds the spring and the only stand of Desert Caper (*Atamisquea emarginata*) in the United States occurs here.

The Area 8 prioritization is based upon staff review of 1972, 1:62500 scale, aerial photographs for the region and recommendations provided by Sue Rutman from the Organ Pipe Cactus National Monument (Rutman, 2000).

4.0 DISCUSSION

Prioritization involves tradeoffs among natural characteristics that vary in time and space. The authors believe no single criterion is adequate to rank the contribution of a given stream reach to the conservation of biological diversity.

Area is a fundamental consideration that can shape the diversity of species which may utilize a given riparian area. Larger areas increase the number of territories that can be defined by small species, thus allowing them to increase their numbers. The increase in food sources and more space for territory development allows for even larger species to inhabit the areas. Large areas of riparian habitat also provide excellent movement corridors for species with very large home ranges, which adds even more diversity to those areas.

Availability of water is essential to establish and maintain aquatic and riparian habitats. Areas with surface water or shallow groundwater generally contain the most lush riparian vegetation. In turn, areas with dense riparian vegetation most often indicate the presence of water at or near the surface. Even if aquatic habitats or riparian vegetation do not exist, or exists to a limited extent, the availability of water at a given site signifies the potential for the establishment of quality riparian vegetation and should be included as criteria for any prioritization of streams for conservation.

The presence of fish along a watercourse typically indicates a high quality riparian environment. Areas with fish generally have high water quality levels, more stable watershed conditions and fewer ecosystem threats. Fish also are a good source of food for many terrestrial and bird species, and their presence can greatly increase the diversity of an area.

One type of information which was not available was stream order. First-order streams are those which originate from hillslope runoff. Two first order streams coalesce to form second-order streams, and so forth to create the watershed network. The major valley floor streams would generally be classified as fourth-order streams.

Previous reports, such as *Water Resources and the Sonoran Desert Conservation Plan* (July 1999) and *Science and GIS Update* (November 1999), documented great losses of habitat along the high-order watercourses. At present, it is not possible to analyze representation of watercourses by stream order, nor does Pima County have a detailed watershed delineation for the planning area. These tools could be used to examine the representation of streams and watersheds in terms of existing or proposed reserves.

5.0 RECOMMENDATIONS

[Reserved for STAT]

6.0 SOURCES

Arizona State Parks, 1995. Arizona Rivers Assessment, Technical Summary. Arizona State Parks, 1300 W. Washington Street, Phoenix, AZ, 85007.

Baker, M. A. 2000. Vegetation along the Lower Santa Cruz River, Tucson, Arizona. *Southwest Botanical Research*. Project No. 99-0104FLORA, in fulfillment of U.S. Bureau of Reclamation purchase order number 99PG321110.

Pima Association of Governments (PAG), 2000. GIS Coverage of Perennial Streams, Intermittent Streams and Areas of Shallow Groundwater. *Produce for* the Sonoran Desert Conservation Plan, Pima County, Arizona.

Rutman, Sue <Sue_Rutman@nps.gov>, "Re: Streams prioritization -- area 8", February, 28, 2000, office communication (February 28, 2000).

7.0 TABLES

8.0 MAPS

Table 1

PRIORITY STREAMS IN PIMA COUNTY, ARIZONA

ARRANGED BY SDCP SUB-AREA

SDCP Planning Unit	Stream Name	Length		Habitat			GW	Animals	
		Perennial (mi.)	Intermittent (mi.)	Pygmy-Owl Critical Habitat	Hydro-Mesoriparian Habitat (acres)	Class A Riparian Habitat (acres)	Shallow Groundwater (acres)	Fish Species (# recorded)	Leopard Frogs
1	Buehman Canyon	5.2	2.5	N	0	228.4	N/A	3[a]	Y
	Espiritu Canyon	2.2	2.4	N	0	0	N/A	N/A	N/A
	Bingham Cienega	1.9	0.0	Y	0	0	N/A	N/A	N/A
	San Pedro River	1.3	10.6	Y	2306	0	2102	6[a]	N/A
	Youtcy Canyon	1.2	1.6	N	0	0	N/A	N/A	Y
	Edgar Canyon	0.7	0.0	N	93.4	70.9	N/A	1	Y
	Bullock Canyon	0.7	3.1	N	N/A	N/A	N/A	1	Y
	Miller Creek	0.0	4.1	N	N/A	N/A	N/A	N/A	N/A
2	Cienega Creek (upper)	7.7	4.6	N	897	159.8	2911	3	Y
	Cienega Creek (lower)	2.7	4.8	N	577	55.5	1651	1	Y
	Empire Gulch	1.4	0.0	N	N/A	N/A	N/A	N/A	N/A
	Wakefield Canyon	1.4	0.3	N	0	37.1	N/A	1	Y
	Mattie Canyon	1.3	0.4	N	N/A	N/A	N/A	3[a]	N/A
	Cinco Canyon	0.7	0.0	N	N/A	N/A	N/A	N/A	N/A
	Davidson Canyon	0.7	1.3	N	0	26.6	907	2	?
	Posta Quemada Canyon	0.3	0.0	N	N/A	N/A	21	1	N/A
	Nogales Spring	0.3	0.0	N	0	0	N/A	1	Y
	Little Nogales Spring	0.2	0.0	N	0	0	N/A	1	Y
	Agua Verde Creek	0.0	15.0	N	N/A	291.3	1057	N/A	N/A
	Gardner Canyon	0.0	0.5	N	N/A	N/A	1210	N/A	N/A
	Rincon Creek	0.0	11.3	N	563	0	568	1	Y
	Mescal Arroyo	0.0	0.0	N	0	218.3	N/A	0	N/A
	Box Canyon	0.0	4.1	N	N/A	N/A	62	N/A	Y
	Chiminea Canyon	0.0	4.1	N	N/A	N/A	N/A	N/A	Y
	Madrona Canyon	0.0	3.4	N	N/A	N/A	N/A	N/A	Y
3	Florida Canyon	0.0	3.4	N	N/A	N/A	N/A	N/A	N/A
	Franco Wash	0.0	0.0	N	0	67	N/A	0	N/A
	Madera Canyon	0.0	1.5	N	N/A	105.1	N/A	N/A	N/A
4	Sabino Canyon	15.0	3.4	N	839	N/A	1753	3[a]	N/A
	Tanque Verde Creek	0.5	17.2	N	1115	N/A	5528	1	N/A
	Romero Canyon	0.4	4.8	N	186	N/A	N/A	1[c]	N/A
	Bear Canyon	0.0	12.3	N	N/A	N/A	N/A	N/A	N/A
	Agua Caliente Canyon	0.0	0.0	N	1011	N/A	2863	1	N/A
	Ventana Canyon	0.0	9.3	N	N/A	N/A	N/A	N/A	N/A
	Pantano Wash	0.0	0.0	N	N/A	N/A	30	0	N/A
	Rillito Creek	0.0	0.0	N	177	0	177	0	N/A
	Molino Canyon	0.0	5.2	N	N/A	N/A	N/A	N/A	N/A

Table 1

PRIORITY STREAMS IN PIMA COUNTY, ARIZONA

ARRANGED BY SDCP SUB-AREA

SDCP Planning Unit	Stream Name	Length		Habitat			GW	Animals	
		Perennial (mi.)	Intermittent (mi.)	Pygmy-Owl Critical Habitat	Hydro-Mesoriparian Habitat (acres)	Class A Riparian Habitat (acres)	Shallow Groundwater (acres)	Fish Species (# recorded)	Leopard Frogs
4,5	Santa Cruz River	6.8	15.7	Y	3499	N/A	N/A	N/A	N/A
5	Canada del Oro	4.2	1.2	N	303	N/A	N/A	2[a]	N/A
	Lemmon Creek	2.7	0.0	N	N/A	N/A	N/A	1[b]	N/A
	Wild Burro Canyon	0.7	0.0	N	N/A	N/A	N/A	N/A	N/A
	Palisade Canyon Creek	0.0	4.5	N	N/A	N/A	N/A	N/A	N/A
	Sutherland Wash	0.0	6.5	N	N/A	121	483	N/A	N/A
6A	Arivaca Creek	2.7	0.7	N	1051	22.8	3311	N/A	N/A
	Arrieta Wash	0.0	0.0	N	N/A	N/A	Y	0	N/A
	Asolido Wash	0.0	0.0	Y	0	85.9	N/A	0	N/A
	Fresnal Wash	0.0	0.0	N	N/A	N/A	Y	0	N/A
	East Fork Apache Canyon	0.0	0.0	N	N/A	N/A	Y	0	N/A
	Fraguita Wash	0.0	0.0	N	N/A	N/A	Y	0	N/A
	Las Moras Wash	0.0	0.0	Y	0	121.2	N/A	0	N/A
	McCafferty Canyon	0.0	0.0	N	0	80.1	N/A	N/A	N/A
	Penitas	0.0	0.0	N	0	230	N/A	0	N/A
	Pozo Hondo Wash	0.0	0.0	Y	0	85.3	N/A	0	N/A
	Sabino Wash	0.0	0.0	Y	0	353.2	N/A	0	N/A
	Brown Canyon	0.0	3.4	Y	N/A	123.5	N/A	N/A	N/A
	Cedar Canyon	0.0	0.0	N	N/A	N/A	Y	0	N/A
	Sopori Wash	0.0	0.0	N	970	0	1551	0	N/A
	Thomas Canyon	0.0	3.0	Y	0	194.8	N/A	N/A	N/A
	Saucito Wash	0.0	0.0	Y	0	92.2	N/A	0	N/A
	San Luis Wash	0.0	0.0	N	N/A	N/A	Y	0	N/A
	Unnamed tib. to Arivaca Creek	0.0	0.0	N	0	81.9	N/A	0	N/A
6B	Blanco Wash	0.0	0.0	N	0	69.5	N/A	0	N/A
	Cocio Wash	0.0	0.0	N	0	22.9	369	0	N/A
7	Aguirre Wash	0.0	0.0	N	0	79.4	N/A	0	N/A
8	Quitobaquito Pond	0.1	0.0	N	N/A	N/A	N/A	1	N/A

Legend

a Number of native species listed in the Arizona Rivers Assessment (AZ State Parks, 1995)

b Introduced non-native brown trout

c Introduced non-native green sunfish

N/A Information is not available

Table 2

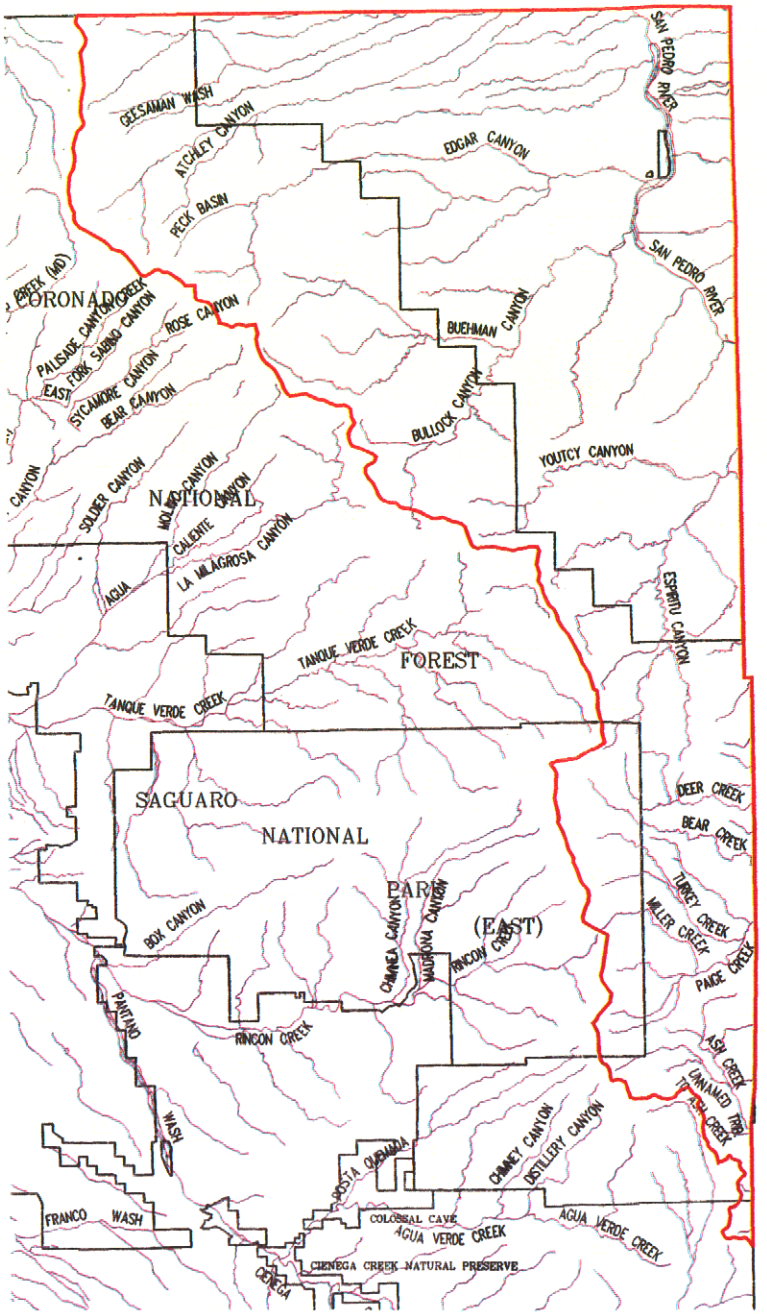
PERCENTAGE OF STREAMS WITHIN EACH SDCP PLANNING UNIT

SDCP Planning Unit	Number of Priority Streams	Percentage of Total
1	8	12
2	17	26
3	3	5
4	9.5	15
5	5.5	8
6A	18	28
6B	2	3
7	1	2
8	1	2
Total	65	100

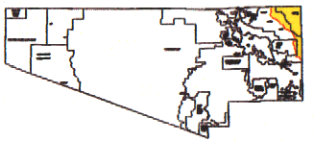
Priority Streams

SDCP PLANNING UNIT 1

- Washes
- Watershed Planning Unit
- Administrative Boundaries



Pima County Index Map

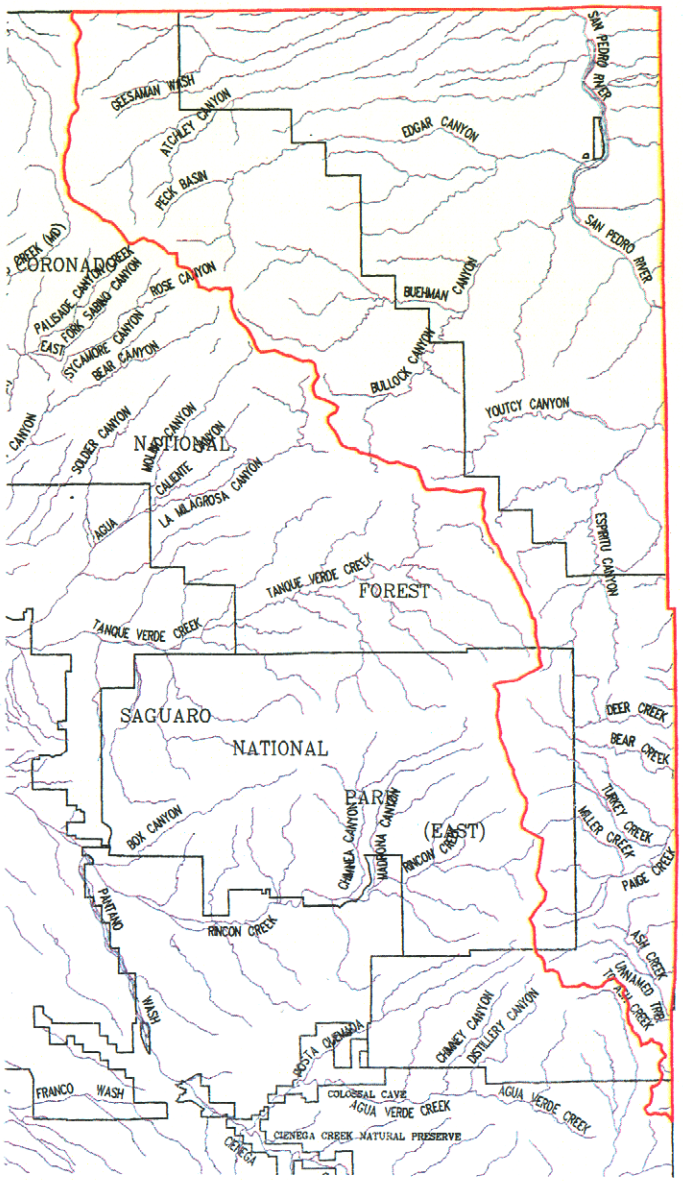


Index Map Scale 1:1,500,000

Scale 1: 70, 000

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES
Pima County Technical Services
201 North Stone Avenue - 9th Floor
Tucson, Arizona 85701-1207
(520) 740-6670 - FAX (520) 798-3429
http://www.dot.co.pima.az.us

/pygmyow;2/sonora/cultural/semjoined/plan1/sela/pri_streams1.aml Plotted 3/20/00

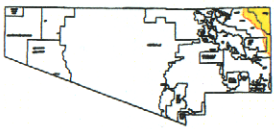


Priority Streams

SDCP PLANNING UNIT 1

- Washes
- Watershed Planning Unit
- Administrative Boundaries

Pima County Index Map



Index Map Scale 1:1,500,000

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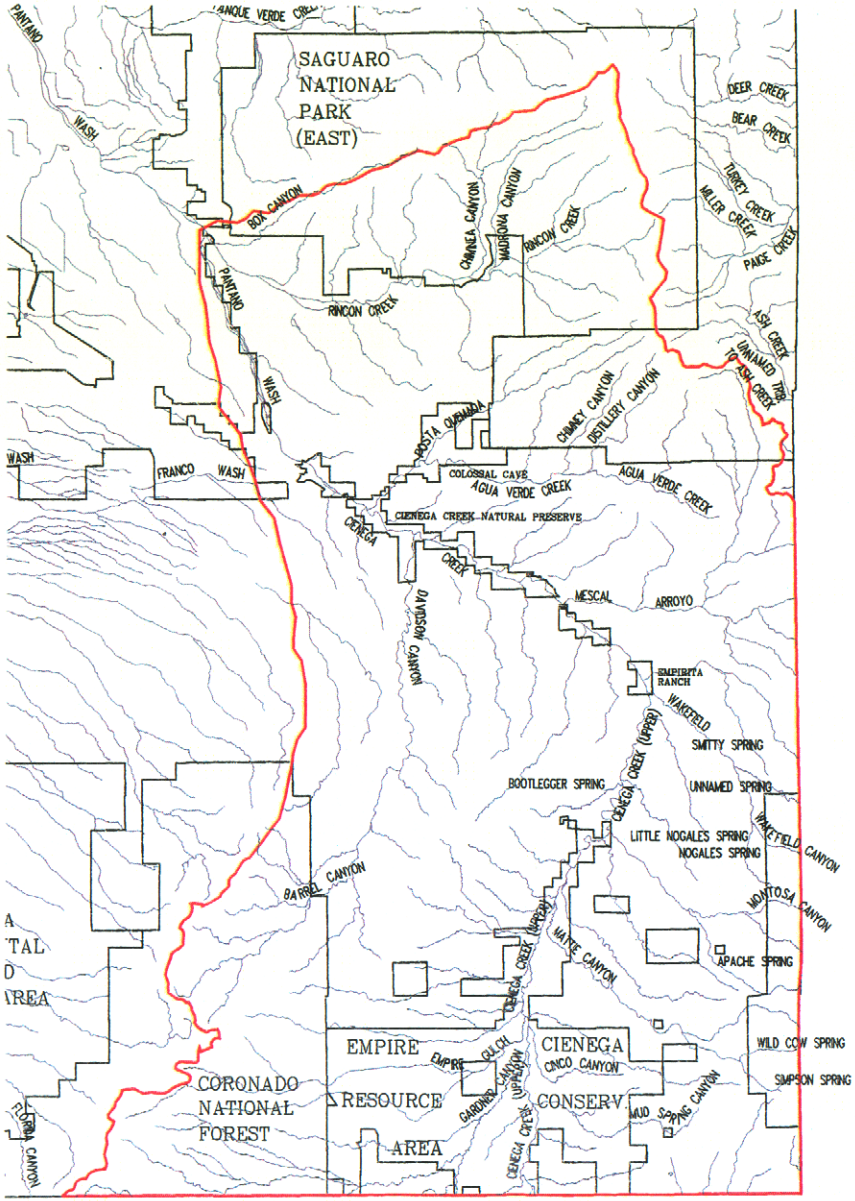
/pygmyow.2/sonora/cultural/sasjoined/plan1/smls/pri_streams1.aml Plotted 3/28/00

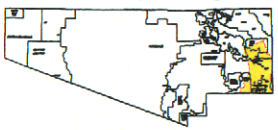


Priority Streams

SDCP PLANNING UNIT 2

- Washes
- Watershed Planning Unit
- Administrative Boundaries

Pima County Index Map



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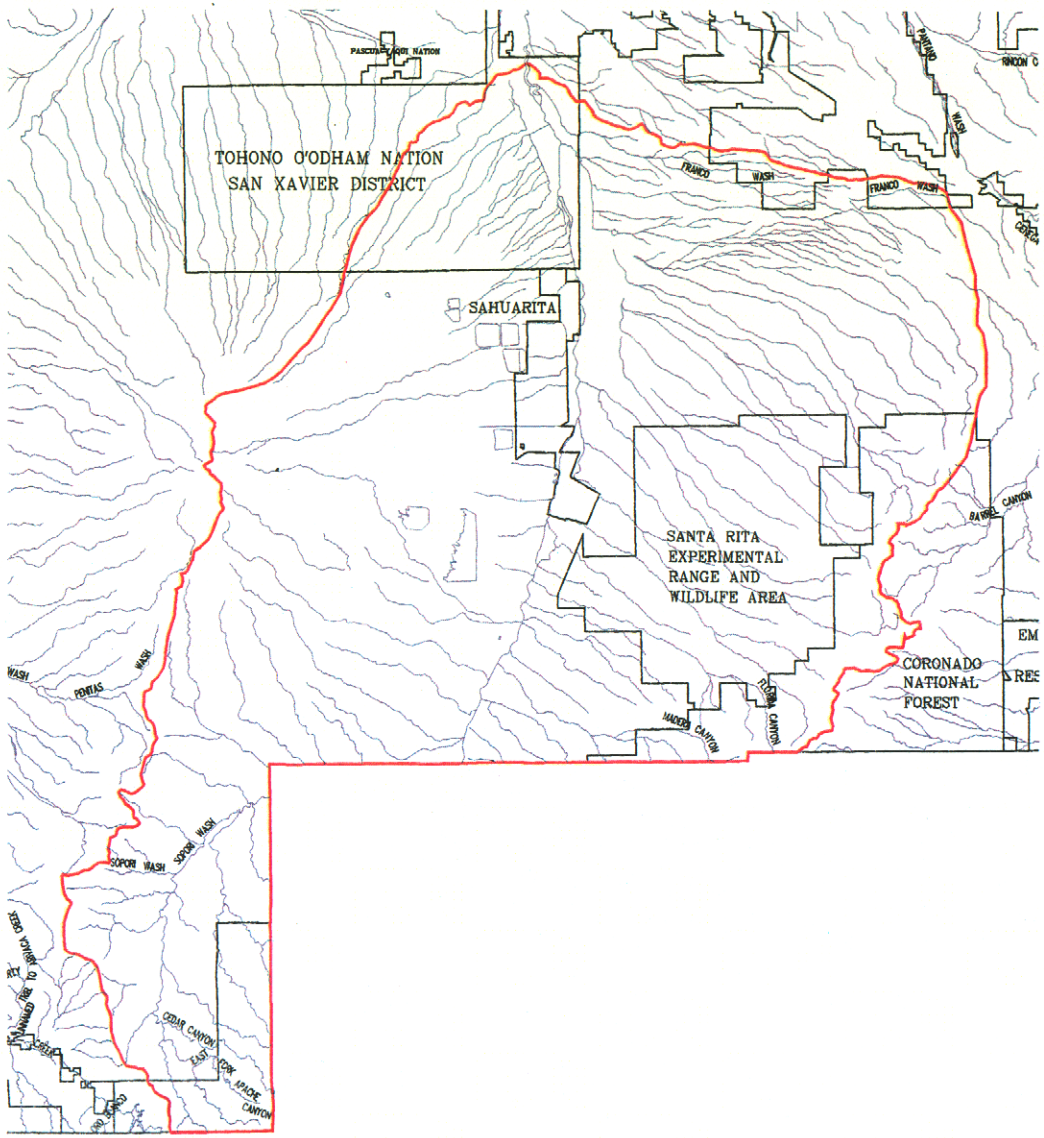
/pys4ysw12/canara/cultural/sspajoinad/plan2/sale/pri_streams2.aplPlotted 3/31/00

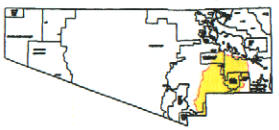
Priority Streams

SDCP PLANNING UNIT 3

- Washes
- Watershed Planning Unit
- Administrative Boundaries



Pima County Index Map



Index Map Scale 1:1,500,000

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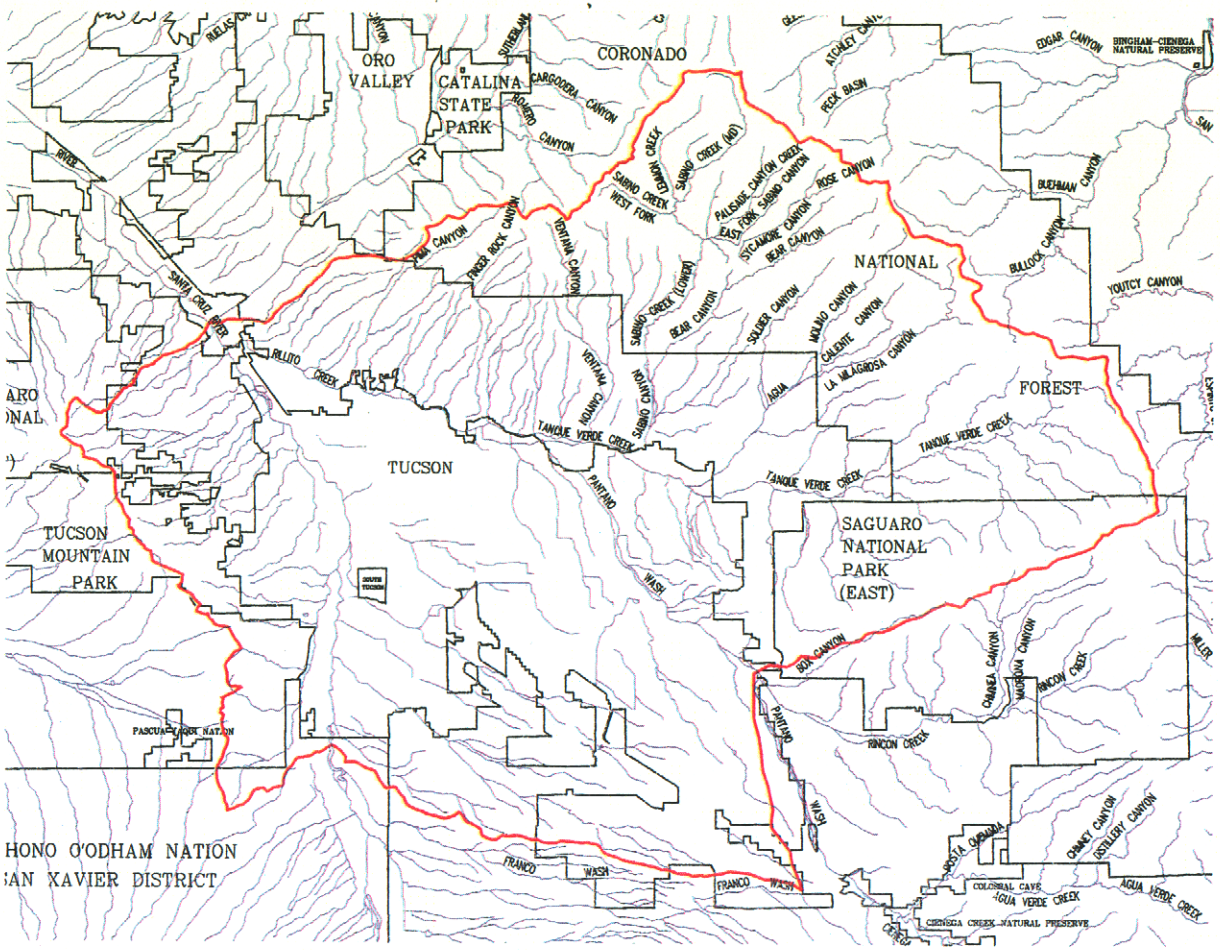
/pygayow12/sonora/cultural/samjoined/plan3/smls/pri_streams3.smlPlotted 3/31/00

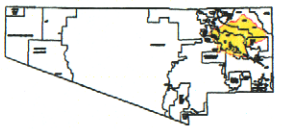
Priority Streams

SDCP PLANNING UNIT 4

- Washes
- Watershed Planning Unit
- Administrative Boundaries



Pima County Index Map



Index Map Scale 1:1,500,000

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N

Scale 1: 80,000

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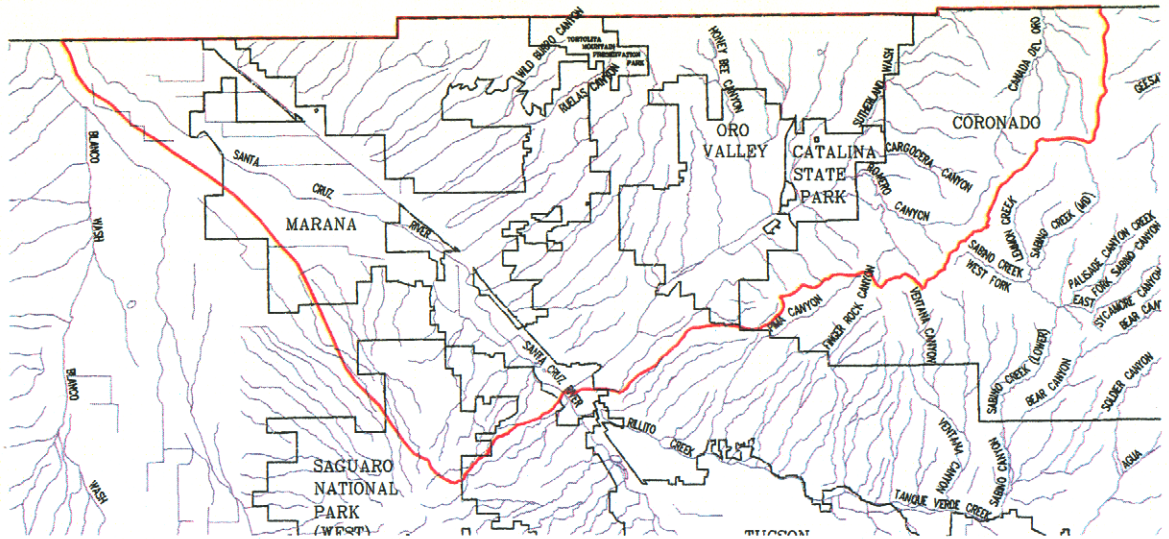
/pydmow12/sonora/cultural/sonoran/plan4/gis/pri_streams4.aml Plotted 3/31/00

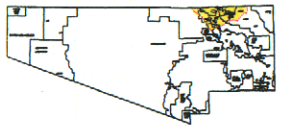
Priority Streams

SDCP PLANNING UNIT 5

- Washes
- Watershed Planning Unit
- Administrative Boundaries



Pima County Index Map



Index Map Scale 1:1,500,000

N

Scale 1: 80,000

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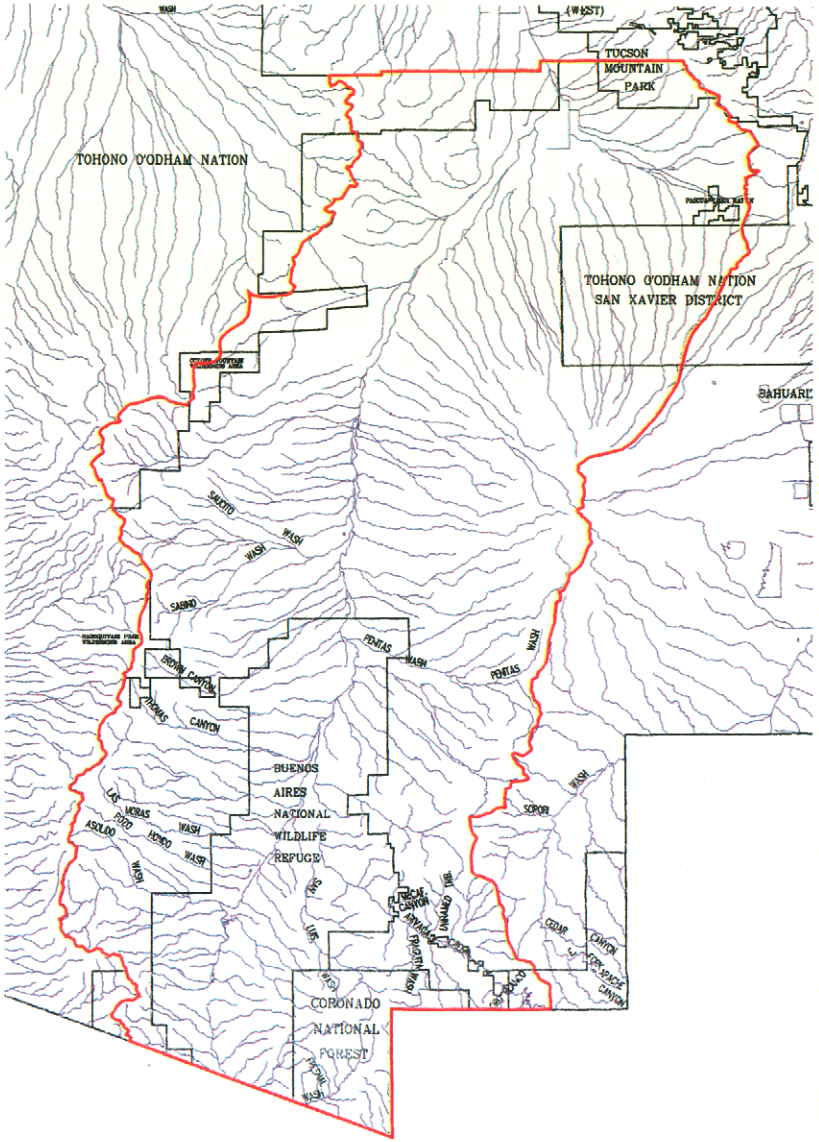
/pygmyowl2/sonora/cultural/ssmjoined/plan5/smls/pri_streams5.aml Plotted 3/31/00

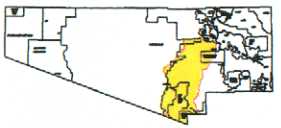
Priority Streams

SDCP PLANNING UNIT 6a

- Washes
- Watershed Planning Unit
- Administrative Boundaries



Pima County Index Map



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Scale 1: 120,000

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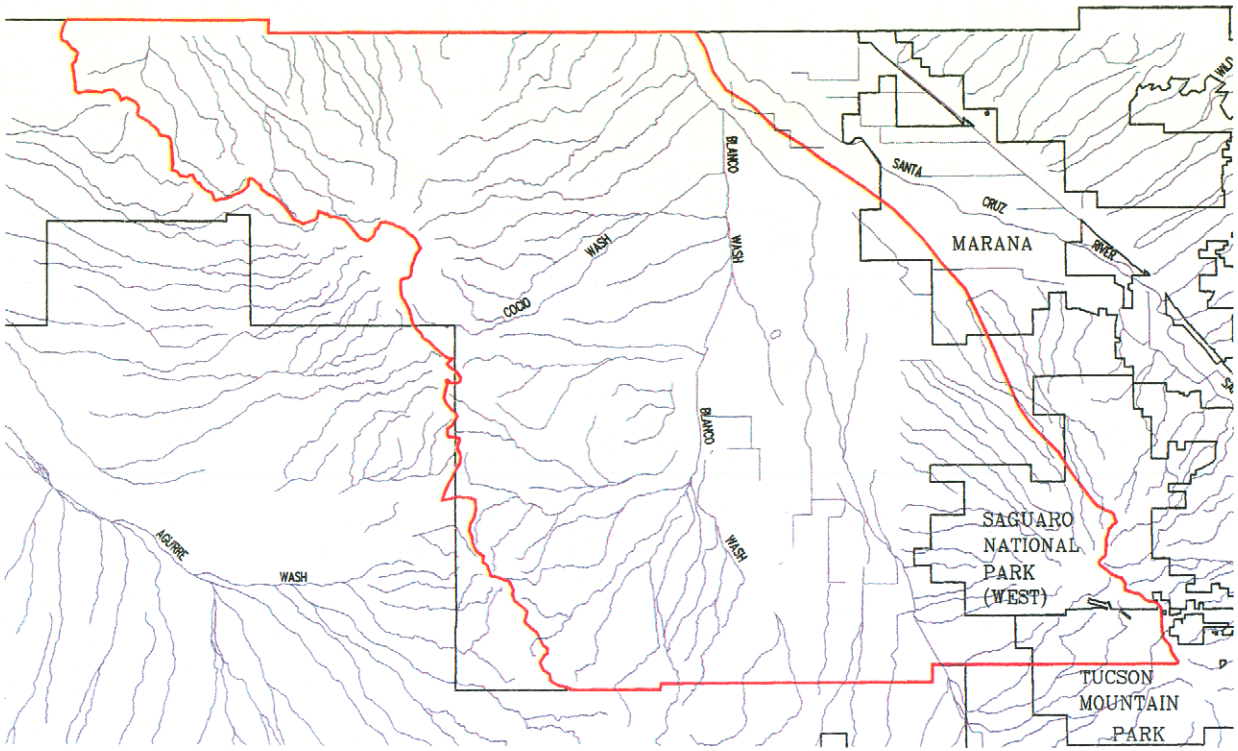
/pygayowl2/sonora/cultural/esmjoined/plan6a/mis/pri_streams8a.eMlated 3/27/00

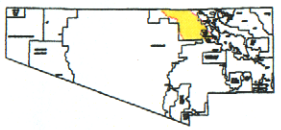
Priority Streams

SDCP PLANNING UNIT 6b



- Washes
- Watershed Planning Unit
- Administrative Boundaries

Pima County Index Map



Index Map Scale 1:1,500,000

N

Scale 1: 70, 000

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/Dy0ayow12/Sonora/Cultural/ssm|oinud/plan6b/smls/pri_streams6b.eMlotted 3/31/00