



**FRAMEWORK FOR PUBLIC INPUT  
TO A STATE WATER PLAN**

**NEW MEXICO  
WATER RESOURCE ATLAS**

**NEW MEXICO OFFICE OF THE STATE ENGINEER  
AND THE INTERSTATE STREAM COMMISSION**

RICHARD P. CHENEY, Chairman, Farmington  
HOYT PATTISON, Vice-Chairman, Clovis  
THOMAS C. TURNEY, PE, Secretary, Santa Fe  
PALEMON A. MARTINEZ, Valdez  
JOHN S. BULSTERBAUM, Deming  
PHILIP R. GRANT, Albuquerque  
HAROLD HOUGHTALING, Jr., Lake Arthur  
NARENDRA N. GUNAJI, Las Cruces  
PHIL H. BIDEGAIN, Tucumcari

**DECEMBER 2002**

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New Mexico Water  
Resource Atlas



Prepared by the  
New Mexico Interstate Stream Commission and the  
New Mexico Office of the State Engineer



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## **ACKNOWLEDGEMENTS**

The Interstate Stream Commission (ISC) wishes to thank the Hydrology Bureau at the Office of the State Engineer (OSE), including Margaret Porter who put many hours of research, database development, and cartographic design and mapping into the project. Thanks also to Jack Frost for staying the course and tenaciously reviewing each version. Appreciation also is extended to John Shomaker and Associates, Lee Wilson & Associates, Balleau Ground Water, Inc., staff of the Interstate Stream Commission, and the many others who contributed to data review and editing.

Last of all this project could not have been realized without the vision of our elected officials, and their commitment to the importance of water to all New Mexicans.

## **PREFACE**

In 1998 and 2001 the New Mexico State Legislature appropriated funds for Regional Planning and to a Framework State Water Plan. The New Mexico Water Resources Atlas was conceived as a compendium to the New Mexico Water Resource Assessment, 2001 (to be released early Spring, 2003). The Atlas supplements and updates maps prepared for the 1976 New Mexico Water Resources Assessment prepared by the Bureau of Reclamation. It is intended to supplement the compendium to the New Mexico Water Resource Assessment, 2001, and is a companion document to the Framework for Public Input to a State Water Plan.

Our hope is that the Atlas will serve as a resource to understand one of the states most valuable resources, water. The Atlas represents a major achievement in digital cartographic production and underscores the importance of spatial information and the data it represents. Much of the technical data supporting the Atlas has been developed through a legislative appropriation to design and implement an agency Enterprise Geographic Information System (EGIS) to support water resource management within the state. The EGIS is in the final stages of implementation and will eventually provide online access to OSE/ISC data and maps.

## **TECHNICAL NOTES**

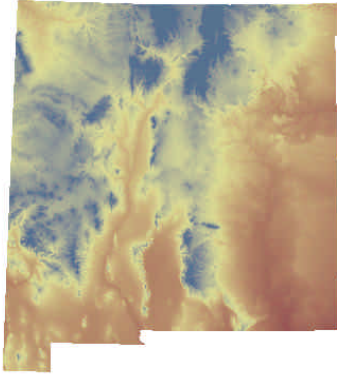
All data in this Atlas are projected in the UTM, NAD 83 Zone 13N coordinate system. Data have been derived from various sources listed in the captions associated with each atlas plate. Where Atlas information is consistently portrayed throughout the document the description of the data (metadata) is documented below. For specifics regarding metadata content or other agency map information, please contact, the GIS Coordinator, Office of the State Engineer, Information Technology Systems Bureau, (505) 827-6192.



# Map Reference and Data Source Information

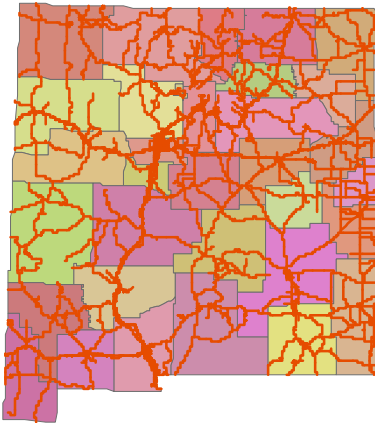


## *Elevation Data and Shaded Relief*



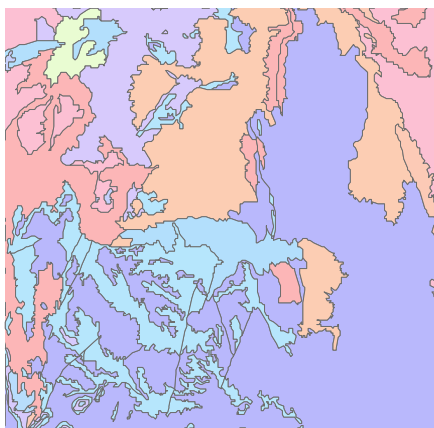
This data set is adapted from the National Elevation Dataset. The National Elevation Dataset (NED) is a new raster product assembled by the U.S. Geological Survey. NED is designed to provide national elevation data in a seamless form with a consistent datum, elevation unit, and projection. Data corrections were made in the NED assembly process to minimize artifacts, perform edge matching, and fill sliver areas of missing data. NED has a resolution of one arc-second (approximately 30 meters) for the conterminous United States, Hawaii, and Puerto Rico and a resolution of two arc-seconds for Alaska.  
<http://edcnts12.cr.usgs.gov/ned/About.htm>

## *Cultural Features*



This data set is a vector polygon digital data structure taken from the Census Bureau's TIGER/Line Files, 1994, for New Mexico. The source software used was ARC/INFO 7.0.3. The purpose of this information is to provide geographic information for New Mexico County Boundaries.  
<http://rgis.unm.edu/>

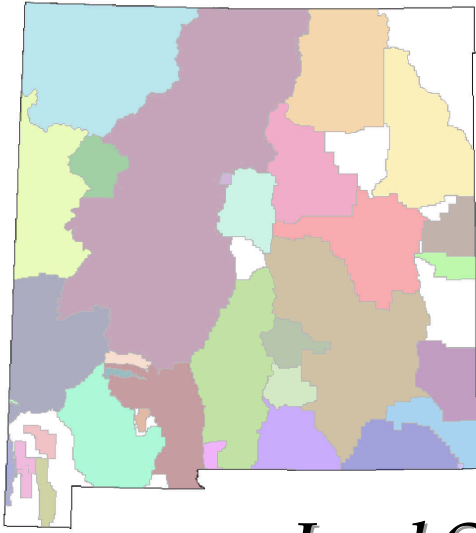
## *Geology Features*



This data set is adapted from U.S. Geological Survey, Open File Report 97-0052. The geologic map was created in GSMAP at Socorro, New Mexico by Orin Anderson and Glen Jones and published as the Geologic Map of New Mexico 1:500,000 in GSMAP format in 1994 as New Mexico Bureau OFR 408-A and B. This graphic file was converted to ARC/INFO format by Greg Green and Glen Jones and released as the Geologic Map of New Mexico in ARC/INFO format in 1997.

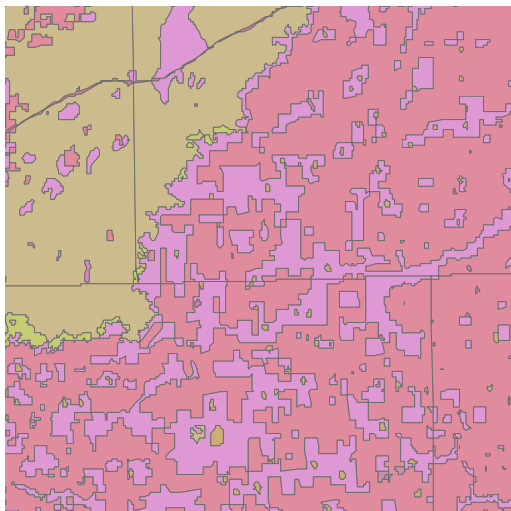
This dataset was developed to provide geologic map GIS database of New Mexico for use in future spatial analysis by a variety of users. It is advised that this dataset not be used at any scale other than 1:500,000.  
[ftp://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0052/new\\_mex.htm](ftp://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0052/new_mex.htm)

## ***Declared Underground Water Basins***



New Mexico Office of the State Engineer (OSE) declared and undeclared ground-water basins are administered as declared basins requiring permits for water use. Date sources are from the New Mexico Office of the State Engineer Water Administration Technical Engineering Resource System (WATERS) database.

## ***Land Cover Features***

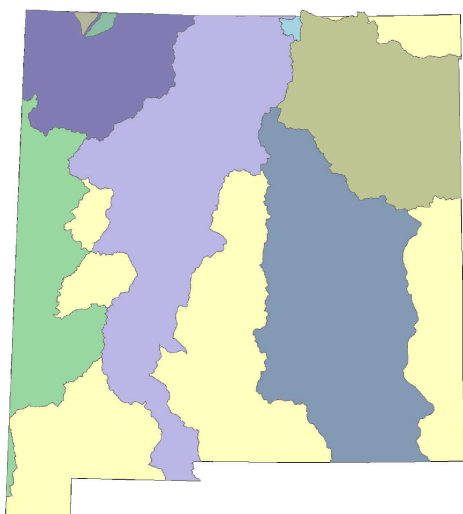


This is land use/land cover digital data collected by USGS and converted to ARC/INFO by the EPA. This data is useful for environmental assessment of land use patterns with respect to water quality analysis, growth management, and other types of environmental impact assessment. Use may be limited due to currency.

Each quadrangle of land use data has a different representative date. Date ranges from mid 1970s to early 1980s are common. When joined together these quadrangles will not likely match along edges due to differences in interpretation and time coverage. Edges of each map file were manually digitized and may not join neighboring maps. If GIRASNEAT program has been applied (see LOG at end) then edges have been mathematically recalculated to join without overlap or gaps in coverage with adjacent maps.

The GIRAS series can include several themes of spatial data. The most common, described here, is the land use and land cover data. Land use was mapped and coded using the Anderson classification system (Anderson, 1976) which is a hierarchical system of general (level 1) to more specific (level 2) characterization. <http://geo-nstdi.er.usgs.gov/metadata/other/epa/giras-lulc/sdd/metadata.html>

## ***Interstate Stream Compact Boundaries***



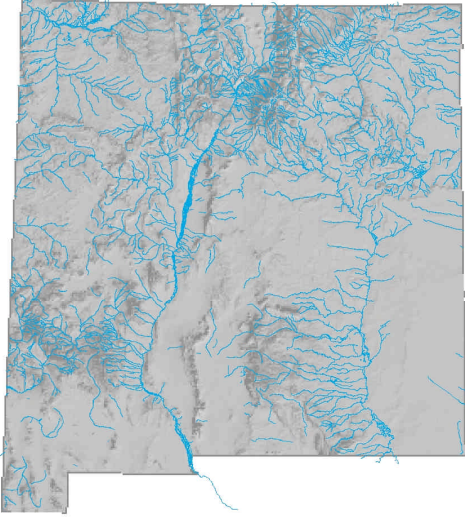
Adapted from U.S. Geological Survey 1:250,000 digital hydrographic unit boundaries.

The Geographic Information Retrieval and Analysis System (GIRAS) was developed in the mid 70s to put into digital form a number of data layers which were of interest to the USGS. One of these data layers was the Hydrologic Units. The map is based on the Hydrologic Unit Maps published by the U.S. Geological Survey Office of Water Data Coordination, together with the list descriptions and name of region, sub-region, accounting units, and cataloging unit. The hydrologic units are encoded with an eight-digit number that indicates the hydrologic region (first two digits), hydrologic sub-region (second two digits), accounting unit (third two digits), and cataloging unit (fourth two digits).

<http://water.usgs.gov/GIS/metadata/usgswrd/huc250k.html>



## *Hydrologic Features*

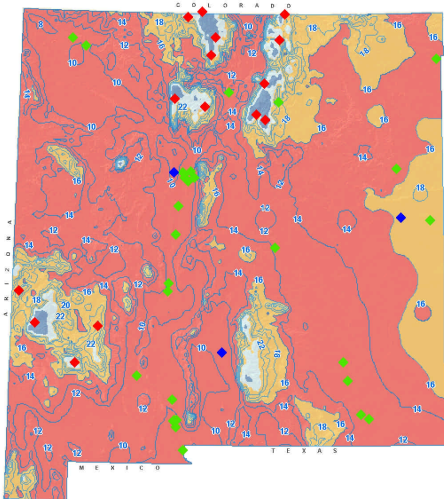


The National Hydrography Dataset (NHD) is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells. Within the NHD, surface water features are combined to form "reaches," which provide the framework for linking water-related data to the NHD surface water drainage network. These linkages enable the analysis and display of these water-related data in upstream and downstream order.

The NHD is based upon the content of USGS Digital Line Graph (DLG) hydrography data integrated with reach-related information from the EPA Reach File Version 3 (RF3). The NHD supersedes DLG and RF3 by incorporating them, not by replacing them. Users of DLG or RF3 will find the National Hydrography Dataset both familiar and greatly expanded and refined.

While initially based on 1:100,000-scale data, the NHD is designed to incorporate and encourage the development of higher resolution data required by many users. U.S. EPA Reach File 1 (RF1) for the Conterminous United States in BASINS

## *Meteorological Data*



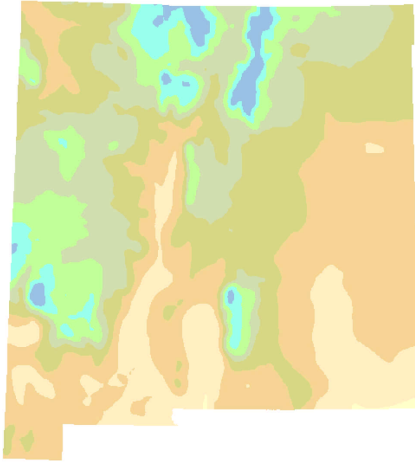
Average annual precipitation for the period of 1961-1990 is from the National Resource Conversation Service PRISM Data. Climate station locations are from National Oceanic and Atmospheric Administration and New Mexico Climatological Center.

Location and general attribute data for NOAA cooperative stations are located in the continental United States. This data set was designed for querying weather stations in the continental US using a GIS system. Conterminous United States NOAA Cooperative Station Locations

This ftp site contains vector and polygon coverages of average monthly and annual precipitation for the climatological period 1961-90. [http://www.ocs.orst.edu/pub/maps/Precipitation/Total/States/NM/nm\\_vect\\_meta.html](http://www.ocs.orst.edu/pub/maps/Precipitation/Total/States/NM/nm_vect_meta.html)

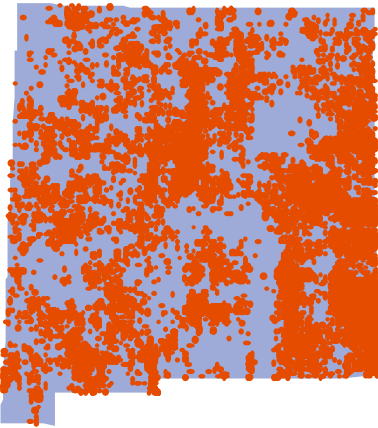
Parameter-elevation Regressions on Independent Slopes Model (PRISM) derived raster data is the underlying data set from which the polygons and vectors were created. PRISM is an analytical model that uses point data and a digital elevation model (DEM) to generate gridded estimates of annual, monthly and event-based climatic parameters. Detailed descriptions of the PRISM raster data can be found with the accompanying raster data sets. For further information, the online PRISM homepage can be found at PRISM Climate Mapping Project , climate data sets, GIS data sets

## *Net Lake Evaporation Surface*



Created from 1972 Soil Conservation Service gross lake evaporation contours and average annual precipitation for the period of 1961-1990 from National Resource Conversation Service PRISM Data (see reference listed above).

## *Well Permit Locations*



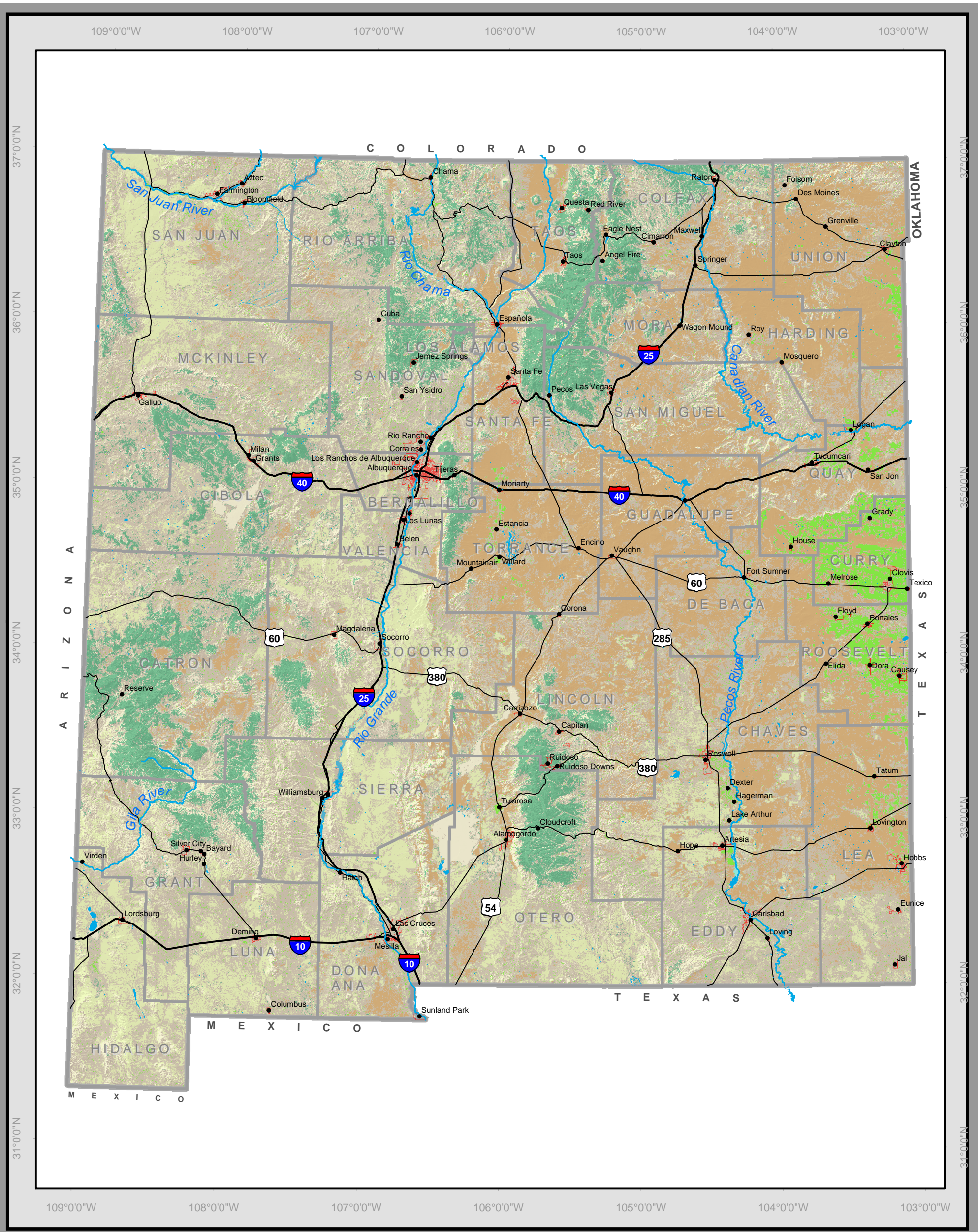
Date sources are from the New Mexico Office of the State Engineer Water Administration Technical Engineering Resource System (WATERS) database.

Contours were generated from the U.S. Geological Survey Ground Water Site Inventory (GWSI) electronic database. The Ground-Water database contains ground-water site inventory, ground-water level data, and water-quality data.

The ground-water site inventory consists of more than 850,000 records of wells, springs, test holes, tunnels, drains, and excavations in the United States. Available site descriptive information includes well location information (latitude and longitude, well depth, site use, water use, and aquifer).

The USGS annually monitors ground-water levels in thousands of wells in the United States. Ground-water level data are collected and stored as either discrete ground-water level measurements or as continuous record. Data from some of the continuous record stations are relayed to USGS offices nationwide through telephone lines or by satellite transmissions providing access to realtime ground-water data. <http://water.usgs.gov/nm/nwis/gw>





# NEW MEXICO WATER RESOURCES ASSESSMENT 2001

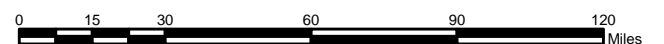
Plate 1  
Land Cover and Land Use in New Mexico, 1992

National Land Cover Dataset,  
interpreted by the U.S. Geological Survey from  
1992 Landsat satellite imagery.

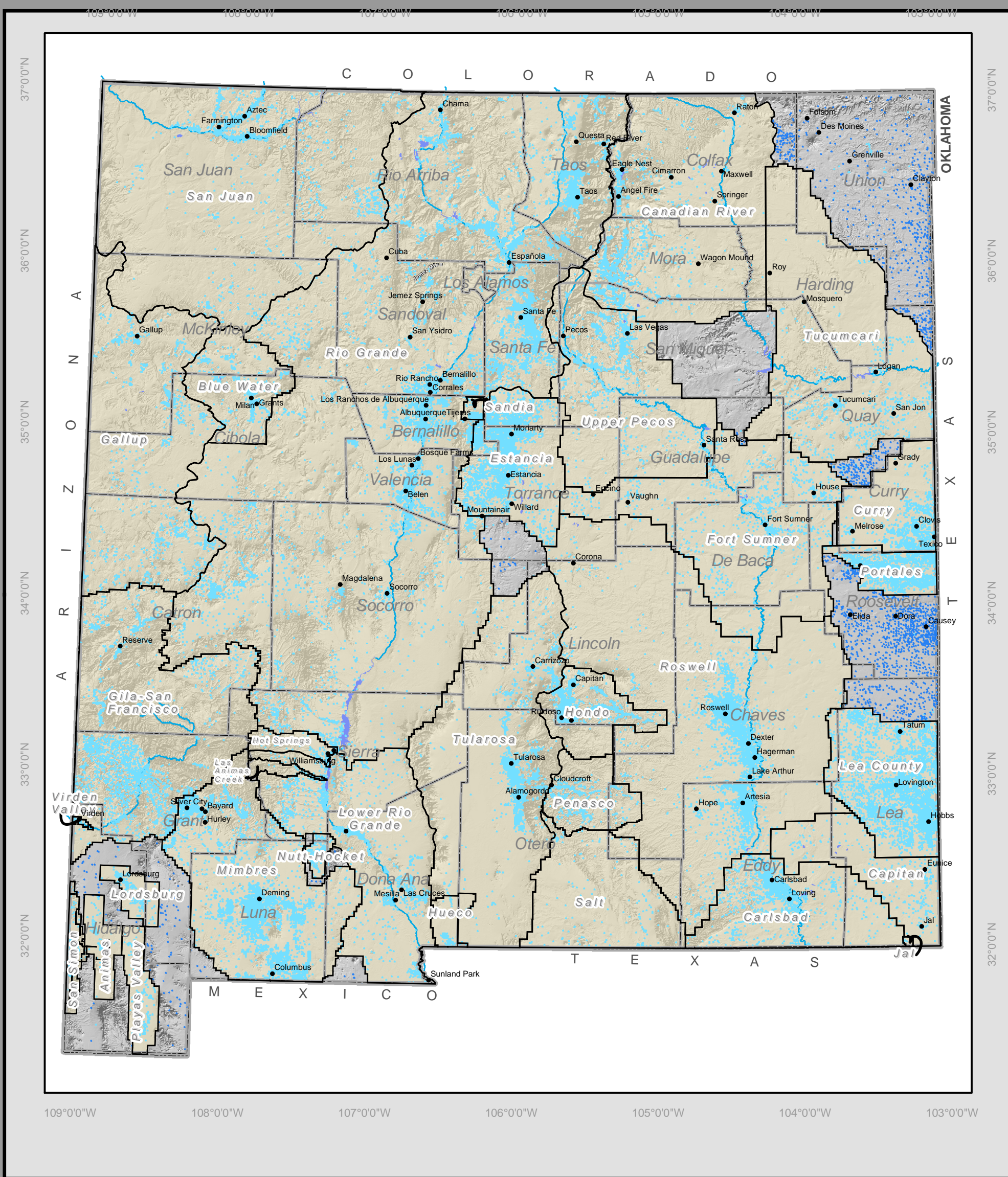
See REFERENCES for sources of information.

### Explanation:

- County Boundaries
- Town Boundaries
- MAIN STREAMS
- Water
- Urban Land
- Bare Rock and Open Land
- Upland Forest
- Shrubland
- Agricultural Lands
- Grasslands
- Wetlands











# NEW MEXICO WATER RESOURCES ASSESSMENT 2001

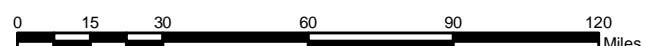
## Plate 2 Declared Underground Water Basins Administered by the State Engineer

The New Mexico Office of the State Engineer has declared 33 administrative underground water basins since 1931. Some basins have been enlarged since the original declaration. A permit is required for a new well or water use in any of these basins. The well locations shown within the Office of the State Engineer's declared ground water basins represent records listed in the State Engineer's Water Administration Technical Engineering Resource System (WATERS) electronic database. The well locations shown in Not Declared basins are from the United States Geological Survey Ground Water Site Inventory (GWSI) electronic database.

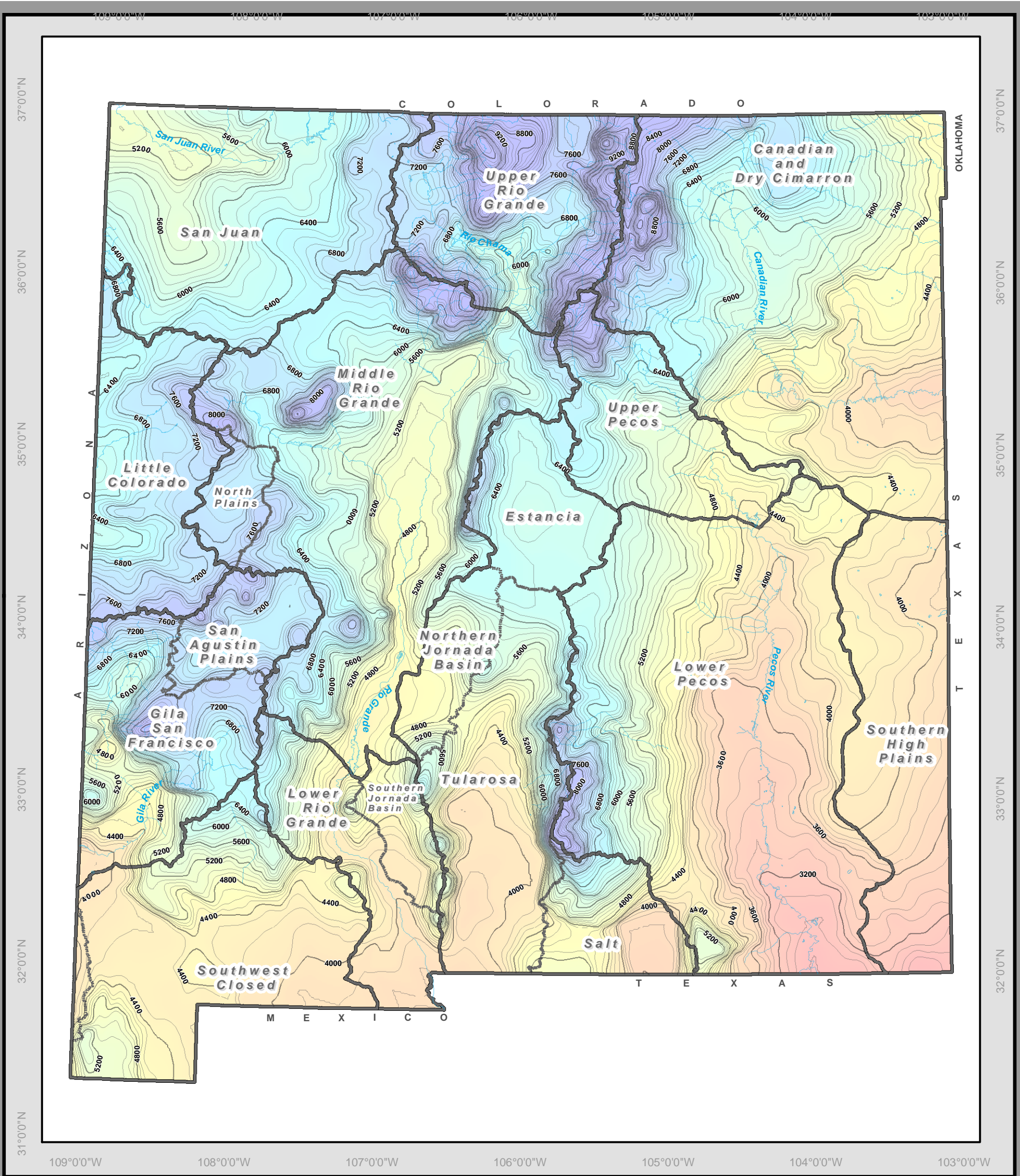
See REFERENCES for sources of information.

### Explanation:

-  Declared Groundwater Basins
-  Well Permit Locations From WATERS database.
-  Not Declared Areas
-  Well Locations from USGS GWSI







# NEW MEXICO WATER RESOURCES ASSESSMENT 2001



Plate 3  
Basins and Sub-Basins as Defined for the Water Resources

Assessment with Generalized Groundwater Contours  
Parts of 12 River Basins, including 18 sub-basins, have been identified for the Assessment. Except where a river basin is subdivided, as in the Upper and Lower Pecos basins, all of the boundaries are drainage divides, and surface water flows toward the main stream, or toward a central playa lake in a sub-basin with no river.



Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant groundwater pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

See REFERENCES for sources of information.

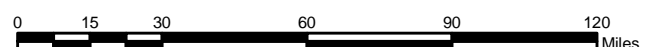
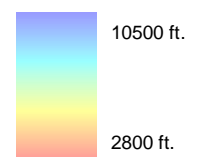
## Explanation:

-  River-Basin Boundary
-  Sub-Basin Boundary

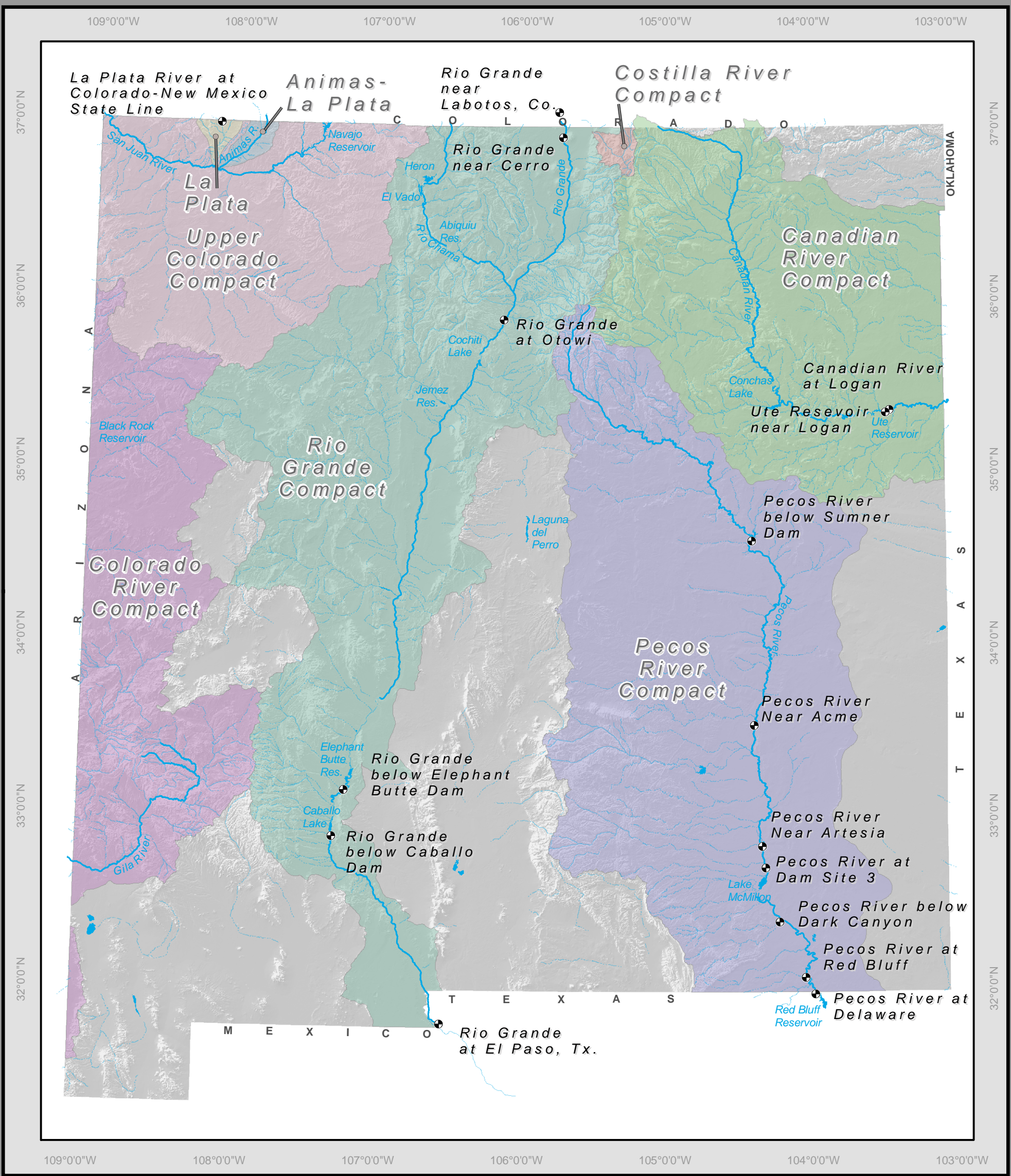
### Water Level Contours

-  100' contours
-  400' contours

### Water Level Elevation










# NEW MEXICO WATER RESOURCES ASSESSMENT 2001

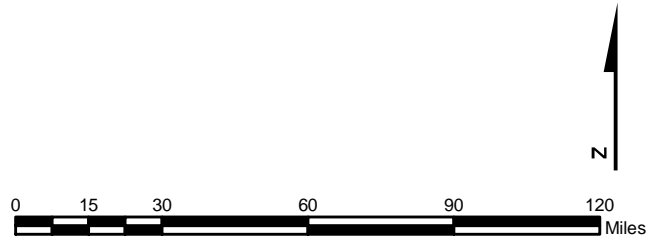
## Plate 4 River Basins Governed by Interstate Compacts

Delivery of water to downstream states is governed, for New Mexico's principal rivers, by interstate agreements called compacts. The New Mexico drainage area of each of these rivers, and the stream gages used for calculating compact obligation deliveries are shown.

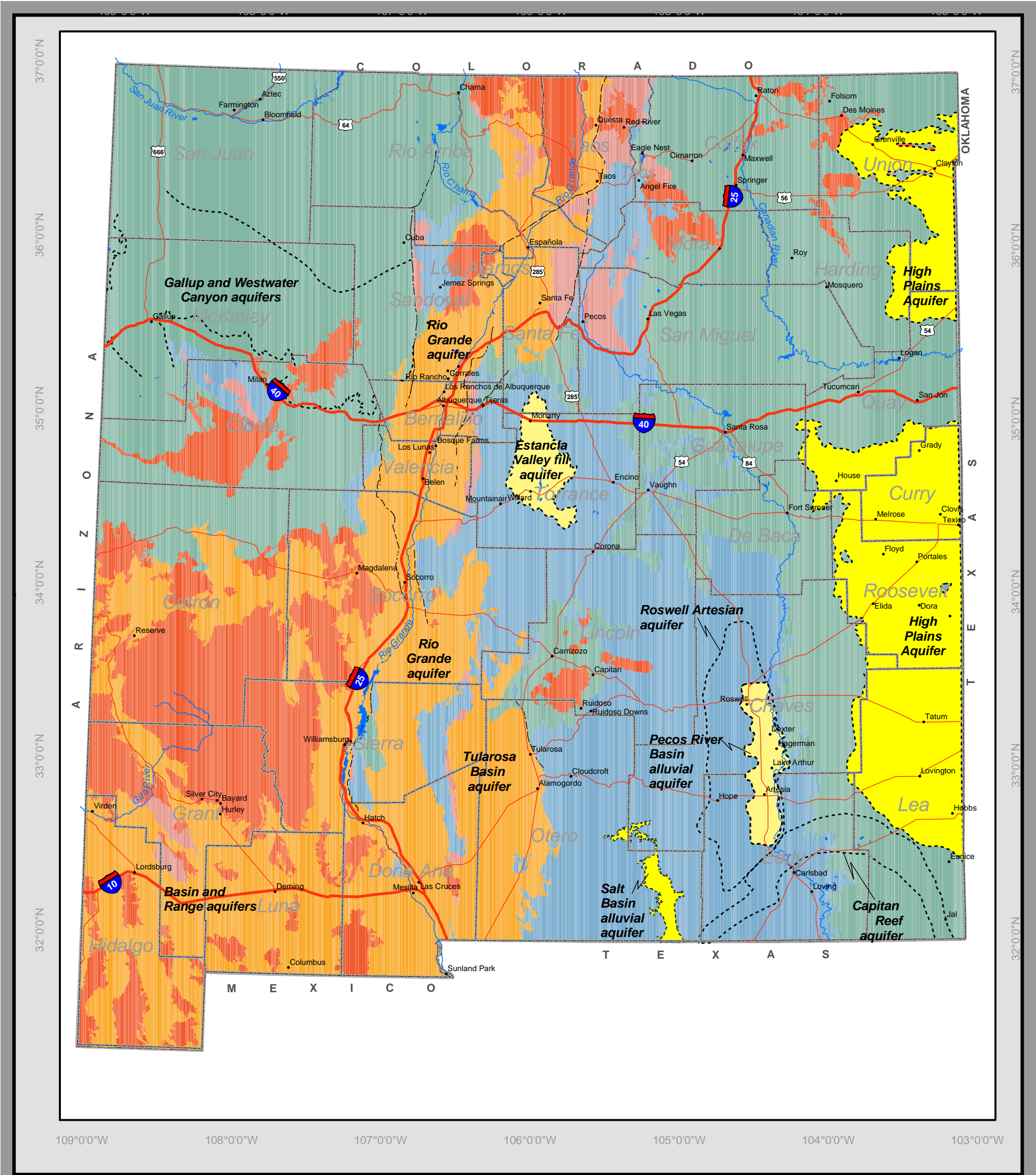
See REFERENCES for sources of information.

### Explanation:

-  INTERSTATE COMPACT BASINS
-  SURFACE-WATER GAGING STATIONS FOR COMPACT ADMINISTRATION
-  NOT A COMPACT BASIN














# NEW MEXICO WATER RESOURCES ASSESSMENT 2001

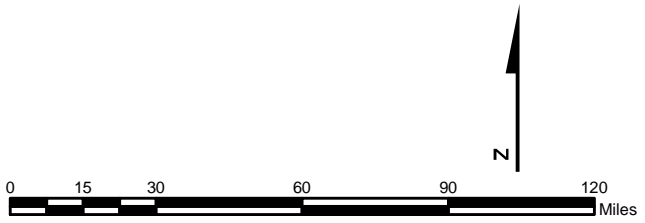
## Plate 5 Geology and Major Aquifers

This very generalized geologic map shows the kinds of rocks exposed at the land surface, or lying beneath a thin cover of alluvium or wind-deposited sand. Some major faults are also shown.

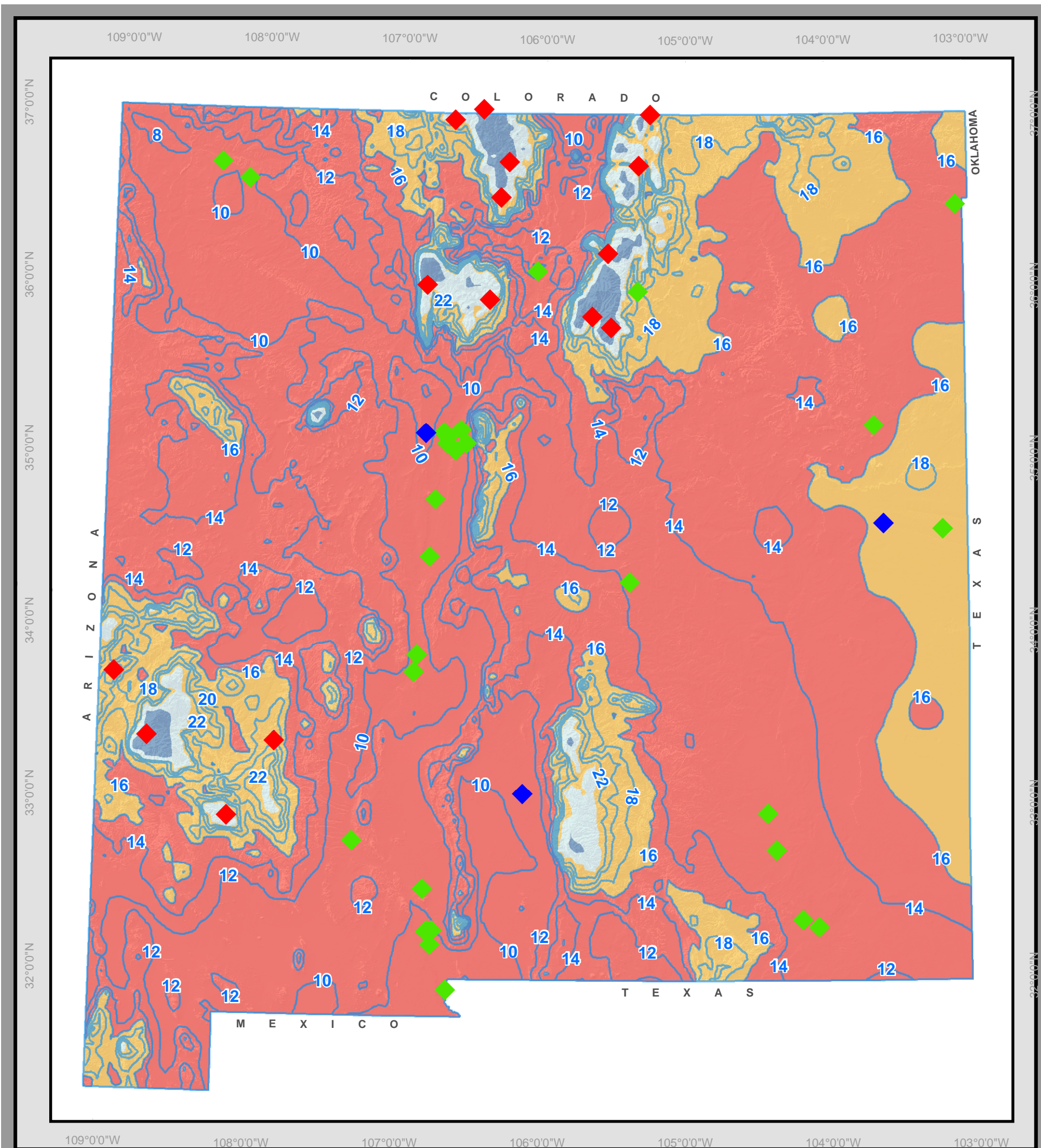
See REFERENCES for sources of information.

### Explanation:

-  Thin alluvial-fan and river-laid deposits (important aquifers)
-  Basin fill in deep down-faulted basins (important aquifers)
-  Volcanic rocks (not major aquifers)
-  Sandstone and shale aquifers (locally significant aquifers)
-  Limestone, sandstone, and shale aquifers (local aquifers)
-  Granite and other similar crystalline rocks (not major aquifers)
-  Major faults







# NEW MEXICO WATER RESOURCES ASSESSMENT 2001

## Plate 6 Average Annual Precipitation and Associated Ground Water Recharge Potential in Upland Areas of New Mexico

Contours of average annual precipitation were derived from PRISM data by the NRCS. Potential ground water recharge as a function of precipitation adapted from studies in Nevada, U.S. Geological Survey Professional Paper 1628. This map is useful for regional studies only, it does not reflect the recharge susceptibility of local soils and geology. By itself, it should not be used to interpret water availability of recharge to wells.

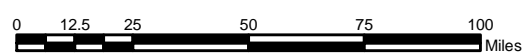
See REFERENCES for sources of information.

### Explanation:

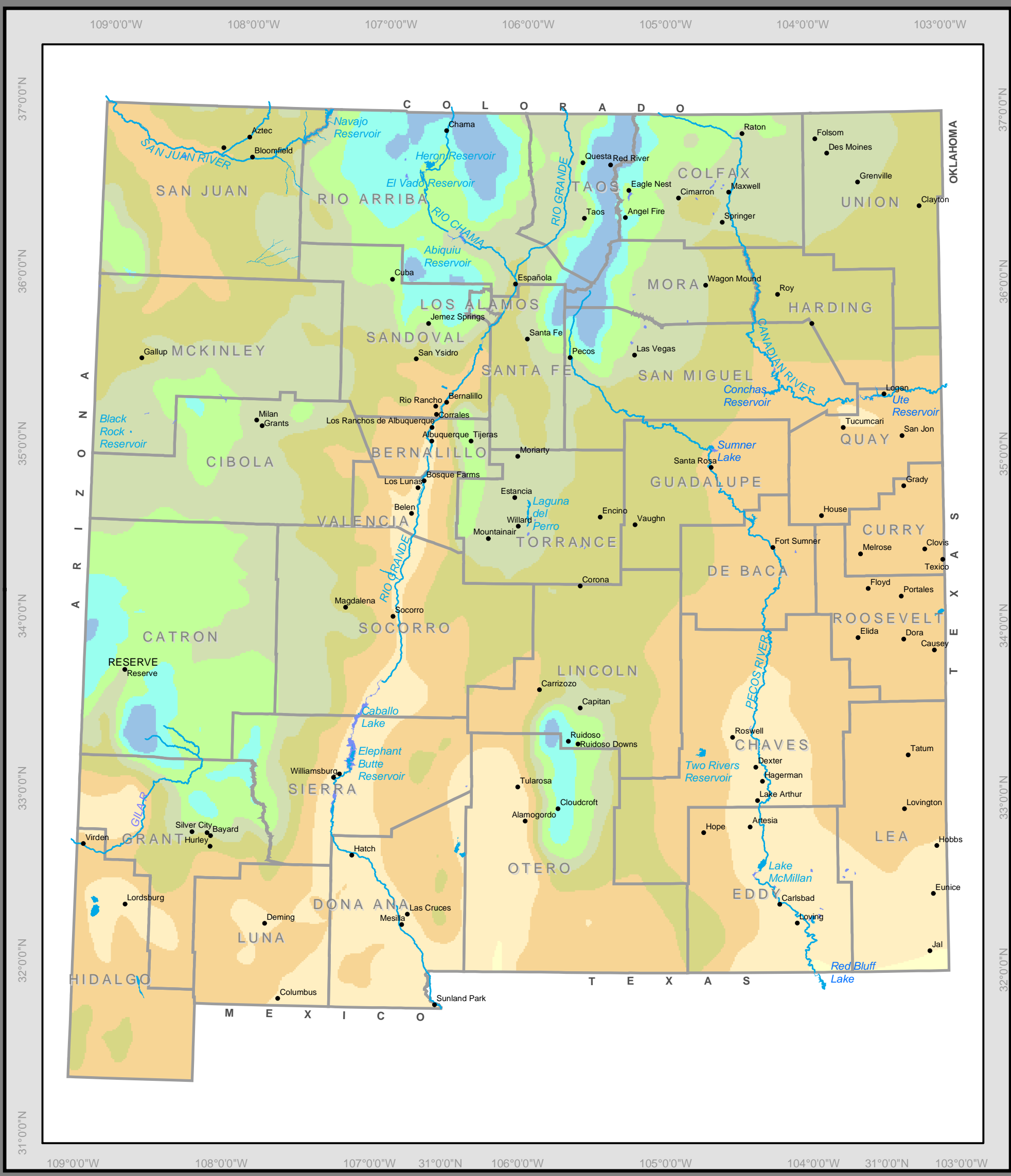
- ◆ NWS NEXRAD Site
- ◆ NM Climate Center Station
- ◆ NRCS SNOTEL Station
- Precipitation in 2" contours  
Greater than 24" omitted

### Potential Upland Recharge from Precipitation

- Slight, < 1"
- Less than 5"
- Up to 12"
- Highest Potential







# NEW MEXICO WATER RESOURCES ASSESSMENT 2001

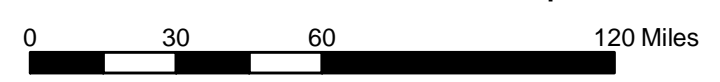
Plate 7  
Net Lake Evaporation

Contours show annual net lake evaporation loss from ponds and lakes, in inches per year. Net evaporation at a particular place is determined by subtracting the average annual precipitation for the period 1961-1990 (Plate 6) from the 1972 Soil Conservation Service mapping of gross lake evaporation. Some mountain areas, too small to show on the map, have net lake evaporation of less than 10 inches per year. Precipitation and evaporation are highly variable from year to year, and there are also long-term trends; these variations are not reflected in the simple average presented here.

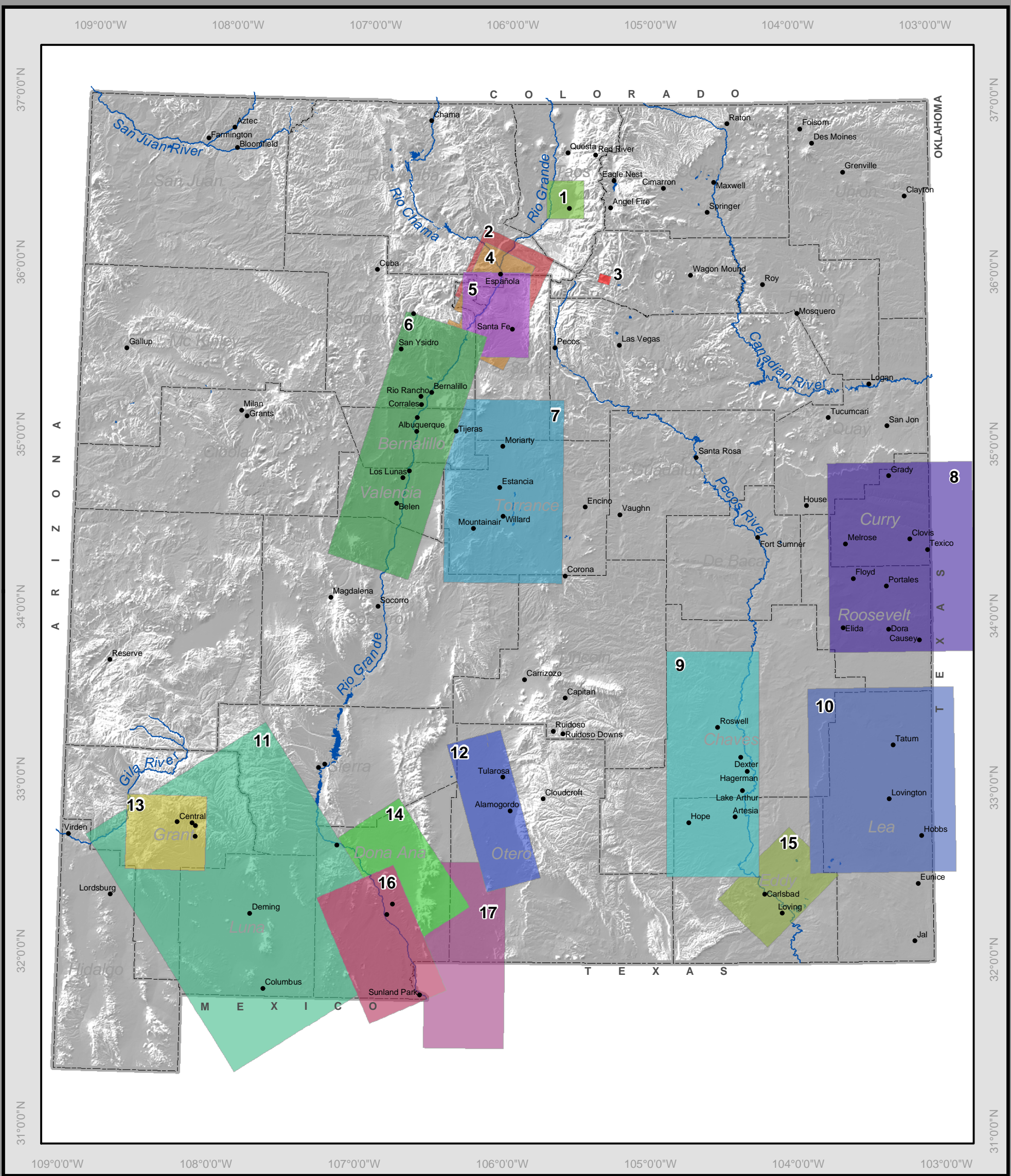
See REFERENCES for sources of information.

### Net Lake Evaporation in inches per year

- <10 INCHES
- 10-20 INCHES
- 20-30 INCHES
- 30-40 INCHES
- 40-50 INCHES
- 50-60 INCHES
- 60-70 INCHES
- >70 INCHES







# NEW MEXICO WATER RESOURCES ASSESSMENT 2001

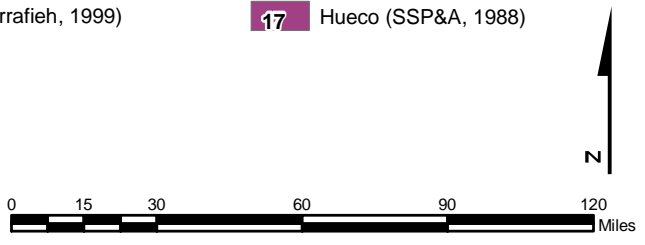
## Plate 8 Ground Water Models

Computer ground water flow models have been prepared to represent selected aquifers. They have been created and modified by the Office of the State Engineer, the U.S. Geological Survey, and others. Flow models are used in water rights administration, and for ground-water - surface-water interaction studies. Although not shown, administrative and operational surface water models are in use for the San Juan River, the Pecos River and the Rio Grande.

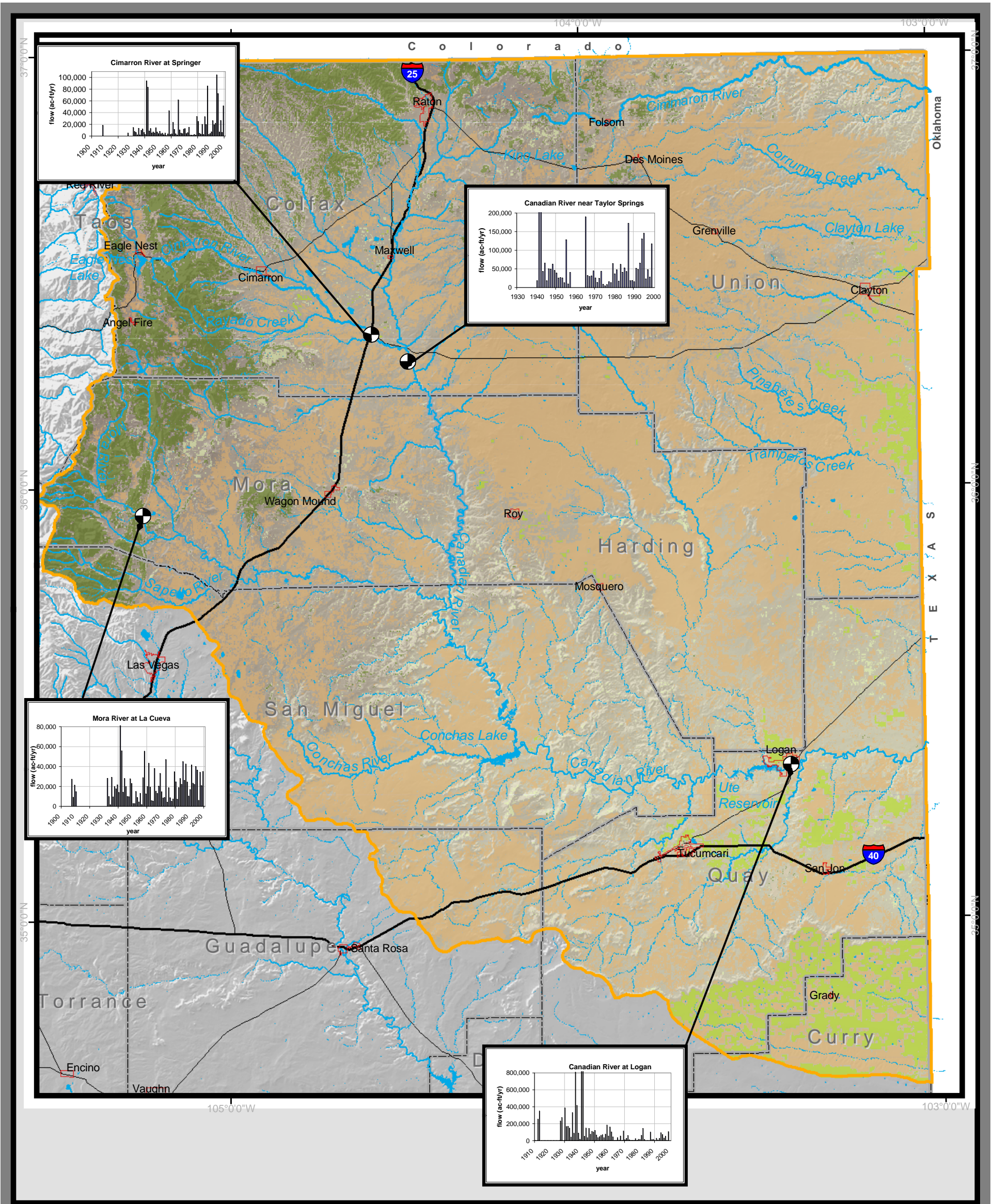
See REFERENCES for sources of information.

### Explanation:

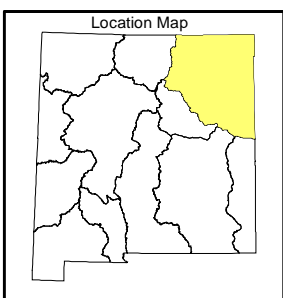
Model Name (Principal Author, Date)		
1	Taos (Burke, Draft)	9
2	Espanola (Logan, Barroll, 1998)	10
3	Mora (Shomaker, 1990)	11
4	Modified Heame (BGW, 1997)	12
5	Modified McAda-Wasiolek (Core, 1996)	13
6	OSE Middle Rio Grande (Barroll, 2001)	14
7	Estancia (Shafike, 1999)	15
8	Curry (Musharrafiieh, 1999)	16
		17
		Roswell (Keyes, 1999)
		Lea (Musharrafiieh, 1999)
		Mimbres (Hanson, et al, 1994)
		Tularosa (Morrison, 1989)
		Silver City (Johnson, 2000)
		Jornada (Shomaker, 2000)
		Carlsbad (Barroll, 2002)
		OSE Lower Rio Grande (Barroll, 2000)
		Hueco (SSP&A, 1988)





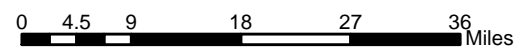


**Plate 9**  
**Canadian and Dry Cimarron:**  
**Land Use & Surface Water**

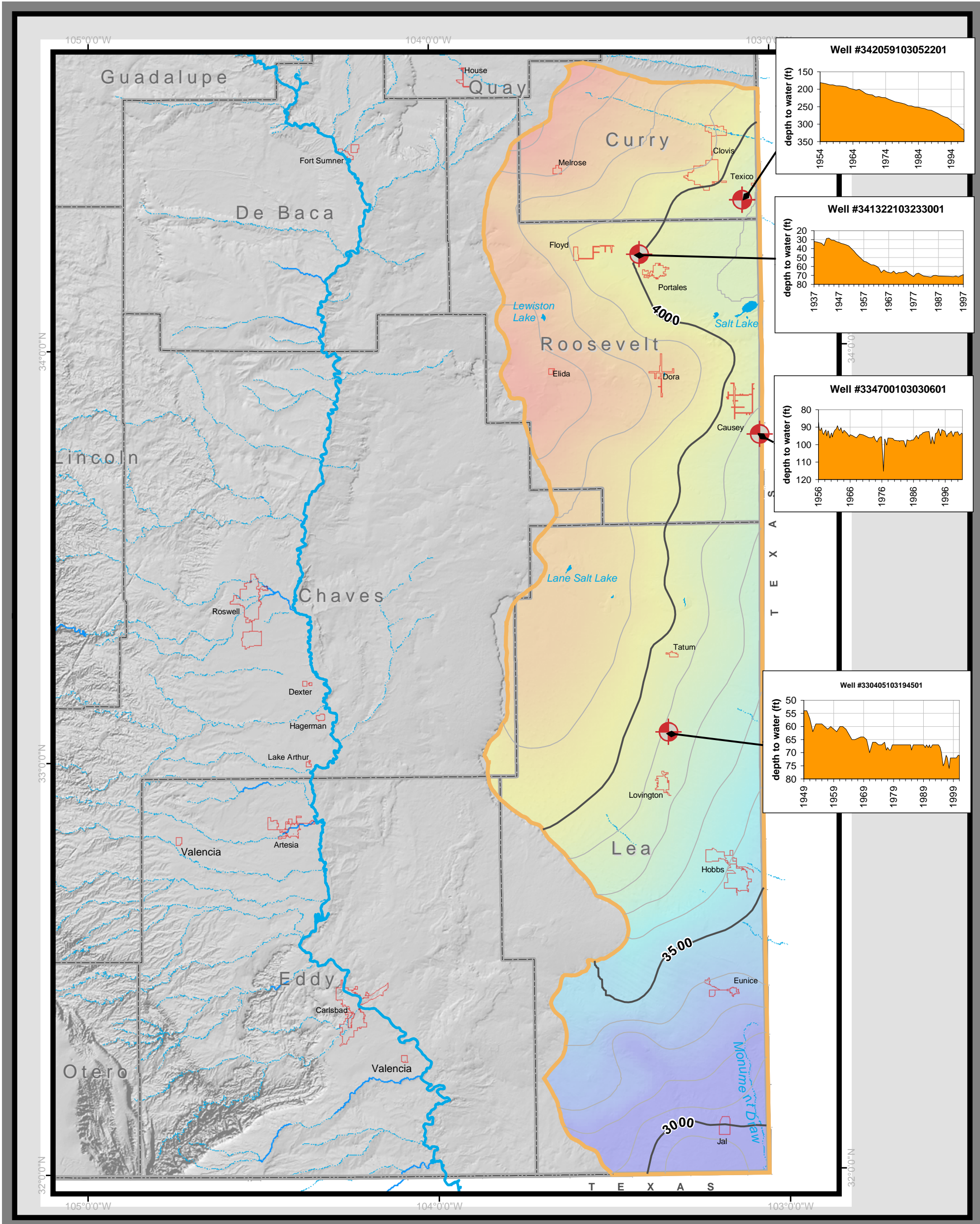


**Explanation:**

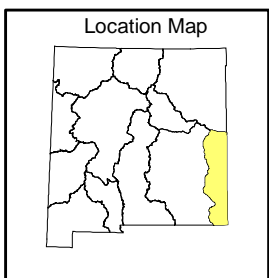
- Gaging Stations
- County Boundaries
- Cities
- Perennial Streams
- Intermittent Streams
- Water
- Urban Land
- Bare Rock and Open Land
- Uland Forest
- Shrubland
- Orchards/Vineyards/Other
- Grasslands
- Agricultural Lands
- Wetlands







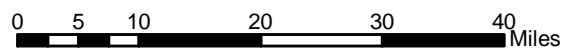
# Plate 10: Southern High Plains: Ground Water



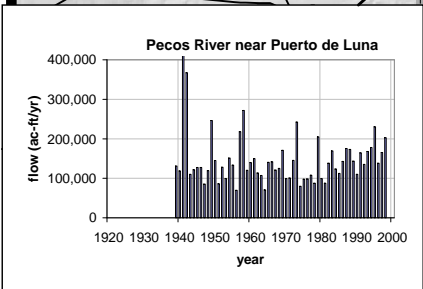
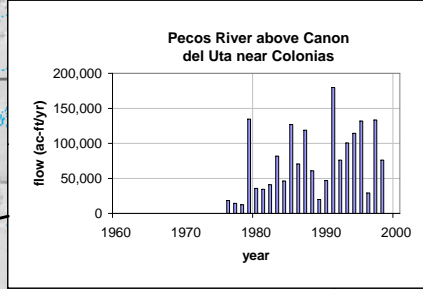
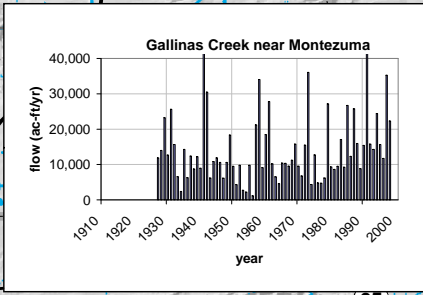
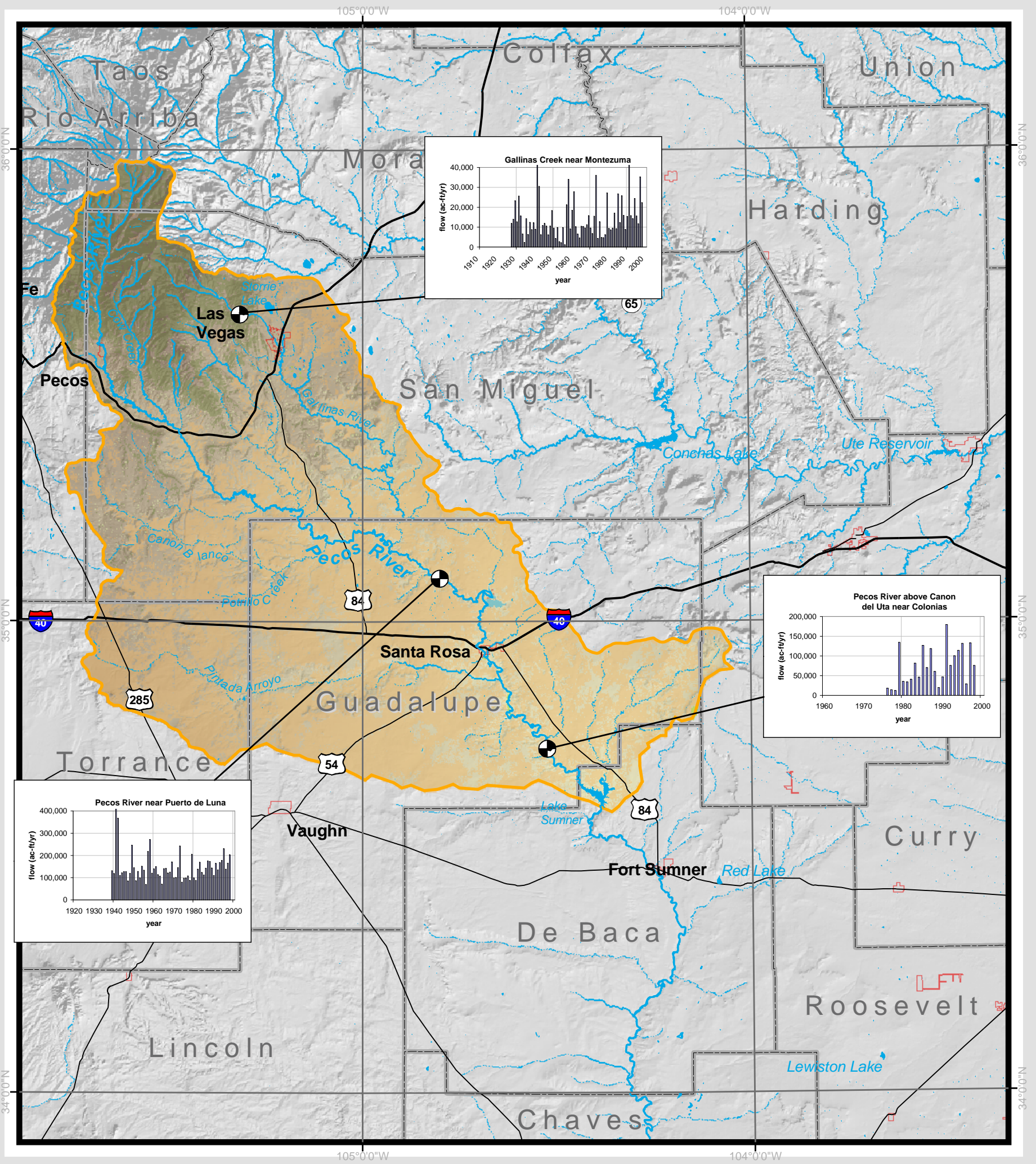
Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

### Explanation:

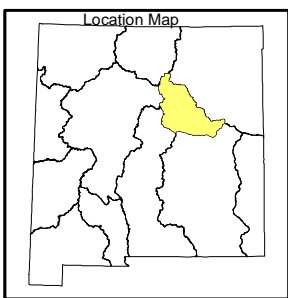
- USGS Monitor Wells
  - County Boundaries
  - Cities
  - Perennial Stream
  - Intermittent Stream
- Water Level Contours**
- 100 ft.
  - 500 ft.
- Value**
- 4500 ft.
  - 2800 ft.





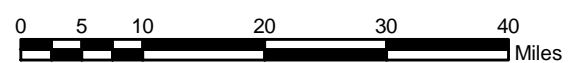


**PLATE 11:  
Upper Pecos  
Land Use & Surface Water**

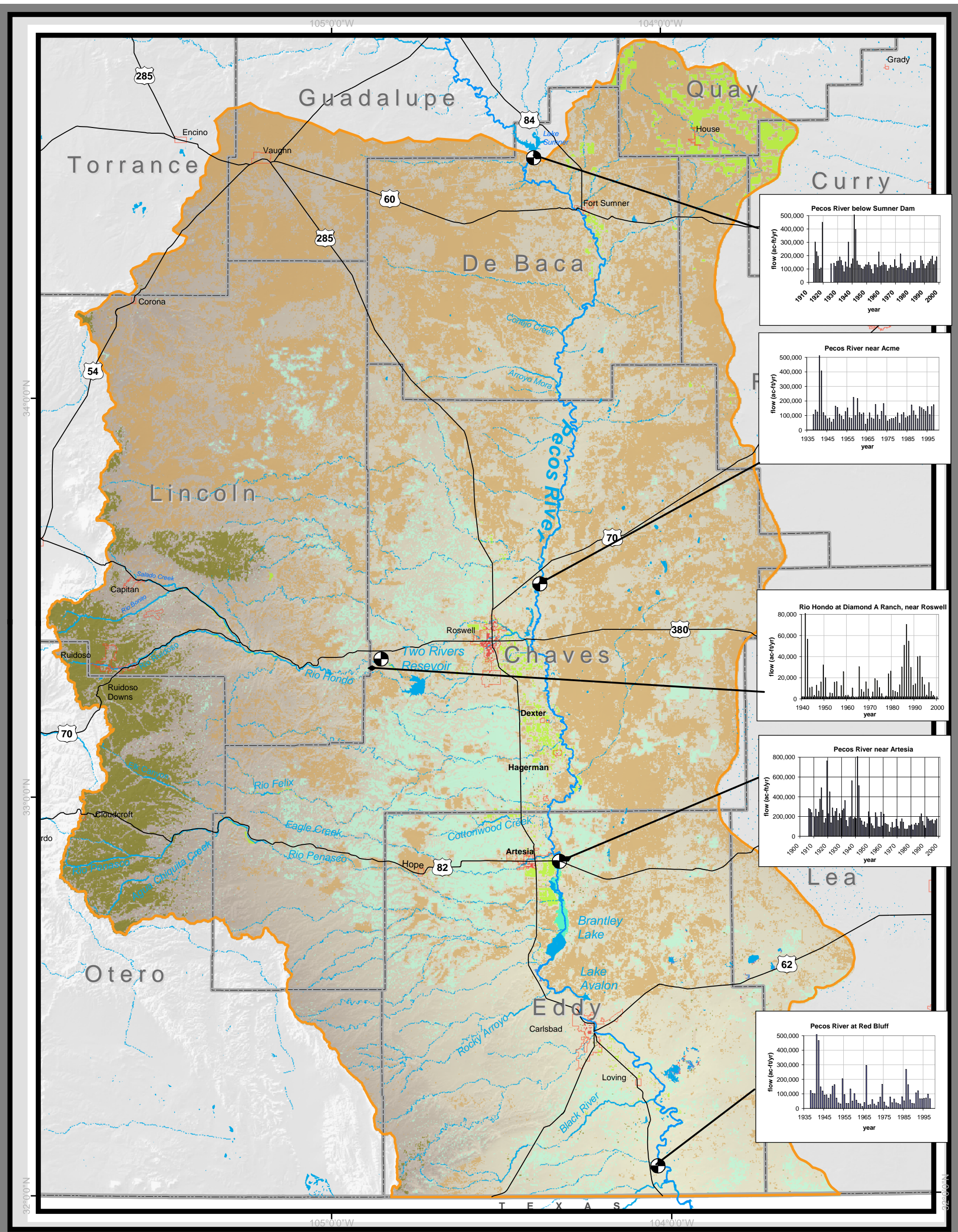


**Explanation:**

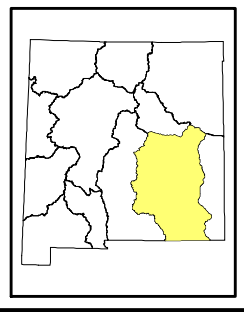
- Gaging Stations
- County Boundaries
- Cities
- Perennial Streams
- Intermittent Streams
- Water
- Urban Land
- Bare Rock and Open Land
- Uland Forest
- Shrubland
- Orchards/Vineyards/Other
- Grasslands
- Agricultural Lands
- Wetlands







**Lower Pecos:  
Land Use & Surface Water  
Plate 12.1**



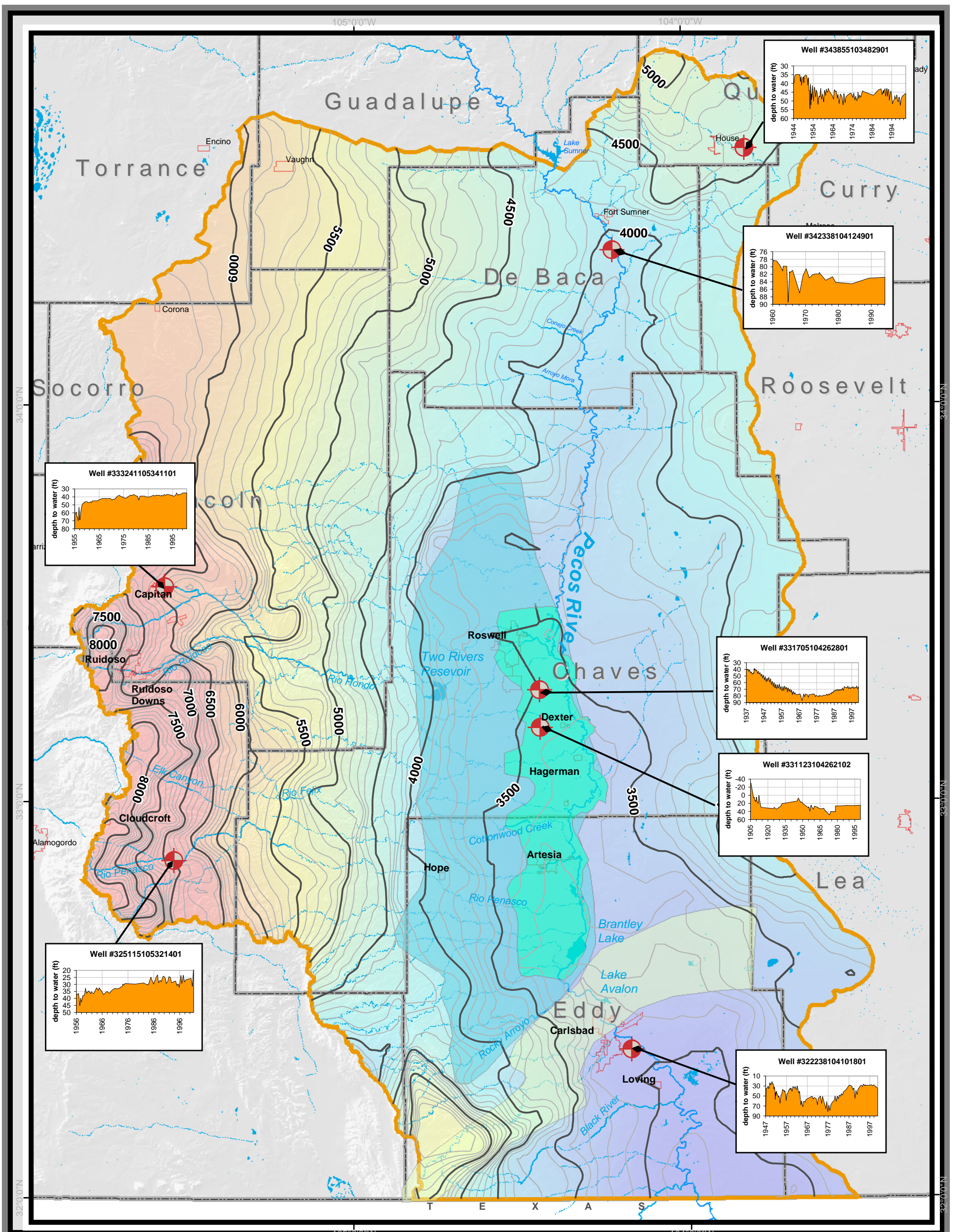
**Explanation:**

Gaging Stations	Bare Rock and Open Land
County Boundaries	Uland Forest
Cities	Shrubland
Perennial Streams	Orchards/Vineyards/Other
Intermittent Streams	Grasslands
Water	Agricultural Lands
Urban Land	Wetlands

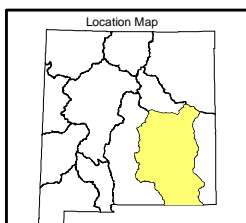
N

0 5 10 20 30 40 Miles





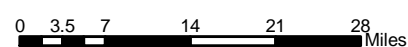
### Plate 12.2 Lower Pecos: Ground Water



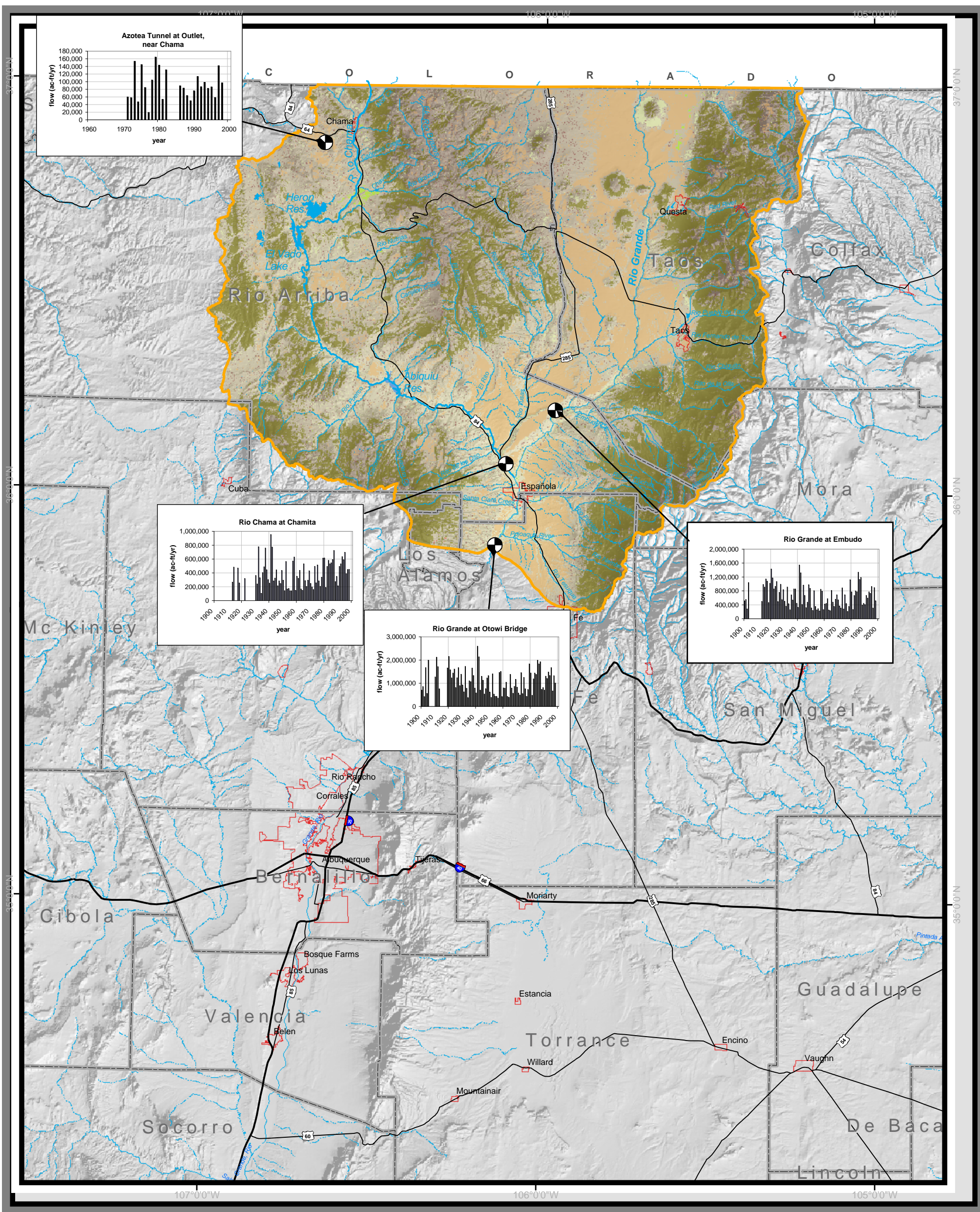
Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

#### Explanation:

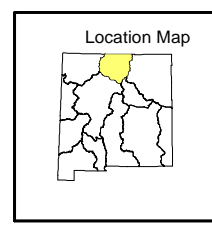
- Monitor Well
- County Boundaries
- Cities
- Perennial Stream
- Intermittent Stream
- Water Level contours**
  - 100 ft.
  - 500 ft.
- Value**
  - 8650 ft.
  - 2900 ft.
- Aquifers**
  - Carbonate Aquifer
  - Shallow Aquifer
  - Capitan Reef



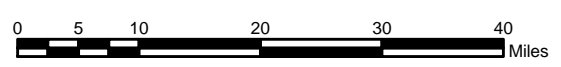




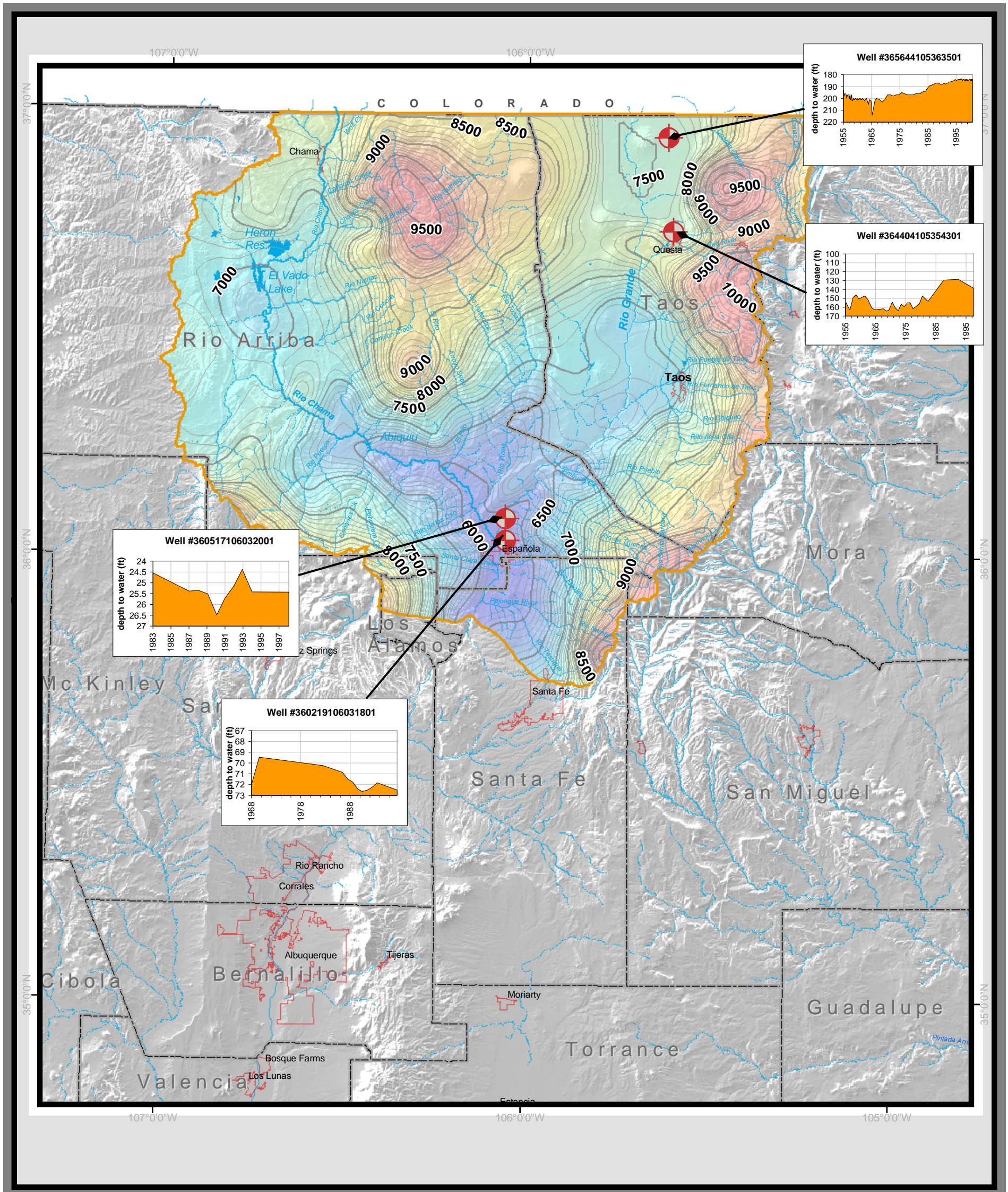
**Plate 13.1**  
**Upper Rio Grande:**  
**Surface Water**



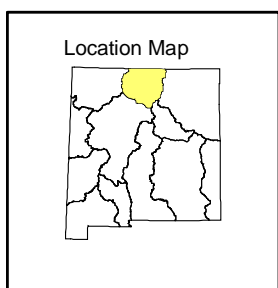
- Explanation:**
- Gaging Stations
  - County Boundaries
  - Cities
  - Perennial Streams
  - Intermittent Streams
  - Water
  - Urban Land
  - Bare Rock and Open Land
  - Uland Forest
  - Shrubland
  - Orchards/Vineyards/Other
  - Grasslands
  - Agricultural Lands
  - Wetlands







## Plate 13.2 Upper Rio Grande: Ground Water



Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

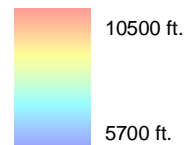
### Explanation:

- USGS Monitor Wells
- County Boundaries
- Cities
- Perennial Stream
- Intermittent Stream

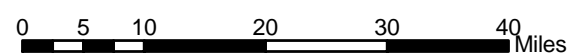
### Water Level Contours

- 100 ft.
- 500 ft.

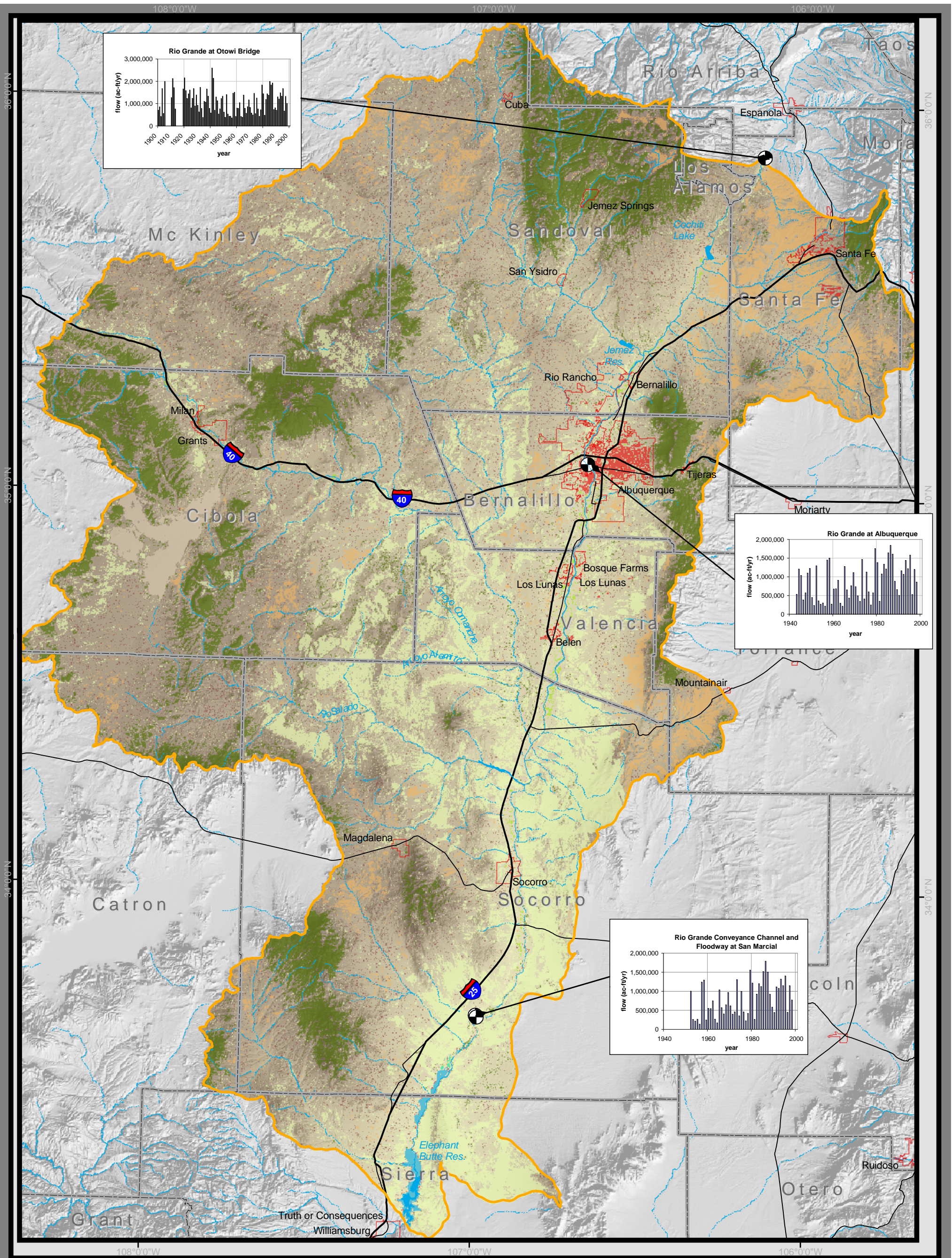
### Water Level Elevation



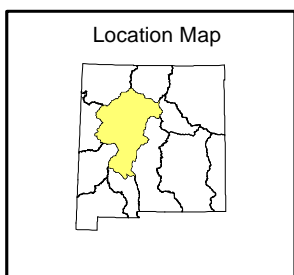
N





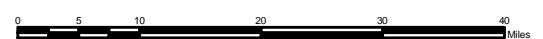


**Plate 14.1**  
**Middle Rio Grande with the**  
**North Plains Basin:**  
**Land Use & Surface Water**

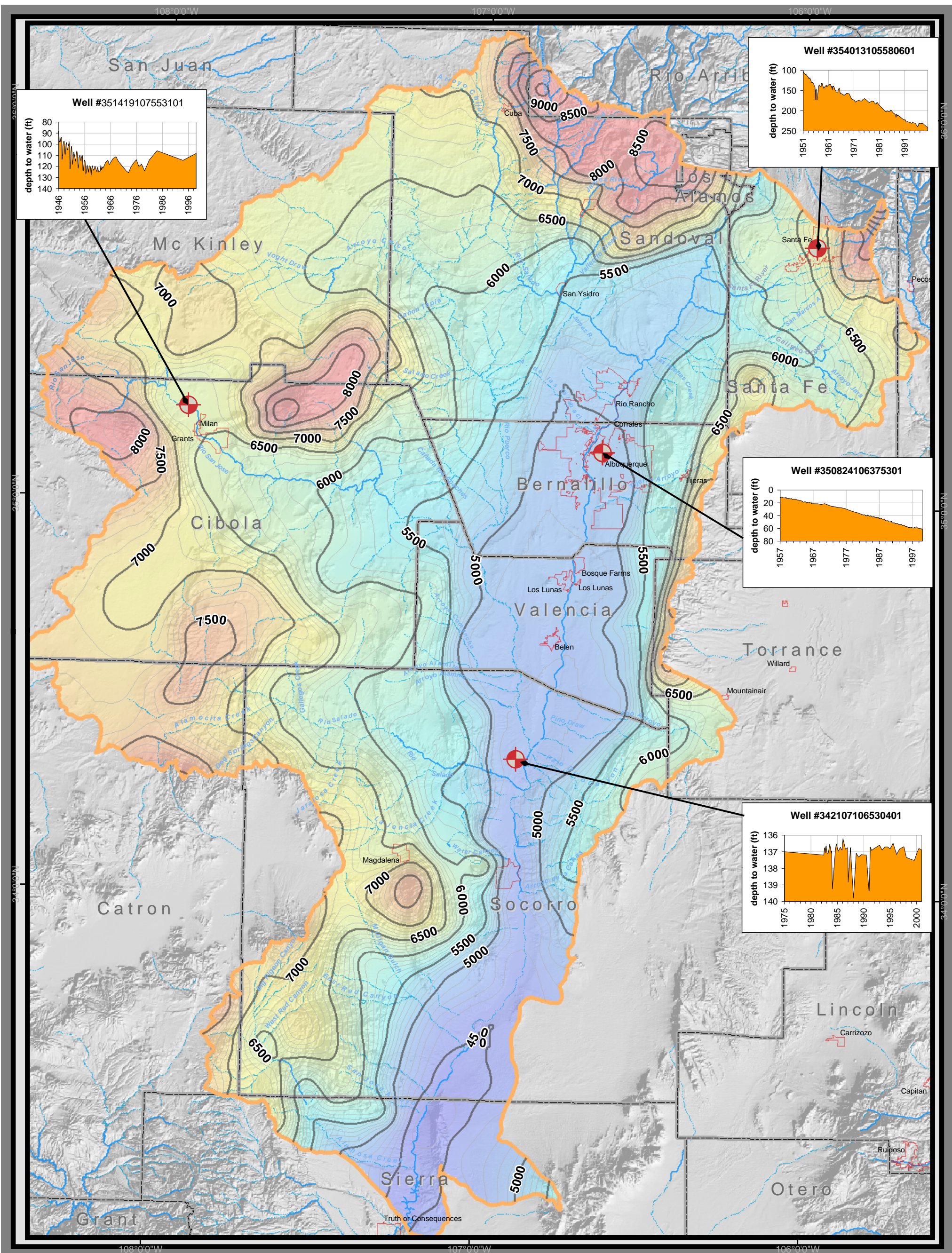


**Explanation:**

- Gaging Stations
- County Boundaries
- Cities
- Perennial Streams
- Intermittent Streams
- Water
- Urban Land
- Bare Rock and Open Land
- Upland Forest
- Shrubland
- Orchards/Vineyards/Other
- Grasslands
- Agricultural Lands
- Wetlands

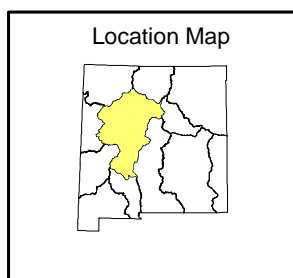




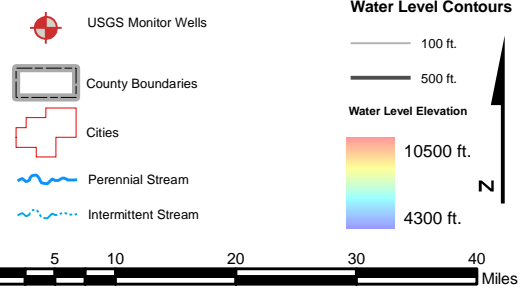


## Plate 14.2 Middle Rio Grande with the North Plains Basin: Ground Water

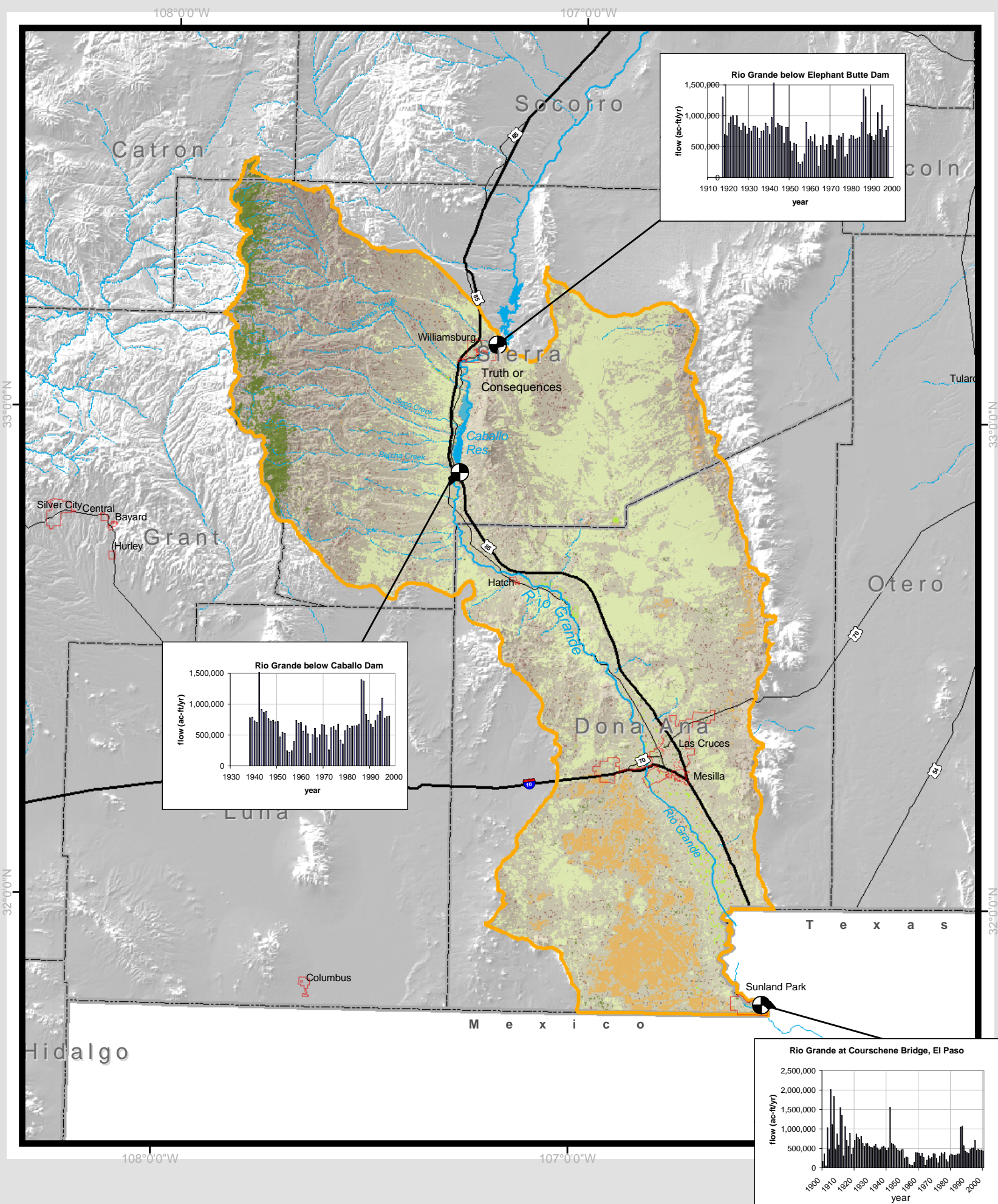
Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.



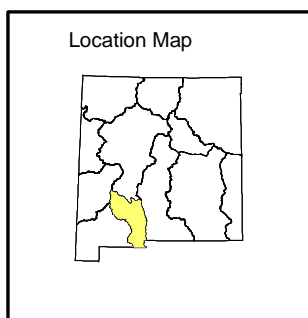
### Explanation:



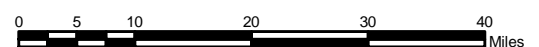




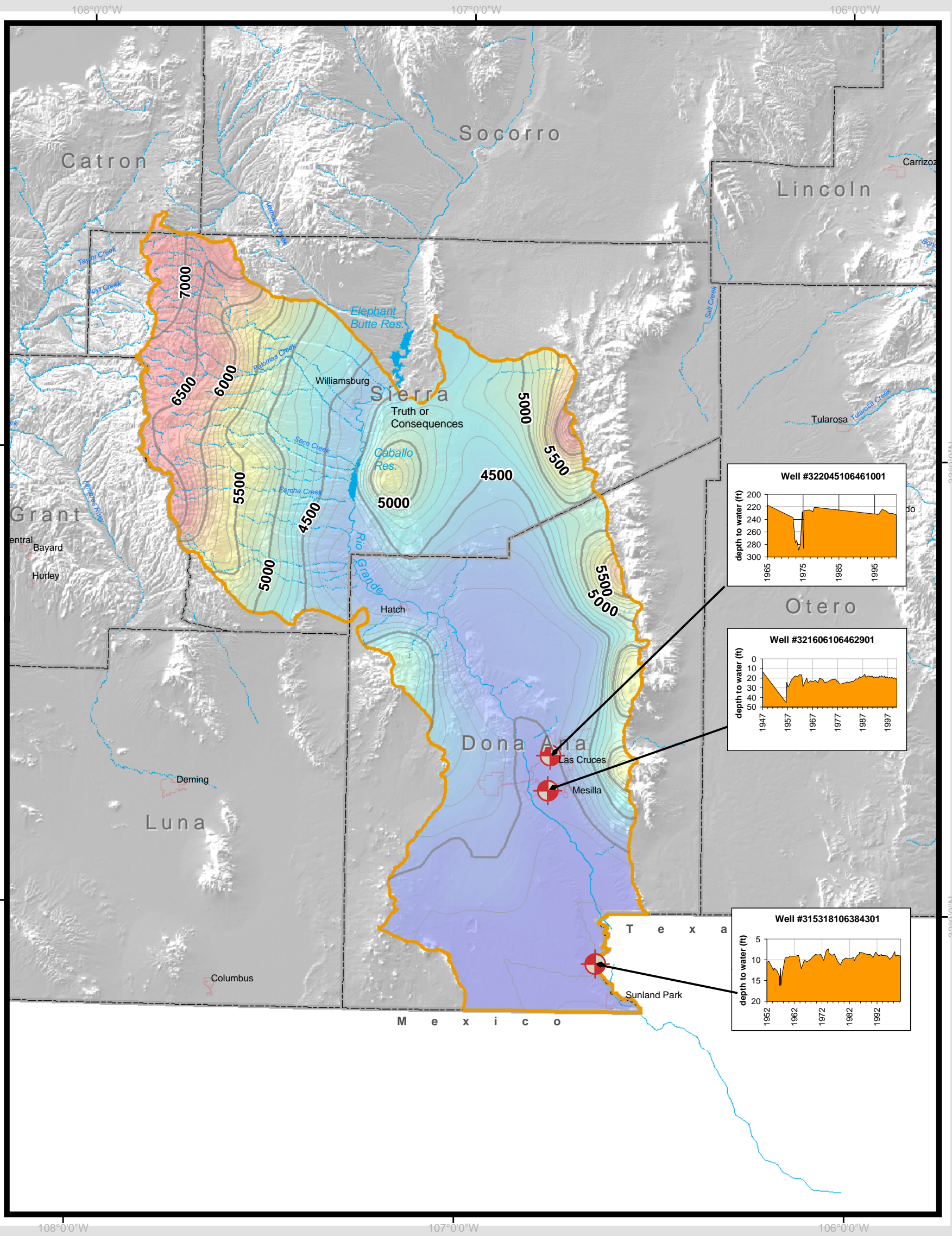
**Plate 15.1**  
**Lower Rio Grande &**  
**Southern Jornada Basin**  
**Land Use & Surface Water**



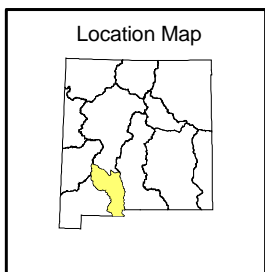
- Explanation:**
- Gaging Stations
  - County Boundaries
  - Cities
  - Perennial Streams
  - Intermittent Streams
  - Water
  - Urban Land
  - Bare Rock and Open Land
  - Uland Forest
  - Shrubland
  - Orchards/Vineyards/Other
  - Grasslands
  - Agricultural Lands
  - Wetlands







**Plate 15.2  
Lower Rio Grande and  
Southern Jornada Basin  
Ground Water**

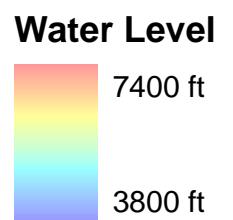


Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

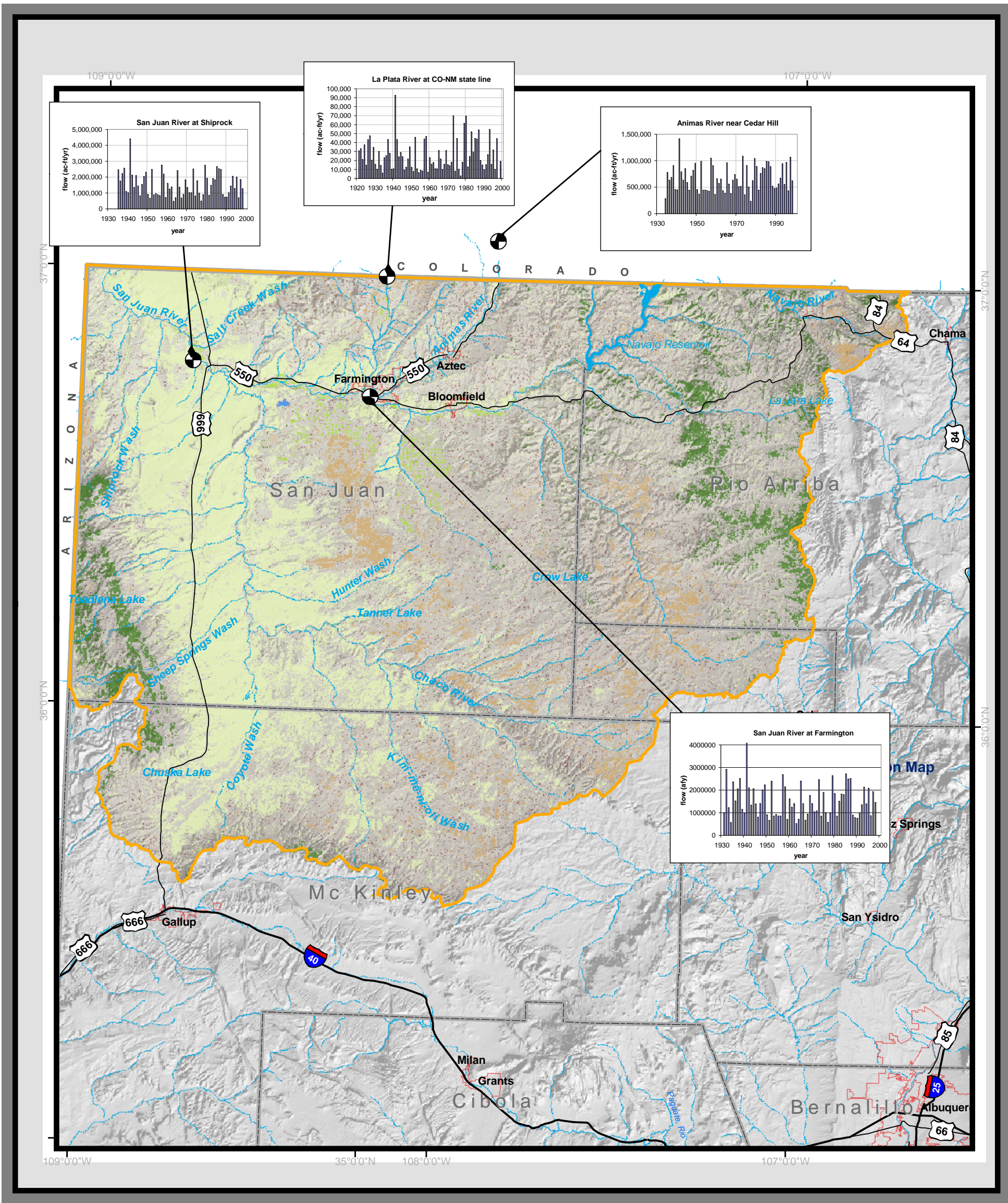
**Explanation:**

- USGS Monitor Wells
- County Boundaries
- Cities
- Perennial Stream
- Intermittent Stream

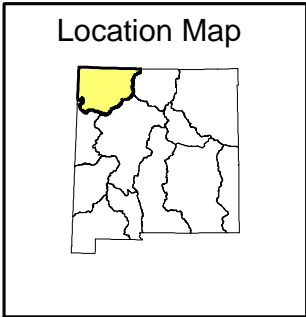
**Water Level Contours**  
 — 100 ft.  
 — 500 ft.





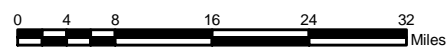


**PLATE 16.1**  
**San Juan Basin:**  
**Land Use & Surface Water**

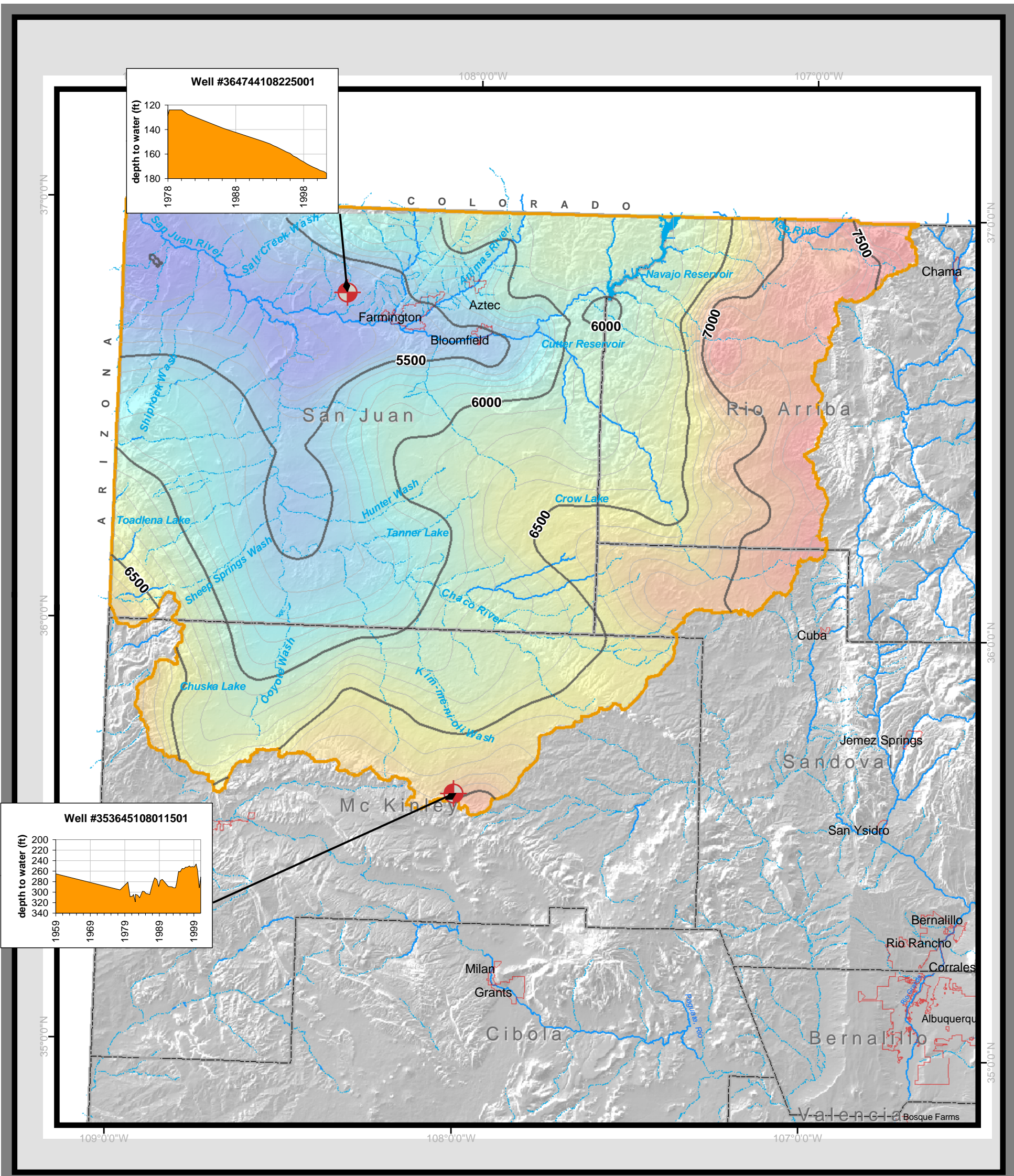


**Explanation:**

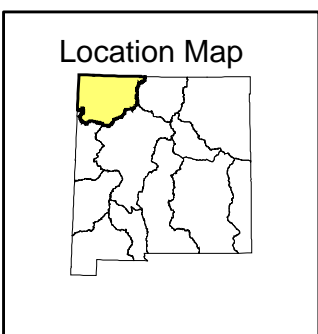
- Gaging Stations
- County Boundaries
- Cities
- Perennial Streams
- Intermittent Streams
- Water
- Urban Land
- Bare Rock and Open Land
- Uland Forest
- Shrubland
- Orchards/Vineyards/Other
- Grasslands
- Agricultural Lands
- Wetlands







## PLATE 16.2 San Juan Basin: Ground Water



Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

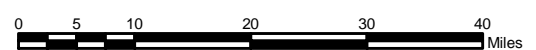
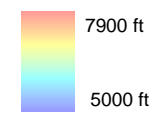
### Explanation:

- USGS Monitor Wells
- County Boundaries
- Cities
- Perennial Stream
- Intermittent Stream

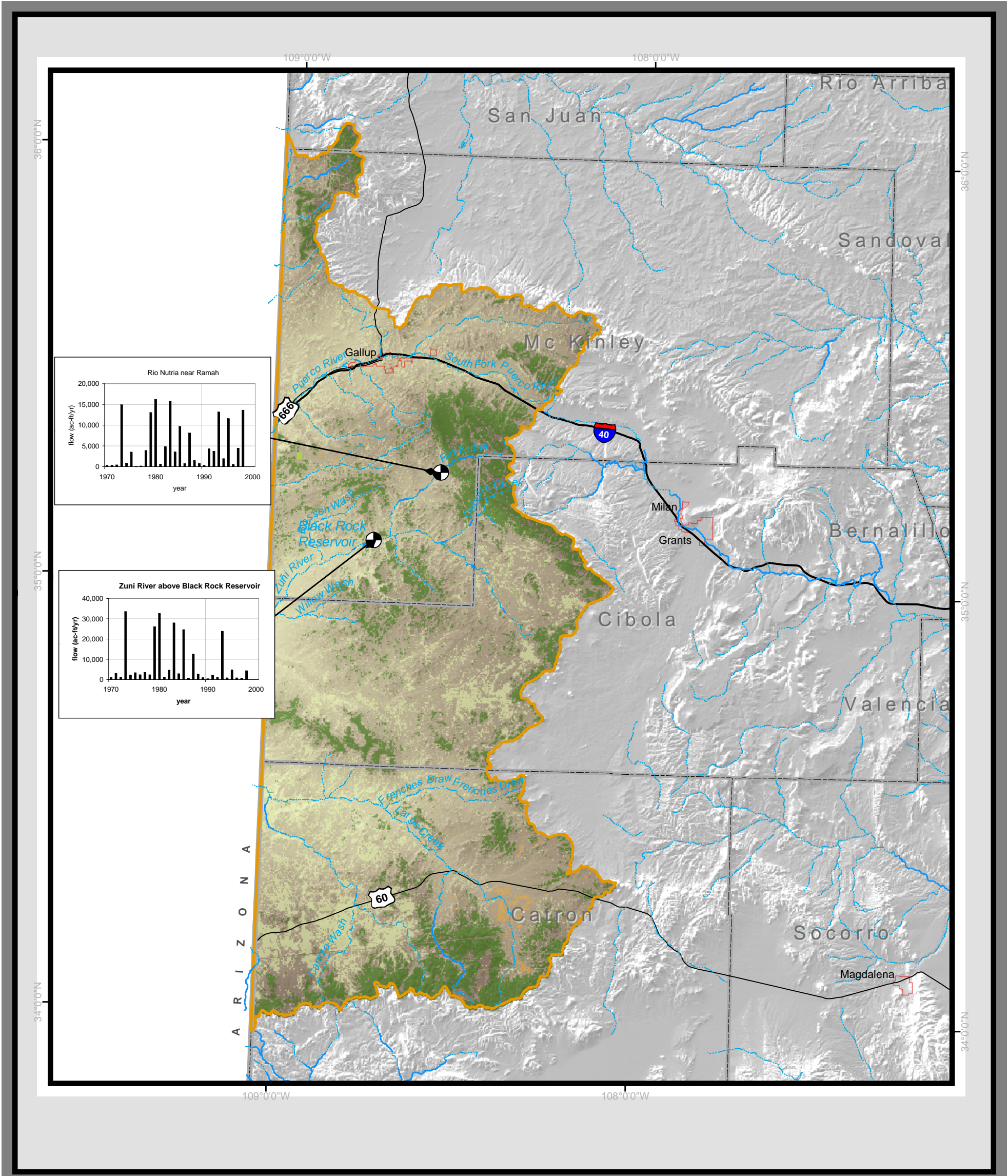
### Water Level Contours

- 100 ft.
- 500 ft.

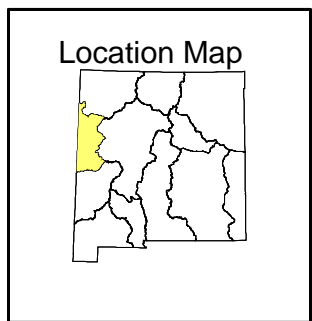
### Water Level Elevation





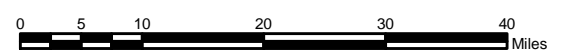


**Plate 17.1**  
**Little Colorado:**  
**Land Use & Surface Water**

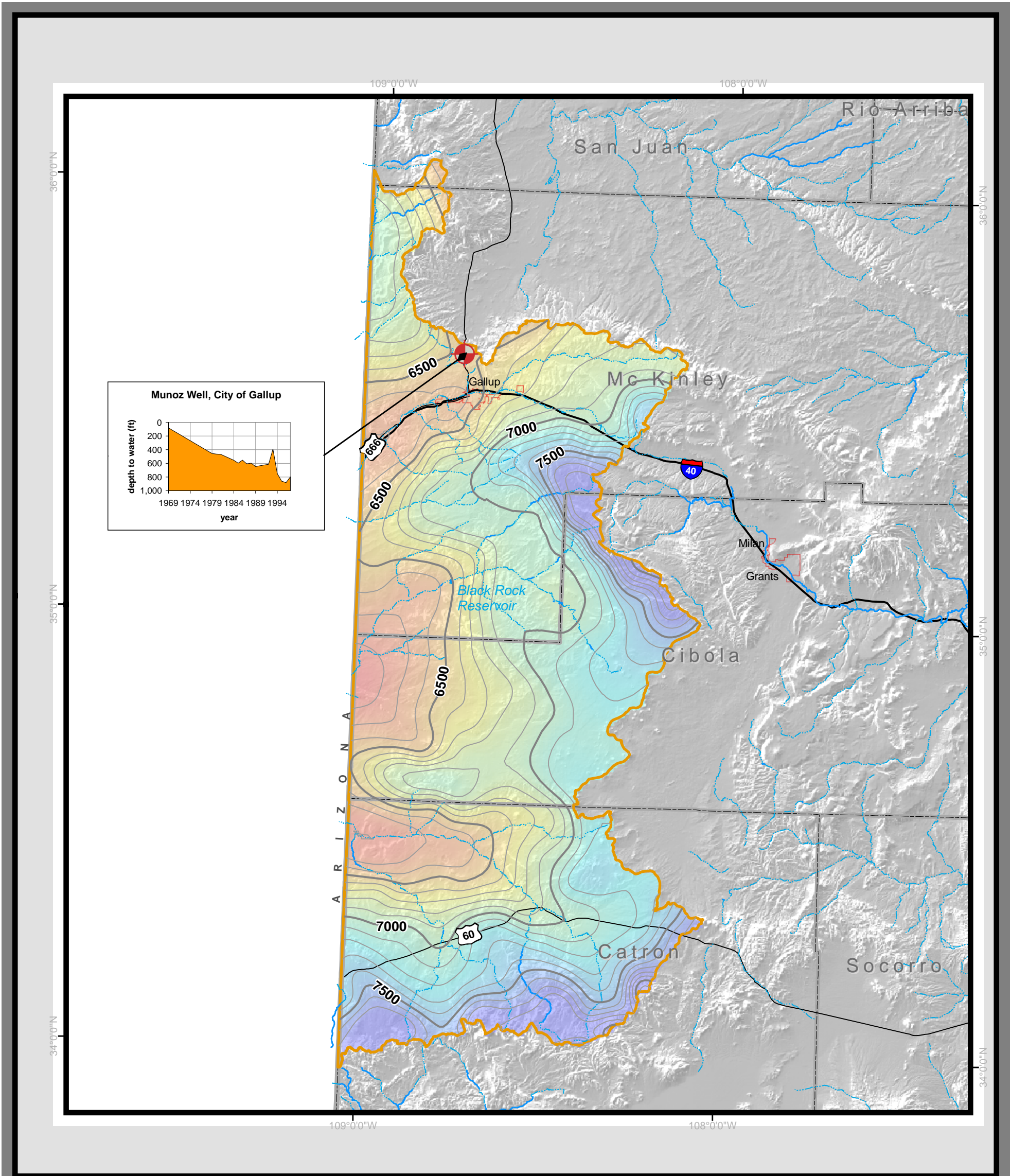


**Explanation:**

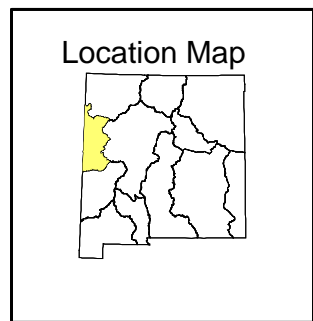
- Gaging Stations
- County Boundaries
- Cities
- Perennial Streams
- Intermittent Streams
- Water
- Urban Land
- Bare Rock and Open Land
- Uland Forest
- Shrubland
- Orchards/Vineyards/Other
- Grasslands
- Agricultural Lands
- Wetlands







## Plate 17.2 Little Colorado: Ground Water



Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

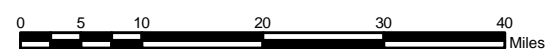
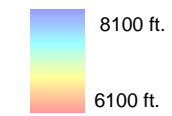
### Explanation:

- USGS Monitor Wells
- County Boundaries
- Cities
- Perennial Stream
- Intermittent Stream

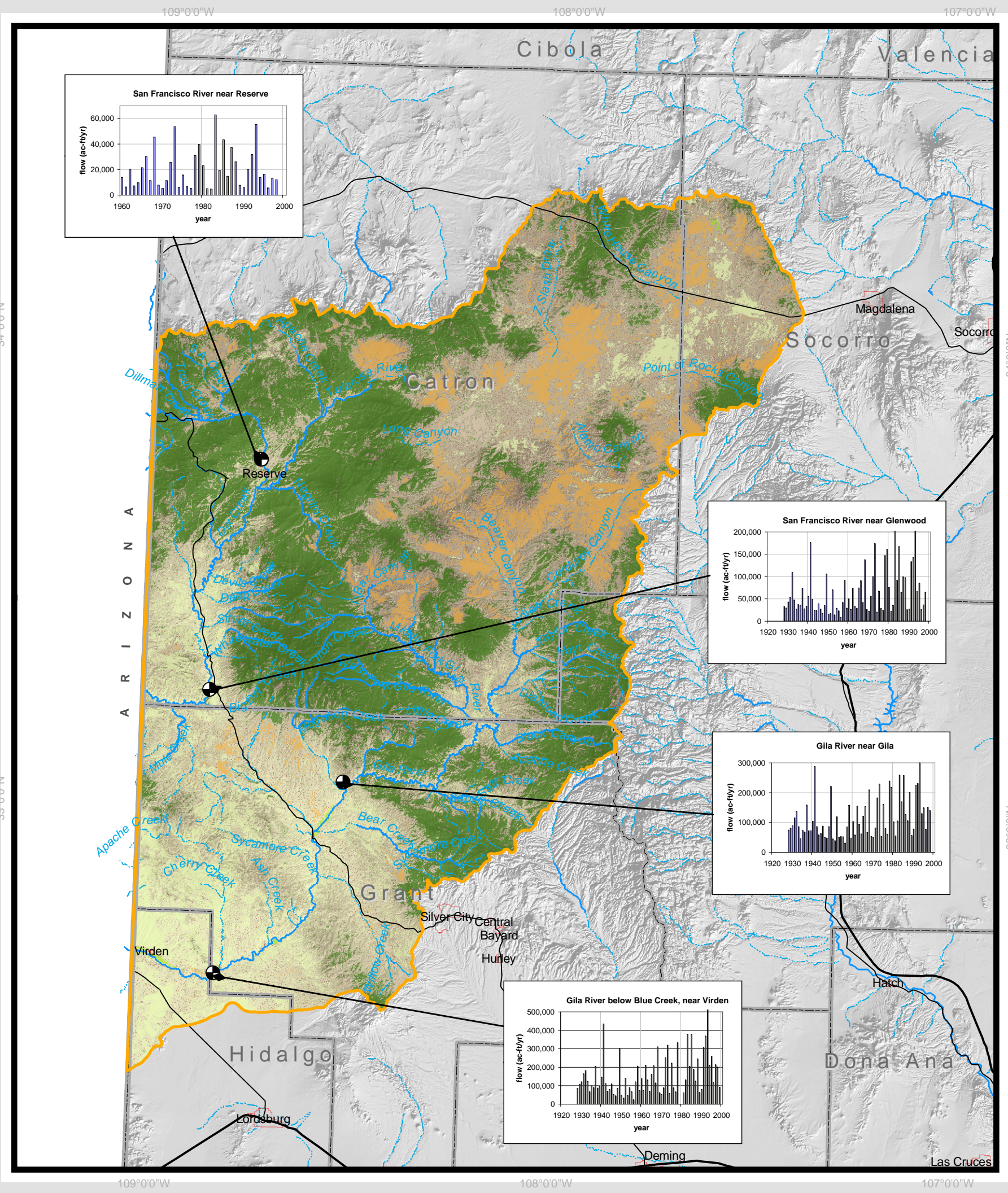
### Water Level Contours

- 100 ft.
- 500 ft.

### Water Level Elevation



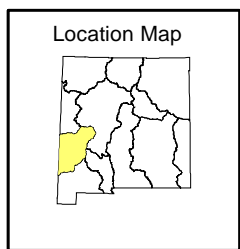




# Plate 18

## Gila-San Francisco, with the San Augustin Basin:

### Land Use & Surface Water



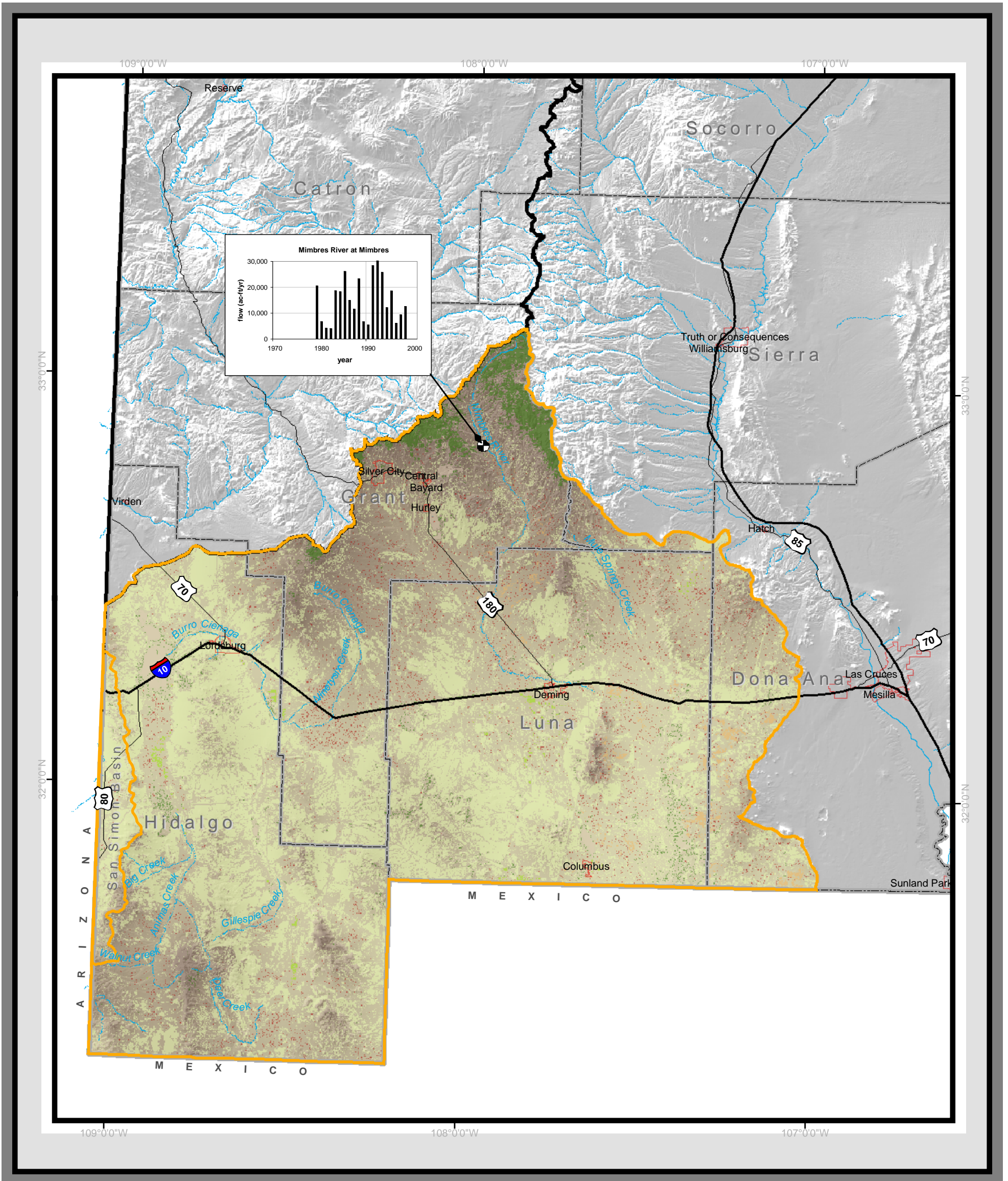
**Explanation:**

Gaging Stations	Bare Rock and Open Land
County Boundaries	Uland Forest
Cities	Shrubland
Perennial Streams	Orchards/Vineyards/Other
Intermittent Streams	Grasslands
Water	Agricultural Lands
Urban Land	Wetlands

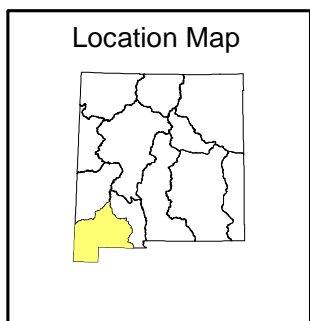
N

0 5 10 20 30 40 Miles



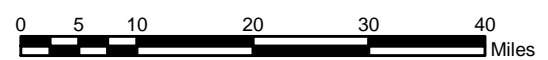


**Plate 19.1**  
**Southwest Closed**  
**and San Simon Basins:**  
**Land Use & Surface Water**

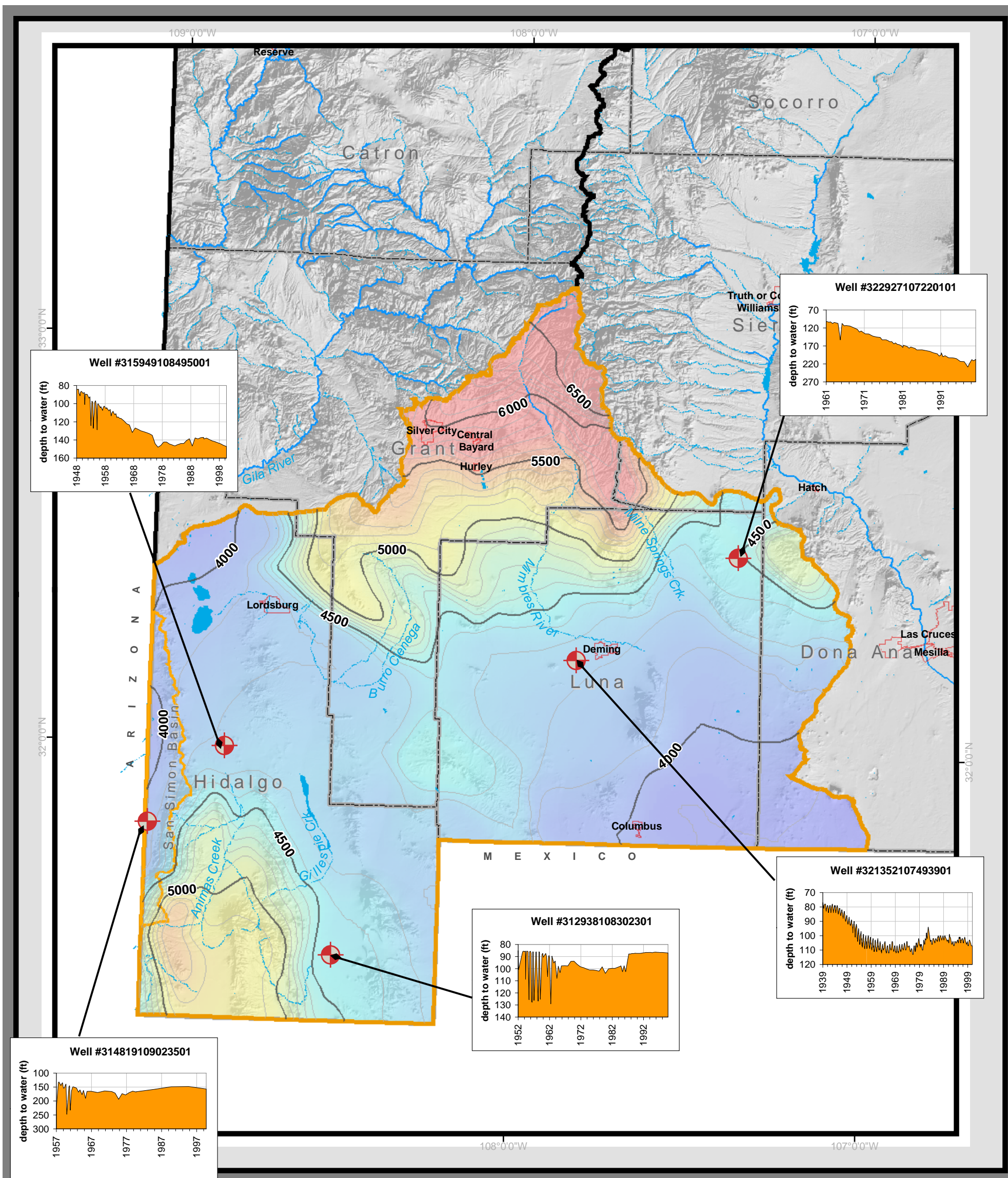


**Explanation:**

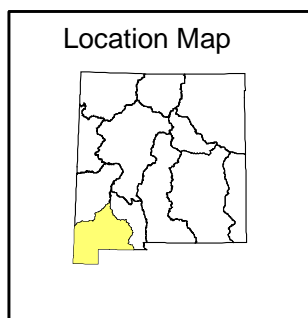
- Gaging Stations
- County Boundaries
- Cities
- Perennial Streams
- Intermittent Streams
- Water
- Urban Land
- Bare Rock and Open Land
- Upland Forest
- Shrubland
- Orchards/Vineyards/Other
- Grasslands
- Agricultural Lands
- Wetlands







## Plate 19.2 Southwest Closed and San Simon Basins: Ground Water



Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant groundwater pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

### Explanation:

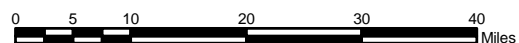
- USGS Monitor Wells
- County Boundaries
- Cities
- Perennial Stream
- Intermittent Stream

### Water Level Contours

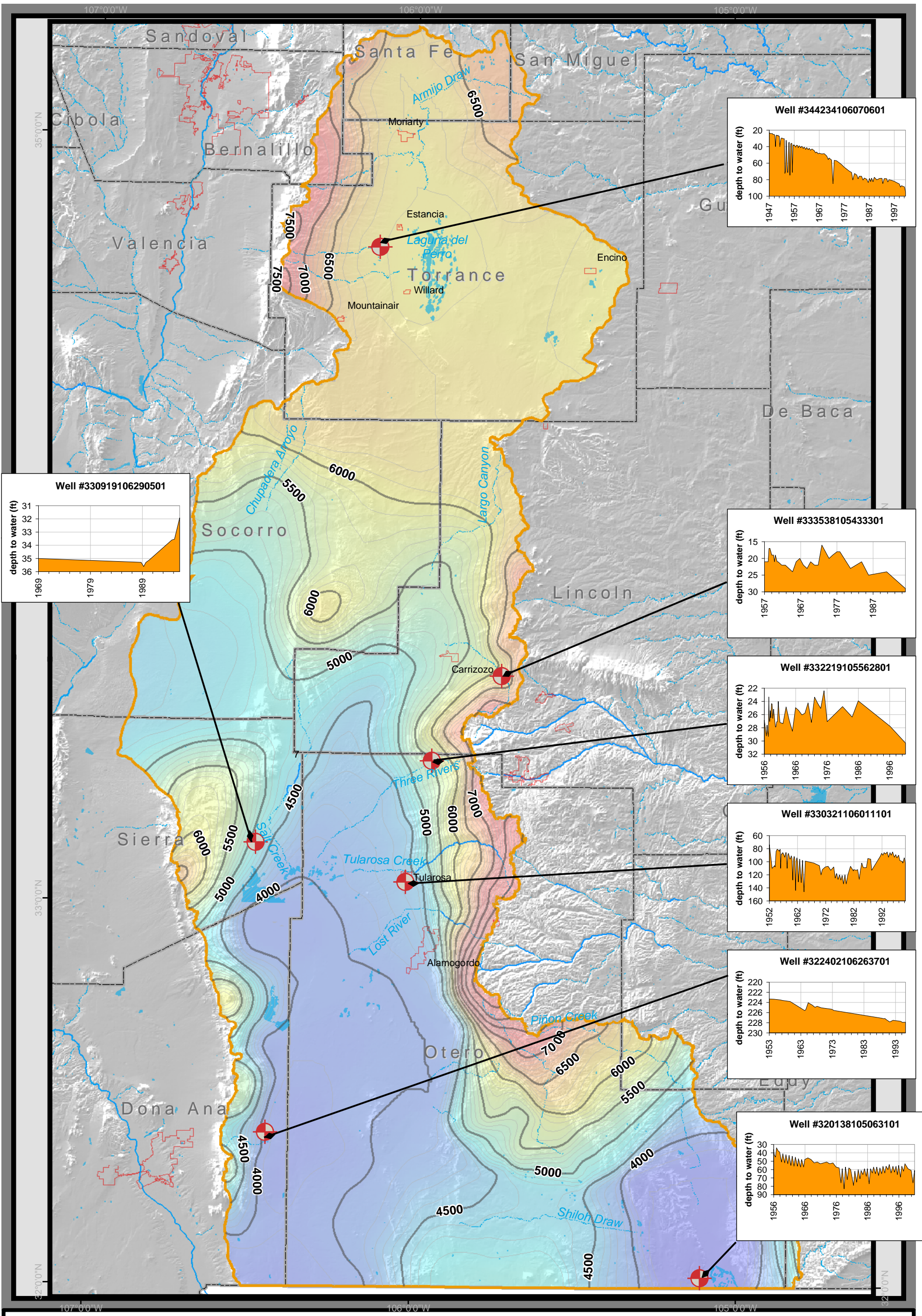
- 100 ft.
- 500 ft.

### Water Level Elevation

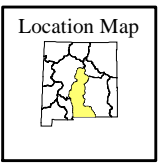
- 7000 ft.
- 3800 ft.







**Plate 20**  
**Central Closed Basins:**  
**Estancia, Tularosa, Salt, and**  
**Northern Jornada: Ground Water**



Contours depict the generalized, pre-development water table. In most areas of the state, the shallow, often stream-connected water table aquifer is the best, and most commonly developed groundwater source. The map portrays water levels before significant ground water pumping occurred. The water level contour map is appropriate to identify general groundwater flow directions. The map is not intended to predict local groundwater conditions.

**Explanation:**

- USGS Monitor Wells
- County Boundaries
- Cities
- Perennial Stream
- Intermittent Stream

**Water Level Contours**

- 100 ft.
- 500 ft.

**Water Level Elevation**

0 5 10 20 30 40 Miles