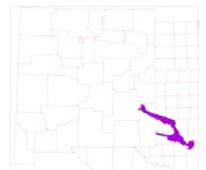
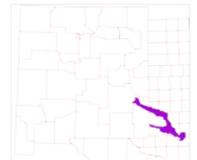


## Rapid Watershed Assessment Mustang Draw Watershed



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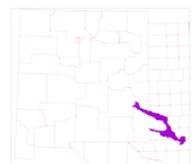
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## Overview

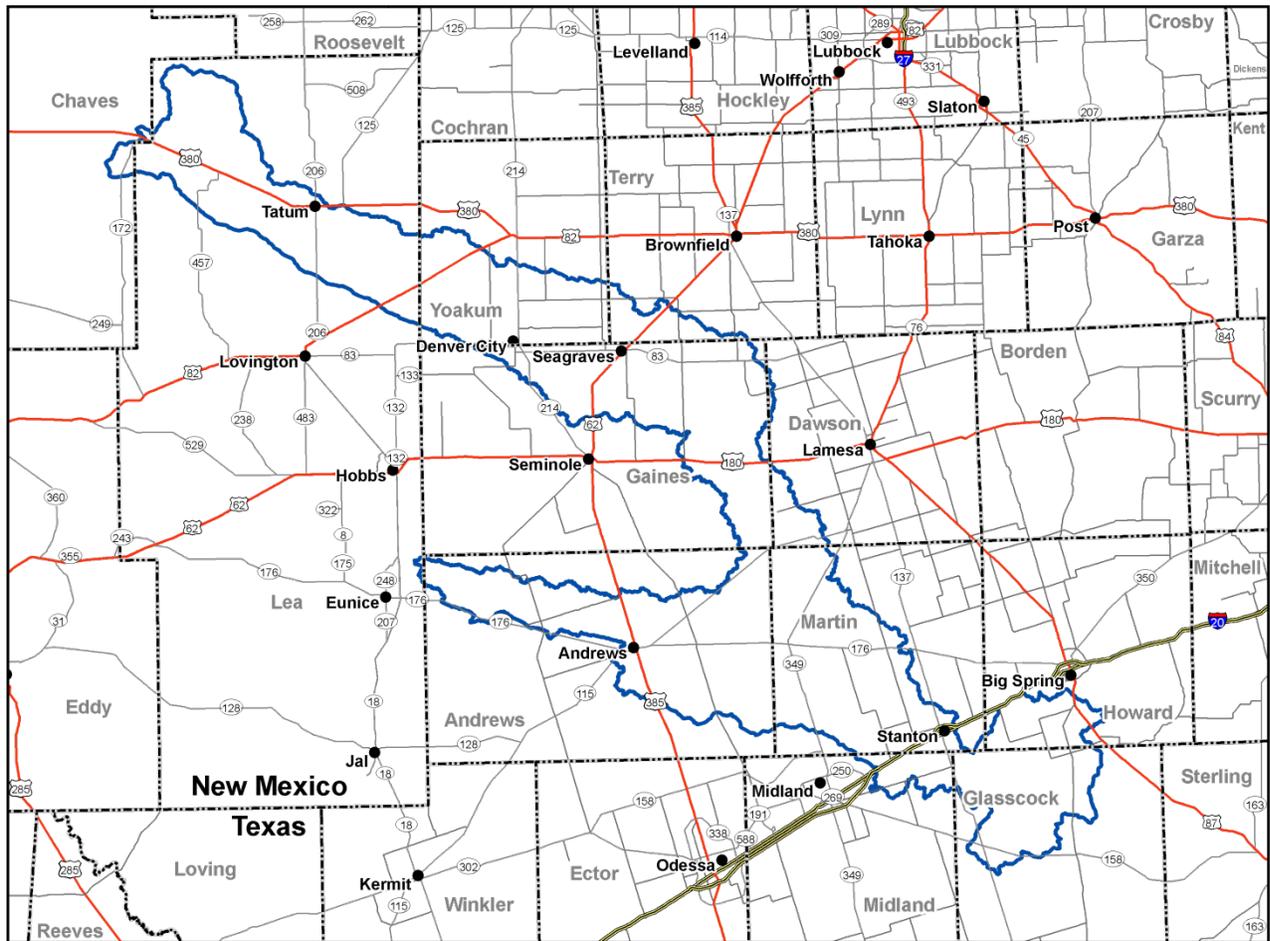
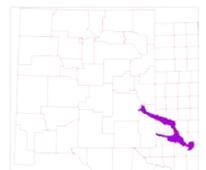


Figure 1. Mustang Draw Watershed Overview.

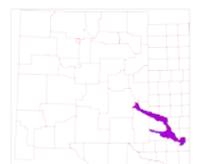


## Overview

The Mustang Draw Watershed is located in southeastern New Mexico and in northwestern-central part of Texas covers 1,989,120 total acres (8,050 sq. km). Portions of the Mustang Draw Watershed are in the Chaves, and Lea counties in New Mexico and Andrews, Dawson, Gaines, Glasscock, Howard, Martin, Midland, Terry, and Yoakum counties in Texas. Table 1 summarizes the distribution of the Mustang Draw Watershed.

County	County Acres Total	Acres in HUC	% of HUC in County	% of County in HUC
<b>Chaves, NM</b>	<b>3,885,365</b>	<b>12,188</b>	<b>1</b>	<b>&lt; 1</b>
<b>Lea, NM</b>	<b>2,811,518</b>	<b>348,915</b>	<b>18</b>	<b>12</b>
<b>Andrews, TX</b>	<b>961,118</b>	<b>385,498</b>	<b>19</b>	<b>40</b>
<b>Dawson, TX</b>	<b>578,024</b>	<b>37,528</b>	<b>2</b>	<b>6</b>
<b>Gaines, TX</b>	<b>962,328</b>	<b>352,355</b>	<b>18</b>	<b>37</b>
<b>Glasscock, TX</b>	<b>577,651</b>	<b>166,206</b>	<b>8</b>	<b>29</b>
<b>Howard, TX</b>	<b>579,869</b>	<b>67,494</b>	<b>3</b>	<b>12</b>
<b>Martin, TX</b>	<b>586,759</b>	<b>320,464</b>	<b>16</b>	<b>55</b>
<b>Midland, TX</b>	<b>577,985</b>	<b>40,669</b>	<b>2</b>	<b>7</b>
<b>Terry, TX</b>	<b>570,365</b>	<b>48,474</b>	<b>2</b>	<b>8</b>
<b>Yoakum, TX</b>	<b>512,261</b>	<b>209,461</b>	<b>11</b>	<b>41</b>
<b>Sum (Σ)</b>	<b>--</b>	<b>1,989,120</b>	<b>100</b>	

Table 1. Mustang Draw Watershed acreage distribution.



## **Physical Setting**

### **Geology:**

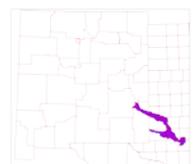
The HUC has a northwest boundary just west of the intersection of Medlin and Siminola Valley Road just west of Tatum. The northern boundary proceeds southeastward to the intersection of Siminola Valley Road and Chameleon Road; passes through the intersection of County Road 149 and Sartin Road south of Tatum; continues eastward to the intersection of Whitmore and Simpson Roads; to the intersection of Koch and Powell Roads; passes into Texas and the intersection of U.S. Route 82 and County Road 215 in Yoakum County; passes just north of Sligo and south of Wellman; passes through the intersection of County Road 132 and 143; heads southeastward to Mungerville; heads southward to the intersection of State Route 115 and County road B just west of Patricia; passes between Tarzan and Grady; turns eastward just north of the Stanton Municipal Airport; proceeds to the intersection of Interstate 20 and Sulphur Springs Draw downstream of Natural Dam Lake; continues east southeastward to just south of the Big Spring McMahon-Winkle Airport; and ends just east of the junction of Hali and Kay Roads east of South Haven. The southern boundary proceeds southeastward to crossing State Route 206 just north of Hillburn City; crosses U.S. Route 82 at Angell Road; crosses into Texas to the intersection of U.S. route 180 and Edwards Road; passes through the intersection of County Roads 211 and 212 in Gaines County near Seminole; turns southward near McKenzie Lake; turns westward to roughly parallel State Route 115 through Andrews; turns southeastward just north of the intersection of Farm to Market Road 2371 and State Route 115; crosses State route 349 just north of Midland; crosses State Route 137 at the Johnson Draw divide; passes west and south of the State Route 137 and 158 intersection; turns northeastward north of Garden City to just east of the junction of Hali and Kay Roads east of South Haven.

The watershed consists of the Tertiary Ogallala formation of the Llano Estacado. Quaternary eolian and piedmont deposits start near the Texas-New Mexico border. Most of the drainages flow eastward. There are many ponds on the surface that exist after rains.

The area contains many oil fields.

Resource concerns are high sediment erosion. In addition the lowering of valleys by river incision is a continuing process. Rivers respond by aggrading during climates that promote large sediment yield and large, stable discharges; and incise during climates that produce flashy flows and reduce the sediment supply.

Groundwater quality and quantity is a concern. Depth to groundwater is a concern if the shallow unconfined aquifer does not produce enough water for the resource or increased population demands are 'mining' the water. Groundwater quality ranges from good to poor for livestock or crops.



## Soils:

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the Mustang Draw Watershed are assigned to four groups (A, B, C, and D).



Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.



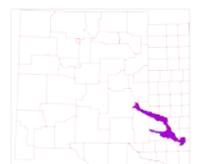
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.



Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.



Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.



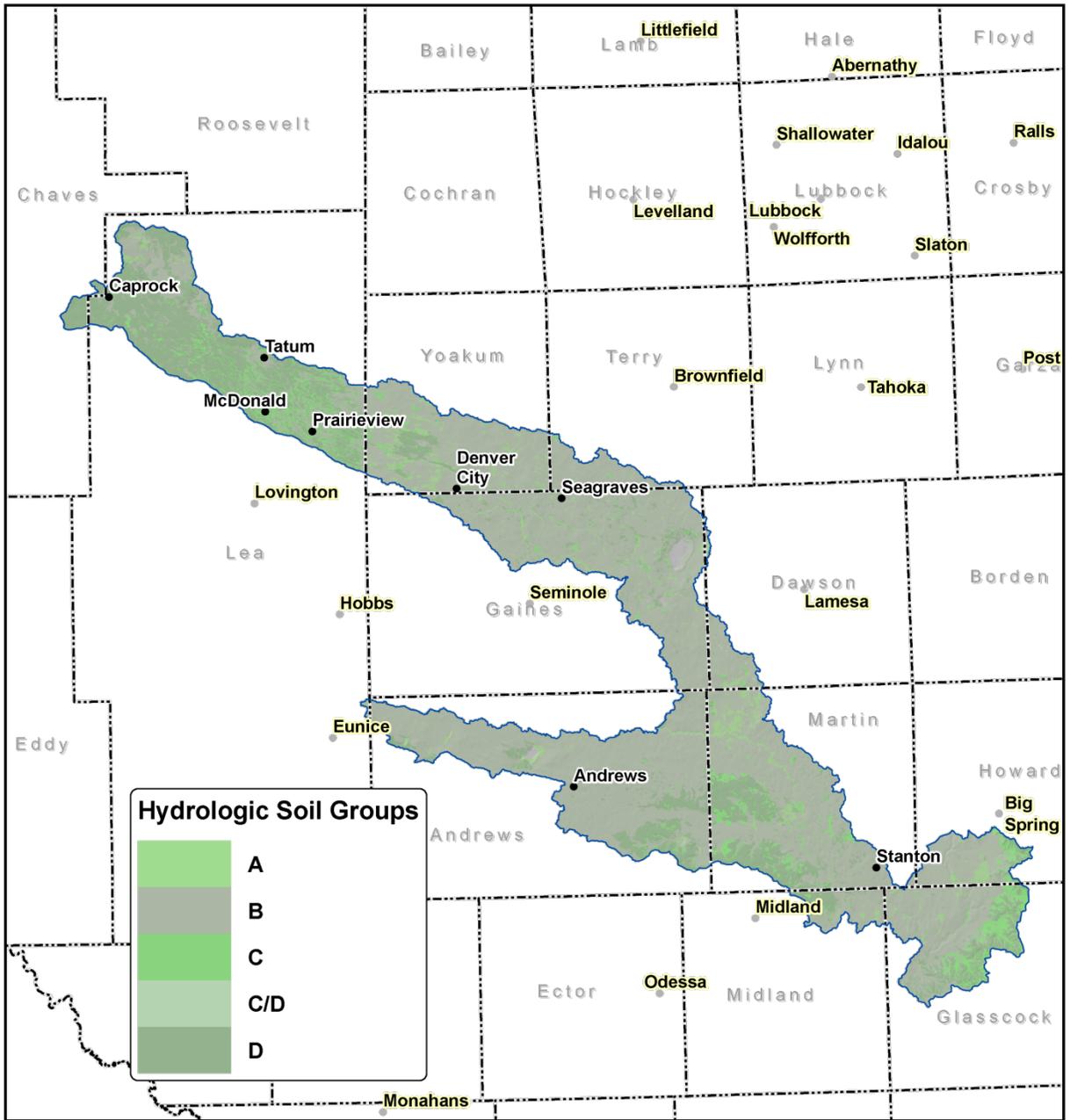
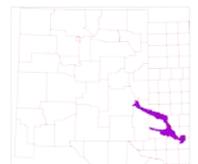


Figure 2. Mustang Draw Watershed Hydrological Soil Groups.



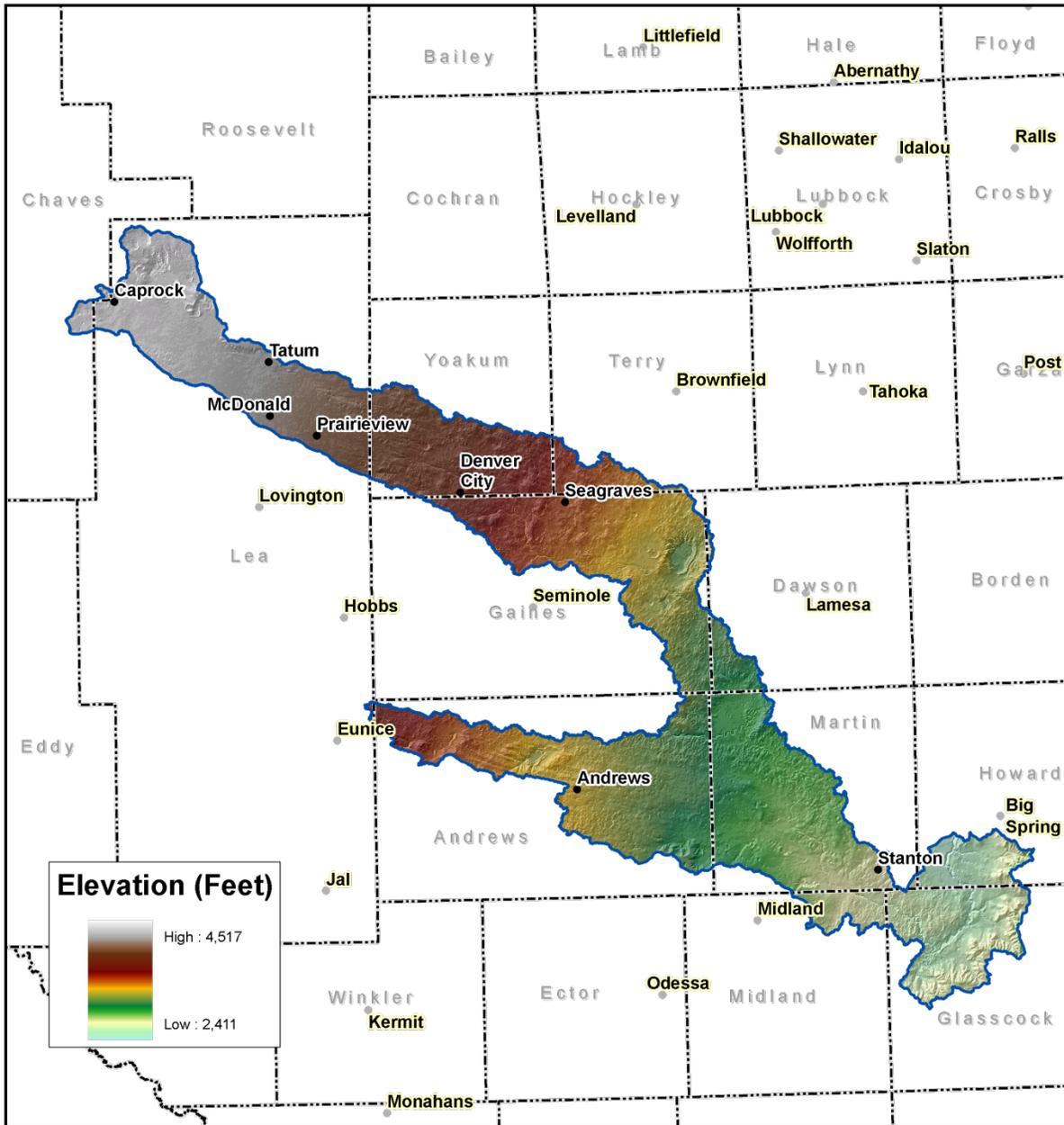
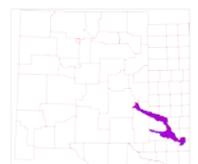


Figure 3. Mustang Draw Watershed Shaded Relief.



**Precipitation <sup>1</sup>**

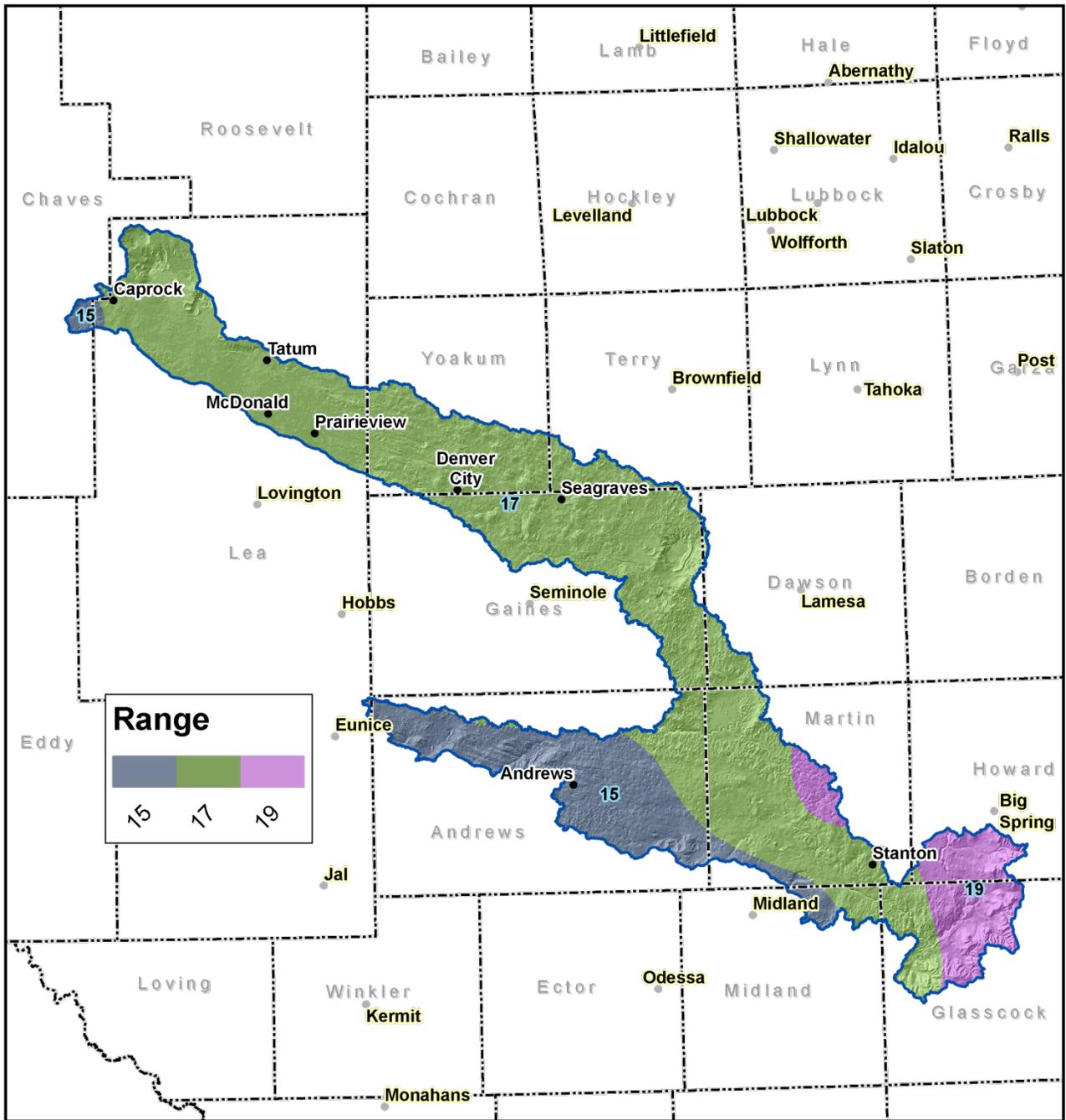
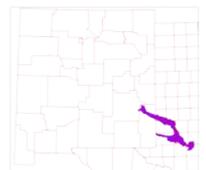


Figure 4. Mustang Draw Watershed Annual Precipitation.



**Land Ownership** <sup>2</sup>

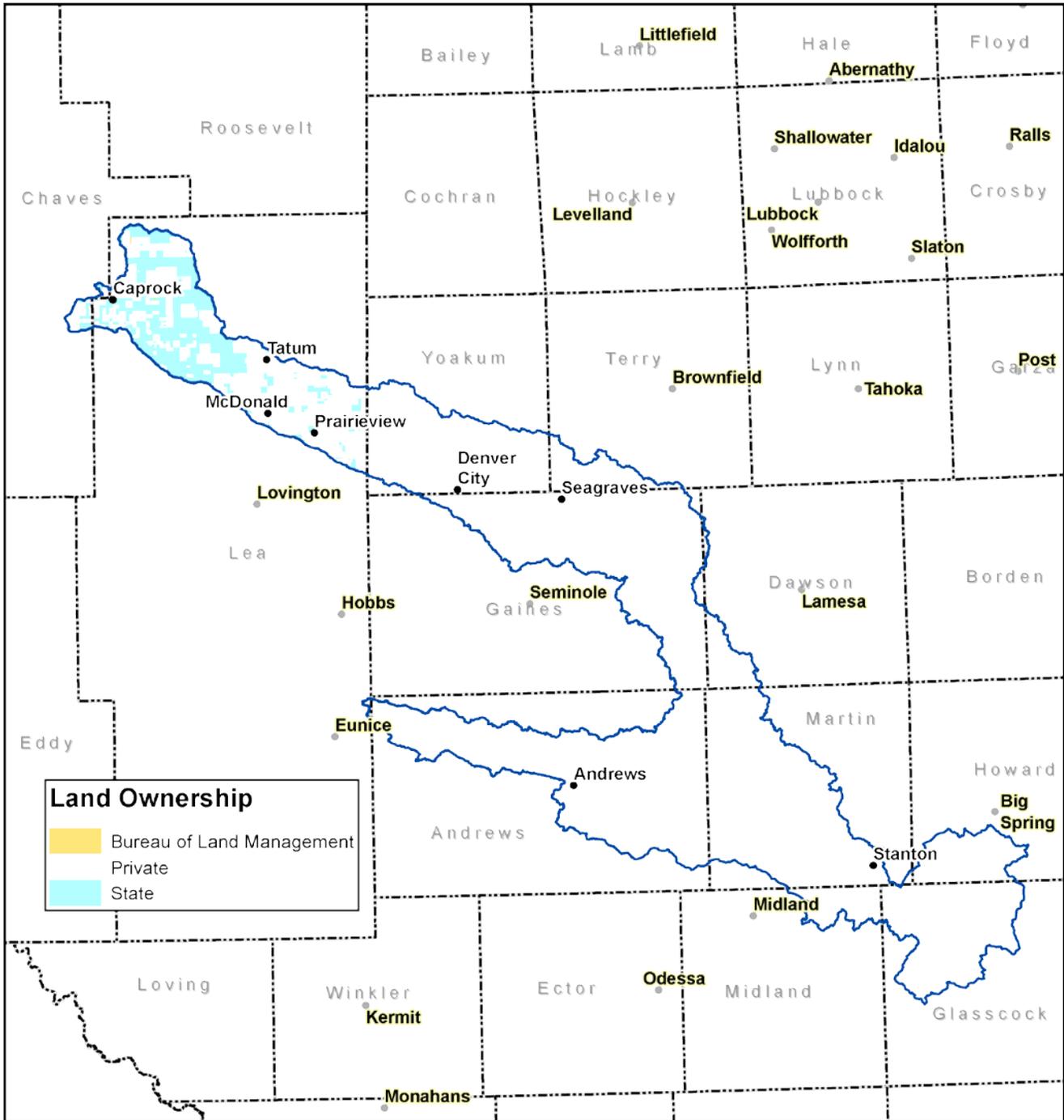
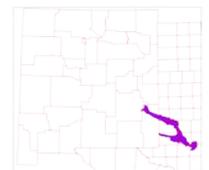


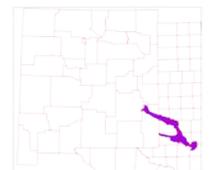
Figure 5. Mustang Draw Watershed Land Ownership.



## Land Ownership

<u>County</u>	<u>BLM</u>	<u>Private</u>	<u>State</u>
Chaves, NM		8,629	3,559
Lea, NM	515	220,884	127,516
Andrews, TX		385,489	
Dawson, TX		37,528	
Gaines, TX		352,355	
Glasscock, TX		166,206	
Howard, TX		67,494	
Martin, TX		320,464	
Midland, TX		40,669	
Terry, TX		48,474	
Yoakum, TX		209,335	1
Watershed ( $\Sigma$ )	515	1,857,527	131,076
% Watershed	<1	93	7

Table 2. Land Ownership in the Mustang Draw Watershed.



**Land Use / Land Cover** <sup>3,4</sup>

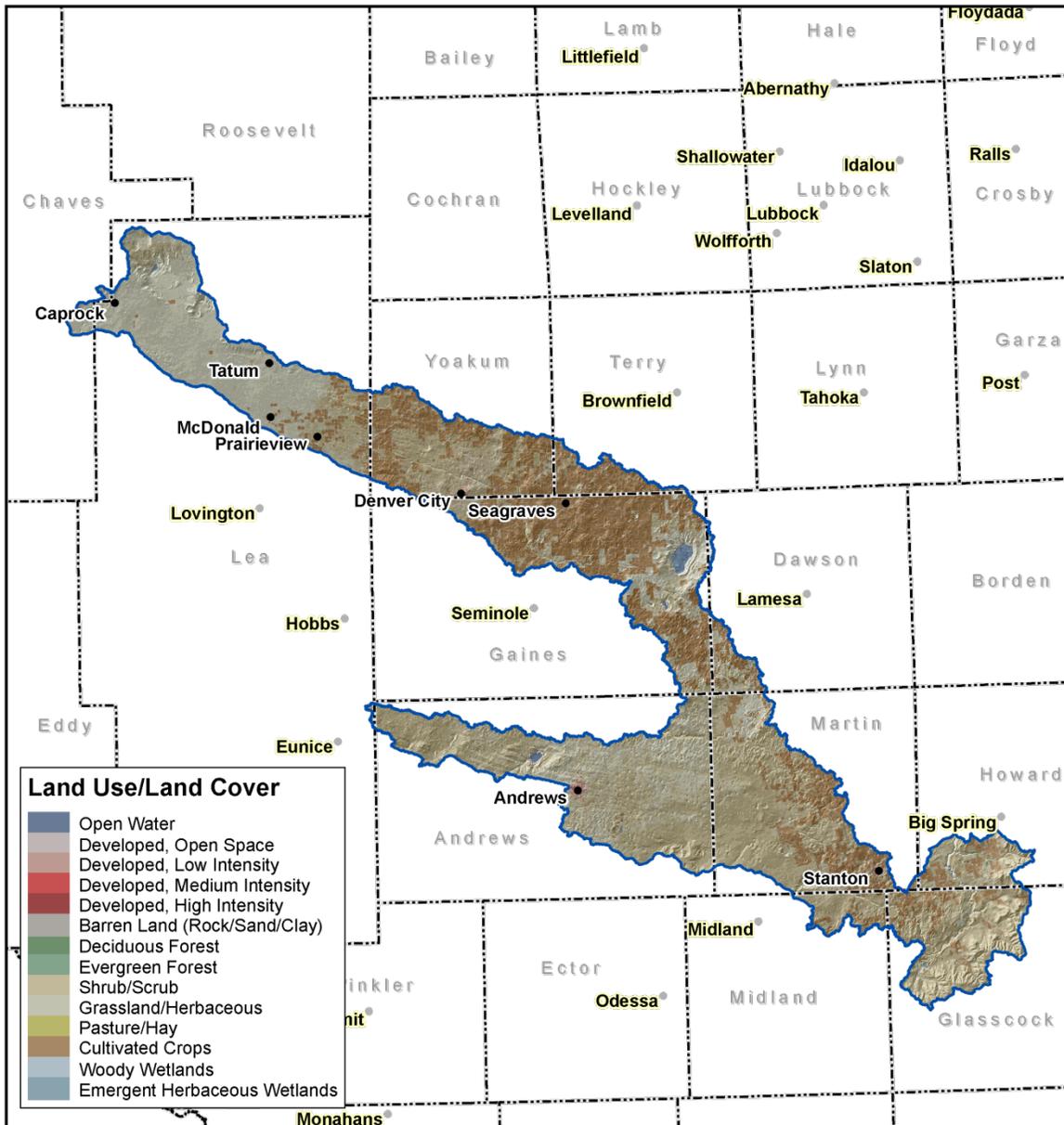
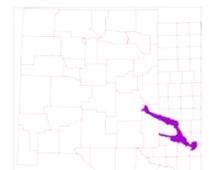


Figure 6. Subset of the National Land Cover Dataset in the Mustang Draw Watershed

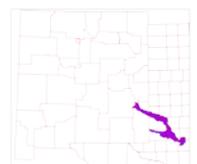


## Land Use / Land Cover

The U.S. Geological Survey (USGS) produced the National Land Cover Dataset (NLCD) as part of a cooperative project between the USGS and the U.S. Environmental Protection Agency (USEPA). The goal of this project was to produce a consistent land cover data layer for the conterminous United States. The Multiresolution Land Characterization (MRLC) Consortium collected the data used to compile the NLCD. The MRLC Consortium is a partnership of Federal agencies that produce or use land cover data; partners include the UNITED STATES GEOLOGICAL SURVEY (National Mapping, Biological Resources, and Water Resources Divisions), USEPA, the U.S. Forest Service, and the National Oceanic and Atmospheric Administration.

<u>Land use/ Land Cover</u>	<u>Acres</u>	<u>% of Watershed</u>
<b>Shrub/Scrub</b>	<b>848,614</b>	<b>43</b>
<b>Cultivated Crops</b>	<b>525,545</b>	<b>26</b>
<b>Grassland/Herbaceous</b>	<b>524,189</b>	<b>26</b>
<b>Developed, Open Space</b>	<b>66,797</b>	<b>3</b>
<b>Open Water</b>	<b>5,832</b>	<b>&lt; 1</b>
<b>Emergent Herbaceous Wetlands</b>	<b>5,260</b>	<b>&lt; 1</b>
<b>Developed, Low Intensity</b>	<b>4,922</b>	<b>&lt; 1</b>
<b>Barren Land (Rock/Sand/Clay)</b>	<b>3,682</b>	<b>&lt; 1</b>
<b>Woody Wetlands</b>	<b>1,510</b>	<b>&lt; 1</b>
<b>Deciduous Forest</b>	<b>1,191</b>	<b>&lt; 1</b>
<b>Developed, Medium Intensity</b>	<b>918</b>	<b>&lt; 1</b>
<b>Developed, High Intensity</b>	<b>270</b>	<b>&lt; 1</b>
<b>Evergreen Forest</b>	<b>255</b>	<b>&lt; 1</b>
<b>Mixed Forest</b>	<b>95</b>	<b>&lt; 1</b>

Table 3. Extent of NLCD classes in the Mustang Draw Watershed



## Land Use / Land Cover

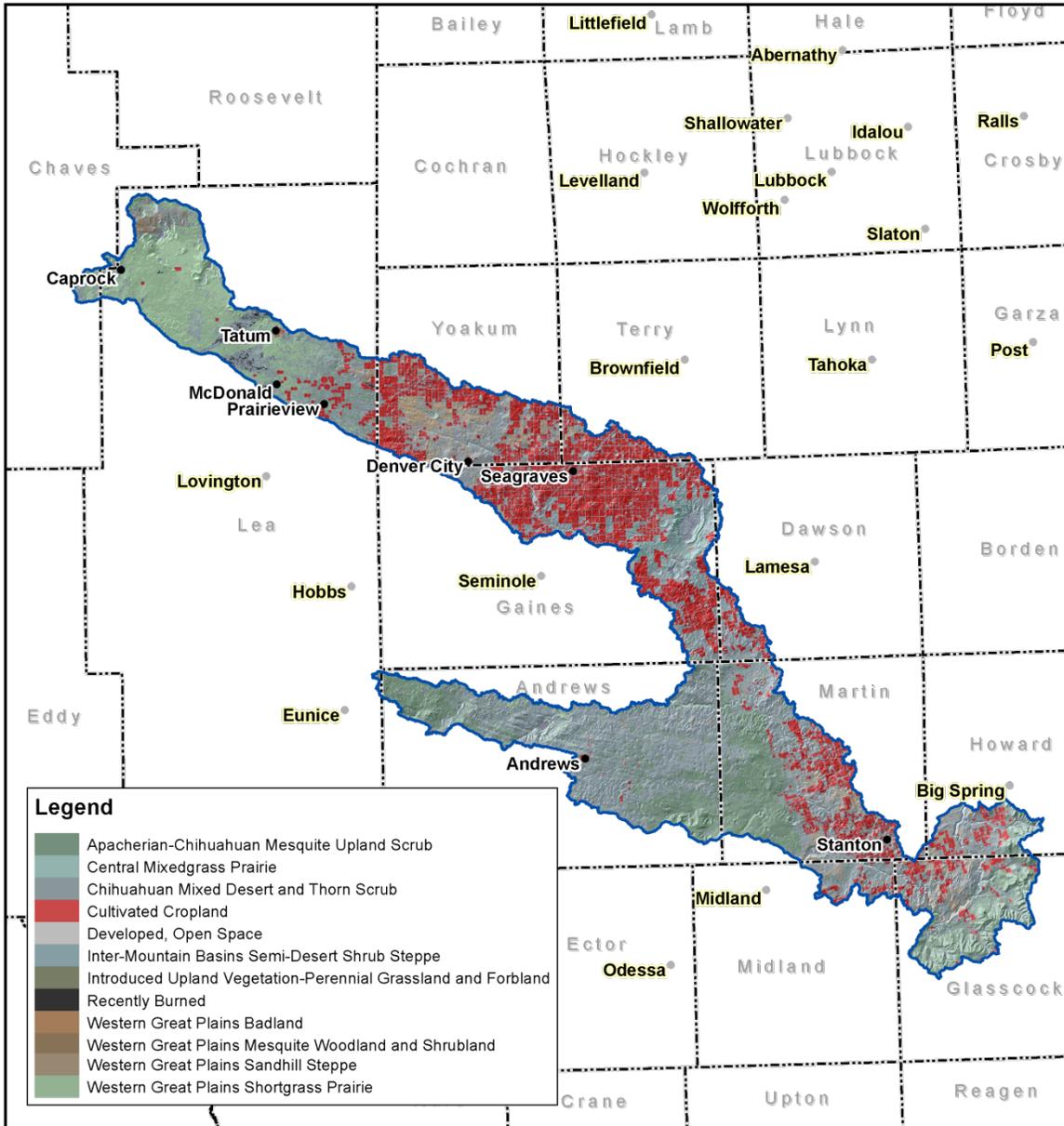
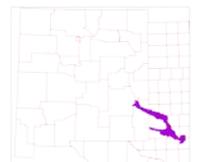


Figure 7. Subset of the SWREGAP over the Mustang Draw Watershed. The 12 dominant ecosystems are displayed in the legend.

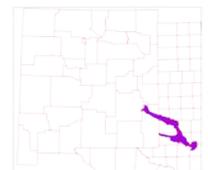


## Land Use / Land Cover

The land cover mapping effort for the Southwest Region Gap Analysis Project was a coordinated multi-institution endeavor. This dataset was created for regional terrestrial biodiversity assessment. Additional objectives were to establish a coordinated mapping approach to create detailed, seamless maps of land cover, all native terrestrial vertebrate species, land stewardship, and management status, and to analyze this information to identify those biotic elements that are underrepresented on lands managed for their long term conservation.

ECOSYSTEM	Acres	% of Watershed
Apacherian-Chihuahuan Mesquite Upland Scrub	543,839	27
Cultivated Cropland	525,041	26
Western Great Plains Shortgrass Prairie	356,607	18
Western Great Plains Mesquite Woodland and Shrubland	231,927	12
Central Mixedgrass Prairie	107,533	5
Western Great Plains Sandhill Steppe	99,606	5
Developed, Open Space	30,381	2
Recently Burned	17,182	1
Introduced Upland Vegetation-Perennial Grassland and Forbland	13,538	1
Western Great Plains Badland	7,918	< 1
Inter-Mountain Basins Semi-Desert Shrub Steppe	6,863	< 1
Chihuahuan Mixed Desert and Thorn Scrub	6,380	< 1

Table 4. SW Region Gap analysis ecosystem acreages .



**Hydrology** 5,6,7,8,9,10

The National Hydrography Dataset (NHD) is a comprehensive set of data that encodes information about naturally occurring and constructed bodies of water, paths through which water flows, and related entities. The NHD identifies 587 miles (945 km) of water courses in the Mustang Draw Watershed. The majority of these courses typically flow intermittently in summer months during periods associated with high intensity convective thunderstorms.

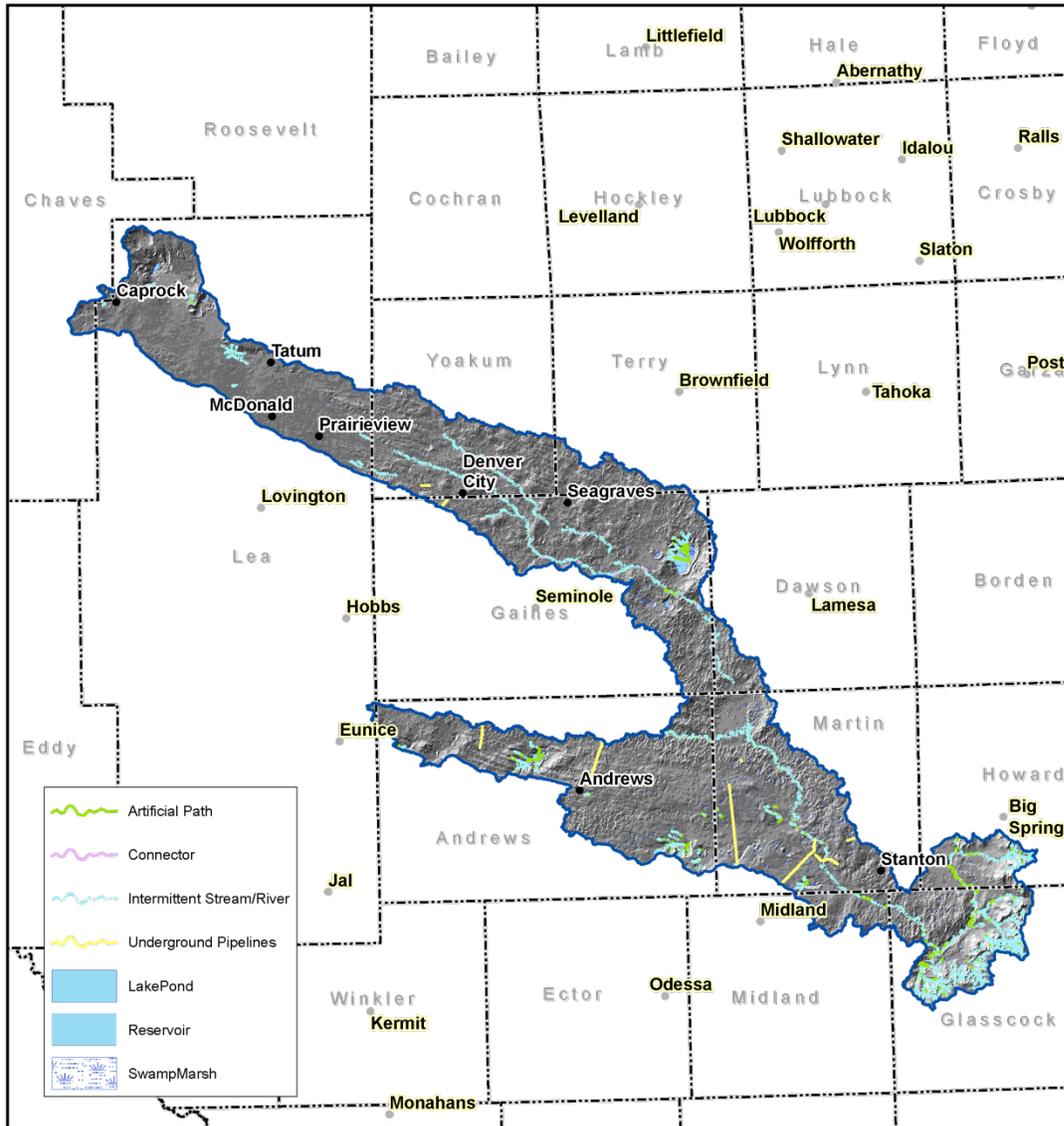
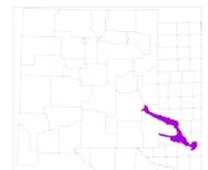


Figure 8. National Hydrologic Dataset (NHD) of the Mustang Draw Watershed.



Water Course Type	Miles
Artificial Path	43
Connector	4
Intermittent Stream/River	500
Underground Pipeline	40
Sum ( $\Sigma$ )	587

Table 5. NHD Water Course Type and Extents

### Gauging Stations:

There are no Gauging stations for this watershed.

### New Mexico Water Quality Control Commission (NMWQCC):

The New Mexico Water Quality Control Commission (NMWQCC) is the issuing agency of water quality standards for interstate and intrastate waters in New Mexico.

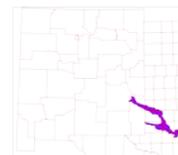
Under section 303(d) of the Clean Water Act, states, territories, and authorized tribes, are required to develop lists of impaired waters. These are waters for which technology-based regulations and other required controls are not stringent enough to meet the water quality standards set by states. The law requires that states establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDLs), for these waters. A TMDL is a calculation of the maximum amount of a pollutant a water body can receive and still safely meet water quality standards.

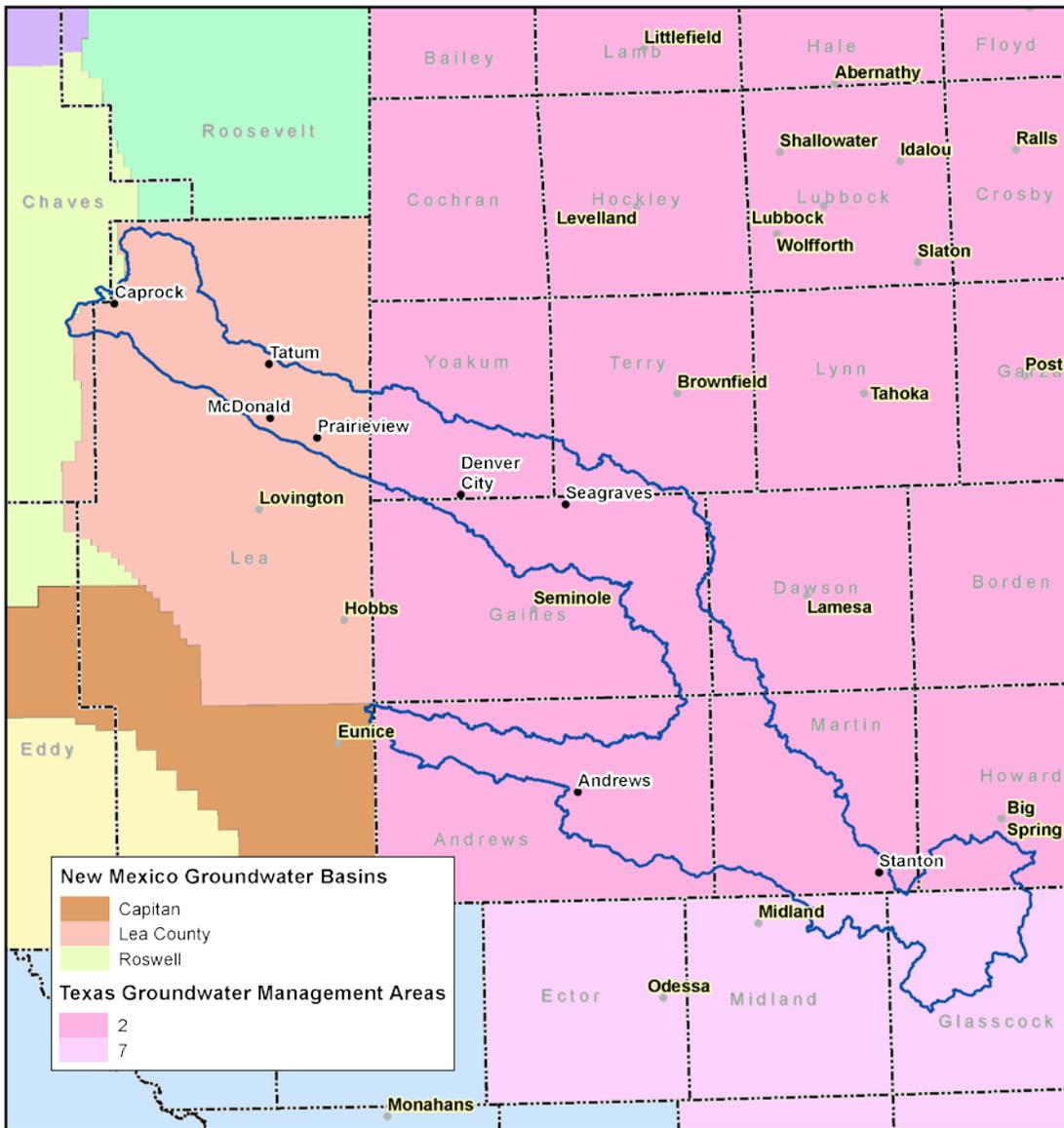
There are no designated Impaired Surface Waters or water bodies for the New Mexico portion of Mustang Draw Watershed.

### Texas Commission on Environmental Quality (TCEQ):

The Texas Commission on Environmental Quality (TCEQ) is the issuing agency of water quality standards for interstate and intrastate waters in Texas.

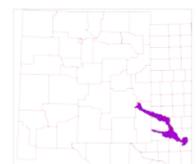
There are no designated water bodies for the Texas portion of Mustang Draws Watershed as of March 19, 2008.





**Figure 9. Declared Groundwater Basins of the Mustang Draw.**

A declared groundwater basin is an area of the state proclaimed by the State Engineer to be underlain by a groundwater source having reasonably ascertainable boundaries. By such proclamation the State Engineer assumes jurisdiction over the appropriation and use of groundwater from the source. There are 5 declared groundwaters in the Mustang Draw Watershed: Capitan, Lea County, Roswell, GMA 2, and GMA 7.



## Threatened and Endangered Species <sup>11, 12</sup>

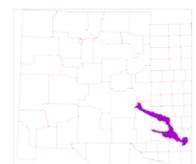
Endangered species are those that are at risk of extinction throughout all or a significant portion of its native range. A threatened species is one that is likely to become endangered in the foreseeable future. The New Mexico Natural Heritage and the Texas Parks & Wildlife Department programs track the status of threatened and endangered species which are listed on both federal and state lists. Table 6 lists those species which are currently listed and tracked in the Mustang Draw Watershed.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Tax. Class</u>	<u>Family</u>	<u>Federal Status</u>	<u>State Status</u>
American Peregrine Falcon	<i>Falco peregrinus anatum</i>				T
Bald Eagle	<i>Haliaeetus leucocephalus</i>				T
Black-footed ferret	<i>Mustela nigripes</i>			LE	
Gray wolf	<i>Canis lupus</i>			LE	E
Interior Least Tern	<i>Sterna antillarum athalassos</i>			LE	E
Peregrine Falcon	<i>Falco peregrinus</i>				T
Sand Dune Lizard	<i>Sceloporus arenicolus</i>	Reptilia	Phrynosomatidae		E
Texas horned lizard	<i>Phrynosoma cornutum</i>				T
Whooping Crane	<i>Grus americana</i>			LE	E

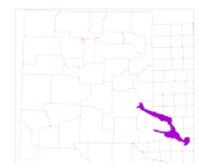
Table 6. Threatened and Endangered Plant and Animal Species and TPWD.

## Invasive Species <sup>13,14</sup>

Invasive species are those which have been introduced into a region or ecosystem and have the ability to out-compete native species for resources (i.e. water, nutrients, sunlight, etc.) The Southwest Exotic Plant Mapping Program (SWEMP) is a collaborative effort between the United States Geological Survey and federal, tribal, state, county and non-government organization partners in the southwest which maintains ongoing efforts to compile and distribute regional data on the occurrence of non-native invasive plants in the southwestern United States. Within the Mustang Draw Watershed, the SWEMP and Texas Invasives.org have identified 44 species of invasive plants (Table 7). Each of these species is defined as non-native by the USDA PLANTS database.

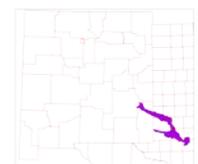


<b><u>Scientific Name</u></b>	<b><u>Common Name</u></b>
<i>Zygophyllaceae (Caltrop Family)</i>	African Rue
<i>Scrophulariaceae (Figwort Family)</i>	Dalmatian Toadflax
<i>Asteraceae (Sunflower Family)</i>	Musk Thistle
<i>Asteraceae (Sunflower Family)</i>	Russian Knapweed
<i>Asteraceae (Sunflower Family)</i>	Yellow Starthistle
<i>Brassicaceae (Mustard Family)</i>	Flixweed
<i>Poaceae (Grass Family)</i>	Stinkgrass
<i>Meliaceae (Mahogany family)</i>	chinaberry
<i>Fabaceae (Leguminosae)</i>	Yellow sweetclover
<i>Brassicaceae (Mustard Family)</i>	London rocket
<i>Poaceae (Grass Family)</i>	jointed goatgrass
<i>Brassicaceae (Mustard Family)</i>	Shepard's-purse
<i>Asteraceae (Sunflower Family)</i>	Spiny cocklebur
<i>Malvaceae (Mallow family)</i>	Velvetleaf
<i>Fabaceae (Leguminosae)</i>	paradise poinciana
<i>Convolvulaceae (Bindweed family)</i>	field bindweed
<i>Poaceae (Grass Family)</i>	weeping lovegrass
<i>Chenopodiaceae (Goosefoot family)</i>	Russian-Thistle
<i>Poaceae (Grass Family)</i>	rescuegrass
<i>Poaceae (Grass Family)</i>	bermudagrass
<i>Poaceae (Grass Family)</i>	barnyardgrass
<i>Poaceae (Grass Family)</i>	goosegrass
<i>Asteraceae (Sunflower Family)</i>	western salsify



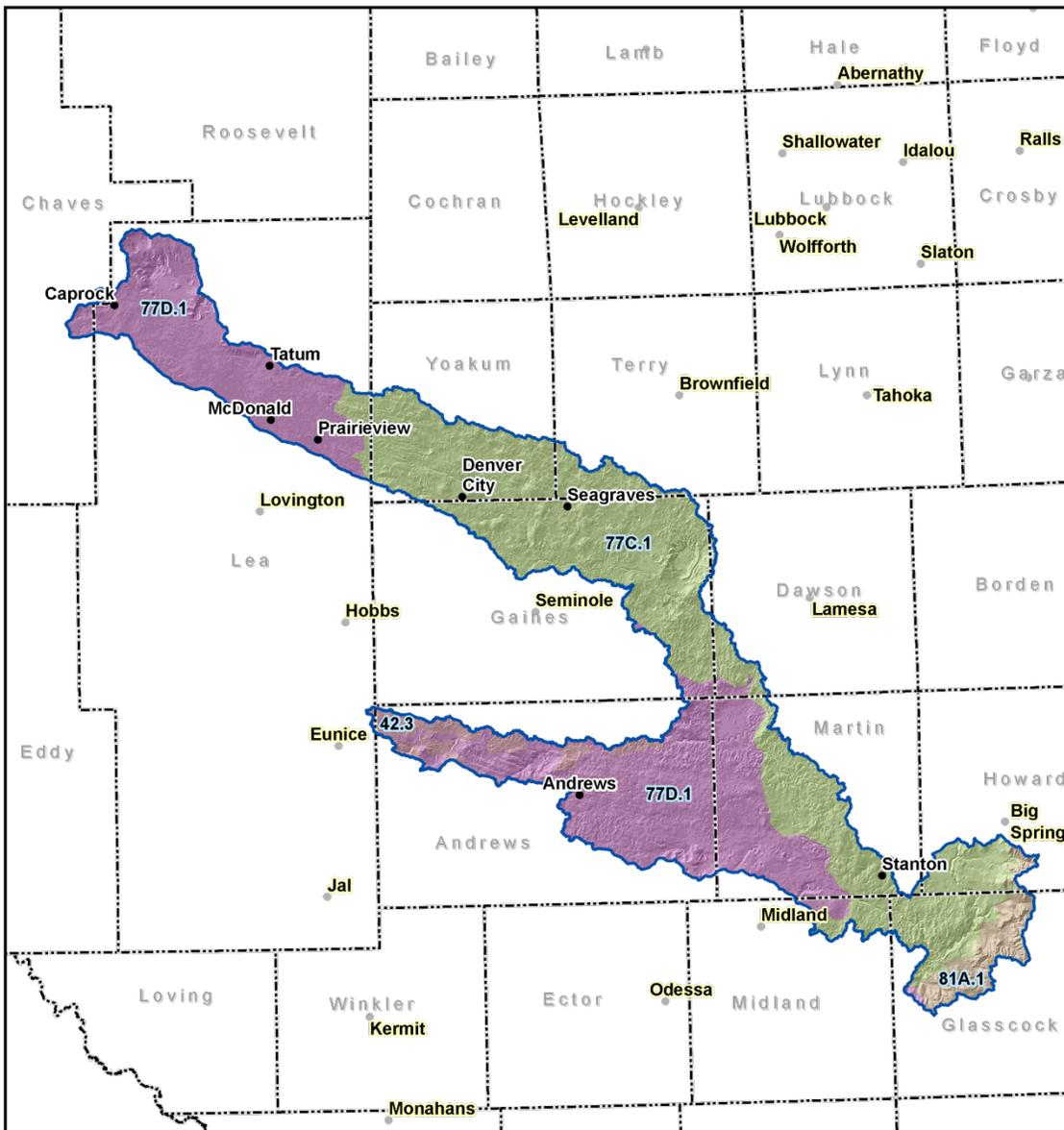
<i>Poaceae (Grass Family)</i>	wild oat
<i>Poaceae (Grass Family)</i>	green foxtail
<i>Poaceae (Grass Family)</i>	green bristlegrass
<i>Tamaricaceae (Tamarisk family)</i>	fivestamen tamarisk
<i>Tamaricaceae (Tamarisk family)</i>	saltcedar
<i>Apiaceae (Carrot Family)</i>	hedgearsley
<i>Apiaceae (Carrot Family)</i>	spreading hedgearsley
<i>Asteraceae (Sunflower Family)</i>	Malta starthistle
<i>Geraniaceae (Cranesbill Family)</i>	redstem filaree
<i>Lamiaceae (Mint family)</i>	white horehound
<i>Fabaceae (Leguminosae)</i>	California burclover
<i>Caryophyllaceae (Pink Family)</i>	hairypink
<i>Poaceae (Grass Family)</i>	annual bluegrass
<i>Poaceae (Grass Family)</i>	Lehmann lovegrass
<i>Asteraceae (Sunflower Family)</i>	prickly lettuce
<i>Lamiaceae (Mint family)</i>	henbit
<i>Berberidaceae (barberry family)</i>	sacred bamboo
<i>Liliaceae (lily family)</i>	star-of-Bethlehem
<i>Brassicaceae (Mustard Family)</i>	tumble mustard
<i>Ulmaceae (Elm family)</i>	Siberian elm
<i>Fabaceae (Leguminosae)</i>	small hop clover

Table 7. Invasive Species Recognized by the SWEMP and [texasinvasives.org](http://texasinvasives.org)

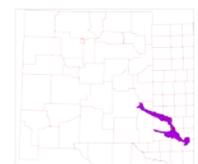


## Common Resource Areas<sup>15</sup>

A Common Resource Area (CRA) is defined as a geographical area where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) designation. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a Common Resource Area. Each Common Resource Area will have multiple Conservation System Guides associated with it. A Conservation System Guide associates, for a given CRA and land use, different components of Resource Management Systems and their individual effect on conserving soil and water resources.



**Figure 10.**  
**Common Resource**  
**Areas of the**  
**Mustang Draw**  
**Watershed.**



## **Common Resource Areas**

### **42.3 - Chihuahuan Desert Grassland**

This unit occurs within the Basin and Range Physiographic Province and is characterized by valley plains and alluvial fans broken by the Pecos River. Drainage divides are low and inconspicuous forming one great plain. Elevations range from 2800 to 5000 feet. Precipitation ranges from 8 to 13 inches per year. The soil temperature regime is thermic. The soil moisture regime is aridic. Vegetation includes tobosa, alkali sacaton, black grama, burrograss, creosote bush, tarbush, soaptree yucca, catclaw, fourwing saltbush, winterfat, mesquite and desert willow.

### **77C.1 - High Plains, Cotton Belt**

This unit is characterized by nearly level plains with numerous playa depressions, moderately sloping breaks along drainageways, and a steep escarpment along the eastern margin. Soils are generally deep with sandy or loamy surface textures and loamy subsoils. Soil temperature regime is thermic and soil moisture regime is ustic bordering on aridic. Current land use is dominantly cropland. Major crops are cotton and grain sorghum.

### **77D.1 - High Plains, Southwestern Part**

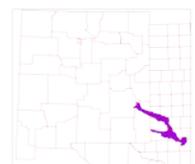
This area is characterized by nearly level to gently undulating plains with scattered playa depressions. Soil temperature regime is thermic and soil moisture regime is aridic bordering on ustic. Sandy and loamy soils are generally well drained and range from shallow to deep and medium- to coarse-textured. Native vegetation is short- to mid-grasses and sandy sites support tall-grasses with sand shin oak and mesquite. Current land use is mainly rangeland, although irrigated cropland is expanding.

### **81A.1 - Western Edwards Plateau**

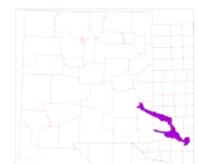
This unit consists of hills, ridges, plateaus and canyons on Cretaceous limestone and intermittent streams with gently sloping valley floors. Soil temperature regime is thermic and soil moisture regime is ustic bordering on aridic. Native vegetation is juniper shrub savannah. Soils are generally shallow and well drained. Current land uses are rangeland, wildlife habitat, and recreation. Elevation ranges from 1100 to 3600 feet and average annual precipitation is 14 to 20 inches.

## **Conservation** <sup>16</sup>

The USDA-Natural Resources Conservation Service (NRCS) focuses on the development and delivery of high quality products and services that enable people to be good stewards of our Nation's soil, water, and related natural related resources on non-Federal lands. The Natural Resources Conservation Service's conservation programs aid agricultural producers in their efforts to reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. Public benefits include enhanced natural resources that help sustain agricultural productivity and environmental quality while supporting continued economic development, recreation, and scenic beauty.

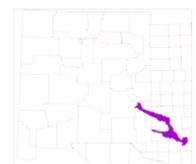


Conservation Practice	2006		2007		2008		2009		2010			TOTAL
	#	Acres	#	Acres	#	Acres	#	Acres	#	Acres	#	Acres
Access Control			2	848	2	128	2	838	2	739	8	2,553
Brush Management	4	1,615	2	16,091	5	2,827	3	10,540	4	13,164	18	44,237
Conservation Cover	2	2,045	9	11,395	8	13,858	4	8,837	7	12,099	30	48,234
Conservation Crop Rotation	1	3,157	6	15,870	5	8,326	2	6,378	6	18,803	20	52,534
Contour Farming	1	154	1	445	1	1,234	1	1,159	1	2,006	5	4,998
Cover Crop		768	1	6,163	3	2,554	1	3,164	4	9,620	10	22,269
Forage and Biomass Planting					1	122	1	63	1	132	3	317.00
Forage Harvest Management									1	63	1	63
Heavy Use Area Protection			1	9	1	6			1	90	3	105
Integrated Pest Management	1	709	5	6,109	6	3,399	2	903	8	10,793	22	21,913
Irrigation System, Microirrigation	3	335	2	45	2	349	2	927	2	1,433	11	3,089
Irrigation System, Sprinkler	4	5,478	5	6,881	5	5,980	4	2,462	5	8,337	23	29,138
Irrigation Water Management			6	9,034	6	11,866	6	10,025	8	20,111	32	51,036
Nutrient Management	1	244	4	5,875	5	1,357	2	1,080	6	9,205	18	17,761
Prescribed Burning									1	323	1	323
Prescribed Grazing	4	33,080	6	87,307	8	56,643	9	100,570	10	126,529	37	404,129
Range Planting	2	360	4	4,640	5	1,668	1	218	2	612.00	14	7,498
Residue and Tillage Management, Mulch Till									1	128	1	128
Residue and Tillage Management, No-Till/Strip Till/Direct Seed									3	3,084	3	3,084
Residue Management, Seasonal	1	2,892	7	19,476	5	7,107	4	11,388	6	19,217	23	60,080



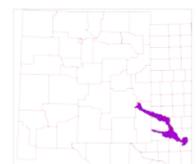
<b>Restoration and Management of Rare and Declining Habitats</b>			1	101							1	101
<b>Surface Roughening</b>	1	7,371	1	6,610	1	13,002	1	6,512	2	4,543	6	38,039
<b>Upland Wildlife Habitat Management</b>	10	85,804	8	60,612	10	78,468	8	105,333	10	96,214	46	426,431
<b>SUM (Σ)</b>	42	144,012	71	257,511	79	208,894	53	270,397	91	357,245	336	1,238,060

Table 8. 5 year Trends in Applied Conservation Practices. Reported in Acres.



Conservation Practice	2006		2007		2008		2009		2010		TOTAL	
	#	Feet	#	Feet	#	Feet	#	Feet	#	Feet	#	Feet
Conservation Completion Incentive First Year	2				1						31	
Diversion									1	195	1	195.
Fence	1	1,081	1	13,142	1	13,762	1	3,260	1	4,209	5	35,453
Firebreak									1	679	1	679
Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic	1	547	1	226	1	248			1	138	4	1,158
Irrigation Water Conveyance, Pipeline, Low-Pressure, Underground, Plastic			1	112	1	165			1	312	3	588
Pipeline	1	4,233	1	4,739	1	495	1	4,521	1	6,251	5	23,239
Pumping Plant	1		2		1		1		2		7	
Structure for Water Control			1		1		1		3		6	
TA Application					1				1		2	
TA Check-Out					1				1		2	
TA Design					1				1		2	
Water Well					2		1		4		7	
Watering Facility	1		2		4		3		4		14	
Wildlife Watering Facility			1		1						2	
<b>SUM (Σ)</b>	<b>9</b>	<b>5,861</b>	<b>11</b>	<b>18,219</b>	<b>19</b>	<b>14,670</b>	<b>11</b>	<b>7,781</b>	<b>28</b>	<b>11,784</b>	<b>78</b>	<b>61,312</b>

Table 9. 5 Year Trends in Location Specific Applied Conservation Practices. Reported in Feet if Linear (i.e. Fence)



## Soil Resource Inventory<sup>18</sup>

The Mustang Draws Watershed has a number of certified National Cooperative Soil Survey (NCSS) inventories. Soils data is available from the NRCS Soil Data Mart at <http://soildatamart.nrcs.usda.gov/> and/or the NRCS Geospatial Data Gateway at <http://datagateway.nrcs.usda.gov> .

### National Cooperative Soil Survey:

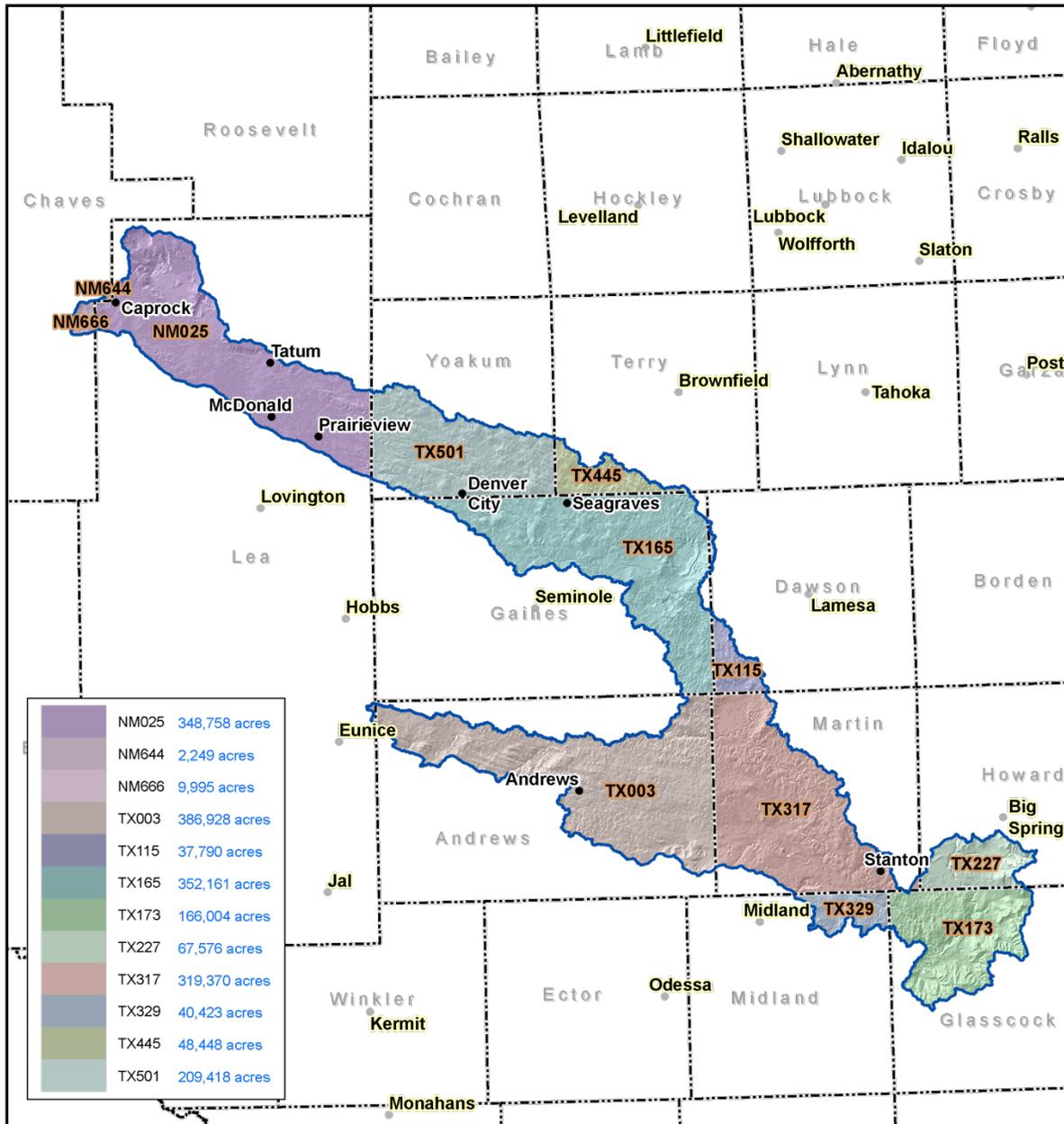
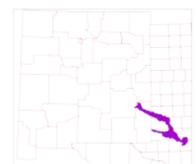


Figure 11. National Cooperative Soil Survey coverage of the Mustang Draw Watershed.

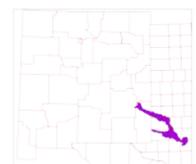


## Soil Resource Inventory

In order to evaluate the susceptibility of erosion within the Mustang Draw Watershed, a model was developed using Soil Survey Geographic Database (SSURGO) information. The soil properties saturated hydraulic conductivity, soil loss tolerance, and wind erodibility group were used in conjunction with slope to assess soil map unit potential for erosion. Saturated hydraulic conductivity and slope are reported in SSURGO databases as interval/ratio data whereas wind erodibility and soil loss tolerance are ordinal data. Data transformations for the model are listed -

<u>SSURGO Value</u>	<u>Nominal Description</u>	<u>Model Rank</u>
<b>Saturated Hydraulic Conductivity</b>		
µm / s		
705.0 - 100.0	Very High	0
99.9 - 10.0	High	1
9.9 - 1.0	Moderately High	2
0.9 - 0.1	Moderately Low	3
0.09 - 0.01	Low	4
<b>Slope %</b>		
0 - 5		0
6 - 10		1
11 - 15		2
16 - 25		3
> 25		4
<b>Soil Loss Tolerance</b>		
5	High Tolerance For loss	0
4	↓	1
3	↓	2
2	↓	3
1	Low Tolerance For Loss	4
<b>Wind Erodibility Group</b>		
1	Very High	4
2	Very High	4
3	High	3
4	High	3
4L	High	3
5	Moderate	2
6	Moderate	2
7	Moderate	1
8	Slight	0

**Table 10. Criteria Used for Soil Erosion Susceptibility Model.**



## Soil Resource Inventory

For each soil map unit (discrete delineation), the soil properties (named above) of the dominant soil type was used as the condition to be evaluated in the susceptibility to erosion model. Miscellaneous areas such as gravel pits, water, riverwash, etc. were excluded from evaluation. Possible range of values for each map unit are 0 – 16. Increasing values represent a higher susceptibility to soil erosion.

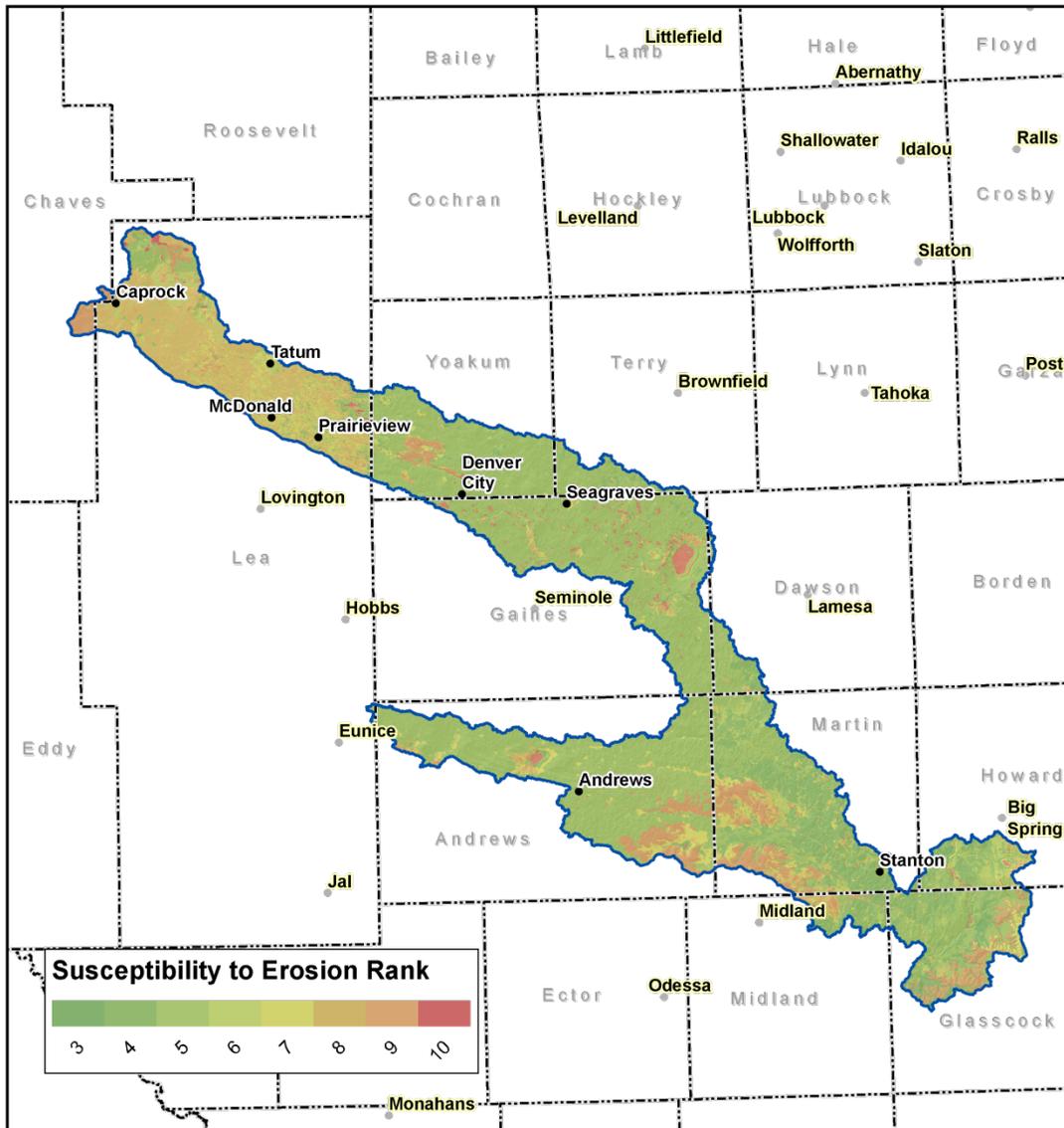
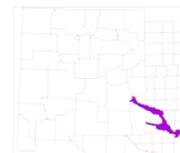


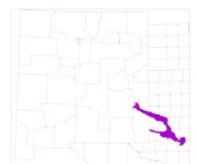
Figure 12. Mustang Draw Watershed Erosion Potential.



## Soil Resource Inventory

<u>Rank</u>	<u>Acres</u>
3	20,462
4	261,409
5	1,047,433
6	107,242
7	117,292
8	254,741
9	147,047
10	5,830
<b>Sum( <math>\Sigma</math> )</b>	<b>1,961,455</b>

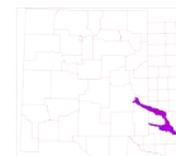
**Table 11. Soil Erosion Potential Model Results. A greater rank indicates greater potential for erosion.**



**Socioeconomic Data** <sup>18</sup>

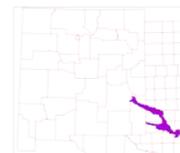
COUNTY	Total population: Total	Total population: Urban	Total population: Rural	Total Pop.: Rural Farm	Total Pop.: Rural Nonfarm	Total population: Hispanic or Latino	Total population: White alone	Total population: Black or African American alone	Total population: American Indian and Alaska Native alone	Total population: Asian alone	Total population: Native Hawaiian and Other Pacific Islander alone	Total population: Some other race alone	Total population: Two or more races	Families: Median family income adj. 2009
Chaves, NM	61,382	47,176	14,206	1,044	13,162	26,904	44,167	1,209	694	323	34	1,019	13,042	40,301
Lea, NM	55,511	43,665	11,846	377	11,469	22,010	37,263	2,426	551	216	24	13,217	1,814	46,236
Andrews, TX	13,004	10,569	2,435	75	2,360	5,202	10,024	214	115	92	3	2,183	373	53,405
Dawson, TX	14,985	12,290	2,695	360	2,335	7,222	10,859	1,297	45	37	0	2,482	265	40,099
Gaines, TX	14,467	5,997	8,470	443	8,027	5,175	11,614	330	110	22	1	2,050	340	53,185
Glasscock, TX	1,406	0	1,406	307	1,099	420	1,090	7	2	0	3	269	35	59,417
Howard, TX	33,627	26,347	7,280	334	6,946	12,597	26,950	1,390	197	199	4	4,180	707	47,236
Martin, TX	4,746	2,492	2,254	332	1,922	1,925	3,750	75	39	8	0	762	112	47,712
Midland, TX	116,009	100,757	15,252	226	15,026	33,676	89,702	8,101	741	1,074	36	14,124	2,231	62,792
Terry, TX	12,761	9,211	3,550	381	3,169	5,626	9,769	638	67	28	3	1,822	434	42,870
Yoakum, TX	7,322	4,387	2,935	174	2,761	3,363	5,171	102	52	9	1	1,866	121	50,952

Table 12. Socioeconomic Data of the Counties in the Mustang Draw Watershed (2000).



## References

1. Parameter-elevation Regressions on Independent Slopes Model (PRISM). PRISM is a unique knowledge-based system that uses point measurements of precipitation, temperature, and other climatic factors to produce continuous, digital grid estimates of monthly, yearly, and event-based climatic parameters. <http://www.prism.oregonstate.edu/>
2. Bureau of Land Management – New Mexico State Office. - [http://www.blm.gov/nm/st/en/prog/more/geographic\\_sciences/spatial\\_data\\_metadata.html](http://www.blm.gov/nm/st/en/prog/more/geographic_sciences/spatial_data_metadata.html)
3. UNITED STATES GEOLOGICAL SURVEY - National Land Cover Dataset. <http://landcover.United States Geological Survey.gov/>
4. Southwest Regional Gap Analysis Project (SWReGAP). <http://earth.gis.usu.edu/swgap/>
5. UNITED STATES GEOLOGICAL SURVEY – National Hydrography Dataset. <http://nhd.United States Geological Survey.gov/>
6. UNITED STATES GEOLOGICAL SURVEY - <http://waterdata.usgs.gov/nwis/rt>
7. State of New Mexico Environment Department - <ftp://ftp.nmenv.state.nm.us/www/swqb/303d-305b/2010/USEPA-Approved303dList.pdf>
8. United States Environmental Protection Agency - [http://cfpub.epa.gov/surf/huc.cfm?huc\\_code=12080004](http://cfpub.epa.gov/surf/huc.cfm?huc_code=12080004)
9. New Mexico - Office of the State Engineer- [http://www.ose.state.nm.us/water\\_info\\_data.html](http://www.ose.state.nm.us/water_info_data.html)
10. Texas Commission on Environmental Quality - <http://www.tceq.texas.gov/>
11. New Mexico Natural Heritage Program - <http://nhnm.unm.edu/>
12. Texas Parks & Wildlife Department - <http://www.tpwd.state.tx.us/>
13. Southwest Exotic Plant Mapping Program - <http://www.invasiveweeds.com/mapping/welcome.html>
14. Texas Invasives - <http://www.texasinvasives.org/>
15. Natural Resources Conservation Service – National Coordinated Common Resource Area (CRA) Geographic Database <http://soils.usda.gov/survey/geography/cra.html>
16. Natural Resources Conservation Service – Performance Results System <http://ias.sc.egov.usda.gov/PRSHOME/>
17. Natural Resources Conservation Service – Soil Data Mart <http://soildatamart.nrcs.usda.gov/>



18. United States Census Bureau - [http://factfinder.census.gov/home/saff/main.html?\\_lang=en](http://factfinder.census.gov/home/saff/main.html?_lang=en)

