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MEMO

To: Jeff Baessler, CWCB Stream and Lake Protection Section
Linda Bassi, CWCB Stream and Lake Protection Section

CC: Owen Williams, Stream and Lake Protection Section
Rob Viehl, Stream and Lake Protection Section

From: Kelly DiNatale, DiNatale Water Consultants

Date: April 7, 2010

Subject: Dominguez Canyon - Potential Water Development of Privately Owned Parcels

Introduction

The Colorado Water Conservation Board has received recommendations for instream flow appropriations from the Bureau of Land Management (BLM) on Big Dominguez Creek and Little Dominguez Creek, located within the Dominguez Canyon Wilderness area. The Dominguez Canyon Wilderness was created by the Omnibus Public Lands Act of 2009. The Act provides an opportunity for the CWCB to appropriate instream flow water rights to support wilderness management purposes, in lieu of creating a federal right for wilderness management purposes.

The BLM's recommendation is atypical in that it does not identify specific flow rates and timing. Rather, it recommends an appropriation of all of the flow that is annually available in each creek minus a development allowance. The development allowance is provided to address non-federal water uses on private properties located in the watersheds above the wilderness area. The BLM believes that this approach would enable the CWCB to support the purposes of the wilderness area under the statute governing instream flow water rights, which recognizes the need to "correlate the activities of mankind with some reasonable preservation of the natural environment."

In order to provide the Board with a technical basis for the development allowance, DiNatale Water Consultants was retained by CWCB staff to evaluate the potential for additional water development in the Little and Big Dominguez Creek basins upstream of the Dominguez Wilderness area.

Summary Findings and Suggested Development Allowance

The following is a summary of the key findings regarding the potential for future water development on privately owned parcels in the Big and Little Dominguez watersheds upstream of the Dominguez Wilderness Area:

a. The privately owned parcels are all located in the headwaters of Big and Little Dominguez Creeks on top of the Uncompahgre Plateau in an area without electricity or other utilities. Contributing watershed areas upstream of the private parcels are very small.
b. There are a significant number of existing absolute and conditional springs, direct flow and storage water rights decreed for a variety of uses on the private parcels. These rights, however, are for very low flow rates and minor storage volumes.
c. The existing land uses are primarily cattle grazing on the parcels and adjoining Forest Service permit areas with stock ponds fed by springs and a few summer cabins. There is limited existing or proposed irrigation of summer pasture of less than 150 acres primarily from springs or ponds. This irrigation is not for hay cutting, but to enhance pasture for grazing.
d. The written notifications of pending instream flow appropriations provided to private landowners in August and November, 2009 by CWCB staff and the Colorado River Water Conservation District resulted in additional water rights applications by private landowners sufficient to meet much of the potential water demands for grazing and livestock watering.
e. Due to the small contributing watershed areas, there is limited physical supply availability for existing or future water diversions during the irrigation season. This finding is supported by the lack of significant existing or proposed surface water diversions and the numerous existing water rights appropriations for springs and spring-fed ponds. There are no stream gage records, but examination of available mapping and data and anecdotal evidence indicate streamflow during snowmelt runoff followed by limited physical flows with flows insufficient for direct flow irrigation starting in July.
f. Legal availability for water rights is generally not a limitation to diversions. A query of the CDSS call records database indicated the only recorded call since 1980 affecting Big and Little Dominguez Creeks was the Redlands mainstem call that occurred for two months during the 2002 drought.
g. Soil types, steep slopes and vegetative cover limit the potential for additional water supply development. Of the 2,317 privately owned acres, 1,133 or 53% are wooded areas, with primarily deciduous forest the predominant vegetative cover.
h. A small percentage (<15%) of the 1,022 acres of non-wooded vegetation are currently irrigated for summer pasture. This irrigation is for enhancing summer pasture and not for hay cutting. This is likely attributable to the lack of physical supply, steep slopes and isolated grassland areas. The decreed and recently filed water rights applications are insufficient to provide for a full supply of water for irrigating these acres. Without physical surveys, it is not possible to definitively calculate the acres that could be planted and irrigated as pasture grass.
i. Irrigation of 100 additional acres is estimated to represent a maximum for future potential water development with a 2010 or later water rights appropriations. Given the lack of physical supply, difficulty in constructing gravity canals and limited storage sites, it is likely that a full supply could not be delivered, but irrigation would be for pasture grazing, not hay cutting. Without physical surveys, it is not possible to definitively calculate the acres that could be planted and irrigated as pasture grass.

j. The maximum irrigation water requirement for pasture grass is approximately 1.01 acre-feet per acre. The maximum required diversion rate, assuming the physical supply was available, and a 25% irrigation efficiency at a maximum flow rate is 0.032 cfs/acre. The review of existing water rights, however, suggests that this flow rate is not achievable due to limited physical supply from the numerous springs that provide the only reliable flow. The existing irrigation diversions are not sufficient to provide a full supply of water.

k. Based on the above considerations and the existing and recent water rights applications, most of the potential water development is accounted for with the existing or recently filed water rights and as result is senior to any 2010 instream flow appropriation. Additional appropriations for water supply development would only be needed if irrigation of grasslands for summer pasture were to be expanded. This would require the construction of additional storage and diversion and delivery structures that would divert and store the snowmelt runoff in late April through early June.

l. Given the lack of reliable streamflows, evidence of water shortages, and the difficulty in diverting surface flows and development of existing springs, there is little or no potential for water development for export out of the basin.

m. The likely potential new water development would be additional domestic use by cabins, limited irrigation of grasslands to enhance pasture for grazing and associated stock watering. A reasonable estimate for maximum future domestic water development would be 0.1 acre-feet for domestic use for each 35 acres. It is assumed that domestic water use on 35 acres will be an exempt use and not require a development allowance.

n. Any increase in irrigation or other uses will require the development of storage and diversions during the runoff period of late April through June. Storage sites appear to be limited as evidenced by the small volumes of absolute and conditional ponds.

o. Based on the factors listed above, a maximum potential future water development of 100 AF of storage for Big Dominguez and 1 AF of storage for Little Dominguez is estimated. This estimated maximum development represents the storage and direct flow rights needed to provide for potential irrigation, stock watering and associated pond uses (piscatorial, wildlife, etc) and any augmentation required for non-exempt domestic uses. This proposed storage would provide for approximately a 300% increase in storage volume compared to existing absolute, conditional and recently filed water storage rights. This storage volume should be more than adequate to provide for the maximum development on the private parcels, given the physical and water supply limitations. The only private parcel in the Little Dominguez basin is at the top of the headwaters and supply availability is very limited. The proposed maximum storage volumes, flow rates and assumptions for each basin are summarized in the following table.

Maximum Potential Water Development for Private Parcels in Big and Little Dominguez Basins

Basin	Maximum Storage Volume Allowed – Total of All New Water Rights (AF)	Maximum Diversion Rate April 15 - June 30 (cfs)	Maximum Diversion Rate July 1 - October 31 (cfs)
Big Dominguez	100	3.30	0.198
Little Dominguez	1	0.033	0.033
Notes:			
1. Storage volumes are for all future purposes including irrigation, stock watering, wildlife, and any augmentation required for non-exempt domestic uses			
2. Domestic use is assumed to be exempt use and not included in the allowance			
3. The maximum diversion rate for April 15-June 30 is based on 0.033 cfs/acre for diversions to storage and direct irrigation			
4. The maximum diversion rate for Big Dominguez from July 1-October 31 is based on six (6) ponds at assumed flow rate of 0.033 cfs/pond			
5. Little Dominguez parcel is supply limited and assumes one (1) pond at assumed flow rate of 0.033 cfs/pond			

Approach

The following approach was used to determine the potential for future new water development. Geographic Information System (GIS) information, National Resource Conservation Service guidelines and telephone interviews were used in the analysis. The scope of work did not include a site visit or interviews with the individual landowners as part of the analysis. As part of the CWCB and Colorado River Water Conservation District outreach conducted in 2009, River District staff conducted select landowner interviews and the information from those interviews was incorporated into the analysis.

1. Collect and analyze GIS information on watershed and wilderness boundaries, precipitation, topography, soil and vegetative cover, historically irrigated land and aerial photography.
2. Identify the private parcels and associated information in the Mesa County assessor's database and assign the location of each parcel to either the Big or Little Dominguez watersheds. Using other GIS sources identify the characteristics of individual parcels such as total acreage, vegetative cover, slopes and elevation.
3. Identify decreed and recently filed water rights applications that could be used to meet the existing or potential water demands of the parcels based on Hydrobase data, water court decrees, results of

Colorado River Water Conservation District interviews, aerial photos and telephone interviews with the local water commissioner.

4. Estimate water demands based on potential uses of the private parcels.
5. Evaluate constraints on water development.
6. Estimate the most likely water demands by comparing decreed and recently filed water rights, existing and potential land uses, available flow, topography and other development constraints to determine the potential for future water development beyond the decreed and recently filed water rights.

1. Geography

Mapping was prepared of the Big and Little Dominguez Creek watersheds showing the general study area including the entire Big and Little Dominguez watersheds, the Dominguez Creek Wilderness Area and the locations of private property parcels upstream of the Wilderness Area. GIS layers were obtained from various sources as shown in Table 1.

Table 1. GIS Data Sources

Data Source	GIS layers and other information
Mesa County	Property ownership
USDA/NRCS	Watershed boundaries, vegetation, soils and aerial photos
CDSS	Rivers, roads, water rights and diversions, precipitation, irrigated acres and land use
USGS	Digital Elevations (DEM)
BLM	Wilderness Area Boundaries

Study Area

The study area is shown in Figure 1. The total watershed areas for the Big and Little Dominguez watersheds and the private property ownership in acres and as a percent of watershed boundaries are shown in Table 2. The private parcels upstream of the Wilderness Area total 2,155 acres and represent 4.1% of the Big Dominguez watershed and 162 acres representing 0.3% of the Little Dominguez watershed. As seen in Figure 1, the private parcels are generally located on the Uncompahgre Plateau at the headwaters of the watersheds.

Table 2. Watershed Areas and Private Property Ownership

Big Dominguez Watershed	**Acres**
Total Acres in Big Dominguez Watershed	52,311
Acreage of Private Parcels in Big Dominguez	2,155
Private Property acreage as percent of total Big Dominguez watershed	4.1%
Little Dominguez Watershed	
Total Acres in Little Dominguez Watershed	53,875
Acreage of Private Parcels in Little Dominguez	162
Private Property acreage as percent of total Little Dominguez watershed	0.3%

Average annual precipitation is shown in Figure 2. The private parcels, located at the headwaters of the basin, receive 20 to 25 inches of average annual precipitation. As can be seen in Figure 2, these parcels are located in the area of the greatest precipitation with annual values dropping to approximately 8 inches on the Gunnison River Valley floor at the mouth of Big and Little Dominguez Rivers. The location of these parcels at the headwaters results in small watersheds upstream of the private parcels.

2. Private Parcel Ownership

Property ownership information on privately owned parcels was obtained from Mesa County GIS layers and displayed on Figure 3. Table 3 summarizes key information regarding the private parcels. There are 16 privately owned parcels in the Big Dominguez watershed upstream of the Wilderness area and one in the Little Dominguez. One other parcel in the watershed (Parcel #5) is the Cold Springs Ranger Station.

Figure 1 Dominguez Canyon Study Area

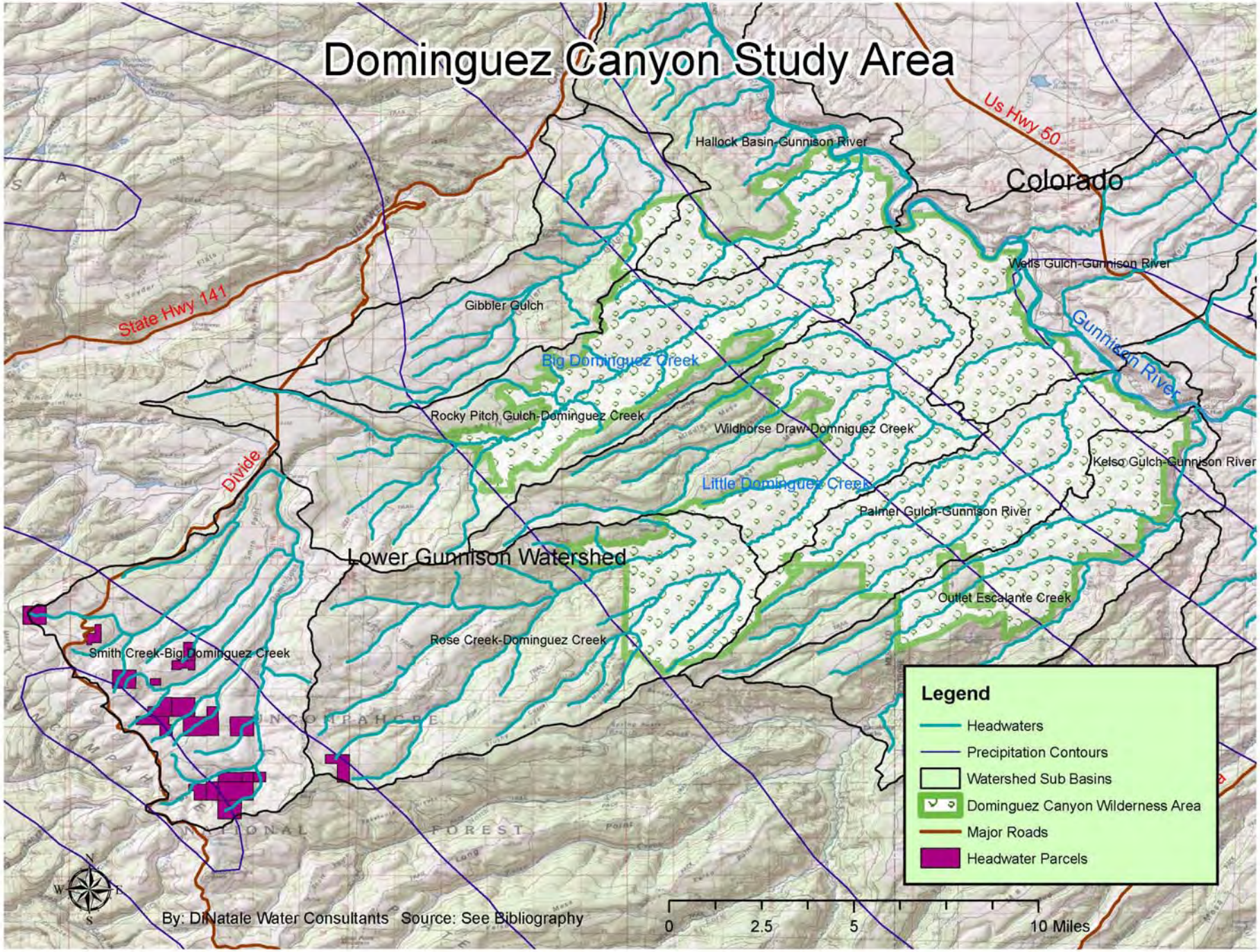


Figure 2 Average Annual Precipitation

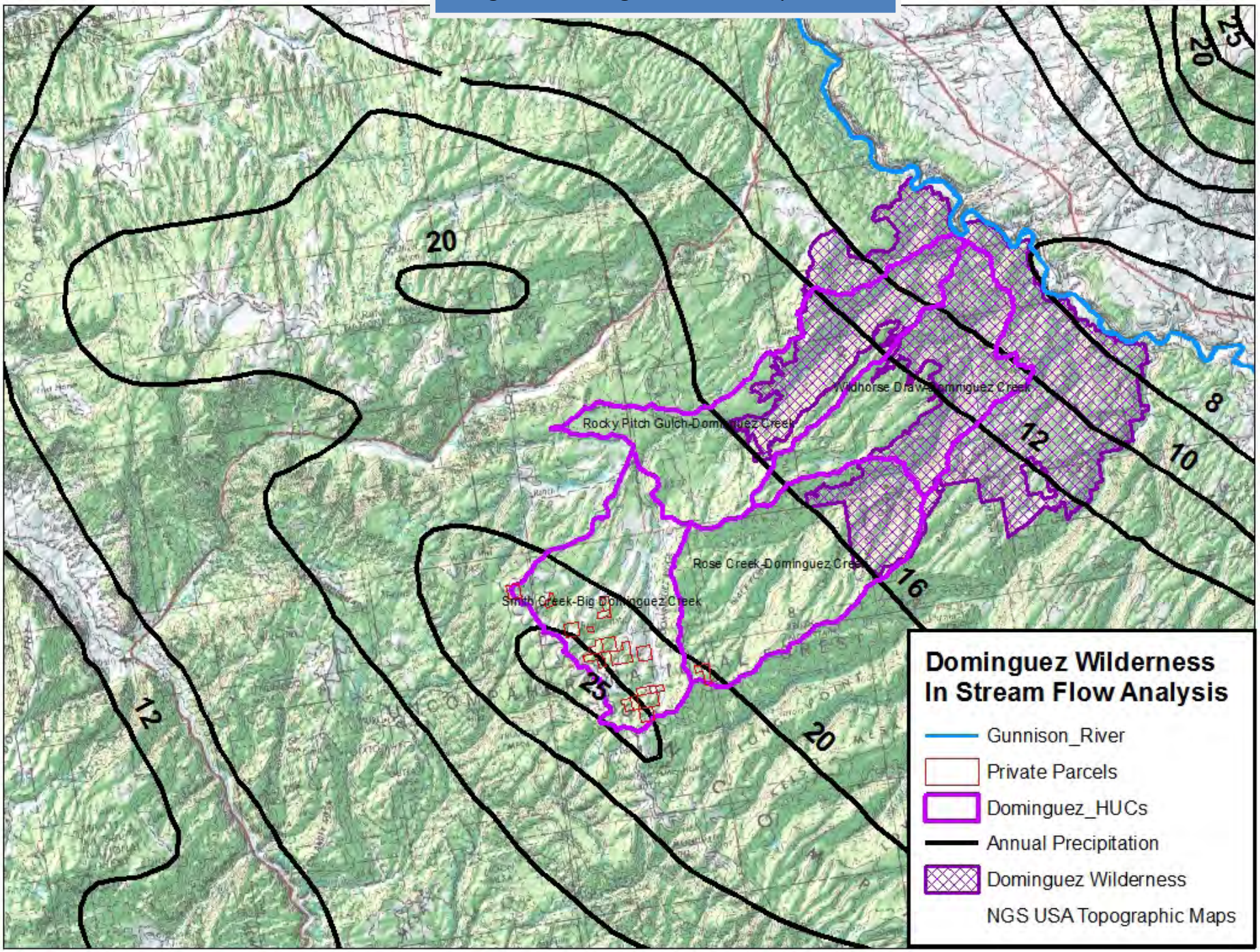


Figure 3 Parcel Identification Numbers

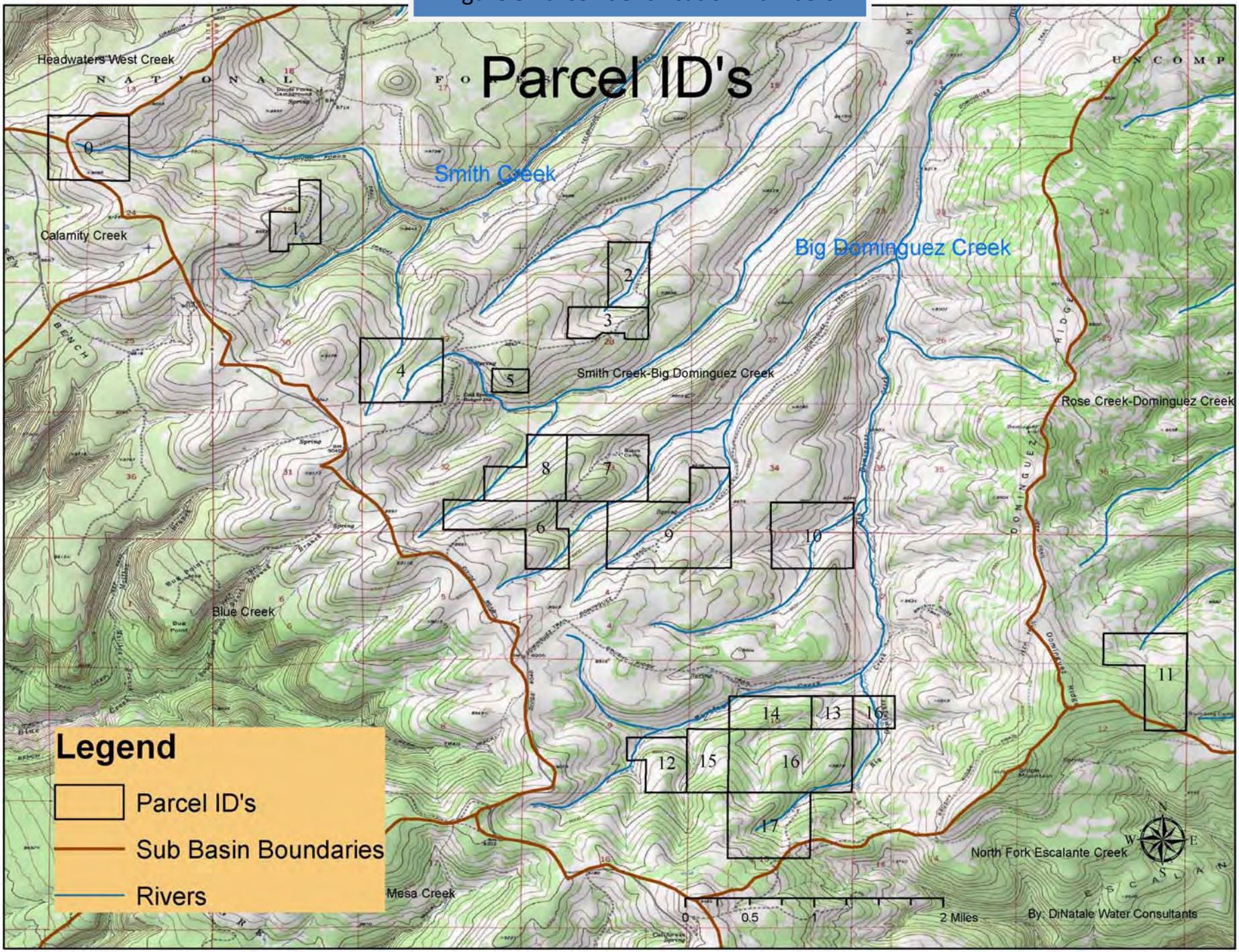


Table 3. Private Parcel Ownership

Map ID	Parcel Number	Acres	Owner Name(s)	Address	Drainage Basin
11	3735-014-00-001	162	MIKA AG CORP	6501 W 91ST AVE, Westminster, CO	Little Dominguez
0	3481-133-00-006	158	MASSEY OSCAR T MASSEY EMMA J	14011 Highway 141, Whitewater, CO	Big Dominguez
1	3483-194-00-002	73	MASSEY OSCAR T MARIE JANICE	14011 Highway 141, Whitewater, CO	Big Dominguez
2	3483-214-00-011	80	CASTO JESSIE M CASTO BEEMAN B CE M	30501 HIGHWAY 141 WHITEWATER, CO	Big Dominguez
3	3483-281-00-013	71	SMITH RALPH L SMITH CHET A	3176 B RD, Grand Junction, CO	Big Dominguez
4	3483-293-00-009	159	NICHOLS SIDNEY A DBA NICHOLS	PO BOX 131, Mesa, CO	Big Dominguez
6	3483-324-00-016	150	BLACK FAMILY LIMITED PARTNERSHIP	1115 PURDY MESA RD WHITEWATER, CO	Big Dominguez
7	3483-331-00-006	163	BLACK FAMILY LIMITED PARTNERSHIP	1115 PURDY MESA RD WHITEWATER, CO	Big Dominguez
8	3483-332-00-004	123	BLACK FAMILY LIMITED PARTNERSHIP	1115 PURDY MESA RD WHITEWATER, CO	Big Dominguez
9	3483-343-00-015	289	WILLIAMS GARY R WILLIAMS MARILYN K	202 NORTH AVE UNIT 185, Grand Junction, CO	Big Dominguez
10	3483-344-00-008	163	BLACK FAMILY LIMITED PARTNERSHIP	1115 PURDY MESA RD WHITEWATER, CO	Big Dominguez
12	3735-094-00-006	82	NEWTON BARTHOLOMEW R NEWTON	3026 E 1/2 RD, Grand Junction, CO	Big Dominguez
13	3735-101-00-031	41	TURMAN JOHN TURMAN VICKI	245 N ELM ST, Fruita, CO	Big Dominguez
14	3735-101-00-032	82	FOSTER STANLEY A FOSTER GALE M	2819 C 1/2 RD, Grand Junction, CO	Big Dominguez
15	3735-103-00-029	80	COSTELLO STEVEN F COSTELLO GWEN M	PO BOX 148, Mesa, CO	Big Dominguez
16	3735-104-00-028	278	WILLIAMS GARY R WILLIAMS MARILYN K	202 NORTH AVE, Grand Junction, CO	Big Dominguez
17	3735-151-00-010	163	MIKA AG CORP	6501 W 91ST AVE, Westminster, CO	Big Dominguez

Characteristics of Private Parcels

Elevations for the upper Big and Little Dominguez Creek watersheds range from approximately 9,450 to 7,500 feet and elevations for the private parcels range from approximately 9,000 to 8,000 feet. Average percent slopes were estimated by taking the change in elevation across the parcels. Average slopes on the private parcels range from 2% to 15%, however, it is important to note that many of the parcels are characterized by portions of the land with steep slopes in the range of 15% to 30%+ and other portions relatively flat.

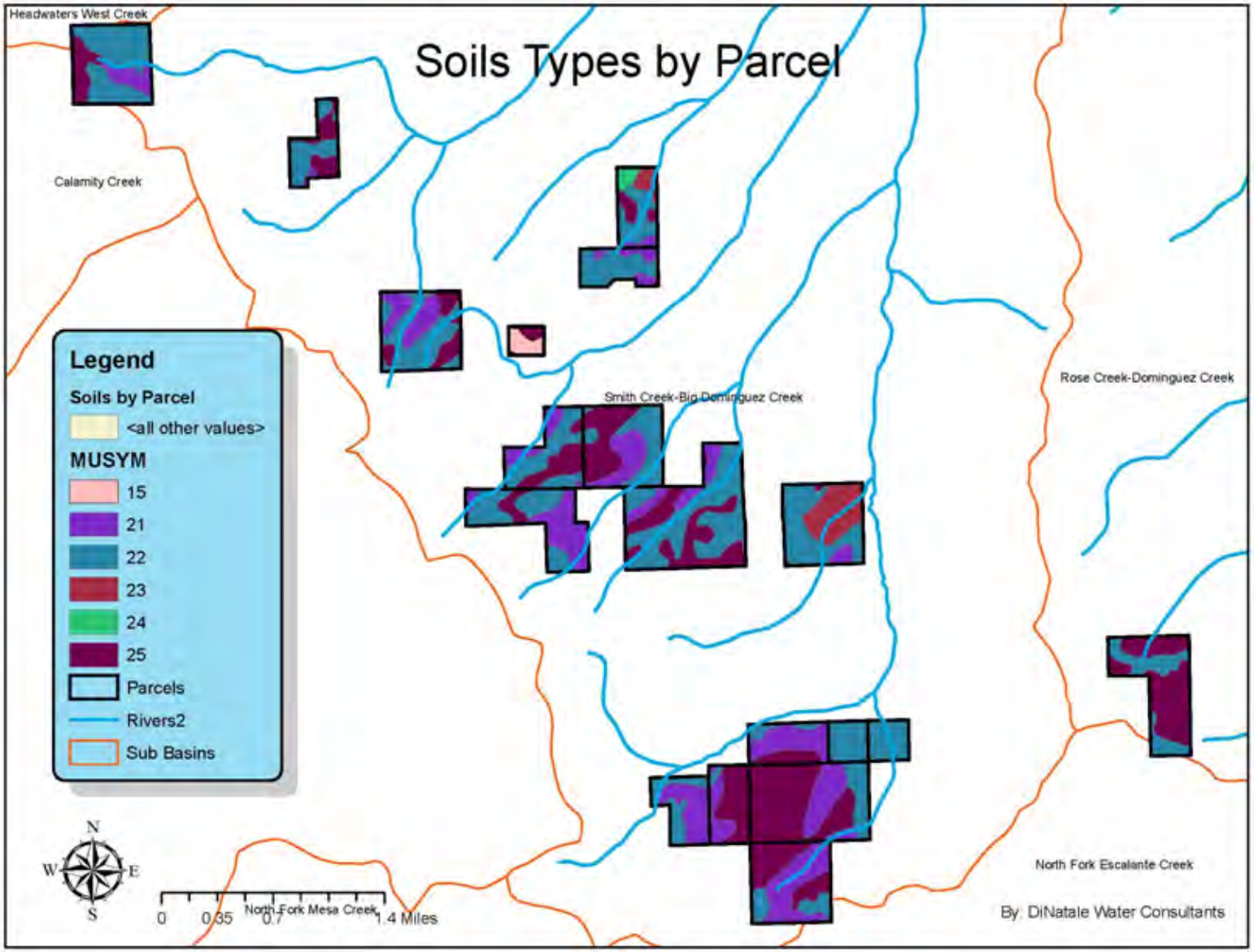
The land use of the private parcels was analyzed using the CDSS Division 4 GIS land use layer. This GIS layer indicated that approximately 85% of the land use on the parcels is wooded, primarily deciduous forest with the remaining 15% percent classified as herbaceous grassland. An examination of the aerial photos indicated significant differences between the CDSS land use and the land use shown on the aerial photos. The non-wooded grassland acreage was significantly greater than indicated on the CDSS land use layer. The NRCS soil layer correlated very closely with the aerial photos and was used to determine grassland coverage. There are five NRCS soil types found on the parcels, three that are correlated with non-forested land as indicated on the aerial photos. These are soil type numbers 22, 23 and 24.

The soil type classifications and NRCS estimated average annual forage yield for the five types found on the parcels are shown in Figure 5 and summarized in Table 4 . The Hoosan-Lamphier-Leaps families complex (soil type number 22) is the predominant soil type that is typified by non-wooded vegetation and marginal forage production in its natural, non-irrigated condition. Thomas Hahn, NRCS Colorado Senior Regional Soil Scientist was contacted (personal communication, January 2010) regarding the rangeland production and irrigation potential of the soils found on the private parcels. He noted that all the soil types found on the private parcels are classified by the NRCS as generally not advisable for cropland due to high erosion potential. The high erosion potential is largely the result of steep slopes. He noted that specific acreage that has slopes less than 15% could potentially be planted for hay.

Table 4 Vegetative Cover and Average Slopes

Map unit symbol	Map unit name	Acres on Private Parcels	Average Range Production (pounds per acre per year)
21	Hapgood-Lamphier families complex, 20 to 50 percent slopes	533	-
22	Hoosan-Lamphier-Leaps families complex, 3 to 30 percent slopes	1,001	667
23	Jodero-Empedrado families complex, 2 to 20 percent slopes	66	1,500
24	Kubler-Delson-Cerro families complex, 3 to 15 percent slopes	11	2,000
25	Lamphier-Hapgood families complex, 5 to 20 percent slopes	706	-
	Total	**2,317**	

Figure 4


Soils Types by Parcel
Headwaters West Creek
Calamity Creek
Smith Creek-Big Dominguez Creek
Rose Creek-Dominguez Creek
North Fork Escalante Creek
North Fork Mesa Creek
Legend
Soils by Parcel
<all other values>
MUSYM
15
21
22
23
24
25
Parcels
Rivers2
Sub Basins
N
W
E
S
0
0.35
0.7
1.4 Miles
By: DiNatale Water Consultants

3. Water Rights and Irrigated Acres

The CDSS Hydrobase database was queried and the non-federal or state recorded decreed water rights in the upper watersheds in the vicinity of the private parcels are shown on Table 5. There are a significant number of existing private and federal water rights in the study area, however, most of the water rights are for very minor flow rates or storage. Many of the water rights are for stock ponds on federal land as shown in Table 6. The majority of the water rights, whether on private or public land, are springs and spring-fed ponds decreed for stock watering, domestic use and wildlife/fish. Only a few of the water rights are decreed for irrigation, suggesting limited irrigation in the study area.

The Colorado Water Conservation Board has a decreed in stream flow right for 1.5 cfs on Big Dominguez Creek just downstream of the private parcels. This in stream flow right is a 1984 priority and is senior to all of decreed private water rights. The CWCB Board memo from June 21, 1985 for Ratification of the Revisions to Appropriations – Division 4 discusses that the original intended appropriation of 2.5 cfs was reduced to 1.5 cfs. This reduction was a result of an analysis of water availability by the Division Engineer.

The CDSS Division 4 Diversion Points GIS layer is the best available source of information on the location of the water rights diversion points. Points of diversions in this GIS layer were estimated from various sources to the nearest quarter section and may not be comprehensive. The approximate location of diversion points as contained in this GIS layer are shown on a series of low resolution aerial photos in Figures 5 through 10. These aerial photos, although at a low resolution, allow for the differentiation of vegetative cover between wooded and grassland. As can be seen in the aerial photos, approximately half of the vegetative cover is wooded.

The CDSS Hydrobase water diversion records database was queried. Hydrobase did not contain any recorded diversions for any of the structures listed in Tables 5 or 6. This is not unusual given the very minor diversion amounts of the water rights in the area and the minimal irrigation diversions. The maximum decreed direct flow right(absolute or conditional) is for 0.05 cfs and the greatest decreed storage volumes are 1.25 absolute and 2.5 acre-feet conditional.

The CDSS Division 4 Irrigated Acres GIS layer was also examined to determine if this GIS layer shows any irrigated acres in the study area. This GIS layer did not indicate any irrigation on the private parcels. Lynne Bixler, the District 42 water commissioner reported that in the future she would likely start reporting the irrigation of summer pasture on these parcels (personal communication, February, 2010). Figure 11 shows the locations of irrigated parcels in the greater general vicinity. There are irrigated acres to the west on Big Creek and West Creek and to the east on the North Fork of the Escalante River in areas of greater physical supply.

The Colorado Water Conservation Board staff in August, 2009 sent out a letter notifying all private landowners of the proposed instream flow water rights applications. The Colorado River Water Conservation District (River District), in November, followed up with a second letter to the landowners

inquiring if the existing water rights meet all of their water use needs and if they had plans that may require additional water use from either of these creeks. The River District also followed up with phone calls to several landowners. The following is a summary of the notes from the River District on teleconferences with two landowners:

> Oscar Massey (Parcel ID's 0 and 1) responded that he owns 3 cow camps with water rights and grazes approximately 1,200 cows. He also has 4 cabins: 3 on private lands and 1 with a US Forest Service special use permit. As a result of the letters received from CWCB and the River District he filed for additional water rights. The cabins have basic water needs and water rights. He would like additional water and has an excellent pond site of 15 to 20 acre-feet potential capacity. He also waters stock on forest permit area and private in-holdings. He has a 3 to 5 mile pipeline that brings water over to the dry side of the permit area.
>
> Sid Nichols (Parcel ID 4) reported that he has a couple of springs and ponds for stock. He filed on the springs roughly 10 years ago. There is not any irrigation and he does not have any grazing permits. His quarter section of land is "up high" and there is not much water up there.

Lynne Bixler, the District 42 water commissioner was contacted regarding existing and recently filed water rights and water uses in the Big and Little Dominguez watersheds. Ms. Bixler noted (personal communication, February, 2010) that there is some limited irrigation on several of the parcels for watering summer pasture to enhance the yield for late summer grazing. These diversions are from small ditches or releases out of stock ponds. Bob Black irrigates a portion of the summer pasture on Parcel 8 from the Big Spring via several ditches that flow along the hillside. The Black Family Limited Partnership Decree in 05CW218 provides for the irrigation of up to 47 acres from the Big Spring, Big Spring Pond, Corner Pond, Black Family Spring, Black Family Pond, Mont's Spring #1 and Mont's Draw Pond. A portion of the irrigation rights are absolute and the remainder conditional.

As a result of the CWCB and River District letters, owners of the Williams (Parcel ID's 9 and 16) and the Massey (Parcel ID's 0 and 1) filed for water rights for springs and ponds. A consultation on the Massey applications was held with the Division Engineer on January 14, 2010. The results of those consultations and other Williams water rights applications are summarized in Table 7. The Division Engineer recommended a total for the Massey and Williams applications of 0.746 cfs of absolute direct flow, 0.406 cfs conditional, 6.3 AF of absolute storage, and 4.46 acre-feet of conditional storage. The Massey applications were recommended to be limited to the irrigation of a total of 4 acres.

Based on the available data and mapping, a best estimate was made of matching the decreed water rights and recent water court applications with the private parcels and is shown in Table 8. Most of the parcels either have existing decreed absolute and/or conditional direct flow and storage rights or have recently filed for direct flow or storage rights. Note that most of the existing and proposed water rights are for springs and ponds filled from springs, with only a few ditches. This is likely reflective of the limited reliable and physically available surface flow to these parcels at the watershed headwaters. The only parcels that do not, based on available information, have existing or proposed water rights are parcel ID's 12, 14, 16 and 17. These parcels appear to be physically supply limited.

Existing Decreed Federal Rights in the Upper Big and Little Dominguez Creek Watersheds

Existing Decreed Private Water Rights in the Upper and Little Big Dominguez Creek Watersheds

WATER RIGHT NAME	WATER SOURCE	ADJ DATE	APPROPRIATION DATE	USE TYPE	RATE ABSOLUTE (CFS)	VOLUME ABSOLUTE (ACFT)	RATE CONDITIONAL (CFS)	VOLUME CONDITIONAL (ACFT)	Irrigated Acres (From Decree)	Notes
STONE CAB 2	LITTLE DOMINGUEZ	12/31/1972	12/31/1969	FIRSTK	0	0.1	0	0		
MONT'S SPRING NO 2	BIG DOMINGUEZ	12/31/2005	9/1/1900	STKWLD	0.004	0	0	0		
MONT'S SPRING NO 3	BIG DOMINGUEZ	12/31/2005	9/1/1900	STKWLD	0.004	0	0	0		
MONT'S SPRING NO 4	BIG DOMINGUEZ	12/31/2005	9/1/1900	STKWLD	0.004	0	0	0		
MONT'S SPRING NO 5	BIG DOMINGUEZ	12/31/2005	9/1/1900	STKWLD	0.004	0	0	0		
MONT'S SPRING NO 6	BIG DOMINGUEZ	12/31/2005	9/1/1900	STKWLD	0.004	0	0	0		
DOT POND NO6	BIG DOMINGUEZ	12/31/2005	4/1/2002	FISSTKWLD	0	0	0	0.15		
DOT NO2A SPRING	BIG DOMINGUEZ	12/31/2005	4/1/1978	STO	0.01	0	0	0		
DOT NO2B SPRING	BIG DOMINGUEZ	12/31/2005	4/1/1978	STO	0.01	0	0	0		
DOT NO2C SPRING	BIG DOMINGUEZ	12/31/2005	4/1/1978	STO	0.01	0	0	0		
DOT POND NO1	BIG DOMINGUEZ	12/31/2005	4/1/2001	FISSTKWLD	0	1.25	0	0		
DOT POND NO2	BIG DOMINGUEZ	12/31/2005	4/15/1978	FISSTKWLD	0	0.35	0	0		
DOT NO1 SPRING	BIG DOMINGUEZ	12/31/2005	1885-01-01	DOM	0.01	0	0	0		
BIRD DRAW POND NO2	BIG DOMINGUEZ	12/31/2005	6/1/2003	FISSTKWLD	0	0.06	0	0		
BIRD DRAW POND NO1	BIG DOMINGUEZ	12/31/2005	4/1/2004	FISSTKWLD	0	0	0	2.2		
MUNRO SPRING	BIG DOMINGUEZ	12/31/1995	6/1/1950	DOM	0.02	0	0	0		
CABIN DRAW POND	BIG DOMINGUEZ	12/31/2005	9/1/1957	STKWLD	0	0.6	0	0		
BEAR SPRING	BIG DOMINGUEZ	12/31/2005	9/1/1957	STKWLD	0.011	0	0	0		
BEAR SPRING POND NO 1	BIG DOMINGUEZ	12/31/2005	9/1/1957	STKWLD	0	0.6	0	0		
BEAR SPRING POND NO 2	BIG DOMINGUEZ	12/31/2005	9/1/1957	STKWLD	0	0.5	0	0		
TURMAN SPRING	BIG DOMINGUEZ	12/31/2002	6/1/2000	DOMSTKWLD	0	0	0.008	0		
SMITH RANCH SPRING #3	BIG DOMINGUEZ	12/31/1997	12/31/1940	STKWLD	0.007	0	0	0		
SMITH RANCH SPRING #4	BIG DOMINGUEZ	12/31/1997	12/31/1940	STKWLD	0.001	0	0	0		
SMITH RANCH SPRING #5	BIG DOMINGUEZ	12/31/1997	12/31/1940	STKWLD	0.011	0	0	0		
SMITH RANCH SPRING #6	BIG DOMINGUEZ	12/31/1997	12/31/1940	STKWLD	0.002	0	0	0		
SMITH RANCH SPRING #1	BIG DOMINGUEZ	12/31/1997	12/31/1940	DOMSTKWLD	0.029	0	0	0		
SMITH RANCH SPRING #2	BIG DOMINGUEZ	12/31/1997	12/31/1940	STKWLD	0.016	0	0	0		
SMITH RANCH SPRING #7	BIG DOMINGUEZ	12/31/1997	12/31/1940	DOMSTKWLD	0.022	0	0	0		
NICHOLS NO. 1 DITCH	SMITH FORK	12/31/1990	7/16/1990	DOMSTK	0.033	0	0.033	0		
NICHOLS NO. 2 DITCH	SMITH FORK	12/31/1990	7/16/1990	DOMSTK	0.033	0	0	0		
CORNER POND	BIG DOMINGUEZ	12/31/2005	9/1/1953	IRRSTKWLD	0	0.25	0	0		Irrigated Acres included with Big Spring
BIG SPRING	BIG DOMINGUEZ	12/31/2005	9/1/1900	STKWLD	0.011	0	0	0	20	Can be stored in Big Spring or Bear Spring Ponds
BIG SPRING POND	BIG DOMINGUEZ	12/31/2005	9/1/2002	IRRFISSTKWLD	0	0	0	0.5		
BLACK CAMP POND	BIG DOMINGUEZ	12/31/2005	9/1/1953	DOMSTKWLD	0	1	0	0		
BLACK CAMP SPRING	BIG DOMINGUEZ	12/31/2005	1883-09-01	DOMSTKWLD	0.011	0	0	0	7	Can be stored in Black Camp Pond
DOT NO3 SPRING	BIG DOMINGUEZ	12/31/2005	10/14/2005	STO	0.01	0	0	0		
DOT POND NO3	BIG DOMINGUEZ	12/31/2005	10/14/2005	FISSTKWLD	0	0.25	0	0		
DOT COW POND	BIG DOMINGUEZ	12/31/2005	10/14/2005	FISSTKWLD	0	0.011	0	0		
BIRD DRAW POND NO3	BIG DOMINGUEZ	12/31/2005	4/1/2004	FISSTKWLD	0	0	0	2.5		
DOT POND NO7	BIG DOMINGUEZ	12/31/2005	9/1/2004	FISSTKWLD	0	0	0	0.4		
MUNRO POND	BIG DOMINGUEZ	12/31/1995	6/1/1950	STK	0	0.78	0	0		
MUNRO POND	BIG DOMINGUEZ	12/31/2007	6/1/1950	RECFIRSTKWLD	0	1.42	0	0		
DOT NO4A SPRING	BIG DOMINGUEZ	12/31/2005	4/1/1934	STO	0.01	0	0	0		
MONT'S SPRING NO 1	BIG DOMINGUEZ	12/31/2005	9/1/1900	STKWLD	0.016	0	0	0	20	Can be stored in Mont's Draw Pond
MONT'S DRAW POND	BIG DOMINGUEZ	12/31/2005	9/1/2002	RECFISSTKWLD	0	0	0	9		
DOT NO5A SPRING	BIG DOMINGUEZ	12/31/2005	4/1/2004	STO	0.01	0	0	0		
DOT NO5A SPRING	BIG DOMINGUEZ	12/31/2005	4/1/2004	STO	0.01	0	0	0		
DOT 6 SPRING	BIG DOMINGUEZ	12/31/2005	4/1/1934	FISSTKWLD	0	0.01	0	0		
DOT POND NO4	BIG DOMINGUEZ	12/31/2005	4/1/1934	FISSTKWLD	0	0.3	0	0		
DOT POND NO5	BIG DOMINGUEZ	12/31/2005	10/14/2005	FISSTKWLD	0	0.27	0	0		
DOT NO4B SPRING	BIG DOMINGUEZ	12/31/2005	4/1/1934	STO	0.05	0	0	0		
				Total	0.37	7.75	0.04	14.75	47	

Existing Decreed Federal Rights in the Upper Big and Little Dominguez Creek Watersheds

WATER RIGHT NAME	WATER SOURCE	LOCATION	ADJ DATE	APPROPRIATION DATE	USE TYPE	RATE ABSOLUTE (CFS)	VOLUME ABSOLUTE (ACFT)	RATE CONDITIONAL (CFS)	VOLUME CONDITIONAL (ACFT)	STRUCTURE TYPE
STOCK WATER (M SMITH FK PD)	BIG DOMINGUEZ	N 51 16 11 SW NE SW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BLACK RESV)	BIG DOMINGUEZ	N 51 16 13 NW NE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (HOLLAND POND)	BIG DOMINGUEZ	N 51 16 14 SW SW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (LWR BIG POND)	BIG DOMINGUEZ	N 51 16 15 NE SW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (SMITH CR BNCH)	BIG DOMINGUEZ	N 51 16 15 NW NE SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (SMITH CLIF PD)	BIG DOMINGUEZ	N 51 16 16 SE SW NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (LAFAIR RIM)	BIG DOMINGUEZ	N 51 16 16 NE NE NW	12/31/1972	4/30/1974	FIRSTK	0	0.1	0	0	3
STOCK WATER (TAYLOR POND)	BIG DOMINGUEZ	N 51 16 17 NW SE SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
DIVIDE FK CG	BIG DOMINGUEZ	N 51 16 18 SE SE NW	12/31/1972	6/14/1905	FED	0.001	0	0	0	4
STOCK WATER (MASSEY POND)	BIG DOMINGUEZ	N 51 16 19 NE NE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BEAVER POND)	BIG DOMINGUEZ	N 51 16 19 SE SE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BIG BEND PD)	BIG DOMINGUEZ	N 51 16 20 SE NW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BUNCH GRND)	BIG DOMINGUEZ	N 51 16 21 NE NE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (UP BIG POND)	BIG DOMINGUEZ	N 51 16 21 SE NE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (TELEPHDRPND)	BIG DOMINGUEZ	N 51 16 21 SE NW NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (TELEPH LINE)	BIG DOMINGUEZ	N 51 16 21 SW SW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (LOWER CS DRW)	BIG DOMINGUEZ	N 51 16 22 NE SE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (CS DRAW PND)	BIG DOMINGUEZ	N 51 16 22 NW NE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (TREE POND)	BIG DOMINGUEZ	N 51 16 22 NW NW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (OAK POND)	BIG DOMINGUEZ	N 51 16 22 SE SW NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (M COLD SP DR)	BIG DOMINGUEZ	N 51 16 22 SW SE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (LITTLE DRAW)	BIG DOMINGUEZ	N 51 16 23 NW NW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (SADDLE POND)	BIG DOMINGUEZ	N 51 16 23 NW SW SW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
BAR X 3	BIG DOMINGUEZ	N 51 16 23 SE NW NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BAR X #1)	BIG DOMINGUEZ	N 51 16 24 NW NE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BAR X #2)	BIG DOMINGUEZ	N 51 16 24 NW SW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (CRAFT RESV)	BIG DOMINGUEZ	N 51 16 24 SE NE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
CRAFT 2	LITTLE DOMINGUEZ	N 51 16 24 SE SW SW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BLUE DOG)	BIG DOMINGUEZ	N 51 16 25 NE SW NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (W DOM RDG 3)	BIG DOMINGUEZ	N 51 16 25 NW SE SW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (W DOM RDG 4)	BIG DOMINGUEZ	N 51 16 25 SW NE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BIRD DR SPG)	BIG DOMINGUEZ	N 51 16 26 NW NW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (EAST CS RDG)	BIG DOMINGUEZ	N 51 16 27 NW NE SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (CS DR FENCE)	BIG DOMINGUEZ	N 51 16 27 NW NE SW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (COLO SPR POND)	BIG DOMINGUEZ	N 51 16 27 NW SW NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BIRD DRAW 1)	BIG DOMINGUEZ	N 51 16 27 SE NW NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (ELK POND)	BIG DOMINGUEZ	N 51 16 28 NW NW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
RIM 477	BIG DOMINGUEZ	N 51 16 29 SE NW SW	12/31/1972	6/14/1905	FED	0.001	0	0	0	4
STOCK WATER (HUBBARD POND)	BIG DOMINGUEZ	N 51 16 30 NE SE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (RIDGE WILLOW)	BIG DOMINGUEZ	N 51 16 30 SE NW NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (PUNCH SP PND)	BIG DOMINGUEZ	N 51 16 32 NE NE SW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (ELK WILLOW)	BIG DOMINGUEZ	N 51 16 32 NE SW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (WILLOW SPR 2)	BIG DOMINGUEZ	N 51 16 32 SW NE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BIRD DRAW)	BIG DOMINGUEZ	N 51 16 34 NW NE SW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BLACK SU)	BIG DOMINGUEZ	N 51 16 34 NW NW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BIRD MESA)	BIG DOMINGUEZ	N 51 16 35 NW NW NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (W DOM RDG 5)	BIG DOMINGUEZ	N 51 16 35 SE NE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (DOMINGUEZ)	BIG DOMINGUEZ	N 51 16 35 SE SW SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (WILLOW SPR)	BIG DOMINGUEZ	N 51 16 36 NE NE SE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (BUCK SP #2)	BIG DOMINGUEZ	N 51 16 36 SE NE NE	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
STOCK WATER (DOM RIDGE 2)	BIG DOMINGUEZ	N 51 16 36 SW SE NW	12/31/1972	6/14/1905	FED	0	0.1	0	0	3
					Total	0.004	10.3	0	0	

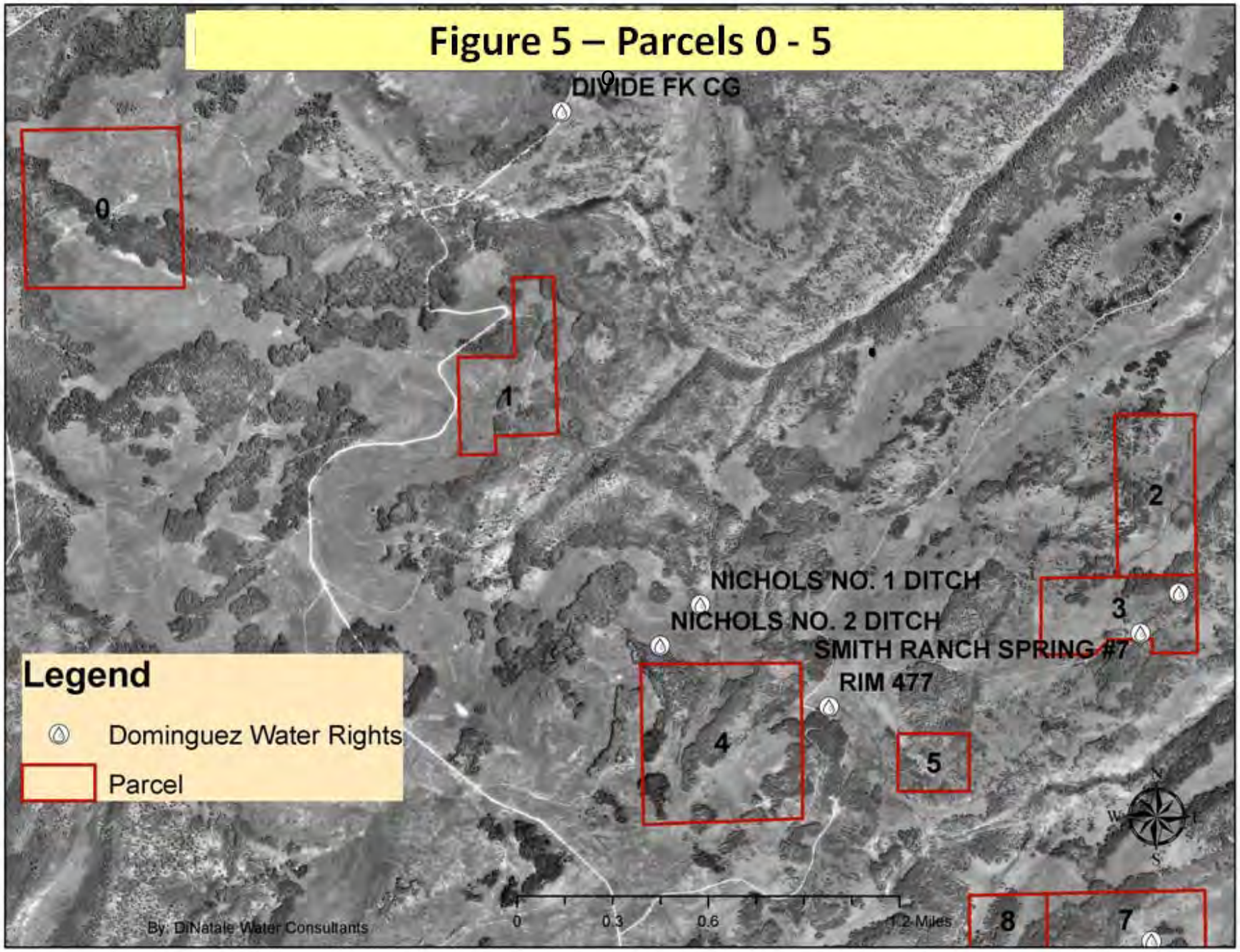


Figure 5 – Parcels 0 - 5
DIVIDE FK CG
0
1
2
3
4
5
7
8
NICHOLS NO. 1 DITCH
NICHOLS NO. 2 DITCH
SMITH RANCH SPRING #7
RIM 477
Legend
Dominguez Water Rights
Parcel
By: DiNatale Water Consultants
0
0.3
0.6
1.2 Miles

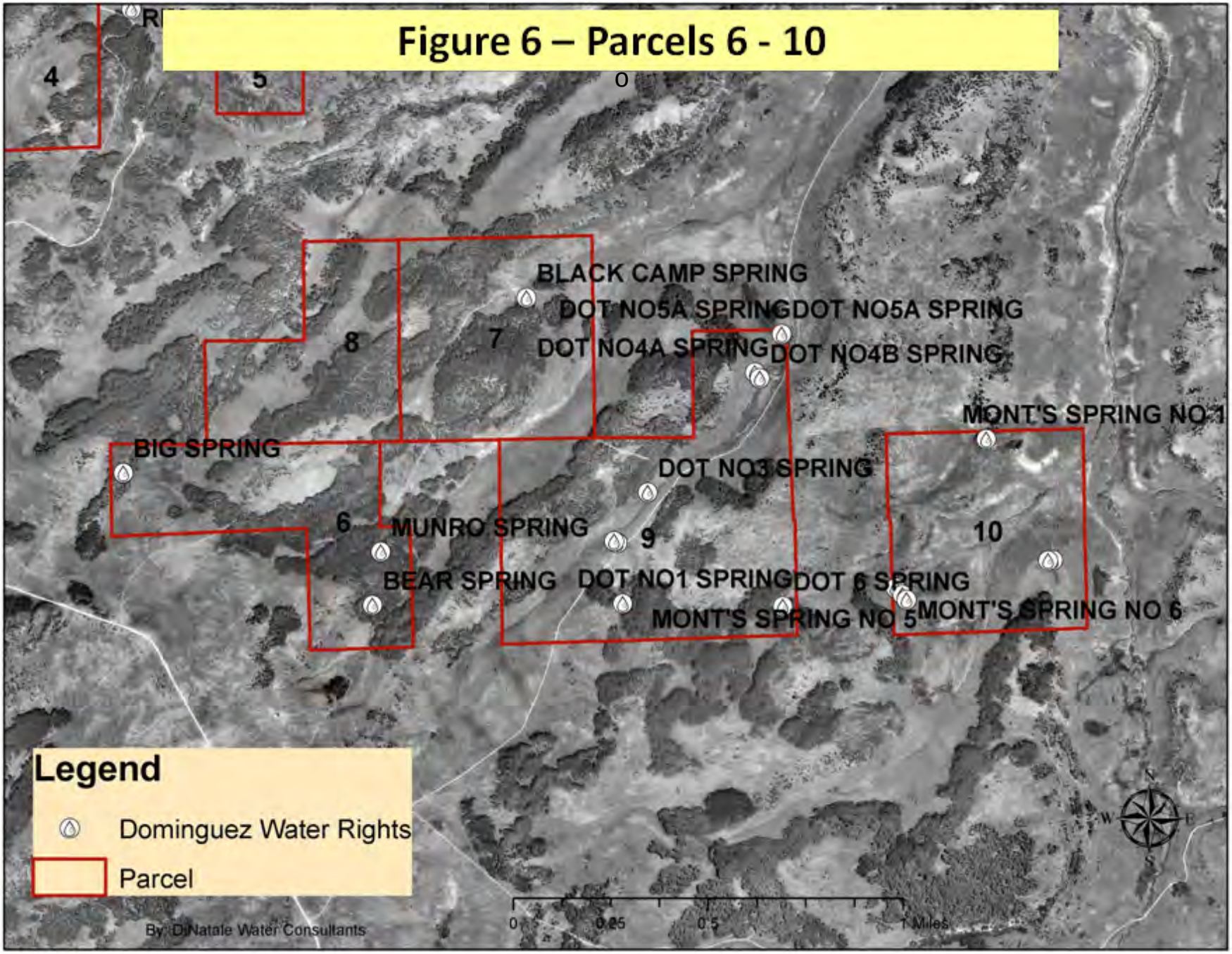


Figure 6 – Parcels 6 - 10
4
5
8
7
6
9
10
BLACK CAMP SPRING
DOT NO5A SPRING
DOT NO5A SPRING
DOT NO4A SPRING
DOT NO4B SPRING
MONT'S SPRING NO 1
BIG SPRING
DOT NO3 SPRING
MUNRO SPRING
BEAR SPRING
DOT NO1 SPRING
DOT 6 SPRING
MONT'S SPRING NO 5
MONT'S SPRING NO 6
Legend
Dominguez Water Rights
Parcel
By: DiNatale Water Consultants
0
0.25
0.5
1 Miles
N
W
E
S

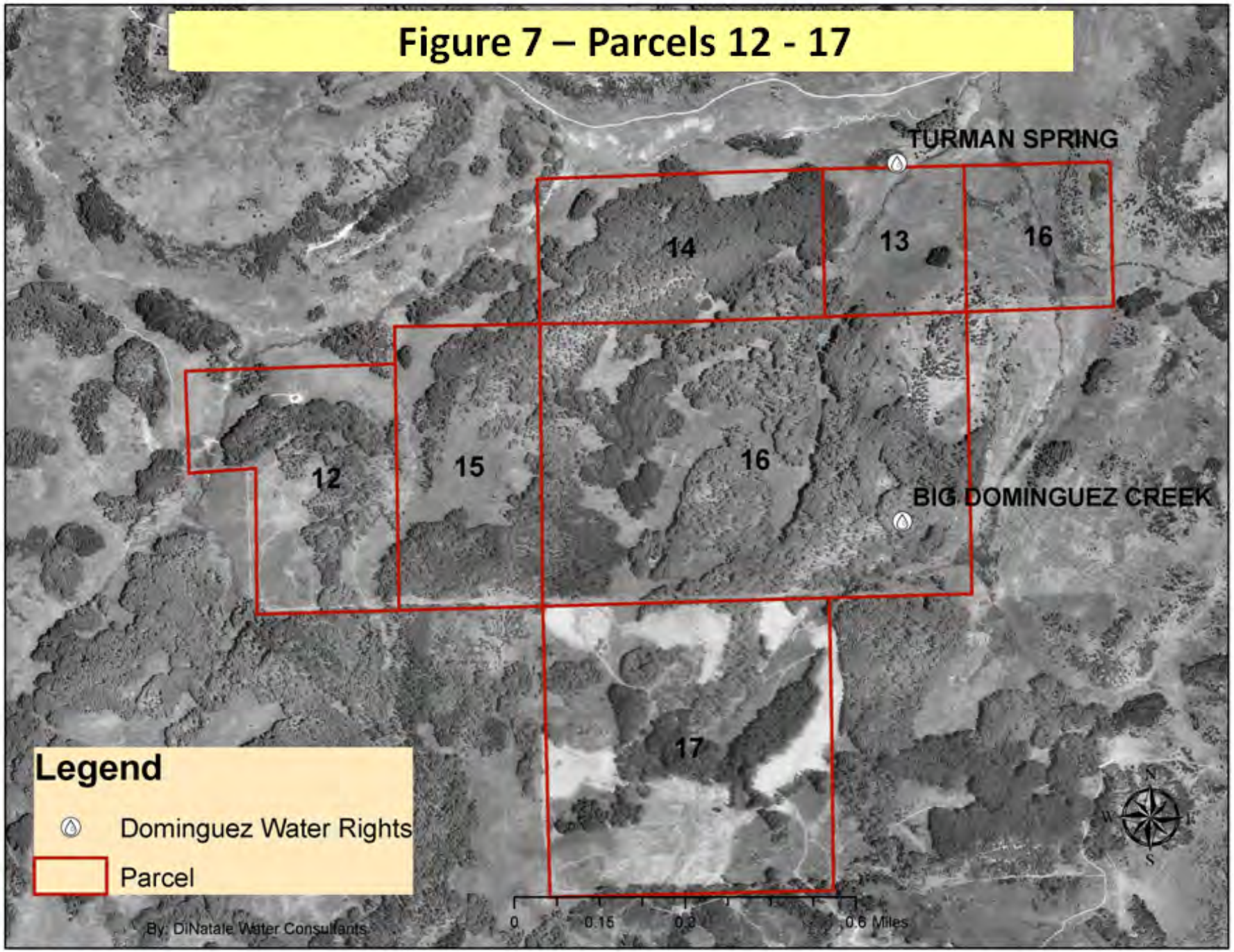
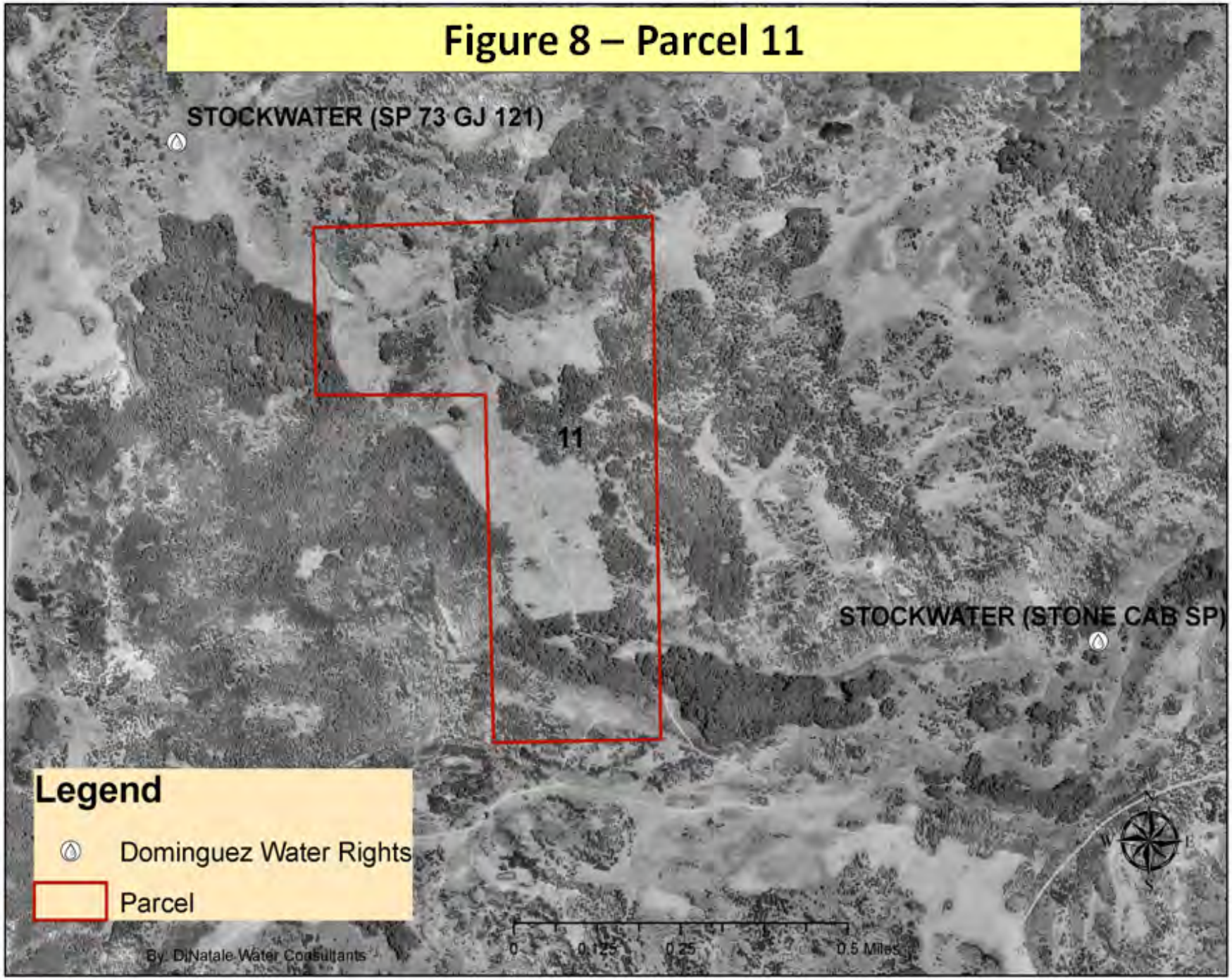


Figure 7 – Parcels 12 - 17
TURMAN SPRING
14
13
16
12
15
16
BIG DOMINGUEZ CREEK
17
Legend
Dominguez Water Rights
Parcel
By: DiNatale Water Consultants
0
0.15
0.3
0.6 Miles
N
W
E
S

Figure 8 – Parcel 11



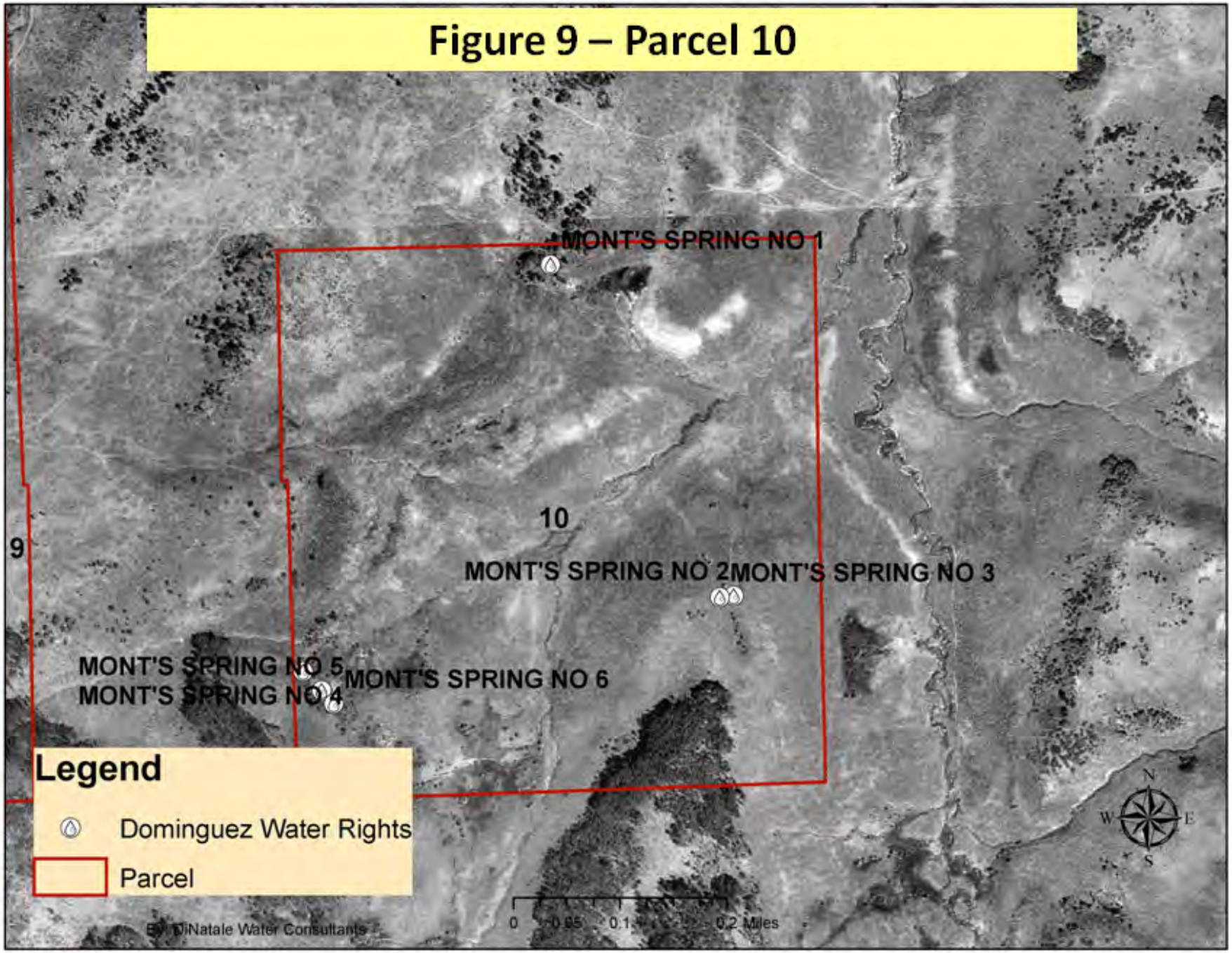


Figure 9 – Parcel 10
MONT'S SPRING NO 1
10
9
MONT'S SPRING NO 2
MONT'S SPRING NO 3
MONT'S SPRING NO 5
MONT'S SPRING NO 4
MONT'S SPRING NO 6
Legend
Dominguez Water Rights
Parcel
By: DiNatale Water Consultants
0
0.05
0.1
0.2 Miles
N
W
E
S

Figure 10 – Parcel 9

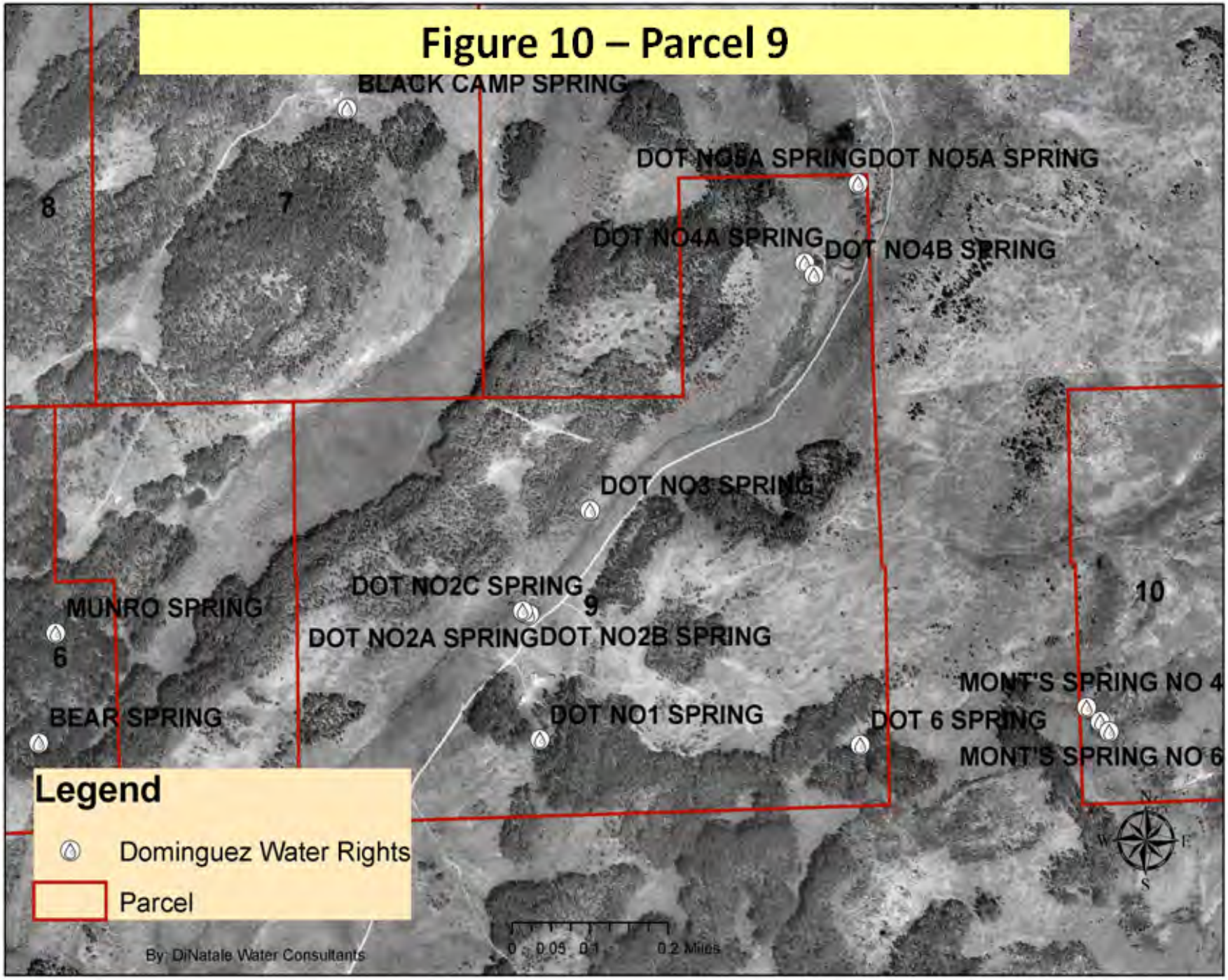


Table 7

2009 Water Rights Applications for Private Parcels

WATER RIGHT NAME	Applicant	WATER SOURCE	LIKELY ADJ DATE	APPROPRIATION DATE	USE TYPE	RATE ABSOLUTE (CFS)	RATE CONDITIONAL (CFS)	STORAGE ABSOLUTE (ACFT)	VOLUME CONDITIONAL (ACFT)	Notes
Big Roxie Pond #2	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	9/1/2009	STKWLD				0.80	
Big Roxie Pond #3	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	9/1/2009	STKWLD				0.80	
Forty Beaver Pond #1	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	9/1/2009	STKWLDIRR				1.00	Filled by the Forty Big Springs #1 and 2. Irrigation of 40 acres
Forty Beaver Pond #2	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	9/1/2009	STKWLDIRR				1.00	Filled by the Forty Big Springs #1 and 3. Irrigation of 40 acres
Merril Pond #1	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	9/1/2009	STKWLDIRR				0.43	Filled by Merrill Springs. Irrigation of 40 acres
Merril Pond #2	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	9/1/2009	STKWLDIRR				0.22	Filled by outflow from Merrill Pond #1 and Merrill Springs. Irrigation of 40 acres
Black Pond	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	9/1/2009	STKWLD				0.21	Filled by the Black Springs
Roxie High Spring #1	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009		STKWLD		0.030			
Roxie High Spring #2	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009		STKWLD		0.030			
Roxie High Spring #3	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009		STKWLD		0.030			
Roxie High Spring #4	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009		STKWLD		0.030			
Roxie Low Spring	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009		STKWLD		0.030			
Forty Big Spring #1	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009		STKWLD		0.020			Fill Forty Beaver Ponds #1 and 1
Forty Big Spring #2	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009		STKWLD		0.020			Fill Forty Beaver Ponds #1 and 2
Merril Spring #1	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	6/1/1953	DOMSTKWLD		0.030			For existing cabin and to fill Merril Ponds #1 and 2
Merril Spring #2	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	6/1/1948	DOMSTKWLD		0.030			For existing cabin and to fill Merril Ponds #1 and 3
Merril Spring #3	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	6/1/1953	STKWLD		0.022			
Merril Spring #4	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	6/1/1953	STKWLD		0.022			
Merril Spring #5	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	6/1/1953	STKWLD		0.022			
Merril Spring #6	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	6/1/1953	STKWLD		0.030			
Black Spring #2	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	12/31/1978	STKWLD		0.030			
Black Spring #3	Gary and Mary Williams	BIG DOMINGUEZ	12/31/2009	12/31/1978	STKWLD		0.030			
Massey Pasture Spring	Oscar and Janice Massey	BIG DOMINGUEZ	12/31/2009	6/1/1950	DOMSTKWLDIRR	0.033				From Division Engineer Consultation of 1/14/2010, this right is recommended for only 0.033 cfs conditional.
Massey Bowman Spring (4-09CW131)	Oscar and Janice Massey	BIG DOMINGUEZ	12/31/2009	6/1/1950	DOMSTKWLDIRR	0.680				From Division Engineer Consultation of 1/14/2010, this right is recommended for only 0.68 cfs absolute for filling Bowman Ponds 1 and 2 for subsequent irrigation of 1 acre, stockwater, recreation and piscatorial uses.
Massey South Point Camp Spring (4-09CW130)	Oscar and Janice Massey	BIG DOMINGUEZ	12/31/2009	6/1/1950	DOMSTKWLDIRR	0.033				From Division Engineer Consultation of 1/14/2010, this right is recommended for filling an undecreed pond for subsequent irrigation of 1 acre, stockwater, recreation and piscatorial uses.
Massey Bowman Pond #1	Oscar and Janice Massey	BIG DOMINGUEZ	12/31/2009	6/1/1950	FISDOMSTKWLDIRR			1.300		From Division Engineer Consultation of 1/14/2010, this right is recommended for only 1.3 AF absolute for subsequent irrigation of 1 acre, stockwater, recreation and piscatorial uses. Amount claimed was 10 AF conditional
Massey Bowman Pond #2	Oscar and Janice Massey	BIG DOMINGUEZ	12/31/2009	6/1/1950	FISDOMSTKWLDIRR			5.000		From Division Engineer Consultation of 1/14/2010, this right is recommended for only 5.0 AF absolute for subsequent irrigation of 1 acre, stockwater, recreation and piscatorial uses.
						0.746	**0.406**	**6.300**	**4.46**	

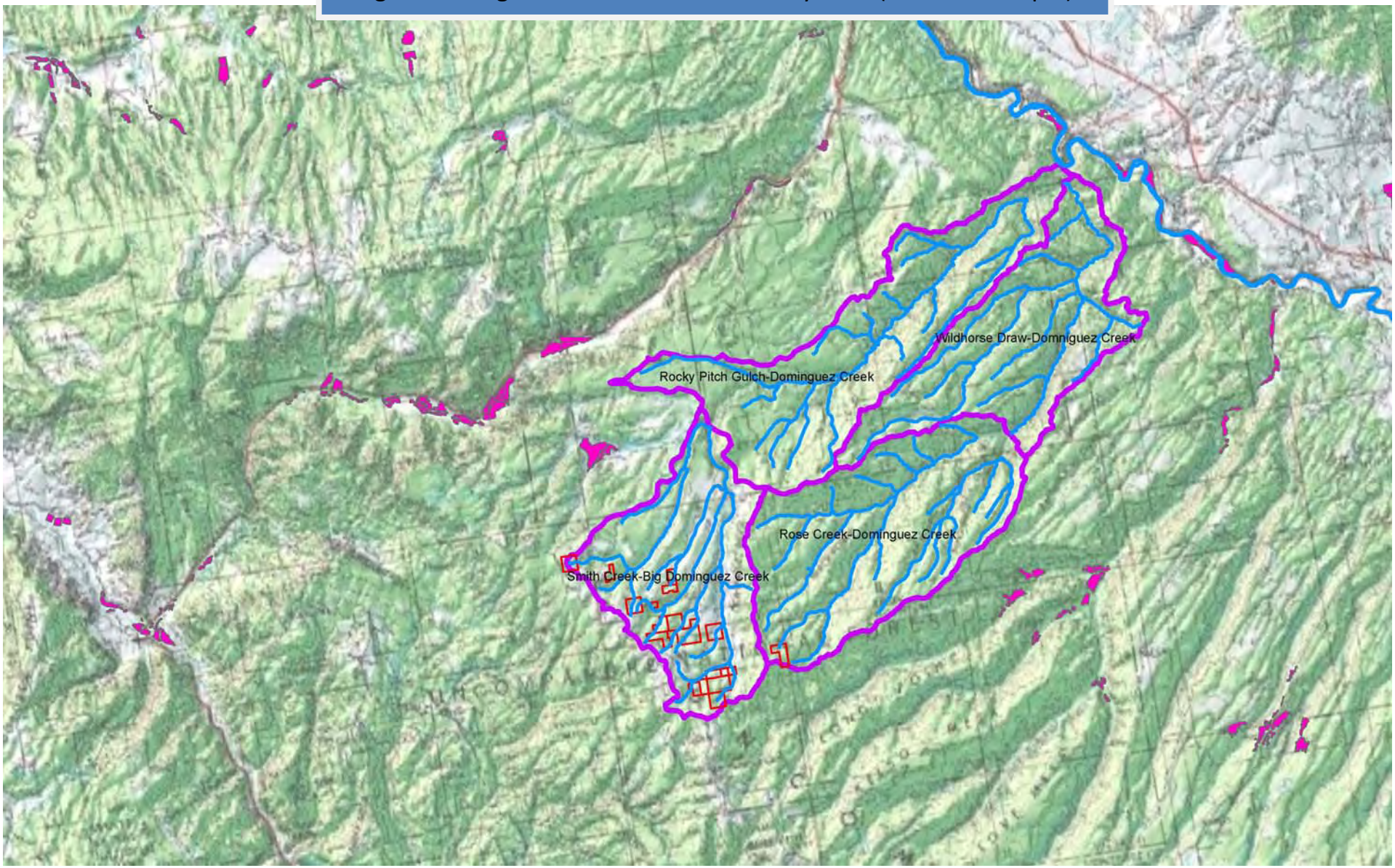
Table 8

Summary of Decreed and Recent Water Rights Applications for Private Parcels

Map ID	Owner Name(s)	Acres	Acreage Non-Wooded	Acreage Wooded	Existing Decreed Water Rights Shown in Hydrobase?	Recently Filed Water Rights Application?
11	MIKA AG CORP	162	56	106	No	No
	Little Dominguez Total	**162**	**56**	**106**		
0	MASSEY OSCAR T MASSEY EMMA J	158	105	53	No	Ponds and Springs for Irrigation, Domestic, Stock and Wildlife
1	MASSEY OSCAR T MARIE JANICE	73	42	31	No	Ponds and Springs for Irrigation, Domestic, Stock and Wildlife
2	CASTO JESSIE M CASTO BEEMAN B CE M MASSEY	80	56	24	Undetermined	No
3	SMITH RALPH L SMITH CHET A	71	51	20	Smith Ranch Springs for Domestic, Stock and Wildlife	No
4	NICHOLS SIDNEY A DBA NICHOLS ENTERPRISES	159	88	71	Nichols #1 and 2 Ditches for Stock and Wildlife	No
6	BLACK FAMILY LIMITED PARTNERSHIP	150	71	79	Undetermined	No
7	BLACK FAMILY LIMITED PARTNERSHIP	163	55	108	Black Camp Springs and Ponds for Domestic, Irrigation, Stock and Wildlife	No
8	BLACK FAMILY LIMITED PARTNERSHIP	123	61	62	Black Camp Springs and Ponds for Domestic, Irrigation, Stock and Wildlife	No
9	WILLIAMS GARY R WILLIAMS MARILYN K	289	162	127	DOT and Mont's Springs for Domestic, Stock and Wildlife	No
10	BLACK FAMILY LIMITED PARTNERSHIP	163	149	14	Mont's Springs and Ponds for Domestic, Irrigation, Stock and Wildlife	No
12	NEWTON BARTHOLOMEW R NEWTON BRENT	82	36	46	No	No
13	TURMAN JOHN TURMAN VICKI	41	35	6	Turman Spring for Domestic, Stock and Wildlife	No
14	FOSTER STANLEY A FOSTER GALE M	82	10	72	No	No
15	COSTELLO STEVEN F COSTELLO GWEN M	80	5	75	No	No
16	WILLIAMS GARY R WILLIAMS MARILYN K	278	71	207	No	Ponds and Springs for Irrigation, Domestic, Stock and Wildlife
17	MIKA AG CORP	163	27	136	No	No
	Big Dominguez Total	**2,155**	**1,022**	**1,133**		

Note: Parcels that do not have apparent existing or proposed water rights are highlighted

Figure 11 Irrigated Acres in General Study Area (Shown in Purple)



4. Potential water demands

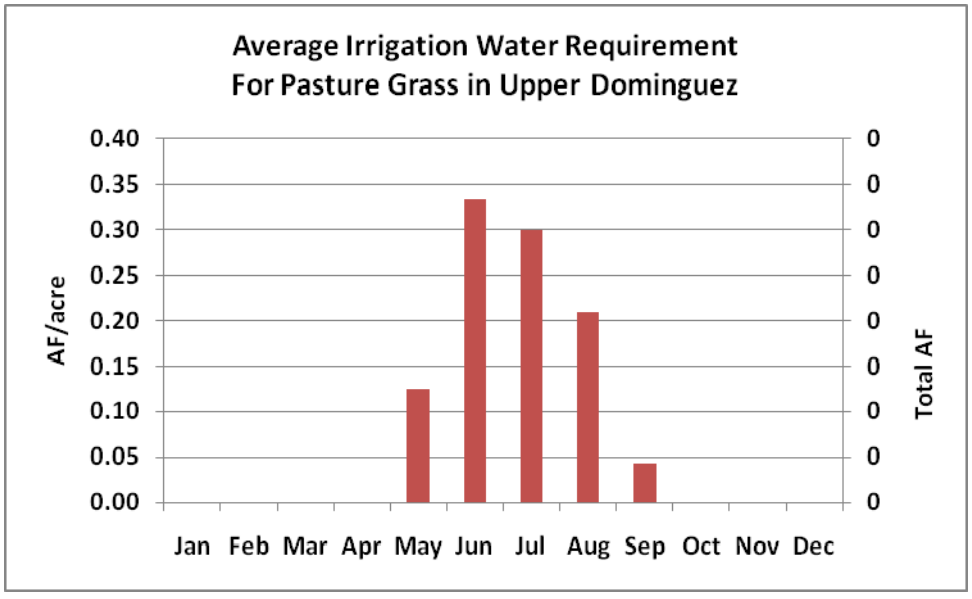
StateCU, a CDSS tool was used to estimate the irrigation water requirement for pasture grass on the private parcels. There was not a weather station in close proximity to the parcels. The Ridgway station was chosen as the best match based on latitude, annual precipitation, temperature and elevation. The Gunnison high altitude Blaney-Criddle coefficients were used for the study period of 1984-2008 (missing1995-1996.) The average monthly irrigation water requirement with an annual total of 1.01 acre-feet per acre for pasture grass is shown in Figure 12.

A small percentage of the 1,022 acres of non-wooded areas are currently irrigated. This is likely attributable to the lack of physical supply, steep slopes and isolated grassland areas. Without physical surveys, it is not possible to definitively calculate the acres that could be planted and irrigated as pasture grass. It would not be practical to irrigate all of the acres of grassland due to limited supply, slopes and difficulty in delivering irrigation water to the individual areas. A review of the existing and recently filed water rights and limited decrees for irrigation suggests that the existing and proposed irrigation is less than 150 acres.

An estimate was developed of the irrigation water requirements if additional acreage could be irrigated in the future with 2010 or later water rights appropriations. Given the lack of physical supply, difficulty in constructing gravity canals and limited storage sites, it is likely that a full supply could not be delivered, and the limited irrigation would be to enhance pasture for grazing, not hay cutting.

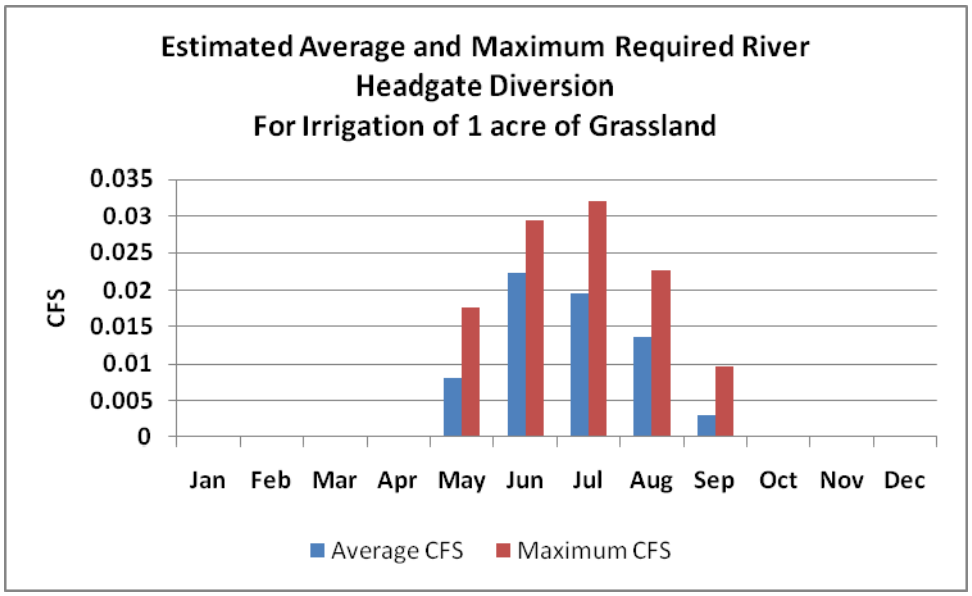
The average annual irrigation water requirement for pasture grass is approximately 1.01 acre-feet per acre as shown in Figure 12. This irrigation water requirement assumes a full supply and that the pasture grass is grown for hay cutting.

. **Figure 12 Average Annual Potential Irrigation Water Requirement**



A 25% river diversion efficiency was assumed as representative of high mountain pasture irrigation. The average per acre monthly diversion requirement and the resulting required headgate diversion rate for direct flow irrigation is shown in Figure 13. The maximum required diversion rate over the 1984 – 2008 study period, using a 25% irrigation efficiency is 0.033 cfs. This maximum flow rate represents the maximum month average stream diversion for the study period. Actual irrigation efficiencies on each parcel would vary based on slopes, but 25% represents a reasonable river headgate efficiency estimate for mountain pasture grass flood irrigation. Irrigation efficiencies ranging from 20 to 40% are typical for high mountain pasture grass flood irrigation. More detailed estimates, if needed, should be made using the Colorado Irrigation Guide or other sources after on-site field surveys. This maximum irrigation rate is also the same as the flow rates decreed for the Nichols Ditch #1 and #2, the only decreed rights for irrigation on the private parcels. This flow rate of 0.032 cfs also corresponds to the per acre diversion rate of 0.033 cfs recommended by the Division Engineer for the recently filed Massey South Point Camp Spring Dominguez water rights application for the irrigation of 1 acre.

Figure 13 Estimated Irrigation Water Requirement



An alternate estimate of potential water demand for rangeland use was also conducted. Herman Garcia, State Range Conservationist for the National Resources Conservation Service Colorado State Office was contacted regarding estimating livestock capacity (Animal Unit Month units, AUM) and associated water use on the private parcels based on soil type and vegetation. An Animal Unit is typically a cow-calf combination. Using Mr. Garcia's recommendations for sustainable rangeland management (personal communication, January 2010), NRCS vegetative cover and Animal Unit Month as described in the NRCS National Range and Pasture Handbook (NRCS September, 1997) results in a carrying capacity of 146 to 219 animal unit months for a non-irrigated 3 month grazing period for the

combined private parcels plus an additional 0.6 to 0.7 AFY for stock watering. The actual stock watering needs would be greater factoring in the anticipated evaporation and seepage losses from shallow stock ponds. A summary of this analysis is shown on Table 9.

Table 9 Estimated Animal Unit Months and Stock Water Requirements

Estimated Animal Month Units and Stock Water Requirements for Non-irrigated Private Lands

Map unit symbol	Map unit name	Acres in Study Area from GIS	Average Range Production (pounds per acre per year)	Usable Range Production (pounds per acre per year)	Forage Demand for one Animal Unit Month, AUM (pounds per month)		Acres of forage required for one AUM		# of months of grazing	Number of Animal Units supported		Livestock Water Demand gallons per day per animal unit		Total Livestock Water Demand gpd		Total Livestock Water Demand AFY	
					Low Forage Demand	High Forage Demand	Low Forage Demand	High Forage Demand		Low Forage Demand	High Forage Demand	Low Forage Demand	High Forage Demand	Low Forage Demand	High Forage Demand	Low Forage Demand	High Forage Demand
21	Hapgood-Lamphier families complex, 20 to 50 percent slopes	533	-	-													
22	Hoosan-Lamphier-Leaps families complex, 3 to 30 percent slopes	1,001	667	334	1,200	1,800	1.80	2.70	3	186	124	12	15	2,226	1,855	0.61	0.51
23	Jodero-Empedrado families complex, 2 to 20 percent slopes	66	1,500	750	1,200	1,800	0.80	1.20	3	27	18	12	15	328	274	0.09	0.08
24	Kubler-Delson-Cerro families complex, 3 to 15 percent slopes	11	2,000	1,000	1,200	1,800	0.60	0.90	3	6	4	12	15	76	63	0.02	0.02
25	Lamphier-Hapgood families complex, 5 to 20 percent slopes	706	-	-													
	Average/Total	**2,317**							**3**	**219**	**146**	**12**	**15**	**2,631**	**2,193**	**0.73**	**0.61**

Notes A reduction has not been made for excessive slopes
Usable range production is estimated at 50% of average annual range production to provide for resource protection and sustainability
Evaporation and Seepage losses from stock ponds has not been included

5. Constraints on future water development

There are a number of factors that may constrain the ability to develop future water supplies. The primary factors include the following and the potential constraints on future water supply development are discussed in this section:

- Soil and land use cover
- Topography
- Legal availability of water
- Physical availability of water

Soil and Land Cover

A summary of the soil types was shown in Table 4 and discussed in Section 2. As noted, Thomas Hahn, NRCS Colorado Senior Regional Soil Scientist was contacted (personal communication, January 2010). He noted that these soil types are classified by the NRCS as generally not advisable for cropland due to high erosion potential. The high erosion potential is largely the result of steep slopes. Grasslands on the private parcels that have slopes less than 15% could potentially be planted for hay. Based on the soil classifications, soil types 23 (Jodero-Empedrado families complex, 2 to 20 percent slopes and 24 (Kubler-Delson-Cerro families complex, 3 to 15 percent slopes) are the most suitable for irrigation. These two soil types total 77 acres.

Topography

As shown on the USGS mapping (Figure 3) and on the aerial photos (Figures 5-10), the topography of the private parcels varies with many areas of steep slopes. In addition to the constraints of steep slopes, it would be a major effort to develop additional ditches to gravity irrigate a substantial portion of the grassland vegetated areas. As can be seen on the aerial photos, there are numerous isolated areas of grassland that would be very difficult to gravity irrigate with a surface diversion. Additional gravity diversions for irrigation would require the construction of new diversions and ditches upstream of the parcels. The private parcels are located at the headwaters of the basin and the aerial photos and physical availability of supply for diversion will be limiting.

Legal Availability

The legal availability to divert in priority must also be considered when evaluating water supply availability. A review of the CDSS call chronology since 2000 indicates that the only recorded call affecting Big and Little Dominguez Creeks was the Redlands Power Call from 4/22/2002 through 6/1/2002. Lynne Bixler, the District 42 water commissioner, confirmed that there has not been any administration of the upper Dominguez due to the infrequency of calls and minor diversion amounts of the water rights. Legal availability, under strict administration of the Dominguez, could be impacted in very dry years. Legal availability should not be a limiting factor in average to wet years unless there is a change in the call regime on the lower Gunnison River resulting in more frequent calls. The existing 1984

CWCB in stream flow right on Big Dominguez downstream of the private parcels, once administered, could also limit upstream diversions after the peak runoff.

Physical Availability

Section 4 provides an analysis of the potential water use per acre for pasture grass irrigation, assuming a full water supply. There are no historical streamflow data on Big or Little Dominguez Creeks in the vicinity of the private parcels to allow a direct evaluation of available water supply. The BLM, in 2009, installed a pressure transducer downstream on Big and Little Dominguez Creeks, providing a single year of data. Accepted methods to statistically estimate streamflow such as the USGS indirect streamflow estimation formula or BLM modified approach of the USGS method were not statistically valid as the contributing watersheds to the private parcels are smaller than the minimum watershed size specified by the USGS for use of its streamflow formulae.

As noted in previous sections, there are several factors that indicate that physical supply is limited during the late irrigation season.

- The sources for nearly all of the existing and recently filed water rights are springs and ponds.
- As noted by Lynne Bixler, the District 42 water commissioner, there are limited areas where grasslands are irrigated from ponds and springs with little irrigation from surface streams. This suggests that springs are more reliable sources of water than intermittent streams.
- The existing decreed flow rates of less than or equal to 0.033 cfs are very low rates corresponding to the rates of flows from the springs.
- The recent consultation with the Division Engineer on the 2009 water rights applications recommends significant reductions in flow rates. The decreed and recommended flow rates are less than the optimal flow rates required for meeting the irrigation water requirement for pasture grass, as described in section 4.
    - The irrigation of the 47 acres of irrigated land under the 2005 water rights for the Black Family Limited Partnership parcels, assuming a 25% irrigation efficiency, would require a flow rate of 1.504 cfs (0.032 cfs/acre x 47 acres) to meet the irrigation water requirement. The combined decreed flow rate for these parcels is 0.068 cfs with 9 AF of conditional storage.
    - The proposed irrigation of the 80 acres of irrigated land under the Williams parcels would require a flow rate of 2.56 cfs (80 acres x 0.032 cfs/acre) to meet the irrigation water requirement. The combined flow rate from the Division Engineers' consultation is 0.406 cfs and 4.46 AF of storage.
    - The irrigation of the irrigated land under the Massey parcels would require a flow rate of 0.064 cfs (2 acres x 0.032 cfs/acre.) The combined flow rate from the Division Engineers' consultation is 0.713 cfs and 6.3 AF of storage. There appears to be a disconnect between the flow rates recommended by the Division Engineer for the Massey Bowman Spring (0.68 cfs) and the flow rates recommended by the Division for other springs of 0.030 to 0.033 cfs.

The analysis of the above factors suggests that there is little to no reliable physical available flow after the snowmelt runoff and summer irrigation must rely on springs and ponds.

6. Summary findings of most likely water demands

The following is a summary of the key findings regarding the potential for future water development on privately owned parcels in the Big and Little Dominguez watersheds upstream of the Dominguez Wilderness Area:

a. The privately owned parcels are all located in the headwaters of Big and Little Dominguez Creeks on top of the Uncompahgre Plateau in an area without electricity or other utilities. Contributing watershed areas upstream of the private parcels are very small.
b. There are a significant number of existing absolute and conditional springs, direct flow and storage water rights decreed for a variety of uses on the private parcels. These rights, however, are for very low flow rates and minor storage volumes.
c. The existing land uses are primarily cattle grazing on the parcels and adjoining Forest Service permit areas with stock ponds fed by springs and a few summer cabins. There is limited existing or proposed irrigation of summer pasture of less than 150 acres primarily from springs or ponds. This irrigation is not for hay cutting, but to enhance pasture for grazing.
d. The written notifications of pending instream flow appropriations provided to private landowners in August and November, 2009 by CWCB staff and the Colorado River Water Conservation District resulted in additional water rights applications by private landowners sufficient to meet much of the potential water demands for grazing and livestock watering.
e. Due to the small contributing watershed areas, there is limited physical supply availability for existing or future water diversions during the irrigation season. This finding is supported by the lack of significant existing or proposed surface water diversions and the numerous existing water rights appropriations for springs and spring-fed ponds. There are no stream gage records, but examination of available mapping and data and anecdotal evidence indicate streamflow during snowmelt runoff followed by limited physical flows with flows insufficient for direct flow irrigation starting in July.
f. Legal availability for water rights is generally not a limitation to diversions. A query of the CDSS call records database indicated the only recorded call since 1980 affecting Big and Little Dominguez Creeks was the Redlands mainstem call that occurred for two months during the 2002 drought.
g. Soil types, steep slopes and vegetative cover limit the potential for additional water supply development. Of the 2,317 privately owned acres, 1,133 or 53% are wooded areas, with primarily deciduous forest the predominant vegetative cover.
h. A small percentage (<15%) of the 1,022 acres of non-wooded vegetation are currently irrigated for summer pasture. This irrigation is for enhancing summer pasture and not for hay cutting. This is likely attributable to the lack of physical supply, steep slopes and isolated grassland areas.

The decreed and recently filed water rights applications are insufficient to provide for a full supply of water for irrigating these acres. Without physical surveys, it is not possible to definitively calculate the acres that could be planted and irrigated as pasture grass.

i. Irrigation of 100 additional acres is estimated to represent a maximum for future potential water development with a 2010 or later water rights appropriations. Given the lack of physical supply, difficulty in constructing gravity canals and limited storage sites, it is likely that a full supply could not be delivered, but irrigation would be for pasture grazing, not hay cutting. Without physical surveys, it is not possible to definitively calculate the acres that could be planted and irrigated as pasture grass.

j. The maximum irrigation water requirement for pasture grass is approximately 1.01 acre-feet per acre. The maximum required diversion rate, assuming the physical supply was available, and a 25% irrigation efficiency at a maximum flow rate is 0.032 cfs/acre. The review of existing water rights, however, suggests that this flow rate is not achievable due to limited physical supply from the numerous springs that provide the only reliable flow. The existing irrigation diversions are not sufficient to provide a full supply of water.

k. Based on the above considerations and the existing and recent water rights applications, most of the potential water development is accounted for with the existing or recently filed water rights and as result is senior to any 2010 instream flow appropriation. Additional appropriations for water supply development would only be needed if irrigation of grasslands for summer pasture were to be expanded. This would require the construction of additional storage and diversion and delivery structures that would divert and store the snowmelt runoff in late April through early June.

l. Given the lack of reliable streamflows, evidence of water shortages, and the difficulty in diverting surface flows and development of existing springs, there is little or no potential for water development for export out of the basin.

m. The likely potential new water development would be additional domestic use by cabins, limited irrigation of grasslands to enhance pasture for grazing and associated stock watering. A reasonable estimate for maximum future domestic water development would be 0.1 acre-feet for domestic use for each 35 acres. It is assumed that domestic water use on 35 acres will be an exempt use and not require a development allowance.

n. Any increase in irrigation or other uses will require the development of storage and diversions during the runoff period of late April through June. Storage sites appear to be limited as evidenced by the small volumes of absolute and conditional ponds.

o. Based on the factors listed above, a maximum potential future water development of 100 AF of storage for Big Dominguez and 1 AF of storage for Little Dominguez is estimated. This estimated maximum development represents the storage and direct flow rights needed to provide for potential irrigation, stock watering and associated pond uses (piscatorial, wildlife, etc) and any augmentation required for non-exempt domestic uses. This proposed storage would provide for approximately a 300% increase in storage volume compared to existing absolute, conditional and recently filed water storage rights. This storage volume should be more than adequate to provide for the maximum development on the private parcels, given the physical and water

supply limitations. The only private parcel in the Little Dominguez basin is at the top of the headwaters and supply availability is very limited. The proposed maximum storage volumes, flow rates and assumptions for each basin are summarized in the following table.

Maximum Potential Water Development for Private Parcels in Big and Little Dominguez Basins

Basin	Maximum Storage Volume Allowed – Total of All New Water Rights (AF)	Maximum Diversion Rate April 15 - June 30 (cfs)	Maximum Diversion Rate July 1 - October 31 (cfs)
Big Dominguez	100	3.30	0.198
Little Dominguez	1	0.033	0.033
Notes:			
1. Storage volumes are for all future purposes including irrigation, stock watering, wildlife, and any augmentation required for non-exempt domestic uses			
2. Domestic use is assumed to be exempt use and not included in the allowance			
3. The maximum diversion rate for April 15-June 30 is based on 0.033 cfs/acre for diversions to storage and direct irrigation			
4. The maximum diversion rate for Big Dominguez from July 1-October 31 is based on six (6) ponds at assumed flow rate of 0.033 cfs/pond			
5. Little Dominguez parcel is supply limited and assumes one (1) pond at assumed flow rate of 0.033 cfs/pond			

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