DRAFT INSTREAM FLOW RECOMMENDATION

Mr. Dan Merriman
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Merriman:

The Bureau of Land Management (BLM) is writing this letter to formally communicate its instream flow recommendation for Yellow Creek, located in Water Division 6.

Location and Land Status. Yellow Creek is tributary to the White River approximately 27 miles northwest of Meeker. This recommendation covers a stream reach beginning at a set of springs located in the NW ¼ NE ¼, Section 12, T1N R98W, Sixth P.M. and extends downstream to the confluence with the White River. Approximately ____% of the _____-mile reach is publicly owned, while the remaining ____% is privately owned. Of the ____% percent of the reach that is publicly owned, ____% is managed by BLM and ____% is managed by the Colorado Division of Wildlife.

Biological Summary. Yellow Creek is a small, moderate gradient stream with a highly variable substrate size and a stable channel. Water quality, food sources and physical habitat characteristics are suitable for native species. Fishery surveys indicate that the creek supports self-sustaining populations of white suckers and speckled dace. Because of the limited amount of cover provided by riparian species and the small stream size, protection of flows is extremely important for continued existence of the fishery.

R2Cross Analysis. BLM's data analysis, coordinated with the Division of Wildlife, indicates that the following flows are needed to protect the fishery and natural environment to a reasonable degree.

> 0.45 cubic feet per second is recommended year-round. This recommendation is driven by the depth and wetted perimeter criteria. Since this is a small stream channel with limited physical habitat, protecting the flows necessary to meet these two criteria is absolutely essential for maintaining a viable fishery. Some portions of this reach also have high a width-to-depth ratio, so it is important to maintain sufficient depth for fish passage and overwintering of fish.

Water Availability. BLM is not aware of any decreed surface diversions within this reach. However, there are decreed diversions, reservoirs, springs, and wells located upstream on Yellow Creek and its tributaries. BLM recommends using USGS gage (Yellow Creek near White River 09306255) as an indicator of water availability. This gage has a long period of record, and its records incorporate all the impacts to stream flows associated with upstream ditch diversions and return flows.

Relationship to Management Plans. The White River Resource Management Plan identifies management of streams supporting native fish species as a priority for BLM. The plan specifies that BLM will work to improve riparian and aquatic conditions in these streams, and will also work to prevent surface disturbances close to them. In addition, the plan specifies that BLM will work with the Colorado Water Conservation Board to appropriate instream flow water rights to protect these fisheries.

The BLM requests that the Board recognize that this recommendation is based only upon the minimum flows necessary to support cool-water fishery values. BLM may wish to work with the Board and/or through the Colorado water rights system to appropriate flows to optimally protect fish values and to protect other water-dependent values specified in BLM resource management plans.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross section are enclosed to support this recommendation. We thank both the Division of Wildlife and the Water Conservation Board for their cooperation in this effort.

If you have any questions regarding our instream flow recommendation, please contact Roy Smith at 303-239-3940.

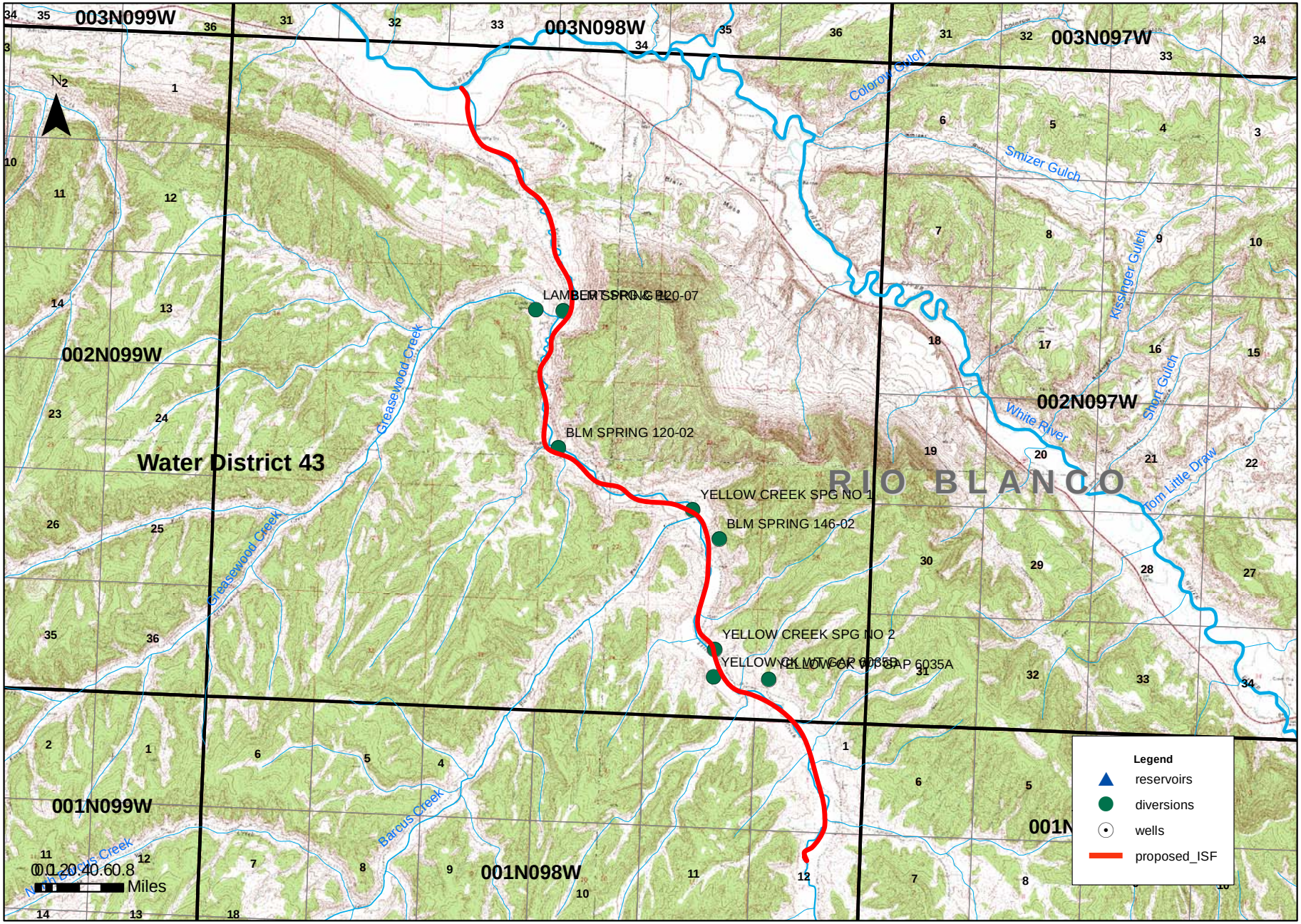
Sincerely,

Linda Anania
Deputy State Director
Resources and Fire

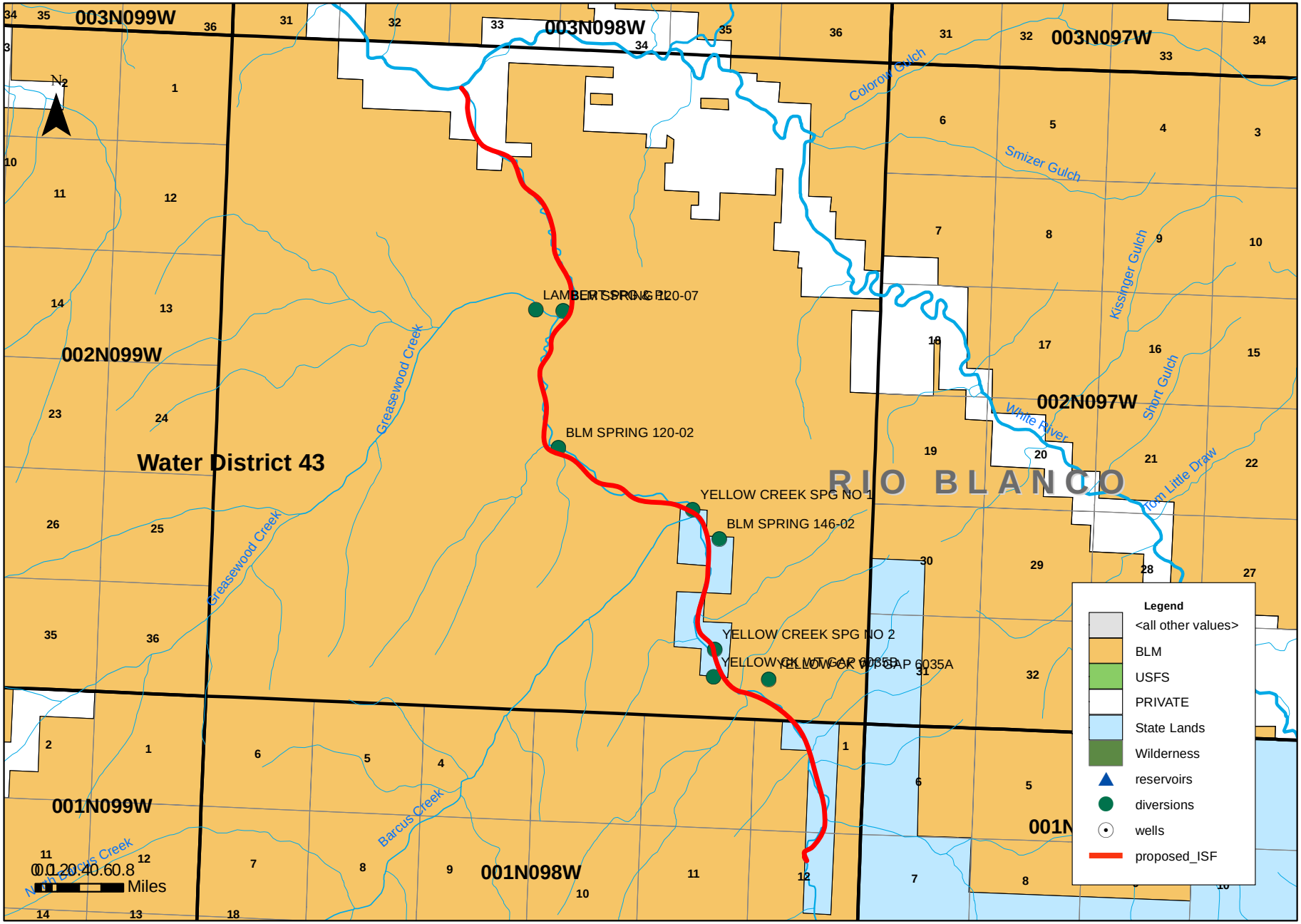
4 Enclosures

cc: Nate Dieterich, White River Field Office
Kent Walter, White River Field
Traute Parrie, White River Field Office

Yellow Creek



Yellow Creek—Land Use



COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

LOCATION INFORMATION

STREAM NAME: Yellow Creek | CROSS-SECTION NO: 1

CROSS SECTION LOCATION: 1/8 downstream from confluence (N) Boras Creek

DATE: 7-07-04 | OBSERVERS: R. Smith, P Daggett

LEGAL DESCRIPTION: ¼ SECTION: NW | SECTION: 26 | TOWNSHIP: 2 (N)/S | RANGE: 98 E/(W) | PM: 6th

COUNTY: Rio Blanco | WATERSHED: White River | WATER DIVISION: 6 | DOW WATER CODE:

MAP(S): USGS: Rough Gulch 7.5' | USFS: | 12 T 0725062 4444041

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION (YES/NO) | METER TYPE: Marsh-McBirney

METER NUMBER: | DATE RATED:

CALIB/SPIN ____ sec | TAPE WEIGHT: surveyed ____ lbs/foot | TAPE TENSION: surveyed ____ lbs

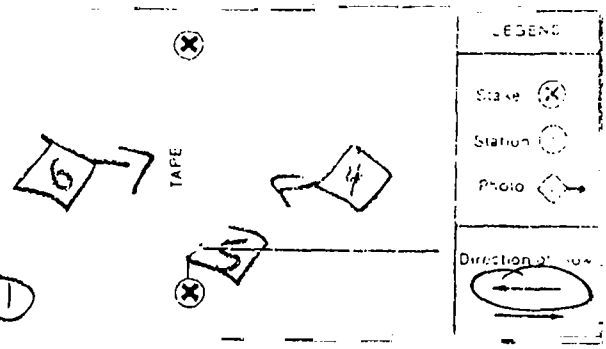
CHANNEL BED MATERIAL SIZE RANGE: silt to 3" cobbles

PHOTOGRAPHS TAKEN (YES/NO) | NUMBER OF PHOTOGRAPHS: 5

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
(X) Tape @ Stake LB	0.0	surveyed
(X) Tape @ Stake RB	0.0	surveyed
(1) WS @ Tape LB/RB	0.0	6.22/6.21
(2) WS Upstream	15.0'	6.16
(3) WS Downstream	15.0'	6.40

SLOPE: 0.24 / 30.0' = 0.01



AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED (YES/NO) | DISTANCE ELECTROFISHED ____ ft | FISH CAUGHT (YES/NO) | WATER CHEMISTRY SAMPLED (YES/NO)

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL
see attached survey																	

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME

mayfly, snails, annelids, caddisfly

COMMENTS

TDS = >2000 µs Ph = 8.5 Temp = 12°C

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Yellow Creek | CROSS-SECTION NO: 1 | DATE: 9-9-04 | SHEET __ OF __

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM (0.0 AT STAKE) | LEFT / RIGHT | Gage Reading: 0.3 ft | TIME: 9:20 am

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft²)	Discharge (cfs)
RS	0.0		5.04								
	0.5		5.30								
G	2.0		5.74								
	2.7		6.20								
W	3.0		6.21	Ø				Ø			
	3.3		6.36	0.15				Ø			
	3.6		6.42	0.20				0.67			
	3.9		6.45	0.25				0.80			
	4.2		6.49	0.30				0.69			
	4.5		6.52	0.30				0.94			
	4.8		6.51	0.30				0.98			
	5.1		6.55	0.25				0.94			
	5.4		6.50	0.30				0.59			
	5.7		6.54	0.35				0.03			
W	6.0		6.22	Ø				Ø			
G	7.2		5.75								
LS	10.8		5.35								
TOTALS											

End of Measurement | Time: 9.40 | Gage Reading: 0.3 ft | CALCULATIONS PERFORMED BY | CALCULATIONS CHECKED BY

Data Input & Proofing

STREAM NAME: |Yellow Creek |
XS LOCATION: |1/8 downstream from confluence w/ Barcus
XS NUMBER: |1 |
DATE: |9/9/04 |
OBSERVERS: |R. Smith, P. Daggett |

1/4 SEC: |NW |
SECTION: |26 |
TWP: |2 N |
RANGE: |98 W |
PM: |6th PM |

COUNTY: |Rio Blanco
WATERSHED: |White River
DIVISION: |6
DOW CODE: |
USGS MAP: |Rough Gulch 7.5
USFS MAP: |

Level and Rod Survey
TAPE WT: |0.0106 lbs / ft
TENSION: |99999 lbs

SLOPE: | 0.01|ft / ft

CHECKED BY:.....DATE.....

ASSIGNED TO: .....DATE.....

GL=1	FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	A	Q	Tape to Water
			Total Data Points = 17					
	RS	0.00	5.04			0.00	0.00	0.00
		0.50	5.30			0.00	0.00	0.00
1	G	2.00	5.74			0.00	0.00	0.00
		2.70	6.20			0.00	0.00	0.00
	W	3.00	6.21	0.00	0.00	0.00	0.00	0.00
		3.30	6.36	0.15	0.00	0.05	0.00	6.21
		3.60	6.42	0.20	0.67	0.06	0.04	6.22
		3.90	6.45	0.25	0.80	0.08	0.06	6.20
		4.20	6.49	0.30	0.69	0.09	0.06	6.19
		4.50	6.52	0.30	0.94	0.09	0.08	6.22
		4.80	6.51	0.30	0.98	0.09	0.09	6.21
		5.10	6.55	0.35	0.94	0.11	0.10	6.20
		5.40	6.50	0.30	0.59	0.09	0.05	6.20
		5.70	6.54	0.35	0.03	0.11	0.00	6.19
	W	6.00	6.22	0.00	0.00	0.00	0.00	0.00
1	G	7.20	5.75			0.00	0.00	0.00
	LS	10.80	5.35			0.00	0.00	0.00
					Totals	0.75	0.49	

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	Yellow Creek
XS LOCATION:	1/8 downstream from confluence w/ Barcus
XS NUMBER:	1
DATE:	9-Sep-04
OBSERVERS:	R. Smith, P. Daggett
1/4 SEC:	NW
SECTION:	26
TWP:	2 N
RANGE:	98 W
PM:	6th PM
COUNTY:	Rio Blanco
WATERSHED:	White River
DIVISION:	6
DOW CODE:	0
USGS MAP:	Rough Gulch 7.5
USFS MAP:	0

SUPPLEMENTAL DATA

		*** NOTE ***
		Leave TAPE WT and TENSION
		at defaults for data collected
TAPE WT:	0.0106	with a survey level and rod
TENSION:	99999	

CHANNEL PROFILE DATA

SLOPE:	0.01

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: .....DATE.....

STREAM NAME: Yellow Creek
XS LOCATION: 1/8 downstream from confluence w/ Barcus
XS NUMBER: 1

DATA POINTS= 17

VALUES COMPUTED FROM RAW FIELD DATA

	FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
	RS	0.00	5.04			0.00		0.00	0.00	0.0%
		0.50	5.30			0.00		0.00	0.00	0.0%
1	G	2.00	5.74			0.00		0.00	0.00	0.0%
		2.70	6.20			0.00		0.00	0.00	0.0%
	W	3.00	6.21	0.00	0.00	0.00		0.00	0.00	0.0%
		3.30	6.36	0.15	0.00	0.34	0.15	0.05	0.00	0.0%
		3.60	6.42	0.20	0.67	0.31	0.20	0.06	0.04	8.2%
		3.90	6.45	0.25	0.80	0.30	0.25	0.08	0.06	12.2%
		4.20	6.49	0.30	0.69	0.30	0.30	0.09	0.06	12.7%
		4.50	6.52	0.30	0.94	0.30	0.30	0.09	0.08	17.3%
		4.80	6.51	0.30	0.98	0.30	0.30	0.09	0.09	18.0%
		5.10	6.55	0.35	0.94	0.30	0.35	0.11	0.10	20.1%
		5.40	6.50	0.30	0.59	0.30	0.30	0.09	0.05	10.8%
		5.70	6.54	0.35	0.03	0.30	0.35	0.11	0.00	0.6%
	W	6.00	6.22	0.00	0.00	0.44		0.00	0.00	0.0%
1	G	7.20	5.75			0.00		0.00	0.00	0.0%
	LS	10.80	5.35			0.00		0.00	0.00	0.0%
	TOTALS ----------					3.20	0.35 (Max.)	0.75	0.49	100.0%

Manning's n = 0.0865
Hydraulic Radius= 0.23472359

STREAM NAME: Yellow Creek
XS LOCATION: 1/8 downstream from confluence w/ Barcus
XS NUMBER: 1

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	0.75	0.72	-3.8%
5.97	0.75	1.67	122.5%
5.99	0.75	1.58	111.1%
6.01	0.75	1.50	99.9%
6.03	0.75	1.42	89.0%
6.05	0.75	1.34	78.3%
6.07	0.75	1.26	67.7%
6.09	0.75	1.18	57.4%
6.11	0.75	1.11	47.4%
6.13	0.75	1.03	37.5%
6.15	0.75	0.96	27.9%
6.17	0.75	0.89	18.4%
6.18	0.75	0.85	13.8%
6.19	0.75	0.82	9.2%
6.20	0.75	0.79	4.7%
6.21	0.75	0.75	0.3%
6.22	0.75	0.72	-3.8%
6.23	0.75	0.69	-7.8%
6.24	0.75	0.66	-11.7%
6.25	0.75	0.63	-15.6%
6.26	0.75	0.60	-19.5%
6.27	0.75	0.58	-23.3%
6.29	0.75	0.52	-30.8%
6.31	0.75	0.46	-38.1%
6.33	0.75	0.41	-45.3%
6.35	0.75	0.36	-52.4%
6.37	0.75	0.31	-59.3%
6.39	0.75	0.26	-65.9%
6.41	0.75	0.21	-72.2%
6.43	0.75	0.16	-78.2%
6.45	0.75	0.12	-83.6%
6.47	0.75	0.09	-88.5%

WATERLINE AT ZERO
AREA ERROR = 6.206

STREAM NAME. Yellow Creek
XS LOCATION. 1/8 downstream from confluence w/ Barcus
XS NUMBER. 1

Constant Manning's n

"GL" = lowest Grassline elevation corrected for sag
STAGING TABLE "WL" = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
"GL"	5 75	5 18	0.52	0.80	2.69	5.60	100.0%	0 48	2.83	1 05
	5.76	5 16	0 52	0.79	2.66	5.58	99.5%	0.48	2.79	1 05
	5 81	4.96	0 49	0.74	2.41	5 35	95 5%	0.45	2.43	1.01
	5.86	4 75	0.46	0.69	2.16	5.12	91.4%	0.42	2.09	0.97
	5.91	4.55	0 42	0.64	1.93	4.89	87 3%	0.39	1.78	0.92
	5.96	4.35	0.39	0.59	1 71	4.66	83 2%	0.37	1.50	0.88
	6.01	4.14	0 36	0.54	1.50	4.44	79.2%	0.34	1.25	0.83
	6.06	3.94	0.33	0.49	1.29	4.21	75.1%	0.31	1.01	0.78
	6 11	3.74	0.30	0.44	1.10	3 98	71.0%	0.28	0.80	0 73
	6.16	3.53	0.26	0.39	0.92	3.75	67 0%	0.25	0.62	0.67
"WL"	6 21	3 17	0.24	0.34	0 75	3.36	60.0%	0.22	0.47	0.63
	6.26	2.88	0.21	0 29	0.60	3.04	54.3%	0.20	0.35	0.58
	6.31	2.73	0 17	0.24	0.46	2.86	51.1%	0.16	0.24	0.51
	6.36	2.58	0.13	0 19	0.33	2 68	47 9%	0.12	0.14	0 42
	6 41	2.30	0.09	0.14	0 21	2.37	42 3%	0.09	0.07	0.34
	6.46	1.84	0 06	0 09	0 10	1.89	33.7%	0.05	0.03	0 25
	6.51	1.30	0.02	0.04	0 02	1 32	23.6%	0.02	0.00	0.11

0.32 cfs - winter
out of range - summer

STREAM NAME: Yellow Creek
XS LOCATION. 1/8 downstream from confluence w/ Barcus
XS NUMBER. 1

SUMMARY SHEET

MEASURED FLOW (Qm)=	0.49	cfs
CALCULATED FLOW (Qc)=	0.47	cfs
(Qm-Qc)/Qm * 100 =	3.4	%
MEASURED WATERLINE (WLm)=	6.22	ft
CALCULATED WATERLINE (WLc)=	6 21	ft
(WLm-WLc)/WLm * 100 =	0 1	%
MAX MEASURED DEPTH (Dm)=	0.35	ft
MAX CALCULATED DEPTH (Dc)=	0.34	ft
(Dm-Dc)/Dm * 100	1.6	%
MEAN VELOCITY=	0 63	ft/sec
MANNING'S N=	0.087	
SLOPE=	0 01	ft/ft
.4 * Qm =	0.2	cfs
2.5 * Qm=	1.2	cfs

RECOMMENDED INSTREAM FLOW:

FLOW (CFS)	PERIOD

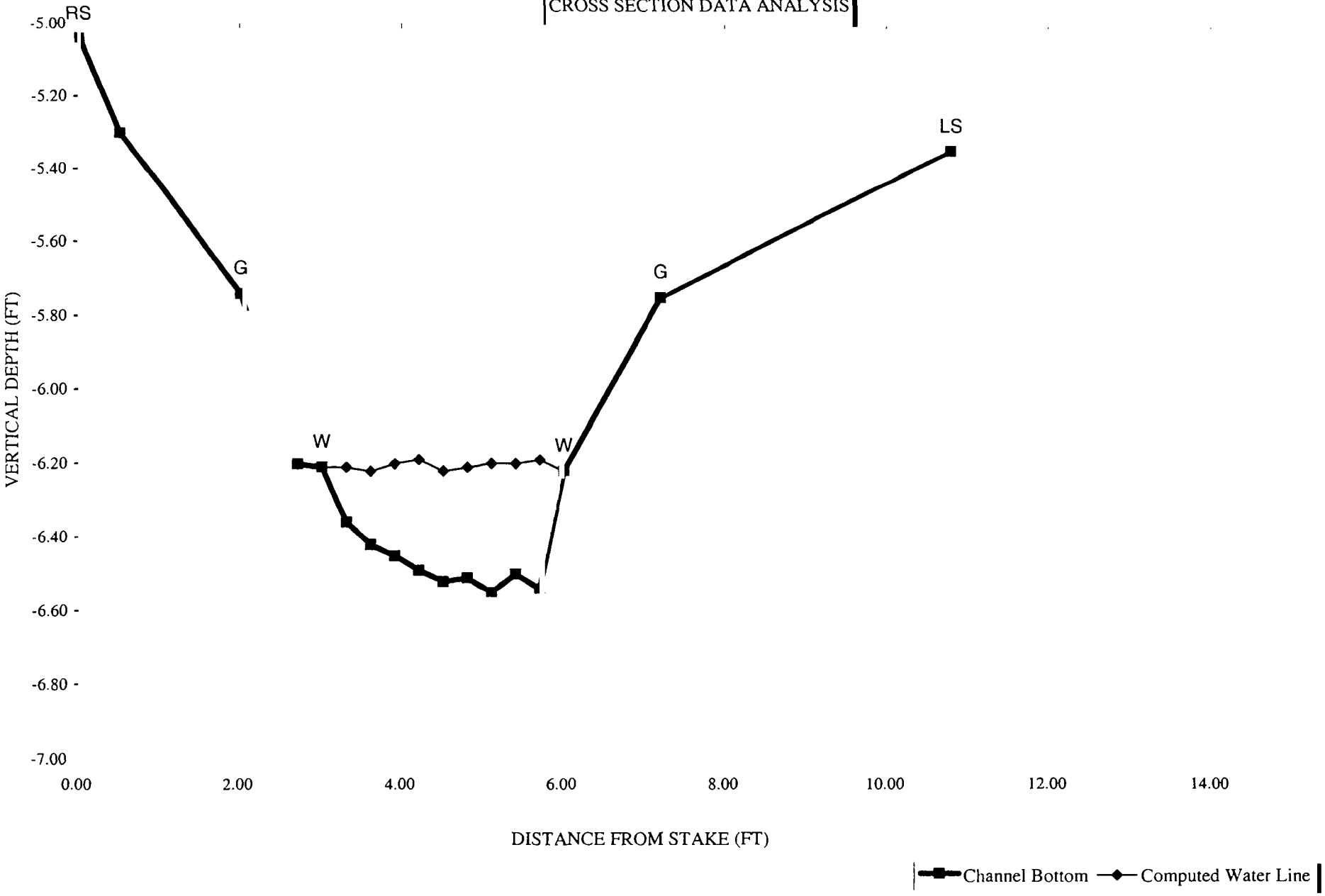
RATIONALE FOR RECOMMENDATION:

RECOMMENDATION BY: ..... AGENCY..... DATE:.....

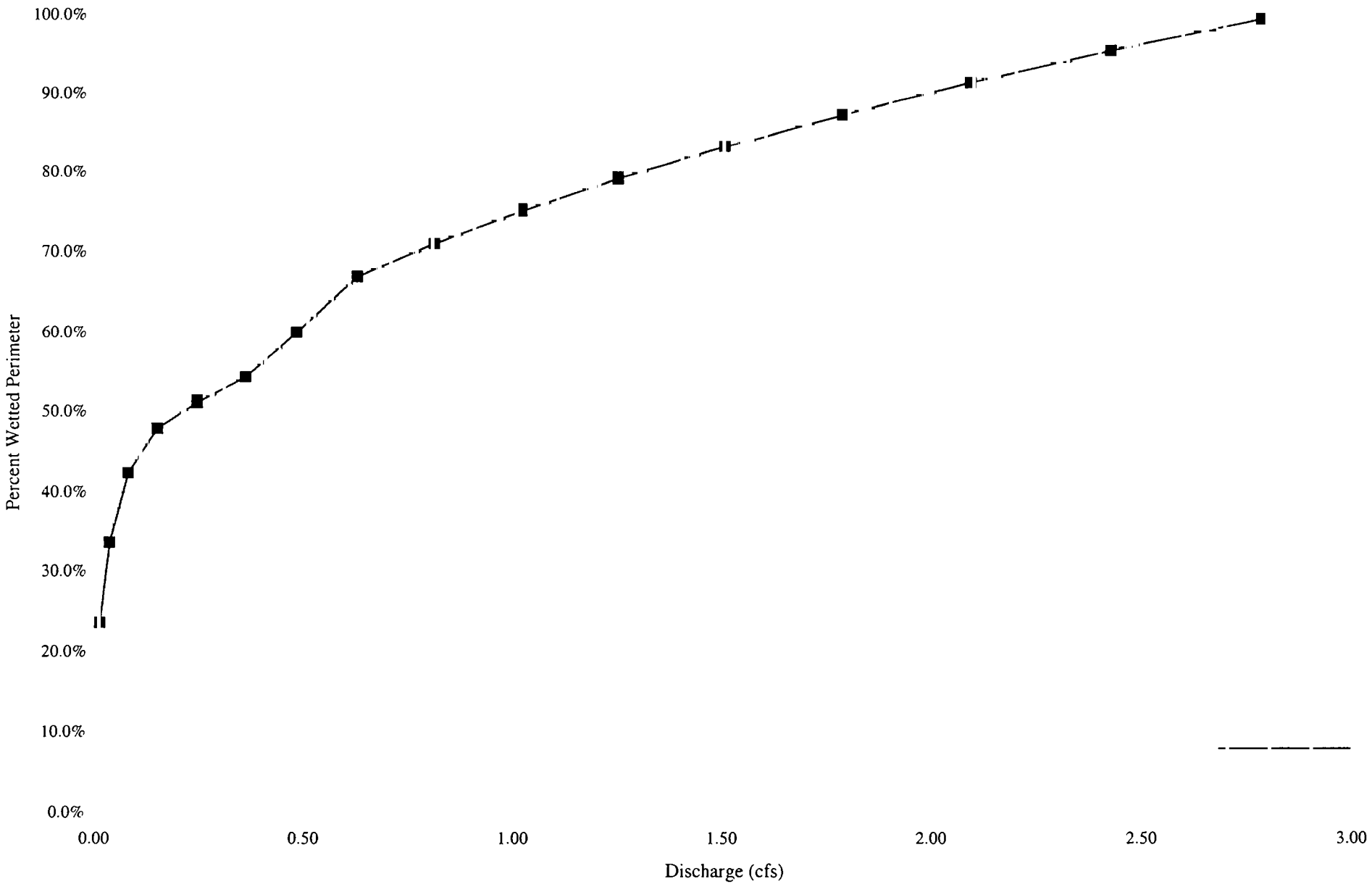
CWCB REVIEW BY. ..... DATE:.....

Yellow Creek

CROSS SECTION DATA ANALYSIS



Percent Wetted Perimeter vs. Discharge



COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Yellow Creek | CROSS-SECTION NO.: 03X-210S

CROSS-SECTION LOCATION: ≈ 1800 Ft u/s of confl w/ Barcus Creek

40 06 53.4 107 21 33.0

DATE: 6/21/05 | OBSERVERS: Vanderhoof / Bilger / Grass

LEGAL DESCRIPTION | ¼ SECTION: NW | SECTION: 26 | TOWNSHIP: 2 (N)S | RANGE: 98 E/(W) | PM: 6

COUNTY: Rio Blanco | WATERSHED: White | WATER DIVISION: 6 | DOW WATER CODE:

MAP(S): USGS: Barcus creek SE | USFS:

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES)/NO | METER TYPE: FLO-MATE

METER NUMBER: | DATE RATED: | CALIB/SPIN: ____ sec | TAPE WEIGHT: ____ lbs/foot | TAPE TENSION: ____ lbs

CHANNEL BED MATERIAL SIZE RANGE:

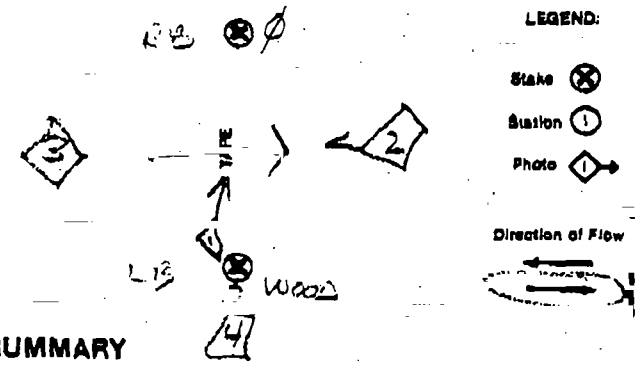
PHOTOGRAPHS TAKEN: (YES)/NO | NUMBER OF PHOTOGRAPHS: 4

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	4.80
⊗ Tape @ Stake RB	0.0	5.15
① WS @ Tape LB/RB	0.0	6.75/6.75
② WS Upstream	32	6.40
③ WS Downstream	50	7.05

SLOPE | .65/82 = .008

SKETCH



LEGEND: Stake ⊗ | Station ① | Photo ◇ | Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO | DISTANCE ELECTROFISHED: ____ ft | FISH CAUGHT: YES/NO | WATER CHEMISTRY SAMPLED: YES/NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:

COMMENTS

WOOD STAKE LB

GAGE 6/21/05 = Stage 4.93 Q = 1.4 CFS

FORM #ISC-FD 1-05

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Yellow Creek | CROSS-SECTION NO.: 03062105 | DATE: 6/21/05 | SHEET 1 OF 1

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (LEFT) RIGHT | Gage Reading: ____ ft | TIME: 15:30

Features (Stake (S), Grassline (G), Waterline (W), Rock (R))	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft²)	Discharge (cfs)
S	0		5.15								
	3.0		5.35								
	6.0		5.90								
	8.0		6.15								
	10.0		6.45								
	11.0		6.50								
G	11.5		6.35								
W	11.6		6.75	0	WO #6				0	0	0
	11.9		6.95	.20					.19	.06	.01
	12.2		7.15	.40					.38	.12	.05
	12.5		7.20	.45					.84	.14	.11
	12.8		7.15	.40					1.69	.12	.20
	13.1		7.25	.50					1.47	.15	.22
	13.4		7.25	.50					.70	.15	.11
	13.7		7.25	.50					.41	.15	.06
	14.0		7.35	.60					.13	.18	.02
	14.3		6.95	.20					0	.06	.00
	14.6		6.90	.10	↓				0	.03	.00
W	14.9		6.75	0					0	0	0
G L	15.6		6.15								
	16.5		5.85								
	17.5		5.55								
TOP BIN	19.0		4.50								
	19.6		4.80								

TOTALS: [redacted] .78

End of Measurement | Time: 15:40 | Gage Reading: ____ ft | CALCULATIONS PERFORMED BY: | CALCULATIONS CHECKED BY:

25242

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	Yellow Creek
XS LOCATION:	~ 1800' u/s of confl w/Barcus Creek
XS NUMBER:	3082106
DATE:	21-Jun-05
OBSERVERS:	Uppendahl, Graf & Diiger
1/4 SEC:	NW
SECTION:	26
TWP:	2 N
RANGE:	98 W
PM:	6
COUNTY:	RIO BLANCO
WATERSHED:	White River
DIVISION:	6
DOW CODE:	0
USGS MAP:	BARCUS CREEK SE
USFS MAP:	0

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION
at defaults for data collected
with a survey level and rod

TAPE WT:	0.0106
TENSION:	99999

CHANNEL PROFILE DATA

SLOPE: 0.00792863

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: .....DATE.....

STREAM NAME: Yellow Creek
X8 LOCATION: ~ 1600' u/s of confl w/Barcus Creek
X8 NUMBER: 3062105

DATA POINTS= 24

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
8	0.00	5.15			0.00		0.00	0.00	0.0%
	3.00	5.35			0.00		0.00	0.00	0.0%
	6.00	5.90			0.00		0.00	0.00	0.0%
	8.00	6.15			0.00		0.00	0.00	0.0%
	10.00	6.45			0.00		0.00	0.00	0.0%
	11.00	6.50			0.00		0.00	0.00	0.0%
1 G	11.50	6.35			0.00		0.00	0.00	0.0%
W	11.60	6.75	0.00	0.00	0.00		0.00	0.00	0.0%
	11.90	6.95	0.20	0.19	0.38	0.20	0.06	0.01	1.5%
	12.20	7.15	0.40	0.38	0.38	0.40	0.12	0.05	5.8%
	12.50	7.20	0.45	0.84	0.30	0.45	0.14	0.11	14.5%
	12.80	7.15	0.40	1.69	0.30	0.40	0.12	0.20	25.9%
	13.10	7.25	0.50	1.47	0.32	0.50	0.16	0.22	28.1%
	13.40	7.25	0.50	0.70	0.30	0.50	0.15	0.11	13.4%
	13.70	7.25	0.50	0.41	0.30	0.50	0.15	0.06	7.8%
	14.00	7.35	0.60	0.13	0.32	0.60	0.18	0.02	3.0%
	14.30	6.95	0.20	0.00	0.50	0.20	0.06	0.00	0.0%
	14.60	6.90	0.10	0.00	0.30	0.10	0.03	0.00	0.0%
W	14.90	6.75	0.00	0.00	0.34		0.00	0.00	0.0%
1 G	15.80	6.15			0.00		0.00	0.00	0.0%
	16.50	5.85			0.00		0.00	0.00	0.0%
	17.50	5.55			0.00		0.00	0.00	0.0%
TOP	19.00	4.50			0.00		0.00	0.00	0.0%
8	19.60	4.80			0.00		0.00	0.00	0.0%
TOTALS					3.70	0.6 (Max.)	1.16	0.78	100.0%

Manning's n = 0.0897
Hydraulic Radius= 0.312044904

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1800' u/s of confl w/Bercus Creek
XS NUMBER: 3082105

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	1.16	1.17	1.3%
6.50	1.16	2.04	76.6%
6.52	1.16	1.97	70.3%
6.54	1.16	1.89	64.0%
6.56	1.16	1.82	57.8%
6.58	1.16	1.75	51.6%
6.60	1.16	1.68	45.5%
6.62	1.16	1.61	39.5%
6.64	1.16	1.54	33.5%
6.66	1.16	1.47	27.5%
6.68	1.16	1.40	21.6%
6.70	1.16	1.34	15.7%
6.71	1.16	1.30	12.8%
6.72	1.16	1.27	9.9%
6.73	1.16	1.24	7.0%
6.74	1.16	1.20	4.2%
6.75	1.16	1.17	1.3%
6.76	1.16	1.14	-1.5%
6.77	1.16	1.10	-4.4%
6.78	1.16	1.07	-7.1%
6.79	1.16	1.04	-9.9%
6.80	1.16	1.01	-12.8%
6.82	1.16	0.95	-18.0%
6.84	1.16	0.89	-23.2%
6.86	1.16	0.83	-28.3%
6.88	1.16	0.77	-33.3%
6.90	1.16	0.71	-38.1%
6.92	1.16	0.66	-42.8%
6.94	1.16	0.61	-47.2%
6.96	1.16	0.56	-51.4%
6.98	1.16	0.51	-55.5%
7.00	1.16	0.47	-59.5%

WATERLINE AT ZERO AREA ERROR = 6.755

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1600' u/s of confl w/Barcus Creek
XS NUMBER: 3062105

Constant Manning's n

"GL" = lowest Grassline elevation corrected for sag
"WL" = Waterline corrected for variations in field measured water surface elevations and sag

STAGING TABLE

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
"GL"	6.35	6.03	0.46	1.00	2.80	6.93	100.0%	0.40	2.26	0.81
	6.35	5.98	0.46	1.00	2.77	6.87	99.2%	0.40	2.23	0.81
	6.40	5.41	0.46	0.95	2.49	6.23	89.9%	0.40	1.99	0.80
	6.45	4.78	0.47	0.90	2.23	5.53	79.8%	0.40	1.80	0.81
	6.50	3.55	0.55	0.85	2.02	4.33	62.5%	0.47	1.80	0.89
	6.55	3.58	0.51	0.80	1.84	4.20	60.7%	0.44	1.57	0.85
	6.60	3.51	0.47	0.75	1.66	4.07	58.8%	0.41	1.35	0.81
	6.65	3.44	0.43	0.70	1.49	3.95	57.0%	0.38	1.15	0.77
	6.70	3.36	0.39	0.65	1.32	3.82	55.1%	0.35	0.96	0.73
"WL"	6.75	3.28	0.35	0.60	1.15	3.69	53.2%	0.31	0.79	0.68
	6.80	3.11	0.32	0.55	1.00	3.48	50.3%	0.28	0.64	0.64
	6.85	2.93	0.29	0.50	0.84	3.28	47.3%	0.26	0.50	0.60
	6.90	2.74	0.26	0.45	0.70	3.06	44.2%	0.23	0.39	0.55
	6.95	2.39	0.24	0.40	0.57	2.88	38.6%	0.21	0.30	0.53
	7.00	2.28	0.20	0.35	0.46	2.53	36.6%	0.18	0.22	0.47
	7.05	2.16	0.16	0.30	0.35	2.38	34.4%	0.15	0.14	0.41
	7.10	2.05	0.12	0.25	0.24	2.23	32.2%	0.11	0.08	0.33
	7.15	1.88	0.08	0.20	0.14	2.01	29.1%	0.07	0.04	0.25
	7.20	1.15	0.06	0.15	0.07	1.24	17.9%	0.05	0.01	0.21
	7.25	0.38	0.05	0.10	0.02	0.42	6.1%	0.04	0.00	0.17
	7.30	0.17	0.02	0.05	0.00	0.20	2.9%	0.02	0.00	0.11

3/3 → ?
2/3 → 0.6
1/3 → 0.2

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1800' u/s of confl w/Barcus Creek
XS NUMBER: 3052105

SUMMARY SHEET

MEASURED FLOW (Qm)=	0.76	cfs
CALCULATED FLOW (Qc)=	0.79	cfs
(Qm-Qc)/Qm * 100 =	-0.3	%
MEASURED WATERLINE (WLm)=	6.75	ft
CALCULATED WATERLINE (WLc)=	6.75	ft
(WLm-WLc)/WLm * 100 =	-0.1	%
MAX MEASURED DEPTH (Dm)=	0.60	ft
MAX CALCULATED DEPTH (Dc)=	0.60	ft
(Dm-Dc)/Dm * 100	0.8	%
MEAN VELOCITY=	0.68	ft/sec
MANNING'S N=	0.090	
SLOPE=	0.00792683	ft/ft
.4 * Qm =	0.3	cfs
2.5 * Qm=	2.0	cfs

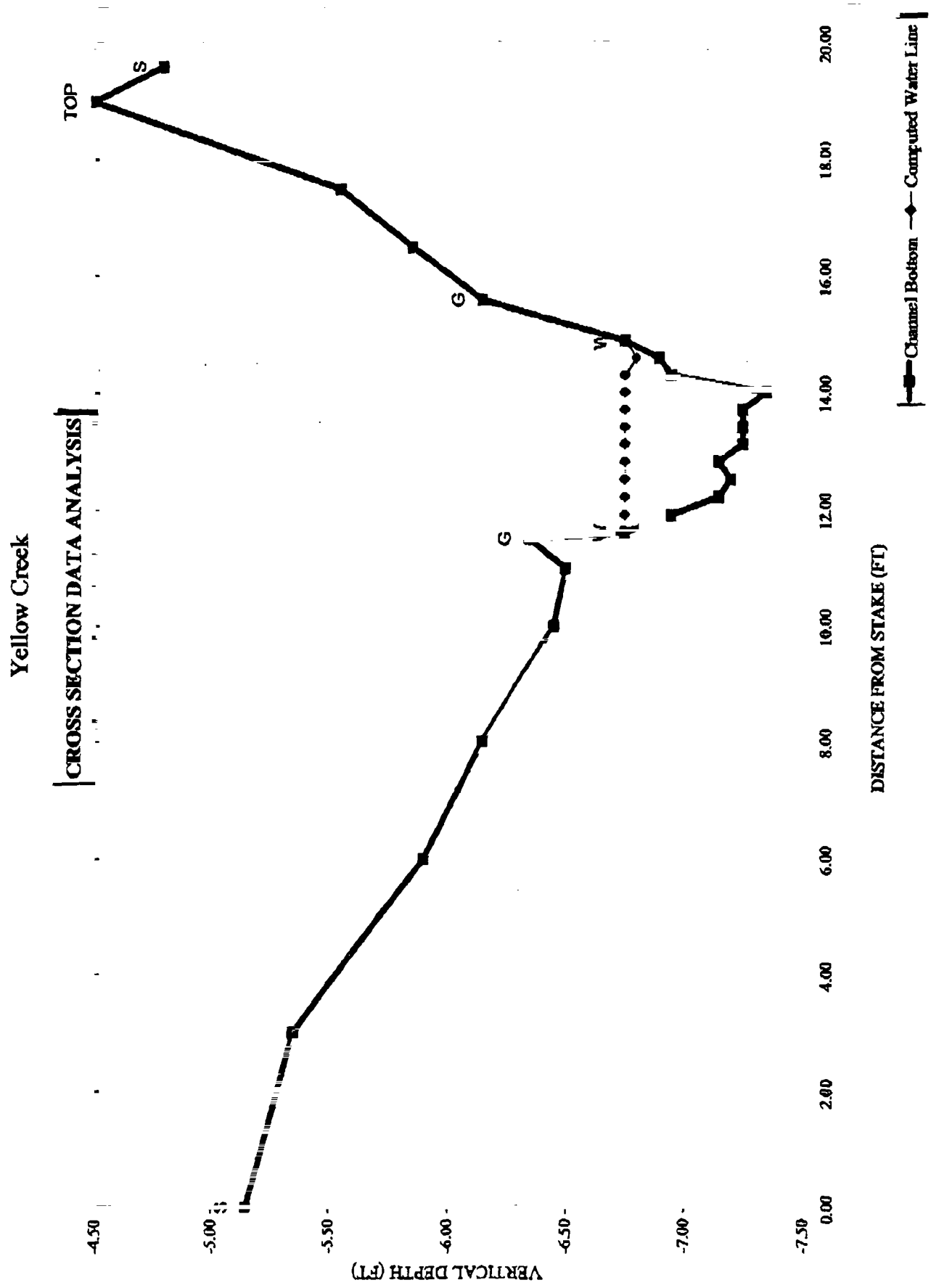
RECOMMENDED INSTREAM FLOW:

FLOW (CFS)	PERIOD

RATIONALE FOR RECOMMENDATION:

RECOMMENDATION BY: ..... AGENCY..... DATE:.....

CWCB REVIEW BY: ..... DATE:.....


Yellow Creek
CROSS SECTION DATA ANALYSIS
TOP
S
G
W
G
W
VERTICAL DEPTH (FT)
-4.50
-5.00
-5.50
-6.00
-6.50
-7.00
-7.50
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
DISTANCE FROM STAKE (FT)
Channel Bottom
Computed Water Line

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1800' u/s of confl w/Barcus Creek
XS NUMBER: 3082105

Thorne-Zevenbergen D84 Correction Applied
Estimated D84 = 0.58

STAGING TABLE
"GL" = lowest Grassline elevation corrected for sag
"WL" = Waterline corrected for variations in field measured water surface elevations and sag

Velocity based on test of R/D84>1

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
"GL"	6.35	6.03	0.46	1.00	2.80	6.93	100.0%	0.40	2.95	1.05
	6.35	5.95	0.46	1.00	2.77	6.87	99.2%	0.40	2.91	1.05
	6.40	5.41	0.46	0.95	2.49	6.23	89.9%	0.40	2.60	1.04
	6.45	4.78	0.47	0.90	2.23	5.53	79.8%	0.40	2.42	1.08
	6.50	3.65	0.55	0.85	2.02	4.33	62.5%	0.47	3.14	1.55
	6.55	3.68	0.51	0.80	1.84	4.20	60.7%	0.44	2.49	1.35
	6.60	3.51	0.47	0.75	1.66	4.07	58.8%	0.41	1.93	1.16
	6.65	3.44	0.43	0.70	1.49	3.95	57.0%	0.38	1.47	0.99
	6.70	3.36	0.39	0.65	1.32	3.82	55.1%	0.35	1.09	0.83
"WL"	6.75	3.28	0.35	0.60	1.15	3.68	53.2%	0.31	0.79	0.68
	6.80	3.11	0.32	0.55	1.00	3.48	50.3%	0.29	0.57	0.57
	6.85	2.93	0.29	0.50	0.84	3.28	47.3%	0.26	0.40	0.47
	6.90	2.74	0.26	0.45	0.70	3.06	44.2%	0.23	0.27	0.38
	6.95	2.39	0.24	0.40	0.57	2.69	38.8%	0.21	0.19	0.33
	7.00	2.28	0.20	0.35	0.46	2.53	36.6%	0.18	0.11	0.25
	7.05	2.18	0.16	0.30	0.35	2.38	34.4%	0.15	0.06	0.18
	7.10	2.05	0.12	0.25	0.24	2.23	32.2%	0.11	0.03	0.12
	7.15	1.88	0.08	0.20	0.14	2.01	29.1%	0.07	0.01	0.07
	7.20	1.15	0.08	0.15	0.07	1.24	17.9%	0.05	0.00	0.04
	7.25	0.38	0.05	0.10	0.02	0.42	6.1%	0.04	0.00	0.01
	7.30	0.17	0.02	0.05	0.00	0.20	2.9%	0.02	0.00	0.00

3/3 = 1.5
2/3 = 0.6
1/3 = 0.1

Data Input & Proofing

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1600' U/S of confl w/Barcus Creek
XS NUMBER: 3062105
DATE: 6/21/2005
OBSERVERS: Uppendahl, Graf & Diiger

1/4 SEC: NW
SECTION: 26
TWP: 2 N
RANGE: 98 W
PM: 6

COUNTY: RIO BLANCO
WATERSHED: White River
DIVISION: 6
DOW CODE:
USGS MAP: BARCUS CREEK SE
USFS MAP:

Level and Rod Survey
TAPE WT: 10.0106 lbs / ft
TENSION: 999999 lbs

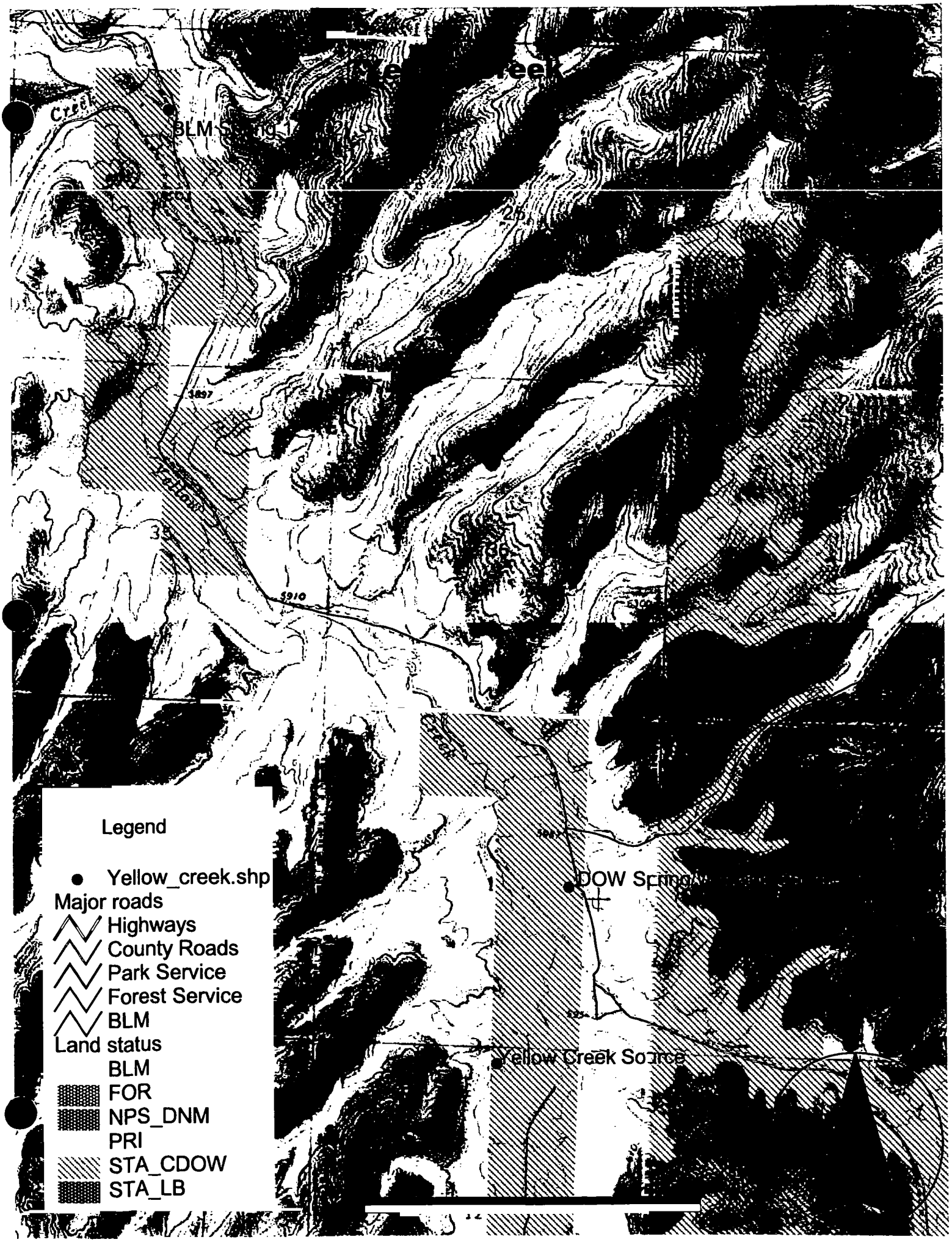
SLOPE: 0.007926829 ft / ft

CHECKED BY:.....DATE.....

ASSIGNED TO: .....DATE.....

Total Data Points = 24

GL=1	FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	A	Q	Tape to Water
	S	0.00	5.16			0.00	0.00	0.00
		3.00	5.35			0.00	0.00	0.00
		6.00	6.15			0.00	0.00	0.00
		8.00	6.80			0.00	0.00	0.00
		10.00	6.45			0.00	0.00	0.00
		11.00	6.50			0.00	0.00	0.00
1	G	11.50	6.35			0.00	0.00	0.00
	W	11.60	6.75	0.00	0.00	0.00	0.00	0.00
		11.90	6.95	0.20	0.19	0.06	0.01	6.75
		12.20	7.15	0.40	0.38	0.12	0.05	6.75
		12.50	7.20	0.45	0.84	0.14	0.11	6.75
		12.80	7.15	0.40	1.69	0.12	0.20	6.75
		13.10	7.25	0.50	1.47	0.15	0.22	6.75
		13.40	7.25	0.50	0.70	0.15	0.11	6.75
		13.70	7.25	0.50	0.41	0.15	0.06	6.75
		14.00	7.35	0.60	0.13	0.18	0.02	6.75
		14.30	6.95	0.20	0.00	0.06	0.00	6.75
		14.60	6.90	0.10	0.00	0.03	0.00	6.80
	W	14.90	6.75	0.00	0.00	0.00	0.00	0.00
1	G	15.60	6.15			0.00	0.00	0.00
		16.50	5.85			0.00	0.00	0.00
		17.50	5.55			0.00	0.00	0.00
	TOP	19.00	4.50			0.00	0.00	0.00
	S	19.60	4.80			0.00	0.00	0.00
					totals	1.151	0.75	


Legend
Yellow_creek.shp
Major roads
Highways
County Roads
Park Service
Forest Service
BLM
Land status
BLM
FOR
NPS_DNM
PRI
STA_CDOW
STA_LB
DOW Spring
Yellow Creek Source
BLM Spring 1
Yellow
5910
3897

Spring 146.02:

UTM: 213,728.13; 4,445,907.70
T2N, R98W, Sec. 26 SE NE NW

DOW Spring/Wetland Source:

UTM: 215,626.16; 4,442,178.07
T1N, R98W, Sec. 1 SE SW NE
829m from the north section line and 440m from the east section line

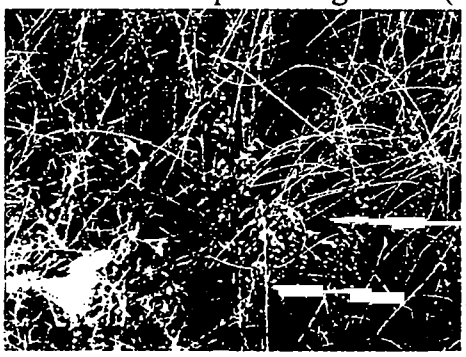
Yellow Creek Source:

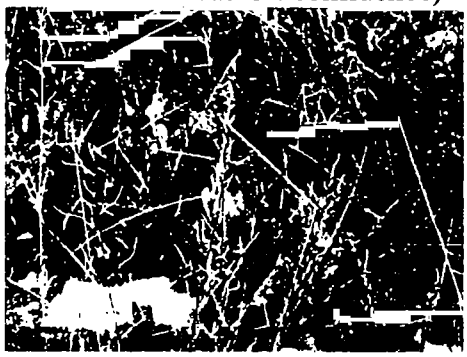
UTM: 215,275.02; 4,441,342.93
T1N, R98W, Sec. 12 NW NE
76m from the north section line and 879m from the west section line

Yellow Creek photo points (1/10/06)

Photo #1: Yellow Cr. below Barcus Cr. (~50m) at knick point (SS outcrop)

Photo #2-4: Riparian vegetation (~50m below Barcus Cr. confluence)





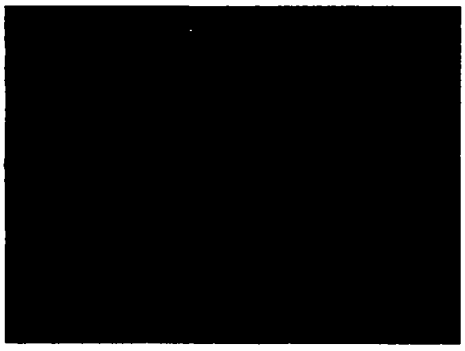


Photo #5, 6: Yellow Cr. at Barcus Cr. confluence looking US and DS

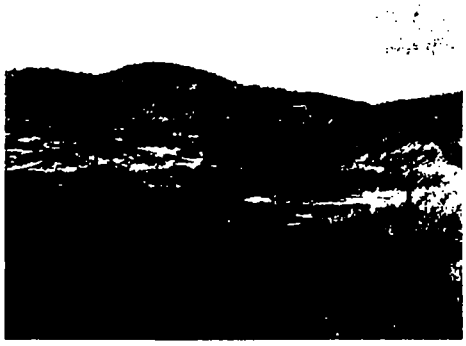


Photo #7: BLM Spring 146.02 (looking at right bank)

Photo #8, 9: At DOW spring/wetland area (GPS way point. DOWSP) notice grazing impacts

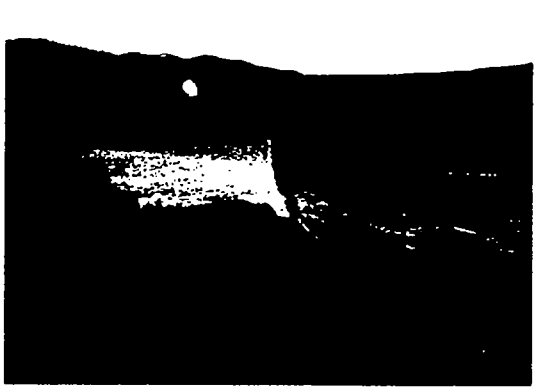


Photo #10: Salt accumulation at DOW spring/wetland area

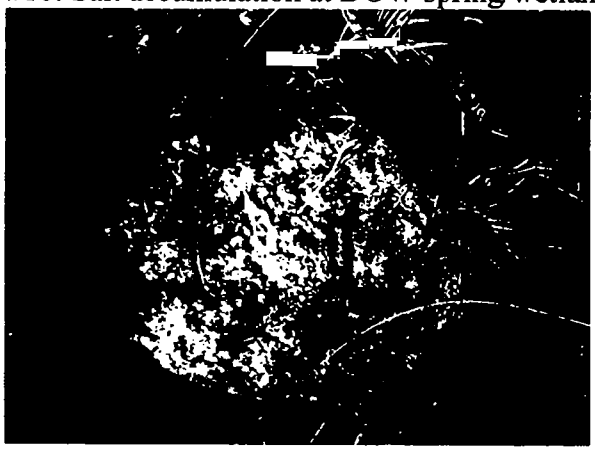


Photo #11-13: Beaver activity near DOWSP (wetland)

Photo #14: Looking west over DOW wetland area

Photo #15: Yellow Creek source area looking US at source

Photo #16: Yellow Creek source area looking DS from source

Photo #17-19: Yellow Creek source area Riparian community

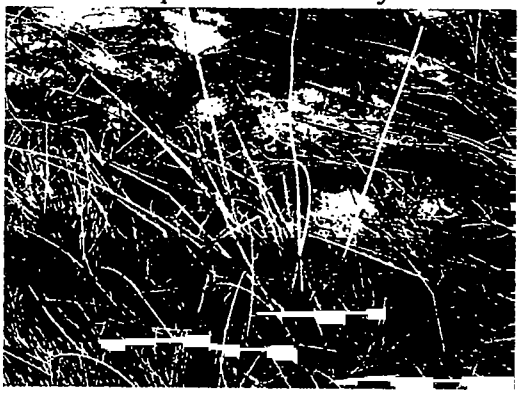


Photo #20: Beaver activity ~100m below source

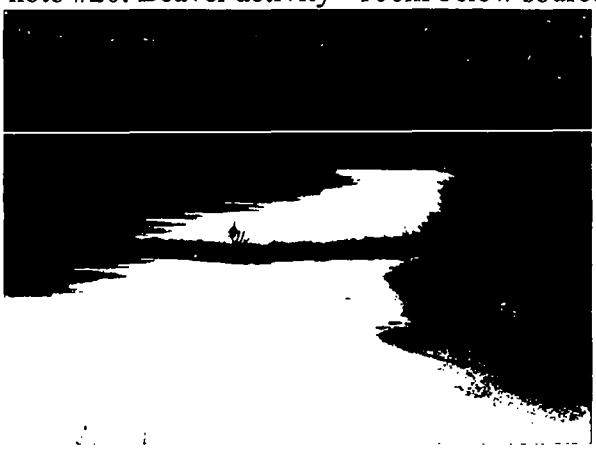


Photo #21: Start of beaver dam complex ~50m below source

STATE OF COLORADO

Bill Owens, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
AN EQUAL OPPORTUNITY EMPLOYER

Bruce McCloskey, Director
6060 Broadway
Denver, Colorado 80216
Telephone: (303) 297-1192

For Wildlife-
For People

DRAFT

February 14, 2006

Mr. Dan Merriman and Mr. Todd Doherty
Colorado Water Conservation Board
Stream and Lake Protection Section
1313 Sherman Street, Room 723
Denver, Colorado 80203

Re: Colorado Division of Wildlife Instream Flow Recommendation for Yellow Creek.

Dear Dan and Todd,

The purpose of this letter is to officially transmit the Colorado Division of Wildlife's (DOW) Instream Flow Recommendation for Yellow Creek in Rio Blanco County.

Location and Land Status
The reach of stream covered by this flow recommendation is from the springs located upstream of Barcus Creek in Section 12 T1N R98W and extending to the confluence with the White River, a distance of approximately 11 miles. Yellow Creek is located approximately 27 miles west of the Town of Meeker. The DOW and the Bureau of Land Management (BLM) manage almost all of the 11 stream miles covered by this instream flow recommendation.

Biological Summary
The DOW and BLM have jointly collected stream cross section information, natural environment data, and other data needed to quantify the instream flow needs for this reach of Yellow Creek. Yellow Creek is classified as a minor stream (between 4 to 9 feet wide) and fishery surveys indicate the stream environment of Yellow Creek supports Mountain sucker (*Catostomus platyrhynchus*), White sucker (*Catostomus commersoni*), and Speckled dace (*Rhinichthys osculus*).

Mountain suckers have been identified by the DOW, BLM and several other state and federal agencies as "species of greatest conservation need". DOW is involved in developing Conservation and Management Plans for this species. The intention of these plans is to increase populations and distributions of identified species, thereby assisting in the long-term persistence of each species. The success of such plans could

potentially curtail the need for federal listing of these species under the Endangered Species Act (ESA). These species are not currently federally listed.

R2CROSS Analysis

The stream cross section data was analyzed using the R2CROSS program. The R2CROSS output was evaluated using the methods described in Nehring (1979) and Espegren (1996). The CDOW has reviewed the data collected to date and based on that review recommends that the CWCB appropriated the following flow amounts to preserve the natural environment of Yellow Creek to a reasonable degree:

- 0.45 cubic feet per second is recommended year-round. This flow is required to maintain two principal hydraulic criteria of average depth and percent wetted perimeter.

The above recommended flow is intended to provide adequate habitat for Mountain suckers which inhabit small to medium streams and rivers with gravel, sand and mud bottoms. Mountain suckers are found in areas of undercut banks, eddies, small pools and in areas of moderate current (NDIS).

Preliminary Water Availability Analysis

The drainage area of Yellow Creek at the confluence with the White River is approximately 262 square miles. There are several decreed absolute and conditional water rights located upstream of the proposed instream flow reach. However, the Yellow Creek USGS gage near White River (ID# 09306255) indicates water is available for appropriation in this reach of stream. The average daily flow value for each month for the period of record between 1972 through 2004 is displayed below:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2.6	4.3	4.6	3.3	4.2	3.4	3.1	2.5	3.2	2.7	3.0	2.7

Basis for Instream Flow Recommendation

The DOW is forwarding this stream flow recommendation to the CWCB to meet the State of Colorado's policy "... that the wildlife and their environment are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of this state and its visitors ... and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities" C.R.S. §33-1-101 (1). The DOW Strategic Plan states "Healthy aquatic environments are essential to maintain healthy and viable fisheries, and critical for self-sustaining populations. The Division desires to protect and enhance the quality and quantity of aquatic habitats."

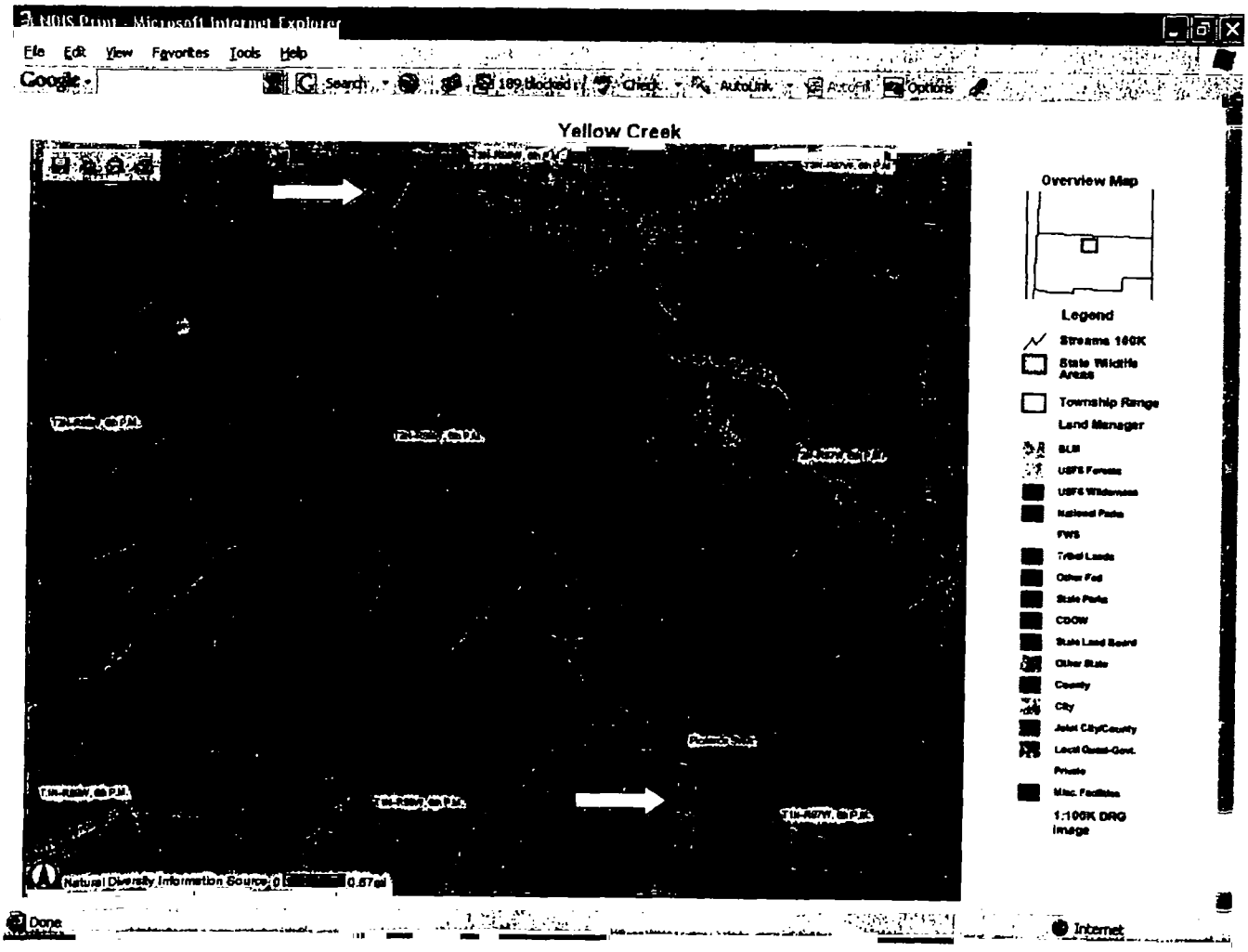
Please find attached, copies of the field data sheets, the R2CROSS modeling runs, fishery survey information and stream photographs. If you have any questions regarding the attached information or the instream flow recommendations, please feel free to contact me at (303)-291-7267.

Sincerely,

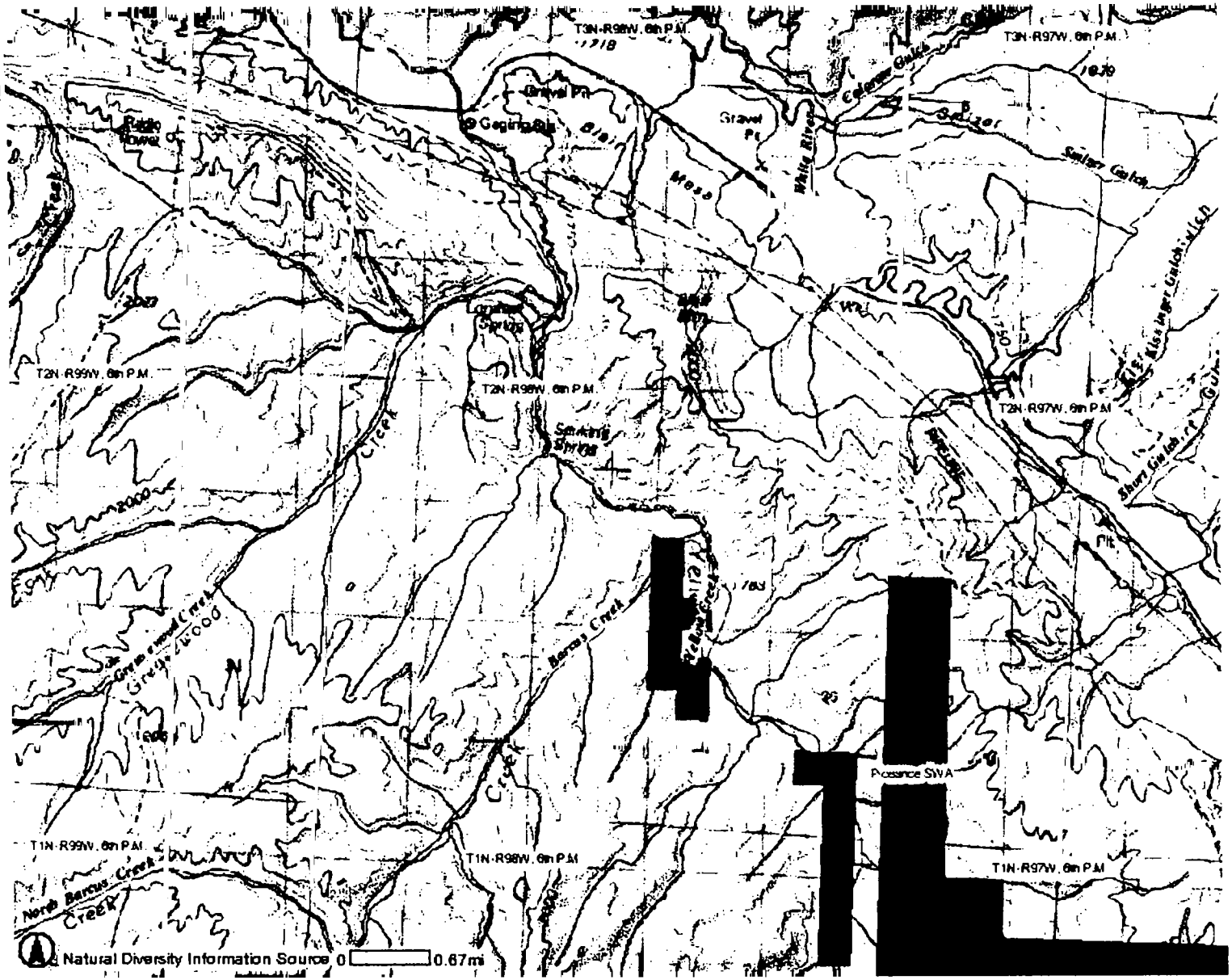
DRAFT

Mark Uppendahl
Colorado Division of Wildlife
Instream Flow Program Coordinator

Cc: Jay Skinner, CDOW Water Unit Program Manager – w/o attachments
Sherman Hebein, CDOW Senior Fish Biologist – West Regions – w/o attachments
Bill Elmblad, CDOW Aquatic Biologist – w/o attachments
Lori Martin, CDOW Aquatic Biologist - w/o attachments
Bill de Vergie, CDOW AWM Area 6 – w/o attachments



Yellow Creek



Overview Map

Legend

- Streams 100K
- State Wildlife Areas
- Township Range

Land Manager

- BLM
- USFS Forests
- USFS Wilderness
- National Parks
- FWS
- Tribal Lands
- Other Fed
- State Parks
- CDOW
- State Land Board
- Other State
- County
- City
- Joint City/County
- Local Quasi-Govt
- Private
- Misc. Facilities

1:100K DRG Image

February 16th, 2006 09:35 am **DISCLAIMER: This map is intended for display purposes only and is not intended for any legal representations.**

25242

COLORADO WATER CONSERVATION BOARD
INSTREAM FLOW / NATURAL LAKE LEVEL PROGRAM
STREAM CROSS-SECTION AND FLOW ANALYSIS

LOCATION INFORMATION

STREAM NAME:	Yellow Creek
XS LOCATION:	~ 1800' u/s of confl w/Barcus Creek
XS NUMBER:	3062105
DATE:	21-Jun-05
OBSERVERS:	Uppendahl, Graf & Dilger
1/4 SEC:	NW
SECTION:	26
TWP:	2 N
RANGE:	98 W
PM:	6
COUNTY:	RIO BLANCO
WATERSHED:	White River
DIVISION:	6
DOW CODE:	0
USGS MAP:	BARCUS CREEK SE
USFS MAP:	0

SUPPLEMENTAL DATA

*** NOTE ***
Leave TAPE WT and TENSION at defaults for data collected with a survey level and rod

TAPE WT:	0.0106
TENSION:	99999

CHANNEL PROFILE DATA

SLOPE:	0.00792683

INPUT DATA CHECKED BY: .....DATE.....

ASSIGNED TO: .....DATE.....

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1800' u/s of confl w/Barcus Creek
XS NUMBER: 3062105

DATA POINTS= 24

VALUES COMPUTED FROM RAW FIELD DATA

FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	WETTED PERIM.	WATER DEPTH	AREA (Am)	Q (Qm)	% Q CELL
S	0.00	5.15			0.00		0.00	0.00	0.0%
	3.00	5.35			0.00		0.00	0.00	0.0%
	6.00	5.90			0.00		0.00	0.00	0.0%
	8.00	6.15			0.00		0.00	0.00	0.0%
	10.00	6.45			0.00		0.00	0.00	0.0%
	11.00	6.50			0.00		0.00	0.00	0.0%
1 G	11.50	6.35			0.00		0.00	0.00	0.0%
W	11.60	6.75	0.00	0.00	0.00		0.00	0.00	0.0%
	11.90	6.95	0.20	0.19	0.36	0.20	0.06	0.01	1.5%
	12.20	7.15	0.40	0.38	0.36	0.40	0.12	0.05	5.8%
	12.50	7.20	0.45	0.84	0.30	0.45	0.14	0.11	14.5%
	12.80	7.15	0.40	1.69	0.30	0.40	0.12	0.20	25.9%
	13.10	7.25	0.50	1.47	0.32	0.50	0.15	0.22	28.1%
	13.40	7.25	0.50	0.70	0.30	0.50	0.15	0.11	13.4%
	13.70	7.25	0.50	0.41	0.30	0.50	0.15	0.06	7.8%
	14.00	7.35	0.60	0.13	0.32	0.60	0.18	0.02	3.0%
	14.30	6.95	0.20	0.00	0.50	0.20	0.06	0.00	0.0%
	14.60	6.90	0.10	0.00	0.30	0.10	0.03	0.00	0.0%
W	14.90	6.75	0.00	0.00	0.34		0.00	0.00	0.0%
1 G	15.60	6.15			0.00		0.00	0.00	0.0%
	16.50	5.85			0.00		0.00	0.00	0.0%
	17.50	5.55			0.00		0.00	0.00	0.0%
TOP	19.00	4.50			0.00		0.00	0.00	0.0%
S	19.60	4.80			0.00		0.00	0.00	0.0%
TOTALS					3.70	0.6 (Max.)	1.16	0.78	100.0%

Manning's n = 0.0897
Hydraulic Radius= 0.312044904

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1800' u/s of confl w/Barcus Creek
XS NUMBER: 3062105

WATER LINE COMPARISON TABLE

WATER LINE	MEAS AREA	COMP AREA	AREA ERROR
	1.16	1.17	1.3%
6.50	1.16	2.04	76.6%
6.52	1.16	1.97	70.3%
6.54	1.16	1.89	64.0%
6.56	1.16	1.82	57.8%
6.58	1.16	1.75	51.6%
6.60	1.16	1.68	45.5%
6.62	1.16	1.61	39.5%
6.64	1.16	1.54	33.5%
6.66	1.16	1.47	27.5%
6.68	1.16	1.40	21.6%
6.70	1.16	1.34	15.7%
6.71	1.16	1.30	12.8%
6.72	1.16	1.27	9.9%
6.73	1.16	1.24	7.0%
6.74	1.16	1.20	4.2%
6.75	1.16	1.17	1.3%
6.76	1.16	1.14	-1.5%
6.77	1.16	1.10	-4.4%
6.78	1.16	1.07	-7.1%
6.79	1.16	1.04	-9.9%
6.80	1.16	1.01	-12.6%
6.82	1.16	0.95	-18.0%
6.84	1.16	0.89	-23.2%
6.86	1.16	0.83	-28.3%
6.88	1.16	0.77	-33.3%
6.90	1.16	0.71	-38.1%
6.92	1.16	0.66	-42.8%
6.94	1.16	0.61	-47.2%
6.96	1.16	0.56	-51.4%
6.98	1.16	0.51	-55.5%
7.00	1.16	0.47	-59.5%

WATERLINE AT ZERO
AREA ERROR = 6.755

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1800' u/s of confl w/Barcus Creek
XS NUMBER: 3062105

Constant Manning's n

STAGING TABLE

GL = lowest Grassline elevation corrected for sag
WL = Waterline corrected for variations in field measured water surface elevations and sag

	DIST TO WATER (FT)	TOP WIDTH (FT)	AVG. DEPTH (FT)	MAX. DEPTH (FT)	AREA (SQ FT)	WETTED PERIM. (FT)	PERCENT WET PERIM (%)	HYDR RADIUS (FT)	FLOW (CFS)	AVG. VELOCITY (FT/SEC)
GL	6.35	6.03	0.46	1.00	2.80	6.93	100.0%	0.40	2.26	0 81
	6.35	5.98	0.46	1.00	2.77	6.87	99.2%	0.40	2.23	0.81
	6.40	5.41	0.46	0.95	2.49	6.23	89.9%	0.40	1.99	0.80
	6.45	4.78	0.47	0.90	2.23	5.53	79.8%	0.40	1.80	0.81
	6 50	3.65	0.55	0.85	2.02	4.33	62.5%	0.47	1 80	0 89
	6.55	3.58	0 51	0.80	1.84	4.20	60.7%	0.44	1.57	0.85
	6.60	3.51	0.47	0.75	1.66	4.07	58.8%	0.41	1.35	0 81
	6.65	3.44	0.43	0.70	1.49	3.95	57.0%	0.38	1.15	0.77
	6.70	3.36	0.39	0 65	1.32	3.82	55.1%	0.35	0 96	0.73
WL	6.75	3.28	0.35	0.60	1.15	3.68	53.2%	0.31	0.79	0.68
	6.80	3.11	0.32	0 55	1.00	3.48	50.3%	0.29	0.64	0.64
	6 85	2.93	0 29	0.50	0.84	3.28	47.3%	0.26	0.50	0.60
	6.90	2.74	0.26	0.45	0.70	3.06	44.2%	0.23	0.39	0.55
	6.95	2.39	0.24	0.40	0.57	2.69	38.8%	0.21	0.30	0.53
	7.00	2.28	0.20	0.35	0.46	2.53	36.6%	0.18	0.22	0.47
	7.05	2.16	0.16	0.30	0.35	2.38	34.4%	0.15	0.14	0.41
	7.10	2.05	0.12	0.25	0.24	2.23	32.2%	0.11	0.08	0.33
	7.15	1 88	0.08	0.20	0.14	2.01	29.1%	0.07	0.04	0.25
	7.20	1.15	0.06	0.15	0.07	1.24	17.9%	0.05	0.01	0.21
	7.25	0.36	0 05	0.10	0.02	0.42	6.1%	0.04	0.00	0.17
	7.30	0.17	0.02	0.05	0.00	0.20	2.9%	0.02	0.00	0.11

3/3 → ?
2/3 → 0.6
1/3 → 0.2

STREAM NAME: Yellow Creek
XS LOCATION: ~ 1800' u/s of confl w/Barcus Creek
XS NUMBER: 3062105

SUMMARY SHEET

MEASURED FLOW (Qm)=	0.78	cfs
CALCULATED FLOW (Qc)=	0.79	cfs
(Qm-Qc)/Qm * 100 =	-0.3	%
MEASURED WATERLINE (WLm)=	6.75	ft
CALCULATED WATERLINE (WLc)=	6.75	ft
(WLm-WLc)/WLm * 100 =	-0.1	%
MAX MEASURED DEPTH (Dm)=	0.60	ft
MAX CALCULATED DEPTH (Dc)=	0.60	ft
(Dm-Dc)/Dm * 100	0.8	%
MEAN VELOCITY=	0.68	ft/sec
MANNING'S N=	0.090	
SLOPE=	0.00792683	ft/ft
.4 * Qm =	0.3	cfs
2.5 * Qm=	2.0	cfs

RECOMMENDED INSTREAM FLOW:
==========

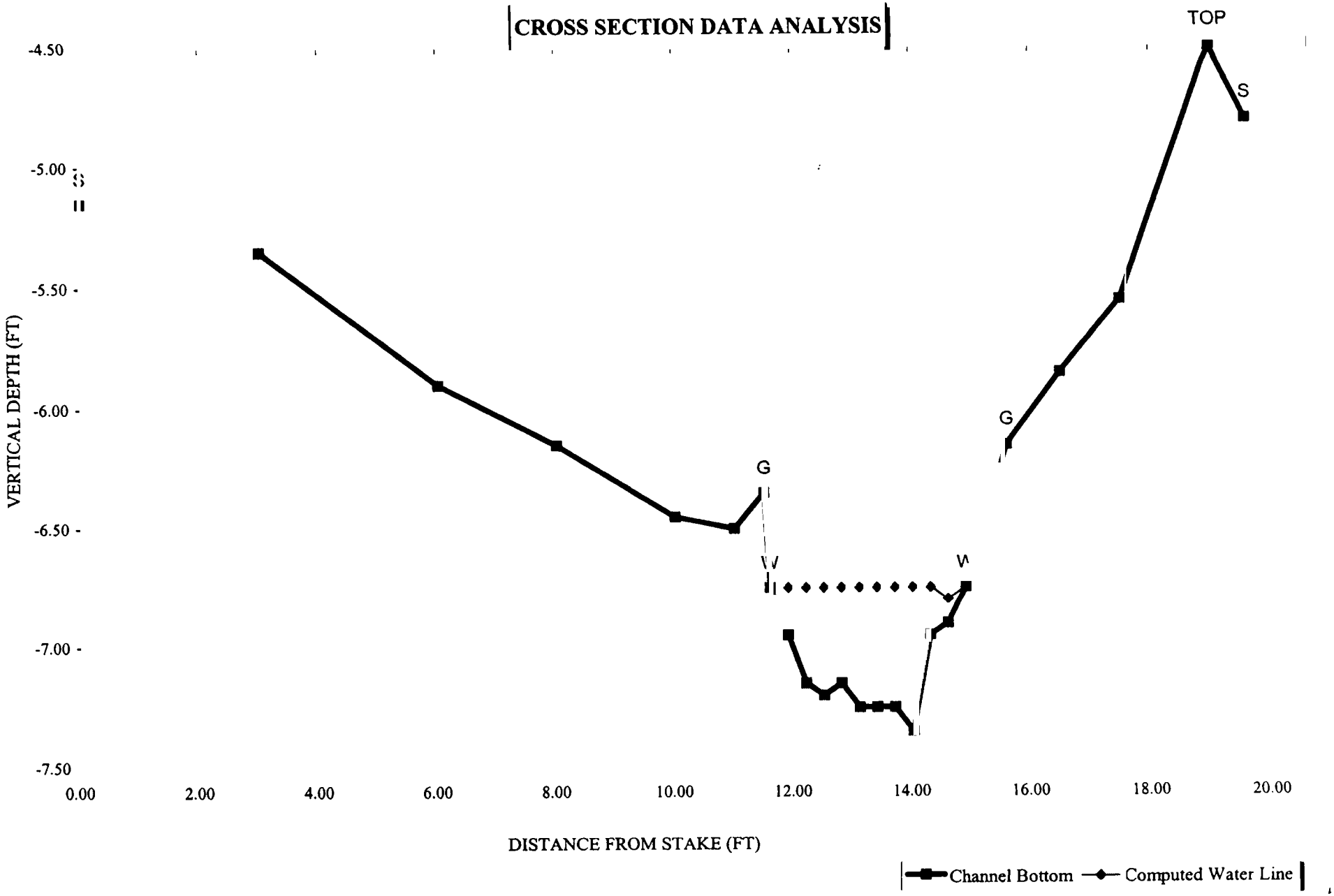
FLOW (CFS)	PERIOD
==========	========

RATIONALE FOR RECOMMENDATION:
==========

RECOMMENDATION BY: ..... AGENCY..... DATE:.....

CWCB REVIEW BY: ..... DATE:.....

Yellow Creek



Data Input & Proofing

STREAM NAME: |Yellow Creek
XS LOCATION: |~ 1800' u/s of confl w/Barcus Creek
XS NUMBER: |3062105
DATE: |6/21/2005
OBSERVERS: |Uppendahl, Graf & Dilger

1/4 SEC: |NW
SECTION: |26
TWP: |2 N
RANGE: |98 W
PM: |6

COUNTY: |RIO BLANCO
WATERSHED: |White River
DIVISION: |6
DOW CODE: |
USGS MAP: |BARCUS CREEK SE
USFS MAP: |

TAPE WT: |0.0106 lbs / ft
TENSION: |99999 lbs

SLOPE: | 0.007926829 ft / ft

CHECKED BY:.....DATE.....

ASSIGNED TO: .....DATE.....

Level and Rod Survey

Total Data Points = 24

GL=1	FEATURE	DIST	VERT DEPTH	WATER DEPTH	VEL	A	Q	Tape to Water
	S	0.00	5.15			0.00	0.00	0.00
		3.00	5.35			0.00	0.00	0.00
		6.00	5.90			0.00	0.00	0.00
		8.00	6.15			0.00	0.00	0.00
		10.00	6.45			0.00	0.00	0.00
		11.00	6.50			0.00	0.00	0.00
1	G	11.50	6.35			0.00	0.00	0.00
	W	11.60	6.75	0.00	0.00	0.00	0.00	0.00
		11.90	6.95	0.20	0.19	0.06	0.01	6.75
		12.20	7.15	0.40	0.38	0.12	0.05	6.75
		12.50	7.20	0.45	0.84	0.14	0.11	6.75
		12.80	7.15	0.40	1.69	0.12	0.20	6.75
		13.10	7.25	0.50	1.47	0.15	0.22	6.75
		13.40	7.25	0.50	0.70	0.15	0.11	6.75
		13.70	7.25	0.50	0.41	0.15	0.06	6.75
		14.00	7.35	0.60	0.13	0.18	0.02	6.75
		14.30	6.95	0.20	0.00	0.06	0.00	6.75
		14.60	6.90	0.10	0.00	0.03	0.00	6.80
	W	14.90	6.75	0.00	0.00	0.00	0.00	0.00
1	G	15.60	6.15			0.00	0.00	0.00
		16.50	5.85			0.00	0.00	0.00
		17.50	5.55			0.00	0.00	0.00
	TOP	19.00	4.50			0.00	0.00	0.00
	S	19.60	4.80			0.00	0.00	0.00
					Totals	1.16	0.78	

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Yellow Creek

CROSS-SECTION NO.: 03062105

CROSS-SECTION LOCATION: ≈ 1800 Ft u/s of conf w/ Barcus Creek

40 06 53.4 108 21 33.0

DATE: 6/21/05 | OBSERVERS: Woodward / Alger / Graf

LEGAL DESCRIPTION | ¼ SECTION: NW | SECTION: 26 | TOWNSHIP: 2 (N)/S | RANGE: 98 E/(W) | PM: 6

COUNTY: Rio Blanco | WATERSHED: White | WATER DIVISION: 6 | DOW WATER CODE:

MAP(S): USGS: Barcus Creek SE | USFS:

SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: (YES) NO | METER TYPE: FLO-MATE

METER NUMBER: | DATE RATED: | CALIB/SPIN: ____ sec | TAPE WEIGHT: ____ lbs/foot | TAPE TENSION: ____ lbs

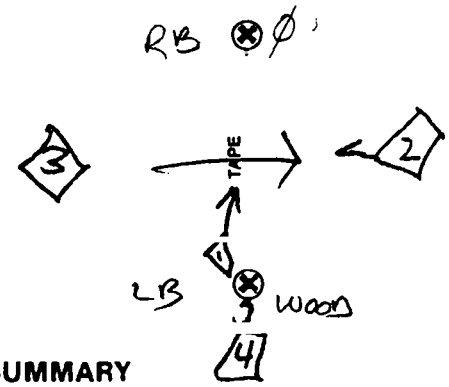
CHANNEL BED MATERIAL SIZE RANGE: | PHOTOGRAPHS TAKEN: (YES)/NO | NUMBER OF PHOTOGRAPHS: 4

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	4.80
⊗ Tape @ Stake RB	0.0	5.15
① WS @ Tape LB/RB	0.0	6.75/6.75
② WS Upstream	32	6.40
③ WS Downstream	50.	7.05

SLOPE | .65/82 = .008

SKETCH



LEGEND:

Stake ⊗

Station ①

Photo ◇→

Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO | DISTANCE ELECTROFISHED: ____ft | FISH CAUGHT: YES/NO | WATER CHEMISTRY SAMPLED: YES/NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:

COMMENTS

Wood stake LB

6A6R 6/21/05 = Stage 4.93 Q = 1.4 cfs

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Yellow Creek | CROSS-SECTION NO.: 03062105 | DATE: 6/21/05 | SHEET 1 OF 1

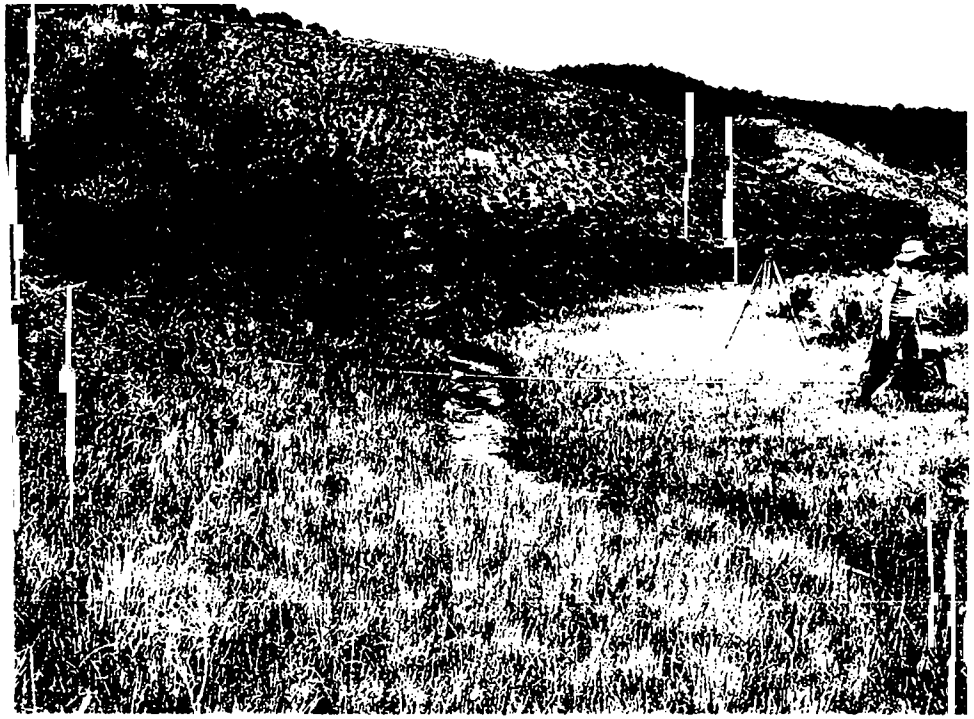
BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (LEFT) RIGHT | Gage Reading: ____ ft | TIME: 15:30

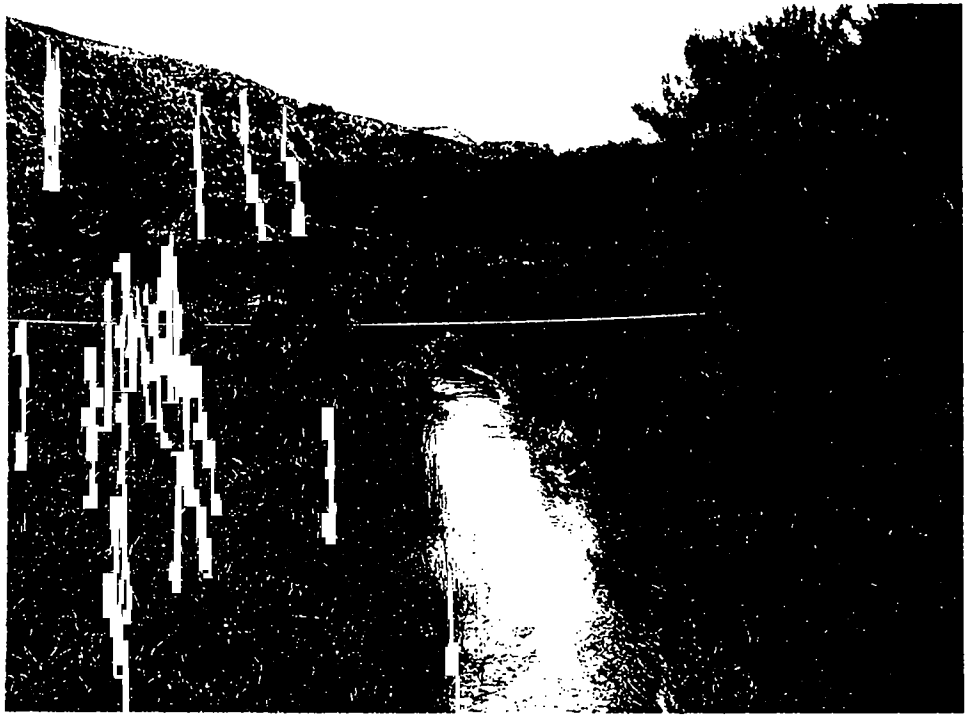
Features (Stake (S), Grassline (G), Waterline (W), Rock (R))	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec) At Point	Velocity (ft/sec) Mean in Vertical	Area (ft^2)	Discharge (cfs)
S	0		5.15								
	3.0		5.35								
	6.0		5.90								
	8.0		6.15								
	10.0		6.45								
	11.0		6.50								
G	11.5		6.35								
W	11.6		6.75	0	WD * 0.6				0	0	0
	11.9		6.95	.20					.19	.06	.01
	12.2		7.15	.40					.38	.12	.05
	12.5		7.20	.45					.84	.14	.11
	12.8		7.15	.40					1.69	.12	.20
	13.1		7.25	.50					1.47	.15	.22
	13.4		7.25	.50					.70	.15	.11
	13.7		7.25	.50					.41	.15	.06
	14.0		7.35	.60					.13	.18	.02
	14.3		6.95	.20					0	.06	.00
	14.6		6.90	.10	✓				0	.03	.00
W	14.9		6.75	0					0	0	0
GL	15.6		6.15								
	16.5		5.85								
	17.5		5.55								
TOP BIN	19.0		4.50								
	19.6		4.80								

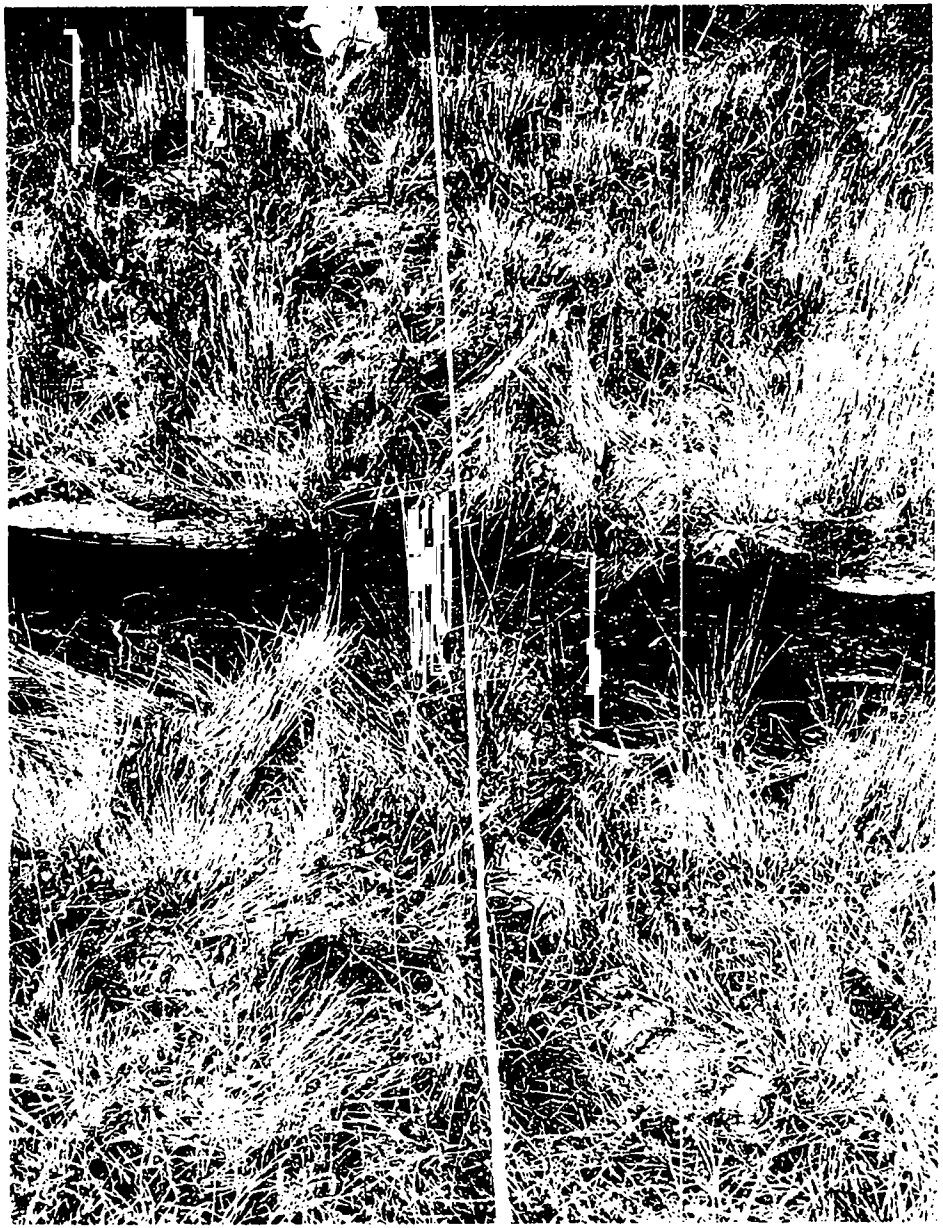
TOTALS [redacted] .78

End of Measurement | Time 15.40 | Gage Reading ____ ft | CALCULATIONS PERFORMED BY: | CALCULATIONS CHECKED BY

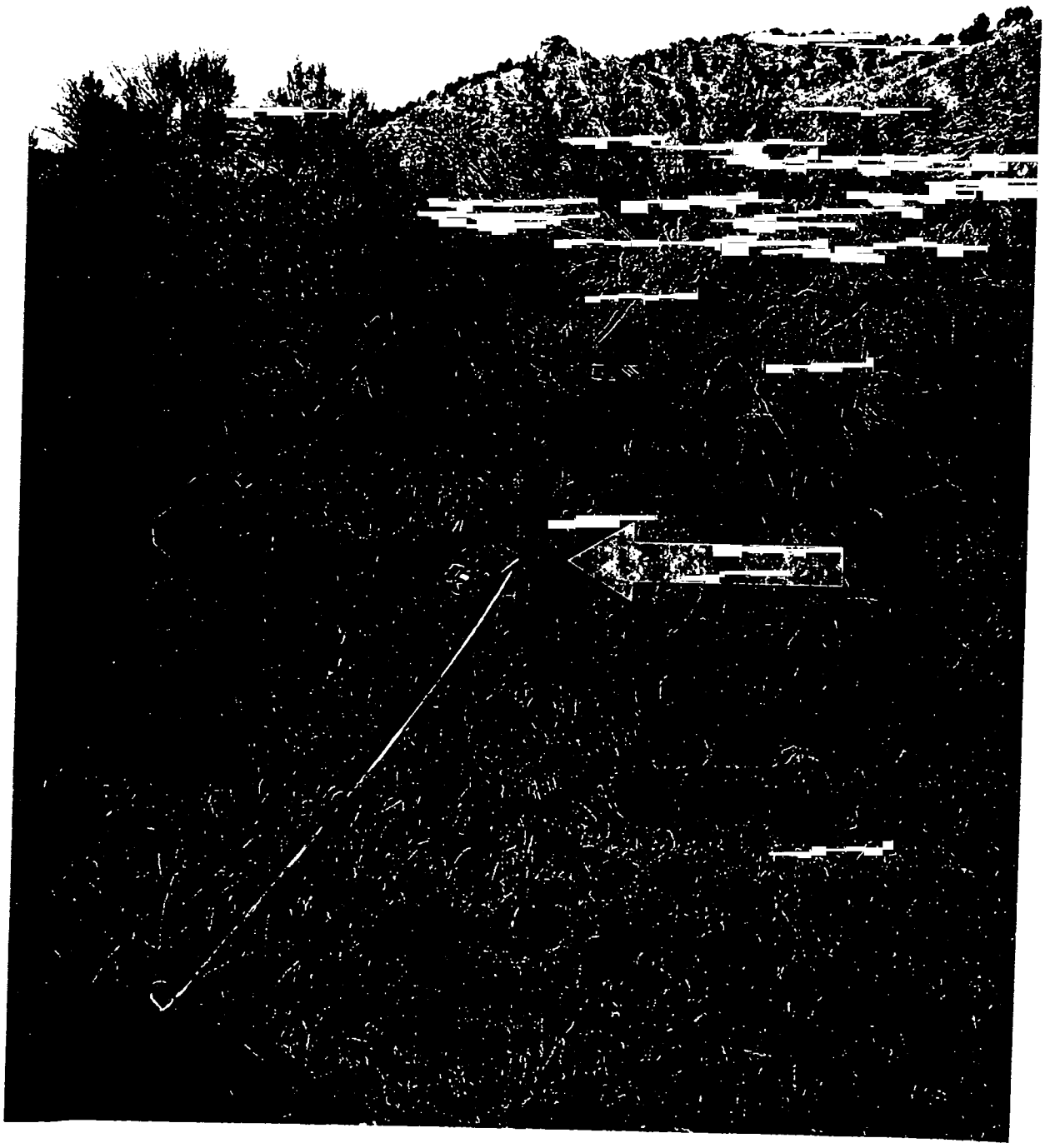
Yellow Creek - 06/21/05

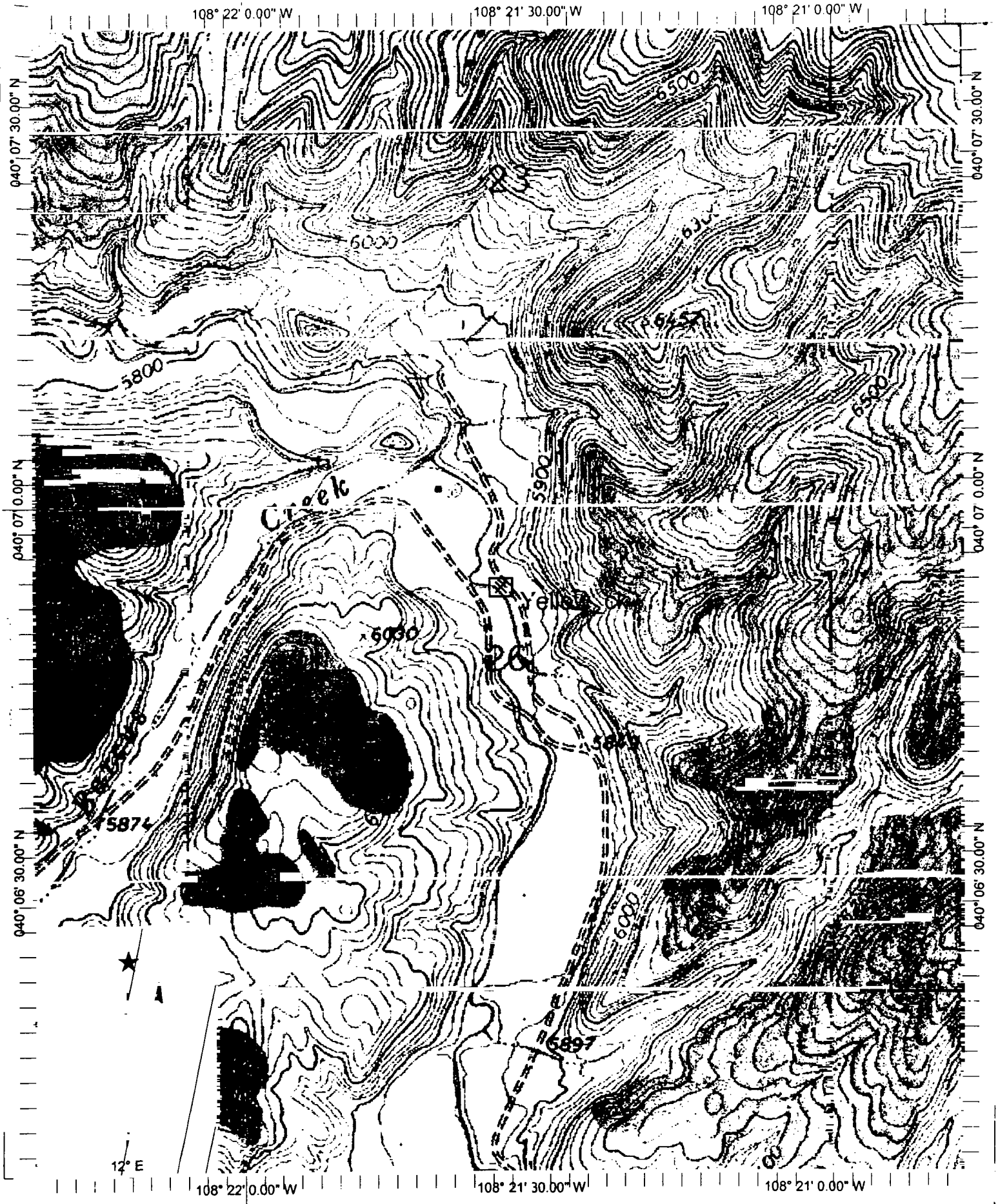






Yellow Creek - 06/21/05





Name: BARCUS CREEK SE
Date: 6/27/2005
Scale: 1 inch equals 1000 feet

Location: 040° 06' 52.27" N 108° 21' 33.39" W
Caption: Yellow Creek
40 06' 53.4"
108 21' 33.0"

Natural Diversity Information Source

Colorado Division of Wildlife

Wildlife Mountain Sucker Page

Return to species list...

Mountain Sucker
Catostomus platyrhynchus

Photo by: John Woodling

Habitat: The mountain sucker is found in smaller rivers and streams with gravel, sand and mud bottoms. Colorado specimens are found in areas of undercut banks, eddies, small pools, and in areas of moderate current. Young prefer backwaters and eddies. A population of mature adults is found in at least one Colorado impoundment, Steamboat Lake.

Description: A stout sucker; head small and rounded; median incision of lower lip shallow; separated from margin of lower lip by 4 or more rows of papillae; there may be a well-developed fontanelle that can be exposed by removing skin overlaying skull; pigment on caudal fins mostly restricted to rays, inter-radial membranes may be clear or have a few small spots; an axillary process present; lining of body cavity black or dusky; lateral line scales 76-97, normally 80-85. Adults are dark brown or tan fading to white on the belly. Dark mottling shaped like saddles across the back may be present in some specimens. Breeding males with a red-orange stripe on sides. Young less than 2 inches long are silver-tan on the back fading to silver-white on the stomach with dark speckles on the back. A smallish fish, this species attains a maximum length of about 8 inches (Sigler and Miller 1963) with a normal range of 3.2-6.3 inches for adults.

Range in Colorado: A widely distributed species, the mountain sucker ranges from Washington north to Saskatchewan down to Montana, east to the western edge of South Dakota through Wyoming and west to Utah including the Green River in Colorado (Smith and Koehn 1971). Although reported by many investigators in Colorado, there are few known specimens of the mountain sucker. Mountain suckers have been collected in the White River Basin (Piceance Creek) and the Yampa River Basin (Steamboat Lake). Only one record of mountain sucker (Snyder 1981) exists from the upper reaches of the Colorado River system. No specimens have been reported from the drainage south of the Colorado River mainstem.

Status: State Special Concern

Natural Diversity Information Source

Colorado Division of Wildlife

Wildlife White Sucker Page

Return to species list

White Sucker
Catostomus commersoni

Photo by: John Woodling

Habitat: The species inhabits lakes, streams and rivers throughout Colorado. In streams, adult white sucker are found in pools and runs but require low-to-moderate currents. Rip-rap banks, bridge abutments, boulders, and undercut banks are preferred locations in streams and rivers. Younger white suckers, less than 6 inches, are found in runs and riffles with moderate velocity and backwater areas (Propst 1982). White suckers tolerate a wide variety of conditions including river stretches greatly enriched from domestic sewage treatment plant effluents. Propst (1982) often found the white sucker to be the most common fish at such locations, although numbers were lower than at similar, unpolluted sites.

Description: A robust sucker, round to oval in cross section; snout rounded and fleshy, scarcely overhanging the mouth; mouth ventral; no notch or indentation at the lateral connection of lower and upper lips, thick upper lip with 4-8 rows of papillae, lower lip with deep median cleft, median indentation of lower lip separated from the edge of the lower jaw by two or less rows of papillae. The dorsal fin not falcate, with 10-13 rays. Scales are moderate in size; less than 75 scales along lateral line. Adults are darker dorsally (olivaceous) fading to white on the stomach. Young are olivaceous to white. During spawning season, males and females may become very dark on the back and sides. Length at the end of first year from 4-6 inches. Adults may be longer than 20 inches and weigh about 2-3 pounds.

Range in Colorado: In Colorado, the species is native and abundant on the eastern slope. Many introductions of this species and the longnose sucker, also an East Slope native, to West Slope waters occurred when the fish were mixed with trout plants from eastern hatcheries and through the fisherman's bait bucket. Populations of these East Slope suckers have become numerous on the West Slope while flannelmouth and bluehead suckers, native to the upper Colorado River Basin, have disappeared from some West Slope waters.

Status: This species is not listed.

Wildlife Species

Wildlife Speckled Dace Page

Wildlife Home
Amphibians
Birds
Fish
Mammals
Reptiles

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Speckled Dace
Rhinichthys osculus

Status: This species is not listed.

Photo by: John Woodling

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Download Data Hunting Fishing
Wildlife Exploring Habitat Conservation Planning

Species Occurrence Tool

Occurrence by County

Data Format:

- (•) HTML
- ( ) Delimited Text
- ( ) MS-Excel

Fetch! Reset

(*) NDIS has no county occurrenc data for fish at this time.

Speckled Dace NDIS Maps
No Speckled Dace maps available!

Speckled Dace Specific Links
No Speckled Dace links available

General Wildlife Links
Colorado Audubon
Colorado Birding Society
Colorado Field Ornithologist's
Rocky Mnt. Bird Observatory
TNC Migratory Bird Program

Wildlife Fathead Minnow Page

Wildlife Species

- Wildlife Home
- Amphibians
- Birds
- Fish
- Mammals
- Reptiles

Return to species list...

Fathead Minnow
Pimephales promelas

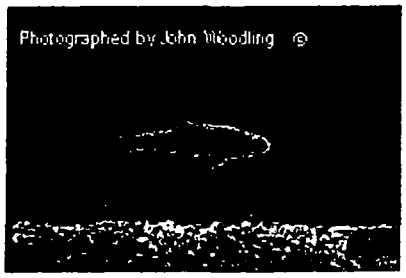

Photo by: John Woodling

Habitat: Fathead minnows are tolerant of extremes in environmental conditions, able to withstand high temperatures, high nutrient concentrations, low dissolved oxygen levels, high turbidity and fairly stagnant conditions. In lakes or ponds, schools of adult fatheads can be observed on the bottom or at middle depths. Young-of-the-year school in the shallows. Propst (1982) found the fathead to be the most widely distributed species in the South Platte River Basin. The fish was found in foothills transition streams, the mainstream river, and potholes of intermittent high plains streams. In perennial streams fatheads are found along undercut banks or backwater areas with little or no current.

Description: A full-bodied, stout minnow; mouth small, terminal, and oblique; snout round, blunt in adults; first ray of dorsal fin shorter, thick and split away from remainder of fin, connected by a membrane; lateral line incomplete ending below point of dorsal fin origin; intestine long, with several loops; lining of body cavity black; pharyngeal teeth 4-4. Young females and non-breeding adult males dark above, fading to white on the stomach with a distinct dark stripe along the sides. Breeding males dark-brown, purple with two broad yellowish bars on body and tubercles on chin and nout. Adults are a little less than 3 inches in length while one-year old fathead are about 1.5 inches long.

Range in Colorado: The species is native to the east slope rivers of Colorado. Through bait bucket transfers and/or accidental inclusion with fish plants of other species, the fathead minnow is now found in waters throughout the western portions of Colorado. Presently, the fathead minnow may be the most widely distributed fish in Colorado, being found in almost every drainage in the state.

Status: This species is not listed.

Species Occurrence Tool

Occurrence by County

Data Format:

- (•) HTML
- ( ) Delimited Text
- ( ) MS-Excel

Fetch! Reset

(*) NDIS has no county occurrenc data for fish at this time.

Fathead Minnow NDIS Maps
Sample Site Locations

Fathead Minnow Specific Links
No Fathead Minnow links available!

General Wildlife Links
Colorado Audubon
Colorado Birding Society
Colorado Field Ornithologist's
Rocky Mnt. Bird Observatory
TNC Migratory Bird Program

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Exploring Habitat Conservation Planning

Natural Diversity Information Source
Colorado Division of Wildlife

Wildlife Common Carp Page

Return to species list...

Common Carp
Cyprinus carpio

Photo by: John Woodling

Habitat: Carp are able to tolerate and thrive in a variety of habitats but prefer quiet, shallow waters of rivers and lakes.

Description: A large, deep-bodied minnow; head wedge-shaped; large subterminal mouth, two barbels at each side of mouth; long dorsal fin with 18-20 rays, and one spine anteriorly; large scales, 25-39 in lateral line; scales sometimes absent (leather carp) or enlarged and scattered (mirror carp). Carp are brassy in color and can grow to large size. The Colorado fishing record is 22 pounds, caught at Cherry Creek Reservoir in Denver.

Range in Colorado: Native to Europe, carp were introduced by settlers who admired the food quality of the species. Initial introduction in the United States spanned the period from 1831-1896 (Scott and Crossman 1973). Carp are now found in warmwater lakes and rivers throughout the United States and Canada. Initial introductions in Colorado were 1879 (Wiltzius 1981). Currently carp are found in most warmwater rivers and impoundments throughout the state and in some cases the species has become established in coldwater mountain lakes. Elevenmile Reservoir in South Park, at an elevation of 8651 feet, has a thriving population of carp.

Status: This species is not listed.

Monthly Streamflow Statistics for Colorado

USGS 09306255 YELLOW CREEK NEAR WHITE RIVER, CO.

Available data for this site

Rio Blanco County, Colorado
Hydrologic Unit Code 14050006
Latitude 40°10'07", Longitude 108°24'02" NAD27
Drainage area 262.00 square miles
Gage datum 5,535.00 feet above sea level NGVD29

Output formats

HTML table of all data
Tab-separated data
Reselect output format

YEAR	Monthly mean streamflow, in ft^3/s											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1972										.66	1.30	.54
1973	.091	2.55	2.77	1.79	1.58	1.30	.79	4.30	1.13	1.32	1.90	1.48
1974	1.37	2.31	6.22	3.38	2.76	2.25	2.52	1.58	1.73	1.69	1.47	1.85
1975	1.55	2.01	2.20	1.73	1.71	1.35	1.43	.83	1.14	1.20	1.38	1.41
1976	1.20	2.20	3.44	2.03	1.56	1.02	.34	.95	.80	1.52	1.67	1.02
1977	.62	1.50	2.05	2.05	1.21	.68	1.14	1.02	.88	1.00	.78	.57
1978	1.00	1.41	1.78	1.37	1.03	.72	.39	.30	17.1	.50	.86	.15
1979	.008	.22	3.19	2.39	2.60	1.80	2.44	1.50	1.25	1.61	1.59	1.28
1980	1.38	12.7	2.98	2.33	2.59	2.38	1.86	1.80	2.19	2.54	2.53	2.55
1981	2.48	2.22	2.48	2.20	1.92	1.36	1.00	.86	.90	1.41	1.52	1.72
1982	1.85	10.0	1.64	1.51	1.74	1.47	1.21	1.41	2.12			
1988					13.0	6.91	5.65	6.16	4.99	5.30	5.94	4.76
1989	4.36	4.68	8.39	5.24	4.73	3.90	3.49	3.20	3.55	2.61	4.08	4.34
1990	4.63	5.00	4.35	3.85	3.77	2.86	2.79	1.81	1.89	2.07	2.86	2.05
1991	2.19	2.87	3.72	3.26	3.30	2.59	1.95	2.25	1.81	1.86	2.66	2.05
1992	2.15	2.98	2.90	2.38	2.02	1.52	2.19	1.31	1.75	2.36	2.75	2.69
1993	2.43	2.46	8.92	3.97	4.79	3.42	3.02	3.05	3.47	4.44	4.43	4.04
1994	2.98	11.0	3.08	2.95	2.48	1.53	1.13	1.31	1.85	1.74	1.45	1.88
1995	2.18	2.97	2.21	1.94	2.43	2.67	2.04	1.62	2.00	1.86	1.78	1.65
1996	1.48	1.99	2.64	3.05	2.58	1.84	1.40	1.26	1.52	2.23	2.87	2.89

1997	2.45	3.03	18.1	3.27	3.51	2.95	2.82	3.98	7.88	4.45	4.43	4.10
1998	4.11	6.41	7.26	7.09	8.73	11.9	10.6	9.34	9.95	10.2	12.1	9.77
1999	9.05	9.75	8.88	8.88	9.61	8.72	6.79	7.03	6.51	6.71	6.44	6.25
2000	6.42	6.38	6.47	6.66	5.39	3.86	3.38	3.44	3.53	3.77	3.48	3.31
2001	3.51	4.80	4.04	3.85	3.60	3.20	2.81	2.55	2.50	2.75	2.80	2.68
2002	3.25	3.20	4.83	3.31	2.27	2.02	1.76	1.72	2.04	2.98	3.85	3.02
2003	2.65	4.05	3.01	2.64	1.85	1.39	1.04	.79	1.20			
Mean of monthly streamflows	2.62	4.35	4.70	3.32	3.57	2.91	2.54	2.51	3.30	2.75	3.08	2.72

Questions about data Colorado NWISWeb Data Inquiries
Feedback on this website Colorado NWISWeb Maintainer
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Explanation of terms

Surface Water data for Colorado: Monthly Streamflow Statistics
http://waterdata.usgs.gov/co/nwis/monthly?

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USGS Water Resources of Colorado
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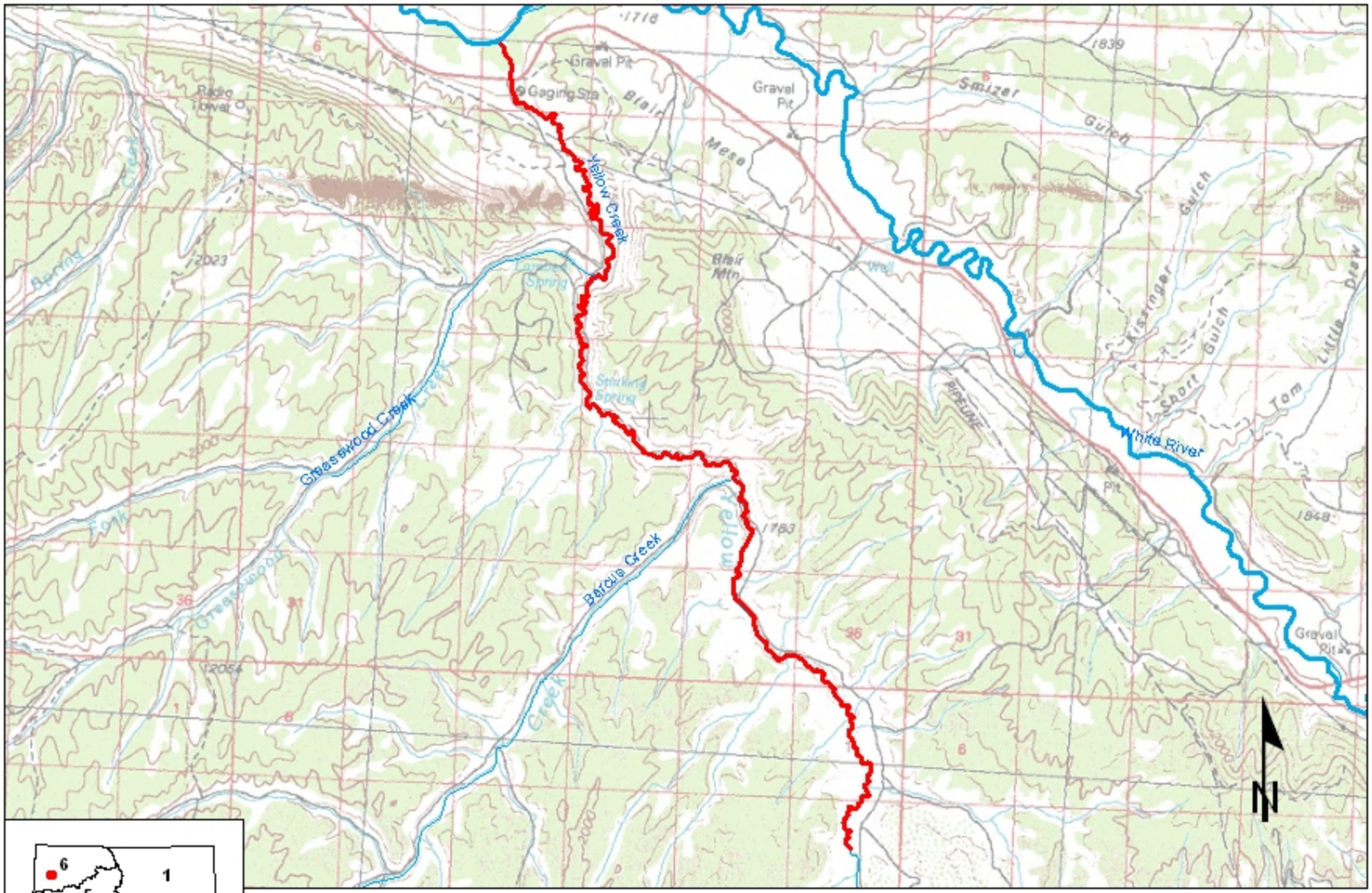

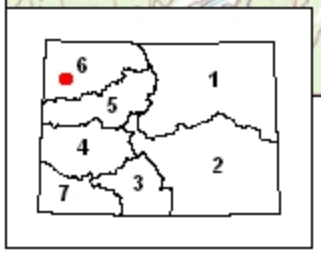

Recommended Instream Flow Segment
Yellow Creek - Water Division 6

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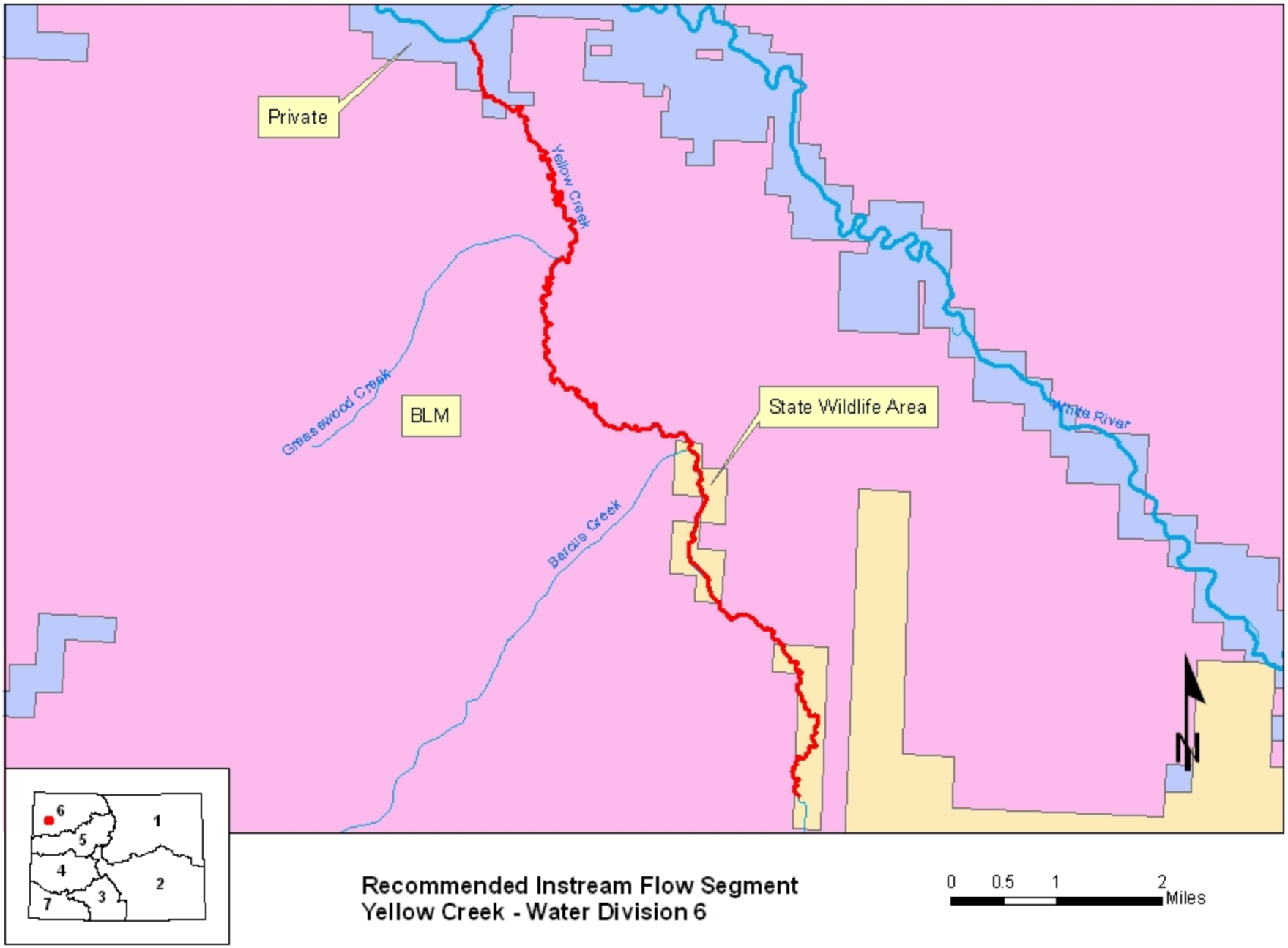

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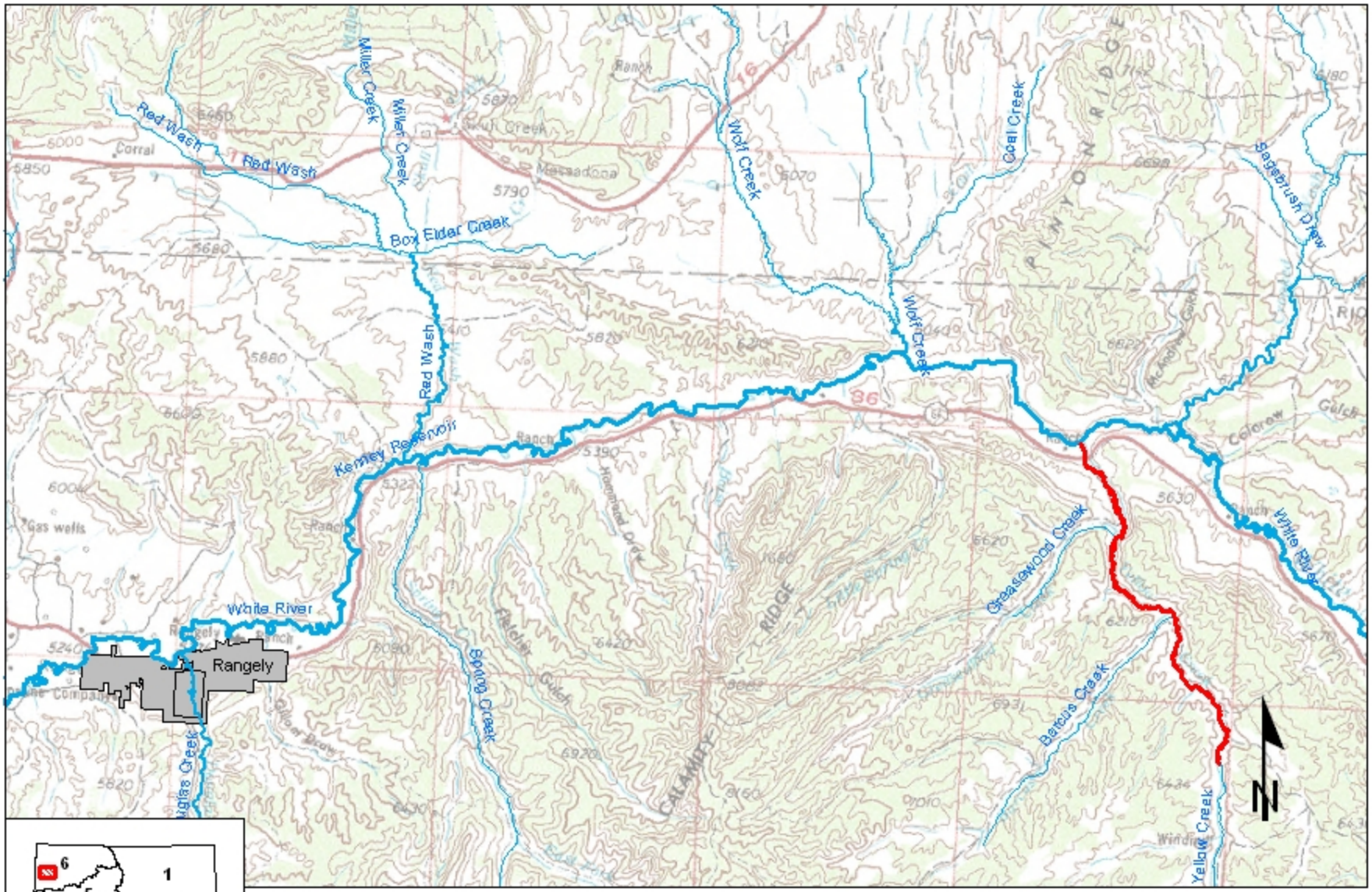
Yellow Creek - Water Division 6



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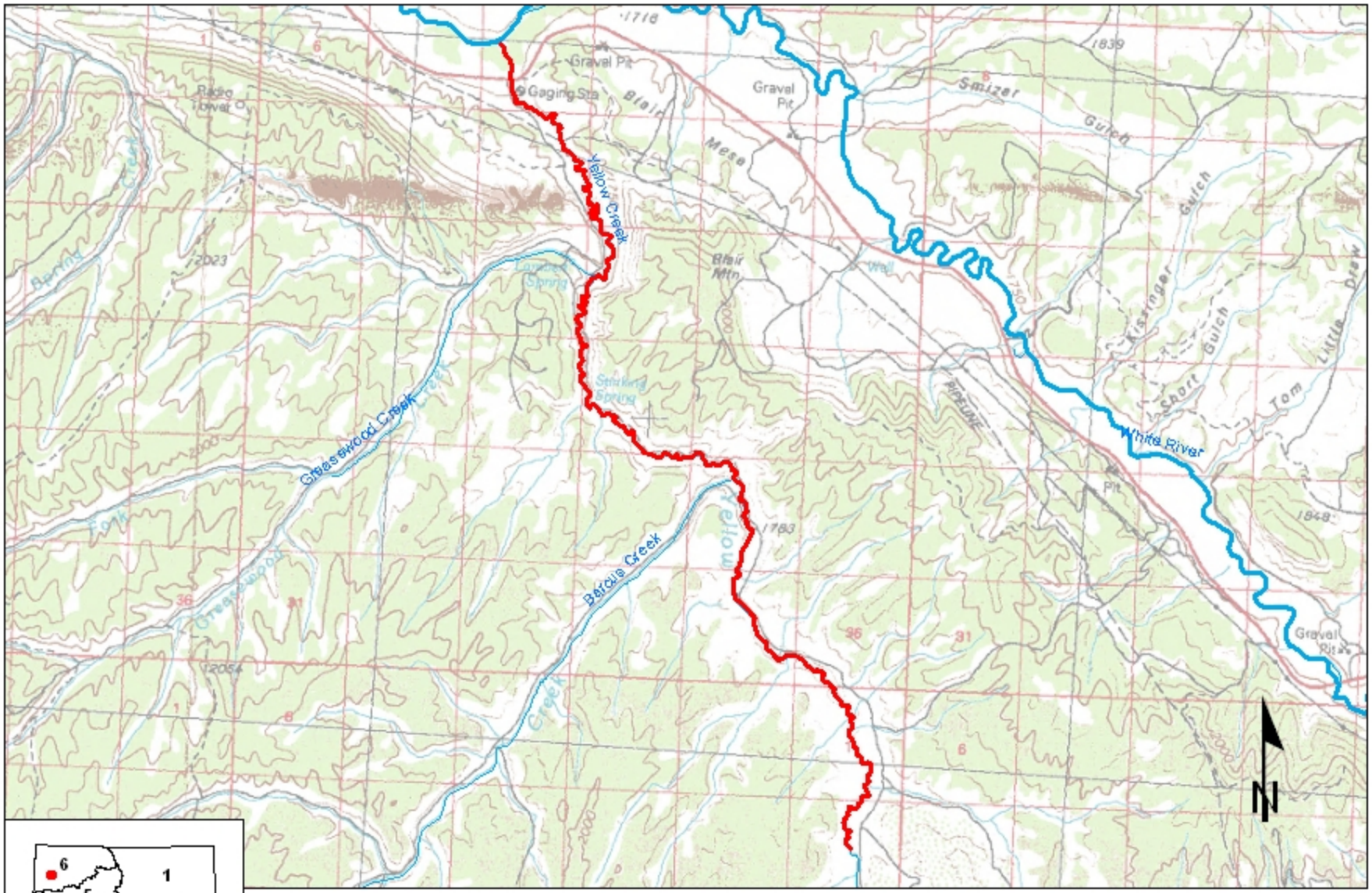

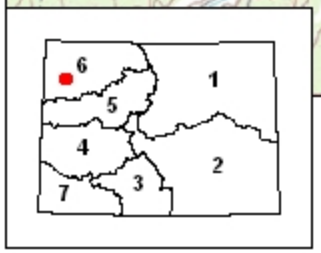

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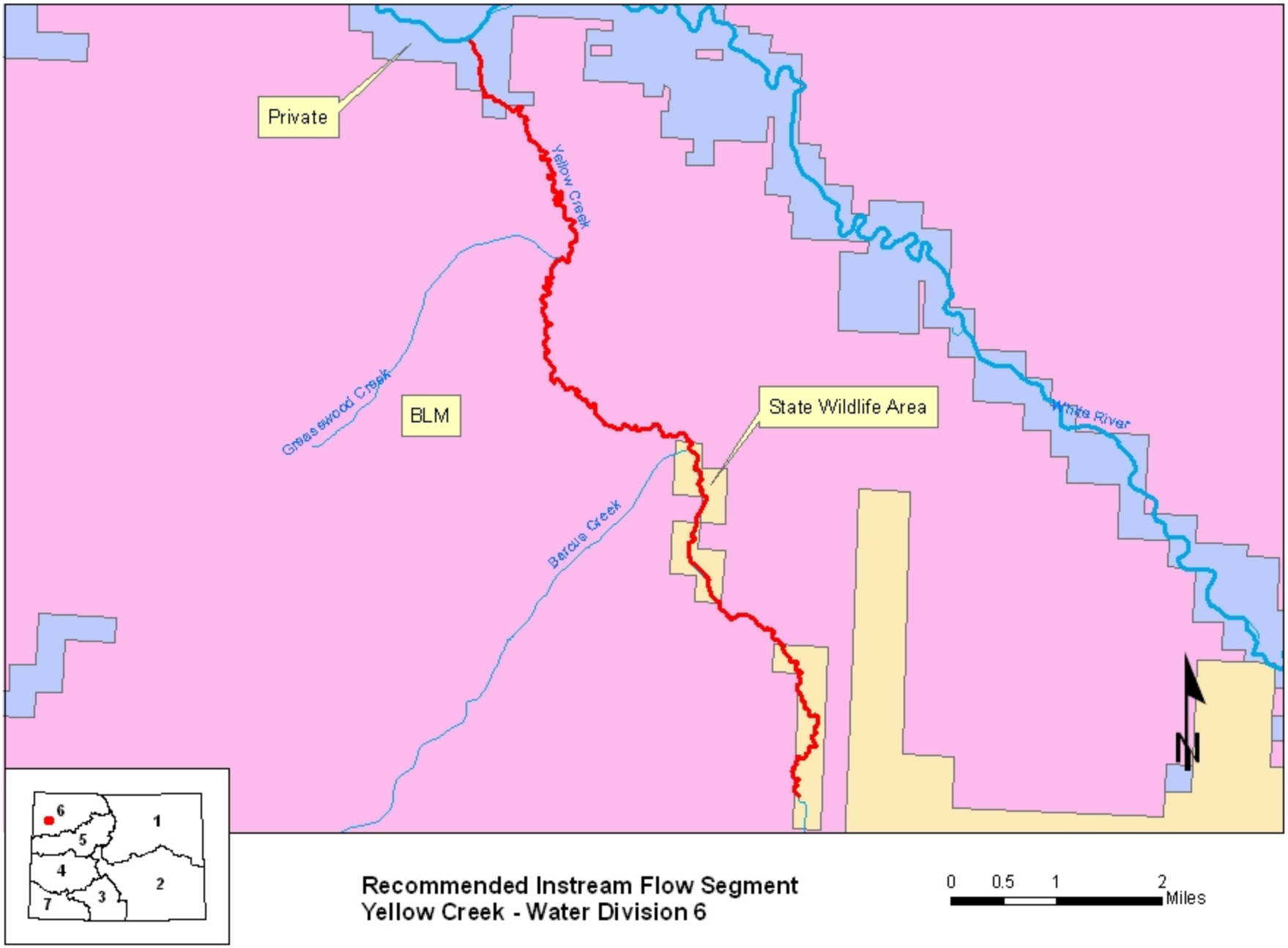
0 0.5 1 2 Miles



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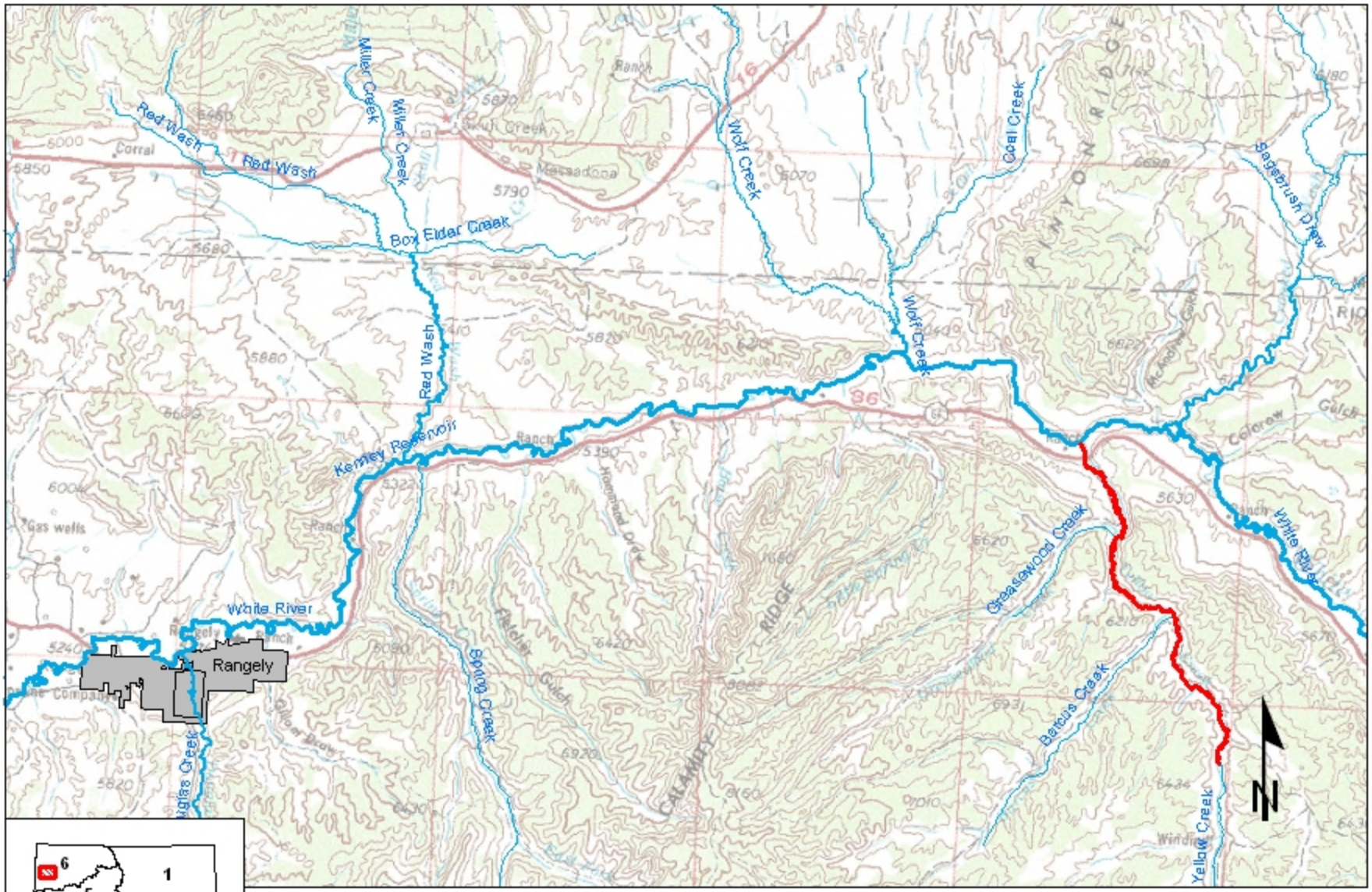

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