

C208

MEMORANDUM

DEPARTMENT OF GAME AND FISH

December 17, 1975

*Red R File
"New" USFS Min. Flow*

TO: Warren J. McNall
FROM: Bob Parish *BP*
SUBJECT: Red River Minimum Flows

The following are the results of basic survey work done in 1960 by Jim Harrison on the Red River:

Location: one-half mile upstream from Red River Fish Hatchery
Pools: 15%
Bottom type: 75% rocks, 5% gravel, 20% sand
Fish Population Study: 10-21-60 one hundred feet of stream at 20% efficiency
Brown Trout - 6 Estimated 1,667/mile

Location: June-Bug Campground
Pools: 50% 70% during low water
Bottom type: gravel and rock
Fish Population Study: 10-6-60 170 feet of stream at less than 50% efficiency
Rainbow Trout - 13 Estimated 812/mile
Brown Trout - 7 Estimated 438/mile

Six miles east of Questa
8-5-60 300 feet of stream was sampled.
Rainbow Trout - 11 Estimated 393/mile
Brown Trout - 5 Estimated 179/mile

Surface water records for the Red River near Questa for 1974 show a minimum discharge of 2.6 cubic feet/second on February 5. An average discharge for the last twenty years is 36.1 cubic feet/second.

I'm not sure what all is involved in minimum flows but I would not like to see less than 10 cubic feet/second during the summer months.

I can not seem to locate any other data that would be pertinent to the situation. If you have any ideas let me know.

P.S. I hardly believe we can use the expanded fish per mile estimates from Harrison's surveys.

Conditions were good this year with lower water levels and good water clarity in the lower Red River. Listed below is a comparison of estimated number of trout per mile from yearly survey results 1981 through 1988.

| Number of Stations | Date | Species | |
|--------------------|----------------|---------|----------|
| | | Browns | Rainbows |
| 5 stations | June 1981 | 356 | 416 |
| 5 stations | September 1984 | 528 | 132 |
| 5 stations | August 1985 | 324 | 16 |
| 4 stations | November 1986 | 2,000 | 640 |
| 4 stations | September 1987 | 960 | 195 |
| 4 stations | September 1988 | 2,350 | 75 |

All of the above surveys were conducted using the Northeast Area's 110 volt generator.

Additional surveys were conducted on the Red River this year with the following results:

*Station - Upstream from irrigation diversion located just above the Questa Ranger Station, U.S.F.S., station length 100 meters, average stream width 8.14 meters.

Survey type: 3 pass regression
 Conductivity: 350 μ mhos Water temperature: 8°C.
 Date: 9-26-88 Time: 11:15 a.m.
 Equipment used: Smith Root back-pack unit

| | | |
|-------------------------|--------------------------|-------------------------|
| First Pass (472 sec) | Second Pass (485 sec) | Third Pass (455 sec) |
| 0 fish | 0 fish | 0 fish |

Population estimate (100 meters): 0 trout
 Kilograms/hectare trout sp. = 0

*Station - Just above Elephant Rock campground, station length 100 meters, average stream width 5.4 meters.

Survey type: 3 pass regression
 Conductivity: 210 μ mhos Water temperature: 11°C.
 Date: 9-26-88 Time: 1:30 p.m.
 Equipment used: Smith Root back-pack unit

Compare
with 1960
station near
Columbine
Campground

Compare
with 1960
station at
June Bug
Campground

| <u>1st Pass (628 sec)</u> | | | <u>2nd Pass (501 sec)</u> | <u>3rd Pass (470 sec)</u> |
|---------------------------|---------------|---------------|---------------------------|---------------------------|
| <u>Species</u> | <u>LG(mm)</u> | <u>WT(gr)</u> | | |
| Br | 194 | 75 | 0 fish | 0 fish |
| Br | 140 | 28 | | |
| Br | 170 | 52 | | |
| Br | 80 | 4 | | |
| Br | 134 | 23 | | |
| Rb | 199 | 74 | | |

Br = brown trout
 Rb = rainbow trout
 Rgct = Rio Grande cutthroat
 Bk = brook trout

Population estimate (100 meters) = 6 trout \approx 96/mi
 Kilograms/hectare trout sp = .256 kilograms/.0540 hectares
 = 4.74 kilograms/hectare

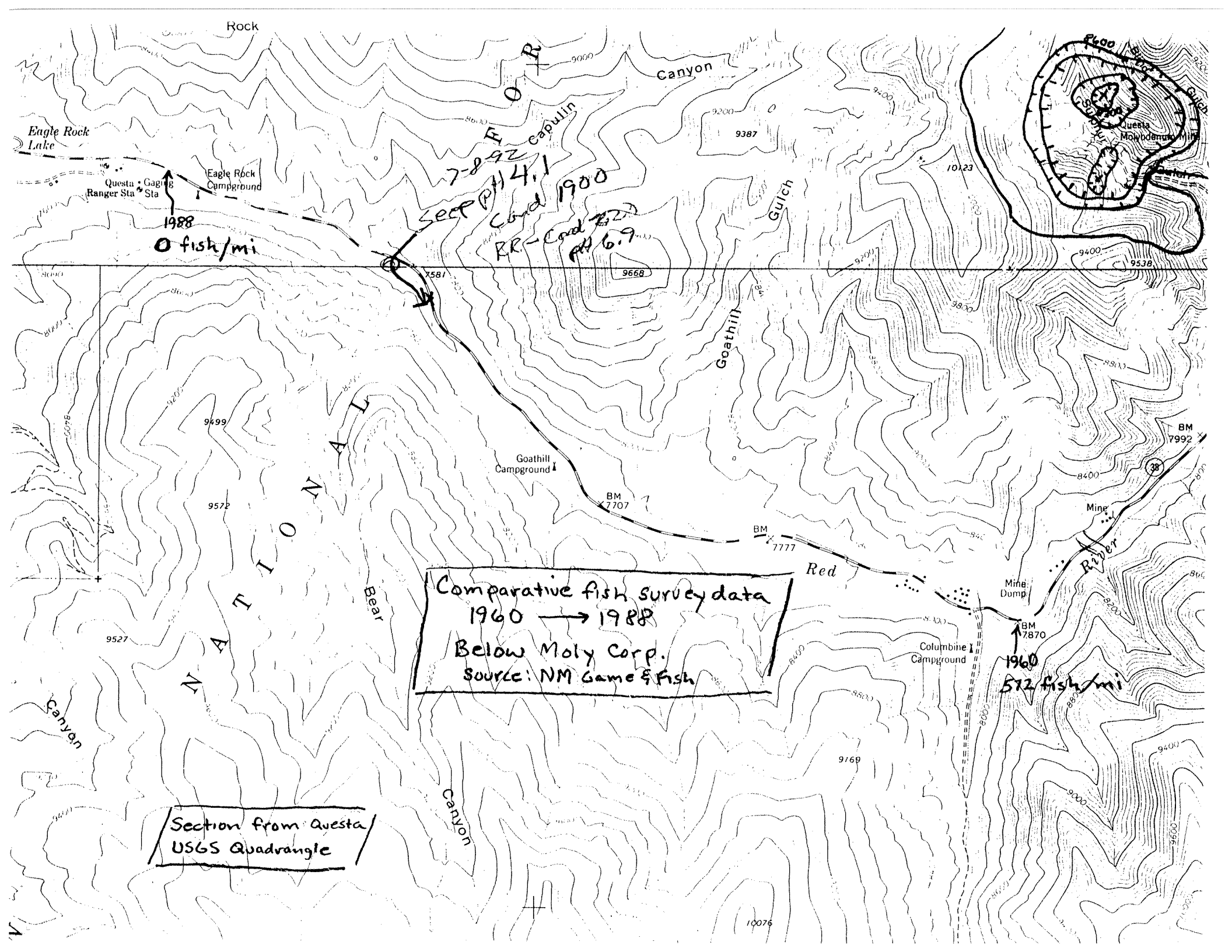
Station - From old Zwergel gauge (above town of Red River and confluence of Goose Creek) upstream 100 meters, average stream width 6.258 meters.

Survey type: 3 pass regression
 Conductivity: 112 Umhos Water temperature: 9.5°C.
 Date: 9-27-88 Time: 12:30 p.m.
 Equipment used: Smith Root back-pack unit

| <u>1st Pass (1051 sec)</u> | | |
|----------------------------|---------------|---------------|
| <u>Species</u> | <u>LG(mm)</u> | <u>WT(gr)</u> |
| Rb | 226 | 130 |
| Rb | 175 | 57 |
| Rb | 233 | 134 |
| Rb | 237 | 134 |
| Rb | 240 | 160 |
| Rb | 169 | 51 |
| Rb | 243 | 166 |
| Rb | 192 | 84 |
| Rb | 226 | 130 |
| Rb | 210 | 106 |
| Rb | 241 | 170 |
| Rb | 193 | 74 |
| Rb | 196 | 76 |
| Rb | 191 | 72 |
| Rb | 141 | 30 |
| Rb | 178 | 62 |
| Rgct | 245 | 168 |
| Rgct | 182 | 66 |
| Rgct | 149 | 25 |
| Rgct | 146 | 30 |
| Rgct | 144 | 30 |
| Rgct | 84 | 6 |
| Rgct | 87 | 6 |

| <u>2nd Pass (1136 sec)</u> | | |
|----------------------------|---------------|---------------|
| <u>Species</u> | <u>LG(mm)</u> | <u>WT(gr)</u> |
| Rb | 233 | 154 |
| Rb | 230 | 136 |
| Rb | 188 | 82 |
| Rb | 379 | 512 |
| Rb | 197 | 98 |
| Rb | 231 | 142 |
| Rb | 202 | 104 |
| Rb | 230 | 144 |
| Rb | 203 | 82 |
| Rb | 198 | 78 |
| Rb | 208 | 118 |
| Bk | 182 | 60 |
| Rgct | 196 | 82 |

| <u>3rd Pass (1195 sec)</u> | | |
|----------------------------|---------------|---------------|
| <u>Species</u> | <u>LG(mm)</u> | <u>WT(gr)</u> |
| Rb | 210 | 104 |
| Rb | 214 | 118 |
| Rb | 217 | 110 |
| Rgct | 176 | 63 |
| Rgct | 153 | 38 |



Eagle Rock Lake

Questa Ranger Sta
Gaging Sta
Eagle Rock Campground

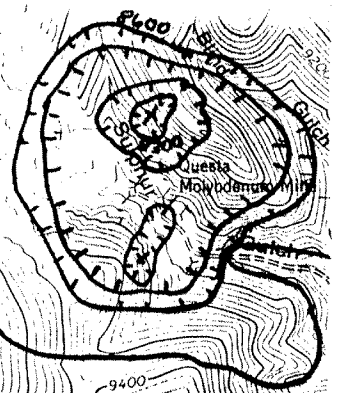
1988
0 fish/mi

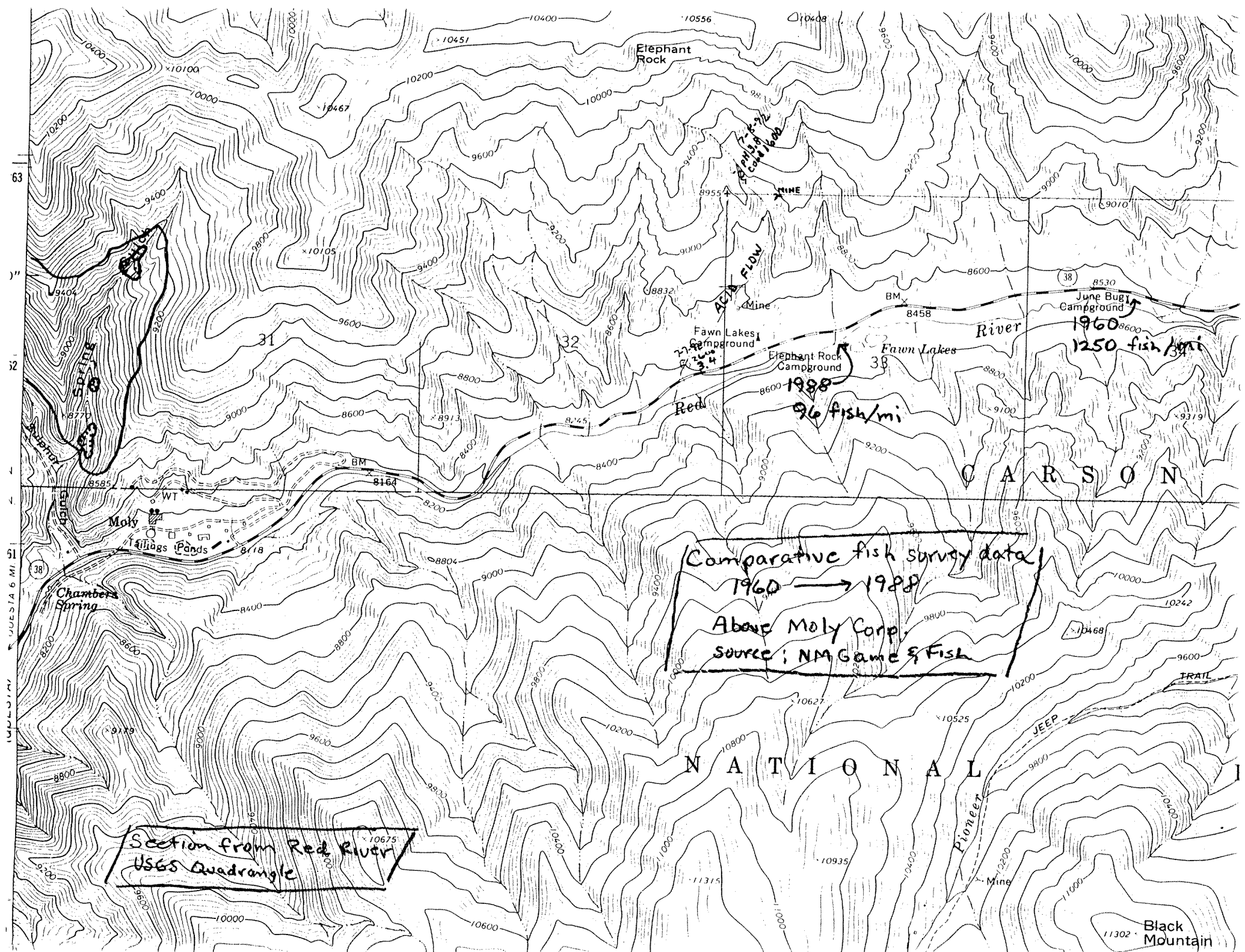
7-8-92
SECP #4.1
Cond 1900
RR-Cond 227
#4.6.9

Comparative fish survey data
1960 → 1988
Below Moly Corp.
Source: NM Game & Fish

Section from Questa
USGS Quadrangle

1960
572 fish/mi





Comparative fish survey data
1960 → 1988
Above Moly Corp.
source: NM Game & Fish

Section from Red River
USGS Quadrangle

1960
1250 fish/mi

1988
96 fish/mi

63
32
51
QUESTA 6 MI.
UNPLORIN

Black Mountain
11302