

1997 GREAT BASIN NATIVE GRASS MEGATRANSECT

Copyright © 2022 by Craig Carlton Dremann, The Reveg Edge, P.O. Box 361, Redwood City, CA 94064

North America's Sagebrush/Grassland Ecosystem--the mile-by-mile record of the severely cow and sheep-chewed damages in 1997, what species were seen, plus the locations of the few remaining pristine grasslands and their extents.

INDEX:

Page 1 - Index

- | | | |
|--------------------------------|-----------------------------|---------------------------------|
| 2. Index | 27. CO Denver | 55. NV Tonapah |
| 3. Index | 28. CO | 56. NV, CA |
| 4. Map - California to Nevada | 29. CO Map | 57. NV, CA Maps |
| 5. California to Nevada survey | 30. WY, CO Fort Collins | 58. CA Bodie |
| 6. CA. Donner summit to NV | 31. WY Map | 59. NV Carson City to CA border |
| 7. NV Reno I-80 to Jct. US 50 | 32. WY Platte County | 60. Field Notes - CA, NV |
| 8. NV Fallon to Jct. Hwy 361 | 33. WY North Platte River | 61. Field Notes - CA, NV |
| 9. NV Austin | 34. WY Map | 62. Field Notes - NV |
| 10. NV Eureka | 35. WY | 63. Field Notes - NV, CO |
| 11. NV Rob Pass | 36. WY, SO DAK | 64. Field Notes - CO, WY |
| 12. NV Connors Pass | 37. WY Moorcroft | 65. Field Notes - CO |
| 13. NV Sacram Pass | 38. WY Buffalo | 66. Field Notes - CO |
| 14. NV Map | 39. WY Buffalo | 67. Field Notes - CO, WY |
| 15. UT | 40. WY | 68. Field Notes - CO |
| 16. UT Beaver | 41. WY Shell | 69. Field Notes - SD |
| 17. UT Jct. I-70 | 42. WY Cody | 70. Field Notes - WY |
| 18. UT Salina | 43. WY Yellowstone Nat Park | 71. Field Notes - ID |
| 19. UT I-70 | 44. WY, ID Maps | 72. Field Notes - ID |
| 20. UT Eagle Canyon | 45. ID Idaho Falls | 73. Field Notes - NV |
| 21. CO | 46. ID Soda Springs | 74. Field Notes - NV |
| 22. CO Grand Junction | 47. ID Snake River | 75. Field Notes - NV |
| 23. CO Montrose | 48. ID Twin Falls | 76. Field Notes - CA |
| 24. CO Gunnison | 49. ID Twin Falls | 77-79 - List of Photos |
| 25. CO Cottonwood Pass | 50. ID Maps | |
| 26. CO Map | 51. NV Jackpot | |
| | 52. NV Ely | |
| | 53. NV | |
| | 54. NV Maps | |

Driving freeways and highways, and each mile on the odometer, survey for native grasses. Each mile is a "point" in the transect and percentage extermination can be determined. Periodically, Highway post miles, town, etc. are noted, so that areas can be resurveyed over time.

INDEX

0 = No native grasses

1 = native grasses

1 - (name) = native grass species

BBWG = Blue Bunch Wheat grass / *Agropyron spicata* (native)

BlGr = Blue Grama (native)

BR = *Bromus marginatus* (native)

BS = Bare spots

CCBV = Cow Chewed and Beaten Valley

CCC = Cow-chewed cheatgrass (exotic)

CC-CW = Cow chewed Crested Wheatgrass (exotic)

CCD = Cow chewed desert, formerly native grasslands

CCF/CE = Cow Chewed Forest, Converted to Exotics like smooth brome, crested wheatgrass, particular to South Dakota.

CHN = Cow hammered natives, particular to high elevations east side of Sierras, like around Mono Lake, in volcanic ash soils, above 7,000 feet elevation, where native grasses still present, but eaten to within an inch of their lives.

CCJ = Cow-chewed Juniper woodlands, particular to eastern Sierras

CCL = Cow chewed Lava = Only some ancient Poas, (native) old sage spaced 10-20 feet apart, understory cheatgrass, tumble mustards (exotics) and soil crusts including mosses. Fine silty easily erodible soil and lava ash. particular to eastern Idaho.

CCN = Cow-chewed natives

CCRB = Cow chewed Rabbitbrush (native)

CCS = Cow chewed sagebrush (native) (*Artemisia tridentata* or *A. species*), no native or exotic grasses seen, formerly native grassland savanna.

CW = Crested wheatgrass (exotic)

cw/sb = Crested Wheatgrass/Smooth Brome mix

CW/R = Crested Wheat along Roadsides (exotic)

DN = Decent natives

EG = *Elymus glaucus* (native)

G = Gullies

H/O = *Hilaria/Oryzopsis* (natives)

Intermediate Wheatgrass = IWG (exotic)

JUN = Juniper (native)

Little Blue Stem = LBS (native)

NC = No CHEATGRASS (exotic), shrub interspaces clear
 NCC = Natives, cow chewed
 Needle and Thread = *Stipa comata* (native)
 ORY = *Oryzopsis* or Indian Rice grass (native)
 RB = Rabbit brush (native)
 RRB = Ruined Rabbit Brush (native)
 rs=cw/sb = Roadside is a Crested Wheatgrass/Smooth Brome mix
 R/W = Highway Right of Way
 Sage = Sagebrush (*Artemisia tridentata* or other *Artemisia* species) (native)
 Sacred area = Natives in a pristine condition.
 SB = Smooth brome (exotic)
 S. COM = *Stipa comata* (native), also called Needle and Thread
 Toasted = Grazed to dust
 WON = Wealth of natives
 YSC = Yellow sweet clover (exotic)

MILES SURVEYED

California	109
Nevada to Ely	334
Nevada, Ely to Utah	68
Utah	274
Colorado	542
Wyoming	605
South Dakota	56
Wyoming	605
Idaho	283
Nevada back from ID	448
<u>California</u>	<u>57</u>
TOTAL	3,381



CALIFORNIA
 I-80 eastward from Sacramento,
 August 23, 1997

Notebook 97, page 11

ODOMETER MILES

0-0 - Sacramento city	31-1 - pristine black oak and ponderosa pine starts, to 36	61-1 -Sitanion
1-0	32-0	62-0
2-0	33-0	Great Basin ecosystem starts - yellow flowered compositae and compact shrubs
3-0	34-1	63-1 Sitanion
4-0	35-1 - 2,000 ft. elev.	64-1 Stipa sp.
5-0	36-1	65-1 Stipa sp.
6-0	37-0	66-0 - Yuba
7-0 - town Roseville	38-0 - Manzanita	67-1 Alpine plants
8-0 - town Roseville	39-0	68-1 Alpine plants
9-0 - town Roseville	40-0	69-1 - small fine bladed bunch grasses
10-0	41-0	70-1
11-0 - start oak woods	42-1 - a fine-bladed short bunchgrass in the sun, rare	71-1
12-0	43-1 - EG	72-1
13-0 - town of Rocklin	44-1 - EG	73-0
14-1 - under oaks	45-1	74-0 White clover starts
15-0	46-1 - conifers in granitics. Severe erosion along roadsides in granitics soils above 3,000'	75-1 - Stipa
16-0	47-0 - 3,000 ft. elev.	Pristine understory
17-0	48-0	6,000 ft. elevation
18-0	49-0 - Goldrun, CA	76-1
19-0	50-0 - Dutch Flat	77-1
20-0	51-0	78-1
21-1 - yellow tarweeds	52-0 - Alta, CA	79-1- Soda Springs
22-0	53-0	80-1 - Bromus marg.
23-0 - Digger pines start	54-1 -Elymus glaucus	White clover
24-0 - Auburn, CA	55-0 - 4,000 ft. elev.	81-1 - Sitanion
25-0 - Auburn, CA	56-0	82-1 - Bromus marginatus common
26-0 - Auburn, CA	57-1 -Elymus glaucus	83-1
27-0 - Auburn, CA	58-0	Donner Summit 7200 ft. Castle Peak/Boreal
28-0	Lots of exotic perennial grasses intentionally sown	84-0
29-1 - EG	59-0 - 5,000 ft. elev	85-1 - Sitanion
30-1 - EG	60-1 - Sitanion starts and native Bromus Blue Canyon	86-1 - Stipa/Elymus
Deer		87-1 - Donner Lake
		Cheatgrass starts & Mules Ears
		88-0 - cheatgrass starts

- 89-1 - Mules ears
- 90-1 - Elymus and Bromus marginatus common
- 91-0 - Intermediate wheatgrass and white clover common
- 92-0 - Poa bulbosa
- 93-1 - Bromus marg.
- 94-1 - Sage understory
- 95-1
- 96-1 - Trees end, sage desert
- 97-1
- 98-1 - volcanics and **Truckee River**
- 99-1
- 100-1 - Stipas at bridge
- 101-1 - Sitanion common
- 102-0
- 103-0 - Toyabee NF
- 104-0
- Truckee River cyn
- 105-0
- 106-0
- Farad**
- 107-0
- 108-0 - sage, mules ears

109-0
Sierra County



Notebook 97, 14-18, 22-28

NEVADA - I-80 & US 50,
eastward to Ely, NV 8-23-
97

Drier, and the plants, the
sage and Sitanion, are
more overgrazed than

**over the California line,
with crested wheatgrass
and rabbit brush**

1-0
2-0 - sage, mules ears
Verdi
3-0
4-0
5-0
Truckee River
6-0 - Dry sage, rabbitbrush
7-0
8-1 - Stipa/ Oryzopsis
9-1 - Robb Dr. Exit 9
10-0 - Crested wheatgrass
and white clover. Other
side of fence no grass, only
tumbleweeds, gumplants,
sunflower. Used to be
native compositae heaven
11-0
12-0 - Reno
13-0 - Reno
14-0 - Reno
15-0 - Reno
16-0- Reno-Sparks
17-0- Reno-Sparks
18-1 - Sitanion
19-0- Reno-Sparks
20-0 Volcanics, cheatgrass
21-1 thin Stipa/Oryz.
22-1 thin Stipa/Oryz.
23-1 thin Stipa/Oryz.
24-0 - Mustang

25-1 - Oryzopsis
26-1 - Stipa
27-0
28-0
29-1 Lots of Oryz.!
30-1 Lots of Oryz.
Volcanics
31-1 - Oryzopsis
32-1 - Oryzopsis
33-0 - cheatgrass
34-0 - cheatgrass
35-0 - cheatgrass
36-0 - cheatgrass
37-1- Oryzopsis
38-1- Oryzopsis
39-0 - CHEATGRASS
40-0
River canyon
41-1 - Oryzopsis
Oryzopsis, lots of it at
westbound rest area

42-1 - Oryzopsis
43-1 - Oryzopsis
44-1 - Oryzopsis
45-1 - Oryzopsis
46-1 - Oryzopsis

Junction US 50
(estimated)

47-0 -**Fernley, NV**
48-1 - sunflowers, alfalfa
fields
49-1 - Oryzopsis

50-0 - tumbleweeds
51-0
Overgrazed riparian
52-0 Toasted overgrazed
valley
53-0
54-0
55-0 Cottonwoods, formerly
forest, now sand desert
56-0
57-0
58-0 - Converted riparian
59-0 - **Hazen, NV**
60-0 - Toasted
61-0 - Toasted to the horizon
62-0 - Toasted to the horizon
63-1 - Oryzopsis
64-0 - Riparian
65-0 - Desert
66-0 - Jct. US 50 to Carson
City, NV
67-0 Ragtown, cottonwoods
68-0
69-0
70-0
71-0
72-0
73-0
74-0
75-0 **Fallon, NV**
76-0 - **Fallon @** Broadway
exit

No car traffic on US 50, east
of Fallon

77-0 - Ag, sunflowers
78-0 - Poor alfalfa
79-0 - Ag, cottonwoods
80-0 - Ag
81-0 - Ag and black ibis-like
birds in field, marsh birds
originally in flood-irrigated
alfalfa
82-0
83-1 - Toasted Sand desert,
Hilaria?
84-0
85-0

NEVADA US 50

86-0
87-0 - Volcanics
88-1 - Oryzopsis
89-1 - Oryzopsis
90-0 - Salt Wells Whore
house
91-0 - Toasted desert shrubs
92-0 - Salt playa
93-0 - playa
94-0 - playa
95-0 - playa
96-0 - playa
97-0 - playa
98-1 - Oryzopsis
99-0 - More playa



Sand dune to the north,
 "Sand Mountain"
 100-0 - playa
 101-0 - playa
 102-1 - Oryzopsis, lots of it
 103-1 - Oryzopsis, lots of it
 104-1 - Oryzopsis, lots of it
 Volcanics
 105-1 - Oryzopsis, lots of it
 106-1 - Oryzopsis, lots of it
 107-1 - Oryzopsis, lots of it
 108-1 - Oryzopsis, lots of it

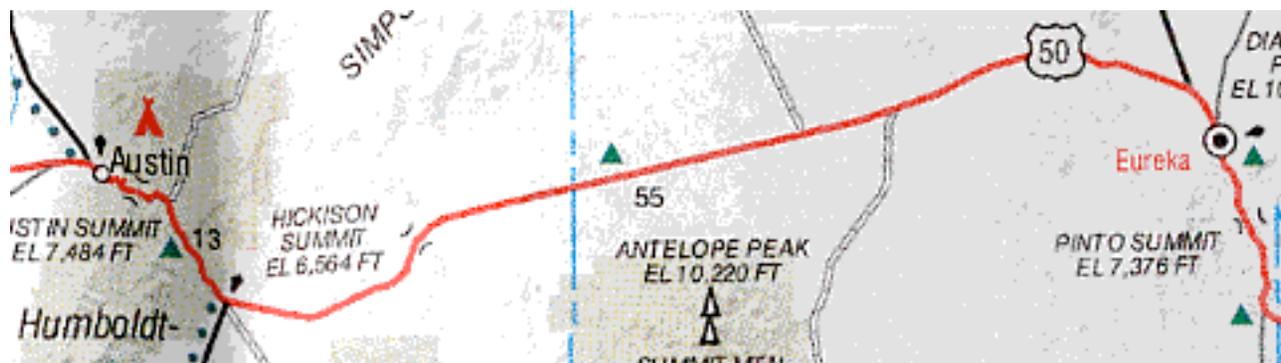
109-0 - overgrazed flat valley
 110-0 - overgrazed
 111-0 - playa
 112-1 - Oryzopsis, beauty
 113-1 - Oryzopsis, beauty
 114-0 - Overgrazed valley,
 open range starts
 115-0 - overgrazed
 116-0 - overgrazed
 117-0 - overgrazed
 118-0 - overgrazed
 119-0 - overgrazed
 120-1 - Orzysopsis

People use the lava rocks to
 write their names in one
 playa
 121-0
 122-0
 123-0 - **Jct. NV Hwy 361**
 124-1 - Oryzopsis, lots of it
 125-0 - overgrazed
 126-0 - overgrazed
NEVADA US 50
 127-0 - overgrazed

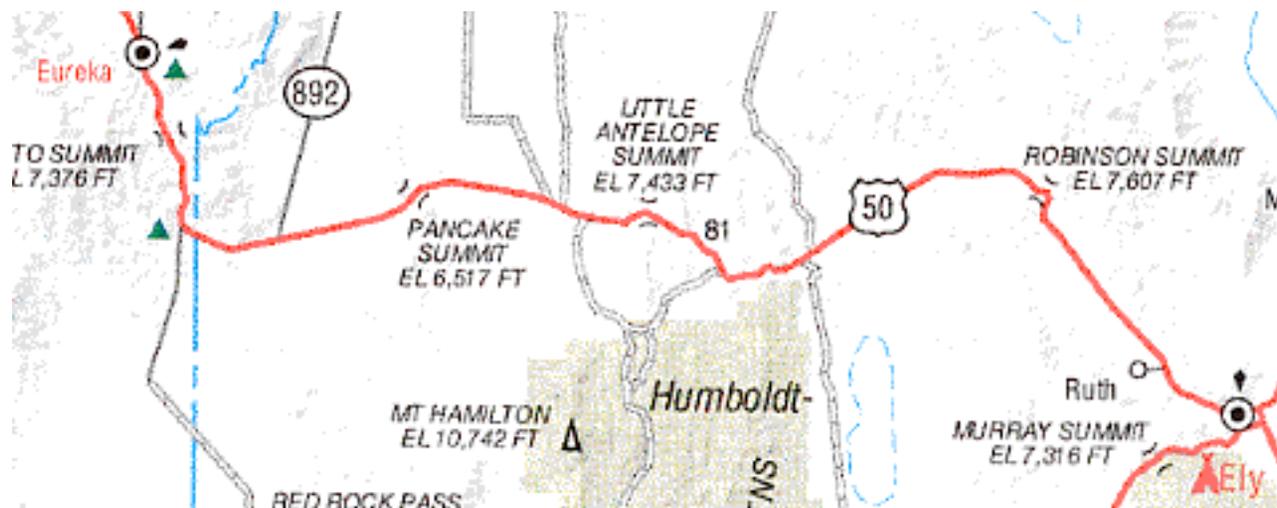
128-0 - overgrazed
 129-0 - overgrazed
 130-1 - Oryzopsis, lots of it
 131-1 - Oryzopsis, lots of it
 132-1 - Oryzopsis thin
 133-0
 134-0
 135-0
 136-0 - Overgrazed
 rabbitbrush, with crested
 wheatgrass sown in starts
 here (RRB/CW)



- | | | | |
|-----------------------------|----------------------------|----------------------------|-------------------------------|
| 137-0 - RRB/CW | 151-0 - overgrazed sage | 165-0 - Solid sagebrush | 178-0 - Reese River |
| 138-0 - RRB/CW | 152-0 - overgrazed sage | 166-0 - Solid sagebrush | 179-1 - GBWR rare |
| 139-0 - RRB/CW | 153-0 - overgrazed sage | 167-0 - Sagebrush with | 180-1 - GBWR rare |
| 140-0 - RRB/CW | 154-0 - overgrazed sage | rabbitbrush along river | 181.5 - interesting grassland |
| 141-0 - RRB/CW | 155-0 - overgrazed sage | 168-0 | at bottom of valley |
| 142-0 - RRB/CW | 156-1 - GBWR in ditch | 169-0 | 181-1 - GBWR rare |
| 143-0 - RRB/CW | 157-0 | FM radio Twilight Zone, no | 182-0 - Sagebrush/rabbitbr. |
| 144-1 - Oryzopsis | 158-0 - Rabbitbrush | music | 183- 0 Jct. NV 722 - Sage/RB |
| 145-1 - Oryzopsis | 159-0 - Entering mountains | 170-0 | 184-0 - Sagebrush/rabbitbr. |
| 146-0 - overgrazed | 160-0 - Entering mountains | 171-0 - sandy-gravel soil | 185-0 - Sagebrush/rabbitbr. |
| 147-1 - Oryzopsis thin, in | 161-0 - Junipers & cows | with small sagebrush | 186- 0 Jct NV 305 |
| desertified sage with | 162-0 - Junipers & cows, | plants | AUSTIN- revived ghost |
| shrubs only 8" tall, weird. | every sagebrush here is | 172-0 - sandy-gravel soil | town |
| 148-0 | chewed on! | 173-0 - sandy-gravel soil | Austin Summit, juniper |
| 149-0 | Landers County, NV | 174-0 - small sage | |
| 150-0 | 163-0 | 175-0 | |
| Churchill Co., NV | New Pass Summit, NV | 176-0 | |
| | 164-0 - Solid sagebrush | 177-0 | |



187-1	205-1 - Oryzopsis thicker	221-0	241-0 - Intermediate
188-1 - Pristine!, Toyabee NF	206-1 - Oryzopsis thinner	222-0	wheatgrass sown in looks
189-1	207-1 - Oryzopsis thinner	223-0	like GBWR
190-1 - Pristine grasslands	208-0 gone	224-0	242-0
191-1 - Juniper	209-0	225-0	243-1 - Oryzopsis
192-1 - Pristine grasslands	210-1	226-0	244-0
193-0 - cow chewed	210.8 - Hickison Summit	227-0	245-0
sagebrush(CCS)/juniper	211-0 Big huge cow chewed	228-0	246-1
194-0 - CCS/juniper	sagebrush valley with	228.5-1 - Stipa comata in	Grassland at bottom of
195-0 - CCS/juniper	crested wheatgrass sown in	sand	valley
196-1 - Oryzopsis	(CCS/CW)	229-0	247-0
197-0	212-0 - CCS/CW	230-0	248-0
198- 0 - Mountains end	213-0 - CCS/CW	231-1 - GBWR rare	Sedimentary Escarpment
Jct. NV Highway 376	212-0 - CCS/CW	232-0	249-0
199-0	215-0 - CCS/CW	233-1 - Some sort of	250-1 - Oryzopsis
200-0 - Another sandy soil	216-0 - CCS/CW	grassland at bottom of	251-0 - Alfalfa
cow chewed and Beaten	217-1	valley, GBWR+	252-1 - GBWR in ditch
Valley (CCBV)	NEVADA US 50	234-0	253-1 - GBWR in ditch
201-0 - CCBV		235-0	254-1 - Juniper & Oryzopsis
202-1 - GBWR rare	218-1 - Good GBWR at base	236-0	255-1
203-0	of hill	237-0	256-0 - Eureka, NV
204-1 - Oryzopsis	219-0	238-0	
	219.6 Eureka Co., NV line	239-0	
	220-0	240-0	



TOWN OF EUREKA,

Elevation 6,481 ft.

NEVADA US 50

257-1 - GBWR

258-1 - GBWR

259-1 - Oryzopsis

260-1 - GBWR

261-0

Pinto Summit

262-1 - Oryzopsis

263-1 - Juniper & Oryzopsis

264-1 - Juniper & Oryzopsis

265-1 - Juniper & Oryzopsis

266-0

267-0 County line - CCS

268-0

269-1 - Stipa thurberiana ?

BLM Ely District

270-1 - Stipa thurberiana ?

271-0 - Cow chewed

272-0 - Cow chewed

273-0 - Cow chewed

274-1 - Oryzopsis, lots!

275-0

276-0

277-1 - Oryzopsis, a lot!

278-0

279-0

Pancake Summit

280-1 - Oryzopsis

281-1 - Oryzopsis

282-1 - Oryzopsis

283-0 - Cow chewed

284-0

285-1 - Stipa thurberiana

286-0

287-0 - Cow chewed sage

288-0 - CCS

289-0 - CCS

290-0 - Juniper

291-0 - Juniper

292-0 - Juniper

Little Antelope Summit, lots

of Intermediate and crested wheatgrass

293-0 - Juniper

294-0 - Juniper

295-0 - Volcanics

296-0 - Sagebrush

Weird white sediment soil like at Exit 9

297-1 - Sitanion

298-1 - Sitanion

299-1 - Sitanion

Mountains

300-1 - Stipa thurberiana?

301-1 - Stipa thurberiana?

302-1 - Stipa thurberiana?

303-0 - Cow chewed sagebrush & Crested wheatgrass (CCS/CW)

304-0 - CCS/CW

305-0 - CCS/CW

306-0 - CCS/CW

307-1 - Oryzopsis, only in highway easement, non-existent outside fence.

308-1 - Oryzopsis

309-1 - Oryzopsis, a lot

310-1 - Stipas

311-1 - Juniper starts

312-1 - Junipers/Stipa

313-1 - Junipers/Stipa

314-1 - Juniper/Stipa

315-0 - Volcanics

316-1 - Oryzopsis

Rob Pass

317-0

318-0

319-1 - Sagebrush/juniper

320-0 - Sage/Jun + crested wheatgrass (SJ/CW)

321-0 - SJ/CW

322-0 - SJ/CW

323-0

324-0

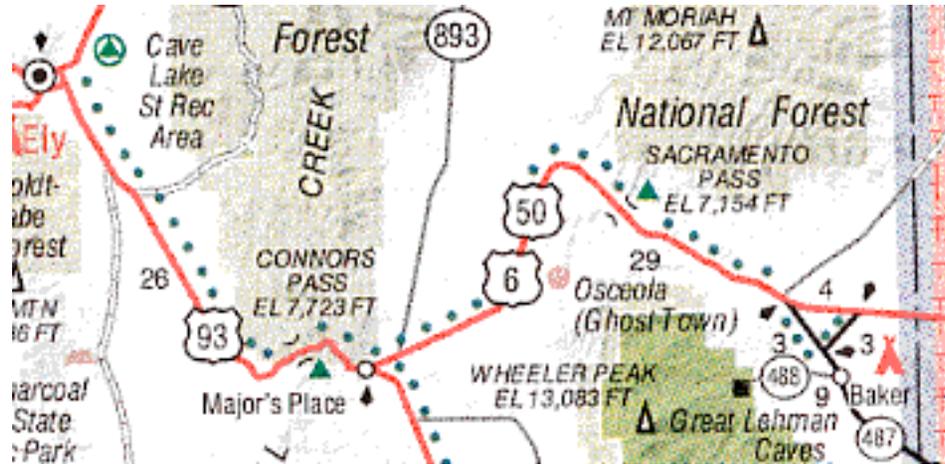
325-0

326-0
327-0
328-0

329-0
330-0 Big copper/gold mine
331-0

332-0
333-0

334-0 Ely, NV 6400 ft.
elevation



Notebook 97, pages 29-30A

NEVADA US 50 start at Ely, NV, and NV 487 to Utah line 8-24-1997

- 0 = center of Ely, at jct. US 50 and US 93
- 1-0 - Cow chewed sage with a beauty little strip 6 feet along roadside of crested wheatgrass sown in by the highway department (CCS/CW)
- 2-0 - CCS/CW
- 3-0 - CCS/CW
- 4-0 - CCS/CW
- 5-0 - CCS/CW

- 6-0 - CCS/CW
- 7-0 - CCS/CW
- 8-0 - CCS/CW
- 9-0 - CCS/CW
- 10-0 - CCS/CW
- 11-0 - CCS/CW
- 12-0 - CCS/CW
- 13-0 - CCS/CW
- 14-0 - CCS/CW
- 15-0 - CCS/CW
- 16-0 - CCS/CW
- 17-0 - Juniper
- 18-1 - Stipa comata on sand cliffs, solid!
- 19-1 - Stipa comata solid
- 20-1 - Humboldt NF boundary
- 21-1
- Connors Pass, 7723 feet elevation**

- 22-1 - Another bunchgrass above 7500 feet plus pinyon, Oryzopsis and Stipa thurberiana
- 23-1
- 24-1
- Leaving Humboldt NF
- 25-1
- 26-1
- 27-1 - Juniper and Oryzop.
- 28-1 - End juniper, flat valley
- 29-1
- 30-0 - Typical Cow chewed sagebrush (CCS)
- 31-0 - CCS
- 32-0 - CCS
- 33-0 - CCS
- 34-0 - CCS

- 35-1 - Stipa and Oryzopsis in higher elevations, begins
- 36-1 - Stipa/Oryzopsis
- 37-1 - Stipa/Oryzopsis
- 38-0
- Dip into valley
- 39-0
- 40-1 - Oryzopsis
- 41-0
- 42-0
- 43-1 - Oryzopsis/Stipa
- 44-1 - Oryzopsis/Stipa
- 45-1 - Oryz/Stipa + juniper
- 46-1 - Solid Oryzopsis
- Sacram Pass 7100'**
- 47-1
- 48-0 - CCS
- 49-0 - CHEATGRASS**
- BEGINS on hillside to left**

**of highway, not seen
before**

50-1

51-1

52-0

53-0

54-1 - Solid Oryz along
roadside

55-1 - Solid Oryz. roadside

56-1 - Solid Oryz. roadside

Jct. NV Highway 487

57-1

58-1 - Oryzopsis

59-1 - Solid Stipa comata

60-0

61-0 Cow chewed cheatgrass
(CCC)

Baker, Nevada

62-1 - Oryzopsis on ridges

63-1 - Oryzopsis on ridges

64-0 - CCC

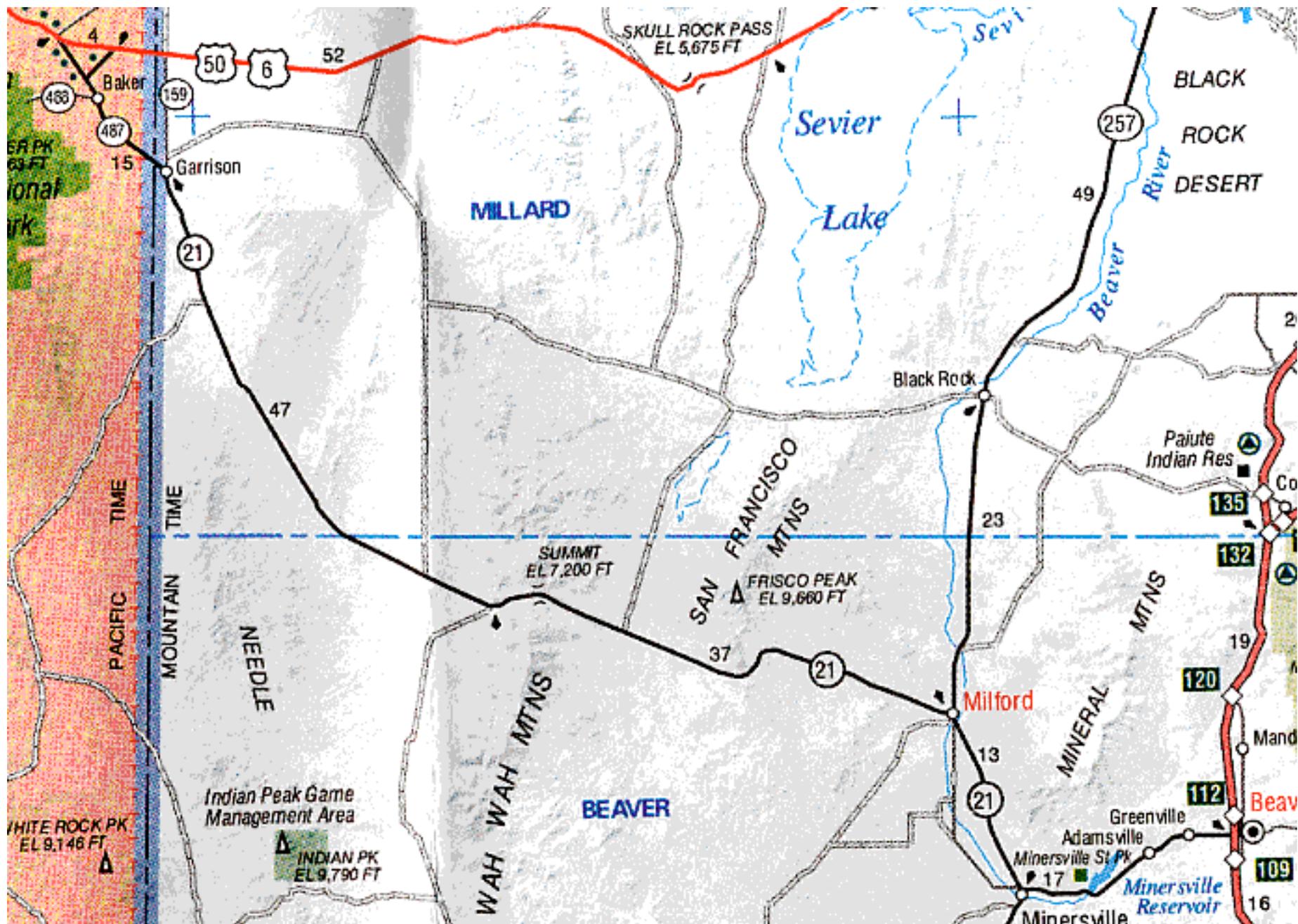
65-0 - CCC

Big patch of Oryzopsis

66-1 - Thin Oryzopsis

67-1 - Oryzopsis thick on
ridges

67.8 - NEV/Utah line



Notebook 97, pages 31-38

**UTAH starts,
Utah Hwy 21 to I-15 to
I-70 8-24-97**

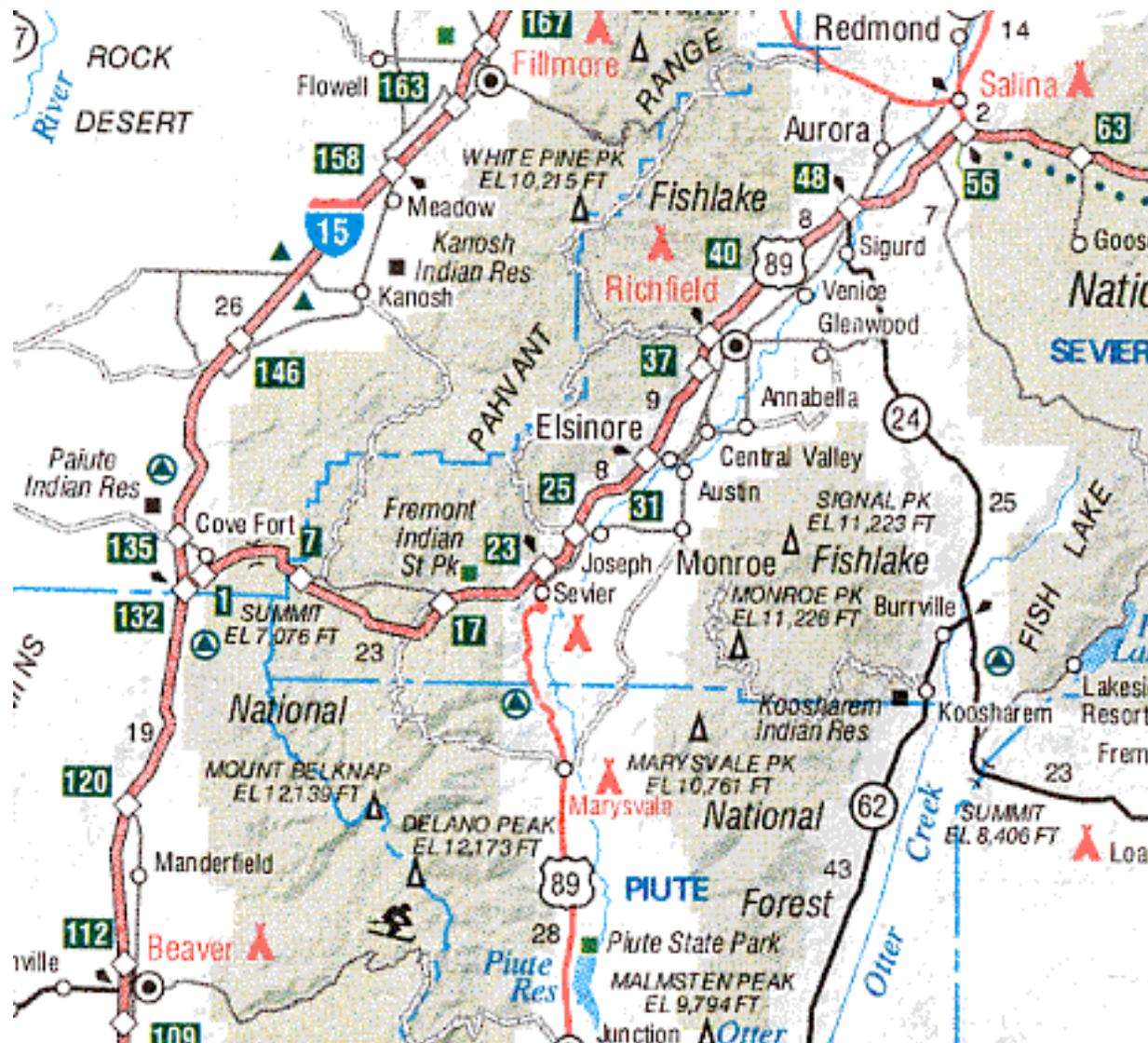
1-1 - Oryzopsis
2-1 - Oryzopsis
3-1 - Oryzopsis on hills
4-1 - Oryzopsis and Stipa
Huge reservoir
5-0
6-1 - Oryzopsis on hills
7-1 - Oryzopsis thick to the
horizon, huge grazed
riparian area to right of
highway at this area
8-1 - Oryzopsis on hills
9-1 - Oryzopsis thick to
horizon
10-0
Oryzopsis moved to the base
of mountains
11-0
12-0
13-0 - Some tiny cheatgrass
filling in the shrub
interspaces
14-0
15-0 Tiny miniature
Rabbitbrush
16-0 - Oryzop off in distance
17-0

18-1 - Oryzopsis thick to
horizon both sides of
highway
19-1 - Oryzopsis thick
20-1 - Oryzopsis thick
21-1 - Oryzopsis thick
22-1 - Oryzopsis thin
23-1 - Oryzopsis thin
Flock of birds along
roadside, actually "roost" on
the road and are not afraid.
24-1
25-1
Sunflowers in volcanic
escarpments
26-1
27-0
28-0 - NO CHEATGRASS
29-1 - Stipa comata
30-1 - Oryzopsis
BLM- Beaver River District
31-1 Oryz. - Beaver County
line
32-1 - Oryz. thin
33-1 - Oryz. thin +
CHEATGRASS
34-0- playa
35-1 - Oryz. thin +
CHEATGRASS
36-1 - Oryz. thin +
CHEATGRASS
37-1 - Oryz. thin +
CHEATGRASS
38-1 - Oryz. thin +
CHEATGRASS
39-1 - Oryz. thin +
CHEATGRASS

40-1 - Oryz to horizon both
sides!
41-1 - Oryz to horizon both
sides!
42-1 - Oryz to horizon both
sides!
43-1 - Oryz to horizon
thinning
44-1 - Oryz to horizon thick
45-1 - Oryz to horizon +
juniper
46-1 - Oryz. thick
47-1 - Orzy solid
48-1 - Orzy. thinner
49- Orzy thin, **Summit?**
50-0- Solid CHEATGRASS
51-0- Solid CHEATGRASS
51-58 good satellite IR
reference for cheatgrass
and crested wheatgrass
52-0- Solid CHEATGRASS
53-0- Solid CHEATGRASS
54-0- Solid CHEATGRASS
55-0 - CHEAT + Chenopod
56-0 - Cow chewed
cheatgrass with Crested
Wheatgrass sown in
(CCC/CW)
57-0 - CCC/CW
58-0 - CCC/CW
59-1 -
60-1
61-1 - Thin
62-1 - Thin
63-1 Solid, Entering BLM
Enter BLM
64-1 - Thin

65-1 - Thin
66-1 - Thin plus
CHEATGRASS
67-0 - CHEATGRASS
68-0 - CHEATGRASS
69-1 - Solid roadside Stipa,
none outside of roadside,
and Stipa can beat
CHEATGRASS
70-1 - Stipa solid roadsides
71-1 - Stipa solid roadsides
72-1 - Stipa thin plus
CHEATGRASS
73-1 - Stipa thin plus
CHEATGRASS
Leaving Beaver County
74-1 - Stipa thin plus
CHEATGRASS
75-1 - No CHEATGRASS
76-1 - No CHEATGRASS
77-0 - **town? (not Beaver),
UT**
78-0
79-0 - Sunflowers
80-0 - Alfalfa
81-0 - Alfalfa
82-0 - Alfalfa
83-0 - Cow chewed
sagebrush (CCS)
84-0 - CCS + CHEATGRASS
85-0 - CCS + CHEATGRASS
86-1 - Oryzopsis
87-1 - Oryzopsis
88-0 - CCS, no
CHEATGRASS
89-1 - Oryzopsis
90-0 - Cemetery

91-0 - CCS, NC	101-0 - CCS, NC	111-0 - Ag. field	122- 0 - Juniper
92-0 - CCS, NC	102-0 - CCS, NC	112-0 - Cow chewed juniper	123-0 - Juniper
93-0 - CCS, NC	103-0 - CCS, NC	113-0 - Solid crested wheat	124-0 - Fire ± one year ago
94-0 - CCS, NC	104-0 - Ag. field	114-0 - Solid CW/CCS	125-0 - Rest area
95-1 - Oryzopsis rare	105-0 - Ag. field	115-0 - Solid CW/CCS	126-0
96-0 - NC	106-0 - Ag. field	116-0 - Solid CW/CCS	127-0 - Ag. fields
97-0 - NC	107-0 - Ag. field	117-0 - Solid CW/CCJ	128-0 - Ag. fields
98-0 - NC	I-15 overpass, Beaver, UT	118-0 - Solid CW/CCS	129-0 - Juniper
Leaving BLM	108-0	119-0 - Solid CW/CCS	130-0 - Cow chewed sage
99- 0 - Ag fields	109-0	120-0 - Juniper	
100-0 - Converted riparian	110-0 - I-15, northbound	121-0 - Juniper	



I-70 junction

131-0

132-0 - Juniper

133-0 - Juniper

134-0 - Juniper

135-0 - Juniper

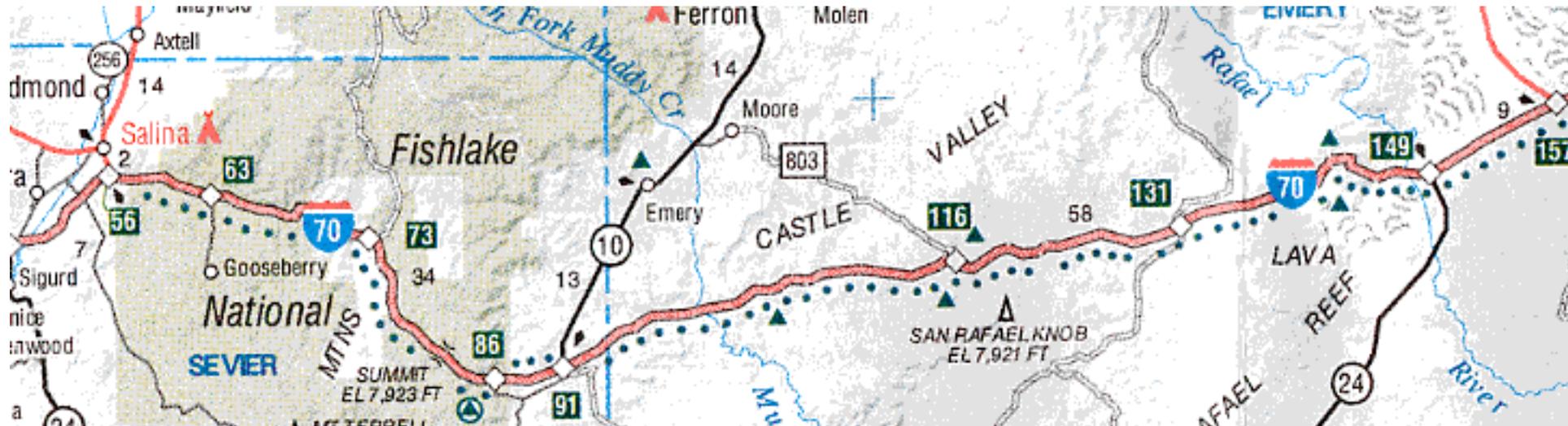
136-0 - Juniper

137-0 - Juniper
 138-0 - Juniper, solid CW/R
 139-0 - Juniper, solid CW/R
 140-0 - Juniper, solid CW/R
 141-0 - Juniper, solid CW/R
 142-0 - Juniper, solid CW/R
 143-0 - Juniper, solid CW/R
 144-0 - Juniper, solid CW/R
 145-0 - Juniper, solid CW/R
 146-0 - Juniper, solid CW/R
 147-0 - Juniper, solid CW/R
 148-0 - Juniper, solid CW/R
 149-0 - Juniper, solid CW/R
 Canyon starts
 150-0

151-0 - Leaving Fish Lake NF
 152-0 - Cow chewed sage
 153-0 - Ag. fields
 154-0 - Ag. fields
 155-0 - CCS/CW
 Exit 26, Joseph/Monroe, big
 Oryzopsis at exit
 156-0
 157-0 - Ag fields + CCS
 158-0 - Ag fields + CCS
 159-0 - Ag fields + CCS
 PM 29
 160-0 - Ag fields + CCS
 161-0 - Ag fields + CCS
 162-0 - Ag fields + CCS

163-0 - Ag fields + CCS
 164-0 - Ag fields + CCS
 165-0 - Ag fields + CCS
 166-0 - Ag fields + CCS
 167-0 - Ag fields + CCS
 168-0 - Ag fields + CCS
 169-0 - Ag fields + CCS
 170-0 - Ag fields + CCS
 171-0 - Ag fields + CCS
 172-0 - Ag fields + CCS
 173-0 - Ag fields + CCS
 174-0 - Ag fields + CCS
 175-0 - Ag fields + CCS
 176-0 - Red Cliffs
 177-0 - Ag fields + CCS

178-0 - Ag fields + CCS
 179-0 - Ag fields + CCS
 180-0 - Ag fields
PM 49
 181-0 - Ag fields + CCS/CW
 182-0 - Ag fields + CCS/CW
 183-0 - Ag fields + CCS/CW
 184-0 - Ag fields + CCS/CW
 185-0 - Ag fields + CCS/CW
 186-0 - Desert
Salina, UT



187-1 - Oryzopsis
 188-0
 189-0
 190-1 Enter Fish Lake NF

191-0
 192-0 - Juniper
 193-0 - Juniper
 194-0 - Juniper
 195-0 - Juniper

196-0 - Juniper
 197-0 - Juniper
 198-0 - Juniper
 199-0 - Juniper
 200-0 - Juniper

201-1 - Oryzopsis
 202-0 - Juniper
 203-1 - Oryzopsis
 204-1 - Oryzopsis
 205-0 - Juniper

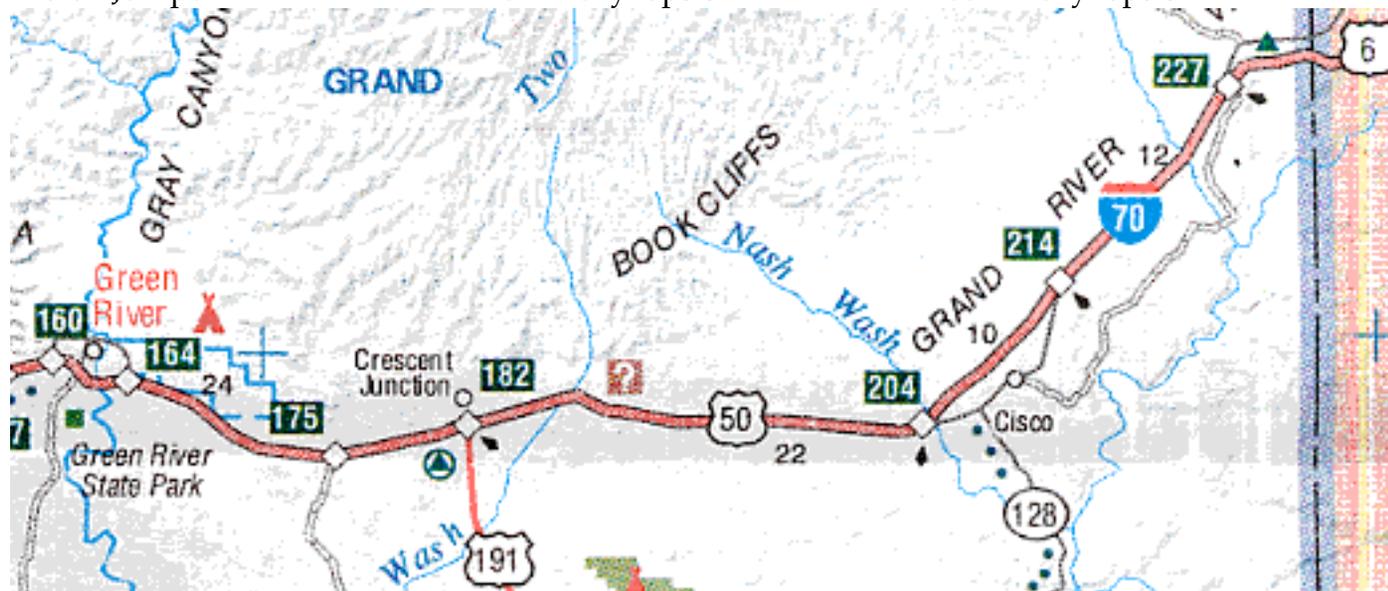
206-0 - Juniper
 207-0 - Juniper
 208-0 - Juniper
 209-0 - Juniper
 210-0 - Juniper
 211-1 - Ind. paintbrush +
 juniper
 212-0 - Juniper
 213-0 - Juniper
 214-0 - Juniper
 215-0 - Juniper
 216-0 - Juniper

YELLOW SWEET CLOVER
 STARTS
 217-0 - Juniper
Rest stop
 218-0
 Leaving Fish Lake NF
 219-0
 220-1 - Oryzopsis rare
 221-0 - Cow chewed sage
 222-0 - Volcanic ash
PM 90
 223-1 - Oryzopsis

224-0 - CCS - Plateau begins
 225-1 - Oryzopsis good
 Emery County line
 226-
 227-0 - Canyon
 228-0 - Canyon
 229-0 - Desert
 230-0 - Desert
 231-0 - Desert
 232-0 - Desert
 Oryzopsis
 233-1 - Oryzopsis

234-1 - Oryzopsis, only
 within highway R/W
 235-0
 236-0
 Solid Oryzopsis
 237-1 - Solid Oryzopsis
 238-1 - Oryzopsis only R/W
 239-1 - Solid Oryzopsis
 240-1 - Solid Oryzopsis

End Notebook 97



Start Notebook 98, page 1-6

**UTAH I-70 Zero odometer
 equals Interstate PM 107**
 1-1 - Oryzopsis

2-0 - Desert
 3-1 - Orzy only in R/W
 4-1 Oryzopsis + juniper
 5-1 - Oryzopsis
 6-1 - Stipa comata at
 interchange
 7-0

8-0
 Big stipa patch
 9-0 - Canyon
 10-0 - Canyon
Eagle canyon
 11-0 - Juniper
 12-0 - Juniper

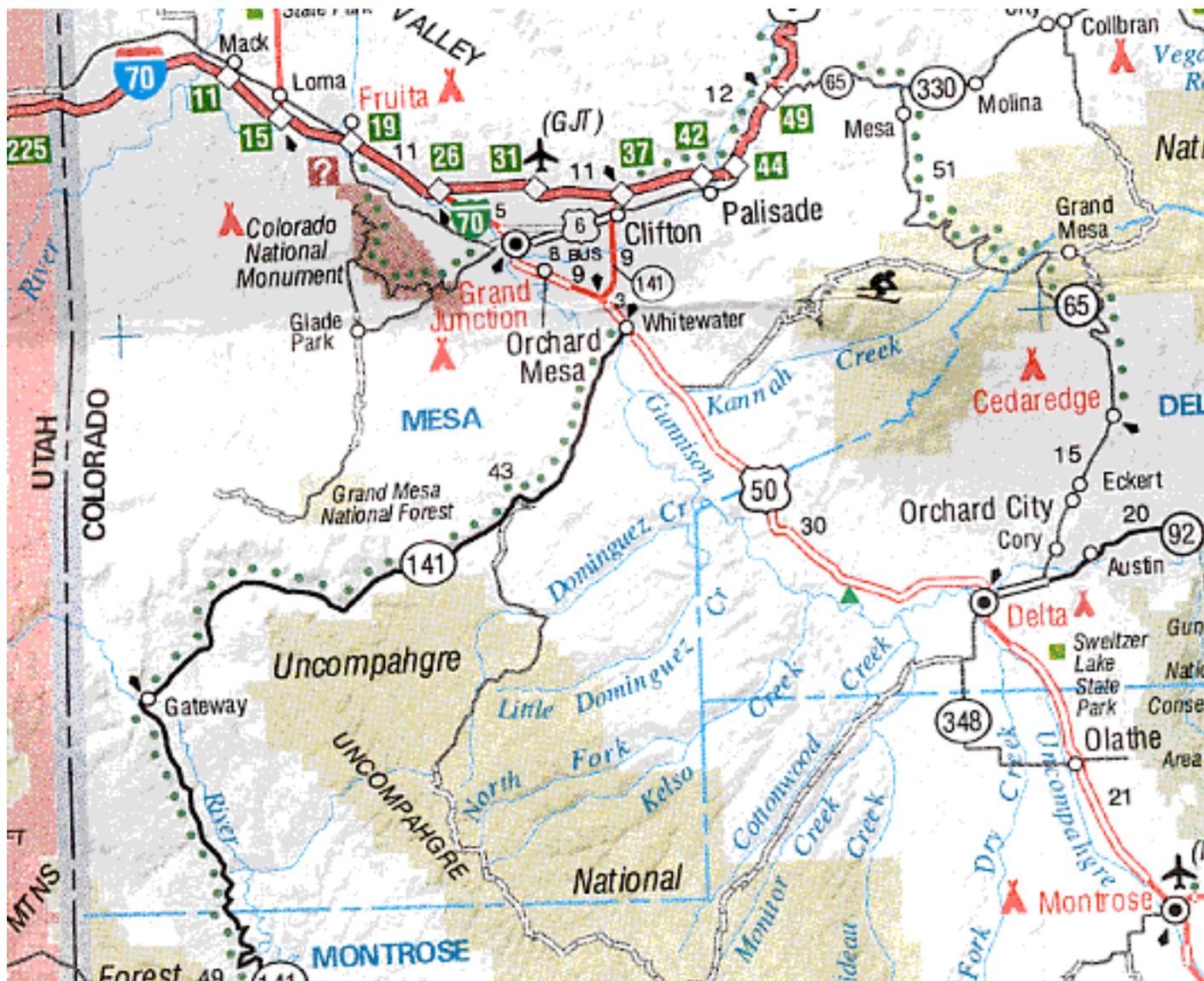
13-0 - Canyon
 14-0 - Cow chewed
 Sage/Crested Wheatgrass
 (CCS/CW)
 15-0 - CCS/CW
 16-1 - Stipa comata
 17-0 - Huge CCS/CW

18-1 - Oryzopsis
19-0 - CCS
20-0 - CCS
21-0 - CCS
22-0 - CCS/CW
23-1 - Stipa comata

24-1 - Stipa comata solid in
highway R/W
25-1 - Solid Stipa comata
outside R/W
26-1 - Solid Stipa comata
outside R/W

27-1 - Solid Stipa comata
outside R/W = **PM 134**
28-1 - Stipa comata
29-0 - Juniper
30-0 = **PM 137**
31-0 - Canyon sides

32-1 - Oryzopsis only along
highway R/W
33-1 - Oryzopsis - STATE OF
COLORADO LINE



1-70
COLO. state line
 34-0
 35-0 - Canyon awesome

36-1 - *Oryzopsis* thin
 37-1 - *Oryzopsis* thin
 38-1 - *Oryzopsis* thin

39-0 - Tamarisk infested riparian
 40-1 - *Oryzopsis*
 41-1 - *Oryzopsis*

42-0 - Badlands, volcanic ash	COLO. I-70	109-1 - Gramma grass, first	140-0 - Colorado River
43-1 - Oryzopsis, volcanic ash used to be rich grasslands, now desert	76-0 Hwy interchange	seen	141-0 - Riparian
44-0	77-0 - Cow chewed Sage	110-0	142-0
45-1 - Oryzopsis	78-0 - Cow Chewed Desert	111-1 - Oryzopsis	Interchange Exit 19
46-1 - Oryzopsis	79-0 - CCD	112-0 - CCD	143-0 - Ag. fields
47-1 - Oryzopsis = PM 154	80-0 - CCD	113-1 - Oryzopsis	144-0 = PM 21
48-0 - Huge badlands, used to be native grasslands	81-0 - CCD	114-0 - CCS	145-0 - Riparian
49-0 -Badlands, former grass	82-0 - CCD	115-0 - CCS	146-0 - Riparian
50-0 -Badlands, former grass	83-0 - CCD	116-0 - CCS/CW	147-0 - Riparian
51-0 -Badlands, former grass	Stipa on hill	117-0 - Some CHEATGRASS	148-0 Grand Junction, CO - tamarisk infested
52-0 -Badlands, former grass	84-0	Grasslands under junipers	
53-1 - Oryz. in distance	85-0 = PM 191	118-1 - ? grass species starts	Notebook 98, page 7-8
54-1 Green River	86-0 - Sunflowers, more precipitation	119-1 - Canyon sides	COLORADO
55-1 - Oryzopsis	87-0	120-0 - CCD	US 50 Grand Junction 8-24-97
56-1 - Oryzopsis good	88-0 - CCD	COLO I-70	0 = PM 38
57-1 - Oryzopsis in badlands	89-0 - CCD	121-0 - CCS/Bitterbrush	1-0 - Cow chewed desert
58-1 - Oryzopsis in badlands	90-1- Stipa on hill	122-0 - CCS/juniper	2-0 - Badlands
59-1 - Oryzopsis in badlands	91-0 - CCD	123-0 - Solid CHEATGRASS	3-0 - Old ag. fields
60-1 - Oryzopsis in badlands	92-0 - CCD	124-0 - CCD	4-0 - CCD
61-1 - Oryzopsis = PM 168	93-0 - CCD	125-0 - CCS	5-0 - Cow chewed desert
62-0 -Badlands, former grass	94-0 - CCD	126-0 - CCS	6-0 - Cow chewed desert
63-0 -Badlands, former grass	95-0 - CCD	127-0 - CCS	7-0 - Ag. fields
64-0 -Badlands, former grass	96-0 - CCD	128-0	8-0 - Ag. fields/riparian
65-1 - Oryzopsis	97-0 - CCD	PM 6 I-70 COLORADO	9-1 - Oryzopsis on ridge
66-0 -Badlands, former grass	98-1 - Oryzopsis	129-0 - CCD	10-1 - Oryzopsis = PM 48
67-0 -Badlands, former grass	99-0 - CCD	130-0 - CCD	11-0 - Cow chewed desert
68-1 - Oryzopsis in badlands	100-0 - CCD	131-0	12-0 - CCD
69-0	101-0 - CCD	132-1 - On ridges	13-0 - CCS
70-0 = PM 177	102-0 - CCD	133-1 - Pristine, on edges but solid cheatgrass	Oryzopsis
71-1 - Oryzopsis	103-0 - CCD	134-0 - CHEATGRASS desert	14-1 - Oryzopsis
72-1 - Oryzopsis good	104-1 - Oryzopsis thin	135-0 - CHEATGRASS desert	15-1 - Oryzopsis
73-0	105-1 - Oryzopsis good	136-0 - CHEATGRASS desert	Huge Hilaria plateau
74-0 - Cow chewed desert	106-0 - CCD	137-0 - Cow chewed desert	16-0
75-1 - Rare	107-0 - CCD	138-0 - Cow chewed desert	17-1 - Pristine Hilaria, no cheatgrass to speak of, but
	108-0 - CCD	139-0 - Colorado River	

plants that exist, very depauperate
 18-1 - Pristine Hilaria
 19-1 - Pristine Hilaria
 20-1 - Pristine Hilaria
 21-0 - Cow chewed desert
 22-1 - Hilaria/Oryzop. good
 23-1 - Hilaria/Oryzop. good
 24-1 - Hilaria/Oryzop. excel
 25-1 - Hilaria/Oryzop. rare
 = PM 63

26-0 - Cow chewed desert
 27-0 - CCD
 28-0 - Ag. fields
 29-0 - Ag. fields
 30-0 - Ag. fields
 31-0 - Outskirts of **DELTA**
elevation 4900 feet
 32-0
 33-0 - town **DELTA**
 34-0 - Geese, 50 flying at 28
 mph

35-0
 36-0 - Ag. fields
 37-0 - Ag. fields = **PM 75**
 38-0 - Ag. fields
 39-0 - Ag. fields
 40-0 - Ag. fields -
MONTROSE COUNTY
 41-0 - Ag. fields
 42-0 - Ag. fields
 43-0 - Ag. fields - **Olathe, CO**
 44-0 - Ag. fields

45-0 - Ag. fields
 46-0 - Ag. fields
 47-0 - Ag. fields
 48-0 - Ag. fields
 49-0 - Ag. fields
 50-0 - Ag. fields
 51-0 - Cow Chewed Sage
 52-0 - CCS
 53-0 - town of Montrose
 54-0 **Montrose, CO**



COLORADO
 US 50 8/25/97
 Montrose to Gunnison

In this rainfall, yellow sweet clover turns into impenetrable thickets
 Rolling hay bales start.
 Smooth brome starts as a new highway weed, at about 20-30 inches annual precip.
 LOTS of cheatgrass, the most seen so far. ORYZ. on

roadcuts, showing that it originally was widespread.
 0 = Black Canyon Hotel
 1-0 - Ag. fields
 2-0 - Ag. fields
PM 98
 3-0 - Ag. fields
 4-0 - Ag. fields
 5-0 - Ag. fields
 6-0 - Cow chewed sagebrush
 7-0 - Ag. fields
 8-1 - Oryzopsis
 9-0 - CCS/CHEATGRASS
 10-0 - CCS/CHEATGRASS
 11-0 - CCS/CHEATGRASS
 12-0 - Road cut

13-0 - CCS
 14-0 - CCS
 15-0 - CCS
 16-1 - Orzy. only in R/W
 17-0 - CCS
 18-1 - Oryz. only in R/W
 19-1 - **Cimarron**
 20-0 -
 21-0 - Riparian
 22-1 - Oryzopsis
 23-0 - Ag. fields, Gunnison County
 24-1 - Oryzopsis = **PM 117**
 25-0 - Cow Chewed Sage
 26-1 - Oryzopsis
 27-1 - Oryzopsis

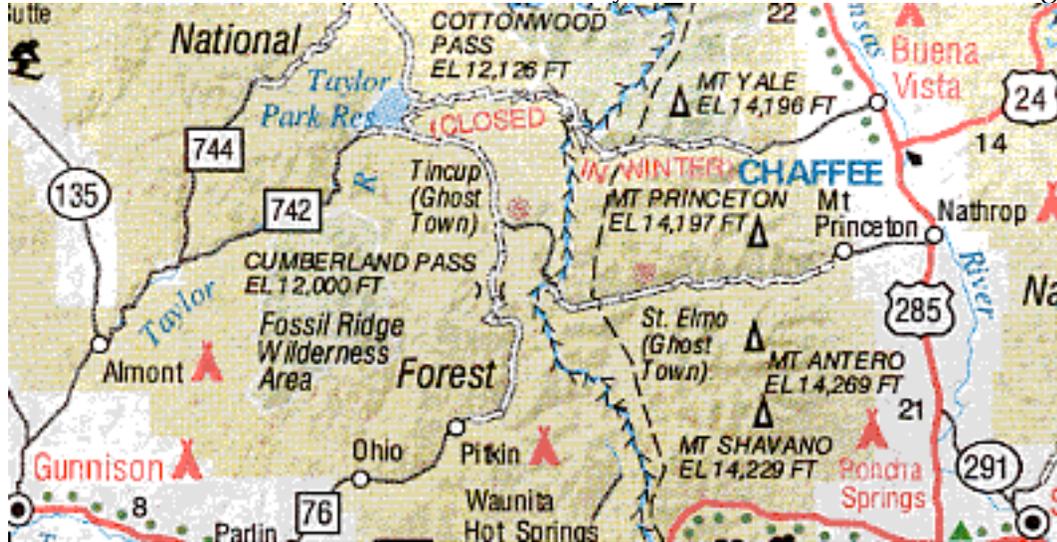
28-0 - Cow chewed Sage
 29-0 - entering canyon
 30-0 - Canyon, fir trees
 31-0 - Cow Chewed Sage
 32-0 - CCS
 33-0 - CCS/Smooth Brome
 34-0 - CCS/Smooth Brome
 35-0 - CCS/Smooth Brome
 36-1 - Oryzopsis
 37-0 - CCS
 38-0 - CCS, no Sm. Brome
 39-0 - CCS, no Sm. Brome
 40-0 - CCS, no Sm. Brome
 41-0 - CCS, no Sm. Brome
 42-0 - CCS, no Sm. Brome
 43-1 - Oryzopsis, relic only

Stipa present
 Patches of pristine
 grasslands in sage on hills
 begin PM 139
 44-1 Oryzopsis
 45-1 - Pristine
 46-1 - Oryzopsis
 47-0 - Cliffs

48-0 - CCS and Butte
 49-0 - CCS
 50-0 - CCS
 51-0 - CCS & Crested wheat
 52-0 - CCS & Crested wheat
 Stevens Creek Campground
 53-1-New bunchgrass
 54-0 - Canyon

55-1
 56-1
 57-0 - Canyon
DEER, first road kill seen
 58-1 -
 Begin Riparian
 59-0 - Ag. fields
 60-0 - Ag. fields

61-0 - Ag. fields
 62-0 - Ag. fields
 63-0 - Ag. fields
GUNNISON, CO



Notebook 98. page 35-40, 46
COLORADO Gunnison to
Denver 8-29-97, start at US
50 jct in town of
Gunnison, on road Hwy
135 to Almont, then to
Taylor Lake, Cottonwood
Pass, Buena Vista, south
on COLO 24 to Antero Jct
to Hwy 285 to Denver

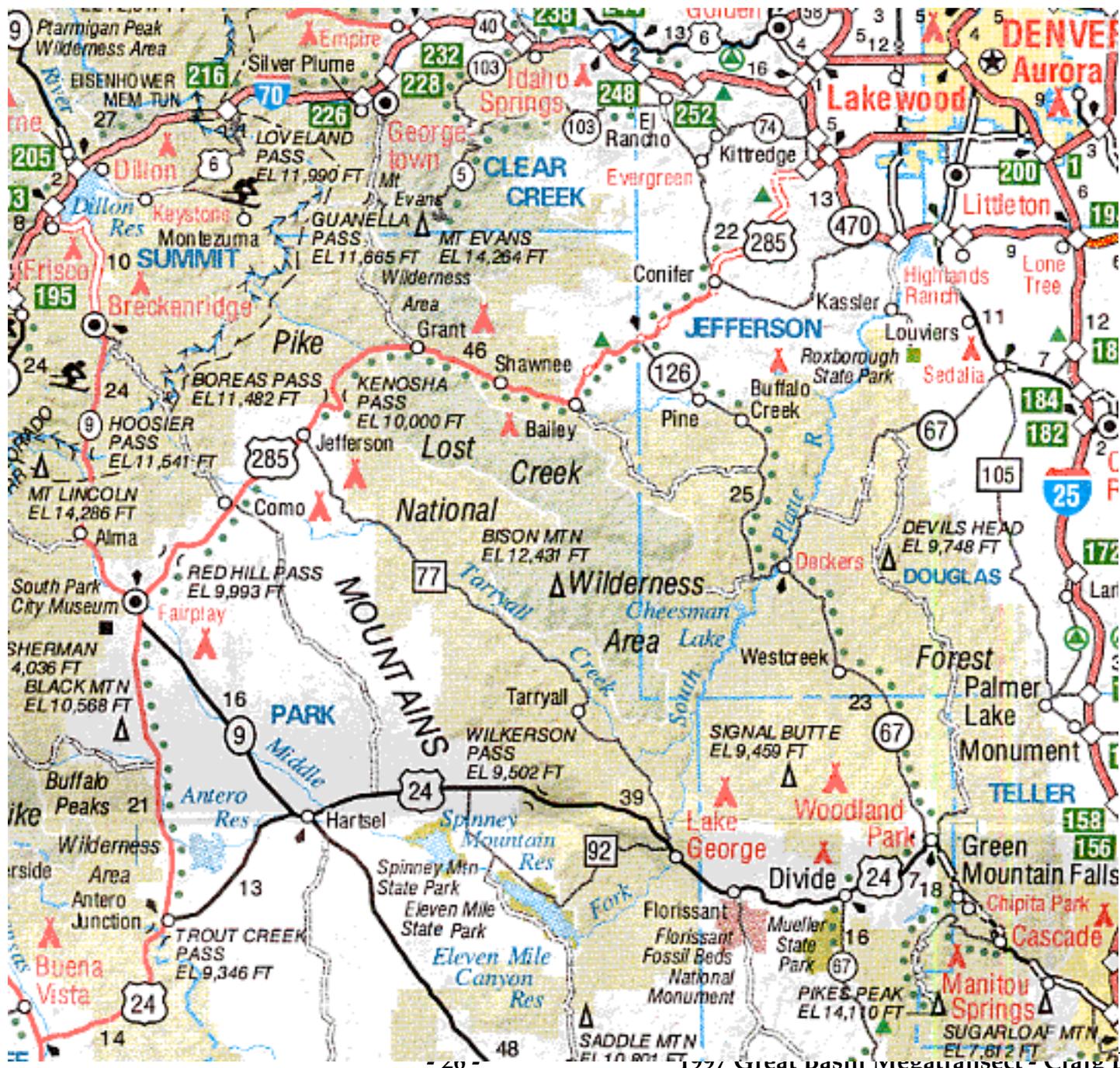
First butterfly seen on trip

1-0 - Ag. fields
 2-0 - Ag. fields, riparian
 2.6-1 - Single GBWR plant at
 bridge across Gunnison
 River
 3-0 - Riparian
 4-0 - Riparian
 5-0 - River / Ag
 6-0 - Ag
 7-0 - Ag

National Forest boundary
 8-1 - Stipa/sage
 9-1 - Stipa/sage/riparian
 10-0 - Ag/River
Almont, Co
Road to Cottonwood Pass
 11-1 - Stipa & river, Road to
 Cottonwood Pass
 12-0 - Ag
 Mountain Park City
 13-1 - Stipa/sagebrush
 14-1 - Stipa/sage + conifers
 begin

15-0 - Ag
 16-0 - Ag
 17-0 - CCS - Harmel's
 18-0 - Conifers
 19-0 - Conifers
 Annual precip. increasing, so
 sagebrush is dropping out
 20-0 - CCS + conifers, no SB
 21-0 - conifer + YS Clover
 22-0 - Conifers
 23-0 - Lodge pole doghair,
 bare understory under
 pines

24-0 - Lodge pole doghair
 25-0 - Lodge pole doghair
 26-0 - Aspen
 27-0 - Aspen
 28-0 - SB + aspen
 29-0 - River
 30-0 - River
 Dam
 31-1 - Fescue good
 32-1 - Fescue good + SB
 33-0 - Bridge over riparian
 34-1 - Fescue + CCS
 35-0 - CCS
 35.3 Junction Co. Rd. 209
 36-1 - Fescue + CCS
 37-0 - Conifers
 38-0 - Conifers
 39-1 - Native bromes
 39.5 - Good meadow on right
 40-1 - Clear cut with grasses
 41-1 -
 41.2 = PM 6.0
 42-1 - Lupines
 43-0 - Willow
 44-1 - Fescue, Native bromes,
 Senecio, fireweed + exotic
 yarrow and SB sown in.
 45-1 - Native brome + Aster
 46-0 - Thick shrubs
 47-1 - Aspens + SB
 48-1 - Senecio
 48.9 = Cottonwood Pass,
 12,126 ft. elevation
 49-1 - Deschampsia
 50-1 - Deschampsia
 51-1 - Deschampsia
 52-1 - Deschampsia
 53-1 - Deschampsia!
 54-1 - Deschampsia
 55-1 - Deschampsia + huge
 Wealth of Natives (WON)
 56-1 - Deschampsia + WON
 57-1 - Deschampsia + WON,
 National Forest
 58-1 - WON + SB, YSC
 59-1 - WON + SB, YSC
 60-1 - Stipa/sage
 61-1 - Stipa/sage +
 Ponderosa pines
 62-1 - Stipa/sage + SB
 63-1 - Stipa/Oryzopsis
 64-1 - Huge prairie valley,
 for sale!
 65-1 - Huge prairie valley
 66-1 - Huge prairie valley
 67-0 - CW in town
 68-0 - Buena Vista, COLO
 69-0 - Buena Vista town
 70-0 - Riparian
 71-0 - Riparian
 72-0 - Ark River bridge
 73-1 - Oryzop + CW
 74-1 - Wealth of Natives
 (WON) - Pinyon/sage
 begins
74.5 = PM 216
 75-1 - WON
 76-1 - WON -**San Isabel NF**
 and yuccas begin
 77-1 - WON
 78-1 - WON
 79-1 - WON
 80-1 - WON = **Jct. 24/285**
 81-1 - WON - huge native
 valley
 82-1 - WON - **PM 225**
 83-1 - WON
 84-1 - SB, YSC + the end of
 the valley
 85-1 - **Junction 285, PM 164**
 86-1 - WON, Cow Chewed
 Natives (CCN)
 87-1 - CCN
 88-1 - Oryzopsis
 89-1 - Oryzopsis on red hill
 90-1 - CCN + Rabbitbrush
 91-1 - CCN
 92-1 - CCN
 93-1 - CCN + YSC
 94-1 - Conifers, **PM 170**
 95-1 - CCN - **PM 171,**
 Beginning of Big Valley
 96-1 - WON + CHEATGR
 97-1 - CCN
 98-1 - CCN
 99-1 - CCN



Middle of Big Valley--NOTE:

SB not moving off
roadsides where it was
sown by Colo. DOT

- 100-1 - CCN + SB
- 101-1 - CCN + SB
- 102-1 - CCN + SB
- 103-1 - CCN + SB
- 104-1 - CCN + SB
- 105-1 - Aspen grove
- Beauty native site
- Junction COLO Hwy 9**
- 106-1 - Fairplay town
- 107-1 - CCN + SB
- 108-1 - CCN + SB
- 109-1 - CCN + SB
- Big valley ends
- 110-1 - WON + aspens +
yarrow
- 111-1 - WON + SB
- 112-1 - WON
- PM 189**
- 113-1 - CCN
- 114-1 - CCN + SB
- 115-1 - CCN + SB
- 116-1 - Beauty, solid natives!
- 117-1 - Beauty, solid natives!
- PM 194**
- 118-1 - CCN+SB+YSC
- 119-1 - CCN+SB+YSC
- 120-1 - CCN+SB+YSC
- 121-1 - CCN+SB+YSC
- 122-1 - town Jefferson, CO
- 123-1 - CCN + SB
- 124-1 - CCN + SB
- 125-1 - WON + Aspen

- 126-1 - WON + Aspens
- Hwy 285, PM 203**
- 127-1 - CCN + conifers
- 128-1 - WON + conifers
- 129-1 - WON + conifers
- 130-1 - WON + thin SB +
YSC
- 131-1 - WON + conifers
- 132-1 - WON + conifers
- 133-1 - WON + conifers
- 134-1 - WON + town
- 135-1 - CCN + aspen
- First Mexican and African-
American radio stations
- PM 212**
- 136-0 - Santa Maria, CO. -
dying conifers (25%±)
ponderosa pines, yellow
needle virus?
- 137-0 - Dying pines
- 138-1 - Elymus? in pines
- 139-1 - Elymus? in pines
- 140-1 - Beauty natives
- PM 217 Shawnee, leaving
Pike NF**
- 141-0 - CCS + pines
- 142-0 - Riparian + SB
- 143-1 - CHEATGRASS + SB
- 144-1 - Elymus glaucus (EG)
- 145-0 - Bailey town, COLO.
- 146-1 - EG
- 147-1 - EG + SB
- 148-0 - Ag + town
- 149-1 - WON + conifers
- 150-1 - WON + conifers
- 151-1 - WON + conifers

- 152-0 - **PINE JUNCTION,**
CO., a STOP SIGNAL!
- 153-1 - EG + SB
- 154-0 - Ag
- 155-1 - Stipa **PM 232** + SB
- 156-1 - EG+ SB
- 157-1 - EG solid + SB
- 158-EG + SB - **PM 235**
- Wild lettuce starts**
- 159-0 - town + SB
- 160-1 - ? in pine + SB
- 161-0 - Ag
- 162-1 - EG + SB
- 163-1 - EG + SB
- 164-0 - Cliff side
- Giant native Poa begins,
even keeps out Smooth
Brome, etc., could be Poa
pratensis?
- 165-1 - EG + SB
- 166-1 - EG + SB
- 167-0 - 4-lane freeway + SB
- 168-0 - clover & YSC + SB
- 169-0 - Smooth Brome (SB)
- 170-0 - Exotic wheatgrass
replaces Smooth Brome
- PM 247**
- 171-0 - View of Plains
- 172-1 - Cow chewed natives
- 173-0 - **PM 250, Junction
Interstate**

- Notebook 98, page 47**

- COLORADO Denver
8-29-97**

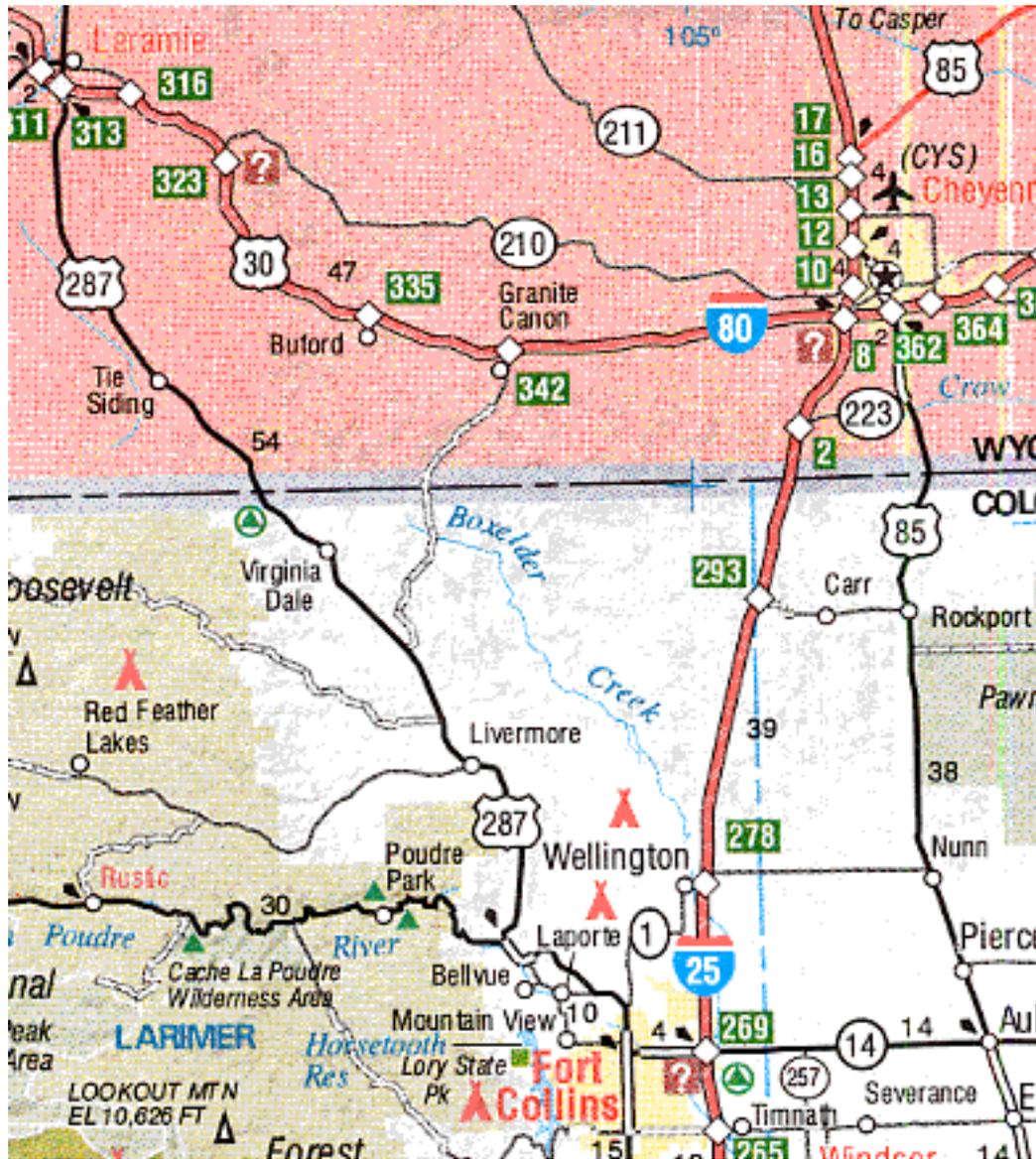
- Jct. 285 & 240**
- 1-1 - Cow chewed natives
- 2-0 - Ag
- 3-0 - Ag
- 4-0 - Ag
- 5-0 - **Junction 70 East**

- 1-0 - City Denver
- 2-0 - City Denver
- 3-0 - City Denver
- 4-0 - City Denver
- 5-0 - City Denver
- 6-0 - City Denver
- 7-0 - City Denver
- 8-0 - City Denver
- 9-0 - City Denver
- 10-0 - City Denver
- 11-0 - City Denver
- 12-0 - City Denver
- 13-0 - City Denver
- 14-0 - City Denver
- 15-0 - City Denver
- 16-0 - City Denver
- 17-0 - City Denver
- 18-0 - City Denver
- 19-0 - City Denver
- 20-0 - City Denver
- 21-0 - City Denver
- 22-0 - City Denver, Hwy 25,
PM 224
- 23-0 - Ag
- 24-
- 25-0 - Ag
- 26-0 - Ag
- 27-0 - Ag
- 28-0 - Ag
- 29-0 - Ag

30-0 - Ag
31-0 - Ag
32-0 - Ag
33-0 - Ag
34-0 - Ag
35-0 - Ag
36-0 - Ag
37-0 - Ag

38-0 - Ag
39-0 - Ag
40-0 - Ag
Ag = hay also. Good flat
grassland soil with tall,
wild sunflowers in
beautiful soil. The single
head [cultivated]

sunflowers look sad and
lonely--no other friends on
the stalks, like slaves



Notebook 98, page 56-58

COLORADO Ft. Collins to
Laramie WY via US 287

August 31, 1997 - side trip to
see Dr. Alan Beetle

Red top and Crested
Wheatgrass sown along
highway but

Grama/Sage/Stipa and cheatgrass dominant on other side of fence. Scattered yucca, gumplant and rabbitbrush. 0 = Junction/Riparian **PM 351 Hwy 285 near LaPorte Cutoff.**
 1-1 - Cow chewed natives (CCN)
 2-1 - CCN
 3-1 - CCN
 4-1 - CCN
 5-0 - Ag
 Junction Colo. 17
 6-0 - Ag
 7-1 - Riparian
 8-1 - Wealth of Natives (WON), and mullein is a big weed problem in good grasslands soils, especially vernal wet areas.
 9-1 - WON
 10-1 - WON
 11-1 - CCN from here through Wyoming = Cow chewed natives grazed to the ground, but without bare spots
 12-1 - CCN - Bonner Creek Ranch
 13-1 - CCN
 14-1 - CCN - Stipa mostly grazed out, leaving tougher grama to Mile 17

15-1 - CCN
 16-1 - CCN
 17-1 - CCN
 18-1 - WON, stipa
 19-1 - CCN - severe
 20-1 - CCN - lawn-like
 21-1 - CCN
 22-1 - CCN
PM 373
 23-1 - CCN
 24-1 - CCN
 25-1 - CCN - solid cover
PM 376
 26-1 - CCN - solid cover
 27-1 - CCN - solid cover
 28-1 - CCN - solid cover
 29-1 - CCN + bare spots (BS)
 30-1 - CCN + BS + CHEAT Virginia Dale
 31-1 - CCS + CHEATGRASS
 32-1 - CCS + CHEATGRASS
 Pines start + **Rest Area**
 33-1 - WON + pines
 34-1 - WON + pines

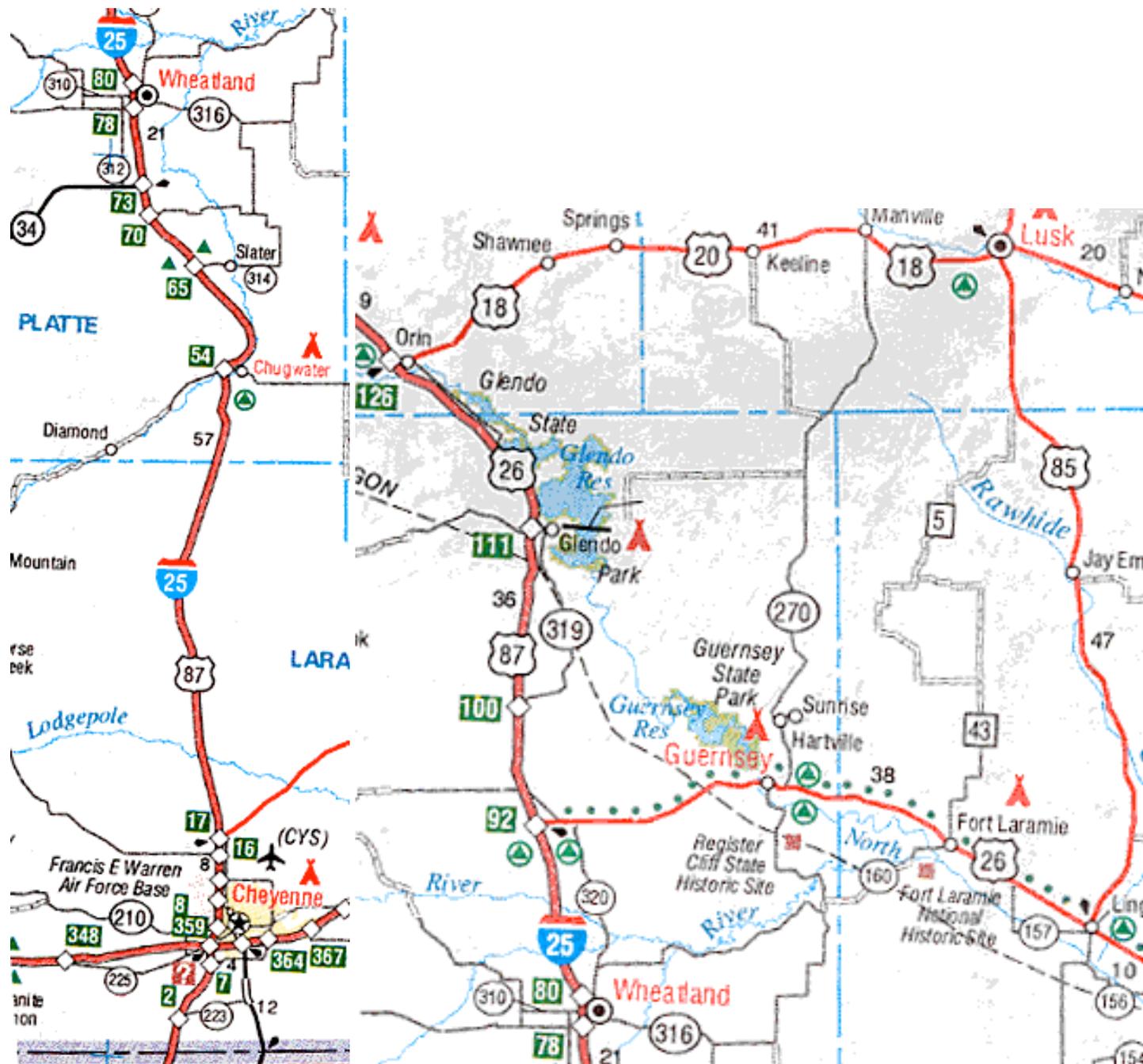
WYOMING BORDER
0= 1 - PM 425, Highway 285
WON + pines. Wyoming's biggest business is fireworks!
 1-1 - CCN + BS, pines end
 2-1 - CCN + BS
 3-1 - CCN + BS
 4-1 - CCN + BS
 5-1 - CCN + BS

6-1 - CCN + BS
 7-1 - CCN + BS
 8-1 - CCN + BS, **PM 417**
 9-1 - CCN + BS
 10-1 - CCN + BS, no obvious water source to mile 19
 11-1 - CCN + BS
 12-1 - CCN + BS
 13-1 - CCN + BS
 14-1 - CCN + BS
 15-1 - CCN + BS
 16-1 - CCN + BS
 17-1 - CCN + BS
 18-1 - CCN + very bare spots
 19-1 - CCN + very bare spots
 20-1 - CCN + BS
 21-1 - CCN + BS, **PM 404**
 22-0 - **town Laramie**
 23-0 - Crested Wheatgrass, **city limits Laramie**
 24-0 - **Junction I-80**

End Notebook 98
Start Notebook 99, page 16

COLORADO
 9-5-97 I-25
Ft. Collins north to Wyoming border, 0 = start at I-25 Prospect Road exit
 0-0 - Ag
 1-0 - **Interchange I-25, PM 270**
 2-0 - Ag
 3-0 - Highway Interchange

4-0 - Highway Interchange
 5-0 - Ag
 6-0 - Ag
 7-0 - Ag
 8-0 - Ag
 9-0 - Ag
 10-0 - Ag
 11-0 - Ag
 12-0 - Ag
 13-1 - Cow Chewed Natives
 14-1 - CCN + rabbitbrush
 15-1 - CCN
 16-1 - CCN only 1" tall!
 17-1 - CCN + Bare spots (BS)
 18-1 - CCN + Gullies to horizon, west and east (G/H)
 19-1 - CCN + G/H
 20-1 - CCN + G/H
 21-1 - CCN + G/H
 22-1 - CCN + G/H
 23-1 - CCN + G/H
 24-1 - CCN + G/H
 25-1 - CCN + G/H
 26-1 - CCN + G/H + BS
 27-1 - CCN
 28-1 - CCN
 29-1 - CCN + BS
 30-1 - CCN



Notebook 99, page 17-19, 23-24

WYOMING I-25 to North Platte River Sept. 5, 1997

0- 1 - Decent native (DN) with thatch/Lacks shrub diversity (LSD)

1-1 - DN/LSD

2-1 - DN/LSD

3-1 - DN/LSD

4-1 - DN/LSD

5-1 - DN/LSD

6-1 - DN/LSD

7-1 - DN/LSD

8-1 - DN/LSD

9-1 - DN/LSD

I-80 Interchange

10-0 - Hwy 30 interchange

11-0 - city Cheyenne

12-0 - city Cheyenne

13-0 - city Cheyenne

14-0 - city Cheyenne

15-0 - end Cheyenne, wealthy part of town

16-1 - CCN, with Crested wheat all along I-25 roadside (CW/R)

17-1 - CCN + CW/R

18-1 - CCN + CW/R

19-1 - CCN + CW/R

20-1 - CCN + CW/R

Crested wheatgrass pasture

21-1 - CCN + CW/R

22-1 - CCN + Bare spots

23-1 - CCN + Snow drift fences

Creek

24-1 - Decent Natives (DN)

25-1 - DN

26-1 - DN + CCN + BS

27-1 - CCN

28-1 - CCN

29-1 - CCN

30-1 - CCN + Yucca, crossing into lower rainfall/poorer soil at this point. No

obvious surface water, all has to be pumped into ponds with windmills

31-1 - CNN + CW-YSC/R

32-1 - CNN + CW-YSC/R + BS

33-1 - CNN + CW-YSC/R - Horse Creek

34-1 - CNN + CW-YSC/R

35-1 - CNN + CW-YSC/R

36-1 - CNN + CW-YSC/R+BS

37-1 - CNN + CW-YSC/R+BS

38-1 - CNN + CW-YSC/R+BS

39-1 - CNN + CW-YSC/R+BS

40-1 - CNN + CW-YSC/R+BS

41-1 - DN + Little Bear Community

42-0 - Crested wheatgrass converted

43-1 - DN + yucca

44-1 - CCN

45-1 - CCN

46-1 - CCN

47-1 - CCN

Platte County

48-1 - CCN + Bare spots (BS)

49-1 - CCS + BS

50-1 - CCS + BS

51-1 - CCS + BS

52-1 - CCS only 2" tall + BS, very dry poor soil

53-1 - CCS

54-0 - Ag

55-0 - CW -**Chugwater** town

56-0 - Ag/CCS

57-0 - CCS/CW

58-0 - CCS/Ag

59-0 - CCS

60-1 - CCN, CW/R

Relict riparian valley with cottonwoods along Chugwater Creek

61-1 - CCN, CW/R

62-1 - CCN, CW/R

63-0 - Crested wheatgrass converted, CW/R

64-0 - CW/R, Richeau Ck

65-1 - CCN + CW/R

66-0 - CW converted

67-1 - CCN

68-1 - CCN + BS

69-0 - Ag

70-1 - CCN

71-1 - CCN + CW-SB/R

72-1 - CCN + CW-SB/R

73-1 - CCN + CW-SB/R

74-0 - Ag

75-0 - Ag

76-0 - Ag

77-0 - Wheat land

78-0 - Wheat land

79-0 - Wheat land

80-0 - Wheat land

81-1 - Riparian

82-0 - Ag

83-0 - Ag

84-1 - **Laramie River**

85-1 - CCS + BS on plateau
 86-0 - Ag
 87-1 - North Laramie River
 88-1 - CCN
 89-1 - Decent natives
 90-1 - CCN + **Rest area**
 91-1 - Cow chewed natives +
 sage (CCN/S)
 From this point, climate is
 drier and drier as you go
 north
 92-1 - CCN/S
 93-1 - CCN/S
 94-1 - CCN/S
 Pronghorns!
 95-1 - CCN/S
 96-1 - CCN/S + badlands
 97-0 - Ag
 98-1 - CCN/S + bare spots
 99-1 - CCN/S + bare spots
 First military seen on
 highway, with artillery
 100-1 - CCN/S + bare spots
 101-1 - CCN/S + bare spots
 102-1 - CCN/S + bare spots
 Only 2 cars per mile on
 freeway
 103-1 - CCN/S + bare spots
 104-0 - Interchange + Trees
 start
 105-1 - CCN/S
 106-1 - CCN/S
 107-1 - CCN/S

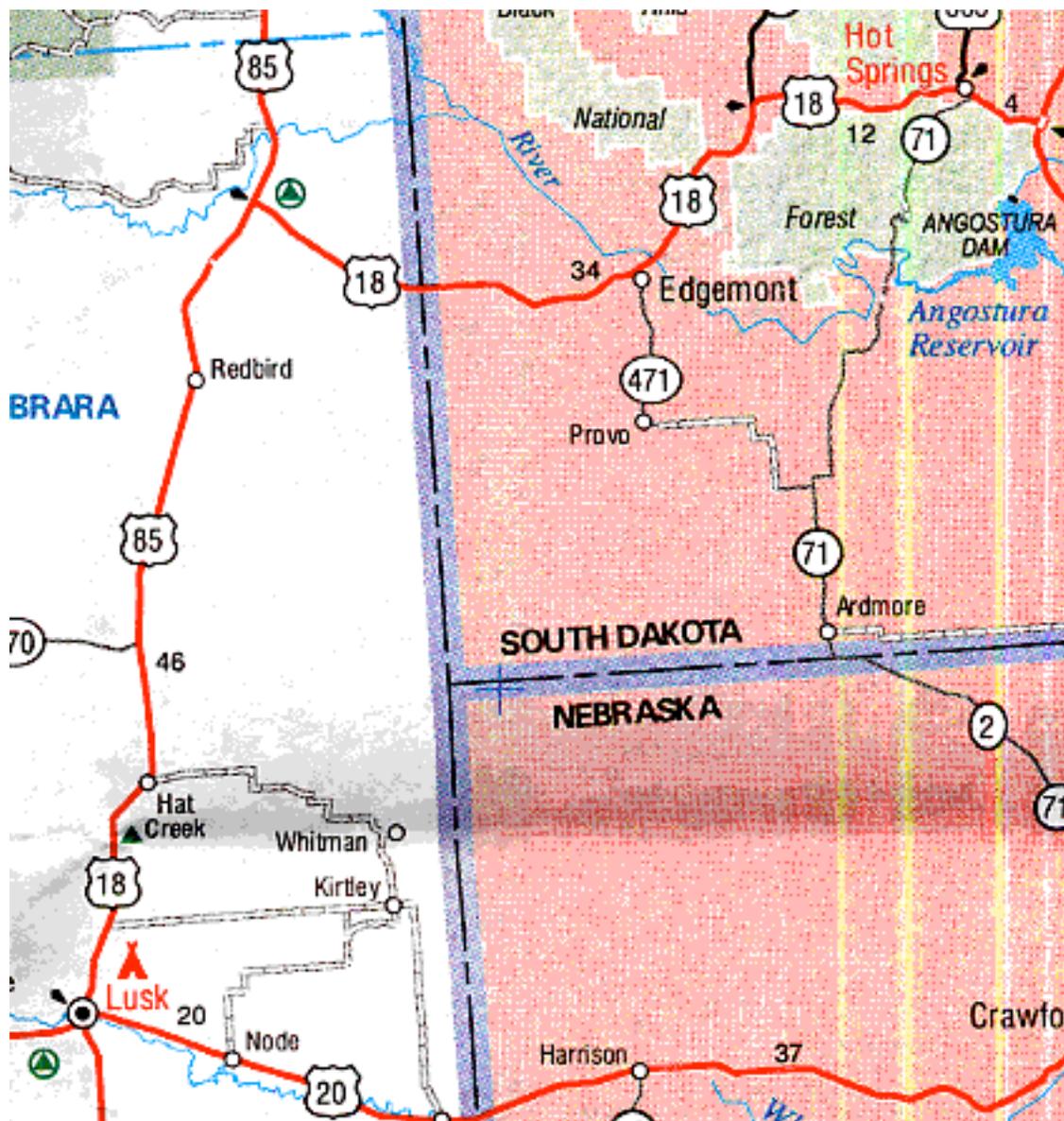
108-1 - CCN/S
 109-0 - Ag @ Horse Shot Ck
 110-1 - CCN/S + Ag
 111-0 - CW - Glendo, no trees
 112-0 -
 113-1 - CCN/S, depauperate
 114-0 - CW
 115-0 - CCS/CW
 116-0 - CCS/CW
 117-0 - CCS/CW
 118-0 - CCS/CW + Bare spot
 119-0 - CCS/CW
 120-0 - CCS/CW
 121-0 - Ag
High Plains of Wyoming
 122-0 - CCS/CW
 123-0 - CCS/CW
 124-0 - CCS/CW
 125-0 - CCS/CW
 126-0 - **North Platte River**

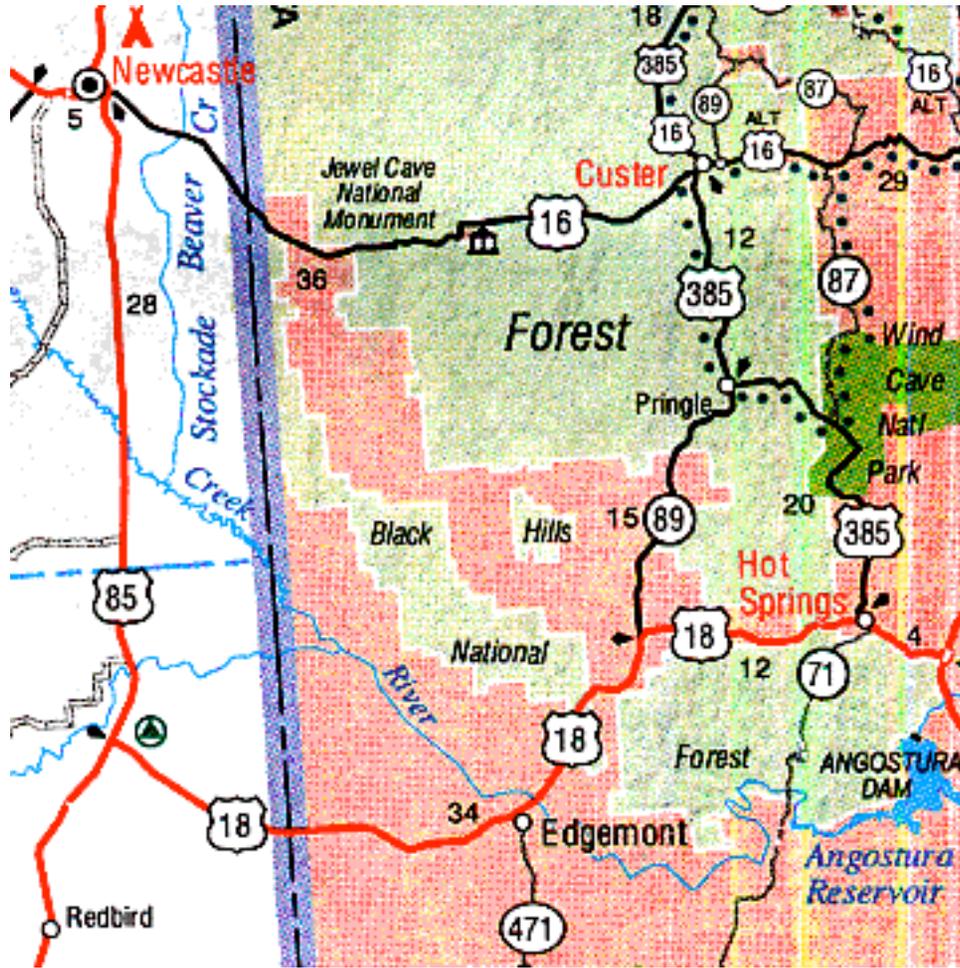
Notebook 99, page 24-28
WYOMING, Jct. 18 & 20 at
Orin, to Lusk, SD and
towards Hot Springs, SD
September 5, 1997

0-1 - CCN/S
 1-0 - Riparian
 2-0 - Ag/sheep
 Cottonwood forest!
 3-0 - CCN/S
 4-0 - CCS

Train, 3 engines, 138 cars
 with coal; 2nd train 80 cars
 with coal.
 5-1 - CCN/S
 6-0 - CCS only 2" tall
 7-0 - CCS only 2" tall
 8-0 - CCS only 2" tall
 9-0 - CW converted
 10-0 - CCS
 11-0 - CCS
 12-0 - CCS
 13-1 - Decent Natives (on
 one hill)
 14-0 - CCS + CW
 15-0 - CCS + CW
 16-1 - Riparian
Lost Spring
 17-0 - CCS + CW
 18-0 - CCS + CW
 19-0 - Ag
 20-0 - CCS + CW
 21-0 - Ag
 22-0 - Ag and hay
 23-0 - Ag and hay
 24-0 - CCS/CW
 25-0 - CCS
 26-0 - Ag
 27-0 - Ag/CW
 28-0 - Ag/CW
 29-0 - Ag/CW
 30-1 - DN! + Ag
 31-0 - Ag/CW
 32-0 - Ag

33-1 - CCN
 Climate getting wetter at this
 point
 34-0 - Ag/CW
 35-0 - CCS/CW + BS
 36-1 - DN
 37-0 - Cow chewed CW
 Sunflowers and gumplants
 are my roadside native
 fields
 38-0 - CCS
 39-0 - CCS
 40-1 - Decent natives/ripar.
 41-0 - town **LUSK**/Hobit
 ranch
 42-0 - town **LUSK**, old brick
 Good natives
 43-1 - CCN
 44-0 - Ag/CW
 45-0 - Ag/vetch?
 46-1 - CCN to ground
 47-1 - CCN to ground
 48-1 - DN (+ thatch)
 49-1 - DN (+ thatch)
 50-1 - DN (+ thatch) + CCN
 51-1 - CCN + pines
 52-1 - DN + pines, **PM 160**
 53-1 - DN + yuccas 20%
 54-1 - DN + yuccas 20%
 55-1 - DN
 56-0 - CCS/CW/Ag
 57-1 - CCN-Pronghorn, **PM**
165





- | | | | |
|-----------------------------------------|-------------------------|---------------------------|-----------------------------------------------|
| 58-1 - CCN-Pronghorn | 66-0 - CC-CW | 76-0 - CW | 85-0 - Crested wheatgrass (CW) |
| 59-1 - CCN-Pronghorn | 67-0 - CC-CW | 77-1 - CCN/CW | 86-0 - CW |
| 60-0 - CCS/CW | 68-0 - CC-CW + riparian | 78-0 - CCS/CW | 87-0 - CW |
| 61-1 - DN (+ thatch) | 69-0 - CC-CW + riparian | 79-0 - CCS | 88-0 - Ag |
| 62-1 - CCN | 70-0 - CC-CW + riparian | 80-1 - CCN | 89-0 - Junction 85/18, WYO |
| 63-0 - Cow chewed crested wheat (CC-CW) | 71-0 - CC-CW + riparian | 81-1 - CCN | 90-0 - CCS PM 1 HWY 18, WYO, pronghorn |
| 64-0 - CC-CW | 72-0 - CC-CW | No rock and roll on radio | 91-0 - CCS |
| 65-0 - CC-CW | 73-0 - CC-CW | 82-1 - CCN | 92-0 - CCS |
| | 74-0 - CC-CW | 83-0 - CCS | |
| | 75-1 - CCN/S + CW | 84-0 - CCS to horizon | |

93-0 - CCS + bare spots + dragonfly swarm for three miles, one insect every 50 feet. Millions of moths in grasslands
94-0 - CCS
95-0 - CCS
96-1 - Decent natives! & badlands
97-1 - DN & badlands
98-0 - CW
99-1 - DN + Sagebrush

BORDER WYO/SO. DAK.

100-1 - DN + Sagebrush
Buffalo Gap National Grassland
101-0 - CC-CW
102-0 - CC-CW
103-0 - CC-CW to 2" tall
104-1 - CCS/CW
105-0 - CCS
106-0 - CCS/CW
107-1 - DN + Sage
108-0 - CC-CW converted
109-0 - CC-CW converted
110-0 - CCS/CC-CW converted
111-0 - CCS, **Edgemont, SD**
112-0 - CC-CW
113-0 - town
Excellent natives, monarch butterfly
114-0 - CCS
115-0 - CCS

116-1 - DN + Sagebrush + pines begin
117-0 - Cow chewed CHEAT
118-1 - DN
Some new exotic planted along roadsides
119-1 - DN
120-1 - DN at **PM 20**
Survey ends at sunset.

Notebook 99, page 40-41
September 7, 1997
SOUTH DAKOTA US Hwy 385 to US 16, Hot Springs to Custer to Wyoming border start at odometer 0 = PM 37

1-0 - town Hot Springs SD with Intermediate wheatgrass (IWG) sown
2-1 - Little Blue Stem (LBS) as a roadside plant or on hills
3-1 - LBS on hills
4-1 - LBS on hills
5-1 - LBS on hills
6-1 - LBS on hills
Wind Cave National Park
7-1 - LBS, **PM 44**, open prairie on hills
8-1 - LBS - prairie on hills
9-1 - LBS - prairie on hills
Buffalo collect on "irrigated" riparian grasslands, this area was probably created

by native American burning the area.
Sunflowers in gravel along roadside.
10-1 - LBS - prairie on hills
11-1 - LBS - prairie on hills
12-1 - DN, Black Hills NF
13-1 - DN, LBS as roadside plant in pine forest
14-1 - DN, LBS/R
15-1 - DN, LBS/R + SB
16-1 - DN, LBS/R
17-0 - Ag valley + SB
18-0 - CCN + town
19-0 - Ag + town Pringle
20-0 - Ag
21-0 - Ag + CC riparian
22-0 - Cow-chewed forest (CCF/CE), mostly smooth brome, crested wheatgrass, white clover, the whole understory has been converted to exotic cow-chow.
23-0 - CCF/CE
24-0 - CCF/CE
25-0 - CCF/CE
26-0 - CCF/CE
27-0 - CCF/CE
28-0 - Ag
29-0 - Ag, **PM 66, elev. 5300'**
30-0 - Ag
31-0 - Golf Course
32-0 - Ag + SB
33-0 - Ag, Smooth Brome
34-0 - Ag, SB

Horrible wildflower mix sown along highway 16
35-0 - Cow-chewed Forest + SB, here the native grass understory mostly extinct and converted to smooth brome understory
36-0 - CCF + SB
37-0 - CCF + SB
38-0 - Ag
39-0 - CCF + SB
40-0 - CCF + SB
41-1 - Decent Natives, road not widened, 45 mph section.
42-1 - DN
43-1 - DN
44-1 - DN - LBS, all colored red, that I call "warning red" which indicated phosphorus deficiency
45-0 - end narrow road & natives
46-0 - CCF + IMW
47-0 - CCF + IMW
48-1 - DN on hills
49-1 - DN on hills
End of National Forest
50-0 - Ag
51-0 - Ag/CCF
52-1 - DN + Ag
53-1 - DN - LBS
54-1 - CCN + BS
55-1 - CCN + BS
56-1 - DN on buttes
Wyoming Border

**Notebook 99, page 42-43
September 7, 1997**

**WYOMING BORDER to
Moorcroft, WY, with
Crested Wheatgrass along
roadsides begins**

1-1 - CCN (LBS) + BS
2-0 - CC-CW/S
3-1 - DN/LBS
4-1 - DN/LBS
PM = 255
5-0 - Ag/CW/CCS
6-0 - town/CCS
No rock music on radio, only
Christian stations
7-0 - town/CCS
DN/LBS
8-1 - DN/town
9-0 - town/ Junction 85
10-0 - **Newcastle**, elev 4300'
11-0 - CCS + SB
12-0 - CCS + CW
13-0 - CCS + CW
14-0 - CCS + CW
15-0 - CCS + CW
16-0 - Riparian, **Oil Creek**
17-0 - airport, **PM 242**
18-0 - CCS + CW
19-0 - CCS + CW
20-0 - CCS + CW
Decent Natives-LBS, at bend
in road
21-0 - CCS + CW
22-0 - CCS + CW
Forest's edge
23-1 - CCN - LBS
24-0 - CCS + CW

25-1 - DN - LBS, "**Osage**"
26-1 - DN - LBS
27-1 - CCS + CW
28-1 - CCS + CW
29-0 - CCS + CW & SB
30-0 - CCS + CW & SB
31-0 - CCS + CW
32-1 - CCN - LBS
Forest's edge
33-1 - DN - LBS
34-1 - DN - LBS
35-1 - DN, Forest, gray ash
36-1 - DN, Forest, gray ash
37-1 - DN, Forest, gray ash
PM = 221, rest stop
38-1 - DN, Forest, gray ash
39-0 - town **Upton**
40-0 - CCS, riparian
41-1 - DN - LBS, pronghorn
42-1 - DN - LBS
Forest edge
43-1 - CCN open prairie,
natives only in roadside
r/w & railroad r/w
44-1 - CCN roads & RR r/w
45-1 - CCN roads & RR r/w
46-0 - CCS
47-0 - CCS
48-0 - CCS + CW
Crook County
49-1 - CCN roads & RR r/w
50-1 - Big blue stem, in r/w
51-1 - CCN in r/w + CW
town **Drongh**
52-0 - CW/CCS
53-0 - CW/CCS
54-1 - CCN in r/w only

55-1 - DN in r/w only/CCS
56-1 - DN in r/w only/CCS
57-1 - DN in r/w only/CCN
58-1 - DN in r/w only/CCN
59-0 - town **Moorcroft, WY**
Junction I-90, PM 154
Moorcroft, WY

Notebook 99, page 44- 95
September 7, 1997
WYOMING I-90
Moorcroft to Gillette and
Buffalo - Roadsides all
mowed for the next 30
miles, so natives don't
have a chance

0=PM 154
1-0 - town Moorcroft
2-0 - CC-CW, mowed r/w
3-0 - CC-CW, mowed r/w
4-0 - CCS, mowed r/w
5-0 - CCS, mowed r/w
6-0 - CCS, mowed r/w
Campbell County **PM 147.7**
7-0 - CCS + SB, mowed r/w
8-0 - CCS, mowed r/w
9-0 - CCS + sunfls., mowed
r/w
10-0 - CCS + CW, mowed
r/w
11-0 - CCS + CW , mowed
r/w
12-0 - CCS + SB, mowed r/w
13-0 - CCS, mowed r/w
14-0 - CCS, mowed r/w
PM = 140
15-0 - CCS, mowed r/w

16-0 - Severe CCS, mowed
r/w
17-0 - Severe CCS, mowed
r/w
18-1 - Severe CCS, grindelia,
crested wheat, with needle
and thread barely
surviving + native Poa
19-0 - Severe CCS, mowed
r/w
20-0 - Severe CCS, mowed
r/w
21-0 - Severe CCS
"WyoDak", mowed r/w
22-1 - LBS tiny pl. in R/W
23-0 - Severe CCS, mowed
r/w
24-0 - Severe CCS, mowed
r/w
25-0 - town **Gillette**
26-0 - town **Gillette**
27-0 - Severe CCS, mowed
r/w
28-0 - Severe CCS, mowed
r/w
29-0 - Severe CCS, mowed
r/w
30-0 - Severe CCS, r/w
cw/sb mix
31-0 - Severe CCS, **PM = 123**
32-0 - Severe CCS, rs=cw/sb
33-0 - Severe CCS, rs=cw/sb
34-0 - Severe CCS, rs=cw/sb
35-0 - Severe CCS, rs=cw/sb
36-0 - CW converted,
rs=cw/sb
37-0 - Severe CCS, rs=cw/sb

38-0 - Severe CCS, rs=cw / sb	55-0 - Severe CCS, rs=cw / sb	66-1 - CCS + badlands	82-0 - Severe CCS + CW
39-0 - Severe CCS, rs=cw / sb	56-0 - Severe CCS, rs=cw / sb	67-1 - CCS + Badlands	83-0 - Severe CCS
40-0 - Severe CCS, rs=cw / sb	57-0 - Severe CCS, rs=cw / sb	68-1 - Severe CCS	84-0 - Severe CCS
41-0 - Severe CCS, rs=cw / sb	58-0 - Severe CCS, rs=cw / sb	69-1 - Severe CCS	85-0 - Severe CCS
Pronghorns	Johnson County	70-1 - Severe CCS	86-0 - Severe CCS
42-0 - Severe CCS, rs=cw / sb	59-0 - Severe CCS, rs=cw / sb	71-1 - CCN, PM 82 , origin.	87-0 - Severe CCS
43-0 - Severe CCS, rs=cw / sb	60-1 - CCN/S	solid blue grama, one per	88-0 - Severe CCS
44-0 - Severe CCS, rs=cw / sb	61-1 - Weed / Native mix =	sq. yard, some gumplants	89-0 - Severe CCS
45-0 - Severe CCS, rs=cw / sb	30% Needle & Thread, 30%	72-1 - CCN, orig. blue grama	90-0 - Severe CCS
46-0 - Severe CCS, rs=cw / sb	crested wheatgrass, 30%	73-0 - CCS	91-0 - Severe CCS
47-0 - Severe CCS, rs=cw / sb	minimum cheatgrass, 10%	74-0 - CCS	92-0 - Severe CCS
48-0 - Severe CCS, rs=cw / sb	Bromus mollis. Crested	75-0 - CCS	93-0 - Severe CCS
49-0 - Severe CCS, rs=cw / sb	wheat is a blue grama	76-0 - Severe CCS	94-0 - Severe CCS
50-0 - Severe CCS, rs=cw / sb	mimic	77-0 - Severe CCS + CW	95-0 - Buffalo, WY. , Jct. Hwy
51-0 - Severe CCS, rs=cw / sb	62-1 - Weed / Native mix	78-0 - Severe CCS	16
52-0 - Severe CCS, rs=cw / sb	63-1 - Weed / Native mix	79-0 - Severe CCS	
53-0 - Severe CCS, rs=cw / sb	64-0 - Pow Deer river ripar.	80-0 - Severe CCS	
54-0 - Severe CCS, rs=cw / sb	65-1 - CCS + juniper	81-0 - Crazy Woman creek	



Notebook 99, page 58-59
 September 10, 1997
 WYOMING I-90 Buffalo
 WY to Sheridan and
 Junction Hwy 14
 0 = Junction I-90 & Business
 Highway 81 (?)
 1-0 - Rock Ck. cyn., PM 55
 2-0 - CCS/CW
 Pronghorn
 3-0 - CCS/CW
 4-0 - CCS/CW

5-0 - CCS/CW
 6-0 - CCS/CW
 7-0 - CCS/CW
 8-0 - CCS/CW
 9-0 - Ag - irrigated hay
 10-0 - CCS/CW
 11-0 - CCS/CW
 12-0 - Ag/riparian
Piney Creek
 13-0 - CCS/CW
 14-0 - CCS/CW
 15-0 - CCS/CW
 16-0 - CCS/CW

17-0 - CCS/CW
 18-0 - CCS/CW
 19-0 - Ag/riparian
 20-0 - CCS/CW
 21-0 - CCS/no CW
 22-0 - CCS/no CW
 23-0 - CCS/no CW
 24-0 - CCS/no CW
 25-0 - CCS/CW
 26-0 - CCS/IWG
 27-0 - CCS/CW
 28-0 - CCS/CW
 29-0 - CCS/CW

30-0 - Ag, city **Sheridan**
 31-0 - Ag, **PM 25**
 32-0 - Ag
 33-0 - Ag
 34-0 - CCS/CW
 35-0 - Ag/riparian
 36-0 - Goose creek
 37-0 - Goose creek
 38-0 - CCS-CW
 39-0 - CCS-CW
 40-0 - CCS-CW
 41-0 - CCS-CW
 42-0 - Ag/riparian

43-0 - CCS-CW
 44-0 - CCS-IWG/Ag

45-0 - CCS-IWG/Ag
 46-0 - CCS/IWG/Ag

47-0 - CCS/IWG
 48-0 - Ag & Jct. 14 + riparian

49-0 - riparian, Jct. 14 & I-90



Notebook 99, page 60-60A
September 10, 1997
WYOMING - Junction I-90 and HWY 14 to Shell WY

1-0 - town Ranchester
 2-0 - Ag, PM 88
 3-0 - Ag
 4-0 - Ag/ CCS
 5-0 - Ag, irrigated alfalfa
 6-0 - Ag

7-0 - Dayton, hippie town, art galleries
 8-0 - CCS
 9-0 - CCS + yucca
 10-0 - CCS, PM 80
 11-1 - Solid LBS!
 Smooth Brome begins
 12-1 - Solid LBS!
 13-1 - Decent natives (DN), Bighorn National Forest, lodge pole pines begin
 14-DN-Bighorn NF
 15-1 - Solid pines
 16-1 - Solid pines + SB

17-1 - Solid pines, PM 72
 18-1 - Solid pine + grindelia
 Forest ends
 19-0 - SB/YSC
 20-1 - Eriogonum + exotics, buckwheats in this area indicators of good native grasslands.
 21-1 - Deschampsia + Eriog.
 22-1 - DN + Pines
 23-1 - CCN
 24-0 - solid pine + yarrow
 25-0 - solid pines, elev. 8300'
 26-0 - Siley Lake

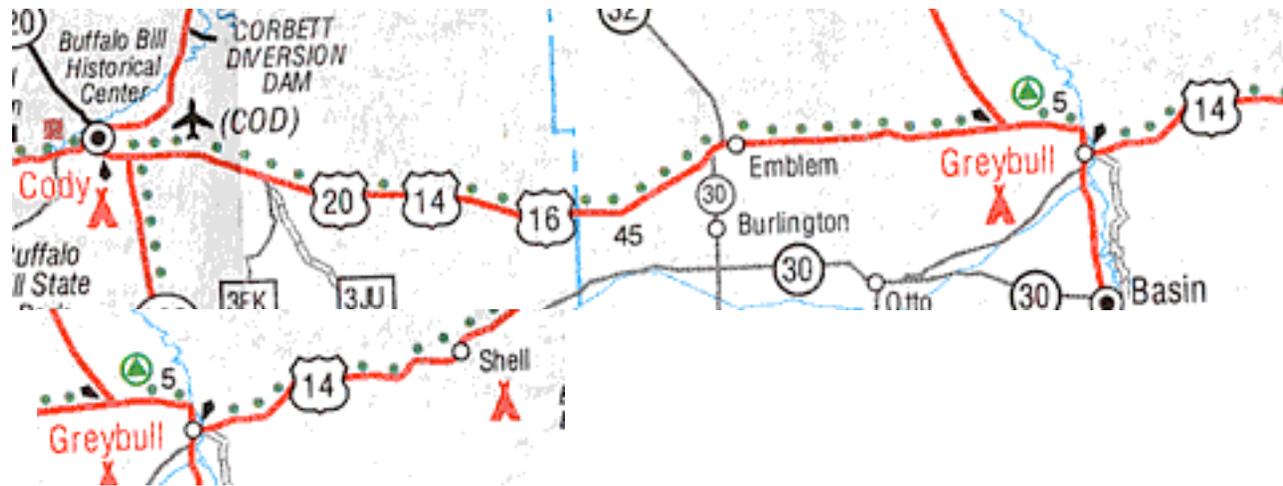
27-0 -
 28-0
 29-0
 30-0 - Newly reveg highway
 31-0 - Jute netting, straw
 32-0 - Newly reveg. road
 33-0 - CCN + SB
 34-1 - CCN + SB
 35-1 - CCN + SB
 36-1 - CCN + SB
 Open meadow + timothy
 37-1 - CCN + SB
 38-1 - CCN + SB
 39-1 - DN + SB @ hwy. fence

40-1 - DN + SB
 41-1 - CCS + SB
 42-1 - CCN + SB along r/s
 43-1 - CCN + SB, Giant Pass
 9300'
 44-1 - CCN + SB
 45-1 - CCN + SB

46-1 - CCS + SB
 47-1 - CCS + SB
 48-1 - CCS + SB
 49-1 - CCS + SB
 50-1 - CCS + SB + Timothy
 51-1 - DN + IWG + SB
 52-0 - Timothy

53-0 - Timothy
 54-1 - DN, GBWR!, CWR,
 sunflowers, little bluestem
 + highway sown
 timothy / IWG
 55-1 - GBWR?
 56-1 - DN, in canyon

57-1 - DN, in canyon
 58-1 - DN - Post creek
 59-0 - CW + Rabbitbrush
 60-1 - CWR? canyon bottom
 61-0
 62-0 - town of **Shell**



END NOTEBOOK 99
Start Notebook 100, page 1-3
WYOMING Town of Shell,
Hwy. 14 to Cody, WY
 0-1 - DN/ripar. - Shell Cafe
 1-0 - Ag/CCS
 2-0 - Ag/CCS
 3-0 - Ag/CCS
 4-0 - Ag/riparian
Town of Shell
 5-0 - CCS/CW

6-0 - CCS/CW
 7-0 - CCS/CW/Ag
 8-0 - some Chenopod. weed
 9-0 - CCS/CW
 10-0 - Ag
 11-0 - Ag
 12-0 - CCS/Ag
 13-1 - DN in hwy. r/w
 14-1 - CCN/Ag
 15-0 - Badlands, orig. sage
 16-0 - Badlands, orig. sage
 17-0 - Badlands, orig. sage
 18-1 - DN, radio tower

19-1 - CCN
 20-0 - **town Greybull** + ripar,
 Big Horn River
 21-0 - **town Greybull**
 22-0 - Ag
 23-0 - Ag
 24-0 - Ag
 25-0 - Jct. 310, lots of sunfls.
 26-0 - Badlands
 27-0 - Badlands + CW
 28-0 - Badlands
 29-0 - Badlands
 30-0 - CCS

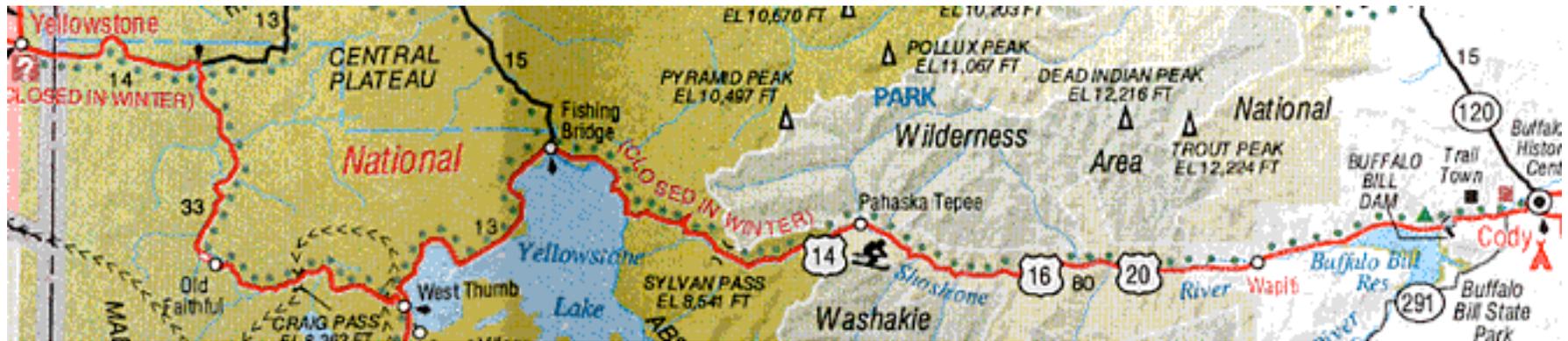
31-0 - Badlands
 32-0 - Ag, plateau
 33-0 - Ag
 34-0 - Ag
 35-0 - Ag
 36-0 - Ag
 37-0 - Ag
Emblem town
 38-0 - Ag
 39-0 - Ag
 40-0 - Ag/riparian
 41-0 - Ag
 42-0 - Ag

43-1 - DN - Stipa, blue grama, Oryz, sage to horizon
 44-1 - Stipa, BlGr, Oryz, sage
 45-1 - Stipa, BlGr, Oryz, sage
 46-0 - Badlands
 47-1 - CCN + sage
 48-1 - CCN + sage
 49-0 - CCS + CW

50-0 - CCS + CW
 51-0 - CCS, no CW, PM 75
 52-0 - CW
 53-0 - CW
 54-0 - CW
 55-0 - CW
 56-0 - CW
 57-0 - CW
 58-1 - Oryzopsis in draw

59-1 - Oryzopsis rare
 60-0 - CCS
 61-0 - CCS
 62-1 - CCN + DN
 63-0 - CCS
 64-0 - CCS/CW
 65-1 - CCN
 66-1 - CCN
 67-0 - Ag

68-0 - Ag
 69-0 - Ag
 70-0 - Ag
 71-0 - Lake, airport
 72-0 - Lake
 73-0 - Cody, Wyo.



**Notebook 100, page 3-4, 9-10
 September 10, 1997
 WYOMING Hwy 14 start at
 Cody, WY to Yellowstone
 NP**

0 = South fork, riparian
 1-0 - town, CCS + CW
 2-1 - DN! in canyon
 3-1 - DN + SB g road
 4-0 - tunnels
 5-0 - Reservoir and cliffs
 6-1 - DN! - **Buffalo Bill SP**
 7-1 - DN!
 8-1 - DN!

9-1 - CCN
 10-0 - CCS + badlands
 11-1 - CCN - sacred area
 12-1 - CCN - sacred area
 13-0 - "town" / Ag / riparian
 14-0 - Ag / CCS
 15-0 - Ag
 16-0 - Ag
 17-0 - "town" / Ag
 18-0 - Ag
 19-0 - Ag
 20-0 - Ag
 21-0 - Ag
 22-1 - CCN
Shoshone National Forest

23-1 - DN + SB
 24-1 - DN + SB
 25-1 - DN + SB
 26-1 - DN + SB
 27-0 - SB meadow
 28-0 - riparian
 29-1 - CCN
 30-1 - CCN
 31-0 - Riparian / cliffs
 32-1 - DN + SB + CHEAT
 33-1 - CCN + CHEAT, mine
 34-0 - Riparian + SB
 35-0 - Riparian + SB
 36-0 - Riparian + cliffs
 Fox seen

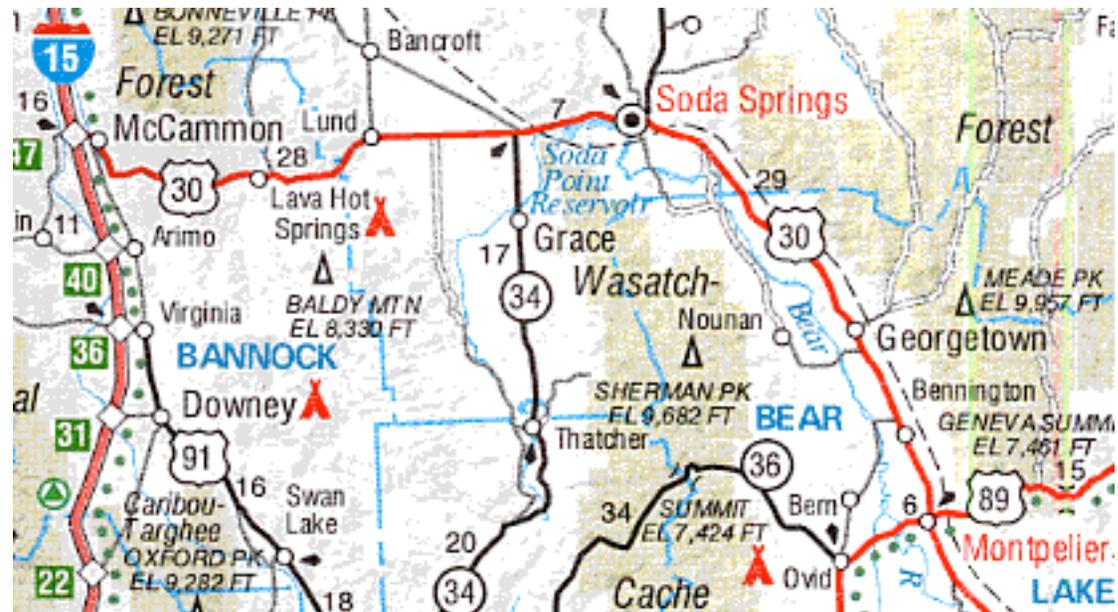
37-1 - DN
 38-1 - DN, riparian, BBWG!
 39-1 - DN, riparian, BBWG!
 40-0 - Riparian / cliffs
 41-1 - DN, highway
 construction, rye sown and
 nettle growing
 42-0 - Riparian
 43-0 - Forest
 44-0 - Forest
 45-0 - Riparian / cliff
 46-0 - Forest
 47-0 - "Pahaska Teepee"
 48-1 - DN, BBWG

49-1 - Tiny bits Elymus
glaucus (EG) in fir forest
50-0 - **Yellowstone Pk Gate**
Park highways being
reconstructed, had to wait
for hours to drive through.
Construction = E. H.
Oftedal & Sons.
51-0 - Forest + timothy
52-1 - DN
53-1 - DN, EG, BBWG, BR

54-1 - DN, EG, BBWG, BR
55-1 - DN, EG, BBWG, BR
56-1 - Bromus marginatus
Sylvan pass, 8,530 feet
57-0 - Big slide at pass, Lake
Elenor
58-1 - Solid BR on roadcuts
59-1 - Solid BR on roadcuts
60-1 - Solid BR on roadcuts
61-1 - Solid BR on roadcuts
62-1 - Solid BR on roadcuts

63-1 - Solid BR on roadcuts
64-1 - Solid BR on roadcuts
65-1 - Solid BR on roadcuts
66-1 - Solid BR on roadcuts
67-1 - Solid BR on roadcuts,
sown(?) with white clover
68-1 - Bromus marginatus
69-1 - Lake cliff, yellow
compositae (?)
70-1 - Solid BR in forest
71-1 - Solid BR in forest

72-1 - Wetlands
73-1 - Hot springs, bison
74-1 - Natives, sage
75-1 - BR in fir forest
76-1 - Fir forest
77-1 - ETVD **Fish Bridge
Village**



Notebook 100, page 10, 12-13

September 11, 1997

IDAHO, Start at Idaho

Falls, ID 9-11-97 PM 113

Start at Jct. I-15 and Hwy 26 south of town. Crested wheatgrass in this soil, grows to gigantic proportions.

0-0 - Ag/CW
1-0 - Ag/CW
2-0 - Ag/CW
3-0 - Ag/CW
4-0 - CCS
5-0 - Ag
6-0 - Ag
7-0 - Ag
8-0 - Ag
9-0 - Ag
10-1 - CCS on lava
11-1 - CCS on lava
12-1 - BBWG on lava
13-0 - Ag
14-0 - Ag
15-0 - Ag/CW
PM 98
16-0 - Ag/CW
17-0 - Ag
18-0 - Ag
19-0 - **Snake River**
20-0 - **Snake River**
21-0 - Ag /CW

22-0 - Ag/CW
23-0 - Ag/CW
24-0 - CCS
Lots of sunflowers
25-0 - Ag + sage
26-0 - CCS + CW
27-0 - CCS + CW
28-0 - Ag + CCS
29-0 - Ag
30-1 - DN@ overpass, **PM 83**
31-0 - Ag
32-0 - Ag
33-0 - Ag
Bannock County
34-0 - CCS + CW
35-0 - Ag + CCS + sunfls.
36-0 - Ag + CCS + sunfls.
37-0 - Ag - Leaving Ft. Hall Indian Reservation, Native plants in gully
38-0 - CCS
39-0 - Ag
40-0 - Ag
41-0 - **Junction I-86**
42-0 - **Pocatello, ID**
43-0 - CCS + CW
44-0 - town
45-0 - CCS/CW
46-1 - DN/town
Next 10 miles, DN on hills, none in flat lands
47-0 - CCS + CHEATGRASS
48-0 - town, CHEATGRASS
49-0 - Ag/CCS
50-0 - Ag/CCS

51-0 - CCS, volcanic hills
52-0 - CCS, volcanic hills
53-0 - CCS
PM 60, magpies seen.
54-0 - CCS
55-0 - CCS
56-0 - CCS
57-0 - CCS/lava/Ag
58-0 - CCS
59-0 - CCS/junipers
60-0 - CCS, lava beds + CW
61-0 - CCS + CW along road
62-0 - CCS + CW along road
63-0 - CCS + CW along road
64-0 - CCS + CW along road
65-0 - CCS + CW along road
66-0 - **Junction Hwy 30**

Notebook 100, pages 14-15
September 11, 1997
IDAHO US 30 Start at PM 360 McCammon, south towards Montpelier (end Bennington, ID) start at PM 360

1-0 - AG/CCS
2-0 - Ag/CCS
Oryzopsis at 2.5
3-0 - CHEATGRASS killed sagebrush plants via fire, riparian
4-0 - Ag + junipers on hills
5-1 - DN on hills

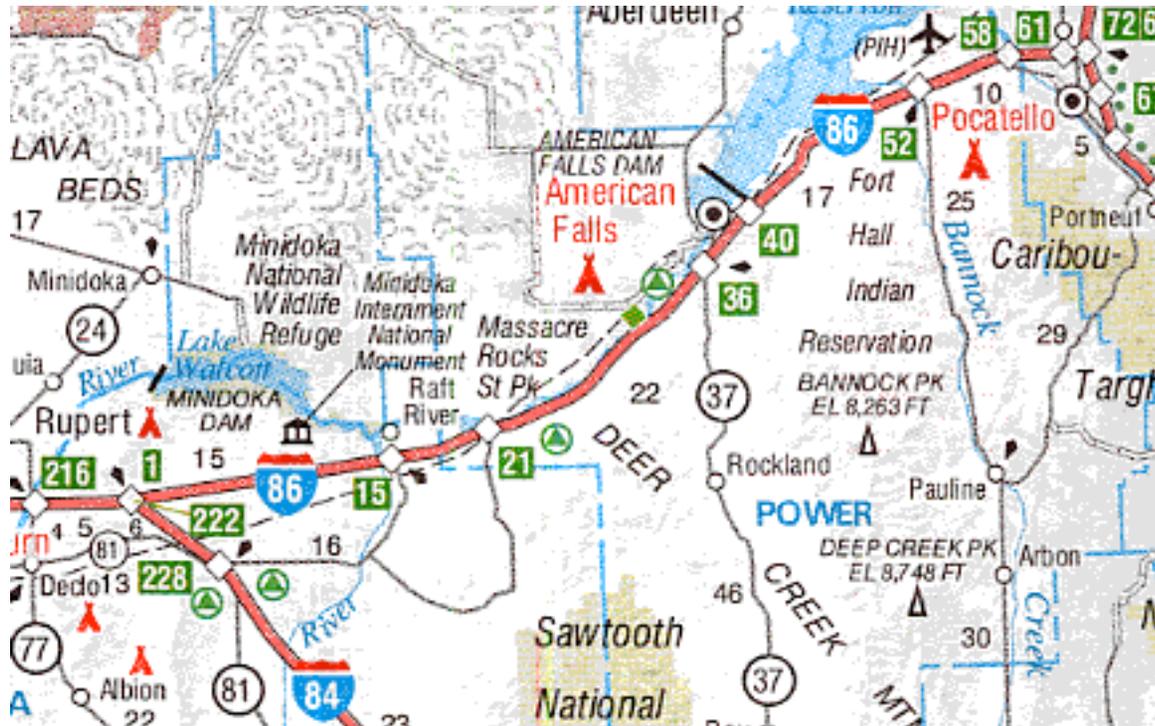
6-0 - CCS + CW
7-0 - Ag
8-0 - CCS + SB
9-0 - Ag
10-0 - **Portneuf river**
11-0 - Ag/riparian
12-0 - CCS/"Lava Hot Sprs."
13-0 - **Portneuf river**
14-0 - Juniper + SB
15-0 - CCS + Junip., **PM 374**
16-0 - Ag, new fields in sage
17-1 - CCN in junipers
18-0 - CCS, junipers, IWG
19-0 - CCS/IWG
20-0 - Ag to horizon
21-0 - Ag
GBWR! at utility line
22-0 - SB to horizon
23-0 - Ag
24-0 - Ag
25-0 - Ag
26-0 - Ag
27-0 - Ag
28-0 - Ag
29-0 - Ag
30-0 - Ag
31-0 - CCS, PM 402, reservoir, they dammed the two sacred springs, under the reservoir, a special effervescent water that tasted like lager beer.
32-0 - Riparian, golf course
33-0 - Riparian
34-0 - **Soda Springs, ID**

---Area first settled 1863 by
 army fort, 1870 Brigham
 Young established town
 site of Soda Springs
 35-0 - CCS/ Ag
 36-0 - Overpass
 37-0 - Ag
 38-0 - Ag

39-0 - Ag
 40-0 - Ag
 41-0 - Ag
 42-1 - GBWR/sage
Bear Lake County line
 43-1 - GBWR/sage
 44-1 - GBWR/sage, with Ag
 45-0 - Ag

46-0 - IWG
 47-1 - CCN/Sagebrush
 48-1 - GBWR/sagebrush
Summit
 49-1 - GBWR/sagebrush
 50-1 - ? Steep canyon
 51-0 - ?Steep canyon/ Ag
 52-0 - Ag

53-0 - **Georgetown, ID**
 54-0 - Ag
 55-0 - Ag, barley
 56-0 - Ag
 57-0 - Ag
 58-0 - Ag + SB
 59-0 - **Bennington, ID, PM**
 430

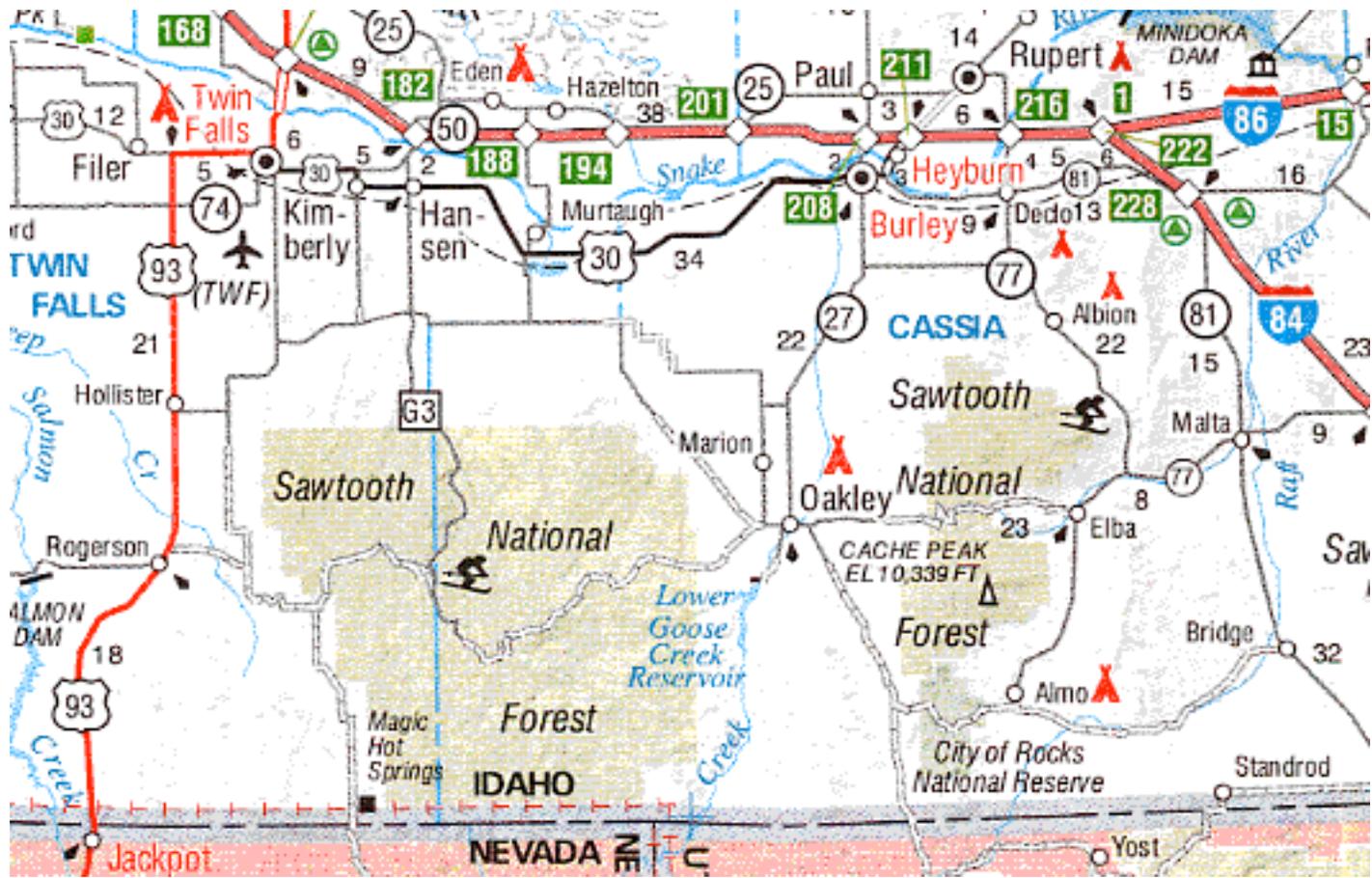


Notebook 100, pages 41-44
 September 12, 1997
 IDAHO Pocatello to Twin
 Fall, I-86, start at County

line and power line = PM
 58
 1-1 - CCS/ Ag
 2-0 - Ag
 3-0 - Interchange

4-0 - Ag
 5-0 - Ag
 6-0 - CCS/CW
 7-0 - CCS/CW
 8-0 - CCS/CW
 9-0 - CCS/CW

10-0 - Ag + CCS in median	36-0 - Ag/CCS + riparian	60-0 - Ag/CCS along road	85-0 - Ag + sunflowers
11-0 - Ag + CCS in median	37-0 - CCS	61-0 - Ag/CW, PM 218	86-0 - Wild lettuce bad weed
12-0 - Ag + CCS in median	38-0 - CCS + badlands	62-0 - Ag/CCS	87-0 - Ag + sunflowers
13-0 - Ag + CCS in median	39-0 - Ag + CCS along road	63-0 - Ag/CCS, Snake River	88-0 - Ag + sunflowers
14-0 - Ag + CCS in median	Cassia County line	64-0 - Ag	89-0 - Ag + sunflowers
15-0 - Ag + CCS in median	40-0 - Ag + CCS along road	65-0 - Ag	90-0 - Ag + sunflowers
16-0 - Ag	41-0 - Ag + CCS along road	66-0 - Ag	91-0 - Ag + sunflowers
17-0 - Ag	42-0 - Ag + CCS along road	67-0 - Ag, sunflowers	92-0 - Ag + sunflowers
18-0 - Ag + airport	43-0 - Ag + CCS along road	68-0 - Ag, sunflowers	93-0 - Ag
19-0 - CCS + CW	44-0 - CCS/CW	69-0 - Ag	94-0 - Ag/CCS along road
20-0 - Ag + CCS in median	45-0 - CCS/CW	70-0 - Ag, PM 209	95-0 - Ag
21-0 - Ag + CCS in median	46-0 - CW to horizon, whole	71-0 - Interchange	96-0 - Ag
22-0 - Ag + CCS in median	valley	72-0 - Ag	97-0 - Ag + sunflowers
23-0 - Ag + CCS in median	47-0 - CW	73-0 - Ag	98-0 - Ag + sunflowers
24-0 - Ag + CCS in median	48-0 - CW/CCS-CW	74-0 - Ag/CCS along road	99-0 - Ag
25-0 - Ag + CCS in median	49-0 - CW/CCS-CW	75-0 - Ag/CCS along road	100-0 - CCS
26-0 - Interchange	50-0 - CC-CW	76-0 - Ag/CCS along road	101-0 - Cow chewed lava
27-1 - CCN, rest stop	51-0 - CC-CW	77-0 - Ag/CCS along road	102-0 - CCL
28-0 - CCS + CW, PM 29	52-0 - CCS/CW	78-0 - Ag/CCS to horizon	103-0 - CCL
29-0 - CCS + junipers	53-0 - CCS/CW	Jerome County line	104-0 - CCL
30-1 - DN + river	54-0 - Ag/CCS/CW	79-0 - Ag	105-0 - CCL
31-0 - CCS - PM 26	55-0 - CCS/CW	80-0 - Ag + sunflowers	106-0 - CCL
32-0 - Ag + CCS along road	56-0 - CCS/CW	81-0 - Ag + sunflowers	
33-0 - Ag	57-0 - CCS/CW	82-0 - Ag + sunflowers	
34-0 - Ag/CCS	58-0 - CCS/CW	83-0 - Ag + sunflowers	
35-0 - Ag/CCS	59-0 - Ag/CCS along road	84-0 - Ag + sunflowers	



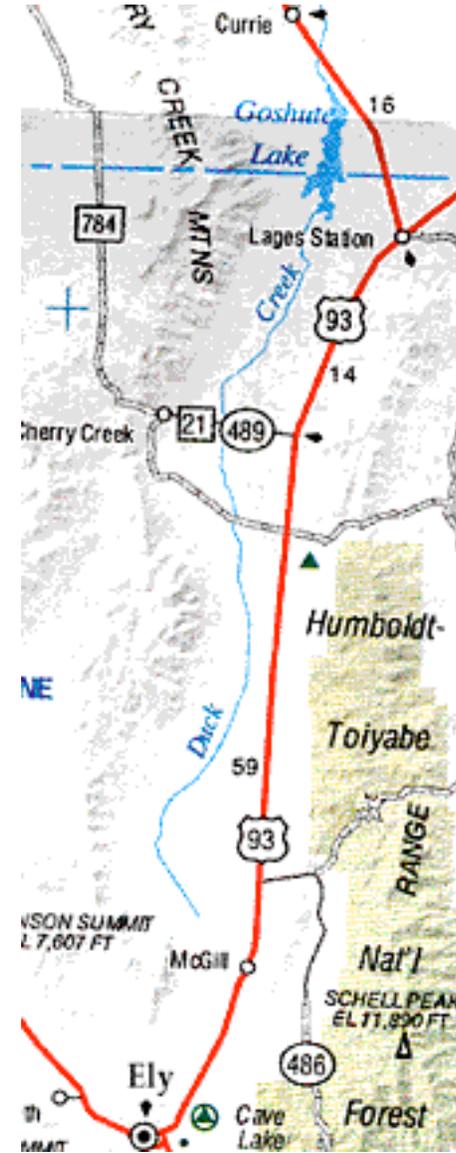
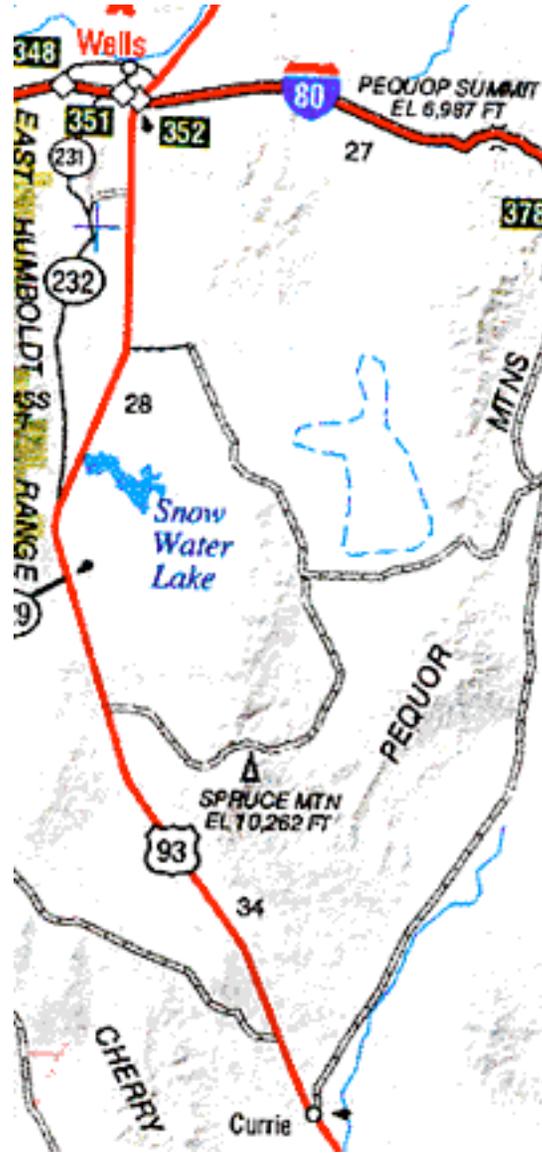
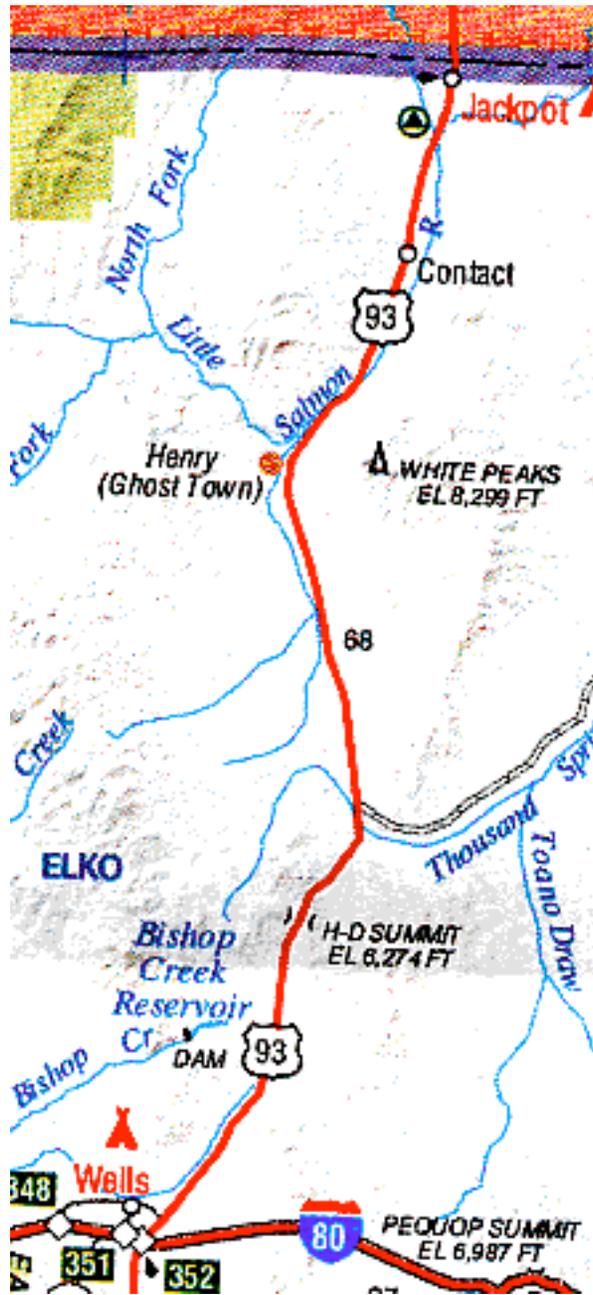
Notebook 100, pages 45-48
September 13, 1997
Start I-84 & US 93 junction,
Twin Falls ID to Jackpot,
NV Odometer Mile 0 =
Highway PM 51
 Note: Cow chewed Lava
 (CCL) which is rabbitbrush

and sage, Old sage plant, spaced 10-20 feet apart, with an understory of cheatgrass, tumble mustard and soil crusts including mosses. Fine silty easily erodible soil and lava. Moss 1" thick-- how long does it take to grow? Occasionally,

pedicled 1/2" tall Poa, in CCL area, only some ancient Poa, which ants harvest seed, exist along R/W
 Twin Falls, is the wealthiest town outside of California or Reno, with hemp around the necks of the youth, and every franchise

on earth: Sizzle, 31 Flavors, Arby's, Burger King, Radio Shack, 2 Mc Donald's, Blockbuster, Sneaker World, etc.
 1-0 - CCL + sunflowers
 2-0 - CSS + sunflowers
 3-0 - Snake River
 4-0 - city **Twin Falls, ID**
 5-0 - city **Twin Falls, ID**

6-0 - city Twin Falls, ID	19-0 - Ag = sunflower	32-0 - CCS	45-0 - CCS = CHEATGRASS
7-0 - city Twin Falls, ID	20-0 - CCS + CW	33-0 - CCS	46-0 - CCS + CW in R/W
8-0 - city Twin Falls, ID	21-0 - CCS + CW (orig. Poa)	34-0 - CCS+CW	47-0 - CCS + CW in R/W
9-0 - city Twin Falls, ID	22-0 - CCS + CW (was Poa)	35-0 - CCS+CW(orig.GBWR)	48-0 - CCS + CW in R/W
10-0 - city Twin Falls, ID	23-0 - AG/CCS	36-0 - CCS+CW(orig.GBWR)	49-0 - CCS + CW in R/W =
11-0 - city Twin Falls, ID	24-0 - "Hollister"	37-0 - CCS+CW(orig.GBWR)	5600 elevation pass
12-0 - city Twin Falls, ID	25-0 - CCS	38-0 - CCS+CW(orig.GBWR)	50-0 - CCS + CW in R/W
13-0 - city Twin Falls, ID	26-0 - CCS	39-0 - CCS	51-1 - Oryzopsis
14-0 - city Twin Falls, ID	27-0 - CCS	40-0 - Crested wheatgr. solid	52-0 - JACKPOT, NEVADA
15-0 - Ag + sunflowers	28-0 - CCS + CW	41-0 - CW = PM 10	
16-0 - Ag + sunflowers	29-0 - CCS	42-0 - CCS/CW	
17-0 - Ag + Cow chew sage	30-0 - AG	43-0 - CCS/CW	
18-0 - Ag = PM 33	31-0 - CCS+CW	44-0 - CCS = CHEATGRASS	



**Notebook 100, pages 46-48
September 13, 1997**

**US 93 from Jackpot NV to
Well, NV Odometer 0 =
Pacific Time Zone line at
State line, about Nevada
US 93 PM 140**

1-0 - CCS + **CHEATGRASS**
2-0 - Riparian, Salmon Falls
3-1 - GBWR!
4-1 - CCS + single GBWR
5-0 - CCS + **CHEATGRASS**
6-1 - CCS/CW+ Oryzopsis
7-1 - CCS/CW+ Oryzopsis
8-0 - CCS + **CHEATGRASS**
9-0 - CCS + **CHEATGRASS**
Big patch of Oryzopsis
10-0 - CCS + **CHEATGRASS**
11-0 - CCS
12-0 - CCS
13-0 - CCS
Mineral Hot Springs
14-0 - CCS
15-0 - town "**Contact**" 5300
16-0 - Riparian
17-1 - Cow chewed natives
18-1 - GBWR (single plant)
19-1 GBWR + CCS
20-0 - CCS/riparian
21-0 - CCS/AG
22-0 - CCS
23-1 - Oryzopsis in R/W
24-1 - Oryzopsis in R/W

25-1 - Oryzopsis in R/W
26-0 - CCS, no cheatgrass
27-0 - CCS, no cheatgrass
28-1 - Orzy.in R/W, no cheat
29-1 - GBWR in R/W
30-0 - CCS and badlands
31-1 - Oryz. in R/W, birds!
32-1 - Oryz. in R/W
33-1 - Oryz. in R/W
34-1 - Orzy.in R/W, no cheat
35-1 - Orzy.in R/W, no cheat
36-1 - Orzy.in R/W, no cheat
37-1 - Orzy.in R/W, no cheat
GBWR in draw
38-1 - Orzy.in R/W, no cheat
39-0 - CCS/CW in R/W
40-0 - CCS/CW in R/W
41-1 - GBWR in riparian
42-0 - CCS/CW in R/W
43-0 - CCS/CW in R/W
44-0 - CCS/CW in R/W
45-1 - GBWR in R/W
46-1 - GBWR = **PM 94**
47-1 - GBWR, **H-D Summit**
48-1 - GBWR in R/W
49-0 - CCS/CW, no cheatgr.
50-0 - CCS/CW
51-1 - GBWR PRAIRIE!
52-1 Denuded natives (DN),
skeletonized sage, with
stipa, Poa and GBWR
53-1 DN=Stipa/Poa/GBWR
54-1 DN=Stipa/Poa/GBWR
55-1 DN=Stipa/Poa/GBWR
56-1 DN=Stipa/Poa/GBWR
57-0 - CCS

58-1 - GBWR in R/W
59-1 - GBWR in R/W
60-1 - Oryzopsis in R/W
61-0 - CCS/CW in R/W
62-1 - GBWR + **CHEATGR.**
63-1 - Oryzopsis in R/W
64-1 - Oryzopsis in R/W
65-1 - Oryzopsis in R/W
66-0 - Railroad overpass
67-0 - **Wells, NV**

END NOTEBOOK 100

Begin Notebook 101

page 1-3 September 13, 1997

NEVADA Hwy 93 Well to

Ely, survey every 2 miles

0- Junction I-80, BLM Elko
District

2-1 - GBWR in R/W
4-0 - CCS + CW in R/W
6-0 - CCS/AG
8-0 - CCS/CW+**CHEATGR.**
in R/W

10-1 - CCS + GBWR rare
12-1 - GBWR+ huge ripar.

14-1 - GBWR PRAIRIE!

16-0 - CCS

18-1 - GBWR in R/W

Clover Valley

20-1 - GBWR

22-1 - GBWR = **PM 52**

24-1 - GBWR+ CW in R/W

26-0 - CCS/CW

Junction Highway 229

28-0 - CCS + **CHEATGRASS**

30-0 - CCS

32-0 - Junipers

34-1 - Oryzopsis in R/W

36-0 - CCS, open range

38-1 - Oryzopsis in R/W

40-1 - Oryzopsis in R/W

42-0 - CCS

44-0 - CCS + CW in R/W

46-0 - CCS - **Butte Valley**

48-0 - CCS - **Butte Valley**

50-1 - Oryz in R/W + Junip.

52-0 - CCS + CW in R/W

54-0 - CCS + CW in R/W =
PM 20

Denuded Natives

56-0 = CCS

58-1 - Oryzopsis in R/W

60-1 - Oryzopsis in R/W

62-1 - Oryzopsis in R/W,
"Currey" town

64-1 - Oryzopsis good

66-1 - Oryzopsis solid

Oryzopsis ends

68-0 - CCS, no CW, open
range

70-0 - CCS, no CW

72-0 - CCS

74-1 - Oryzopsis

Ely County line

76-0 - CCS, no CW or cheat

78-0 - CW + gumplant, **Lages
Junction**

80-1 - Oryz, no CW or cheat

82-1 - Oryz, no CW or cheat

84-1 - Oryz, open range

Town **Beavity, NV**

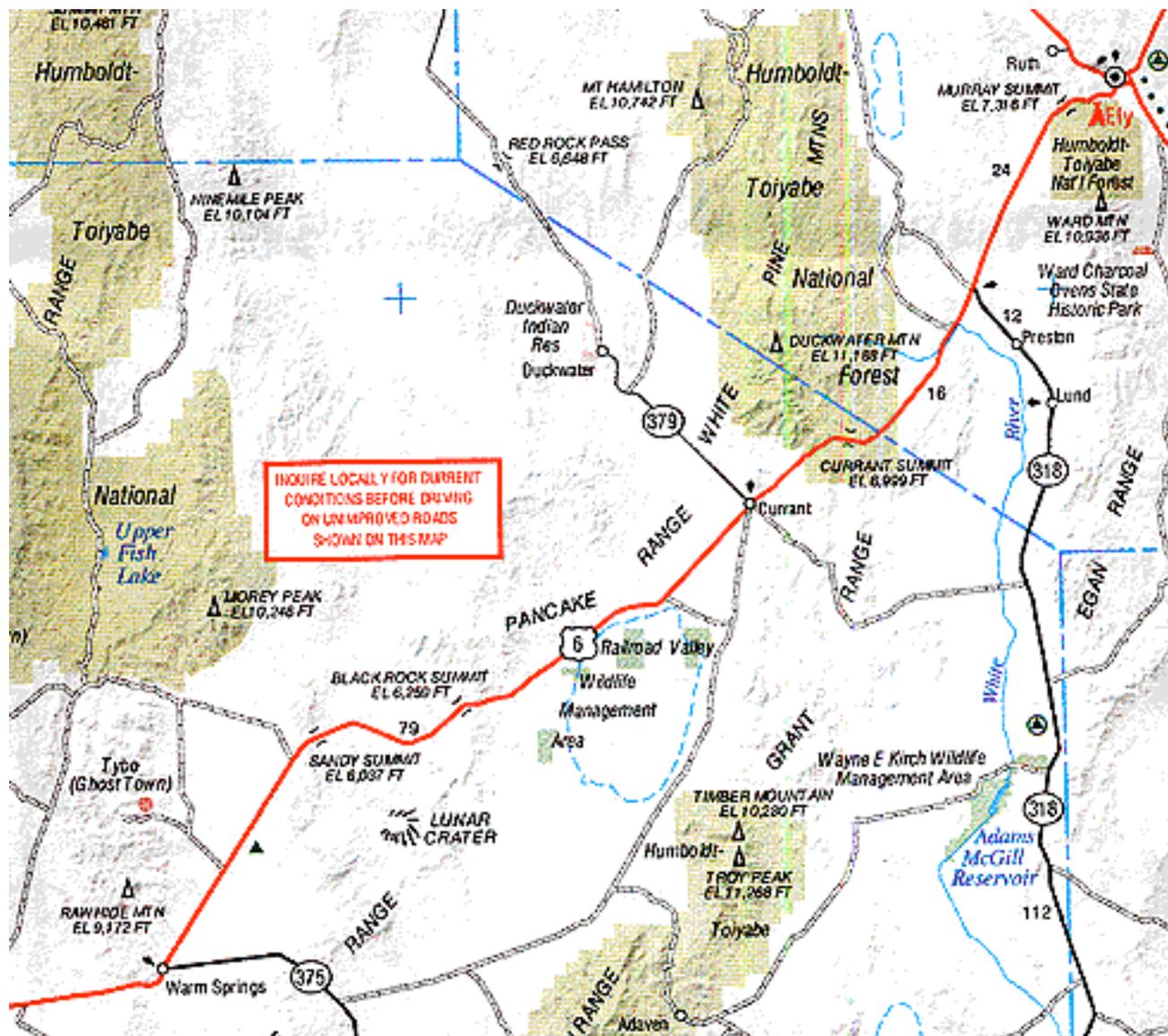
86-1 - Oryz + **CHEATGR**

88-1 - Oryz + **CHEATGR**
90-1 - Oryz + **CHEATGR**
PM 100, patches Orzy, no
CW
92-0 - CCS - Junction
94-1 - Oryz + **CHEATGR**
96-1 - Oryz in R/W (fenced)
98-0 - CCS
GBWR

100-1 - Oryzop in R/W
102-1 - Oryzop in R/W
CHEATGRASS STARTS
104-1 - Oryz in R/W
106-1 - Oryz R/W+ GBWR
108-0 - CCS, no Cheatgrass
110-0 - CCS + CW, no cheat
112-0 - CCS + **CHEATGR**
114-0 - CCS

116-1 - Oryzopsis rare
118-1 - DN - whole valley
120-1 - DN - whole valley =
Junction to Duck Creek
End
122-1 - Oryzopsis in R/W
124-1 - DN - Basset Lk junct
126-1 - town McGill, beauty
natives at edge of town,

and natives stop at end of
town.
128-0 - CCS + **CHEATGR**
130-0 - CCS + CW
132-1 - DN in R/W = 218th
N. St.
134-0 - Ely city and airport
136-0 - Ely city limits



**Notebook 101, page 3-5-
September 13, 1997
NEVADA Hwy 6 start ELY
at Jct. Hwy 93 September
13, 1997 Part of survey
every 2 miles.**

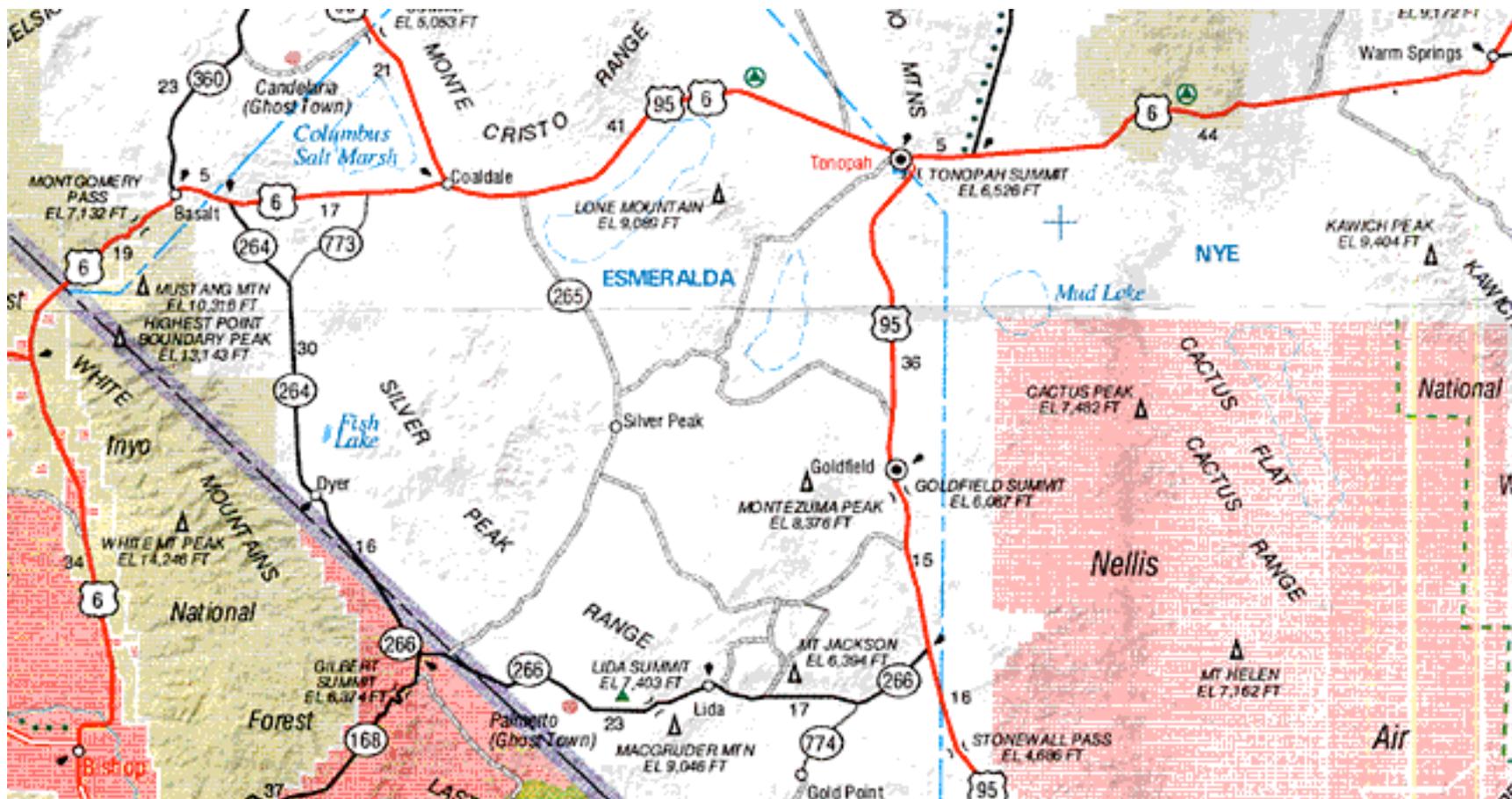
**“Grand Army of the
Republic Highway”
Cheatgrass only a roadside
weed strip along the
maintained edge, a strip 5-
10 feet wide.**

**Junction US 50 = PM 138,
Odometer mile 0 =
Junction US 50 and US 6.**

1-1 - DN in junipers
2-1 - DN in junipers
3-1 - DN in junipers
4-1 - CCN - Humboldt NF
5-0 - CCS and juniper
6-0 - CCS and juniper
Murray Summit 7300 feet
7-0 - CCS
8-1 - DN in R/W
Leaving National Forest
9-1 - Oryz in R/W
10-1 - DN in junipers
11-1 - DN in junipers
12-1 - CCN in sage
13-1 - CCN in Sage
CW in R/W
14-0 - CCS
15-0 - CCS

16-1 - CCN in junipers
18-0 - CCS
20-1 - Oryz in R/W
22-1 - GBWR + Oryz. good in
R/W
24-0 - CCS = **Lund Jct.**
Denuded Natives in draw
26-0 - CCS
28-0 - CCS, no CW+ **CHEAT**
30-0 - CCS + **CHEATGRASS**
32-1 - DN in R/W on hill
34-0 - CCS and CW
Denuded natives in draw
36-0 - CCS and junipers
- Humboldt National Forest
DN + GBWR @ 37
38-1 - DN - **Nye County line**
Currant Summit 7,000 feet
40-1 - DN + junipers
42-1 - DN + junipers
44-1 - DN + junipers + ripar
Rabbitbrush orange-yellow
46-1 - GBWR PRAIRIE
48-0 - AG + CCS + **CHEAT**
50-1 - GBWR PRAIRIE
52-0 - Junct. 379, “Currant”
Open Range starts, highway
dept. scrapes 20 feet wide
shoulders
54-1 - Hilaria/Rabbitbrush
56-1 - Hilaria/Rabbitbrush
58-1 - Hilaria/Rabbitbrush
60-1 - Hilaria/Rabbitbrush
62-1 - Cow chewed natives
Creek-converted into field

64-0 - CCS
66-0 - CCS
68-0 - CCS + weird mounds
70-0 - CCS
72-0 - CCS
74-1 - DN + Oryz
Escarpment at PM 92
76-1 - DN to hills + Oryz
78-1 - DN to hills + Oryz
80-0 - CCS, no CW+ **CHEAT**
82-1 - DN, solid Oryz - **Black
Rock Summit 6200 feet**
84-0 - CCS
86-0 - CCS
88-0 - Playa, lava flow and
crater to right
90-1 - Oryzopsis
92-1 - Oryzopsis
94-1 - Oryzopsis
96-0 - CCS
98-1 - Oryzopsis in R/W
100-1 - Oryzopsis in R/W
102-1 - Oryzopsis in R/W
104-1 - Oryzopsis in R/W
106-1 - Hilaria + Oryz
108-1 - Hilaria
Site of Tybo lead mine
110-1 - Hilaria + AG
112-1 - Hilaria + AG
Birds roosting in roadway
114-1 - Hilaria in whole
valley
116-1 - Hilaria + **CHEATGR**
118-1 - Hilaria
120-1 - CCN, **Warm Springs**



Notebook 101, page 5-6
 September 13, 1997
 NEVADA Hwy 6 Open
 Range
 Survey every 2 miles

2-0 - CCS + CHEATGRASS
 4-0 - CCS + CHEATGRASS
 6-0 - CCS + CHEATGRASS
 8-0 - CCS + CHEATGRASS
 10-0 - Cow hammered
 Hilaria, originally - CHH
 12-0 - CHH
 14-0 - CHH = 5 Mile Ranch
 16-1 - Oryz in R/W

Toiyabe NF
 18-1 - Oryz in R/W
 20-1 - Orzy in R/W = PM 29
 22-0 - CCS
 24-0 - CCS = Rest stop
 26-1 - Orzy in R/W
 28-1 - Orzy in R/W
 30-1 - Orzy in R/W

32-1 - DN to horizon -
 leaving Toiyabe NF
 34-1 - DN + Orzy to horizon
 = Tonopah Test Range,
 run by Sandia Lab
 36-1 - DN + Orzy to horizon
 38-0 - CCS
 40-1 - Orzy in R/W
 42-1 - Orzy in R/W

44-1 - Orzy in R/W
 46-1 - Oryz in R/W
 48-0 - town **Tonopah**

Notebook 101, page 6-7
September 13, 1997
NEVADA Start Tonopah
Hwy 6, survey every 2
miles

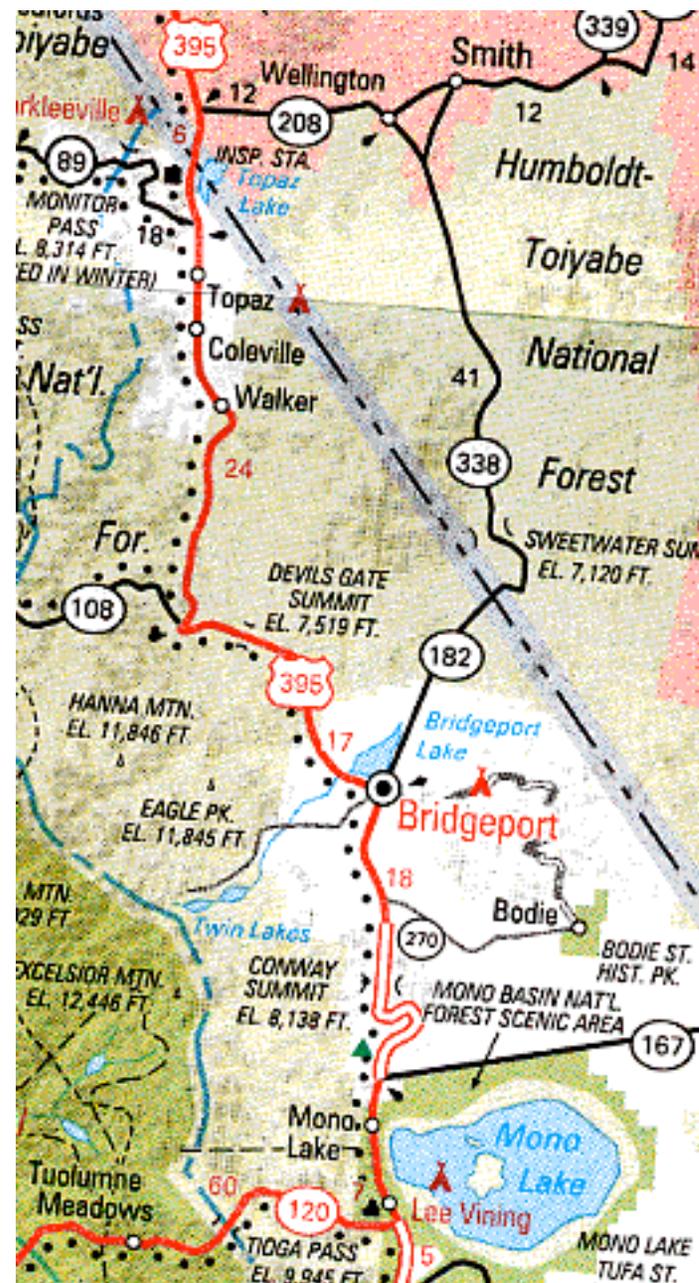
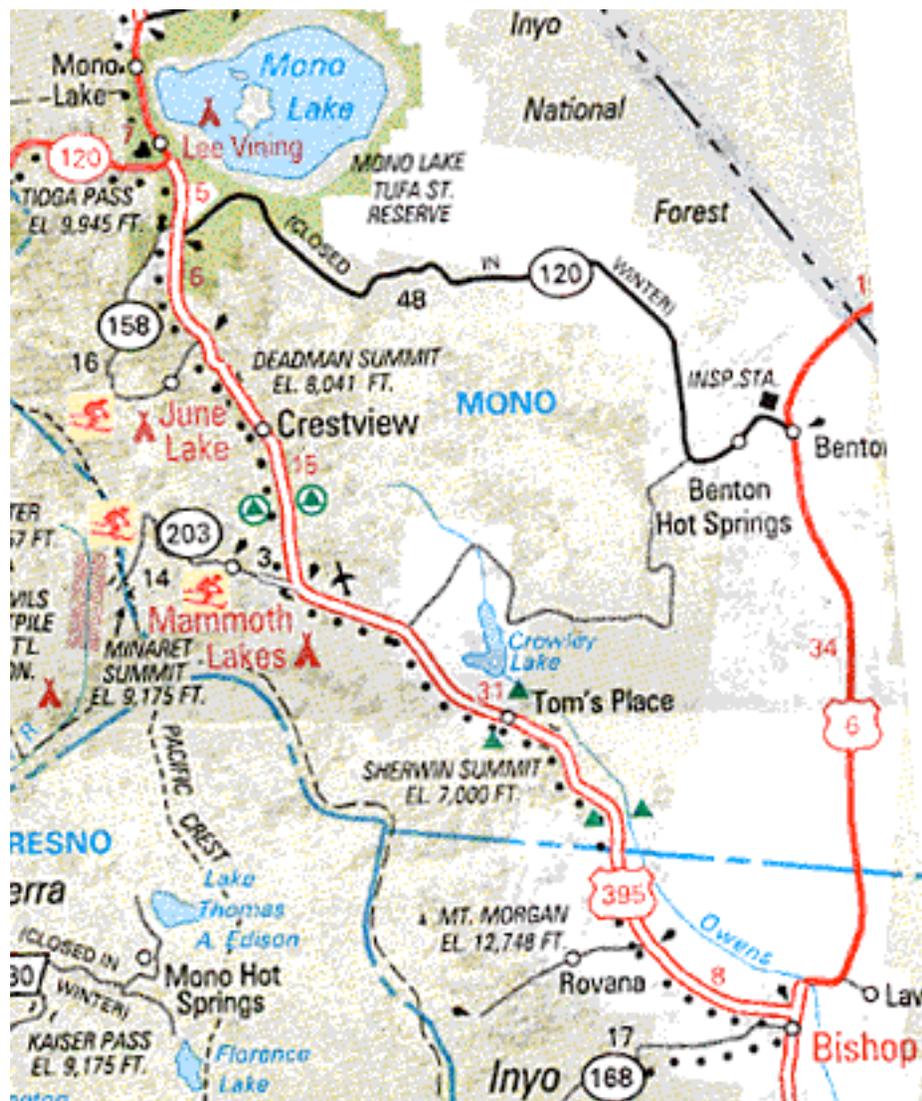
0- 0 Junction 95 and Hwy 6
 2-0 - CCS
 4-1 - Oryz. to the horizon
 6-1 - Oryz. to the horizon
 8-0 - CCS
 Good Oryzopsis
 10-1 - Oryzopsis solid
 12-1 - Oryz. in R/W
 14-0 - Playa
 16-1 - Oryzopsis in R/W
 18-0 - CCS
 20-1 - GBWR!
 22-0 - CCR, cow-chewed
 rabbitbrush, solid
 rabbitbrush, used to be
 Hilaria, turns into playas
 eventually
 24-0 - CCR
 26-0 - CCR
 28-0 - CCR
 30-0 - CCR
 32-0 - CCR
 34-0 - CCR
 36-0 - CCR
 38-1 - Oryzopsis in R/W
 40-1 - Oryzopsis in R/W

42-0 - CCR
 44-0 - CCR
 46-0 - CCR
 48-0 - CCR
 50-1 - Oryzopsis thin
 52-1 - Oryzopsis good
 Mountains
 54-0 - CCR
 Good Oryzopsis
 56-1 - Oryzopsis good
 58-1 - Orzy thin
 60-0 - CCR - Mine+ Co. line
 62-0 - CCR
 64-0 - Lava, causeway
 Inyo NF
 66-1 - DN - Casino & summit
 68-1 - DN
 70-1 - Oryzopsis
 72-1 - Oryzopsis in R/W
 74-1 - Oryzopsis
 75- **CALIFORNIA BORDER**

Notebook 101 page 8-9
Bishop eastward on Hwy 6
towards Nevada
September 14, 1997
CALIFORNIA. In valley
floor, Sporobolus, GBWR
and licorice are indicators
of good native cover.
 0 = **Junction Hwy 6 & 395**
 1-1 - Decent natives (DN)
 2-1 - DN
 3-1 - DN
 Owens River

4-0- CCRB, occas. GBWR
 5-0 - CCRB + Ag
 6-0 - CCRB
 7-0 - CCRB
 8-0 - CCRB
Mono County line
 9-0 - CCRB
 10-1 - Sporobolus prairie
 11-1 - Sporobolus prairie
 12-1 - CCRB
 13-0 - **town**
 14-1 - Oryzopsis in r/w
 15-0 - CCRB
 16-0 - CCRB
 17-0 - CCRB
 18-0 - CCRB
 19-0 - Ag
 20-0 - Ag/CCRB
 21-0 - Ag
 22-0 - Ag
 23-0 - CCRB
 24-0 - CCRB
 25-0 - CCRB
 26-0 - CCRB
 27-1 - Oryzopsis in r/w
 28-1 - Oryzopsis in r/w
 29-0 - CCRB
 30-1 - Oryzopsis in r/w
 31-1 - DN, GBWR
 32-0 - CCRB
 33-0 - "**Benton**", CCRB
 34-0 - Junction 120,
 dragonflies
 35-1 - Good GBWR and
 CCRB

36-0 - CCRB
 37-1 - Oryz. in r/w, riparian
Benton Hot Springs
 38-0 - CCRB
6,000 feet elevation
 39-1 - DN
 40-0 - CCRB, junipers
 41-0 - Junction
 42-0 - CCRB
 43-0 - Salt Lake
 44-0 - CCRB
 45-0 - CCRB
 46-1 - DN at junipers
 47-1 - Orzy. along roadsides
 48-0 - CCRB
 49-1 - Orzy. along roadsides
 50-0 - CCRB
 51-0 - CCRB
 52-0 - CCRB
 53-0 - CCRB
 54-0 - CCRB/junipers/mtns
 55-1 - Oryz. along roadsides
Elevation 7,000 feet
 56-1 - Oryz. along roadsides
 57-1 - Oryz. along roads,
Inyo National Forest



**Notebook 101, pages 10-12
CALIFORNIA from town of
Benton, start Inyo NF
boundary, Sept. 14, 1997
Hwy 120 to US 395
0= Inyo National Forest
boundary**

1-1 - Orzy. roadside thin
2-1 - Orzy. roadside thin
3-1 - Orzy. roadside thin
4-1 - Orzy. roadside thin
Decent natives
5-1 - Oryz along roadsides
6-Sagehen Summit, Elev.
8138 ft. PM 29
7-1 - Cow hammered
natives, hi elev. meadow
8-1 - CHN, hi elev. meadow
9-0 - Ponderosa pine
10-1 - Oryz + ponderosa
11-1 - Oryz + ponderosa
12-1 - Oryz + ponderosa
13-0 - End forest, 7,000 ft.
14-0 - Pine, volcanic ash,
Mono Lake viewpoint
15-0 - CCS, volcanic ash
16-0 - CCS, volcanic ash
17-0 - CCS, volcanic ash
18-0 - CCS, volcanic ash
19-0 - CCS, volcanic ash
20-1 - Cow chewed sedge!
21-1 - Oryz - **Jct. 395/158**
22-0 - CCS, volcanic ash
23-0 - CCS, volcanic ash
GBWR
24-1 - GBWR

25-0 - CCS
26-0 - **Lee Vining, Jct. 120**
27-1 - GBWR
28-1 - GBWR, Mono lake
29-0 - CCS, Mono lake
30-1 - GBWR
Decent natives (DN)
31-1 - DN - Oryzopsis
32-1 - DN - Oryzopsis
Junction 167
33-1 - DN - Oryzopsis
34-1 - GBWR, Oryzopsis
7,000 ft. elevation
35-1 - Oryz. in r/w
36-1 - GBWR on hill
37-1 - Oryzopsis in r/w
PM 63
38-1 - GBWR - **Conway
Summit, 8,128 ft, PM 63.5**
39-1 - GBWR
40-1 - DN - GBWR
41-1 - DN - GBWR, Oryz.
42-1 - DN - GBWR
43-1 - DN - GBWR
44-0 - CCS
Junction road to Bodie
45-1 - CCN + CHEATGR
46-0 - Riparian
47-1 - CCN + CHEATGR
48-0 - Riparian, formerly
GBWR
49-1 - GBWR, huge valley
formerly GBWR
50-1 - GBWR, riparian
51-0 - **Bridgeport**
52-0 - Riparian, drained
53-0 - Riparian, drained

54-0 - Riparian, drained
PM 80
55-0 - CCS
56-0 - Riparian, CCS
57-0 - CCS, riparian
58-1 - GBWR, ripar. valley
59-0 - CCS
60-1 - GBWR, ponderosa
pines
61-1 - DN + GBWR
62-1 - GBWR + riparian
**Summit Devils Gate, Elev.
7,519, PM 88**
63-1 - GBWR + riparian
64-1 - GBWR + riparian
PM 90
65-0 - CCS
66-1 - GBWR in R/W
67-1 - GBWR in R/W
Jct. 108, 7,000 ft. elevation
68-0 - CCS
69-1 - GBWR
70-1 - GBWR

**Notebook 101, pages 15-16
September 14, 1997
NEVADA from California
border on US 395 to Reno**
1-0 - CCS
2-0 - CCS
Junction 208 to Yerington
3-0 - CCS
4-1 - Oryz in R/W
5-0 - CCS + conifers
6-0 - CCS + CW
7-0 - CCS + CHEATGRASS
8-0 - CCS + CHEATGRASS

GBWR
9-0 - CCS in R/W, juniper
10-0 - CCJ + CW
11-0 - CCJ + CW
12-0 - CCJ + CW
13-0 - CCS
14-0 - CCRabbitbrush + CW
15-0 - CCR + CW
16-0 - CCR
17-0 - Ag
18-0 - Ag
GBWR
19-0 - Ag
20-0 - Ag, **Gardnerville**
21-0 - **Town Gardnerville**
22-0 - **town "Minden"**
23-0 - **town "Minden"**
24-0 - Ag, riparian
25-0 - Ag, riparian
26-0 - Ag, riparian
27-0 - Ag, riparian
28-0 - Ag
29-0 - CCR
30-1 - DN, GBWR
31-0 - CCS
32-1 - GBWR, rare
33-0 - CCS
34-0 - **town**
35-0 - **Junction 50, town**
36-0 - CCS, **town**
Toiyabe NF
37-0 - **town Carson City**
38-0 - **town Carson City**
39-0 - **town Carson City**
40-0 - **town Carson City, end**
41-0 - CCS
42-0 - Ag

43-0 - Ag, reservoir	GBWR	4-0 - River bed	17-0 - CCS, Ag
44-0 - Ag/reservoir, sunfls.	57-0 - CCS+ CHEATGRASS	5-0 - River bed	Hamas town
45-0 - CCR, reservoir	58-0 - Jct. 431	6-0 - River bed	18-0 - CCS, Ag
46-0 - Ag, reservoir	59-0 - Jct. Hwy, 6 lane	7-0 - River bed	19-0 - "Topaz"/ riparian
47-0 - Ag	60-0 - RENO	8-0 - River bed	20-1 - Oryz in R/W
48-0 - CCS in R/W		9-0 - River bed	21-0 - Jct. 89
49-0 - CCS and Ag	Notebook 101, pages 17	10-0 - CCS, junipers	22-0 - CCS, reservoir
50-0 - town, first fruit stand,	September 14, 1997 US 395	Town Walker - Hippie	23-0 - Topaz lake
sunfls.	around Walker	artists	24-0 - CCS, riparian
51-0 - CCS, reservoir	INSERT AFTER notebook	11-0 - town Walker	24.5- Calif/Nevada border
52-0 - CCS	page 12	12-0 - CCS	
53-0 - town, Ag	0-0 - Riparian	13-0 - CCS	
54-0 - town	1-0 - Riparian	14-0 - Drained riparian	
55-0 - Cottonwoods	2-0 - CCS in pines	15-0 - town	
56-0 - CCS	3-0 - CCS, river	16-0 - CCS, Ag	

FIELD NOTES, Notebook 97, page 19

CALIFORNIA to central NEVADA on US 50

Use this data on the gigantic transect and transfer to Landsat data and map whole state from two transects, one N-S another E-W.

Windshield survey is adequate because \pm 50 feet on either side of roadway is protected from grazing, so if native grasses exist in vicinity, they will be there also.

No large mammals seen, except one deer.

We have "sterilized" the land, no native grasses, no mammals larger than us! Talk about an efficient antibiotic! Only one live deer and two road killed coyotes. Only three birds that were non-riparian.

Roads also go through the most fertile and productive valleys, so in a state like Nevada, if there are still good grass stands, they should exist on the best soils.

ROADSIDE REFUGIA.

Too bad the N. American Indians didn't give us training sessions 500 years ago when we first came to this continent.

Wiped out all the insect's nectar plants. We have really depauperated this land. NO INSECTS!

There's parts of this land, that no matter what injury or abuse we have done to it, you can still see the sacredness in it.

WHERE ARE THE REFUGIA?!!

If grasses aren't evident at a 70 mph windshield survey, the populations are too depauperate.

FIELD NOTES notebook 97, page 39-49, 52, 53, 60, 62 - US 50 NEV to UTAH

Aug. 23-24, 1997

In the West, huge tracts are grazed, sometimes hundreds of square miles each. Each are grazed amazingly uniformly; if one part of a cattle allotment is overgrazed, it is likely that the entire allotment is in the same condition within relatively close tolerances.

Great Basin grindelia becomes very common along with crested wheatgrass and intermediate wheatgrass, around Ely, Nevada.

You can date our perennial native grassland conversion to exotic grasses, by the new dominant grasses that could survive excessive grazing:

- CALIFORNIA, 1700s, the Spanish introducing wild oats
- NEVADA 1920s(?) crested and intermediate wheatgrass
- Many areas of Nevada not yet converted.

Maybe we should map each state in the United States, and map the grassland converted areas and protect the unconverted areas for the future as in-situ refugia.

This mapping could also be used to delineate the extent of weed problems. Maybe three levels of land mapping:

- a.) Refugia
- b.) converted areas
- c.) weed areas

Nevada is basically a bunch of playas between mountains, but without the salt minerals which inhibit plant growth like in the Mojave--all the Great Basin minerals have probably flushed down towards the Mojave millions of years ago and settled in the Mojave as mineral deposits as the inland seas evaporated and the mountains and volcanoes rose?

At junction of US 93 and US 50 just east of Humboldt NF, more water (annual precip.) maybe double what is on Ely side going west to Reno--plus smog from Salt Lake City visibility about same as the San Francisco Bay area, clear only 2-3 miles.

Severely cow-chewed sage with some natives, 3/4 *Oryzopsis* and 1/4 *Stipa comata*. Large bare interspaces between all plants. Good valley to do revegetation, with no weeds and a seed source.

Even cheatgrass isn't a big problem in most of Nevada's valleys--only that the perennial natives have been exterminated and crested wheatgrass/intermediate wheatgrass added and persisted.

Vegetation destruction on an epic scale--even the biggest Hollywood blockbuster couldn't encompass the scope of the awesome extent.

They're allowing the Rocky mountain hillbillies to use 85 octane! No wonder there's a smog problem out here!
"The value of 70 mph windshield surveys of grasslands"

Now the resources are concentrated at high elevations, away from the hungry cows, the proper ecotypes of the native grasses and endangered or perhaps extinct. ESA petition should be based on that basis.

CHEATGRASS begins 49 miles east of Ely, NV, not seen before, now filling all the shrub interspaces. Mapping needs to be done to keep cheatgrass out of cheatgrass-free areas, so they can maintain their potential for restoration.

Nope, the smog is from the Delta, Nevada coal burning power plant.

RULE OF THUMB: The likelihood of finding native grasses increases in proportion to the number of cars per hour on the main roads in the area--increase in cars indicates area has been long traveled through by open range grazing, the most destructive form. The more the cows have to work for their feed the more likely there will be stands; also desert riparian gets hammered sometimes saving upland resources.

See if there is an IR band/wavelength that reflects back best RE: grasslands. Check with mil. guy who did the 400 band study. Would be easy for Great Basin and Mojave grasslands.

It would be better for BLM to sell the land to the private sector so the counties would receive the property tax.

SUGGESTIONS for the GREAT BASIN grasslands

- 1.) BAN ON WATER DEVELOPMENT on BLM lands, until an EIS is written.
- 2.) There is no biological basis for establishing and maintaining a grazing allotment on public lands in an environmentally sensitive area, or on choice native grass resource habitat, that would be useful to preserve, or land with endangered species.

All grazing allotments should be located on already wasted habitat, where the native grasses were exterminated long ago, and where cheatgrass and wild oats are the forage plants.

Grazers "sweep up" all grass evenly over the whole allotment.

NATIVE POLICY IMPERATIVE FOR EVERY FS REGION, not for USFS except for fire rehab, but for Highway easement also! Biggest introduction into USFS land of exotics is the "Department of Transportation of Exotics".

WHEN WE MANAGE for the dominant vegetation we may be only managing a stripped chassis with the tires and battery and engine stolen. Gone are the items that make the ecosystem function or "run"

When ORYZOPSIS is gone, the rest of the desert Great Basin grassland understory is gone. When Crested wheatgrass is added, the understory can't come back.

A Native Policy is imperative for every Forest Service region, not for USFS except for Fire Rehab, but for Highway easements! The biggest introduction into USFS lands of exotics is the "Department of Transportation of Exotics."

FIELD NOTES, Notebook 98, pages 11-20, 23-24a, 41-45, 48-53, 65-65A - August 24-31, 1997 - Utah to Denver

PHOSPHORUS. In arid lands, it may have taken 5,000-10,000 years of mammal bone-raining to build the bunchgrass cover that existed 200 years ago. By phosphorus mining (via grazing), without replenishing the phosphorus bank, you may not see grasslands ever cover because mammals that used to leave bones have also been exterminated and cow bones are not put back.

Thanks the Lord for wild oats, or California would all be a barren desert < 3,000 ft.

The Mormons came to Utah with a desire to practice their religion, but no environmental ethics.

Most endangered populations are in rich valley floors, flat valley floors, low precipitation areas. Can the wasichi change from feathering their own nests with natural resources converted into consumer/status items; to giving resources back to the land so future generations can sustain themselves?

There's nothing that Euro-Americans have done to this continent that has been more devastating the West as livestock grazing. Wiped out a whole biome over most of the State.

Have to get Bonnie Harper-Lore (at FHWA) to ban all crested wheatgrass on all western FHWA projects.

How to keep the future generation health:

- 1.) Don't let the cows eat all the grass (desertify)
- 2.) Don't piss in your drinking water supply, or anyone else's.
- 3.) Don't sow anything that is an exotic persistent plant, or release any exotic animal or other exotic life forms.

GRAND JUNCTION, CO., the main grass is *Hilaria* (probably *jamesii*) along with *Oryzopsis*. Prickly pears, almost cultivated, wild sunflowers with discs 1" across. First doves seen, first rabbits. Shocking lack of road kills of herbivores for the trip so far.

Just like the rest of the animals, the human's wealth comes from the rich grassland soils and the rich productivity and fecundity of riparian ecosystems.

There's no homeless people out in the country--the country people take care of their own.

if we don't preserve good examples of ecosystems, when we wipe them out of existence we won't even miss them.

Crested wheatgrass is like plutonium; it is unnatural to this land, and lives for 10,000's of years and causes damages to the ecosystem for eons wherever it lands.

I'm melancholic--I miss the ecosystems that were here only 6-8 generations ago, I have a hard time looking at them now, in their destroyed state; because I know the pain and suffering that took place to cause them to be in the state they are in today.

There's no crickets--there should be. Only heard them at Grand Junction and downtown Montrose CO. No habitat out in the wild and their food chain that depends on crickets and their associates is exterminated.

We need to get records from COLO DOT on where smooth brome was sown along US 50 from Montrose to Gunnison. Suspect that *Hordeum jubatum* is a weed in *Bromus inermis* commercial production and is getting sown along with the smooth brome.

Guard the in-situ resources with your life--it will make your individual life count for something; and keep the exotics out--just like you wouldn't let the drug pushers sell heroin to school kids, don't let the seed dealers sell smooth brome to the Forest Service. Both are helpless innocents that need our care and protection.

There is a single Great Basin Wild Rye plant on the road to Crested Butte about Post Mile 2.5, 1/2 miles before road crosses the Gunnison River.

Postmile 11, road to Crested Butte, most pristine sagebrush example of grassland in the State of Colorado so far. Of course highway people planted smooth brome in right-of-way, within the Gunnison National Forest.

Gunnison River, Colorado's most pristine river, compares to Sacramento River above Shasta Dam. Most sacred area of the State--sacred as defined as pristine.

European chrysanthemums sown along the roadside along with yellow mustard in alpine meadow areas.

BAD ONES: Smooth brome, yellow sweet clover, chrysanthemum and crested wheatgrass.

UNIVERSITY OF WYOMING, Laramie Range management judging teams:

1969: 6 crew cuts

1970: 3 sideburns

1971: 1 woman, 1 mustache

1972: 1 woman, 1 hair over the ears

1975: 1 hair to shoulders, 1 handlebar mustache

1976: 1 woman, 2 mustaches, 1 long hair

1977: 1 woman, 1 beard, 1 mustache

1978: 1 full beard, 4 mustaches

1979: 1 hair to shoulders, 1 full beard, 1 handlebar mustache, 1 mustache.

1980: 50% women, 3 full beards, 1 mustache

1981: 50% women, 2 full beards, 1 clean shaven

QUESTION: UNGULATES doing genetic selections on native grass populations?

Each miles of this 2,000 miles transect is like looking at a single patient's record.

COLORADO, over Cottonwood Pass, precipitation increases 25-50% and Senecio ecotypes different. Highway department really reined roadsides with smooth brome, white yarrow and white Dutch clover. Both keep natives especially Deschampsia, from recolonizing. Also yellow sweet clover. Nice Deschampsia patch at Postmile 51.5.

Exotic mix looks like smooth brome 70%, white Dutch clover 20%, yarrow 5% and yellow sweet clover 5%. Yellow sweet clover is probably a contaminant in the white Dutch clover.

Postmile 62.9, precipitation allows the smooth brome to move off roadsides, wherever the native grasses are not solid!!!

San Isabel National Forest end at Postmile 63.8.

Huge solid valley prairie for sale, with roadsides common sunflowers 1.5 feet tall along road. On highway 285 at postmiles 86+ the valley is so flat that the native grasses are cut and baled for hay.

COLORADO has to ban smooth brome statewide, along with the need to herbicide. All the roadside stands of smooth brome and yellow sweet clover and white Dutch clover are the worst impact of native vegetation over areas of the State.

Shrubs in Colorado or east side of continental divide seem to be more palatable. Only one deer seen on trip so far. Only people seen bicycling were in the town of Crested Butte. Only people seen walking in rural areas were Mexicans outside of Denver.

In California, the major metropolitan areas were nicely cleared out for us of the Native Americans by the Spanish 50 years before the English arrived and took over. But you get to Denver, and it was the American military that did the extermination in all the towns named "Fort".

Need to do a butterfly "windshield" survey through the Great Basin. I think they are mostly exterminated now, except for the exotic cabbage butterfly.

First hawk in miles, in agriculture fields between Ft. Collins and Denver. We are hoping that the wild things are still in the wild, but they are probably concentrated in our agriculture lands, the richest land we've stolen from them. We will not want to try and co-exist with them but we must on our ag. and grazing lands.

I've fallen in love with a life-form on the verge of extinction--the native grasses.

On native hills along I-25 are at the Exit 250 BERTHOUD, and of course they use it for motorcycle track. IT IS A SACRED SITE! This is from Denver to Ft. Collins, "Valley Dirt Rides" says the sign.

First bat seen was in Ft. Collins at 8 PM. Also second flock of geese. No mosquitoes anywhere along the route so far--riparian areas destroyed.

Different levels of GRASSLAND MANAGEMENT, not grassland health:

Excellent: Looks ungrazed, no weeds, species diversity

Good: Solid, no weeds, diversity, lower plant height.

Poor: Natives with some weeds, bare soil.

No management, < 75% native cover.

Land abandonment, <50% native cover.

Highway 285 in Wyoming, Postmile 417, grama grass with crested wheatgrass in roadside along with depauperate smooth brome.

Laramie Wyoming, on East Grand across from the Bank of Laramie, Dr. Beetle and I looked at a vacant lot with *Bouteloua gracilis* (Blue grama), gumplant (*Grindelia sq.*), and *Stipa comata*.

Strongly allelopathic: Gumplants, pepper grass, yellow sweet clover, and crested wheatgrass.

Like a gearshift car--we have to stop the damage we're doing today, not sowing one more exotic seed in our forests and arrest the damage in place.

Like a gearshift car, you have to stop the car before you go in reverse. You don't even think about reversing the damage--like how do we get the smooth brome out? You can't go in reverse until you've stopped your forward destructive motion.

EDICT: "No more exotics sown in the forest".

FIELD NOTES, Notebook 99, pages 1-6,8-15, 20-22, 29-39, 47-54, September 5-10, 1997 - Ft. Collins to South Dakota to Wyoming

Frederick Clements collection at west archives (he retired in Santa Barbara, CA) is in Laramie, Wyoming. 1918-25 field notes, 4th floor.

Clements photographed most of the sites he describes in his note books; his photos can be "before" pictures to create paired historic photos in the future.

Like a layer cake, first layer is ethics, second layer is science, and everything else is frosting.

Prescribed burns (targeted areas) vigorous response except sage/bitterbrush on south facing slopes--gets lots of cheatgrass in--

- 1.) Not grazed 2-4 years.
- 2.) *E. ambig.*, *Agrop.*, *Poa secunda*, *Bout. gracilis*.

If you bury the cheatgrass weed or crested wheatgrass or Siberian wheatgrass 2 inches deep, <30% germination in 15-20 days for cheatgrass, <10% for wheatgrass in 20-30 days. Normally in lab, cheatgrass days to germinate = 2, 100% in 4 days. Crested wheatgrass to germinate 4, 21% in 4 days, 81% in 8 days. A. C. Hall Jr, J. RANGE MAN (1964) 17(1):32-35.

"Map of the Union Pacific Rail Road Surveys" 1864, 65, 66, 67, 1868 from Missouri River to Humboldt Wells. Scale 20 miles to 1 inch. G.M. Dodge, chief engineer.

WHAT YOUNG MEN WANT: (According to Hitler)
--Excitement, adventure.

- Discipline.
- Belonging
- Have a vision unmatched by any other politician.

For the 500 years we have been the harvesters of natural resources in North America, 100 or less years ago, we formed the US Forest Service and BLM and we became the managers of the economic items of the ecosystem, specifically timber and to a lesser degree, grasslands. In the last 5-20 years we've been converting to be the managers of the whole ecosystem, from mosses to mountain lions.

The value of 70 mph windshield surveys for vegetation locations, historic sites for future. Large-scale point-line transects. Site specific ecological data that is 24K gold for future researchers, especially notes on events creating changes.

Since we no longer have minor nutrient deficiencies -- goiter, rickets -- in human population, we are not sensitive to deficiencies in wildland plant populations.

Until we discover relationships and how to measure them:

- 1.) The relationships between different native plants;
- 2.) Relationships between plants and their environment; and
- 3.) Relationships between weeds and natives;

We will not know how to do successful ecological restoration.

Great Basin Wild Rye populations along US 395 in Modoc and Lassen Counties: Blue at Sage hen summit may be octoploid and the light green a tetraploid or hexaploid.

Sunflowers, the wild varieties, indicate old Indian village sites and rich soil. Sunflowers = wealth, the bigger the sunflowers, the wealthier the people. Sunflowers = oil.

Bouteloua gracilis may be a sterile polyploid in places--i.e. at dam west of Ft. Collins. All other grass species were making viable seed except *B. gracilis*. Viable seeds for *E. canadensis*, *Stipa robusta*, etc.

"Eating beef is the most environmentally destructive activity a person can do to the earth, " should be my quote, because that has an effect on huge areas of the West. Calculate per hamburger, how many western acres are wasted.

So much of this land has been nuked--have slow motion countdown of a kid putting a hamburger to mouth--when bites down = "0" and nuclear explosion. Show grassland before explosion and wasteland after.

Blue grama may not be reproducing because of phosphorus or other soil deficiencies. We may be seeing a whole species on the decline. Roadsides have the only good natives, like sunflowers.

Like Uncle Ben's converted prairie--converted to Cream of Crested Wheat!

If we hadn't eaten cow meat, this land would still be pristine!

SOUTH DAKOTA.

Flow Chart---

Are YUCCA present--

Yes = Native grasses

No = Plowed.

If YES, good species diversity?

If No native grasses, then, cow-chewed, overgrazed or smooth brome sown.

If YES to good species diversity, without weeds or few weed?

If NO to good species diversity -- too much weeds, or smooth brome sown in?

Quad measurements, no PhD thesis, no stat analysis, trends with one measurement!

Relict sites--preserve them and learn from them--search out your elders.

NATIVE AMERICANS SHOULD BE THE WEALTHIEST PEOPLE IN NORTH AMERICA:

All of our wealth is based on the land we conned or stole from the indigenous people--they did not have the benefit of council when they made the land deals or did not have the benefit of our legal protection or the legal system.

Since we have gained so much wealth from their land, and if we were fair and just people, then they would be the wealthiest people on this continent. We should give every Native American at least ten million dollars each, with an apology.

Every living African American whose descendants came here involuntarily should receive one million dollars and every Japanese American receive \$250,000 each with our apology.

THE EXCESS OF AMERICAN IS STAGGERING. We don't want to know who we are killing when we go out and withdraw the life-force off the land to support our unnecessary extravagant life.

Cows are native grass poison and desert-makers in the arid West. Along I-90 in Wyoming, the cows ate all the grass, the shrubs moved in and then crested wheatgrass was sown in, and the cows ate that also.

The sage without the grasses, looks like "Blue land-measles".

ID big groups of grass populations with gels--western wheatgrass being allelopathic as bad as smooth brome.

Canadian wild rye, 2 people in 20 min. can collect and 10 min. to clean 1 lb. 2 oz. clean seeds. Canadian wild rye can duke it out with smooth brome plus the native sunflowers.

Gumplants very important for butterflies, some type of Fritillary and rarely a bluish skipper. One type of cricket sounds like a rattlesnake. Sunflowers, gumplants and Stipa are indicators of the blue grama grass.

All I can say about those cowboys--"those mother [earth] fuckers!" We need them around as much as we need scientists building nuclear missiles--go and get a real job that doesn't include destroying the world--that doesn't damage the planet permanently.

This land needs no cows, plus a shot of phosphorus, a little nitrogen and eradication of the crested wheatgrass.

THE BUFFALO PARADOX: Why did we kill all the buffalo and replace them with OUR cows? For at least two reasons:

- 1) The wild game doesn't belong to anyone, so they are "fair game" for all, especially the Indians.
- 2.) Occupancy by wild animals is "wild land" not owned by anyone. By evicting the wild animals and putting your owned, marked, domesticated animals on the land shows your occupancy and ownership of the land. Your animals become your land "boundary markers."

Really, replacing the cows with the original natives "branded" so they have ownership would be the best for the land.

Give the ranchers and the Indians the BLM and National Grasslands, auction the land--the government doesn't "manage" it anyway.

FIELD NOTES, Notebook 100, pages 5-8, 11, 16-40, 49-51, 54-59, September 10-13, 1997 - Wyoming to Idaho to Nevada

BLM needs to cut in half the grazing, or cut them to one-third, so each allotment can be rested 1-2 years, for each year it is grazed.

The ranchers should be ashamed of their poor land management of public lands--that's the problem--it's not their land to manage and the government agency doesn't provide the management.

Wyoming, Hwy 14, Shoshone National Forest, east of Yellowstone, solid prairies of Bluebunch wheatgrass/Stipa/ Art. tridentata/Poa.

Bluebunch if allowed will be ± solid, 8" apart, but is grazed out first, leaving or increasing the Stipa/Sage component. Sage should be 3 feet apart in better grass stands, 9 feet apart. >>>Few grazed stands of native grasses are allowed to set seed.

Poor grassland = Sage closer than 3 feet; and can get as close as one foot for Artemisia tridentata seedlings when grasses exterminated.

Write an article on highway departments sowing of exotics along roadside's effect on last native relict stands--Lack of awareness, value of resources, sensitivity, impacts.

In Idaho, there is a chance to find natives along old irrigation ditches--look where the sunflowers grow. Lots of relict sage and sunflowers in I-15 right-of-way where it has been existing, to the horizon, but where crested wheatgrass is sown in, kills them out.

Lava I-15 grass was Ag. spicata--can find relicts at rest stop 12 miles south of Idaho Falls, little 8" tall plants (seedheads maximum height).

The poor, the pobrecito relict natives really have to hide from us, hide from our cows, our plows, our crested wheatgrass, our home builders, road builders, highway mowers--find a secret place to hide away and reproduce.

Wild lettuce is a huge weed in all Idaho agricultural valleys.

Write article about parallel treatment of native humans, land and native plants/animal on the land.

All the western "forts" were extermination or concentration camps, set up all along the eastern edge of mountain ranges to clear out the good grasslands.

The real money is processed foods, not the raw material like wheat or flour. Sell sliced bread.

One of the things killing the native grasses is the design of our mowing equipment, that is set up to cut annual grasses to ground level--the perennials need to be cut at 8-12" min., not 2-4 " above ground level.

The good valley soils we utilized for our agriculture is actually created from the bones of native grass stands, which for millennia, generation after generation, contributed their lives to make that soil; the soil is their lives.

The ranchers and the farmers have to be made to realize that when they clear off the perennial grass off each acre and convert it to annual crops or sage desert; how collectively the millions of acres are combined to change the climate and hydrology of the continent.

Serious breaks in the carbon cycle, phosphorus cycle, water cycle. All three of those cycles are being short-circuited and mined, to be redistributed to the human hive.

Georgetown, Idaho--first big flock of field birds seen.

"Old ranchers don't die, they just get reincarnated as a native grass in their overgrazed land to be munched on and shit on."

CARIBOU NATIONAL FOREST, Montpelier ID NOTES

Idaho, Franklin County, Franklin Basin, lost top soil to erosion via sheep grazing in the 1800s. Recent attempts of recovery inhibited by the USFS.

USFS has some summary or report from the ARS and revegetation data, not specific to Franklin Basin--high elevation basins, over 8,000 ft. elevation.

Have soil profile and nutrient analysis and soil science just faxed this morning.

Advantage in Idaho, is that there are so many high elevation hay growers who would be in the same climate of the USFS land, that they could easily grow native seeds for the forest service.

CRP program, crested wheat, intermediate wheat, smooth brome (some); planted back to the native a-OK. SCS hit up on sagebrush but that's not OK. Why won't SCS do it and harvest natives for hay?

Just bale it up for the USFS - CRP agreement is do nothing, doubt if can harvest seed, but can hay it. Do get points if you plant natives.

Change the program to plant the local natives, have the ability to hay, then everyone would grow local natives.

Levy Montoya, in Montpelier, district conservationist, sic me onto the State office,

ARS report, the species used is smooth brome, and where there's no smooth brome, Alopecmis has held on (meadow foxtail).

Regional office has a grazing preference--Bittlebrush forage values can fluctuate seasonally = carrying capacity, based by clip & weigh but usually ocular estimates.

TREND = method frequency, nested, measure.

NESTED FREQUENCY is done every 5-10 years in some allotments. Don't do a lot of that, too much time administratively.

What is the reasonable annual allotment management ability USFS = Seasonals check and inspect to see if cows have left and do range readiness studies years ago. PNC = Potential natural condition

Tarweed an old shallow glacial lakes?

TARWEEDS IN FRANKLIN BASIN

Engleman spruce, some Doug fir.

\$92,000 for acres of tarweed.

Melica, tufted hairgrass, fescue, Carex.

Carex sp. 8" (dia. 4")

Fescue 4", diameter 1"

Tufted hairgrass in wet areas.

Yarrow 8" spacing

Potentilla 8" across, 2 ft. tall, spacing 3 feet.

Tarweeds in Franklin Basin = 300 acres in the valley. Went out with:

--Jane Rushane, Box 396, Paris, ID 83261

--John Newsom, 322 N. 4th, Montpelier, ID 83254

--Brad Transtrum, Range Tech.

322 N. 4th, Montpelier, ID 83254

INHIBITING EFFECTS

Stipa, 98%, understory yarrow, Potentilla.

Melica - 10-20%

Tufted hairgrass works with Carex in wet areas, and Hordeum brachyantherum

We're going to have to ask the ranchers for a soil phosphorus deposit, like a bottle deposit.

(page 30)

FIELD NOTES, Notebook 101, pages 38-55 September 13-14, 1997 - Wells, Nevada to California

Fierce wind blowing around Wells, NV. All sagebrush areas have crested wheatgrass sown in near I-80, Nobody drives the Hwy 93 stretch between Wells and Ely!

Great Basin wild rye still tucked away in amongst the sage and rabbitbrush.

Reason for mile-by-mile survey is that most of the land in the West is divided into sections: grazing changes every mile.

Some religions create people with no self confidence and always have self doubt because they always have to check to make sure they are not sinful.

Then if you live like a very religious person, you can look down your nose that you are righteous and feel superior to other "sinners."

Since many religious people concentrate on sex = sin, and it is such a powerful natural force like breathing; what if you could be a righteous breather or a sinful breather? Why not have a religion based on nature and life?

" ___[fill in the blank] National Forest, Land of Many Abuses"

Areas noted in southern Nevada as CHS or Cow Hammered Sage is actually a Hilaria-Rabbitbrush community with no Artemisia in it; Hilaria is eaten down to 2 inches tall.

In Nevada the range is so huge, you can have one open range for 50 miles. And only change in grazing intensity is when you run over a cow-catcher or leave and enter the National Forest, which is usually heavier-grazed; or some BLM district which use the 50/50 rule but includes the roots!

BISHOP is a beautiful town destined to be the next Palm Springs once they put in the 20 championship golf courses on DWP leased land, with those beautiful Sierras as a backdrop.

NATIVE GRAZERS? Why not substitute native grazers for the cows?

REVERSE ECONOMICS. We put too cheaply [the value of] natural resources and this causes a degradation of the whole environment which is our foundation.

BLM PIPELINE< SUSANVILLE> Fish & Game, Madeline Plains, suggested mitigation, working with Jim Nelson with Tuscie [Tuscarora pipeline] in Redding.

{Native grass seed sowing} used 4 wd large tractor vehicles with spinning blades, throwing out seed @ 5 lbs.. per acre. Yields decent Sitanion, BBWG, with poor Poa, Stipa, no GBWR.

Since 1995, GBWR in juniper shade @ Ramhorn test plots 3" in diameter.
Madeline Plains, excellent grass even with no mulch/fertilizer in this good soil.

BLM/USFS and other land managers are taught not to have a proprietary concern for the land--"It's not mine", it's the people who pay the permits--it's the rancher's land or the loggers.

Our grazing land we need to have the cows set their teeth to 3" mowing height.

In rich soils, Sitanion and Poa can duke it out with cheatgrass. In rich soils like Sage Hen summit, you can get 4" diameter Thurber's Stipa, 6" diameter Sitanion, 3" diameter BBWG within 2 years and 2" Poa.

BBWG at 10 lbs. per acre, mix cultivar gives good density. BBWG at 50 lbs. per acre, no fertilizer, mulch, local ecotype. Seedlings of BBWG, Sitanion and especially GBWR excellent. Since 1994 (3 years old) Seedlings can grow:

GBWR: 5 inches diameter

BBWG: 5 inches diameter

Sitanion: 3 inches diameter

1994 INDIAN RICEGRASS sown three years ago:

All 1/8" diameter plants only have 6 leaf blades, 4" tall, nutrient-starved. Counted 61 plants:

DIAMETERS 1" = 1

2" = 1

3" = 25

4" = 14

5" - 20
6" = 0

Conserving topsoil with an evident seedbank on a 3 ft. x 3 ft. plots 3" deep produced 5 Poa seedlings with 1-2" diameters, with no additional seeding.

When you lose your organic matter blanket on the soil's surface of wildlands--you lose your ability for the grasses to regenerate easily.

Sitanion is the best colonizer after cheatgrass.

60-100 pounds per acre mix gives good results with fertilizer.

The cultivars of native grasses are more aggressive especially BBWG! / Western wheatgrass.

We've exterminated the native Americans so we would exterminate their stories of the land, so we could put our own myths and legends onto it, like the cowboy myth and the war myths of "winning the West" which is really the genocide of native peoples, plants and animals.

Native people's myths about a piece of land shows ownership--we want to ignore their stories, which we have tried to ignore for 220 years for ten generations. I am part of the tenth generation what wants to bring the land back to life with its original native myths.

Perhaps we need to change Paleo-Indian tools from the butcher's pile into the baker's pile: from man-meat processing to woman-plant harvesting and processing? In the past, men anthropologists laid claim to all the tools with sharp edges as men's tools for meat processing; no consideration these tools could have been used for woman's plant processing, peeling and cutting of roots, etc.

Three sacred Great Basin plants that can withstand all we can dish out to the environment:

- Artemisia- sagebrush
- Rabbitbrush
- Gumplant - Grindelia

80 GREAT BASIN understory of GBWR and Rabbitbrush & Artemisia extends westward into California from Nevada along I-

- Artemisia drops out first about Truckee.
- GBWR get thin about PM 65, at the Placer County line.

--Town of Nyack is a dividing line between the Nevada population of Rabbitbrush (not setting seed east of this point) and the Western populations (setting seed).

Rabbitbrush is gone at 5,000 feet and lower, Gumplant gone a few miles later at Baxter--the increase in moisture on the western slope of the Sierras creates an ecological barrier, not elevation.

Star thistle starts at Alta, also wild oats. Star thistle gets severe between 2,000 and 3,000 feet elevation. Scotch or French Broom starts severely at 2,000 feet as well as manzanita, coyote brush, Cal. tarweed (Madia), Madrone, California oaks, Pinus sabiniana, Rumex crispus (weed), incense cedar, all unique to California.

California's roadside vegetation looks like a whipped horse that is on its knees.

At Placerville, Tree of Heaven begins.

Nature is scary, because if you can dream and hear her stories, they will usually be telling you something completely contrary to the way you are living your life now; and you will hear something completely different than you've ever heard before--It may teach you, you're in love with the wrong things instead of life.

California's Unique Vegetation: Fennel, palms, Cal. pepper tree, ceanothus, Cal. grapes, eucalyptus!, pampas grass, Himalayan blackberry, California species of willows, exotic cherry plums, oleanders, deodar cedar, Japanese maples, fruit and nut tree orchards, human food crops except potatoes, dryland wheat and barley.

The sensuous curves of the California hills are unique to the West; most other hills are rough volcanics; especially the inner coast range with their garlands of oaks.

California, even with its flaws caused by the 35 million other human beings living here and trampling its beauty, is still the world's most beautiful gem!

PHOTOS NOTEBOOK 97, ROLL 1 - 8-23-1997

1	7
2	8
3	9
4	10
5	11 Native brome at Donner summit
6	12 Native brome at Donner summit
	13 Exit 9 of I-80 NV Sitanion
	14 Feraley, NV yellow weed composite

- 15 Feraley, NV - Indian Ricegrass
- 16 Fallon, NV "For Lease"
- 17 Fallon, NV "For Lease"
- 18 Fallon, NV "For Lease"
- 19 Fallon, NV "For Lease"
- 20 Hwy 50 - across road from Salt Wells Whorehouse
- 21 Hwy 50 - across road from Salt Wells Whorehouse
- 22 Hwy 50, sand dune at Mile 100, north of playa
- 23 Hwy 50, sand dune at Mile 100, north of playa
- 24 Hwy 50 - 40 mi. east Fallon, Churchill Co., Military restricted area, Oryzopsis.

PHOTOS Notebook 97, Roll 2 - 8-23-1997

- 1 Mile 153.7 Sage with grass all gone, across from dry lake, about 15 mi. west New Pass summit
- 2 Mile 153.7 Sage with grass all gone, "
- 3 Mile 153.7 Sage with grass all gone, "
- 4 Paired photo, cow chewed sage @ New Pass summ.
- 5 Paired photo, cow chewed sage @ New Pass summ.
- 6 Toiyabe NF plants/grass west of Austin summit
- 7 Toiyabe NF plants/grass west of Austin summit
- 8 Toiyabe NF plants/grass west of Austin summit
- 9 Pristine GBWR Toiyabe NF 7480' 1/2 mi., w. Austin summit
- 10 Pristine GBWR Toiyabe NF 7480' 1/2 mi. w. Austin summit
- 11 Pristine GBWR Toiyabe NF 7480' 1/2 mi. w. Austin summit
- 12 Pristine GBWR Toiyabe NF 7480' 1/2 mi. w. Austin summit
- 13 Pristine GBWR Toiyabe NF 7480' 1/2 mi. w. Austin summit
- 14 Pristine GBWR Toiyabe NF 7480' 1/2 mi. w. Austin summit

- 15 Pristine GBWR Toiyabe NF 7480' 1/2 mi. w. Austin summit
- 16 Pristine GBWR Toiyabe NF 7480' 1/2 mi. w. Austin summit
- 17 Huge cow-chewed sage valley between Hickison summit & Eureka NV
- 18 Huge cow-chewed sage valley between Hickison summit & Eureka NV
- 19 Natural shot on way to ELY, NV
- 20 Natural shot on way to ELY, NV
- 21 Natural shot on way to ELY, NV
- 22 Natural shot on way to ELY, NV
- 23 Natural shot on way to ELY, NV
- 24 Cows in valley US 50, 8 mi. east Ely, NV

PHOTOS NOTEBOOK 97, ROLL 3 - 8-30-1997

- 1 Cows in valley 8 mi. east Ely, NV
- 2 Stipa comata 19 mi. east Ely, NV
- 3
- 4 Solid Orzy. 54 mi. east Ely NV
- 5 Utah Hwy 21
- 6 Nevada side, 1.5 mi. from border Hwy 487
- 7 Nevada side, 1.5 mi. from border Hwy 487
- 8 Utah side, Hwy 21, same mountain
- 9 Utah, Grassland mi. 7.6, Hwy 21
- 10 Utah, Grassland mi. 7.6, Hwy 21
- 11 Utah, Grassland mi. 7.6, Hwy 21
- 12 Utah Hwy 21, miles 39.5 to the horizon grassland
- 13 Utah Hwy 21, miles 39.5 to the horizon grassland
- 14 Utah Hwy 21, miles 39.5 to the horizon grassland
- 15 Utah Hwy 21, miles 39.5 to the horizon grassland
- 16 Utah Hwy 21, miles 39.5 to the horizon grassland

- 17 Cows
- 18 Utah Hwy 21, Mile 45
- 19 I-70, 13 mi. east I-15, contrast sown CW and overgrazed juniper
- 20 I-70, miles 45 red cliffs
- 21 Utah I-70 my mile 229, exit 97, volcanic ash
- 22 Utah I-70, Ind. Ricegrass at my mile 239.9
- 23 Utah I-70, Ind. Ricegrass at my mile 239.9
- 24 Utah I-70 mile 132, solid s. comata to horizon, both sides road

PHOTOS Notebook 97 , Roll 4 - 8-30-1997

- 1 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia. Hwy sows CW into existing grassland, with a "piss-on-you" attitude.
- 2 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia.
- 3 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia.
- 4 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia.
- 5 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia.
- 6 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia.
- 7 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia.
- 8 Utah I-70, S. comata both sides to horizon, + Grama & Opuntia.
- 9 Utah, I-70, mile 135, solid stipa to hills
- 10 Utah I-70, mile 135 solid stipa to hills
- 11 Utah I-70 mi 154, former solid ricegrass on vol. ash
- 12 Denuded hills @ Green River
- 13 Utah I-70 Mi. 160, hills with Oryzopsis
- 14 Utah I-70 Mi. 164, former oryzopsis

- 15 COLO., Colorado river @ Mi. 141.4 near Fruta, CO
- 16 COLO., Hwy. 50, my mi. 17.8, Hilaria prairie
- 17 COLO., Hwy. 50, my mi. 17.8, Hilaria prairie
- 18 COLO., Hwy. 50, my mi. 17.8, Hilaria prairie
- 19 COLO Hwy 50, 45 mi. e .Montroser, Orzy & smooth brome base
- 20 COLO Hwy 50, 45 mi. e. Montroser, pristine grassland same spot
- 21 COLO Hwy 50, escarpment
- 22 COLO Mt. Crested Butte, natives, fescue, wildfls
- 23 COLO Mt. Crested Butte, natives, fescue, wildfls
- 24 COLO Mt. Crested Butte, natives, fescue, wildfls

PHOTOS Notebook 98, ROLL 1 - 8-29-1997 CO, Gunnison-Denver

- 1 Taylor river, 1 miles from Gunnison
- 2 East Almont, grassland & river
- 3 Co. Rd. 209 to Cottonwood Pass
- 4 Odometer 44.1, Senecio, achillea, fescue
- 5 Mi. 522 alpine Deschampsia reveg naturally, smooth brome sown on top
- 6 Mi. 522 alpine Deschampsia reveg naturally
- 7 Mi. 522 alpine Deschampsia reveg naturally
- 8 Cottonwood Pass, from pass towards Buena Vista along paved section showing Deschampsia coming in naturally vs smooth brome occupying best soils and mulched areas.

- 9 Cottonwood Pass, eastward, showing Deschampsia
- 10 Cottonwood Pass, eastward, showing Deschampsia
- 11 Cottonwood Pass, eastward, showing Deschampsia
- 12 Cottonwood Pass, eastward, showing Deschampsia
- 13 Cottonwood Pass, eastward, showing Deschampsia
- 14 Valley solid bunchgrasses, @ Jct. 340, mile 64
- 15 Huge native valley, Colo. Hwy 24, mile 80.6
- 16 " - Largest seed & seedheads for EG ever seen. All grasses express gigantism, for Elymus, Stipa and Poa.
- 17 " - same site
- 18 Hwy 285 Colo., Mile Odometer 115
- 19 " - smooth brome
- 20 Hwy 285 Gumplant & Elymus recolonizing paves area
- 21
- 22 Hwy 285 Bonner Peak , n. of Ft. Collins, Grama
- 23 Hwy 285 Color mile marker 376, grama grassland
- 24 Hwy 285 Color mile marker 376, grama grassland

PHOTOS Notebook 99 , Roll 6 - September 1, 1997

- 1 Laramie plains
- 2 Dr. Beetle
- 3 Laramie prairie
- 4 Laramie prairie
- 5 Laramie prairie
- 6 Dr. Beetle's flints
- 7 Dr. Beetle's grass cutters
- 8 Dr. Beetle's grass cutters
- 9 Dr. Beetle's grass cutters
- 10 Dr. Beetle's male passenger pigeon
- 11 Dr. Beetle's male passenger pigeon
- 12 Dr. Beetle's male passenger pigeon
- 13 Dr. Beetle's female passenger pigeon
- 14 Dr. Beetle's female passenger pigeon

- 15 Ft. Collins workshop (9/3) , reservoir west side,
Stipa robusta, big and little blue stem
- 16 I-25 Colo./Wy border, @ Blue Star memorial Hwy
monument, Grama, Oryz and pronghorn
- 17 Wyo., I-25 12 mi. north Wheatland, beauty prairie
- 18 I-25 pronghorn Wyo., mi. 94
- 19 I-25 and Hwy 20, Orin WY, CC hills & 2 cows
- 20 WY, Hwy 18 20 mi. north Lusk, CW to horizon
- 21 WY., Hwy 18 pronghorn 72 odo. mi Hwy 183
- 22 WY, pronghorns and clouds
- 23 WY, pronghorns and clouds
- 24 WY same site as #16, I-25 Colo./Wy border

PHOTOS NOTEBOOK 99 , ROLL 7 - September-1997

- 1 Hot Springs WY workshop
- 2 Hot Springs WY workshop, little blue stem
- 3 Hot Springs WY workshop, cleaning seeds
- 4 OOPS
- 5 Road to wounded knee, 2 sides of Crazy Horse sign
- 6 Road to wounded knee, 2 sides of Crazy Horse sign
- 7 2 sides of Wounded Knee sign
- 8 2 sides of Wounded Knee sign
- 9 Pine Ridge Res
- 10
- 11 Sky at night So. Dakota
- 12 Wildlife area of Cold Brook Res., Canada Wild Rye
vs. smooth brome
- 13 Hot Sprs SD grasslands @ Army Corp Cold Spr.Res

- 14 Hot Sprs SD grasslands @ Army Corp Cold Spr.Res
- 15 Hot Sprs SD grasslands @ Army Corp Cold Spr.Res
- 16 Hot Sprs SD grasslands @ Army Corp Cold Spr.Res
- 17 Hot Sprs SD grasslands @ Army Corp Cold Spr.Res
- 18 Hot Sprs SD grasslands @ Army Corp Cold Spr.Res
- 19 Hot Sprs SD grasslands @ Army Corp Cold Spr.Res
- 20 Wind Cave NP - buffaloes
- 21 Wind Cave NP - buffaloes
- 22 Wind Cave NP - buffaloes
- 23 Black Hills NF Hwy 16, 8 mi. w. Custer, weeds
- 24 " - what roadsides should look like, 15 mi. w. of
Custer

PHOTOS Notebook 99, Roll 8 - Sept. 7, 1997, SD to Wyo.

- 1 Hwy 16, relict little blue stem (LBS) , Osage, Wyo.
- 2 Wyo. Hwy 16, 17 mi. w. Upton, relict LBS, crested
wheatgrass, in r/w, CCS on other side of fence
- 3 I-90 between Gillette & Buffalo, CCS, no grass
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14 WY-Hwy 14 5 mi. west Dayton-natives on edge
where smooth brome sown
- 15 WY-Hwy 14 Big Horn NF above treeline, rocks

- | | | |
|----|-------------------------------------------------------------------------------------------|----|
| 16 | " - Stipa, yarrow, Koleria, buckwheat, Mt.. brome,
lupine, with grassland only 4" tall | 16 |
| 17 | Shell Canyon, Wyo., Hwy 14 | 17 |
| 18 | WY badlands, Hwy 14 & lane 35, 15 mi. w. Shell cafe | 18 |
| 19 | WY Hwy 14, 3 mi. west of Greybull, sunflowers | 19 |
| 20 | WY Hwy 14, 43 mi. w. Shell cafe, Stipa, blue grama,
Oryz., to horizon | 20 |
| 21 | " other side of highway | 21 |
| 22 | WY, 56 mi. west Shell, CW to horizon | 22 |
| 23 | WY Hwy 14 3.5 mi. w. Cody, beauty grass on buttes | 23 |
| 24 | | 24 |

PHOTOS NOTEBOOK 100, ROLL 9 - 9-10-1997

- | | |
|----|-------------------------------------------------------|
| 1 | Yellowstone NP |
| 2 | Bromus marginatus one mi. east Sylvan summit |
| 3 | Bromus marginatus one mi. east Sylvan summit |
| 4 | ID, I-15, 5 mi so. Id.Falls, crested wheat vs sunfls. |
| 5 | ID US 30 21.6 mi from I-15 solid sm. brome to horiz |
| 6 | same as #5, across road, only relict GBWR in area |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |

- | | |
|----|--|
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |
| 24 | |
- PHOTOS NOTEBOOK 100, ROLL 10 - Sept. 12 1997
- | | |
|----|---------------------------------------------------------------------------------------------------|
| 1 | ID Us 30 near Montpelier barley field & fog |
| 2 | ID Pocatello wild sunfl & bees, Center exit |
| 3 | ID Pocatello wild sunfl & bees, Center exit |
| 4 | I-84 27 mi. west Pocatello "Massacre Rock" rest stop |
| 5 | same as #4, S. comata & cattle grazing NE corner |
| 6 | same as #4, cattle grazing grass to sage, and then |
| 7 | same as #4, sage is grazed out (series of photos) |
| 8 | Rest stop, path to ORE TRAIL ruts, BBWG |
| 9 | " path BBWG, sown cultivar? |
| 10 | ORE TRAIL 50 ft. to south healed Stipa with crusts
between plants. Aver. pl. dia 4" largest 6" |
| 11 | ORE TRAIL, sage regrew after trail abandoned |
| 12 | |
| 13 | ID mile marker 30 Hwy 93, native Poa prairie |
| 14 | " prairie grazed out, leaving rabbitbrush, across
hwy crested wheatgrass sown in |

- 15 NV Hwy 93 10 mi so. Idaho border. Cow chewed sage with cheatgrass & tumble mustard in relict Sitanion stand 13
- 16 NV Hwy 93, 36 mi. so of Id. border--the world's 14
- 17 " smallest shrub in Poa/GBWR/Orzy grassland 15
- 18 " 16
- 19 NV Hwy 6, 109 mi. so. Ely, any mounds in Hilaria 17
- 20 same spot, "Tybo" rest stop, Hilaria grassland 18
- 21 NV US 6 mile 17, 25 mi. so. Warm Sp., Good orzy 19
- 22 " on other side of Toiyabe NF fenceline 20
- 23 " same area, 2 mi, just within NF boundary 21
- 24 22

PHOTOS NOTEBOOK 101 , ROLL 11 - 9-2-1997 Bishop to Susanville

- 1 Bishop, CA city limits, W. Line Rd, pristine GBWR, Sporobolus, rabbitbrush, Licorice
- 2 Benton Hot Springs, CA (Est. 1852)
- 3 CA Pinyon harvester, 5 mi. Benson Hot Sp.
- 4 CA Pinyon harvester, 5 mi. Benson Hot Sp.
- 5 CA H 120, "Rilla-coaster" 20 mi. w. Benton Hot Sp.
- 6 Mono Lake
- 7 Jct 120/395 sedge meadow
- 8
- 9
- 10
- 11
- 12

PHOTOS NOTEBOOK 101 , ROLL 12 - 9-15-1997 Test

plots

- 1
- 2
- 3
- 4 Poa (60 & 100 lbs/acre. mix Poa dominant, Sitanion, GBWR
- 5 10 lbs mix
- 6 5 lbs. mix, no fert., mulch straw
- 7 Poa 30 lbs, fert + mulch
- 8 Poa 10 lbs + fert/mulch (where no mulch/no fert = no seedlings & only weeds)
- 9 Poa 5 lbs., straw + fertilizer
- 10
- 11
- 12 Sage Hen - cow manure + native in pipeline R/W

- 13 Sage Hen - solid cheat/wild lettuce, poa & Phacelia,
2.5-10 ft. apart and squirreltail
14
15
16
17 Rice canyon - seedlings
18 " where test plots did not succeed
19 " Sitanion as a colonizer around sage
20 " Rabbits utilizing native BBWG
21 " Milford, Hwy 395 new species of sunflower
22 Reno, desert research Institute library
23 I-80 near Vallejo - beautiful California hills.
24