

**Columbia Spotted Frog**  
*(Rana luteiventris)*  
**2002 Monitoring Report**

**Dry Creek, Oregon**



**Prepared for the Vale District  
Bureau of Land Management**

**by  
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## Introduction



Figure 1. Dry Creek survey site.

This report summarizes the results of the second year of the Dry Creek Monitoring project for Columbia spotted frogs, with incidental observations of other herpetofauna. The protocol followed for this survey is described in the 2000 monitoring proposal.

Dry Creek is characterized by steep canyons, scour pools, and narrow reaches with boulders, cobbles, and a sandy substrate (Figure 1). Occasional oxbow and sidebow pools (Figure 2) provide slack water for frog breeding and tadpole development, but deep pools with vertical canyon walls (Figure 3) contain large trout and may negatively affect continuous

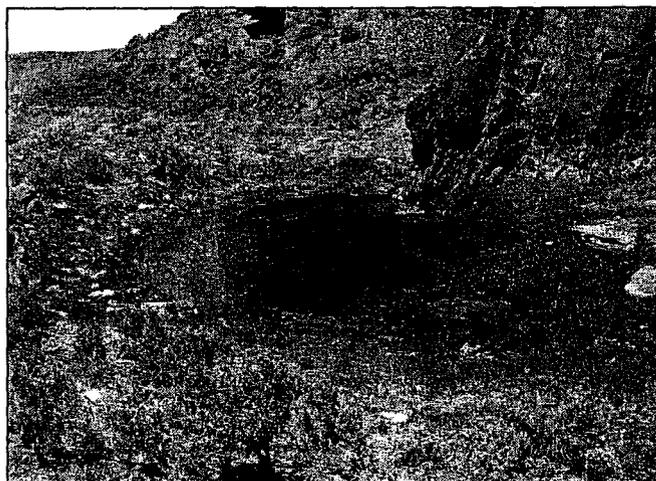


Figure 2. Oxbow pool.



Figure 3. Deep pool with trout.

movement of frogs along the creek between breeding, foraging, and hibernation sites due to predation. The summer of 2002 was considered another drought year, with aquatic habitat frequently becoming intermittent, isolated, and relatively warm. Several stretches along the survey transect became dry (Figure 4) and grazing removed much vegetation from the riparian corridor in August (Figure 5).

Dry Creek was visited twice this summer, from June 6



Figure 4. Dry stretch in June.

to June 7 to conduct the mark-recapture survey, and measure habitat parameters; and then on August 11 to determine annual recruitment success and to measure habitat parameters again.



Figure 5. Riparian condition in August.

## Monitoring Results

(for description of habitat measures, see Appendix I.)

Date	Time	Water temp	DO	Con	pH	SSAR	SVSR	VUBA	L-P Pop. Estimate	Recruitment
6 Jun 01	1310	17.3C	14.65	191.5	9.2	1-25%	4	0-25%	74	-
4 Aug 01	1335	22.3	16.46	246.4	9.3	26-50%	2	76-100%	NA	yes
6 Jun 02	1315	22.5	*	*	*	26-50%	3	51-75%	**	-
11 Aug 02	1300	21.8	***	340	8.9	51-75%	2	76-100%	NA	yes

\*equipment failure

\*\*unable to calculate L-P due to PIT-tag reader failure

\*\*\*not recorded



Figure 6. Standard photo point on 6 June 2002.

We began our survey of the Dry Creek transect on 6 June 2002 at 0900 hrs at the west end of the State section. The standard photo was taken at 1315 hrs from the creek below the campsite (Figure 6). This is a new standard photo point from last year (as recommended in the 2001 report). Proceeding east from the start point, we surveyed to the area below the campsite in three hours (1158 hrs). The "natural exclosure" did not appear to have any livestock grazing again, but there was some evidence of deer (scat and beds). The willows and shrubs had become much thicker, (willows approximately 4'

high) however we did not encounter ticks in the enclosure this year. We did not capture any frogs in the enclosed section, but it is likely that frogs were present there (it was very difficult to survey for frogs amongst the thick vegetation). Deer flies were the worse we had ever experienced along the sections of the transect that had been grazed. Just as last year, small stream fish were noted with a fungus that resulted in the posterior half of their bodies affected. Large crayfish were commonly observed in the stream, and remains were scattered along streambanks (from predators). Large snails (over 1" shell size) and scuds were observed throughout the survey transect, however, this year a large quantity of snails died and accumulated in the stream (Figure 7). We completed the entire first pass in one day, at 1715 hrs. The weather was warm and clear, perfect for frog surveys.

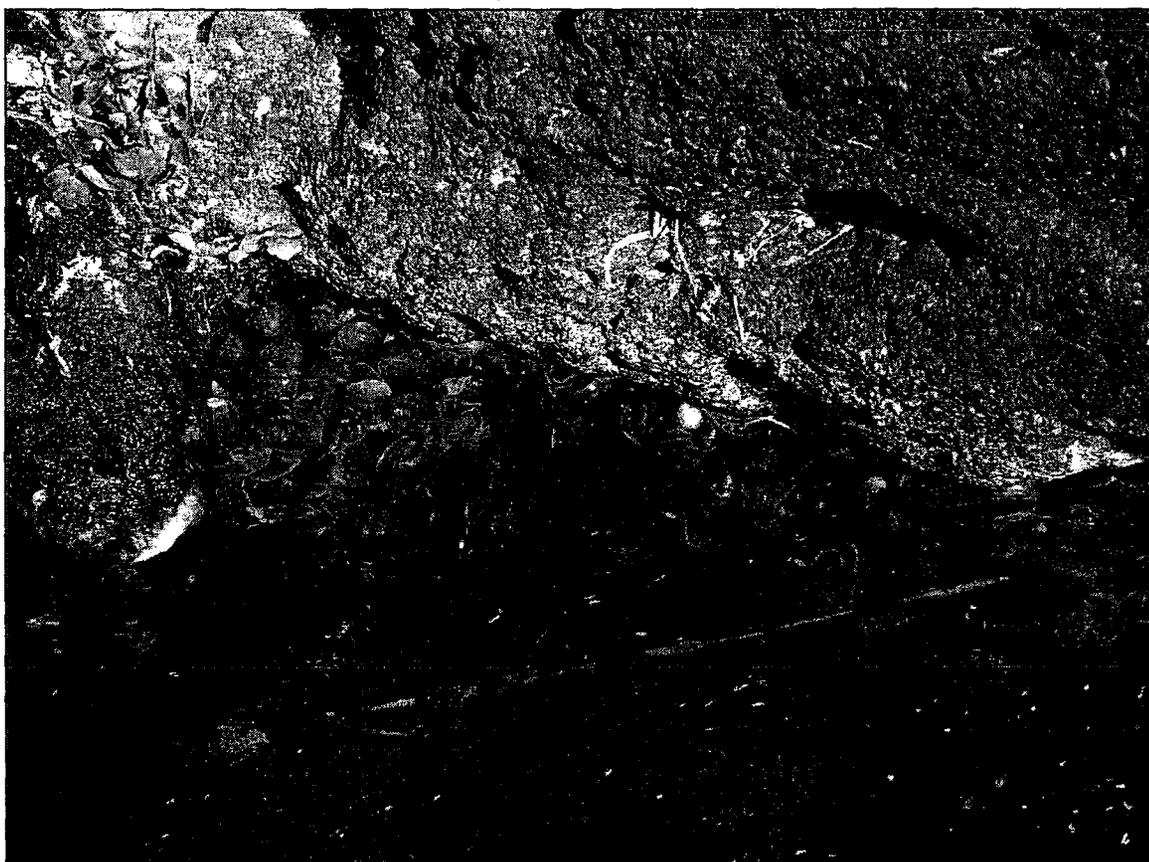


Figure 7. Large quantity of snails observed in slack water.

The second day was partly cloudy, cooler, and breezy in the morning. The previous night had strong sustained winds with a change in pressure. We began the survey at the west end of the State transect at 0900, and observed only four frogs in the section up to the campsite. The weather was threatening and the Trimble Geoplorer Unit (GPS) and PIT-tag reader were inoperative. Probably because of the cooler weather, frogs did not appear active. Therefore, we discontinued the survey on the State section and headed over to the BLM transect for the presence/absence survey in the afternoon.

Capture data from the June 2002 survey revealed that no adults from the 2001 survey (1999 cohort or older) were observed this year. Even though a Lincoln-Peterson population estimate could not be calculated for population trends, raw capture data shows a similar gender ratio and age distribution between the first survey in both years (Table 1). Only three subadults from 2001 (2000 cohort) were recaptured in 2002 as adults. All three of these frogs were within the same section of stream as their 2001 capture location. None were observed to have moved past one of the three hypothesized movement barriers (the pinched canyons with deep pools). Additional data in subsequent years may determine the extent to which these points are restricting movement. None of the subadults captured in June of 2002 (2001 cohort) were marked previously with a toeclip (37 newly metamorphosed frogs under 40 SVL were toeclipped in August 2001), so it is unknown if the 2002 subadults were even from our transect area. If the low recapture trend continues for the remaining two years of the monitoring survey, it could be very convincing that the turnover rate of this population is as short as 2-3 years (thus warranting concern for the effects of catastrophic events). Additionally, the low number of males could result in little genetic variation within the Dry Creek population.

Table 1. Gender and age distribution of captured frogs in June 2001 and June 2002, State section only.

Year	Females	Males	Subadults	uncaptured
2001	9	2	39	5
2002	9	2	20	8

Although tadpoles were abundant at two scour pool breeding sites in 2001, they were very difficult to find in 2002. The sites where tadpoles were concentrated in 2001 were thickly vegetated in 2002, making easy observation impossible. In 2001, each net scoop yielded 20-30 tadpoles; in 2002, 5 net scoops yielded 1. Whether or not the same breeding sites were used is unknown. All suitable sites along the transect were surveyed for tadpoles.

One adult male captured on 6 June was observed to have symptoms of *Cytridiomycosis*. He was lethargic, and blood vessels were evident in the skin. We did not collect this individual because he was one of only two males captured. To detect this fatal fungal disease, surveys would need to be conducted in early spring, and tadpoles could be monitored for deformed keratin structure in the mouth parts.

Fifteen garter snakes were observed along the riparian corridor in 2002, whereas 59 were documented in 2001. The reason for fewer snakes could be related to the fact that tadpoles, a primary prey component for garter snakes, were also less abundant; or, some habitat parameter could have negatively affected both species along the survey transect. Herpetofauna observed in the June 2002 survey included:

14	<i>Thamnophis elegans</i>	western terrestrial garter snake
1	<i>Thamnophis sirtalis</i>	common garter snake
1	<i>Pituophis catenifer</i>	gopher snake
1	<i>Coluber constrictor</i>	racer
1	<i>Gambelia wislizenii</i>	longnose leopard lizard
1	<i>Sceloporus occidentalis</i>	western fence lizard
5	<i>Hyla regilla</i>	Pacific treefrog

Other wildlife observed along the stream corridor included: golden eagles (renested near the old nest), prairie falcons (one pair on state land and one pair on BLM land), poor wills (heard), chukar, California quail, killdeer, pigeon, blackbird (one dead, several nesting pair), merganser (hen and 9 young), cliff swallows, kingfisher, great horned owl (pellets), muskrat (runs), voles, trout, suckers, dace.

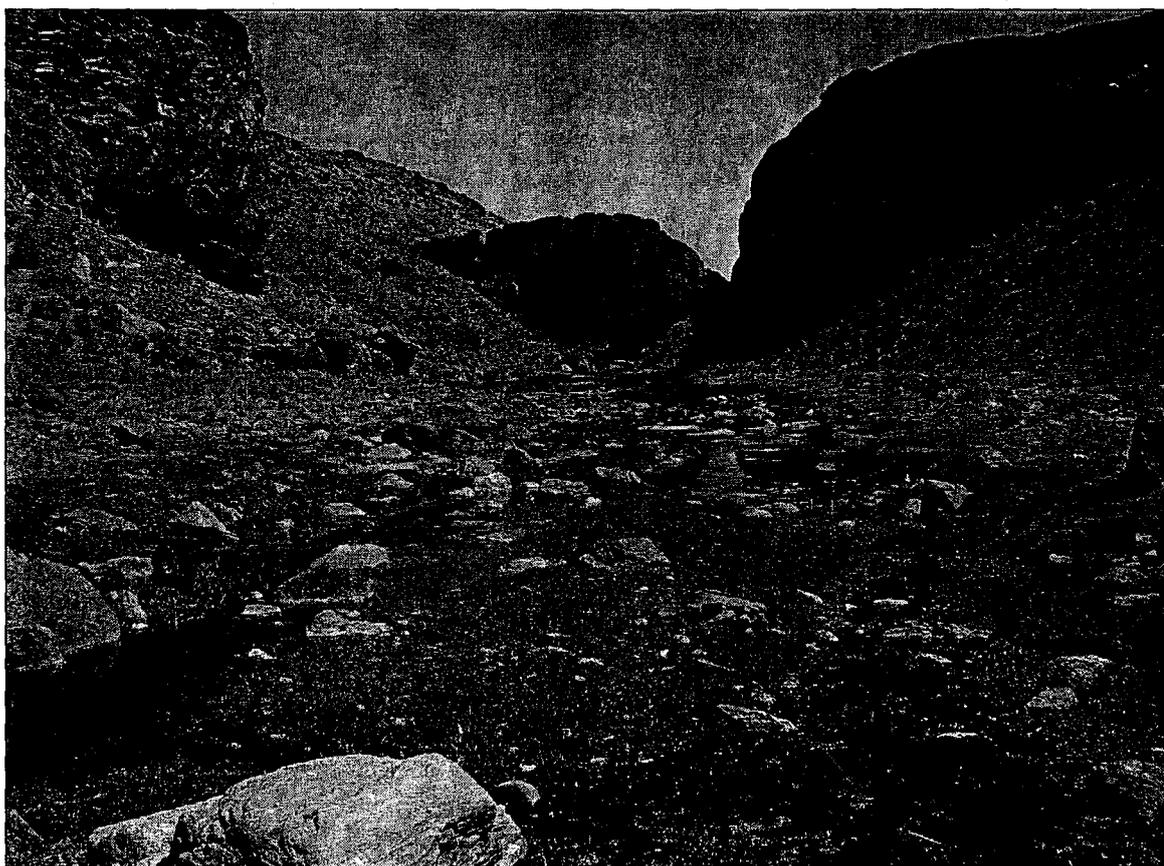


Figure 8. Standard photo point on 11 August 2002.

On August 11 (Figure 8), we collected water chemistry data and habitat ratings, and surveyed for recruitment based on breeding success. None of the adults captured in the June monitoring survey were recaptured in August; one adult male was PIT-tagged from another herp survey conducted in May. No subadults were recaptured. It is possible that many of the subadults captured in June were lost to predation (garter snakes), or that they left the survey area; it is unknown why none of the adults were recaptured.

Although relatively few tadpoles were observed in the June Monitoring survey, many metamorphs were observed in August (71 were toe-clipped), confirming that there was successful reproductive recruitment. Metamorphs were captured along the entire survey transect in August. Because tadpoles were limited but metamorphs were not, it would be helpful to understand the mechanism for juvenile distribution – did the tadpoles swim from natal sites and then transform at some distance, or transform near their natal site and then spread out when terrestrial movement and carnivorous foraging was possible? Hibernation sites are still unknown, but are assumed to be associated with the deeper scour pools.

All 2001 and 2002 capture data is recorded in Appendix II and all capture points are plotted in Figure 9.

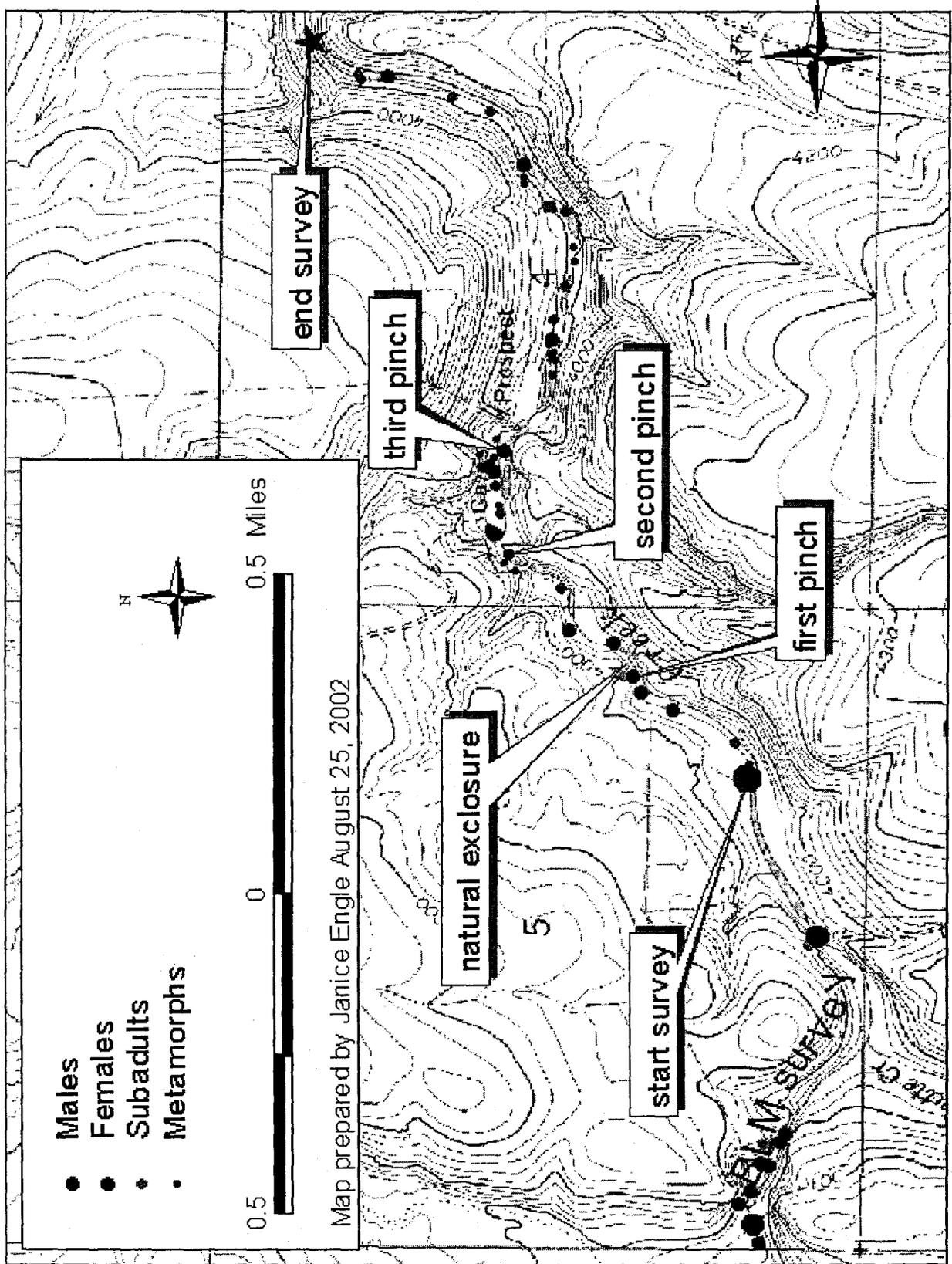


Figure 9. Spotted frog capture points for 2002 surveys on State and BLM land.

**APPENDIX I**  
**Habitat/Land Use Ratings**

**Streambank soil alteration rating (SSAR)**

<b>Rating (%)</b>	<b>Description</b>
0	Streambanks are stable and are not being altered by water flows or animals.
1-25	Streambanks are stable, but are being lightly altered along the transect line. Less than 25% of the streambank is receiving any kind of stress and if stress is being received, it is very light. Less than 25% of the streambank is false, broken down, or eroding.
26-50	Streambanks are receiving only moderate alteration along the transect line. At least 50% of the streambank is in a natural stable condition. Less than 50% of the streambank is false, broken down, or eroding. False banks are rated as altered. Alteration is rated as natural, artificial, or a combination of the two.
51-75	Streambanks have received major alteration along the transect line. Less than 50% of the streambank is in a stable condition. Over 50% of the streambank is false, broken down, or eroding. A false bank that may have gained some stability and cover is still rated as altered. Alteration is rated as natural, artificial, or a combination of the two.
76-100	Streambanks along the transect line are severely altered. Less than 25% of the streambank is in a stable condition. Over 75% of the streambank is false, broken down, or eroding. A past damaged bank, now classified as a false bank, that has gained some stability and cover is still rated as altered. Alteration is rated as natural, artificial, or a combination of the two.

**Streambank vegetative stability rating (SVSR)**

<b>Rating</b>	<b>Description</b>
4 (excellent)	Over 80% of the streambank surfaces are covered by vegetation in vigorous condition or by boulders and rubble. If the streambank is not covered by vegetation, it is protected by materials that do not allow bank erosion.
3 (good)	50-79% of the streambank surfaces are covered by vegetation or by gravel or larger material. Those areas not covered by vegetation are protected by materials that allow only minor erosion.
2 (fair)	25-49% of the streambank surfaces are covered by vegetation or by gravel or larger material. Those areas not covered by vegetation are covered by materials that give limited protection.
1 (poor)	Less than 25% of the streambank surfaces are covered by vegetation or by gravel or larger material. That area not covered by vegetation provides little or no control over erosion and the banks are usually eroded each year by high water flows.

## APPENDIX I (continued)

Vegetation use by animals (VUBA)

Rating (%)	Description
0-25 (light)	Vegetation use is very light or none at all. Almost all of the potential plant biomass at present stage of development remains. The vegetative cover is very close to that which would occur naturally without use. If bare areas exist (i.e., bedrock), they are not because of loss of vegetation from past grazing use.
26-50 (moderate)	Vegetation use is moderate and at least one-half of the potential plant biomass remains. Average plant stubble height is greater than half of its potential height at its present stage of development. Plant biomass no longer on site because of past grazing is considered as vegetation that has been used.
51-75 (high)	Vegetative use is high and less than half of the potential plant biomass remains. Plant stubble height averages over two inches. Plant biomass no longer on site because of past grazing is considered as vegetation that has been used.
76-100 (very high)	Use of the streamside vegetation is very high. Vegetation has been removed to two inches or less in average stubble height. Almost all of the potential vegetative biomass has been used. Only the root system and part of the stem remains. That potential biomass that is now non-existent because of past elimination but grazing is considered vegetation that has been used.

APPENDIX II

2001 and 2002 Capture Data

date	hour	gender	mass	SVL	recapture?	PIT	UTME	UTMN	comments
6-Jun-01	1248					<i>Coluber constrictor</i>	442427	4817548	
6-Jun-01	1259					<i>Pituophis catenifer</i>	442201	4817175	
6-Jun-01	1310					photo point	442164	4817129	at the edge of rock outcrop, facing east (downstream)
6-Jun-01	1350	m	21.0	62	no	start & water chemistry	442073	4816978	large boulder in creek, near private boundary
6-Jun-01	1417	sa	9.5	47	no	4239200D12	442241	4817159	oxbow
6-Jun-01	1419	sa	11.6	52	no	42393C281F	442373	4817305	in inaccessible (for livestock) cattail pool; sa's are probably females
6-Jun-01	1422	sa	13.7	53	no	422D3F633E	442373	4817305	in inaccessible (for livestock) cattail pool; sa's are probably females
6-Jun-01	1424	sa	10.1	49	no	4238663773	442373	4817305	in inaccessible (for livestock) cattail pool; sa's are probably females
6-Jun-01	1426	sa	12.6	52	no	42392F2C1A	442373	4817305	in inaccessible (for livestock) cattail pool; sa's are probably females
6-Jun-01	1428	f	45.7	82	no	422D47213E	442373	4817305	in inaccessible (for livestock) cattail pool; sa's are probably females
6-Jun-01	1500	sa	14.0	53	no	4238327125	442373	4817305	in inaccessible (for livestock) cattail pool; sa's are probably females
6-Jun-01	1517	f	40.0	80	no	42384B6336	442373	4817305	in inaccessible (for livestock) cattail pool; sa's are probably females
6-Jun-01	1536	f	16.6	58	no	422D285922	442407	4817317	eddy
6-Jun-01	1546	sa	9.7	49	no	42391D6023	442437	4817405	had swollen toe on right rear
6-Jun-01	1551	sa	13.1	51	no	41620A620B	442454	4817407	stream
6-Jun-01	1601	sa	12.1	53	no	423827112B	442457	4817427	stream
6-Jun-01	1605	sa	10.7	50	no	423831600B	442503	4817431	stream
6-Jun-01	1852				no	4238737469	442502	4817435	stream
7-Jun-01	1012	sa	10.0	49	no	<i>Sceloporus occidentalis</i>	442671	4817752	at campsite
7-Jun-01	1028	sa	10.0	48	no	4238262558	442487	4817555	oxbow, just north of the first pinched canyon
7-Jun-01	1035	f	25.4	66	no	422D22746E	442681	4817607	sidebow
7-Jun-01	1036	m	19.5	60	no	42381F0D25	442681	4817600	oxbow
7-Jun-01	1037	sa	6.6	44	no	4238596109	442681	4817600	oxbow
7-Jun-01	1041	sa	9.0	47	no	4238167710	442681	4817600	oxbow
7-Jun-01	1103	sa	14.7	56	no	41617D627D	442681	4817600	oxbow
7-Jun-01	1115	sa	13.7	53	no	42384B4216	442745	4817588	stream
7-Jun-01	1144	sa	11.3	49	no	42393F033E	442821	4817592	stream
7-Jun-01	1145	sa	11.1	48	no	4238517003	442843	4817601	sidebow
7-Jun-01	1159	sa	11.1	48	no	422D3B1E49	442843	4817601	sidebow
7-Jun-01	1210	saf	13.5	55	no	uncaptured	442891	4817575	sidebow; PDOP 18
7-Jun-01	1347	saf	14.0	53	no	423832241B	442918	4817603	stream; PDOP 10
7-Jun-01	1353	saf	10.1	49	no	4239154360	443233	4817452	oxbow
7-Jun-01	1405				no	42392B780B	443254	4817447	sidebow
7-Jun-01	1410				no	uncaptured	443259	4817439	sidebow
7-Jun-01	1411	saf	15.0	54	no	breeding site; large tads	443259	4817439	sidebow; photo
7-Jun-01	1435	sa			no	416201747F	443270	4817429	sidebow
7-Jun-01	1439				no	uncaptured	443486	4817432	sidebow
7-Jun-01	1443	sa	9.0	47	no	<i>Pituophis catenifer</i>	443499	4817448	
7-Jun-01	1531				no	4238436C2A	443516	4817474	stream
					no	breeding site?, tadpoles	443807	4817944	sidebow

7-Jun-01	1536	sa	9.6	50	no	423917671E	443806	4817960	sidebow
7-Jun-01	1546	sa	10.2	49	no	432B183D72	443805	4817970	sidebow
7-Jun-01	1550	sam	18.2	50	no	4238796209	443809	4817959	sidebow
7-Jun-01	1608	sa	9.1	46	no	42384A5F03	443903	4818064	stream
7-Jun-01	1612					endpoint	443909	4818069	large boulder in creek; photo
7-Jun-01	1520					<i>Coluber constrictor</i>	443909	4818119	75m north of endpoint
8-Jun-01	1045	m	22.0	63	R	4239200D12	442252	4817148	sidebow
8-Jun-01	1122	sa	10.0	48	R	42393C281F	442371	4817295	natural enclosure
8-Jun-01	1156	saf	10.5	50	no	422D340B26	442407	4817347	pool in stream
8-Jun-01	1205	saf	15.3	53	no	42386B5F00	442405	4817354	stream
8-Jun-01	1212	saf	17.0	58	R	42391D6023	442421	4817395	stream
8-Jun-01	1220	saf	17.5	58	no	42390D7E59	442429	4817411	stream
8-Jun-01	1237	sa	9.3	49	R	41620A620B	442447	4817424	stream
8-Jun-01	1300	sam	9.5	48	R	4238262558	442587	4817555	oxbow
8-Jun-01	1313	sa	9.4	47	R	422D22746E	442669	4817601	oxbow
8-Jun-01	1319	sa	9.0	47	R	41617D627D	442676	4817608	oxbow
8-Jun-01	1320	f	37.0	78	no	4238333D14	442676	4817608	oxbow
8-Jun-01	1322	sa	6.5	43	R	4238167710	442676	4817608	oxbow
8-Jun-01	1330	f	24.5	65	R	42381F0D25	442676	4817608	oxbow
8-Jun-01	1545	sa	12.3	53	R	42393F033E	442814	4817611	stream
8-Jun-01	1555	sa	11.6	52	no	4238291117	442842	4817610	sidebow
8-Jun-01	1605	sam	11.1	48	R	422D3B1E49	442881	4817602	sidebow
8-Jun-01	1614	sa	13.0	53	R	423832241B	442921	4817612	stream
9-Jun-01	925			~24"		<i>Crotalus viridis</i>	442793	4817850	on west-facing slope
9-Jun-01	950			~42"		<i>Crotalus viridis</i>	443011	4817493	along stream, drinking water
9-Jun-01	955	sa				uncaptured	443099	4817475	sidebow
9-Jun-01	956					R. lut tadpoles	443099	4817475	sidebow
9-Jun-01	1006	f	29.5	71	no	423925196E	443175	4817473	stream; scour pool
9-Jun-01	1015	sa	10.3	49	no	423922023E	443258	4817453	stream
9-Jun-01	1018	saf	13.6	52	no	42384A5A3A	443240	4817457	sidebow
9-Jun-01	1026	sam	10.8	48	no	42383E6217	443250	4817447	sidebow
9-Jun-01	1032	sa	10.1	49	R	42392B780B	443256	4817455	stream
9-Jun-01	1041	sa	11.1	50	no	4238330E7E	443262	4817451	stream
9-Jun-01	1045	sam	12.6	52	no	42387B2D5C	443265	4817443	sidebow
9-Jun-01	1100	sam	11.0	53	no	4238426A10	443300	4817425	stream; scour pool
9-Jun-01	1115	sa	10.0	49	no	432D723A12	443528	4817493	in stream at fence
9-Jun-01	1140			68		R. lut tadpoles	443804	4817858	stream; scour pool
9-Jun-01	1145	f				uncaptured	443800	4817855	sidebow
9-Jun-01	1151	f	36.0	77	no	4328535D4D	443803	4817873	sidebow
9-Jun-01	1152	f	26.0	68	no	432D334857	443803	4817873	sidebow
9-Jun-01	1214	sa	10.2	48	no	42391A493A	443810	4817948	sidebow
4-Aug-01	1135	sa				uncaptured	442198	4817052	sidebow
4-Aug-01	1200	f				uncaptured	442371	4817309	natural enclosure

4-Aug-01	1217	f	23.6	65	R	41620A620B	442407	4817306	in rainpool in rock next to sidebow, covered in duckweed
4-Aug-01	1255	mt	4.5	36	no; toeclip #1	too little	442582	4817555	oxbow
4-Aug-01	1307	mt				uncaptured	442631	4817585	stream
4-Aug-01	1311	mt	4.0	31	no; toeclip #1	too little	442650	4817596	stream
4-Aug-01	1318	mt				uncaptured	442679	4817597	stream
4-Aug-01	1324	m	11.9	50	no	432C2C0452	442677	4817613	oxbow with big boulder below campsite
4-Aug-01	1330	mt	4.5	33	no; toeclip #1	too little	442699	4817617	stream
4-Aug-01	1334	mt				uncaptured	442699	4817617	stream
4-Aug-01	1342	mt	5.5	38	no; toeclip #1	too little	442757	4817589	stream
4-Aug-01	1347	mt				uncaptured	442843	4817605	sidebow
4-Aug-01	1348	mt	5.0	37	no; toeclip #1	too little	442843	4817605	sidebow
4-Aug-01	1353	mt	4.5	35	no; toeclip #1	too little	442878	4817595	oxbow
4-Aug-01	1354	mt				uncaptured	442878	4817595	oxbow
4-Aug-01	1355	mt				uncaptured	442878	4817595	oxbow
4-Aug-01	1356	mt				uncaptured	442878	4817595	oxbow
4-Aug-01	1357	mt				uncaptured			before third pinch along bank; pdop too high because of rock cliff.
4-Aug-01	1408	mt	4.2	35	no; toeclip #1	too little	442979	4817508	stream
4-Aug-01	1415	mt				uncaptured	443050	4817488	stream; scour pool
4-Aug-01	1416	mt				uncaptured	443048	4817471	stream; scour pool
4-Aug-01	1418	f				uncaptured	443054	4817485	floating on algal matt in scour pool; very skittish, did not resurface
4-Aug-01	1419	mt	3.0	29	no; toeclip #1	too little	443057	4817482	stream; scour pool
4-Aug-01	1420	mt				uncaptured	443048	4817471	stream; scour pool
4-Aug-01	1421	mt				uncaptured	443048	4817471	stream; scour pool
4-Aug-01	1422	mt				uncaptured	443091	4817484	stream
4-Aug-01	1432	mt	3.8	34	no; toeclip #1	too little	443131	4817464	stream
4-Aug-01	1438	mt	3.4	31	no; toeclip #1	too little	443172	4817470	stream
4-Aug-01	1439	mt	3.0	30	no; toeclip #1	too little	443172	4817470	stream
4-Aug-01	1445	mt	3.1	30	no; toeclip #1	too little	443173	4817463	stream
4-Aug-01	1447	mt				uncaptured	443182	4817465	stream
4-Aug-01	1455	mt				uncaptured	443194	4817464	stream
4-Aug-01	1456	f	23.8	65	no	4239154360	443191	4817458	stream
4-Aug-01	1457	mt				uncaptured	443202	4817464	stream
4-Aug-01	1507	mt	4.7	35	no; toeclip #1	too little	443362	4817400	stream
4-Aug-01	1510	m	22.0	63	no	4238206F38	443369	4817405	stream
4-Aug-01	1516	mt	3.1	33	no; toeclip #1	too little	443392	4817401	stream
4-Aug-01	1532	mt	4.1	35	no; toeclip #1	too little	443488	4817428	oxbow
4-Aug-01	1533	mt	3.3	28	no; toeclip #1	too little	443488	4817428	oxbow
4-Aug-01	1534	mt	2.7	29	no; toeclip #1	too little	443488	4817428	oxbow
4-Aug-01	1535	mt	3.1	30	no; toeclip #1	too little	443488	4817428	oxbow
4-Aug-01	1536	mt	3.1	32	no; toeclip #1	too little	443488	4817428	oxbow
4-Aug-01	1537	mt	2.5	30	no; toeclip #1	too little	443488	4817428	oxbow
4-Aug-01	1538	mt	2.1	28	no; toeclip #1	too little	443488	4817428	oxbow
4-Aug-01	1545					finished			clouds threatening

6-Jun-02	908	SAF	14.5	54	no		43573E2B04	442156	4817005	possibly 2001 cohort
6-Jun-02	930	SA					uncaptured	442240	4817155	possibly 2001 cohort
6-Jun-02	936	M?					uncaptured	442242	4817155	possibly 2001 cohort
6-Jun-02	957	SAM	10.8	48	no		4358466D5B	442284	4817230	possibly 2001 cohort
6-Jun-02	1004	F	33.8	73	no		435B5B1B41	442284	4817240	older female
6-Jun-02	1007	F	16.4	54	no		433C76775A	442284	4817240	possibly 2001 cohort
6-Jun-02	1044	SA	8.4	41	no		43595D277C	442325	4817283	possibly 2001 cohort
6-Jun-02	1105	F	30.1	70	recap from 200		41620A620B	442442	4817419	SA last year, so probably 2 yr old (2000 cohort). Captured as SA last year in same section of stream (within 15m), between the first pinch (barrier?) natural enclosure and the second pinch (barrier?).
6-Jun-02	1122	SA					uncaptured	442545	4817440	possibly 2001 cohort
6-Jun-02	1150	SAM	23.5	51	no		43581B2B4E	442671	4817605	possibly 2001 cohort
6-Jun-02	1156	M	14.2	53	no		434D7C023F	442682	4817603	possibly 2001 cohort; appeared sick/lethargic. Blood vessels apparent on ventral surface - gave reddish appearance to skin.
6-Jun-02	1157	F	36.5	73	recap from 200		42384B4216	442682	4817602	SA last year, so probably 2 yr old (2000 cohort). Captured as SA last year in same section of stream between second and third pinch. Scars on back, possibly from snake.
6-Jun-02	1158	F					uncaptured	442683	4817608	
6-Jun-02	1335	SA					uncaptured	442737	4817588	
6-Jun-02	1352	SAM	12.3	52	no		435100720A	442802	4817600	possibly 2001 cohort
6-Jun-02	1411	F	19.5	52	no		4350522037	442839	4817603	possibly 2001 cohort
6-Jun-02	1415	SAF	14.0	48	no		433C7B7D67	442839	4817603	possibly 2001 cohort
6-Jun-02	1417						uncaptured	442839	4817603	
6-Jun-02	1434	SA	11.5	48	no		43583D0143	442846	4817614	possibly 2001 cohort
6-Jun-02	1435	SAM	13.3	51	no		435B363109	442846	4817614	possibly 2001 cohort
6-Jun-02	1440	F	19.0	56	no		4350310C6D	442852	4817615	possibly 2001 cohort
6-Jun-02	1517	SAF	13.9	49	no		43592B4460	443213	4817459	possibly 2001 cohort
6-Jun-02	1540	SAF	12.0	50	no		433D537612	443301	4817430	possibly 2001 cohort
6-Jun-02	1600	SAF	15.0	51	no		43523F2657	443483	4817430	possibly 2001 cohort
6-Jun-02	1603	SAM	10.5	49	no		4358415C7A	443483	4817430	possibly 2001 cohort
6-Jun-02	1613	SAF	16.9	57	no		43574A2354	443498	4817476	possibly 2001 cohort
6-Jun-02	1632	SAF	15.0	54	no		43583B5969	443732	4817618	possibly 2001 cohort
6-Jun-02	1638	SA	12.0	51	no		433F535452	443773	4817708	possibly 2001 cohort
6-Jun-02	1650	SAM	12.0	50	no		434E16172D	443824	4817870	possibly 2001 cohort
6-Jun-02	1652	F	39.7	75	recap from 200		423D334857	443824	4817870	this is most likely frog #432D334857 from last year - PIT# probably recorded incorrectly (should be 423, not 432). Possibly cohort of 1999 or 2000. Found along same stretch of stream, within 20 m.
6-Jun-02	1654	SA	10.5	47	no		430C69682B	443824	4817870	possibly 2001 cohort
6-Jun-02	1656	SAF	11.5	50	no		434D404937	443824	4817870	possibly 2001 cohort
6-Jun-02	1712	SAM	10.5	43	no		4325C3E6A	443816	4817939	possibly 2001 cohort
6-Jun-02	1715	SAM	9.0	47	no		4358000343	443826	4817948	possibly 2001 cohort
7-Jun-02	935	F	33.2	72	yes		435B5B1B41	442284	4817240	same place as yesterday

7-Jun-02	957	F							uncaptured	442407	4817306	this could be 41620A620B from 2001, but we did not capture her yesterday, and today she was extremely skittish.
7-Jun-02	1020	SA						uncaptured	442545	4817440	probably the same uncaptured as yesterday: 1122 same place as yesterday (oxbow below campsite).	
7-Jun-02	1050	F	35.0	74	yes			42384B4216	442682	4817603	UTMs hand calculated on map, app. 100m east of road crossing (BLM); tagged by Wendy on 15 May 2002 at Brown Cabin (440852, 4816996).	
7-Jun-02	1230	F	14.5	54	Wendy			4358056A44	440900	4816950	UTMs hand calculated on map, stream under first cliff (BLM)	
7-Jun-02	1240	F	32.5	70	no			4358077338	441000	4816995	UTMs hand calculated on map, stream under first cliff (BLM)	
7-Jun-02	1245	SA						uncaptured	441000	4816995	UTMs hand calculated on map, in canyon by BLM fence	
7-Jun-02	1255	SA	11.0	48	no			43584B4765	441650	4816830	UTMs hand calculated on map, second oxbow pool under first cliff on north side of stream	
7-Jun-02	1305	SA						uncaptured	441150	4816935	UTMs hand calculated on map, oxbow pool under first cliff on north side of stream	
7-Jun-02	1309	F	34.5	75	no			4350506E41	441100	4816940	UTMs hand calculated on map, oxbow pool under first cliff on north side of stream	
7-Jun-02	1310	SA						uncaptured	441100	4816940	UTMs hand calculated on map, oxbow pool under first cliff on north side of stream	
7-Jun-02	1311	M	18.0	52	no			435B2A2063	441100	4816940	UTMs hand calculated on map, oxbow pool under first cliff on north side of stream	
7-Jun-02	1315	SA	9.5	49	no			435844657A	441100	4816940	(BLM section) stream pool	
11-Aug-02	925	M	15.0	54	no			434F6A0E13	441095	4816924	(BLM section) stream	
11-Aug-02	926	MT	5.0	35	#2			too little	441098	4816922	(BLM section) stream; PIT-tagged by Wendy's crew on 15 May 2002 at 440610, 4817071 (SVL was 48)	
11-Aug-02	935	M	15.7	57	recapture			435B441931	441158	4816896	(BLM section)	
11-Aug-02	936	MT	3.2	32	#2			too little	441176	4816884	(BLM section)	
11-Aug-02	949	MT	4.5	37	#2			too little	441176	4816884	(BLM section)	
11-Aug-02	955	M	16.8	59	no			4357453E7D	441176	4816884	(BLM section)	
11-Aug-02	956	M	14.0	54	no			435B4F6D0B	441176	4816884	(BLM section)	
11-Aug-02	1002	MT	3.2	32	#2			too little	441176	4816884	(BLM section)	
11-Aug-02	1012	MT	3.0	32	#2			too little	441176	4816884	(BLM section)	
11-Aug-02	1019	MT	4.7	38	#2			too little	441095	4816924	(BLM section) stream pool	
11-Aug-02	1020	MT	4.0	35	#2			too little	441095	4816924	(BLM section) stream pool	
11-Aug-02	1021	MT	3.9	36	#2			too little	441095	4816924	(BLM section) stream pool	
11-Aug-02	1022	MT	4.0	34	#2			too little	441095	4816924	(BLM section) stream pool	
11-Aug-02	1023	MT						uncaptured	441095	4816924	(BLM section) stream pool	
11-Aug-02	1033	F	28.7	66	no			433F524022	441106	4816943	(BLM section) big oxbow pool	
11-Aug-02	1045	MT	4.0	34	#2			too little	441032	4816969	(BLM section) big slough upper reach	
11-Aug-02	1044	MT						uncaptured	441032	4816969	(BLM section) big slough upper reach	
11-Aug-02	1047	F						uncaptured	441032	4816969	(BLM section) big slough upper reach	
11-Aug-02	1048	F	44.0	80	no			4357454011	441032	4816969	(BLM section) big slough upper reach; appears gravid; bone sticking out of #1 (previous toe clip?) trimmed.	
11-Aug-02	1049	F	22.5	63	no			43574E6F7D	441032	4816969	(BLM section) big slough upper reach	
11-Aug-02	1100	MT						uncaptured	441032	4816969	(BLM section) big slough upper reach	
11-Aug-02	1125							START STATE SECTION			YOY <i>Thamnophis elegans</i> & 11 chukar at water's edge	

11-Aug-02	1127	MT	4.0	34	#2	too little	442104	4816973	stream
11-Aug-02	1230	MT	6.5	40	no	4359E6C5C	442590	4817550	in second pinch; UTM hand-calculated.
11-Aug-02	1240	MT				uncaptured	442610	4817580	just below second pinch; UTM hand-calculated.
11-Aug-02	1250	MT	4.0	36	#2	too little	442699	4817617	below campsite; UTM hand-calculated.
11-Aug-02	1310	MT				escaped	442754	4817594	
11-Aug-02	1317	MT	4.0	36	#2	too little	442803	4817598	5 chukar
11-Aug-02	1321	MT	4.0	36	#2	too little	442803	4817598	
11-Aug-02	1325	MT	5.0	38	#2	too little	442843	4817602	stream
11-Aug-02	1326	MT	4.5	36	#2	too little	442842	4817613	side pool of stream
11-Aug-02	1327	MT	3.0	32	#2	too little	442842	4817613	side pool of stream
11-Aug-02	1328	MT	4.5	35	#2	too little	442842	4817613	side pool of stream
11-Aug-02	1335	MT	3.0	29	#2	too little	442842	4817613	side pool of stream
11-Aug-02	1336	MT	2.7	32	#2	too little	442842	4817613	side pool of stream
11-Aug-02	1337	MT	5.0	36	#2	too little	442842	4817613	side pool of stream
11-Aug-02	1341	MT	3.5	33	#2	too little	442853	4817607	side channel
11-Aug-02	1344	MT	7.5	40	no	43523D785F	442853	4817607	side channel
11-Aug-02	1349	MT	4.5	34	#2	too little	442853	4817607	side channel
11-Aug-02	1353	MT	4.0	35	#2	too little	442875	4817606	stream
11-Aug-02	1359	MT				uncaptured	442875	4817606	
11-Aug-02	1402	MT	3.5	34	#2	too little	442920	4817600	third pinch; UTM hand-calculated.
11-Aug-02	1412	MT	4.1	35	#2	too little	442920	4817600	third pinch; UTM hand-calculated.
11-Aug-02	1413	MT				uncaptured	442920	4817600	third pinch; UTM hand-calculated.
11-Aug-02	1414	MT				uncaptured	442920	4817600	third pinch; UTM hand-calculated.
11-Aug-02	1425	MT	5.0	42	no	435A311B63	443079	4817466	wide slough (scour pool)
11-Aug-02	1430	MT	5.0	37	#2	too little	443079	4817466	wide slough (scour pool)
11-Aug-02	1431	MT				uncaptured	443079	4817466	wide slough (scour pool)
11-Aug-02	1432	MT				uncaptured	443116	4817456	head of scour pool
11-Aug-02	1444	MT				uncaptured	443116	4817456	head of scour pool
11-Aug-02	1447	MT	2.5	28	#2	too little	443130	4817465	small stream connecting scour pools
11-Aug-02	1449	MT	2.5	30	#2	too little	443130	4817465	small stream connecting scour pools
11-Aug-02	1452	MT	4.0	34	#2	too little	443130	4817465	small stream connecting scour pools
11-Aug-02	1453	MT	2.5	29	#2	too little	443130	4817465	small stream connecting scour pools
11-Aug-02	1457	MT	3.1	34	#2	too little	443138	4817462	small stream connecting scour pools
11-Aug-02	1500	MT	4.0	34	#2	too little	443157	4817471	small stream connecting scour pools
11-Aug-02	1507	F	38.8	73	no	434E2B7F25	443169	4817464	probably gravid
11-Aug-02	1512	MT				uncaptured	443169	4817464	
11-Aug-02	1513	MT				uncaptured	443169	4817464	
11-Aug-02	1525	MT				uncaptured	443363	4817405	approximately 25 chukar
11-Aug-02	1526	MT				uncaptured	443363	4817405	
11-Aug-02	1530	MT	2.5	28	#2	too little	443398	4817410	
11-Aug-02	1535	MT	4.0	35	#2	too little	443398	4817410	
11-Aug-02	1537	MT	2.8	30	#2	too little	443398	4817410	
11-Aug-02	1544	MT	2.7	32	#2	too little	443491	4817460	

11-Aug-02	1545	MT	3.0	33	#2	too little	443491	4817460	
11-Aug-02	1550	MT	3.0	36	#2	too little	443491	4817460	
11-Aug-02	1552	MT	3.5	33	#2	too little	443491	4817460	
11-Aug-02	1555	MT	3.0	32	#2	too little	443491	4817460	
11-Aug-02	1556	MT	3.5	33	#2	too little	443491	4817460	
11-Aug-02	1600	MT	5.0	39	#2	too little	443504	4817465	
11-Aug-02	1603	MT	5.0	37	#2	too little	443504	4817465	
11-Aug-02	1604	MT	4.0	34	#2	too little	443504	4817465	
11-Aug-02	1607	MT	4.5	39	#2	too little	443552	4817531	
11-Aug-02	1608	MT	5.0	38	#2	too little	443552	4817531	
11-Aug-02	1609	MT	3.4	33	#2	too little	443552	4817531	
11-Aug-02	1610	MT	3.5	33	#2	too little	443552	4817531	
11-Aug-02	1611	MT				too little	443570	4817530	did not capture; UTMs hand-calculated
11-Aug-02	1612	MT				too little	443570	4817530	did not capture; UTMs hand-calculated
11-Aug-02	1613	MT				too little	443570	4817530	did not capture; UTMs hand-calculated
11-Aug-02	1614	MT				too little	443570	4817530	did not capture; UTMs hand-calculated
11-Aug-02	1618	F	25.1	68	no	434D623F6D	443599	4817530	over 50 chukar
11-Aug-02	1625					uncaptured	443669	4817557	
11-Aug-02	1645					end survey			