

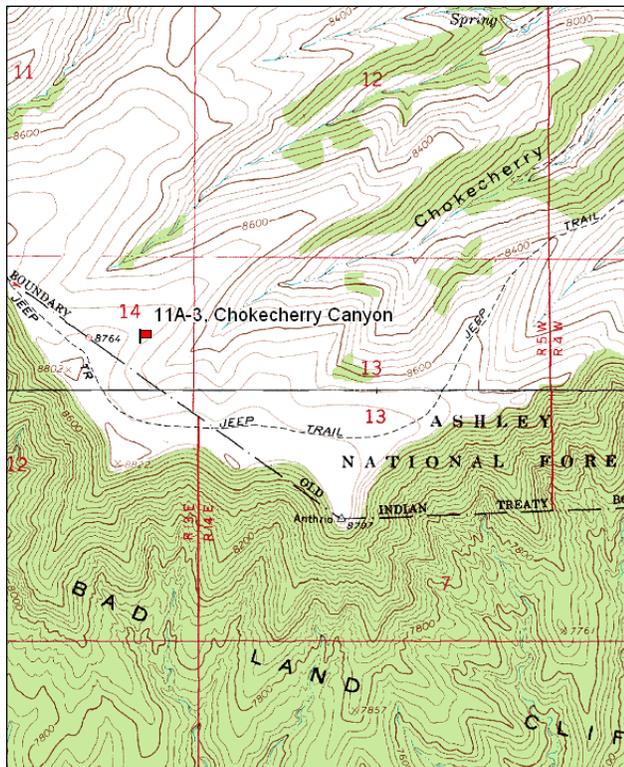
CHOKECHERRY CANYON - TREND STUDY NO. 11A-3-10

Vegetation Type: Mountain Big Sagebrush  
Range Type: Crucial Deer Summer (Fawning habitat), Crucial Elk Summer  
NRCS Ecological Site Description: Not Available  
Land Ownership: USFS  
Elevation: 8743 ft. (2666 m)  
Aspect: North  
Slope: 10%-12%  
Transect bearing: 348° magnetic  
Belt placement: line 1 (6 & 95ft), line 2 (25ft), line 3 (46ft), line 4 (62ft).

Directions:

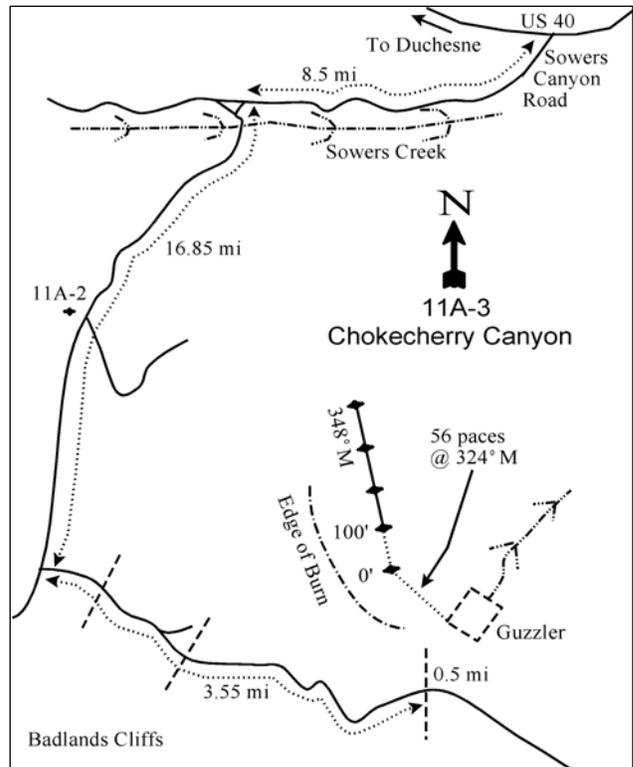
From the junction of Highway U.S. 40 and the Sowers Canyon Road (near Bridgeland), proceed south on the Sowers Canyon Road for 8.5 miles to the Nutters Ridge road. Turn left and drive south 16.85 miles up Nutters Ridge to a "T" intersection above the Badland Cliffs. Turn left and go 3.55 miles along the edge to a fence. Continue 0.5 miles and stop. Walk north over the ridge to a large, fenced guzzler. From the southwest fence corner, the 0-foot baseline stake is located 56 paces away at a bearing of 324°. The 0-foot baseline stake is marked by browse tag #9171.

Map Name: Anthro Mountain



Township: 7S Range: 5W Section: 11

Diagrammatic Sketch:



GPS: NAD 83, UTM 12S 550577 E 4414261 N

## CHOKECHERRY CANYON - TREND STUDY NO. 11A-3

### Site Information

Site Description: The study is located at the head of Chokecherry and Alkali Canyons and samples a prescribed burn treatment within a mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and grass community. The burn was completed in 1977 and consumed approximately 500 acres. The burn was not seeded, however native species have readily reestablished on the burned area. The area treated by a prescribed fire again in the fall of 2007 ([WRI Project #841](#)). A wildlife guzzler is located adjacent to the site. Grazing in the area is managed by the U.S. Forest Service as part of the Antelope allotment. Pellet group transect data estimated heavy use by elk in 2000 and 2005, but light use in 2010. Estimated deer use was light in 2000 with more moderate use in 2005 and 2010. Cattle use has been minimal on the site since 2000 (Table - Pellet Group Data).

Browse: The two principle browse species are mountain big sagebrush and mountain low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *lanceolatus*). Mountain big sagebrush increased markedly in cover and density in 2000, but decreased to earlier sample levels in 2010 (Table - Browse Trends). The mountain big sagebrush population is comprised of a mixture of mature and young plants with mostly light use. The mountain low rabbitbrush population is mostly mature with little use. Other browse species found less frequently include dwarf rabbitbrush (*C. depressus*), snowberry (*Symphoricarpos oreophilus*) and gray horsebrush (*Tetradymia canescens*) (Table - Browse Characteristics).

Herbaceous Understory: Perennial grasses are the dominant vegetation component, and are diverse and abundant on the site. The most prevalent species include thickspike wheatgrass (*Agropyron dasystachyum*), slender wheatgrass (*A. trachycaulum*), Letterman needlegrass (*Stipa lettermani*), needle-and-thread (*S. comata*), prairie junegrass (*Koeleria cristata*) and mutton bluegrass (*Poa fendleriana*). Identification of grasses has been difficult at times due to the lack of heads and common physical characteristics between the species. Bastard toadflax (*Comandra pallida*) provides the greatest amount of forb cover with sulfur eriogonum (*Eriogonum umbellatum*) and Watson penstemon (*Penstemon watsonii*) also being common (Table - Herbaceous Trends).

Soil: The soils are a moderately shallow clay loam texture with neutral reactivity (pH 6.9) (Table - Soil Analysis Data). Bare ground cover is low with a large amount of vegetation and litter cover provided by the vigorous herbaceous growth on the site. Rock and pavement also provide a good amount of protective cover on the site (Table - Basic Cover). The soil erosion condition was classified as stable in 2005 and 2010.

### Trend Assessments

Browse:

- **1982 to 1988 - slightly up (+1):** Browse species appeared to be increasing in abundance following the prescribed burn. The density of mountain big sagebrush and mountain low rabbitbrush both increased.
- **1988 to 1995 - stable (0):** Differences in density may be related to the larger sample area used in 1995; therefore, trend was determined using other parameters. There was little change in the decadence or vigor of any of the browse species. Recruitment of young sagebrush plants remained high.
- **1995 to 2000 - up (+2):** There was a four-fold increase in the density of mountain big sagebrush from 1,500 plants/acre to 6,000 plants/acre and cover increased from 2% to 7%. Decadence of sagebrush remained low, vigor was good and recruitment of young plants was high.
- **2000 to 2005 - stable (0):** The density of mountain big sagebrush decreased slightly to 5,320 plants/acre due to a large decrease in the recruitment of young plants. The density of mature sagebrush plants increased and cover increased to 14%.
- **2005 to 2010 - down (-2):** The density of mountain big sagebrush decreased by 50% to 2,640 plants/acre, and cover decreased to 3%. Decadence of sagebrush remained low and vigor was good.

The recruitment of young sagebrush plants increased and young plants comprised nearly half of the population again.

Grass:

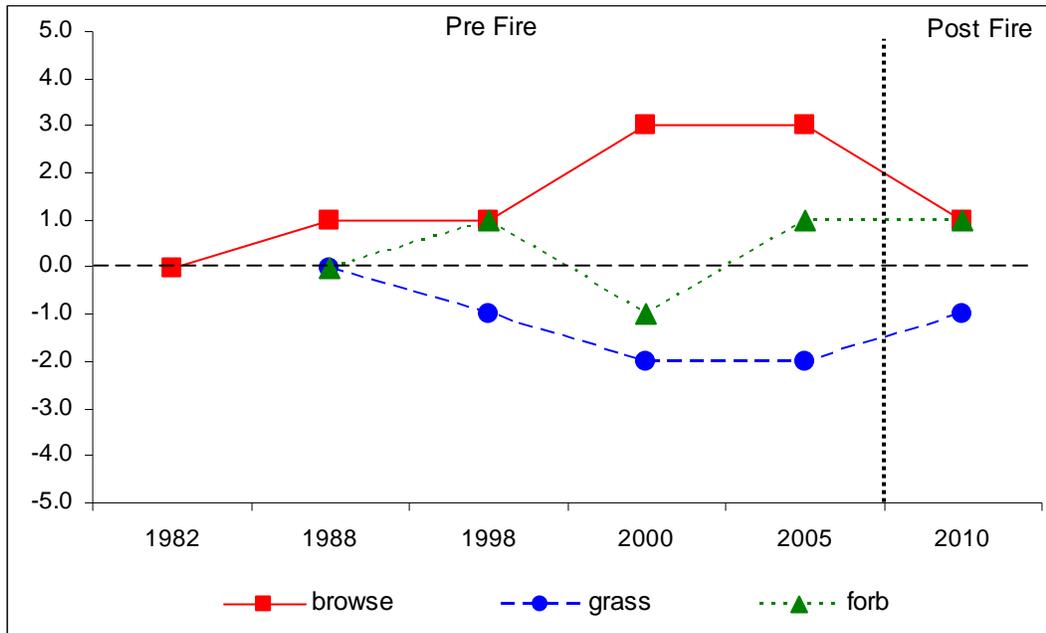
- **1982 to 1988 - no trend (NT):** Only quadrat frequency data for grasses are available from 1982, so no trend was given.
- **1988 to 1995 - slightly down (-1):** The sum of nested frequency of perennial grasses decreased by 9%.
- **1995 to 2000 - slightly down (-1):** The perennial grass sum of nested frequency decreased by 10%, though cover increased from 22% to 27%.
- **2000 to 2005 - stable (0):** There was little change in the sum of nested frequency or cover of perennial grasses.
- **2005 to 2010 - slightly up (+1):** The sum of nested frequency of perennial grasses increased by 12%, but cover decreased from 24% to 21%.

Forb:

- **1982 to 1988 - no trend (NT):** Only quadrat frequency data for forbs are available from 1982, so no trend was given.
- **1988 to 1995 - slightly up (+1):** The sum of nested frequency of perennial forbs increased by 17%.
- **1995 to 2000 - down (-2):** There was a 52% decrease in the sum of nested frequency of perennial forbs, and cover decreased from 11% to 6%.
- **2000 to 2005 - up (+2):** The perennial forb sum of nested frequency increased by 37%, though it is still well below 1995 levels. Cover of perennial forbs increased to 11%.
- **2005 to 2010 - stable (0):** There was little change in perennial forb sum of nested frequency or cover.

**Trend Summary**

CUMULATIVE RANGE TREND ASSESSMENT--  
Management unit 11A, Study no: 3



HERBACEOUS TRENDS--  
Management unit 11A, Study no: 3

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'00	'05	'10	'95	'00	'05	'10
G	Agropyron dasystachyum	d307	c211	a89	b162	b185	4.99	.77	2.69	4.07
G	Agropyron trachycaulum	a16	b115	d234	c175	b112	3.54	13.17	9.15	3.22
G	Bromus anomalus	b25	a-	a3	a-	a-	-	.03	-	-
G	Carex sp.	b49	a5	a9	a6	a13	.03	.27	.15	.48
G	Festuca ovina	a-	ab11	b10	a-	ab5	.04	.27	-	.07
G	Koeleria cristata	a7	bc49	a12	ab29	c64	2.57	.21	1.62	1.97
G	Poa fendleriana	b83	a18	a42	a34	a40	.25	.69	1.12	1.26
G	Stipa columbiana	-	4	-	5	2	.15	-	.01	.15
G	Stipa comata	a17	d122	bc62	ab37	cd98	3.59	1.60	1.15	3.44
G	Stipa lettermani	b252	a154	a160	ab184	ab189	6.78	9.46	8.29	5.84
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		756	689	621	632	708	21.98	26.50	24.22	20.52
Total for Grasses		756	689	621	632	708	21.98	26.50	24.22	20.52
F	Agoseris glauca	a-	a-	a-	b40	a8	-	-	.49	.06
F	Androsace septentrionalis (a)	-	b31	a-	a3	a3	.27	-	.01	.00
F	Antennaria rosea	6	-	4	-	2	-	.30	-	.03
F	Arabis drummondi	a1	b16	a-	a-	a-	.06	-	-	-
F	Astragalus convallarius	1	4	-	5	4	.00	-	.06	.07
F	Astragalus sp.	4	-	-	-	-	-	-	-	-
F	Calochortus nuttallii	a-	ab3	a-	b10	ab2	.00	-	.02	.00
F	Calylophus lavandulifolius	a-	b22	b9	b14	a-	.98	.05	.33	-
F	Castilleja flava	a-	b10	a-	bc19	c35	.33	-	.41	.97
F	Chaenactis douglasii	b34	b20	a6	a4	a2	.13	.03	.01	.00
F	Chenopodium album (a)	-	b42	a-	b30	b22	.15	-	.13	.05
F	Chenopodium leptophyllum(a)	-	a-	a-	a11	b26	-	-	.04	.08
F	Collinsia parviflora (a)	-	a-	c40	a-	b23	-	.77	-	.04
F	Comandra pallida	a186	b250	a186	a202	ab217	3.52	3.40	4.84	5.05
F	Crepis acuminata	a3	c76	a4	a14	b42	.37	.06	.54	.36
F	Cymopterus longipes	-	-	3	1	-	-	.00	.00	-
F	Delphinium nuttallianum	a-	a1	a-	b21	a-	.00	-	.14	-
F	Erigeron eatonii	b19	ab8	a-	a2	ab6	.07	-	.03	.04
F	Eriogonum alatum	a-	a2	b14	a1	a4	.00	.21	.03	.01
F	Eriogonum umbellatum	a35	b70	a34	a29	a14	1.72	.45	.63	.10
F	Geranium sp.	3	-	-	-	-	-	-	-	-
F	Hedysarum boreale	-	1	-	-	1	.00	-	-	.00
F	Heterotheca villosa	-	-	3	-	6	-	.03	-	.01
F	Hymenoxys acaulis	a-	b19	ab12	ab10	a3	.32	.15	.05	.01
F	Ipomopsis aggregata	8	3	-	1	2	.03	-	.00	.03
F	Lepidium sp. (a)	-	-	-	-	1	-	-	-	.03
F	Linum lewisii	a-	b21	ab10	ab-	a1	.27	.10	.00	.03
F	Lithospermum ruderales	a-	b8	ab5	a-	a-	.19	.06	-	-
F	Lupinus argenteus	c67	b25	ab8	a4	a6	.65	.55	.33	.57
F	Lychnis sp.	2	-	-	-	-	-	-	-	-

Type	Species	Nested Frequency					Average Cover %			
		'88	'95	'00	'05	'10	'95	'00	'05	'10
F	<i>Machaeranthera canescens</i>	b <sub>31</sub>	a <sub>4</sub>	a <sup>-</sup>	a <sup>-</sup>	a <sup>-</sup>	.07	-	-	.03
F	<i>Oenothera</i> sp.	a <sup>-</sup>	a <sup>-</sup>	a <sup>-</sup>	a <sup>-</sup>	b <sub>19</sub>	-	-	-	.66
F	<i>Penstemon caespitosus</i>	a <sup>-</sup>	b <sub>21</sub>	a <sub>3</sub>	ab <sub>5</sub>	ab <sub>8</sub>	.58	.01	.09	.04
F	<i>Penstemon comarrhenus</i>	c <sub>50</sub>	b <sub>27</sub>	ab <sub>18</sub>	a <sub>3</sub>	ab <sub>11</sub>	.36	.31	.01	.07
F	<i>Penstemon watsonii</i>	b <sub>73</sub>	b <sub>84</sub>	a <sub>13</sub>	b <sub>70</sub>	b <sub>72</sub>	1.38	.27	2.86	2.97
F	<i>Phlox longifolia</i>	b <sub>86</sub>	a <sub>20</sub>	a <sub>4</sub>	a <sub>8</sub>	a <sub>5</sub>	.10	.06	.07	.01
F	<i>Physaria acutifolia</i>	a <sup>-</sup>	b <sub>9</sub>	ab <sub>4</sub>	ab <sub>5</sub>	a <sup>-</sup>	.08	.03	.03	-
F	<i>Polygonum douglasii</i> (a)	-	b <sub>51</sub>	a <sup>-</sup>	c <sub>106</sub>	b <sub>27</sub>	.22	-	.53	.08
F	<i>Potentilla gracilis</i>	-	8	9	4	2	.07	.02	.03	.06
F	<i>Schoenrambe linifolia</i>	-	-	1	3	-	-	.00	.01	-
F	<i>Senecio canus</i>	-	-	-	3	-	-	-	.03	.00
F	<i>Tragopogon dubius</i>	-	3	-	-	-	.03	-	-	-
F	Unknown forb-perennial	b <sub>20</sub>	a <sup>-</sup>	a <sup>-</sup>	a <sup>-</sup>	a <sup>-</sup>	-	-	-	-
Total for Annual Forbs		0	124	40	150	102	0.64	0.76	0.71	0.28
Total for Perennial Forbs		629	735	350	478	472	11.41	6.15	11.11	11.25
Total for Forbs		629	859	390	628	574	12.06	6.92	11.82	11.54

Values with different subscript letters are significantly different at alpha = 0.10

#### BROWSE TRENDS--

Management unit 11A, Study no: 3

Type	Species	Strip Frequency				Average Cover %			
		'95	'00	'05	'10	'95	'00	'05	'10
B	<i>Artemisia nova</i>	2	0	0	0	-	-	-	-
B	<i>Artemisia tridentata vaseyana</i>	40	69	70	26	1.45	7.04	13.93	2.82
B	<i>Chrysothamnus depressus</i>	7	15	10	15	.16	.39	.07	.22
B	<i>Chrysothamnus viscidiflorus lanceolatus</i>	83	82	77	73	4.86	4.06	4.90	3.20
B	<i>Gutierrezia sarothrae</i>	2	1	3	1	.01	.00	-	-
B	<i>Opuntia</i> sp.	4	2	3	3	.03	-	-	-
B	<i>Symphoricarpos oreophilus</i>	24	9	7	7	2.28	.21	.03	.01
B	<i>Tetradymia canescens</i>	12	17	15	17	.83	.39	.62	.66
Total for Browse		174	195	185	142	9.63	12.10	19.56	6.92

#### CANOPY COVER, LINE INTERCEPT--

Management unit 11A, Study no: 3

Species	Percent Cover	
	'05	'10
<i>Artemisia tridentata vaseyana</i>	18.98	3.33
<i>Chrysothamnus depressus</i>	.18	.01
<i>Chrysothamnus viscidiflorus lanceolatus</i>	5.03	3.18
<i>Gutierrezia sarothrae</i>	-	.11
<i>Symphoricarpos oreophilus</i>	.35	.26
<i>Tetradymia canescens</i>	.41	.45

KEY BROWSE ANNUAL LEADER GROWTH--

Management unit 11A, Study no: 3

Species	Average leader growth (in)	
	'05	'10
Artemisia tridentata vaseyana	1.8	1.3

BASIC COVER--

Management unit 11A, Study no: 3

Cover Type	Average Cover %					
	'82	'88	'95	'00	'05	'10
Vegetation	12.50	23.00	45.31	50.65	50.59	47.32
Rock	2.00	5.50	8.19	5.89	7.51	7.98
Pavement	4.75	2.50	1.29	10.82	5.93	7.68
Litter	55.75	53.75	47.58	49.29	29.78	37.47
Cryptogams	0	0	.63	0	.03	0
Bare Ground	25.00	15.25	12.67	26.07	19.37	15.22

SOIL ANALYSIS DATA --

Management unit 11A, Study no: 3, Study Name: Chokecherry Canyon

Effective rooting depth (in)	pH	clay loam			%OM	PPM P	PPM K	ds/m
		%sand	%silt	%clay				
13.5	6.9	32.9	33.8	33.2	4.3	11.8	217.6	0.9

PELLET GROUP DATA--

Management unit 11A, Study no: 3

Type	Quadrat Frequency			
	'95	'00	'05	'10
Rabbit	4	3	3	1
Elk	27	46	55	11
Deer	3	9	11	10
Cattle	-	1	-	1

Days use per acre (ha)		
'00	'05	'10
-	-	-
84 (208)	77 (190)	18 (45)
11 (28)	39 (96)	23 (58)
1 (2)	-	-

BROWSE CHARACTERISTICS--  
Management unit 11A, Study no: 3

Year	Plants per Acre (excluding seedlings)	Age class distribution			Seedling (plants/acre)	Utilization		% poor vigor	Average Height Crown (in)
		% Young	% Mature	% Decadent		% moderate	% heavy		
<i>Artemisia nova</i>									
82	0	0	0	0	-	0	0	0	-/-
88	0	0	0	0	-	0	0	0	-/-
95	120	17	50	33	-	0	17	0	5/7
00	0	0	0	0	-	0	0	0	-/-
05	0	0	0	0	-	0	0	0	-/-
10	0	0	0	0	-	0	0	0	-/-
<i>Artemisia tridentata vaseyana</i>									
82	0	0	0	0	-	0	0	0	-/-
88	798	75	25	0	133	17	0	0	11/16
95	1500	55	43	3	960	28	1	1	16/23
00	6000	48	49	3	160	12	0	3	14/25
05	5320	9	85	6	12940	6	1	3	14/21
10	2640	49	42	8	480	26	5	5	15/21
<i>Chrysothamnus depressus</i>									
82	0	0	0	0	-	0	0	0	-/-
88	0	0	0	0	-	0	0	0	-/-
95	360	0	94	6	-	72	22	6	3/9
00	960	0	98	2	-	44	0	0	2/5
05	300	0	100	0	-	27	0	0	3/4
10	1080	6	94	0	-	0	0	0	6/6
<i>Chrysothamnus viscidiflorus lanceolatus</i>									
82	3732	14	86	0	-	0	0	0	12/18
88	9198	57	31	12	266	7	0	13	13/14
95	9660	17	83	0	-	22	0	0	9/13
00	5800	11	80	9	20	5	4	2	8/11
05	5760	4	94	1	-	3	0	.69	9/12
10	6120	5	94	1	-	0	0	0	9/11
<i>Gutierrezia sarothrae</i>									
82	0	0	0	-	-	0	0	0	-/-
88	0	0	0	-	-	0	0	0	-/-
95	40	50	50	-	-	0	0	0	3/5
00	80	0	100	-	-	0	0	0	4/4
05	60	0	100	-	-	0	0	0	5/6
10	20	0	100	-	-	0	0	0	6/6

		Age class distribution					Utilization			
Year	Plants per Acre (excluding seedlings)	% Young	% Mature	% Decadent	Seedling (plants/acre)	% moderate	% heavy	% poor vigor	Average Height Crown (in)	
<i>Opuntia</i> sp.										
82	<b>0</b>	0	0	-	-	0	0	0	-/-	
88	<b>0</b>	0	0	-	-	0	0	0	-/-	
95	<b>80</b>	0	100	-	-	0	0	0	4/15	
00	<b>40</b>	0	100	-	-	0	0	0	3/10	
05	<b>60</b>	0	100	-	-	0	0	0	3/11	
10	<b>100</b>	20	80	-	-	0	0	0	2/5	
<i>Symphoricarpos oreophilus</i>										
82	<b>266</b>	0	100	0	-	0	0	0	12/21	
88	<b>1198</b>	67	28	6	-	61	11	0	15/26	
95	<b>1180</b>	12	81	7	40	5	58	0	13/28	
00	<b>200</b>	50	10	40	-	0	0	0	11/20	
05	<b>180</b>	0	100	0	-	0	0	0	12/20	
10	<b>180</b>	11	89	0	-	11	33	0	12/21	
<i>Tetradymia canescens</i>										
82	<b>133</b>	0	100	0	-	0	0	0	7/11	
88	<b>199</b>	33	67	0	-	33	0	0	11/12	
95	<b>440</b>	9	86	5	-	77	5	0	9/13	
00	<b>500</b>	12	76	12	-	52	36	0	7/12	
05	<b>480</b>	4	83	13	20	38	8	0	7/10	
10	<b>540</b>	4	96	0	-	48	11	0	6/10	