

**ARIZONA GAME AND FISH DEPARTMENT
INTER-OFFICE MEMO**

TO: Sylvia Harris, Wildlife Specialist, Region II
FROM: Robert Price, Wildlife Manager II, Region II
SUBJECT: Cover Sheet, Bighorn Surveys, 13B North, 13B South
DATE: 11/24/99

Enclosed please find the Bighorn Survey Data for the above units. In addition, a special survey was conducted in the Whitmore/Parashant/Andrus Canyon area, which was the result of a grant from NPS. Technically, this area is in 13BS. Whether we want to group this data in with the other 13BS data should be discussed.

Unit: 13BN
Survey Areas: Virgin River Gorge, Beaver Dam Mts., Virgin Mountains
Survey Dates: 10/12 – 13/99
Observers: Price, Finley, Haley, Sorenson
Survey Method: Helicopter
Total Bighorn: Rams: 21, Ewes: 79, Lambs: 16, Yearlings: 10, Total: 126
Total Survey Time: 5 hours 59 minutes

Unit: 13BS
Survey Areas: Lower Grand Wash Cliffs, Grand Wash Bay area
Survey Dates: 10/11/99
Observers: Price, Finley, Haley,
Survey Method: Helicopter
Total Bighorn: Rams: 15, Ewes: 25, Lambs: 0, Yearlings: 5, Total: 45
Total Survey Time: 5 hours 6 minutes

Page 2.

Unit: 13BS

Survey Areas: Portions of Whitmore/Andrus/Parashant Canyons within LMNRA

Survey Dates: 10/12/99

Observers: Price, Finley, Haley

Survey Method: Helicopter

Total Bighorn: Rams: 7, Ewes: 7, Lambs: 0, Yearlings: 0, Total: 14

Total Survey Time: 3 hours

I hope this cover sheet is OK, I added the Total Survey Time.

Thanks,
RSP



BIGHORN SHEEP SURVEY RECORD

Hunt Unit: 1385 Survey Area: G.W. Bay, GW Cliffs Date: 10/11/99
Survey Method a) Foot-Horseback b) Vehicle (c) Helicopter
Observer: Price, Finley, Haley Pilot: Becker Weather: clear, warm
Time Start: 0724 Time Stop: 1533 Total Time: 8 hours 9 min
Odometer Start: _____ Odometer Stop: _____ Total Miles: _____
Total Survey Time = 5 hours 6 minutes Ferry start 2616.0

Herd Observ. and Time*	Age Class				Yearling						Total	Location/Remarks
	I (2)	II (3-5)	III (6-8)	IV (9+)	Un.	Ewes	Lamb	♂	♀	Un.		
① 0727	2					1					3	36°11.72 114.03.1 1 burro
② 0729		1				1					2	36°11.75 114.02.9 2 burros
③ 0734	1										1	36°12.06 114.02.47 1 B
④	Break 0827 - 0852											6 burros 36.12.60 114.02.47
⑤	Break 0910 - 1005											4 burros 36.11.92 113.51.52
⑥ 1030			1			2			1		4	1 red collar 2 imm. Pierce 36.10.58 113.52.52
⑦ 1104			1								1	36.13.504 113.51.525
⑧	Break 1115 - 1120											
⑨ 1134	1	3				9			2		15	Cunningham catch 2c 36.14.45 113.49.93
⑩ 1204		1									1	36.13.791 113.50.0 Cuv
⑪	Break 1217 - 1135											
⑫ 2:10						1		1	1		1	36.24.07 113.47.64 S4
⑬ 2:17	2					6			1		9	36.24.025 113.47.695 Spua
⑭ 3:07	2					5			1		8	Bottom Pigeon
Totals	8	5	2	0		25	0		5	0	45	

♂: 1009: 0: Yrl.

46

¹ NOTE: A separate survey record is required for each survey method and each observer.

* An observation is a discrete herd of 1 or more individuals. This is, in the observer's opinion, a group of animals comprising 1 unit--separated from other similar units.

36.13.887 113.49.693

Form No. 3029
11-21-83

ARIZONA GAME AND FISH DEPARTMENT



2222 WEST GREENWAY ROAD
P. O. BOX 9099
PHOENIX, ARIZONA 85068

BIGHORN SHEEP SURVEY RECORD

Hunt Unit: 1385 Survey Area: Whitmore Canyon, Andrews Cyn Date: 10/12/99
Survey Method a) Foot-Horseback b) Vehicle c) Helicopter
Observer: Price, Finley, Haley Pilot: Becker Weather: Clear/Windy
Time Start: 0735 Time Stop: 1200U Total Time: 4 hours 25m
Odometer Start: _____ Odometer Stop: _____ Total Miles: _____

Actual Survey Time = 3 hours

Herd Observ. and Time*	Age Class				Un.	Ewes	Lamb	Yearling			Total	Location/Remarks
	I (2)	II (3-5)	III (6-8)	IV (9+)				♂	♀	Un.		
Break	8:07	—	8:50									
Break	9:17	—	9:59									
① 10:20						1					1	36.08.656 113°22.3
② 10:25	3	1	1	1		5					11	36.07.877 113°21.5d
③ 10:30		1				1					2	36.07.180 113°21.72E
④ 10:35												36.06.286 113°21.310 Ave 1 buck 2 does (2, 1, 1) Pocket
Totals	3	2	1	1		7					14	

♂: 100% ♀: Yrl.

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36.19.0 113.17.331

No. 3029
1-21-83

BIGHORN SHEEP SURVEY RECORD

Hunt Unit: 13BN Survey Area: V.R. Gorge Date: 10/12/99Survey Method a) Foot-Horseback b) Vehicle c) HelicopterObserver: Pike, Finley, HaleyPilot: BeckerWeather: clear, warmTime Start: 1310Time Stop: 3:14 P. (1514)

Total Time: _____

Odometer Start: _____

Odometer Stop: _____

Total Miles: _____

Total Survey time = 1 hour 57 minutes

Herd Observ. and Time*	Age Class				Un.	Ewes	Lamb	Yearling			Total	Location/Remarks
	I (2)	II (3-5)	III (6-8)	IV (9+)				♂	♀	Un.		
① 1:18	2	1				8			1		11	36°56'48.3 113°43.907 ^{QV}
		Break		1:26 - 1:33								
② 1:40	1										1	36.56.632 113.42.816
③ 1:55						3					3	36.59.369 113.45.73
④ 1:57						2	1		1		4	" "
⑤ 2:10						4			2		6	36.59.268 113.43.074 ^{Adew}
⑥ 2:15		2									2	36.58.53 113.40.816 ^{BR}
⑦ 2:17		1									1	" " ^{B.R.}
⑧ 2:37						3	1				4	36.56.34 113.45.146 ^{GP+}
⑨ 2:38						1					1	" " ^{G.Pts}
⑩ 2:44						1					1	36.55.474 113.45.456 ^{G1}
⑪ 2:50		1				2					3	36.57.995 113.45.210 ^{Fin}
⑫ 2:50						5		1			6	36.57.995 113.45.074 ^F
⑬ 3:00						1					1	36.57.677 113.44.942
⑭ 3:10						1					1	36.57.170 113.46.195 ^F
Totals	3	3	0	0		31	2	1	4		44	

♂: 100♀: 0 Yrl.

NOTE: A separate survey record is required for each survey method and each observer.

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36°55.835 113°43.24



BIGHORN SHEEP SURVEY RECORD

Hunt Unit: 13BN Survey Area: V.R. Gorge Date: 10/13/99
Survey Method a) Foot-Horseback b) Vehicle c) Helicopter
Observer: Price, Sorenson, Finley Pilot: Becker Weather: clear, warm, windy
Time Start: 6:47 Time Stop: 12:13 Total Time: _____
Odometer Start: _____ Odometer Stop: _____ Total Miles: _____
Total Survey time = 4 hours 2 minutes

529.9

Herd Observ. and Time*	Age Class				Un.	Ewes	Lamb	Yearling			Un.	Total	Location/Remarks
	I (2)	II (3-5)	III (6-8)	IV (9+)				♂	♀				
0649						2						2	36.55.758 71350.115 ^{above} 15
0651			1			1	1					3	" "
0715						3	2					5	36.54.58 113.50.12 Dam
0720		1				5	2					8	36.55.97 113.51.47
0721		1	1			9		1				12	" "
Break 0737 - 0742													
0811						3	1		1			5	36.56.6 113.49.06
0815						4						4	36.57.6 113.49.1
Break 0826 - 9:15													
0928	1					5	1					7	36.55.66 113.48.26
0951			1									1	
0954			1			1	1					3	
1000				1		4	1		1			7	
1005		1										1	
1009			1				1					1	
1016						2	1		1			4	
1016				1		4			1			6	59
1035	2		1			1	2					6	
1036	1					2	1					4	
Break 1040 - 11:24													
Totals	4	3	6	2		46	13	1	4			70	

♂: 1009: 0: Yrl.

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43
48
41
51
AB
107
117
127



BIGHORN SHEEP SURVEY RECORD

12:

Hunt Unit: 13BN Survey Area: V.R. Gorge, Fig 4 Date: 10/13/99

Survey Method a) Foot-Horseback b) Vehicle c) Helicopter

Observer: Price, Sorenson, Finley Pilot: Becker

Weather: clear, windy, warm

Time Start: 12:24 Time Stop: 12:13

Total Time: 00:00:00

Odometer Start: _____ Odometer Stop: _____

Total Miles: _____

Herd Observ. and Time*	Age Class				Un.	Ewes	Lamb	Yearling			Total	Location/Remarks
	I	II	III	IV				♂	♀	Un.		
	(2)	(3-5)	(6-8)	(9+)								
32 12:35						1	1				2	Above White House
33 12:52						1					1	Hedricks 2 fawns lda
Totals						2	1				3	

♂: 100♀: θ: Yrl.

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3651, 1231137, 929 Antu
Hedricks
(126)

Arizona Game & Fish Unit 13B South Desert Bighorn Sheep Population Counts				
Year	Total Animals Surveyed			Population Estimate
1986	---			
1987	---			
1988	3	North and South Surveyed together		
1989	---			
1990	30			
1991	---			
1992	41+31	no data		
1993	22	North and South together (118)		
1994	42	57:100:0:0		100-150
1995	53	60:100:35:15		70
1996	29 31	56:100:20:36		87
1997	51	56:100:11:6		76
1998	60	46:100:11:25		82
1999	59	38:100:22:28		85
2000	28	69:100:0:16		118
2001		50:100:19:6		98

Arizona Game & Fish Unit 13B North Desert Bighorn Sheep Population Counts				
Year	Total Animals Surveyed	M:100F:L:Y		Population Estimate
1986	---			
1987	---			
1988	44			
1989	---	no data		125(N+S)
1990	35	63:100:28:16		132(N+S)
1991	---	no data		
1992	59	53:100:9:22		100-150
1993	55	54:100:14:25		100-150
1994	56	50:100:43:7		141
1995	54	39:100:36:18		122
1996	~~84~~ 98	31:100:21:17		138
1997	91	60:100:21:36		162
1998	137	49:100:12:20		218
1999	127	28:100:20:13		283
2000	89	49:100:46:33		235
2001				

M = males > 1yr old

100 F = 100 ewes

L = Lambs

Y = Yearlings

Bighorn Sheep population estimates based on survey results.

Year	Estimated Bighorn Sheep Population			
	Unit 12B	Unit 13A	Unit 13BN	Unit 13BS
1999	106	258	262	114
1998	105	282	218	85
1997	105	229	162	92
1996	124	242	138	76
1995	142	243	122	87
1994	158	224	141	70
1993	168	97	138	124
1992	168	120	100-150	118
1991	133	188		
1990	117			
1989	157			
1988	114			
1987	107			
1986	69			
1985	55			