



**IN-SERVICE NOTE**  
**2003 AERIAL ELK SURVEY**  
By  
**Michael E. Cartwright**  
**Elk Program Coordinator**

**Introduction** – An annual aerial elk survey was initiated in 1991 to gain more information on the status and distribution of Arkansas' elk herd. Survey objectives were to: 1) obtain reliable information on elk distribution; 2) obtain data on bull/cow and calf/cow ratios; and 3) obtain a minimum population estimate. The survey was again conducted in 2003.

**Methods** – A Bell Jet Ranger 206 helicopter was used for the survey. Changes in procedures for 2003 include: 1) an enlargement of survey section one to include sections one and two used in previous years and 2) an enlargement of survey section 2 to include survey section three used in previous years along with the addition of a survey area along the Buffalo National River (BNR) lying between highway 65 and highway 14.

**Results (all elk survey areas)** – A total of 220 elk were observed. Antlered bulls totaled 23 (10 spikes, 13 branched) with antlerless elk totaling 197 (151 cows and 46 calves). The bull/cow ratio was 15 bulls per 100 cows and the calf/cow ratio was 31 calves per 100 cows. The largest elk group observed included 57 animals and the average group size for 17 elk groups observed was 12.9. Survey data suggests that the elk herd along the Buffalo River corridor is somewhat stable; however data indicates a decline in the elk population on private land in elk hunt zone A with low numbers present.

**Results (original BNR corridor)** – The original BNR corridor survey (includes the Gene Rush Wildlife Management Area (GRWMA)) was initiated on March 3 and completed on March 8. A total of 204 elk was observed including 162 (79%) in section one (Boxley Valley to Cave Creek), and 42 (21%) in section two (Cave Creek to highway 14). One hundred and seventy-six elk were observed during the BNR corridor flight with 28 elk spotted during National Park Service (NPS) property boundary flights (all on private land). Thirty-five elk were spotted during boundary flights in 2001.

Antlered bulls totaled 20 (8 spikes, 12 branched) with antlerless elk totaling 184 (141 cows, 43 calves). This compares to 45 antlered and 181 antlerless in 2002. Branch antlered bulls totaled 12 which is 19 less than the number (31) observed in 2002 and 13 less than the number observed in 2001 (25). Spike bulls observed decreased by 6 (43%). Total bulls observed in 2003 decreased by 25 (56%) from the number observed in 2002 (45). Antlerless elk observed increased by less than 2% (3) from the 2002 level. The increase occurred in numbers of cows (6%) observed. Calves observed decreased by 5 (10%). The bull/cow ratio was 14 bulls per 100 cows, which is much lower than the ratio observed in 2002 (34:100), 2001 (26:100), 2000 (34:100) and 1999 (56:100). The calf/cow ratio was 31 calves per 100 cows, which was lower than in 2002 (36:100) higher than in 2001 (24:100), but lower than in 2000 (33:100), 1999 (47:100) and 1998 (39:100). Bull/cow and calf/cow ratios observed in 2003 were below the minimum target ratio of 40 bulls/100 cows and 40 calves/100 cows established in the current elk management plan.

A total of 15 elk groups were observed which ranged in size from one to 57. The average elk group size was 13.6, which is lower than the average in 2002 (18.8), and 2001 (15.2), higher than in 2000 (10.6), lower than in 1999 (15.3) and higher than in 1998 (10.9). Most elk were observed in open habitat (hay fields, pastures, old fields). Forty-seven (47) elk were observed on the GRWMA which is a decrease of 9 (16%) from the number (56) observed in 2002. Only twelve elk were observed on the area in 1999. Elk use has increased substantially on GRWMA on a year-round basis as habitat improvements are paying big dividends for elk and other wildlife.

All identified bulls carried both antlers with the exception of one bull that had cast both antlers. This was a lone radio collared bull. Observers noted that three of 20 bulls observed carried radio collars. Only two (17%) of 12 branch antlered bulls were classed as large mature breeding bulls (6X6 or better, dark heavy antlers, large body size). In 2002, eight (26%) of 31 branch antlered bulls were classed as large mature breeding bulls. In 2001, seven (28%) of 25 branch antlered bulls were classed as large mature breeding bulls.

The aerial elk count was the fourth highest on record since initiation in 1991. The number of elk observed decreased by 22 from 2002 but was 39 below the number counted in 2000 and 25 below the number counted in 1999. Few elk were observed in elk hunt zone 1 and 2. Elk observed tended to be concentrated on and in proximity to the Gene Rush WMA and in Boxley valley (viewing area closed to hunting). No elk were observed in section two along the BNR corridor

between Gilbert and highway 14. The public and NPS staff in this section of the BNR corridor report occasional elk sightings; however, numbers of elk appear to be very low.

Five elk were observed which appeared sick (two small bulls, three cows). Locations of sick elk observed include: Boxley Valley, mouth of Little Buffalo, Dixie Point on GRWMA, and private land along Calf Creek. Two radio-tagged cows were observed in Boxley Valley close to the original capture sites. No dead elk were observed. Lower elk counts along the river corridor during 2003 may be in part due to an intense elk capture effort in mid-February using a helicopter. Thirty-five bulls were captured and fitted with radio-collars. Aerial survey observers noted that elk were much more prone to seek escape cover when approached by helicopter during the counts. This behavior was much more pronounced than in past years.

**Results (additional elk surveys)** An additional aerial survey of private land in southwest Boone and southeast Carroll Counties resulted in an observation of two elk groups totaling 16 elk (three bulls, 10 cows and three calves). The same number of elk was observed in 2002 (16 elk in three groups). No sick elk were observed. Nuisance elk complaints have decreased in the area since limited hunting was initiated in 1998. Data indicates a substantial decrease in the population.

From 1994-2002 an additional area of Ozark National Forest (ONF) and private land was surveyed along the Richland Creek drainage south of the NPS border. The area was surveyed again in 2003 and no elk were observed.

**Results (deer and turkey sightings)** During the survey, sightings of deer, wild turkey and other wildlife are recorded. A total of 172 deer and 69 turkeys were observed during the original BNR corridor survey. This compares to 227 deer and 350 turkey observed in 2002. In 2001, 40 deer and 168 turkeys were observed. In 2000, 58 deer and 98 turkeys were observed. In 1999, a year of poor mast production, 359 deer and 723 turkeys were observed. Six bald eagles were also observed. An additional 70 deer and 3 turkeys were observed on private land in southwest Boone and southeast Carroll Counties. This compares to 128 deer and 99 turkey seen in 2002, 30 deer and 24 turkey seen in 2001 and 35 deer and 18 turkeys seen in 2000. Thirteen bald eagles and one coyote were also observed.

<b>HELICOPTER ELK COUNTS - 1991-2003</b>													
<b>Buffalo River Corridor</b>							<b>Private Land (Boone &amp; Carroll Counties)</b>						
<b>Year</b>	<b>Antlered Bulls</b>	<b>Cows</b>	<b>Calves</b>	<b>Total</b>	<b>Bull/Cow Ratio</b>	<b>Calf/Cow Ratio</b>	<b>Antlered Bulls</b>	<b>Cows</b>	<b>Calves</b>	<b>Total</b>	<b>Bull/Cow Ratio</b>	<b>Calf/Cow Ratio</b>	<b>Grand Total</b>
1991	18	41	17	76	44	42	No survey						76
1992	35	78	31	144	45	40	No survey						144
1993	35	63	32	130	56	51	3	7	2	12	43	29	142
1994	30	78	32	140	39	41	0	0	0	0	--	--	140
1995	49	82	28	159	60	34	1	1	0	2	--	--	161
1996	46	90	45	181	51	50	3	14	6	23	21	43	204
1997	41	99	39	179	41	39	6	10	6	22	60	60	201
1998	46	100	39	185	46	39	7	21	12	40	33	57	225
1999	63	113	53	229	56	47	7	22	11	40	32	50	269
2000	49	146	48	243	34	33	7	25	10	42	28	40	285
2001	34	131	32	197	26	24	5	20	4	29	25	20	226
2002	45	133	48	226	34	36	0	14	2	16	--	14	242
2003	20	141	43	204	14	31	3	10	3	16	30	30	220

