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ANALYSIS OF ARKANSAS FUR HARVEST RECORDS - 1942-1984: I. STATE AND REGIONAL ACCOUNTS

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ABSTRACT

Fur harvest records maintained by the Arkansas Game and Fish Commission from 1942-1984 summarized the number of pelts sold by region (Ozark Mountains, Ouachita Mountains, Gulf Coastal Plain, and Mississippi Delta) and the average price per pelt for 16 furbearers. Analysis of these records showed that in the 1979-80 trapping season (the record year for both harvest and value both in Arkansas and the nation), the value of the Arkansas fur harvest ranked 14th nationally (2.12% of total national value). Fur harvests in Arkansas were high in the 1940's, declined in the 1950's and 1960's and then experienced a rapid increase in the 1970's and into the 1980's. In all decades, the Mississippi Delta has ranked first in both numbers of pelts harvested and total value. With the exception of the 1970's, the Delta has been followed by the Ozark Mountains, the Gulf Coastal Plain, and the Ouachita Mountain Region.

INTRODUCTION

Furbearer management problems have increased in number, scope, and intensity during the past decade in response to 1) rapidly growing demands for furbearers and their products, 2) enactment of certain endangered species regulations and treaties, 3) a major decline in upland wildlife hunting opportunities, and 4) growing antihunting and antitrapping sentiment (Hubert, 1982). Thus, harvest management programs, now and in the future, require a greater understanding of the variables which ultimately determine the size of furbearer populations and of subsequent expected harvests (Erickson and Sampson, 1978; Erickson, 1981, 1982; Hubert, 1982).

Arkansas and other Midsouth states have traditionally used fur harvest data as a primary source of information for estimating the condition of furbearer populations and subsequent management schemes (McArdle, 1979; Tumlison et al., 1981; Erickson, 1982; Hubert, 1982; Heidt et al., 1984). However, in the case of Arkansas, as in many states, fur harvest data still exists in either raw, unsummarized form or is scattered in various unpublished reports and Game and Fish Commission internal memos. Wildlife biologists are thus required to sort out and extract that information needed for management decisions. It is the purpose of this series of papers to summarize and interpret the raw fur harvest data that has been compiled by personnel of the Arkansas Game and Fish Commission since 1942 and present it in a form that can easily be used for further analyses. The present paper summarizes the fur harvest data for Arkansas from a statewide and regional (the four major physiographic regions - Ozark Mountains, Ouachita Mountains, Gulf Coastal Plain, and Mississippi Delta) level. We also discuss the most important furbearing species in each region.

METHODS AND MATERIALS

Fur harvest records used in this study were compiled annually since 1942 by the Arkansas Game and Fish Commission (AGFC). Mean annual pelt values, total numbers of each species harvested, and the regional contributions of each species harvested were available for all but a few years. For purposes of analyses, years with unavailable data were generally omitted from consideration. For the mean annual pelt values during 1979-80, which were unavailable, a value was extrapolated for each Arkansas species based on relative pelt value in Missouri. No correction factors were applied to the data to correct for out-of-state sales of Arkansas fur. In addition, there is no way to determine how many pelts were actually harvested but not sold (P. Dozhier, Chairman, American Fur Resources Institute, *pers. comm.*). Following the method of Erickson and Sampson (1978), dollar values were uncorrected for inflation.

Table 1. The value of the 1979-1980 Arkansas fur harvest relative to the 1979-1980 national harvest.

Species	Arkansas Harvest National Ranking/ # states reporting	% U. S. Harvest
Opossum	3/35	7.98
Mink	7/47	4.85
Spotted Skunk	8/31	4.19
Bobcat	13/42	3.48
Raccoon	12/48	3.04
Beaver	12/48	2.72
Gray Fox	18/42	2.26
River Otter	17/26	1.20
Striped Skunk	23/47	0.71
Muskrat	21/48	0.66
Coyote	21/41	0.65
Long-tailed Weasel	29/39	0.15
Badger	26/26	0.00
Arkansas	14/50	2.12

RESULTS AND DISCUSSION

State Analysis

In an effort to gain a perspective on the relative importance of Arkansas fur harvests to the national total, we ranked the value of the six-

Table 2. Summary of the size (# of pelts sold) of Arkansas' fur harvests by decade per region. Data reflect six seasons in 1940s, nine seasons in 1960s, and four seasons in 1980s; 1950s and 1970s reflect 10 full seasons.

Decade	Ozark	Ouachita	G. C. P.	Delta	State	Mean #/yr
1940s	699,429	201,518	424,572	898,448	2,223,967	370,661
1950s	251,240	128,846	250,911	696,139	1,610,744	161,074
1960s	318,149	116,386	143,784	491,473	1,069,793	118,074
1970s	475,572	260,422	231,954	716,288	1,684,236	168,424
1980s	223,681	146,085	178,974	352,982	901,721	225,430
Total	1,968,071	853,257	1,230,195	3,155,330	7,206,853	184,791

Table 3. Summary of the value ($) of Arkansas' fur harvests by decade per region. Data reflect six seasons in 1940s, nine seasons in 1960s, and four seasons in 1980s; 1950s and 1970s reflect ten full seasons.

Decade	Ozark	Ouachita	G. C. P.	Delta	Total	Mean $/yr
1940s	726,043	323,650	1,136,101	2,158,236	4,344,030	724,005
1950s	740,800	306,190	723,513	1,668,331	3,438,833	343,883
1960s	604,393	196,181	291,149	767,505	1,859,228	206,581
1970s	3,943,054	2,444,333	2,320,865	4,893,857	13,602,110	1,360,211
1980s	2,221,687	1,490,356	2,113,820	3,028,737	8,854,600	2,213,650
Total	8,235,977	4,760,710	6,585,448	12,516,666	32,098,801	823,046

Table 4. Summary of the six furbearers with the largest total harvests (# pelts sold) from the Mississippi Delta Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Totals
1. Raccoon	273,595	314,685	178,204	219,013	127,567	1,113,064
2. Opossum	428,833	147,647	63,729	157,564	62,663	860,436
3. Muskrat	19,104	96,787	31,688	145,031	103,470	496,080
4. Mink	110,975	113,585	40,694	50,990	41,269	357,513
7. Striped Skunk	50,108	19,427	73,859	115,974	191	259,559
6. Beaver	0	11	913	12,126	10,077	23,127
Totals	882,615	692,142	389,087	700,698	345,237	3,109,779

Table 5. Summary of the six furbearers with the greatest total harvest values ($) from the Mississippi Delta Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Total
1. Raccoon	399,583	259,392	265,435	2,639,449	1,794,695	5,358,504
2. Mink	1,536,124	1,262,385	291,400	628,249	584,211	4,302,369
3. Muskrat	28,742	77,082	105,174	444,286	342,379	999,664
4. Opossum	146,629	51,205	28,396	344,290	75,895	646,416
5. Striped Skunk	29,902	16,232	63,741	425,484	303	535,663
6. Bobcat	190	54	337	120,851	88,541	209,973
Totals	2,141,170	1,666,350	754,483	4,602,609	2,886,024	12,052,589

teen furbearers in Arkansas to those nationally for the 1979-1980 fur harvest season (Table 1). This year was chosen because it represented record harvests, both in terms of pelts sold and value received, for both Arkansas and the nation. National data were supplied through the American Fur Resources Institute. Nationally, Arkansas ranked fourteenth in terms of total value received from fur, or 2.12% of the total value of the national harvest. From a single species standpoint, opossum *(Didelphis virginiana)*, mink *(Mustela vison)*, and spotted skunk *(Spilogale putorius)* ranked in the top ten. In addition, bobcat *(Felis rufus)*, raccoon *(Procyon lotor)*, and beaver *(Castor canadensis)* also ranked quite high in national averages.

Table 6. Summary of the six furbearers with the largest total harvests (# pelts sold) from the Ozark Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Totals
1. Opossum	500,005	125,125	85,311	149,577	75,066	935,084
2. Raccoon	54,548	64,222	126,687	177,430	104,436	527,323
3. Striped Skunk	63,205	15,296	32,698	39,136	1,557	151,892
4. Muskrat	14,201	18,527	41,573	43,400	12,378	130,079
5. Mink	25,418	20,368	19,450	19,223	9,203	93,662
6. Gray Fox	31,389	3,786	5,232	24,226	11,534	76,167
Totals	688,766	247,324	310,951	452,992	214,174	1,914,207

Table 7. Summary of the six furbearers with the greatest total harvest values ($) from the Ozark Mountain Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Total
1. Raccoon	81,218	53,437	182,965	2,091,183	1,466,037	3,874,840
2. Mink	348,099	620,469	296,989	221,022	129,883	1,616,463
3. Gray Fox	34,886	1,026	6,896	684,813	344,584	1,072,206
4. Opossum	175,401	34,503	37,079	325,720	87,785	660,488
5. Bobcat	253	63	1,230	204,098	90,161	295,805
6. Muskrat	19,097	16,271	35,683	136,686	40,434	248,171
Total	658,954	725,769	560,842	3,663,522	2,158,884	7,767,973

Table 8. Summary of the six furbearers with the largest harvests (# pelts sold) from the Ouachita Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Totals
1. Opossum	134,548	55,018	25,479	86,696	38,728	340,469
2. Raccoon	31,004	45,768	58,860	110,539	71,732	317,903
3. Mink	15,693	19,007	11,424	9,431	8,633	64,188
4. Muskrat	1,793	1,613	9,429	19,827	12,921	45,583
5. Striped Skunk	12,768	5,128	8,856	12,889	520	40,161
6. Gray Fox	3,433	1,230	538	7,843	4,257	17,301
Totals	199,239	127,764	114,586	247,225	136,791	825,605

Tables 2 and 3 summarize the total Arkansas fur harvest and monetary value by physiographic region and decade. When examining Table 2 for regional fur harvest data, it should be noted that over 283,000 pelts (3.8% of the total harvest) could not be assigned to a specific region. In addition, the omissions from Table 2 result in approximately $500,000 (1.6% of the total value) being omitted from Table 3. However, we feel that these pelts and their values would probably fit into the general patterns demonstrated in the tables and that they represent a small enough percentage that they would not bias the data. From these tables it can be seen that, over the past 42 years, over 7.4 million pelts having a value over 32 million dollars have been harvested. These figures do not account for pelts sold out-of-state, monies spent on traps, gasoline, and other fur harvesting equipment. It can thus be safely stated that the fur industry contributes considerable economic value to the state.

Tables 2 and 3 further demonstrate that fur harvest was extremely important during the 1940's both in terms of numbers of pelts harvested and value of the harvest. This was probably due in part, to demands for fur during and after World War II through the Korean Conflict (these same trends have been seen for other furbearers in other parts of the country [Sargeant, 1982; Voight and Tinline, 1982]) and also the general depressed economic conditions in Arkansas during these years. As the demand for fur fell during the 1950's and 1960's, the number of pelts harvested as well as total value of the pelts, in spite of inflation, also fell. However, with the resurgence in demand as well

Table 9. Summary of the six furbearers with the greatest total harvest values ($) from the Ouachita Mountain Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Total
1. Raccoon	41,069	38,031	88,399	1,399,553	996,192	2,563,243
2. Mink	219,646	244,814	71,759	127,958	124,444	788,621
3. Gray Fox	3,401	318	738	245,089	131,689	381,234
4. Opossum	45,372	16,584	11,521	200,457	46,522	320,455
5. Bobcat	109	33	304	179,971	83,398	263,814
6. Muskrat	2,848	1,337	8,041	152,251	45,573	210,050
Total	312,445	301,117	180,762	2,305,279	1,427,818	4,527,417

Table 10. Summary of the six furbearers with the largest harvests (# pelts sold) from the Gulf Coastal Plain Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Totals
1. Raccoon	139,254	131,040	96,278	128,979	117,737	613,288
2. Opossum	205,233	66,635	26,529	73,671	35,404	407,572
3. Mink	56,149	46,157	13,716	7,035	7,734	130,791
4. Gray Fox	8,482	1,648	626	6,355	3,661	20,772
5. Striped Skunk	13,065	2,653	688	583	147	17,136
6. Beaver	0	185	3,968	5,200	4,221	13,574
Totals	422,183	48,318	141,905	221,823	168,904	1,203,133

as price for fur (particularly long-haired upland furbearers) during the 1970's and into the 1980's, a concommitant increase in the harvest of Arkansas furbearers has been seen. In spite of the world-wide demand for fur, however, the relatively strong American dollar has caused sales in the mid-1980's to decline (P. Dozhier, *pers. comm.*).

Regional Analysis

From Table 2, it can be seen that the Mississippi Delta region has been consistently the most productive and important region in terms of fur harvest. This may be somewhat surprising considering the steady decline in habitat due to more intensive agricultural practices over the past 20 years. However, if one looks at the six most commonly harvested furbearers from the Mississippi Delta (Table 4) which account for 98.6% of the pelts harvested, it can be seen that these species are generally highly adaptive to habitat disruptions, have a high reproductive potential, and are generally water-related (an important habitat characteristic of the Delta) (Sealander, 1979; Schwartz and Schwartz, 1981). Table 3 points out that the Mississippi Delta has also produced the greatest monetary value of all regions. Again this may be explained by the volume and value of fur from the top six species which account for 96.3% of the harvest in the Delta Region, and the relatively high prices obtained for raccoon and mink, two of the most abundant furbearers taken in the Delta (Tables 4 and 5).

Tables 2 and 3 show that the Ozark Mountain Region has ranked consistently second in terms of both numbers and value of fur harvested. This has been due primarily to the influence of six species which accounted for 97.3% of the harvested pelts and 94.3% of the value of the fur harvest in the Ozark Mountain Region (Tables 6 and 7).

During the 1940's and 1950's the Gulf Coastal Plain ranked third, but it was displaced by the Ouachita Mountain region in the 1970's. It regained its status over the Ouachita Mountains in the 1980's. Since trappers in both regions basically harvest the same major species (Tables 8 - 11) this shift during the 1970's was due to more individuals of each species being harvested in the Ouachita Mountains, perhaps a result of greater trapper effort. The top six species account for 96.8% of the total harvest and 95.1% of the harvest value in the Ouachita Mountains (Tables 8 and 9) and 97.8% of the total harvest and 97.3% of the harvest value in the Gulf Coastal Plain (Tables 10 and 11).

Table 11. Summary of the six furbearers with the greatest total harvest values ($) from the Gulf Coastal Plain Region by decade for the 1942-1984 seasons.

Species	1940s	1950s	1960s	1970s	1980s	Total
1. Raccoon	270,181	108,698	14,970	1,594,350	1,666,878	3,787,077
2. Mink	768,163	587,940	101,635	85,156	124,576	1,667,373
3. Gray Fox	9,971	445	1,007	210,515	109,008	330,747
4. Opossum	73,786	21,424	11,997	174,389	41,409	320,455
5. Bobcat	77	30	389	152,336	79,056	231,888
6. Beaver	0	477	18,228	31,903	21,626	72,233
Total	1,122,178	720,974	148,226	2,248,649	2,042,553	6,409,773

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LITERATURE CITED

ERICKSON, D. W. 1981. Furbearer harvest mechanisms: An examination of variables influencing fur harvest in Missouri. Pp. 1469-1491, *In* Worldwide furbearer conference proceedings (J. A. Chapman and D. Pursley, eds.). Frostburg, MD. Vol 2:653-1552.

ERICKSON, D. W. 1982. Estimating and using furbearer harvest information. Pp. 53-66, *In* Midwest furbearer management symposium (G. C. Sanderson, ed.). North Central Section, Central Mountains and Plains Section, and Kansas Chapter, The Wildl. Soc., 196 pp.

ERICKSON, D. W., and F. W. SAMPSON. 1978. Impact of market dynamics on Missouri's furbearer harvest system. Proc. Ann. Conf. S.E. Assoc. Fish and Wildl. Agencies 32:17-29.

HEIDT, G. A., J. H. PECK, and L. JOHNSTON. 1984. An analysis of gray fox *(Urocyon cinereoargenteus)* fur harvests in Arkansas. Proc. Ark. Acad. Sci. 38:49-52.

HUBERT, G. F. 1982. History of Midwestern furbearer management and a look to the future. Pp. 175-191. *In* Midwest furbearer management symposium (G. C. Sanderson, ed.), North Central Section, Central Mountains and Plains Section, and Kansas Chapter, The Wildl. Soc., 196 pp.

MCARDLE, B. 1979. The status and distribution of the red fox *(Vulpes fulva)* and gray fox *(Urocyon cinereoargenteus)* in Arkansas as determined by a mail survey. Unpubl. Rept. to Ark. Game and Fish Comm., Little Rock, AR. 17 pp.

SARGEANT, A. B. 1982. A case history of a dynamic resource - the red fox. Pp. 121-138, *In* Midwest furbearer management symposium (G. C. Sanderson, ed.), North Central Section, Central Mountains and Plains Section, and Kansas Chapter, The Wildl. Soc., 196 pp.

SCHWARTZ, C. W., and E. R. SCHWARTZ. 1981. The wild mammals of Missouri. Univ. of Missouri Press, Columbia, 356 pp.

SEALANDER, J. A. 1979. A guide to Arkansas mammals. River Road Press, Conway, AR. 313 pp.

TUMLISON, C. R., A. W. KING, and L. JOHNSTON. 1981. The river otter in Arkansas: I. Distribution and harvest trends. Proc. Ark. Acad. Sci. 35:74-77.

VOIGHT, D. R., and R. L. TINLINE. 1982. Fox rabies and trapping: A study of disease and fur harvest interaction. Pp. 139-158, *In* Midwest furbearer management symposium (G. C. Sanderson, ed.), North Central Section, Central Mountains and Plains Section, and Kansas Chapter, The Wildl. Soc., 196 pp.