

State of California
THE RESOURCES AGENCY
Department of Fish and Game
Wildlife Programs Branch

BOBCAT HARVEST ASSESSMENT

1997-1998

by

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ABSTRACT

An estimated 1690 bobcats were taken during the 1997 hunting year and the 1997-98 trapping season. Trappers took 1165 bobcats, and sport hunters took 426. The total take was a decrease of 7 percent from the 1996-97 year. The average pelt price decreased from \$75.24 last year to \$31.00 this year (Table 5). The average take per successful trapper increased, and the number of bobcat trappers decreased from 94 to 91.

Data on the bobcat harvest were gathered through the process of tagging bobcat furs for export, the annual trapping report and bobcat hunter report cards, and U.S. Department of Agriculture Wildlife Services records.

INTRODUCTION

The annual bobcat harvest increased in the 1960s and continued through the late 1970s. This increase was brought about by high fur prices. The sale of bobcat pelts provided the most income to trappers of any species trapped and sold in California since the 1975-76 season. In order to determine the magnitude of the bobcat harvest and the effects on bobcat populations in the state, several studies were initiated. Field studies of local population dynamics were conducted on unharvested populations in Siskiyou, Riverside and San Diego counties and on a harvested population in San Diego County. Also, a statewide harvest monitoring program was initiated to determine the age, sex structure, and harvest of bobcats on a regional basis. Currently, only the harvest is being monitored because the harvest and demand have been low since 1981-82.

Public interest in the bobcat increased in the early 1970s on both domestic and international fronts due to an increase in the demand for bobcat pelts. Prior to 1971, the bobcat in California was a non-protected mammal, and there were no restrictions on its take. In 1971, this species was given nongame status by the California Legislature.

In 1973, the United States became party to the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). The treaty restricted trade in endangered species and established procedures to monitor the trade of other species that might be faced with endangerment in the future. The bobcat was one of the species selected by the parties to the treaty as a possible candidate for future endangerment, primarily because of concern for the Mexican bobcat. The Endangered Species Scientific Authority (ESSA) was established as the scientific body to monitor the bobcat's status in the United States, and the U.S. Fish and Wildlife Service (USFWS) was given authority over trade as provided in the treaty.

In 1974, a six month season was established for the take of bobcats. This season was reduced to the standard 3½ month furbearer season in 1976.

In 1977, The Defenders of Wildlife petitioned the Secretary of Interior to place the bobcat on the endangered species list. This action was taken because of the high demand and prices for bobcats at that time. The Secretary of Interior found that Defender's petition was not warranted. Also in 1977, the California Fish and Game Commission enacted regulations that required pelts from bobcats taken for commercial purposes under a trapping license be tagged with a USFWS shipping (export) tag. This was done to comply with the provisions of CITES, as the bobcat had recently been designated an Appendix 2 species. The issuance of export tags allow the Department to closely monitor the take and sale of bobcat pelts.

In November 1979, Defenders brought suit against the ESSA, claiming that ESSA did not make its findings based on biological information. The suit was heard in December, and the court reversed ESSA's findings for several states, but not for California. Later, the ESSA was

dissolved, and responsibility was transferred to the USFWS Office of Scientific Authority (OSA). OSA was given responsibility for scientific monitoring. OSA reviewed California's biological data and analysis that resulted from several years of harvest monitoring field studies of the bobcat. California's pre-breeding estimate of 72,000 adult bobcats, and harvest quota of 14,400 animals per year was approved by OSA.

Defenders of Wildlife appealed the Court's ruling. This resulted in a court order that prohibited the export of bobcat pelts taken after July 1, 1982. This ban was imposed until OSA could satisfy the court that export of bobcat pelts was based on reliable population estimates, and that each state would enforce a predetermined take limit. During 1982, there was legislative redefinition of the Endangered Species Act which effectively voided the court's ban on export. On December 1, 1982, the export ban was lifted and the major European market was reopened.

During the 1978-79 trapping season, the export tag quota of 14,400 animals was reached by the end of January, effectively shortening the season by one month. During 1979-80, the trapping season was reduced to 2½ months but was closed on December 29, 1979, one month earlier than proposed because the quota of export tags had been reached once again.

For the 1980-81 season, the state was divided into three trapping zones, each with a different season length, depending on the status of the local bobcat populations. These regulations were a result of previous research and monitoring efforts. The 1981-82 season length was increased by one week, except in the northeastern California zone, in order to have the bobcat trapping season coincide with the trapping season on gray fox. In 1982-83, the northeastern California trapping season was set back two weeks, and its length was increased by one week.

The season limit for hunting bobcats was set at two for the 1980-81 hunting season and increased to five for the 1984-85 season. Prior to 1982-83, the hunting season length and timing coincided with the trapping (commercial) season. In 1982-83, the hunting season was extended by two weeks past the end of the trapping (commercial) season in Del Norte, Humboldt, Kern, Lake, Mendocino, Trinity, and San Diego counties. For the 1985-86 season, the hunting season was extended statewide to open one week before the commercial season through February 15.

In 1993, legislation was introduced (Assembly Bill 380) to ban the hunting and trapping of bobcats in California. That proposed legislation did not pass.

Bobcat hunting and trapping regulations were again adjusted for the 1994-95 season. The season length of the three trapping zones were made the same, and ran from November 24 through January 31. The hunting season was adjusted to run from October 15 through February 28, statewide. The reason for this action was to provide more opportunity for hunters and trappers. The total bobcat take in recent years has been substantially less than 20 percent of the OSA quota, and therefore is not in danger of over harvest.

On November 3, 1998, California voters passed Proposition 4. This proposition specifically bans the use of all body-gripping traps, including leghold and conibear type traps.

Since 1982, the bobcat harvest has been monitored closely; the results of this monitoring for the 1996-97 season are discussed in this report.

OBJECTIVES

1. Determine the annual bobcat harvest on a regional basis.
2. Use this information, along with previously gathered information on bobcat biology and population dynamics, to manage local populations by manipulating season lengths and chronology, take methods, and harvest limits.

METHODS

The commercial take is determined through assessment of mandatory annual reports of licensed trappers and an export tagging program for all bobcat furs. Commercial fur trappers report their take at the end of each license year (fiscal year), giving the quantity of take of each species by county. Anyone possessing or wishing to sell or to transport a bobcat fur must have it tagged. As part of the tagging process, the trapper must supply information on the place, date, and method of take.

Information on hunting is gathered through the sale of hunting tags and their return. Hunters of bobcat are required to report their kill and provide information on their take.

All depredation take must be reported to the Department. This information is reported directly by the person taking the bobcat or by the public agencies responsible for the depredation control work.

RESULTS

For the 1997-98 season, the total estimated take of bobcats was 1690 individuals (Table 1). This was a 7 percent increase over the 1996-97 trapping year. Commercial trappers did not take the majority of bobcats. The total hunter take of 426 (Tables 1 and 2) was slightly lower than in the 1996-97. The total take of bobcats ranged from none in 8 counties to 188 in Siskiyou County (Table 2). In the 1997-98 season, over 100 bobcats were taken from each of six counties.

TABLE 1
Estimated Annual Take of Bobcats by Hunting and Trapping in California
1978-79 to 1997-98

Season	Total Commercial Take (IA+IB)	Commercial Trapper Take (IA)	Commercial Hunter Take (IB)	Total Hunter Take (II)	Wildlife Services Take* (III)	Total Annual Take (IA+II+III)
1978-79	8,325	6,825	1,500	5,811	56	12,692
1979-80	7,809	6,686	1,123	7,708	32	14,426
1980-81	9,595	8,702	893	3,737	24	12,463
1981-82	9,337	8,162	1,175	3,037	34	11,233
1982-83	8,513	7,427	1,086	2,951	48	10,426
1983-84	7,362	6,576	786	2,077	43	8,696
1984-85	8,897	7,495	1,402	2,993	48	10,536
1985-86	8,099	6,927	1,172	2,861	36	9,824
1986-87	9,123	8,003	1,120	1,739	44	9,786
1987-88	8,994	8,017	977	2,773	47	10,837
1988-89	5,586	4,877	709	1,778	52	6,707
1989-90	2,980	2,677	303	715	63	3,455
1990-91	1,148	962	186	881	46	1,889
1991-92	1,089	1,089	0	401	12	1,502
1992-93	1,039	1,039	0	342	48	1,429
1993-94	1,148	1,148	0	451	50	1,649
1994-95	1,319	1,319	0	488	62	1,869
1995-96	660	660	0	410	61	1,131
1996-97	1,066	1,066	0	429	78	1,573
1997-98	1,165	1,165	0	426	99	1,690

* Federal fiscal year data is from 10-1 to 9-30. Other data in this table is from 7-1 to 6-30.

TABLE 2
Bobcat Take by County 1997-98

County	Licensed Trappers	Sport Hunters	Wildlife Services*	Total
Alameda		3		3
Alpine	3			3
Amador	1	2		3
Butte		5		5
Calaveras	5	4		9
Colusa	40	2		42
Contra Costa		1		1
Del Norte		1		1
El Dorado	5	14	2	21
Fresno	42	16		58
Glenn	13	2		15
Humboldt	68	6	3	77
Imperial		8		8
Inyo	54	11		65
Kern	100	42	4	146
Kings				0
Lake	5	3	1	9
Lassen	89	24	4	117
Los Angeles	95	6		101
Madera	1	10		11
Marin		8	13	21
Mariposa	3		9	12
Mendocino	21	21	1	43
Merced			2	2
Modoc	120	25		145
Mono	21	4		25
Monterey	15	11	14	40
Napa		1	0	1
Nevada		2	1	3
Orange				0
Placer		2	2	4
Plumas		13	2	15
Riverside	12	7		19
Sacramento				0
San Benito		4	5	9
San Bernardino	82	19		101
San Diego	15	16	8	39
San Francisco				0
San Joaquin				0
San Luis Obispo	12	9	5	26
San Mateo				0
Santa Barbara	42	7	3	52
Santa Clara		1		1
Santa Cruz				0
Shasta	13	14		27

Sierra		1		1
Siskiyou	163	23	2	188
Solano		1		1
Sonoma	4	3	13	20
Stanislaus		4		4
Sutter				0
Tehama	13	8		21
Trinity	26	9		35
Tulare	65	26		91
Tuolumne	2	15	4	21
Ventura	15	6		21
Yolo		5		5
Yuba		1	1	2
Unknown		0		0
Total	1165	426	99	1690

Nine of the 10 counties reporting the highest commercial take of bobcats were the same in 1997-98 as in 1996-97. However, Santa Barbara county was replaced by Humboldt (Table 3).

TABLE 3					
Ten Counties Reporting Highest Commercial Take of Bobcats					
1978-79 to 1997-98					
Rank	1978-79	1979-80	1980-81	1981-1982	1982-83
1	Humboldt	Santa Barbara	San Bernardino	San Bernardino	San Bernardino
2	San Bernardino	Humboldt	Monterey	Kern	Monterey
3	Shasta	Tulare	Santa Barbara	Monterey	Kern
4	Kern	Kern	San Luis Obispo	Santa Barbara	Santa Barbara
5	Siskiyou	San Bernardino	Humboldt	Tulare	San Luis Obispo
6	Santa Barbara	Siskiyou	Tulare	Humboldt	Tulare
7	Inyo	San Diego	Mendocino	San Diego	Humboldt
8	Modoc	Mendocino	Kern	Ventura	Los Angeles
9	Mendocino	Monterey	San Diego	Fresno	San Diego
10	Tehama	San Luis Obispo	San Benito	San Luis	Ventura
Rank	1983-84	1984-85	1985-86	1986-87	1987-88
1	San Bernardino	Kern	Kern	San Bernardino	San Bernardino
2	Kern	Tulare	San Bernardino	Kern	Kern
3	Santa Barbara	Monterey	Tulare	Santa Barbara	Monterey
4	San Luis Obispo	San Bernardino	Monterey	Tulare	Tulare
5	Los Angeles	Santa Barbara	Santa Barbara	Ventura	Santa Barbara
6	Monterey	San Luis Obispo	San Diego	Monterey	Siskiyou
7	Tulare	Los Angeles	Ventura	San Luis Obispo	Humboldt
8	San Diego	Humboldt	Humboldt	San Diego	Ventura
9	Ventura	Siskiyou	Los Angeles	Humboldt	San Diego
10	Humboldt	San Diego	Inyo	Fresno	San Luis Obispo
Rank	1988-89	1989-90	1990-91	1991-92	1992-93
1	San Bernardino	Kern	Kern	Kern	San Bernardino
2	Kern	San Bernardino	Tulare	Shasta	Tulare
3	San Diego	Ventura	Colusa	Siskiyou	Siskiyou

4	Santa Barbara	Fresno	San Bernardino	Humboldt	San Diego
5	Monterey	Monterey	Fresno	Tulare	Santa Barbara
6	Los Angeles	Los Angeles	Siskiyou	San Bernardino	Modoc
7	Ventura	San Diego	Los Angeles	San Diego	Shasta
8	Fresno	Siskiyou	Ventura	Ventura	Kern
9	Tulare	Tulare	San Diego	Santa Barbara	Los Angeles
10	San Luis Obispo	Humboldt	Shasta	Trinity	Tehama
Rank	1993-94	1994-95	1995-96	1996-97	1997-98
1	San Bernardino	Siskiyou	Kern	Kern	Kern
2	Fresno	San Bernardino	San Bernardino	San Bernardino	Tulare
3	Los Angeles	Kern	Fresno	Fresno	Modoc
4	Humboldt	Modoc	Siskiyou	Siskiyou	Lassen
5	Siskiyou	Los Angeles	Modoc	Modoc	Siskiyou
6	Santa Barbara	Santa Barbara	Humboldt	Tulare	Mendocino
7	Tulare	Fresno	Tulare	Lassen	San Bernardino
8	Modoc	Lassen	Colusa	Inyo	San Diego
9	Ventura	Tulare	Lassen	Los Angeles	Fresno
10	Riverside	Humboldt	Ventura	Santa Barbara	Tuolumne

The 1997-98 commercial take of bobcats increased in five of the geographic regions (Table 4). The Northeast region bobcat take increased from 221 (1996-97) to 307 (1997-98), but is still well below the management threshold quota of 425 animals

Table 4
Geographical Differences in the Commercial Bobcat Harvest in California
1994-95 to 1997-98

AREA	92-93	%	93-94	%	94-95	%	95-96	%	96-97	%	97-98
	TAKE	CHANGE	TAKE								
Northeast	111	12	124	90	236	-48	122	81	221	38.9	307
Northwest	180	4	187	40	261	-66	88	78	157	31.2	206
North Coast	40	55	62	-42	36	67	60	2	61	1.64	62
Central Coast	28	-79	6	67	10	-100	0	N/A	0	N/A	0
North Sierra	3	0	3	-100	0	N/A	0	N/A	5	-100	0
Central Sierra	10	0	10	320	42	-64	15	-13	13	23.1	16
East Sierra	28	-75	7	0	7	300	28	136	66	18.2	78
South Coast	205	-12	181	-1	180	-77	42	150	105	-5.7	99
South Sierra	188	18	221	19	264	-29	187	25	233	-11	208
Southern California	246	37	337	-16	283	-58	118	74	205	-7.8	189
TOTAL	1039	10	1138	16	1319	-50	660	62	1066	9.29	1165

The average price of a bobcat pelt dropped by about 88 percent in the two years prior to 1990-91. It dropped from an all time high of \$167.33 in 1986-87 to \$17.91 in 1989-90 (Table 5). During 1990-91, the pelt price increased to \$49.50. There was no national or international regulatory action pending which might have influenced the demand for bobcat furs. The market appeared saturated during 1989-90 and 1990-91. During 1991-92, the price increased to \$71.32, but in 1992-93 the price dropped again to \$43.92. In 1993-94, the average price paid for California bobcat pelts dropped to \$40.44. In 1994-95, the pelt price again dropped by 39 percent to \$24.72. In 1995-96, the average pelt price increased to \$33.66. In 1996-97, the price again dropped by 39 percent to \$24.72. In 1995-96, the average pelt price increased to \$33.66. In 1996-97 the price again increased to \$75.24. The 1997-98 pelt price was 31.11.

In the 1997-98 season, the average take per commercial trapper decreased to 9.0 animals as compared to 11.3 during 1996-97. The number of bobcat trappers increased from 91 to 91. In the last 12 years, the highest number of bobcat trappers was 664 in the 1987-88 season (Table 6).

Information on the extent and distribution of the hunting take of bobcats is gathered through the hunting tag program. Obtaining these tags and returning them to the Department upon taking bobcat are legal requirements of bobcat hunters. Four hundred and twenty-six were returned to the Department. The hunting take by county is shown in Table 2.

TABLE 5 Bobcat Pelt Prices 1972-73 to 1997-98		
Season	Average Price	Highest Price
1972-73	29.33	60.00
1973-74	45.00	110.00
1974-75	50.00	110.00
1975-76	133.50	300.00
1976-77	76.00	225.00
1977-78	105.00	185.00
1978-79	120.00	426.00
1979-80	114.20	313.00
1980-81	129.90	325.00
1981-82	114.53	325.00
1982-83	105.85	342.11
1983-84	102.33	380.00
1984-85	121.96	368.00
1985-86	107.86	Not available
1986-87	167.33	Not available
1987-88	142.73	Not available

1988-99	102.31	Not available
1989-90	17.91	Not available
1990-91	49.50	125.00
1991-92	71.32	74.15
1992-93	43.92	94.00
1993-94	40.44	70.20
1994-95	24.72	35.00
1995-96	33.66	37.61
1996-97	75.24	82.00
1997-98	31.11	32.10

County	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98
Butte													
Fresno	12.1	17.	15.3	16.1	17.4								
Glenn			10.7										
Humboldt	18.0	12.5	13	8.6	2.3								
Inyo	14.2	9.7	6.2										
Kern	14.7	13.0	14.2	9.1	11.7	16.9				11.1			
Lake		7.2	7.9										
Lassen	4.4	4.4	9.8	3.9	5.6					6.3			8.9
Los Angeles	14.9	15.6	11.1	12	14.4	5.9							
Madera			7.3										
Mariposa	7.2	10.1	19.9										
Mendocino	5.1	6.5	6.2	5.4									
Modoc	6.3	6.2	7.2	7.2	3					10.5			
Mono				6.5									
Monterey	17.8	21.4	24.8	14	16.1								
Plumas													
Riverside	10.1	9.8	12	8.7	16.5								
San Benito		14.2											
San Bernardino	14.6	14.6	13.3	12.3	14	5.2	5.5	16.5	14.6	11.7	8.1		6.8
San Diego	10.8	11.6	14	16.9	16.8								
San Luis Obispo	10.8	14.7	14.4	10.4	7.5								
Santa Barbara	16.1	13.9	13.9	11.7									
Shasta	4.8	4.7	4.9	6.3	4.9								
Siskiyou	5.6	5.9	9.9	6.5	5	2.5	6.8	9.1		14			10.9
Sonoma		6.8		9.3									
Tehama	3.8	3.9	5.8										
Trinity		8.5	5	2.2									
Tulare	14.5	12.3	17.1	8.5	6.2	6.7							
Tuolumne			5.2										
Ventura	12.6	18.4	16.6	9.9	16.1								
Statewide	12.71	14.75	13.55	12.61	12.06	7	6.19	10.71	13.67	8.61	10.1	11.3	9

# Trappers Harvesting	547	584	644	443	303	124	113	97	84	102	62	62	94
# Trappers Licensed	1417	1347	1460	1244	834	511	371	338	300	313	257	282	292

*County data from counties and years where more than 10trappers per county reported.

The commercial take of bobcats was primarily by trapping (69 percent) (Tables 7 and 8). 39 Percent of bobcats were taken by the use of dogs. One percent were taken through the use of a predator call. Predator calling is used occasionally as a hunting method by persons holding a commercial trapper's license.

COUNTY	METHOD					
	CALLING	DOGS	HUNTING	MISC	TRAPPING	SAMPLE SIZE
Alpine					3	3
Amador		1				1
Calaveras		5				5
Colusa		4			36	40
El Dorado		5				5
Fresno					42	42
Glenn		10			3	13
Humboldt		28			40	68
Inyo					54	54
Kern		20	23		57	100
Lake					5	5
Lassen		40		2	47	89
Los Angeles					95	95
Madera					1	1
Mariposa					3	3
Mendocino		10			11	21
Modoc	11	28			81	120
Mono			1		20	21
Monterey					15	15
Riverside					12	12
San Bernardino			17		65	82
San Diego					15	15
San Luis Obispo			4		8	12
Santa Barbara					42	42
Shasta		5	3		5	13
Siskiyou	1	60	7		95	163

Sonoma					4	4
Tehama					13	13
Trinity		18			8	26
Tulare		61			4	65
Tuolumne					2	2
Ventura					15	15
TOTAL	12	295	55	2	801	1165
PERCENTAGE	1	25	5	-	69	100

TABLE 8 Method of Commercial Take of Bobcats 1981-82 to 1997-98							
SEASON	Method of Take (percent of total statewide take)						
	Trap	Dogs	Calling	Other Hunt	Misc.	Unknown	Total %
1981-82	86.2	9.5	1.3	1.8	0.3	0.9	100%
1982-83	86.7	10.4	0.9	1.4	0.2	0.4	100%
1983-84	89.0	9.3	0.4	1.1	0.2	< 0.1	100.0
1984-85	82.8	13.5	0.7	1.7	0.3	1.0	100.0
1985-86	85.1	13.2	0.6	0.7	0.1	0.3	100.0
1986-87	83.4	10.6	0.8	0.8	0.1	4.2	99.9
1987-88	88.5	9.6	1.1	0.6	0.1	0.1	100.0
1988-89	85.5	11.8	0.9	0.4	0.1	1.4	100.1
1989-90	89.9	7.8	0.7	1.6	-	-	100.0
1990-91	83.7	13.2	2.4	0.5	0.2	-	100.0
1991-92	77.2	19.8	1.2	1.7	0.1	-	100.0
1992-93	75.6	19.2	0.6	4.5	0.1	-	100.0
1993-94	87.8	9.8	1.7	0.5	0.2	-	100.0
1994-95	78.7	15.5	2.9	2.7	0.2	-	100.0
1995-96	81.1	14.0	4.9	0	0	-	100.0
1996-97	73.5	16.6	8.9	0.6	0.3	0.1	100.0
1997-98	69.0	25.0	1.0	5.0	0	0	100.0

DISCUSSION

The total bobcat harvest decreased in the 1997-98 season from 1996-97. The number of bobcat trappers decreased from 94 to 91. Pelt prices decreased about 61 percent.

Since the 1982-83 season, the harvest has remained below the 14,400 statewide harvest limit. Harvest monitoring will continue. If the statewide harvest reaches 14,400 bobcats, the age and sex structure monitoring will be reinstated.

The bobcat take in northeastern California has been monitored annually since 1980-81, based on the need to document and monitor the age and sex structures of this population. If the commercial harvest in this local area increases to more the 425 for more than two successive seasons, additional management action will be taken to determine the effects on that population. The harvest has been below this level for the last ten seasons (Table 9).

TABLE 9 Recent Commercial Harvest of Bobcats in Northeastern California					
Season	County				Total Northeastern California
	Eastern Siskiyou	Modoc	Lassen	Plumas	
1978-79	81	306	246	47	680
1979-80	88	216	302	95	701
1980-81	82	126	96	39	343
1981-82	49	143	147	58	397
1982-83	74	238	177	35	524
1983-84	45	182	84	17	328
1984-85	54	231	188	33	506
1985-86	78	181	108	23	390
1986-87	78	237	139	60	514
1987-88	148	223	187	43	601
1988-89	60	107	85	30	282
1989-90	36	62	85	47	230
1990-91	22	30	29	9	90
1991-92	25	39	24	0	88
1992-93	40	47	24	0	111
1993-94	30	57	22	15	124
1994-95	56	116	63	1	236
1995-96	36	53	21	12	122
1996-97	88	78	43	12	221
1997-98	98	120	89	0	307

RECOMMENDATION

Continue to monitor the take of bobcats by geographical area, and use that information to determine the management needed to maintain viable bobcat populations throughout California.