

MICHIGAN DEPARTMENT OF CONSERVATION  
Game Division

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Small Game Kill Estimates, 1961

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Small game harvests in 1961\* showed the usual ups and downs. Compared with the 1960 season, hunter take improved on ruffed grouse, woodcock, raccoon, and coots, while the harvest declined for pheasants, cottontail rabbits, snowshoe hares, squirrels, ducks, and geese. The number of small game hunters was some 20,000 under the 1960 total.

These small game harvest estimates are derived from mail surveys of small game license purchasers. Comparative data from the 1956 to 1960 seasons are included, and the graphs on pages 6 to 8 show the long-term trends in kill of each species. The estimates prior to 1954 were obtained from a voluntary reporting system (The "Hunter's Report Card") and differ considerably from the mail survey figures in some cases. Estimates from both sources are available for the 1954 to 1956 hunting seasons, which permits comparison of the two sources for those years (see page 5).

The mail survey is based on a systematic sampling of duplicate copies of all small game license files. Both resident and non-resident hunters are included. Basic information on the surveys is:

	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
Cards sent	4,503	4,105	4,294	3,977	4,021	3,725
Cards returned	4,086	3,614	3,918	3,601	3,668	3,375
Non-deliverable	156	154	128	122	110	99
Non-response	261	337	248	254	243	251
Per cent return of delivered cards	94.0%	91.5%	94.0%	93.4%	93.8%	93.1%
<u>License sales and hunters</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
Resident small game license sales	750,006	685,086	695,247	632,082	642,930	619,000
Non-resident small game license sales	<u>8,080</u>	<u>5,986</u>	<u>5,463</u>	<u>4,989</u>	<u>5,059</u>	<u>4,630</u>
Total small game license sales	758,086	691,072	700,710	637,071	647,989	623,630**
Per cent of licensees who did no hunting	8.22%	6.22%	7.58%	7.41%	6.79%	6.37%
Estimated total hunters	695,770	648,090	647,600	589,860	603,990	583,900

\* Cottontail rabbit and snowshoe hare data listed by "year" include any extension of season into the following year.

\*\*Based on current estimates; minor changes may be necessary when final figures are available (in July).

Kill and Hunting Pressure Estimates - 1961 Season

Species	Kill	Hunters	Hunter-Days*	Kill per Hunter	Days Hunted* per Hunter
Pheasants	846,470	453,260	2,085,180	1.87	4.60
Ruffed Grouse	469,160	141,080	797,370	3.33	5.65
Ducks	259,980	66,162	391,460	3.93	5.92
Geese	19,956	31,683	183,280	.63	5.78
Coots	31,412	7,268	44,971	4.32	6.19
Woodcock	102,920	54,230	261,100	1.90	4.81
Cottontails	1,159,860	332,860	2,478,090	3.48	7.44
Snowshoe Hares	235,410	62,060	485,010	3.79	7.81
Squirrels	679,800	218,430	1,064,520	3.11	4.87
Raccoon	201,590	34,850	203,940	5.78	5.85

\* These figures are really "hunts." Many hunters no doubt hunted two or more species at the same time.

## 1956-1961 SMALL GAME SEASONS

The following tables show estimates by zones.

NUMBER KILLED

	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
<b>Pheasants</b>						
Zone 1	*	*	*	*	*	*
Zone 2	101,310	104,380	101,520	60,000	58,190	56,640
Zone 3	1,020,990	1,151,460	1,079,460	852,990	914,710	788,170
Total	1,125,680	1,257,570	1,181,340	914,600	974,490	846,470
<b>Ruffed Grouse</b>						
Zone 1	177,050	202,530	185,850	200,530	131,320	200,190
Zone 2	95,740	119,670	150,200	138,740	194,330	202,190
Zone 3	27,350	30,260	32,210	40,000	54,870	66,770
Total	300,140	352,460	368,260	379,270	380,520	469,150
<b>Ducks</b>						
Zone 1	50,940	55,810	102,430	58,030	55,750	41,210
Zone 2	107,130	87,860	107,490	71,070	92,210	60,830
Zone 3	334,180	399,930	243,940	197,850	234,330	157,940
Total	492,250	543,600	453,860	326,950	382,290	259,980
<b>Geese</b>						
Zone 1	2,060	2,690	10,390	5,530	1,240	4,250
Zone 2	1,870	2,890	2,010	2,680	3,540	3,180
Zone 3	9,930	13,480	12,210	16,250	16,460	12,530
Total	13,860	19,060	24,610	24,460	21,240	19,960
<b>Coots</b>						
Zone 1		3,330	9,230	6,970	6,020	9,050
Zone 2		5,630	12,850	2,140	6,550	4,990
Zone 3		26,070	26,780	13,390	12,030	17,370
Total		35,030	48,860	22,500	24,600	31,410
<b>Woodcock</b>						
Zone 1	9,170	9,050	7,530	8,570	10,620	14,410
Zone 2	17,040	36,960	36,540	33,390	50,790	48,520
Zone 3	14,420	21,750	18,360	22,500	22,480	39,990
Total	40,630	67,760	62,430	64,460	83,890	102,920
<b>Cottontails</b>						
Zone 1	34,350	38,750	29,520	34,290	28,220	36,090
Zone 2	238,930	218,030	250,280	151,600	161,690	133,250
Zone 3	1,213,780	1,328,220	1,187,110	812,990	1,001,570	990,520
Total	1,487,060	1,585,000	1,466,910	998,880	1,191,480	1,159,860
<b>Snowshoe Hares</b>						
Zone 1	144,950	162,630	211,370	251,410	178,400	151,150
Zone 2	126,850	115,120	91,750	99,640	100,180	81,490
Zone 3	11,120	5,990	9,950	9,110	16,810	2,770
Total	282,920	283,740	313,070	360,160	295,390	235,410
<b>Squirrels</b>						
Zone 1	10,700	2,720	9,960	17,870	14,040	25,740
Zone 2	181,120	181,890	246,280	135,810	163,970	155,740
Zone 3	740,440	582,680	760,420	537,710	583,040	498,320
Total	932,260	767,290	1,016,660	691,390	761,050	679,800
<b>Raccoon</b>						
Zone 1	560	190	2,910	1,250	1,410	560
Zone 2	52,520	42,540	77,420	51,070	50,440	35,920
Zone 3	155,880	136,480	131,400	118,210	145,310	165,110
Total	208,960	179,210	211,730	170,530	197,160	201,590

\* Too few pheasants are killed in the Upper Peninsula for reliable estimates by this method. Upper Peninsula reports are used in obtaining total kill but are not shown here.

The following tables show estimates by zones.

## NUMBER OF HUNTERS

	1956	1957	1958	1959	1960	1961
<b>Pheasants</b>						
Zone 1	*	*	*	*	*	*
Zone 2	47,000	41,450	42,710	33,580	36,720	33,440
Zone 3	500,110	470,580	484,620	418,710	430,170	416,450
Total	549,550	513,960	528,780	454,080	469,370	453,260
<b>Ruffed Grouse</b>						
Zone 1	37,830	38,170	38,730	37,320	36,330	39,560
Zone 2	54,770	62,000	58,450	64,290	73,540	71,790
Zone 3	15,810	18,410	18,280	20,710	26,760	29,730
Total	108,410	118,580	115,460	122,320	136,630	141,080
<b>Ducks</b>						
Zone 1	10,340	11,220	11,600	9,290	9,910	7,270
Zone 2	27,840	25,530	24,470	16,960	19,820	14,020
Zone 3	88,770	86,450	70,520	52,850	57,700	44,870
Total	126,950	123,200	106,590	79,100	87,430	66,160
<b>Geese</b>						
Zone 1	5,320	4,860	6,880	4,640	4,600	3,730
Zone 2	4,180	5,250	5,070	5,360	7,430	5,630
Zone 3	28,140	27,040	25,510	26,070	32,570	22,320
Total	37,640	37,150	37,460	36,070	44,600	31,680
<b>Coots</b>						
Zone 1		980	1,990	540	1,060	750
Zone 2		2,160	2,350	1,790	2,830	2,610
Zone 3		7,640	8,510	5,710	6,020	3,910
Total		10,780	12,850	8,040	9,910	7,270
<b>Woodcock</b>						
Zone 1	4,520	3,850	6,010	5,000	5,840	6,340
Zone 2	13,000	17,520	13,100	21,610	25,840	23,570
Zone 3	13,000	13,090	11,650	15,890	16,990	24,320
Total	30,520	34,460	30,760	42,500	48,670	54,230
<b>Cottontails</b>						
Zone 1	11,120	11,030	11,050	11,430	12,070	13,810
Zone 2	58,250	56,510	55,070	48,750	49,530	45,180
Zone 3	317,280	323,990	304,500	258,550	286,360	273,870
Total	386,650	391,530	370,620	318,730	347,960	332,860
<b>Snowshoe Hares</b>						
Zone 1	24,220	28,640	28,590	29,820	28,030	26,090
Zone 2	41,060	41,980	30,770	40,180	38,500	29,450
Zone 3	6,060	4,640	7,960	8,750	10,110	6,520
Total	71,340	75,260	67,320	78,750	76,640	62,060
<b>Squirrels</b>						
Zone 1	3,200	1,160	4,340	2,320	4,080	4,670
Zone 2	38,190	53,120	61,960	33,780	37,640	38,830
Zone 3	203,150	178,640	201,530	173,710	187,660	174,930
Total	244,540	232,920	267,830	209,810	229,380	218,430
<b>Raccoon</b>						
Zone 1	1,130	190	910	890	530	750
Zone 2	10,960	11,420	13,880	9,110	9,960	8,430
Zone 3	31,160	26,310	26,290	26,070	28,620	25,670
Total	43,250	37,920	41,080	36,070	39,110	34,850

\* Too few pheasants are killed in the Upper Peninsula for reliable estimates by this method. Upper Peninsula reports are used in obtaining total hunters but are not shown here.

ESTIMATES OF MICHIGAN SMALL GAME HARVEST, 1937-1961

Estimates of small game harvests of nine species are shown on the attached graphs for the years 1937 to 1961. Estimates for years prior to 1954 were dependent upon the voluntary return of report forms ("stubs") attached to the hunting license. In the first years of use, a high percentage of hunters returned these forms, but by 1954 the return of forms had dropped to about 5 per cent and a new report system was instituted. Hunting license files were sampled, and about 4,000 hunters were contacted by mail each year from 1954 on.

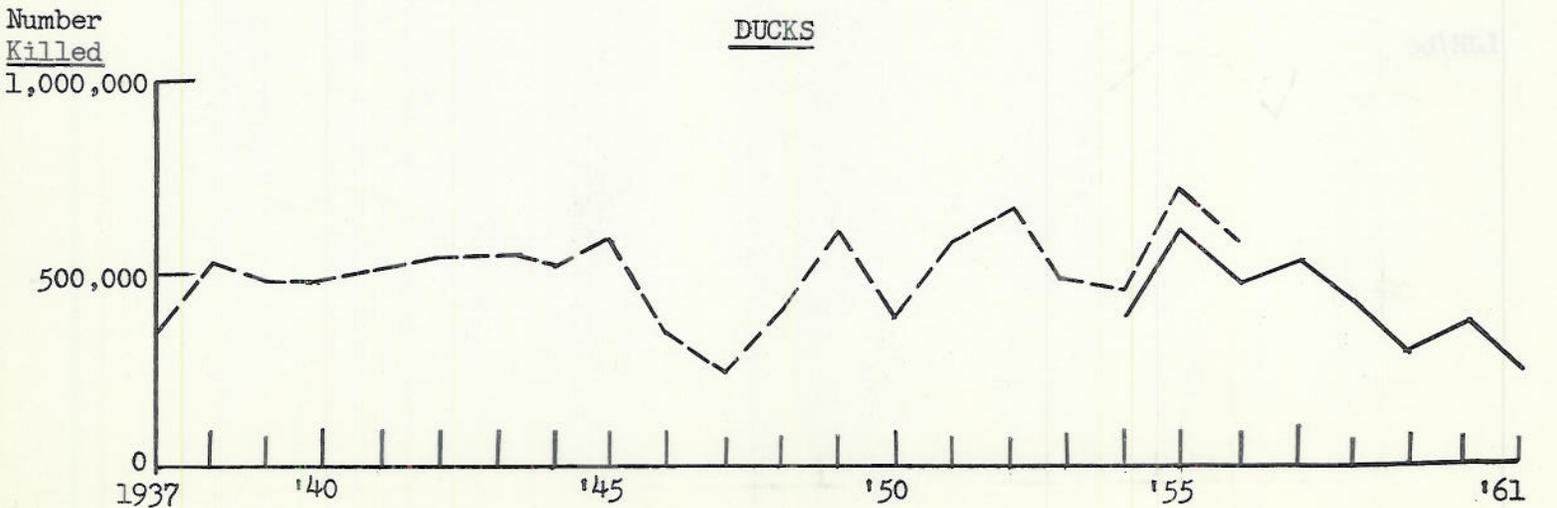
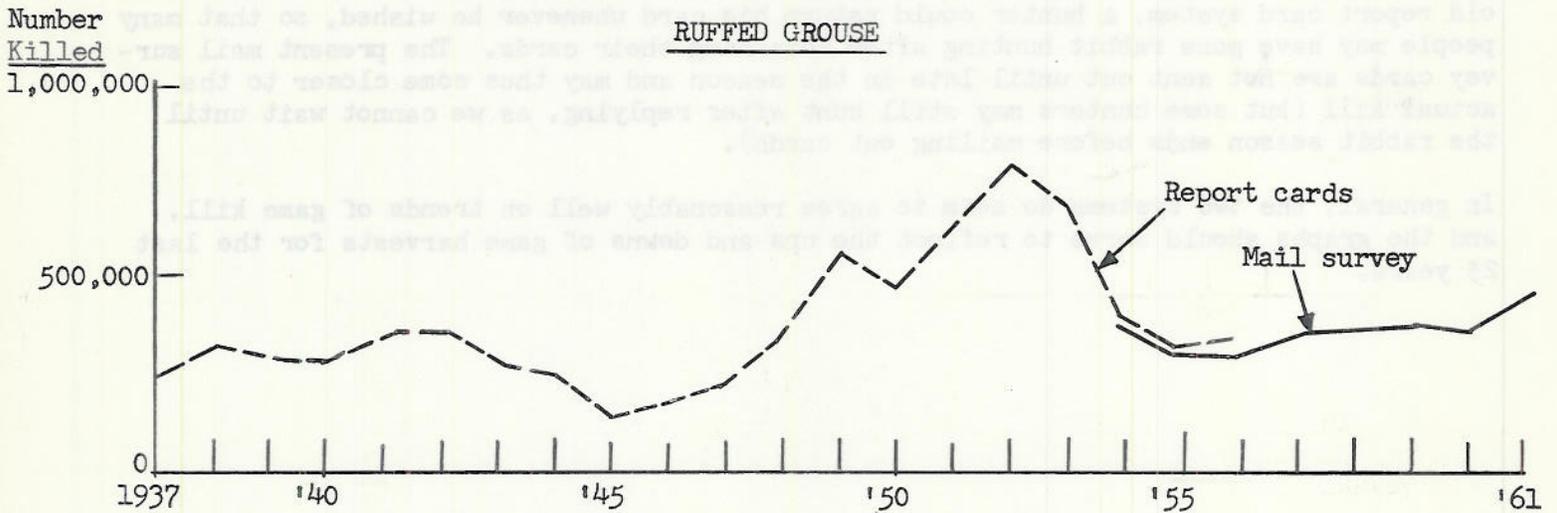
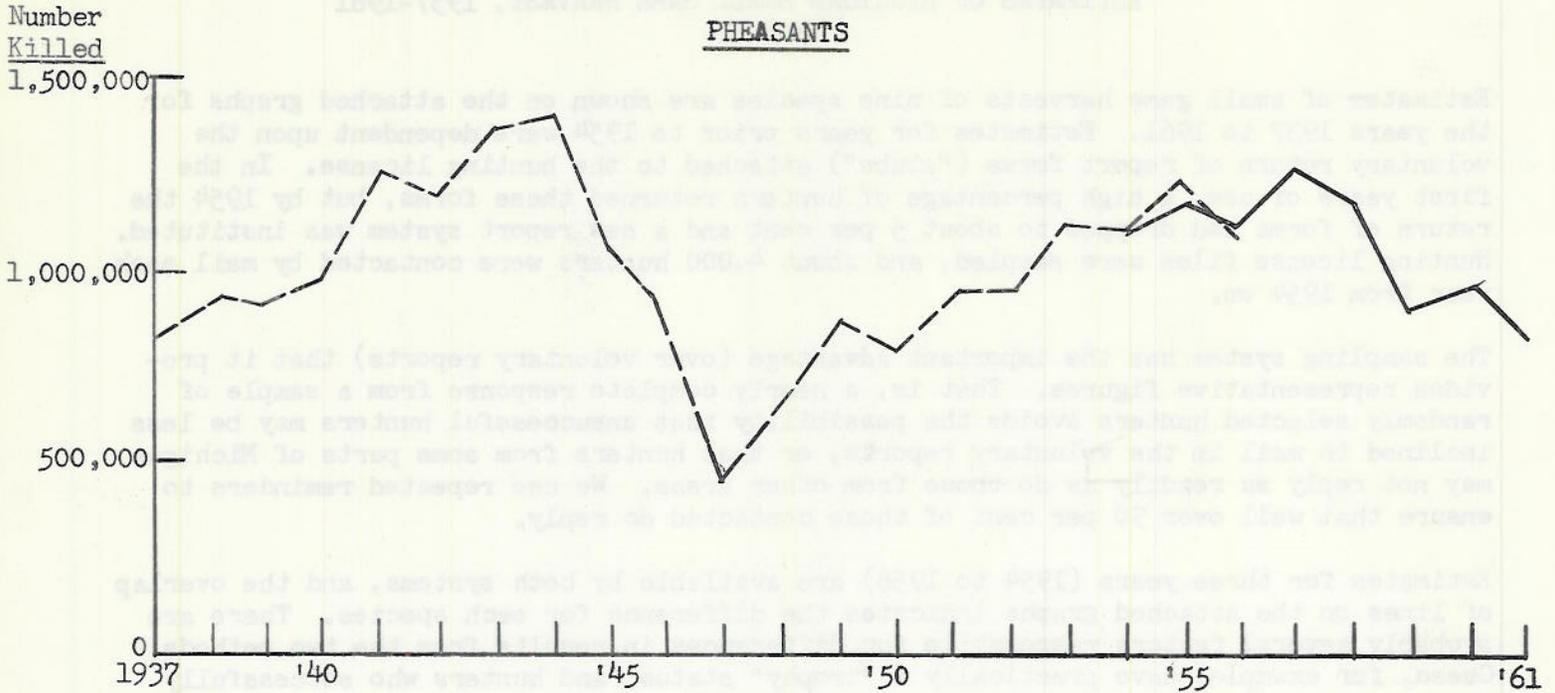
The sampling system has the important advantage (over voluntary reports) that it provides representative figures. That is, a nearly complete response from a sample of randomly selected hunters avoids the possibility that unsuccessful hunters may be less inclined to mail in the voluntary reports, or that hunters from some parts of Michigan may not reply as readily as do those from other areas. We use repeated reminders to ensure that well over 90 per cent of those contacted do reply.

Estimates for three years (1954 to 1956) are available by both systems, and the overlap of lines on the attached graphs indicates the difference for each species. There are probably several factors responsible for differences in results from the two methods. Geese, for example, have practically a "trophy" status, and hunters who successfully bag geese may thus be more inclined to report their success than the average individual. Another possible influence is the long season on snowshoes and cottontails. Under the old report card system, a hunter could return his card whenever he wished, so that many people may have gone rabbit hunting after returning their cards. The present mail survey cards are not sent out until late in the season and may thus come closer to the actual kill (but some hunters may still hunt after replying, as we cannot wait until the rabbit season ends before mailing out cards).

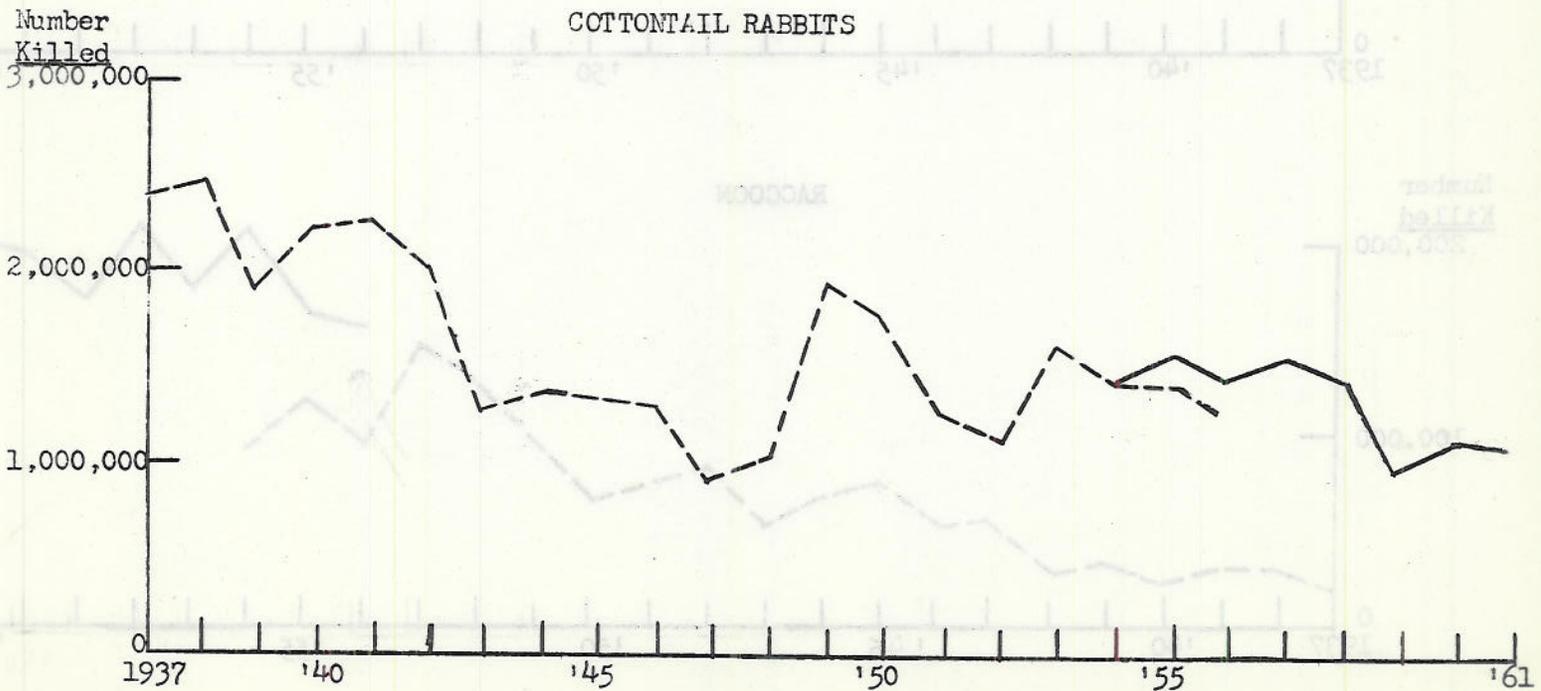
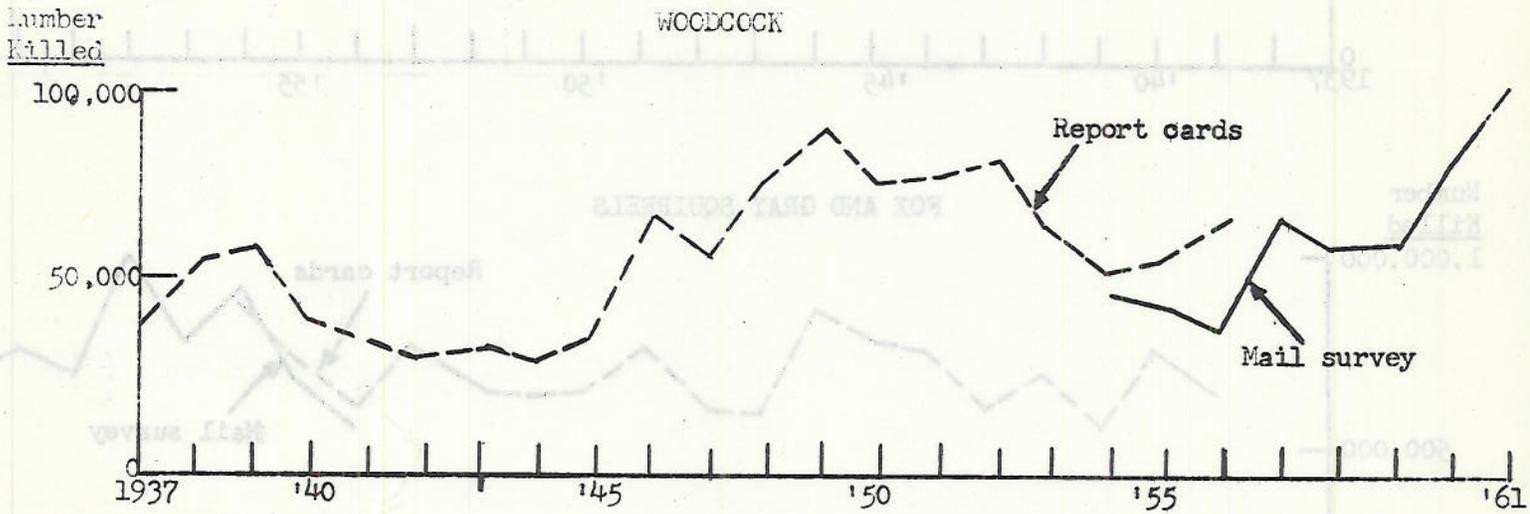
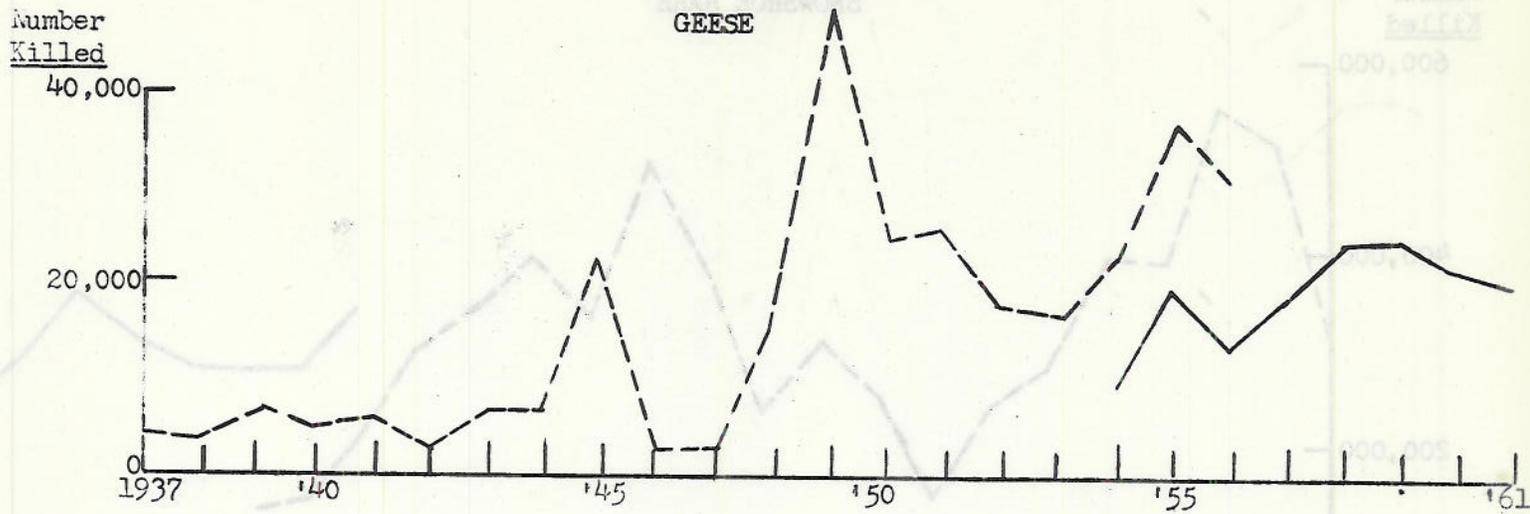
In general, the two systems do seem to agree reasonably well on trends of game kill, and the graphs should serve to reflect the ups and downs of game harvests for the last 25 years.

LJH/bc

## ESTIMATES OF MICHIGAN GAME HARVEST



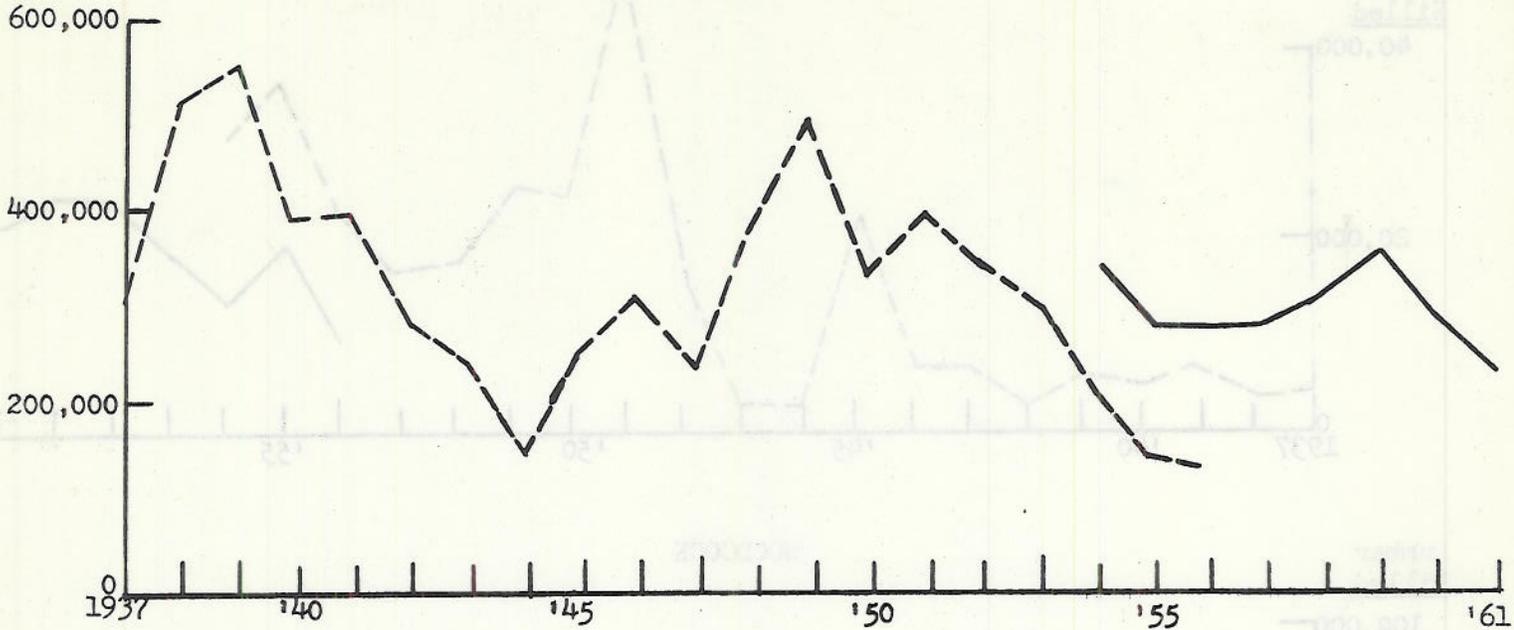
ESTIMATES OF MICHIGAN GAME HARVEST



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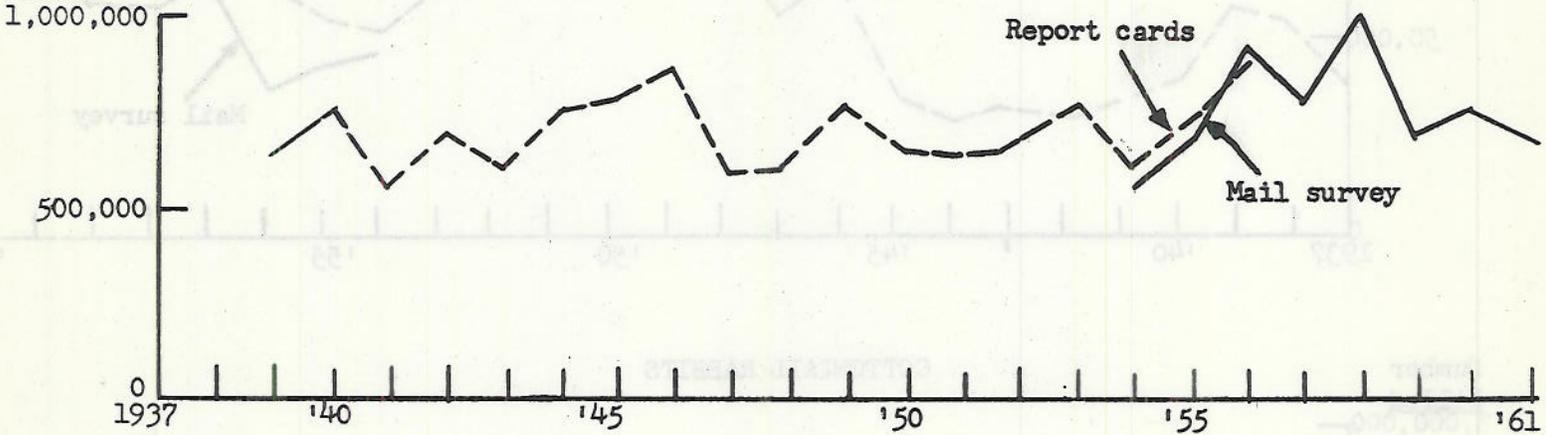
Number  
Killed

SNOWSHOE HARE



Number  
Killed

FOX AND GRAY SQUIRRELS



Number  
Killed

RACCOON

