DEER IN IOWA
1972

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Deer in Iowa
1972

by
Lee Gladfelter
Wildlife Biologist

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INTRODUCTION

This bulletin contains the data collected on white-tailed deer in Iowa during 1972 and a discussion on the outlook of the deer population for 1973. Data collection and recording is an important factor in managing any wildlife species. This report compiles the numerous bits of data into one text for reference now and for comparison in future years. Deer surveys conducted during 1972 include: miscellaneous mortality, results of the 1972 hunting seasons, age composition of the herd, and the 1973 winter population estimate. The results of these surveys form the basis for determination of the hunting season, which is the principle management tool for deer in Iowa.

MISCELLANEOUS MORTALITY

A report of annual deer mortality, other than by legal hunting, is a useful factor in determining the status of the Iowa deer herd. Results of this report are used to indicate a trend in the growth or decline of the deer population. The major cause of reported miscellaneous deer mortality is deer-vehicle collisions, but other forms of mortality are reported, such as illegal kill, disease, crippling loss, predation (mainly by dogs) and accidents. Conservation Officers are asked to submit a quarterly report on each miscellaneous deer kill in their respective territories. Reports on traffic accidents are detailed and include sex of animal killed, amount of damage to vehicle, type of road on which the accident occurred, and whether the accident took place at a marked deer crossing. This information is compiled to provide a better understanding of the type and extent of miscellaneous deer mortality in the state.

Miscellaneous mortality for 1972 totaled 2932 deer as compared to 2008 in 1971. Traffic accidents accounted for most of this total with 2623 killed in 1972, compared to 1799 in 1971. This represents a 45% increase over 1971 and is much higher than the 14% annual increase in traffic mortality since 1952. Part of this increase may be due to a new reporting system started in 1972 that required the mailing of a quarterly kill report instead of an individual report on each deer kill. Many of these individual kill reports could have been lost in the mail in past years.

To evaluate the results of miscellaneous kill over the past 12 years the data has been expanded to the number of deer killed per 100,000 vehicle miles driven on all Iowa roads except urban roads, (Figure 1). This presentation allows for increases in road traffic each year and thereby gives a better idea of population trends that may be established from traffic kill data. For example, in 1970 and 1971 the road kill increased but the deer killed per 100,000 miles actually decreased. This would indicate a downward trend in the population even though more deer were killed. The upward trend in 1972 indicates a possible upward trend in the population but several more years of data using the new reporting system will be necessary before any conclusions can be made.

The county with the highest number of deer-vehicle collisions in 1972 was Polk County with 139 deer killed. Lee County was second with 94 killed, while third high was Pottawattamie with 73. A compilation of miscellaneous mortality by county can be found in the Appendix.

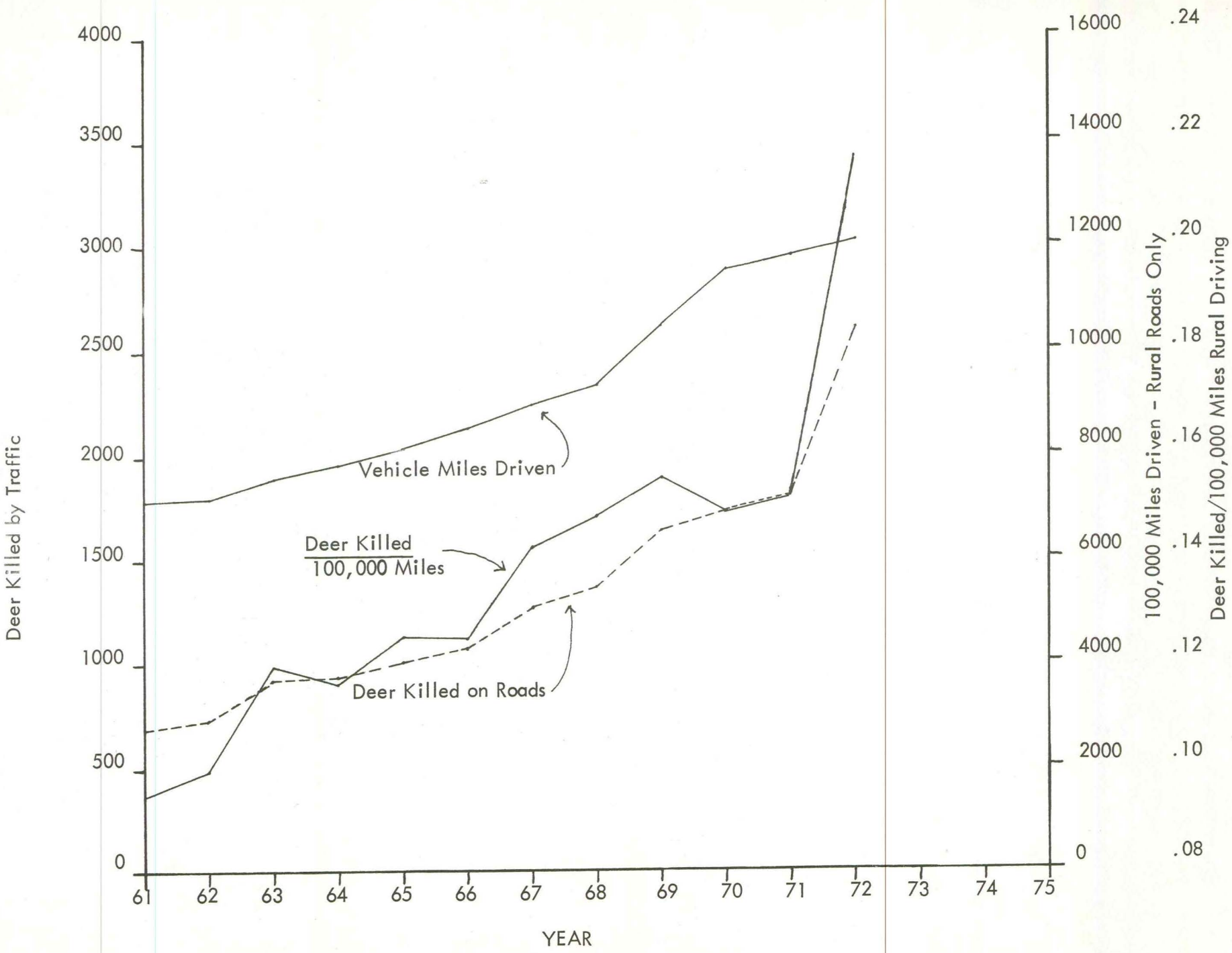


Figure 1. Relationship of Traffic Deer Killed to Number of Vehicle Miles

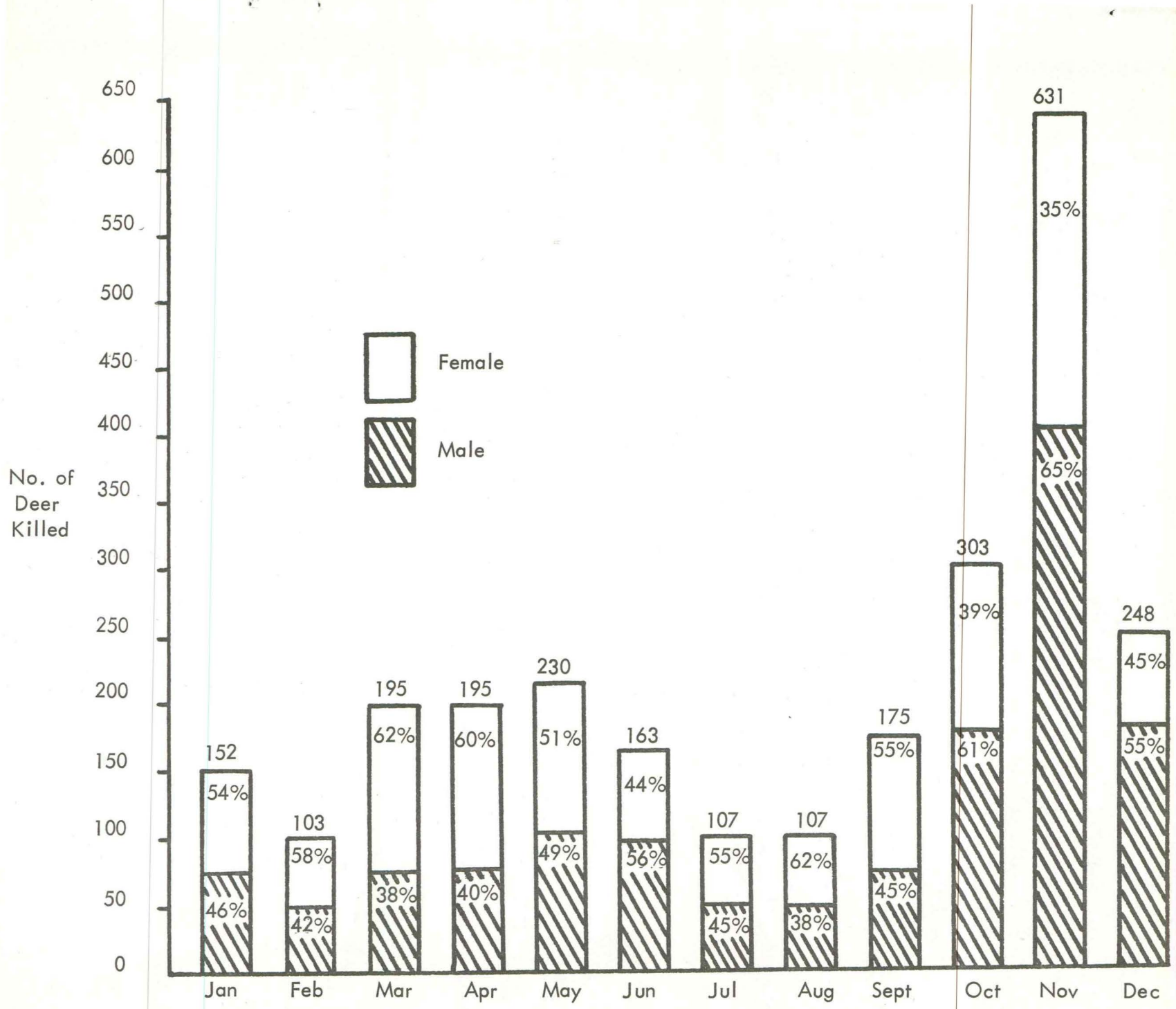


Figure 2. 1972 Traffic mortality by month and sex ratio of kill.

The major peak of traffic kill takes place during the rutting season in October, November, and December (Figure 2). Males make up the majority of the kill during these three months because of the intensified movement of deer. Another smaller peak in traffic kill occurs in May when younger animals are moving in search of new territories. Most deer are killed during the early evening and early morning hours which again corresponds to peaks in deer activity.

Estimated damages resulting from deer-vehicle collisions in 1972 totaled $211,000.00 for an average of $80.00 per accident. This is a minimum figure since damages were not reported for many of the accidents.

HUNTING SEASON RESULTS

In 1972 an experimental modified antlered deer only season was allowed in hunting zones 3 and 5 (Figure 3). This season was open on December 2-5 while hunting in the remaining zones was open December 2-3. One objective of the modified antlered deer only season was to improve the quality of deer hunting by allowing more time to hunt and requiring that adult bucks be the fair game for most hunters. Also the license quota was increased in these areas to allow more hours of recreation. Another objective of the season was to stabilize or increase slightly the deer herd. Licenses in zones 3 and 5 were issued on a ratio of 3 antlered deer to 1 any-sex with recipients being determined by a random drawing. The same procedure and ratio for antlered deer licenses was required for the free landowner-tenant licenses issued in zones 3 and 5. Hours of hunting for shotgun hunters were from 8:00 a.m. to 4:30 p.m. The archery season was opened statewide from October 7 to November 26 with hours of hunting from one-half hour before sunrise to one-half hour after sunset. All deer hunters were required to return a hunter report card to the Conservation Commission following the hunting season. The information submitted in this section is a result of computer analysis of the hunter report cards.

Card Returns

There were 19,000 paid shotgun, 11,205 landowner-tenant, and 6,916 bow and arrow licenses issued for the 1972 hunting season. Of these, 97% of the shotgun hunters, 96% of the landowner-tenants, and 90% of the bow hunters returned the hunter report cards (Table 1). Data in this report concerning number of hunters, number of deer harvested, hunting success, and days and hours hunted has been corrected to account for those individuals who did not return their report card. This correction factor was computed from a sample of reminder cards sent to those individuals who failed to return their original report card.

Hunting Success

The total harvest for 1972 was 11,813 deer, which was slightly higher than the 11,691 harvested in 1971. Hunting conditions were not the best during the 1972 season, with a lack of snow cover and a very late corn harvest which left about 60% of the corn still standing on December 2. There were, however, more hunters in the field in 1972 than in 1971 in all hunting categories. The license quota for paid shotgun hunters was increased by 1,000 due to the antlered deer only season in zones 3 and 5. The paid shotgun hunters harvested 7,747 deer which is slightly lower than in 1971, while landowner-tenants harvested 2,738 deer which was higher than 1971. Hunting success was about average with paid shotgun hunters

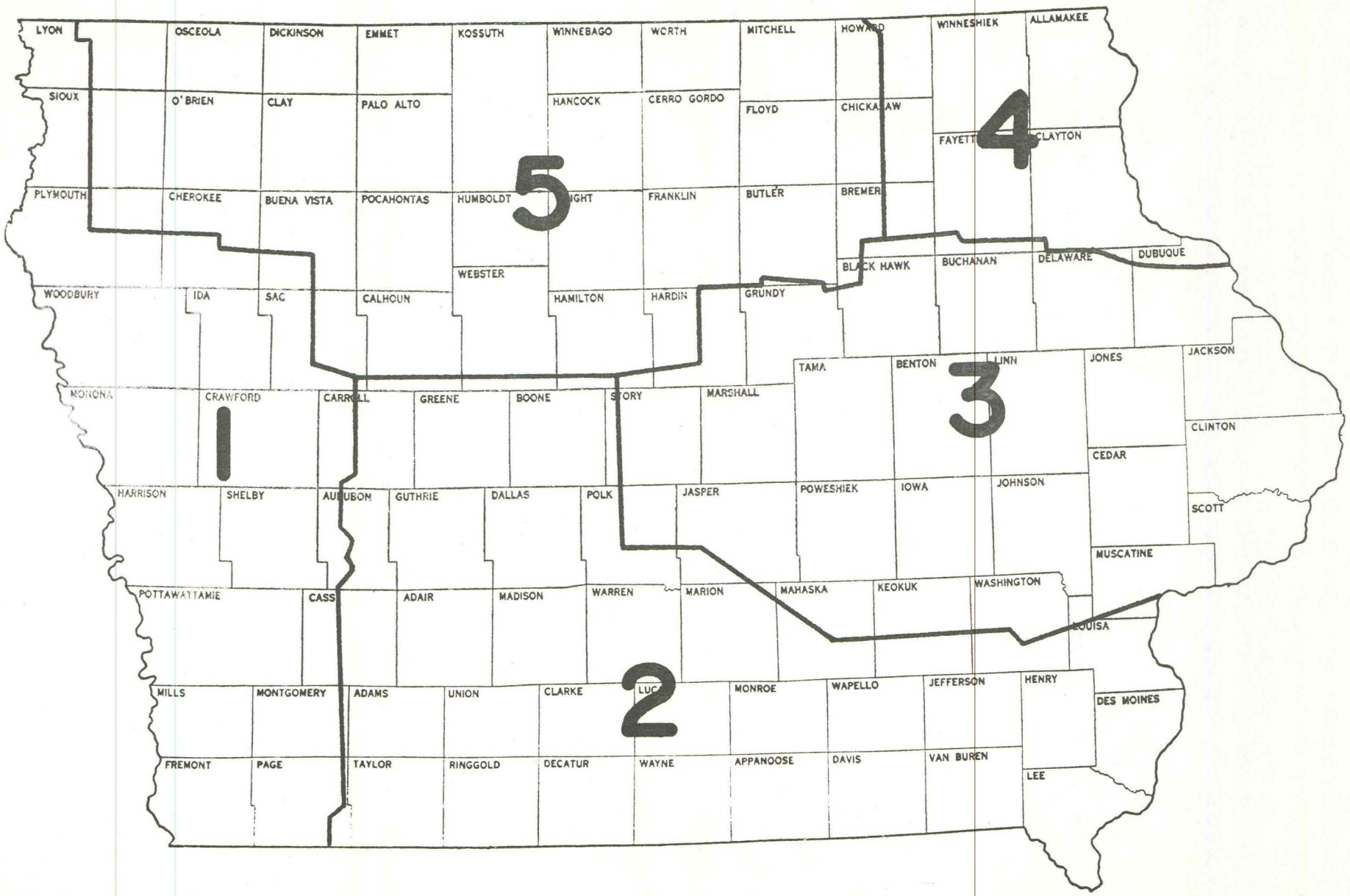


Figure 3. Hunting zones for the 1972 Iowa deer season.

Table 1. Deer hunting licenses issued and report cards returned in 1972.

	Shotgun	Landowner-tenant	Bow and Arrow
Number of licenses issued	19,000	11,205	6,916
Number of hunters*	18,014	8,875	6,478
Number who did not hunt*	986	2,330	438
Percent of licensees who hunted*	95%	79%	94%
Number of reply cards returned	18,420	10,688	6,341
Percent of cards returned	97%	96%	90%

*Corrected for non-reporting hunters.

recording a 44% success in the any-sex zones and landowners obtaining a 34% success. Paid shotgun hunters in the modified antlered deer only zones reported a success of 30% for the bucks only hunters and 63% for the any-sex licenses. The high any-sex license success ratio is due to party hunting. The landowner hunters in the same zones recorded a 39% success for any-sex licenses and a 20% success for bucks only hunters.

The number of deer harvested and success rates for shotgun hunters in each zone is presented in Table 2. Information on the 1972 harvest by county is presented in the Appendix. Deer were harvested in every county of the state except Grundy with high honors again going to Allamakee with 503 deer harvested. A compilation of past hunting season as compared to the 1972 season is presented in Tables 3 and 4.

The bow and arrow hunters harvested 1,328 deer for a record high harvest. The sport of bow hunting in Iowa continues to grow with new highs in number of licenses issued and deer harvested being set each year. Also a new record success rate was set this year with 20.5% of the bow hunters connecting.

Sex Ratio Reported by Hunters

Hunters were asked to report sex of deer harvested during the 1972 season. Hunters reported taking a higher percentage of bucks than does in the any-sex hunting zones (1, 2, and 4). Paid shotgun hunters reported 56% of the harvest was bucks while landowner-tenants reported 60% bucks. As expected, the any-sex hunters in the modified antlered deer only zones (3 and 5) reported more does in the harvest. Paid shotgun hunters in these two zones reported that 64% of their harvest was does while the landowners-tenants reported 55% does. Bow hunters were more selective towards bucks reporting a 66% buck harvest on a statewide basis.

Table 2. The 1972 Iowa deer harvest by zones as compared to 1971.

Zones	*No. Harvested by Paid Shotgun Hunters 1971	1972	% Success (1972 Shotgun)	*No. Harvested by Landowner-tenants 1971	1972	% Success (1972 Landowner-Tenants)
1	1,687	1,494	35.9%	259	187	23.6%
2	3,630	3,896	48.2%	1,340	1,297	36.5%
3-Any sex	894	355	58.6%	442	256	39.2%
Bucks only	-----	465	26.7%	---	216	20.0%
4	1,012	923	47.0%	354	352	32.7%
5-Any sex	556	255	69.1%	285	174	39.1%
Bucks only	-----	358	34.1%	---	147	21.1%
Unknown	0	1	------	0	109	-----
Total	7,779	7,747		2,680	2,738	

*Corrected for non-reporting hunters.

Table 3. Comparison of statewide results of 20 years of shotgun seasons on the deer in Iowa.

Year	Season Length in Days	Licenses Issued Shotgun	*Landowner	No. Deer Harvested Shotgun	Landowner	Total Gun Harvest	Percent Success Shotgun	*Landower
1953	5	3,772	-------	2,401	1,606	4,007	61.1	-----
1954	3	3,788	-------	2,414	568	2,982	63.7	-----
1955	3	5,586	-------	2,438	568	3,006	43.6	-----
1956	2	5,440	-------	2,000	561	2,561	39.2	-----
1957	2	5,997	-------	2,187	480	2,667	36.8	-----
1958	2	6,000	-------	2,141	588	2,729	38.4	-----
1959	2	5,999	-------	1,935	541	2,476	33.1	-----
1960	3	7,000	-------	3,188	804	3,992	45.9	-----
1961	3	8,000	-------	4,033	964	4,997	51.6	-----
1962	3	10,001	-------	4,281	1,018	5,299	43.5	-----
1963	2,3	12,001	-------	5,595	1,018	6,613	48.0	-----
1964	2,4	15,993	-------	7,274	1,750	9,024	47.1	-----
1965	2,4	17,491	-------	6,588	1,322	7,910	39.3	-----
1966	2,4	20,811	-------	9,070	1,672	10,742	45.2	-----
1967	2,3	20,812	21,121	7,628	2,764	10,392	38.7	19.0
1968	2,3	20,485	24,796	9,052	3,890	12,941	47.5	21.4
1969	2,3	18,000	23,476	6,952	2,779	10,731	40.6	21.2
1970	2,3	18,000	21,697	8,398	4,345	12,743	48.6	25.9
1971	2	18,000	10,522	7,779	2,680	10,459	45.3	30.7
1972	2,4	19,000	11,205	7,741	2,738	10,485	**44.4	**33.8

*These data collected since 1967 when landowner-tenants were required to obtain a free permit.
** Percent success calculated for any-sex zones 1, 2, and 4 only for comparison purposes.

Table 4. Comparison of statewide results of 20 years of archery seasons on the deer in Iowa.

Year	Season Length in days	Licenses Issued	No. of Deer Killed	Percent Success
1953	5	10	1	10.0
1954	12	92	10	10.9
1955	21	414	58	14.0
1956	31	1,284	117	9.9
1957	31	1,227	138	11.4
1958	30	1,380	162	12.4
1959	31	1,627	255	16.2
1960	44	1,772	277	16.0
1961	48	2,190	367	17.1
1962	51	2,404	404	16.9
1963	51	2,858	538	19.3
1964	51	3,687	670	18.8
1965	51	4,342	710	17.0
1966	51	4,576	579	13.3
1967	62	4,413	791	19.1
1968	62	5,136	830	17.0
1969	62	5,465	851	16.5
1970	62	5,930	1,037	18.3
1971	51	6,789	1,232	19.2
1972	51	6,916	1,328	20.5

Hunting Effort

Deer hunters spent a total of 623,033 hours in the field during 135,509 days of hunting. Paid shotgun hunters in zones 1, 2 and 4 (2 day season) averaged 12 hours each in the field for the season as compared to 17 hours each for hunters in zones 3 and 5 (4 day season). Landowner-tenants also followed the same trend and took advantage of the longer season even though weekdays were involved. Bow hunters averaged 49 hours in the field during the season. Paid shotgun hunters required an average of 27 hours to harvest a deer as compared to 22 hours for landowner-tenants and 238 hours for archers (Table 5).

Table 5. Hunting effort during the 1972 deer season (data corrected for non-reporting hunters).

	Number of Days Hunted	Number of Hours Hunted	Hours per Hunter	Hours per Deer Harvested
Paid Shotgun				
Zones 1, 2, 4	25,751	170,664	12.0	27.0
Zones 3, 5	9,820	64,625	17.0	45.1
Landowner-tenant				
Zones 1, 2, 4	8,522	40,356	7.4	22.0
Zones 3, 5	5,939	26,779	9.2	33.8
Bow and Arrow	84,244	315,824	48.6	237.8
TOTALS	135,509	623,033	----	-----

All categories of deer hunters hunted a larger percent of their time in their home county (Table 6).

Table 6. Hunter distribution during the 1972 season.

	*No. of Hunters	Hunted Home County Only	Hunted Other Than Home County
Paid Shotgun	19,650	10,200	9,450
Landowner-tenant	8,698	8,484	214
Bow and Arrow	7,359	4,782	2,577
Total	35,707	23,466	12,241

*A tally was recorded for each county in which an individual indicated he hunted. This gives a greater number of hunters than there actually were since some hunters hunted in more than one county.

Crippling Loss

Paid shotgun hunters reported crippling 1,193 deer while landowner-tenants reported 345 and archers 767. This gives a total of 2,305 deer crippled during the 1972 season. Bow and arrow hunters crippled deer at a higher rate than the shotgun hunter. Bow hunters crippled .12 deer per hunter as compared to .06 deer per shotgun hunter. Some consideration should be given to the accuracy of reporting since the bow hunter can more easily determine whether a deer is wounded or not since he is closer to the animal and can usually follow the flight of the arrow. One compensating point is that a large percentage of the animals crippled during the shotgun season are subsequently harvested by other hunters.

SEX AND AGE COMPOSITION

Sex and age data are considered very important in evaluating the age structure and vitality of a deer herd. Of most importance is that age data has been utilized in substantiating the high productivity rate in the Iowa deer herd as well as demonstrating the constricting life expectation of the deer due to heavy harvest in recent years.

The sex and age data for 1972 were collected by wildlife management personnel in assigned unit areas. Locker plants processing deer harvested during the hunting season were visited and deer were aged using the standard tooth wear and replacement method (Severinghaus, 1949). The zone of kill for each deer was determined so that age structure could be calculated on a regional as well as a statewide basis.

Age Composition

A total of 1,356 deer was aged by Commission personnel following the 1972 season. Because of the modified antlered deer season in zones 3 and 5 age data is presented differently than in past years.

One important aspect of the age data is to show percent of fawns in the harvest, since high fawn harvest eliminates future breeders from the deer herd and thereby limits the rate of herd increase. The percentage of fawns in the harvest was lower during the years when the deer herd was growing rapidly - 1953 to 1963. During these years the average fawn harvest was 39% of the total harvest as compared to 1964 to 1970 when the average fawn harvest jumped to 46% of the total harvest. In 1971 the fawn harvest was 44.8% which indicated a stabilization of the deer herd. In 1972 only the any-sex hunting zones (1,2 and 4) can be used to compare fawn harvest. Again the stabilization of the deer herd was apparent because of a recorded 44.9% fawn harvest.

Another important aspect obtained from the age data is the mean expectation of life for each age class. The mean expectation of life is important because reductions in this category mean reductions in herd production. It is simple to understand that on the average the longer the life span of a deer (mean expectation of life) the higher the production. To demonstrate mean expectation of life in the 1972 harvest the age data was compiled by sex. This was necessary because of the modified antlered deer only season in part of the state. Since some hunters were required to hunt only adult bucks, a representative sample of the male fawn population could not be obtained. In Table 7 the female mean expectation of life for 1972 is compared to the three previous years. In Table 8 the same comparison is made for the male segment of the population for the same years with the exclusion of the male fawns from the 1972 sample. Because of the possibility of future antlered deer only seasons, the $1\frac{1}{2}$ year age class will probably be the key to determining the mean expectation of life for the male segment of the population. The female segment of the population does enjoy a longer life span than the male segment.

Table 7. The mean expectation of life for female deer for 1969 - 1972 - Statewide.

Age Class	1969	1970	1971	1972
Fawn	1.49	1.49	1.48	1.58
$1\frac{1}{2}$	1.27	1.32	1.16	1.27
$2\frac{1}{2}$	.98	1.00	.84	.97
$3\frac{1}{2}$	1.10	.93	.75	.97
$4\frac{1}{2}$	.88	.83	.95	.82
$5\frac{1}{2}+$	.50	.50	.50	.50

Table 8. The mean expectation of life for male deer for 1969 - 1972 - Statewide

Age Class	1969	1970	1971	1972
Fawn	1.31	1.42	1.34	----
$1\frac{1}{2}$	1.14	1.23	1.11	1.16
$2\frac{1}{2}$	.97	1.00	.96	.99
$3\frac{1}{2}$	.97	.90	.86	.78
$4\frac{1}{2}$	.86	.72	1.07	.61
$5\frac{1}{2}+$	.50	.50	.50	.50

The age data represents the status of the herd at the time of their harvest. This status is affected mainly by the previous year's harvest since this determines the breeding stock surviving to produce young. Therefore the age data represents a 1 year time lag because it shows the results of the previous years management effort. This can be demonstrated by looking back at Table 7 and 8. There are two years which indicate better mean expectations of life in most age classes than the other two years. These better years are 1970 (especially the male segment) and 1972 and they follow harvests of 11,582 in 1969 and 11,691 in 1971. The other years follow harvests of 13,771 in 1968 and 13,780 in 1970. This would indicate that to maintain a good mean expectation of life in the deer herd the harvest should be held to no more than 12,000 deer per year until the population increases to a higher level.

Mean expectation of life varies by hunting zone (Table 9). In 1972, zone 1 showed the lowest mean expectation of life with zones 2 and 4 about average. Mean expectation of life for fawns in zones 3 and 5 could not be calculated but from the other age classes zone 3 was about average while zone 5 showed above average expectation of life.

Table 9. Mean expectation of life in hunting zones for 1972.

	Age Class					
Zone	Fawns	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$+
1	1.43	1.09	.98	.75	.66	.50
2	1.42	1.27	.99	.91	.69	.50
3	----	1.23	.92	.67	.50	---
4	1.47	1.16	.81	.89	.75	.50
5	----	1.37	1.17	.95	.90	.50

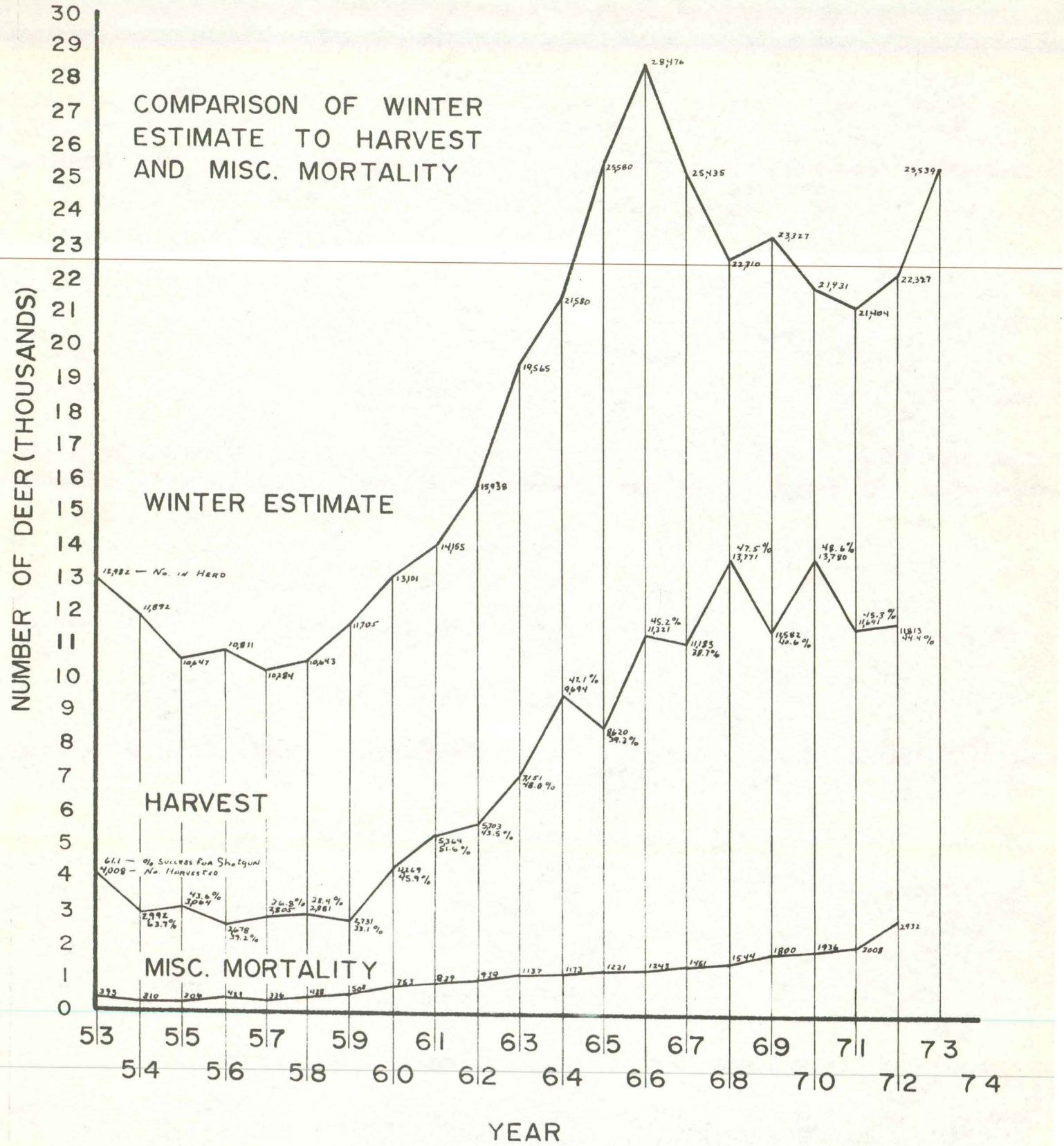
Sex Ratio

Sex ratio information collected from locker plants following the hunting season indicated a 55% male, 45% female distribution in the harvest which includes the high male harvest in the modified antlered deer only areas of the state. The fawn class was composed of 58% male to 42% female while in the adult deer portion of the harvest ($1\frac{1}{2}$ + years) the sex ratio was 53% male to 47% female. The reason for the high male fawn category cannot be explained. They possibly are more vulnerable to the hunter because of behavioral differences and probably have a slightly higher birth rate and survival rate.

WINTER POPULATION ESTIMATE

Conservation Officers have been conducting winter population estimates annually since 1947 (except for 1949). Following the deer season each year, officers are sent county maps of their respective territories and requested to mark on these maps the location of deer herds and the numbers of deer in each herd. The maps are then consolidated giving trend information on a regional and statewide basis. The results of the winter survey provide an indication of the number of deer in the population, but are most useful as a trend indicator of the growth or decline of the herd.

Figure 4.


COMPARISON OF WINTER ESTIMATE TO HARVEST AND MISC. MORTALITY
WINTER ESTIMATE
HARVEST
MISC. MORTALITY
NUMBER OF DEER (THOUSANDS)
YEAR
12,982 — No. in Herd
11,892
10,647
10,811
10,284
10,643
11,705
13,101
14,155
15,938
19,565
21,580
25,580
28,476
25,435
22,710
23,327
21,931
21,404
22,327
25,539
61.1 — % Success For Shotgun
4,008 — No. Harvested
2,992 63.7%
3,064 43.6%
2,678 39.2%
2,805 26.9%
2,881 28.4%
2,731 23.1%
4,269 45.9%
5,344 51.6%
5,703 43.5%
7,351 48.0%
9,694 42.1%
8,620 39.2%
11,321 45.2%
11,183 38.7%
13,771 47.5%
11,582 40.6%
13,780 48.6%
11,641 45.3%
11,813 44.4%
375
310
304
481
336
428
508
763
879
939
1137
1173
1221
1243
1461
1544
1800
1936
2008
2932

Officer estimates for the winter 1972-73 indicate a breeding herd of 25,539 deer, which is a 14.4% increase in the population from the 1971-72 winter population estimates (Table 10). The increase in 1972-73 follows a 4% increase in the previous year.

The winter estimate by county can be found in the Appendix. Estimates are also compiled by hunting zones and are presented in Table 10. All hunting zones recorded increases in the deer population with high honors going to the 32.8% increase in zone 4. The two modified bucks only zones 3 and 5 recorded above average increases of over 15%.

Table 10. Conservation officer deer herd estimates for the winters of 1970-71, 1971-72, and 1972-73.

Zone	Number of Deer			% Change
	1970-71	1971-72	1972-73	1971-72 to 1972-73
1	4,392	4,310	4,631	+ 7.4%
2	9,171	9,949	11,201	+12.6%
3	3,131	2,995	3,446	+15.1%
4	2,295	2,363	3,139	+32.8%
5	2,415	2,710	3,122	+15.2%
Total	21,404	22,327	25,539	14.4%

Figure 4 gives a comparison of winter estimates, hunter harvest, and known mortality since 1953. This figure shows that harvest has been held to under 12,000 deer for the past two years with a resulting increase in the winter population

CONCLUSION

The surveys conducted during 1972 indicate trends in the deer population.

1. The miscellaneous mortality survey showing deer killed per 100,000 vehicle miles indicates strongly that an increase in the population occurred during 1972. A new reporting system may have had some influence on the results and several more years of comparative data will be needed to substantitate the amount of increase in the herd.

2. Hunting success is not considered a good indicator of population trends since there are factors other than population size which determine success (ability of the hunter, weather, vulnerability of the deer, season regulations, etc.). The measure of the harvest actually shows the results of the most important management tool of the biologist-the season regulations.

3. The age composition of the 1972 deer herd indicates a stabilized deer herd. Mean expectation of life held steady with some improvement in several age classes. Age data indicates that at the present population level a harvest of 12,000 deer produces a stable to slightly increasing deer herd.

4. Winter population estimates for 1972-73 showed a significant increase in the statewide

deer herd (14.4%) with all hunting zones registering increases. This is a good sign and indicates the Iowa deer herd is on the upswing.

It appears that the goals of the 1972 hunting season have been met. The first goal was to stabilize the herd, which is apparent from 1972 survey data. The second goal was to test a new concept in Iowa deer management - the modified bucks only season - and it was also successful. The hunter acceptance of this regulation was good. The quality of the hunting experience was improved and more hours of recreation were achieved because of increased license quotas and season lengths. The sport of deer hunting in Iowa is growing and to meet this demand the modified bucks only season should be expanded. The goals of the 1973 deer season should be to further improve the quality of deer hunting in Iowa as well as expand hunter hours of recreation. At the same time regulations will be set that will insure increases in the deer population in some areas. Every attempt must be made to protect this valuable resource while providing maximum recreational benefit to the Iowa hunter.

LITERATURE CITED

Severinghaus, C. W. 1949. Tooth development and wear as criteria of age in white-tailed deer. Jour. Wildl. Mgmt. 13(2):195-216.

APPENDIX

	Misc. Mortality 1972		Number of Hunters and Harvest - 1972							1972-73 Winter Population Estimate	Est. Fall 1973 Population (Winter Estimate) X 1.4
			Shotgun		Landowner-tenants		Bow and Arrow				
	Traffic	Misc.	*No. of Hunters	Harvest	*No. of Hunters	Harvest	*No. of Hunters	Harvest	Total Harvest		
1. Adair	13	0	172	80	42	13	45	10	103	242	339
2. Adams	12	1	161	66	67	21	45	9	96	207	290
3. Allamakee	51	21	680	335	358	139	110	29	503	800	1120
4. Appanoose	30	8	316	149	173	55	52	9	213	346	484
5. Audubon	12	2	91	32	48	9	6	1	42	105	147
6. Benton	11	4	100	29	53	14	87	8	51	53	74
7. Black Hawk	16	5	85	15	25	4	211	25	44	87	122
8. Boone	28	1	262	90	88	27	102	14	131	134	188
9. Bremer	21	2	120	22	60	14	79	10	46	170	238
10. Buchanan	17	4	89	20	34	12	55	10	42	50	70
11. Buena Vista	30	5	56	16	33	10	39	1	27	84	118
12. Butler	18	1	124	37	95	21	61	11	69	142	199
13. Calhoun	7	1	18	2	14	5	13	4	11	35	49
14. Carroll	1	0	63	23	14	1	31	1	25	57	80
15. Cass	34	0	204	44	49	8	51	6	58	245	343
16. Cedar	31	0	88	28	47	16	36	8	52	200	280
17. Cerro Gordo	18	0	57	20	40	7	82	10	37	51	71
18. Cherokee	6	0	155	45	67	14	72	9	68	125	175
19. Chickasaw	28	0	90	22	60	12	62	8	42	150	210
20. Clarke	22	3	222	91	99	45	45	8	144	400	560
21. Clay	22	3	129	63	95	33	74	14	110	151	211
22. Clayton	28	4	571	255	335	107	146	22	384	1300	1820
23. Clinton	40	10	160	39	97	25	174	25	89	246	344
24. Crawford	9	0	270	76	39	5	24	2	83	255	357
25. Dallas	40	1	288	88	86	14	87	10	112	225	315
26. Davis	19	0	234	95	164	70	30	8	173	325	455
27. Decatur	23	0	412	205	186	75	39	7	287	575	805
28. Delaware	15	5	148	38	80	20	112	20	78	100	140
29. Des Moines	48	22	355	206	130	44	156	54	304	843	1180
30. Dickinson	22	2	41	16	30	12	47	3	31	100	140
31. Dubuque	54	8	170	44	109	31	140	19	94	180	252
32. Emmet	20	5	65	29	64	10	69	18	57	134	188
33. Fayette	27	3	216	104	119	45	100	17	166	135	189

	Misc. Mortality 1972		Number of Hunters and Harvest - 1972							1972-73 Winter Population Estimate	Est. Fall 1973 Population (Winter Estimate) X 1.4
			Shotgun		Landowner-tenants		Bow and Arrow				
	Traffic	Misc.	No. of Hunters	Harvest	No. of Hunters	Harvest	No. of Hunters	Harvest	Total Harvest		
34. Floyd	26	3	95	36	65	21	101	19	76	149	209
35. Franklin	17	0	47	20	25	6	45	6	32	118	165
36. Fremont	44	3	236	115	84	30	44	18	163	237	332
37. Greene	19	0	129	44	49	15	47	7	66	129	181
38. Grundy	1	0	1	0	2	0	7	0	0	5	7
39. Guthrie	25	7	385	149	126	32	102	19	200	515	721
40. Hamilton	23	3	51	14	42	3	61	9	26	150	210
41. Hancock	14	1	72	18	49	14	34	6	38	110	154
42. Hardin	26	3	88	38	61	19	91	14	71	170	238
43. Harrison	39	1	695	216	79	20	68	13	249	250	350
44. Henry	24	7	213	111	140	54	41	6	171	275	385
45. Howard	6	0	88	29	73	12	54	11	52	150	210
46. Humboldt	17	5	44	20	36	10	37	7	37	120	168
47. Ida	8	0	59	16	8	1	23	1	18	38	53
48. Iowa	47	2	174	62	108	23	90	11	96	155	217
49. Jackson	68	7	304	108	191	53	133	21	182	170	238
50. Jasper	34	0	97	31	89	19	90	18	68	275	385
51. Jefferson	10	0	196	76	95	44	19	5	125	450	630
52. Johnson	63	2	202	49	128	20	171	21	90	165	231
53. Jones	26	4	177	51	158	45	105	18	114	400	560
54. Keokuk	11	1	179	77	109	40	30	6	123	390	546
55. Kossuth	36	7	102	51	66	18	102	16	85	230	322
56. Lee	94	20	464	230	232	86	108	23	339	700	980
57. Linn	25	0	210	53	105	31	275	36	120	145	203
58. Louisa	16	4	165	74	84	24	35	8	106	185	259
59. Lucas	37	7	527	208	185	51	75	11	270	650	910
60. Lyon	17	1	265	77	52	13	49	8	98	87	122
61. Madison	23	2	406	163	163	53	103	12	228	500	700
62. Mahaska	25	1	142	64	109	38	41	12	114	280	392
63. Marion	54	0	427	188	132	46	111	19	253	460	644
64. Marshall	29	2	78	29	42	11	46	8	48	118	165
65. Mills	64	13	275	152	56	8	51	15	175	495	693
66. Mitchell	25	4	78	28	36	13	55	17	58	253	354

	Misc. Mortality 1972		Number of Hunters and Harvest - 1972							1972-73 Winter Population Estimate	Est. Fall 1973 Population (Winter Estimate) X 1.4
			Shotgun		Landowner-tenants		Bow and Arrow				
	Traffic	Misc.	No. of Hunters	Harvest	No. of Hunters	Harvest	No. of Hunters	Harvest	Total Harvest		
67. Monona	15	5	374	142	80	20	35	8	170	605	847
68. Monroe	17	5	439	206	175	63	39	9	278	630	882
69. Montgomery	22	6	200	85	55	18	44	13	116	304	426
70. Muscatine	24	6	98	26	75	23	67	5	54	109	153
71. O'Brien	10	3	54	22	37	9	39	11	42	64	90
72. Osceola	14	0	22	14	22	6	23	3	23	41	57
73. Page	24	0	156	57	52	9	63	14	80	160	224
74. Palo Alto	25	3	85	38	85	37	31	8	83	154	216
75. Plymouth	33	4	204	45	50	10	66	12	67	233	326
76. Pocahontas	8	1	16	6	29	10	11	2	18	45	63
77. Polk	139	0	137	37	26	10	256	21	68	160	224
78. Pottawattamie	73	4	523	152	112	23	218	48	223	1246	1744
79. Poweshiek	23	1	68	24	50	16	31	5	45	76	106
80. Ringgold	4	0	215	117	86	49	34	7	173	280	392
81. Sac	6	1	29	6	43	10	46	10	26	58	81
82. Scott	45	2	114	17	42	8	115	8	33	188	263
83. Shelby	12	0	330	71	41	11	33	1	83	175	245
84. Sioux	17	2	257	82	38	9	53	9	100	170	238
85. Story	26	0	53	11	30	7	77	8	26	74	104
86. Tama	25	3	131	51	93	33	86	25	109	73	102
87. Taylor	7	1	119	66	95	39	22	3	108	255	357
88. Union	5	1	269	144	78	27	40	9	180	340	476
89. Van Buren	37	2	557	305	238	111	43	5	421	750	1050
90. Wapello	21	0	267	116	157	72	71	21	209	275	385
91. Warren	15	1	404	135	197	62	248	34	231	450	630
92. Washington	21	4	213	85	110	37	39	7	129	157	220
93. Wayne	15	1	208	102	100	33	20	2	137	215	301
94. Webster	19	1	96	28	93	25	135	32	85	170	238
95. Winnebago	21	3	70	23	32	10	70	16	49	135	189
96. Winneshiek	23	7	389	156	256	70	83	18	244	650	910
97. Woodbury	50	5	486	144	73	15	140	20	179	225	315
98. Worth	21	3	97	32	21	2	86	16	50	200	280
99. Wright	40	3	85	31	47	7	69	11	49	96	134
00. Unknown **			483	150	156	36	694	76	262		
TOTAL	2623	309	20,131	7,747	8,853	2,738	8,053	1,328	11,813	25,539	35,755

*Some hunters hunted in more than 1 county in which case a talley was recorded for each county reported.

** Unknown includes correction for non-returns