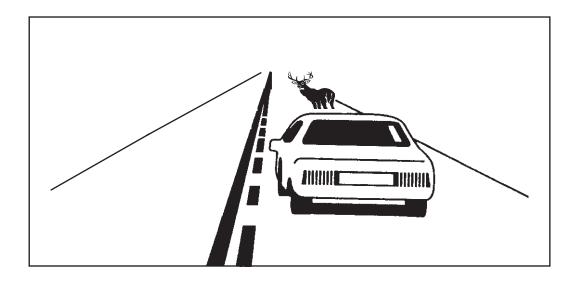
#### **MISSOURI STATE HIGHWAY PATROL**



#### ANALYSIS OF DEER INVOLVEMENT IN MISSOURI TRAFFIC CRASHES 2005

Prepared By Public Information and Education Division and the Missouri Statistical Analysis Center

October, 2006

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#### **INTRODUCTION**

In recent years, Missouri traffic safety authorities have expressed concern over (1) animal-vehicle crashes involving deer and (2) crashes caused by drivers avoiding deer on roadways. This is one in a series of reports designed to identify the seriousness and characteristics of deer-involved traffic crashes on Missouri's public roadways.

#### **1. METHODOLOGY**

To assess the problem of 2005 deer-related traffic crashes in Missouri, two information sources were utilized. In the first instance, data from the National Highway Traffic Safety Administration (NHTSA), Fatality Analysis Reporting System (FARS) were analyzed. In this analysis, fatal crashes were identified where the first harmful event involved a motor vehicle striking a deer. In addition, fatal crashes were identified where drivers made evasive maneuvers to avoid deer and no deer were struck but their evasive maneuvers contributed to the cause of the traffic crash.

The second source of information used in this study was the Missouri Statewide Traffic Accident Records System (STARS). Using STARS data, all 2005 Missouri traffic crashes where a deer was struck as part of the first harmful event were identified and analyzed (not just fatal crashes). However, this information source was limited in that it did not contain data identifying traffic crashes involving a deer avoidance maneuver where the animal was <u>not</u> struck. As a result, analysis could not be conducted on the deer avoidance maneuver problem associated with all Missouri traffic crashes.

#### 2. DISCUSSION OF FINDINGS

The following is a discussion of findings obtained from an analysis of Missouri's 2005 traffic crashes related to deer involvement:

FARS DATA SOURCE	<ul> <li>An analysis was conducted of all 2005 Missouri fatal traffic crashes. There were 1,117 such crashes in which 1,257 persons were killed. Four people lost their lives in four fatal crashes involving a vehicle striking a deer and one person died in one crash where deer were avoided.</li> <li>In 2005, Missouri had 3,506 traffic crashes where deer-vehicle strikes occurred in the first harmful event. One deer strike occurred every 2.5 hours in the State.</li> <li>In 2005, 4 people were killed and 333 injured in these types of crashes. One person was killed or injured every 1.1 days.</li> <li>Of all deer strike traffic crashes, 30.2% occurred in an urban area and 69.8% occurred in a rural area of the State. Even though rural areas seem to be overrepresented, the eight highest ranking Missouri counties experiencing this problem are associated with major metropolitan areas. These include: Jackson, St. Louis, Jefferson, Clay, Platte, Boone, St. Charles, and Franklin. Deer strike traffic crashes in these counties account for 38.9% of the total.</li> <li>Four out of five, or 80.6%, of the 2005 deer strike crashes occurred on State-maintained roadways. The greatest proportion occurred on State Numbered Routes (27.0%), followed closely by U.S. Highways (23.2%) and State Lettered Routes (17.2%). An additional 13.0% occurred on Interstates, 11.4% on city streets, and 6.1% on county roads.</li> <li>Calculations show slightly less than half, or 47.3%, of the 2005 deer strike crashes occurred from October through December, with the largest proportion in November (22.3%). When discussing this with the Missouri Department of Conservation, they suggested the major cause of increased roadway crossings by deer during this period is mating season. The peak occurs about mid-November. In addition, deer hunting season also may cause an increase in roadway crossings by deer during this period is mating season. The peak occurs about mid-November. The slight increase in deer-involved crashes noted in the spring months may be attribu</li></ul>							
STARS DATA SOURCE	<ul> <li>In 2005, Missouri had 3,506 traffic crashes where deer-vehicle strikes occurred in the first harmful event. One deer strike occurred every 2.5 hours in the State.</li> <li>In 2005, 4 people were killed and 333 injured in these types of crashes. One person was killed or injured every 1.1 days.</li> <li>Of all deer strike traffic crashes, 30.2% occurred in an urban area and 69.8% occurred in a rural area of the State. Even though rural areas seem to be overrepresented, the eight highest ranking Missouri counties experiencing this problem are associated with major metropolitan areas. These include: Jackson, St. Louis, Jefferson, Clay, Platte, Boone, St. Charles, and Franklin. Deer strike traffic crashes in these counties account for 38.9% of the total.</li> <li>Four out of five, or 80.6%, of the 2005 deer strike crashes occurred on State-maintained roadways. The greatest proportion occurred on State Numbered Routes (27.0%), followed closely by U.S. Highways (23.2%) and State Lettered Routes (17.2%). An additional 13.0% occurred on Interstates, 11.4% on city streets, and 6.1% on county roads.</li> <li>Calculations show slightly less than half, or 47.3%, of the 2005 deer strike crashes occurred from October through December, with the largest proportion in November (22.3%). When discussing this with the Missouri Department of Conservation, they suggested the major cause of increased roadway crossings by deer during this period is mating season. The peak occurs about mid-November. In addition, deer hunting season also may cause an increase in roadway crossings. The slight increase in deerinvolved crashes noted in the spring months may be attributed to yearling fawns dispersing from their mothers just prior to the arrival of newborns.</li> </ul>							
	<ul> <li>Nearly one in three, or 31.6%, occurred on these two days in 2005.</li> <li>The majority of deer strike crashes occurred from 5:00 p.m. through 6:59 a.m. This time period accounted for 84.5% of the total.</li> </ul>							
	<ul> <li>Of the drivers striking deer, 60.5% were male and 39.5% were female. The average of the driver was 40.0 were</li> </ul>							

• Of the drivers striking deer, 85.9% had a Missouri driver's license, 13.7% had an out-of-state driver's license, and 0.4% were unlicensed at the time of the crash.

age of the driver was 40.0 years.

#### **3. FINDINGS**

The following is a series of tables and figures which characterize Missouri's 2005 deer strike traffic crash problem.

#### 2005 MISSOURI FATAL TRAFFIC CRASHES DEER INVOLVEMENT<sup>1</sup>

TYPE OF CRASH	FATAL CRASHES	0/0	FATALITIES
DEER-VEHICLE STRIKE	4	0.4	4
AVOIDING DEER	1	0.1	1
NOINVOLVEMENT	1,112	99.5	1,252
STATE TOTAL	1,117	100.0	1,257

TABLE 1

<sup>1</sup>Source: National Highway Traffic Safety Administration (NHTSA), Fatality Analysis Reporting System (FARS).

# DEER STRIKE INVOLVEMENT

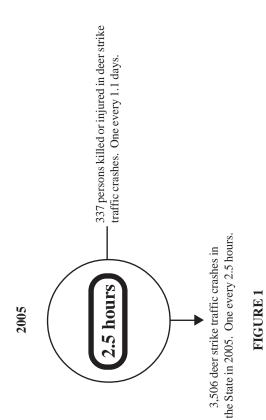
FATAL     %     INJUKY       DEER INVOLVED     4     0.4     289       OTHER INVOLEMENT     1,113     99.6     44,369	%				;	TOTAL	TOTAL NUMBER <sup>1</sup>	DRIVERS/PASSENGER OF VEHICLES STRIKING DEER <sup>2</sup>	DRIVERS/PASSENGERS OF VEHICLES STRIKING DEER <sup>2</sup>
4 0.4 ENT 1,113 99.6 44		DAMAGE	%	TOTAL	%	KILLED	KILLED INJURED	KILLED	INJURED
1,113 99.6	0.6	3,213	2.5	3,506	2.0	4	333	4	308
	99.4	99.4 126,132	97.5	97.5 171,614	98.0	1,253	66,080		
<b>TOTAL</b> 1,117 100.0 44,658	100.0	100.0 129,345	100.0	100.0 175,120 100.0 1,257	100.0	1,257	66,413	4	308

<sup>1</sup>This statistic indicates the total number of persons killed and injured in a crash where a deer was struck during the first harmful event in a crash.

<sup>2</sup>This statistic indicates the number of drivers and passengers of vehicles striking deer during the first harmful event in a crash who were killed and injured.

### **TABLE 2**

## MISSOURI TRAFFIC SAFETY DEER INVOLVEMENT PROBLEM ANALYSIS CLOCK



			PERSONAL		PROPERTY			
	FATAL	%	INJURY	%	DAMAGE	%	TOTAL	%
URBAN	0	0.0	68	23.5	992	30.9	1,060	30.2
RURAL	4	100.0	221	76.5	2,221	69.1	2,446	69.8
TOTAL	4	100.0	289	100.0	3,213	100.0	3,506	100.0

#### AREA CLASSIFICATION BY CRASH SEVERITY

TABLE 3

#### 2005 MISSOURI DEER CRASHES

#### **ROAD CURVATURE BY CRASH SEVERITY**

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
STRAIGHT	4	100.0	260	90.9	2,224	88.0	2,488	88.3
CURVE	0	0.0	26	9.1	304	12.0	330	11.7
UNKNOWN	0	-	3	-	685	-	688	-
TOTAL	4	100.0	289	100.0	3,213	100.0	3,506	100.0

TABLE 4

#### 2005 MISSOURI DEER CRASHES

#### **ROAD INCLINE BY CRASH SEVERITY**

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
LEVEL	0	0.0	164	57.5	1,588	63.0	1,752	62.4
HILL	4	100.0	111	39.0	860	34.1	975	34.7
CREST	0	0.0	10	3.5	72	2.9	82	2.9
UNKNOWN	0	-	4	-	693	-	697	-
TOTAL	4	100.0	289	100.0	3,213	100.0	3,506	100.0

TABLE	5
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	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRY	0	0.0	50	17.4	572	22.7	622	22.1
WET	4	100.0	234	81.5	1,924	76.3	2,162	76.9
SNOW	0	0.0	0	0.0	0	0.0	0	0.0
ICE	0	0.0	3	1.1	15	0.6	18	0.6
SLUSH	0	0.0	0	0.0	0	0.0	0	0.0
MUD	0	0.0	0	0.0	10	0.4	10	0.4
STANDING WATER	0	0.0	0	0.0	0	0.0	0	0.0
MOVING WATER	0	0.0	0	0.0	0	0.0	0	0.0
UNKNOWN	0	-	2	-	692	-	694	-
TOTAL	4	100.0	289	100.0	3,213	100.0	3,506	100.0

#### **ROAD CONDITIONS BY CRASH SEVERITY**

#### TABLE 6

#### 2005 MISSOURI DEER CRASHES

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	39	13.5	417	13.0	456	13.0
U.S. HIGHWAY	2	50.0	92	31.8	719	22.4	813	23.2
STATE NUMBERED	1	25.0	65	22.5	879	27.4	945	27.0
SINGLE STATE LETTERED	1	25.0	34	11.8	422	13.1	457	13.0
DOUBLE STATE LETTEREI	0 C	0.0	15	5.2	131	4.1	146	4.2
OUTER ROAD	0	0.0	1	0.4	26	0.8	27	0.8
COUNTY ROAD	0	0.0	18	6.2	197	6.1	215	6.1
CITY STREET	0	0.0	22	7.6	379	11.8	401	11.4
INTERSTATE LOOP	0	0.0	0	0.0	6	0.2	6	0.2
OTHER <sup>1</sup>	0	0.0	3	1.0	37	1.2	40	1.1
TOTAL	4	100.0	289	100.0	3,213	100.0	3,506	100.0

#### HIGHWAY CLASSIFICATION BY CRASH SEVERITY

<sup>1</sup> "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

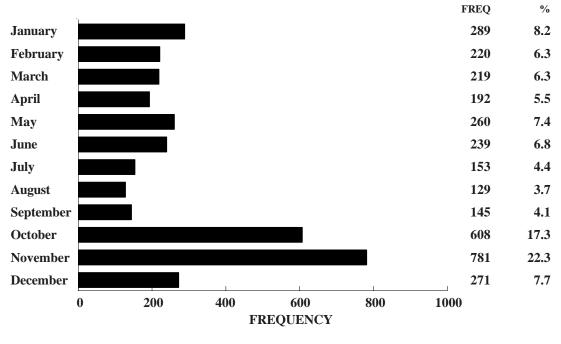
HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY

				UR	URBAN							RURAL	IAL			
	FATAL	%	<b>PERSONAL</b> INJURY	r K	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	<b>PERSONAL</b> INJURY	к Г	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	12	17.7	151	15.2	163	15.4	0	0.0	27	12.2	266	12.0	293	12.0
U.S. HIGHWAY	0	0.0	18	26.5	164	16.5	182	17.2	5	50.0	74	33.5	555	25.0	631	25.8
STATE NUMBERED	0	0.0	10	14.7	212	21.4	222	20.9	1	25.0	55	24.9	667	30.0	723	29.6
SINGLE STATE LETTERED	0	0.0	1	1.5	31	3.1	32	3.0	1	25.0	33	14.9	391	17.6	425	17.4
DOUBLE STATE LETTERED	0	0.0	1	1.5	19	1.9	20	1.9	0	0.0	14	6.3	112	5.0	126	5.2
OUTER ROAD	0	0.0	1	1.5	11	1.1	12	1.1	0	0.0	0	0.0	15	0.7	15	0.6
COUNTY ROAD	0	0.0	ю	4.4	35	3.5	38	3.6	0	0.0	15	6.8	162	7.3	177	7.2
CITY STREET	0	0.0	21	30.9	345	34.8	366	34.5	0	0.0	1	0.5	34	1.5	35	1.4
INTERSTATE LOOP	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	0.3	9	0.3
OTHER <sup>1</sup>	0	0.0	1	1.5	24	2.4	25	2.4	0	0.0	0	0.9	13	0.6	15	0.6
TOTAL	0	0.0	68	100.0	992	100.0	1,060	100.0	4	100.0	221	100.0	2,221	100.0	2,446	100.0

**TABLE 8** 

<sup>1</sup> "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

#### 2005 MISSOURI DEER CRASHES MONTH OF YEAR



**FIGURE 2** 

#### 2005 MISSOURI DEER CRASHES DAY OF WEEK

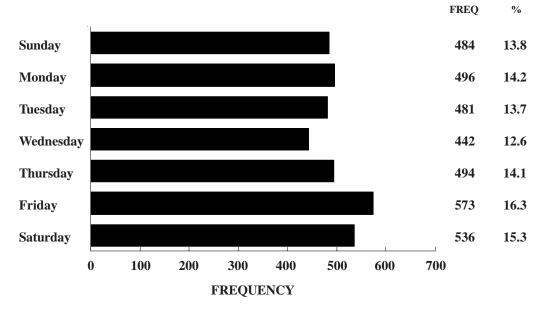


FIGURE 3

#### 2005 MISSOURI DEER CRASHES HOUR OF DAY

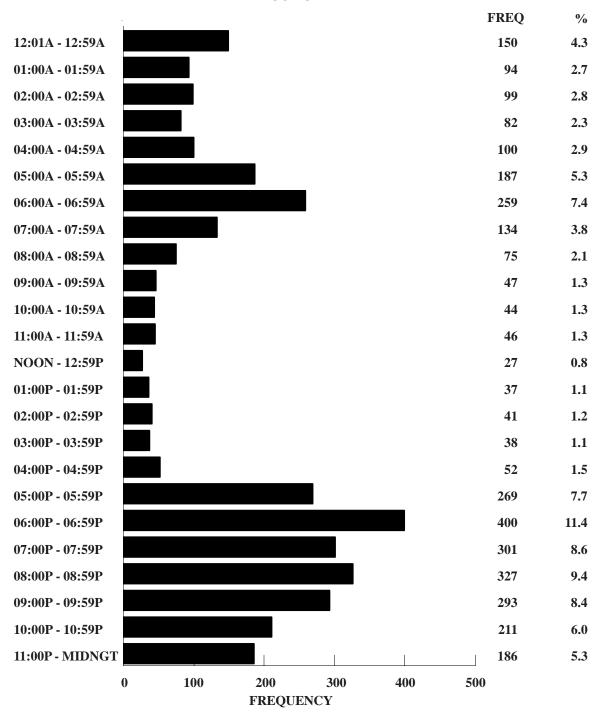


FIGURE 4

Unknown Data Not Included

#### 2005 MISSOURI DEER CRASHES<sup>1</sup>

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AUTOMOBILE	0	0.0	153	53.1	1,652	51.5	1,805	51.6
SPORT UTILITY VEHICLE	0	0.0	21	7.3	523	16.3	544	15.5
LIMOUSINE	0	0.0	0	0.0	0	0.0	0	0.0
VAN	0	0.0	28	9.7	323	10.1	351	10.0
BUS	0	0.0	0	0.0	3	0.1	3	0.1
SCHOOL BUS	0	0.0	1	0.4	3	0.1	4	0.1
MOTORCYCLE	2	50.0	48	16.7	3	0.1	53	1.5
MOPED	0	0.0	0	0.0	0	0.0	0	0.0
MOTORHOME / CAMPER	0	0.0	0	0.0	3	0.1	3	0.1
FARM EQUIPMENT	1	25.0	0	0.0	0	0.0	1	0.0
CONSTRUCTION EQUIPMENT	0	0.0	0	0.0	1	0.0	1	0.0
OTHER TRANSPORT DEVICE	E 0	0.0	0	0.0	0	0.0	0	0.0
PICK-UP TRUCK	1	25.0	30	10.4	587	18.3	618	17.7
OTHER TRUCKS	0	0.0	6	2.1	111	3.5	117	3.3
ALL TERRAIN VEHICLE	0	0.0	1	0.4	0	0.0	1	0.0
UNKNOWN	0	-	0	-	2	-	2	-
TOTAL	4	100.0	288	100.0	3,211	100.0	3,503	100.0

#### TYPE OF VEHICLE STRIKING DEER BY CRASH SEVERITY

<sup>1</sup>This table includes only those vehicles striking a deer during the first harmful event in a crash.

#### VEHICLES STRIKING DEER IN 2005 MISSOURI CRASHES<sup>1</sup>

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRIVERLESS	0	0.0	0	0.0	0	0.0	0	0.0
KNOWN DRIVER INVOLVED	4	100.0	288	100.0	3,205	99.8	3,497	99.8
UNKNOWN DRIVER INVOLVED	0	0.0	0	0.0	6	0.2	6	0.2
TOTAL	4	100.0	288	100.0	3,211	100.0	3,503	100.0

#### DRIVER INVOLVEMENT BY CRASH SEVERITY

<sup>1</sup>This table includes only vehicles striking deer during the first harmful event in a crash.

#### TABLE 10

#### DRIVERS OF VEHICLES STRIKING DEER IN 2005 MISSOURI CRASHES<sup>1</sup>

#### SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	3	75.0	171	59.4	1,615	60.6	1,789	60.5
FEMALE	1	25.0	117	40.6	1,049	39.4	1,167	39.5
UNKNOWN	0	-	0	-	547	-	547	-
TOTAL	4	100.0	288	100.0	3,211	100.0	3,503	100.0

'The table includes only drivers of vehicles striking deer during the first harmful event in a crash.

#### DRIVERS OF VEHICLES STRIKING DEER IN 2005 MISSOURI CRASHES<sup>1</sup>

#### PERSONAL PROPERTY % INJURY TOTAL % FATAL % DAMAGE % AVERAGE AGE OF DRIVER 39.5 38.9 40.1 40.0 ---\_ 14 YEARS AND UNDER 0 0.0 0 0.0 0 0.0 0 0.0 15 - 20 YEARS 0 0.0 31 10.8 244 7.7 275 7.9 21 - 25 YEARS 0 0.0 33 11.5 353 11.1 386 11.1 26 - 30 YEARS 0 0.0 8.7 10.4 10.3 25 332 357 31 - 35 YEARS 2 50.0 41 14.2 338 10.6 381 11.0 36 - 40 YEARS 1 25.0 29 10.1 366 11.5 396 11.4 41 - 45 YEARS 0 0.0 11.5 426 33 13.4 459 13.2 46 - 50 YEARS 25.0 31 10.8 389 12.2 421 12.1 1 51 - 55 YEARS 0 0.028 9.7 274 8.6 302 8.7 56 - 60 YEARS 0 0.0 20 6.9 210 6.6 230 6.6 61 - 65 YEARS 0 9 114 0.0 3.1 3.6 123 3.5 66 YEARS AND OVER 0 0.08 2.8 141 4.4 149 4.3 UNKNOWN 0 0 24 24 ----TOTAL 4 100.0 288 100.0 3,211 100.0 3,503 100.0

#### AGE OF DRIVER BY CRASH SEVERITY

<sup>1</sup>This table includes only drivers of vehicles striking deer during the first harmful event in a crash.

TABLE 12

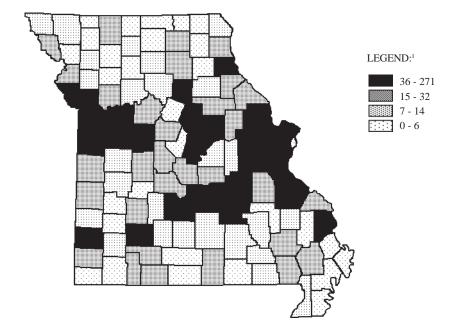
#### DRIVERS OF VEHICLES STRIKING DEER IN 2005 MISSOURI CRASHES<sup>1</sup>

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MISSOURI								
LEARNER'S PERMIT	0	0.0	0	0.0	4	0.2	4	0.1
OPERATOR'S LICENSE	1	25.0	218	75.7	1,949	78.6	2,168	78.2
MOTORCYCLE ONLY	0	0.0	0	0.0	0	0.0	0	0.0
COMMERCIAL DRIVER'S LICENSE	1	25.0	31	10.8	178	7.2	210	7.6
SUB-TOTAL	2	50.0	249	86.5	2,131	85.9	2,382	85.9
OUT STATE								
LEARNER'S PERMIT	0	0.0	0	0.0	0	0.0	0	0.0
OPERATOR'S LICENSE	1	25.0	33	11.5	284	11.5	318	11.5
MOTORCYCLE ONLY	0	0.0	0	0.0	0	0.0	0	0.0
COMMERCIAL DRIVER'S LICENSE	0	0.0	3	1.0	59	2.4	62	2.2
SUB-TOTAL	1	25.0	36	12.5	343	13.8	380	13.7
UNLICENSED	1	25.0	3	1.0	7	0.3	11	0.4
UNKNOWN	0	-	0	-	730	-	730	-
TOTAL	4	100.0	288	100.0	3,211	100.0	3,503	100.0

#### DRIVER'S LICENSE STATE AND TYPE BY CRASH SEVERITY

<sup>1</sup>This table includes only drivers of vehicles striking deer during the first harmful event in a crash.

#### COUNTY QUARTILE ANALYSIS



<sup>1</sup>LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	JACKSON	271	7.7	22.0	PULASKI	46	1.3
2.0	ST. LOUIS	204	5.8	23.0	STE. GENEVIEVE	44	1.3
3.0	JEFFERSON	177	5.0	24.0	JASPER	41	1.2
4.0	CLAY	170	4.8	26.5	CRAWFORD	36	1.0
5.0	PLATTE	166	4.7	26.5	DENT	36	1.0
6.0	BOONE	138	3.9	26.5	LAFAYETTE	36	1.0
7.0	ST. CHARLES	134	3.8	26.5	PETTIS	36	1.0
8.0	FRANKLIN	113	3.2			Fi	rst Quartile
9.0	LINCOLN	83	2.4				
10.0	CASS	82	2.3			Seco	nd Quartile
11.0	ST. FRANCOIS	72	2.1	29.5	COOPER	32	0.9
12.5	CALLAWAY	65	1.9	29.5	MILLER	32	0.9
12.5	PHELPS	65	1.9	31.0	MACON	31	0.9
14.0	JOHNSON	61	1.7	32.5	HOWELL	30	0.9
15.0	CAPE GIRARDEA	U 59	1.7	32.5	PIKE	30	0.9
16.0	COLE	56	1.6	34.0	NEWTON	29	0.8
17.0	LACLEDE	54	1.5	35.5	CAMDEN	28	0.8
18.0	WARREN	53	1.5	35.5	MONTGOMERY	28	0.8
19.0	RANDOLPH	49	1.4	38.0	BENTON	26	0.7
20.0	GREENE	48	1.4	38.0	BUCHANAN	26	0.7
21.0	MARION	47	1.3	38.0	TANEY	26	0.7

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
40.0	MORGAN	25	0.7	77.5	RIPLEY	8	0.2
42.0	LEWIS	24	0.7	77.5	WRIGHT	8	0.2
42.0	PERRY	24	0.7	82.5	DALLAS	7	0.2
42.0	WASHINGTON	24	0.7	82.5	DEKALB	7	0.2
44.0	BATES	22	0.6	82.5	DUNKLIN	7	0.2
45.0	VERNON	21	0.6	82.5	NODAWAY	7	0.2
47.0	HARRISON	20	0.6	82.5	REYNOLDS	7	0.2
47.0	SALINE	20	0.6	82.5	SHANNON	7	0.2
47.0	STONE	20	0.6			Thi	rd Quartile
49.0	AUDRAIN	18	0.5				·
53.0	ADAIR	16	0.5			Fourt	th Quartile
53.0	BUTLER	16	0.5	89.0	ANDREW	6	0.2
53.0	CHRISTIAN	16	0.5	89.0	CALDWELL	6	0.2
53.0	MARIES	16	0.5	89.0	DAVIESS	6	0.2
53.0	POLK	16	0.5	89.0	DOUGLAS	6	0.2
53.0	RALLS	16	0.5	89.0	OREGON	6	0.2
53.0	RAY	16	0.5	89.0	SCOTLAND	6	0.2
58.0	HOLT	15	0.4	89.0	SCOTT	6	0.2
58.0	STODDARD	15	0.4	95.0	BARRY	5	0.1
58.0	WAYNE	15	0.4	95.0	MISSISSIPPI	5	0.1
		Seco	nd Quartile	95.0	NEW MADRID	5	0.1
				95.0	PEMISCOT	5	0.1
		Thi	ird Quartile	95.0	SULLIVAN	5	0.1
61.0	CHARITON	14	0.4	101.0	CEDAR	4	0.1
61.0	MONROE	14	0.4	101.0	DADE	4	0.1
61.0	TEXAS	14	0.4	101.0	HICKORY	4	0.1
64.5	BARTON	13	0.4	101.0	HOWARD	4	0.1
64.5	HENRY	13	0.4	101.0	LIVINGSTON	4	0.1
64.5	LINN	13	0.4	101.0	MONITEAU	4	0.1
64.5	OSAGE	13	0.4	101.0	ST. LOUIS CITY	4	0.1
67.0	GASCONADE	12	0.3	106.0	BOLLINGER	3	0.1
68.0	WEBSTER	11	0.3	106.0	OZARK	3	0.1
69.5	CLARK	10	0.3	106.0	SHELBY	3	0.1
69.5	CLINTON	10	0.3	110.0	GENTRY	2	0.1
73.0	ATCHISON	9	0.3	110.0	KNOX	2	0.1
73.0	CARROLL	9	0.3	110.0	MC DONALD	2	0.1
73.0	GRUNDY	9	0.3	110.0	MERCER	2	0.1
73.0	LAWRENCE	9	0.3	110.0	SCHUYLER	2	0.1
73.0	ST. CLAIR	9	0.3	113.0	IRON	1	0.0
77.5	CARTER	8	0.2	114.5	PUTNAM	0	0.0
77.5	MADISON	8	0.2	114.5	WORTH	0	0.0

TABLE 14

#### **CITY LISTING**

RANK	CITY	FREQUENCY	PERCENT <sup>1</sup>
1.0	KANSAS CITY	242	18.6
2.0	LEE'S SUMMIT	65	5.0
3.0	COLUMBIA	58	4.5
4.0	CHESTERFIELD	37	2.8
5.5	CAPE GIRARDEAU	36	2.8
5.5	JEFFERSON CITY	36	2.8
7.0	INDEPENDENCE	33	2.5
8.0	WILDWOOD	27	2.1
9.0	MARYLAND HEIGHTS	22	1.7
10.0	SPRINGFIELD	20	1.5
11.5	HARRISONVILLE	17	1.3
11.5	LIBERTY	17	1.3
13.5	OSAGE BEACH	16	1.2
13.5	SUNSET HILLS	16	1.2
15.5	BLUE SPRINGS	15	1.2
15.5	ROLLA	15	1.2
18.0	FULTON	14	1.1
18.0	PARKVILLE	14	1.1
18.0	WENTZVILLE	14	1.1
22.0	BELTON	13	1.0
22.0	BRANSON	13	1.0
22.0	MOBERLY	13	1.0
22.0	ST. CHARLES	13	1.0
22.0	WARRENSBURG	13	1.0
27.0	HANNIBAL	12	0.9
27.0	JACKSON	12	0.9
27.0	LAKE OZARK	12	0.9
27.0 27.0	O'FALLON ST. JOSEPH	12 12	0.9 0.9
31.0	EUREKA	12	0.9
31.0	NEOSHO	11	0.8
31.0	NEVADA	11	0.8
35.0	CREVE COEUR	10	0.8
35.0	JOPLIN	10	0.8
35.0	LOUISIANA	10	0.8
35.0	PEVELY	10	0.8
35.0	RIVERSIDE	10	0.8
39.0	BALLWIN	9	0.7
39.0	FARMINGTON	9	0.7
39.0	HERCULANEUM	9	0.7
43.0	FESTUS	8	0.6
43.0	LAKE ST. LOUIS	8	0.6
43.0	MARSHALL	8	0.6
43.0	MOSCOW MILLS	8	0.6
43.0	WEBB CITY	8	0.6
49.0	ARNOLD	7	0.5
49.0	BOONVILLE	7	0.5
49.0	GLADSTONE	7	0.5
49.0	MEXICO	7	0.5
49.0	ST. ROBERT	7	0.5
49.0	WARRENTON	7	0.5
49.0	WAYNESVILLE	7	0.5
55.0	LEBANON	6	0.5
55.0	NORTH KANSAS CITY	6	0.5
55.0	PLATTE CITY	6	0.5
55.0	SEDALIA	6	0.5
55.0	UNION	6	0.5

<sup>1</sup>Percentage is based on deer involved crashes which occurred in Missouri municipalities with populations of 1,000 or more. Only those municipalities comprising 0.5% or more of these crashes are listed.