

## **2008-09 New Jersey Coyote and Fox Hunter Survey**

### **Summary**

There are an estimated 1,760 active canine (coyote, gray fox and red fox) hunters in New Jersey (Burnett 2008). Coyote and fox hunting was authorized during the small game seasons proscribed by New Jersey's annual Game Code. Properly licensed and permitted deer hunters may also harvest coyote and fox during proscribed deer seasons. A special permit was required when hunting coyote and fox between 12 January to 16 February 2009 (inclusive) when hunting with a muzzleloading rifle in an area with no open deer season; when with a shotgun using shot size larger than #4 fine shot; or, when hunting at night with shotgun only. The daily bag limit was two coyote per day but no daily bag limit on fox. Two thousand thirty permits were issued for the 31-day season. A **2008-09 New Jersey Coyote/Fox Hunter Survey** was mailed to 476 holders of the Special Eastern Coyote and Fox Hunting Permit. The survey objective was to gather information regarding canine hunter demographics, previous hunting experience, current hunting activity and equipment used. The usable response rate was 51.3 percent. Ninety-seven (96.7) percent of permit holders were New Jersey State residents. The mean age of all permit holders was 46.2 years. Prior to the 2008-09 hunting season, 60.4 percent of respondents indicated they had previously hunted coyotes or fox in New Jersey or in other states. Over half (55.4 percent) of survey respondents indicated specifically hunting for coyote or fox between 04 October 2008 and 16 February 2009 and 88.7 percent were active a mean 4.9 days during the special permit season (12 January-16 February). Survey respondents reported 137 unique coyote sightings and 150 instances of finding coyote sign (tracks, scat) in 112 municipalities from 17 New Jersey counties. Most of the estimated 998 hunters active during the special permit season: (1) hunted from ½ hour before sunrise until ½ hour after sunset (35.3 percent) and (2) used a shotgun (81.1 percent) with #4 fine shot (34.1 percent). Harvest during the special permit season was 3 coyotes (reported) and an estimated 27 gray fox and 443 red fox. An additional 59 coyotes were reported during the small game seasons.

This survey was conducted as part of **Job III-B. Hunter and Trapper Harvest, Recreational and Economic Survey**. This job is included within **Grant Number W-68-R-13, New Jersey Wildlife Research and Management: Project III. Upland Wildlife and Furbearers**.

### **Methods**

Two thousand twenty-nine Special Coyote and Fox hunting permits were issued for the 2009 special permit season via the new electronic license and permit system. Demographic analyses on age, residency and gender were completed for all permit holders.

The 2008-09 New Jersey Coyote/Fox Hunter Survey (Appendix A), including a pre-addressed business reply envelope, was mailed to 476 permit recipients. Eight questionnaires (1.7 percent) were returned by the postal authorities as undeliverable and 468 were presumed delivered. Two hundred forty responses were returned by 31 March 2009 for a usable response rate of 51.3 percent. Harvest data analyses are based on the 133 respondents (28.4 percent) that actively hunted for coyote and/or fox at some time during the 2008-09 hunting season.

## 2008-09 New Jersey Coyote and Fox Hunter Survey

### Permit Sales

A summary of special season permit sales is presented in Table 1. Coyote hunting was authorized for current and valid license holders by permit (cost = \$2) only during the prescribed special seasons 1997-2000 and 2002-2007. Coyote could be hunted in conjunction with the prescribed fox hunting seasons during 2000-01 (outside dates September 30, 2000 to February 19, 2001) and no permit was required that year. Permits have been required since 2002 when night hunting coyote or fox was authorized. The increase in permit issuance since 2007 compared to 1997-2006 may be a result of the ease in obtaining a permit and a growing interest in predator hunting in popular sporting magazines.

Table 1. Summary of New Jersey special season permit sales, 1997 to present

Fiscal Year Ending 30 June	Permit issuance	Revenue to Division (\$US)
1997 <sup>1</sup>	865	1,730.00
1998	998	1,996.00
1999	874	1,748.00
2000	757	1,514.00
2001	Not required	0.00
2002 <sup>2</sup>	354	708.00
2003	379	758.00
2004	345	690.00
2005	545	1,090.00
2006	639	1,278.00
2007	1,494	2,988.00
2008	1,995	3,990.00
2009	2,029	4,058.00
<b>Total</b>	<b>9,244</b>	<b>18,488.00</b>

### Permit Holder Gender

Coyote and fox hunters are almost exclusively male (99.0 percent, n = 2008). Only 21 females (1.0 percent) purchased the Special Coyote and Fox hunting permit in 2008-09.

### Permit Holder Residency

The residency distribution of permit holders by county (resident) and state (non-resident) is presented in Table 2. New Jersey residents constitute the majority of coyote/fox hunters (96.7 percent), and live in every New Jersey County. Distribution of resident hunters is fairly uniform with 35.4 percent residing in North Jersey<sup>3</sup>; 31.7 percent live in Central Jersey<sup>4</sup>; and, 32.9 percent live in South Jersey<sup>5</sup>. Non-resident hunters constituted 3.3 percent of permit holders, and the majority resided in the neighboring states of Pennsylvania and New York (61.2 percent and 29.9 percent of non-residents, respectively). The residency distributions from the 2007-08, 2006-07 and 2005-06 are presented for comparison.

<sup>1</sup> Permit valid for harvesting coyote only 1997-2000.

<sup>2</sup> Permit valid for harvesting coyote, gray fox and red fox 2002-present.

<sup>3</sup> Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Somerset, Sussex, Union and Warren counties..

<sup>4</sup> Burlington, Mercer, Middlesex, Monmouth and Ocean counties.

<sup>5</sup> Atlantic, Camden, Cape May, Cumberland, Gloucester and Salem counties.

## 2008-09 New Jersey Coyote and Fox Hunter Survey

Table 2. Residency distribution of 2009 NJ Special Coyote and Fox permit holders

State	County	Number of hunters (2008-09)	Number of hunters (2007-08)	Number of hunters (2006-07)	Number of hunters (2005-06)
New Jersey	Atlantic	105	135	118	24
	Bergen	48	74	27	19
	Burlington	155	165	149	40
	Camden	77	84	65	19
	Cape May	75	66	72	27
	Cumberland	189	162	146	76
	Essex	16	17	21	11
	Gloucester	94	87	56	29
	Hudson	13	10	10	6
	Hunterdon	97	98	78	31
	Mercer	67	44	45	22
	Middlesex	87	73	45	29
	Monmouth	103	105	81	26
	Morris	87	93	42	40
	Ocean	210	219	174	48
	Passaic	67	64	41	26
	Salem	106	63	50	26
	Somerset	66	58	26	15
Sussex	159	153	122	44	
Union	23	17	12	6	
Warren	118	137	70	68	
Alaska		1	0	0	0
Arizona		1	0	0	0
Arkansas		0	0	1	0
Colorado		1	0	0	0
Connecticut		1	0	2	0
Delaware		2	3	0	0
Florida		0	0	1	0
Iowa		0	0	1	0
Maryland		0	0	1	1
New York		20	13	4	1
Pennsylvania		41	48	24	20
Unknown		0	7	3	0
<b>Total</b>		<b>2,029</b>	<b>1,995</b>	<b>1,487</b>	<b>639</b>

### Permit Holder Age Class

The age class distribution of permit holders is presented in Table 3. Known ages, as of 04 October 2008, ranged from 9 to 84 years, with a mean age of  $43.1 \pm 0.31SE$ . Male ages ranged from 9 to 84 years, with a mean age of  $43.1 \pm 0.32SE$ . Female ages ranged from 13 to 65 years, with a mean age of  $36.5 \pm 3.13SE$ . The age class distributions from the 2007-08, 2006-07 and 2005-06 surveys are presented for comparison.

## 2008-09 New Jersey Coyote and Fox Hunter Survey

Table 3. Age class distribution of 2009 NJ Special Coyote and Fox permit holders

Age Class	Number of hunters (2008-09)	Number of hunters (2007-08)	Number of hunters (2006-07)	Number of hunters (2005-06)
< 16	49	56	37	23
16 to 19	70	77	63	16
20 to 24	136	101	87	20
25 to 29	120	139	115	41
30 to 34	161	166	128	49
35 to 39	242	222	174	77
40 to 44	297	305	208	90
45 to 49	284	268	180	83
50 to 54	215	210	141	79
55 to 59	158	192	159	72
60 to 64	178	135	111	30
65+	119	124	84	39
Unknown	0	0	0	20
<b>Total</b>	<b>2,029</b>	<b>1,995</b>	<b>1,487</b>	<b>639</b>

### Survey Results

#### Survey Respondent Gender

Survey respondents were predominately male (96.3 percent). Females constituted a larger percentage of survey respondents (2.1 percent) compared to all permit holders (1.0 percent).

#### Survey Respondent Residency

New Jersey residents constitute the majority of survey respondents (89.6 percent), and live in every New Jersey County. Distribution of resident respondents is fairly uniform with 32.6 percent residing in North Jersey<sup>6</sup>; 36.3 percent live in Central Jersey<sup>7</sup>; and, 31.2 percent live in South Jersey<sup>8</sup>. Non-resident hunters constituted 3.3 percent of permit holders, and the majority resided in the neighboring state of Pennsylvania (75.0 percent of non-resident respondents). Residency was unknown for 7.1 percent of respondents.

#### Survey Respondent Age Class

Survey respondents were generally older (46.3 years  $\pm$  0.93SE) as of 04 October 2008 compared to all permit holders (43.1 years  $\pm$  0.31SE). Male respondent ages ranged from 13 to 82 years, with a mean age of 46.5  $\pm$  0.96SE. Female respondent ages ranged from 28 to 49 years, with a mean age of 38.3  $\pm$  4.21SE).

#### Survey Respondent Prior Experience

The percentage of survey respondents having prior coyote hunting experience is presented in Table 4. Information on previous hunting experience was solicited from survey respondents in 1999, 2000 and 2002-2008<sup>9</sup>. No survey was conducted in 2001. Prior to the 2008-09 hunting season, 60.0 percent of respondents indicated they had previously hunted coyotes or fox in New Jersey or in other states.

<sup>6</sup> Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Somerset, Sussex, Union and Warren counties..

<sup>7</sup> Burlington, Mercer, Middlesex, Monmouth and Ocean counties.

<sup>8</sup> Atlantic, Camden, Cape May, Cumberland, Gloucester and Salem counties.

<sup>9</sup> Prior experience was requested for coyote only (1999 and 2000), and coyote or fox (2002-2008).

## 2008-09 New Jersey Coyote and Fox Hunter Survey

Experienced respondents were older (mean 47.4 years) than inexperienced respondents (mean 44.6 years).

*Table 4. Percent of survey respondents having prior coyote or fox hunting experience*

Hunting Season	Percent Experience Hunters	Hunting Season	Percent Experienced Hunters
1998-99	61.5%	2004-05	74.1%
1999-00	64.2%	2005-06	63.6%
2000-01	No survey	2006-07	55.6%
2001-02	64.2%	2007-08	53.8%
2002-03	61.1%	2008-09	60.4%
2003-04	75.7%		

### Survey Respondents Activity

Over two-fifths (44.6 percent) of respondents did not hunt coyote/fox during the 2008-09 seasons. Primary reasons for non-participation included no time (52.3 percent), hunted other species (13.1 percent) and health (9.3 percent). Based on survey responses, 905 permit holders were inactive and 1,124 specifically hunting for coyote or fox between 04 October 2008 and 16 February 2009.

Survey results estimated that 161 hunters pursued coyote/fox from 04 October to 07 November 2008 (bow and arrow only), spent a mean  $13.6 \pm 2.1$ SE days afield and enjoyed 2,185 recreation-days. Sixty-eight (68.4) percent of New Jerseyans hunted in their resident county. Harvest was estimated at 54 red fox.

Survey results estimated that 499 hunters pursued coyote/fox from 08 November 2008 to 18 January 2009 (firearm or bow and arrow), spent a mean  $11.5 \pm 1.9$ SE days afield and enjoyed 5,736 recreation-days. Seventy percent of New Jerseyans hunted in their resident county. Harvest was estimated at 84 coyotes, 29 gray fox and 401 red fox.

Based on survey responses, 998 hunters pursued coyote/fox from 19 January to 16 February 2009, spent a mean  $4.9 \pm 0.4$ SE days afield and enjoyed 4,888 recreation-days. Sixty-six (66.4) percent of New Jerseyans hunted in their resident county. Harvest was estimated at 43 coyotes, 27 gray fox and 443 red fox.

For all periods combined, an estimated 1,124 hunters enjoyed 12,809 recreation-days of coyote/fox hunting during the 121-day season, and averaged  $7.3 \pm 1.1$ SE days afield per hunter while harvesting an estimated 127 coyotes, 56 gray fox and 844 red fox. Most hunting activities occurred in Warren, Ocean, Sussex, Hunterdon and Salem counties (total 52.8 percent). No hunting activity was noted in the urban counties of Bergen, Essex, Hudson or Union.

Active respondents reported 137 coyote sightings and 150 instances of finding coyote sign (tracks, scat) in 112 municipalities from 17 New Jersey counties during 2007-08 compared to 115 sightings and 117 signs reported in 15 counties during 2007-08. No reports of coyote evidence were received from Bergen, Essex, Hudson or Union counties during the performance period. Coyote presence as reported by survey respondents was highest in Warren (29), Ocean (27), Sussex (25) and Cumberland (19) counties.

## **2008-09 New Jersey Coyote and Fox Hunter Survey**

### **Hunter Expenditures**

Information on hunter expenditures (excluding license and permit fees) was not solicited during 2008-09. The majority of hunters (54.9 percent in 2004 and 56.9 percent in 2003) spent \$100 or less on coyote/fox hunting in New Jersey during 2004-05.

### **2009 Special Coyote/Fox Season (19 January to 16 February 2009)**

The following two sections pertain only to the Special Permit Coyote/Fox season. Based on survey responses (n = 118), 998 sportsmen pursued coyote/fox in New Jersey during this period, spent a mean 4.9 days afield and enjoyed 4,888 recreation-days while harvesting an estimated 43 coyotes, 27 gray fox and 443 red fox.

### **Hunting Activity During the Special Season**

Information on hunter activity by 12-hour period was solicited. An estimated 352 participants (35.3 percent) hunted at night only, 322 (32.3 percent) hunted during daylight only and 285 (28.6 percent) hunted during both day and night periods based on survey responses. Reasons for period preference were not solicited.

Information on hunter activity by land ownership was not solicited in 2008-09. Prior surveys have indicated that most hunters primarily pursue coyotes on private land or State Wildlife Management Areas, Parks and Forests.

### **Equipment Utilized During the Special Season**

Special season permit holders could hunt coyote and fox with either bow and arrow (minimum 35-lb draw or peak weight), muzzleloading rifle (minimum .44 caliber) or shotgun (10 or 12 gauge only, #4 ≤ shot size ≤ "T") between the hours of ½ hour before sunrise to ½ hour after sunset. Weapons were restricted to shotguns between ½ hour after sunset to ½ hour before sunrise. The use of dogs or bait was prohibited under the special permit provisions.

Based on survey responses, a shotgun was more often (81.7 percent) than a muzzleloading rifle (17.3 percent) or bow and arrow (1.6 percent) during the special season. Shotgun hunters favored #4 fine shot (34.1 percent) over "T" (21.0 percent) or #2 fine shot (8.0 percent).

Possession of a predator call (electronic, mouth blown or other) was required while hunting during the special season. Information on predator calls was not solicited during the 2008-09 survey. The majority of hunters used a mouth blown call (34.0 percent), electronic call (33.3 percent) or both types (31.5 percent) that imitated rabbit (93.2 percent) during 2004-05.

### **Reported Hunter Harvest**

New Jersey law requires all successful hunters to report their coyote harvest to the nearest Division Law Enforcement Office within 24 hours of harvest. A total of 59 coyotes were reported by hunters during the 2008-09 small game or deer hunting seasons, and three coyotes were reported taken during the special permit season. Shotgun hunters reported harvesting two coyotes during the 2009 special season (one daytime, one nighttime) and archers reported harvesting one coyote. The 2009 coyote hunter success rate during the special season was 0.3 percent compared to 0.3 percent (2008), 0.4 percent (2007) 1.3 percent (2006) and 1.1 percent (2005), respectively. Summaries of hunter harvests (1997-2009) are presented in Table 5 and Table 6.

## 2008-09 New Jersey Coyote and Fox Hunter Survey

Table 5. Summary of reported coyote harvest during New Jersey small game seasons by weapon type (FY2001-2009)

Season dates	Season length (days)	Archery harvest	Muzzloader harvest	Shotgun harvest	Total harvest
30 Sep 2000 – 19 Feb 2001	122	5	4	26	35
29 Sep 2001 – 18 Feb 2002	122	3	3	13	19
28 Sep 2002 – 17 Feb 2003	122	3	5	52	60
27 Sep 2003 – 16 Feb 2004	122	12	10	52	74
02 Oct 2004 – 21 Feb 2005	122	9	9	55	73
01 Oct 2005 – 20 Feb 2006	122	18	12	56	86
30 Sep 2006 – 19 Feb 2007	122	0	12	48	60
29 Sep 2007 – 18 Feb 2008	122	11	5	41	57
04 Oct 2008 – 16 Feb 2009	116	9	11	39	59
<b>Total</b>	<b>1,092</b>	<b>70</b>	<b>71</b>	<b>382</b>	<b>523</b>

Table 6. Summary of harvest by permit holders during the special, permit coyote/fox seasons (FY1997-2009<sup>1</sup>)

Season dates	Season length (days)	No. Permits issued	Estimated active hunters	Reported coyote harvest	Estimated gray fox harvest	Estimated red fox harvest	Estimated other harvest
1-17 Feb 1997	14	865	528	4	N/A	N/A	N/A
31 Jan–16 Feb 1998	14	998	634	11	N/A	N/A	N/A
30 Jan–15 Feb 1999	14	874	266	6	N/A	N/A	N/A
29 Jan–14 Feb 2000	14	757	410	7	N/A	N/A	N/A
1-18 Feb 2002	14	354	256	4	Not solicited	Not solicited	Not solicited
1-17 Feb 2003	14	379	252	4	27	76	0
2-16 Feb 2004	13	345	240	4	12	68	57 crows
1-21 Feb 2005	17	545	358	4	11	93	53 crows
16 Jan–20 Feb 2006	31	639	396	5	8	120	Not solicited
15 Jan–19 Feb 2007	31	1,494	774	3	20	232	Not solicited
14 Jan–18 Feb 2008	32	1,995	1,011	0	25	211	Not solicited
19 Jan–16 Feb 2009	26	2,029	998	6	27	443	Not solicited
<b>Total</b>	<b>234</b>	<b>7,250</b>		<b>58</b>	<b>130</b>	<b>1,243</b>	<b>110 crows</b>

<sup>1</sup> No permit required during the 2000-01 season.

### Additional Information

Additional information on coyote and fox is provided in Attachment 2 of the Federal Aid in Wildlife Restoration Report W-68-R-13 Job III-B entitled Hunter and Trapper Harvest, Recreational and Economic Survey. Data files are stored at the Division of Fish and Wildlife (NJ Department of Environmental Protection) Nacote Creek and Hedge Haven field offices.

# NJ Division of Fish and Wildlife

## Annual Coyote/Fox Hunter Survey

Dear Fellow Hunter:

This is a copy of the 2008-09 Coyote/Fox Hunter Survey. This survey contains questions about your coyote and fox hunting activities in New Jersey this past (2008-09) season. Kindly take a moment now to complete this survey and return it in the self-addressed envelope provided. The information you provide is anonymous.

Only hunters who received a 2009 New Jersey Coyote/Fox Special Hunting Permit will receive this survey. The information we receive in this survey will be used in evaluating, planning and improving hunting seasons in New Jersey and for determining harvest levels and trends for several species. Your reply is important to us even if you did not hunt or even if you were not successful harvesting any game this year.

Thank you for completing this questionnaire and for promptly returning it in the envelope provided.

Sincerely,

Larry Herrighty  
Assistant Director  
NJ Division of Fish and Wildlife

### HOW TO COMPLETE THIS SURVEY

1. Please answer all applicable questions **whether or not you hunted or harvested any game** during the past season.
2. This report is for animals taken during the legal coyote and fox hunting seasons **only**.
3. Estimate the number of days hunted or game killed if you don't recall the exact number. Please list specific numbers where they're asked for in days; please don't write in "week" or "month".
4. Please report **only** the game taken by **you**, not the entire hunting party. For example, if you were hunting with a friend who shot two red fox while you shot one coyote, you would report 1 coyote.
5. If you have any questions, please call the Division's Upland Game Project at (908) 735-7040 or (609) 748-2058.
6. After completing the questionnaire, return it in the envelope provided. Reports are due on or before **MARCH 31**.



**2008-09 New Jersey Coyote and Fox Hunter Survey**

**ANNUAL NJ COYOTE / FOX HUNTER REPORT FOR 2008-09**

1. I reside in (Residents should indicate NJ county; Non-residents should indicate state): \_\_\_\_\_
2. My age (in years) as of October 4, 2008: \_\_\_\_\_
3. I am (please check one):  MALE  FEMALE
4. Prior to 2008-09, have you hunted coyotes or fox in the past? (Check **one**)  YES  NO
5. Between Oct 4 to Feb 16, did you *specifically* hunt for coyote or fox in NJ?  YES  NO  
(i.e., coyote or fox was your **primary** target and *not taken opportunistically while deer hunting*)

If you answered **YES** to Question 5, **please go on to QUESTION 7.**

6. If you answered **NO** to Question 5, please list the **single most important** reason why you did not actively pursue coyote or fox in New Jersey during the 2008-09 season: \_\_\_\_\_.

If you answered **NO** to Question 5, **STOP HERE.** Thank you for participating in this year’s Coyote/Fox Hunter Survey. Kindly return the survey in the self-addressed envelope provided. The NJ Division of Fish and Wildlife values your input and the information you provided.

For Questions 7-9, please provide the information requested for each time period. Please use the following abbreviations for weapon types: “**B**” for bow; “**M**” for muzzleloading rifle; “**S**” for shotgun.

Time Period	A. Number of days hunted	B. Weapon type(s) used	C. Number coyotes harvested	D. Number red fox harvested	E. Number gray fox harvested	E. Primary county hunted
7. Oct 4 – Nov 7 (Archery only)		<b>B</b>				
8. Nov 8 – Jan 18 (Firearm or Bow)						
9. Jan 19 – Feb 16 ( <b>Special Permit</b> )						

10. Please list the locations in which you saw **coyotes** or found their tracks/scat during the 2008-09 seasons:

	Township	County	Township	County	Township	County
<b>Coyote seen</b>						
<b>Tracks/scat</b>						

11. Please check the time period(s) you hunted during the 2009 **Special Permit** Coyote / Fox Season:

- A.** ½ hour before sunrise until ½ hour after sunset  **B.** ½ hour after sunset until ½ hour before sunrise

12. If you used a *shotgun* during the 2009 **Special Permit** Season, what size(s) shot did you use?: \_\_\_\_\_

Thank for taking time to complete and return this survey. Reports are due on or before **MARCH 31.** The NJ Division of Fish and Wildlife values your input and the information you provided. If you have any questions, please call the Division’s Upland Game Project at (908) 735-7040 or (609) 748-2058.

Return report to: NJ Division of Fish and Wildlife, Coyote/Fox Report, 26 Route 173 West, Hampton, NJ 08827