

2005-06 New Jersey Coyote/Fox Hunter Survey

Summary

There are an estimated 1,502 canine (coyote, gray fox and red fox) hunters in New Jersey (Burnett 2006). Coyote and fox hunting was authorized during the small game seasons proscribed by New Jersey's annual Game Code by properly licensed sportsmen (e.g., 01 October through 11 November 2005 – archery only; and, 12 November 2005 through 20 February 2006 – firearm or bow and arrow). 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 16 January to 20 February 2006 (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 [N.J.A.C. 7:25-5.19]. The daily bag limit was two coyote per day but no daily bag limit on fox. Six hundred thirty-nine permits were issued for the 31-day season. A **2005-06 New Jersey Coyote/Fox Hunter Survey** was mailed to all 639 holders of the Special Eastern Coyote and Fox Hunting Permit. The survey objective was to gather information regarding canine hunter demographics, prior hunting experience, current hunting activity and equipment used. The usable response rate was 42.9 percent. Ninety-six percent of New Jersey's canine hunters are state residents with a mean age of 43.6 years. Prior to the 2005-06 hunting season, 63.6 percent of respondents indicated they had previously hunted coyotes or fox in New Jersey or in other states. Over two-thirds (67.5 percent) of survey respondents indicated specifically hunting for coyote or fox between 01 October 2005 and 20 February 2006 and 62.0 percent were active a mean 5.0 days during the special permit season (16 January-20 February). Survey respondents reported 167 unique coyote sightings and 207 instances of finding coyote sign (tracks, scat) in 19 New Jersey counties. Most of the estimated 396 hunters active during the special permit season: (1) hunted from ½ hour after sunset until ½ hour before sunrise (41.8 percent); (2) hunted on private land (54.3 percent); and (3) used a shotgun (82.8 percent) with #4 fine shot (47.2 percent). Permit holders reported harvesting 5 coyotes during the special permit season, in addition to an estimated 8 gray fox and 120 red fox.

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-10, New Jersey Wildlife Research and Management: Project III. Upland Wildlife and Furbearers**.

Methods

Six hundred thirty-nine special, coyote and fox hunting permits were issued for the 2006 special permit season (335 via mail and 304 via over-the-counter sales at Division offices). The 2005-06 New Jersey Coyote/Fox Hunter Survey (Appendix A), including a pre-addressed business reply envelope, was mailed to all permit recipients. Four questionnaires (0.6 percent) were returned by the postal authorities as undeliverable and 635 were presumed delivered.

Demographic and economic analyses are based on the 274 (42.9 percent) responses that were correctly completed and returned within the acceptable period.

Harvest data analyses are based on the 185 respondents (29.1 percent) that actively hunted for coyote and/or fox at some time during the 2005-06 hunting season.

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Results

Hunter Age Class

The age class distribution of permit holders is presented in Table 1. Known ages, as of 01 October 2005, ranged from 10 to 81 years, with a mean age of 43.6 years (SD = 14.0, n = 613). The mean age of all New Jersey firearm hunters in 2003-04 was 50.1 ± 0.6 years (Burnett 2004). The age class distributions from the 2004-05 and 2003-04 surveys (Burnett 2005 and Burnett 2004, respectively) are presented for comparison.

Table 1. Age class distribution of 2006 NJ Special Coyote and Fox permit holders

Age Class	Number of hunters (2005-06)	Estimated number of hunters (2004-05)	Estimated number of hunters (2003-04)
< 16	23	9	8
16 to 19	16	7	4
20 to 24	20	9	9
25 to 29	41	29	19
30 to 34	49	27	23
35 to 39	77	80	60
40 to 44	90	86	44
45 to 49	83	55	54
50 to 54	79	64	41
55 to 59	72	75	41
60 to 64	30	42	19
65+	39	55	19
Unknown	20	0	0
Total	639	537	341

Hunter 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 (96.6 percent), and live in every New Jersey County. Most (45.1 percent) of the hunters live in North Jersey¹; 25.8 percent live in Central Jersey²; and, 29.1 percent live in South Jersey³. Non-resident hunters live in Pennsylvania (3.1 percent), Maryland and New York (0.2 percent each, respectively). The residency distributions from the 2004-05 and 2003-04 surveys (Burnett 2005 and Burnett 2004, respectively) presented for comparison.

Table 2. Residency distribution of 2006 NJ Special Coyote and Fox permit holders

County	Number of hunters (2005-06)	Estimated number of hunters (2004-05)	Estimated number of hunters (2003-04)
Atlantic	24	15	17
Bergen	19	13	17
Burlington	40	46	25
Camden	19	27	17
Cape May	27	15	2

¹ Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Somerset, Sussex, Union and Warren Counties.

² Burlington, Mercer, Middlesex, Monmouth and Ocean Counties.

³ Atlantic, Camden, Cape May, Cumberland, Gloucester and Salem Counties.

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Cumberland	76	29	17
Essex	11	7	4
Gloucester	29	22	12
Hudson	6	0	4
Hunterdon	31	40	37
Mercer	22	24	12
Middlesex	29	24	19
Monmouth	26	18	19
Morris	40	35	12
Ocean	48	42	13
Passaic	26	24	21
Salem	26	9	12
Somerset	15	13	2
Sussex	44	46	25
Union	6	7	4
Warren	68	53	39
Maryland	1	0	0
New York	1	2	0
Pennsylvania	20	18	12
Unknown	0	7	0
Total	639	537	341

Hunter Gender

Information on gender was not solicited during the 2005-06 survey, but is not presume to have changed significantly from 2004-05 (98.4 percent male, 1.6 percent female) (Burnett 2005).

Hunter Prior Experience

Information on previous hunting experience was solicited from survey respondents in 1999, 2000, 2002, 2003, 2004 and 2005⁴. No survey was conducted in 2001. The percentage of these survey respondents with previous experience was 61.5, 64.2, 64.2, 61.1, 75.7 and 74.1 percent, respectively. Prior to the 2005-06 hunting season, 63.6 percent of respondents indicated they had previously hunted coyotes or fox in New Jersey or in other states.

Permit Sales

A summary of special season permit sales is presented in Table 3. Coyote hunting was authorized for current and valid license holders by permit (cost = \$2) only during the prescribed special seasons 1997-2000 and 2002-2006. Coyote could be hunted in conjunction with the prescribed fox hunting seasons during the 2000-01 season (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.

Table 3. Summary of New Jersey special season permit sales, 1997 to present

Year	Permit issuance	Revenue to Division (\$US)
1997 ⁵	865	1,730.00
1998	998	1,996.00

⁴ Prior experience was requested for coyote only (1999 and 2000), and coyote or fox (2002-2005).

⁵ Permit valid for harvesting coyote only 1997-2000.

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1999	874	1,748.00
2000	757	1,514.00
2001	Not required	0.00
2002 ⁶	354	708.00
2003	379	758.00
2004	345	690.00
2005	545	1,090.00
2006	639	1,278.00
Total	5,756	11,512.00

Active Hunters

Nearly one-third (32.5 percent) of respondents did not hunt coyote/fox during the 2005-06 seasons. Primary reasons for non-participation included no time (58.4 percent), health (19.1 percent) and hunted other game (9.0 percent). Based on survey responses, 208 permit holders were inactive.

The remainder of survey respondents (67.5 percent) indicated specifically hunting for coyote or fox between 01 October 2005 and 20 February 2006. Based on survey responses, 51 hunters pursued coyote/fox from 01 October to 11 November 2005 (bow and arrow only), spent a mean 9.3 days afield and enjoyed 478 recreation-days while harvesting an estimated 2 coyotes and 12 red fox. Hunter effort was concentrated primarily in North Jersey (59.1 percent), followed by Central and South Jersey (22.7 and 18.2 percent, respectively).

Based on survey responses, 144 hunters pursued coyote/fox from 12 November 2005 to 15 January 2006 (firearm or bow and arrow), spent a mean 9.7 days afield and enjoyed 1,398 recreation-days while harvesting an estimated 9 coyotes, 68 red fox and 5 gray fox. Hunter activity was concentrated primarily in North Jersey (53.2 percent), followed by Central and South Jersey (33.9 and 12.9 percent, respectively).

Based on survey responses, 396 hunters pursued coyote/fox from 16 January to 20 February 2006, spent a mean 5.0 days afield and enjoyed 1,980 recreation-days while harvesting an estimate 12 coyotes, 119 red fox and 7 gray fox. Hunter activity was concentrated primarily in North Jersey (51.2 percent) followed by South and Central Jersey (25.3 and 23.5 percent, respectively).

For all periods combined, an estimated 431 hunters enjoyed 2,888 recreation-days of coyote/fox hunting during the 123-day season, and averaged 6.7 days afield per hunter.

Active respondents reported 167 coyote sightings and 207 instances of finding coyote sign (tracks, scat) in 19 New Jersey counties during 2005-06 compared to 154 sightings and 193 signs reported in 19 during 2004-05. No reports of coyote evidence were received from Bergen or Hudson Counties. Coyote presence as reported by survey respondents was highest in Warren (66), Sussex (55), Cumberland (49) and Hunterdon (46) Counties.

Hunter Expenditures

Information on hunter expenditures (excluding license and permit fees) was not solicited during 2005-06. 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 2003-05 (Burnett 2005)

⁶ Permit valid for harvesting coyote, gray fox and red fox 2002-present.

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2005 Special Coyote/Fox Season (16 January to 20 February 2006)

The following information pertains only to the Special Permit Coyote/Fox season. Based on survey responses ($n = 170$), 396 sportsmen pursued coyote/fox in New Jersey during this period, spent a mean 5.0 days afield and enjoyed 1,980 recreation-days while harvesting 5 coyotes, 8 gray fox and 120 red fox.

Hunting Activity

Information on hunter activity by 12-hour period was solicited. An estimated 165 participants (41.8 percent) hunted at night only, 135 (34.1 percent) hunted during daylight only and 91 (22.9 percent) hunted during both day and night periods based on survey respondents ($n = 168$). Reasons for period preference were not solicited.

Information on hunter activity by land ownership was solicited and results summarized in Table 4. An estimated 359 (90.6 percent) hunted one, land ownership class, exclusively. Thirty (7.6 percent) hunted two, 2 (0.6 percent) hunted three and 5 (1.2 percent) did not provide the requested information. Most hunters (54.3 percent) hunted on private land, and 52.9 percent hunted this land ownership class exclusively. Reasons for selection were not solicited.

Table 4. Hunter activity by land ownership 16 January to 20 February 2006 based on responses ($n = 170$) to the 2005-06 New Jersey Coyote/Fox Hunter Survey

Land owner	Estimated number of hunters	
	Total	Exclusive
Private	215	210
Federal (military bases, national wildlife refuge)	13	2
State Wildlife Management Area	111	100
Utility Right-of-way	2	0
State Park or Forest	37	33
County or Municipal	15	14
Unknown	4	-
Total	396	359

Equipment

Special season permit holders could hunt coyote and fox with bow and arrow (minimum 35-lb draw or peak weight), muzzleloading rifle (minimum .44 caliber) and shotgun (10 or 12 gauge only, #4 \leq shot size \leq "T") between the hours of $\frac{1}{2}$ hour before sunrise to $\frac{1}{2}$ hour after sunset. Authorized weapons were restricted to shotguns from $\frac{1}{2}$ hour after sunset to $\frac{1}{2}$ hour before sunrise. The use of dogs or bait was prohibited.

Based on survey responses, 328 (82.8 percent) shotgun, 46 (11.5 percent) muzzleloading rifle and 14 (3.4 percent) archery hunters pursued coyote/fox during the special season. Shotgun hunters favored #4 fine shot (47.2 percent) over "T" (20.9 percent) or #2 fine shot (18.4 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 2005-06 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 (Burnett 2005).

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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 summary of hunter harvests during the special permit seasons (1997-2006) is presented in Table 5. Three (60.0 percent) of the coyotes harvested in 2006 were taken after sunset. The 2006 coyote hunter success rate was 1.3 percent compared to 1.1 percent and 1.7 percent in 2005 and 2004, respectively.

Table 5. Summary of NJ hunter harvests during the special, permit coyote/fox seasons (1997-2006)

Year	Permit issuance	Estimated active hunters	Reported coyote harvest	Estimated gray fox harvest	Estimated red fox harvest	Estimated other harvest
1997	865	528	4	N/a	N/a	N/a
1998	998	634	11	N/a	N/a	N/a
1999	874	266	6	N/a	N/a	N/a
2000	757	410	7	N/a	N/a	N/a
2001	0					
2002	354	256	6	Not solicited	Not solicited	Not solicited
2003	379	252	4	27	76	0
2004	345	240	4	12	68	57 crows
2005	545	358	4	11	93	53 crows
2006	639	396	5	8	120	Not solicited
Total	5,756	3,340	51	58	357	110 crows

Additional Information

Additional information on coyote and fox is provided in Attachment 2 of the Federal Aid in Wildlife Restoration Report W-68-R-10 Job III-B entitled Hunter and Trapper Harvest, Recreational and Economic Survey. Coyote information is also provided in Job III-D entitled Occurrence and Distribution of the Eastern Coyote in New Jersey. Data files are stored at the Division of Fish and Wildlife (NJ Department of Environmental Protection) Nacote Creek and Hedge Haven field offices.

Literature Cited

- Burnett, A. W. 2006. Hunter and trapper harvest, recreational and economic survey. P-R Performance Report W-68-R-10 Attachment 1. New Jersey Division of Fish and Wildlife. Trenton, NJ 08625
- Burnett, A. W. 2005. Hunter and trapper harvest, recreational and economic survey. P-R Performance Report W-68-R-9 Attachment 3. New Jersey Division of Fish and Wildlife. Trenton, NJ 08625

NJ Division of Fish and Wildlife

2005-06 Coyote/Fox Hunter Survey

Dear Fellow Hunter:

This is a copy of the 2005-06 Coyote/Fox Hunter Questionnaire. This survey contains questions about your coyote and fox hunting activities in New Jersey this past (2005-06) 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 2006 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

Larry Herrighty, Chief
Bureau of Wildlife Management
NJ Division of Fish and Wildlife

HOW TO COMPLETE THIS SURVEY

1. Please answer all applicable questions. Answer this questionnaire even if you did not hunt or if you did not harvest any game during the past season.
2. 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".
3. 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 fox while you shot only one, you would report 1 fox.
4. Record your answers in the space provided after each question.

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5. After completing the questionnaire, return it in the envelope provided.

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2005-06 New Jersey Coyote/Fox Hunter Survey Questionnaire

1. Prior to 2005-06, have you hunted coyotes or fox in the past? (Check **one**) YES NO
2. Between Oct 1 to Feb 20, 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 2, please go on to **Table 1**.

3. If you answered **NO** to Question 2, please list the **single most important reason** why you did not actively pursue coyote or fox in New Jersey during the 2005-06 season: _____.

If you answered **NO** to Question 2, **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.

Table 1 – For Questions 4-6, 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
4. Oct 1 – Nov 11 (Archery only)		B				
5. Nov 12 – Jan 15 (Firearm or Bow)						
6. Jan 16 – Feb 20 (Special Permit)						

7. Please list the locations in which you saw **coyotes** or found their tracks/scat during the 2005-06 seasons:

	Township	County	Township	County	Township	County
Coyote seen						
Tracks/scat						

8. Please check the time period(s) you hunted during the 2006 **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

9. If you used a shotgun during the 2006 **Special Permit** Coyote/Fox Season, what size(s) shot did you use?: _____

10. Where did you do *most* of your hunting during the 2006 **Special Permit** Coyote / Fox Season? (Check one)

- A. Private land C. State Wildlife Mgt. Area E. State Park or Forest
 B. Federal land D. Utility Right-of-Way F. County/Municipal

The survey is now complete. Thank you for participating in this year's Coyote / Fox Hunter Survey. The NJ Division of Fish and Wildlife values your input and the information you provided. Kindly return the survey along with any comments or concerns you wish to share in the self-addressed envelope by March 15, 2006.