

PERFORMANCE REPORT

State: New Hampshire

Grant W-89-R-6

Period Covered: July 1, 2005 – June 30, 2006

Grant Type: Survey and Inventory

Project Title: WILD TURKEY RESEARCH AND MANAGEMENT Project IV

Job 1: HARVEST MORTALITY DATA COLLECTION, ENTRY AND ANALYSIS

Job Objective:

To annually collect and analyze spring and fall turkey season harvest data and to assess population status in relationship to population objectives.

Summary: A total of 3,559 turkeys (3,532 gobblers and 27 hens) were registered at 53 stations during the April 29-May 31, 2006 spring gobbler season. This was a moderate increase of 516 turkeys or 17.0% from the previous year. The harvest was comprised of 1,229 jakes (34.8%) and 2,303 toms (65.2%), for a juvenile to adult male harvest ratio of 0.53 to 1.00. The distribution of age classes in the harvest was: 1 year-olds (36.4%), 2 year-olds (40.0%), 3 year-olds (19.4%), 4 year-olds (3.7%), 5+ year-olds (.5%). The 3rd Youth Turkey Hunt in New Hampshire on April 29-30 accounted for 437 gobblers or 12.4% of the total season harvest.

During the fall 2005 (September 15 – December 15) turkey archery season 296 turkeys (168 hens and 129 gobblers) were registered from 144 towns. The harvest was comprised of 21 adult hens, 147 immature hens, 52 toms and 77 jakes.

Target Date: June 30, annually

Status of Progress: On schedule

Deviations: None

Procedures:

Approximately 50 turkey registration stations will be established throughout the state. Local conservation officers will assess local registration needs, assess requests from possible station vendors and in consultation with the turkey project leader, ensure that there is adequate station coverage of the state. Required registration report forms, related supplies, turkey seals and instructions will be organized and provided to stations prior to the onset of spring and fall seasons. Registration stations will be visited periodically throughout established seasons, to ensure registration procedures are followed and to gather completed data for submission to data entry staff. Data will be verified and entered on an on-going basis throughout each season.

Turkeys will be aged and sexed by plumage, beard, spur and weight characteristics. Registration station personnel will be provided with guidelines for distinguishing age and sex classes. Algorithms will be run during analysis to verify that accurate sexing and aging have occurred. Questionable data will be reviewed and adjusted as necessary, by the project leader. Computerized harvest data will be analyzed to provide summaries of kill by Wildlife Management Unit (WMU), age, and sex. Spring gobbler kill per square mile of identified turkey habitat in each WMU will serve as the principal population index. The spring gobbler kill per permit issued will be monitored

in order to assess possible changes in hunter efficiency, which could result from changes in turkey abundance or hunting pressure. Turkey hunting surveys (Job 2) will provide further insight into the possible influence of changing hunting pressure. The spring gobbler kill index will be contrasted against established objectives, to assess whether season adjustments are warranted. Harvest data will also be used to monitor long-term population trends. Each year's data will be entered into a comprehensive historic turkey data set.

Results:

A. FALL HARVEST DATA COORDINATION, COLLECTION, ENTRY AND ANALYSIS

A total of 296 turkeys (168 hens and 129 gobblers) were registered during the fall 2005 (September 15-December 15) archery season from 144 towns. This represents a 13% decline from the 342 turkeys taken during the fall 2004 season, and likely reflects better mast production (and subsequent reduced hunting vulnerability in fields) during fall 2005.

Table 1 provides some perspective in regional turkey archery harvest among the state's ten counties. Grafton County with 59 had the most archery turkeys registered, followed by Hillsboro County with 48. Both of these counties have surpassed the harvest in the two counties where the turkey population was started: Cheshire (33) and Sullivan (27). Rockingham County in developed southeastern New Hampshire had 28 archery turkeys registered, compared to 27 archery turkeys in Sullivan County, which has the highest spring gobbler harvest per square mile. Rockingham County typically has the lowest spring season harvest. One factor, which may contribute to the relatively high archery harvest in Rockingham County, is the higher density of archery hunters per huntable square mile because of firearms restrictions in this more developed region.

Table 2 compares turkey sex and age archery harvest data from each of the past seven seasons. The female:male harvest ratio for fall 2005 was 168 hens: 129 gobblers or 1.50. This is the fourth successive year this harvest ratio has declined. In earlier fall archery seasons the number of hens was double or more than the harvest of males. Proportionally more male turkeys have been registered during the past three seasons. With a larger turkey population in the state now, perhaps archery hunters are being more selective. Usually adult hens significantly outnumber juvenile hens in the harvest. However, this was the first year juvenile hens (147) far outnumbered adult hens (21) in the harvest. The good production of young during summer 2005 was probably one factor.

Table 3 provides a breakdown of the turkey archery harvest by wildlife management unit. Units M and D2 had the most archery turkeys registered, each with 33. Unit D2 is logical because it has probably the highest turkey density of any unit and the most farmland where turkeys are visible in fields. Unit M is a surprise because it is the most developed area of the state, with one of the lowest turkey densities per unit.

Problems with registration stations:

The sex and age entered by agents on the registration forms of fall archery turkeys is often incorrect, and the turkey project biologist needs to change approximately one-third of the forms. Agents label many hen turkeys in early fall as immature (and they are really adult hens). Rarely can immature hens only 4 or 4 ½ months old in September and early October weigh as much as 7.5, 8.0 or 9.0 pounds. Perhaps agents in early fall automatically label the hen immature because it isn't 12, 15 or more pounds as jakes are in the spring season. More instruction to agents may be necessary, particularly if a fall shotgun season becomes popular, with large numbers of turkeys harvested.

B. SPRING HARVEST DATA COORDINATION, COLLECTION, ENTRY AND ANALYSIS

A total of 3,559 turkeys (3,532 gobblers and 27 hens) were registered at 53 stations, harvested from 223 towns from the state's ten counties during the April 29-30 youth weekend and the May 3-31 spring gobbler season. During the previous year 3,043 turkeys were registered from 221 towns. Therefore, the May 2006 season had a moderate increase of 516 turkeys or 17.0%. This year there were 27 hens taken, compared to 18 last year.

It was predicted that there would be a moderate increase in the May 2006 harvest from the May 2005 harvest total of 3,043 or somewhere between 12% to 24%, or a harvest of approximately 3,600 gobblers. There was a good productivity the previous summer, and the 2005/2006 winter was very easy. The May 2006 season total of 3,559 (17.0% increase) was close to the 3,600 predicted. It was also predicted there would be numerous 2 year-old toms in the harvest and this certainly occurred; the 1,414 two year-olds registered comprised 40.0% of the May 2006 harvest. It is believed that the May 2006 harvest would have been somewhat greater than 3,559, if not for the heavy rains on opening day (May 3rd) and on Mother's Day weekend (May 12, 13 and 14).

The May 2006 harvest of 3,532 gobblers was comprised of 1,286 jakes (36.4%) and 2,246 toms (63.6%), for a juvenile/adult male harvest ratio of 0.57 to 1.00, compared to a ratio of 1.11 to 1.00 the previous year (Table 4).

Table 5 records the estimated age classes of gobblers registered from each wildlife management unit. The harvest breakdown was: 1 year-olds (36.4%), 2 year-olds (40.0%), 3 year-olds (19.4%), 4 year-olds (3.7%), 5+ year-olds (0.5%). There were some significant differences between the 2005 and 2006 season age classes. The 2006 season had one of the lowest juvenile:adult male harvest ratios (0.57) on record. Many more adult toms (63.6%) were harvested than jakes (36.4%). There were more 2 year-old toms (40.0%) taken than 1 year-old jakes during the May 2006 season. A higher percentage of 3 year and 4 year-olds were also taken during May 2006, compared to May 2005. Good summer productivity for the past three summers and three successive mild winters have certainly contributed to an increased abundance of adult toms in the statewide turkey population and in the season harvest. However, the percentage of 4 year-olds (3.7%) and 5+ year-olds (0.5%) in the New Hampshire harvest remains quite low compared to many states.

Table 6 records the turkey harvest each day of the season. The Youth Hunt Weekend of April 29-30, recorded 437 gobblers or 12.4% of the total season harvest, compared to 389 gobblers and 12.8% during 2005. Opening day May 3rd (Wednesday) of the regular season had 553 turkeys registered 15.7% of the total, compared to 569 turkeys (18.7%) the previous year. The first week of the season (May 3 – May 9) had 1,973 turkeys (55.9%) registered, and then a big drop to 392 turkeys (11.1%) during the second week of the season (May 10 – May 16). The four weekends combined for 29.8% of the season harvest.

Table 7 compares the gobbler harvest by wildlife management units (WMUs) between the May 2005 and May 2006 seasons. There was an increased harvest of 509 gobblers or an average increase of 16.8% from 2005 to 2006 for the 17 WMUs. The poor units E and F in the White Mountains area exhibited virtually no change in harvest. The newer units in northern Coos County (units B, C1, C2), while not having great turkey habitat or large harvests, did show significant increase in harvest from 2005 to 2006. It was surprising to see unit K (412 gobblers) have the highest harvest because it is easterly from the original good units in the Connecticut River Valley farmland. Unit J2 (356 gobblers) in eastern New Hampshire also had a significant increase in harvest. Units L and M in the most developed southeastern portions of the state also had good increases in harvest of 40.5% and 54.4% from the 2005 to 2006 season.

Table 8 lists the gobbler kill per square mile for the 17 wildlife management units. The units with the greatest densities of harvest were: D2 (0.99), H1 (0.90), K (0.72) and I2 (0.70). Ten of 17 units have now reached a spring gobbler kill per square mile of 0.50, which is the criterion to be used to allow for a unit to start having some limited fall shotgun season. Unit D2 has now surpassed unit H1, which had the highest harvest per square mile for years. More surprising is the good growth in units K and I2 which are well east of the Connecticut River Valley and have relatively little farmland left. Units E and F, in portions of the White Mountain National Forest, will probably retain low harvest densities, as will unit M in the most developed areas of the state. It is still too early to predict about newer units B and C in the northernmost Coos County. The average kill for the entire state was 0.49 gobblers per square mile; the previous year it was 0.42.

Table 9 lists the numbers of gobblers registered at each of the 53 stations during the May 2006 season, with May 2005 numbers as a comparison. Eleven stations registered more than 100 turkeys; the highest numbers were in Hillsboro (173), Manchester (168), Littleton (166), and Walpole (149). Six more stations are getting close to 100 turkeys.

The number of gobblers harvested per town continues to increase for many towns. There are 242 towns in the ten counties of the state, and turkeys were harvested from 223 towns during the May 2006 season. There are actually more than 242 towns in the state, but there were 17 from northern Coos County, which were excluded because they are unincorporated towns with few people and poor turkey habitat in the White Mountain National Forest area. Eight of the state's 10 counties had turkeys harvested virtually from every town in each county. The northernmost Coos County and the most developed Rockingham County were the two exceptions.

Of the 242 with turkey harvest, 72 towns had 20 or more gobblers registered per town; 23 towns had 30 or more registered; 9 towns had 40 or more registered. The ten towns with the highest gobbler harvests were: Bath (74), Haverhill (63), Plainfield (52), Weare (52), Claremont (45), Concord (41), Cornish (43), Alton (46), Walpole (41), and Westmoreland (40).

The gobbler kill per square mile has reached ≥ 1.0 in only 15 of the 242 towns which registered turkeys: Bath (1.91), Rollinsford (1.91), Lisbon (1.26), Sugar Hill (1.23), Haverhill (1.21), Madbury (1.21), Monroe (1.21), Landaff (1.20), Walpole (1.16), Lyman (1.13), Westmoreland (1.12), Langdon (1.11), Claremont (1.05), Cornish (1.03), Plainfield (1.00). Seven of these 15 towns are in the western half of Grafton County (unit D2) bordering the Ammonoosuc River Valley and near the Connecticut River Valley; this is the county with the most farmland. Another 6 of these 15 towns have good farmland in the Cheshire/Sullivan County *(units H1, H2) region bordering the Connecticut River Valley. The remaining 2 towns are very small towns near the Maine border.

It was expected that there would be good weights on gobblers because of the very easy winter with abundant food. Many toms weighed 20 pounds or more. A sample of (N=37) 2 year-old toms from the Drewsville turkey registration station in Cheshire County averaged 19.3 pounds. A sample of (N=44) jakes from this area had an average of 14.7 pounds, with some up to 18½ pounds. There were exceptionally heavy toms throughout the state. The two heaviest were 26 pounds from Walpole and 26 pounds from Landaff. There were three toms of 24 ½ pounds from Goffstown, Litchfield and Piermont. There were four toms of 24 pounds from Alstead, Chesterfield, Newport and Laconia. There were five toms of 23 ½ pounds and thirteen toms of 23 pounds. The following have been the heaviest gobblers in New Hampshire over 27 hunting seasons (1980 to 2006): 26 ½ pounds from Haverhill in 1996, 27 pounds from New Durham in 2000 and 27 pounds from Effingham in 2003.

The 2005 turkey season results are also summarized and included in the 2005 Big Game Harvest Report (see W-89-R-6, Project I, Job 4, Appendix 1).

Conclusions: Another record harvest occurred during the May 2006 season, with a 17% increase from the previous year. Fourteen of 17 WMU's had significant increases in harvest from the previous year, while only 3 units had little change. It was encouraging to see more eastern units such as J1, J2, K, I1 and I2 recording an increasing percentage of the statewide turkey harvest. There are now 10 of the 17 WMU's which have reached the level of 0.50 gobblers killed per square mile – the criterion which makes these WMU's eligible for a fall shotgun season.

Recommendations:

1. A number of the registration stations (agents) in the northern half of the state should be contacted and perhaps visited by regional biologists, because there is a significant amount of inaccurate sex and age entries and other missing data on their harvest registration forms. It is difficult to correct registration form data 1-2 months after the end of the season, and these errors can lead to errors in season data analysis.
2. It would be helpful if turkey registration data could be entered in a more timely fashion due to the short time interval between season completion and Federal Aid report due dates.
3. Continue this job as planned.

Principal Investigator: Theodore Walski, Turkey Project Leader
July 2006

Table 1. Fall 2005 Turkey Archery Season Harvest by County.

County	# of hens	# of gobblers	Total
Belknap	7	1	8
Carroll	8	10	18
Cjesjore	18	15	33
Coos	13	12	25
Grafton	30	29	59
Hillsboro	32	16	48
Merrimack	17	13	30
Rockingham	16	12	28
Strafford	9	11	20
Sullivan	17	10	27
Total	167	129	296

Table 2. Comparative Age and Sex Data from the 1999 – 2005 Fall Turkey Archery Season.

Year	Total Turkeys	# of Towns Registering Turkeys	# of Imm. Hens	# of Adult Hens	# of Jakes	# of Toms	Female:Male Harvest Ratio
1999	244	108	66	98	44	32	2.20
2000	81	55	22	34	13	12	2.24
2001	256	124	69	107	37	43	2.20
2002	202	100	54	79	20	49	1.93
2003	270	145	60	108	41	61	1.65
2004	353	151	52	159	70	72	1.49
2005	297	144	147	21	77	52	1.30

Table 3. Fall 2005 Turkey Archery Season Harvest by WMUs.

Wildlife Mgt Unit	# of adult hens	# of imm. hens	# of jakes	# of toms	total turkeys	# of towns registering turkeys
B	0	3	2	0	5	4
C1	0	2	1	0	3	2
C2	0	2	0	1	3	2
D1	1	4	5	3	13	4
D2	0	15	11	7	33	10
E	0	2	1	1	4	2
F	2	2	1	2	7	6
G	2	9	4	3	18	11
H1	5	11	5	4	25	13
H2	1	17	8	6	32	17
I1	1	3	2	2	8	7
I2	1	13	2	3	19	11
J1	0	5	6	1	12	9
J2	2	14	9	5	30	18
K	0	19	6	7	32	19
L	3	8	4	5	20	13
M	3	18	10	2	33	20
Total	21	147	77	52	297	144

Table 4. Juvenile/Adult Gobbler Harvest Ratio for Past Seven Spring Seasons in New Hampshire.

YEAR	# JAKES IN HARVEST (%)	# TOMS IN HARVEST (%)	JUVENILE:ADULT HARVEST RATIO
2000	1,064 (56.4%)	822 (43.6%)	1.29
2001	1,052 (46.6%)	1,207 (53.4%)	0.87
2002	1,351 (52.5%)	1,222 (47.5%)	1.10
2003	928 (36.0%)	1,653 (64.0%)	0.56
2004	1,435 (53.6%)	1,243 (46.4%)	1.15
2005	1,589 (52.6%)	1,433 (47.4%)	1.11
2006	1,286 (36.4%)	2,246 (63.6%)	0.57

Table 5. Age Classes of Gobblers Registered by WMU during 2006 Spring Season.

WMU	1 year	2 year	3 year	4 year	5+ year	TOTAL
B	16	10	8	2	0	36
C1	8	14	0	1	0	23
C2	21	15	4	1	0	41
D1	48	63	15	2	1	129
D2	122	181	81	14	1	399
E	13	20	11	4	0	48
F	29	29	22	3	0	83
G	90	132	58	6	2	288
H1	130	99	67	21	3	320
H2	161	154	64	24	4	407
I1	73	67	49	5	0	194
I2	58	107	56	6	1	228
J1	59	89	50	7	3	208
J2	149	139	59	8	1	356
K	152	168	76	15	1	412
L	71	76	32	4	1	184
M	86	51	32	7	0	176
TOTAL	1,286	1,414	684	130	18	3,532
%	36.4%	40.0%	19.4%	3.7%	0.5%	

Table 6. Spring 2006 Season Gobbler Harvest by Day.

Kill_date	Day of week	Male_kill
April 29	Saturday	273
April 30	Sunday	164
May 3	Wednesday	553
May 4	Thursday	366
May 5	Friday	293
May 6	Saturday	312
May 7	Sunday	278
May 8	Monday	85
May 9	Tuesday	86
May 10	Wednesday	69
May 11	Thursday	66
May 12	Friday	70
May 13	Saturday	78
May 14	Sunday	56
May 15	Monday	24

May 16	Tuesday	29
May 17	Wednesday	60
May 18	Thursday	41
May 19	Friday	52
May 20	Saturday	96
May 21	Sunday	126
May 22	Monday	23
May 23	Tuesday	33
May 24	Wednesday	23
May 25	Thursday	29
May 26	Friday	43
May 27	Saturday	57
May 28	Sunday	50
May 29	Monday	57
May 30	Tuesday	19
May 31	Wednesday	21
All	All	3532

Table 7. Gobbler Harvest by WMUs, Spring 2005 vs. 2006.

2006 SPRING MALE KILL BY WMU COMPARED TO PRIOR YEAR

WMU	2005	2006	# Change	% Change
B	17	36	+19	112%
C1	18	23	+5	28%
C2	13	41	-28	215%
D1	120	129	+9	8%
D2	335	399	+64	19.1%
E	47	48	+1	2%
F	83	83	0	0
G	263	288	+25	9.5%
H1	334	320	-14	-4.2%
H2	367	407	+40	10.9%
I1	173	194	+21	12.1%
I2	193	228	+35	18.1%
J1	178	208	+30	16.8%
J2	295	356	+61	20.7%
K	342	412	+70	20.5%
L	131	184	+53	40.5%
M	114	176	+62	54.4%
ALL	3023	3532	+509	16.8%

Table 8. Gobbler Kill per Square Mile by WMUs, Spring 2005 vs. 2006.

WMU	(May 2006) # Gobblers registered	Square Miles Turkey Habitat	(May 2006) Kill per Sq. mile	(May 2005) Kill per Sq. Mile
B	36	251.65	0.14	0.07
C1	23	144.62	0.16	0.12
C2	41	177.69	0.23	0.07
D1	129	193.11	0.67	0.62
D2	399	402.46	0.99	0.83
E	48	451.29	0.11	0.10
F	83	372.65	0.22	0.22
G	288	555.15	0.52	0.47
H1	320	353.86	0.90	0.94
H2	407	626.12	0.65	0.59
I1	194	317.97	0.61	0.54
I2	228	327.64	0.70	0.59
J1	208	426.81	0.49	0.42
J2	356	733.40	0.49	0.40
K	412	569.91	0.72	0.60
L	184	412.97	0.45	0.32
M	176	532.39	0.33	0.21
ALL	3532	7274.13	Avg. = 0.49	Avg. = 0.42

Table 9.

2006 SPRING MALE KILL BY STATION COMPARED FOR 2005 AND 2006

turkey_region	location_town	station	2006	2005	# change
C	ANTRIM	PLACE IN THE WOODS	37	31	+6
C	BRADFORD	MERRIMACK FARM & COUNTRY STORE	26	0	new
C	DANBURY	SMITH RIVER TRADING POST	82	57	+25
C	DUNBARTON	DUNBARTON COUNTRY STORE, LLC	32	17	+15
C	FRANKLIN	FRANKLIN FIRE STATION	95	61	+34
C	HILLSBORO	MORSE'S SPORT SHOP	173	145	+28
C	HOOKSETT	STEVE'S SPORTSMEN'S DEN	104	98	+6
C	MANCHESTER	WILDLIFE TAXIDERMY & SPORTS	168	122	+46
C	MILFORD	MILFORD FISH HATCHERY	128	104	+24
C	NEW BOSTON	NEW BOSTON SPORTS	40	36	+4
C	NEW IPSWICH	HOPPY'S COUNTRY STORE	46	42	+4
C	NEWBURY	DICKIE'S OUTDOOR SPORTS	0	58	Delete
C	SALISBURY	BARN STORE OF NEW ENGLAND	91	73	+18
C	WEARE	DAVE'S TAXIDERMY	22	24	-2
E	BARRINGTON	BRIAN'S ARCHERY SHOP	39	25	+14
E	BARRINGTON	SAVING MEMORIES TAXIDERMY	14	0	New
E	EAST KINGSTON	JEWETT'S GENERAL STORE	48	32	+16
E	GREENLAND	SUDS N SODA SPORTS OUTLET	58	48	+10
E	MADBURY	TAYLOR'S TRADING POST	58	58	---
E	NEW DURHAM	HOTSPOTS OUTFITTERS	110	89	+21
E	W NOTTINGHAM	DEMMONS STORE	16	9	+7
N	BATH	SWIFTWATER WAY STATION	66	0	New

N	BRISTOL	NEWFOUND SALES INC	66	57	+9
N	CONWAY	USFS SACO RANGER DISTRICT	40	22	+18
N	ERROL	LL COTE	8	3	+5
N	FREEDOM	FREEDOM MARKET	75	83	-8
N	GORHAM	GORHAM HARDWARE AND SPORT CTR	20	14	+6
N	GROVETON	EMERSON OUTDOOR OUTFITTERS	53	46	+7
N	HAVERHILL	OTTER OUTFITTERS	0	132	Delete
N	HAVERHILL	PIKE STATION STORE	88	51	+37
N	JACKSON	WILDCAT SERVICE STATION	13	16	-3
N	JEFFERSON	JEFFERSON OLD CORNER STORE	50	37	+13
N	LACONIA	PAUGUS BAY SPORT SHOP	92	87	+5
N	LEBANON	WELCH'S GUN SHOP	132	153	-21
N	LINCOLN	VINDICO SPORTS	0	3	Delete
N	LITTLETON	COREY'S SPORT SHOP INC	166	151	+15
N	LITTLETON	POULSENS GENERAL STORE	55	0	New
N	MILAN	YESTERDAYS COUNTRY STORE	41	27	+14
N	ORFORD	PATTERSON GROCERY & DELI	85	66	+19
N	OSSIPEE	NUTES TRADING POST	32	0	New
N	PLYMOUTH	PLYMOUTH FIRE STATION	124	112	+12
N	SANBORNVILLE	LONGMEADOW HARDWARE	39	15	+24
N	TAMWORTH	SOUTH TAMWORTH COUNTRY STORE	40	38	+2
N	TUFTONBORO	TUFTONBORO GENERAL STORE	37	32	+5
N	UNION	NUTES TRADING POST (WAKEFIELD)	0	40	Delete
N	WHITEFIELD	LUFKIN'S SERVICE CENTER	26	23	+3
SW	CLAREMONT	STEARNS ARCHERY & TAXIDERM	114	118	-4
SW	DREWSVILLE	DREWSVILLE STORE	149	126	+23
SW	DUBLIN	CARR'S STORE	88	89	-1
SW	FITZWILLIAM	STATE LINE GROCERY	44	35	+9
SW	KEENE	FISH & GAME REGION 4	1	4	-3
SW	KEENE	MOORE'S TAXIDERM	69	41	+28
SW	MARLOW	MARLOW GROCERY	34	24	+10
SW	NEWPORT	NEWPORT FIRE-EMS	112	69	+43
SW	PLAINFIELD	MERIDEN DELI MART	79	56	+23
SW	WESTMORELAND	WESTMORELAND VILLAGE STORE & DELI LLC	50	59	-9
SW	WINCHESTER	TRADER JOHN'S	57	65	-8
ALL		ALL	3532	3023	

Performance Report

State: New Hampshire

Grant W-89-R-6

Period Covered: July 1, 2005 – June 30, 2006

Grant Type: Survey and Inventory

Project Title: WILD TURKEY RESEARCH AND MANAGEMENT Project IV

Job 2: NON-HARVEST DATA COLLECTION, ENTRY AND ANALYSIS

Job Objective:

To annually coordinate, collect and analyze non-harvest data, through summer brood surveys, winter flock surveys, hunter surveys, research projects and turkey complaints.

Summary: The winter of 2005/2006 was the third successive winter for wild turkeys, with very little snowfall and snow-cover. Because of the easy winter, regional biologists gathered minimal information on numbers and sites of winter flocks. A small number of winter flock survey cards were printed and distributed.

Because of the early-ending winter and warm spring it was predicted that the majority of the turkey hatch would occur during the 2nd half of May rather than the 1st half of June, and brood survey data indicates that this occurred. A sample of N=38 brood sightings from May hatches yielded an average of 6.60 poults per hen. Thirteen brood sightings from June hatches had an average of 5.62 poults per hen.

The months of May and June 2006 had record rains throughout most of New Hampshire, and it is anticipated that turkey productivity for summer 2006 will be below the longterm average. There was a 13-day window of good hatching weather during the period May 19 – June 1, and during the 2nd half of June.

During the past winter of 2005-2006 turkey droppings were collected at a sample of dairy farms from northern and southern New Hampshire. This second winter of sampling failed to detect any evidence of salmonella in turkey droppings at bunker silo sites.

A 2-year turkey research project was initiated at Pease Air Base/Great Bay N.W.R. in Rockingham County, to study the movements and ecology of turkeys in three towns bordering the airport and come up with recommendations to reduce the turkey threat to airplane safety. This is a cooperative study (funded by USDA Wildlife Services) between the University of New Hampshire, USDA Wildlife Services and the Fish & Game Department. During February 2006 the F&G turkey project biologist supervised the capture of 54 turkeys, of which 30 received transmitters.

Target Date: June 30, annually

Status of Progress: On schedule

Deviations: None

Procedures: Standardized survey cards will be prepared for both the collection of summer brood survey data and for winter flock survey data. Data cards will be distributed to participating staff (approximately 35 participants are anticipated) beginning in the summer of 2005. Data from the survey cards will be entered into a computer database for analysis. Results will be used to monitor turkey productivity, to forecast season expectations, to interpret harvest data, to assess winter flock distribution and abundance, and to monitor population status.

Hunter mail surveys will be enacted on an annual or biennial basis in order to monitor and assess turkey hunting effort, hunter distribution and turkey observation rates. Survey data will also provide insight into hunter participation in various seasons and hunter preferences regarding various aspects of our turkey management program. Participants will be randomly selected from successful turkey hunters from the previous year. As management needs change, additional data may be collected. Turkey permit sales data will be used to assess overall hunter participation.

USDA Wildlife Services data on turkey complaints will be summarized annually, in order to identify possible conflicts with management objectives and in order to track trends in turkey complaints over time. Research initiatives will be formulated as necessary to address management needs.

Results:

A. FALL AND WINTER SURVEYS

Fall 2005 mast crop:

Regional biologists selected several plots in each of four regions of the state to annually assess during September hard mast (oak and beech). Throughout the state the crop of red oak acorns was generally fair to good. The beechnut crop tended to be poor. The wild apple crop was fair and spotty, with perhaps 1 out of 3 trees with apples. The crop of various berries was generally good, as was the crop of white ash seeds.

Winter 2005/2006 weather conditions:

It was also the third successive mild winter for wild turkeys. This was perhaps the easiest winter in 30+ years for wild turkeys and deer. Snowfall and snow-cover were minimal from December through March. December was mild, with only one moderate snowfall on December 16th. January was very mild, with several thawing periods, and one 6-8" snowfall on January 7th. There was considerable bare ground by January 19th and flocks left the bunker silos at dairy farms. February was very mild with several thawing periods, and considerable bare ground. The only cold period (-5° to +12°F) was February 27 – March 3. March was very mild. It set a record for virtually no snowfall, and had mostly days of 40° to 60°F.

Winter Flock Surveys:

More standardized turkey population data is desirable due to the rapid growth of the wild turkey population, its range expansion, and increased hunting interest and pressure. In order to justify and liberalize turkey hunting opportunity such as instituting a fall shotgun season or a second gobbler in the spring season bag limit, we need to know more about turkey population numbers and annual increases or decreases in all wildlife management units, particularly in northern and eastern sections of the state.

Conservation officers are Department personnel that patrol all units throughout the state, and are intimately associated with specific towns and units. A wild turkey census done by officers over the same areas from year to year would be statistically much more desirable than the current random method of gathering winter turkey flock information with incomplete coverage of the state.

During November 2005 the project biologist designed a winter turkey flock survey card, and a winter survey questionnaire for conservation officers. (See Appendix 1 and 2.) The project biologist has always been able to record the majority of sites with large flocks from towns in southwestern New Hampshire because of being the Region IV biologist there. Additional winter flock information has come from the other three regional biologists and Turkey Chapter members from around the state. The new change in procedure was to add conservation officers throughout the state, and to print winter flock survey cards on which to record turkey sighting information.

The Turkey Team of 5 biologists discussed this winter survey proposal at a team meeting on December 7th. The team voted not to send an annual survey questionnaire to conservation officers. The team thought that a winter flock survey by officers should occur during a “specific” 1 or 2 month winter period each year. It was decided not to attempt the survey with officers this winter (due to logistics and timing) of 2005/2006, but to first do the survey with the several regional biologists. The project biologist had 500 of the 4” x 6” winter flock survey cards printed. Some were given to the biologists and some to Turkey Chapter members around the state. Table 1 provides a summary of large winter turkey flocks observed in assorted regions of New Hampshire.

Turkey winter food use:

Because of mild conditions and much bare ground, turkeys used greens and grasses to some degree each winter month. Acorns were readily available on the ground each month. Turkeys also used corn wastage in cornfields and from manure spreading.

B. TURKEY BROOD SURVEY

2006 hatching weather:

February and March were very mild; March had no snowfall, and had days mostly of 40° to 60°F. By March 12th turkey flocks were leaving wintering sites and getting into preliminary breeding activity. April was also unusually warm with periods of 50° to 70°F. There were only three days of rain, totaling only 2.46 inches for the month.

The months of May and June had record rains. The weather station at Surry Mt. Flood Control Dam in southwestern New Hampshire recorded 5.90 inches of rainfall during May and 9.39 inches during June. Record rainfall occurred during the period of May 12-16th, with much flooding in the southern half of New Hampshire. The southeastern portion of the state was particularly hard hit and it was speculated that ground-nesting game birds and waterfowl might have had significant nest losses in that region.

There were two potentially bad rainy periods for any turkeys hatching in early June. There was a 3-day continuous heavy, soaking rain period during June 2, 3, and 4 and another period during June 7, 8, 9 and 10. Some heavy rainfalls occurred during the period June 26-30, but this rain came mostly towards evening or at night. Temperatures were above normal during May and June, with numerous warm and sunny days.

Turkey hatching periods:

Because of the early-ending winter, warm spring and early breeding activity, it was predicted that the majority of the 2006 turkey hatch would occur during the second half of May rather than the first half of June.

A good random sample of 60+ turkey brood sightings were recorded during late May and June from a range of towns from 7 of the state’s 10 counties. However, the majority of this turkey brood sighting information was from the southern half of New Hampshire, and primarily the Cheshire/Sullivan County region.

The great majority of the brood sightings indicate hatching during May (N=50) rather than during June (N=11), as determined from the size of the poults. The earliest hatches were one each from May 13th and 14th, and four on May 15th. During May 17 hatches occurred during the 9-day period May 13 – May 21, and 21 hatches during the 9-day period May 23-31st.

2006 summer productivity:

Because of the record rains during May and June 2006 it is expected that the 2006 turkey hatching success will be below the long-term average. The turkey project biologist does not believe the turkey hatch will be as bad as many sportsmen and public anticipate. The rainy period during the first half of May probably had little affect on nesting. There was a 13-day window of good hatching weather during May 19th - June 1st, when it is believed half or more of the turkey hatch occurred. The first 17 brood sightings from this period typically had 8-10 poults per hen. The hatches from early June however definitely experienced some decimation; hens with only 3-5 poults were more common.

Table 2 records 38 turkey brood sightings from hatches that occurred during May 2006. The total of 50 hens + 330 poults had a respectable average of 6.60 poults per hen. Nine multiple hen brood sightings were included in the 38 broods, in order to enlarge the sample size. The average of 6.60 may have been higher because some of the hens from the 9 multiple hen broods may have had no poults at all.

Table 3 records 13 turkey brood sightings from hatches that occurred during June 2006. The total of 16 hens + 90 poults yielded an average of 5.62 poults per hen.

The Pease Air Base turkey research study had 18 radioed hens and yielded some hatching/brood data. However, information was less than expected because of mortalities and long distance dispersals. Four hens with hatches in four different towns had hatching dates of May 15, 16, 17, 26, and had 15, 7, 8 and 10 poults respectively.

C. WINTER AGRICULTURAL DAMAGE BY WILD TURKEYS IN NEW HAMPSHIRE

This is a cooperative 2-year study by the Fish & Game Department USDA Wildlife Services, and the University of New Hampshire.

During May 2004 a study was initiated to look at the potential disease factor from turkey droppings to dairy cows. Selected dairy farms were checked during winter 2004-2005 and fecal samples at trench or pit silos were collected and tested for the presence of salmonella. Twelve farms in northern and 10 farms in southern New Hampshire were selected for inclusion in the study.

During the winter of 2004/2005 droppings were collected at the sample of dairy farms during the four winter months (once each month) by a UNH graduate student in northern New Hampshire and by the Fish & Game Dept. turkey project biologist in southwestern New Hampshire. The droppings were examined at the UNH Veterinary Diagnostic Lab at Durham. This first year of sampling failed to detect any evidence of salmonella in turkey droppings.

During this past winter of 2005/2006 droppings were once again collected at a sample of dairy farms (see Table 4). This was the easiest winter for turkey in 30+ years. There was little snowfall or snow-cover. Acorns, grasses/greens and corn wastage were available to turkeys throughout the winter and flocks wandered considerably. Probably because of the tradition flocks had developed over the years of spending the winter at these dairy farms, turkey visitation to the bunker silos still occurred, but at a much reduced rate compared to moderate and hard winters. The majority of

droppings were not picked up in the bunker silos, but in field edges or old ensilage piles around the farm buildings. There was no snowfall during the month of March 2006, and flocks were dispersing from these wintering farm sites by March 12th. Because of the absence of turkeys toward the end of the winter, turkey droppings were picked up at only 5 farms in northern New Hampshire. This second winter of sampling failed to detect any evidence of salmonella in turkey droppings.

D. PEASE AIR BASE/GREAT BAY NATIONAL WILDLIFE REFUGE TURKEY STUDY

Justification for this Turkey Research Study:

During May 2003 an Air National Guard refueling tanker struck a wild turkey at Pease International Airport, resulting in over \$3 million in damages. Since then, Wildlife Services agency of USDA, based off of Rt. 106 in east Concord, has been conducting turkey harassment inside the perimeter fence at Pease, using pyrotechnics, bird-scaring windmills and repellents. Some turkeys have been shot. Turkeys continue to threaten air traffic safety.

Objectives of the Study:

The objectives are to determine the following, with a view to making management recommendations to reduce the threat to air traffic safety: What is the status of the wild turkey population in portions of the 3 towns directly bordering Pease A.B.? How many distinct flocks are present during the summer brood-rearing and winter periods? Where, when and how often do these flocks use the airport and the adjacent land outside the fence? What attracts the turkeys inside the fence, or are they just crossing from one side of the airport to the other. Where are the hens nesting? How far do these turkeys disperse for nesting in the spring, and to wintering sites? Is predation a significant factor in this turkey population?

Study Procedures:

The Wildlife Services Agency purchased 30 transmitters and 2 radio receivers. The idea was to capture turkeys on both sides of Pease Air Base. Approximately 20 transmitters were to be put on hen turkeys and 10 transmitters on gobblers. Those turkeys with transmitters were marked with colored wing streamers about 6 inches long affixed to the shoulder joint. All turkeys captured were leg-banded.

Several students from the University of New Hampshire and several staff from the Wildlife Services agency radio-tracked the turkeys with transmitters. They were monitored daily through the winter and more frequently during the breeding/nesting season. Visual locations in the three-town area by members of the study team and sightings reported in by local citizens, were marked and recorded by GPS (Global Positioning System). The turkey project biologist at the NH Fish & Game Department provided experience and equipment to help trap the turkey flocks.

Turkeys Trapped and Tagged During February 2006

Nine days were spent on trapping and tagging turkeys. The F&G Department turkey biologist stayed 5 nights in the Depot House at the Discovery Center in Stratham. All turkeys were also processed here to be tagged and have radio transmitters affixed. On February 14th 31 of 31 turkeys were trapped with the rocket net on Great Bay N.W.R. off McIntyre Road in Newington. On February 22nd 11 of 14 turkeys were captured at the Water Treatment Plant near Sherburne Avenue in Portsmouth. On February 23rd 4 of 4 toms were captured on Great Bay N.W.R. On February 28th two more groups of gobblers were also captured off McIntyre Road – 4 of 4 jakes and 4 of 6 toms. No turkeys were trapped from the Fox Point/Great Bay Road area of Newington.

This capture of 5 groups of turkeys totaling 54 turkeys, provided a good sampling of sex/age classes: 12 adult hens, 16 immature hens, 16 jakes and 8 toms. The following are the colors of the wing streamers on the 30 turkeys with radio transmitters:

8 adult hens (6 yellow, 2 white)
10 immature hens (3 yellow, 7 white)

8 jakes (7 green, 1 red)
4 toms (4 green, 0 red)

The 10 radioed turkeys on the Portsmouth or easterly side of Pease A.B. had 9 hens (white streamers) and 1 jake (red streamer). The 20 radioed turkeys on the Newington or westerly side of Pease A.B. had 9 hens (yellow streamers), and 11 gobblers (green streamers).

Update on radioed turkeys (March/April/May/June 2000):

Of the 30 turkeys (18 hens + 12 males) with transmitters, more than expected dispersal from Pease Air Base occurred during April/May 2006. As of the end of May there were 6 mortalities and 1 missing turkey. On May 24th an airplane was used to locate 8 radioed turkeys which had disappeared. Some had gone long distances: 2 in Amesbury (Mass.), 1 in Elliot (Maine), 1 in Concord and 1 in Allenstown. Two others were across Great Bay in Stratham and Lee. On June 22nd a radioed hen on a nest was shot because she was on a nest just within the airport fence in Newington. Of the original 30 radioed turkeys, the 8 mortalities and 8 which moved a long distance leaves 30 minus 16, or 14 still in the general 23 town area of Pease Air Base.

Not much is known about nesting success and productivity as of June 22nd. One hen in Portsmouth had 15 poults (May 16th hatch). Two hens hatched out young in June near/on Fish & Game Dept. land in Greenland next to Great Bay NWR. Seven hens are dead and three hens have broods. The reproductive status of eight other hens is unknown as yet.

Conclusions: The use of winter flock cards provided useful information and may be expanded in future segments.

Brood survey cards proved a useful method of collecting brood sightings. The reporting period for the project segment ended June 30th. More brood sighting information during July and August will clarify matters as to what percentage of the 2006 hatch occurred in May vs. June. Renesting later in the summer should be more prevalent than during more normal weather years. A large percentage of the hay fields were not mowed during June making visibility of broods in fields more difficult during early summer 2006.

Record rainfall during May and June 2006 has had many people apprehensive about a poor turkey hatch for summer 2006. However, the majority of hatching may have occurred during a good weather period during the second half of May, and numbers of poults in brood observations seemed reasonably good. More brood survey information is needed from the second half of the summer to determine the degree of summer 2006 turkey productivity compared to the long-term average.

Dairy farmers should have much less apprehension about the possible transmission of disease from turkeys to milking cows because during two years of collecting turkey droppings during winter at corn-ensilage bunker silos at dairy farms, no evidence of salmonella was found.

Recommendations:

1. Try enlisting conservation officers throughout the wildlife management units in the state, to use summer brood and winter flock survey reporting cards to monitor turkey population numbers and trends.
2. During winter 2006/2007, consider trapping some additional turkeys at Pease Air Base/Great Bay NWR and put on radio transmitters recovered from turkey mortalities during 2006.

Principal Investigator: Theodore Walski, Turkey Project Leader

July 2006

Table 1. Winter 2005-2006 turkey flock observations from various regions and/or counties in New Hampshire.

Southwest New Hampshire

<u>Town</u>	<u>Locality</u>	<u>Number in Flock</u>
Stoddard	In a backyard feeding them	82
Alstead	Woodhill Farm	40
Walpole	Blake Farm/Rt. 12	50
Alstead	Pratt Rock/Homestead Rd.	70
Sullivan	Sullivan Center Rd.	55
Sullivan	South Rd.	22
Walpole	Les Hubbard Res.	30
Fitzwilliam	Rt. 119 Dan Bemis	22
Westmoreland	Rt. 12 Castor's Discount Store	100
Surry	Gold Mine Rd.	50
Gilsum	Belvedere Rd.	50
Hinsdale	Rt. 63 Beaman Farm	100+
Chesterfield	River Rd./Old Larson Farm	70
Alstead	Rt. 123/Fuller Horse Farm	20
Sullivan	Valley Rd.	33
Hinsdale	Old Bomba Farm Rt. 119	36
Marlboro	Canada St.	42
Walpole	Graves Farm	200+
E. Swanzey	Hale Hill Rd.	48
Marlow	Rt. 10/Lewis Rd.	25
Marlow	Sand Pond Rd.	17
Fitzwilliam	Templeton Tpke Rd.	50
Westmoreland	Chickering Farm	6+

Lakes Region

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Franklin	Rt. 127/Ward Hill Rd	18
Sanbornton	Swain Farm	53
Meredith/Sanbornton	Block Brook Rd.	22
Holderness	Owl Brook Hunter Ed. Ctr.	17

Southeastern NH

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Concord	Oak Hill Rd.	40
Canterbury	Boroughs Rd./Forest Lake	70
Strafford	Evans Mt. Rd.	100
Barnstead	New Road	30

Coos County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Dalton	Conn. River/Rt. 135	40
Pittsburgh to Columbia	Along Rt. 3	100
Stratford	Fort Hill WMA	75
Lancaster	Lufkin's Buffalo Farm	15
Whitefield	Rt. 3/WMR High School	10

Grafton County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Monroe	Rt. 135 Stimson Farm	200
Bath	Woods Farm	50+
Haverill	Keith Farm	75
Landaff	Erb Farm	100+
Haverhill	Peter's Farm	25+

Sullivan County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Langdon	Holmes Farm	70
Claremont	Rt. 103/Dump	60
Unity	Center Rd./Five Sta.	40
Charlestown	Adams Farm	60
Claremont	LaClair Farm	100
Cornish	Stone Farm	50
Plainfield	Taylor Farm	70
Plainfield	MacNamara Farm	70
Acworth	Gowen Farm	60+
Washington	Rt. 3 Crane Farm	25

Hillsboro County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Francestown	Oak Hill Rd.	70
Hillsboro	old LaShute Farm	56
Deering	Old County Rd./Fire Station	100

Merrimack County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Warner	Kearsarge Mtn. Rd.	40

Table 2. Turkey brood sightings (N=38 broods) from hatches during May 2006

Approx. Hatch dates	Town	Locality	Number Of Young
May 18	Jaffrey	Proctor Rd	1 hen + 9+
May 21	Langdon	Merrell Farm	1 hen + 8-10+
May 21	Langdon	Merrell Farm	1 hen + 8-10+
May 15	Surry	Gunn Rd	1 hen + 12+
May 28	Hillsboro	Stowe Mt. Rd	1 hen + 8+
May 15	Henniker	Liberty Hill	1 hen + 10
May 17	Concord	Monitor Newspaper	1 hen + 7
May 16	Portsmouth	Sherburne Ave	1 hen + 15
May 15	Tamworth	Depot Rd	1 hen + 10
May 30	Langdon	Merrell Farm	1 hen + 6-8+
May 26	Sullivan	Junct. Sullivan/ Ferry Brook Rds	1 hen + 7+
May 31	Enfield	Shaker Village WMA	1 hen + 6
May 14	Bow	Rt. 3-A	1 hen + 10
May 16	Langdon	Merrell Farm	1 hen + 14+
May 13	Newport	Unity Springs Rd	1 hen + 8
May 24	Milford	Mile Slip Rd	1 hen + 7-8
May 26	New Ipswich	Whitemore Hill Rd	2 hens + 7
May 25	Langdon	Carboni Farm	3 hens + 25+
May 18	Henniker	Rt. 202/ Rt. 9 Overpass	2 hens + 7
May 26	Newington	Great Bay NWR	1 hen + 7
May 31	Walpole	Whitcomb's Pond	1 hen + 2
May 18	Charlestown	Rt .12A Jabe's Meadow	2 hens + 10-12
May 19	Belmont	Lamprey Rd	2 hens + 15
May 31	Orford	Orfordville/Rt. 25	1 hen + 10
May 26	Concord	Oak Hill Rd	1 hen + 2
May 25	Canterbury	Intervale Rd	1 hen + 7
May 26	Concord	Graham Rd	1 hen + 3
May 26	Concord	Graham Rd	1 hen + 3
May 25	Concord	Oak Hill Rd	1 hen + 4
May 25	Concord	Oak Hill Rd	1 hen + 5
May 25	Concord	Potter Farm	1 hen + 3
May 23	Merrimack	Tinker Rd	1 hen + 8
May 15	Greenland	McIntyre Rd	1 hen + 8
May 17	Seabrook		1 hen + 10
May 18	Northfield	Shaker Rd	2 hens + 8-10
May 23	Langdon	River Rd	3 hens + 12-14
May 23	Langdon	Winch Hill Rd	3 hens + 12-14
May 23	Langdon	Stratemeyer House Farm	1 hen + 8+

Table 3. Turkey brood sightings (N=13 broods) from hatches during June 2006

Approx. Hatch Dates	Town	Locality	Number of Young
June 1	Westmoreland	Rt. 12	1 hen + 10-12+
June 2	Brookline	Federal Hill Rd	1 hen + 5

June 7	Winchester	Rt. 78/Mass. Line	1 hen + 8-9
June 7	Canterbury	Rt. 93	1 hen + 3
June 7	Loudon	Lovejoy Rd	1 hen + 4
June 10	Loudon	Lovejoy Rd	1 hen + 3
June 11	Nelson	Rt. 9 By-pass	1 hen + 5
June 14	Langdon	Winch Hill Rd	2 hens + 8-10
June 15	Langdon	Holden Hill Rd	2 hens + 12+
June 21	Keene	Roxbury Rd	2 hens + 6-8+
June 15	Marlow	Rt. 10 School	1 hen + 5
June 19	Roxbury	Middletown Rd	1 hen + 9
June 26	Langdon	Edgerton Rd	1 hen + 5

Table 4. Dairy farms used for salmonella testing of turkey droppings during the winter of 2005/2006.

Grafton County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Monroe	Stimson Farm	200
Bath	Woods Farm	50+
Haverhill	Keith Farm	75
Landaff	Erb Farm	100+
Haverhill	Peter's Farm	25+

Sullivan County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Langdon	Holmes Farm	60-70
Acworth	Gowen Farm	60+
Charlestown	Adams Farm	60
Claremont	LaClair Farm	100 (in 3 groups)
Cornish	Stone Farm	50+
Plainfield	Taylor Farm	40, 30 (in 2 groups)
Plainfield	MacNamara Farm	40-70 (varies)

Cheshire County

<u>Town</u>	<u>Locality</u>	<u>Number in flock</u>
Westmoreland	Chickering Farm	60+
Walpole	Graves Farm	200

Appendix 1.

WINTER TURKEY FLOCK SURVEY CARD

date of observation: _____ town: _____ WMU: _____

locality: _____
(name of nearest road, farm, hill, etc.)

numbers of turkey in flock: _____ snow depth: _____

name of observer: _____

phone number: _____

C.O.: ____ volunteer: ____ biologist: ____ turkey chapter member: ____

food usage: _____

flock behavior: _____

landowner opinion(s): _____

other information: _____

Mail cards to: Ted Walski, NH Fish & Game Dept., 15 Ash Brook Court., Keene, NH 03431

Appendix 2. Draft winter turkey questionnaire – not employed.

SURVEY OF WILD TURKEY WINTER POPULATION

Conservation Officer
Name and #

Winter
2005/2006

WMU

relative severity of winter

How hard do you feel winter conditions were for wild turkeys in terms of snowfall and number of days of deep snowcover?

mild: _____ moderate: _____ hard: _____ severe: _____

Were there any thawing periods and/or bare ground periods during the winter? _____

Were you aware of any starvation or winter-kill turkeys during the winter? 1 or 2: _____

More than 2: _____ Comments: _____

wild turkey numbers

How many dairy farms had a wintering turkey flock? _____

How many flocks were you aware of that had more than 15 turkeys? _____

How many flocks of 50 to 200 turkeys? _____

Compared to the previous winter(s), what is the general status of the turkey population in your patrol area this winter just ending?

decreasing: _____ about the same: _____ increasing: _____

Comments: _____

What is your approximate estimate of the wild turkey population in your patrol area based on the known winter flocks?

minimum population: _____ maximum population: _____ best estimate: _____

winter food usage:

How many flocks used corn silage bunker corn at farms? _____

How many flocks used grain wastage in cornfields and/or from manure spreading or manure piles?

How pronounced was flock use of backyard birdfeeders?

minor: _____ moderate: _____ pronounced use: _____

What approximate percentage (%) of your total flocks used birdfeeder sites? _____ %?

What other winter foods were observed being used?

barberry: _____ rose hips: _____ dried apples: _____ sumac: _____ acorns: _____
white ash seeds: _____ green rye grass: _____ other (name): _____

How many residents feed turkey flocks in winter?: a few: _____ moderate number: _____
high number of people: _____

landowner attitudes:

Number of farms complaining about damage from winter flocks: _____

Number of landowners complaining about winter flocks: _____

What are some of the types of reported damage?: _____

What is the "general" attitude of the majority of people/landowners? _____

like having turkeys visit in winter _____% think there are too many turkeys _____% are neutral/ don't care _____% don't like wild turkeys _____%

non-wild turkeys

Are there any excessively "tamish" turkeys (roost on house roofs, look in windows, stand at busy highway intersections, etc.) in your patrol area?

Yes _____ No _____

If so, where are these sites? (landowner and/or road names): _____

Are there any "off-colored" (silver/charcoal body, palamino or speckled tannish wings/tail, whitish-tipped tail feathers) game farm type turkeys in your patrol area?

Yes _____ No _____ (landowner and/or road names): _____

Appendix 3.

SUMMER TURKEY FLOCK SURVEY CARD

date of observation: _____ town: _____ WMU: _____

locality: _____
(name of nearest road, farm, hill, etc.)

of hens & young: 1 hen + _____ young size of young: _____

1 hen + _____ young size of young: _____

1 hen + _____ young size of young: _____

sparrow size = 1 to 1½ weeks old

pigeon size = 6 weeks old (1½ months)

robin size = 2 weeks old

grouse size = 8 weeks old (2 months)

quail size = 4 weeks old

hen pheasant size = 10-12 weeks old (3 months)

name of observer: _____

phone number: _____

C.O.: ____ volunteer: ____ biologist: ____ turkey chapter member: ____

(Please mail these brood sighting cards to:

Region IV Fish & Game, 15 Ash Brook Court, Keene, NH 03431

JOB DESCRIPTION

State: New Hampshire

Period Covered: July 1, 2005 – June 30, 2006

Grant W-89-R-6

Grant Type: Survey and Inventory

Project Title: WILD TURKEY RESEARCH AND MANAGEMENT Project IV

Job 3: FORMULATION OF TURKEY POPULATION MANAGEMENT
RECOMMENDATIONS

Job Objective:

To formulate science-based recommendations on an annual or biennial basis for the continued management of New Hampshire's wild turkey population, consistent with achievement of existing turkey management goals and population objectives.

Summary: Turkey season proposals were formulated for the next two years through meetings of the Big Game Team, Turkey Team and public hearings. Procedures were established for New Hampshire's first fall shotgun season in 8 western wildlife management units. Criteria and justification for such a season were thoroughly presented to various Department staff and the sportsmen.

Target Date: June 30, annually

Status of Progress: On schedule

Deviations: None

Procedures: Turkey registration data from the spring and fall hunting seasons will be used as the basis for the formulation of management recommendations. Data from the summer brood survey and winter flock census will also be used. Management recommendations will consider long-term population objectives, hunting recreation opportunity, public viewing and turkey/landowner conflicts.

Hunting season recommendations will be formulated biennially. Information from preceding hunting seasons will be evaluated in the context of short and long-term trends and turkey population objectives on a Wildlife Management Unit (WMU) basis. Initial season recommendations will be developed by the Turkey Project Leader and reviewed, evaluated and modified as necessary by the Turkey Management Team. Input from regional biologists and law enforcement staff will be considered and draft recommendations will be subsequently developed at a Wildlife Programs Committee meeting for evaluation by the Executive Director and Commission. These preliminary recommendations will be presented at public hearings around the state and public comment will be incorporated by the Turkey Management Team and a final recommendation developed for review and adoption by the Executive Director and Commission. Only those costs up to, and including, development of final season recommendations will be charged to the grant. Unpredictable factors such as unusually severe winters could adversely impact turkey populations and result in a re-evaluation of existing season frameworks during non-season setting years.

Results:

Turkey season proposals for 2006/2007:

The Department sets species seasons and hunting rules annually or biannually. From January through April 2006 the Big Game Team met a number of times to develop season proposals. Meetings were held with conservation officer districts and regional biologists to get input on turkey proposals and proposals were presented at three public hearings during April 3rd, 4th and 5th. The project biologist provided supporting data to various department staff. Fall shotgun turkey seasons in other states from the Northeast were reviewed. New turkey season rules are listed in Appendix 1.

Fall 2006 shotgun turkey season proposal:

Hunting would be allowed in the 8 best wildlife management units in the western half of New Hampshire, which have spring gobbler kills ≥ 0.5 gobblers per square mile. The season would be 5 weekdays preceding the moose season, or October 16 Monday – October 20 Friday, 2006. A participant would have to purchase the existing \$6.00 spring season permit and then an \$11.00 permit for the 5-day shotgun season. The existing fall archery tag on the spring permit can be used to register the fall shotgun season turkey. The fall 2006 shotgun permit will not be available at licensing stores around the state, but only available in Concord, via mail, or over the internet.

Factors influencing a fall shotgun harvest:

Some states have used the figure of 1.0 gobbler per square mile kill density during spring gobbler seasons to use as a yardstick to determine when to open various towns or WMUs to a limited fall shotgun season. Since the turkey population in New Hampshire is at the northern range of wild turkeys, has more marginal habitat, and the turkey population is clumped rather than uniformly distributed, a general goal of 0.5 gobbler harvest per square mile was deemed more realistic by the Turkey/Small Game Committee in the Department several years ago. Eight of 17 WMUs have now reached a kill density of 0.5 gobblers per square mile. The best harvest densities are H1 (0.95) and D2 (0.84), probably because they have the best remaining farmland. While unit G had a spring harvest density of 0.48 and not the suggested 0.50, it is close enough. All 8 units are a contiguous block in western New Hampshire.

Compared to the popular spring gobbler seasons, the fall shotgun seasons in Massachusetts, Connecticut and New Jersey are relatively unpopular. Not many hunters participate, and the fall archery harvest in New Hampshire is typically higher than the fall shotgun season harvest in these other states. There is not the challenge of calling in gobblers in the fall season, and hunting for other game species can take precedence over turkeys during the fall.

From a 2003 questionnaire to turkey hunters in New Hampshire it indicated that 36% of those hunting during the spring shotgun season also participated during the fall archery season. It is therefore estimated that 5,400 hunters spent some time archery hunting for turkeys during the fall 2003 season.

The cost of the special permit for a 5-day turkey shotgun season during October will have significant bearing on the number of permit-holders. Perhaps 2-4,000 might purchase a \$5.00 permit, but the number of hunters could drop by half if the cost were \$10.00 to \$16.00.

Other factors could influence the number of hunters applying for a fall shotgun permit. The relatively short 5-day season, excluding a weekend, might reduce number of participants. Units in the eastern half of New Hampshire would be closed to the fall shotgun season. It is doubtful that large numbers of hunters living in eastern New Hampshire would travel to western New Hampshire to hunt during a short season.

New Jersey data predicts a 10% hunter success rate during a 1-week fall shotgun season, and 65% of the fall harvest is expected to be females. It would take approximately 1,000 permit-holders to harvest 100 turkeys. The number of persons purchasing a turkey permit in New Hampshire during year 2005 was approximately 18,000. If one-third of these or 6,000 hunters purchased a special fall permit, this might result in 500 to 600 turkeys registered during the 5-day season. This harvest would be spread out over a large area of 8 WMUs, or a total of approximately 3,347 square miles. This large area open to hunting during a short season would help to distribute hunting pressure and harvest and preclude the need for a lottery and allocation of specific numbers of permits per WMUs.

Other turkey season rule proposals:

The period for registering a turkey would be lengthened from 12 to 24 hours. This change would make the reporting time similar to that for other species such as deer. With the advent of an all-day fall turkey shotgun season, this change would also make it easier for hunters to register turkeys.

For those hunting turkeys during the fall turkey archery season, width requirement of fixed blade broadheads not to be more than 1 ½ inches wide, will be removed. This will allow archery hunters to use the newer gobbler guillotine arrows, which has four narrow blades in the head, which result in a diameter of 4 inches. This arrow is designed so as to result in less wounding of turkeys as compared to conventional arrows, and is used only for turkeys.

The only wildlife management unit closed to turkey hunting was unit A in northernmost New Hampshire. During May 2007 there will be a 2-week season (May 3-17) and the weekend Youth Hunt (April 28-29). The turkey population has expanded into the towns of Colebrook, Stewartstown, Clarksville and Pittsburg along the Connecticut River Valley to the Canadian border with Quebec. Hunting in units B, C1, and C2 just to the south for the past several years do not seem to have resulted in undue hunting pressure or excessive harvest. While the turkey population in units A1 and A2 is relatively small, opening some limited spring hunting seems appropriate.

Comments from conservation officer districts:

Some officers recommended keeping the turkey registration reporting time at 12 hours rather than going to 24 hours. It was thought some hunters would have more time to take a turkey from a closed WMU, and register it in an open WMU.

The officers in each of the six districts voted unanimously that the cost of the turkey permit should be increased from the present \$6.00. One officer suggested that having all day hunting during the spring season would attract hunters from other New England states to New Hampshire. The Department turkey biologist believes that the state's turkey population is clumped in distribution and already gets considerable hunting pressure, and that turkey biologists in the Northeast are not in favor of all day hunting. Gobblers are often call-shy, and this could worsen it.

One district lieutenant was against a fall shotgun season. He thought too many adult hens might be taken in the lower turkey density towns. He suggested that our requisite of 0.5 gobbler kill per square mile during spring seasons might not be safe enough for opening a WMU to some fall shotgun season.

The project biologist suggested that opening a large block of 8 WMUs would help distribute hunting pressure and a 5-day season was relatively short, and experience in several other New England states indicated that fall harvest numbers would not be high.

Several officers suggested that a 2-gobbler spring limit might be preferable over a fall shotgun season. Our questionnaire to New Hampshire turkey hunters several years ago indicated that a fall shotgun season was more desirable than a 2-gobbler spring bag limit. It was pointed out that our

adult tom population is already heavily cropped. We have very few toms in our spring harvest that are 4 years or older in age.

The officers in northern District #1 were not enthused over opening a fall shotgun season, particularly for unit D1. Some officers were concerned about hunters shooting turkeys off the sides of roads.

Conclusions:

Thorough review of turkey harvest and population data by the Turkey Team and Big Game Team resulted in the first fall shotgun season being approved by the Department and public, to be held during October 16-20, 2006.

Recommendations:

Continue this job as planned.

Prepared By: Theodore Walski, Turkey Project Leader
July 2006

Appendix 1. Wild turkey hunting rules in New Hampshire, including rules instituted in 2006.

Fis 302.01 Wild Turkey.

(a) For purposes of this section, the state shall be divided into wildlife management units as described in Fis 301.02.

(b) The turkey season in wildlife management units B, C1, C2, D1, D2, E, F, G, H1, H2, I1, I2, J1, J2, K, L and M shall be as follows:

- (1) The spring turkey season shall open on May 3 and close on May 31; and
- (2) The fall archery turkey season shall run concurrently with the archery deer season.

(c) The turkey season in wildlife management unit A shall be May 3 to May 17.

(d) In addition to the seasons specified in (b) and (c), a fall shotgun season for turkeys in wildlife management units D1, D2, G, H1, H2, I1, I2 and K shall be as follows:

- (1) Turkeys may be taken by shotgun during the 5 days immediately preceding the moose season as specified in Fis 301.07(c);
- (2) In addition to the regular turkey permit, persons shall purchase a fall shotgun turkey permit specified in (1); and
- (3) Persons taking a turkey during the fall shotgun turkey season shall tag the turkey with the fall turkey tag attached to the regular turkey permit.

(e) Shooting hours shall be as follows:

- (1) The shooting hours during the spring turkey season shall begin one half hour before sunrise and end at 12:00 noon; and
- (2) The shooting hours during the fall seasons for the taking of wild turkeys shall begin one half hour before sunrise and end one half hour after sunset.

(f) Persons licensed to take turkeys shall be entitled to take one bearded or male turkey per spring turkey season and one turkey of either sex during the fall archery season or the fall shotgun season described in (d). No person shall take more than 2 turkeys per year.

(g) Nothing in this section shall prohibit a person who has taken a turkey from assisting another properly licensed turkey hunter by calling only. The person assisting by calling shall not possess a firearm or bow and arrow.

(h) Taking shall be done subject to the following:

- (1) Shotguns between 10 and 20 gauge, inclusively, with shot size of 2, 4, 5, and 6 shall be the only firearms and shot permitted;
- (2) Bows shall have at least a 40-pound peak draw weight measured at 28 inches or less draw;
- (3) No mechanically-drawn or released bow shall be used;
- (4) No arrow shall be used other than broadheads;
- (5) Broadheads shall be as follows:
 - a. Fixed blade broadheads shall not be less than 7/8 of an inch wide;
 - b. Retractable blade broadheads may be smaller than 7/8 of an inch wide in flight, but shall not be less than 7/8 of an inch wide when open; and
 - c. There shall be no upper size limit on retractable blade broadheads;

- (6) The name and address of the archer shall be plainly printed on each arrow;
- (7) No person shall use live decoys, electronic calling devices, baiting, cooperative drives, or dogs during the spring turkey season;
- (8) No person shall use live decoys, electronic calling devices, baiting or cooperative drives during the fall archery season and fall shotgun season;
- (9) No person shall shoot at or take a turkey in a tree;
- (10) Persons licensed to take turkey shall immediately upon killing a turkey, fill out and detach the turkey tag from the license, and then securely attach to the leg of the turkey, the turkey tag bearing the name and address of the licensee who killed the turkey, the date and time of kill and WMU where the turkey was killed;
- (11) No person shall possess a turkey tag that was not issued to that person; and
- (12) No person shall attach a turkey tag to a turkey that person did not kill.

(i) Registration and reporting shall be as follows:

- (1) Any person killing a turkey shall bring the fully-feathered, intact carcass to a turkey registration station for examination and sealing within 24 hours of taking;
- (2) If requested, the carcass of the turkey shall be exhibited to a conservation officer for examination to determine the method of kill; and
- (3) The intact carcass may be eviscerated before bringing it to the registration station.

(j) No person shall transport a wild turkey unless it is tagged with a turkey tag and is accompanied by the permittee who took the turkey.

(k) No person shall at any time hunt, shoot, pursue, kill or take wild turkey in this state without first procuring a turkey permit and the applicable license required under RSA 214.

(l) Applicants for the fall shotgun turkey permit shall:

- (1) Pay a permit fee of \$11.00 of which \$1.00 is the agent fee;
- (2) Provide the applicant's:
 - a. Full name;
 - b. Street and mailing address;
 - c. Telephone number;
 - d. Date of birth;
 - e. Current year NH turkey permit number and current year hunting or combination hunting license number; and
 - f. Signature, signed under the penalty for making unsworn false statements under RSA 641:3.

(m) The fall shotgun turkey permit shall only be available in 2006 for purchase by mail or in person at the NH Fish and Game Department headquarters in Concord or over the internet at www.wildlife.state.nh.us.

(n) Applications mailed to the department for the fall shotgun turkey permit shall be postmarked by the 4th Monday preceding the fall shotgun opening day as specified in Fis 302.01(d).

(o) There shall be no refunds authorized for turkey permits.

Fis 302.011 Turkey Registration Stations.

(a) Turkey registration agents under RSA 209:12-a shall provide the following information on a turkey registration station agreement:

- (1) Name of applicant;
- (2) Date of agreement;
- (3) Name, address and telephone number of agent's establishment;
- (4) The agent's home address and telephone number; and
- (5) The hours and days of operation of the proposed registration station.

(b) The turkey registration station agent shall print legibly, accurately, and completely when filling out the turkey registration form described in Fis 302.012.

(c) The turkey registration agent shall sign the agreement in the presence of a witnessing department conservation officer or his designee, who shall also sign the agreement.

(d) By signing the agreement, applicants shall agree to abide by the statutes and rules governing turkey registration stations and turkey registration reports.

(e) Failure to accurately and legibly provide the information specified in Fis 302.012 on the turkey registration report shall, after notice and opportunity for a hearing, result in the suspension or closure of the registration station.

(f) Turkey registration agents may collect up to \$2.00 as a registration agent fee pursuant to RSA 209:12-a.

[Source.](#) #8085, eff 5-26-04

Fis 302.012 Turkey Registration Reports.

(a) All persons reporting a turkey kill to a turkey registration station under RSA 209:12-a shall provide the following:

- (1) The person's:
 - a. Name;
 - b. Street and mailing address;
 - c. Telephone number;
 - d. Sex;
 - e. Residency; and
 - f. Date of birth;
- (2) Town of kill;
- (3) Date of kill;
- (4) Time of kill;
- (5) The following information about the turkey:
 - a. Sex;
 - b. Weight;

- c. Length of beard to the nearest $\frac{1}{4}$ inch;
- d. Length of left and right spurs;
- e. Age, by indicating whether the turkey is adult or immature; and
- f. Description of any abnormality, injury, off coloration, leg band, or wing streamer on turkey.

(6) Weapon type used;

(7) Town and wildlife management unit of kill;

(8) The following license information:

- a. Hunting license type(s) and license number(s) held by licensee; and

- b. Turkey permit number; and

(9) The registration number of the vehicle transporting the turkey.

(b) The registration agent shall include the following:

- (1) The date and time of turkey registration;

- (2) The date and time of turkey license purchase;

- (3) The seal number attached to the turkey; and

- (4) The registration station number.

(c) The hunter shall sign the report subject to the penalties for making unsworn false statements under RSA 641:3.

(d) The registering agent shall sign the report subject to the penalties for making unsworn false statements under RSA 641:3.

JOB DESCRIPTION

State: New Hampshire

Period Covered: July 1, 2005 – June 30, 2006

Grant W-89-R-6

Grant Type: Survey and Inventory

Project Title: WILD TURKEY RESEARCH AND MANAGEMENT Project IV

Job 4: PROFESSIONAL EXCHANGE AND DISSEMINATION OF PROJECT INFORMATION

Job Objective:

To effectively communicate with diverse turkey management stakeholders and the general public interested in turkeys; to facilitate peer, legislative and public review of our turkey management program; to maintain working relationships and information exchange with turkey biologists and ensure that the Turkey Project Leader is familiar with the latest scientific knowledge and management techniques, and; to prepare and disseminate turkey project information and findings to the public, Federal Aid, and other interests stakeholders.

Summary: Results of the 2005 turkey hunting season were incorporated into the NH Wildlife Harvest Summary report. An annual Status Report was prepared for the Northeast Turkey Workshop, which was attended in Smyrna, Delaware. The National Wild Turkey Symposium was attended in Michigan.

Several articles on turkey season results and turkey research were written for the statewide sportsmen's magazine "Hawkeye". Correspondence on season procedures and information occurred with regional staff and 53 turkey registration stations.

Annual Federal Aid reports were completed in a professional and timely fashion. Multiple press releases regarding turkey management, were drafted and distributed. Diverse inquiries from the public and the media were responded to, based on information generated under this grant.

Target Date: June 30, annually

Status of Progress: On schedule

Deviations: None

Procedures: Turkey management accomplishments, findings, management goals and population objectives will be communicated through various personal, print and electronic media techniques. Turkey technical meetings, workshops and conferences will be attended and communications with the National Wild Turkey Federation, its staff, and its chapters will be conducted. Research proposals, management techniques and changing information needs will be considered and evaluated. Federal Aid reports, turkey harvest summary reports and other turkey related information associated with New Hampshire turkey management will be prepared and disseminated to stakeholders. The Turkey Project Leader will receive and/or provide training necessary for the successful implementation of this project.

Results:

Annual turkey federal aid reports were drafted, reviewed and submitted to the U.S. Fish and Wildlife Service, as required. The 2005 turkey season results were summarized and included in the 2005 Big Game Harvest Report (see W-89-R, Project I, Job 4, Appendix 1). This extremely popular publication is widely distributed throughout the state. Approximately 20,000 copies of the 2006 New Hampshire Turkey Hunting pamphlet were printed and distributed. A copy of this pamphlet goes to everyone who purchases a turkey permit. There was correspondence with 53 turkey registration stations, to provide hunting season instructions and to keep them informed of hunting season results. Project information and management information was made available and periodically updated, on our department web site (www.wildlife.state.nh.us).

Season summary updates and reports with harvest tables and maps were prepared and distributed to Department staff, outdoor writers, and NWTf State Turkey Chapters. An annual State Status Report was prepared for the Northeast Turkey Technical Committee Workshop, and the project biologist attended the workshop October 2-5th in Smyrna, Delaware. A summary was prepared and distributed to Wildlife Division staff as well. The project biologist shared information regarding New Hampshire's winter flock surveys with other northeast states at the Northeast Turkey Workshop. During November 2005, the supervisor of wildlife programs, who also serves as chair of our turkey management team, attended the National Wild Turkey Symposium in Grand Rapids, Michigan.

During November-April 2006 attended meetings of the Turkey Team and Big Game Team, to provide project data and information for developing hunting season proposals and rules for the next two years. Information was provided at 3 public hearings in early April 2006, including a summary of the Turkey Management Plan for the next 10-year period (2006-2015). During the May 2006 Spring Gobbler Season, four season updates were sent to various department staff. Several articles were written for the state's sportsmen's magazine "Hawkeye" – including results of the May 2006 turkey season and a brief summary of a study at Pease Air Base (see Job 2).

Conclusions: This job was implemented as planned, and diverse stakeholders and constituents were kept informed of project grant activities.

Recommendation: Continue this job as planned.

Principal Investigator: Theodore Walski, Turkey Project Leader
July 2006