255 Illick Hall
SUNY-CESF
Syracuse, NY 13210
17 December, 1987

Pat Lynch
Saratoga National Historical Park
Stillwater, New York 12170

Dear Pat,

I can finally report to you on results of analyses of the wild turkey gobble-count routes run across the state. A total of four routes were run in New York last year. Below is a general description of each area, and LOTUS-generated graphs of gobbles-per-day and birds-per-day for each route are enclosed.

The primary purpose for running the sites this past spring has been fulfilled. We now have a rough idea of when the peak of gobbling activity occurs, and how much it differs between two regions of the state. In addition, we now have a rough idea of the usefulness of the technique in New York.

The small number of birds we heard last spring pretty much precludes any meaningful conclusions based on statistical analyses. The maximum number of birds we have in this dataset for any one day is 7, and that occurred only once. For interest's sake, I ran a correlation matrix of all of the variables which I thought might have influenced gobbling activity, and have enclosed a copy. As you can see, [redacted] and total gobbles or total groups. It's unlikely that any one of these variables would account for the variation we encountered in gobbles and number of birds. As a matter of fact, analysis of variance demonstrates very little variation between routes.

One of the enclosed ANOVA tables shows that there is a statistically significant difference in mean number of birds heard per day between routes ($p < .025$). However, a meaningful biological interpretation (in terms of extrapolating to relative population size) is difficult to make. The other ANOVA table shows the difference in mean number of birds heard per day only during the peak gobbling week between routes. The difference is not statistically significant ($p > .55$).

Peak periods were determined from the graphs enclosed. The following are what I thought were the dates of those periods:

Saratoga	= 5/8-5/15
Broome Center	= 5/8-5/14
Otisco	= 5/1-5/8
Fabius	= 5/1-5/9

In Minnesota, Bill used this technique successfully to quantify orders of magnitude of difference in wild turkey numbers between regions. During 1974-1978, he heard as many as 20-30 groups, each with 1-3 birds on one route on one day. I don't believe that this resolution of difference could be detected in our New York data because there is so little variation in total gobbles and total birds heard. There are two possible reasons for this lack of variation between routes. First, there may be, in fact, little difference in actual numbers of turkeys. Second, the technique may not be appropriate for New York's distribution and density of turkeys, and apparent homogeneity of population densities in the results may be inherent in the technique when applied in this state. In the second case, its value would lie in simply detecting presence or absence of birds.

Without an independent measure of population size, it is impossible to tell for sure which source is the actual source of variation. We suspect, however, that the technique may not be appropriate for this state. We will probably be running at least as many sites this spring to give it another try. I'll let you know what we'll be doing.

I had planned on writing a review paper on the history of the use of call-counting for indexing game bird numbers. However, other commitments took precedence over the paper. I hope this information is adequate for your records, if not, I'd be happy to supplement it.

Thanks for all the help you've been, and say "hi" and "thanks again" to everyone at SNHP.

Have a Merry Christmas!

Sincerely,

Dan

Dan Gefell

Route Descriptions

The Fabius route is located about 25 miles SSE of Syracuse. It is located in the Morgan State Forest along truck trails. Logging activities commenced there about halfway through the survey season, in the form of thinnings. The area is nearly 100% forested, with few openings. The surrounding area is primarily dairy agriculture.

The Otisco route is located about 30 miles SSW of Syracuse (10-15 miles from the Fabius route). It is located along a high valley between two wooded ridges in a heavily agricultural area. The route is on a rural road and tributary side-streets.

The Broome Center route is located about 30 miles SW of Albany in a forested area of rolling hills.

---------- ANALYSIS OF VARIANCE ----------

HEADER DATA FOR: D:GOB87 LABEL: 1987 gobble count data for 4 sites in NY
NUMBER OF CASES: 118 NUMBER OF VARIABLES: 15

ONE-WAY ANOVA

1=Broome Ctr 2=Fabius 3=Otisco 4=Saratoga, gobblers heard/day

GROUP	MEAN	N
1	.609	46
2	1.440	25
3	1.727	11
4	1.059	34
GRAND MEAN	1.026	116

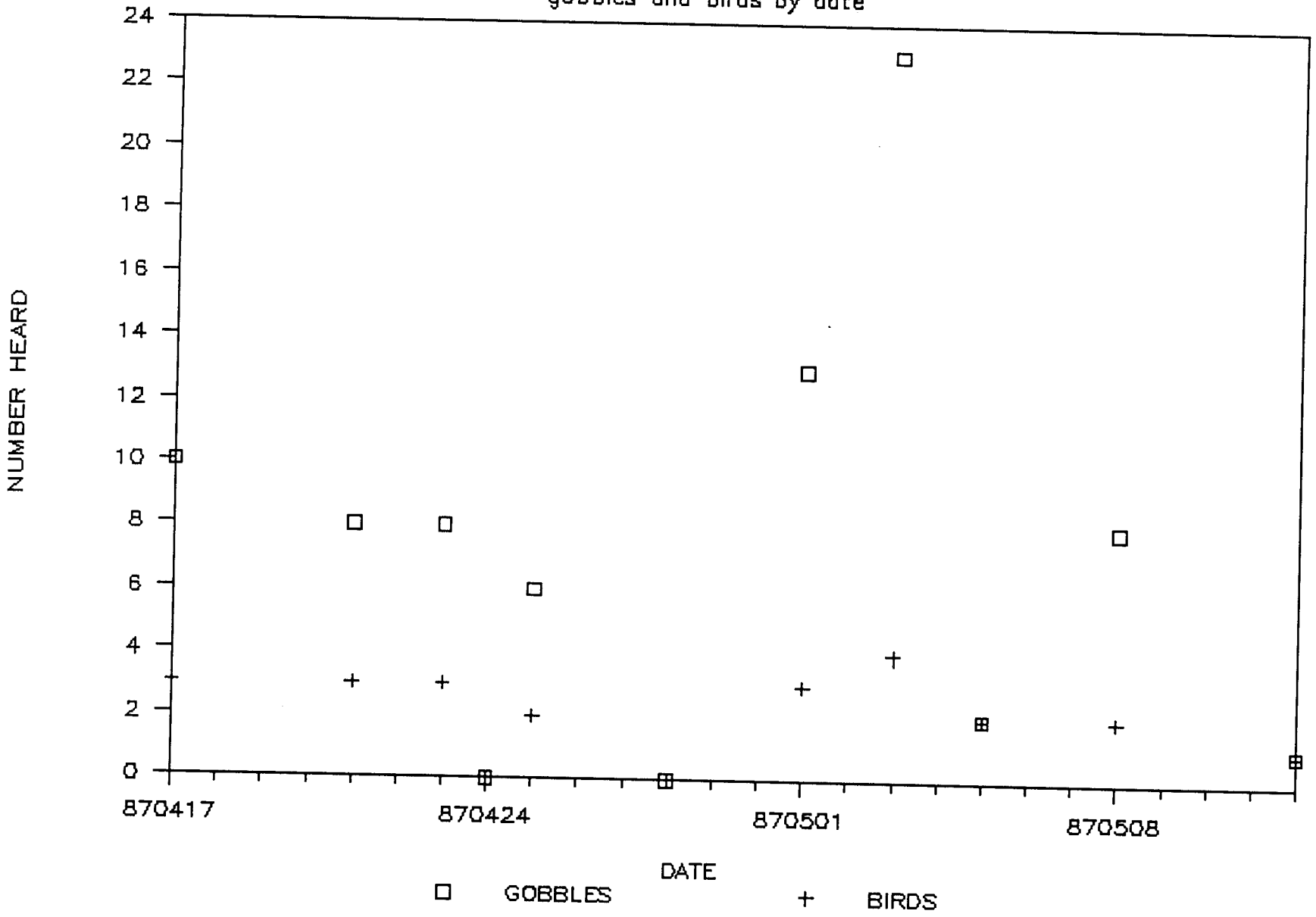
VARIABLE 14: GROUPS

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
BETWEEN	17.742	3	5.914	3.260	.0242
WITHIN	203.181	112	1.814		
TOTAL	220.922	115			

2 MISSING DATA CASES ENCOUNTERED.

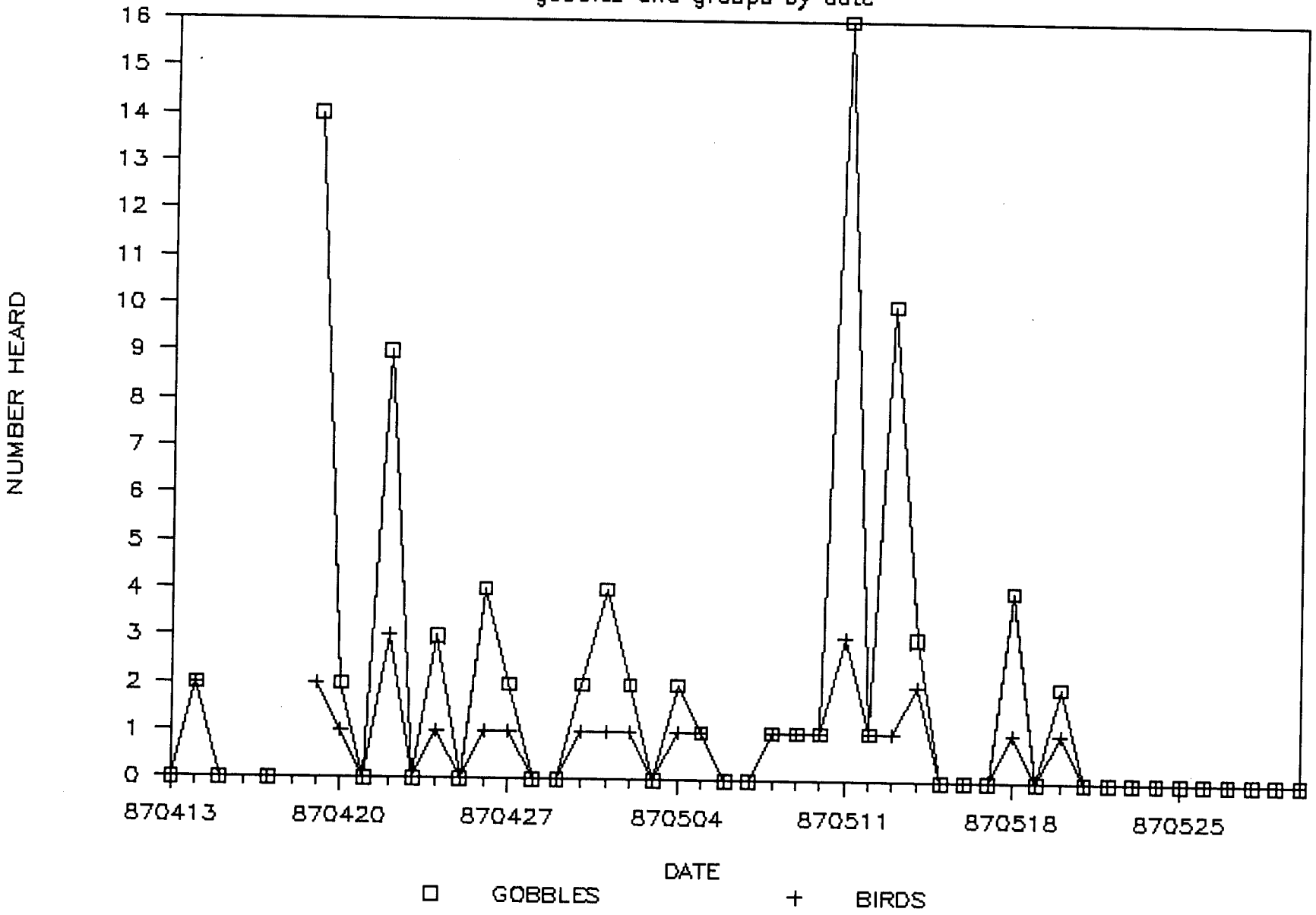
OTISCO

gobbles and birds by date



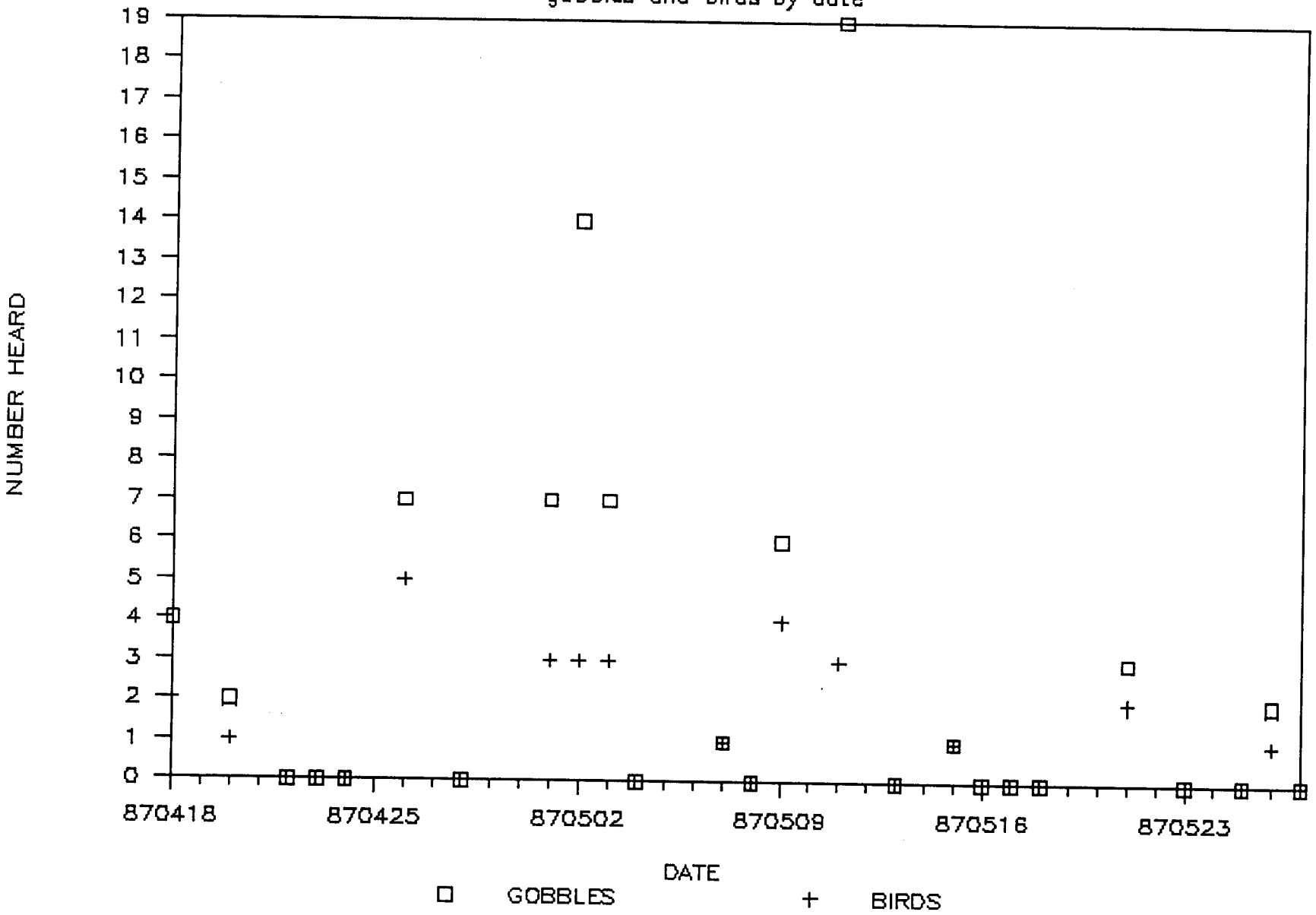
BROOME CENTER

gobbles and groups by date



FABIUS

gobbles and birds by date



---------- CORRELATION MATRIX ----------

HEADER DATA FOR: D:SARAEVAL LABEL: gobble count data Saratoga, 1987
NUMBER OF CASES: 34 NUMBER OF VARIABLES: 9

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correlation matrix for 1987 Saratoga gobble count data

	GOBS	GROUPS	CLOUDS	FOG	PRECIP	SUNRISE	TEMP	WIND_DIR
GOBS	1.00000							
GROUPS	.93734	1.00000						
CLOUDS	-.34535	-.34046	1.00000					
FOG	-.07249	-.06359	.16887	1.00000				
PRECIP	.16910	.19016	-.27875	-.39125	1.00000			
SUNRISE	.12241	.15312	.00375	.08815	-.10346	1.00000		
TEMP	-.31401	-.36059	.28460	.05112	-.02054	-.46122	1.00000	
WIND_DIR	.20498	.23296	-.08958	-.43795	.28683	-.08352	-.16204	1.00000
WIND_SP	.04208	.03345	.14689	-.31314	.22933	-.39771	.00932	.41810

	WIND_SP
WIND_SP	1.00000

CRITICAL VALUE (1-TAIL, .05) = + Or - .28718
CRITICAL VALUE (2-tail, .05) = +/- .33823

N = 34

---------- ANALYSIS OF VARIANCE ----------

HEADER DATA FOR: D:GOB87 LABEL: 1987 gobble count data for 4 sites in NY
NUMBER OF CASES: 118 NUMBER OF VARIABLES: 15

ONE-WAY ANOVA

1=Br Ctr 2=Fabius 3=Otisco 4=Sara, birds heard/day in peak weeks

GROUP	MEAN	N
1	1.429	7
2	2.000	7
3	2.750	4
4	1.889	9
GRAND MEAN	1.926	27

VARIABLE 1: DATE

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F RATIO	PROB.
BETWEEN	4.499	3	1.500	.672	.5782
WITHIN	51.353	23	2.233		
TOTAL	55.852	26			

SARATOGA

gobbles and birds by date

