Turkey Vulture eggshell thinning in California, Florida, and Texas.—The Turkey Vulture (*Cathartes aura*) seems to be declining in numbers in parts of North America (Arbib, Am. Birds 25:948–949, 1971; Russell, Auk 90:877–887, 1973), but neither the magnitude of the change nor its causes have been documented. Eggshell thinning has been demonstrated in 54 species of birds of 10 taxonomic orders; at least some thinning has been caused by chemical pesticides, particularly p,p'-DDE. Thinning of 20% or more has been suggested to result in reproductive failure and population decline (Stickel, pp. 25–74 *in* Ecological Toxicology Research, A. D. McIntyre and C. F. Mills, eds., Plenum Publ. Corp., New York, 1975). I examined Turkey Vulture eggshells from California, Florida, and Texas to see if significant thinning had occurred in various populations of this species.

The 76 sets of Turkey Vulture eggs examined were from the collection of the Western Foundation of Vertebrate Zoology in Los Angeles. Thirty-nine were from west-central California, 21 were from central Florida near Orlando, and 16 sets were from Texas. Sets were divided into 2 groups: those collected prior to 1947 (the pre-DDT period) and those collected since 1947 (Table 1).

Blown eggs were weighed to the nearest 0.001 g in a Mettler Top Loading Balance (Model P120), and length and breadth were measured to the nearest 0.01 mm with a dial vernier caliper. A "thickness index" (Ratcliffe, Nature 215:208–210, 1967) was calculated for each egg, and a mean thickness index was computed for the eggs from each geographic area and each time period.

Significant differences ($P < 0.05$, t-test comparison) existed between pre-1947 and post-1947 samples from all areas (Table 1). Florida eggs were somewhat lighter in weight than California eggs during both periods, but the percentage decrease after 1947 was similar in both areas. The Texas sample showed an even greater reduction. However, the sample size is small and may be biased by local environmental factors: the pre-1947 eggs were all taken from northern Texas and most of the later eggs were from the Texas lowlands. Texas eggs for both time periods averaged lighter in weight than either Florida or California eggs. I contacted several other museums for Turkey Vulture eggs to increase the sample size, but no other Texas specimens from appropriate areas could be located.

The 11–12% thinning in eggs from California and Florida is not of the magnitude

TABLE 1

MEASUREMENTS OF TURKEY VULTURE EGGSHELLS

	Sample size (eggs)	Mean shell weight (g)	Mean thickness index[1]	Percent change
California				
Pre-1947	39	7.60 ± .096[2]	2.25 ± .075	
1947+	36	6.72 ± .112	2.00 ± .102	−11*
Florida				
Pre-1947	20	7.28 ± .162	2.09 ± .023	
1947+	22	6.22 ± .197	1.84 ± .043	−12*
Texas				
Pre-1947	16	7.19 ± .187	2.10 ± .043	
1947+	16	5.76 ± .201	1.73 ± .063	−18*

[1] Weight (mg)/length (mm) × breadth (mm).
[2] ± standard error.
* Differences significant at $P < 0.05$; means compared using the t-test.

generally associated with declines in productivity. If the Texas data are representative of Turkey Vultures there, then the reproductive capabilities of that population may be affected. Field studies of the breeding success of the Turkey Vulture in Texas would appear especially appropriate at this time.

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An experimental analysis of the interrelationship between nest density and predation in old-field habitats.—The relationship between nest density and intensity of predation has been found to be positive in most of the studies dealing with species nesting in marsh environments (Tinbergen et al., Behaviour 28:307–321, 1967; Goransson et al., Oikos 26:117–120, 1975). Some authors have presented evidence which suggests that this relationship may also apply to avian communities in upland habitats (Krebs, Ecology 52:2–22, 1971; Fretwell, Populations in a Seasonal Environment, Princeton Univ. Press, Princeton, NJ, 1972). Unfortunately no experimental studies have tested this hypothesis. This study was aimed at answering the question: Does the spatial distribution of nests influence their predation rates in old-field habitats?

Study areas and methods.—The experiment was performed from May through July 1976 at Miami University's field station on the Bachelor Estate approximately 2 km west of Oxford, Butler County, Ohio. A full description of the study area can be found in Gottfried and Thompson (Auk 95:304–312, 1978). Two 4-ha areas were used during the experiment. In Area A the experimental nests were densely distributed (12.7/ha), while in Area B the experimental nests were more dispersed (4.7 nests/ha), simulating normal