SAME-SEXED CLUTCHES IN MOURNING DOVES?

by

Eugene Hochlan Jr. and W. J. Miller

Articles may be well written and entertaining, and certainly worth publishing for the readers. But now and then some false or misleading information will creep into even the best article. We noticed this in the article by Naether reprinted from APJ in the ADA newsletter Sept-Oct issue (1987).

In mourning doves, Naether mentioned that some "research study" showed every pair within a clutch to have the same sex, but that pigeons always had opposite sexed clutches. Nope! Not so! Dr. Hollander and Miller disproved this for pigeons long ago, and we were not the first. Dr. L. J. Cole probably disproved this contention for mourning doves long ago. But Hochlan has recent data, to show that any one clutch may have a male and a female. He fostered out 13 clutches to ringnecks and kept careful records for timing, color, and sex. Four of the clutches had opposite sexed young. One such clutch is enough to prove the point, but more reduces chances of some kind of sexing error.

To examine the data on a more formal basis, we can put it in tabular form.

Table 1. Hochlan's 1986 mourning dove data for sex distribution in clutch mates. Sexed by behavior and a genetic sex-linked color (ochre).

	number of full clutches	Sex of clutch mates			
		♂ ♂	♂ ♀	♀ ♂	♀ ♀
pair # 3	7	2	1	1	3
pair # 4	6	1	0	2	3
total	13	3	1	3	6

To those familiar with chance events, this distribution is not unexpected unless you believe clutch mates must be same sexed, or must be opposite sexed. You can test even these small numbers by a statistical test -- specifically a Chi-square test = χ^2.

$$\chi^2 = \Sigma \frac{(\text{observed} - \text{expected})^2}{\text{expected}} = \Sigma \frac{\text{deviation}^2}{e} = \Sigma \frac{d^2}{e}$$

Σ = the sum of

Table 2. X^2 test of data in table 1. Hypothesis is that sex is random in clutch mates. (Expect a 1:1 ratio of ♂ : ♀ ; or by 2's (clutch mates) the frequency of same sexed = opposite sexed)

	observed	expected frequency	expected numbers	d	d^2	d^2/e
same sexed clutch	9	1/2	6.5	2.5	6.25	.96
opposite sexed clutch	4	1/2	6.5	-2.5	6.25	.96
	13		13			Σ 1.92

df = 1, P > .05 ~ .17

Therefore, we accept the hypothesis.

About 17% of the time we can run such a test (see a X^2 graph), we would get results this bad or worse, if the hypothesis is correct!

Did anyone mention making a mountain out of a molehill?

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