

ERRORS IN *ECOLOGICAL METHODOLOGY* (2ND ED.)

I include here all the errors that I have found to date in the second printing of *Ecological Methodology*. To see if you have the second printing, look on the page before the Contents in the front of the book, near the bottom there are a string of numbers 2 3 4 5 and the lowest number indicates the printing.

Page vi: 5.1 should read Line Transects, not line intersects

Page 26, equation near top of page: should read 1.96 instead of 19.6

Page 37, equation 2.14 should have an = (equal sign) after the variance of $(1/N)$

Page 47, equation 2.25: the last term should be minus not plus: $- 1/(n_i+1)$

Page 67, Question 2.4 has three lines missing from the table and should read:

2.4. Dunnet (1963) sampled quokkas (small marsupials) on Rottneet Island off Western Australia over three sampling periods with these results for 1957:

	Mature animals	Immature animals
Number marked at time 1	32	35
Number marked at time 1 and never seen again	22	20
Number marked caught at times 1 and 2 only	5	1
Number marked caught at times 1 and 3 only	4	11
Number marked caught at times 1, 2 and 3	1	3
Number marked first at time 2 and never seen again	38	28
Number marked first at time 3	26	23
Number marked caught at times 2 and 3 only	4	7

Recast these data in the form of a Schnabel sample, and estimate the size of the mature population and the immature population of this marsupial. What assumptions must you make to do these calculations? Do the estimates obtained by the Schumacher – Eschmeyer model differ significantly from those of the Schnabel model? Can you test for unequal catchability in these data?

Page 68, Question 2.5. The second last line in this Method B table from Leslie et al. (1953) should read "Total Caught", not Total unmarked.

Page 103, Question 3.4 uses the same data as question 2.4 above and is missing the data shown above from the table (i.e. the last 3 rows of the table above).

Page 131 There are minor rounding errors in these calculations as follows:

Top, 37.736 should be 36.7091 and in the next calculation 37.073 should be 37.406

Page 132, middle of page, there is a squared symbol missing from the third term of this equation, which should read:

$$\left. \begin{array}{l} \text{Proportion of stems expected} \\ \text{to have two aphids} \end{array} \right\} = \left(\frac{\hat{k}}{1} \right) \left(\frac{k+1}{2} \right) \left(\frac{\bar{x}}{\bar{x} + \hat{k}} \right)^2 \left(1 + \frac{\bar{x}}{\hat{k}} \right)^{-k}$$
$$= \left(\frac{2.65}{1} \right) \left(\frac{2.65+1}{2} \right) \left(\frac{3.46}{3.46+2.65} \right) \left(1 + \frac{3.46}{2.65} \right)^{-2.65}$$
$$= 0.1695$$

The equation should be the same as that on page 125 top.

Page 136, line 6: Insert these two lines in the text:

If $n > 30$ use the normal approximation to get confidence limits (eq. 8.7, page 265). If $n < 30$ (small sample) use the following transformations:

1. If k is less than 5:

Page 136 middle of page: Let $y =$ the mean of the transformed values as determined...

Page 138 In Box 4.3 the two equations for standard deviations in the upper center of this page are missing the square root signs over the entire formulas and calculations. The answers however are correct (6.942 and 128.82).

Page 163, equation 5.6. The final term should read in the numerator $\sum \left(\frac{1}{r_i} - R \right)^2$:

Page 165, equation 5.9. The y_i should be x_i in this equation (perpendicular distance).

Page 166, equation 5.14. The second term should be the $\text{var}(n)/n^2$ (i.e. n -squared not n in the denominator).

Page 175, Figure 5.7 legend, 2nd last line: "The study area is sampled with a series".

Page 177, line 9 in last part of Box 5.3: t-value for 15 df should be 2.131, changing the confidence limits to 208.33 and 350.65 but not affecting the reciprocals.

Page 193: Figure 6.1. The quadrat size is 25 X 25 m (not 23 m).

Page 206, Box 6.3. The variances reported in this box are slightly in error and should be as follows: $\text{Var}_1(X) = 2.5922$, $\text{Var}_2(X) = 7.9901$, $\text{Var}_3(X) = 12.3305$, $\text{Var}_4(X) = 13.7590$, $\text{Var}_5(X) = 11.8579$, $\text{Var}_6(X) = 8.2294$, $\text{Var}_7(X) = 5.2166$, $\text{Var}_8(X) = 3.4228$, $\text{Var}_9(X) = 2.8186$, $\text{Var}_{10}(X) = 2.7641$.

Page 215, Table 6.3 The value expected under maximum uniformity for the reciprocal of k should be $-1/\text{mean}$, or $\frac{-1}{\bar{X}}$.

Page 217 Equation 6.24 should have M_c in the denominator, not M_u

Page 277 Equation 8.22 should read:

$$\text{d.f.} \approx \frac{\left(\sum_{h=1}^L g_h s_h^2 \right)^2}{\sum_{h=1}^L \left[\frac{g_h^2 s_h^4}{(n_h - 1)} \right]} \quad (8.22)$$

and on line 3 from the bottom s_h should be s_h^2 (i.e. the variance).

Page 278 near the top of the page the equation should read:

$$\text{d.f.} = \frac{34,106,392^2}{8.6614 \times 10^{12}} = 134.3$$

Page 313 Equation 9.17: The numerator should not be squared. The correct formula is shown on the bottom of this same page.

Page 329, Figure 9.8(b): this graph is truncated at both ends and data are missing in the 0-1 range and above 10 on the X-axis. The regression equation for this figure should read: variance = 3.82 mean (1.17 power).

Page 330, Figure 9.9(b): The equation for this graph has minor errors and should read: variance = 2.24 mean (1.25 power).

Page 415, Equation 12.2: The last term in this equation should read:

$$\left(\frac{N - N_i - N_j}{n} \right)$$

The same correction should be made at the bottom of page 416.

Page 417. This variance equation should read:

$$\text{var}(\hat{S}_{30}) = \binom{42}{30}^{-1} \left[\begin{aligned} & \binom{21}{30} \left(1 - \frac{\binom{21}{30}}{\binom{42}{30}} \right) + \binom{26}{30} \left(1 - \frac{\binom{26}{30}}{\binom{42}{30}} \right) + \binom{39}{30} \left(1 - \frac{\binom{39}{30}}{\binom{42}{30}} \right) \\ & + \binom{40}{30} \left(1 - \frac{\binom{40}{30}}{\binom{42}{30}} \right) + 2 \left[\left(\frac{\binom{42-21-16}{30}}{\binom{42}{30}} - \frac{\binom{42-21}{30} \binom{42-16}{30}}{\binom{42}{30}} \right) \right. \\ & + \left(\frac{\binom{42-21-3}{30}}{\binom{42}{30}} - \frac{\binom{42-21}{30} \binom{42-3}{30}}{\binom{42}{30}} \right) \\ & + \left(\frac{\binom{42-21-2}{30}}{\binom{42}{30}} - \frac{\binom{42-21}{30} \binom{42-2}{30}}{\binom{42}{30}} \right) \\ & + \left(\frac{\binom{42-16-3}{30}}{\binom{42}{30}} - \frac{\binom{42-16}{30} \binom{42-3}{30}}{\binom{42}{30}} \right) \\ & + \left(\frac{\binom{42-16-2}{30}}{\binom{42}{30}} - \frac{\binom{42-16}{30} \binom{42-2}{30}}{\binom{42}{30}} \right) \\ & \left. + \left(\frac{\binom{42-3-2}{30}}{\binom{42}{30}} - \frac{\binom{42-3}{30} \binom{42-2}{30}}{\binom{42}{30}} \right) \right] \end{aligned} \right]$$

Page 427, Equation 12.14 This is the formulation presented by Hayek and Buzas (1997, page 244, eq. 9.18 "Surveying Natural Populations", Columbia University Press) for the variance of alpha. Box 12.3 page 431 does not use this equation and presents an older formulation of this variance from Taylor et al. (1976). The correct variance of alpha in Box 12.3 should be 0.0307 from Equation 12.14.

Page 444, Equation 12.31. There should be a minus sign on the right side of this equation. The same mistake occurs on page 448 near the top of the page.

$$H' = -\sum_{i=1}^s (p_i)(\log_2 p_i)$$

Page 449 Equation 12.37 Note that the original paper by Smith and Wilson (1996) has an error in the equation for their index of evenness, and it is not correct in my book. It should read:

$$E_{\text{var}} = 1 - \left(\frac{2}{\pi} \right) \left[\arctan \left\{ \frac{\sum_{i=1}^s \left(\log_e(n_i) - \sum_{j=1}^s \log_e(n_j) / s \right)^2}{s} \right\} \right] \quad (12.37)$$

Note that so far all these errors have been in the formulas given in the text, and the computer programs containing all these calculations are correctly done.

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