Proceedings of the International Conference on Creationism

Volume 9
Print Reference: 670

Article 71

2023

Gastropod Evolutionary Phylogeny

Priscilla Doran
Bryan College

Neal A. Doran
Bryan College

Recommended Citation
Doran, Priscilla and Doran, Neal A. (2023) "Gastropod Evolutionary Phylogeny," *Proceedings of the International Conference on Creationism*: Vol. 9, Article 71.
DOI: 10.15385/jpicc.2023.9.1.69
Available at: https://digitalcommons.cedarville.edu/icc_proceedings/vol9/iss1/71

Doran, P., and N.A. Doran. 2023. Gastropod evolutionary phylogeny [poster]. In J.H. Whitmore (editor), *Proceedings of the Ninth International Conference on Creationism*, pp. 670-671. Cedarville, Ohio: Cedarville University International Conference on Creationism.

GASTROPOD EVOLUTIONARY PHYLOGENY

Priscilla Doran, and **Neal A. Doran**, Bryan College, 721 Bryan Dr., Dayton, Tennessee, 37321 priscillajdoran@gmail.com, ndoran5857@bryan.edu

ABSTRACT

Is gastropod data explained well by an evolutionary correlation? Gastropods are molluscs from class Gastropoda. Specific genera found in phylogeny A1 of the paper "New Data from Monoplacophora" by Kevin M. Kocot, et al., were used in the statistical analysis of this paper. The paper's evolutionary phylogeny was based on genetic and inferential mathematical data of the relations between these taxa (Kocot, 6). This is the Spearman correlation between the predicted evolutionary pattern for gastropod emergence versus the fossil record order of appearance.

KEYWORDS

statistics, gastropod, evolution

THE AUTHORS

Priscilla Doran is a junior Mathematics and English Literature major at Bryan College. Her interests include education, writing, and research.

Neal Doran is Professor of Biology and Director of the Center of Creation Research at Bryan College in Dayton, Tennessee. He has a BS in Geology (University of Florida) and a PhD in Geology (Florida State University).

A correlation study between evolutionary phylogeny and stratigraphy for Monoplacopheran gastropods

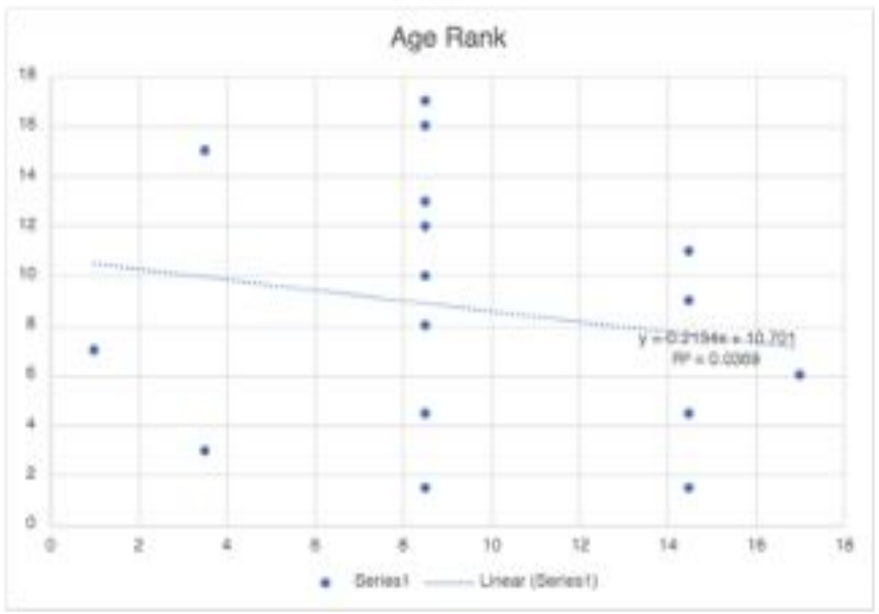
Priscilla J. Doran[1], Todd Charles Wood,[2] Paul A. Garner,[3] Neal A. Doran,[1] Jamie L. Summerville[1]

Abstract.
Is gastropod data explained well by an evolutionary correlation? Gastropods are molluscs from class Gastropoda. Specific genera found in phylogeny A1 of the paper "New Data from Monoplacophora" by Kevin M. Kocot, et al., were used in the statistical analysis of this paper. The paper's evolutionary phylogeny was based on genetic and inferential mathematical data of the relations between these taxa (Kocot, 6). This is the Spearman correlation between the predicted evolutionary pattern for gastropod emergence versus the fossil record order of appearance.

Introduction.
Gastropods are among the best-preserved taxon in the fossil record, thanks to their calcium rich shells.

Methods.
The results of the taxa's clade ranks were compared to a first-appearance date found on the Paleobiology Database, through a Spearman Rank Correlation on both data sets. The data sets were generally arranged at the genus level.

Data



Spearman	-0.2689
P Value:	0.296655
N:	17
T Statistic:	1.08127
DF:	15

Results.
The phylogeny was analyzed via clade ranking and first-appearance date. Null hypothesis was $\rho = 0$ and alternative was $\rho \neq 0$, using significance level $\alpha = 0.05$. After the Spearman Rank correlation, ρ achieved a result of -0.2689. The unexpected negative value would indicate not only no correlation, but the opposite of a correlation.
Our α of 0.05 indicates a rejection region of +/ 2.131, as our test is two tailed. 1.08, our T statistic, falls well within -2.131 and 2.131. Therefore, our null hypothesis is not rejected.

Conclusion.
Significant data appeared to suggest low or no correlation between the evolutionary phylogeny and fossil record
appearance. The p value was high, at 0.2967. The high value suggests no correlation. The T Statistic is not favorable towards the correlation, at 1.08.

1. Bryan College, 2. Core Academy, 3. Biblical Creation Trust