Phylogeny of the Colubroidea (Serpentes): New evidence from mitochondrial and nuclear genes

R. Lawson a, J.B. Slowinski b, B.I. Crother c, F.T. Burbrink d

a Osher Foundation Laboratory for Molecular Systematics, California Academy of Sciences, 875 Howard Street, San Francisco, CA 94103, USA
b Department of Herpetology, California Academy of Sciences, 875 Howard Street, San Francisco, CA 94118, USA
c Department of Biological Sciences, Southeastern Louisiana University, Hammond, LA 70402, USA
d College of Staten Island/City University of New York, 2800 Victory Blvd, Staten Island, NY 10314, USA

Abstract

The Colubroidea contains over 85% of all the extant species of snakes and is recognized as monophyletic based on morphological and molecular data. Using DNA sequences (cyt *b*, c-mos) from 100 species we inferred the phylogeny of colubroids with special reference to the largest family, the Colubridae. Tree inference was obtained using Bayesian, likelihood, and parsimony methods. All analyses produced five major groups, the Pareatidae, Viperidae, Homalopsidae, the Elapidae, and the Colubridae. The specific content of the latter two groups has been altered to accommodate evolutionary history and to yield a more stable taxonomy. We propose an updated classification based on the reallocation of species as indicated by our inferred phylogeny.