

## **Strand M. 2005. Ribbon worm relationships (Phylum Nemertea).**

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*Abstract:* In recent years, molecular systematic studies have become more and more common and are slowly changing our traditional view of relationships, species, species concepts and consequently biodiversity estimates. Phylogenetic studies based on molecular data can often show patterns that were hidden when the only available source of information was morphology. This thesis aims to increase the knowledge of phylogenetic relationships within the phylum Nemertea which is a rather small group of about 1200 named species of mainly marine worms that have a global distribution. Little is known about their ecology and different ways of dispersal. Gene flow has never been studied in any deeper sense, and many species are hence described as being ubiquitous due to a similar morphological appearance. In this thesis, phylogenetic relationships based on molecular characters from parts of the mitochondrial genes 16S, COI and the nuclear ribosomal gene 18S, are estimated for selected groups and species of nemerteans. Estimating methods include parsimony, maximum likelihood and Bayesian analyses. The results indicate that cryptic speciation could be quite common in certain groups of nemerteans, and that the traits used for identifying species in some cases are clearly misleading. Consequently, the estimated number of nemertean species and their geographic extension could be severely misinterpreted.

*Keywords:* nemerteans, phylogeny, molecular systematics, systematics, speciation, diversity