



**Alexander FEDOSOV**

A.N. Severtsov Institute of Ecology and Evolution

Leninsky prospect 33, 119071, Moscow, Russia

Tel. +7(499)-135-1878

E-mail: [fedosovalexander@gmail.com](mailto:fedosovalexander@gmail.com)

Research Gate: [https://www.researchgate.net/profile/Alexander\\_Fedosov](https://www.researchgate.net/profile/Alexander_Fedosov)

## Featured recent publications



### Marginelliform phylogeny

Our study addresses previously completely ignored by phylogenetics minute marginelliform gastropods (families Marginellidae and Cystiscidae). We produce first phylogenetic tree of marginelliform gastropods, confirm that they constitute a single evolutionary lineage of the Neogastropoda, and are a sister group of the family Volutidae. We demonstrate interrelationships of the marginelliform gastropods and discuss their implications for taxonomy of Marginellidae and Cystiscidae.

**Fedosov, A.E.**, Caballer Gutierrez, M., Buge, B., Sorokin, P.V., Puillandre, N., Bouchet, P. 2020. Mapping the missing branch on the Neogastropoda tree of life: molecular phylogeny of marginelliform gastropods. *Journal of Molluscan Studies*, 84(4): 440-452

### Phylogenetic classification of Terebridae

We revised classification of Terebridae in according with the recently reconstructed phylogeny of the family. We classify living terebrids in three subfamilies: Terebrinae, Pervicaciinae, and the newly established Pellifroniinae. We describe five new terebrid genera, and supplement traditional diagnoses by accounts of diagnostic DNA characters to facilitate identification of morphologically convergent, but unrelated species clusters.

**Fedosov, A.E.**, Malcolm, G., Terryn, Y., Gorson, J., Modica, M.V., Holford, M Puillandre, N. 2020. Phylogenetic classification of the family Terebridae (Gastropoda: Mollusca). *Journal of Molluscan Studies*, 85(4): 859-388.

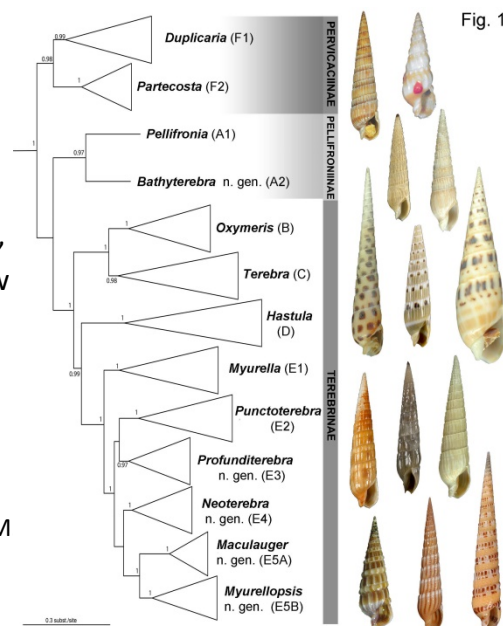
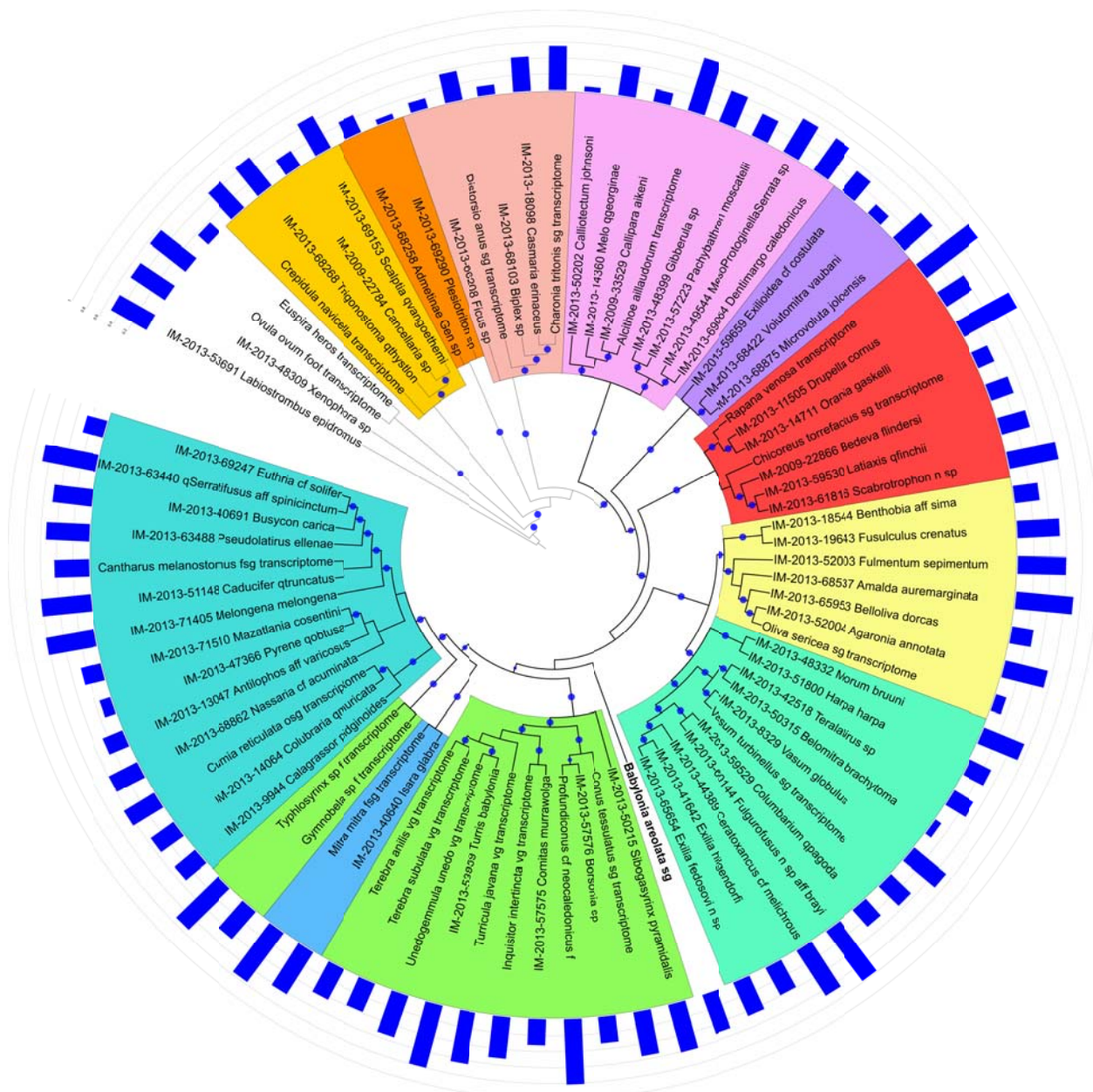


Fig. 1

# Phylogenomics of the Neogastropoda

(project supported by MSF)

In 2019 I reconstructed a preliminary tree of the Neogastropoda based on the sampling of 25 transcriptomes and 70 exomes (Figure 1). Although some nodes of the tree obtained insufficient support, overall the tree features very high support. My results validate some recently proposed relationships such as close affinity of Volutidae and Marginelliform gastropods and sister relationships of Mitridae and Conoidea. The results were presented on the World Congress of Malacology (WCM2019) in Asilomar.



Unfortunately, some deep nodes obtained insufficient support, and some currently supported nodes need to be revisited with expanded taxonomic sampling. In particular, non-monophyly of the Neogastropoda in relation to Tonnoidea needs to be validated with more thorough sampling of the family Cancellariidae. To address these, I processed second set comprising 52 specimens, and sequencing results were recently obtained. Currently this bulk of data is being analyzed.

## Other ongoing projects

### **Phylogeny, evolution and diversification dynamics of the family Costellariidae.**

The neogastropod family Costellariidae is a large and successful group of carnivorous marine mollusks that encompasses about 500 described living species. Costellariids are most diverse in the tropical Indo-Pacific in the 0-200 meters depth interval, where they are largely represented by numerous species commonly assigned to the genus *Vexillum*. Our recent phylogeny and reclassification of Costellariidae (Fedosov et al. 2017) was primarily based on the specimens from Indo-Pacific became a milestone in the studies on the family. Nevertheless, relationships of the New World taxa remained poorly addressed, mainly due to the lack of material adequate for molecular phylogenetics. After recent successful expeditions to Martinique (MADIBENTHOS) and Guadeloupe (KARUBENTHOS 1, 2), several hundred of Costellariidae specimens became available, and they will form a basis of the updated phylogeny. Furthermore, we seek to resolve earlier problematic relationships by applying phylogenomic techniques and to characterize evolutionary history of the family by evaluating its diversification dynamics. In particular we interested in establishing, whether the morphological novelties of the genus *Vexillum* have played a role in the diversification of this wide-spread, species-rich, and charismatic gastropod taxon.