

INTRODUCTION TO NEOGASTROPODA

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The Order Neogastropoda is very large, with about 5,000 species. Almost all members of this order are marine, benthic, and carnivorous. A very few species have invaded fresh water and are herbivorous, and the group includes some scavengers and parasites. Anatomically, neogastropods are much more similar to mesogastropods than the latter are to archaeogastropods (Vetigastropoda + Patellogastropoda). The arrangement of mantle cavity, ctenidium, nervous system, coelomic derivatives, gut, etc. are essentially similar, especially to the "higher" mesogastropods, e.g. the Ranellidae. The main difference is in the radula, which in the Neogastropoda is not taenioglossate (i.e. with 7 teeth/row). The neogastropod radula varies according to superfamily:

Superfamily MURICOIDEA:

Radula with 3 teeth/row (stenoglossate)

Superfamily CANCELLARIOIDEA:

Radula a row of very elongate central teeth

Superfamily CONOIDEA.

Radula with 2-5 teeth/row, marginal teeth enlarged (toxoglossate)

Neogastropods are often the most conspicuous gastropods in marine habitats, but the group is more "conservative," that is it is more homogeneous and less diverse in its habits and habitats, than the mesogastropods. Neogastropods are characterized by an inhalent siphon in the front; it is actually an extension of the left side of the mantle. The siphon permits many neogastropods to burrow in sand to a depth that completely covers the shell, but many species also occupy hard substrates. In many, especially in the Muricoidea and family Turridae of the Conoidea, a long shell siphon protects the inhalent mantle siphon.

As predators, neogastropods have a very good chemical sense - they generally detect a prey organism at a distance by chemical signals emanating from it. The organ responsible for distance chemoreception is the osphradium, a prominent, bipectinate structure in the mantle cavity, located on the inner surface of the mantle at the base of the siphon. The osphradium is richly ciliated and innervated, and it is arranged so that water currents directed from the siphon pass over it before reaching the ctenidium. In archaeogastropods and most mesogastropods the osphradium is less well developed, usually an elongate ridge with a central groove parallel to the ctenidium. After detection and recognition, many neogastropods attack and capture prey using chemical and mechanical devices. These include acid salivary secretions, venoms, and the capability of drilling through shells.

Classification of the major neogastropod families

(based on Ponder and Warén. 1988)

Superfamily MURICOIDEA

Muricidae

Buccinidae (including the formerly separate families Buccinidae, Nassariidae and Fascioliariidae, according to Ponder and Warén, 1988)

Columbellidae

Volutidae

Olividae

Harpidae

Marginellidae

Mitridae

Costellariidae

Superfamily CANCELLARIOIDEA

Cancellariidae

Superfamily CONOIDEA

Turridae

Terebridae

Conidae