

**Shell colour polymorphism in *Olivella semistriata* Gray, 1839  
(Gastropoda: Prosobranchia: Olividae)  
in La Flor protected area, Rivas department, Nicaragua.**

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Shell colour polymorphism has been widely studied on gastropod mollusks. Among the earlier contributions there is the paper by Cain & Sheppard (1950) on *Cepaea nemoralis* in England. They found out in Oxford, that shell colour morphs and banding exhibited an habitat related variation. Brown, pink and unbanded morphs were more frequent in woods, meanwhile yellow and also unbanded morphs were more frequent in grasslands and boundaries.

Later on, this relation between habitat and shell colour morphs frequency, have been reported in other regions of England and France (Lamotte, 1959; Clarke et al, 1978), and as well in other countries and among other gastropod species, such as *Cepaea hortensis* (Clarke, 1960), *Arianta arbustorum* (Parkin, 1971), *Hygromia striolata* (Jones et al., 1974), *Theba pisana* (Johnson, 1980), *Monadenia fidelis* (Roth, 1980), *Cepaea nemoralis*, in Spain (Ramos, 1983), *Liguus fasciatus*, in Florida, USA (Roth & Bogan, 1984), *Polymita picta*, in Cuba (Berovides, et al., 1986) y *Littorina littoraria*, in Sinai (Cook & Bridle, 1995).

According to Pérez & López (1994), *Olivella semistriata* Gray, 1839, offers an excellent organism for studying spatial patterns, due to its great abundance and continuous distribution along its distribution range. But it also offers an excellent material for studying shell colour polymorphism.

*O. semistriata* ranges from the Gulf of California to the northern shore of Peru (Keen, 1971) where it inhabits the infralittoral. In Nicaragua it has been observed mostly associated to the mesolittoral (Pérez & López, 1994).

La Flor protected area is in the southern part of the Pacific coast of Nicaragua (UTM 16PFT3131) (Fig. 1), Dept. of Rivas, just a few kilometers north of the Costa Rican border. Area extension is ca 10 km<sup>2</sup>, annual average temperature 26.3 °C and rain fall 1,517 mm (Fenzl, 1989).

To determine shell colour morphs we made various exploratory samplings all along 1994 to 1999, getting to the conclusion that there are three basic morphs with slight variations among them: A. Gray (Fig. 2), B. Orange (Fig. 3) and C. White (Albine) (Not figured). More recently, we made 80, 50 x 50 cm animal populations, and according to Strickberger (1986) since it doesn't get to be 1 % of the whole population sampled, it can't be considered a "morph".

see color page 76

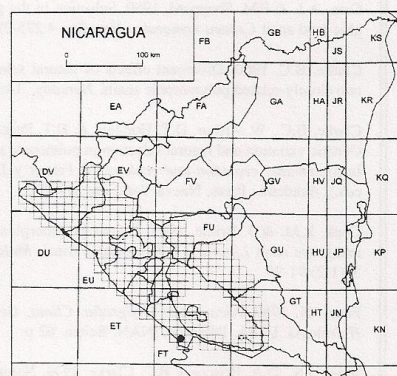


Fig. 1. La Flor protected area (Black circle in FT).

Morphs	Frequency	%
Gray	301	93.18
Orange	20	6.19
White	2	0.61
<b>TOTAL</b>	<b>323</b>	<b>100.00</b>

One of the feasible explanations for this phenomenon, is that gray morph is more favored in relation to orange morph, due to it has a cryptic coloration that makes it not prominent as the latter, thus avoiding birds and other predators. In this case we haven't been able to observe any possible relation to sand types or other habitat variable.

As it can be noticed, "white" morph is quite scarce like in most animal populations, and according to Strickberger (1986) since it doesn't get to be 1 % of the whole population sampled, it can't be considered a "morph".



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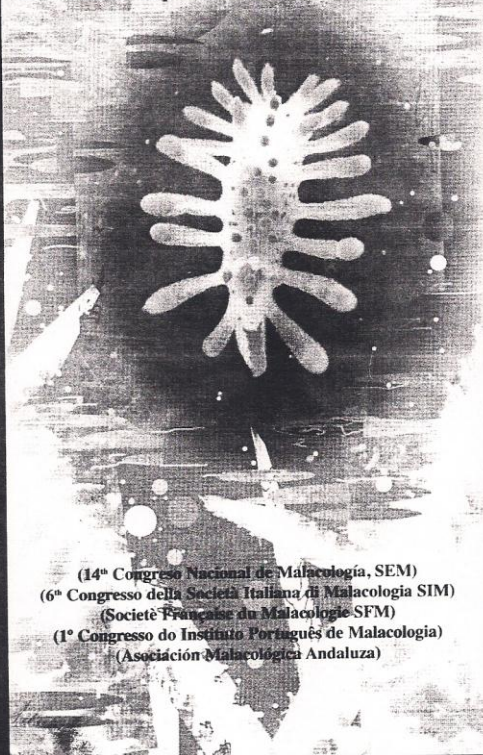
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Fig. 2. Olivella semistriata. Gray Morph.



Fig. 3. Olivella semistriata. Orange Morph.



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