

***Catocala promissa* mimetic on lichens**

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During our lichen collecting excursion in the South of Italy, on our first field day crossing the Gargano peninsula, we stopped along the street, close to a site, which, by first sight, we estimated to be suitable for sampling. When we were wondering around oak trees looking for *Ramalina farinacea*, *Parmelia sulcata* and/or *P. saxatilis*, Salvador called me and said: "Lucia, let's come here, I have found something on *Parmelia* that you surely will like!". I thought, of course, about a strange lichenicolous fungus (!!!). I head to the big oak tree, which was completely covered by lichens, eager to look at that Salvador was pointing me: a caterpillar that was completely mimetic on the *Parmelia* thalli. We were enthusiastic of this finding, that both of us had never seen before.

A week later, back at the university, Salvador was able to find the name of the caterpillar, *Catocala promissa* (Denis & Schiffermüller, 1775), which is known to live on deciduous oak species such as *Quercus robur* and *Quercus petraea*. *Catocala promissa* is a moth of the family Erebidae (Noctuoidea, Lepidoptera), which is distributed from Northwest Africa across Southern and Central Europe to southern Russia and Western Asia (Turkey, etc.). North of the Alps, *Catocala promissa* is only scattered at favourable sites up to about 600m above sea level. According to the reports found in internet, the caterpillar has quite often been reported in the region Provence (France) and the southern Alpine region. It seems to prefer warm oak forests (hardwood floodplain, white oak bush, coppice forest, park-like old oak trees, etc.) and its main host plant seems to be the downy oak (*Quercus pubescens*). The caterpillar of *Catocala promissa* is usually very fast-growing from eggs that hibernate before. Thus, the eggs should hatch in sites microclimatically favorable already in late March, otherwise in April. The caterpillars live south of the Alps until the end of May/early June, north of the Alps until June or even early July. The older caterpillars live during daytime often inside of the bush/tree, closely nestled to branches. Pupation takes place in a cocoon under loose bark or between leaves, possibly also in the litter layer. The moths fly from June to September (maximum activity in late

July/early August). This species is endangered mainly north of the Alps (sometimes even strongly), as bright, warm oak forests are becoming increasingly rare and *Quercus pubescens* scrubs are converted to vineyards, etc.

The color pattern of the moth is very much different from that of the caterpillar, but very much similar to the oak bark. The caterpillars (see photos) are bluish grey or greenish grey, with irregularly shaped black marks on the dorsum and sides, varying in intensity. Along the sides of the body, on the lower part, it has fine, very well developed white tubercles and filamentary processes; these latter, actually, do very much resemble the appendices of, e.g., some *Physcia*, *Physconia*, *Anaptychia*. The head is yellow/ greenish grey with black marks, and the venter presents a row of black spots.

Interestingly, there is another species of moth, *Cryphia muralis* (Forster, 1771), which at the adult stage seems mimetic with lichens (see photo below), having a color pattern of the wings very similar to the color of parmelioid lichens. While no relationships with lichens have been reported for *Catocala promissa* so far, it is well known, instead, that the caterpillars of *Cryphia muralis* feeds on lichens, algae and mosses on rock, especially when they leave their shelter at periods with high humidity (at night or occasionally after rainfalls at day). The caterpillar of *Cryphia muralis* live in small, webbed shelters of walls and rocks, that are mainly made of finely granular soil in crannies or depressions of the rock. These soil shelters are occasionally fitted out with lichens and moss. Although the caterpillar of *C. muralis* feeds on lichens, algae and mosses on rock, it does not seem mimetic with any lichens. Furthermore, *Cryphia muralis* and *Catocala promissa* share the same distribution range, as also *C. muralis* is known for Southern and Central Europe, Afrika, and it likely spreads to Asia Minor, where closely related *taxa* make an evaluation more difficult.



Figures. *Upper row:* caterpillar of *Catocala promissa* on *Parmelia* spp. [Scale bars: 1 cm, 1 cm, 0,5 cm], photos by LM. *Lower row:* [left] moth of *Catocala promissa*; [center] moth of *Cryphia muralis*; [right] caterpillar of *Cryphia muralis*, photos retrieved from References.

References

- http://www.pyrgus.de/Catocala_promissa_en.html
- https://en.wikipedia.org/wiki/Catocala_promissa
- http://www.pyrgus.de/Cryphia_muralis_en.html