

RECENT BIOGEOGRAPHICAL STUDIES ABOUT MARITIME
AND LIGURIAN ALPSLUIGI MINUTO*, GIUSEPPINA BARBERIS, ELENA ZAPPA, GABRIELE
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The high plant diversity of the Maritime and Ligurian Alps derives from their situation as a biogeographical crossroad between the Mediterranean and Alpine regions (Casazza et al., 2005). The endemism of this regional hotspot is the result of an extremely disturbed history (geological and climatic) dating from the mid-Tertiary period.

Recent statistical biogeographical analyses (Casazza et al., 2008) showed that present distribution patterns of endemic taxa reflect the influence of both ecological and historical factors. Glaciations seem to have had a certain influence on plant distribution but their effect was weakened by postglacial migrations. These last events were influenced by environmental factors, but also by the plants' capabilities to disperse into and to recruit in available and empty patches as well as by their competitive abilities when spreading into already occupied areas. Recent molecular investigations of endemic plants belonging to the region showed that vicariance events are probably the most important factor explaining the distribution of these plants in the area (Diadema et al., 2005; Minuto et al., 2006).

The Maritime and Ligurian Alps have been source of new species as demonstrated for *Campanula* (sect. *Heterophylla* – Nicoletti et al. in preparation), *Moehringia* (Fior et al., 2006; Casazza & Minuto, 2008) and *Primula* (sect. *Auricula* – Zhang et al., 2004) genera. There are many endemic species showing a local speciation generated by the interaction between ecological features and historical events.

Polyploidization within the context of the Pleistocene glacial cycles has been proposed as the main evolutionary process driving the diversification of *Primula* sect. *Auricula* (Zhang et al., 2004). This is the case of *P. marginata* Curtis resulting congruent with the allopolyploid hypothesis of dodecaploid origin.

Long distance dispersal events probably influenced the present distribution of endemic plants. An example is *Viola argenteria*: the disjunction of some few populations in Corse are probably due to recent seed transports by seasonal migratory birds finding rest from a mountain chain to another.

The Maritime and Ligurian Alps are considered as a major refuge area (Diadema et al., 2005) as well as a suture zone within the Alps (Comes & Kadereit, 2003). Some important example of the persistence of members belonging to the Tertiary flora are *Saxifraga florulenta* (Szövényi et al., 2009), *Silene cordifolia* and *Berardia subacaulis* (studies in preparation). Both species found in the glacial cycling of the Quaternary the opportunity to find shelter from the frequent climatic oscillations. Similarly, also more widespread species like *Euphorbia spinosa* (Zecca et al., 2011) and *Saxifraga callosa* (Grassi et al., 2009) showed their main refugia within the Maritime and Ligurian Alps.

All these elements and detailed information should be widely divulgated to increase the awareness that this region needs a special conservation strategy undertaken by the joined commitment of the Italian and French administrative institutions managing this extraordinary world natural heritage.

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