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Morphological and Phenological characterization of Mediterranean species in Northern Sardinia, Italy

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Monitoring of vegetation, in particular methodologies for phenological and biometrical monitoring, are widely implied for climate change studies and their importance for understanding the consequences of global environmental change on vegetation is highlighted in the most recent IPCC reports.
It is very likely that, during the next decades, the Mediterranean Regions will cope to the very negative effects of climatic changes. Consequently, due to the climate change impacts and the effects of anthropogenic pressures upon natural resources, these regions are among the most vulnerable ecosystems to the effects of climate change.
Therefore, appears to be of crucial importance to better understand the physiological strategies for cope to climate change adaptation for the Mediterranean maquis shrub species which are key information for developing adaptation strategies guidelines.
In this work, the biological and reproductive cycle of some Mediterranean species growing in an experimental area located within a nature reserve in the peninsula of Capo Caccia, north-west Sardinia, Italy, was investigated for a period of two years. In particular, the research was focused on: (1) the study of the development processes and the description of phenological phases, and (2) the analysis of the growth processes performed through biometric and floristic composition measurements. Specific BBCH scales for each species were developed. Shoot growth and floristic composition analysis did not show a clear trend in the response of the different species to climatic manipulations but a downward trend in the number of species. The results obtained in this study add useful information on the phenological cycle and growth of the Mediterranean species, improving the knowledge on the mechanisms of adaptation to adverse environmental conditions of these species