

**Publication****Assessment of land cover changes and spatial drivers behind loss of permanent meadows in the lowlands of Italian Alps****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 2348842**Author(s)** Monteiro, Antonio T.; Fava, Francesco; Hiltbrunner, Erika; Della Marianna, Giampaolo; Bocchi, Stefano**Author(s) at UniBasel** [Hiltbrunner, Erika](#) ;**Year** 2011**Title** Assessment of land cover changes and spatial drivers behind loss of permanent meadows in the lowlands of Italian Alps**Journal** Landscape and urban planning**Volume** 100**Number** 3**Pages / Article-Number** 287-294**Keywords** Land cover/land use changes, Meadows loss, GIS-based logistic regression, Aerial photographs, Italian Alps

The loss of permanent meadows in the lowlands of the European Alps due to land use/land cover changes is a major underestimated process, which affects the status of these habitats and their provision of ecosystem services. In the Italian Valtellina valley (80 km<sup>2</sup>) change detection analysis estimated meadows loss and spatial bivariate analysis and GIS-based logistic regression model analysed the spatial environmental drivers behind meadows loss in the period 1980-2000. A strong decrease in meadows (-18.5%) was found, in a context of agricultural land decrease and human settlements increase. This was the land cover type with highest loss and conversion rate during the study period. Meadows were converted to human settlements (urban, industrial and roads), other agriculture uses (cultivation, orchard, vineyard), bushland and uncultivated land. Meadows loss occurred mainly in soils with good land capability, low slope, exposed to south and in proximity of roads, urban settlements and bushland. Densities of urban, industrial and bushland and land capability were the only significant drivers for meadows loss, while distance to meadow edge, meadows density, distance to roads and soil degradation were the only significant drivers for meadows preservation. The conflict by land in locations densely occupied by other land cover types with good land capability is the major threat to meadows and avoidance of fragmentation may be a good strategy for its preservation. The meadows habitat needs a well-designed landscape and farming planning, which should account the economic value of the ecosystem services provided by this habitat. (C) 2011 Elsevier B.V. All rights reserved.

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