## *Photo Story*

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# The overlooked diversity of dry grasslands in Ticino (Switzerland) – with impressions from the 19th EDGG Field Workshop

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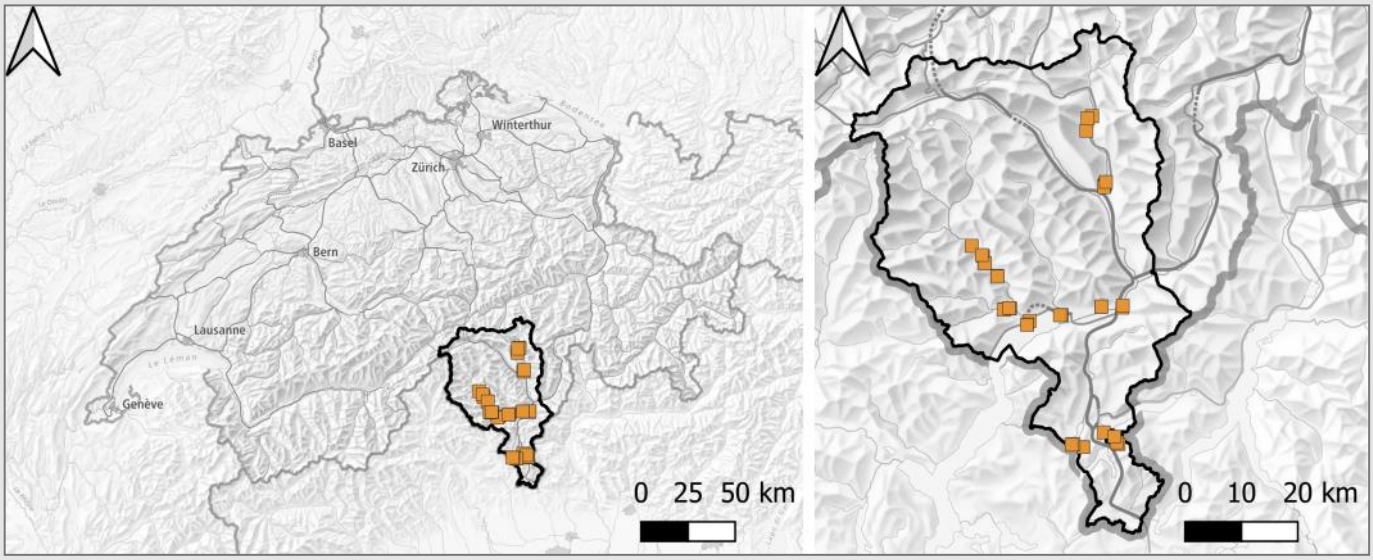
Ticino, covering 2,800 km$^2$, is the southernmost canton of Switzerland. Ticino deviates not only by the Italian language from the rest of Switzerland, but also by being entirely located south of the main alpine chain. With mainly North-South oriented valleys, it experiences an extraordinary climate compared to the regions further north. Both the annual precipitation (for a given elevation) and the number of sunshine hours are higher than elsewhere, and the lowlands are also the warmest places in the country. This combination of features has been called “insubric climate”, albeit this refers in the strict sense only to the regions around two large glacial lakes, Lago Maggiore and Lago Lugano. The elevation in the canton ranges from 193 to 3402 m a.s.l. The bedrock is predominantly acidic with a few limestone areas in the southernmost parts of the canton. However, due to the complex geological history of the region, dry calcareous soils also form locally in the northern part of the canton, for instance around metamorphic dolomite outcrops.

Despite the high precipitation dry grasslands occur in Ticino, but usually the areas are rather small and isolated compared to the Valais or the Jura Mountains. Dry grasslands can be found mainly on steep rocky outcrops (where they are natural), as mostly small relics of pastures and hay meadows in the lower mountain ranges and, as a peculiarity compared to the other regions in Switzerland, in the floodplains and deltas of the larger Alpine rivers (Ticino, Brenno, Maggia, Melezza and Verzasca). Despite the influence of dams and reservoirs, the Maggia river remains one of the




**Map of the Canton of Ticino with the studied dry grassland sites marked.**

most actively braiding rivers in the Alps. This dynamic and diverse riverscape features extensive areas of dry sediment, which Franz Klötzli termed "floodplain steppe."

There are different reasons why the dry grasslands of Ticino found so little attention (outside the canton) compared to those in Valais, Grisons or the Jura Mts., one of them being the fact that Josias Braun-Blanquet did not include them in his seminal work "Die inneralpine Trockenvegetation". Moreover, they are very diverse and largely do not fit into the syntaxonomic systems developed elsewhere in Switzerland. The national habitat typology of Switzerland by Raimond Delarze and colleagues has created a special type "insubrian dry grassland", but hardly any stand in Ticino matches this definition. While the national habitat typology of Switzerland only considers alliances of basiphilous dry grasslands (*Festuco-Brometea*), Ticino hosts quite well developed sandy dry grasslands (*Koelerio-Corynephoretea*) not known elsewhere from Switzerland.

In order to complement the EDGG Field Workshops in the inneralpine valleys of Austria (2018), Switzerland north of the Alps (2019), South Tyrol (2023) and SW Alps (2024) to achieve a comprehensive picture of the dry grassland types within the Alps, we conducted vegetation sampling of various dry grassland sites in 2024. This yielded two EDGG Biodiversity Plots and a total of 44 10-$m^2$ plots so far. The EDGG Executive Committee has post hoc named this the 19$^{th}$ EDGG Field Workshop. Here we present the impressions from this Field Workshop and combine them with photos from previous visits. Our studies on the diversity and phytosociology of the dry grasslands in Ticino are ongoing and we plan some short-term sampling activities also in 2025 with the aim to prepare afterwards a modern syntaxonomic overview of the dry grasslands in Ticino. Colleagues interested in joining such ad hoc sampling activities, are welcome to contact the first author.

**Further Reading:**

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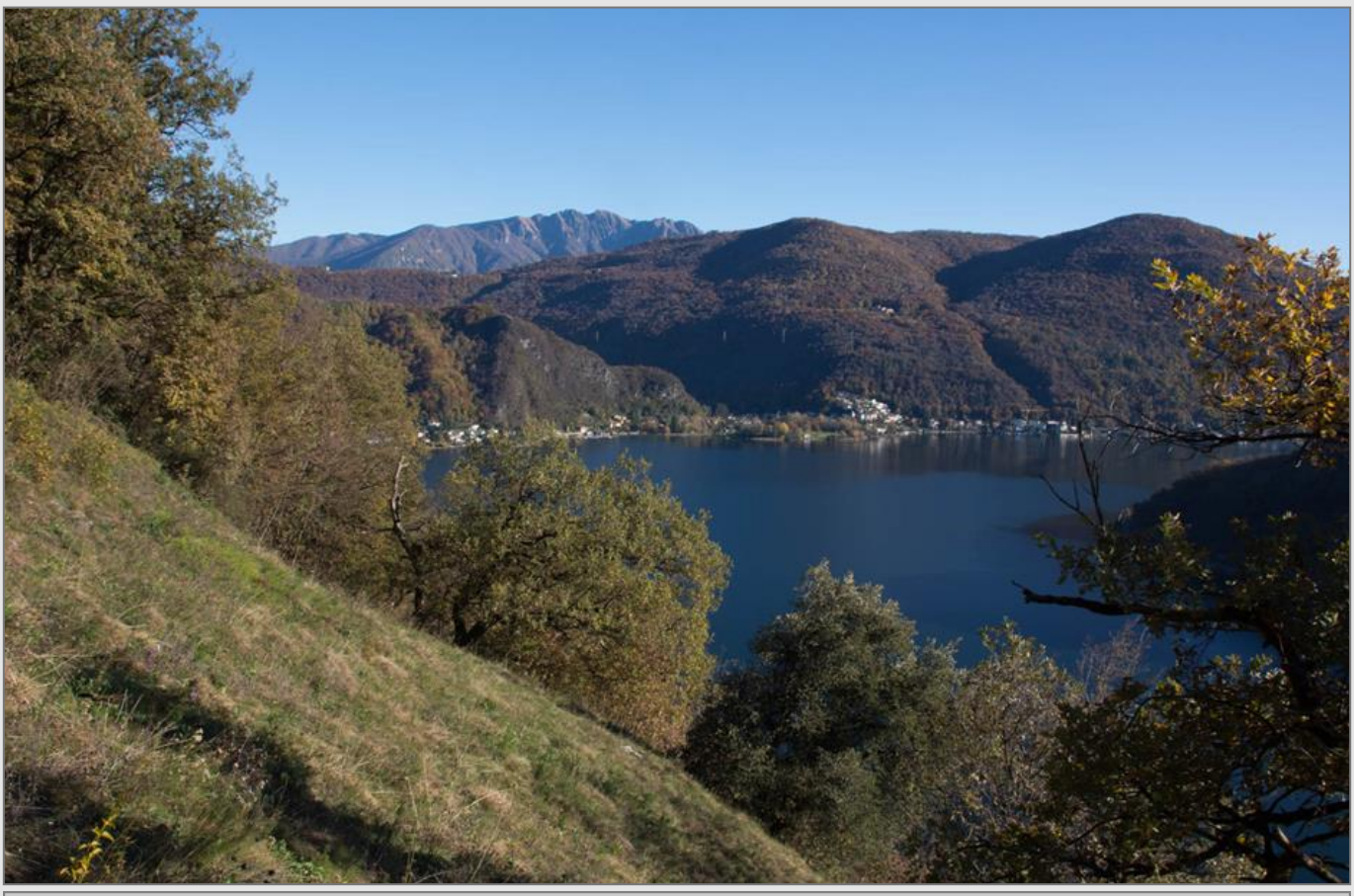


**Monte Caslano (in the foreground).**

**Monte Caslano**

**Floristically, the dry grasslands of Monte Caslano are among the most remarkable in Ticino. Located over dolomite on a peninsula in Lago Lugano, they host many dry grassland species that are rare or absent elsewhere in Ticino. Notable are *Galatella linosyris* and *Seseli annuum* (bottom). These grasslands, partly dominated by *Chrysopogon gryllus*, resemble the alliance *Diplachnion serotinae*, representing the xeric grasslands along the southern rim of the Alps.**

***Odontites luteus, Dictamnus albus, Polygala pedemontana* and *Asperula purpurea*.**

**Rocky grasslands**

**Monte San Salvatore with almost inaccessible mosaics of rocky dry grasslands, debris fans, shrublands and xerophilous forests on dolomite. The small photos show some typical species of rocky limestone grasslands (likely belonging to the *Stipo-Poion xerophilae* and *Alysso-Sedion*): *Scorzonera austriaca* and *Helianthemum alpestre, Polygala chamaebuxus, Globularia bisnagarica, Saxifraga tridactylites* (from upper left to lower right).**

**Xeric grasslands with *Stipa pennata* aggr.**

**Autumn aspect of a xeric grassland with *Stipa eriocaulis* (*Stipo-Poion xerophilae*) in the Brenno valley (Valle di Blenio). Lower row: *Allium lusitanicum* and *Geastrum minimum*.**

**Rocky acidic grasslands**

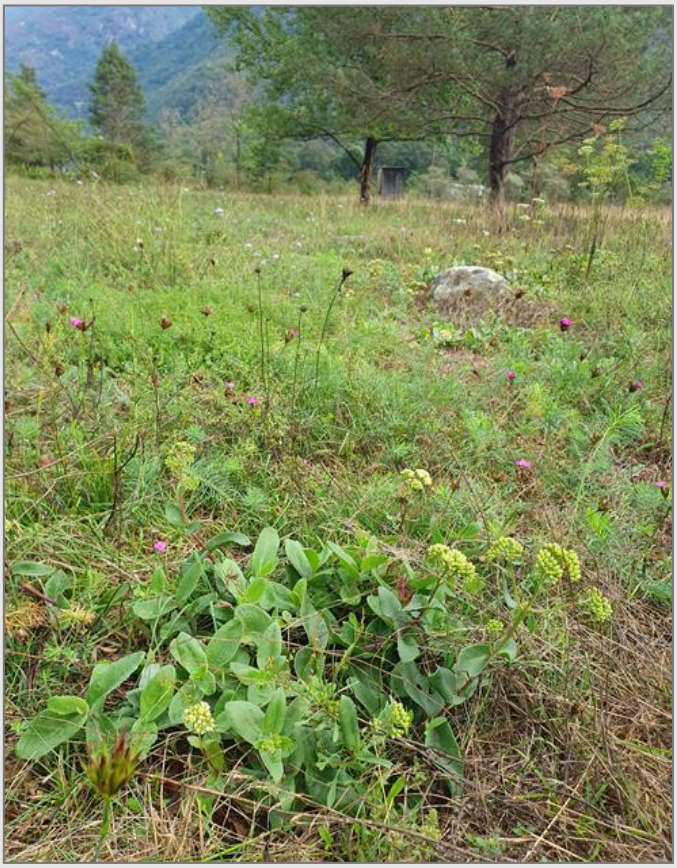
**Widespread, but little studied are species-poor rocky grasslands on granite outcrops, here with *Festuca acuminata* and the neophytic moss *Campylopus introflexus* in the Parco Maia forest reseve above Losone.**

**Acidic grassland on a tallus slope in the lower Brenno valley (Valle di Blenio) with *Pilosella officinarum* subsp. *velutina* and *Racomitrium canescens* aggr. The syntaxonomic position of both types is unclear, possibly they can be placed in the order *Sedo-Scleranthetalia* (class *Sedo-Scleranthetea*).**

**Semi-dry basiphilous grasslands**

**Semi-dry basiphilous grasslands are relatively widespread in the canton. Mostly, they occur on the hills and slopes, but sometimes they can also be found as later successional stages on the gravel bars of the rivers, following the *Koelerio-Corynephoretea* stands. They belong to the order *Brachypodietalia pinnati*, but the alliance is not fully clear, e.g. due to the frequent occurrence of *Brachypodium rupestre* (instead of *B. pinnatum*) and transitions towards *Nardetalia strictae* and *Trifolio arenvsis-Festucetalia ovinae* stands. Upper photo: above Gudo with *Neotinea tridentata*. Lower photo: Brè sopra Lugano with *Potentilla tabernaemontani*.**

**Semi-dry basiphilous grasslands**




**Typical stand on a gravel bar of the Maggia with *Hylotelephium maximum* and *Dianthus carthusianorum*, *Carex fritschii, Scabiosa triandra* and *Thymus pulegioides* subsp. *pulegioides* (from upper left to lower right).**

**Sandy dry grasslands**

**While *Festuca stricta* subsp. *trachyphylla*, *F. filiformis* and *Agrostis capillaris* are the most widespread graminoids in the sandy dry grasslands, also *Bothriochloa ischaemum* (top) and *Carex liparocarpos* (bottom) regularly occur.**

**Sandy dry grasslands**

**While there is little doubt that the sandy dry grasslands of Ticino belong to the class *Koelerio-Corynephoretea*, it is less clear to which order and alliance they belong. The majority is rather mesoxeric and thus corresponds to the order *Trifolio arvensis-Festucetalia ovinae*. They have the highest similarity with the alliance *Armerion elongatae* (top) known from the subcontinental parts of Germany, the Polish lowland and adjacent regions. Species such as *Festuca brevipila* and *Veronica spicata* point into this direction, while *Festuca filiformis* is more typical for the western vicariant alliance *Sedo-Cerastion* known from NW Germany, the Benelux countries and Northern France. However, some individual species such as *Aira caryophyllea* that can form small-scale patches indicate that the alliance *Thero-Airion* (order *Thero-Airetalia*) might also be present in a fragmentary manner (bottom left). Very unclear is the phytosociological position of stands on gravel bars of the Melezza with very coarse sediments and an unknown *Festuca* species with very thick leaves (bottom right).**

**Sampling**

**Seven colleagues from three countries participated in the sampling in 2024. Sampling in the lower Brenno Valley, in Tegna (Melezza valley), Monte Caslano, San Salvatore and Barbengo (Castellaccio) (from top left to bottom right).**

**Orchids**

**In the dry grasslands of Ticino, orchids are not as widespread as in other regions of Switzerland. The most common probably is *Anacamptis morio* subsp. *morio* (above). Rare species are *Neotinea tridentata* subsp. *tridentata*, *Serapias vomeracea* and *Neotinea ustulata* (lower row from left to right).**

**Bryophytes and lichens**

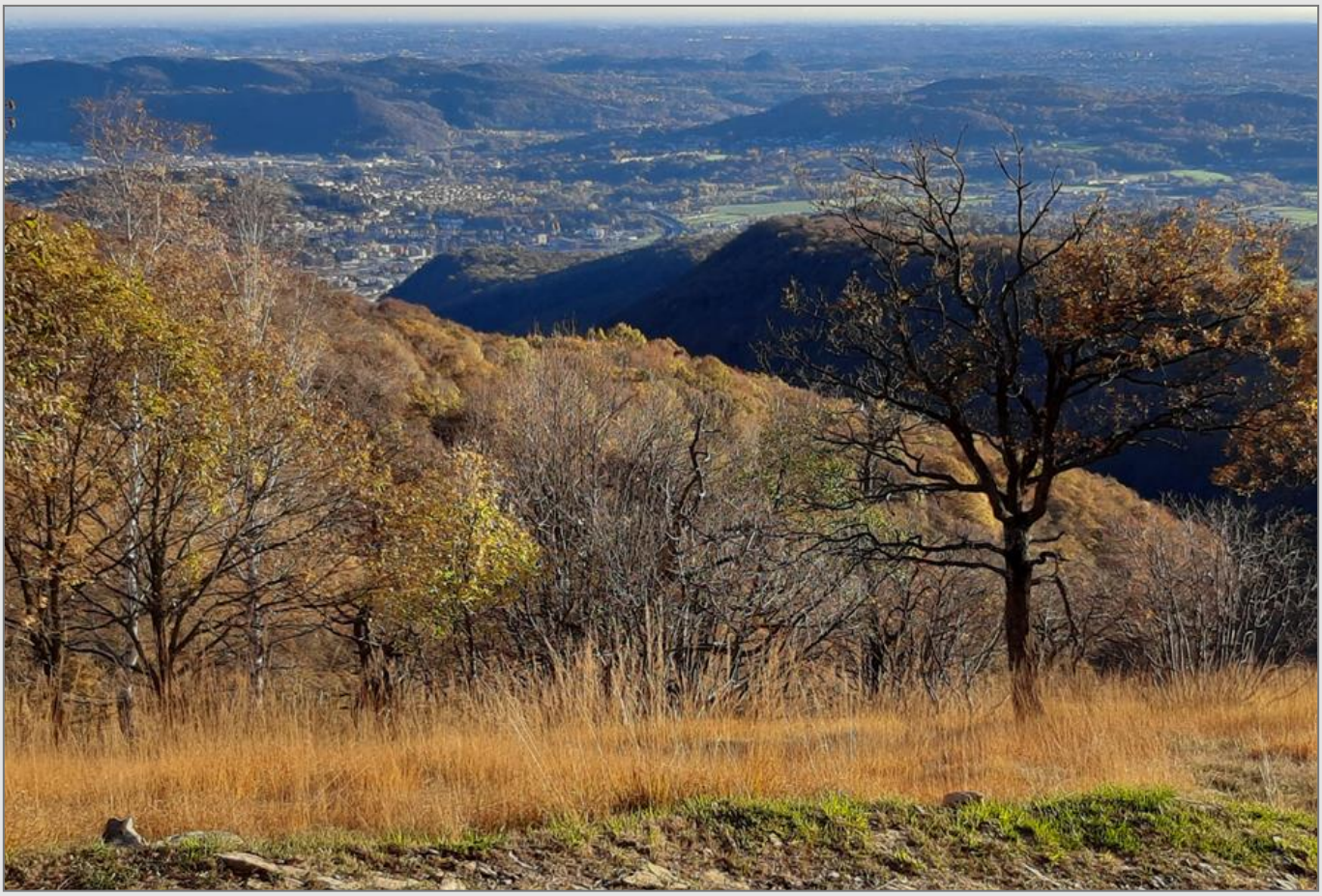
***Racomitrium canescens* aggr. is a typical and often dominant taxon of *Koelerio-Corynephoretea* stands, *Abietinella abietina* occurs both in the *Koelerio-Corynephoretea* and *Festuco-Brometea*, whereas lichen species are largely restricted to the *Koelerio-Corynephoretea*: *Cladonia* cf. *rei, Cladonia foliacea* and *Stereocaulon incrustatum* (from upper left to lower right).**

**Fauna of the dry grasslands**

**The rich fauna of the dry grasslands in Ticino include *Lacerta bilineata, Podarcis muralis, Coronella austriaca, Ruspolia nitidula* and *Colias croceus* (from upper left to lower right).**

**Dry grassland landscapes**

**Dry grassland in the gravel plain of the Melezza near Tegna (upper). Dry grassland on the gravel plain of the Brenno near Biasca (lower).**



**Alpe Vicania near Morcote (upper). Monte San Giorgio (near Riva San Vitale).**