



Size of Valuable Habitats

Valuable habitats stand out from the normal landscape. What sets them apart is that they are particularly beautiful, typical for a certain kind of habitat, and providing shelter for unique animal and plant communities. Often endangered, valuable habitats of national importance such as alluvial zones, raised bogs or dry grasslands are registered in so-called federal inventories.

The share of land allocated to such habitats varies depending on the biogeographical region they are located in: It is highest in the Northern Alps, where 2.3% of the region have been included in a federal inventory, followed by the Eastern Central Alps at 2.0%, with the share of valuable habitats lowest on the Central Plateau at 0.9%. Nationwide, valuable habitats cover a total of 63'573 hectares, which corresponds to 1.5% of Switzerland's expanse.

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The Z10 indicator monitors the size of habitats recorded in the federal inventories of fenlands, raised bogs (including transition bogs), alluvial zones, and dry grasslands. While federal inventories supply centrally accessible data, they only cover a part of Switzerland's valuable habitats. Other valuable habitats such as small lakes, interlittorals, woodlands, or habitats of regional importance are not monitored by the Z10 indicator due to a lack of comparable uniform data. Likewise, the Federal Inventory of Amphibian Spawning Areas is not taken into account, since its primary objective is protecting and promoting a species group rather than a typical habitat.

Z10 computations yield both the total size of all valuable habitats recorded in federal inventories and the sizes of individual habitat types.

Status in Switzerland

Table 1 below lists the sizes of alluvial zones, raised bogs, fenlands and dry grasslands of national importance as well as the total size of all habitat types combined, expressed in hectares and in percent of Switzerland's expanse. The "net total size" column holds the total area covered by inventoried habitats of all four types. Habitats recorded in more than one federal inventory—e.g. in the Federal Inventory of Alluvial zones as well as in the Federal Inventory of Fenlands—are counted only once.

	Alluvial zones	Raised bogs	Fenlands	Dry Grasslands	Habitats recorded more than once	Net total size
Hectares	22'639	1'524	19'218	21'558	-1'366	63'573
Percent	0.55	0.04	0.47	0.52	-0.03	1.54

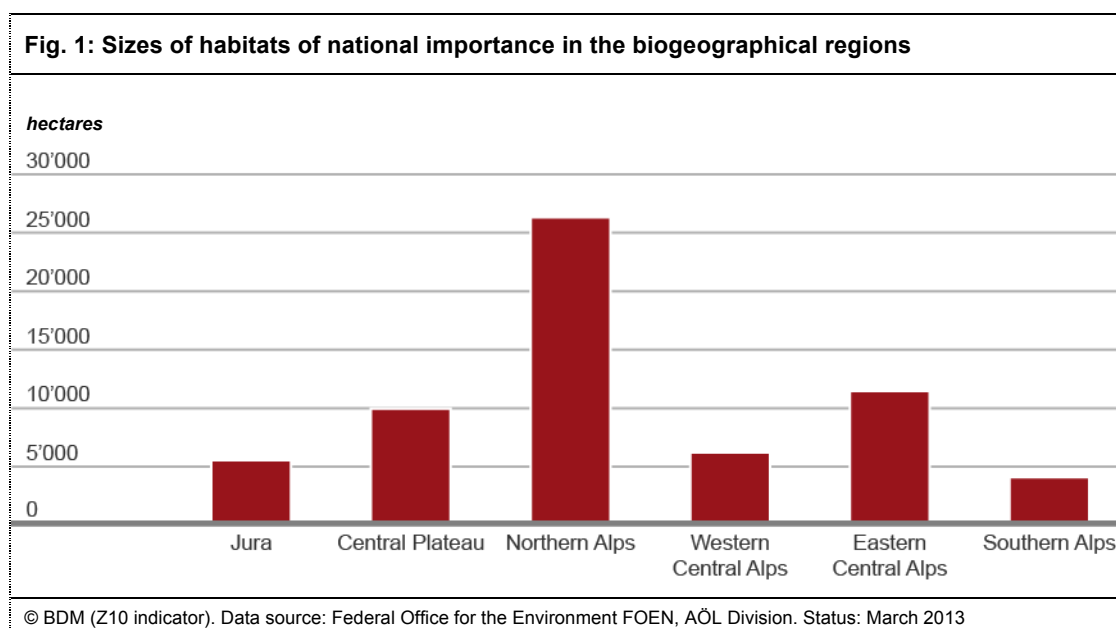
© BDM (Z10 indicator). Data source: Federal Office for the Environment FOEN, AÖL Division. Status: March 2013

Comments

- Habitats registered in federal inventories cover roughly 1.5% of the country's expanse, with alluvial zones and raised bogs/fenlands making up shares of similar scale.
- Raised bogs amount to less than 2.4% of the total size of habitats of national importance.
- Raised bogs, fenlands, alluvial zones and dry grasslands have become rare. About one hundred years ago, the area covered by such habitats was roughly ten times as large as today.
- For information on when ordinances governing these federal inventories were adopted and revised please refer to the "Definition" section at the end of this document.

Status in the biogeographical regions

Figure 1 below illustrates the sizes of habitats registered in federal inventories (raised bogs, fenlands, alluvial zones, dry grasslands) in Switzerland's six biogeographical regions.

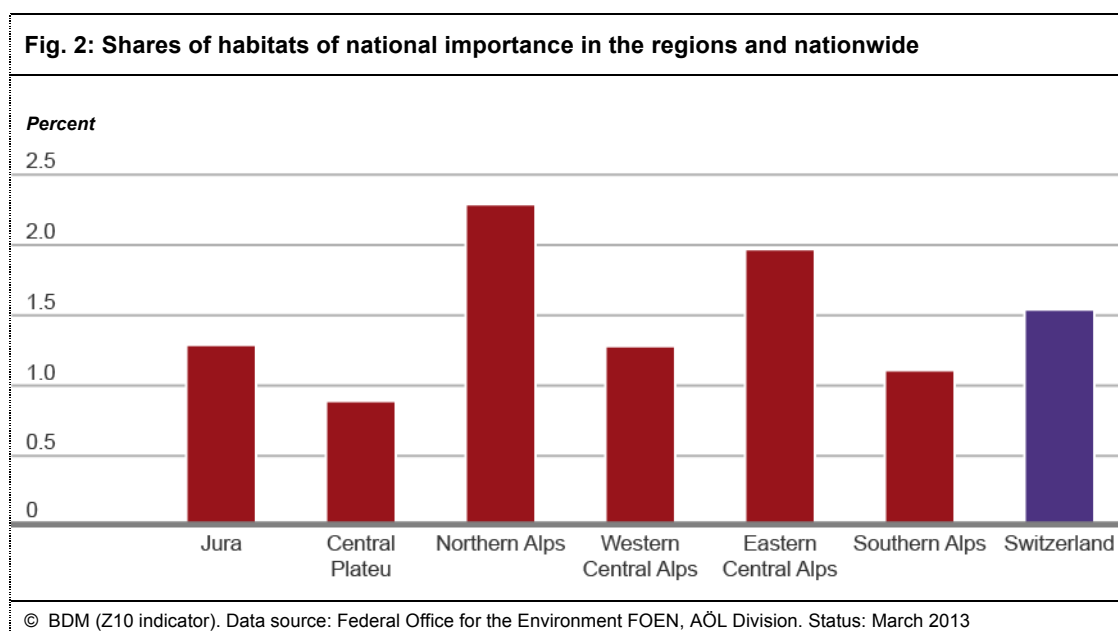


Comments

- Habitat types are not evenly distributed among the regions. Roughly 41% or just over 26'000 hectares of all habitats registered in federal inventories as well as nearly 70% of all fenlands/raised bogs are located in the Northern Alps.
- Raised bogs are almost exclusively restricted to the north of the Alps. Moreover, the Northern Alps, the Eastern Central Alps and the Jura harbor the largest areas of dry grassland, with the smallest located on the Central Plateau (see data tables and complementary information in Appendix).

Supplementary data

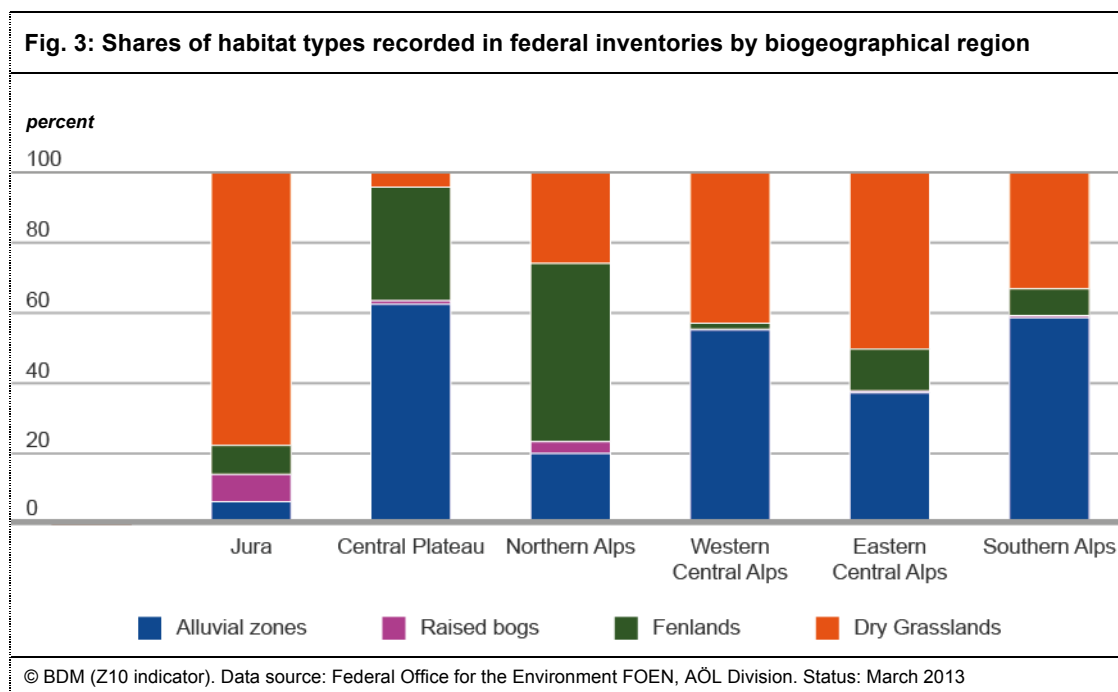
Figure 2 below illustrates what share of Switzerland's biogeographical regions and of the country as a whole was covered by valuable habitats recorded in federal inventories (raised bogs, fenlands, alluvial zones, dry grasslands) as of 2013.



Comments

- The Northern Alps not only hold the largest area of habitats of national importance in absolute figures, but at 2.29%, they also allocate a markedly higher share of their total area to such habitats than all other biogeographical regions.
- For data tables and complementary information please refer to Appendix.

Figure 3 below illustrates the shares of individual habitat types in the total habitat area of each biogeographical region. In this case, habitats of national importance recorded in more than one federal inventory have been counted several times.



Comments

- The Central Plateau, the Southern Alps and the Central Alps feature the highest shares of alluvial zones in their valuable habitat areas. In the Central Alps, most of these alluvial zones are found at an alpine level, above all in glacier forefields. The share of fenlands, however, is highest in the Northern Alps.
- In the Jura, the areas covered by raised bogs, fenlands and alluvial zones are almost equal in total size. However, at just under 80%, dry grasslands claim the highest share by far.
- The Western Central Alps merely hold a negligible share of raised bogs of national importance.
- For data tables and complementary information please refer to Appendix.

Significance for biodiversity

Habitats are considered to be valuable if they are unique, typical or rare. Without these special types of environment, many plant and animal species would go extinct. Protecting habitats is one of the requirements for long-term preservation of biodiversity in Switzerland.

For the time being, the Z10 indicator only monitors areas listed in the federal inventories of alluvial zones, fenlands, raised bogs, and dry grasslands. The corresponding federal ordinances explicitly require these habitats to preserve and promote indigenous plants and animals and their ecological bases.

For long-term survival and development, such habitats need to cover areas of a certain size, particularly since it is often a reduction in size and quality of valuable habitats that supplies the key cause for population declines. Many redlisted species solely occur in a small number of places that have become isolated patch habitats in the normal cultivated landscape. Once the last remnants of these isolated patch

habitats are gone, species typical of such special environments disappear along with them. The Curlew and the Common Snipe, for example, are not found among this country's regular breeding birds anymore, since the large-scale wetlands they depend on no longer exist.

There are two reasons for the Z10 indicator to cover only a fraction of Switzerland's valuable habitats so far:

On the one hand, Z10 only monitors areas of national importance that are recorded in a federal inventory. However, to name but one example, Switzerland's total fenland area is much larger than the area of inventoried fenlands of national importance, as many fenlands fail to meet the federal inventory's criteria because they are either too small or of insufficient quality.

On the other hand, habitats other than alluvial zones, raised bogs, fenlands and dry grasslands are considered to be valuable as well. Under the Swiss Ordinance on the Protection of Nature and Cultural Heritage (NCHO), types of habitat worth preserving include, among others, spring and flush plant communities, water habitats, littorals, ravine forests, steep-slope forests and dry forests, seam communities, brushwoods and heathlands, rock, grit, karst and scree plant communities as well as segetal and ruderal plant communities. All of these habitats should actually be monitored by Z10, but they are frequently not inventoried by uniform standards or not inventoried at all, which makes monitoring impossible. As a result, the real total size of all valuable habitats cannot be estimated.

Federal inventories list areas that were included because of their particular beauty (raised bogs and fenlands), size and quality at the time of inclusion. However, inventories give no information on either the current quality of habitats (Z11 indicator serves that purpose) or on any changes in size. While the Z10 indicator is meant to record the development of habitat sizes, it cannot truly achieve this objective until federal inventory effectiveness monitoring programs provide reliable records on quantitative and qualitative changes affecting habitats.

Definition

Changes in the size of valuable habitats of national importance as stipulated by articles 18, 18a and 21 of the Swiss Nature and Cultural Heritage Protection Act.

Federal inventory criteria for habitats of national importance:

Alluvial zones

An alluvial plain created by a natural or near-natural waterbody is of national importance if 1) it covers an area of at least 2 hectares, 2) this minimum area is exclusively populated by intact typical alluvial vegetation or substitute plant communities that emerged and can be regenerated in a near-natural manner, and 3) it is in direct contact with that natural or near-natural waterbody and is affected by it (groundwater, flooding).

An alluvial zone separated from its waterbody by artificial means is of national importance if 1) it covers an area of at least 5 hectares, or 2) it is connected to a waterbody by some other means (groundwater, runoff, etc.), and 3) this minimum area (5 hectares) is populated by typical alluvial vegetation.

Glacial forelands and Alpine floodplains (above 1800 m above sea level) are of national importance if 1) they include an alluvial area shaped by glaciofluvial or fluvial processes and covering at least 2500 square meters, 2) they are classified to be "of national importance" on the basis of a dedicated evaluation by geomorphological and biological main and subsidiary criteria, and 3) they are neither damaged nor excessively polluted.

Raised bogs and transition bogs

Raised bogs are recorded on the basis of the presence of sphagnum mosses and vascular plants that traditionally indicate a raised bog environment. To be considered of national importance, a raised bog must cover at least 625 uninterrupted square meters.

Fenlands

Fenlands of national importance must cover at least one hectare and support typical fenland vegetation. Seven types of vegetation are considered to be typical fenland vegetation. They have been defined by means of their character species: *Phragmites*, *Magnocaricion*, *Scheuchzeria*, *Calthion* and *Filipendulion*, *Molinion*, *Caricion davallianae*, *Caricion nigrae*.

Dry grasslands

Dry grassland areas are evaluated based on criteria such as rareness, worthiness of protection and representativity of vegetation types in combination with the degree of habitat networking, present structural elements and additional factors (for details please refer to *Schriftenreihe Umwelt Nr. 325: The Cartography and Evaluation of Dry Grassland in Switzerland*, FOEN Bern 2001, only abstract in English).

Effective dates of relevant ordinances

Raised bogs and transition bogs:

February 1, 1991 (chronology and modification details in German at http://www.admin.ch/ch/d/sr/c451_32.html)

Fenlands:

October 1, 1994 (chronology and modification details in German at http://www.admin.ch/ch/d/sr/c451_33.html)

Alluvial zones:

November 15, 1992 (chronology and modification details in German at http://www.admin.ch/ch/d/sr/c451_31.html)

Dry grasslands:

February 1, 2010 (chronology and modification details in German at http://www.admin.ch/ch/d/sr/c451_37.html).

Surveying methods

The precise surface area of individual habitat types was delimited from surrounding areas on the basis of surveys. Effectiveness monitoring has yet to establish whether and how individual habitat areas have changed since the original survey. So far, data are only available for bog and fenland habitats (see Z11 indicator).

For the purposes of the Z10 indicator, BDM calculated the total area recorded in the federal inventories of alluvial zones, raised bogs, fenlands and dry grasslands. Areas recorded in more than one inventory were counted only once.

Z10 data are limited to federal biotope inventories under Art. 18a NCHA because only those ensure that habitats are evaluated and inventoried according to uniform criteria throughout Switzerland. For the time being, only current statuses are indicated.

Further information

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Related indicators

The Z11 indicator monitors changes in the quality of valuable habitats, while the M1 indicator registers changes in the size of areas of national importance protected by law, which includes the habitats monitored by the Z10 indicator. The M2 indicator records changes in the size of secure protected areas, i.e. areas protected by law where that protection has been implemented as provided (habitats of national importance).

Additional sources of information

- > www.bafu.admin.ch/index.html?lang=en FOEN website
- > map.bafu.admin.ch GIS maps for locating nature preserves (text in French and German only)
- > www.bafu.admin.ch/schutzgebiete-inventare/index.html?lang=en FOEN list of federal inventories (not available in English)
- > www.admin.ch/ch/d/sr/c451_31.html Ordinance on Alluvial zones (not available in English)
- > www.admin.ch/ch/d/sr/c451_32.html Ordinance on Raised Bogs (not available in English)
- > www.admin.ch/ch/d/sr/c451_33.html Ordinance on Fenlands (not available in English)
- > www.admin.ch/ch/d/sr/c451_37.html Ordinance on Dry Grasslands (not available in English)

> Appendix

This information is based on the German-language document 1090_Z10_Basisdaten_2013_V1.doc dated March 18, 2013.