

Wilderness is a unique laboratory – Science and Wilderness in Europe

Vlado Vancura

European Wilderness Society

Keywords

Wilderness, unique laboratory, self-rewilding, European Wilderness Society, European Wilderness Network, Wilderness and Science in Europe



Figure 1: Wilderness represents a vital element of Europe's natural and cultural heritage. ©European Wilderness Society

Background information

What is wilderness?

Wilderness represents a vital element of Europe's natural and cultural heritage. In addition to its intrinsic value, it offers the opportunity for people to experience the emotional quality of nature in the widest experiential sense. This experience goes beyond mere physical and visual attributes, and has particularly also a psychological impact.

The qualities of Wilderness are predominantly defined by Naturalness, Undisturbedness, Undevelopedness and Scale. The quality of potential Wilderness areas need to be audited, using the European Wilderness Quality Standard and Audit System, developed by 230 Wilderness advocates in 2012 to have a clear understanding of the strengths, weaknesses, opportunities and threats in relationship to the European definition.

The European Wilderness definition:

Natural processes govern Wilderness core zones meeting the European Wilderness Quality Standard and Audit System "Gold- or Platinum Standard". They are composed of native habitats and species, and large enough for the effective ecological functioning of natural processes. They are unmodified or only slightly modified and without intrusive or extractive human activity, settlements, infrastructure or visual disturbance.

The definition of Wild Areas:

Wilderness core zones meeting the European Wilderness Quality Standard and Audit System "Bronze- or Silver Standards" are wild areas that have a high level of predominance of natural process and natural habitat. They tend to be individually smaller and more fragmented than the "Gold- or Platinum Standard" Wilderness areas, although they often cover extensive tracts. The condition of their natural habitat, processes and relevant species is however often partially or substantially modified by past human activities such as livestock herding, hunting, fishing, and collecting berries and mushrooms.

Wilderness thus means:

- **no human extraction, including:**
 - no hunting
 - no logging
 - no mineral collections
 - no mining
 - no deadwood collection
 - open ended undefined natural dynamic processes
- **no human intervention, including:**
 - no disease or insect control
 - no invasive alien species control
 - no restoration measures
 - no fire control

Wilderness has in general three zones: the Wilderness zone (where there is no human intervention, no extraction and natural dynamic processes govern), the restoration zone (where restoration and/or expansion is undertaken) and the transition zone (where further expansion of the Wilderness is planned).

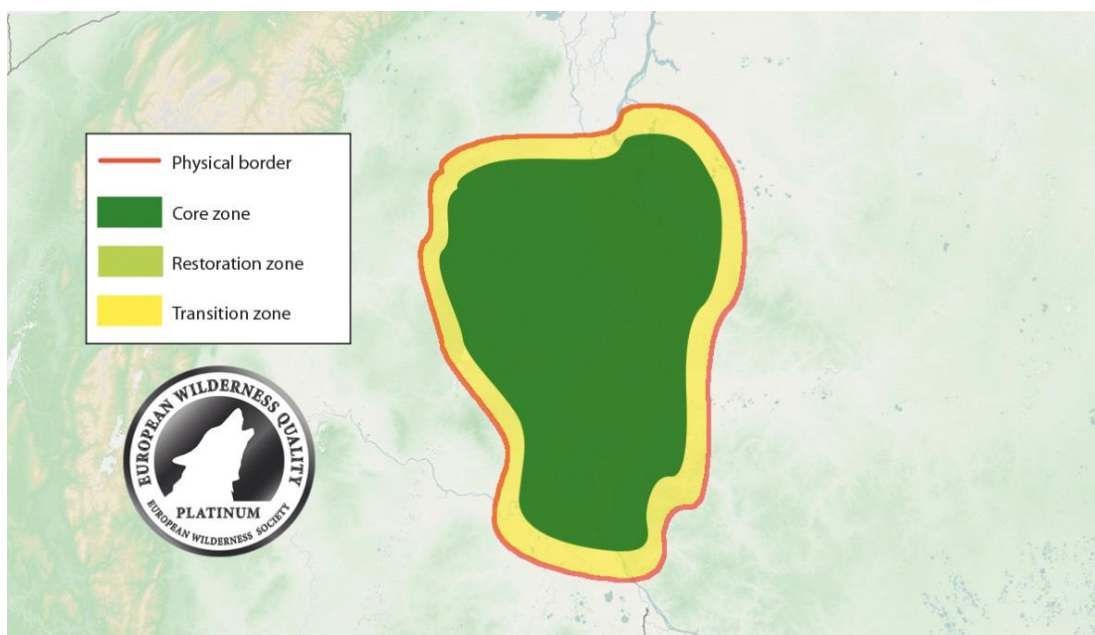


Figure 2: In a fully developed Wilderness (Platinum), the restoration zone is fully incorporated in the Wilderness core zone. The Wilderness has expanded to its physical border and remains surrounded by the transition zone.
©European Wilderness Society

In the Wilderness zone, all scientific work has to be non-invasive and non-extractive. For example, scientists are not allowed to use intrusive methods, like taking samples, probes or collect plants and animals.

In the restoration and transition zones, all scientific work has to employ minimal invasive and extractive research techniques. For example, the number of scientists allowed to take small samples, taking probes, collect plants or animals must be limited.

The European Wilderness Continuum is a tool to assess the quality of European Wilderness, closely based upon the European Wilderness Quality Standard. The Wilderness Continuum is a way to overcome identify and protect European Wilderness and with low anthropogenic impact. These areas are providing an opportunity to protect biodiversity, study and interpret the natural dynamics and processes as well as limited opportunities for recreation and solitude!

The Wilderness quality is measured by using 9 principles, 53 criteria and more than 300 indicators, defined in the European Wilderness Quality and Audit System habitat independent. This standard is applicable to WILDForests, WILDRIvers, WILDIslands and WILDCoasts. They assess for example the level of human modification (e.g., extractive use), attributes of remoteness and its visual naturalness, all impacting the Wilderness quality. This approach permits a precise assessment of the Wilderness, revealing those factors, which contribute to or compromise Wilderness quality.

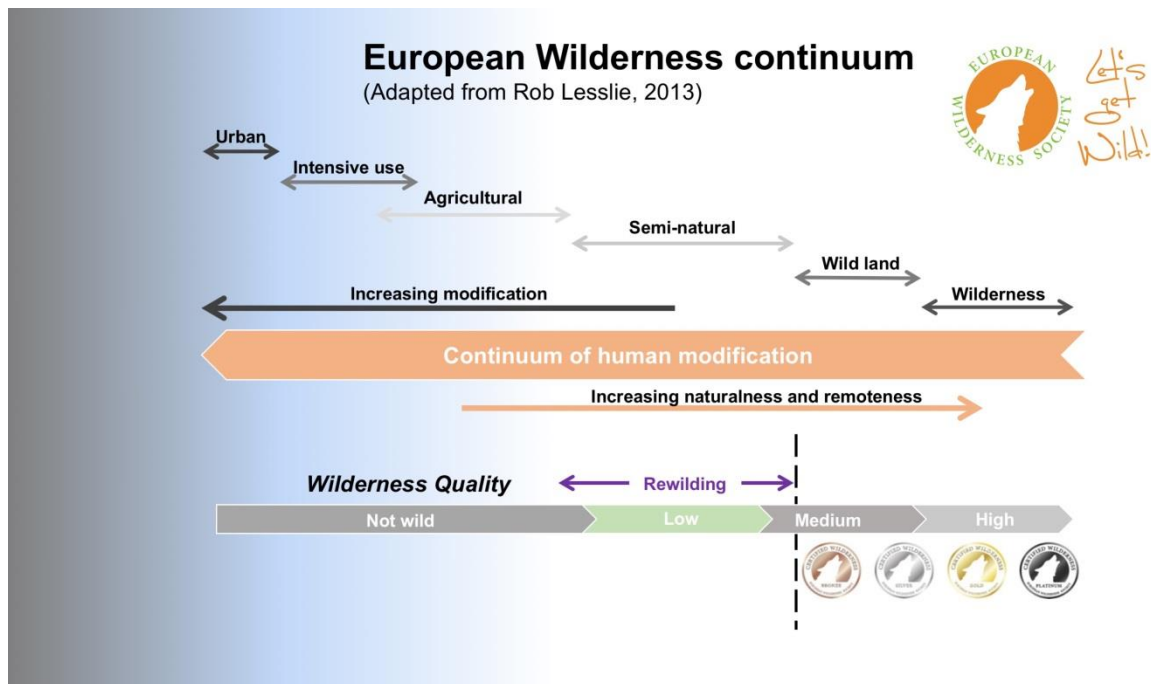


Figure 3: The Wilderness continuum describes the different stages between urban areas and true Wilderness.
© European Wilderness Society

Wilderness is a unique laboratory

1. Displays natural rewilding processes without human interference

Natural rewilding of Wilderness, also called self-restoration, is the natural process how Wilderness restores itself in Europe! It offers scientific opportunities to study the transformation from human impacted ecosystems to natural ecosystems. For example, we can observe how nature reclaims the former military grounds of Königsbrücker Heide Wilderness, Germany. Or how former grazing areas transform into wild alpine meadows in Kalkalpen Wilderness, Austria.

2. Governed by dynamics of open ended undefined natural processes

Wilderness is creating the unique chance to study how nature develops in a self-willed mode (i.e., dynamics of the ecosystems, self-regulation principles, spontaneous dynamics of population). For example, how peat bogs in Cepkeliai Wilderness in Lithuania continue to develop by themselves in Estonia. Or how populations of different species develop in the beech forests of Central Balkan Wilderness, Bulgaria.

3. Currently there are more than 20 different Wilderness habitats across Europe, covering more than 300.000 hectares, meeting the European Wilderness Quality Standard

The European Wilderness Network is a network of European Wilderness areas meeting the same European Wilderness Quality Standard and stewarded for preservation in their natural condition. This objective is an international effort of many European countries to provide undeveloped habitats for threatened or endangered species. These areas not only open new horizons for scientific research, but also provide an opportunity to apply the gained knowledge to other Wild areas. It offers the opportunity to perform comparative studies, for example on the effect of climate change across different habitats from the European Wilderness Network and in different European climate zones. For example, how do terrestrial areas like Soomaa Wilderness in Estonia, marine areas like Archipelago WILDcoast in Finland, WILDRivers like Mala Uholka and Velyka Uholka in Ukraine, and WILDIslands like Vilm in Germany cope with rising temperatures caused by anthropogenic influence. Or how do the fauna of natural ecosystems adapt to these climates in the Oulanka Wilderness in Finland versus the Peneda Geres Wilderness in Portugal.

4. Showing anthropogenic impact on Wilderness

Wilderness offers the chances to study the resilience of nature and its self-regulating natural processes that are constantly being affected by humans without human intervention management techniques to assist them. For example, how does Wilderness cope with invasive species and its population dynamics, but also other anthropogenic impacts like increased nitrogen deposition. We can observe examples of these self-rewilding processes of the forests after windfall or insect attack, like in Uholka-Shyroky Luh Wilderness, Ukraine or Kalkalpen Wilderness in Austria.

Discussion

A symbiosis of science and Wilderness in Europe is a unique chance to better understand how we can support natural processes in other protected areas. Wilderness and science need each other to understand and communicate the processes and values, in order to raise awareness and acknowledgement among people.

It is good to be aware that Wilderness itself does not need science for its survival, as Wilderness is self-regulated by nature. But without scientific support and committed people behind this Wilderness momentum, the process of Wilderness conservation in Europe will develop at a much slower pace. Science could be a way to provide answers to the many questions that are linked to Wilderness conservation and particularly to the restoration of wild areas in other European protected areas to eventually become Wilderness. It can show Europe's natural best practice examples on the development of Wilderness.

Conclusion

We can conclude that Wilderness needs passionate protectors, who can build upon scientific proof of the importance and value of Wilderness. This support can be provided by good and systematic science. But we must also stress that all scientific research in Wilderness must be non-extractive and non-intervention and respect the principles of the Wilderness definition. Also there must be an Wilderness Integrated Monitoring with habitat independent scientific indicators to compare Wilderness all across Europe.

The most important question at this point remains: Are the Europeans ready to accept the challenges of Wilderness and protect the European Wilderness heritage?



Figure 4: The European Wilderness Network is a network of European Wilderness areas, designated and managed for preservation in their natural condition. © European Wilderness Society

References

- APLET, G., THOMSON, J., & WILBERT, M. (2000). Indicators of Wildness: Using attributes of the land to assess the context of Wilderness. USDA Forest Service Proceedings RMRSP 15: 89–98.
- BROOKS, T. M., MITTERMEIER, R. A., DA FONSECA G. A., GERLACH, J., HOFFMANN, M., LAMOREUX, J. F., MITTERMEIER, C. G., PILGRIM, J. D., & RODRIQUES, A. S. (2006). Global biodiversity conservation priorities. *Science* 313:58-61.
- DUDLEY, N. (2008). Guidelines for applying protected management categories. IUCN, Gland, Switzerland.
- ESSL, F. & RABITSCH, W. (2002): Neobiota in Österreich. Umweltbundesamt, Wien, 432 pp.
- EUROPEAN COMMISSION (2013). Guidelines on Wilderness in Natura 2000. Technical
- HUBER M. & M. JUNGMEIER (2016). EWQA in the scientific context of current wilderness research. E.C.O. Institute of Ecology / University of Klagenfurt

- EUROPEAN WILDERNESS SOCIETY (2015). European Wilderness Quality Standard and Audit System. Version 1.9. Tamsweg, Austria.
- FISHER, M., CARVER, S., KUN, Z., MCMORRAN, R., ARRELL, K., & MITCHELL, G. (2010). Review of status and conservation of wild land in Europe. The Wildland Research Institute, University of Leeds, UK. 148 pp.
- KUITERS, T., VAN EUPEN, M., CARVER, S., FISHER, M., KUN, Z., & VANCURA, V. (2013). Wilderness register and indicator for Europe. Final Report October 2013.
- LEBENSMINISTERIUM (2010): Österreichische Nationalpark-Strategie. Ziele und Visionen von Nationalparks Austria, Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Sektion Nachhaltigkeit und ländlicher Raum, 28 pp.
- MARTIN, V. G., KORMOS, C. F., ZUNINO, F., MEYER, T., DOERNER U., & AYKROYD, T. (2008). Wilderness momentum in Europe. *International Journal of Wilderness* 14: 34-43.
- MAYRHOFER, S., KIRCHMEIR, H., WEIGAND, E., MAYRHOFER, E. (2015). Assessment of forest wilderness in Kalkalpen Nationalpark. *Eco.mont* 7: 30-40.
- ORSI, F., GENELETTI, D., & BORSODORF, A. (2013). Mapping wildness for protected area management. A methodological approach and application to the Dolomites UNESCO World Heritage Site (Italy). *Landscape and Urban Planning* 120: 1–15.
- PAN PARKS (2009). As nature intended. Best practice examples of wilderness management in the Natura 2000 network. 42 pp.

Contact

Vlado Vancura
vlado.vancura@wilderness-society.org
Deputy Chairman
European Wilderness Society
info@wilderness-society.org
Dechant Franz Fuchs Str 5
5580 Tamsweg, Austria
ZVR: 305471009

