BIODIVERSITY AND LANDSCAPE FEATURES

MAP POSITION PAPER

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RURAL POLICIES TO PROTECT AND ENHANCE BIODIVERSITY THROUGH LANDSCAPE FEATURES

Multi-Actor Platform (MAP) SVARUN

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Topic and headline messages

Landscape features (LF) have been shown to be crucial for biodiversity conservation in agricultural ecosystems, can positively affect production, enable value-adding to products and have a high cultural and aesthetic value. Their inappropriate management is among the main drivers of biodiversity loss in the EU.

Existing agricultural policy instruments in Slovenia do not protect LF adequately and have even stimulated their removal. The main drawbacks of the current system are a lack of data and ineligibility of most LF for budgetary support. LF should be better defined and included into policies with a clear intervention logic that balance economic and biodiversity goals objectives. Measures should be appropriately divided into standard and above-standard, making sure that farmers are appropriately compensated and educated, and minimising administrative burden. Simultaneously, it should be ensured that measures are linked to actual biodiversity effects.

Appropriate databases and monitoring systems must be developed, linking and upgrading the current dispersed sources. Use should be made of existing systems, including LPIS, and the potential of remote sensing technologies and machine learning should be harnessed. Adequate indicators must be developed that are sufficiently simple and possibly allow for innovative measures and monitoring. Knowledge gaps in the understanding of LF and their interactions with agricultural ecosystems must also be addressed, especially for high nature value (HNV) areas and areas with natural constraints (ANC).

Keywords: *biodiversity, landscape features, agricultural ecosystems, Common Agricultural Policy*

Problem being addressed and key questions

Landscape features (LF) are crucial for biodiversity conservation in agricultural ecosystems. In addition, they can positively impact agricultural production, enable value-adding to agri-food products and have a high cultural and aesthetic value. Their inadequate management and loss are among the key causes of biodiversity loss across the European Union. This is mainly related to changes in traditional land use; other reasons include inappropriate water management, pollution, urbanisation, tourism and recreation, invasive species, fire hazard and climate change.

Slovenia is a country marked by a fragmented farm structure and is, like many other EU member states, observing a bifurcation of agricultural production – abandonment on one side and intensification on the other– leading to the loss of LF. Based on discussions conducted in a workgroup composed of members of the University of Ljubljana, Ministry of agriculture, forestry and food, Chamber of Agriculture and Forestry and DOPPS – Birdlife Slovenia, three sets of questions were pinpointed as crucial for the national planning and management of LF and subsequently addressed at a broad national-level workshop with 96 attendants from 32 different institutions, representing key stakeholder groups:

1. **Which LF types should be conserved and what are the appropriate practices for doing this?** What classification would best serve policy-making purposes? What management practices are appropriate for conserving and re-establishing different types of LF? Do the current levels of knowledge allow for determining appropriate measures? Which types of LF require additional research?

2. **What are the needs, goals and instruments of Slovenian agricultural policy with regard to LF conservation?** Which policy instruments currently address LF; what are their pros and cons? What are the needs, goals, selection of measures and appropriate indicators for the next programming period?

3. **Monitoring, evaluation, control and support systems**: Are the current indicators that reflect the current situation and changes in LF over time appropriate? How should the effectiveness of measures be monitored and how successful is the current monitoring system; how can it be improved? How should the areas eligible for support be determined? What are the current data available on LF, how can they be upgraded, better connected and adapted to the needs of agricultural policy?

Key scientific evidence

Key results of EU research projects (see discussion document) and other research on LF and their impact on biodiversity are:

- Ecosystem services such as pollination and natural pest control are highly dependent on the proportion of semi-natural habitat in the agricultural landscape. Preserving such habitats will become increasingly important considering the effects of climate change. Thus, LF have for example been shown to lessen the effect of increased temperatures on the diversity and abundance of wild bees, and increased areas of extensive seminatural habitats have been shown to be positively associated with the diversity and abundance of diurnal butterflies. Biodiversity effects differ between semi-natural habitat types, with sylvicultural systems, floral strips, LF and fallow land generally more effective than cover crops and legumes.

- The benefits to biodiversity and agricultural production are (percentage of LF held constant) greater in a mosaic landscape with small fields and diverse land uses than in a landscape with large monocultures. Smaller fields with more marginal habitats tend to have higher biodiversity, which has a stronger effect on the quantity and quality of produce.

In Slovenia, a national target research project (Golobič et al., 2015) that pinpointed 18 different landscape elements important for biodiversity showed that national agricultural policy instruments do not protect them adequately and have in certain cases even stimulated their removal due to the fact that they are mostly not eligible for agricultural subsidies. In addition, it revealed a lack of appropriate spatial databases. Other
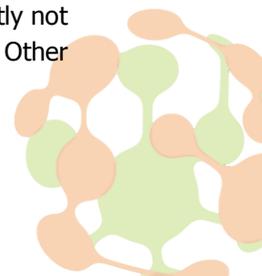
reasons for LF loss in Slovenia are most likely linked to economic rationalisation and technological innovation that drive agricultural intensification where feasible; land abandonment and afforestation in ANC; other reasons such as urbanisation, land fragmentation, inappropriate riparian vegetation management and other spatial disturbances.

Knowledge gaps that have been revealed include:

- the ecological needs of keystone species and habitat types in agricultural landscapes that depend on LF;

- the relationship between extent of LF in agricultural landscapes and biodiversity, and between LF and ecosystem services (especially production-related ones);

- the design and structure of policy instruments best suited to stimulate/ensure connectivity between LF at the landscape level;

- production models and technological and social innovation that can ensure long-term LF and associated biodiversity conservation; specifics of HNV and other marginal areas;

- the contribution of modern technology to LF sensing and cost-effective monitoring and evaluation.

Summary of position of the Multi-Actor Platform

Stakeholders confirmed the importance of conserving LF, including through agricultural policy, but highlighted the need to define them more precisely and devise policy instruments that are feasible, have a good intervention logic, and are both acceptable and attractive to farmers. Moreover, LF should be considered at different (embedded) levels, from individual feature consideration through ensuring the connectivity of features and landscapes as such, to consideration at the highest spatial level requiring intersectoral cooperation. Eligible LF should be explicitly spatially determined taking into account Slovenian regional landscape types.

Appropriate databases and monitoring systems are required that enable the planning, monitoring and evaluation of measures. Data systems must be linked, updated and upgraded to match the need of implementation, control, monitoring and evaluation. The potential of remonte sensing and machine learning should be harnessed where possible. Efforts should be coordinated at the national level between different sectors. This will provide a basis for the development of good quantitative indicators for monitoring and evaluation. The baseline should be established and realistic goals set that take into account transaction costs, both of farmers and of database managers. Innovative ways of including farmers into monitoring should be tested, as should novel ways of knowledge transfer. Some measures will require additional support activities, such as establishing seed banks.

Regading the current CAP system, the main points are that:

- LF must become more widely eligible for income and other agricultural policy support, as their exclusion is an important driver of loss.

- Income support has certain positive effects through maintaining high-biodiversity marginal land in production.

- AES probably have some positive effects but should be better designed, more targeted and less administratively demanding while ensuring a high enough compensation to be attractive.

- The effects of the current greening system are limited due to the high thresholds (10 and 15 ha) exempting many farmers from its requirements; organic farmers are exempt by default, as well. Moreover, the list of EFA in Slovenia does not contain the appropriate types of LF.

- Support for measures such as land consolidation contradicts biodiversity-related ones – experience shows that land consolidation often negatively affects the extent of marginal habitats.
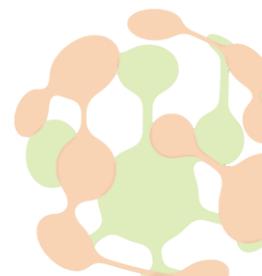
Multi-Actor Platform recommendations

When setting the goals of agricultural policy, a balance must be struck between conserving LF and biodiversity on the one hand and economic and production-related goals on the other. Measures should be divided into standard and above-standard ones:

- In the first pillar, LF should be included as eligible for support and taken into account when designing Conditionality measures. Due to the diversity of on-farm situations, an individual approach to planning should be adopted, potentially with a transitional period.

- Other types of LF should be covered in above-standard practices, such as the eco-scheme and AES, especially if they are related to increased costs or income forgone, and potentially for reintroducing LF. New types of design measures should also be considered and tested, e.g. result-based schemes and schemes supporting collective action.

- For more complex LF that require more extensive measures or require maintenance in an interval longer than 5 years, it may be sensible to pursue conservation through a project-based approach, e.g. through LEADER- (M19) or Cooperation-type (M16) measures. These types of LF are often subject of shared or public property rights or require the inclusion of other organisations (e.g. protected area management bodies), which must be taken into account when designing measures and planning tenders.

A more result-based, effective agricultural policy at the EU level in this field will require:

- developing a typology of LF adapted to biogeographical regions and landscape types across Europe

- assessment and sharing of knowledge and good practices on measures for conserving LF, keystone species and habitat types between Member states, supported and facilitated by the European Commission and the European network for rural development (ENRD)

- developing an intervention logic for LF conservation and restoration, especially instruments ensuring sustainable preservation of an adequate proportion of LF in agricultural landscapes

- stimulating research and knowledge dissemination on the results of innovative approaches to LF conservation, including strengthening the relevant capacities of advisory services; HNV areas are a special challenge in this field, as they are marked by bigger knowledge gaps, worse natural conditions, fragmented ownership and an unfavourable demographic and educational structure of farmholders.

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Annex 1: Key scientific evidence or activities cited by the Multi-Actor Platform

Regarding EU-level research, the MAP mainly relied on the discussion paper provided by the SHERPA project, with additions of data relevant for Slovenia (see Annex 2). In addition, the project ESPON GRETA was mentioned with regard to green infrastructure and landscape connectivity.

Annex 2: Key scientific evidence or activities provided by the Multi-Actor Platform

The main scientific sources pertinent to Slovenia were:

- Golobič M, Penko Seidl N, Lestan KA, Žerdin M, Pačnik L, Libnik N, Vrbajnščak M, Vrščaj B, Kralj T, Turk B, Bergant J, Šinkovec M. 2015. Opredelitev krajinske pestrosti in krajinskih značilnosti, pomembnih za ohranjanje biotske raznovrstnosti [Definition of landscape diversity and landscape features important for biodiversity conservation]. Targeted research project V4-1434 report. University of Ljubljana, Biotechnical Faculty; Aquarius; Agricultural Institute of Slovenia, Ljubljana. http://www.krajinskapolitika.si/wp-content/uploads/2018/10/crp_kranjinska_pestrost_2015.pdf

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- Logar J. 2016. Vpliv izbranih kmetijskih ukrepov na prisotnost krajinskih rudimentov na delu Sorškega polja [Impact of selected agricultural measures on the occurrence of landscape rudiment in a part of the Sorško polje plain]. M.Sc. Thesis. University of Ljubljana, Biotechnical Faculty, Ljubljana. http://www.digitalna-knjiznica.bf.uni-lj.si/krajinska-arhitektura/md_janez_logar.pdf

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- Denac K, Božič L, Jančar T, Kmecl P, Mihelič T, Denac D, Bordjan D, Koce U. 2019. Monitoring populacij izbranih ciljnih vrst ptic na območjih Natura 2000 v letu 2019. Poročilo [Monitoring of selected targeted bird species populations on the Natura 2000 sites in 2019. Report]. DOPPS-BirdLife Slovenia, Ljubljana. https://www.ptice.si/wp-content/uploads/2019/01/2019_7_11_Porocilo_monitoring_ptice_2019_web.pdf
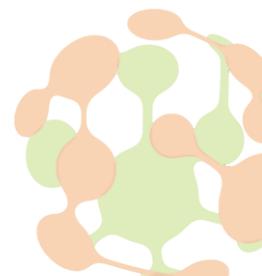
Annex 3: Graphical representation of the overview of the position paper

Past drivers
- CAP
- Economic incentives
- Other (urbanization, pollution,...)

Future drivers
- Same as past
- Climate change
- New consumption patterns
- Other shocks?

Current state
- Loss of LF and biodiversity

Desired state
- Restoration and conservation of LF on 10-15 % of farmland

Key evidence
- Farmland Bird Index
- Other (partial!) monitoring schemes
- IPBES report

Current projects/initiatives
- Research on remote sensing potential
- Small-scale restoration projects (mostly EU funded)

Key evidence gaps
- Ecological knowledge; LF, biodiversity and ecosystem services?
- Appropriate management practices, production models, technological & social innovation?
- Appropriate policy instruments, particularly on HNV areas?
- Data availability and connectivity? Remote sensing and machine learning potentials?