

Balancing energy and nature in Triglav National Park (TNP)

Overview of the recharge.green project activities in the TNP pilot area

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PROJECT ACTIVITIES IN THE TNP PILOT AREA

TNP provides a variety of ecosystem services (ESS) such as nature conservation, environmental and cultural heritage protection, recreation and tourism. In addition, agriculture and forestry are important economic activities for local people. Among available renewable energy sources in TNP, woody biomass has the greatest potential for sustainable use.

Within the project recharge.green use of woody biomass as a renewable energy source and its impact on nature conservation and other ESS has been explored.



MONITORING FOREST BIODIVERSITY

Within the project, Slovenian partners complemented current knowledge on forests with additional information on biodiversity (birds, beetles, fungi, centipedes, woodlouse) and soil. Trade-offs between biomass use and biodiversity and between biomass use and soil were assessed. Additional gathered field data will allow us to get better insight into the impact of biomass use on biodiversity and therefore they will contribute significantly to the improved forest management and biodiversity monitoring in the park.



ECOSYSTEM SERVICES AND MULTI-OBJECTIVE FOREST MANAGEMENT

In order to evaluate effects of woody biomass harvesting on ESS, a semi-structured questionnaire was developed and submitted to selected experts. Furthermore, two round-tables were organized to discuss the importance of multi-objective forest management for providing ESS.

Main outcomes:

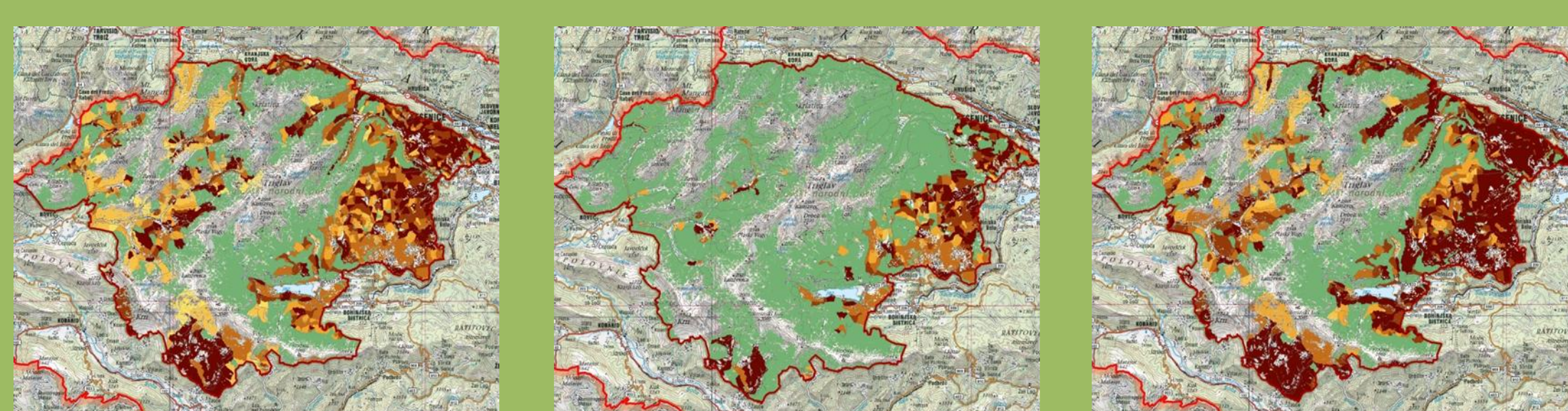
- Careful planning and appropriate management is needed to reduce biodiversity loss and to avoid contradictory management objectives.
- Biomass can be extracted from protected areas when this is harmonized with other forest uses.
- The designation of forest function areas and protected forest areas is important since it allows collaboration in spatial planning, raising awareness on the importance of forests, and the evaluation of ESS.
- More specific management guidelines should be elaborated involving all stakeholders such as forest owners, nature conservation organizations, local communities and public.
- As a management tool, forest function maps should be simplified, representing the most important ESS in the area.



MODELLING BIOMASS USE FOR ENERGY PRODUCTION

The WISDOM tool and r.green biomass for decision support system (DSS) were used to model available woody biomass according to three scenarios of possible biomass supply in the natural park.

The preliminary results show that current demands for woody biomass energy within the park are relatively small and they could be entirely covered under any of the scenarios. If we consider also the demands for the energy from the bordering towns and cities, the estimated demand is much higher, but could still be covered by the planned cut in the management plans. To avoid conflict with nature conservation and other land use (ESS), expected future increase of demands (e.g. new biomass plant) could still be covered by biomass supply from much broader region outside the park area.



PILOT AREA: TRIGLAV NATIONAL PARK

Triglav National Park (TNP) is the only national park and the largest protected area in Slovenia. It covers an area of almost 84.000 hectares or nearly 4 % of Slovenia. It is divided into three protection zones. The park's landscape is characterized by glacier-shaped valleys, mountain plateaus and steep mountain ridges above the tree line. It is a typical mixture between unspoiled nature areas and cultural landscape.

Almost 60 % of the park is covered by forest. In the first protection zone no commercial use of forests is allowed whereas in the second and third zones sustainable forest activities are possible.



STAKEHOLDERS INVOLVEMENT AND ROLE

In the first step identification and classification of local stakeholders to be involved in the renewable energy development was assessed on the basis of experts' opinions. With further stakeholder analysis 8 key stakeholders were highlighted, which should be involved in order to ensure success in the decision-making process (Grilli et al. 2015).

In the second step round tables and workshops with stakeholders were organized to discuss ESS, scenarios, possibilities of biomass exploitation and trade-off between biomass exploitation and nature conservation.



CAPACITY BUILDING AND KNOWLEDGE EXCHANGE

An effective capacity building process for successful multi-objective forest management included the following project activities: DSS models for biomass use scenarios development were used, field data on biodiversity and soil were collected, a network of key stakeholders was established and ESS were identified. All knowledge gained was exchanged between experts and policy makers and between pilot areas. As it presents good template for the future management planning of forests in TNP, this information was also transferred to the general public in a meaningful way.



AWARENESS RISING

The increase of forest biomass demands and supply could have both positive and negative effects on several forest ESS and local development. These effects should be taken into account when formulating management strategies. For this reason, knowledge transfer and public awareness are important aspects.

During the project recharge.green, new data and improved knowledge on forest biomass use as a renewable energy source were obtained. They were discussed with the other experts and presented to the general public by different activities:

- round-tables and public lectures
- open GIS viewers enabled the insight to the project results and scenarios
- articles in the project and public news, project blog
- recharge.green summer school for students (Pokljuka, June 2014)
- educational calendar and leaflet
- popular science book on forests in TNP
- scientific papers.



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