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### The ALPTREES PROJECT

Climate change and human activities represent major threats to the ecosystems in the Alpine Space. Therefore, adaptation efforts are required to respond to the negative effects on the Alpine environment, economy and society. Non-native tree species can support the adaptation of European forests and urban areas to climate change, but simultaneously entail risks for biodiversity and ecosystem functions. Many efforts have already been undertaken to manage these risks, but neither European or national/regional recommendations and strategies for non-native tree species management in the Alpine Space that consider the challenges of climate change yet.

Experiences in the management of non-native tree species in urban areas, peri-urban, rural territories and forests are often country-/city-specific and thus rarely shared. Given the challenges in non-native tree species management with respect to both benefits and risks, a transnational approach is needed to qualify the role of non-native tree species in future Alpine Space ecosystems.



**Douglas Fir • *Pseudotsuga menziesii* • native to western north America**

## CHALLENGES

The expected benefits and potential risks of non-native trees to European geographic regions have polarised the opinions of experts and citizens. Benefits include adaptation to climate change, contributions to bioeconomy, urban and peri-urban green infrastructure and mitigation of natural hazards by non-native tree species, while risks involve non-native tree species invasiveness and effects on native biodiversity. In critical and vulnerable ecosystems such as the Alpine Space, such risks and benefits must be carefully considered before management decisions are made.

The common territorial challenge is to identify current and future benefits and negative impacts of non-native tree species. Currently, 4% of the European forest area (8.5mio ha) are covered with over 150 different non-native tree species. Furthermore, non-native tree species are planted in high numbers and cultivated as ornamentals especially in urban and peri-urban areas. Comprehensive risk analysis on climate change and non-native tree species has led to an incoherent patchwork of local strategies for non-native tree species.



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## OBJECTIVES

The objective is to provide a transnational strategy for a Decision Support System on responsible use and management of non-native tree species in the Alpine Space. The project fits within the context of national and regional site-derived policy aiming to protect and enhance biodiversity to ensure ecological connectivity and cultural resources while maintaining a high level of resilience and ecosystem services across the Alpine space.

Implementations include:

- developing a comprehensive database on non-native tree species;
- predicting the current and potential distribution of non-native tree species in Alpine Space under climate change scenarios;
- determining their invasive potential;
- analysing the different Ecosystem services provided by non-native tree species to assess the tradeoffs between risks and benefits.
- ALPTREES will formulate management recommendations for non-native tree species under different climate and economic scenarios

The BFW as Leadpartner is responsible for the Management, Finance and Communication Workpackages. Its main role is coordination of the project and driving the partnership towards expected results.



*Our 12 partners from Slovenia, Germany, Italy, France and Austria at our Kickoff Meeting Nov 2019 at the federal research and training center for forests BFW Vienna*

ALPTREES supports two major priorities of the Multi-Annual Work Programme of the Alpine Conference 2017-2022: The project intends to develop transnational management strategies for non-native tree species and demonstrate their applicability to policy makers, civil society and stakeholders from different sectors. Positive results can only be achieved if local activities are in line with a transnational strategy justified by the global dimension of climate change. ALPTREES includes 12 partners from AT, DE, FR, SI and IT as well as observers from CH. Its objectives fit within a context of regional site-derived policies aiming to preserve and protect biological diversity, functioning ecosystems and cultural resources while promoting the active adaptation of forest plantings to CC. The project will increase public awareness through interactive events to enhance constructive dialogue between the scientific community, the nature conservation and forestry sectors, public administrations and citizens (i.e. SMEs and NGOs).



*project leader Katharina Lapin at the EUSALP annual forum in Milan Nov. 2019*

ALPTREES will help to strengthen the sustainable use of natural resources under climate change scenarios by solving conflicts between the forestry and environmental sectors. Outputs for site-specific evaluation of non-native tree species risk/benefit trade-offs will improve the risk management; the results will provide solutions for protecting against natural and man-made disasters and improving climate change management. ALPTREES also targets the ecological connectivity of urban, peri-urban and rural areas.



## RESULTS AND OUTPUTS

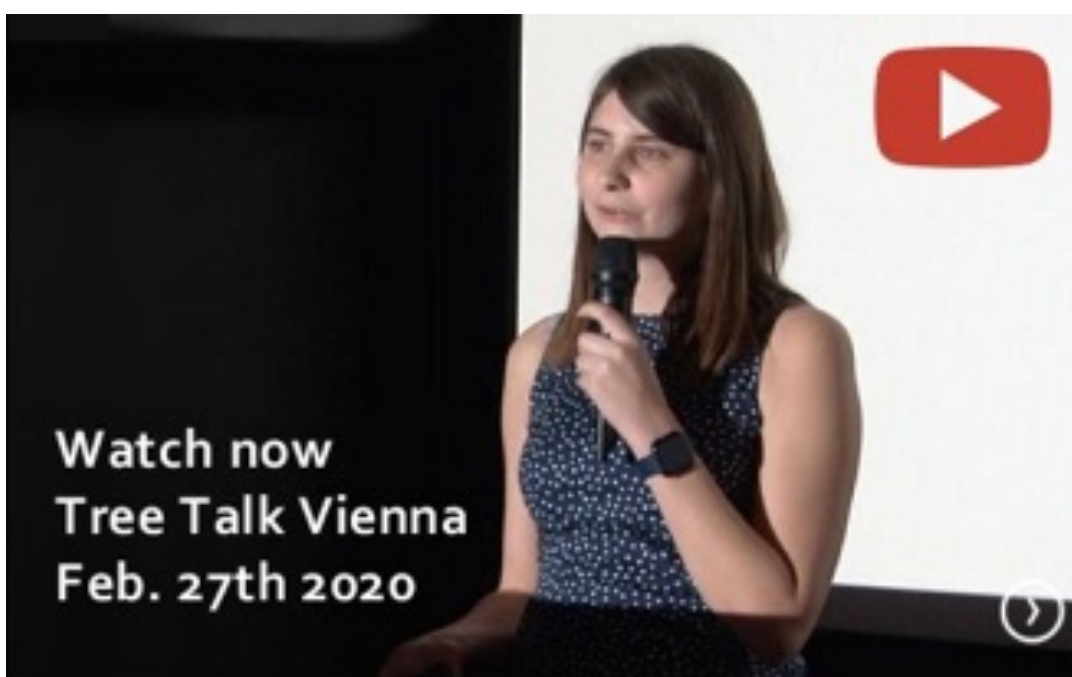
The results of the project will increase the level of sustainable valorisation of cultural and natural heritage in the Alpine Space by 1-3 % by providing tools allowing stakeholders in the sectors forestry, nature conservation, timber industry, and rural and urban planning to distinguish between negative and positive impacts of non-native tree species on ecosystem services and functional needs in urban, peri-urban and rural areas.

The transnational cooperation strategy will provide technical guidelines for climate change adaptation decision-making tools and planning to safeguard the future of green infrastructure, biodiversity functions and ecosystem services in the entire EUSALP territory. ALPTREES will enhance knowledge transfer through capacity building.

The main outputs are implementation elements and strategic elements to protect and enhance biodiversity to ensure ecological connectivity and cultural resources while maintaining a high level of climate change resilience across the Alpine Space.

These implementations are:

- (1) a non-native tree species risk assessment tool for risk/benefit tradeoff analysis based on collection of non-native tree species datasets in the urban and rural Alpine Space
- (2) Risk maps for nature conservation based on formulation of spatially explicit predictions of the distribution and provision of ecosystem services by non-native tree species in the Alpine Space under different management and climate change scenarios with a dynamic ecosystem models
- (3) an Open ALPTREES Knowledge Hub to share formal and non-formal learning tools and technical guidance related to management and responsible use of non-native tree species. As key strategic element to promote EUSALP objective
- (4) an unified transnational strategy on the management and responsible use of non-native tree species, supported by a policy implementation plan.



*Metereologist Anita Zolles talks about the function of forests at the first TREE TALK in Vienna*

Learn more about the project and our activities:

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# ALPTREES

Sustainable use and management of non-native trees in the Alpine Space.

## PROJECT OBJECTIVES

### Providing guidelines for a transnational strategy

Developing a decision support system on responsible use and management of NNT species in the Alpine Space. The project fits within the context of national and regional site-derived policy, aiming to protect and enhance biodiversity to ensure ecological connectivity and cultural resources while maintaining a high level of resilience and ecosystem services across the Alpine Space.

### Implementations include

- developing a comprehensive database, also with the involvement of citizen science on NNT species in the Alpine region including their current distribution
- projecting the potential distribution of NNT species in Alpine Space under climate change scenarios and anthropic pressures
- assessing their invasive potential in different contexts and environments also including biodiversity losses
- formulating management recommendations for NNT species under different climate and economic scenarios
- analyzing the different ecosystem services provided by NNT species to assess potential benefits and trade-offs.
- presenting a unified transnational strategy on management and responsible use of NNT species, supported by a policy implementation plan
- demonstrating the applicability of transnational management strategies to policy makers, civil society and stakeholders from different sectors
- establishing an Open ALPTREES Knowledge Hub to share formal and non-formal learning tools and technical guidance related to the best practices of management and responsible use of NNT species.
- improving knowledge-based decision-making tools that allow stakeholders in the sectors of forest management, nature conservation, timber industry and urban planning to distinguish between negative and positive impacts of NNT species on ecosystem services and functional needs in forests, and peri-/urban areas.

## PROJECT DURATION

October 2019 - June 2022

## PROJECT PARTNERS

- AT Federal Research and Training Centre for Forests, Natural Hazards and Landscape Austria BFW  
Lead Partner
- IT Edmund Mach Foundation FEM
- DE Forest Research Institute Baden-Wuerttemberg FVA
- SI Slovenian Forestry institute SFI
- AT International Institute for Applied Systems Analysis IIASA
- FR National Research Institute of Science and Technology for Environment and Agriculture, Grenoble regional centre IRSTEA
- IT Langhe Monferrato e Roero - Società consortile a responsabilità limitata Agenzia di sviluppo del territorio LAMORO
- SI Municipality of Maribor
- FR Centre d'études et d'expertises sur les risques, l'environnement, la mobilité et l'aménagement CEREMA
- SI Razvojna agencija Sora d.o.o., Development Agency Sora RA SORA
- IT Comune di Trento
- AT City of Klagenfurt

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