Publishable interim report

Applies to studies from the research program line

A) Project Data

General information about the project	
Short title:	Austria Fire Futures
long title:	Integrated Future Wildfire Hot Spot Mapping for Austria
Citation suggestion:	Integrated Future Wildfire Hot Spot Mapping for Austria
Program incl. year:	ACRP 14th Call
Duration:	10/15/2022 – 09/30/2025
Coordinator/ project submitter:	International Institute for Applied Systems Analysis (IIASA)
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Project and cooperation partners (including federal states):	University of Natural Resources and Life Sciences, Vienna Federal Office and Research Center for Forests (BfW)
Total project cost:	€299,866.00
Funding amount:	€299,866.00
Climate fund number:	C265157
Last updated on:	15/10/2024

B) Project overview

Project details	
short version: Max. 2,000 characters including spaces Language: German	Waldbrände gefährden das menschliche Leben, die Infrastruktur, die Land- und Forstwirtschaft, die biologische Vielfalt und die Erholungsfunktion der Wälder. Das Verbrennen der schützenden Waldbiomasse erhöht das Risiko von Erdrutschen, Steinschlag, Lawinen, und Muren, und führt zu einem Verlust des Potenzials zur Eindämmung des Klimawandels. Das Projekt Austria Fire Futures konzentriert sich auf einheimische, gebirgsdominierte Waldsysteme. Es integriert neue Erkenntnisse über lokale brennbare Biomasse, Morphologie und Erholungsaktivitäten in Waldwachstumsmodelle und Waldbrandrisikomodelle. Es adressiert die dringende Notwendigkeit, dynamische, hochauflösende Brandgefahrenkarten (Hot-Spot-Karten) zu entwickeln und diese für Österreich allgemein zugänglich zu machen. Das Hauptziel dieses Projekts ist daher die Entwicklung einzigartiger und innovativer (virtueller) Karten des Brandrisikos und der Brandherde mit höchster räumlicher Auflösung unter verschiedenen Szenarien des Klimawandels und einer Vielzahl von zusätzlichen Aspekten. Diese neuen Brandrisiko-Hotspot-Karten werden es Experten, Praktikern, und der interessierten Öffentlichkeit ermöglichen, in die Zukunft zu blicken und solide kurz-, mittel-, und langfristige Empfehlungen für eine feuer-resilientere und nachhaltigere Waldbewirtschaftung abzuleiten. Hypothesen/Ansichten: 1: Das Waldbrandmanagement in Österreich kann durch die Erstellung von neuen Waldbrandgefahrenkarten verbessert werden. 2: Ein besseres Verständnis der sozialen Dimension, z.B. des Verhaltens von Wandertouristen, trägt zu einer verbesserten Einschätzung des Waldbrandrisikos bei. 3: Die Transparenz der Forschungsergebnisse, die Beteiligung der relevanten Stakeholder und die Verbesserung bestehender Instrumente erhöhen den Wert der im Projekt erstellten Informationen und tragen durch Sensibilisierung der Stakeholder und der Öffentlichkeit zur Verringerung des Waldbrandrisikos und der verbrannten Fläche bei.

Project details	
Executive summary: Max. 2,000 characters including spaces Language: English	The Austria Fire Futures project will focus on domestic mountain-dominated forest systems and integrate novel insights on local fuel types into forest and forest fire risk models, including new variables such as morphology and recreational activities. The project thus reacts to the urgent need to develop dynamic fire risk maps based on high-resolution hotspots mapping and implement these for Austria in a broadly accessible platform. The project's main objective is therefore to develop a unique and innovative new set of fire risk and fire hazard hotspot maps at the highest spatial resolution under various climate change scenarios. The study will improve our understanding of fire-vulnerable forest areas that may shift over time and space given the underlying climate and fuel assumptions. These new fire hotspot maps will allow experts, practitioners, and the interested public to look into the future to comprehend and derive solid short-, medium-, and long-term recommendations for fire resilient and sustainable forest management and fire emergency planning. Hypothesis: *H1:* based on a set of new and forward-looking fire hot spot maps, the forest fire management in Austria can be substantially improved through site-specific adaptation to fire risk. This improved capacity will result in a reduced burned forest area. *H2:* better understanding of and familiarity with the social dimension (the human factor), eg, hiking tourists' preferences and behavior when in the forests, will improve short- to medium-term forest fire risk assessment and hence reduce future occurrences of fires and potential danger and harm to the tourists themselves. *H3:* transparency with respect to research outcomes, co-design with relevant stakeholders, and improvement of existing tools will add to the value of the information created through Austria Fire Futures and ultimately help reduce fire risk and burned area by creating awareness among stakeholders and the public.

Project details	
Status: Min. one bullet point, max. 5 bullet points Max. 500 characters including spaces per bullet point	The project has made significant progress across multiple work packages: 1. Significant socioeconomic and fuel variables were analyzed and identified to produce ignition probability maps across Austria (Deliverable 2.2). The variables tested included those related to population and population centers (such as primary and secondary households) and infrastructure information (roads, railways, cable cars). Fires across Austria were assessed to determine ignition type (human vs natural) and influence of various factors in the fire starting/spreading. 2. A survey assessing tourists' awareness and behavior towards forest fire risks was completed during 2023, and the results were analyzed and mapped to determine how touristic understanding of wildfire. Results were assessed to understand how their actions and behavior may influence wildfire risk, and to identify further steps to take both regarding fire awareness and risk assessment (Deliverables 4.1 and 4.2). 3. Initial model test runs using the identified significant variables were made using the fire model proposed for use in the project, which helped identify further potential important variables. Results are under refinement and will be explored more intensely during the final year of the project as planned. 4. Climate scenarios were expanded upon to include a greater range of scenarios, from less to more extreme.
Essential (planned) findings from the project: Min. one bullet point, max. 5 bullet points Max. 500 characters including spaces per bullet point	In the next year of the project, the focus will be on: • bringing together the data collected, processed, and analysed thus far to calibrate the wildfire climate impacts, and adaptation model (FLAM) and to produce fire risk maps across Austria and higher-resolution maps for Lower Austria, which serves as a case study region for the project. • understanding and integrating the novel products and variables identified or collected into risk mapping and fire mitigation activities, such as use of a response time map based on

Project details	
	actual firefighting resource information and the results of the tourism surveys. • Finalizing results and interpretation of results under the climate change scenarios to provide the most practical and useful information to relevant stakeholders to guide decision-making, trainings, and fire mitigation and forest management activities. • Outreach to stakeholders to ensure the usefulness of project results and reports, as well as dissemination to increase knowledge of the project and its activities.

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