Human-Bear Conflict Radar to Be Presented for the First Time at the Tusnad EcoBear Conference

The Human-Bear Conflict Radar, an innovative digital twin prototype designed to monitor and predict conflicts between humans and brown bears (*Ursos arctos*) in real-time, will be presented for the first time at the upcoming Tusnad EcoBear Conference (TusnadEcoBearConf). This pioneering solution offers a near real-time approach to managing human-wildlife conflict and will be showcased on Wednesday morning, 23 October, in Băile Tușnad, Romania.

Real-Time Solutions for Human-Bear Conflicts

Developed by Wageningen University Research and Sensing Clues within the context of the EU-funded Nature FIRST Project, the Human-Bear Conflict Radar utilises historical bear presence and conflict data, ranger tracking, and bear habitat information to create a conflict risk map. On top of this, near real-time human-bear conflict reports are used by the digital twin to predict the location of bears and provide a radius of potential conflict. This system empowers communities to make timely and informed decisions to prevent conflicts with brown bears, enhancing coexistence in regions where these animals roam. In the near future, this technology will also be used to develop radars for other species, such as elephants, baboons, tigers, and wolves.

Anna Davison, PhD Candidate at Wageningen University Research, explains: *“Digital twins are essentially models that use real-time data and therefore can provide information that captures the current state of the system you want to monitor, which is extremely useful for decision-makers. This up-to-date information is even more essential when dealing with fast-paced issues such as human-wildlife conflict in order to facilitate timely responses. With climate change and human encroachment into formerly wild areas, human-wildlife conflict is a pressing issue across the globe. Our Human Bear Conflict Radar is, to the best of our knowledge, the first human-wildlife conflict digital twin (prototype) at the deployment stage and is an important first step in making this technology accessible to organisations dealing with conflict.”*

Other researchers from Nature FIRST will also share their research, which has contributed to the development and operation of the Human-Bear Conflict Radar.

Melanie Arp from Sensing Clues highlights how combining various data sources enhances the radar's effectiveness: *“The Human-Bear Conflict Radar highlights how integrating diverse data sources enhances its value as an actionable tool. Within the context of the bear, we often encounter challenges with limited data availability and quality. Our Sensing Clues platform combines information from camera traps, citizen scientists, and tracking collars, improving prediction accuracy. By adding environmental data, we’ve created a bear habitat suitability model that, alongside historical conflict data, allows for localised risk mapping. We aim to further enhance the radar with additional geospatial data in the future.”*

Ilya Acosta from the Bulgarian Academy of Science also shares the benefits of using the Cluey app for gathering real-time data: *"The Cluey app empowers us to gather real-time, on-the-ground data about human-bear interactions and bear presence. This information, combined with habitat suitability and food availability, will help us to paint a dynamic picture that informs our digital twin model and can significantly aid in understanding, mitigating, and managing human-wildlife conflicts. Besides conflict, Cluey provides us with a quick and convenient tool to record presence and monitor other species of interest."*

This collaboration within the Nature FIRST project has been essential to bring together various methodologies to produce a powerful tool for managing human-wildlife conflict.

Scientific coordinator of Nature FIRST project, Jan Kees Schakel, highlights the value of this tool in fostering communication and preventing conflict: *''The bear radar is a perfect instrument to engage all stakeholders in the community. It provides an innovative way of sharing observations and helping each other to avoid human-bear conflicts."*

Nature FIRST at Tusnad EcoBearConf

Nature FIRST is an EU-funded project focused on improving biodiversity monitoring through predictive and proactive methods. The project aims to make monitoring near real-time, detect changes early, and turn predictions into actionable steps. By combining remote sensing technologies with environmental forensics, Nature FIRST seeks to provide insights that can help prevent wildlife and environmental crime.

In its role at the Tusnad EcoBear Conference, Nature FIRST facilitates discussions on managing human-large carnivore conflicts, developing bear-smart communities, and sharing best practices in biodiversity conservation. The sessions aim to empower participants and promote effective strategies for coexistence.

Insights into Human-Bear Interactions: Presentations on Ecological Connectivity, Poaching, and Habitat Mapping by Nature FIRST Partners

The conference will feature a panel discussion on the topic of human-wildlife coexistence, with Tánczos Barna, former Minister of Environment, Water, and Forests of Romania, Zsolt Butyka, Mayor of Băile Tușnad, and two Nature FIRST partners.

Additionally, a variety of presentations by Nature FIRST partners will explore different aspects of human-large carnivore coexistence:

- **Cristian Papp (WWF-RO, Romania):** Can ecological connectivity support human-large carnivore coexistence?
- **Claire Gwinnett (Stratford University, United Kingdom):** Sherlock Holmes and the Bear Poaching Case
- **Boris Hinojo (3eData, Spain):** Habitat mapping and its contribution to human-bear coexistence in the Băile Tușnad region, Romania

- **Jan Kees Schakel (Sensing Clues, Netherlands):** 1) Caught in the Camera Trap: Navigating the Myriad of Options 2) Bear Habitat Suitability Maps: introduction of a novel and cost-effective mapping approach
- **Albin Ahmeti (Semantic Web Company, Austria):** A species conservation simulation system based on a knowledge graph for brown bear movement prediction
- **Alexandra Sallay-Moșoi (WWF-RO, Romania):** Technical overview of the bear-smart community of Baile Tusnad, Romania
- **Ilya Acosta-Pankov (Bulgarian Academy of Science, Bulgaria):** Human-Bear conflict recorded with the Cluey app in a pilot site: a preliminary study on the brown bear (*Ursus arctos*) in Bulgaria
- **Janka Faller (dotSpace, Netherlands):** Assessing market dynamics and financial constraints in relation to data-driven biodiversity monitoring: Insights from the Horizon Europe Nature FIRST Project
- **Roman Cherepanyn (WWF-UA, Ukraine):** Structure and dynamics of conflicts with large carnivores in the Ukrainian Carpathians
- **Vladimir Todorov (Bulgarian Academy of Science, Bulgaria):** Human disturbance to the brown bear (*Ursus arctos*) winter dens

About the TusnadEcoBearConf

The TusnadEcoBearConf provides a platform for discussion on how to live alongside large carnivores. Experts from Europe and beyond will gather to share practical solutions for reducing human-wildlife conflicts. The conference includes presentations, field trips, and workshops, encouraging collaboration and knowledge sharing among attendees.

The event is part of the CERV project (101146879) “Coexisting with bears - Conservation needs Conversation!” funded by the European Union, with support from the Nature FIRST project (101060954), which is part of the Horizon Europe research and innovation programme.

– end–

For more information about the Nature FIRST project or the TusnadEcoBearConf, please contact:

Media Inquiries: Kacia Rutkouskaja, kacia.rutkouskaja@groundstation.space
About Human-Bear Conflict Radar: Anna Davison, anna.davison@wur.nl

Images

Nature FIRST logo

Click here to download Nature FIRST logo

Human-Bear Conflict Radar Screenshots

Please, note (and include in the image caption when sharing these images): These images showcase **simulated data** representing human-bear conflict incidents. The data is not real and was generated solely for demonstration purposes to illustrate potential outcomes for the bear Decision Tree (DT) model. Real locations are sensitive and have not been used in these visualisations.

Click here to download screenshot 1

Click here to download screenshot 2