XIV Congresso Italiano
di Teriologia

ABSTRACT BOOK

Abstract Book

XIV Congresso Italiano di Teriologia
3 - 5 Giugno 2026, Bolzano

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SOMMARIO

INVITED SPEAKERS

SSESSIONE 1. ECOLOGIA E CONSERVAZIONE DEI MAMMIFERI IN UN MONDO CHE CAMBIA

SESSIONE 2.
STRATEGIE COMPORTAMENTALI NEI MAMMIFERI: ADATTAMENTI EVOLUTIVI ALLE PRESSIONI AMBIENTALI

SESSIONE 3.
UOMINI E MAMMIFERI: IMPLICAZIONI SOCIALI, ECONOMICHE E SANITARIE

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SENTINELLE D'ALTA QUOTA: MAMMIFERI ED ECOSISTEMI MONTANI

POSTER

N. 129

Many tools, many choices: a user-oriented overview of AI tools for camera trapping data

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Camera traps are one of the most relevant and widely used tools in wildlife ecology, that enable the non-invasive collection of large amounts of data across broad spatio-temporal scales and ecosystems. The extensive use of camera trapping has produced image volumes that exceed the capacity of manual annotation, creating a major bottleneck in the research workflow and calling for solutions capable of processing these data with reduced human intervention.
In recent years, different AI-based tools and platforms have emerged to streamline species identification and data management, potentially reducing processing time significantly. Yet, selecting the most appropriate tool can be a complex task for many users. Researchers often have specific requirements for data annotation to meet the study goals, the type of datasets, and other challenges such as computing resources and data policies. This poses trade-offs between automation, flexibility and data control. This work presents a user-oriented overview of different widely used tools and platforms that include AI-based procedures, such as Agouti, Wildlife Insights, DeepFaune and TRex. The aim is to examine the practical trade-offs of the different tools in order to offer valuable insights for choosing appropriate AI-assisted approaches in different data processing scenarios and on how these tools can be realistically integrated into monitoring and research programs.
We conducted a comparative assessment of selected tools based on criteria relevant to end users: (i) data-type requirements, such as pictures, videos and included metadata, (ii) workflow flexibility,
(iii) level of technical expertise required, (iv) suitability for different research objectives and (v) practical constraints related to infrastructure, internet connectivity and data ownership. The analysis was informed by official documentation, published use cases and study-case applications by the authors.
The reviewed tools differ in design and intended use. Wildlife Insights focuses on collaborative management of large-scale datasets, making it well suited for international or multi-project initiatives, but offers limited customisation. Agouti implements data standards (CamtrapDP) and secured data storage and ownership, but does not support automatic video processing. DeepFaune software represents a local, lightweight solution, enabling offline operations, but offers fewer features for data handling and for collaboration. TRex offers high flexibility and customisation potential but generally requires more advanced technical skills.
This overview highlights different trade-offs between automation, user control, model choice, scalability and implementation effort. Tool selection is highly context-dependent and should be guided by research goals, available resources (including users' expertise and manpower) and operational constraints. From a user's perspective, practical aspects such as ease of use, how results are presented and how data are handled throughout the workflow can be as influential as model reliability and performance. By adopting a pragmatic, user-oriented perspective, this overview aims to support researchers and data managers in making informed decisions when integrating AI tools into camera trap–based studies and data processing.