New tools and methods

TRAPPER: an open-source web application for managing camera trapping and citizen science projects

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Camera trapping has become a vital tool in ecological research, but the exponential growth of camera trap data presents significant challenges in managing, analysing, and sharing large and complex datasets. To address these challenges, we developed TRAPPER, an innovative, fully open-source web application tailored to the demands of modern biodiversity monitoring. TRAPPER supports the analysis of both videos and images, incorporates advanced spatial filtering and web-mapping tools, and allows flexible implementation of custom data protocols to meet diverse project needs. Its newly designed, user-friendly dashboard welcomes and actively engages citizen scientists, making participation intuitive and accessible. A standout feature of TRAPPER is its integration of AI tools like MegaDetector for automated detection of animals, humans, vehicles, and empty frames, alongside support for custom species-specific models such as DeepFaune. Additionally, the platform provides robust human annotation functionalities, enabling high-precision data validation. TRAPPER is designed to streamline data sharing and interoperability by implementing the Camtrap DP standard, a key framework for standardized data exchange in camera trap projects, already utilized by GBIF.

TRAPPER's multi-user and role-based structure facilitates collaborative work on camera trapping projects among researchers, NGOs, and empowering citizen scientists. The platform has already been widely adopted by institutions and organizations across Europe, with increasing uptake in South America. By addressing critical challenges in data management and promoting open science practices, TRAPPER offers a transformative solution for advancing biodiversity research and conservation efforts.