An academic spin-off advancing biodiversity conservation through integrated monitoring tools and ecological restoration actions.

Mirone E[1], Giovacchini S[1,2], Jamwal PS[1,2], Avramo V[1,5], Belluardo F[1,2], Chiaverini L[1,6], Loy A[1,2], Roscioni F[1,3], Russo VG[1,4], Di Febbraro M[1,2].

*Enrico Mirone: enrico.mirone@unimol.it
1 Biome S.r.l. - Biodiversity Monitoring and conservation Enterprise
2 University of Molise, Italy
3 Ecomodel - Augmented Environment, Italy
4 Kayla Nature S.r.l.s., Italy
5 ISPRA Roma - Italian Institute for Environmental Protection and Research, Italy
6 Rewilding Apennines, Italy

Biome S.r.l. - Biodiversity Monitoring and conservation Enterprise is an academic spin-off of the University of Molise, established to translate advanced research in biodiversity monitoring into operational tools for environmental management and conservation. The initiative stems from the University of Molise's strategic investment of National Biodiversity Future Centre (NBFC) funding into environmental DNA (eDNA) and camera trapping biodiversity monitoring, alongside the recruitment of postdoctoral researchers specialized in wildlife monitoring and conservation, who are now founding members of the spin-off. This transition marked a shift from conventional research toward innovation-driven, application-oriented biodiversity monitoring, laying the foundation for Biome. The spin-off also has among its founding partners two companies that have long and successfully operated in wildlife monitoring: in Campania (Kayla S.r.l.) and in Lazio (Ecomodel Soc. Coop). This partnership creates synergies that enable the integration of themes, taxa, and areas of intervention across Central Italy.

The spin-off is designed to scale its impact at the national level. It operates at the interface between research and management, offering innovative services that integrates eDNA, field survey, and geospatial tools. Through collaborations with protected areas, regional authorities, and local stakeholders, Biome supports evidence-based decision-making processes, contributing to more effective management of natural resources and ecosystems.

Biome is involved in monitoring projects and protocol development targeting species of ecological relevance, including the Eurasian otter (*Lutra lutra*), the invasive American mink (*Neogale vison*), and the European beaver (*Castor fiber*), contributing to improved detection methods and management strategies.

Biome represents an example of academic initiative and public research funding, generating tangible impact on youth entrepreneurship linked to the conservation and management of biodiversity. By transforming scientific expertise into applied services, the spin-off strengthens the connection between academic environments, local ecosystems, and national conservation priorities, fostering innovation, knowledge transfer, and sustainable development.