

**GEN-REYN: Integrating Population Genomics and Living Labs for Evidence-Based Management of *Reynoutria* in Europe** (2026–2027, Grant No. GR-SF012-2026)

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Invasive knotweeds of the genus *Reynoutria* rank among the most destructive plant invaders in Europe, threatening biodiversity, urban infrastructure, and heritage landscapes. While their spread across Western Europe has been extensively studied, the situation along the EU's eastern border remains poorly understood — and potentially more complex. Ukraine harbors an unusually high proportion of *R. sachalinensis* relative to *R. japonica*, making this region an active hybridization zone where highly invasive fertile hybrids are actively emerging. Understanding the genetic dynamics of this zone is essential for effective, evidence-based management.

The GEN-REYN project brings together the University of Chernivtsi, the University of Silesia (Poland), and CABI (UK) to produce the first genomic map of this East–West invasion corridor. At the heart of the project is a "Paired Living Lab" — two adjacent cemeteries in Chernivtsi under contrasting management regimes (mechanical vs. chemical control) — offering a rare natural experiment for studying invasion dynamics in heritage settings. Using a multi-level sequencing approach (Illumina amplicon, ddRAD, and Nanopore targeted sequencing), alongside reproductive biology research, the team will characterize hybrid diversity and constitution, and track shifts in reproductive strategies across populations.

By combining cutting-edge population genomics with field-based experimentation, GEN-REYN aims to fill a critical gap in European invasion biology and develop practical management protocols tailored to culturally and ecologically sensitive sites.