

GINAMO



Genetic Indicators for Nature Monitoring

DURATION

1/04/2024 – 30/06/2027

BUDGET

211 344€

PROJECT DESCRIPTION

Genetic diversity within species is key to maintaining the adaptability and resilience of ecosystems, and is one of the three pillars of biodiversity, but is widely ignored in both policy and management. In GINAMO, a project funded by Biodiversa+ that started in March 2024, we use a co-creation process to monitor genetic biodiversity with genetic indicators. These indicators are already largely developed and relate a) to a minimum effective population size, N_e , of 500, where N_e is an essential biodiversity variable that allows the quantification of the loss of genetic diversity, and b) to the maintenance of genetically distinct populations within species.

In GINAMO, we will first determine best practices to obtain accurate and robust N_e estimates for species using DNA-based data. For species without such data, we will best develop methods to estimate N_e based on proxies with publicly available data sources (e.g. population size counts, occurrence data, and Earth observation data).

In GINAMO, we will work with stakeholders and partners to create clear, science-based, practical guidelines and workflows to estimate genetic indicators, building on almost four years of work on genetic indicators. Genetic indicators are required for reporting under the Convention on Biological Diversity, which supports the EU Habitats Directive and national nature management programmes. These indicators help prioritize species for genetic management, provide an indication of the genetic status of species in the country, track progress or changes over time, and highlight management needs. We are committed to working fully with the stakeholder community to produce resources (i.e. databases, scripts and guidelines) that address their concerns, reporting obligations and monitoring needs. This co-creation process will be supported by professional facilitators (at workshops in 5 different countries) and evaluated by social scientists.

GINAMO thus brings together an international group of researchers, policy makers and nature managers and is strengthened by GINAMO's links with COST Action G-BiKE/GENOA, Europe's largest genetic conservation management network, consisting of >100 researchers and practitioners from 42 countries, including all EU countries and 12 countries in neighboring regions. GINAMO is also well connected with several international initiatives (such as EuropaBON and the Coalition of Conservation Genetics). The transnational support of the GINAMO community, together with GINAMO's open-science approach to data integration and standardized workflows for indicator development, is highly relevant to achieve the mainstreaming of genetic indicators in biodiversity policy at the international level. The co-creation process also has the advantage of strengthening connections between nature managers across European borders through 1) knowledge transfer on the application of genetic indicators in practice, 2) effective application of genetic indicators in European countries, and 3) opportunities for effective cross-border management of populations, based on genetic indicators. GINAMO thus has the potential to address the most relevant conservation issues on a continental and global scale by implementing genetically-based monitoring solutions for sustainable use of biodiversity and mitigating human impacts on biodiversity.

GINAMO

A functional society depends on the absorption and use of relevant knowledge. GINAMO aims to close the gap between the theory and application of genetic indicators by developing practical, accessible and co-produced tools. This will enable efficient implementation of existing global and EU biodiversity policies for the crucial genetic level of biodiversity. Efficiently safeguarding genetic diversity through monitoring activities will help achieve global sustainability goals such as the UN Sustainable Development Goals.

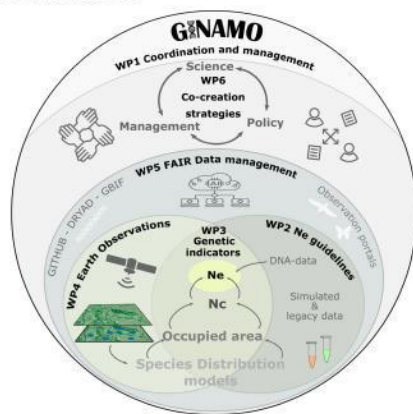


Figure 1. GINAMO's research and co-creation plan: Both DNA-based data and proxy data will be used to establish best practices for genetic indicators to monitor GD, using FAIR (findable, accessible, interoperable, and reusable) principles and providing open science. GINAMO's goals will be achieved by including the policy and management community from the outset.

CONTACT INFORMATION

General coordinator

Christina Hvilsom

Copenhagen ZOO, Denmark

CH@zoo.dk

<https://www.zoo.dk/om-zoo/organisation-mission-og-vision>

Belgian contribution

Peter Galbusera

Koninklijke Maatschappij voor Dierkunde van Antwerpen (KMDA vzw)

peter.galbusera@kmda.org

www.zooscience.be

Joachim Mergeay

Research Institute for Nature and Forest, Belgium

joachim.mergeay@inbo.be

<https://www.vlaanderen.be/inbo/en-GB/projects/ginamo-genetic-indicators-for-nature-monitoring-evinbo>

Partners

Linda Laikre

Stockholm University, Sweden

linda.laikre@popgen.su.se

<https://www.su.se/english/>

Gernot Segelbacher

University of Freiburg, Germany

gernot.segelbacher@wildlife.uni-freiburg.de

<https://uni-freiburg.de/research/>

Joost Raeymaekers

Nord University, Norway

joost.raeymaekers@nord.no

<https://www.nord.no/en/research>

Alexander Kopatz

Norwegian Institute for Nature Research, Norway

alexander.kopatz@nina.no

<https://www.nina.no/english/Home>

Myriam Heuertz

Institut National de recherche pour l'Agriculture, l'alimentation et l'Environnement (INRAE), France

myriam.heuertz@inrae.fr

<https://www.inrae.fr/en>

Cristiano Vernesi

Fondazione Edmund Mach, Italy

cristiano.vernesi@fmach.it

<https://fmach.it/>

Carina Lundmark

Luleå university of technology, Sweden

carina.lundmark@ltu.se

<https://www.ltu.se/>

Sean Hoban

The Morton Arboretum, USA (self-financed partner)

shoban@mortonarb.org

<https://mortonarb.org/science/>

LINKS

Biodiversa + : [BiodivMon Call/](#) [Project catalogue](#)
INBO: [GINAMO](#)