BRAIN-be
Belgian Research Action through Interdisciplinary Networks

TrIAS

Tracking Invasive Alien Species: Building a data-driven framework to inform policy

DURATION
15/12/2016 – 15/03/2021

BUDGET
720 609 €

PROJECT DESCRIPTION

Imagine a future where dynamically, from year to year, we can track the progression of alien species, identify emerging species, assess their current and future risk and inform policy in a timely, seamless, data-driven workflow. One that is built on open science and open data infrastructures. By using international biodiversity standards and facilities, such a workflow would ensure interoperability, repeatability and sustainability. Furthermore, this would make the process adaptable to future requirements in an evolving invasive species policy landscape both locally and internationally.

In recent years, Belgium has developed decision support tools to inform invasive alien species policy, including information systems, early warning initiatives and risk assessment protocols. However, the current workflows from biodiversity observations to IAS science and policy are slow, not easily repeatable, and their scope is often taxonomically, spatially and temporally limited. This is mainly caused by the diversity of actors involved and the closed, fragmented nature of the sources of these biodiversity data. The consequences are considerable knowledge gaps for invasive alien species research and policy.

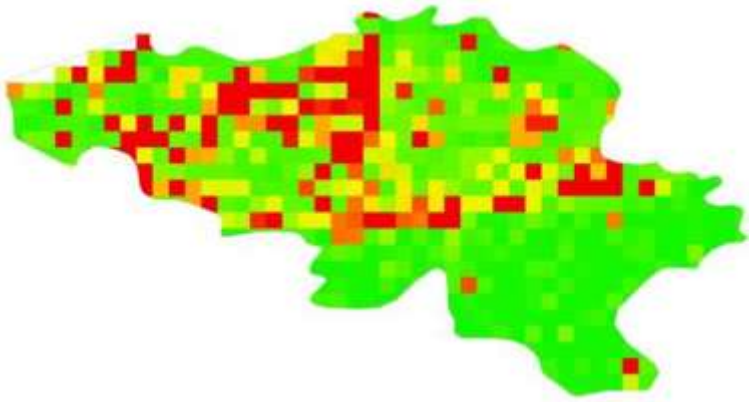
We will leverage expertise and knowledge from nine former and current BELSPO projects and initiatives: Alien Alert, Invaxen, Diars, INPLANBEL, Alien Impact, Ensis, CORDEX.be, Speedy and the Belgian Biodiversity Platform.

The project will be built on two components: 1) The establishment of a data mobilization framework for alien species data from diverse data sources and 2) the development of data-driven procedures for risk evaluation based on risk modelling, risk mapping and risk assessment.
We will use facilities from the Global Biodiversity Information Facility (GBIF), standards from the Biodiversity Information Standards organization and expertise from Lifewatch to create and facilitate a systematic workflow. Alien species data will be gathered from a large set of regional, national and international initiatives, including citizen science with a wide taxonomic scope from marine, terrestrial and freshwater environments. Observation data will be funnelled in repeatable ways to GBIF. In parallel, a Belgian checklist of alien species will be established, benefiting from various taxonomic and project-based checklists foreseen for GBIF publication.
The combination of the observation data and the checklist will feed indicators for the identification of emerging species; their level of invasion in Belgium; changes in their invasion status and the identification of areas and species of concern that could be impacted upon by bioinvasions.

Data-driven risk evaluation of the identified emerging species will be supported by niche and climate modelling and consequent risk mapping using critical climatic variables for the current and projected future climate periods at high resolution. The resulting risk maps will complement risk assessments performed with the recently developed Harmonia+ protocol to assess the risks posed by emergent species to biodiversity and human, plant, and animal health.

TrIAS

The use of open data will ensure that interested stakeholders in Belgium and abroad can make use of the information we generate. By following the principles of open science we ensure anyone is free to adopt and adapt the workflow for different scenarios and regions. The checklist will be used nationally, but will also serve as the Belgian reference for international databases (IUCN - GRIIS, EASIN) and impact assessments (IPBES, SEBI). The workflow will be showcased through GEO BON, the Invasivesnet network and the COST Actions Alien Challenge and ParrotNet. The observations and outcomes of risk evaluations will be used to provide science-based support for the implementation of IAS policies at the regional, federal and EU levels. The publication of Belgian data and checklists on IAS is particularly timely in light of the currently ongoing EU IAS Regulation and its implementation in Belgium. By proving that automated workflows can provide rapid and repeatable production of information, we will open up this technology for other conservation assessments.



Vanderhoeven S, Adriaens T, Desmet P, Strubbe D, Backeljau T, Barbier Y, Brosens D, Cigar J, Coupremanne M, De Troch R, Eggermont H, Heughebaert A, Hostens K, Huybrechts P, Jacquemart A, Lens L, Monty A, Paquet J, Prévot C, Robertson T, Termonia P, Van De Kerchove R, Van Hoey G, Van Schaeybroeck B, Vercayie D, Verleye T, Welby S, Groom Q (2017) Tracking Invasive Alien Species (TrIAS): Building a data-driven framework to inform policy. *Research Ideas and Outcomes* **3**: e13414. https://doi.org/10.3897/rio.3.e13414

CONTACT INFORMATION

Coordinator

Quentin Groom
Botanic Garden Meise
Collectie afdeling
quentin.groom@plantentuinmeise.be

Partners

Tim Adriaens
Research Institute for Nature and Forest (INBO)
tim.adriaens@inbo.be

Bert Van Schaeybroeck
Royal Meteorological Institute (KMI)
bertvs@meteo.be

Hilde Eggermont & Sonia Vanderhoeven
Royal Belgian Institute of Natural Sciences (RBINS) & Belgian Biodiversity Platform
h.eggermont@biodiversity.be

Luc Lens
Universiteit Gent (UGent)
Luc.Lens@ugent.be

Ruben Van De Kerchove
Flemish Institute for Technology (VITO)
Ruben.vandekerchove@vito.be

Gert Van Hoey
Institute for Agricultural and Fisheries Research (ILVO)
Gert.Vanhoey@ilvo.vlaanderen.be

Thomas Verleye
Flanders Marine Institute (VLIZ)
thomas.verleye@vliz.be

Arnaud Monty
Université de Liège – Gembloux (ULg)
Unité Biodiversité et Paysage
arnaud.monty@ulg.ac.be

Anne-Laure Jacquemart
Université catholique de Louvain (UCL)
anne-Laure.Jacquemart@uclouvain.be

Yvan Barbier
Service Public de Wallonie
Département d'Etude du Milieu Naturel et Agricole
yvan.barbier@spw.wallonie.be

Sarah Welby
Veterinary and Agrochemical Research Centre (CODA-CERVA)
Veterinary Epidemiology section
Sarah.Welby@coda-cerva.be

LINKS

Open Science Framework (https://osf.io/7dpgr/wiki/home/)
GitHub (https://github.com/trias-project)
Twitter (https://twitter.com/trias_project)

BELGIAN SCIENCE POLICY OFFICE
Louizalaan 231 Avenue Louise • B-1050 Brussels
Tel. +32 (0)2 238 34 11
http://www.belspo.be/brain-be/ • Email : BRAIN-be@belspo.be

BR/165/A1/TrIAS