**GBIRd Microsite Content**

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Image 1: IUCN Endangered species threatened by invasive rodents w/ suitable caption

Image 2: Agricultural field (corn or rice) threatened by invasive species w/ suitable caption

Image 3: anonymous doctor/patient image w/ suitable caption



**G**enetic **B**iocontrol of

**I**nvasive **R**o**d**ents

*Seeking innovations to protect communities and prevent extinctions*

Like you, we want to save lives, livelihoods, and preserve our world for generations to come. Every year billions of dollars are lost to damaged infrastructure, crop losses and associated hunger, and disease and illnesses caused by invasive rodents. And, every year, damaging, introduced (invasive) rodents threaten native island wildlife and ecological integrity. Today, scientific research suggests that **such losses may be preventable**.

Our world’s island communities, plants, and wildlife are **in crisis** due to damaging invasive species, the leading cause of extinctions on islands. Invasive species are also the second greatest cause of plant and animal species loss globally, and have devastating impacts on peoples’ food security, wellbeing, and livelihoods. Invasive rodents have invaded nearly 90 percent of our world’s islands and transmit dangerous diseases to humans (e.g. Hantavirus and the plague). And, globally the cost of invasive species’ impact and control efforts is an estimated five percent of the world’s annual economy.

**There is hope**. Five hundred successful invasive rodent removal projects on islands demonstrate eradications to be one of the most impactful conservation interventions to prevent island extinctions and benefit island communities, economies, and ecosystems.

Yet, the annual interventions are insufficient to match the magnitude of this global crisis. Today, conservation rodenticides are the only effective tools for removing or controlling invasive rodents on large islands. Social, ethical, ecological, and financial constraints limit their use.

The **Genetic Biocontrol of Invasive Rodents** (GBIRd) **program** is a partnership of seven world-renowned not-for-profit organizations advancing gene drive research that has potential to scale up efforts to protect island communities and prevent island species extinctions.

We are investigating both the feasibility and suitability of this potential tool. Our step-wise, values-based, scientific, social, ethical, and risk-assessments aim to answer the following key questions in the coming decade:

*Could we create a self-limiting gene-drive modified mouse that biases future generations to be male (or female) only, thereby achieving eradication by attrition?*

*If we could do this, should we? How? And, under what conditions?*

**Together, we can do this; Engage today!**

Get the latest GBIRd news and updates and related news. Sign up for our newsletter here: \_\_\_\_

Questions, comments, suggestions? Contact us at info@geneticbiocontrol.org

Bookmark this page and come back soon. We will launch a comprehensive website later this year.

Learn more about the GBIRd partnership, research and assessments here.

**Seeking a transformative** i**nnovation to prevent extinctions and protect communities**

The Genetic Biocontrol of Invasive Rodents program (GBIRd) is a partnership of seven world-renowned organizations.

**Could we do it?**

The research goal is to use a naturally-occurring and/or non-native “gene drive” in mice to facilitate a bias of subsequent rodent generations to all be a single sex. If successful, GBIRd’s proof of concept holds the potential to significantly expand conservation practitioners’ toolbox to reverse the impacts that invasive rodents have on islands, their terrestrial and marine ecosystems, and human communities.

**Should we do it?**

However, we know that many other assessments need to be done and questions remain to be answered.

**The GBIRd Partnership aims to find out**

GBIRd brings together world class geneticists, evolutionary biologists, ethicists, risk assessors, math modelers, regulatory experts, social scientists, and conservation professionals to engage one of the most serious threats to biodiversity today: unchecked invasive rodents on islands.

Our not-for-profit conservation and humanitarian mission engages dozens of experts from governments, NGOs, and research universities. These partners include [CSIRO](https://www.csiro.au/), [Island Conservation](https://www.islandconservation.org/release-investigating-suitability-genetic-biocontrol-invasive-rodents-islands/), [Landcare Research](http://www.landcareresearch.co.nz/home), [North Carolina State University](https://research.ncsu.edu/ges/igert/igert-research/island-mice-conserving-island-biodiversity/), [Texas A&M University](https://www.tamu.edu/), and [USDA’s APHIS](https://www.aphis.usda.gov/aphis/home/). Together, we are cautiously investigating the feasibility of, and assessing the social, ethical, and biological risks of, gene-drive modified organisms for eradication of island invasive species. The science and partnership has been underway for several years; GBIRd’s formalized coordination and strategy emerged in 2016.

**This will take time**

We are probably a decade away from having the answers. We are obligated to take this research cautiously, thoroughly, and step-wise. We benchmark our assessments against the world’s leading gene drive research and public values alignment [guidelines like these issued by the US National Academy of Sciences](http://nas-sites.org/gene-drives/) and others. The diversity of assessments will need to run their course before we can ask ourselves ‘Could we?’, ‘Should we?’, and ‘Under what conditions’?

**Values are central**

We are all in this for the interests of society and nature. Like you, we want to save lives, livelihoods, and preserve our world for generations to come. Our guiding principles include:

* Early and sustained consistent engagement with stakeholders and communities
* Proceeding cautiously, with deliberate step-wise methods
* Uncompromising commitment to biosafety, existing regulations, and protocols as minimum standards
* Using international best practices for risk analysis
* Soliciting external ethics reviews and considering unsolicited ones, and
* Transparency of research, assessment, findings, and conclusions

The investigation of the suitability of gene drive for food security, human health, and conservation purposes requires time, expertise, and collaboration. Together, we can determine if, when, and how we should proceed with this new technology.