

**Gene Drive Sponsors and Supporters Convening
Kimpton Hotel Palomar, Washington DC, March 22, 2017**

The one day meeting brought together representatives from approximately twenty organizations currently supporting or interested in gene drive research with either public health or conservation goals. The meeting was intended to discuss the status and challenges of gene drive research, identify areas of potential mutual interest, and discuss the possibility of creating a mechanism to continue discussions and facilitate coordination and cooperation. Meeting participants expressed enthusiasm for making this an ongoing forum.

Discussions at the meeting began with a review by Elizabeth Heitman (University of Texas Southwestern Medical Center) of recommendations from the 2016 The National Academies of Sciences, Engineering and Medicine (NAEM) report [Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with Public Values](#)), with particular emphasis on recommendations to funders. These included ways in which funders could work together to address relevant knowledge gaps, especially regarding ecological and evolutionary considerations for the organism and its ecosystem, and encourage data sharing. They also addressed funder responsibilities to promote and support responsible practices in areas of ecological risk assessment, public engagement and consideration of public values, regulatory oversight and governance, as well as education and training. This was followed by a presentation by Isabelle Coche (Emerging Ag) and Heath Packard (Island Conservation) recounting recent challenges to gene drive research. At the International Union for the Conservation of Nature (IUCN) World Conservation Congress in September a resolution called upon the Director General and commissions “to assess the implications of Gene Drives...while refraining from supporting or endorsing research, including field trials...” At the December Convention on Biological Diversity (CBD) there was a call for a complete moratorium on gene drive research, which was rejected. Coche and Packard emphasized the need to reach a broad array of stakeholders to improve understanding of gene drive research before the next CBD meeting in 2018, and indicated the important of a comprehensive, proactive and coordinated approach.

With this background, discussion turned to the status of the *Principles for Sponsors and Supporters of Gene Drive Research*, a coordinated response to the NAEM recommendations that articulates the shared values and commitments of signatories. The principles are intended to i) mobilize and facilitate progress in gene drive research by supporting efforts of the highest scientific and ethical quality, ii) inspire a transparent atmosphere of conscientiousness, respectfulness, and integrity wherein the research can flourish, and iii) support existing biosafety requirements and best practices as minimum standards for research. Participants suggested changes and clarifications to the manuscript’s text and phrasing that will be incorporated in the final version for submission.

The remainder of the meeting reviewed additional areas in which coordination and cooperation could be mutually beneficial:

- *Engagement and communication:* Alta Charo (University of Wisconsin) reminded participants of the ethical obligations of gene drive research, including equitable distribution of risks, and suggested the public should be engaged in determination of gene drive risks and benefits. Having earlier described the need to prepare for upcoming CBD deliberations, Isabelle Coche and Heath Packard emphasized the need to build a gene drive governance and engagement ecosystem that will work with all partners in a coordinated “pre-competitive” engagement effort to address issues that affect everyone working in the gene drive space. Jeff Chertack (Bill & Melinda Gates Foundation) reviewed recent media coverage of gene drive research and proposed a coalition to coordinate communications and advocacy actions in support of gene drive for public good. Aggrey Ambali (New Partnership for Africa’s Development, NEPAD) declared plans to increase gene drive education and communication in Africa. The general

feeling among meeting participants was that a proactive engagement plan aligned among sponsors and supporters, not just defensive communications, is necessary and would be mutually beneficial.

- *Research opportunities:* The NASEM report recommended additional research to address the considerable gaps in knowledge, particularly in regard to ecological and evolutionary considerations for the organism and its ecosystem. Tod Kuiken (North Carolina State University) reviewed needs for understanding the ecological implications of gene drive, including development of tools to evaluate and mitigate any ecological effects, and highlighted the dearth of funding for ecological risk research. Lee Hall (National Institute of Allergy and Infectious Diseases) reviewed needs for field research on vector biology that would contribute to this understanding.
- *Information and data sharing:* Stephanie James (Foundation for NIH) reiterated the interdependence of all research on gene drive with respect to public perception, and encouraged a mechanism for sharing of information about projects to facilitate communication, identify opportunities for cross-cutting training and stakeholder engagement, leverage infrastructure and capacity building efforts, and anticipate implications for field testing. Claudia Emerson (McMaster University) advised that knowledge sharing is not only essential for the advancement of science but also for transparency to foster public trust in emergent technologies, and proposed a need to develop both a harmonized data sharing policy as well as a transparency policy that explains how information will be shared. She emphasized the need to consider what types of information could be openly shared in the context of risks to gene drive research such as potential for site disruption. In discussion, there was general support for an aligned, coordinated data sharing policy, and various models were discussed. It was generally agreed that providing data access for the scientific community and transparency for stakeholders would help to engender trust.
- *Regulatory strengthening:* The NASEM report recommended that funders and researchers give careful consideration to the adequacy of regulatory systems in countries where field testing or environmental releases will be conducted. Reminding participants that regulatory experience with driving transgenes is universally low, Hector Quemada (Danforth Plant Sciences Center) described the need to create mechanisms for regulators worldwide to communicate and share experiences with gene drive. Aggrey Ambali explained NEPAD's role in building regulatory capacity at the national and regional levels in Africa. NEPAD has identified three focus areas to address current capacity limitations in Africa: 1) regulation (strengthen knowledge of gene drive technology; 2) policy (e.g., create a mechanism to address issues of transboundary movement); and 3) technology development. Participants were particularly interested in possibilities for regional regulation of organisms with the potential to spread.

Conclusions: The discussion revealed several reasons why coordination, and where possible harmonization, of activities would be mutually beneficial: the general lack of understanding about gene drive technology; the need to engage with a broad range and large numbers of stakeholders; and past experience of the importance of building trust, and trusted research systems, to public perception of other emerging “new technologies.” It was agreed that information exchange relevant to gene drive-related activities among sponsors and supporters of gene drive technology is important and should be continued, and will allow parties to identify whether, how and when there is a need to coordinate, collaborate and/or align on activities. The Foundation for NIH offered to serve as secretariat for the forum.

Agreed upon next steps were:

- Circulation of the revised version of the *Principles* document for final decisions on signature;
- Circulation of a few topics for consideration as areas of potential cooperation;
- Circulation of a short description of the proposed gene drive advocacy coalition;
- Continued outreach to other interested parties to join the forum (participants to suggest additional organizations).