

Terms of Reference for IUCN Synthetic Biology and Biodiversity Conservation Task Force Technical Subgroup on Scientific and Policy Assessment

January 9th, 2018

Background

The field of synthetic biology is developing extremely rapidly, with multiple potential implications in numerous ways, both potentially negative and potentially positive, for global biodiversity conservation. The conservation community needs trusted science to feed into a broader global dialogue. The growing field of synthetic biology poses prospective benefits and risks in a large number of sectors, including food security, agriculture, trade, health and geo-engineering. Synthetic biology has appeared in national and supranational policy discussions including: regulation of new plant breeding techniques; developing systems for tracing intellectual property rights and benefits from traditional knowledge relating to genetic resources; considering a new instrument on marine biodiversity in areas beyond national jurisdiction; and exploring the issues surrounding synthetic biology products as surrogates in the international wildlife trade.

Synthetic biology's development relates not only to conservation but also to sustainable use and fair and equitable sharing of benefits, issues of central importance not only to IUCN and its membership but also to the Convention on Biological Diversity. However, here is a lack of agreement regarding the current development of synthetic biology and its implications for conservation, not to mention the prospects of future developments. There is a pressing need for authoritative, balanced guidance that can help conservation organizations, governments, and companies to reach common ground on the associated risks and opportunities before starting to consider how these risks and opportunities should be addressed.

As a response to these challenges, IUCN Members adopted Resolution WCC-2016-Res-086 at the September 2016 World Conservation Congress. Titled "Development of IUCN policy on biodiversity conservation and synthetic biology" the Resolution called on the Director General and Commissions to undertake an assessment to:

examine the organisms, components and products resulting from synthetic biology techniques and the impacts of their production and use, which may be beneficial or detrimental to the conservation and sustainable use of biological diversity and associated social, economic, cultural and ethical considerations, and to recommend how IUCN, including its Commissions and Members, could approach the topic of synthetic biology and engage in ongoing discussions and deliberations with the synthetic biology community.

In addition, it called upon the Director General and Commissions with urgency to:

assess the implications of Gene Drives and related techniques and their potential impacts on the conservation and sustainable use of biological diversity as well as equitable sharing of benefits arising from genetic resources, in order to develop IUCN guidance on this topic, while refraining from supporting or endorsing

research, including field trials, into the use of gene drives for conservation or other purposes until this assessment has been undertaken.

The work will be conducted under the authority of an IUCN Synthetic Biology and Biodiversity Conservation Task Force, representative of the IUCN Commissions and Secretariat, as mandated by Resolution WCC-2016-Res-086. The Task Force is being established in early 2018 and is expected to develop policy recommendations for consideration by the IUCN Council before the 2020 World Conservation Congress. The Chair of the Task Force will also chair the Technical Subgroup.

Objective

The overall objective of the proposed process is to develop an IUCN Synthetic Biology and Biodiversity Conservation assessment, and thence an IUCN policy based on the best available science and consistent with relevant IUCN resolutions, that can:

- Act as the authoritative basis for any position paper or other statement issued by the Director General concerning synthetic biology and biodiversity conservation
- Ensure a coherent framework with which IUCN Secretariat and Commissions can contribute to the global knowledge base on synthetic biology and biodiversity conservation and related issues
- Guide strategic areas of technical engagement undertaken by IUCN
- Provide a framework for the development of guidelines that can be used by IUCN members, government agencies, lenders, and the private sector
- Facilitate adaptive policy guidance as more scientific information and practical experience on the ecological social and economic parameters of synthetic biology and biodiversity conservation, become available.

The process outlined below would result in: 1) reliable scientific and policy information to support governments and the international community, including the Convention on Biological Diversity, in understanding and developing guidance for the application and use of synthetic biology in the arena of biodiversity conservation; 2) impetus for a cross-sectoral dialogue through engagement with a wide array of stakeholders and constituencies at the national and global levels; 3) an IUCN policy on biodiversity conservation and synthetic biology, to be presented to the next IUCN World Conservation Congress in 2020. We also propose a budget for the activities.

Overview of the task force process

To address the requests in the Resolution, and building upon the work started by IUCN in December 2015 through a meeting at the Bellagio Center in Italy, we propose a series of activities, divided into three parts. The details and scheduling will be budget dependent.

Phase 1 Broad scientific and policy assessment:

Building on the work that has already taken place within the Convention on Biological Diversity and incorporating any significant and relevant outcomes from the CBD CoP 13 in December 2016, IUCN will conduct a broad assessment of the current state of science and policy around genomic technologies to identify potential applications and products that might impact conservation and the sustainable use of

biological diversity, both negatively and positively. While this exercise will incorporate synthetic biology and gene drives (as required by Resolution WCC-2016-Res-086), it will not limit itself to those terms as the technology underlying them changes rapidly. As evidenced by the negotiations around synthetic biology within the Convention on Biological Diversity, which began in 2010, the pace of change is rapid and limiting any analysis based on a particular term or specific technology or application will miss larger trends in genomics that may impact future conservation efforts and the sustainable use of biological diversity. The assessment will consider the potential impacts of synthetic biology on biodiversity, both positive and negative, as well as broader impacts on planetary systems and human social and economic structures. Social, economic, cultural and ethical considerations associated with the use of such technology will also be evaluated. The assessment will be subjected to IUCN-wide and public peer review prior to completion and publication.

Members of the Task Force will use the results from the assessment to draft an initial policy document, incorporating sufficient background to inform people new to the topic. This will be a focus for subsequent discussions, recognizing that this initial draft policy will change greatly during the process.

The assessment and the draft policy will be used, in part, to develop engagement exercises in all IUCN regions and carried out at the Regional Conservation Fora to be held in advance of the next World Conservation Congress, as described in Part Two. This process will be informed by, and coordinated with, the CBD processes around synthetic biology, including through their Bio-Bridge Initiative.

Phase 2 Engagement:

In order to assess if and when synthetic biology, gene drives and other emerging biotechnologies may be beneficial or detrimental to the conservation and sustainable use of biological diversity, and the associated social, economic, cultural and ethical considerations, we propose a series of engagement and assessment activities.

The first set of activities will be conducted through the Regional Conservation Fora in advance of the next World Conservation Congress (during 2019), giving a robust global perspective on the issues. In each Regional Conservation Forum, the background review and the draft policy document will be presented for consultation and feedback.

Specifically, one person from each IUCN region will be trained in engagement and consultation processes on this topic; ideally these would be members of the IUCN Synthetic Biology and Biodiversity Conservation Task Force, although that might not be possible for all regions. These regional leaders will then run the consultation sessions in each Regional Conservation Forum to maximize the engagement of the IUCN Members in each region in developing the synthetic biology policy. The consolidated feedback from each Regional Conservation Forum will be sent to the IUCN Synthetic Biology and Biodiversity Conservation Task Force that will then use it to help prepare the next draft of the policy.

These will be complemented by consultations with international institutions and processes that are currently grappling with synthetic biology issues or that are strongly implicated by the assessment. This will be achieved through direct contact with relevant institutions, *e.g.* the Convention on Biological Diversity and Cartagena

Protocol, CITES, FAO, WHO, WTO, DOALOS and UNFCCC, as well as side meetings or workshops in the context of global events.

Phase 3 Finalize an IUCN policy:

Development of an IUCN Policy will be done in the following stages:

- Synthesize the results of the previous stages to refine further the draft IUCN policy providing guidance for regions, individual countries and IUCN Members to evaluate genomic technologies for conservation;
- Prepare a new draft of the policy following the Regional Conservation Fora, and then send this to IUCN Council for submission as a motion for the 2020 IUCN World Conservation Congress;
- The draft policy will then be debated in the online debate on motions in the months prior to the 2020 World Conservation Congress, and a new version prepared for debate and adoption at the World Conservation Congress;
- Finalize and adopt the policy at the 2020 IUCN World Conservation Congress.

Objective for Technical Subgroup on Scientific and Policy Assessment

The Subgroup will complete a publishable paper based on a broad assessment of the current state of science and policy around genomic technologies to identify potential applications and products that might impact conservation and the sustainable use of biological diversity, both negatively and positively. While this exercise will incorporate synthetic biology and gene drives (as required by Resolution WCC-2016-Res-086), it will not limit itself to those terms as the technology underlying them changes rapidly. The assessment will consider the potential impacts of synthetic biology on biodiversity, both positive and negative, as well as broader impacts on planetary systems and human social and economic structures. Social, economic, cultural and ethical considerations associated with the use of such technology will also be evaluated

Responsibilities for Technical Subgroup on Scientific and Policy Assessment

- Participate in regular face to face meetings or teleconferences
- Contribute to the development of development and drafting of the scientific and policy assessment
- Subsequent to a broad peer review process, help to incorporate peer reviewers' comments prior to completion, and document how all comments have been addressed.
- Upon request provide information for or participate in meetings/processes that communicate IUCN biodiversity offset policy process

Membership selection process and criteria

- Technical subgroup members will be proposed by the IUCN Secretariat (via the Office of the Chief Scientist) and IUCN Commissions (via Commission Chairs). This list will be complemented with members chosen by the Task Force Chair in consultation with experts in the field. The Chair of the Task Force is responsible for final selection.
- Selection criteria:

- Technical knowledge
- Policy development experience
- Geographic and cultural representation
- Gender balance
- Participation of IUCN Council members, Commissions, and Members
- Group dynamic and size (12-16)

Budget

All travel costs incurred in undertaking these ToRs (and agreed by the project manager) will be reimbursed by IUCN upon production of an invoice and corresponding expenditure receipts. Timing and conducting of the work will be dependent on raising funds.