

## Summary of Recommendations for the DNA Barcoding Community

During the 6<sup>th</sup> International Barcode of Life Conference in August 2015, barcode community members participated in a workshop to establish the International Society for the Barcode of Life (ISBOL). The Society would “coordinate completion of the [barcode] registry, to facilitate the development of barcode applications and to communicate with stakeholders at all levels” (Castle et al. 2015). Membership was automatically granted to all registrants of the conference, but is open to all interested parties. A governance council to initiate ISBOL, comprised of the authors of the Kunming Declaration on the Promotion of DNA Barcoding and Biodiversity Science (Li et al. 2013) and representatives from key regions and organizations, was proposed as an interim measure. The council will seek feedback on proposed structure and governance from the broader DNA barcoding community.

The findings of the empirical research presented in this thesis point to several recommendations for the new ISBOL and other BOL organizations, funding agencies that support DNA barcoding efforts, and individuals participating in the DNA barcoding community. Although there are limitations to my data and analysis, for the sake of clarity I have written my recommendations as definitive statements for the barcoding community to consider. Here, I outline those recommendations and their justifications:

### **ISBOL and other BOL organizations:**

- 1) The Interim Council for the International Society for the Barcode of Life (ISBOL) should ensure that (a) the governing body of ISBOL is representative of the diversity of the barcoding community; and (b) mechanisms are put in place to solicit input for policy development that is also representative of the diversity of the barcoding community.

*Justification 1:* Perspectives that represent the diversity of the DNA barcoding community have not been adequately accounted for in the governance of BOL organisations, an inadequacy that impedes the development of effective rules, norms and strategies.

- 2) The Interim Council for ISBOL should not require barcoding project funding as a prerequisite for individuals to participate in DNA barcoding governance.

*Justification 2:* Requiring funding commitments precludes the participation of individuals who may only be able to contribute non-financial but nevertheless valuable resources (e.g., collected samples) to barcoding efforts.

- 3) BOL organizations should a) develop governance documents that explicitly consider and comply with the legal and policy frameworks of global sharing and utilization of genetic resources, including the *Convention on Biological Diversity* and the *Nagoya Protocol*; and b) promulgate educational materials for the community on the legal and policy context of DNA barcoding activities to enhance understanding and compliance.

*Justification 3:* Current barcoding governance documents have not adequately referenced international legal instruments or national laws, nor have the rules expressed in these documents reflected the intent of these laws. Furthermore, the diversity among barcoding participants in the application of laws that govern genetic resources may lead to conflict between participants due to a lack of shared expectations about access, utilization and equitable distribution of benefits. Improved compliance with the legal framework for genetic resources would allay

concerns of LMMC participants, in particular, and facilitate their participation in barcoding efforts. Enhanced education about the legal framework would help researchers understand why it is necessary to govern barcoding activities in a manner that respects LMMC concerns about access to and utilization of genetic resources.

- 4) BOL organizations should implement barcode database access and use requirements that
  - a) encourage the community to contribute to and use barcoding databases while respecting community concerns, such as restricted access to sensitive data, a reasonable embargo period to enable publication, and acknowledging the originators of the data; and
  - b) restrict data access to non-commercial use.

*Justification 4:* Researchers are concerned with unrestricted access to and use of their data. At a minimum, members of the barcoding community expressed a desire for restrictions that protect sensitive data, a reasonable embargo period to enable first publication, and acknowledgement of the contributor of the data. It is common for open access databases to impose such conditions of use to encourage community participation. Additionally, unrestricted use allows data to be used in ways that may preclude barcoders from accessing genetic resources under “simplified measures for non-commercial research” under the *CBD*, and *Nagoya Protocol*, and national laws.

- 5) BOL organizations should develop advisory guides for the development of Materials Transfer Agreements (MTAs) that address community concerns about sharing materials (such as requiring specimen destruction after the generation of the barcode or restriction of the use of the specimen to generating a barcode sequence).

*Justification 5:* Researchers are concerned that materials shared for the generation of DNA barcodes may be used by recipients for purposes they would not wish to support. In addition, technology transfer offices that mediate exchanges of MTAs may not have capacity to draft MTAs that are compliant with the legal framework for genetic resources. Capacity may be lacking in LMMCs with respect to funding for and staffing of technology transfer offices, and capacity in non-LMMC institutions may be lacking due to lack of knowledge or understanding of this legal framework. Guidance on the drafting of MTAs that respect international and national laws for the sharing and use of genetic resources is therefore needed.

- 6) To fulfill their goals related to effective public engagement, BOL organizations should create media communication strategies on how to report social, cultural and political issues relevant to DNA barcoding activities.

*Justification 6:* To date, media coverage of DNA barcoding has largely omitted topics relevant to the social, cultural and political mandates of BOL organizations. BOL organizations can facilitate inclusion of these topics in media coverage by providing guidance on key media messages.