

**INTERNATIONAL BARCODE OF LIFE PROJECT (IBOL)
INTERNATIONAL CONSORTIUM INITIATIVE (ICI)
INTERIM REVIEW WRITTEN REPORT FORM**

ASSESSMENT

1. RESEARCH PROGRESS

Progress against the original research plan is assessed as:

Excellent Good Satisfactory Not Satisfactory

Please provide comments to justify your assessment. If there are significant variances in the progress of specific components of the ICI, provide specific comments by sub-project or activity while taking into account factors such as the:

- level of funding received to date;
- duration of the funding period;
- problems encountered;
- progress relative to other research groups working on similar projects; and,
- research team's responsiveness to advances in the field and/or availability of new technologies since the project's inception.

Overall progress seems impressive. This reviewer is focused on GE3LS for the remainder of the report.

2. CHANGES TO THE RESEARCH PLAN

If significant changes to the research plan have been made or are proposed for the future, what is your assessment of these changes?

Recommended as proposed Recommended with modifications Not recommended

Please provide comments to justify your recommendation. Provide details of any modifications or additional changes that you would recommend.

I cannot make an informed recommendation, due to insufficient information. The GE3LS team has proposed changes to their research program, namely replacing part or most of the heavily critiqued Activity 5 with a new activity, based on a comment by one previous reviewer about potential economic/social science issues of taxonomy. The team says they had taxonomic issues in the original plan, and are negotiating to bring those back in some new form. I have concerns, since the original proposal was sufficiently incoherent and

received enough criticism that these ideas were dropped in the first place. However, since no description of these new plans is provided, it is impossible to evaluate these changes. Apparently there has been an evolving scientific debate on taxonomic issues through history that is no doubt of intellectual interest. My main questions regarding the new research area on taxonomic issues are: 1) what are the key social science questions and approaches? 2) Is there demand among the taxonomist community for this research, and would the results influence their behavior or policies? 3) Is this one of the next most relevant GE3LS question for successfully implementing the project and maximizing the benefits from the information being collected?

Given the lack of other progress to report on, this interim evaluation was an opportunity for the GE3LS team to solicit feedback on these changes. It was also a chance to explain more clearly their research objectives, methodologies, and expected benefits, addressing questions raised by previous reviewers (e.g., about Activity 3 as well as 5). Unfortunately, they did not seize this opportunity.

Another significant change is the transfer of GE3LS leader Castle to Edinburgh. Although international collaboration is certainly common, and the team says the transfer will have no effect on the program, it would be more reassuring to have a description of why (e.g., sufficient research independence) or how (e.g., plans for research coordination). Aside from these practicalities, I leave it to Genome Canada to decide if this poses problems.

3. GE³LS

The project leaders were asked to identify the ethical, environmental, economic, legal and social aspects (GE³LS) arising from their proposed research and to develop and implement a plan to address them.

The progress towards achieving the goals of the GE³LS subproject is assessed as:

Excellent Good Satisfactory Not Satisfactory N/A

Please provide comments to justify your assessment including comments on the progress towards achieving the GE³LS milestones and the research team in place. Please take into account factors such as the level of funding received to date, duration of the funding period and problems encountered.

According to the response to questions, "During the period covered by the interim review, no funding was provided for GE³LS research." The GE3LS program has been delayed, shifting the GANTT chart a year, compared to the revised research plan. Part of the delay is likely due to the revisions and the need for secondary approval, which are worthwhile processes. Despite these postponements, survey work in GE3LS activity 1 has begun, as well as some literature reviews in other projects, and administrative and overall iBOL project coordination efforts are taking place.

4. ABILITY TO ACHIEVE THE OVERALL OBJECTIVES

Is the research team likely to achieve the overall objectives of the project?

Very likely Possibly Unlikely

Please provide comments to justify your response. In cases where you identify issues that would prevent the team from meeting their objectives, please state the issues and where possible, propose solutions.

The GE3LS team has a strong set of researchers, but some of the GE3LS objectives remain to be defined. I would recommend another review after sufficient time for progress to be gauged.

5. BENEFITS FOR CANADA

Based on progress to date and the future plans, please assess whether the anticipated results of the research are likely to, a) contribute to job creation and economic growth in Canada, b) social benefits c) improvements in the quality of life, health, and/or the environment, and d) contribute to the creation of new policies in these areas. If commercialization is proposed, please comment on the strategy for IP management and ownership, technology transfer and benefit sharing.

The progress towards realizing the Benefits for Canada is assessed as:

Excellent Good Satisfactory Not Satisfactory

Please provide comments to justify your assessment. Have any opportunities been missed?

The overall project has significant benefits to Canada, as Canadian researchers are leading a major international consortium with high visibility, capacity transfer and development benefits.

The GE3LS components with the most visible benefits to Canada are the education activities. However, if other research is successful, such as clarifying norms for benefit sharing and intellectual property derived from natural resources, it can help smooth the way for innovation and dissemination that will ultimately benefit Canada and other countries involved. The activities related to trade policy are also highly relevant and can be focused on particularly Canadian issues in support of national regulators. Of course, these activities have yet to be implemented, according to the research plan, so progress cannot be easily evaluated. Ongoing engagement with Canadian government and other stakeholders is recommended.

6. GOVERNANCE & MANAGEMENT

Are the established governance and management plans, processes, and structures appropriate and effective?

Yes

Remediable Concerns

No

Please provide comments to justify your assessment including comments on the:

- governance and management structures and processes;
- decision-making processes – do these ensure that critical decisions about the research direction can be made and provide the ability to respond to unanticipated difficulties?
- effectiveness of communication mechanisms within the project.

In GE3LS, many governance and management activities have been incorporated into actual work packages. In addition, a large share of funding (at least based on year 2) is devoted to administration. One wonders if these activities are redundant, and hopes with the reworking of the work package, more resources will ultimately be devoted to research.

7. HANDLING OF SCIENTIFIC DATA & RESOURCES

Are the plans for handling scientific data and sharing of data and resources created by the project appropriate and effective?

Yes

Remediable Concerns

No

Please provide comments to justify your assessment and, where appropriate, make suggestions for the improvement of the plans.

8. TRAINING, RECRUITMENT AND PROFESSIONAL DEVELOPMENT

Has the project team been and/or will they continue to be successful in training, recruiting, and professional development of highly qualified personnel?

Yes

Remediable Concerns

No

Provide comments to justify your assessment and, where appropriate, suggest possible new approaches. Please comment on the responses to any challenges faced to date.

Training / capacity building was not a significant part of the GE3LS plan.

9. PUBLIC OUTREACH & COMMUNICATION ACTIVITIES

Do the activities that have been undertaken or are planned ensure that the research is communicated to the public and other interested parties?

Yes Remediable Concerns No

Please provide comments to justify your assessment and, where appropriate, make suggestions for improvement.

The overall project seems to be coordinating with CBOL on outreach, and iBOL participants have been active presenters. Media releases have received widespread attention. As for GE3LS, one does not expect much communication before research products are available, so it is not surprising that little has been undertaken at this point.

10. FINANCIAL

Is the research progress commensurate with how funds have been spent to date?

Yes Remediable Concerns No

Please provide comments to justify your response. Include comments on the following:

- whether explanations for budget variances are reasonable in the context of research progress to date;
- the level of success in securing co-funding from other sources;
- if there is a co-funding shortfall, suggest alternate sources of co-funding and comment on how the shortfall will impact the research.

For the second year (the first for GE3LS), it is understandable that a large share has been spent on administration, but hopefully more funding and attention will soon be devoted to research. Unclear what the GE2LS \$30K of “consumables” are.

11. Progress towards addressing the issues raised at the time of the initial ICI review

Excellent Good Satisfactory Not Satisfactory

Please comment specifically on the progress towards addressing the issues that were raised by the Expert Committee at the initial review listed below:

- the resolution of outstanding management, budget and co-funding issues;
- the revision of the GE³LS component of the proposal;
- the establishment of a Technology Development Advisory Group (TDAG) and a Science Advisory Board (SAB);
- the implementation of a quality control/quality assurance monitoring system; and,
- the resolution of outstanding issues with the public release of data in the ***International Nucleotide Sequence Database Collaboration (INSDC)***;

Focusing on the GE3LS program alone, knowing that questions were raised at the last review, the team provided insufficient information to evaluate progress in addressing these issues. (See discussion of 2 -- Changes to the research plan).

OVERALL RECOMMENDATION

- Further funding for the ICI is recommended
- Further funding for the ICI is recommended with modifications
- Further funding for the ICI is not recommended

Please provide a brief summary of the status of the project and a justification for your recommendation. Where issues have been identified, state whether these are major or minor, what actions should be taken (e.g., activities that should be reduced, abandoned or strengthened), alternate approaches to be considered and avenues to strengthen the project.

Although this reviewer is not competent to assess all the scientific contributions, reasonable progress is being made among participants, the consortium effort holds great promise for major scientific benefits, and this project seems essential to keep Canada on

the cutting edge in this area.

The GE3LS component needs further monitoring, given the early stage and the ongoing changes being proposed. The lack of core economics competence is a lingering source of disappointment, given the wide range of important, policy-relevant research questions related to the use and regulation of iBOL technology and the value of the information it can provide. A reasonable strategy for Genome Canada at this point is to work with the current team, who seem admirably committed to engaging and integrating with the rest of the iBOL team in governance issues, to enhance the research quality and relevance. I would then strongly encourage Genome Canada (and other funding partners) to consider separate funding opportunities to fill some of the critical social science research gaps, particularly in economics, as the international consortium moves forward toward its scientific goals.

Given the international nature of the initiative, I wonder if there are more opportunities to coordinate with related social science research among other partners. From the oral discussion, it seems the GE3LS team may be beginning to do this, and I encourage their effort to foster broader networks in social science analysis of the use and value of iBOL data in practice.