WeDigBio Project Strategic Plan 2021–2023
Current Version (4 August 2021)

Mission: *The Worldwide Engagement for Digitizing Biocollections (WeDigBio) project[1] provides resources for biodiversity research collections to effectively and creatively engage their local communities and global internet users in digitization[2] of specimens and associated content, especially during annual WeDigBio events, with an emphasis on increasing the science literacy of participants, growing the diversity of science contributors, and expanding the relevance of collections to solving humanity's grand challenges.*

Vision: *A worldwide community that understands, values, and champions biodiversity, biodiversity collections, and biodiversity science.*

Values:
Celebration of biodiversity and biodiversity collections
Rigorous, relevant biodiversity science
Inclusive, informative, ethical, exciting engagement
Joyful co-creation with and grateful attribution for public participants
Findable, accessible, interoperable, reusable data[3]
Resilient, prized partnerships
Conscientious evaluation and improvement

Strategy: *We leverage the easily understood, deeply historical biodiversity specimen collecting process, the visually compelling, data-laden specimens, the straightforward digitization activities, and the engaging stories of discovery enabled by the specimens and digital data to engage an ever-expanding group of public participants, collection professionals, educators, and others in activities that further biodiversity research, conservation, and management[4].*

Strategic Planning Process
The first draft of this document was produced during a WeDigBio Strategic Planning Workshop that occurred over four days from January 26–February 4, 2021. This was followed by a 30-day comment period starting on June 10, 2021, for all in the WeDigBio community. An attempt has been made to include all names of those who contributed to the process in the Acknowledgements section at the end of the document.

Representative Leadership Structure
The leadership groups and their relationships are provided in Figure 1.

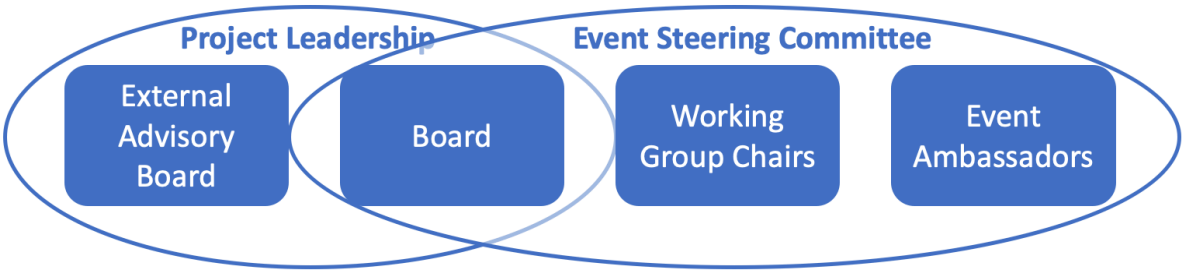

Figure 1—The representative leadership structure for the WeDigBio Project and Events. The Board is composed of representatives from participating online platforms, iDigBio, and any other major partners. Board members are elected as Chair, Vice Chair, and Secretary. The Board, Working Group Chairs, and Event Ambassadors compose the Event Steering Committee. The Working Groups include (1) Broadening Participation[5], (2) Formal Education, (3) Cyberinfrastructure, (4) Communications, (5) Virtual Science Festival, and (6) Evaluation. New Event Ambassadors are invited by the Board, upon advisement by the External Advisory Board and should represent diversity along key axes (e.g., geography, taxonomy, institutional settings). The External Advisory Board members are invited by the Board and should represent key stakeholder groups or other critical expertise.

Stakeholders

We recognize the following groups as deserving attention in the strategic planning process.

- Public participants—a very heterogeneous group, these are individuals participating in the digitization tasks.
- Online community science[6] platforms with focus on biodiversity specimen digitization, including their decision-makers, programmers, and education and outreach (E&O) staff.
- Biodiversity collections, including their decision-makers, digitization staff, and E&O staff.
- WeDigBio Project Board.
- WeDigBio Project External Advisory Committee.
- WeDigBio Project Working Groups.
- WeDigBio Event Ambassadors.
- iDigBio, the US National Science Foundation's National Resource for Advancing Digitization of Biodiversity Collections, which has served as the Project's early home and a major contributor of resources since the inception of the WeDigBio Project.
- Organizations and projects similar to iDigBio that facilitate digitization-related activities for their own biodiversity collections community (e.g., MOBILISE, Smithsonian Institution, DiSSCo's ICEDIG, GBIF[7]).
- Digitization projects, such as the thematic collections networks funded by the United States National Science Foundation, including their respective decision-makers, digitization coordinators, and E&O staff.
- Professional organizations that serve biodiversity collections.
- Professional organizations that serve educators.
- Grades 6–12 science teachers.
- Undergraduate science and other (e.g., data literacy) teachers.
- Funders, including the United States National Science Foundation.

SWOT Analysis

We recognize factors that are, or have the potential to be, helpful (Strengths and Opportunities) or harmful (Weaknesses and Threats). Strengths and Weaknesses are internal to the WeDigBio Project; Opportunities and Threats are external. The factors recognized are current as of the writing of the strategic plan, rather than anticipated with successful implementation of the strategic plan.

Strengths

- Provides opportunities for biodiversity collections to participate in the growth area of community science.
- Provides a forum for coordination among community science projects and biodiversity collections.
- Demonstrates record of creative engagement of participants, including game and augmented reality content development.
- Engages a broad diversity of stakeholders as well as deep biodiversity informatics and community science expertise in its representative leadership structure.
- Contains memory of lessons learned in initial experimentation with Sococo's online meeting space.
- Builds connections with Global Citizen Science Month participants during newly established April event in addition to October event.
- Grows the social media and listserv audience with each year's event.

Weaknesses

- Lacks plan to increase diversity of biodiversity collections and public participants.
- Lacks outcomes registry to identify impacts beyond the daily highlights emails during the events.
- Lacks an information management plan to maintain momentum of stakeholder engagement with leadership turnover.
- Lacks a communication plan that ensures rapid responses by appropriate persons to queries sent to the WeDigBio project.
- Lacks long-term funding plan.
- Lacks WeDigBio resources in languages other than English.
- Lacks ability to ensure sufficient diversity in opportunities to match every prospective public participant's language and cultural expectations.

Opportunities

- Large remaining biodiversity specimen set to digitize (database, but also and especially georeference), and public participation in digitization potentially builds sustainability for the task and scales well online.
- Global events have near limitless bounds for engagement.
- COVID-19 pandemic greatly expanded familiarity and comfort with online communication and distributed collaboration.
- Grants programs focused on data mobilization in under-resourced collections could fund new partners in those areas, such as GBIF's Biodiversity Information for Development (BID) program, which is focused on data mobilization in the African, Caribbean, and Pacific Group of States.
- Companies sought out online volunteer opportunities during (and perhaps beyond) the COVID-19 pandemic, including sponsorship of opportunities. Some companies might value sponsorship of the annual WeDigBio event; other companies might value sponsorship of onsite events at their local collections.
- Goals overlap with those of professional societies and foundations, potentially leading to sponsorship opportunities.

- Large number of biodiversity specimens now digitized enables powerful demonstrations of digitization value that can introduce participants to leading-edge scientific approaches, such as artificial intelligence.
- Emergence of framework to acknowledge contributions in digital records, including by community scientists.
- Emergence of community discussion on specimen data translation and data repatriation to the specimen's country of origin.
- Goals overlap with those of amateur enthusiast groups and service organizations with some successful examples, potentially leading to broader inclusion of WeDigBio in these types of organizations' event calendars.
- Goals overlap with those of educators with some successful examples, potentially leading to broader inclusion of WeDigBio into classroom activities, such as in Course-based Undergraduate Research.

Threats

- Lack of community-approved data standards, protocols, etc., for interoperability among community-science digitization platforms and biodiversity informatics resources could limit possibilities.
- Sponsorship could produce controversy.
- Disengagement in project of a key member of Board, collaborating platform, other project (e.g., iDigBio), or institution could setback project.

Sustainability

Here, we address potentially high-impact factors in the lists in the SWOT analysis.

Maintaining Strengths

- Continue improving representative leadership structure and leadership documents, including policies, procedures, and terms of reference.
- Continuously watch for new individuals, projects, and stakeholder groups to engage in leadership.

Addressing Weaknesses

- Establish and implement plan to increase diversity of public participants that leads to future gains in diversity in the biodiversity collections community.
- Establish and implement plan to increase diversity of biodiversity collections who are involved, especially to offer more language options.
- Establish and implement an information management plan.
- Establish and implement a communications plan.
- Establish and begin populating an outcomes registry.

Capitalizing on Opportunities

- Identify opportunities to complement GBIF's BID program and similar activities.
- Assess options for funding models, including sponsorships and grants.
- Establish policies and procedures for project sponsorship by foundations, businesses, and other organizations.
- Pilot event sponsorship.
- Participate in discussions on acknowledgement of contributions in digital records, especially as it relates to community scientists.
- Participate in discussion on specimen data translation and data repatriation.

- Identify and share lessons learned in engaging amateur enthusiast groups and service organizations.
- Aggregate educational resources that leverage WeDigBio activities.

Mitigating Threats

- Look for ways to produce redundancy in project expertise across individuals and institutions, including intentional training and mentoring, using co-leadership of working groups.
- Create a duties roster describing major activities and timing for leadership positions with regular review and updates.

Goals and Objectives

We recognize the following high-level goals with supporting objectives following prioritization of elements in the preceding Sustainability section. We aspired to make the objectives specific, measurable, attainable, realistic, and time-bound—a set of qualities often shortened to SMART.

1. Coordinate the relevant online platforms and the biodiversity collections community to produce the two annual WeDigBio events.

- Grow engagement of participants, platforms, and collections with each new WeDigBio event. *All co-creators. Ongoing.*

- Maintain or grow digitization with each new WeDigBio event. *All co-creators. Ongoing.*

- Develop a communications strategy (including recruitment) that effectively engages and coordinates stakeholders, with annual review. *Communications WG. 2021.*
- Develop an information management plan that effectively enables long-term management of stakeholder relationships, with annual review. *Board Secretary. 2022.*

2. Broaden participation in the WeDigBio Event among groups historically underrepresented in biodiversity science and introduce members of these communities to next career steps.

- Establish a plan to increase diversity of public participants that also identifies steps that could reasonably produce future gains in diversity in the biodiversity collections community, including production of a theory of change or logic model. *Broadening Participation WG. 2022.*
- Establish norms for WeDigBio onsite and online events that emphasize inclusion and respect. *Broadening Participation WG, supported by Virtual Science Festival WG. 2022.*

3. Establish an engaging Virtual Science Festival that coordinates creative and effective engagement of all participants in a virtual meeting space where they can interact with scientists, listen to biodiversity research talks, and participate in collections tours, among other things.

- Identify lessons learned from early experimentation with Sococo. *Virtual Science Festival WG. 2021.*
- Assess strengths and weaknesses of available online meeting places and select one. *Virtual Science Festival WG. 2021.*
- Design, pilot, and evaluate a reinvigorated Virtual Science Festival. *Virtual Science Festival WG, supported by Evaluation WG. 2022, then ongoing.*

- Design, pilot, and evaluate a “college bowl” or “world cup” competition among classrooms. *Formal Education WG, supported by Virtual Science Festival WG and the Cyberinfrastructure WG. 2022.*

4. Continue to formalize the leadership structure, considering sustainability and stakeholder needs in all decision-making.

- Establish policies, procedures, and terms of reference, with annual review. *All leadership groups, but especially Board. First draft of terms of reference, 2021, then ongoing.*
- Establish a duties roster describing major activities and timing for leadership positions with regular review. *All leadership groups. First draft, 2022, then ongoing.*
- Generate a plan for financial sustainability. *Board. 2023.*
- Annually review strategic plan. *Board. Recurring.*

5. Provision the biodiversity collections community with resources to effectively and creatively engage the public using the online platforms in both formal and informal education settings.

- Identify lesson plans that engage students in formal education settings in online digitization activities and link to those resources from wedigbio.org. *Formal Education WG. Ongoing.*
- Identify resources (e.g., example press releases, digitization games) for public engagement in informal educational settings for use by Virtual Science Festival and linkage to those resources from wedigbio.org. *Virtual Science Festival WG. Ongoing.*
- Annually update, and encourage responses to, surveys of organizers of onsite events in formal and informal education settings. *Evaluation WG, supported by Communications WG. Ongoing.*
- Annually update, and encourage responses to, surveys of participants in formal and informal education settings. *Evaluation WG, supported by Communications WG. Ongoing.*

6. Produce a unified, compelling view of WeDigBio activities and incentivize the inclusion of WeDigBio branding by onsite event organizers.

- Establish an outcomes registry and produce appropriate solicitations and avenues for annually populating it. *Evaluation WG, supported by Cyberinfrastructure WG. 2022, then ongoing.*
- Maintain and strategically expand visualizations on event-wide dashboard on wedigbio.org. *Cyberinfrastructure WG. Ongoing.*
- Provide onsite event organizers with WeDigBio swag (e.g., stickers and tattoos) to provide to participants. *Broadening Participation WG. Ongoing.*

Evaluation

Evaluation will be led by the Evaluation Working Group with evaluation metrics, benchmarks, and milestones that meaningfully reflect the projects mission, vision, values, and goals.

Acknowledgements

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[1] A fundamental distinction in this document is between the WeDigBio project and WeDigBio events.

*[2] "Digitization" is used here to reference the **creation of digital content about specimens**, including database records, digital images or other media, geospatial data, trait data, and similar information.*

[3] This is further informed by CARE Principles for Indigenous Data Governance (https://www.gida-global.org/care). CARE is collective benefit, authority to control, responsibility, and ethics.

[4] The strategy statement is adapted from that for Florida State University's Robert K. Godfrey Herbarium.

[5] "Broadening participation" is used here in a way consistent with the United States National Science Foundation's Merit Review Criteria, in which it is equated with both broadening participation among historically under-represented groups and with increasing diversity in institutions. We interpret the latter as diversity of collections along relevant axes (e.g., geography, taxonomy, institutional settings).

[6] "Community science" is intended to be a synonym of "citizen science" for this document.

[7] MOBILISE is the EU's Mobilising Data, Policies, and Experts in Scientific Collections; DiSSCo is the EU's Distributed System of Scientific Collections; ICEDIG is DiSSCO's Innovation and Consolidation for Large-Scale Digitisation of Natural Heritage project; GBIF is the Global Biodiversity Information Facility.