

# STRATEGIC PLAN

## STILLINGER HERBARIUM, UNIVERSITY OF IDAHO

### 2020

#### EXECUTIVE SUMMARY

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As the largest herbarium in Idaho and a focal point for collections-based botanical research, education, and outreach, the Stillinger Herbarium is an important asset to the University of Idaho and the entire Gem State. The herbarium's 215,000 specimens represent an irreplaceable archive of our state's botanical and mycological diversity, including vascular plants, bryophytes, fungi, and lichens.

This strategic plan was developed to build awareness of the Stillinger Herbarium's roles, strengths, and needs, and guide the direction of the herbarium as we seek to increase our contributions to the University's mission through innovative thinking, transformative education, and community engagement. Our strategic plan directly supports the goals outlined in the 2020 *Idaho Impact: Annual Report & Strategic Plan* for the University of Idaho.

We have identified four main goals for the herbarium:

- Maintain a cutting-edge natural history collection that supports diverse research efforts ranging from diversity, evolution, and ecology, to conservation, management, and policy.
- Provide educational opportunities and support for the training of the next generation of botanists and plant enthusiasts.
- Build awareness of the importance of natural history collections, collections-based research, and botany to society and our daily lives.
- Promote a greater understanding of Idaho's rich botanical heritage.

Included in the strategic plan are short-term and long-term objectives associated with each of these main goals, and an analysis of our strengths, weaknesses, opportunities, and threats. An evaluation plan provides measurable targets consistent with our goals. The plan will be revisited and revised as our needs change, our goals are met, and new opportunities arise.

## **MISSION**

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The Stillinger Herbarium champions the stewardship of plant diversity, inspires and prepares the next generation of botanists, and advances collections-based botanical research, education, and outreach at the University of Idaho through innovative thinking, transformative educational experiences, and community engagement.

## **VISION**

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The Stillinger Herbarium enhances the University of Idaho's impact and facilitates its land-grant research mission by providing an innovative and accessible botanical resource that documents the diversity of plants, lichens, and fungi in Idaho, the Pacific Northwest, and the world through space and time, while cultivating a group of inspired and engaged citizens, students, and scientists.

## **STRATEGY**

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We aim to promote the role that botanical collections play in support of the land-grant mission of the University of Idaho through:

1. documenting the flora of Idaho and the Pacific Northwest through space and time;
2. facilitating and supporting research and education in floristics, plant systematics, and plant ecology at the University of Idaho;
3. serving as a repository for voucher specimens from botanical research conducted at the University of Idaho;
4. serving as a reference for the identification of plant diversity;
5. providing access to the collection and its associated data for the scientific community.

## Overview

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An herbarium is a repository of preserved plant and fungal specimens arranged to allow easy access and archival storage, but herbaria are more than a simple collection of specimens—they are the heart of botanical research, education, and outreach for an institution, and contribute to all three of the land-grant missions.

As a research tool, Stillinger Herbarium specimens provide an invaluable and irreplaceable source of data for floristics, evolutionary and ecological studies, the conservation of rare, threatened, and endangered species, and the management of invasive species. Collectively, these specimens represent an archive of the flora of Idaho and the Pacific Northwest through space and time that allows us to document the changes to our flora as we are faced with human environmental impacts and a changing global climate. The herbarium supports courses taught in multiple colleges across campus and offers hands-on botanical training for interested students through directed studies, volunteer, and employment opportunities. Public service activities in the herbarium include plant identification, educational workshops and seminars, tours, field trips, and data sharing.

The Stillinger Herbarium was established in 1892, contemporaneous with the founding of the University of Idaho, and has grown to become the largest herbarium in Idaho and the 7<sup>th</sup> largest of the ~65 herbaria in the Pacific Northwest. The collections consist of over 215,000 catalogued specimens (comprised of 180,000 vascular plants, 10,000 bryophytes, 10,000 lichens, and 15,000 fungi), a silica-preserved tissue collection with about 4,500 tissue samples, and a library with more than 2,500 volumes catalogued through the University of Idaho Libraries. Over half the specimens were collected from Idaho, representing the most complete collection of the state's flora. The herbarium is actively growing, with 2,000–4,000 new specimens added each year by students and researchers both within and outside the University.

The University of Idaho paleobotanical collection will bring an additional 20,000–40,000 specimens to the herbarium once fully incorporated. The collection is comprised primarily of specimens from the Miocene Lake Clarkia fossil deposits dating to ~15 million years ago, but also includes significant numbers of specimens from 5–6 other sites in the inland northwest. Discovered in 1974, the Lake Clarkia fossil deposits are world-renowned in the paleontological community, and are considered to be a Lagerstätten—a category reserved for only the most important fossil sites with the best preservation.

The Stillinger Herbarium addresses the UI mission through:

### *Innovative Thinking*

The herbarium is recognized as a valuable resource by local, national, and international researchers and professionals, and serves as the official repository for voucher specimens for all botanical research conducted by students, faculty, and staff at the University of Idaho. Approximately 250 visitors come to the herbarium each year, ranging from academic

researchers and university students to agency botanists, private consultants, and the interested public. Specimens are often loaned to other institutions for systematic research; likewise, the Stillinger Herbarium receives research loans from other herbaria for ongoing systematics research by University of Idaho students and faculty. As a founding member of the Consortium of Pacific Northwest Herbaria (<https://www.pnwherbaria.org>), the herbarium provides its data to the scientific community, land management agencies, conservation organizations, and the interested public, supporting a diversity of research, conservation, and outreach projects. The herbarium has received two significant awards from the National Science Foundation in recent years—\$157,416 awarded in 2008 to improve physical infrastructure, and \$301,351 awarded in 2010 focused on cyberinfrastructure and data accessibility.

### *Transformative Education*

Hands-on, experiential learning in the field and in the herbarium provides a unique opportunity for undergraduates and graduate students interested in pursuing botanical careers, and these activities provide students with valuable experience that increases their chances for professional employment after graduation. Currently the herbarium offers both employment opportunities and directed study options for undergraduate students at the University. Over the past several years, undergraduates with majors in Biology, Ecology and Conservation Biology, Forest Resources, Plant Sciences, Rangeland Ecology & Management, Philosophy, and Secondary Education have worked in the herbarium. Graduate students from the College of Sciences, College of Agriculture, and College of Natural Resources routinely consult the collections. The Stillinger Herbarium graduate fellowship provides graduate student training in herbarium operations and procedures while pursuing their graduate degree. Recent courses supported by the herbarium include Advanced Field Botany (BIOL 460/560), Systematic Botany (REM 341), Wildland Plant Identification (REM 252), Dendrology (FOR 320), Wildland Restoration Ecology (REM 440), Ethnobotany (REM 340), and History of Science (HIST 379).

### *Community Engagement*

The herbarium is involved in outreach activities both within the university and in the community (e.g., Idaho Native Plant Society, Palouse Prairie Foundation, Palouse-Clearwater Environmental Institute). For example, the Director and Collections manager give public seminars, lead field trips, teach plant identification workshops, give tours to UI courses and community groups, and field questions from the community. To promote a sense of community among botanical enthusiasts, the herbarium engages local botanical expertise and enthusiasm by involving them directly in herbarium activities and collecting expeditions. Additionally, the Stillinger Herbarium has partnered with the University of Washington Herbarium and Davis Herbarium at Idaho State University to produce a mobile *Idaho Wildflowers* app which has sold over 1,400 copies since 2014 and has received considerable attention from the press.

Stillinger Herbarium website: <https://www.uidaho.edu/research/entities/herbarium>

Index Herbariorum entry: <http://sweetgum.nybg.org/science/ih/herbarium-details/?irn=126680>

## Organization

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**Institutional setting:** The Stillinger Herbarium is a research entity under the Office of Research and Economic Development at the University of Idaho. The herbarium is located on the University of Idaho campus on the first floor of the Mines Building in rooms 101A, 116, and 117A, occupying about 2,200 ft<sup>2</sup> of floor space. The paleontology collection is currently in storage in the basement of Morrill Hall.

**Funding model:** We are fortunate to have the support of the Charles R. Stillinger Trust (<https://www.uidaho.edu/research/faculty/find-funding/internal-funding/stillinger-trust>), which was established in 1957, and in 1972 began disbursing monies with the primary goal of supporting botanical research at the University of Idaho, with a focus on continued growth of the herbarium. The Stillinger Trust designates 60% of the annual proceeds be used to support herbarium operations. Importantly, the original trust agreement stipulates that: "*The University of Idaho Plant Herbarium shall, as a condition of eligibility for funds under this trust, be maintained according to standard herbarium procedures and practice at the expense of the University.*" (section XI, paragraph 3). Currently, these funds are used to purchase curation supplies, maintain computers, purchase books and journal subscriptions, support hourly employees—the majority of which are undergraduate students, fund competitive collecting expedition proposals, and support a graduate student fellowship appointed by the Director. Funding for the Collections Manager's salary is currently split between the Office of Research and Economic Development, College of Science, and College of Agriculture, and the Director's stipend is supported by the Office of Research and Economic Development; the Stillinger Trust does not directly permit payment of salaries for these positions. Donations to the Friends of the Stillinger Herbarium budget provide small amounts of discretionary funds. Budget decisions are made by the Collections Manager in consultation with the Herbarium Director.

**Staff and other personnel:** The Collections Manager and the Herbarium Director comprise the only full-time, permanent positions affiliated with the herbarium. Currently (Fall 2020), the herbarium also has a graduate student curatorial assistant, three undergraduate students and two non-students employed in temporary hourly positions, and two volunteers from the community to assist with specimen curation.

## Stakeholders

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- Stillinger Herbarium staff, graduate student assistants, temporary employees (student and non-student), and volunteers.
- University of Idaho researchers, including graduate students (e.g., Biological Sciences, Natural Resources, agricultural disciplines), undergraduates (e.g., Biological Sciences, Ecology and Conservation Biology and other Natural Resources majors, Plant Science, Entomology, Plant Pathology and Nematology, Soil and Water Systems), and faculty (Biological Sciences, Natural Resources, and agricultural disciplines).
- University of Idaho faculty, instructors, and students that use herbarium collections, equipment, and/or resources for their courses (e.g., Advanced Field Botany, Systematic Botany, Dendrology, Structure and Function Across the Tree of Life, Rangeland Plant Identification, Ethnobotany, History of Science).
- Curators of other biological collections at the University of Idaho, including the W. F. Barr Entomological Museum.
- Small herbaria that use Stillinger Herbarium equipment to digitize their collections (e.g., University of Idaho Erickson Weed Herbarium, Lewis-Clark State College Hells Canyon Herbarium, Eastern Washington University).
- Regional herbaria whose specimen databases are hosted on Stillinger Herbarium cyberinfrastructure (31 herbaria; 1.3 million records).
- Data aggregators that host our specimen data, including the Consortium of Pacific Northwest Herbaria ([www.pnwherbaria.org](http://www.pnwherbaria.org)), Consortium of North American Lichen Herbaria ([www.lichenportal.org](http://www.lichenportal.org)), and iDigBio ([www.idigbio.org](http://www.idigbio.org)).
- Federal and state natural resource agencies and land managers (e.g., USFS, BLM, NPS, IDFG, USFWS, tribal entities).
- Herbarium community with which we exchange and/or loan specimens for research.
- Taxonomists and systematists at other institutions.
- Collectors of the herbarium specimens that we curate.
- Local community of naturalists and botanical enthusiasts (e.g., Idaho Native Plant Society, Palouse Clearwater Environmental Institute, Palouse Prairie Foundation).
- Educators and students in Idaho K-12 schools.
- Our donors (e.g., Friends of the Stillinger Herbarium).
- Our funders (e.g., Stillinger Trust Committee, University of Idaho Office of Research and Economic Development, College of Sciences, College of Agriculture, College of Natural Resources, National Science Foundation).

# Goals & Objectives

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**Goal 1. Maintain a cutting-edge natural history collection that supports diverse research efforts ranging from diversity, evolution, and ecology, to conservation, management, and policy.**

*As a research tool, herbarium specimens provide an invaluable source of data for floristics, evolutionary and ecological studies, the conservation of rare, threatened, and endangered species, and represent an archive of the flora of Idaho and the Pacific Northwest through space and time that allows us to document the changes to our flora as we are faced with human environmental impacts, land use changes, and a changing global climate.*

## Objectives (short term):

- Process the specimen backlog to make these data accessible.
- Return the lichen collection to UI from long-term loan at Brigham Young University.
- Re-box the lichen and bryophyte collections to reduce storage space needs.
- Expand the breadth of our online-accessible data to include the lichen and bryophyte collections.
- Improve data quality and usability by systematically checking for and annotating misidentified specimens, prioritizing 1) rare plants, 2) Idaho specimens.
- Continue georeferencing older collections that lack coordinate data.
- Curate, database, and provide access to the growing silica gel-dried tissue collection for researchers.
- Begin the time-sensitive task of curating and digitizing the paleobotanical collection.

## Objectives (long term):

- Take steps to bring the paleobotanical collection out of storage and formally integrate with the herbarium by securing space (preferably, adjacent to the herbarium) and seeking external funding.
- Maintain curatorial excellence by periodically reviewing and updating collection procedures, policies, documentation, and cyberinfrastructure.

**Goal 2. Provide educational opportunities and support for the training of the next generation of botanists and plant enthusiasts.**

*The herbarium supports courses taught in multiple colleges across campus and offers hands-on botanical training for interested students through directed studies, volunteer, and employment opportunities. Hands-on, experiential learning in the field and in the herbarium provides a unique opportunity for undergraduates and graduate students interested in pursuing botanical careers,*

*and these activities provide students with valuable experience that increases their chances for professional employment after graduation.*

**Objectives (short term):**

- Expand career and research mentoring for undergraduate student employees.
- Expand opportunities for UI students to participate in field work or in directed studies within the herbarium.
- Establish a formal vascular plant teaching collection at the UI McCall Field Campus to enhance educational programs at the McCall Outdoor Science School.

**Objectives (long term):**

- Establish a seminar series or partner with existing seminar series to promote collections-based botanical research at UI.
- Expand our relationship with area K-12 schools to extend the reach of the herbarium's educational arm.

**Goal 3. Build awareness of the importance of natural history collections, collections-based research, and botany to society and our daily lives.**

*The herbarium is involved in outreach activities both within the university and in the community. For example, the director and collections manager give public seminars, lead field trips, teach plant identification workshops, give tours to UI courses and community groups, and field questions from the community. Importantly, to promote a sense of community among botanical enthusiasts, the herbarium engages local botanical expertise and enthusiasm by involving them directly in herbarium activities, including collecting expeditions.*

**Objectives (short term):**

- Expand the audience for outreach activities by establishing or strengthening partnerships with existing organizations (e.g., Idaho Native Plant Society, Arboretum Associates, Master Gardeners, Palouse Land Trust).
- Further engage the local botanical community in herbarium activities and collecting trips.
- Leverage social media platforms to reach a broader audience and publicize research.
- Provide opportunities for the graduate student curatorial assistant and undergraduate student employees to participate in outreach through social media posts.

**Objectives (long term):**

- Build endowment and cultivate donors and supporters.
- Partner with other natural history collections on campus to promote awareness and leverage resources toward a long-term goal of a natural history museum (e.g., W. F. Barr Entomological Museum, Alfred W. Bowers Laboratory of Anthropology, Idaho Geological Survey).

#### **Goal 4. Promote a greater understanding of Idaho's rich botanical heritage.**

*As the largest herbarium in Idaho, with the most comprehensive collection of our state's flora, the Stillinger Herbarium has the resources and expertise to take a leading role in disseminating synthesized information about the flora of Idaho to support education, conservation, and research, meeting currently unfilled needs within the botanical community.*

##### Objectives (short term):

- Develop and host web-based and printed resources about the flora of Idaho (e.g., checklists, photographs, distribution maps, identification guides, blog posts) in collaboration with colleagues at Idaho's other herbaria.
- Maintain collaborative efforts with the Idaho Native Plant Society, Idaho Department of Fish and Game, and other agencies to support conservation of Idaho's rare plants, and management of invasive and noxious species.

##### Objectives (long term):

- Continue to identify and fill gaps in our knowledge of Idaho's flora through ongoing collecting efforts and taxonomic studies.
- Work towards an updated identification manual for the flora of Idaho.

## **SWOT Analysis**

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### **Strengths**

1. *The largest herbarium in Idaho.* The Stillinger Herbarium houses 215,000 catalogued specimens, representing the most complete collection of the flora of Idaho. The entire vascular plant collection is digitized and accessible online, increasing the relevance and use of the specimens.
2. *The Stillinger Trust.* This is an amazing resource that not only provides stable operating funds for the herbarium (Specimen and Library budgets), but also ensures its continued growth (Expedition funds) and development (Herbarium Fellowships). The Trust alleviates the need for the University to provide an annual operating budget.
3. *Knowledgeable and engaged Director and full-time Collections Manager.* A full-time Collections Manager, with the support of the Director and departmental administrators, allows us to maintain a high level of activity within the herbarium to best support the diverse educational and research needs of University of Idaho faculty, staff, and students, and capitalize on external funding opportunities.

4. *New physical space in the Mines building.* Prior to 2019, the herbarium's collections were split between the Natural Resources Building, Life Sciences South, and an off-site storage facility. Bringing the collections back together into one location on campus increases their accessibility for research, teaching, and outreach uses, and enables more efficient collections management.
5. *Active collections-based research at the University of Idaho.* Before the current herbarium director arrived at the University of Idaho in 2008, it had been nearly 10 years since there was a faculty-driven, externally visible, collections-based botanical research program on campus. With an active research program, there has been new taxonomically focused and biome focused growth of the collection, the breadth of regional floristic research has increased, the Advanced Field Botany course has been established, and a silica gel-dried tissue collection has been created.
6. *Strong partnerships with other Pacific Northwest herbaria.* The Stillinger Herbarium maintains active connections with many regional herbaria and was an awarded participant in a recent collaborative, NSF-funded digitization project that established the procedures and infrastructure to grow web-accessible collections from both large and small herbaria throughout Idaho and the Pacific Northwest. The Collections Manager serves a prominent and active role in the Consortium of Pacific Northwest Herbaria (<https://www.pnwherbaria.org>) by maintaining the Consortium infrastructure and supporting digitization efforts among participating herbaria.

## Weaknesses

1. *Limited discretionary funding.* Although the Stillinger Trust is an incredible resource that provides stable funding for most herbarium operations, it does not cover expenses for travel, conferences, events, or capital improvements to the herbarium. Furthermore, current structuring of the Stillinger Expedition Funds award process limits the ability of the Collections Manager and Director to assist graduate students in the field or take advantage of short-notice or small-scale collecting opportunities.
2. *Large backlog of unprocessed specimens.* Until curated, these specimens remain inaccessible to users. The rate at which we can curate the backlog is determined largely by available funding to hire hourly employees.
3. *Lack of classroom space.* Suitably equipped classroom space adjacent to the Stillinger Herbarium would increase the potential for on-site classes, workshops, and public relations events (e.g., open house displays and demonstrations).
4. *Under-utilization of the herbarium by courses.* Although the herbarium currently supports multiple courses, there is potential for greater in-person use of the herbarium by students and further development of specimen-based curricular activities.

## Opportunities

1. *External funding.* There has been a continued focus to fund efforts to enhance the impact of natural history collections in the US. Among others (e.g., Institute for Museum and Library Services), the National Science Foundation has several active programs specifically aimed at natural history collections (e.g., Collections in Support of Biological Research, Advancing Digitization of Biological Collections), and has funded the Integrated Digitized Biocollections (iDigBio) facility as a national-level resource to support these efforts.
2. *Herbarium community.* Opportunities exist to further cultivate and expand the herbarium's base of supporters, donors, and volunteers to increase roles and impact of the Stillinger Herbarium at the University of Idaho.
3. *Paleobotanical collection.* If the paleobotany collection were brought out of storage and curated (including digitization of all specimens), there is a huge potential for expanded research use, public engagement, educational use for courses in Biological Sciences, Geological Sciences, Geography, and Natural Resources, and a clear potential for external funding opportunities.

## Threats

1. *Security of the paleobotanical collection.* The paleobotany collection is currently in storage in the basement of Morrill Hall, which severely limits access and use. The collection has been at risk of disposal and damage in the past, and will remain at risk until properly housed and curated. Curation of this unique collection is time sensitive.
2. *Stability of funding for staff positions.* Shared support for the Collections Manager's position increases exposure to the effects of funding cuts during periods of financial insecurity. The University's current financial situation has led to short-term and unsustainable budget allocations to cover the Collection Manager's and Director's salaries.
3. *Pest and climate control.* The Stillinger Herbarium is located in a relatively cool, dry climate which minimizes the risk of damage to specimens from insect pests or excessive humidity; however, with our recent move to a new, unfamiliar space, it is important to monitor storage conditions to ensure the collection remains secure.

## Sustainability

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### Maintaining strengths

Core strengths of the Stillinger Herbarium are the breadth and depth of its collections, the expertise and engagement of its staff and associates, and the financial support of the Stillinger Trust, which allows the herbarium to sustain a high level of research, teaching, and outreach

activities without the necessity of external funding. The future utility and relevance of the collection relies on the continuation of an active, collections-based research program and ongoing collecting efforts. It is imperative to maintain curatorial excellence through updated policies and workflows, adequate employee training, and an up-to-date digital infrastructure. Maintaining active connections with the broader herbarium community in the Pacific Northwest increases opportunities for external funding and large-scale initiatives.

### **Addressing weaknesses**

We recommend establishing a discretionary Expedition account, renewed annually with a small disbursement from the Stillinger Expedition funds, for use by the Director and Collections Manager to cover field work expenses associated with collecting opportunities not accommodated through the current Expedition award process, thereby increasing the reach and impact of the Stillinger Trust. Discretionary funding for other herbarium activities should be increased by further cultivating donors to the Friends of the Herbarium gift budget through new outreach and advancement efforts. Processing the specimen backlog remains a priority for student employees, with a goal of gradually reducing the size of the backlog in the coming years.

### **Capitalizing on opportunities**

With the continued focus from funding agencies to support efforts to enhance the impact of natural history collections in the US, and the positive track record the Stillinger Herbarium has had with these competitive programs, there are multiple opportunities to submit proposals to further support our infrastructural needs (e.g., proper storage of the paleobotanical collection) and digitization activities. Collaborations between the Stillinger Herbarium and other Pacific Northwest herbaria expand the funding potential.

The Paleobotany collection should become an active entity that falls under the purview of the Stillinger Herbarium, and preferably be co-located in a room adjacent to the herbarium. This would provide for the security and future development (education, outreach, and research) of this important collection. With an institutional commitment to the future of this collection, and the recognition that the fossil beds already have, any grant proposal submitted to secure this collection would be very competitive.

### **Mitigating threats**

Securing the paleobotany collection is time-sensitive, and requires action in the short-term. Obtaining a commitment from the University to provide suitable space for the collection is an important early step and could be facilitated with funds from an external donor. Proper curation of the collection depends on the knowledge of Dr. Bill Rember, an adjunct faculty member in Geological Sciences, and the world's expert on the *Clarkia* fossils whose specimens comprise the majority of the collection.

Maintaining funding for the Collections Manager and Director positions is necessary to maintain an active herbarium that maximizes usage and takes full advantage of available resources. As the Stillinger Trust does not directly permit payment of salaries, these positions should be maintained at the expense of the University, and can be used as cost-sharing leverage for external funding agencies that require this (e.g., Institute for Museum and Library Services). In addition, external funding through grants and contracts may provide periodic means of offsetting a portion of the Collections Manager’s salary.

Threats associated with storage conditions can be mitigated by continuing and further developing an integrated pest management plan involving the regular monitoring of room temperature and humidity, placement of insect traps and spot-checks for insects or damage, and preemptively isolating and freezing all incoming material before incorporation into the main collections.

## Evaluation Plan

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Our evaluation plan focuses on the four higher-level goals and provides several metrics for each that are related to the specific objectives listed under each goal. The evaluation plan provides a means of measuring progress towards our goals, and is subject to change as we meet (or do not meet) our targets.

**Goal 1. Maintain a cutting-edge natural history collection that supports diverse research efforts ranging from diversity, evolution, and ecology, to conservation, management, and policy.**

Metric	Baseline	Target
<b>Number of specimens added per year</b>	2,000-4,000/year	Maintain level of growth through new specimens and by processing the backlog.
<b>Number of visitors (as per visitor log)</b>	5-year average of ~250 visitors/year	Maintain or increase number of visitors per year, with focus on research use.
<b>Number of incoming/outgoing research loans</b>	10 in 2019	Continually increasing number of loans for research.
<b>Specimen data quality</b>	900 annotated and 2,800 georeferenced in 2019	Increase annotations to ~2,000 per year. Finish georeferencing Idaho collections by 2022.
<b>Number of database searches returning UI specimens</b>	149,000 searches per year	Increase by providing online access to the lichen and bryophyte collections.

<b>Number of silica gel-dried tissue requests</b>	No data (database not public yet)	Provide online access with instructions for how to request.
<b>Curatorial procedures</b>	Existing documentation	Expand and update protocols and documentation. Improve pest management plan. Post documentation to herbarium web site.
<b>Research expenditures</b>	No direct external funding during 2019; \$10,036 in 2020	Increase amount of external funding directed through the herbarium.
<b>Number of publications by Stillinger Herbarium associates</b>	10 in 2019	Improve tracking of publications, and maintain or increase number of publications.

**Goal 2. Provide educational opportunities and support for the training of the next generation of botanists and plant enthusiasts.**

<b>Metric</b>	<b>Baseline</b>	<b>Target</b>
<b>Number of undergraduates employed</b>	5 in 2019/20 academic year	Maintain levels.
<b>Number of undergraduates in directed studies/research credits</b>	3 in 2019/20 academic year	2+ students per academic year.
<b>Diversity of programs represented in student employees/volunteers</b>	4 unique programs in 2019/20 academic year	Maintain diversity from UI.
<b>Number of courses/programs using herbarium and/or herbarium data</b>	3 in 2019/20 academic year	Maintain levels. Increase usage of herbarium by courses.
<b>Number of undergraduate students pursuing botanical careers or graduate studies</b>	none	Establish tracking of herbarium associated undergraduate student career/educational paths.

**Goal 3. Build awareness of the importance of natural history collections, collections-based research, and botany to society and our daily lives.**

<b>Metric</b>	<b>Baseline</b>	<b>Target</b>
<b>Number of outreach activities/year</b>	10 in 2019	Increase number (1-2/year) of activities and

(e.g., seminars, workshops, field trips, tours)		diversity of audience (# of unique programs).
Friends of the Herbarium donations	~\$2,500/year in 2019 & 2020	Increase number of donors and total amount of donations.
Social media posts	none	Establish social media accounts and post monthly or more frequently.

#### Goal 4. Promote a greater understanding of Idaho's rich botanical heritage.

Metric	Baseline	Target
Initiate online resources hosted by Stillinger Herbarium	None	Develop and launch online resources, including a checklist and a photographic guide for the vascular plants of Idaho.
Number of online users for flora of Idaho resources	None	Establish metrics for tracking usage.
Number of new Idaho specimens obtained by herbarium associates	~1,000 per year 2010-2018	1 floristics graduate student every ~3 years; 1,000-3,000 new specimens per year.

## Strategic Planning Team

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The strategic planning team is composed of Dr. David Tank (Herbarium Director) and Ben Legler (Herbarium Collections Manager).

## Acknowledgements

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This strategic plan was produced, in part, while participating in the “Strategic Planning for Herbaria” course sponsored by the Society of Herbarium Curators. Critical feedback from course instructors, Austin Mast and David Jennings, and all of the participating students from herbaria around the country was extremely helpful in developing this plan.

Questions and comments about the Stillinger Herbarium strategic plan should be addressed to [herbarium@uidaho.edu](mailto:herbarium@uidaho.edu).

Dr. David Tank, Director  
Ben Legler, Collections Manager