

Strategic Plan of Montana State University Billings Herbarium [MSUB] 2019-2025

Version 1.6.2025*

EXECUTIVE SUMMARY

Through the development of this strategic plan, the MSUB Herbarium has prioritized [alignment, in its own unique way, with Montana State University Billings' proposed strategic plan](#) (*highlighted here; refer to the MSU Billings Strategic Plan Framework document*). The first two goals of the MSUB Herbarium include updating and growing the herbarium collection (*Theme IV, Objectives 4 and 5*). This will require repair of current specimens and acquisitions of new specimens for the collection. The new Yellowstone Hall has allowed the MSUB Herbarium space for additional herbarium cabinets, dedicated space for an imaging station, and several student/research stations. These goals will be incorporated into the botany courses offered, and students will be recruited for participation through internships, research, and work study opportunities. This will create a unique educational opportunity for Montana State University Billings' students (goal 3: *Theme 1, Objective 1; Theme II, Objective 2*). The final goal outlined in the MSUB Herbarium strategic plan is to promote the MSUB Herbarium as a unique botanical resource, targeting state and federal agencies, as well as the local communities of Eastern Montana (*Theme III, Objective 3*). Through these goals the MSUB Herbarium is working towards becoming a center for botanical education and research in Eastern Montana.

OVERVIEW

The Montana State University Billings Herbarium ([Index Herbariorum Code: MSUB](#)) has an inexorable tie to Montana State University Billings (MSUB). In 1927 the first science faculty of Eastern Montana Normal School, R. A. Shunk, provided the initial plant specimens that laid the foundation for what would become the MSUB Herbarium. Many of the past science faculty (including Dr. Norm Schoenthal) contributed to the growing collection in the early days. During this time the school went through several name changes, Eastern Montana College of Education, 1949; Eastern Montana College, 1965; and Montana State University Billings, 1995. In 1976, Dr. Tasneem Khaleel began consolidating several herbaria (including Eastern Montana Normal, Eastern Montana College, Rocky Mountain College, and the USDA Forest Service) into the current MSUB Herbarium. MSUB Herbarium holdings are primarily from Montana, with a number collected in the early 1900's. Collections from throughout the United States and across the globe provide students a unique opportunity to see plants to which they otherwise would not be exposed. Under the direction of Dr. Khaleel, the MSUB Herbarium began digitizing the [label information and made it publicly available through the Consortium of Northern Great Plains Herbaria](#) and [iDigBio \(Integrated Digitized Biocollections funded by the National Science Foundation\)](#). As of May 2019, the MSUB Herbarium the [label data is available through the Global Biodiversity Information Facility](#). During 2022 the MSUB Herbarium moved into the new Yellowstone Science and Health building (room 030). The MSUB Herbarium was an [active partner in the development of a strategy guide for identifying and maintaining plants and habitats of conservation concern in Montana](#), released at the end of 2024.

MISSION STATEMENT

The Montana State University Billings Herbarium (MSUB Herbarium) endeavors to classify and catalog global floral diversity, prioritizing the Eastern Montana region. As an extension of Montana State University Billings, MSUB Herbarium provides and promotes botanical education, research, and outreach.

VISION STATEMENT

The Montana State University Billings Herbarium (MSUB Herbarium) aims to become a center for botanical education and research in Eastern Montana. MSUB Herbarium is in a unique position to act as a crossroads for undergraduate students, professionals, and the local community.

HORIZON STATEMENT

By fulfilling the mission and vision of the MSUB Herbarium, students at Montana State University Billings will be afforded a unique experience in museum and field studies, broadening their view of the world around them. The MSUB Herbarium will also provide an area where students, state and federal agencies, and the community can build lasting collaborations that benefit Eastern Montana.

ORGANIZATION

The Montana State University Billings Herbarium is part of the Department of Biological and Physical Sciences within the College of Health Professions and Science (Montana State University Billings). Dr. Jason Comer is the curator of the MSUB Herbarium and is assisted by MSUB students. Students volunteer, receive course credit, or are supported by work study funds.

STRATEGIC PLANNING PARTNERS

Primary planner Dr. Jason Comer (MSUB Herbarium Curator). Feedback from the Department of Biological and Physical Sciences, dean of the college, and others as needed, will also be sought for future updates.

KEY STAKEHOLDERS

- The MSUB Herbarium Curator, Jason Comer
- MSUB Herbarium undergraduate interns and general student body (ASMSUB)
- Collectors of the MSUB Herbarium specimens
- Department of Biological and Physical Sciences faculty and staff
- Montana Natural Heritage Program
- Montana Department of Natural Resources and Conservation
- Montana branch of the Bureau of Land Management
- Montana branches of US Forest Service
- Consortium of Northern Great Plains Herbaria, SEINet, Symbiota, and other data repositories
- Researchers from outside the local area who use MSUB Herbarium digital data
- Education & Outreach partners, Montana Audubon Center

AUDIENCE FOR THE STRATEGIC PLAN

1. Relevant statements will be visible outside the main door of the MSUB Herbarium.

2. [These statements along with the strategic plan will be available on the MSUB Herbarium section](#) of the Biological and Physical Sciences website. These documents will also be distributed to key stakeholders via email as deemed necessary.

STRATEGY STATEMENT

Montana State University Billings Herbarium is a centralized botanical resource for and specializing in the flora of Eastern Montana.

GOALS AND OBJECTIVES

1. Update MSUB Herbarium
 - a. Maintain a strategic plan for MSUB. *Target completion: Continuous.*
 - b. Verify the identifications of the current specimens in the MSUB collection, priority MT collections. *Target completion: Fall 2028, also continuous.*
 - c. Update taxonomic classifications. *Target completion: Fall 2028, also continuous.*
 - d. Set up an imaging station and photograph each specimen in the collection. Link photograph with databased label data. Equipment has already been purchased. *Target completion: 2028, also continuous.*
 - e. Update databased specimens (currently only label data) based on the above objectives. *Target completion: Fall 2028, also continuous.*
 - f. Purchase new equipment including: camera equipped stereoscope and microscope (research), additional stereoscopes (general use). *Target completion: Completed 2021.*
 - g. Rehouse the MSUB collection in the forthcoming "Yellowstone Hall." *Completed 2022.*
2. Grow MSUB Herbarium
 - a. Find and apply for external funding to support MSUB Herbarium. *Target completion: Continuous.*
 - b. Develop relationships and collaborations with other professional botanists and herbarium curators/directors. *Target completion: Continuous.*
 - c. Seek out specimen donations and exchanges. *Target completion: Continuous.*
 - d. Develop research projects with plant collection and identification as a core component. *Target completion: Continuous.*
 - e. Maintain and acquire new resources including: camera equipped stereoscope and microscope (research), additional stereoscopes (general use), reference texts. *Target completion: Continuous.*
 - f. Rehouse the MSUB Herbarium collection in the forthcoming "Yellowstone Hall" which will provide additional space for growth. *Completed 2022.*
 - g. Purchase additional herbarium cabinets for expansion in MSUB Herbarium's soon to be new location. *Completed 2022.*
3. Educate
 - a. Develop the botany-related curriculum at Montana State University Billings. *Target completion: Continuous.*
 - b. Maintain and acquire new resources: equipment and reference texts. *Target completion: Continuous.*
 - c. Develop relationships and collaborations with other professional botanists and herbarium curators/directors. *Target completion: Continuous.*

- d. Develop undergraduate centered research projects with plant collection and identification as a core component. *Target completion: Continuous.*
 - e. Develop a “teaching collection” that can be loaned to local schools and programs. *Target completion: Continuous.*
 - f. Volunteer/agree to participate in various outreach opportunities (Science Fairs, Native Plant Societies etc.). *Target completion: Continuous.*
 - g. Train students and others in herbarium, and broadly in museum, curatorial skills. *Target completion: Continuous.*
 - h. Participate as a core member of MT Rare Plant Conservation Strategy group. *Target completion: Completed 2024, also continuous as needed.*
4. Promote MSUB Herbarium
- a. Develop a MSUB Herbarium webpage linked to the department website, to include: location, hours, contact information, links to Strategic Plan and other relevant documents, etc. *Target completion: Fall 2025.*
 - b. Develop relationships and collaborations with other professional botanists and herbarium curators/directors. *Target completion: Continuous.*
 - c. Participate as a core member of MT Rare Plant Conservation Strategy group. *Target completion: Continuous.*
 - d. Volunteer/agree to participate in various outreach opportunities (Science Fairs, Girls in Science, Native Plant Societies etc.). *Target completion: Continuous.*
 - e. Develop undergraduate centered research projects with plant collection and identification as a core component. *Target completion: Continuous.*
 - f. Develop a “teaching collection” that can be loaned to local schools and programs. *Target completion: Continuous.*
 - g. Participate in social media highlighting the herbarium and other botanical activities. *Target completion: Continuous.*

TOWS ANALYSIS

Threats

1. MSUB Herbarium does not currently have a dedicated and steady supply of funding.
2. New administrations within the university (new Provost).
3. “Curator” is not part of the job description of the current Associate Professor (tenured) of Botany.
4. Two other, larger, and better-known herbaria in Montana.

Opportunities

1. Eastern Montana is currently underrepresented in botanical collections.
2. Billings, Montana has several governmental offices/branches (Bureau of Land Management, MT Department of Natural Resources and Conservation etc.) that are interested in forming partnerships with MSUB Herbarium and the university.
3. New administrations within the university (new Provost).
4. MSUB Herbarium has moved to a new location and has expanded its capacity with new cabinets.
5. MSUB Herbarium has taken part in a rare plant conservation strategy group that brought together several universities and governmental agencies laying the foundation for more collaborations.

Weaknesses

1. Many specimens, especially older specimens, are not mounted with archival quality materials. The majority of the collection was mounted prior to the routine use of acid free paper.
2. Much of the collection is taxonomically out of date.
3. Many specimens are misidentified.
4. MSUB Herbarium has largely been isolated and not well known and does not currently attract collectors' voucher specimens.

Strengths

1. MSUB Herbarium has many older specimens from Montana (early 1900's) and a few specimens from better known botanists.
2. MSUB Herbarium's location puts it closer to many agency field and branches offices. The other closest herbaria are 3 to 6 hours away.
3. MSUB Herbarium has extensive collections of the immediate area of Yellowstone County, Montana.

SUSTAINABILITY

Threats

Funding is provided in part by the Department of Biological and Physical Sciences and Montana State University Billings, but for the MSUB Herbarium to reach its full potential, additional sources of funding through grants and other opportunities will be needed. MSUB Herbarium is improving its messaging on the benefits provided to students and the community, as well as its alignment with the university's mission and vision. MSUB Herbarium is also developing its own unique identity that will set it apart from other herbaria (e.g. adjacent research lab with next-generation sequencing capabilities).

Opportunities

MSUB Herbarium has moved to a new building. This has provided additional space and allowed for additional cabinets, dedicated imaging station, and workstations for general herbarium use. The new building offers better climate control and is located on the ground floor near a main entrance for easy accessibility. MSUB Herbarium will focus on the flora of Eastern Montana, which is underrepresented and of interest to several government agencies. Eastern Montana will be an area of focus for plant conservation efforts and MSUB Herbarium will provide support for those efforts.

Weaknesses

The primary weaknesses of MSUB Herbarium stem from a lack of curatorial upkeep, but given the relative size of its collection this can be addressed within a few years. MSUB Herbarium is applying for grants to cover the cost of supplies, stipends for students, and summer salary for the curator. MSUB Herbarium is developing partnerships with local agencies, promoting student research in Eastern Montana, and participating in community activities. This effort will result in increased MSUB Herbarium name recognition and new opportunities for student growth and development.

Strengths

MSUB Herbarium's location in Eastern Montana has allowed for developing collaborations with governmental agencies located in Billings, Montana. Through these collaborations MSUB Herbarium will be able to grow its collection of Montana flora and emphasize the underrepresented eastern portion of

the state. Students and agencies will be brought into contact through these collaborations facilitated by MSUB Herbarium, benefiting all parties involved.

ACKNOWLEDGEMENTS

This strategic plan was developed as part of the 3rd annual Strategic Planning for Herbaria short course sponsored by the Society of Herbarium Curators and iDigBio and co-taught by Austin Mast and David Jennings. Collaboration and brainstorming during this course heavily influenced and enhanced the strategic plan's development and this is do in no small part from the other 2019 participants (Burçin Çingay, Burrell "Ernie" Nelson, Dharmendra Shah, Carla Maldonado, Eric Roalson, Jaime Sanchez Salas, Jocelyn Hall, Kathy Mathews, Lauren Boyle, Mason Heberling, Mehtap Öztekin, Nadia Cavallin, Raoufou Radji, Rafael Medina, Rebecca Crowe, and Shelley James).

*Updates to this document will be updated biannually or as needed to maintain alignment with department, college, and university policies.