

Missouri Botanical Garden: Revolutionizing Species Identification (RSI) Project Fact Sheet

<p>Revolutionizing Species Identification (RSI) project</p>	<ul style="list-style-type: none"> • The Missouri Botanical Garden, home of one of the largest herbaria in the world, is on the forefront of one of the greatest developments in botany. • Herbaria are the world’s libraries of preserved plant specimens, providing fundamental information on plant diversity, distribution, geography, and ecology. • The Revolutionizing Species Identification (RSI) project is a transformative initiative to digitize the Missouri Botanical Garden’s extensive herbarium collection. The project will leverage cutting-edge artificial intelligence (AI) technology to accelerate plant species identification that will inform restoration and conservation efforts worldwide. • AI technology will automatically detect unique plant characteristics that will be used to create an online reference library of plant features. Scientists will then be able to upload images and other data from an unidentified plant to a new project website for rapid automated species identification. • In addition to accelerating global restoration and conservation efforts, this project enables Missouri Botanical Garden to develop the next generation of botanical experts by providing an invaluable training program in plant taxonomy and herbarium creation. • This landmark initiative made possible by an anonymous \$14.4 million grant—the largest to botany in recent years—will bring 6 million plant specimens online over the next six years, making critical data freely accessible to scientists, conservationists, and policymakers globally.
<p>Innovative tech</p>	<ul style="list-style-type: none"> • RSI’s combination of visual scanning, multispectral imaging, and AI will create an unmatched biodiversity dataset of over eight million specimens. This dataset will enable rapid identification and analysis of plant traits, supporting targeted conservation efforts that prioritize species and habitats at risk. • By partnering with cutting-edge technology, RSI will transform the role of herbaria in conservation science. This will inspire a new generation of plant science professionals, which is needed now more than ever as botany and plant taxonomy remain critically under resourced.
<p>Global impact</p>	<ul style="list-style-type: none"> • This innovative project responds to the urgent global biodiversity crisis, where approximately one third of the world’s plants are endangered and need saving. Additionally, 40,000 plant species remain unidentified with an estimated 77% likely threatened with extinction. • The RSI project directly supports the United Nations Convention on Biological Diversity’s Global Strategy for Plant Conservation and aligns with the United Nations’ goal to conserve 30% of the Earth’s land and water by 2030. • By contributing millions of high-quality plant records to global databases, the RSI project provides data crucial for tracking biodiversity loss and implementing conservation policies. This information is critical for informed decision-making in line with the Kunming-Montreal Global Biodiversity Framework’s 2030 biodiversity goals.
<p>Why is this project important?</p>	<ul style="list-style-type: none"> • The world is facing an urgent crisis: we are losing plant species at a faster rate than we can identify them due to the rapid loss of natural habitats from deforestation, urban expansion, and agricultural development. • It’s impossible to preserve what’s not there – underscoring the dire importance of the RSI project.
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