

North American Orchid Conservation Center

A national public-private partnership to conserve orchids native to North America



What is NAOCC and Why is it Needed?



- The North American Orchid Conservation Center (NAOCC) is a partnership between the Smithsonian Institution, the U.S. Botanic Garden and public and private organizations involved in biodiversity conservation.
- NAOCC will advance the science and application of the conservation, propagation, and cultivation of orchids native to North America.
- Orchids represent about 10% of all plant species on earth and many of the 25,000 known species are threatened or endangered, including many of the 208 species in North America.
- Orchids are the plant equivalent of “canaries in the coal mine” because the orchid life cycle makes them especially susceptible to habitat alteration.
- To date the complexity of the orchid life cycle has precluded any fully successful effort to restore a native orchid population in North America. There is currently no centralized effort to overcome these challenges for the conservation, and restoration of native orchids.
- NAOCC will be the first national effort to bring together the resources to conserve and restore the biodiversity of all species in this flagship plant group.



What is the NAOCC Mission and its goals?

The mission of NAOCC is to:

Conserve orchids native to North America

The goals of NAOCC are:

- Develop a national seed bank that will be representative of the genetic diversity of all North American orchid species.
- Develop a national collection of fungi that will be representative of the genetic diversity of mycorrhizal fungi required by native orchids.
- Develop techniques to conserve genetic diversity of all native species by cultivating them in a national network of botanic gardens and arboretums.
- Use seed and mycorrhizal fungal banks to develop techniques for restoring and conserving orchids in native habitats.
- Support efforts to conserve orchid populations through habitat conservation and restoration.
- Develop web-based materials that will provide up-to-date information on the ecology, conservation status, and techniques for cultivation of North American orchids.



Organization

- NAOCC administration will be based at the Smithsonian Environmental Research Center (SERC), which will also serve as the primary research facility and repository for collections of orchid seeds and orchid mycorrhizal fungi.
- The NAOCC Director will be guided by a Board of Trustees, a Scientific Advisory Board and a committee composed of representatives of SI units and the U.S. Botanic Garden.
- The Smithsonian's National Museum of Natural History, Smithsonian Gardens, the National Zoological Park; and the U.S. Botanic Garden will be responsible for orchid propagation and display, education, public outreach and research on orchid systematics and evolution.
- NAOCC will partner with Federal agencies responsible for the management of native orchids; interacting through the Plant Conservation Alliance, which includes 10 Federal agencies and 285 public and private organizations.
- NAOCC will partner with private landowners interested in the conservation and restoration of native orchids.
- NAOCC will partner with at least one botanic garden in each ecoregion.
- Botanic Gardens and public and private landowners will assist NAOCC to: 1. develop techniques for cultivating and displaying native orchids, 2. develop the national seed and mycorrhizal fungal collections, 3. develop and implement educational materials and, 4. develop protocols for restoring orchids to native habitats.
- NAOCC will partner with State agencies responsible for the management of native plant species, interacting primarily with State Heritage programs to facilitate implementation of developed protocols.



NAOCC Development—Phase I

(Years 1–3)

INITIAL STAFFING – Hire NAOCC Director, one technician and one post-doctoral fellow.

ESTABLISH PARTNERSHIPS – Initiate development of the NAOCC seed bank and fungal mycorrhizal fungal collections working with at least one regional botanical garden, one Federal agency, and one private landowner organization.

DEVELOP IN SITU CULTURE PROCEDURES – Use the seed bank and mycorrhizal fungi collections to initiate development of protocols for growing native orchids.

DEVELOP EXSITU DISPLAY PROTOCOLS – Initiate development of protocols for growing orchids in display gardens at the Smithsonian, the U.S. Botanic Garden and at least one other botanical garden. These activities will serve as experimental models and procedures for future reintroduction plantings in restored habitats.

INITIATE RESEARCH – Initiate ecological studies, with appropriate Federal, state, and private partners, of at least one endangered or threatened orchid with a goal of developing protocols for restoration in native habitats.

COMMUNICATION – Develop nationally focused web-based educational materials that will encompass all aspects of the ecology, taxonomy, conservation, cultivation and restoration of native orchids.

Funding for Phase I will come from a grant from the Smithsonian and private gifts and donations.

NAOCC Development—Phase II

(Years 4–10)

COMPLETE STAFFING – Hire second post-doctoral fellow (3-year appointments), Research Curator of orchids at NMNH, Horticultural Curator of orchids (shared by SI Gardens, NZP, U.S. Botanic Garden), and two interns per year.

COMPLETE COLLECTIONS – Meet or exceed the goal of 90% development of NAOCC orchid seed bank and mycorrhizal fungal collections.

COMPLETE CULTIVATION PROTOCOLS – Meet or exceed the goal of 90% development of protocols for growing native orchids.

GROW PARTNERSHIPS – Complete development of partnerships for growing and displaying native orchids in botanical gardens in each region.

BUILD ON RESEARCH – Continue to develop and implement studies leading to the restoration of all endangered or threatened native orchids, including their ex situ conservation in botanical gardens.

COMPLETE COMMUNICATION PROCEDURES – Complete development of nationally focused web-based educational component that will include all relevant information on all native orchids.

Funding for Phase II, estimated at between \$480,000 and \$560,000 per year, will come from Federal funded positions and payout of interest on a \$6,000,000 endowment that will be funded by private donations raised through efforts of the NAOCC Director and Smithsonian Institution.





Learn more about NAOCC and how you can participate in its development by contacting Dennis Whigham at the Smithsonian Environmental Research Center
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Images courtesy of Hal Horwitz, David McAdoo, and Melissa McCormick



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