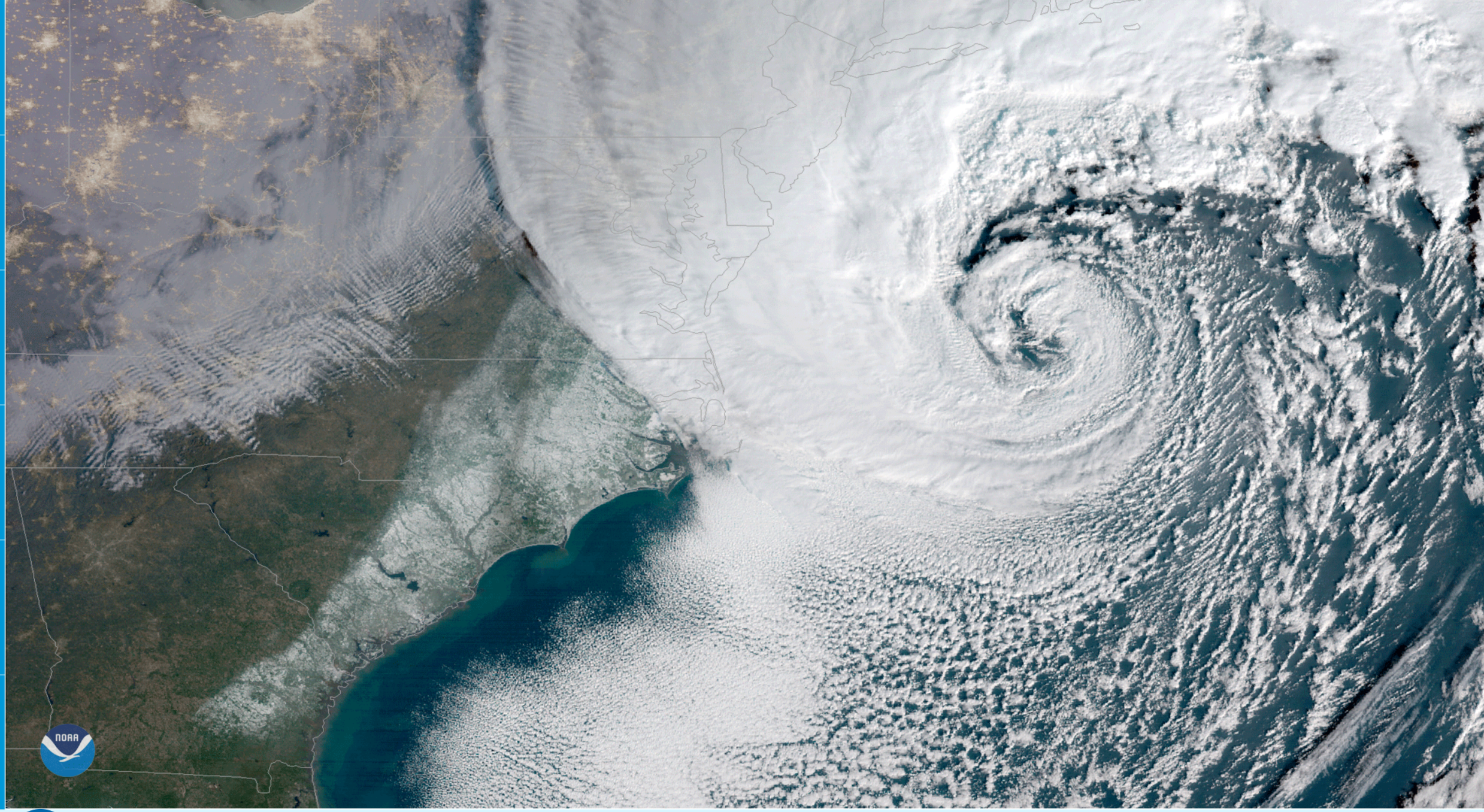
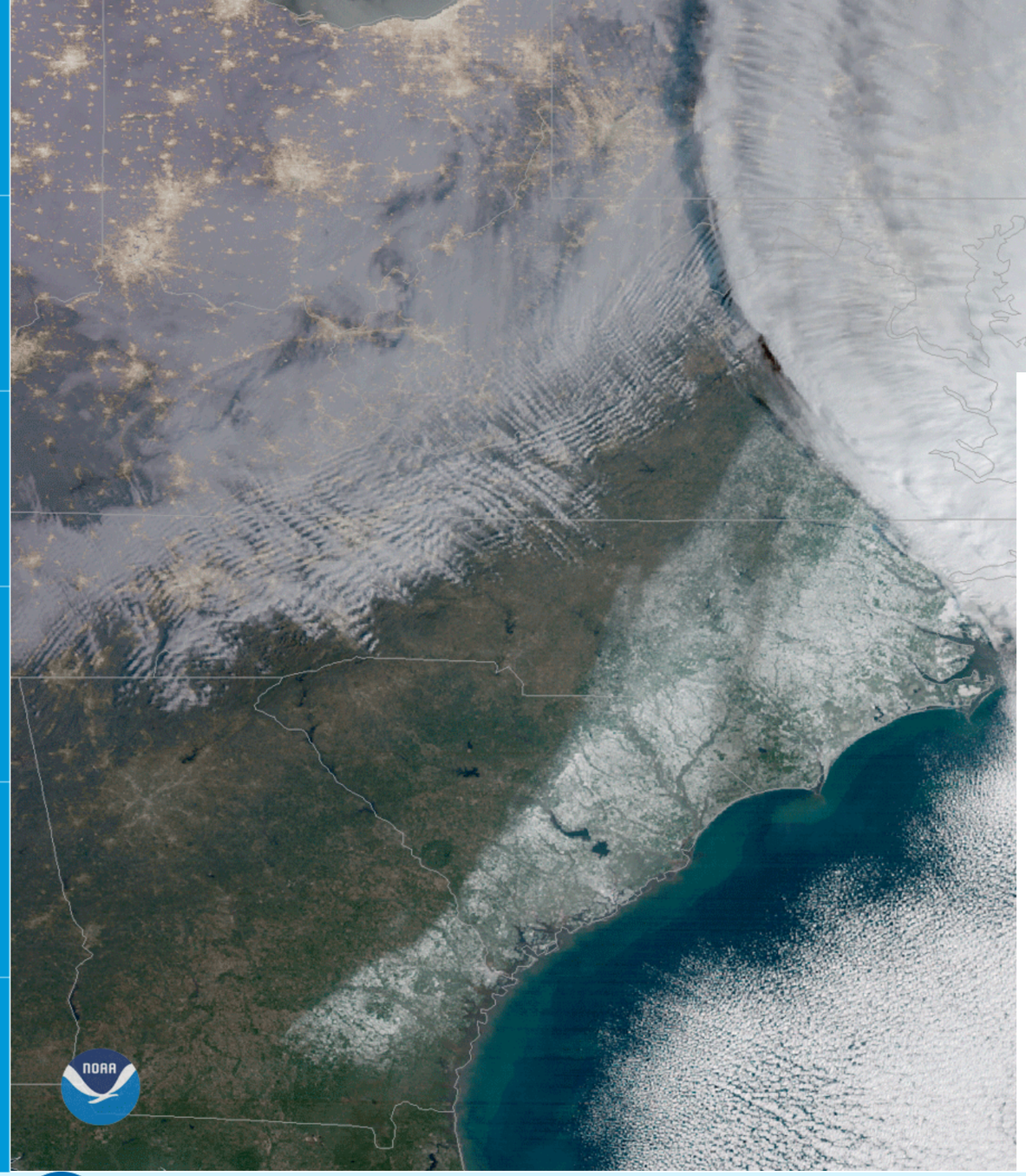
From Orchids to Oceans:

Environmental Citizen Science Leadership in Action

Neil Jacobs





NOTES AND CORRESPONDENCE

The Combined Effects of Gulf Stream–Induced Baroclinicity and Upper-Level Vorticity on U.S. East Coast Extratropical Cyclogenesis

NEIL A. JACOBS, GARY M. LACKMANN, AND SETHU RAMAN

Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, North Carolina

(Manuscript received 9 August 2004, in final form 31 December 2004)

ABSTRACT

The Atlantic Surface Cyclone Intensification Index (ASCII) is a forecast index that quantifies the strength of low-level baroclinicity in the coastal region of the Carolinas. It is based on the gradient between the coldest 24-h average air temperature at Cape Hatteras and Wilmington, North Carolina, and the temperature at the western boundary of the Gulf Stream. The resulting prestorm baroclinic index (PSBI) is used to forecast the probability that a cyclone in the domain will exhibit rapid cyclogenesis. The initial ASCII study covered the years 1982–90. This dataset was recently expanded to cover the years 1991–2002, which doubled the number of cyclone events in the sample. These additional data provide similar position and slope of the linear regression fits to the previous values, and explain as much as 30% of the variance in cyclone deepening rate.

Despite operational value, the neglect of upper-tropospheric forcing as a predictor in the original ASCII formulation precludes explanation of a large fraction of the deepening rate variance. Here, a modified index is derived in which an approximate measure of upper-level forcing is included. The 1991–2002 cyclone events were separated into bins of "strongly forced," "moderately forced," and "weakly forced" based on the strength of the nearest upstream maximum of 500-mb absolute vorticity associated with the surface low.

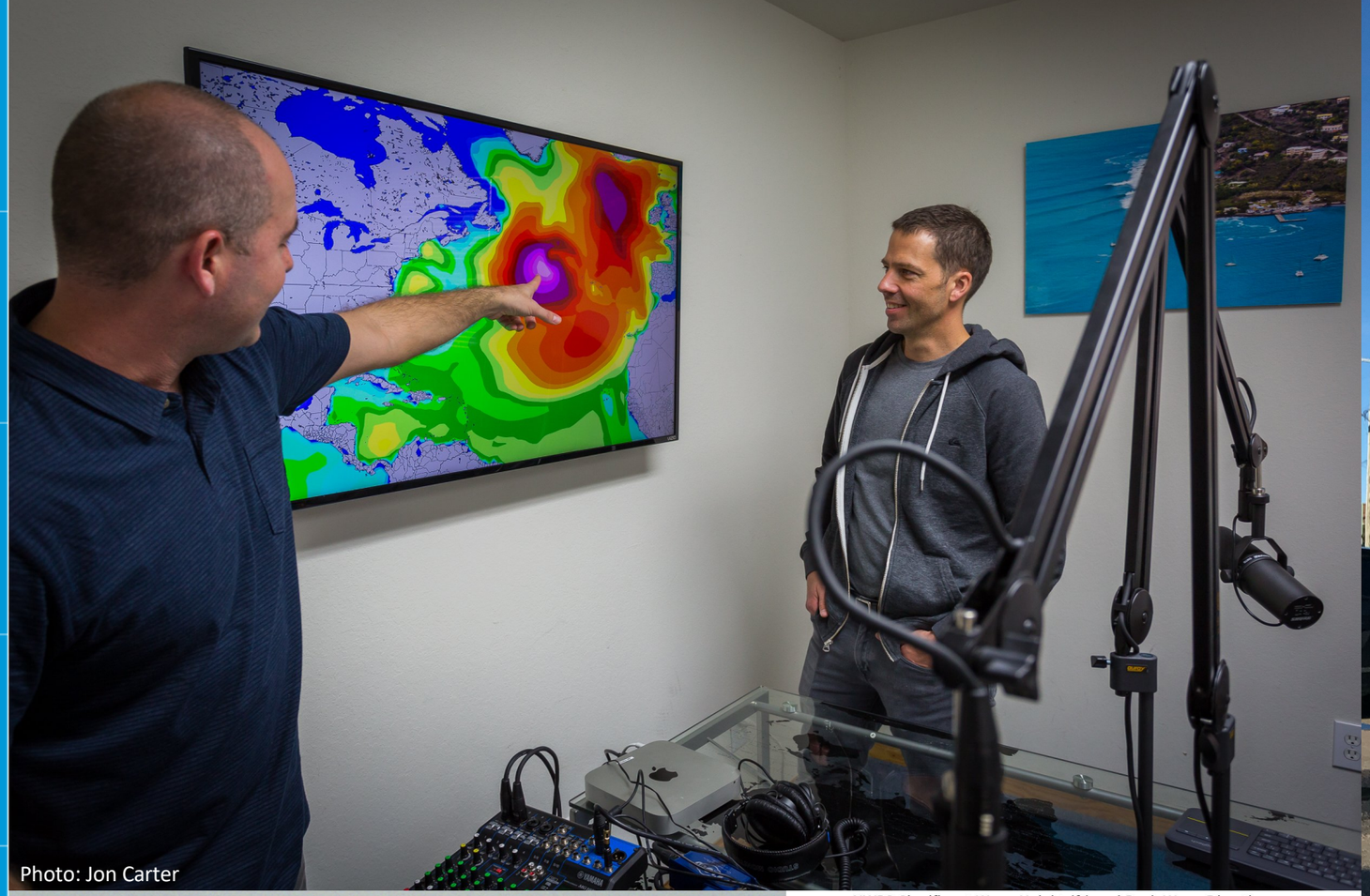
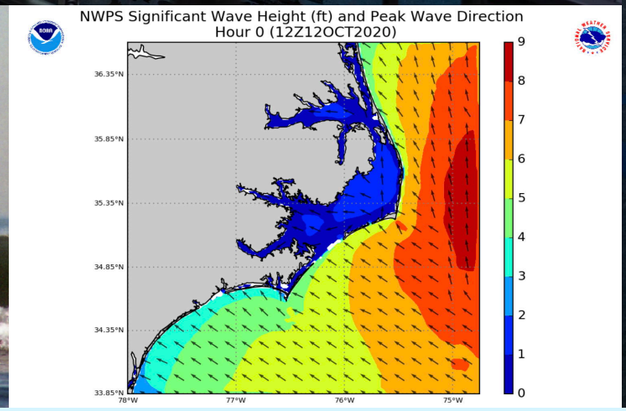
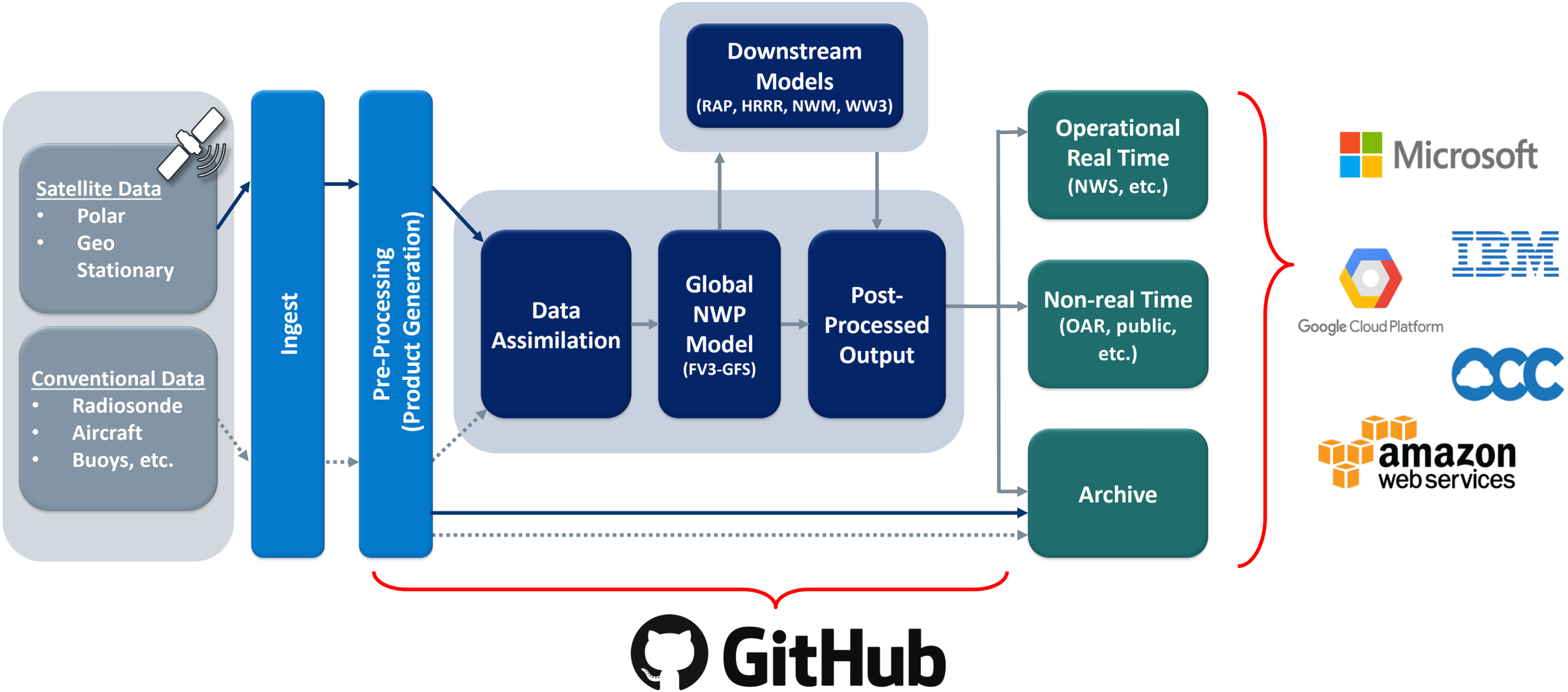


Photo: Jon Carter

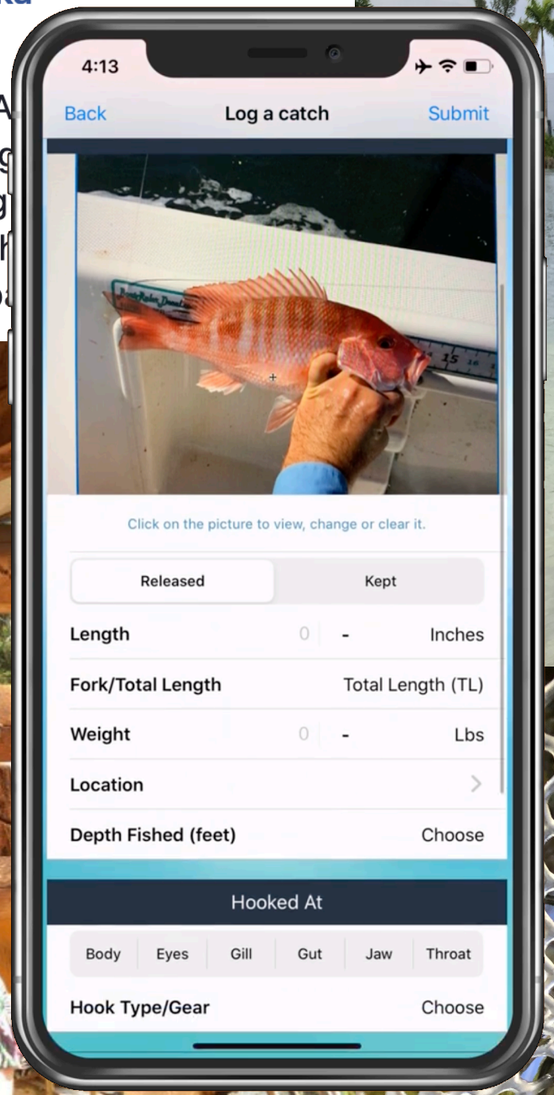


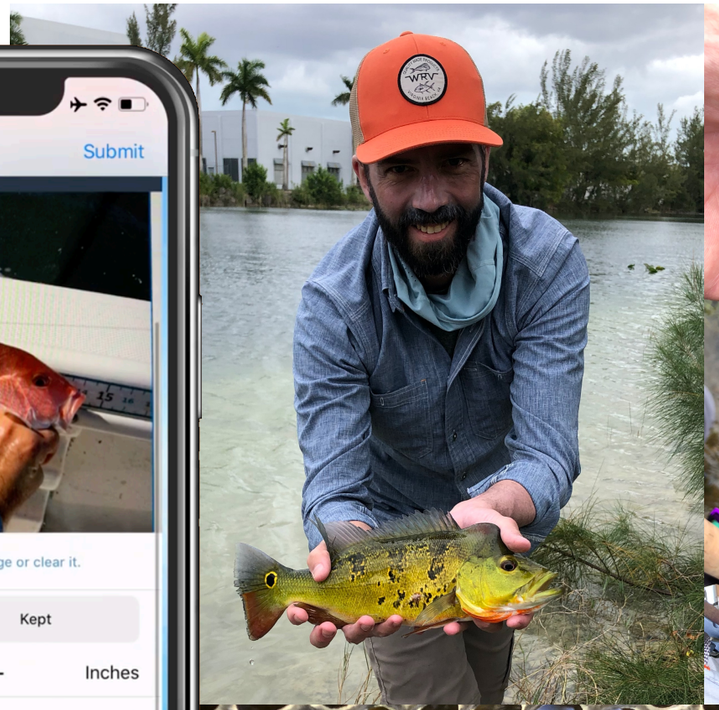
UFS and Community Modeling

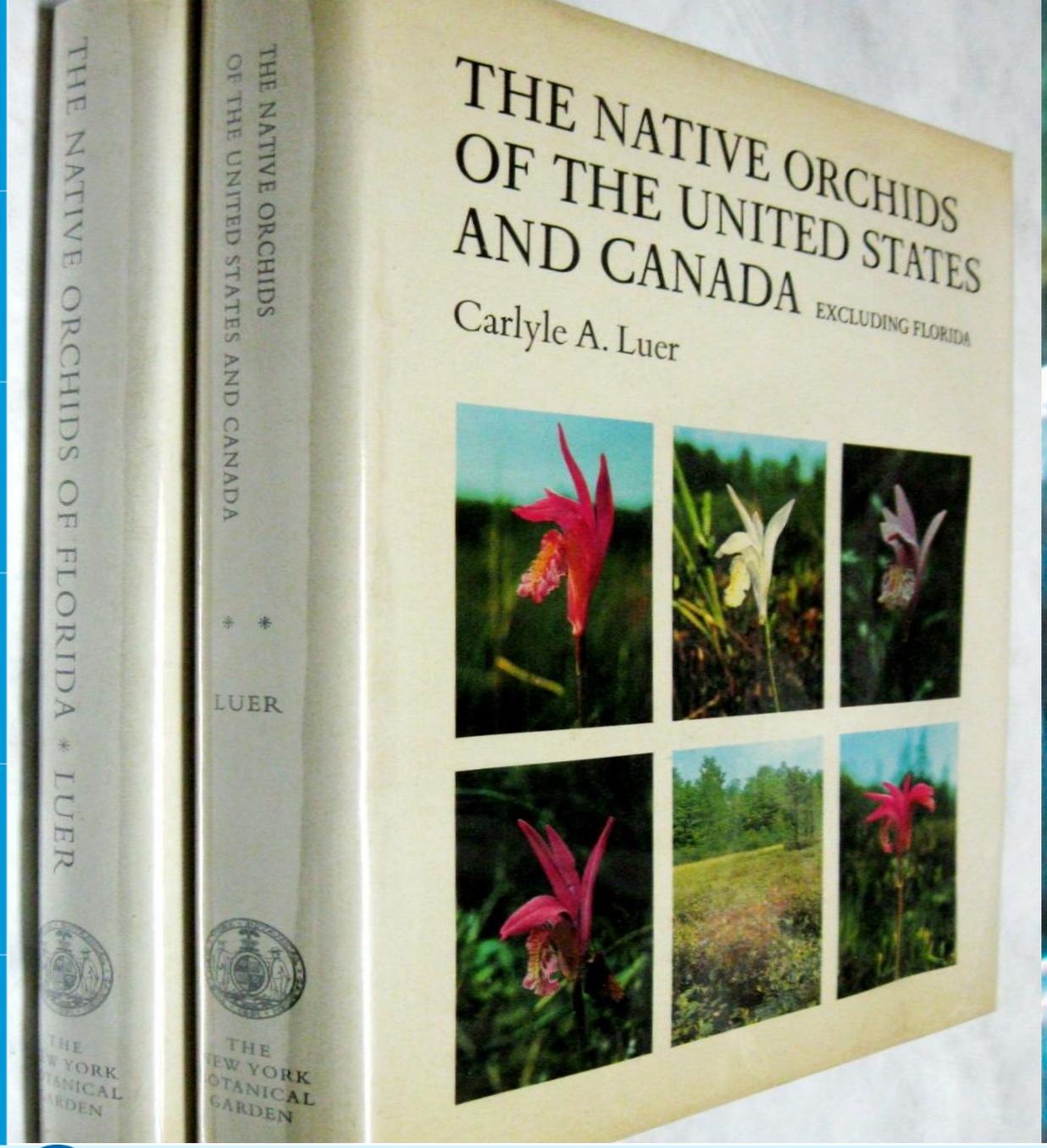


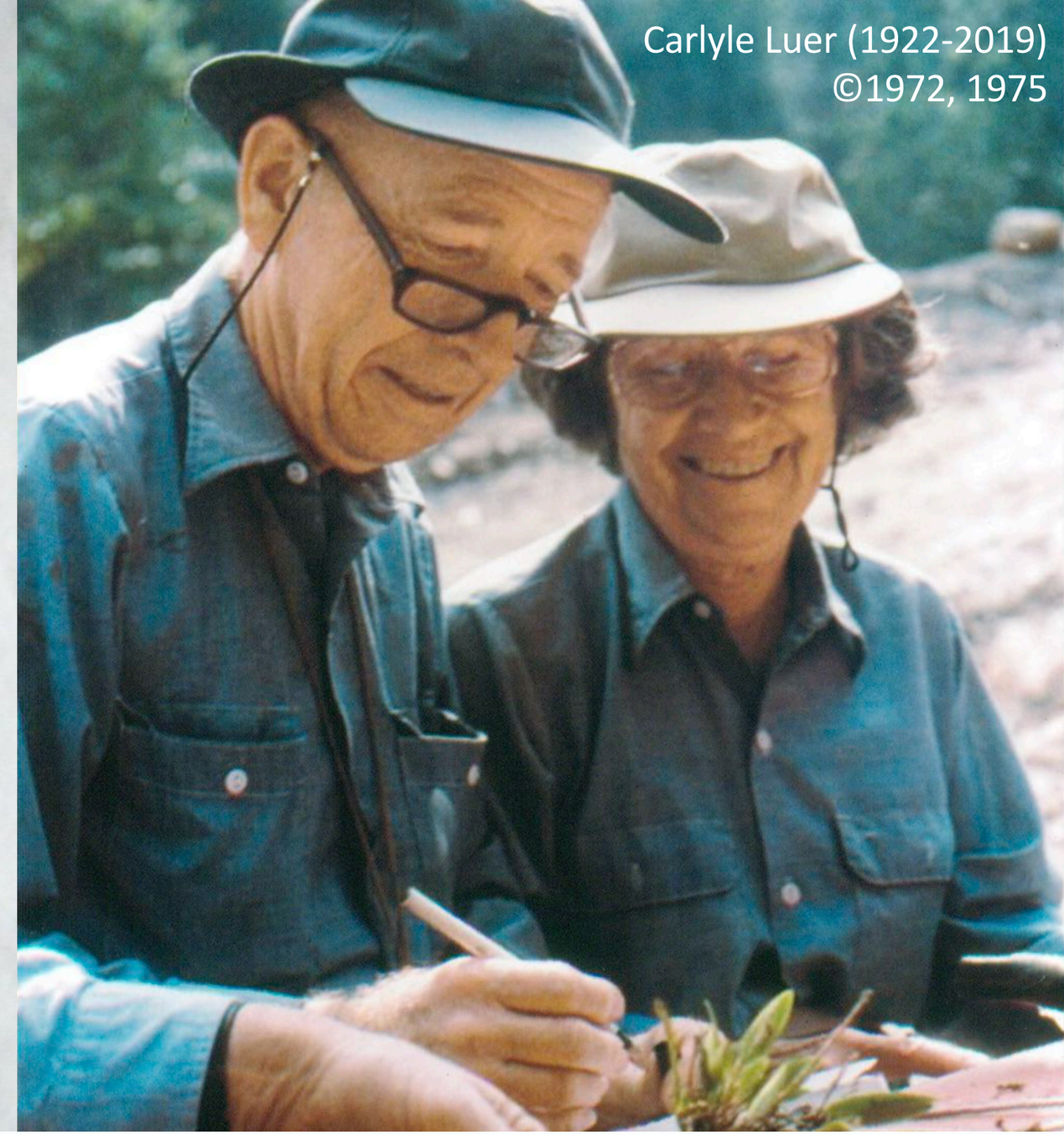
US National Weather Service Fairbanks Alaska
July 1, 2019 ·

Beth Jacobs received the Edward Stoll 50 yr Service A
her late husband George Jacobs. George began taking
observations in September 1967 and continued taking
the same location until he passed away in late 2017. Th
presented at Mukluk Land, the unique Alaska theme pa





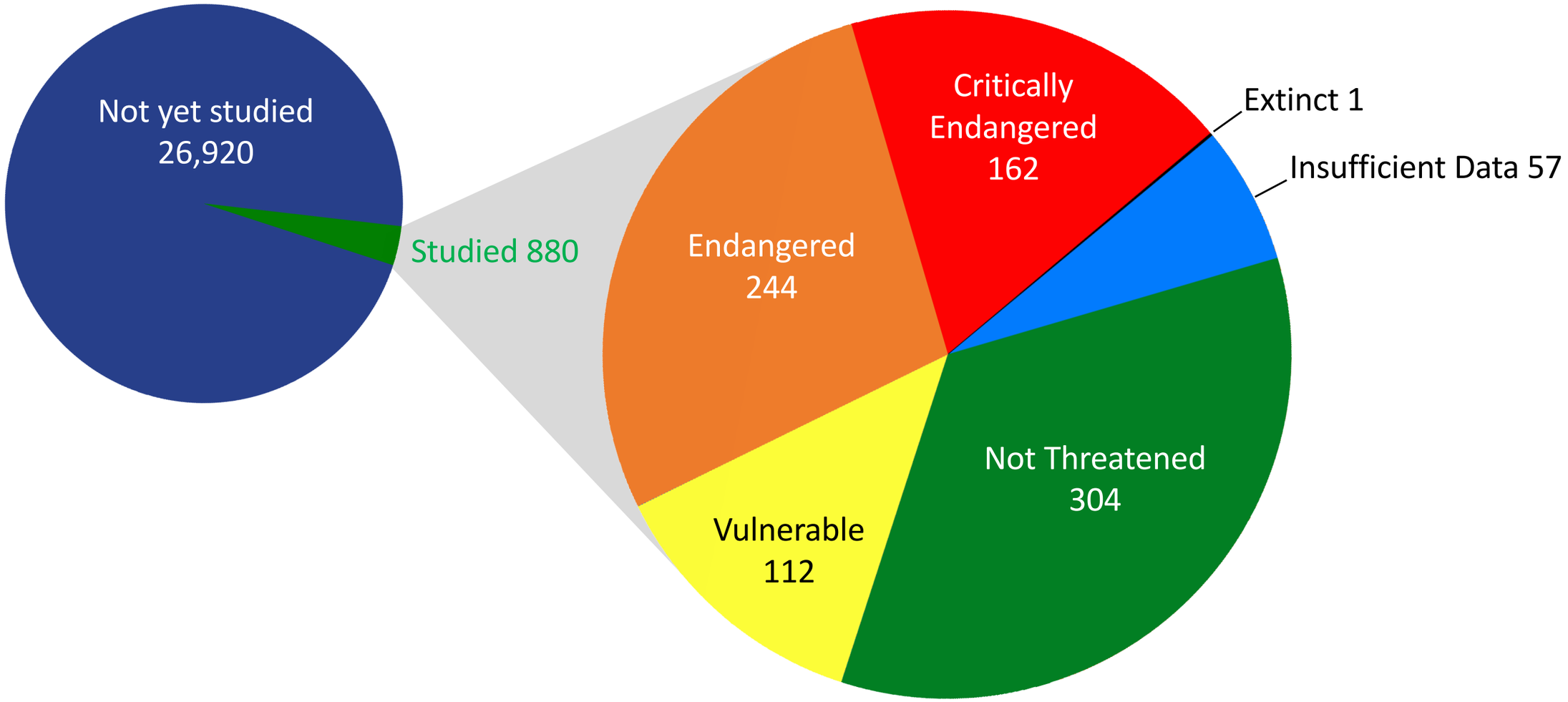

THE NATIVE ORCHIDS OF FLORIDA * LUER
THE NATIVE ORCHIDS OF THE UNITED STATES AND CANADA
* *
LUER
THE NEW YORK BOTANICAL GARDEN
THE NATIVE ORCHIDS OF THE UNITED STATES AND CANADA EXCLUDING FLORIDA
Carlyle A. Luer


Carlyle Luer (1922-2019)
©1972, 1975

Corallorhiza wisteriana

Photo: Walter Ezell

How much is known about native orchids?



Adapted from source: Melissa McCormick (PI SERC)

serc.si.edu/research/projects/north-american-orchid-cons

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GHOST ORCHID

In the U.S., the leafless Ghost Orchid (*Dendrophylax lindenii*) grows only in Florida, where it is listed as endangered. *(Photo: Hal Horwitz)*

Researc
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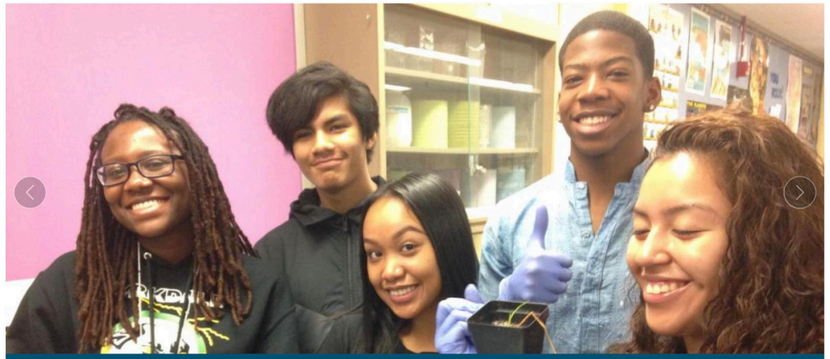


Students planting orchids in their classrooms.

Orchids in Classroom

Through a partnership between the Smithsonian Environmental Research Center, the North American Orchid Conservation Center, Longwood Gardens, and the Fairchild Tropical Botanic Garden (Fairchild) in Miami, we are working with students to study and conserve native orchids. Students are involved in a real scientific experiment growing native orchids in their classrooms and will plant them in their schoolyards or other public areas. The students are partners in discovery with SERC scientists aiming

Platanthera nivea - B.W. Wells Savanna, Pender Co., NC (c.1925)

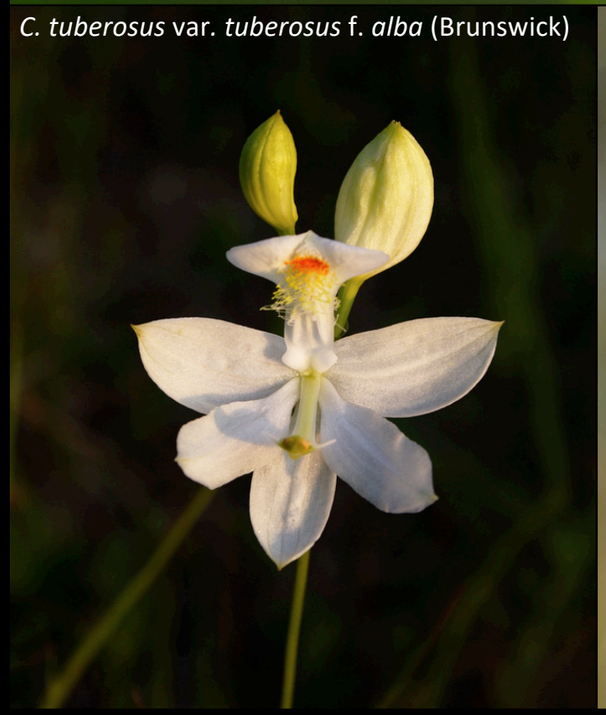
Dr. Bertram W. Wells (1884-1978), Department of Botany and Plant Pathology (Chair 1919-49), NCSU


Platanthera nivea
EOS 7D


Platanthera nivea
2 mm

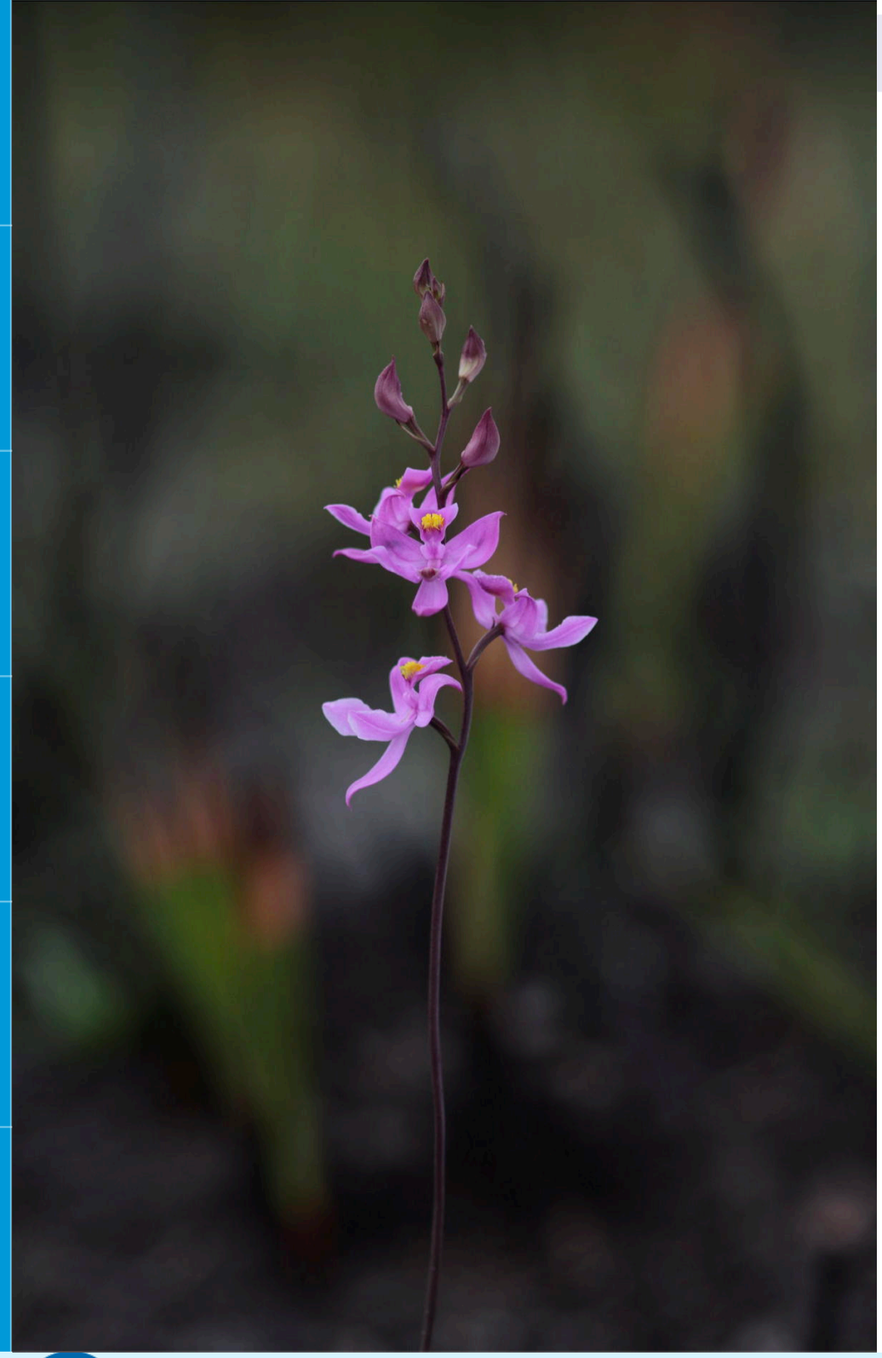

Calopogon pallidus (Pender)


C. barbatus (Brunswick)


C. tuberosus var. *tuberosus* f. *alba* (Brunswick)


C. tuberosus var. *tuberosus* (SC coast)


C. tuberosus var. *tuberosus* (WV)



Friends of Kissimmee Prairie Preserve

News from the Florida Prairie

Where the rare is commonplace.

Manyflowered Grasspink:

A search for a rare orchid ends at Kissimmee Prairie Preserve

In 2005, North Carolinians Neil Jacobs and his wife, Jen Modliszewski, began a quest to photograph all native species of orchids in the Carolinas. But there was a problem. One of those species—Calopogon multiflorus, commonly known as Manyflowered Grasspink, had not been seen in the Carolinas for many years. So when they learned the flower was blooming in Kissimmee Prairie Preserve last March, they quickly jumped on a plane to Florida and spent a day photographing this rare treasure.

Neil tells their story here, and includes descriptions of many of the Calopogon orchids and how to tell them apart.

In 2005, my wife, Jen and I decided to track down and document all of the native species of orchids in the Carolinas. There are well over 70 species not including hybrids and variants.

This quest was fairly simple at first because many of the common species were growing in the woods near our house. However, as the list grew smaller, the trips became more extreme and far-reaching. Many of these species found their way onto the list via historical records, and had not been reported in the Carolinas for 50 or more years, mainly due to habitat destruction.

One of the final native orchid species on our list was the **Manyflowered Grass pink** (*Calopogon multiflorus*).

Three years ago in late February, while visiting Avon Park on business, I decided to look for an area to do some exploring and discovered Kissimmee Prairie Preserve. I spent about 3 hours meandering through the outlying regions, and noticed several recently burned areas. I knew that *C. multiflorus* was a fire-dependent species, and that it had been reported in central Florida. Before leaving, I asked at the park office if it had been seen in the Preserve. Sure enough, it had, and due to regularly prescribed burns, it was actually considered a thriving population.

> "*Calopogon multiflorus* is the rarest species in the Calopogon genus native to the southeast US."

Last February, I emailed Christina Evans after noting that she had seen this species, and also regularly visits the Preserve. Orchids are their most photogenic early in the blooming cycle

continued—

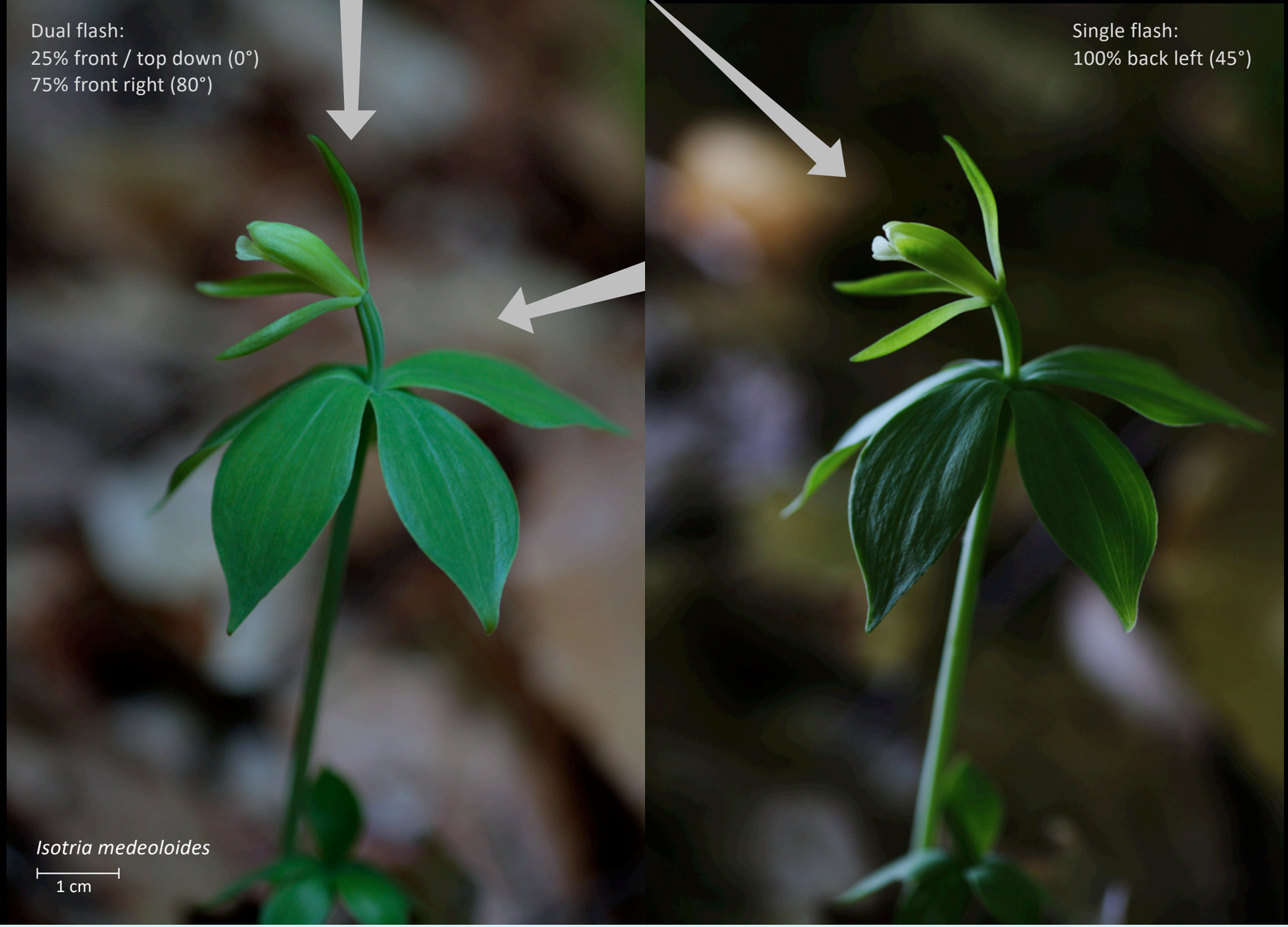

Cypripedium kentuckiense

Cypripedium kentuckiense

Cypripedium kentuckiense


Liparis liliifolia (Durham, NC)
2 mm

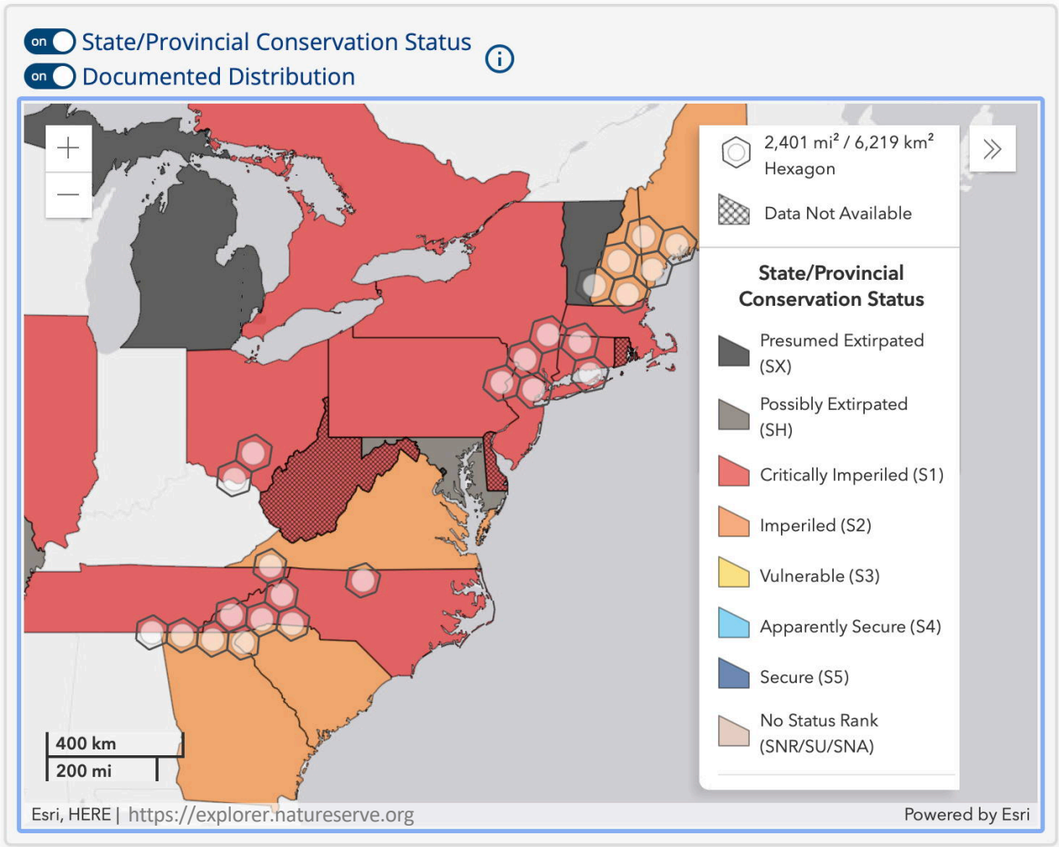
Liparis liliifolia (Durham, NC)


Dual flash:
25% front / top down (0°)
75% front right (80°)
Single flash:
100% back left (45°)
Isotria medeoloides
1 cm

Isotria medeoloides

Small Whorled Pogonia

GX Presumed Extinct | GH Possibly Extinct | G1 Critically Imperiled | **G2 Imperiled** | G3 Vulnerable | G4 Apparently Secure | G5 Secure | No Status Rank



Is it?

You're out walking on the back side of Beech Hill, and suddenly you find yourself surrounded by small, bright green plants with whorled leaves. Dozens of them. Have you found Maine's largest population of *Isotria*? We hope so, but probably not.

Look carefully at a plant. Indian cucumber-root *(Medeola virginiana)* is a common woodland herb that frequently grows with, and is easily confused with, *Isotria*. However, cucumber-root has a wiry stem covered with cobwebby hairs, while *Isotria's* stem is bluish, thick, fleshy and hairless. When in flower, the plants are easily distinguished: cucmber-root has a second whorl of leaves with small six-petaled flowers; *Isotria* has one, or occasionally two, greenish-yellow orchid flowers that appear in June above a single whorl of five to six leaves. In fruit, cucumber-root has dark purple berries, while *Isotria* has a hard capsule, green at first, then turning brown with age.

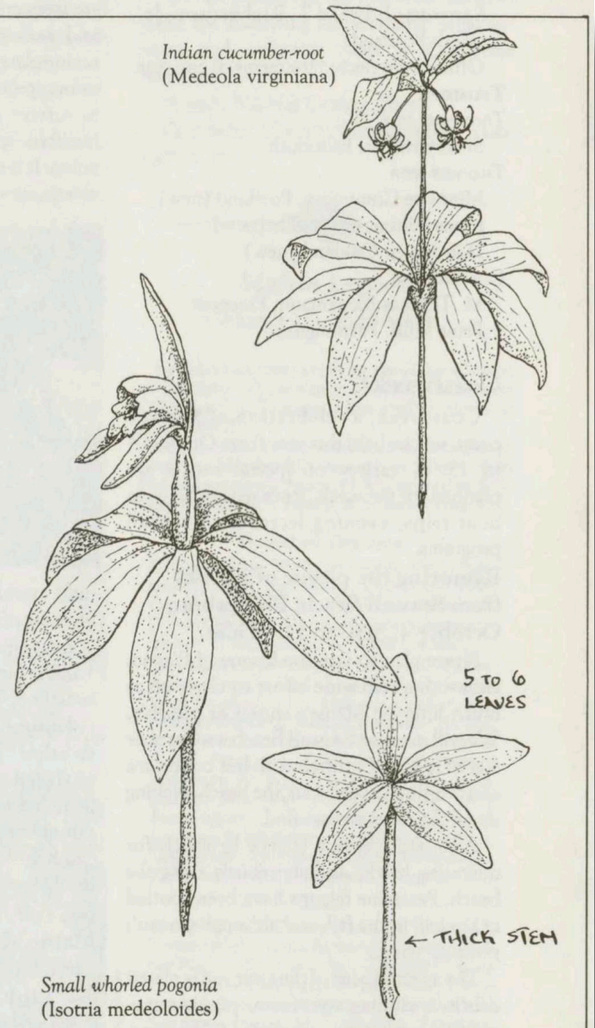
It is!

If you have indeed been lucky enough to find *Isotria*, we'd like to know. The following information will be very helpful:

- location: a sketch map showing the distance and direction to the plants from woods roads and other landmarks; also mark the site on a topographic or gazetteer map
- the approximate number of plants
- the size of area where they are growing
- photographs that can help us verify your find—**please do not pick any plants!**

How rare?

In its natural habitat, *Isotria* may grow in clumps or be widely scattered over many acres. However, if we allot one square foot for each plant known to exist, and hypothetically transport them to your local school gym, Maine's population would fit on half of the basketball court with room to spare. The entire world's population would still not fill the entire court.



Small whorled pogonia
(Isotria medeoloides)


Isotria verticillata

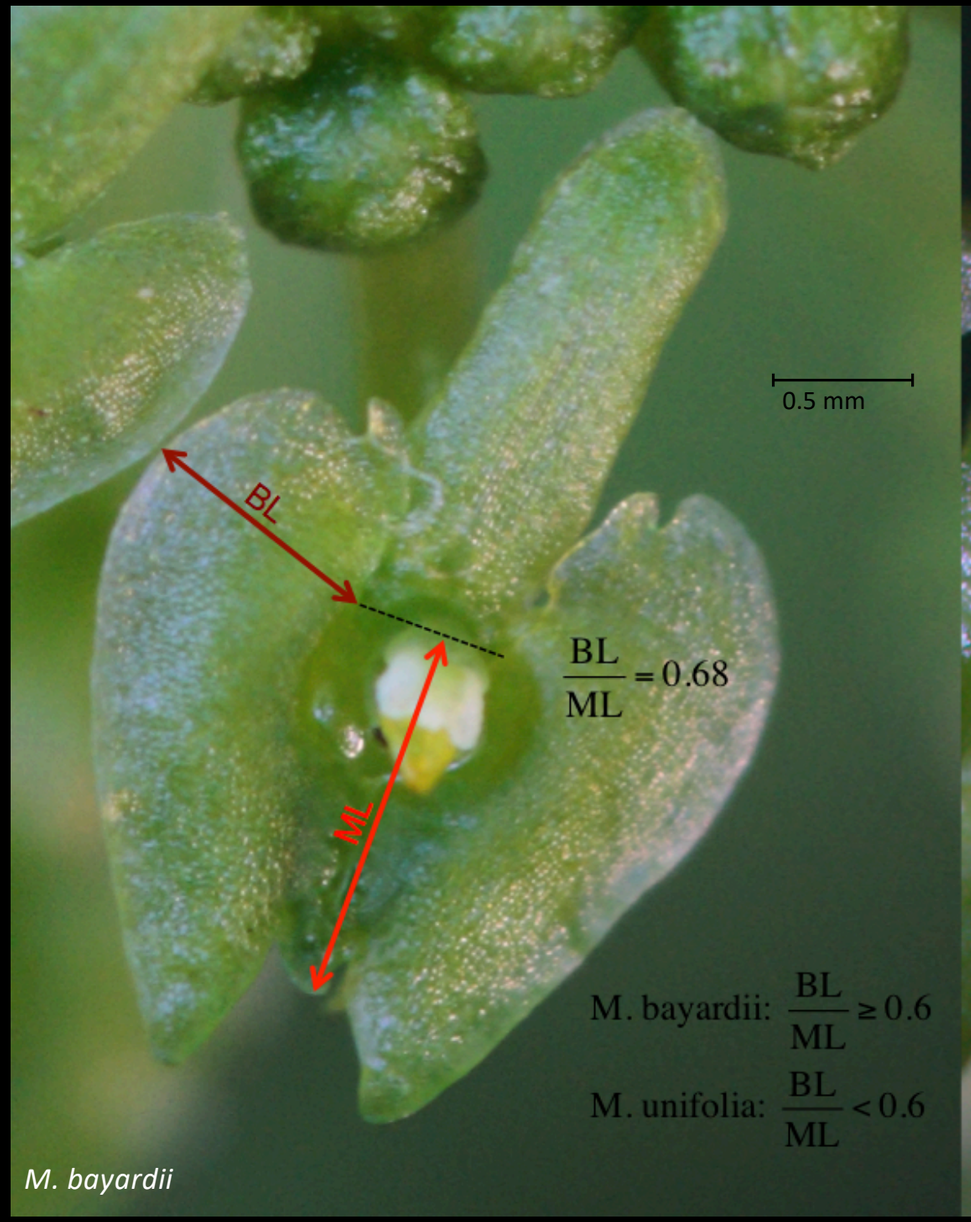

I. verticillata
Medeola virginiana

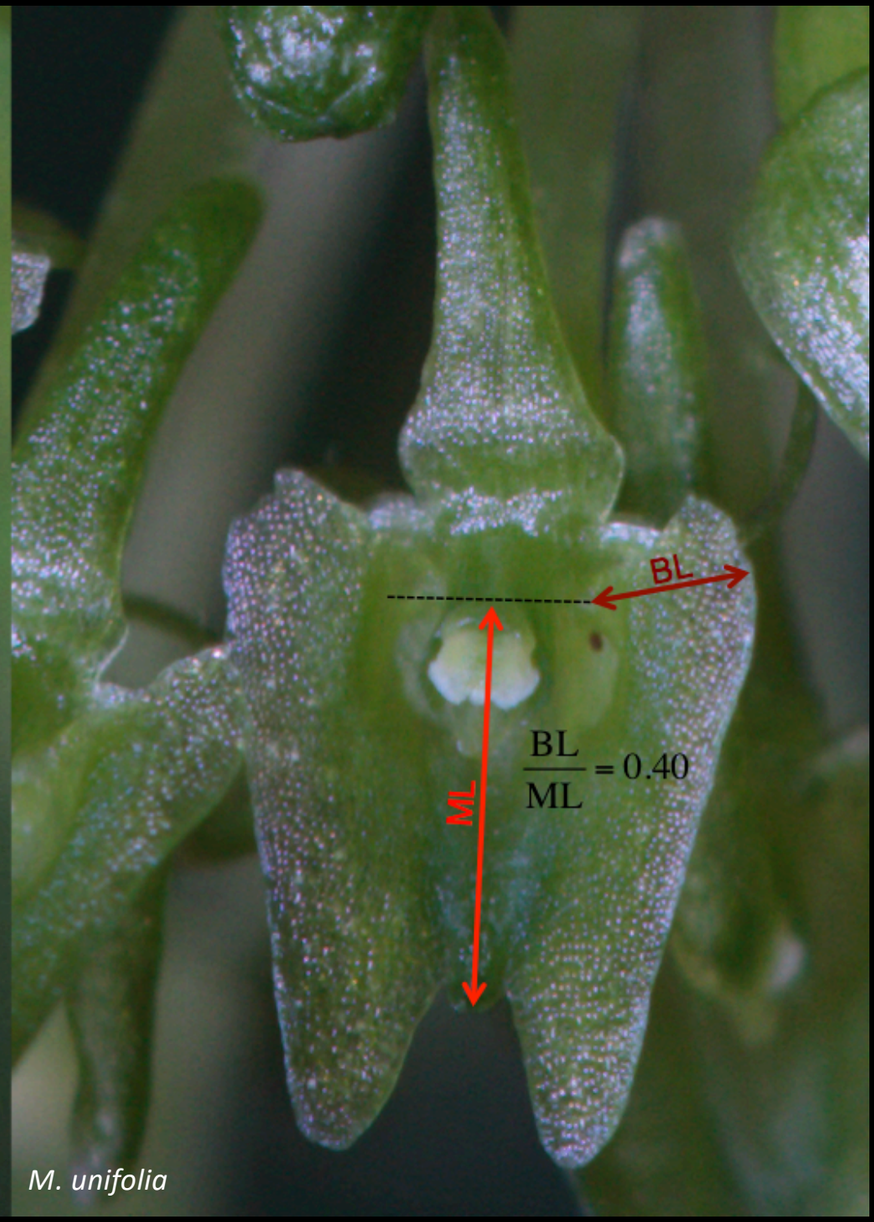

M. unifolia
1 mm


M. bayardii


M. unifolia


Malaxis unifolia


0.5 mm
BL
ML
$\frac{BL}{ML} = 0.68$
M. bayardii: $\frac{BL}{ML} \geq 0.6$
M. unifolia: $\frac{BL}{ML} < 0.6$
M. bayardii


BL
ML
$\frac{BL}{ML} = 0.40$
M. unifolia

Platanthera shriveri

P. grandiflora

P. lacera

P. psycodes

P. shriveri ??

P. × *keenanii*

P. × *andrewsii*

P. × *keenanii*

P. × *andrewsii*

P. shriveri

P. × *andrewsii*


Over the swamp...
Platanthera peramoena (Durham)

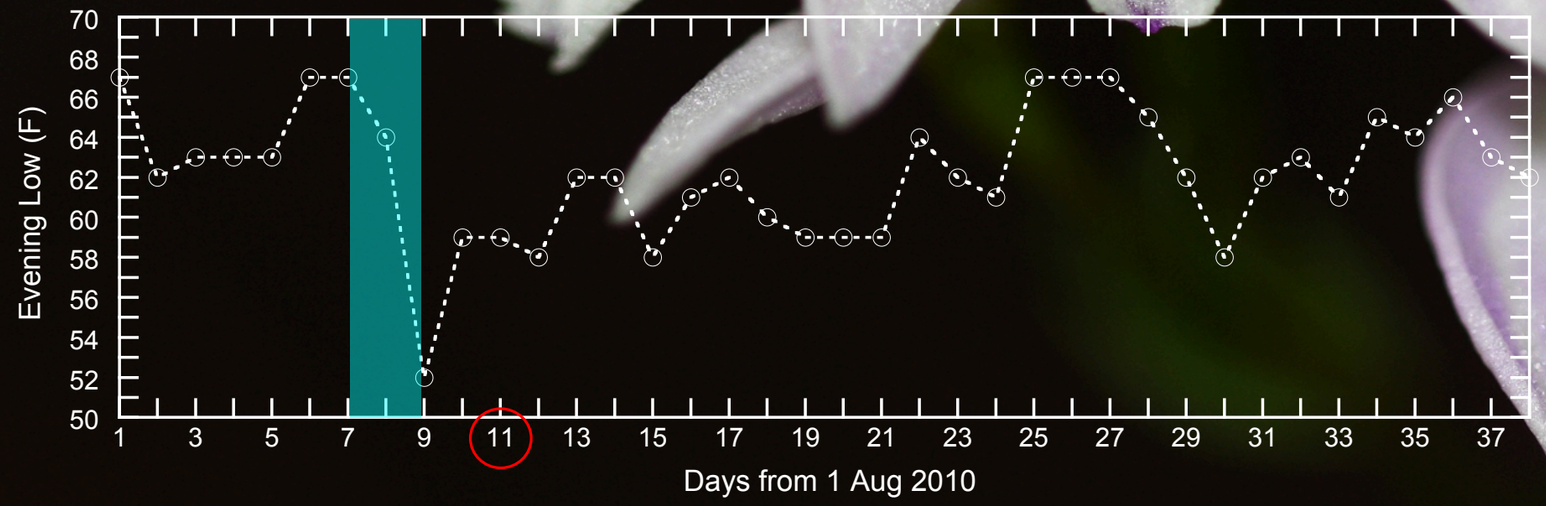

...and through the briars...


...Platanthera peramoena grows.

Platanthera peramoena (Durham)

Epipactis helleborine

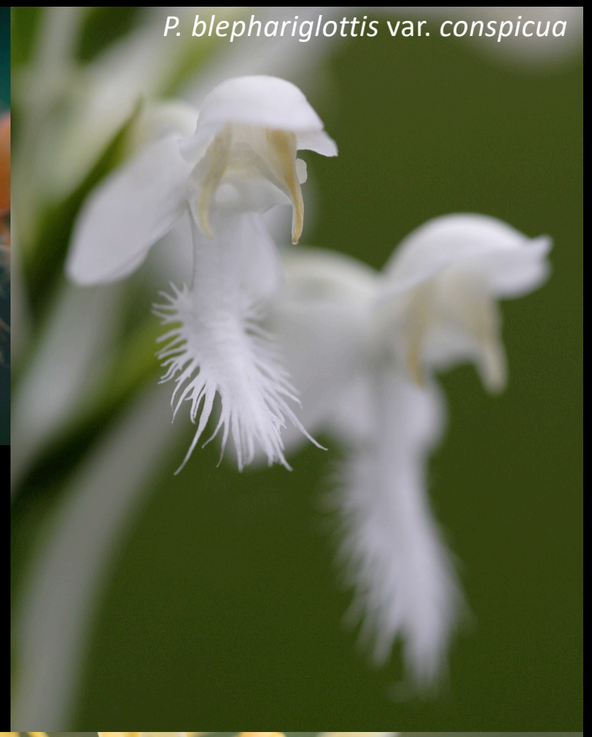
Triphora trianthophora

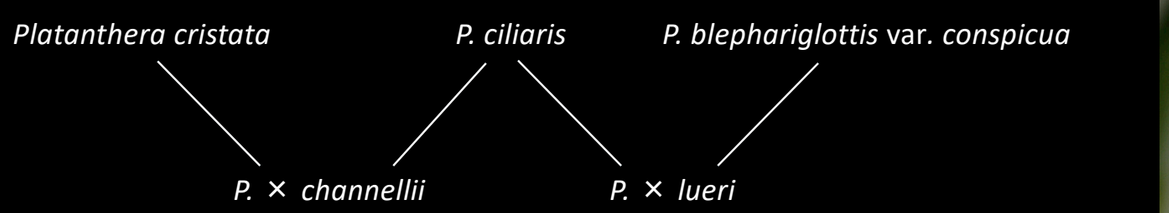


Platanthera integra (*Gymnadeniopsis integra*)


Platanthera cristata


P. ciliaris


P. blephariglottis var. conspicua


Platanthera cristata
P. ciliaris
P. blephariglottis var. conspicua
P. × channellii
P. × lueri


P. × channellii


P. × lueri


YELLOW TANG

Not Secure — goorchids.northamericanorchidcenter.org

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Find an orchid by entering the scientific or common name.

Enter name

Search

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Filter results (0 answered)

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Number of leaves on stem?

Form of the labellum?

Labellum outline?

Main color of labellum?

Nectar spur?

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Add a few more questions for narrowing your matching species.

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Genus:

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Orchids

226 matching resul

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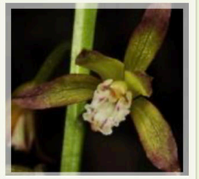
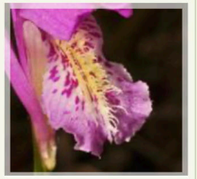
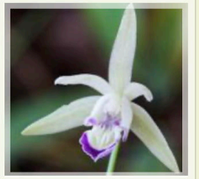
Honohono



Aplectrum hyemale
Putty Root



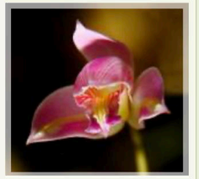
Arethusa bulbosa
Dragon's Mouth



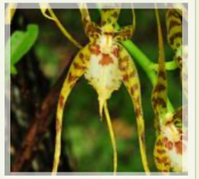
Basiphyllaea corallicola
Carter's Orchid

Beloglottis costaricensis
Costa Rican Ladies' Tresses

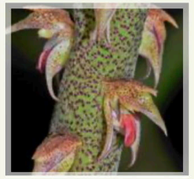
Bletia patula
Haitian Pine Pink



Bletia purpurea
Pine Pink



Brassia caudata
Spider Orchid



Bulbophyllum pachyrachis
Rat Tail Orchid

Calopogon barbatus
Bearded Grass Pink

Calopogon multiflorus
Many Flowered Grass Pink

Calopogon oklahomensis
Oklahoma Grass Pink

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Thank You!