

Boots on the ground, boots in the lab: Protecting rare and endangered plants through a university and governmental partnership

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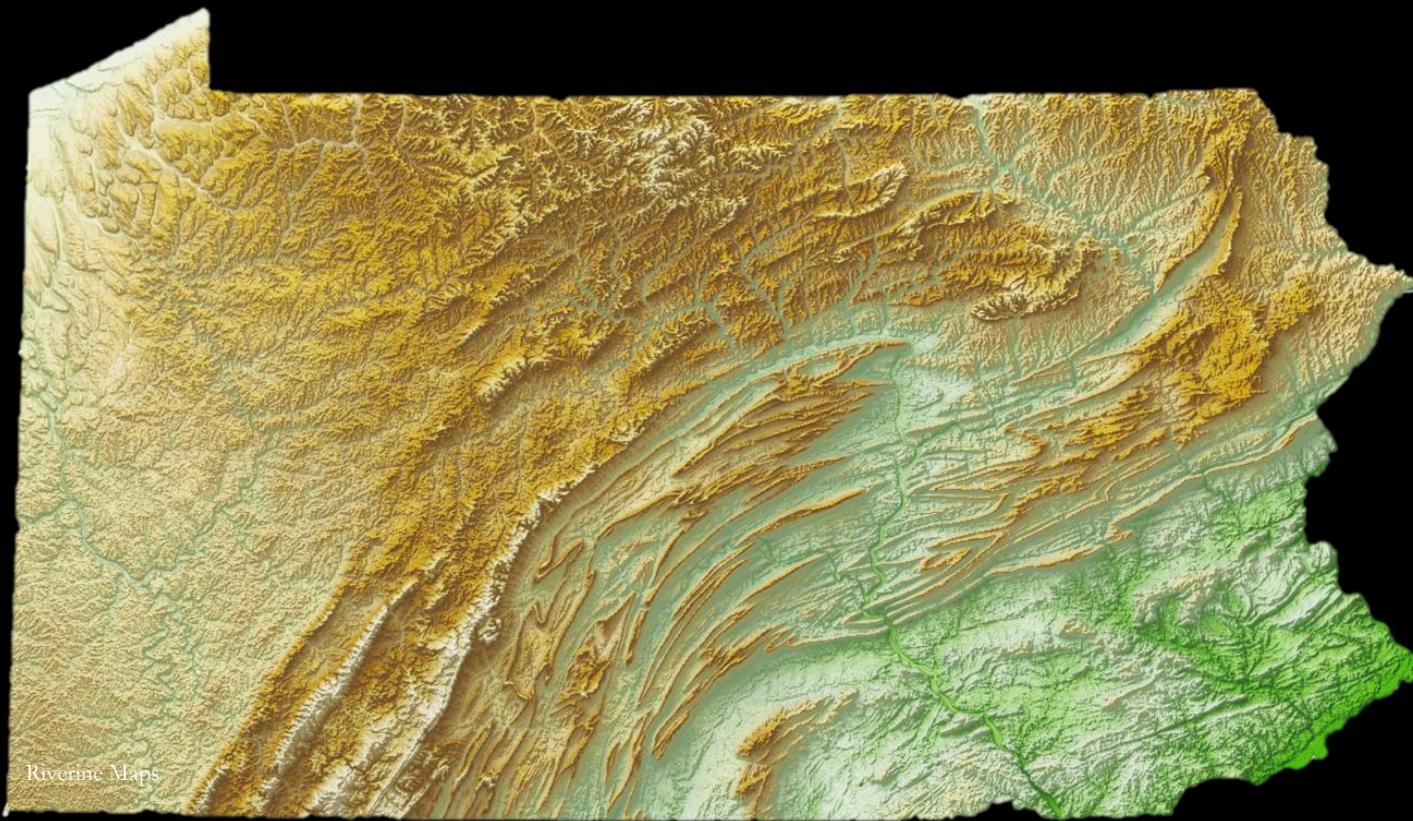
Dr. Chris Martine
Bucknell University

Jon Hayes
Bucknell University

Rachel Goad
PA Natural Heritage Program

Dr. Scott Schuette
Western PA Conservancy

Pennsylvania



Riverine Maps

0 meters

340

979

Elevation



PNHP



WPC



S. Dochter



PA Waterfalls



Lock Haven



N.A. Tonelli



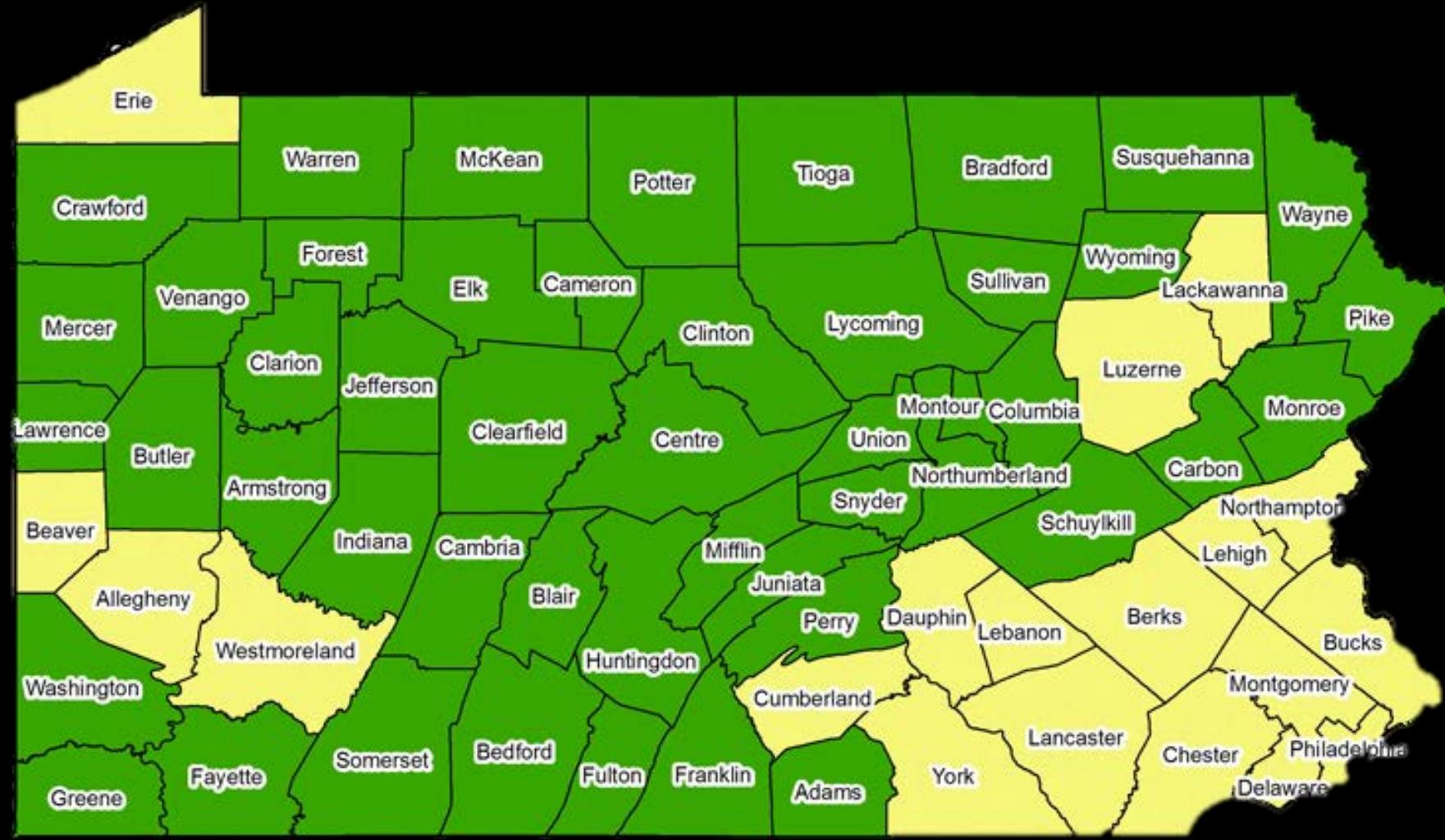
Uncovering PA



Turkey Hill



York Daily Record



US Census Bureau, 2010

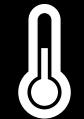
Yellow Urban Green Rural

A black and white aerial photograph showing a river flowing through a valley. The river is light-colored and curves from the bottom left towards the center. The surrounding land is covered in dense vegetation and several small, lighter-colored paths or roads. In the upper right, a large, dark, rectangular area covers the top half of the slide. Inside this area, the text is centered.

\sim 7,000 native species



Threats to Pennsylvania Biodiversity



Climate change



Habitat loss due to development



Invasive species (encroachment)



Selective browsing (e.g., white-tail deer)

So what do we do?



NASA



Rachel Goad



Dr. Scott Schuette





Dr. Chris Martine



Dr. Tanisha M. Williams



Jon Hayes



Dr. Angela McDonnell



Cheyenne Moore

Dr. Melody Sain
Isaac Buabeng
PJ Newhart
and growing...

Bucknell
UNIVERSITY



Rachel Goad



Dr. Scott Schuette



Dr. Chris Martine



Dr. Tanisha M. Williams



Jon Hayes



Dr. Angela McDonnell

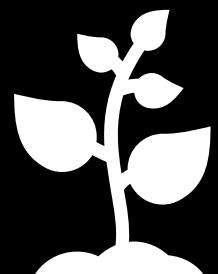


Cheyenne Moore

Bucknell
UNIVERSITY

Boots on the ground

Boots in the lab





A. McDonnell



C. Moore

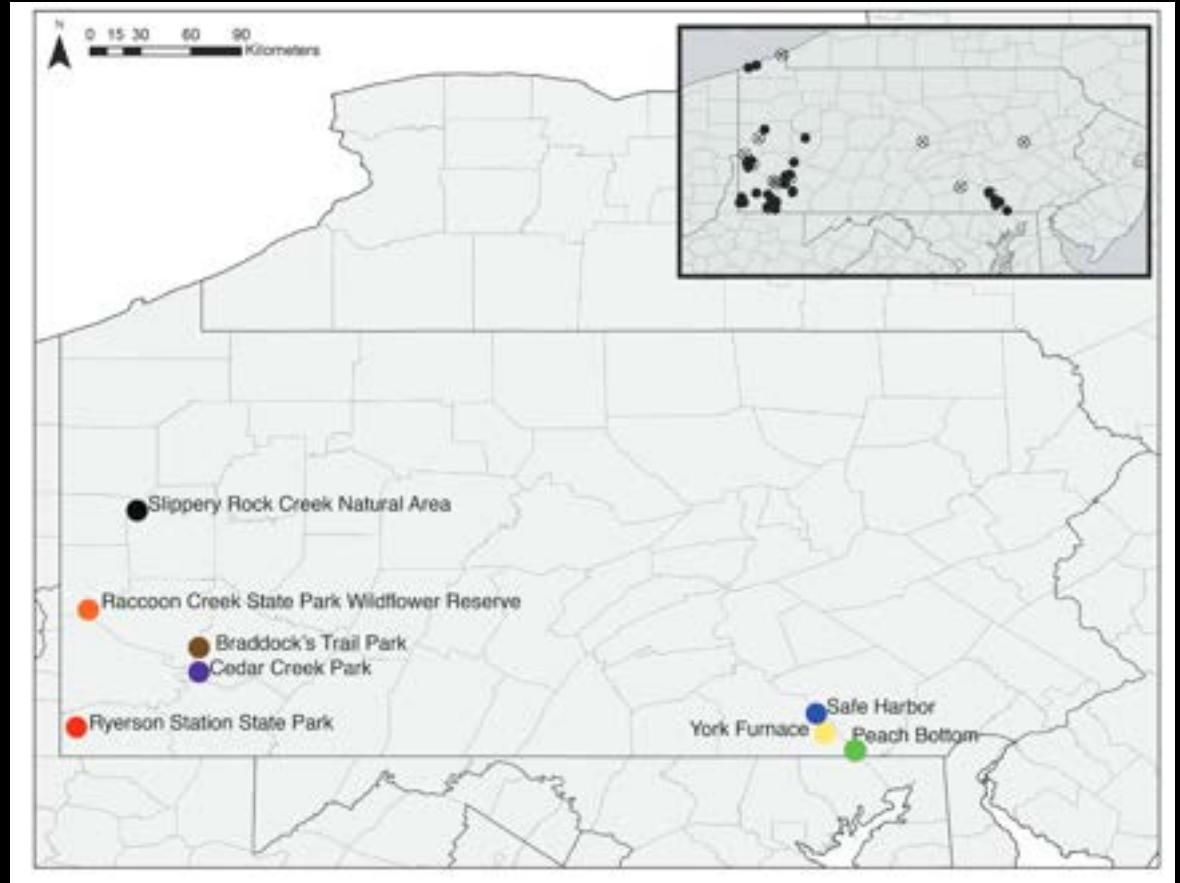


T.M. Williams

POPULATION GENOMICS AND CONSERVATION OF *ERIGENIA BULBOSA* (APIACEAE), AN EDGE-OF-RANGE SPECIES IN PENNSYLVANIA

Angela J. McDonnell,^{1,*} Cheyenne L. Moore,[†] Scott Schuette,[‡] and Christopher T. Martinez[§]

^{*}Negauwee Institute for Plant Conservation Science and Action, Chicago Botanic Garden, 1000 Lake Cook Road, Glencoe, Illinois 60022, USA; [†]Department of Biological Sciences, University of Pittsburgh, 4249 Fifth Avenue, Pittsburgh, Pennsylvania 15260, USA; [‡]Pennsylvania Natural Heritage Program, Western Pennsylvania Conservancy, 800 Waterfront Drive, Pittsburgh, Pennsylvania 15222, USA; and [§]Bucknell University, 1 Deit Drive, Lewisburg, Pennsylvania 17837, USA



○ Current (1993 and later)

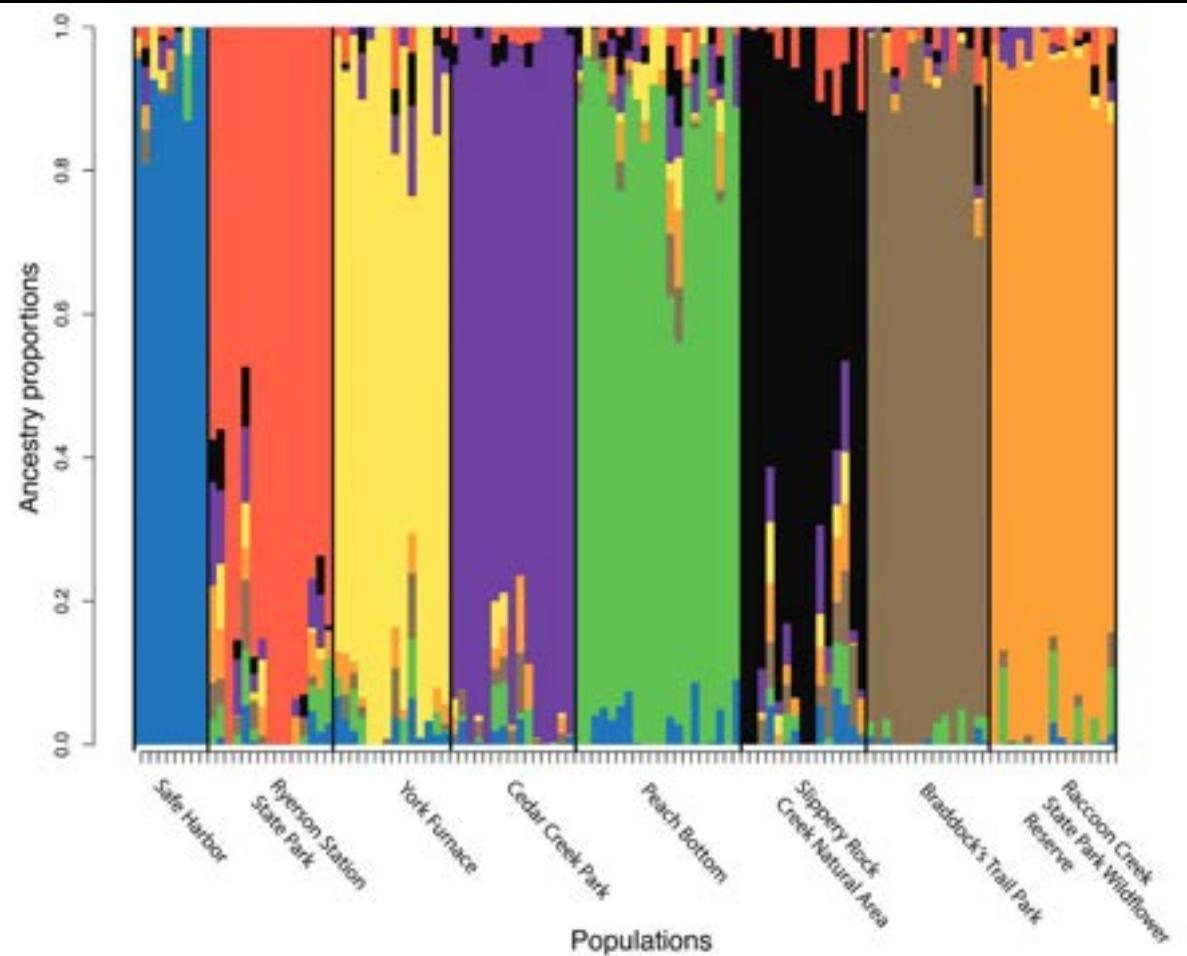
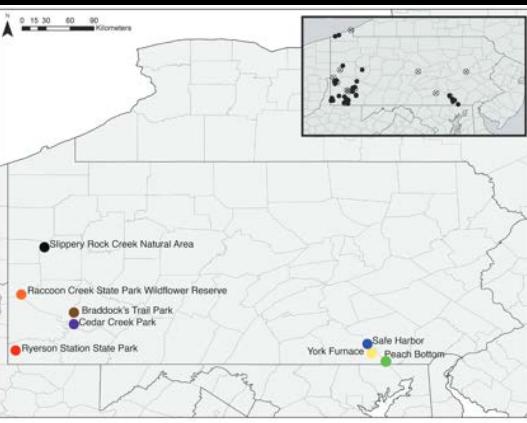
✗ Past (1992 and earlier)



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- Populations genetically unique
- Low heterozygosity
- High levels of inbreeding

Conservation status update: critically imperiled
across state (evenly)





A. McDonnell



C. Moore



T.M. Williams







A. McDonnell



C. Moore



T.M. Williams

Chasmanthium latifolium



J. Hayes



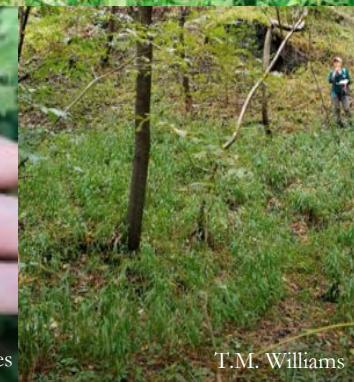
T.M. Williams



J. Hayes



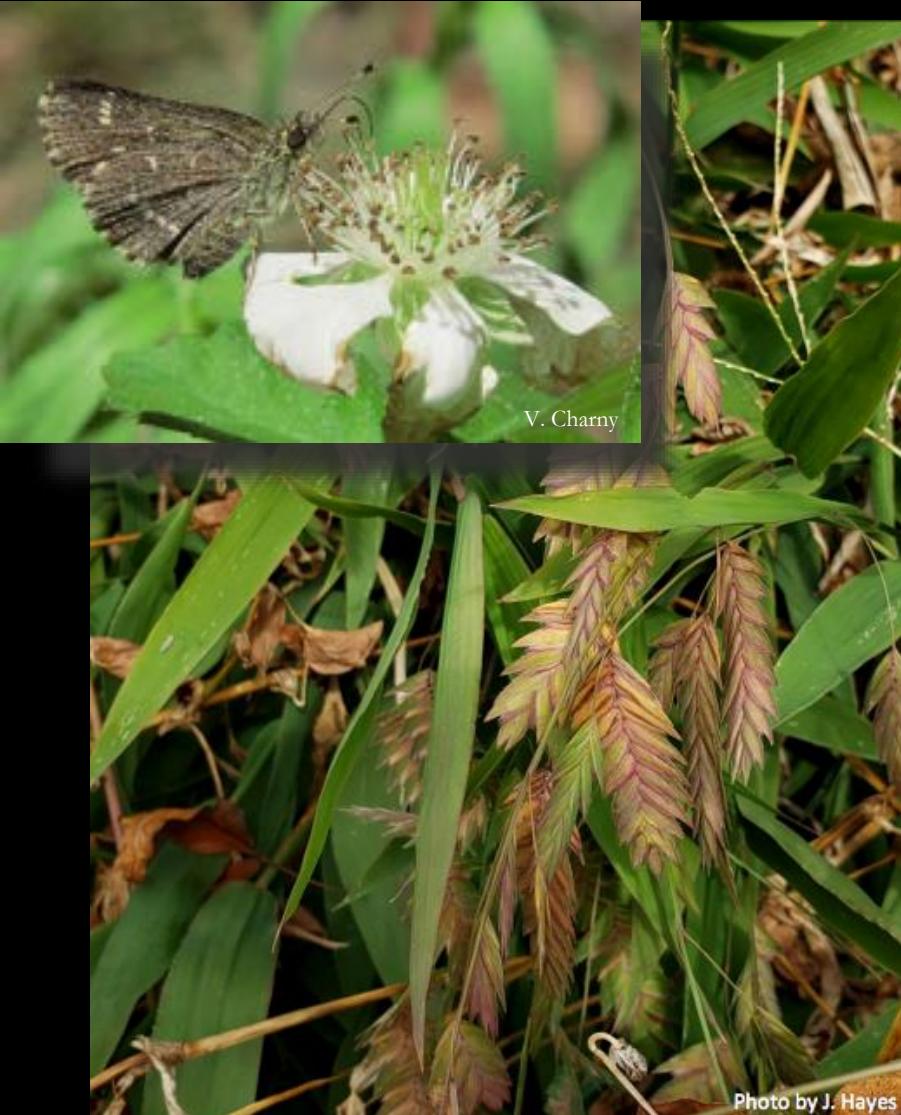
J. Hayes



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Chasmanthium latifolium

- Prevents soil erosion
- Improves water quality
- Pepper and Salt Skipper
Amblyscirtes begon
 - One of two hosts species in PA
 - Cover and food source
- Minor food source
 - Birds and rodents
- Coverage for insects



Chasmanthium latifolium

- Southern Midwest and Eastern US
 - Globally Secure (G5)



Chasmanthium latifolium in Pennsylvania

- Pennsylvania Natural Heritage Program (PNHP): Critically imperiled (S1)
- State: Undetermined

