

The Unknown STEM? It's about being there.



tips & tricks



“Science is basically an inoculation against charlatans.”

—Neil deGrasse Tyson

INTRODUCTION

Objective

The Importance of being there
2025 Summer internship

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- Bachelor of Science in Business, Environmental Sustainability
- Associate of Science in Biology
- Associate of Science in Chemistry
- Bachelor of Science in Geology (Senior Year)

- **Lead Lab Technician at Ivy Tech – Valparaiso**
- **2025 IUN Intern at the U.S. Geological Survey**

What story do you want to tell?

Jobs

Build your story first!

“What are you looking for?”

Hang out with animals

Get away from home

My teacher told me to



“What are you able to bring to the table?”

Focus on action

Build accomplishments

Keep learning

Develop skills

Be uncomfortable

Don't be afraid of failure

**It's not always
about rocks**



U.S. Geological Survey Lake Michigan Ecological Research Station

They monitor, assess, map, and conduct targeted scientific research. Their work addresses complex environmental, natural resource, and public safety issues.

1

Indiana Dunes National Park

Why does it matter?

The dunes boast incredible biological and geological diversity

The dunes host unique habitats such as bogs, prairies, and oak savannas that are globally rare and support numerous threatened and endangered species.



2

Pitcher's thistle (*Cirsium pitcheri*)

DESCRIPTION

- This distinctive dune plant
- Monocarpic (flowers and sets seed only once)
- Perennial (existing for a long time)
- Herbaceous plant (not woody)
- Generally, flowers after a 5–8-year juvenile stage

FACT

University of Chicago professor Henry Chandler Cowles (late 1800s)
Plant Succession
Birthplace of American Ecology.

Dune-Builders

Marram Grass
Eastern Cottonwood

Dune Stabilizers (older dunes)

Little Blue Stem
Pitcher's thistle
Sand Cherries

Endemic to the western Great Lakes, dune thistle (Pitcher's thistle) is a federally threatened species specialized for open dune habitat. Dr. Noel Pavlovic of the United States Geological Survey has studied Pitcher's thistle for decades.

3

Why is it Important?

Environmental Support and Biodiversity

- Stabilizes sand dunes
- Acts as a food source
- A keystone species for insect visitors and an indicator of a healthy dune ecosystem
- Supports the survival of other native dune plants by preventing erosion

FACT

The longest studied plant in the country

Without it, dunes could erode and ecosystems could suffer major damage

Many animals rely on it for food

Who oversees the 1973 Endangered Species Act?

FACT

Threatened species

The longest studied plant in the country

Without it, dunes could erode and ecosystems could suffer major damage

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Who oversees the 1973 Endangered Species Act?

The U.S. Fish and Wildlife Service and NOAA Fisheries

4

Collecting the Data Field Work

- Hiking
- Crown and stem measurements
- Wind and temperature
- Sand height variations
- Flower size and stage
- Bud and flower placement
- Weevils and wildlife damage
- Abnormalities



5

What is killing the plants?



Climate Change

Rhinocyllus conicus (thistle seedhead weevil),
1969

Larinus planus (Canada thistle bud weevil)
accidental introduction, 1960s

Deer and rabbits





Data Entry

- This is your summer's work
- Recorded and saved
- Hours behind a screen each day for weeks

Thank you

- U.S. Geological Survey
- Indiana University- Northwest Geology Department
 - Indiana University- Northwest Stem Center
 - Ivy Tech Community College- Gary



**INDIANA UNIVERSITY
NORTHWEST**



**“Play is the highest form of
research.”**

– Albert Einstein

A sunset over the ocean with a boat wake in the foreground. The sun is low on the horizon, casting a golden glow over the water. The sky is filled with soft, colorful clouds. The water in the foreground shows the white foam of a boat's wake.

Any Questions?



Thank you