



Environmental Service Learning

Fall 2024



Center for Earth and Environmental Science



DEPARTMENT OF EARTH SCIENCES
SCHOOL OF SCIENCE

What is CEES?

CEES is an applied research center housed within the School of Science and Department of Earth Sciences.

CEES has three core missions: research, education outreach, and environmental stewardship.



Environmental Service Learning:

- Providing opportunities for *environmental stewardship* and *experiential learning*.
- Engaging in *dialog* about *environmental issues*.
- Introducing regional *natural areas*.
- Introducing *groups that maintain* these areas.
- Introducing issues to stimulate *changes in behavior* as well as *critical thinking* about **humanity's role** as an **agent of change**.
- *Restoring* and *improving* natural areas.
- *Mitigating* and *preventing* pollution.
- *Building* a sense of *community*.

Education & Community Service

Aside from the obvious faculty requirement or extra-credit bribe?



IMPROVE WATER QUALITY

... and some projects also result in improved water quality – both locally and regionally!

CEES's Service Learning program provides opportunities for all of the above



Service Learning Projects



Fall 2024

Fall 2024 stewardship will focus on:

invasive species removal

environmental clean up

community science

Invasive Species Removal

**Bush Honeysuckle –
it's everywhere!**

Invasive plants often have far-reaching impacts on the environments in which they become established.

Bush Honeysuckle has characteristics that make it particularly problematic due to the effects the shrub has on infiltration and water quality.

Infiltration is the movement of water deeper into the soil.



You will learn to identify it

. . . . loathe it

. and celebrate its removal!

Invasive Species Removal

Purpose

Removing invasive species helps address (remediate) the various negative impacts caused by the presence of the invasive species in the environment.

improve habitat

These are just a few of the negative impacts invasive species can have.

invasives replace native species

invasives decrease biodiversity

invasives may not be a suitable food resource for insect herbivores

improve water quality

honeysuckle promotes sediment loading of waterways



All that is green is honeysuckle

See *Why we do these projects – invasives & trash removal* for an explanation.

Holliday park is a location with a lot of topography.

Holliday Park

The first set of invasive removal projects will be on the north side.

LOCATION: north side of Indianapolis near 64th St.



Invasive Species Removal



Burning Bush



Bush Honeysuckle

& Native Seed Collection

We may also collect native seed (from healthy areas) to scatter in areas that need restoration work.

Project 1

September 27 (Friday)

10:00 AM - 1:00 PM

Project 2

September 28 (Saturday)

10:00 AM - 1:00 PM

Backup Date: Sunday, September 29

10:00 AM – 1:00 PM



Southwestway Park

LOCATION: south side of Indianapolis
8400 Mann Rd.

The second set of invasive removal projects will be on the south side.

3rd largest park in Indianapolis!

Invasive Species Removal



Southwestway Park has an extensive trail system. We will be working in the area of Mann Hill.

Project 3

October 18 (Friday)

10:00 AM - 1:00 PM

Project 4

October 19 (Saturday)

10:00 AM - 1:00 PM

Backup Date: Sunday, October 20

10:00 AM – 1:00 PM



ARBOR Trash Clean-up & Winter Creeper Removal

Purpose

interrupt the land-to-ocean pathway of plastics

return recyclables to the recycling stream

improve water quality

improve habitat

remove invasive species

increase biodiversity

The White River floods frequently.

With each flood event, trash is deposited in the floodplain.

We'll remove trash, thereby disrupting the land-to-river-to-ocean pathway it follows.

Collected trash will be sorted as recyclable or non-recyclable, and disposed of accordingly.

The ARBOR is located between New York Street and 10th Street bridges.



This project is convenient to campus: the ARBOR is on the west side of campus – it's the forest located along the eastern bank of the White River.

The ARBOR is a riparian forest on the east bank of the White River. The trees (initially just tiny twigs and small saplings) were planted during service learning events that took place in the fall of 2000.

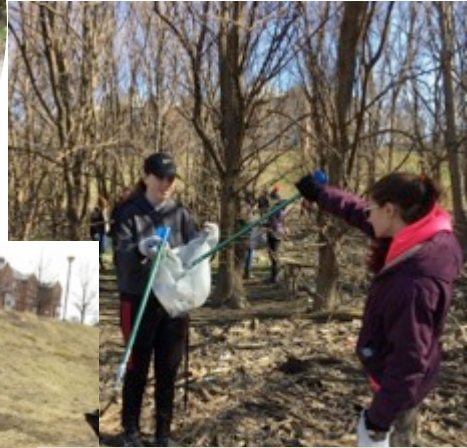


“Riparian” simply means that the forest is located along a river or stream.

Lilly ARBOR



We will also remove wintercreeper, an invasive groundcover.



All sorts of odd trash is found at the ARBOR.

LOCATION: Lilly ARBOR – Porto Alegre St. between 10th Street and New York Street bridges



Project 5

October 25 (Friday)

10:00 AM – 1:00 PM

Backup Date: Sunday, October 27



Flooding sometimes reaches the base of the levee.



Day of the Dead-heading

Purpose

increase biodiversity

harvest native wildflower seed

sow seed in Monarch Sanctuary & ARBOR

provide food resources for endangered
Monarch butterfly

remove invasive species (maybe)

improve habitat



Day of the Dead-heading

Indianapolis State Museum

White River Monarch Sanctuary

Lilly ARBOR

LOCATION: meet at Indiana State Museum – walk from campus to museum via North Blackford Street and cut across the lawn to the gardens on the south side of the museum




Project 6

October 26 (Saturday)

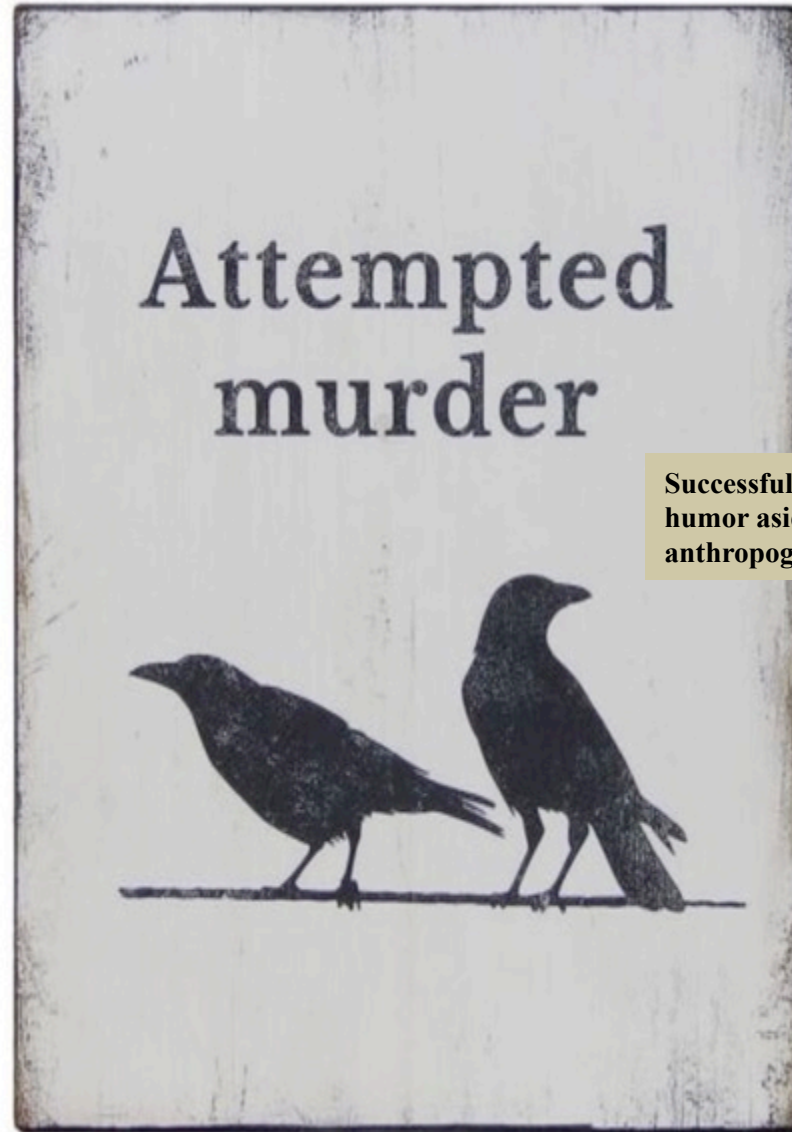
10:00 AM – 1:00 PM

Backup Date: October 27



The logo for the Indiana State Museum, featuring a stylized white grid pattern. **INDIANA STATE MUSEUM**

There is a joke here



Successful (or failed) attempts at avian-related humor aside, this segues into a discussion of anthropogenic factors affecting bird mortality.

Bird deaths are no laughing matter.

Sources of Bird Mortality *

These numbers are are deaths per year.

Cats kill more than 1 BILLION birds each year.

cats: 1300M – 3900M

This includes both feral cats and house cats that are allowed to roam.



buildings/windows (collisions): 365M – 988M

automobiles (collisions): 88.7M – 339.8M

transmission lines (collisions): 7.7M – 57.3M

transmission lines (electrocutions): 0.9M – 11.5M

communications towers (collisions): 6.6M

pesticides: 0.96M – 4.4M

wind turbines (collisions): 0.47M – 0.68M

M represents million – remember that 1000 million is a billion.



While cats are the major source of bird mortality, collisions with buildings are also a major cause of bird deaths.

Losses of birds have strong impacts on ecosystems because birds are important mid-level predators.

Ecosystem services supplied by birds include suppression of pest insects, dispersal of seeds, removal of carrion, and pollination of flowers.

* Loss SR, Will T, Marra PP. 2015. Direct mortality of birds from anthropogenic causes. *Annual Review of Ecology and Systematics* 46:99-120.

How much of an issue are window/building strikes on the IUI campus?

We don't know.

We need data.



nesting American Robin

There are many buildings on campus, and many of those buildings have large surface areas of highly reflective glass.



Several survey routes have been planned.

A route includes one (or two) buildings.

Volunteers choose a time (morning/midday/evening) and a day of the week, then walk their route once a week for the duration of the semester, collecting data concerning any birds found.



Bird Window-Strike Survey

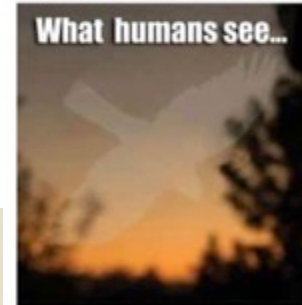
Collect data concerning bird-building collisions on campus.

Are particular buildings more of a problem?

When do strikes occur?

Modifications (such as UV reflective decals) can make windows more obvious to birds without (strongly) affecting what is perceived by humans.

Data can be used to inform solutions.



Project B: BWSP

Choose a day of the week and time that are convenient for you.

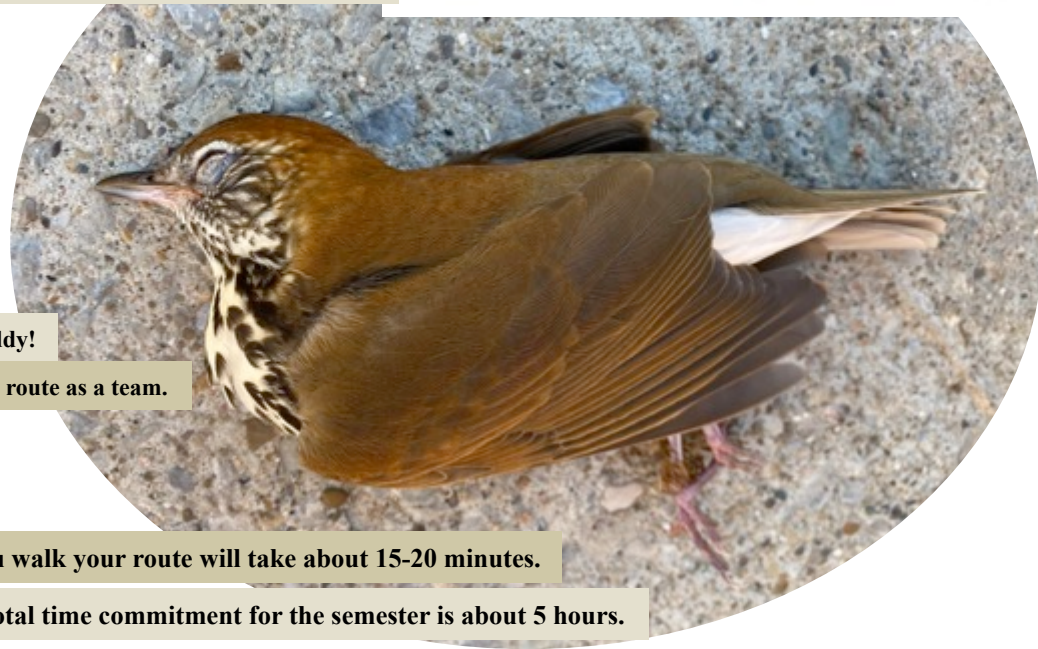
Find a birding buddy!

Walk the route as a team.

Day(s)	Time	Route(s)
You can walk your route at any time during the window indicated.		
Morning survey (before 9:00AM)		
Evening survey (after 4:00PM)		
Mid-day survey (11am – 1 pm)		

Each time you walk your route will take about 15-20 minutes.

Total time commitment for the semester is about 5 hours.



This project is a semester long commitment.





Center for Earth and Environmental Science

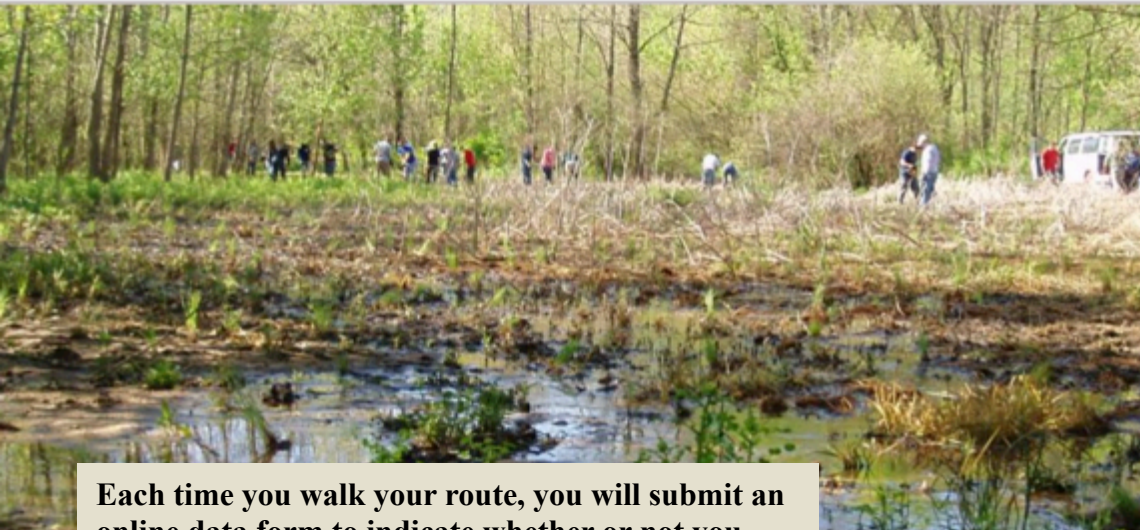
[ABOUT](#)

[RESEARCH](#)

[EDUCATION PROGRAMS](#)

[SERVICE LEARNING](#)

[NEWS](#)



Each time you walk your route, you will submit an online data form to indicate whether or not you found a bird on your route.

Environment education a

Our vision is to grow environmental and through our research outreach, and public stewardship.

[Read more about CEES](#)

- Current Projects & Events
- What to Expect
- Register
- Reflective Essay
- Faculty Sign-up
- FAQ
- Information and Resources



Research



Education



Environmental Stewardship

From the Information & Resources page, select the BWS button.



This will lead to a treasure trove of information.



INDIANA UNIVERSITY INDIANAPOLIS



SCHOLARSHIPS / JOBS

Center for Earth and Environmental Science

ABOUT

RESEARCH

EDUCATION PROGRAMS

SERVICE LEARNING

NEWS

Current Projects & Events

What to Expect

Register

Reflective Essay

Faculty Sign-Up

FAQ

Information and Resources

Home / Service Learning

INFORMATION AND RESOURCES

Information and resources for service learning

Here, you will find information and resources applicable to your service learning projects.

Stewardship impacts

Invasive species

Field guides

Bird Window Strike Survey





Center for Earth and Environmental Science

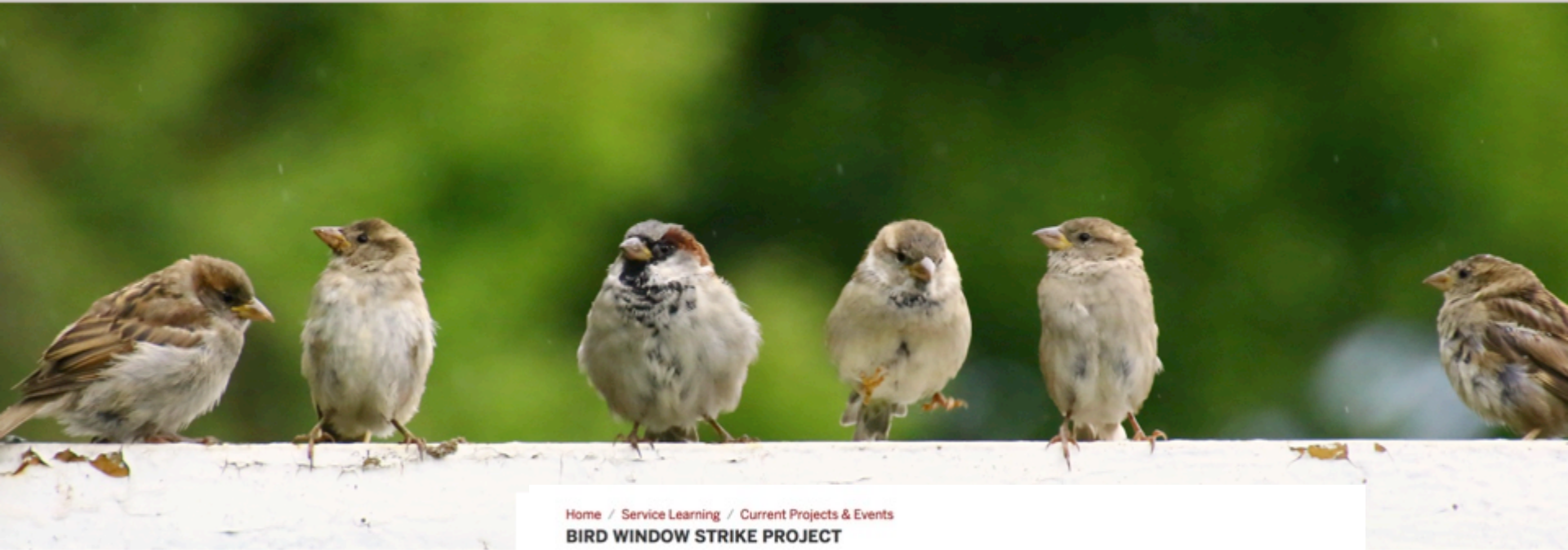
ABOUT

RESEARCH

EDUCATION PROGRAMS

SERVICE LEARNING

NEWS



[Home](#) / [Service Learning](#) / [Current Projects & Events](#)

BIRD WINDOW STRIKE PROJECT

Current Projects & Events

More Project Information

All Project Sites

Our Community

Bird window strike project

As with many other organisms, bird numbers have declined significantly in recent decades. Bird-building collisions (typically window strikes) are an important source of bird mortality and contribute to an estimated 365 million to 988 million bird deaths in the United States annually.¹

Scroll to the bottom for information and important links.

More routes are being added for Fall:

Innovation Hall (IO)

Science Buildings (SL/LD)

Science & Engineering Laboratory Building - SELB (EL)

Engineering & Technology (ET)

Business/SPEA breezeway (BS)

Gateway/Blackford Garages (XL/XF)

University Library (UL)

University Hall (AD)

Education & Social Work (ES)

Lecture Hall (LE)

Hine Hall/Tower (IP/HO)

Information needed to participate in the project is below:

[project instructions](#)

[guide to photographing birds for the BWSP](#)

[specimen information cards](#)

Route maps:

[Innovation Hall](#)

[SL/LD](#)

[EL \(SELB\)](#)

[Library](#)

[ET/SPEA](#)

[Gateway/Blackford Garages](#)

All the information you need for the Bird Window Strike Project can be found through these links.

The page will be updated with material for the new routes.

1. Loss et al. 2015. Direct mortality of birds from anthropogenic causes. *Ann. Rev. Ecol. Syst.* 46:99-120

Register for this project

Register for the Bird Window Strike Survey project.

Submit your data

Submit your window strike data through this form.

This is the link for the online data form. You'll want to *favorite* the link if you join the project.

Each time you walk your route, you submit an online data form.

Don't know birds? No problem!

No birding knowledge is necessary to take part in this project.

No joking. Complete birding novices welcome.

You will use an app called Seek to identify any birds you find.

Birds are the gateway taxon to biodiversity appreciation.

Come to the Dark Side

. . . . we have birds.

Yes, that was a science joke.

Never claimed it was a funny joke



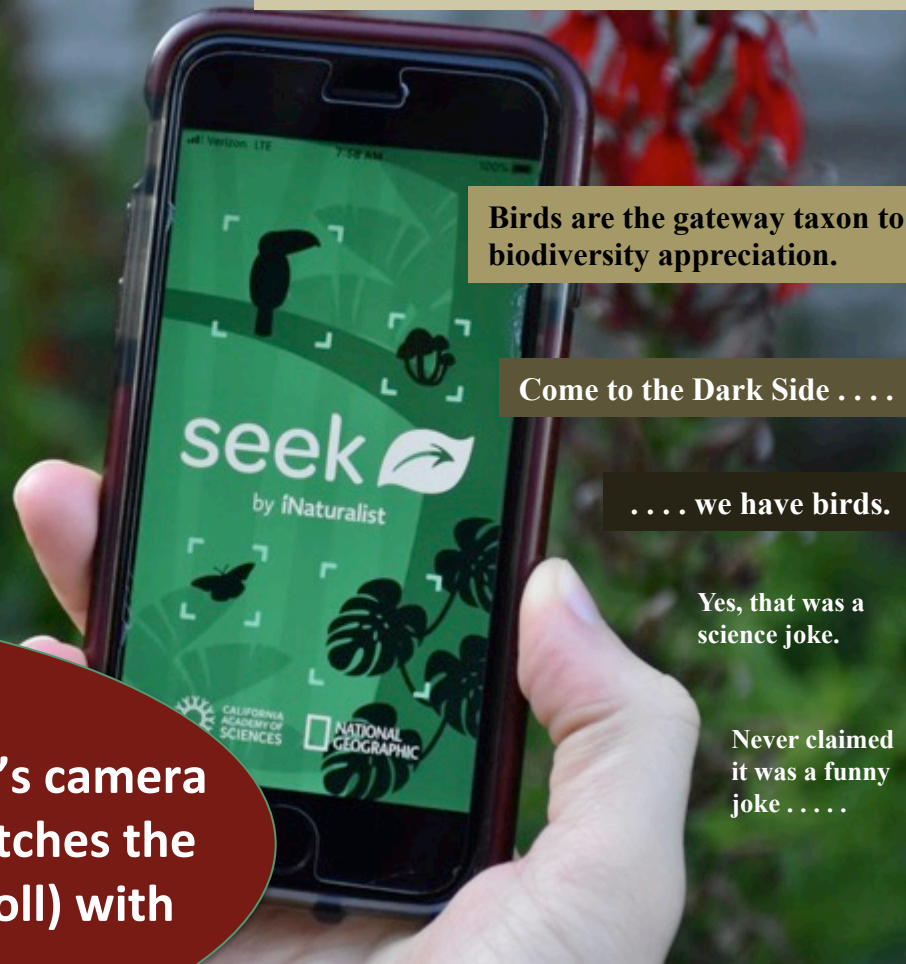
We will also use Merlin Bird ID

Merlin Bird ID

From the Cornell Lab of Ornithology

<http://bit.ly/MerlinApp>

Seek (and Merlin) use your cell phone's camera to scan the environment; the app matches the image (or photo from your camera roll) with images from its database.



FAQs

Will I have to pick up dead birds?

Yes. Yes you will or your partner will.

You will be provided with gloves, protective eyewear, mask, carry bag.

Always wear your mask, gloves, and protective eyewear when handling dead birds.

What if the bird isn't dead?

Non-fatal collisions happen. We have a protocol for this. Alert the project managers, and the bird will be watched to see if it recovers. They often do. (Yay!)

Occasionally, injured birds are taken to rehab.

Can a friend and I work together?

Yes Did I mention Birding Buddies?

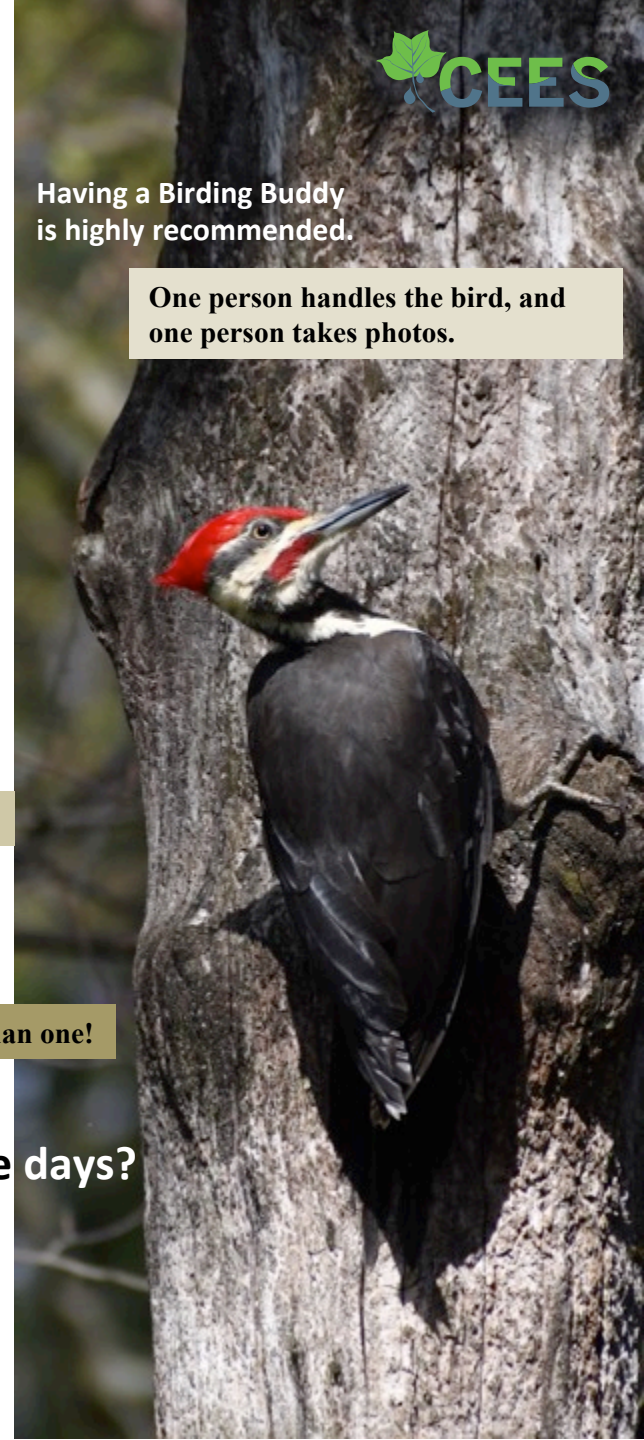
Two sets of eyes are better than one!

Can I do more than one route? Or do a route multiple days?

Yes and yes.

Having a Birding Buddy is highly recommended.

One person handles the bird, and one person takes photos.



Fall Migratory Bird Day

Biodiversity Survey & Trash Clean Up

The Fall Migratory Bird Day is what birders term a “Big Day” – these are particular days when birders around the world engage in intensive bird counts. The result is the data equivalent of a snapshot of what birds are where at that point in time.

There are two annual global Big Days – one happens in spring, the other in fall. Both coincide with the peak of the seasonal migration.

We also pick up trash as we bird. This helps restore/beautify habitat at Eagle Creek Park, improving conditions for wildlife and gets us free parking.

Purpose:

trash clean up

contribute to global data set

timing of migration

population size of migrating species



Fall Migratory Bird Day

Project 7

October 12 (Saturday)

9:00 AM – 12:00 PM

Backup Date: Sunday, Oct. 13

Note the slightly earlier start time. The best birding happens within 4 hours of sunrise (which is 7:53AM on Oct. 14). The early bird and all that

LOCATION: Eagle Creek Park Ornithology Center

Technically, there is no rain date for a Big Day – birders are hard core – a little rain (or even a downpour) won't stop them. However, if the weather is miserable on Saturday, we'll bird on Sunday. Data is still data – even if it's a day late.

Our counts will be submitted to eBird – a platform run by the Cornell lab of Ornithology.



This project is currently being offered only as a “waitlist” option. It may or may not occur, depending on demand and possible scheduling conflicts.

CEES will have extra binoculars.

digital 35mm camera or binoculars helpful





Questions ?

Contact:

Dr. Victoria Schmalhofer

cees@iu.edu



FYSA

First-Year Science Apprenticeship

Program to get incoming students involved in research their first year on campus.

Open to full-time first-year Biology (**first dibs**) students starting in the fall. Students earn \$12.50/h while working (up to) 10 h/wk in the Biology Department (**and CEES**).

Other Science majors can participate as well.

Contact:

Dr. Patrick Gentry

plgentry@iupui.edu

(317) 274-8544



1RIP

**1st-year Research
Immersion Program**

[https://indianapolis.iu.edu/research/participate/
undergraduate.html](https://indianapolis.iu.edu/research/participate/undergraduate.html)

Stay Connected!

Facebook: www.facebook.com/CEES.IUI

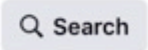
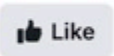
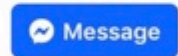


Instagram: [CEES_IUI](https://www.instagram.com/CEES_IUI)



**Center for Earth and Environmental Science at IU
Indianapolis**

897 likes • 955 followers



Service Learning photos!

Interesting environmental science,
ecology & geology themed posts.



Twitter:
[@CEES_IUI](https://twitter.com/CEES_IUI)



MUCH LEARNING

VERY SERVICE

SO WATER

Alas! The Doge is no longer considered funny.

'Tis not a vibe.

Its humor has ceased to be.

This is an ex-meme.



AMAZE

SUCH CLEAN

WOW