



CREED

Curriculum Resources for
Environmental Education Development

Winter 2018



CREED features:

- **President's Letter**
- **Conference Recap**
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A Letter from Ann

My daughter recently challenged me to keep a journal. She asked me to practice taking time daily to write about 4 things; a best moment, an LFT (something I am looking forward to), a worry, and what I am thankful for. I thought I could try this framework for this CREED's presidents letter.

Thinking about the last quarter of the year there have been quite a few best moments. Sitting with the students from Purdue and IUPUI for a meal at our annual conference, I was taken with the curiosity, enthusiasm and hope the students carried. The idea that they chose to drive at least 4 hours round trip to learn more about EEAI during a beautiful weekend and taking free time to go to meetings really encouraged me that they care. Another best moment is every time I watch "Little Warriors". This is a film showcasing the work Youth Power and our member Jim Poyser, have done and it leaves me chocked up with awe. Another best moment was at the Greening of the Statehouse, the audience was half filled with people 30 years old or younger. I met 6 college students who chose to spend a Saturday inside

learning about what they can do to help Indiana. Doubtful I would have sacrificed a day at that age. What encouraging action. I am very hopeful.

Something to look forward to is getting the Environmental Literacy Guidelines used in classrooms. To better serve the teachers we are working to align them with the state standards. EEAI spent years working on these guidelines with input from stakeholders from across the state. It is time for us to start talking more about the 4 strands:

1. Questioning, Analysis, and Interpretation
2. Knowledge of Environmental Processes and Systems
3. Skills for Understanding and Addressing Environmental Issues
4. Personal and Community Action

How are you using these guidelines? Let's get more teachers teaching these strands. <http://www.eeai.org/resources/Documents/ELP/Indiana%20Environmental%20Literacy%20Guidelines.pdf>

I am worried about the state of our world. So much is changing at rates we have never experienced before and many are not paying attention. The science is showing us we can make a difference. The time is now. But not many are taking action. You begin to wonder if turning those lights off really makes any difference.

However, I am thankful for EEAI. EEAI is providing a platform to take action. EEAI is connecting us with other groups who are taking action. Working together we all can turn off that extra light to make a difference. We can all work together to educate Indiana about our environment and give our neighbors the knowledge, tools and balanced perspective to understand that their action does make a difference and so does yours.

I am thankful for you.

Ann Niednagel

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EEAI Conference Recap

By Bernadette De Leon

As Warren Gartner titled his farewell entry in the EEAI conference scrapbook, “EEAI 2017 Becoming More Inclusive, Let’s Do More!” The conference theme, Seeing the Forest AND the Trees: Cultivating Diversity” sparked collaborations that we hope will change and renew the organization.

In her keynote, Rue Mapp shared her personal history as well issues faced by people of color inexperienced the natural world. Her suggestions for making environmental education more inclusive were based on what she has learned through her organization, Outdoor Afro. For example, Rue discovered that the main reason people were not getting out in nature was that everyone has limited time, so OA works around people’s schedules to connect them to local nature. She urged us to take the opportunity to reach out to communities that you may not know – to reconnect, restore, and repair our relationships with nature and others. Rue also encouraged us to rethink how we can get people outdoors in their own backyards, and we can ask how to reconnect individuals with outdoor activities they did in their childhood (e.g., riding bikes, fishing, cookouts, hiking or playing with bugs).



In addition to Rue’s keynote, others led us to consider how we can work with diverse communities. My favorite example is Jim Poyser’s new career at Earth Charter Indiana. Jim shared a documentary on his work with the Youth Power Indiana, a "youth-driven climate stewardship and civic leadership" program (<http://www.youthpowerindiana.com/climate-recovery>). The actions of our state’s youngest environmental educators demonstrate Rue’s call to reach out to diverse communities to repair and restore our relationships with nature.

Rue also spoke of reconnecting with the natural world around us. The beauty of Waycross Conference Center and the field trip locations provided spaces that made it easy for the people I spoke with to reconnect with nature. From the beauty of individual autumn leaves to the landscapes through which we hiked, the conference center provided a perfect setting for reconnecting with the planet and each other.



Dr. Leon Walls brought us together as he shared his music and considered the variety of ways songs are developed. Unbeknownst to him, Leon's words and music inspired a spontaneous poem that won the Songwriting contest.

As usual, the songwriting contest showed the diversity of talents and points of view in the group. That event, followed by the barn dance made the first night of the conference a time to connect with each other. Sandy Belth's wonderful hospitality room provided a place for those connections to be made and nurtured.

As we start 2018, let us remember those connections we made as well as what we learned at the conference. Let us consider how we will apply the lessons in this coming year, even as we mark our calendar for the next conference.

Mark Your Calendar for the 2018 Conference

September 28-30, 2018

Chair: Paul Steury

Theme: Fun-O-Logy

Camp Alexander Mack

1113 E Camp Mack Rd, Milford, IN 46542

EEAI 2017 Award Winners

2017 Joe Wright Award Winners

Vera VanderKooy – Executive Director of The STEM Connections

<https://thestemconnection.org/>

Nominated by Mary Stumpf and Stacie Hernandez

Vera is the Founder and Executive Director of The STEM Connection, a non-profit organization aimed at facilitating science, technology, engineering, and math (STEM) experiences and programming for youth and adults using fun, exciting, unique, outdoor, hands-on learning. As an educator, she ensures that the programming aligns with IDE standards and uses the DoS – Dimensions of Success – tool for ensuring quality curriculum and programming.

Her innovative and growing organization provides after school STEM programming, summer camps, field trips, STEM@Night experiences, STEM Family Nights, professional development for educators, family nature encounters, and more. She is committed to providing quality, effective STEM education to children and adults of all ages.

Claire Lane – Hamilton County SWCD Urban Conservationist

<http://www.indianachildrenandnature.org/>

Nominated by Warren Gartner

Claire has been the behind-the-scenes person for the Indiana Children and Nature Network for several years and is responsible for much of the visibility that the organization has achieved. With her excellent computer and graphic skills, she has quietly and efficiently gone about creating and maintaining the website, a Dropbox sharing site, social media sites, flyers, posters, PowerPoints, spreadsheets, contact lists, banners, electronic newsletters, interactive maps, photo contests, prize giveaways, and general communications. For examples of her work, check out the ICAN website <http://www.indianachildrenandnature.org> to see the page layouts and all the downloadable resources available.

Jim Poyser – Executive Director of Earth Charter Indiana

<https://www.earthcharterindiana.org/>

Nominated by Paul Stuary

Jim deserves recognition for his continuous desire and passion to educate all in our fair state about climate change. He uses humor to the max. He creates game shows. He educates mayors. He bikes everywhere. He engages the public. He has devoted his life to climate action and serves as an inspiration and mentor to people of all ages.

As Executive Director of Earth Charter Indiana, Jim took the opportunity to create a new branch of the organization titled Youth Power Indiana (YPI). YPI is a youth-led initiative focused entirely on engaging youth in solving the climate crisis. Since their inception, YPI has made considerable strides across the state, inspiring city/county councils to adopt climate recovery resolutions (Indianapolis, Carmel, etc.) and inspiring a documentary entitled “Little Warriors”, capturing their work under Jim’s tutelage.

Mindy Murdock – Manager of Zion Nature Center

<http://www.zionsville-in.gov/270/Zion-Nature-Center>

Nominated by Laura Sertic & Melissa Moran

Mindy Murdock is the manager at Zion Nature Center in Zionsville. Mindy began her role as interpretive naturalist in Zionsville in 2014, moving to Indiana from her home state of Ohio to assume this role. In her first three years in the Hoosier State, she has done amazing work to connect the young citizens of Zionsville with their natural world. In addition to organizing the educational programs and outreach for the nature center (her day job), Mindy has also:

- Jumped in to celebrate Nature Play Days with the Indiana Children and Nature Network in both 2016 and 2017. While some hosts organize one event, Mindy organized nature play days for Zionsville Parks for EVERY day of the 10-day celebration (and some days there were two events)! You can see the caliber of

the events that she has organized here:

<http://www.zionsville-in.gov/484/Nature-Play-Days>

- Persuaded the Zionsville mayor to proclaim “Zionsville Nature Play Days” for the week of ICAN’s Nature Play Days. To our knowledge, this is the first mayor in Indiana to make a proclamation supporting Nature Play Days. See the full story here: <http://www.currentzionsville.com/2017/05/30/zionsvilles-nature-play-days-aim-to-get-families-outside/>
- Championed the Children of Indiana Nature Park by reaching out to every elementary school in Zionsville and got them to host a “Deeding Day” for all of their students. That is over 3,000 youngsters who now have their piece of land at the Children of Indiana Nature Park!

Mindy did all of this while being a new mom!

2017 Howard Michaud Award

Jabin Burnworth –Manchester Jr/Sr High School Science Teacher

Nominated by John Brady

The first EEAI conference I attended I met Jabin Burnworth. He had just been elected as president elect of EEAI and he made time to welcome me, a new comer, to EEAI. We immediately bonded as we both taught AP environmental science and I quickly connected with him professionally. In the years I have had the privilege of working with Jabin, I have known him to be a tireless advocate for environmental education, a passionate innovator as an instructor and a mentor for countless other environmentally minded educators, traditional and non.

Jabin has served EEAI for years on the board, as President, conference chair and leadership with the Environmental Literacy Plan. He has presented at conferences, attended meetings and has engaged his legislators with his students to help educate them on the importance of environmental education.

Jabin is always looking for ways to connect content with his students. He plans a week-long trip to the everglades with students, he attends conferences to gain new ideas and also to share his. One example that comes to mind is how Jabin turned his summer learning at the Indiana Dunes National Lakeshore into an app that helps students accurately determine percent cover. He was able to inspire and engage his students to develop the app and use it in field work. Jabin partners with professors at Manchester College, with professionals from across the state including Jim Poyser of Earth Charter.

What I most appreciate about Jabin is the way he selflessly gives of his time and effort to help other environmental educators across the state. Many of us in EEAI have been impacted by his positive encouragements, by his thoughtful and engaging conversation

and his great brain storming.

Jabin Burnworth is an exemplary Environmental Educator and has dedicated his teaching career and endless energy to promote and further environmental education in the state of Indiana.

Indiana Children and Nature (ICAN)



While it is very wintery this week, it is time to start planning for your June Nature Play Days! Check out these resources under

"Initiatives": <https://www.indianachildrenandnature.org/>

Snowy Owls: Arctic Amblers

By Natalie Haley, Environmental Educator for Allen County Parks

The Snowy Owl, *Bubo scandiacus*, is a highly sought-after bird by both birders and non-birders, alike. Their breeding grounds seem unobtainable for most to study as they reside during the summer months above the Arctic Circle in the treeless Arctic tundra. We have recently acquired another Snowy Owl that resides in our freezer at Allen County Parks. Naturally protective of these white and wondrous beauties, we have delved into research on why we are continuing to see an increase in the



winter arrival of “snowies” here in northern Indiana.

In their Arctic landscape the Snowy Owl will nest on a hummock or high point on the ground in which the female scrapes out an un-lined hollow and begins to lay her eggs. The average clutch size or number of eggs laid in a brood is one to three. This year, each of the nests in the tundra of northern Quebec revealed five to eight well-fed baby owls or owlets per nest. What drove this change? Snowy Owls have developed a unique ability to search for and find an abundance of their main food source, lemmings! Lemmings, a small rodent of the tundra, will cycle to its highest population number every four years within a specific area. Therefore, once every four years, each particular area of the Arctic tundra will produce plenty of food in which to raise a Snowy Owl family. This also requires snowies to live a very nomadic life in search of areas of high lemming populations. They will not return to the same nesting area each year as they follow the lemming cycles to yield the highest survival rates of their young. In other words, more lemmings, means more food for both adults and owlets. Some clutch sizes have reached record highs of 16 eggs in a nest. So is this good or bad for the snowies? Research indicates that it could sway either way. The female lays her first egg immediately after scraping out the hollow. She needs to incubate it immediately to prevent freezing. She lays one egg every two days. So if she lays 14 eggs, she will have been laying eggs and incubating them for almost a solid month. With each egg taking 32 days to hatch, poor mama will be on the nest for over two months before the last egg even hatches. It takes roughly seven weeks for the new Snowy owlet to fly after hatching. So, raising a large brood of Snowy owlets may take three and half months! This may skirt close to the season of the big snows of the Arctic tundra.

The adult male does all of the hunting while the adult female stays on the nest, laying eggs and incubating continuously from the laying of the first egg. A single pair with a brood of eight or nine owlets may consume more than 2,500 lemmings in a single Arctic summer breeding season. Wew!!! If many owl nests are full of 5-16 eggs, which only happens in areas of high lemming populations, this will produce competition between the juvenile young that leave the nest the following winter. Experienced, adult owls will remain closer to the nesting grounds. Others are forced to find winter territories further out, causing an irruption or huge dispersal of Snowy Owls. Not all owls will migrate south, however. Norman Smith, a Snowy Owl bander at Logan International Airport in Boston, Massachusetts for over thirty years, collaborated with Mark Fuller of the Denver Holt Studies in Barrows, Alaska by equipping Snowy Owls with transmitters. They found that the owls from Barrows actually migrated north for the winter and stayed on the pack ice, hunting shorebirds. In Massachusetts, three owls were shot, but the others made it back to the Arctic near Baffin Island, suggesting that some adults may visit the south in a regular migrating pattern, not just during irruptions.

A healthy adult male Snowy Owl weighs approximately 2.5-3.5 pounds. The adult female weighs 4.0-6.5 pounds, heavier than the Great Horned Owls that breed here. The male must be determined to prove he will be a good provider as the female cannot afford to take a chance. The male will display a series of three courtship rituals to prove his value. First, he presents a flight display, descending in flight with wings

arched above his back, flapping upwards to repeat. Next, he will deposit a pile of lemmings to the feet of the female to establish he will be a good hunter and provider. Finally, the males go through a variety of wonderful and strange poses before fawning in front of the female to complete his amorous display! Determining whether a Snowy Owl is a male or female is very difficult and risky at best in the field. Please do not assume that all white, or mostly white Snowy Owls are males and that all darker snowies are female. Also, not all of the extremely dark owls are juveniles or young owls. This is often incorrect. The last bird hatched in a clutch is invariably darker than the first, regardless of sex. Without blood samples, you may look at the secondary flight feather (number four) on the wing. The female owl has a darker mark that touches the feather shaft, making it a "bar". The male dark mark will not touch the feather shaft, making it known as a "spot" or "blotch". You may also look at the darker markings on the tail. Females will have three, or more, bars on the tail; while the males possess three or less. It is important to also note that the terminal dark tail band extends from edge to edge of the tail feather on females, but will not reach the edge of the feather in males. Males also have thinner bars on the tail feathers than the females. Don't feel bad if you are not really great at this. Carl Linnaeus, the father of taxonomy or classification, didn't realize that both the males and females were of the same owl species! Check out NPR's Skunk Bear you-tube video for some fun information: <https://www.youtube.com/watch?v=HXwrB216bgE>.

In the treeless tundra the high points chosen for nesting allow for long views to spot predators, but little protection from Arctic winds. However, their plumage insulates them similar to that of an Antarctic penguin. Predators in Indiana are often the Bald Eagle. The Snowy Owl may fly at speeds of 55mph and may fly 140 miles/stretch. At age three the owl will seek out a mate. When they irrupt or are forced to migrate further south to states such as Indiana, they are not picky in their food source. They seek out voles, mice, rats, rabbits, cats, small birds, waterfowl (geese too), great blue herons, gulls and other raptors such as American Kestrels, Northern Harriers, Short-eared Owls, Peregrine Falcons and even another Snowy Owl. Much of the population will prey on sea birds. According to David Evans, a Snowy Owl bander in the Duluth, Superior area for over 40 years; if they Snowy Owls arrive in October, they will often appear stressed, injured or starving. Generally, if they arrive in mid-November they will arrive in good body condition and weight from their journey, as most do, and their chances of survival are commonly good. Keep in mind that juvenile raptors have a mortality rate of 70% in their first year. Many snowies fare quite well here if they can avoid mortalities caused from planes, trains and automobile, electrocution, secondary rodenticide poisoning (don't poison mice or you will poison their predators!), illegal shooting, parasites and fungal infections.

The Migratory Bird Treaty Act of 1918 between the U.S. and Great Britain, which was later amended to include the U.S. and other countries such as Mexico, Japan, and Russia; protects migratory birds between the above countries, unless permitted by regulations. This Act prohibits the pursuit, hunt, take, capture, kill, attempts to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, delivery for shipment, ship, transport, etc... any part, nest or egg of any such bird. In order to have

a migratory bird or bird part (feather, skull, talon, full mount, etc...), one must obtain proper permits with the U.S. Fish and Wildlife Service – Migratory Bird Permit Office in Bloomington, MN. Our permits are for special purpose and salvage and must be reported annually. They request the species common name, where found (State), number of birds, eggs, nests salvaged, and location of final disposition (such as our Snowy Owl mount at Fox Island County Park).

Seeing a Snowy Owl in the wild is a thrilling experience. They are deserving of our respect as they have travelled hundreds, sometimes thousands of miles, after surviving the Arctic as a baby owlet! Viewing considerations include not approaching an owl too closely. You will know you are too close if the bird frequently looks at you, sitting erect with open eyes in your direction. Avoid flushing them if at all possible. Please do not approach a Snowy Owl in October as they may be struggling. Wait for mid-November to get within appropriate viewing distances. Do not draw them in with audio recordings. Do not feed Snowy Owls mice or prey that may lead to habituation to people and a higher likelihood of collision or disease. As Snowy Owls are diurnal, they are often found out hunting during the day and the night. This makes sense as they can survive long periods of extended day or night in the Arctic. Please do not use flash photography as this may disrupt their normal activity patterns. We recommend that you view them from a vehicle, with the engine off to avoid interfering with their use of hearing when hunting. It also helps stabilize your viewing pleasure when the car is not vibrating your hands or optics! As always, ask landowner permission before entering private property. Finally, be aware that you don't block public roadways and access points such as on-ramps, and roundabouts. If you want to share that you have spotted such a wonder, please do not post it until the bird has left the roost. Report it to eBird afterwards as well, www.ebird.org.

In the wild, a Snowy Owl may live up to ten years. We would like you to become protectors and stewards of wildlife by doing all that you can to make sure this decreasing species continues to thrive and visit our "southern" lands here in Allen County, Indiana.

Have something that you would like to be included in The CREED?

The CREED is published seasonally. Submissions to CREED will be accepted at the discretion of the CREED board. Submission deadlines are the first Wednesday of March, June, September, and December. Email your articles to the EEAI secretary Sarah Wolf at swolf@hcparks.net and include "CREED submission" in the subject line.