

THE TINKERED CHICKEN

We have seriously tinkered with our food.

I came to this conclusion after raising Timmy, a baby chicken that arrived in a shipment of raptor food from the local hatchery. "Raptor food" meaning dead cockerels – 5,000 fuzzy day-old chicks, humanely euthanized.

Before we go any further, let me say I understand that the idea of so many dead peeps might be distasteful to some. But unlike humans who may choose to go vegan out of concern for animal welfare, our educational raptors are obliged to eat meat, and we are obliged to feed it. For us, cockerels are not unlike the chicken you'd find in the grocery store, only with feathers and faces intact - and, in Timmy's case, *alive*. He'd survived some incredible odds; we purchase thousands of chicks each year as raptor food, and had never seen a live one. Timmy was a *survivor*, one we figured we'd keep around.

But he didn't look so hot. His eyes were barely open, his breathing labored, and his head twisted around at a sickly angle. I thought his chance at a healthy normal life was pretty slim.

Yet with a little TLC, Timmy improved almost immediately. Within the hour he was pecking at feed, and by the end of the day he (literally) had his head on straight.

Now, raising baby birds is something I've done a lot of. Over the years, hundreds of songbirds, raptors, gamebirds and various other fowl have passed through my hands. I know my way around an avian orphan.

At least, I thought I did. Timmy was something else entirely. His rate of growth and development was like nothing I'd ever seen before. The words *astounding* and *epic* come to mind.

The bird doubled in size almost daily, and was soon stomping around like a Tyrannosaurus, demanding heaping piles of chicken feed, fruits and insects, turning them into masses of chicken muscle. White meat, dark meat, a waddle and a comb. One day a gasping splatter of fluff with a twisted neck; the next, Godzilla rising from Tokyo Bay – all angry eyes and meaty thighs.

Soon it was clear Timmy had no interest in becoming part of our education program. He complied with nothing we asked, was not especially friendly, and left a never-ending trail of poo on the new carpet. At three weeks we found him a home with other pet chickens. By then, he was roaster-sized.

How can chickens grow so fast? According to the US Poultry and Egg Association, these birds are developed the old fashioned way, through a kind of tinkering called selective breeding. Choose animals with desirable traits, such as the

ability to pack on pounds quickly, and allow them to breed with each other. Continue selecting parent birds with the preferred characteristics, generation after generation, and eventually you've created a marketable breed.

With a long history of this kind of selection, the Speckled Meat Chicken (aka Timmy) now goes from hatchling to fryer in less time than it takes me to make two car payments.

Rotisserie ready in seven weeks. No growth hormones, no antibiotics; just a fast-forward version of the kind of natural process that's been responsible for creating new species of plants and animals for billions of years.

Humans have tinkered with plant breeding for centuries, and hybrid plants have now become the norm. Gardeners flipping through mail order catalogs find a cornucopia of fruit and vegetable varieties. While most are bred to resist bacterial, fungal and viral disease, the science doesn't stop there.

We now have seedless watermelon, coreless carrots and burpless cucumbers; cool weather beans and warm season lettuce; purple watermelons, white pumpkins and blue potatoes. Tinkering with broccoli has resulted in such odd crosses as asparbroc, broccolini, broccoflower, brokali and Brocc-enstein (Ok, I made that last one up).

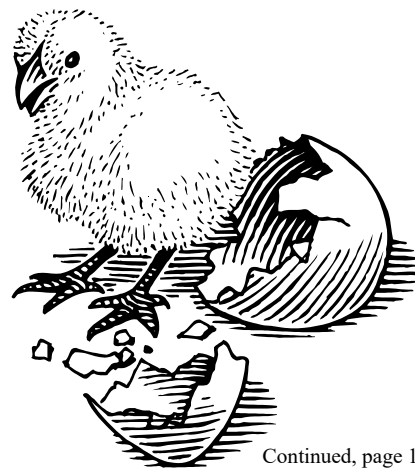
And the tomatoes! Thirty-two pages' worth of varieties in this year's "Totally Tomatoes" catalog alone. All of these varieties are produced in much the same way as meat chickens – with selective breeding to craft various hybrids.

But in the early 90s, a California company took tinkering to a new level, creating the first genetically modified food on a commercial level. Researchers at Calgene actually *inserted* an extra gene into the DNA of a tomato.

And so was born the Flavr Savr, a variety meant to stay firm and ripe longer, with more time to get from field to table.

Neither the fruit nor Calgene delivered as promised, and the Flavr Savr was only available for a few years. But that gene insertion marked a milestone in food science.

It's important to note that this gene was a



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PUBLIC PROGRAM OFFERINGS

Please register in advance by phone at (570) 645-8597, or by email at cceec@ptd.net. Unless noted, all ages are welcome at each program. Programs are free for EEC members, with a \$5 fee per person for non-members, unless otherwise indicated.

Creepy Crawlers

Mondays, 10:00—11:30 am

Open to all 2, 3 and 4 year-olds, each session focuses on some aspect of the natural world. Children participate in age-appropriate games, crafts, stories and other activities.

January 27—Winter-y Fun

February 24—Animals Underground

March 17—Play Day

April 21—Super-Duper Spring

May—No Meeting

Ranger Rick Club

Saturdays, 10:00—11:30 am

Open to all students in grades K through 6, each meeting focuses on some aspect of the natural world. Children enjoy age-appropriate games, crafts, hikes and other activities.

February 1—Simple Science Stuff

March 1—Everything Green

April 5—Spring Fling

May 3—Fun & Games

Bird Box Building

Sunday, February 9

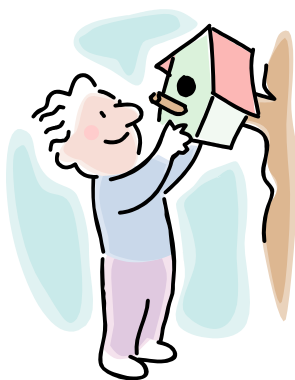
1:00 pm

Build the standard box, designed for bluebirds, chickadees, titmice, wrens and deer mice (\$10) or a larger box for kestrels, small owls and squirrels (\$20).

Individual registration only (no groups, please) is due

by January 29 so box kits can be prepared.

Limited to 15 participants.



Winter Survival

Saturday, February 22, 3:00 pm

CCEEC Naturalist Franklin Klock presents this popular adult program. Participants are reminded the afternoon will be spent outdoors, and are asked to dress appropriately.

Space is limited, and pre-registration is required.

The program is free for members, and non-members are asked to pay a \$5 fee per person.



Tomatoes: From Seed to Table

Saturday, March 15, 10:00 am—12:00 pm

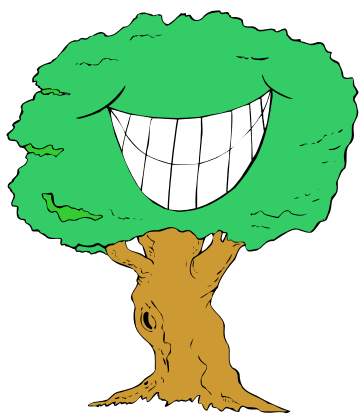
Learn about starting your own tomato plants from Penn State Master Gardeners. Plant four varieties of tomato seed to take home to your garden, and learn about their care.

Registration is a must, as the program is limited to 25 participants. A \$5 donation covers the cost of materials.

Nature Crafts

Sunday, March 16, Noon

Join us for an afternoon of nature-related crafts, as we prepare to welcome spring! No materials are needed for this family-oriented program, but pre-registration is required, along with a \$5 fee per person.



Land Conservancy Round-Table

Tuesday, March 18, 7:00 pm

Western Pocono Trout Unlimited will be hosting a special panel presentation with four of the area's most prominent land conservancies.

Representatives of The Nature Conservancy, The Pocono Heritage Land Trust, The Wildlands Conservancy, and the North Branch Land Trust are slated to participate and explain what they do and how they do it.

Learn the reasons behind acquisitions these groups have made, and what distinguishes them from each other.

All are welcome at this free program.

CCEEC Open House

Saturday, March 29, Noon—4:00 pm

Members, neighbors and friends—all are welcome to our annual Open House event! There will be games and crafts for the kids, live animals, refreshments, and a Basket Raffle fundraiser for all. Check out CCEEC “behind the scenes” and meet our staff. All are invited to this free program.

Pennsylvania Reptiles

Saturday, April 19, Noon

Come for a look at Pennsylvania snakes—and turtles, too! Naturalist Jeannie Carl presents a program on our native reptiles. Live animals will be on hand for those who'd like to meet one of these scaly creatures in a controlled setting.

The program is free of charge and open to all ages.

Trout Unlimited Meetings

At CCEEC—7:00 pm

The Western Pocono Chapter of TU holds monthly meetings at CCEEC, all are open to the public free of charge. Meetings usually feature a short presentation on a topic of interest to anyone who enjoys Pennsylvania outdoors—not just fishermen!

There is no fee and **no registration** required. Come to one meeting, come to all. Bring a friend! Upcoming dates and speakers are listed below.

Tuesday, January 21st—Ed Wytovich, President of the Catawissa Creek Restoration Association will present an overview of what's been done—and what more needs doing—to turn Schuylkill County's Catawissa Creek from an acid mine-impacted waterway, to a first class trout fishery.

Tuesday, February 14—Meet Paul Healey, local river guide and owner of Jim Thorpe Flyfishing Company. Paul, also a bamboo fly rod collector, promises a fun and informative program.

Tuesday, March 18—See information at left on Land Conservancy Round-Table. Scheduled speakers include Ellen Lott of The Nature Conservancy, Don Miller of The Pocono Heritage Land Trust, Chris Kocher of The Wildlands Conservancy, and Rylan Kocher of the North Branch Land Trust.

Tuesday, April 15—Rick Nyles of Sky Blue Outfitters provides a slide presentation on fishing streams of central and eastern Pennsylvania, including Penns Creek, Spring Creek, and Fishing Creek.



CCEEC PHOTO CONTEST

"Carbon County"



WHEN: March 2014

WHO: Members & Non-Members of CCEEC / All ages

AWARDS: Cash prizes/ Gift certificates will be awarded for:

CATEGORIES: (3) *Wildlife * Macro *Landscapes

1st Prize: One winner in Each Category

2nd Prize: "Best in Show" (One winner)

3rd Prize: People's Choice (One winner)

ELIGIBILITY:

Entries **must** be original work of photographer.

Photographs suspected of being another's work or from the internet will not be accepted.

SUBMISSIONS:

- The theme "**Carbon County**" may be interpreted in any manner the photographer wishes in any of the above categories.
- There is a \$5 entry fee per submission. (Limit of 3 entries per photographer)
- Photographs may be sold with 10% commission to CCEEC.
- Submissions must not be more than 3' in any direction.
- All entries must be framed and wired securely for hanging.
- Submissions that are flimsy or have sharp edges cannot be accepted.
- All entries must be displayed for the entire month of March.
- Each entry must have an entry form secured to the back of the photograph.
- **Drop off times:** Monday through Friday beginning with March 1st (8am - 4:30 pm)
- Arrangements for picking up photographs after the conclusion of the contest (March 31st) can be made with CCEEC staff.

JUDGING:

- ALL decisions made by the panel of judges are final!
- A list of judges' names will be made available by request.
- Ballots will be available for voting on the People's Choice award
- **Winners will be notified by CCEEC staff.**

Contact Jeannie Carl for more information, at natural-ist_eec@yahoo.com



Naturalist Notes

By Jeannie Carl

"It's Snowing Geese!"

"There's a snowstorm heading our way!"

Usually, upon hearing those words people would scurry to the store for bread, milk and other essential items. If you are a "birder" you know this doesn't mean a trip to the grocery store at all.

I'll be making a snowstorm list and on that list will be things like binoculars, Under Armour, telephoto lens and camera gear, field guides and of course, a friend to make the trip.

This snowstorm means heading out to one of my favorite places, Middle Creek Wildlife Management Area, instead of hunkering down inside.

Located in Lebanon County, Middle Creek is particularly known for the thousands upon thousands of ducks, geese and swans that migrate there in the spring and fall. The snow goose migration is of special interest to visitors due to the large numbers from mid-February to the end of March.

Friends have told me this is something I have to witness. One friend described the spectacle in vivid detail telling me "You could feel the wind and pressure from their wings as they rose off the water. It was like standing on a helicopter pad...with a cacophony of sound."

Obviously, snow geese are known for their bright white plumage and dramatic black wing markings, but many of them are actually a darker, gray-blue bird known as "blues"... simply blue snow geese.

This blue morph had ornithologists believing there were two separate species of geese, but that is no longer the case. The number of "blues" vs. the typical white snow geese is fairly large. The ratio is about 150:1.

At about three years of age, geese choose mates (of the same morph as the family they were raised in) and they stay monogamous for their entire lives. When one loses a mate, the other will sometimes wait years before choosing a new mate and there have been cases where the goose never takes a mate again.

Snow geese return to their general "home base" of hatching to mate and nest. The female builds the nest and lays one egg each day until approximately 5 eggs are laid and incubation begins. Male geese are very protective of their partners and will take a stand between her and a perceived threat. Something I did not know is that geese are very affectionate towards each other and their offspring. If a goose becomes

injured or sick,

others will take care of it until it

recovers.

Geese remain together at the end of the breeding season and do not break up the family as other birds tend to do. These geese will also form a crèche and take care of all the goslings.

Snow geese chicks are well-developed or *precocial* when they hatch. Their eyes are open, and bodies are covered in down. At one day old goslings are able to enter the water, keeping up with the flock by diving 30 feet under water and swimming extremely well.

At this same age, it becomes clear which morph the gosling will follow. At 5 days old, they are able to maintain a constant body temperature even in the harshest conditions. They grow very quickly, with the males outgrowing the females.

Within the first three weeks of hatching, goslings can walk up to 50 miles with their parents from the nest site to a more suitable rearing area.

In 1916, snow geese had become so rare in the eastern United States that hunting the birds was banned.

Since that time, the birds have made an incredible comeback.

Today, though hunting is permitted, populations are increasing at an astounding rate. The birds have become so numerous they are destroying suitable habitats.

(Continued, page 9)

Instead of nipping at grasses and other vegetation as Canada geese do, they rip the plants out of the ground

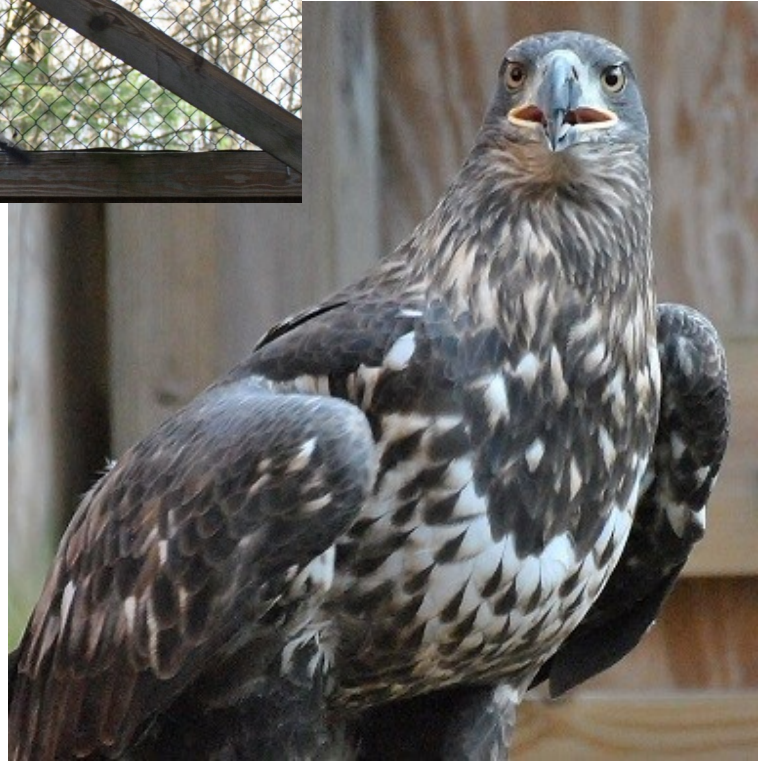


Snow Geese at Middle Creek
Photo by Joe Matukonis

Below, a young Bald Eagle exercises in our flight pen. At right, the bird perches to rest. CCEEC partnered with Pocono Wildlife Center of Monroe County on this bird, offering space in our 100 foot-long flight pen. Pocono Wildlife provided the rest of the care and rehabilitation required to put the bird back where it belonged!

Wildlife Pages

Photos by Jeannie Carl



CCEEC also partnered with Pocono Wildlife to care for the Merlin at left. These medium-sized falcons are rarely seen for care.

Thanks to surgical care provided by Wright's Animal Medical Center of Bethlehem to repair a fractured wing, the Merlin will likely be released this spring.

Life isn't always easy, even for an adult box turtle.

This guy suffered some minor scrapes after having been chewed on by a domestic dog. He was released before winter set in.

Box turtles are extremely territorial, and are released as nearby as possible to where they are found.

They also may be susceptible to viruses and bacteria spread by humans or other animals, so we do our best to limit handling and exposure to our other patients.



Yes, he is that cute! The orphaned porcupine below is overwintering at CCEEC before a spring release. Despite the adorable face, he is not particularly friendly. And if the mass of quills isn't enough to keep you at bay, the odor certainly will. He smells like a mixture of pine, and someone badly in need of a shower. The insert at lower right gives you an idea of the size of his "baby quills". As the little guy approaches adulthood, quills may measure over 3" long.



At left—"Eddy" the eared grebe, packed up for release. Loons and grebes cannot take off from land, only from water, and sometimes become stranded.

At right—a nuthatch moments before release. The bird was lucky to have survived being caught by a cat.



Above—Goggles are a must when handling (and in this case releasing) a great-blue heron. The six inch-long beak is designed to stab at shiny things—fish *and* eyeballs! This photo courtesy of volunteer Joann Scott.



Wenger, our educational raven, is caught in a pensive moment. He resides at CCEEC, permanently injured by a gunshot wound. Crows may be legally hunted in Pennsylvania when in season. Ravens may not. We recommend all hunters learn to identify their targets, and dismiss all doubts before taking a shot.

Forestry Notes

By James C. Finley

"Winter Leaves that Hang On"

By this time of year hardwood trees are mostly bare, stark against the sky, without their leaves. The only hint of summer's green trees are the conifers scattered about yards and forests.

Here and there, though, brown, dried leaves clothe some hardwood trees. Two small trees in our yard, a white oak and a shingle oak, both in the white oak group, rattle in the winter winds, holding fast to summer's leaves.

On winter woodland sojourns, you may have noticed hardwood trees holding fast, sometimes all winter long, to their spent and dried leaves.

Marcescence, the term used to describe leaf retention, is most common with many of the oak species, American beech, witch hazel, hornbeam (musclewood), and hophornbeam (ironwood).

Normally, as deciduous trees (which include hardwoods and some conifers) prepare to shed their leafy summer coats, cells at the interface between the twig and the end of the leaf stem release enzymes and form an abscission layer that "unglues" the leaf -- separating it from the vascular bundles, allowing it to fall free. All trees shed leaves, even conifers; however, they generally retain their needles for more than one year. Leaf drop benefits deciduous trees by reducing water loss and allows them to develop leaves that efficiently use available sunlight during warmer seasons.

Sometimes, early cold weather or frosts may interrupt the abscission process or "kill" leaves quickly. In these cases, the occurrence of marcescent leaves may increase. Lacking killing frosts, why would trees "decide" to retain their leaves? It is impossible to ask the trees, but we can speculate.

Marcescent leaves are often more common with smaller trees or more apparent on lower branches of larger trees. In the case of smaller trees, which in forest conditions would be growing beneath taller trees, the reduced sunlight might slow the abscission process. By doing this, the understory tree leaves and the leaves on lower branches of larger trees would also have the opportunity to continue or even increase their photosynthetic process as upper leaves fall. Then, perhaps, leaves lower in the canopy are "caught" with cold temperatures and their leaves hang on.

Some people speculate that retained leaves may deter browsing animals, such as deer. The dried leaves may conceal buds from browsers or make them difficult to nip from the twig. Researchers have found that the dried leaves are less nutritious. At least one study,

stripped twigs preferred those to marcescent twigs, especially of beech and hornbeam, but not so for oak. Nutrient analysis found the protein content of oak twigs was higher and the dead leaves had less lignin. The protein content of beech and hornbeam twigs was about equal to the leaves; however, the lignin content was nearly half again higher in the leaves. Maybe there is something to the leaves protecting the twigs.

The other reason trees might give for holding onto their leaves relates to nutrient cycling. Leaves that fall in the autumn would join others on the forest floor and begin to decay. As they decay, released nutrients could leach away and be unavailable to "feed" trees the next growing season. This might be especially important to small understory trees with smaller root systems. By holding onto their leaves, they retain and recycle their nutrients to themselves.

Regardless the reason for marcescent leaves, when growth begins next spring the expanding buds will push them off and clothe the branches with new greenery.

Until that happens, enjoy the waving brown leaves and the texture they add to forest and yards. Then, too, think about the bit of shelter they provide for wintering birds as they perch among the rattling leaves, away from winter's wind.



Jim
is the

Finley
lb-

erson Chair of Forest Resources at Penn State,
and the Director of PSU's Center of Private Forests
Department of Ecosystem Science and Manage-
ment

conducted in Denmark, found that deer offered hand-

CCEEC is now accepting trees for recycling into mulch and wildlife habitat.

The annual project is made possible by a grant from Leadership Carbon Class of 2007.

Trees may be dropped off at the back of the building at any time.

We cannot accept brush or yard waste, limiting our recycling efforts to Christmas trees only.



You can also recycle trees in your own backyard by stripping them of all decorations, and placing them near a bird feeder or bird bath. Providing food and cover will encourage a variety of species to visit.

Be sure to strip all tinsel, as it can pose a danger if ingested, or if animals become entangled.

The average Christmas tree can take decades to decompose in a landfill, where the natural process of decay is hindered by a lack of oxygen.

By comparison, trees left above-ground break down in a very short time.



“Geese” from page 5

as they graze. Snow geese are herbivores and voracious eaters. They eat grasses, sedges and rushes, eating the stems, leaves and roots. In the winter, they also eat grains along with a variety of berries and seeds. Goslings tend to favor berries, flowers and larvae.

From the late 1970s to 1990s, snow geese would come to Middle Creek in numbers ranging from a couple hundred to 1,500.

In 1995, their numbers were estimated at 50,000. The following year, their numbers had

doubled! In 1997 those numbers rose to 175,000. They are now the most abundant waterfowl on our continent.

In 2013, the numbers have risen to over 1 million birds. Abundant food supplies and limiting hunting are attributed to this population explosion. Today, approximately 400,000 are hunted annually in Canada and in the US.

From a conservation standpoint, I understand the impacts that these birds have on their home habitat (Canada, Alaska, Greenland and Northern Siberia) and how it not only affects them. Countless other animals are dependent on the habitat they share with these geese.

Snowy Owls, Rough-Legged Hawks, Common Ravens, foxes, bears, wolves, Bald Eagles and Golden Eagles who share this habitat also prey upon the snow geese.

Despite knowing the destruction they can cause in a short amount of time, it doesn't prevent me from wanting to experience this spectacle in the next few weeks myself.

See you at Middle Creek!

“Tinkered” from page 1

tomato gene – inserted into another *tomato*. Today, bioengineers are tinkering even further, inserting genes from one kind of organism into another. The consensus among most scientists is that the resulting crops (called *transgenic*) are perfectly safe for us to eat.

And yet some people are a little put off by the whole idea of what they call “Frankenfoods”. If you’re one of them, then I sure hope you’re not hungry. Most of the processed foods at your local grocery store bear some connection to these genetically modified organisms (GMOs). If it’s made with corn, soy, cottonseed or sugar, it’s more than likely modified. The same connection exists for chickens and other livestock that feed on these crops.

For corn, scientists at Monsanto inserted a gene taken from soil bacteria to create a more insect-resistant strain. This “Bt corn” was planted on 76% of all U.S. corn acreage in 2013. Monsanto is also responsible for creating Roundup Ready® crops, those immune to the company’s most widely-used herbicide. Roughly 90% of our soybeans are now so modified. There are GMO animals, too. Walk into any of the big box pet store chains, and you’ll find Glo-Fish® in bright pink, yellow and green. The fish fluoresces thanks to the insertion of genes from jellyfish or ocean corals. The same has been done with sheep, worms and (I kid you not) cats.

The Japanese have experimentally inserted spinach genes into pigs, and researchers in the Netherlands created a bull inserted with “human gene coding” meant to produce female offspring with a kind of super-milk.

No transgenic animal is, as of yet, permitted for human consumption, though a fast-growing GMO salmon is in the making. The litany of questions and concerns raised by this kind of gene tinkering is a long one. Do GMO crops require less commercial farm acreage, meaning less habitat loss for wildlife? Can GMOs help feed malnourished children in developing countries? (The answer to that one appears to be “yes”; Golden Rice, a GMO crop, could cure vitamin A deficiencies, preventing blindness for millions.)

What happens as these unnatural gene combinations interact with natural ecosystems? One study demonstrated harmful effects of pollen from Bt corn on monarch butterflies. Others have raised concerns about allergic reactions to GMOs in our diet.

Can we trust companies (most with poor track records) to value health and safety over profits? Are the products of their research brilliant or sinister? Or both?

Can we trust government regulators to understand all the science behind our bioengineering, and to make the right decisions for us?

And here’s a tough one: can we trust *ourselves* to make the right decisions? After all, our control over simple selective breeding has led to purebred dogs that have trouble breathing, seeing or walking, and domestic turkeys with so much breast meat they can barely stand up.

The answers are far beyond the scope of this article. What I do know is this: my consideration of the issue was spurred by a chance encounter with a domestic chicken. Timmy made me stop and think about my food; about the molecules that make up chicken or corn, and eventually turn into the molecules that make up me.

And I firmly believe that fostering a closer relationship with our food is a worthwhile endeavor.

Eating wild game, walking through a farmer’s market, planting a garden or raising a chicken – it reminds us of our connection to the earth and its complex natural systems, and of the consequences we may yet suffer, for tinkering with it all.



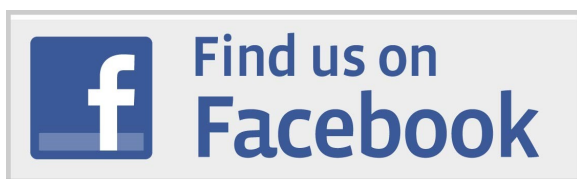
Left to right– Timmy at one day, two weeks, and seven weeks of age. A handsome boy!



CCEEC members who choose to share an email address receive monthly updates, notifying them of special programs and other happenings.

Our facebook followers get even more frequent notices of what's going on.

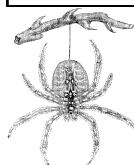
As has always been our policy, CCEEC does not share any of your information with other organizations.



CCEEC MEMBER BENEFITS

- A subscription to our newsletter, Reflections from the Lake
- Free or discounted admission to many public programs
- Email updates on programs & other activities
- A discount on our already low-priced summer rafting trip
- Free dermestid beetle skull cleaning for our members who are sportsmen
- As available, free owl pellets for educators
- Discounted admission & gift shop purchases at dozens of other centers, through a reciprocal benefits program
- A discount on children's swim lessons at Mauch Chunk Lake Park

www.facebook.com/carboneec



www.carboneec.org

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“Reflections from the Lake” is published three times annually by the Carbon County Environmental Education Center. It is mailed free to all members of CCEEC and Mauch Chunk Lake Park.

ENVIRONMENTAL EDUCATION CENTER
151 E. WHITE BEAR DR.
SUMMIT HILL, PA 18250
PHONE: (570) 645-8597
FAX: (570) 645-8499
CCEEC@PTD.NET
SUSAN GALLAGHER, CHIEF NATURALIST
JEANNIE CARL, NATURALIST
FRANKLIN KLOCK, PROGRAM ASSISTANT

MAUCH CHUNK LAKE PARK OFFICE
625 LENTZ TRAIL
JIM THORPE, PA 18229
OFFICE: (570) 325-3669
BEACH: (570) 325-2956
DAVID HORVATH, DIRECTOR, PARKS & RECREATION

Mauch Chunk Lake is administered by the Carbon County Parks and Recreation Commission. CCEEC is administered by the Carbon Conservation District. Funding is provided in part by the Carbon County Commissioners.

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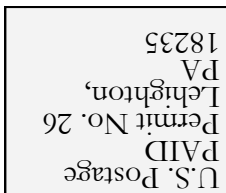
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