

Habitat works

The newsletter about restoring, managing and protecting wildlife habitat.
Spring 2012



Hoghole Creek on Talisman Farm is a nice sanctuary for waterfowl such as the Tundra Swan (*Cygnus columbianus*). (Photo Credit: Donna Tolbert-Anderson, capturingnaturesimages.com)



Habitat Works is published by Chesapeake Wildlife Heritage, a 501(c)(3) nonprofit conservation organization dedicated to creating, restoring and protecting wildlife habitat and establishing a more sustainable agriculture, through direct action, education and research, in partnership with public and private landowners. We welcome your comments and contributions.

CWH Restores Wildlife Habitat on Talisman Farm

by Ned Gerber, Director/Wildlife Habitat Ecologist

Talisman Farm is an 820-acre property near Grasonville, Maryland. The farm includes about 350 tillable acres and a 210-acre block of woodland in addition to tidal wetlands (see map at cheswildlife.org). One of the nicest natural features of the property is a large (about 60 acres) tidal pond known as Hoghole Creek. This creek cannot be entered by boat, even with a small outboard, and therefore has become a nice sanctuary for waterfowl, including tundra swans.

CWH was retained by the owner to create wildlife habitat (buffers and wetlands) and fix significant gully erosion of the farmland (see pictures on pg. 2 and 3). The soil maps indicated that extensive areas of hydric soil exist on the farm, so we set out to examine opportunities for wetland restoration.

Soil borings showed that while much of the soil was in fact hydric, it consisted of sandy loam soils not suited to shallow-emergent wetland restoration. These soils will appear very wet in the early spring and soil borings in them will fill rapidly with water; however, they rarely show surface hydrology for any length of time as they are too sandy and silty. They are wet because the groundwater approaches the surface through them; not because a clay layer prevents rainwater from draining down through them. Once the groundwater starts to retreat in spring (at about the time the trees break bud), the water table falls rapidly. If one tried to build shallow-emergent wetlands in these soils, the surface water would often vanish in early April and not appear again until perhaps January of the following year. Because of this fact, these areas were enrolled into CREP as wetlands (wet meadows) by blocking drainage leads and planting them with mixes of meadow plants that like wetter soils.

Once it is established (through extensive soil borings) that a site has enough clay to support emergent wetland restoration, a topographic survey is performed. I use a robotic total station, which has a laser eye that follows me around the field. It tells me how far away from the station I am and what the elevation of the field is to the hundredth of an inch. Grade (elevation) is critical in wetland restoration as a few inches can make the difference between open water and the plant-filled wetland we seek to create. Typically, we try to create what the ecologist, Paul Errington, called the "hemi-marsh," which consists of patches of shallow, open water interspersed within vegetated, shallow wetlands. A good diversity of wetland species seems to like this kind of marsh. Various wildlife species have different preferences. Many shorebirds love mudflats with water in patches ranging from

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(Talisman Farm continued from page 1)

one to two inches deep. Teal love a marsh packed with annual seed producing plants that is perhaps 3–6 inches deep. Butterflies like wet meadows filled with flowers (for nectar), mudflats (for soil salts), and patches of flowering buttonbush in a flooded wetland (again for nectar). One of the challenges of wetland restoration is to design, build, and maintain wetlands that can offer habitat to a diversity of wildlife at a time of year when they need it. For example, it doesn't do migrating shorebirds much good to provide mudflats in June when most of them are long gone. Similarly, flooded waterfowl foods in July aren't going to be used because most of the wild birds simply are not here then.

One trick CWH uses to control timing of flooding (and thus vegetation) is to employ a flashboard weir structure (see picture at cheswildlife.org), which enables us to partially drain the wetland each spring and keep it that way until fall. The spring drainage will expose some mudflats for migrating shorebirds. These flats eventually grow annual, wetland plants over the summer. Then, come fall, these now-vegetated flats are allowed to reflow, making the seeds produced available for birds such as teal, rails, and black ducks.

CWH was about 50 percent finished the first wetland in September 2011 when hurricane Irene dumped 12 inches of rain on the project; leaving the excavation equipment surrounded by water at the wetland site in the cornfield. This first wetland has an 8-acre drainage area so we figure about five million gallons of water went through the construction site during this storm event. Then 10 days later, another storm sent an additional five million gallons

of water through the unfinished marsh. Needless to say we had some regrading to do and some silt fence to repair. Eventually it dried out a tad and we got back to work. To date, five wetlands totaling about 30 acres have been completed. Blue-winged teal, many shorebirds, and a number of bald eagles started heavily using the new wetlands immediately after construction. In the spring of 2012, we have five more wetlands to construct on the farm, yielding approximately another 70 acres of marsh for the birds and other wildlife. The total restored wetland acreage will be around 100 acres, including the wet meadows, when CWH completes the project. (To see a map of Talisman Farm, with habitat restoration sites indicated, please go to cheswildlife.org, click on the projects tab and look for Talisman Farm.)

Several fields had severe gully erosion due to years of agricultural abuse. CWH received cost-sharing from the Maryland Department of Agriculture and constructed lengthy, grassed waterways to solve the sedimentation problem. Approximately 40 acres of native grass/wildflower buffer strips were also installed by CWH. The wild turkeys on the farm made good use of these areas in their first growing season and the native sparrows used them over the winter.

The state Farm Service Agency and Natural Resources Conservation Service offices wrote letters in support of grants to aid our efforts at the farm. The bulk of the earth moving and seeding work is funded by CREP. This work was aided by grants from Chesapeake Bay Trust, Healy Foundation, National Fish & Wildlife Foundation, the Sener/Johnston Family Fund and an anonymous donor.



Before: Significant gully erosion in a field at Talisman Farm.



After: The same field on Talisman Farm, now with a wetland restored by CWH—turning part of the problem into a solution.

New rules hinder conservation work on Talisman Farm

A new permit requirement (*Notice of Intent*) permits from the MD Department of the Environment) is making it even more difficult to get wetland restoration (and other conservation practices that require earth moving) on the ground. MDE says that they have to require the permits due to a mandate from the EPA, as a result of the Clean Water Act. The new law requires that a local sediment and erosion control permit be obtained from the county where the work is being done whenever more than one acre of land is disturbed. This must then be submitted to MDE along with a fee for its approval. The worst part is that MDE puts these sediment control plans for wetland projects on public notice for 45 days in case someone wants to comment (so far no one has). The bottom line is that CWH is disturbing small areas in order to improve the quality of farm runoff and create wildlife habitat. A farmer can (and often does) create bare ground on hundreds of acres with a large disc and NO buffers or plans are



Recently restored wetland at Talisman Farm, adjacent to Hoghole Creek. (Photo Credit: David Judd, delmarvaphoto.com)

required of him. And yet, those of us who are trying to improve the farmed landscape are facing costly delays due to a poorly designed 'permit system' requiring a

45-day public notice. CWH has no objection to obtaining the permit, but the public notice requirement is ludicrous and giving conservation laws a bad name.

The Green Invader

by Austin Jamison, Coordinator-Blue Ridge Division

Tall fescue is the most widespread perennial pasture and hayfield grass in the eastern United States and is also commonly used in erosion control, lawns and other landscape situations. This is unfortunate from a wildlife perspective, and increasingly from an agriculture perspective.

Native, warm-season grasses like broomsedge, little bluestem, indiagrass and switchgrass have been gradually replaced ever since European settlement, but the trend picked up considerably in the latter half of the 20th century. It is not a coincidence that many grassland bird species, especially the bobwhite quail, have seen their populations fall off dramatically during the same time period. The University of Kentucky released the KY 31 variety of tall fescue in 1943 and within 30 years it became widely established.

The first problem with tall fescue is that it is an exotic and invasive species. It is not native to North America. Wildlife indigenous to this continent are specially adapted to utilize native flora. Early successional wildlife species, such as rabbits, bobwhite quail, and grassland songbirds, need a certain amount of bare ground to move about, feed, and dust. This becomes a nearly impossible task for them; requiring a great expenditure of energy, because tall fescue grows so thickly. It essentially forms a thick mat on the ground, as if a tall, shaggy carpet was laid down. Besides making it hard for wildlife to move around, fescue's growth habit often forms a near monoculture, preventing other wildlife-friendly plants from growing. A diversity of wildflowers and annual weeds attracts pollinators and provides food for wildlife—a component not available in most tall fescue fields. Tall fescue also tends to get flattened by snow and ice, thereby not providing any significant winter cover for wildlife.

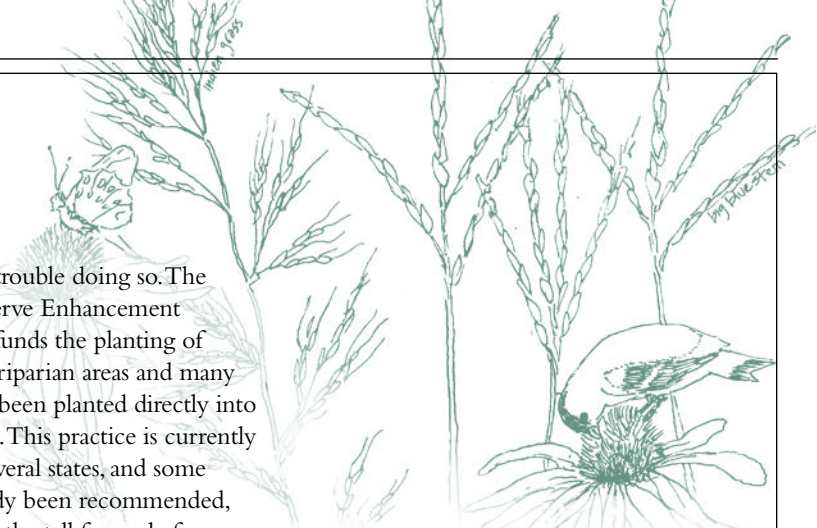
Recent research has also uncovered another problem with tall fescue—it inhibits tree growth. It does this not only through competition for water and nutrients, but also through allelopathy, which means that it produces compounds that chemically retard the growth of other species. This issue is significant for habitat restoration because tall fescue fields, left fallow in order to naturally

reforest, may have trouble doing so. The Conservation Reserve Enhancement Program (CREP) funds the planting of hardwood trees in riparian areas and many of these trees have been planted directly into stands of tall fescue. This practice is currently under review in several states, and some changes have already been recommended, namely eradicating the tall fescue before planting hardwood trees.

From an agronomic perspective, the biggest issue with tall fescue is the endophyte, a fungus that lives inside the plant. It produces toxins harmful to livestock and wildlife that can result in weight loss, pregnancy issues including abortions, decreased milk production and lameness. Some estimates place 90% of all tall fescue fields as being infected with the endophyte. Livestock and wildlife will preferentially graze other forages first, thereby giving tall fescue a competitive advantage over other species and further contributing to its dominance. Tall fescue also slows down its growth during the height of summer; a characteristic which makes it a poor choice for forage during that season.

Unfortunately, along with the preponderance of fescue already established in agricultural fields and lawns, there is also a significant amount present in “conservation” land, as well. Up until the mid-1990s, the USDA allowed landowners to plant Conservation Reserve Program (CRP) land into tall fescue as a permanent vegetative cover. This represented an enormous lost opportunity for quail and other grassland birds. These fescue CRP areas can be re-enrolled, but fescue is not an option for new enrollment. In many states, fescue is still an option for grassed waterways and other erosion control practices.

CWH often finds that several years after we convert a portion of a grain field into a native, warm-season grass buffer or meadow, tall fescue suddenly appears! This is because many of these grain fields were once cow pastures or hay fields and the fescue is in the seed bank. Fortunately, there are some relatively non-toxic herbicides like Plateau and Roundup, which enable us to kill the fescue without wiping out the native grasses that have been established.



Landowners are encouraged by CWH to convert existing tall fescue fields to native, warm-season grass and wildflower meadows.

This is best accomplished by at least two herbicide applications. CWH recommends starting with a fall application of glyphosate and then continuing with a second application of glyphosate in the spring along with the herbicide imazapic, which helps in preventing sprouts from the seed bank. Also, keep in mind that thick mats of tall fescue can repress the seed bank for years. When the fescue is eradicated, other noxious weeds such as Johnsongrass, Canada thistle and wiregrass may be released from the seed bank, so their control should be part of any plan for fescue conversion. There are several USDA and state programs that can fund such projects. **For more information on how to eradicate tall fescue and restore a native landscape, please contact Chesapeake Wildlife Heritage.**

Go Green!

Receive Newsletters Electronically

You can save trees and help CWH use more funds to benefit wildlife and the Bay by having your copy of the newsletter, *Habitat Works*, delivered to you via email. Just send an email to info@cheswildlife.org with “*Newsletter by Email*” in the subject line. Please include your name and mailing address in the message. Upon receipt of your email, a reply will be sent to confirm your request. **Thank you!**

Fulfillment Farms Wetland

by Austin Jamison, Coordinator-Blue Ridge Division

Tucked down in the southern corner of Albemarle County, Virginia, about 20 miles south of Charlottesville, near the village of Esmont, lies Fulfillment Farms. The property encompasses almost 2,000 acres and is owned and managed by the Wildlife Foundation of Virginia (WV). In 2007, Chesapeake Wildlife Heritage began partnering with WV to convert roughly 45 acres of pasture and hayfields, dominated by tall fescue, into diverse, native, warm-season grass and wildflower meadows. This work was accomplished through the Conservation Reserve Enhancement Program (CREP). During the course of the project one field lying in the floodplain of Ballinger Creek, a tributary of the James River, was observed to have significant manmade ditching and remained very wet throughout the spring.

These are the kinds of fields that CWH loves to restore into shallow, emergent wetlands that are usually flooded on a seasonal basis. The first step was to locate the field on USDA soils maps. The soil map showed a large portion of poorly drained and hydric soils, indicating former wetlands. Aerial photos further confirmed the presence of numerous ditches running lengthwise down the field, which were likely installed to make the field drier for farming. Soil borings confirmed the

presence of extensive hydric soils on site.

A topographic survey of the field was then carried out in order to determine the best wetland restoration options. A low, U-shaped berm was designed on the southeastern side of the field to capture rainfall and hold it in depths between several inches and two feet. Funds for the project were sought from the Virginia Department of Game and Inland Fisheries' Migratory Waterfowl Stamp Grant Program. Additional funding was provided by The Wildlife Foundation of Virginia (WV) and The Biophilia Foundation.

Construction commenced in May of 2011 and took approximately two weeks. Topsoil was stripped off of six acres and shallow pools were excavated; with the resulting fill used to build the berm. After grading was finished, the topsoil was spread back over the area to provide a good growing medium and maintain the native seed bank adapted to hydric soils. Several small hummocks were created and a diversity of water depths was sculpted in the pool area.

The wetland is designed to hold water throughout the fall, winter, and spring; with most of the pool area slowly drying up throughout the summer. This allows annual, herbaceous plant germination, which will serve as food for insects and waterfowl alike.

The wetland will be managed in an early successional state, primarily through timed, water-level manipulation and periodic disking.

The upper half of the field was designed to be a native, warm-season grass meadow. This was accomplished by an application of the herbicide glyphosate in the fall of 2010; after several hard frosts had occurred. By waiting to spray until after the hard frosts, many of the desirable native plants which were already present in the field were dormant, but the exotic cool grasses, such as tall fescue and orchard grass, were still green and susceptible to herbicide. The next spring numerous native plants, such as black-eyed susan, butterflyweed and big bluestem, emerged from the seed bank in place of the killed-off, cool-season grasses.

The WV's director, Jenny West, had this to say regarding the new wetland, "The Foundation's goal with Fulfillment Farms is to provide outdoor enthusiasts with quality opportunities for outdoor recreation. This project adds a new, wetland-based ecosystem to the property that will delight bird watchers, wildflower lovers, hunters, and everyone else who enjoys a rich, wildlife experience. The completion of this project is an important step in our efforts to diversify habitat on the farm."

Fulfillment Farms is open to the public on a no-fee, permitted basis. The property enjoys visitation by birdwatchers, hikers, horseback riders and hunters. For more information on the Wildlife Foundation of Virginia or Fulfillment Farms, visit their website at vawildlife.org. **For more information on wetland restoration, please contact Chesapeake Wildlife Heritage.**

Coming Soon!

CWH will soon be posting a Facebook page, so please keep checking to find interesting facts and up to the minute news concerning wildlife and their habitat in the Chesapeake Bay watershed. We will also let you know what CWH projects are in the works.

Please send your email address to info@cheswildlife.org so we can let you know when the page is up!



Restored wetland at Fulfillment Farms with pools of water beginning to form. Soil taken from the wetland area was used to create the berm.

Birds Don't See Glass

Astonishing numbers of birds perish each year due to collisions with the glass in our homes. Read the following article to find out what you can do to prevent this from happening.

Article reprinted from the American Bird Conservancy (ABC) website, with their permission.

About Bird Collisions!

Never had a bird hit your window? It's possible that you may be one of the lucky few, but chances are, birds have hit the glass on your house and you just don't know it. They may have flown away injured to die elsewhere, or been eaten by a cat, raccoon, fox, or dog before you found them. Your house may kill a dozen or more birds each year without you knowing. This may not seem like a lot, but it adds up...to as many as a billion birds per year or more throughout the United States. Much of this mortality takes place during spring and fall when songbirds are migrating.

Birds hit your windows because they just can't see glass. They try to fly to reflected sky or trees, or they see through windows on opposite sides of your house and try to fly 'through the hole'. The impact of the collision is enough to kill a songbird, severely injure it, or stun it to leave it on the ground vulnerable to predators.

But now there is a solution!

ABC BirdTape was designed and tested by bird experts at American Bird Conservancy, the leading bird conservation organization in the U.S., to alert birds to the presence of glass while allowing you to see out the window from inside.

By applying ABC BirdTape in any of the recommended patterns, birds will see your windows and not try to fly through the gaps in between.

In a scientific evaluation of the 3/4" tape, 75% of migratory birds tested avoided horizontal stripes spaced 2" apart. Go to abcbirdtape.org/collisions to view an amazing video of an experiment that shows how birds are able to fly through very small spaces.

If you would like to try some of the ABC BirdTape on a window or two, CWH has it available for purchase by the yard in our office at 46 Pennsylvania Ave. (the Old Railroad Station), in Easton, MD.

Bird Collision Facts

- Glass kills between 500,000 and 1,000,000,000 birds each year – the majority on home windows.
- Birds can't see glass and don't understand the architectural cues, such as window frames, mullions, and handles, that help people detect it.
- Unlike some sources of bird mortality that predominantly kill weaker individuals, there is no distinction among victims of glass. Because glass is equally dangerous for strong, healthy, breeding adults, it can have a particularly serious impact on populations.
- Even small windows can be dangerous to birds that are accustomed to flying through small gaps between trees and shrubs.
- One or two decals on a small window may help reduce some collisions, but become less effective as window size increases because birds will simply fly around them.
- Tape is a cost effective way to make windows safe for birds and it is a quick way to treat large areas of glass.
- Research has shown that birds generally avoid flying through vertical spaces 4" or less, and horizontal spaces 2" or less.

Ask Andi:

Questions and answers about wildlife by Andi Pupke, Education and Outreach Director

Q: *I recently saw what I thought was a strangely colored hummingbird feeding on my flowers. However, as I got closer, it looked more like a butterfly. Do you know what it could have been?*

A: I believe it was a Hummingbird moth. In Maryland, there are many different types of Hummingbird moths. The most common is the Snowberry Clearwing moth which, with its yellow and black markings, looks very much like a large bumblebee.

Hummingbird moths have a long proboscis and hover as they nectar from flowers. This behavior, accompanied by an audible humming noise, makes it look and sound remarkably like a hummingbird when feeding on flowers. A real hummingbird would never allow a person to get as close as you can get to a Hummingbird moth.

Unlike most other moths, hummingbird moths fly during the day, but are most active in the evening.

Hummingbird moths are often mistaken for a hummingbird or, in the case of the Snowberry Clearwing Hummingbird Moth (*Hemaris diffinis*), as a large bumblebee.

(Photo Credit: Model and Mimic by John Flannery/CC-BY-2.0 <http://creativecommons.org/licenses/by-sa/2.0>)



Wildlife Profile: Virginia Opossum

By Andi Pupke, Education and Outreach Director

The Virginia opossum, (*Didelphis virginiana*) is widely distributed in North America. The name opossum comes from the Algonquian language of Virginia, meaning white animal. They are one of the most unique critters found in our area. Opossums are marsupials, or pouched mammals; a primitive group of mammals found most commonly in Australia. Kangaroos, koalas, and wombats are other well-known marsupials. Opossums are the only marsupials in North America. The Virginia opossum is often referred to as a living fossil because of its very primitive characteristics.

The opossum is about the size of a house cat but has short legs; large, naked ears; a long, pointed muzzle; and a long, prehensile tail. Males are larger than females. Long, white hairs overlie the black-tipped, under fur, giving them a grizzled appearance. The opossums' feet are their most amazing feature; the first (innermost toe of the hind foot) lacks a claw and is opposable, just like a human's thumb. They have 50 teeth, which gives them a menacing look when threatened.

Opossums are very adaptable to a variety of habitats, ranging from forest to purely agricultural lands. They are often common even in urban and suburban environments as they have adapted well to living close to people.

Shy and secretive, they become active mainly at night; however, during the winter, they are sometimes active during the day. Opossums climb well and can even swim. When climbing they hang on to limbs by their prehensile tail. Although well adapted for arboreal life, much of their time is spent on the ground. They are solitary wanderers, and do not remain in one place for very long. Opossums are often found far from trees. They may use a fallen log, hollow tree or any other protected sites as their daytime den. Opossums do not dig their own

dens and are dependent on other animals, primarily the woodchuck and skunk, for ground burrows.

During the severest weather they may spend a week or more in a well-protected den, but often will be out during near freezing temperatures. Opossums accumulate little body fat for winter and do not store food, so they must forage year-round.

Nest-building is very interesting; nesting materials (dried leaves and grasses) are grasped in the mouth then passed under the body to the tail, which is turned forward between the hind legs. The materials are then transported in the grasp of the coiled tail.

Defensive or aggressive behavior in opossums is well developed; they click, hiss, growl, screech and bare their teeth.

Opossums may gain protection by using their well-known habit of feigning death when escape is impossible. The maneuver can be very realistic—they will roll over on their side, shut their eyes, loll the tongue from their open jaws, and drool.

This position may be maintained for some time or until the predator has left. This behavior appears to be caused by a temporary paralysis brought on by shock; a condition similar to fainting.

The opossum is omnivorous and often forages along small streams. Insects, small mammals, fish, frogs, green vegetation, fruits and berries, and earthworms constitute the bulk of their food.

They also eat a great deal of carrion; there is very little that they will pass up as food. Contrary to popular opinion, opossums have little impact on either domestic poultry or wildlife. When such items are taken as food, it is most often after the animal is already dead.

The female's pouch, in which the young are carried, is studded with 13 teats, 12 in a circle or a "U" and one in the center. Young are born in an undeveloped state just 12 to 13 days after mating. These living embryos, weighing only about 0.1 to 0.2 gram and having a length of just 14 mm, have a large head and well-developed front legs. After birth, they crawl hand-over-hand to the marsupium where they immediately grasp one of the 13 teats. They form a relatively permanent attachment that is maintained for 50–65 days. The average size of a litter is six to nine, but they can have as many as 18. In larger litters, any young reaching the pouch after teats are all occupied is doomed to perish, and normally no more than seven or eight are found in the pouch a month after birth. The female supplies milk and a place to live, but otherwise she has little to do with the young, except for occasionally cleaning the pouch. The young spend more than two months in the pouch; the eyes of the young open between 58 & 72 days after birth. At about two months of age, the young climb out of the pouch and cling to the mother's long, back fur. They start to take in some solid food before weaning, which is at about 80–105 days. When the pouch is closed, it is so well sealed that if the female swims the pups remain dry. There are normally two litters per season.

Since opossums often feed on road kill, one of the most deadly threats to them is the automobile. In addition, dogs and great-horned owls can be serious predators of the opossum. In general, however, opossums are doing quite well in the modern world.



The Virginia Opossum (*Didelphis virginiana*) is one of the most unique critters found in our area. (Photo Credit: Cody Pope/CC-BY-SA-2.5 <http://creativecommons.org/licenses/by-sa/2.5/deed.en>)

Bees or Wasps?

by Michael Robin Haggie,
Agricultural Wildlife Ecologist

Brought up in Europe after WWII, my life during the summer holidays was infrequently punctuated with family picnics on those rare occasions when a fine July/August afternoon presented itself. My mother would rapidly organize an “all frisky” meal (my father’s corruption of the Italian!) after an announcement by my “meteorologist” pater that the weather would hold for a few hours after he had consulted the BBC’s “The World at ONE”. There ensued an encampment process and a parade of porters, consisting of myself and two brothers, carrying various vessels and baskets with cake and jam, along with firewood and a kettle for producing hot water and the inevitable beaker of tea. After a very smokey beginning (the wood was always damp), and what seemed like an interminable hour later, the water would boil, having struggled to attain the desired 212 degrees F; and then the wasps would arrive. Heath Robinson (the UK equivalent of Rube Goldberg) devices were hastily prepared to control the infestation and, as we munched on scones and jam, we were treated to the spectacle of numerous European wasps entering the one-way trap system and then seen floundering in the sweet liquid bait as they drowned alongside the bodies of their comrades. A *Vespula germanica* up the nose or in the mouth upon biting into a sandwich is not pleasant. I remember asking if wasps were good for anything but death at our hands; “No” came the reply. In one’s youth I guess one can take much for granted and believe religiously in what an adult tells one, and certainly, that this experience would be the unlikely seed for a future passion in ecology. Looking back on those days, maybe it was the suffering that I witnessed that placed the germ for such a career.

So—bee or wasp? Those were wasps, but what is the difference? More recently, on more than a few occasions, when a Hymenopteran (the taxonomic order containing both bees and wasps) has been described to me, I will ask first, “Was it a bee or a wasp?” The answer has been “What is the difference?” Vespid wasps, the ones from just one family that we typically consider as wasps or yellow jackets, are primarily predators (parasitoid type), and hence more aggressive than bees, with many being good



European Wasp (*Vespula germanica*) are slender with relatively shiny bodies, their legs round, and the connection between the thorax and abdomen is usually narrow. (Photo Credit: Richard Bartz/CC-BY-SA-2.5 <http://creativecommons.org/licenses/by-sa/2.5/deed.en>)

pollinators. As such, they sting but do not leave the stinger in their prey.

Both wasps and bees have colonial and solitary representatives, but with 19,200 described bees in 7–9 families (probably at least 2,000 more species) and 100,000+ wasps (with 20 common families) in the world, their habits, as you can imagine, run the gamut; being as diverse as their numbers. It is only possible to touch on a few points for this short article.

The family Vespidae contains nearly all the eusocial wasps. They make their nest from wood pulp, not wax, and over-winter as queens after the colony has died. Conversely, the European honey bee is all about the colony, which over-winters as a cluster with the queen at the center. (Did you know that even in the depths of winter a honey bee colony can maintain a temperature of 95 degrees F at its core? However; variations do occur.) Our native, social bumble bees, rather like wasps, over-winter as fall-hatched queens, which emerge in the spring to start a new colony.

Wasps are slender with relatively shiny (less hair than a bee) bodies, their legs round and the connection between the thorax and abdomen is usually narrow. Bees, on the other hand, are more compact and hairier since they are principally pollinators; the hairs on their bodies and legs are adapted for pollen collection and dissemination. Social bees are defensive towards the hive; however, many, like many wasps, are quite innocuous.

Much has been written of late on bees rather than wasps, particularly from an agro-economic view point, since they are the primary pollinators of our crops. On the local level, there are on Delmarva about 200 species of native bees; 450 if one includes the Western Shore and Virginia.

Native bees have intriguingly long generic names, like *Lasioglossum* and *Agapostemon*; the latter includes the brightly



European Honeybee (*Apis mellifera*) Bees are more compact and hairier than wasps since they are principally pollinators—the hairs on their bodies and legs carry pollen from one plant to another. (Photo Credit: Friedrich Böhlinger /CC-BY-SA-2.5 <http://creativecommons.org/licenses/by-sa/2.5/deed.en>)

colored sweat bees which, though quite small, shine like little emerald jewelry on a summer’s day. Common names include groups like carpenter bees, leafcutter bees, mason bees and orchard bees. Leafcutter bees cut almost perfect circles from the leaves of plants to construct their nest cells. As many of these bees are solitary, the best way to manage for them is through habitat improvement since their homes cannot be transported about like honey bee hives. They are efficient pollinators and can serve a farm field with, for example, pumpkins or squashes as efficiently as the more ubiquitous honey bee. They just need the habitat, meaning a place to live, to support themselves, and not large areas of crop monoculture. However native bees are generalists in their search for nectar and pollen, as compared to honey bees, which are more able to concentrate their foraging to a specific food source after scouts have “informed” the colony.

Of the native bees only the social bumble bees have been employed commercially for pollinating farm crops. They are used in hoop-houses, greenhouses and open fields for pollinating tomatoes, peppers, eggplant and blueberries. Three species have been “domesticated” and their use is restricted to certain regions of the United States by species. However, there is serious concern about these commercial bumble bees. One species in the past has been shipped to a rearing facility in Europe and then sent back to the U.S., bringing with it a virulent strain of a microsporidian (*Nosema bombi*), which now threatens the existence of several other native bumble bees.

There are about 4,000 native bee species in the U.S. and about 70% are ground nesters and 30% are cavity nesters. Solitary, wood-nesting bees (the 30%) like to build their nests in hollow tunnels, such as the pithy or hollow centers of twigs (like box elder,

cane fruits and elderberry), in the cavities left behind by wood-boring insects, and will use rotting wood. In agriculture these bees are important pollinators of watermelons. Solitary, ground-nesting bees (the 70%) excavate nesting chambers underground. They will tunnel six to thirty-six inches beneath the soil surface, usually on sloped or well-drained bare ground, to construct their brood cells. The remaining native bees (45 species in the U.S.) are the bumble bees. As mentioned, these bees are social and they are very efficient crop pollinators. They build their nests in old rodent burrows and birds' nests. I have found colonies in hay barns and in an old, white-footed mouse nest, which was in a cinder block being used as the base for a honey bee hive.

Native bee populations can be helped through the use of artificial structures, much like is done for wood ducks. As might be expected, the structures for native bees are different. These can range from nest blocks for cavity nesters and nest boxes for bumble bees to artificial bundles of straws for other solitary bees. (See *Xerces Society website below for specific details on fabricating artificial nesting structures.)

However, the best way to conserve native bees is through habitat improvement and protection. You can help by retaining dead or dying tree limbs, branches, fallen tree trunks and root balls. You can protect sloped and well-drained ground where plants are thin and direct access to the soil is possible. You can leave areas of your farm (or garden) untilled and minimize weed

control tillage. You can also protect grassy areas, thickets and other areas of low dense cover from mowing. You can limit the timing, duration and intensity of livestock grazing. The use of fire (under permit) in the appropriate location (grassland) may be beneficial if only 20-30% is burned every few years. This will ensure pollinator plant species recolonize and provide a refuge for other insects in unburned areas. Finally, it should go without saying that the use of pesticides, particularly insecticides, should be curtailed to the absolute minimum. Insecticides obviously kill insects directly; however, the target may be the more vulnerable larval stages. Herbicides kill plants but their timing of use can be adjusted to be selective upon target species rather than broad spectrum. They can also be contact or systemic; all methods reflecting variable toxicity and relevance of use.

Overall, try to get over the ubiquitous modern trend towards "neatness" and "looking nice." Those 'scapes can be barren areas for native insects. Leave areas of unmown lawn in your garden and see what turns up—you will be surprised at what comes in and what you have been suppressing for all these years.

Reference list for this article is available at cheswildlife.org. On the Home page, click on the Newsletter tab and scroll down to "Bees or Wasps?" References.

* xerces.org/wp-content/uploads/2008/11/nests_for_native_bees_fact_sheet_xerces_society.pdf

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Wildlife and the Chesapeake Lose a Friend

Chesapeake Wildlife Heritage lost a dear friend when **Martha Ann Dumke Healy** passed away on February 28, 2012. Mrs. Healy was committed to improving her community by supporting the arts, education, historic preservation and the environment. She served on the board of the Corcoran Gallery of Art in Washington, DC and received an honorary degree from Weber State University in her native Utah for her support of the Dr. Ezekiel R. Dumke College of Health Professions.



Widgeons enjoy the wetlands at Canterbury Farm, which Mrs. Martha Ann Healy so kindly donated to CWH in 2008. (Photo Credit: David Judd, delmarvaphoto.com)

In 2001, Mrs. Healy (then already in her eighties) thought long term and partnered with CWH to restore 100 acres of wetlands at her Canterbury Farm outside of Easton, MD. A few years later, she protected the restored habitat through a conservation easement. In 2008, Mrs. Healy donated the entire 150-acre farm to CWH. During the last decade this farm has become one of the most important waterfowl sanctuaries in Talbot County. Her granddaughter, Laura Healy Hoffman, has served on the CWH Board of Directors since 2002.

The entire CWH family extends our condolences to the Healy family, but also celebrates a life well-lived. The thanks we offer for Mrs. Healy's devotion to wildlife will ring out at Canterbury Farm whenever the peepers herald the dawn of spring, the widgeon whistle in the winter and the wood thrush trill in the woodlands.

Monarch Numbers Down for 2011 Workshop

by Andi Pupke, Education/Outreach Director

Chesapeake Wildlife Heritage held its annual Monarch Tagging Workshop on September 14 and 17, 2011. There was a great deal of interest from the public, with

31 people attending; however, the Monarchs were not interested in showing up for this workshop. The number of Monarchs was very low compared to previous years. CWH only tagged a total of 50 Monarchs for the season; this is less than half the numbers that we normally tag. There are several reasons for the low numbers in 2011; but the main reasons are that there were just fewer Monarchs over this past year and there were two major storms on the East Coast during peak migration time. The effects of Hurricane Irene and Tropical Storm Lee hit at a bad time for the migrating Monarchs.

Conservation of summer breeding habitat is the key for the successful rebound of the Monarchs. Habitat loss due to intensive development, farming and other land management has destroyed habitat for Monarchs and countless other species in the United States. Weather during the summer months can also affect the population; hot dry summers produce less milkweed, which allows for fewer Monarchs. Pesticide use is also a major concern for the future of these wonderful butterflies.

We hope that the Monarchs had a successful winter in Mexico and return in the spring to good growing conditions.