AGENDA

Commission for the Environment
August 10, 2015
7:30 p.m.

Richard Whitted Meeting Facility (Room 250)
300 West Tryon Street, Hillsborough

Time	Item	Title
7:30	**I.**	**Call to Order**
7:32	**II.**	**Additions or Changes to Agenda**
7:35	**III.**	**Approval of Minutes – June 8** (Attachment 1)
7:40	**IV.**	**Advisory Board Appreciation**
7:45	**V.**	**Hydrilla in the Eno River Update** Tom Davis will update the CFE on the results from the initial two months of using herbicide to help control the spread of hydrilla in the Eno River east of Hillsborough. (Attachment 2-3)
8:00	**VI.**	**Green Restaurant Challenge** Elizabeth Zander (Chapel Hill Environmental Stewardship Advisory Board) will present ideas for the proposed Green Restaurant Challenge and other potential opportunities for CFE consideration and collaboration (Attachment 4)
8:20	**VII.**	**Green Building Incentives** The CFE will continue its discussion of potential incentives for energy-efficient construction, following-up on the April presentation of Chapel Hill's pilot program. (Attachments 5-6)
8:45	**VIII.**	**Photo Contest Winners** Staff will present the winning photos from "The Nature of Orange" photography contest, which is co-sponsored by the CFE. The goal of the contest is to inspire people to help document the beauty and diversity of our natural resources and our residents connecting to their environment. (Attachment 7)
8:50	**IX.**	**Updates and Information Items** Staff and/or CFE members will provide updates on the following items: ➢ Proposed changes to impervious surface limitations rule (Attachment 8) ➢ CFE memo re 2016 bond package (Attachment 9) ➢ CFE news article – Why Plant Natives (Attachment 10) ➢ *If Only Frackers Used Best Practices* – Wm Schlesinger op ed (Attachment 11) ➢ Blackwood Farm Park opening (Attachment 12) ➢ Pilot solar energy project at Rogers Rd Community Center (Attachment 13) ➢ Orange joins quarantined area for emerald ash borer (Attachments 14-15) ➢ Recycling fees for computer/TV makers could be eliminated (Attachment 16) ➢ Update on OWASA Mitigation Tract forestry activities (Attachment 17) ➢ EPA environmental justice screening and mapping tool (Attachment 18) ➢ 2014 Hottest Year on Record (Attachment 19) ➢ $125 M for climate change campaign (Attachment 20) ➢ Climate change literacy (Attachment 21) ➢ Effective insect repellents without DEET (Attachment 22) ➢ Are stormwater BMPs a source of mosquitos? (Attachment 23)
9:00	**IX.**	**Adjournment**

Next meeting: September 14 (Chapel Hill)

CFE Meeting Ground Rules *(Adopted 9/12/11)*

1. Keep to agenda topic under discussion
2. Share relevant information
3. One person speaks at a time after recognition by the Chair
4. Everyone is invited to participate in discussions / no one person should dominate discussions
5. Strive to reach consensus first before voting

Activities the CFE expects to carry out in 2015:

- Continue to update the Orange County State of the Environment 2014 report
- Convene an Energy Task Force (or equivalent work group) to improve the County's ability to foster local sustainable energy production and energy efficiency strategies
- Recommend ways to reduce the County's "carbon footprint" and implement the County's Environmental Responsibility Goal
- Help with public outreach and management efforts related to hydrilla in Eno River
- Help initiate the development of a comprehensive conservation plan for Orange Co
- Collaborate with NC Botanical Garden and others to identify significant roadside habitat for native plants; ask NCDOT and other utilities to protect those roadside habitats [authorized by BOCC June 2012]
- Co-sponsor the annual DEAPR photography contest (*The Nature of Orange*)
- Help plan for and participate in DEAPR's annual Earth Day event

Concerns or emerging issues the CFE has identified for 2015:

- The CFE will continue to advocate for an expansion of the County's commercial food waste pickup and composting services to reduce food waste in the solid waste stream
- The CFE remains interested in developing incentives for increasing energy efficiency in new construction [January 2012 memo to Planning Board]
- The CFE will strive to learn more about environmental justice matters and incorporate relevant information and considerations in the State of the Environment 2014 report
- The CFE will follow closely the Solid Waste Advisory Group's discussions of how to improve the handling and disposal of Orange County's solid waste, and will advocate for better long-term solutions
- The CFE will continue to advocate for increased efforts to gather information related to water resources in Orange County and will continue to increase public awareness and understanding of water supply sources, related concerns, and what steps can be undertaken to maintain or improve the quantity and quality of Orange County water supply resources
- The CFE will continue to address, as appropriate, the critical environmental issues for Orange County as enumerated on page 3 of the 2014 State of the Environment report, which include potential adverse effects from a) invasive, non-native, plant and animal species; b) reductions in State-led collection of water resources data; c) potential drilling for natural gas in the Deep River basin; d) urban sprawl; and CFE support for e) the responsible deployment of clean and appropriately-sited renewable energy and reductions in energy use to help fight climate change

Attachment 1

Orange County
Commission for the Environment

DRAFT Meeting Summary

June 8, 2015
Orange County Solid Waste Administration, Chapel Hill

PRESENT: Jan Sassaman (Chair), May Becker, Tom Eisenhart, Loren Hintz, Rebecca Ray, Gary Saunders, Lydia Wegman, David Welch

ABSENT: Peter Cada, Lynne Gronback, David Neal, Bill Newby, Jeanette O'Connor, Sheila Thomas-Ambat

STAFF: Brennan Bouma, Tom Davis, Rich Shaw

GUESTS: Terri Buckner, Ed Kerwin (Orange Water and Sewer Authority)

I. **Call to Order** – Sassaman called the meeting to order at 7:37 pm.

II. **Additions or Changes to Agenda** – Shaw asked to present information about Blackwood Farm Park. Sassaman said he could add that to the updates.

III. **Minutes** – Hintz asked for a correction on page 2; noting that he withdrew his motion pertaining to the proposed rule change for impervious surfaces. Wegman motioned to approve the May 11 minutes as amended; seconded by Welch. Approved unanimously.

IV. **OWASA's Energy Management Plan** – Terri Buckner, a member of the Orange Water and Sewer Authority (OWASA) board of directors, reported that OWASA is developing an energy management plan for its water, wastewater, and reclaimed water utility operations. She was accompanied by Ed Kerwin, OWASA Executive Director.

Buckner asked if the CFE might be interested in collaborating with OWASA, the schools, and the towns in a forum discussion of energy management.

CFE members asked questions and responded to the proposal. The following issues were among those discussed:

- Greenhouse gas emissions inventory and methane production
- An inventory of energy use by OWASA, County government, and other entities
- Town of Carrboro recently completed an update of its greenhouse gas emissions
- The CFE's previous collaboration with the Chapel Hill Sustainability Committee on a community forum about solid waste in Orange County
- EPA's BENmap database contains air quality data for Orange County
- Local sources of energy include electric (Duke), natural gas (PSNC), and solar

Hintz said a community forum on energy management would be opportunity to share information, to evaluate our collective approach toward managing and conserving energy consumption, and to chart a course for the future.

CFE members asked Buckner how such a forum might be structured. Buckner said each entity would be asked to discuss its approach for managing energy use and present its outcomes and future objectives. She would like the CFE and other entities to decide

whether they are interested in pursuing this idea, and if so, she would assemble representatives who would develop the scope, the goals and objectives, and the format of a potential community forum. Buckner said she also plans to meet with the Town of Carrboro, the University of North Carolina, and others to ask for their participation.

The consensus of CFE members was that the CFE is interested in collaborating with OWASA and other entities in a proposed forum discussion of energy management.

Wegman pointed out the CFE's Air and Energy Resources Committee may be particularly interested in this initiative. Saunders offered to serve as a representative from the CFE to work with Buckner and others to develop a potential plan for this forum. CFE members agreed to have Saunders represent the CFE in developing a plan.

The CFE thanked Buckner for bringing this matter to its attention. Sassaman asked that this matter be placed on the August CFE agenda for an update and further discussion.

V. **2016 Orange County Bond Package** – Wegman presented a draft memo to the BOCC for CFE consideration. She reminded CFE members the BOCC has proposed a $125 million bond referendum in fall 2016, and all funds would be allocated for the schools. The draft memo asks the BOCC to reconsider including other kinds of projects in the bond package, including funding for parks and open space.

Hintz noted some members of the BOCC would like to revisit this decision and it would be helpful if advisory boards requested further consideration of the bond package. He suggested funding for affordable housing is another issue that ought to be considered for inclusion. Hintz asked if funding for parks and open space could be used to acquire conservation easements. Shaw said that it could if worded as such in the bond language. Hintz suggested adding language in support of conservation easement funding in the draft memorandum.

Hintz motioned to approve sending the proposed memorandum asking the BOCC to reopen the process for determining the contents of the proposed 2016 bond referendum with the inclusion of language in support of funding for conservation easements. Ray seconded the motion and it passed unanimously. Sassaman asked Shaw to revise the memo and send to him and Wegman for final review and approval.

VI. **Green Building Incentives** – Sassaman noted that Neal had asked that this item be placed to the agenda for the CFE to continue its discussion of potential incentives for energy-efficient construction, but Neal could not attend this evening's meeting.

Shaw reminded CFE members this item follows the April presentation of Chapel Hill's pilot program of providing incentives for "green building" in the Ephesus-Fordham district. He said town staff researched incentive programs in other jurisdictions and will re-assess the benefits and costs of this pilot program after the first couple of years.

Hintz suggested this effort has social justice implications, noting that installing energy-saving features in more affordable homes and residential buildings could reduce utility costs for lower-income homeowners and residents. Wegman said she looks forward to hearing the results of this Chapel Hill pilot program; however she believes a similar program could be a "hard sell" for the county's unincorporated areas.

Hintz motioned to table further discussion until Neal and others could participate at the next meeting. Saunders seconded the motion and it carried unanimously.

VII. **Updates and Information Items** – Information on the following subjects was provided in the meeting package; selected items were discussed: a) CFE comments on draft changes to impervious surface rules, b) herbicide used to control hydrilla in the Eno River, c) electric vehicle fast charger station installed in Hillsborough, d) electric vehicle workshop (June 18), e) a CFE news article (Why Plant Natives?), f) What we can do to protect bees, g) fracking having a difficult start in NC, h) a second solar array planned for White Cross community, i) NC Forest Service in Orange County – 2014 Annual Report, j) Court denies challenges to EPA's ozone designations, and k) Duke Forest stewardship and sustainability tour (June 27).

Shaw reported that he sent the CFE comments on the proposed impervious surface rule change to Michael Harvey in the Planning and Inspections Department. Eleven CFE members had voted in favor of the comments via email; there were no objections.

Bouma reported that the Chapel Hill Environmental Stewardship Advisory Board is developing a proposed Green Restaurant Challenge and may want to collaborate with the CFE. He said he could contact a member of the board to see whether they would like to present the idea to the CFE. CFE members agreed with that.

Bouma suggested that in addition to sending memoranda to the BOCC it might be helpful if a CFE representative addressed the BOCC during the public comment portion of its meeting agenda. Wegman offered to attend the June 16 meeting to call BOCC members attention to the CFE memorandum pertaining to the 2016 bond package. CFE members agreed and thanked Wegman for doing that.

VIII. **Adjournment** – Sassaman adjourned at approximately 9:02 pm.

Summary by Rich Shaw, DEAPR Staff

Eno Hydrilla Cleanup Making Progress

Community Sports News
July 2015

Caroline Gilmore

Hydrilla verticillata (hydrilla), an invasive species of aquatic weed native to Asia, clogged the Eno River in Orange and Durham. Hydrilla is being treated by an aquatic herbicide in an effort to reclaim the river for recreation.

"Treatment is going well. We're seeing the growth of hydrilla being suppressed by the herbicide. You won't see thick mats on the river like you have in the past several years," said Rob Emens, Eno River Hydrilla Management Task Force leader.

These mats have negatively impacted fishing, wading and swimming in the river, he said, adding, "We're restoring recreation on the river this year."

Hydrilla was transported to the U.S. as an aquarium plant around 1960 and has now spread into all the Gulf Coast and South Atlantic states as far north as Delaware. It grows quickly, reproduces easily and creates nearly impenetrable mats of stems and leaves on the surface of lakes, rivers and other waterways. It is a highly destructive plant that reduces water flow and quality, crowds out native aquatic vegetation, enhances mosquito breeding and harbors toxic cyanobacteria that harm waterfowl and predatory birds.

Hydrilla clogs water intakes in rivers and reservoirs that are used for drinking water supplies and irrigation and can make boating, swimming and fishing difficult, if not impossible. It is regulated by the federal and state governments; it is illegal to transport, grow or sell.

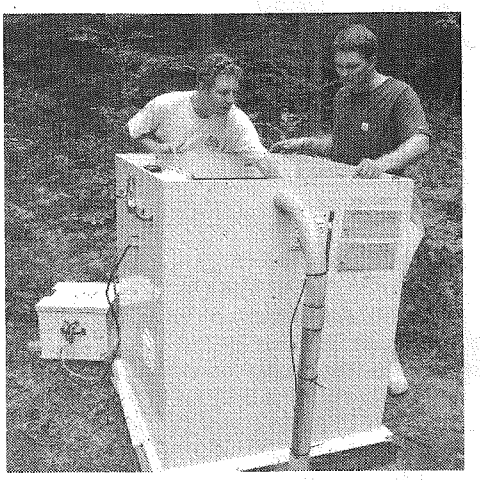
Hydrilla was first discovered in the wild in North Carolina in 1980 at Umstead Lake in Wake County, as well a few other Wake County lakes: Lake Lynn Park, Fred G. Bond Metro Park in Cary and Lake Wheeler Park, Raleigh. In 1983, a herbicide was first applied to Umstead Lake. In 1984, the first application of herbicide was used at Fred G. Bond Metro Park.

One year later, sterile grass carp were introduced into Lake Wheeler. These carp selectively eat hydrilla. That introduction went well —the carp removed the hydrilla quickly and then the carp population died off.

In the 1992, hydrilla was first found in the Eno River basin in Lake Orange, just north of Hillsborough. Grass carp were introduced into Lake Orange in 1994 and again in 1998. For several years, there were no carp and there was no hydrilla. Unfortunately, there was some hydrilla in the shallow water where the carp couldn't get to.

In recent years, hydrilla has been showing up in the head waters of Lake Orange. In 2009, researchers confirmed hydrilla in another upstream reservoir, West Fork Eno Reservoir. The NC Division of Water Resources is actively managing hydrilla in both upstream reservoirs.

Surveys conducted in 2013 and 2014 found hydrilla throughout the Eno River basin: in ~25 miles of the Eno River, the West Fork Eno Reservoir, Arrowhead Lake (near Lake Orange), and Corporation Lake (on west side of Hillsborough), spreading as far downstream as NC Highway 501 (Roxboro Road, Durham).



Rob Emens and Drew Gay of NC DENR Division of Water Resources Aquatic Weed Control Program doing maintenance on herbicide injection station on the Eno. Treatments continue into September.

PHOTO BY CAROLINE GILMORE

Research by NC State University and the state park system suggests the hydrilla infestation of the Eno River is spreading downriver at a rate of up to one mile per year, and if left alone, would reach Falls Lake, the largest source for Wake County's drinking water, within 12 years.

The Eno Hydrilla Management Task Force was formed in 2007, two years after the reemergence of hydrilla in the Eno River basin, to evaluate and address the infestation. The task force has 16 members with federal, state and local government representatives. It is chaired by Rob Emens of the Division of Water Resources, NCDENR, Aquatic Weed Control Program.

Eradication of hydrilla is difficult because the plants can reproduce by tubers (subterranean root sections), turions (floating root sections), and plant fragmentation (leafy plant sections); can overwinter; and can survive dormant for six years or more.

The Task Force evaluated the options available for addressing the hydrilla infestation of the Eno River and decided on using aquatic herbicides. Since the Eno is a flowing water system instead of a contained water system, using aquatic herbicides was considered the best option.

Two herbicides were evaluated: AQUATHOL® K (endothall) manufactured by United Phosphorus, Inc. and SONAR® GENESIS (fluridone) manufactured by SePRO Corporation. Both were approved by EPA for aquatic sites, are non-toxic to humans, pets and wildlife and do not require any restrictions on recreational activity when used at the approved application rates.

After extensive research, the task force decided fluridone was the safest herbicide. ERHMTF has been working with experts from SePRO to develop a two-year pilot program for the management of hydrilla in the Eno.

A public information open house was held in April in Hillsborough for the public to learn more about the proposed pilot program. Presenters described the threat hydrilla poses and experts on hydrilla were available to answer questions.

In May, the Task Force began using fluridone upstream from Eno River State Park. Emens told CSN, "This is the first time the state has treated hydrilla in flowing system." But it has been used for many years to effectively combat hydrilla in the contained water systems of Lake Gaston, Lake Tillery, Lake Waccamaw and Tar River Reservoir.

Herbicide treatments will continue to mid-September 2015. They are being done on 16.4 miles of the Eno River, from Lawrence Road to NC Highway 501. Fluridone is continuously pumped into the river at one location via a computer-controlled pump that delivers herbicide at a rate that is based on water flow and results in a constant herbicide concentration of 4-5 parts per billion.

"We're monitoring herbicide levels at four sampling points along the river," said Emens. Water samples are taken on a weekly basis.

A cost of $75,000 per year was budgeted for the two-year pilot program being conducted this summer and next.

How To Stop Hydrilla Spread

Hydrilla spreads from one body of water to another primarily when plant fragments get caught on boats and trailers. How can we do to stop the spread of hydrilla? Educate yourself and others on hydrilla. Keep your boat and gear clean.

Don't transport aquatic nuisance species: Remove, brush and wash any visible mud, plants and other debris before transporting boats and equipment. Drain water from boat before going into another water body. Let boat/trailer/equipment completely dry prior to using at another site. Check your canoe or kayak storage areas, paddles and carry straps. Check your fishing pole, gear and bait bucket for plants, mud or debris.

Community Sports News

Eno River Hydrilla Management using Sonar® Genesis Aquatic Herbicide

Vegetation Assessment Overview

Week of July 20-24, 2015

Summary

- At approximately 2 months post initiation of Sonar Genesis injection, Eno River hydrilla has responded favorably to control efforts with approaching complete removal of biomass. The difference in hydrilla infestation between upstream areas outside of management zone and targeted 16-mile management zone is dramatic.
- Vegetation assessment efforts through roughly 1 month post treatment noted expected chlorosis to water willow but minimal signs of riffle weed stress. However, this week, roughly 2 months into treatment, stress was observed to riffleweed.
- Based on strong positive impact to hydrilla and indications of some riffleweed injury, a temporary pause in treatment was initiated late on Monday July 20. The management zone will be monitored for the next 2 – 3 weeks for response of natives and remnant hydrilla. Depending on these responses, treatment will either be considered complete or be resumed at a lower injection rate to prevent hydrilla recovery but reduce potential stress to riffleweed.

Starting hydrilla cover at Pleasant Green
May 28, 2015

Starting hydrilla condition at Pleasant Green
May 28, 2015

Open water at Pleasant Green with just remnant, severely injured hydrilla
July 21, 2015

Remnant, severely injured hydrilla at Pleasant Green
July 21, 2015

Near 100% hydrilla cover at Hillsborough
without management
July 20, 2015

Near 100% hydrilla cover at Hillsborough
without management
July 20, 2015

Representative chlorosis on water willow at Cole Mill
June 24, 2015

Representative chlorosis on water willow at Cole Mill
July 21, 2015 (no noticeable change in water willow density since late June)

Indication of stress to riffleweed in treated area (bottom photos) versus untreated areas (top photos)

Town of Chapel Hill

ENVIRONMENTAL STEWARDSHIP ADVISORY BOARD

The charge of the **environmental stewardship advisory board** is to assist the Chapel Hill Town Council in strengthening environmentally responsible practices that protect, promote and nurture our community and the natural world through advice and program support.

Meetings

Regular meetings will be held at 6:30 pm on the 2nd Tuesday of each month in the Second Floor Conference room at Town Hall.

Membership

Members serve staggered, three-year terms and shall not be eligible for more than two consecutive three-year terms.

Member Roster

Elizabeth Zander, Chair	Chapel Hill Resident
Barbara Herrera, Vice Chair	Regional Collaboration (Chatham)
Denise Bevington	Chapel Hill Resident
Marilyn Jacobs	Regional Collaboration (Orange)
William Kaiser	Greenways Advocate
Brittain Storck	Chapel Hill Resident
John Wallace	Chapel Hill Resident
Jim Ward	Council Liaison
John Richardson	Staff Liaison

Orange County
Department of Environment, Agriculture, Parks and recreation

Memorandum

To: Commission for the Environment
From: Rich Shaw
Date: June 3, 2015
Subject: Summary of the presentation on Chapel Hill's green building incentives

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At your April 13 meeting the CFE received a presentation on the Town of Chapel Hill's pilot program of providing financial incentives for sustainable design (or "green building") within the Ephesus Church / Fordham Renewal District.

The following is a summary of the presentation and CFE discussion:

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Chapel Hill's Green Building Incentives – John Richardson (Planning Manager for Sustainability) and Jesse Freedman (Energy Management Specialist) presented an overview of the Town of Chapel Hill's pilot program of providing financial incentives for sustainable (or "green building") design. Richardson noted that this pilot program applies only for development within the Ephesus Church / Fordham Renewal District.

Freedman said the Town's objective is to incentivize developers to build high-performance buildings with better energy and water conservation performance than the 75th percentile of similar buildings. He noted that prior to this program the incentive was to build the worst energy and water efficient buildings allowed by law.

Freedman described the Town's process of choosing a green building standard for energy use from among many options, including LEED certification, Energy Star, 2030 Challenge, and others. The Town chose the Energy Star program, which the staff considers a neutral standard. The Town chose the State water performance standard. Freedman said the intent was to create standard that are rigorous and achievable.

Freedman said in this pilot phase the financial incentive for builders is up to a 35% reduction in their development permit fees. He reviewed the benefits of green building versus conventional building in terms of energy use and water consumption. He noted the tendencies for higher rental rates (+ 2% – 17%), greater resale value (+ 5.8% - 35%), higher market value (+ 13.5%), and lower operating expenses (- 30%) for green buildings on average.

Richardson said the rebate could result in a potential total maximum reduction in revenue from permit fees of about $600,000; however that level of activity is highly unlikely. He said there have been only two applicants to date. Richardson said Town staff will try to verify performance measures, likely through periodic field inspections.

Freedman and Richardson responded to questions from CFE members:

O'Connor asked if there were incentives for sustainable design of the outside portions of the buildings, such as green roofs, xeriscaping, and onsite water retention. Richardson said yes, there are standards for the outside as well.

Neal asked if Chapel Hill had looked at examples of like programs in other jurisdictions, such as Catawba County. Richardson said they consulted NC State's DESIRE database for suitable examples and found that Charlotte's program was most effective. The others reported low levels of effectiveness.

Sassaman asked if the Town used other incentives in addition to the permit fee rebate. Richardson said the State has authorized the rebate incentive. For buildings and development outside of the Ephesus Church / Fordham district the Town uses other standards and requirements for approving special use permits.

Sassaman asked if the Town applies these standards to its public buildings. Richardson said the Town has, by ordinance, a LEED Silver minimum for all buildings. For example, the Chapel Hill Library was built to LEED Silver standard.

Neal asked if these standards applied to single-family residential development, and might the Town consider expanding the incentives to other parts of the town. Richardson said it is only intended for commercial and multifamily residential, and said the council has not discussed imposing these standards elsewhere.

Hintz asked how much less the cost of utilities might be for buildings in the Ephesus Church / Fordham district than in other parts of the town. Richardson said it would depend on the building type; the staff has run some calculations.

Richardson said the Town of Chapel Hill will reassess the pilot program at the end of the first year and the staff will work with the town council on making adjustments if needed.

Neal noted the CFE has recommended to the BOCC and the Planning Board that Orange County consider adopting similar incentives for sustainable development, but thus far nothing has resulted from those discussions.

The CFE thanked Richardson and Freedman for their presentation.

ORANGE COUNTY
COMMISSION FOR THE ENVIRONMENT

MEMORANDUM

To: Orange County Planning Board

From: Orange County Commission for the Environment
Renee Price, Chair RP
David Neal, Energy Committee

Date: January 26, 2012

Re: Incentives for Energy Efficient Construction and Renovation in Orange County

The Orange County Commission for the Environment ("CFE") invites the Orange County Planning Board to consider a Low Energy Construction Permitting Incentive ordinance in 2012. N. C. Gen. Stat.§ 153A-340 allows counties to charge "reduced building permit fees or provide partial rebates of building permit fees for buildings" that meet or exceed recognized energy efficient design and construction principals. Members of CFE are available to work with the Planning Board and county staff to review similar ordinances enacted pursuant to this statute (for example, from Catawba County) and from around the country, then to draft an ordinance for consideration by the Orange County Board of Commissioners.

Neither the current level of carbon in the atmosphere nor projected increases in greenhouse gas emissions are sustainable. Costly and potentially irreversible adverse climate effects are likely unless mitigation measures – such as increased energy efficiency investments and decreased fossil fuel consumption – are taken in the near future. In Orange County, we cannot wait for policy changes at the state and federal level to encourage increased energy efficiency. Steps taken now to improve efficiency and decrease or eliminate our reliance on fossil fuels for energy production will help lock-in reduced energy use for years to come.

Since 2003, Orange County has been a member of Local Governments for Sustainability, an international membership association committed to a sustainable future. Creating incentives for energy efficiency in construction is consistent with Orange County's commitment to a sustainable future. The 2005 Greenhouse Gas Inventory revealed that nearly fifty percent of greenhouse gas emissions in Orange County come from residential and commercial buildings (consistent with national data[1]). Orange County, Chapel Hill, and Carrboro, in conjunction with Hillsborough, are currently working on a revised inventory of greenhouse gas emissions and attempting to identify reduction measures.

Making use of the authority granted by the General Assembly to incentivize energy efficient construction is a straightforward way to reduce greenhouse gas emissions at the county level for the long term. CFE would like to explore crafting an incentive program that would be attractive to lower-income residents, for whom savings on utility bills would provide a particularly important benefit.

[1] From Architecture 2030, buildings account for 48.7% of total energy consumption in the United States (available at http://architecture2030.org/the_problem/buildings_problem_why).

To give an example of how such an energy efficient construction incentive might function, below is a summary of the Catawba County incentives enacted pursuant to N. C. Gen. Stat.§ 153A-340:

> Catawba County is providing incentives to encourage the construction of sustainably built homes and commercial buildings. Rebates on permit fees and plan reviews are available for certain qualifying structures and renewable energy projects. Buildings designed and constructed in accordance with the US Green Building Council's Leadership in Energy and Environmental Design (LEED), NC HealthyBuilt Homes, Energy Star, or the National Association of Home Builders' Model Green Home Building Guidelines can receive a 25% blanket permit fee rebate, not to exceed $500. Catawba County will also rebate 50% of fees related to plan review or express plan review for commercial buildings seeking LEED certification.
>
> Additionally, existing one and two family homes and commercial buildings can receive a 50% rebate on the permitting fees associated with the installation of geothermal heat pumps, photovoltaic (PV) systems, solar water heating systems, and gray/rain water collection for flushing fixtures. Regular fees must be paid in full at time of plan review or permit issuance. Fee rebates will be refunded upon project completion and certification by third party inspection agency.[2]

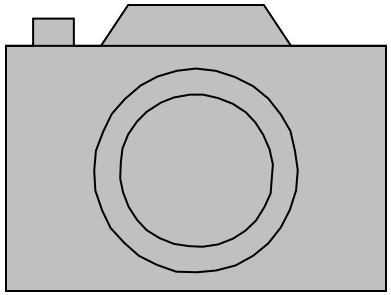
Rebates or reduced fees for efficient construction could be structured on a sliding scale, with zero energy construction receiving the most robust incentives. Given the current level of permitting fees, rebates or reductions in Orange County could be designed here that could provide a substantial incentive for efficient construction.

The CFE looks forward to working with the Planning Board on crafting an efficiency incentive program for consideration by the Orange County Board of Commissioners. We would appreciate the opportunity to have this item included on an upcoming agenda and to work with you on completing a draft proposal in the next few months.

cc: David Stancil
Craig Benedict

[2] From the Database of State Incentives for Renewable Energy & Efficiency (available at <http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC87F&re=1&ee=1>)

The Nature of Orange
Photography Contest 2015



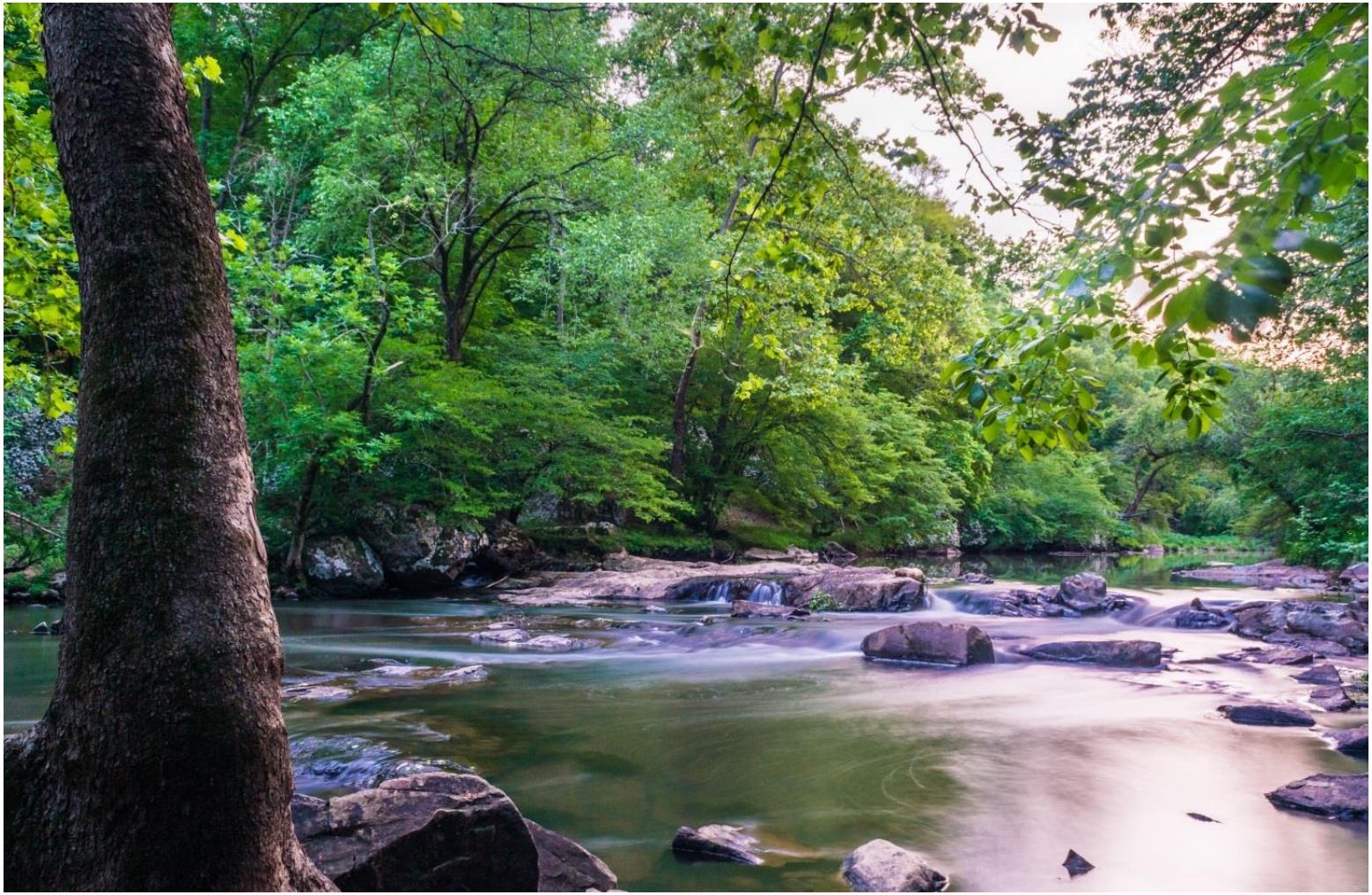
ORANGE COUNTY
NORTH CAROLINA

"THE NATURE OF ORANGE" Photography Contest

- 4th annual photography contest
- Photographers help document the beauty and diversity of our natural resources or show residents enjoying our parks and environment. All photos taken in Orange County.
- 116 entries (50 Youth and 66 Adult)
- Volunteer judges evaluated photos based on:
  - relevancy
  - composition/arrangement
  - focus/sharpness
  - lighting and creativity

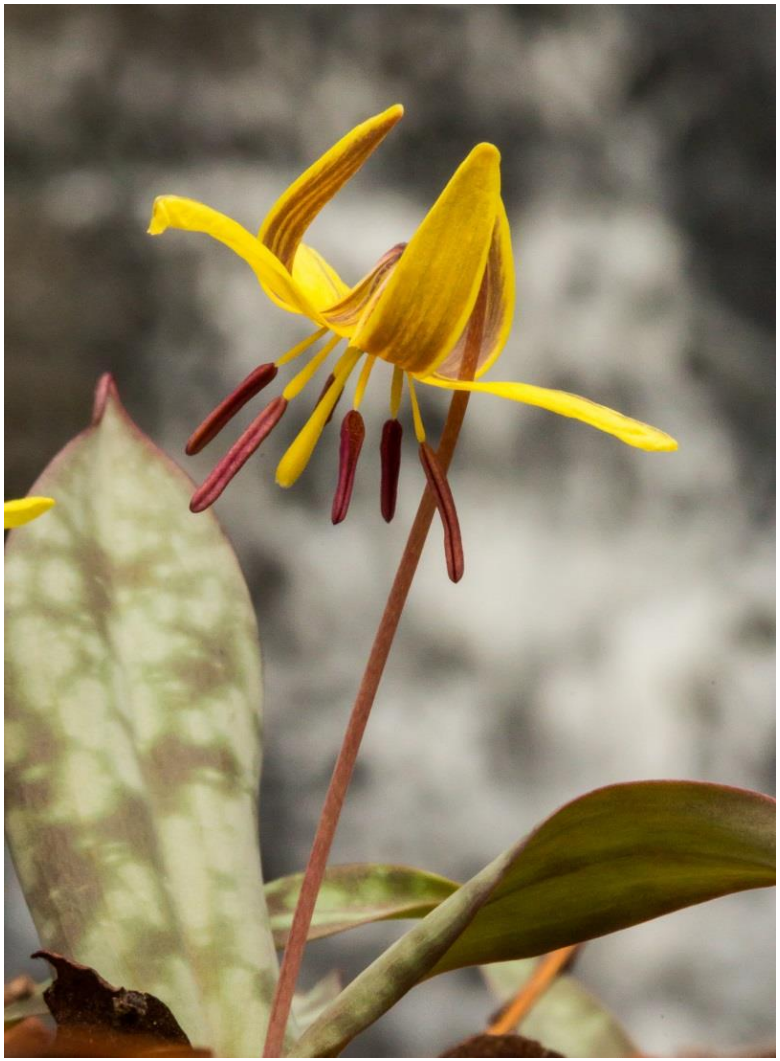
1st Place Adult: “Smooth Flowing Eno”

Richie Sheppard



2nd Place Adult: “Trout Lily Cedar Falls”

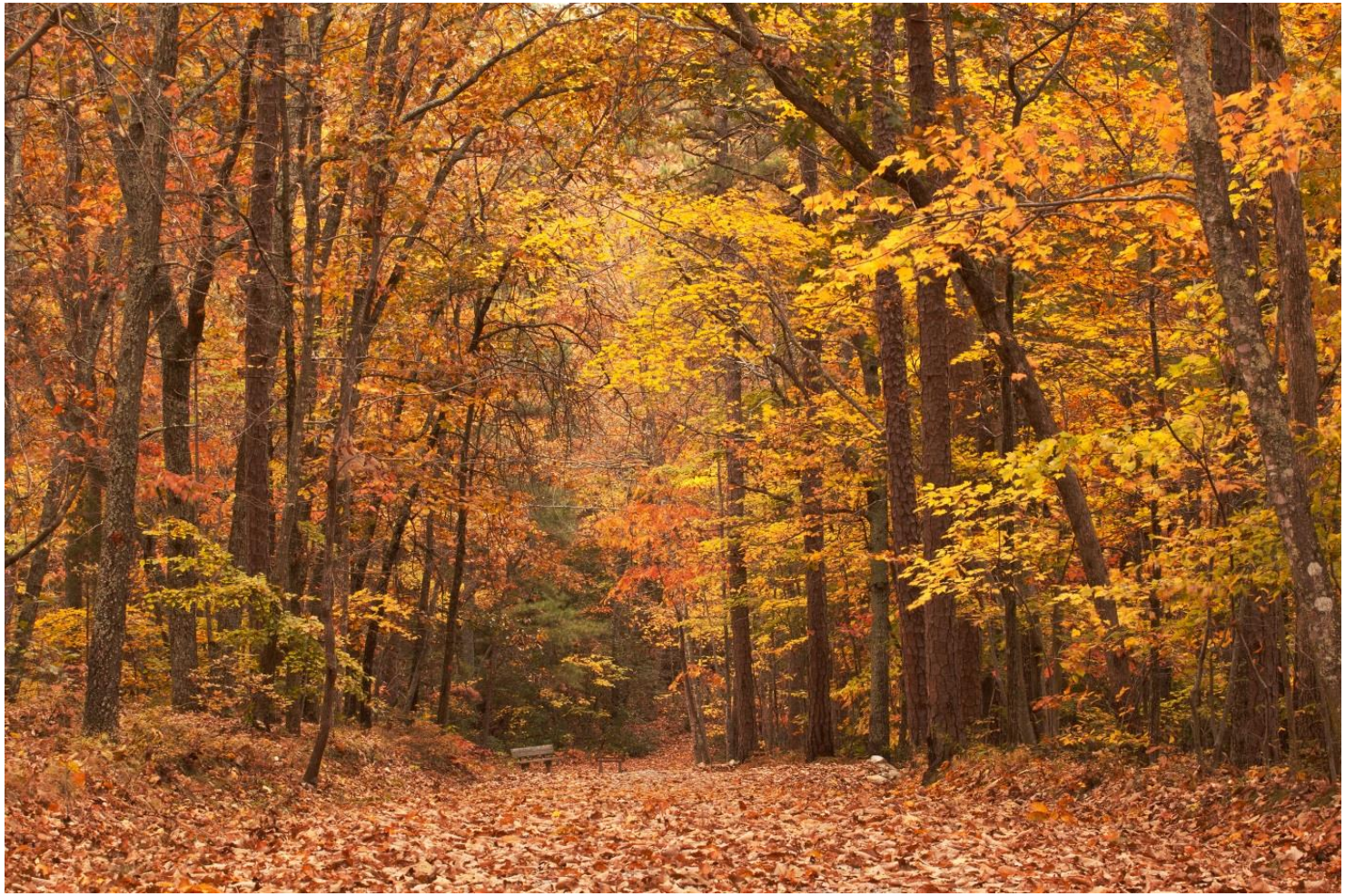
Barbara Driscoll



3rd Place Adult: “Black and White Wisteria”

Pat French

Honorable Mention Adult: “Along the Trail”
Jason Pulley



Honorable Mention Adult: “Who Cooks for You?”

Barbara Driscoll

1st Place Youth: “Standing Tall”

Joseph Mohler

2nd Place Youth: “Poise”

Kirby Lau

3rd Place Youth: “Rat Snake with Attitude”

Cailin Lucero

Honorable Mention Youth: “Ayr Mount”

Kess Keiper

Honorable Mention Youth, “Hanging Out”
Cailin Lucero

“THE NATURE OF ORANGE” PHOTOGRAPHY CONTEST

We thank our judges:

Laura Branan, Photographer

David Schaub, Photographer

Chris Graebner, Artist

Orange County
COMMISSION FOR THE ENVIRONMENT

Memorandum

To: Orange County Board of County Commissioners
Orange County Planning Board

From: Orange County Commission for the Environment

Date: June 5, 2015

Subject: Proposed amendments to Orange County's impervious surface rules

The Commission for the Environment (CFE) has considered the draft amendments to Orange County's impervious surface limitations for development in water supply watersheds. Michael Harvey and Craig Benedict provided an excellent overview of the proposed revisions to the Unified Development Ordinance at the CFE's May 11 meeting, and we thank you for the opportunity to provide comments.

Although the amendment is not intended or expected to increase runoff from developed properties, whether it be pervious or impervious, it is the finding of the CFE that the cumulative effects from a larger developed portion of the watershed could have adverse environmental impacts. If only a handful of landowners chose to pursue this option then the effects would be minimal. However, with widespread use there could be an incremental loss of wildlife habitat and a decrease in carbon sequestration as a result of the loss of wooded areas. And although the volume or quantity of storm water runoff may not increase as a result of the proposed changes, the quality of water leaving a site could worsen.

The CFE does not object to the proposed amendment, but the CFE cannot endorse a rule change that lessens protection of the natural environment. If the County adopts the proposed amendment and allows for the installation of infiltration BMPs to offset additional impervious area, then the CFE would agree with the proposed requirements for engineered designs, recorded maintenance agreements, annual inspections, and a viable enforcement mechanism. The County should also consider requiring a performance bond and the renewal of the permit after some reasonable period of time.

Again, the CFE appreciates the opportunity to comment on this proposed change to the Unified Development Ordinance.

Copies: Bonnie Hammersley, *County Manager*
David Stancil, *Environment, Agriculture, Parks and Recreation Director*

Orange County
COMMISSION FOR THE ENVIRONMENT

Memorandum

To: Orange County Board of Commissioners

From: Orange County Commission for the Environment

Date: June 15, 2015

Subject: 2016 Bond Referendum

The Commission for the Environment (CFE) is concerned about the preliminary decision by the Board of County Commissioners (BOCC) to restrict the planned 2016 bond referendum to funding for school improvements and expansion. In particular, the CFE believes the BOCC should have proceeded with the process discussed at the November 19, 2014 Assembly of Governments meeting, which would have provided an opportunity for the BOCC to hear from the public, relevant County-appointed citizen advisory boards, including the CFE, and representatives of key County departments, such as the Department of Environment, Agriculture, Parks and Recreation, on their areas of expertise and/or concern.

The CFE is of the opinion that the BOCC's decision-making process would benefit greatly by hearing comments from County residents, advisory boards, and departments on the funding needs facing programs and activities that are essential to the quality of life in the County. No doubt education is important, but equally important are parks and recreation, affordable housing for low-income residents, and services for the county's growing population of seniors, among other needs. For example, if the County could provide $5 to $10 million for park development, it would be possible to develop and open the long-planned Blackwood Farm Park as well as additional recreational facilities in the northern part of the county. By developing Twin Creeks Park located next to Morris Grove Elementary School, the County would provide recreational opportunities for both school children and adults, helping to improve the quality of life for all residents as well as making the county a more attractive area for new businesses that seek well-rounded communities in which to locate their operations. Funding for parks and open space could help preserve additional farmland and natural areas with permanent conservation easements.

The CFE urges the Board of County Commissioners to reopen the bond referendum process and provide a full opportunity for public and County staff comment. The CFE would very much appreciate an opportunity to present its views on funding priorities related to parks and open space land conservation to the BOCC.

Thank you for considering our views.

Copies: Bonnie Hammersley, *County Manager*
David Stancil, *Environment, Agriculture, Parks and Recreation Director*

This is the second in a series of articles by the Orange County Commission for the Environment (CFE). Each article highlights an environmental issue of interest to the residents of Orange County. The CFE is a volunteer advisory board to the Board of County Commissioners. Additional information can be found in the Orange County State of the Environment 2014 report at http://www.orangecountync.gov/departments/deapr/commission_for_the_environment.php

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The native butterfly weed attracts bees, butterflies and birds (Photo: Orange County DEAPR)

Why Choose Native Plants?

Orange County Commission for the Environment

While some of us value plants in our landscapes primarily for the beauty they provide, we may not realize that plants are in fact critically important components of food webs and essential to the life cycles of birds and insects. Author Doug Tallamy explains, "almost all North American birds other than seabirds — 96% — feed their young with insects." These insects require host plants on which to lay their eggs, plants with which they have evolved over millennia. Replacing native plants (those species that have evolved with surrounding plants and animals, each influencing the evolution of the other) with species from other places can hinder the ability of some of these insects to reproduce. One example can be seen in a comparison of the flowering dogwood (*Cornus florida*), which is native to Orange County, and the kousa dogwood (*Cornus kousa*), which is native to Korea, China, and Japan. The flowering dogwood supports 117 species of moth and butterfly larvae, while the kousa dogwood supports none.

Some gardeners point out that they also frequently observe insects on their non-native plants. For instance, butterflies can often be seen drinking nectar from the flowers of the non-native butterfly bush (*Buddleia davidii*). While this may be beneficial food for the butterflies, unfortunately no species of butterfly native to North Carolina will use the

butterfly bush as a host plant on which to lay its eggs. Better choices to provide breeding support for butterflies include oak-leaf hydrangea (*Hydrangea quercifolia*), redbud (*Cercis canadensis*), and fringe-tree (*Chionanthus virginicus*), to name a few.

Native plants are also important to our economy. Insects pollinate many of the foods we enjoy eating. As of 2009, pollination of U.S. crops by native insects was valued at more than nine billion dollars. Some individual species, such as the monarch butterfly, have an estimated economic value in the billions of dollars. These insects will cease to exist without the correct host plants on which to lay their eggs. In fact, researchers estimate that the monarch butterfly population has declined by 80% over the past 21 years. The decline is attributed in large part to the disappearance of the milkweed plants on which the species relies, resulting in the U.S. Fish and Wildlife Service considering the monarch butterfly for protection under the Endangered Species Act (ESA).

In contrast to the high economic value of natives, many non-native species can be economically and environmentally devastating; such species are categorized as invasive by the federal government. They include English ivy, Japanese honeysuckle, autumn olive, tree of heaven, and multiflora rose. Nearly half of the species listed for protection under the ESA are in trouble due at least in part to invasive species. Far from the economic good of natives, invasive species are estimated to cost the U.S. more than 120 billion dollars in damages annually. It can take decades to determine that a species is invasive, and such a finding does not automatically lead states to ban the sale of the species.

While not all non-native plants are invasive or damaging to the environment, it is wise to understand whether a plant is invasive or in some way damaging to pollinators. In addition, it would certainly be good to avoid planting non-natives on a broad scale. A number of resources exist to help residents figure out which native plants will thrive in your yard or garden. The North Carolina Botanical Garden (http://ncbg.unc.edu/) offers plant lists, classes, tours, family and youth programs, and knowledgeable people to help you in your hunt (not to mention a beautiful garden to stroll through to see spectacular natives year-round). In addition, from June to October 3, the Botanical Garden is offering workshops, exhibits, talks and tours that highlight the importance of pollinators and what can be done to help secure a stable future for them.

Plant lists and local nurseries that specialize in species native to our region can also be found through the North Carolina Native Plant Society (http://www.ncwildflower.org/).

Thursday, June 11, 2015

Other Opinion

newsobserver.com/opinion

THE MANY FACETS OF ENERGY POLICY

If only frackers used best practices

By William H. Schlesinger

I know of few environmental topics that engender more emotion than proposals to extract natural gas using hydraulic fracturing methods (fracking) to open up the pores in bedrock. Now don't get me wrong: I am not in favor of an expanded use of fossil fuels from any source. We must get off the rich diet of carbon from fossil fuels if we are to avoid the worst of potential changes in our climate. Fracking promises that we will delay the transition from fossil fuels to renewable energy, because it can potentially supply inexpensive natural gas for another generation.

Point of View

But I don't think that the actual process of fracking itself is necessarily harmful, if it is carefully instituted and regulated following well-studied procedures to establish best practice. Indeed, the petroleum industries should encourage and embrace such regulation, for it would allow them to move forward with their business with greater public trust and less litigation, despite the fact that it might shave a few cents off the bottom line of their profits.

Various studies from earth scientists in Duke's School of the Environment all point to contamination of surface and groundwaters when hydraulic fracking is performed without proper well-casings and careful attention to wastewater management. The most recent paper from the Duke group lists improper design of well casings and management of flowback waters as the major problems with hydraulic fracture methods. Those who wish to employ hydraulic fracking need to deal with the wastewaters they generate, and with each of the constituents, both natural and added, that are found in flowback waters.

Even though the methane generated from natural gas wells amounts to about 0.42 percent of total natural gas production, it too should be minimized. Methane contributes to the greenhouse warming of Earth's atmosphere and is a pollutant that affects us all. Other hydrocarbons, such as ethane, are also emitted from natural gas operations. Since 2010, concentrations of ethane have increased from 7 to 15 percent of nonmethane hydrocarbons in the atmosphere downwind of certain gas-producing regions, increasing levels of ozone that is a well-known health hazard.

In our effort to generate electricity, to the extent that natural gas replaces coal, we will lower our emission of various pollutants to the atmosphere – carbon dioxide, nitric oxide, sulfur dioxide and mercury. These are all laudable goals, but they should not be reached while tolerating widespread pollution of our surface waters. Nor should they be pursued to the exclusion of other sources of energy that might permanently eliminate our emissions of greenhouse gases to the atmosphere. A penny or two of royalties from natural gas production could offer substantial funding for the further development and implementation of solar, wind, tidal and geothermal power for our future.

From the beginning, George Mitchell, father of fracking technology and the fracking industry in Texas, urged the industry to embrace best-management practices, regulations and oversight of its activities. Unfortunately, North Carolina has largely dismantled any ability of the Department of Environment and Natural Resources to monitor fracking activities and enforce regulations – a dangerous situation that faces us all.

William H. Schlesinger is James B. Duke professor and dean (emeritus) of the Nicholas School of the Environment at Duke University

'Come in and have a piece of pound cake'

PHOTOS BY MARK SCHULTZ - mschultz@newsobserver.com

The descendants of Herbert and Alice Blackwood gather at Saturday's dedication of Orange County's Blackwood Farm Park, preserving the 152-acre homestead for the public. "Our greatest fear was seeing a McDonald's on the corner or the land broken up," says Fred Blackwood, second from left, top row.

A PARK APART

Ch Hill News
June 24, 2015

Orange County's Blackwood Farm Park celebrates a farm family's legacy

By Mark Schultz
mschultz@newsobserver.com

HILLSBOROUGH

The memories spilled out like photos from a family album as the grandchildren, great grandchildren and great-great-grandhildren of Herbert and Alice Blackwood gathered Saturday.

A breeze drifted up the sunken, wagon-wheel path that crosses the Blackwood Farm north to south. It rustled the giant magnolia in front of the white farm house built in 1827, where the couple's three grandchildren would stay when they visited.

"We'd help milk the cows. Uncle Homer would plow the field; I'd sit on the tractor with him," said David Blackwood, now living in Cary.

"For me it was fun – I was just 10, 12 years old," he said. "They let us drive the cars. We'd drive up and down the driveway all day long."

"There's probably a dent in that dogwood tree I backed into," said Fred Blackwood of Raleigh.

"Did you hit that tree?" his sister Judy Womble of Mars Hill asked and laughed.

The family no longer lives on the land that bears their name. Herbert and Alice's daughters Nannie and Mary, the last of eight children, were in their 80s when they sold the land to Orange County in 2001 for a future park.

'It's your park'

On Saturday, the extended family returned for the dedication of Blackwood Farm Park, the 152-acre homestead that Orange County will preserve for public use and to celebrate the county's agricultural heritage and ongoing contributions.

"This is not just a county park; it's your park," Earl McKee, chairman of the Orange County Board of Commissioners, told about 100 people at the ceremony.

In addition to its farm buildings, Orange County's Blackwood Farm Park has four miles of walking trails and a fishing pond.

Blackwood Farm Park

Location: 4215 N.C. 86, Hillsborough, NC

Hours: Blackwood Farm Park is open Friday, Saturday and Sunday only. October - March 8 a.m. - 5 p.m., April and September 8 a.m. - 7 p.m., May - August 8 a.m. - 8 p.m.

Amenities: Four miles of hiking trails, picnic shelter with tables, restroom, pond with fishing area (no boating) – 16 years or older, with valid fishing license and artificial bait only – open fields, historic farmhouse, barn, smoke house, corncrib and other outbuildings

But unlike most parks, there will be no ballfields.

Instead, visitors will be able to explore many of the farm's actual buildings: the chicken house, or "biddie house," where the Blackwoods raised young chickens; the shed where five cows at a time were milked by hand until the farm mechanized in the late 1930s; the weathered wooden barn where the mules, cows and horses were stalled and where wheat, hay and corn husks were stored in the large loft.

Strayhorn

"Come sit on the porch, walk the trails, explore the farm buildings," McKee said.

"Except for the fact that you hear I-40, this is the way it was for 250 years."

Bob Strayhorn, the cattle farmer caddy-cornered from the Blackwood Farm at N.C. 86 and New Hope Church Road, also spoke at the ceremony. His family has been associated with the property since 1817, according to county deed records.

Herbert and Alice Blackwood bought the farm from Dr. John Berry and Mary Strayhorn Berry in 1906. They ran a dairy until they died in 1958-59, after which a nearby farmer grew hay.

Bob Strayhorn remembers the dinner bell that would ring 15 minutes before noon, giving the farm workers just enough time to come in from the fields and unharness the horses. The Blackwood grandkids and county commissioners rang that bell Saturday to officially open the park.

"I learned to fish in that pond," Strayhorn said, pointing to what is now one of the county's few public fishing holes. "They kept the fishing rods in the garage for me. They had a rack."

The farmer remembers the corn harvest, when all the neighbors would come over to shuck.

"This community has been a great place to grow up," he said. "And I'm forever grateful to the Blackwood family."

Lands Legacy

The county acquired the farm through its Lands Legacy Program, a conservation program. It's a public affirmation, Commissioner Barry Jacobs said, of things like schools, libraries and a courthouse that the community considers important.

For the Blackwood descendants, of course, it's more personal.

They didn't even call their grandparents' place a farm, David Blackwood said.

"It was called 'out home.' That's all we knew it as," he said. "I'd stay out a couple of weeks at a time, and I'd cry when my parents would come to take me home."

It's fitting that "out home" will now be shared with others.

"Our greatest fear was seeing a McDonald's up on the corner, or seeing the land broken up," Fred Blackwood said.

"Our family didn't measure its wealth in terms (of money)," he continued. "It was measured in the number of people who came to see them. Everybody who would drive down that driveway was seen as a treasure – 'Come in and have a piece of pound cake.'"

"And take some home," added Judy.

Schultz: 919-829-8950

THE NEWS OF ORANGE COUNTY

Commissioners move forward with pilot solar energy system

BY AMANDA VANDERBROEK
News of Orange staff writer
a.vanderbroek@newsoforange.com

Orange County is moving forward with ways to harness the sun.

On Monday, May 5, the Orange County Board of Commissioners endorsed the development of a pilot solar photovoltaic system within county facilities beginning with the Rogers Road Community Center. The project will also be included in the 2015 Orange County Solarize campaigns organized by NextClimate.

The pilot program might also lead to using solar-generated energy at the Cedar Grove Community Center, which is currently under renovation.

Brennan Bouma, Orange County sustainability coordinator, brought the project before commissioners during his update on the county's solar initiatives.

Bouma said solar panels would go on the south side of the community building.

"It would be somewhere around 24 kilowatts, and we would cover somewhere between 80 to 100 percent of the energy, the electricity usage of the building," he said. "It would have a $96,000 initial cost."

Going it alone, the county would see $2,700 in annual savings and a return on its investment in about 35 years.

"With the help of an investor, a private investor would be able to take the tax benefits on the books and would be able to recoup about two-thirds of their investment through those tax benefits," Bouma said. "Instead of annual savings, they would be able to sell the electricity back to the grid with an estimated annual sales of $1,350."

Bouma said with that scenerio in about five to seven years, there would be a transfer to the county.

Rob Pinder, executive director of NextClimate, said the group is ready to help the county community campaign like McDougle Middle School in Chapel Hill.

"Last year in October, we worked with McDougle Middle School to provide technical assistance and funding and help with fundraising to build a learning installation there at McDougle," Pinder said. "... We love to bring this technical assistance and help with fundraising to a new project in Orange County and are excited about the opportunity to do so at Rogers Road. "

Pinder said the idea behind Solarize Orange County is to first give people information so that they can decided whether or not solar is right for them and second to make that switch to make it as easy for them as possible.

"In 2014, we had hundreds of people get solar assessments across the county; some 90 homes have made the switch in that campaign," he said. "And in 2015, we're really excited to be working on projects in Chapel Hill, Hillsborough, Carrboro, countywide and new projects with larger players in the Research Triangle."

During discussion, commission vice chair Bernadette Pelissier asked if there was any intent to do something with solar at the Cedar Grove Community Center, which is currently being renovated.

Jeff Thompson, director of asset management services, said if the Rogers Road project goes well, then solar panels will be an option for the Cedar Grove facility.

FOR IMMEDIATE RELEASE
TUESDAY, JULY 21, 2015

CONTACT: *Phillip Wilson, plant pest administrator*
NCDA&CS Plant Industry Division
919-707-3753

Durham, Graham, Johnston, Orange and Wilson counties join quarantine area for emerald ash borer

RALEIGH – Five more counties have come under quarantine rules restricting the movement of hardwood firewood, ash nursery stock and other ash materials following the discovery of more trees infested with emerald ash borers. The addition of Durham, Graham, Johnston, Orange and Wilson counties brings the total number of counties under quarantine to 12. Agriculture Commissioner Steve Troxler signed an emergency quarantine order allowing the expansion.

Staff with the N.C. Department of Agriculture and Consumer Services found insects in Wilson County close to Contentnea Creek and in several infested trees in the northeastern part of Orange County. No insects were found in Johnston County, but distinctive galleries, or serpentine tunnels under the bark, in trees along the Little River indicate the presence of EAB. No evidence of EAB has been found yet in Durham County, but the close proximity to the county line of finds in neighboring counties has led officials to quarantine that county as well. A U.S. Forest Service employee found emerald ash borers in a trap in Graham County, marking the first find in the Western part of the state.

“This is a devastating pest to ash trees, eventually killing the trees where the insects are found,” Troxler said. “We are continuing to monitor other counties for this highly destructive pest through trapping and visual assessment of trees. We will be pulling traps in early August and it is possible we will find sites in more counties when we do. We ask the public not to disturb the purple, triangle-shaped traps if they see them.”

The beetle was first detected in the United States in Michigan in 2002. It is responsible for the death or decline of tens of millions of ash trees across the country.

Under the state quarantine, all hardwood firewood and plants and plant parts of the ash tree -- including living, dead, cut or fallen, green lumber, stumps, roots, branches and composted and uncomposted chips -- cannot be moved outside the county. Only firewood that has been treated by an approved U.S. Department of Agriculture method, such as treating firewood in an approved kiln, can be moved outside the quarantine area.

The Plant Industry Division and the N.C. Forest Service are working in cooperation with the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service.

Symptoms of emerald ash borer in ash trees include a general decline in the appearance of the tree, such as thinning from the top down and loss of leaves. Clumps of shoots, also known as epicormic sprouts, emerging from the trunk of the tree and increased woodpecker activity are other symptoms. The emerald ash borer is not the only pest that can cause these.

Emerald ash borers overwinter as larvae. The adult beetle is one-fourth to a half-inch long and is slender and metallic green. When the adults emerge from a tree, they leave behind a D-shaped exit hole. The larvae can also create serpentine tunneling marks, known as feeding galleries, which are found under the bark of the infested trees.

Home and landowners are encouraged to report any symptomatic activity in ash trees to the NCDA&CS Plant Industry Division hotline at 1-800-206-9333 or by email at newpest@ncagr.gov. The pest can affect any of the four types of ash trees grown in the state.

-aea-1

NCDA&CS Public Affairs Division, Brian Long, Director
Mailing Address:1001 Mail Service Center, Raleigh NC 27699-1001
Physical Address: 2 West Edenton Street, Raleigh NC 27601
Phone: (919) 707-3001; **FAX:** (919) 733-5047

North Carolina Department of Agriculture & Consumer Services
N.C. Forest Service

Steven W. Troxler
Commissioner

Scott Bissette
Assistant Commissioner

100 Years of Protecting, Managing & Promoting North Carolina's Forests

NC Forest Service, District 11 Headquarters
3314 NC 86 South
Hillsborough, NC 27278
Phone: 919-732-8105
July 28, 2015

To whom it may concern,

The North Carolina Forest Service of Wake, Orange and Durham counties are having informational meetings in regards to Wake, Orange, and Durham counties joining the quarantine area for the emerald ash borer.

The Wake county meeting is scheduled for August the 18TH at (time). The meeting is being held at **The Rural Center located at 4021 Carya Drive in Raleigh.**

The **Orange/Durham** meeting is scheduled for August the 20th at 9 am. The meeting is being held at the **Orange County Whitted Human Services Ctr. /Building "A" located at 2nd floor room 230: 300 W. Tryon Street in Hillsborough.**

Information will be presented by the North Carolina Forest Service and NCDA&CS Plant Industry Division about the emerald ash borer, management options, and the quarantine which effects the movement of ash logs and all hardwood firewood. Below are the links to the news releases from the North Carolina Department of Agriculture and Consumer Services about Wake, Orange and Durham Counties being added to the emerald ash borer quarantine.

Wake County

http://www.ncagr.gov/paffairs/release/2015/6-16WakeEAB.htm

Orange and Durham Counties

http://www.ncagr.gov/paffairs/release/2015/fivecountyexpansionEAB.htm

Addition information about the emerald ash borer and the quarantine can be found at these websites.

http://www.ncforestservice.gov/forest_health/fh_eabfaq.htm

http://www.ncagr.gov/plantindustry/Plant/entomology/EABFAQ.htm

THE NEWS of ORANGE COUNTY

COMMENTARY

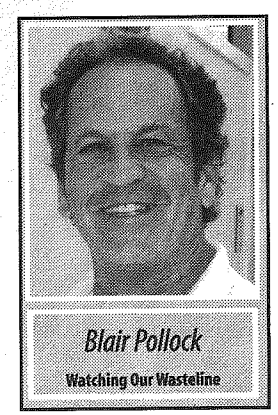
WATCHING OUR WASTELINE

State law could cut recycling funding

This month's focus is on electronics recycling. A possible new state law may eliminate some funding for Orange County's electronics recycling program that now collects well more than 400 tons a year of electronics from residents and small businesses for recycling and reprocessing. This effort recovers valuable metals and plastic while keeping lead and other heavy metals out of the environment.

When the county began its electronics collection program in 2004, it was supported only by County Solid Waste Department funding. Beginning in 2010, partial state funding was added based on legislation that propounded a comprehensive ban on landfilling televisions and computers linked to levying a recycling fee on manufacturers who sell these items in North Carolina.

There is now a piece of legislation entitled House Bill 765, the Regulatory Reform Act, that has passed the N.C. Senate and is pending in the House, which would remove the fee requirement from manufacturers while preserving the landfill ban. The value of equipment recovered, as with many recyclables, does not cover all the costs of collection and recovery; thus the fee, like those state fees on tires and appliances, helps cover those costs and reduce illegal disposal while adding processing and recovery jobs in our state. More than 500 people are employed in various electronics recovery plants, and statewide capital investment exceeds $50 million.



A recent posting from the N.C. Solid Waste Management Association of North America summarizes the pertinent part of the bill and the issues as follows:

"The section on electronics recycling is Section 4.2 (a), (b) and(c) on page 21. In short, the bill will completely repeal the current e-waste recycling program and stop any and all e-waste revenues to local governments. It was said in committee, and on the Senate floor, that the revenues from the e-waste commodities are sufficient to cover the costs of the programs. We know that is not the case. … A key point is that the existing producer/manufacturing fees are not [now] adequate to cover the cost of the e-waste recycling program(s) and under the current market conditions increased funding will be required if local governments are going to maintain/manage the programs."

[Author's note: thus possibly increasing costs to local governments to host electronics recovery programs]."

New businesses join commercial recycling

We welcome these businesses to Orange County's commercial recycling: Furniture Follies, Furniture Lab, PEP Boys and Sherwin Williams Paint Company. Long may you recycle. Any Orange County business or nonprofit is eligible for a no-cost waste reduction and recycling assessment. Businesses are added to the county's collection program on request and as routing and capacity allow.

Blair Pollock is a solid waste planner for Orange County Solid Waste Management. He can be reached at bpollock@orangecountync.gov, 919-968-2788 or directly at 919-968-2800, ext. 206. For more information about the county's solid waste and recycling programs, go to http://orangecountync.gov/recycling.

ORANGE WATER AND SEWER AUTHORITY

A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community.

July 20, 2015

Dear Neighbor:

RE: UPDATE ON FORESTRY MANAGEMENT WORK AT OWASA'S 491-ACRE CANE CREEK RESERVOIR MITIGATION PROPERTY NEAR BUCKHORN ROAD

Thank you for your patience as OWASA implemented its Forest Management Plan (Plan) on its Cane Creek Reservoir Mitigation Tract. Work for the most recent phase of the Plan has been completed. We will continue to do small forestry management projects on the tract in accordance with the Plan and recommendations from the North Carolina Wildlife Resources Commission. Future work includes:

- Replanting cleared pine areas – Our forestry contractor is evaluating the natural regeneration in the small cleared pine areas this summer and fall. If needed, we will replant these sites with shortleaf pine next winter. The replanting will be completed by hand and should have minimal impacts to neighbors.
- Pre-commercial thinning – The 25 acre area we cleared in 2010 and replanted with loblolly pine in 2011 will be thinned in the next year or two. This thinning will be completed with brush saws, and may take a couple weeks to complete. The trees that are cut will be left on site to filter pollutants and return organic matter to the soil. There may be some noise impacts while this work is being done.

We will continue to keep you informed about our forestry management activities and will notify you before we begin the activities described above. If you did not receive e-mail notification (with this same letter attached) but prefer to receive information by e-mail, please send me an e-mail (see below) and I will add your name to our e-mail distribution list.

If you prefer not to be contacted about our activities at this site, please notify me and I will remove your name from our list.

Please contact me at 919-537-4214 or at rrouse@owasa.org if you have any questions or would like more information regarding our forestry management activities at the Cane Creek Reservoir Mitigation Tract.

Thank you very much.

Sincerely,

Ruth C. Rouse

Ruth C. Rouse, AICP
OWASA Planning and Development Manager

FOR IMMEDIATE RELEASE

June 10, 2015

EPA Releases EJSCREEN, An Environmental Justice Screening and Mapping Tool

Washington — Today, the U.S. Environmental Protection Agency (EPA) released EJSCREEN, an environmental justice screening and mapping tool that uses high resolution maps combined with demographic and environmental data to identify places with potentially elevated environmental burdens and vulnerable populations. EJSCREEN's simple to understand color-coded maps, bar charts, and reports enable users to better understand areas in need of increased environmental protection, health care access, housing, infrastructure improvement, community revitalization, and climate resilience.

"EJSCREEN provides essential information to anyone seeking greater visibility and awareness about the impacts of pollution in American communities," said EPA Administrator Gina McCarthy. "EJSCREEN has been a valuable resource for EPA to advance our commitment to protect Americans most vulnerable to pollution. I'm excited to share this tool with the public to broaden its impact, build transparency, and foster collaboration with partners working to achieve environmental justice.

"State environmental agencies appreciate EPA's collaborative work on the use and release of this important tool," said Dick Pedersen, Director of Oregon's Department of Environmental Quality and past President of the Environmental Council of States. "Citizens having access to environmental and demographic data is extremely important in helping states implement environmental programs and ensure public health and environmental protection for all. To that end, EJSCREEN facilitates vital citizen engagement."

EJSCREEN can help governments, academic institutions, local communities, and other stakeholders to highlight communities with greater risk of exposure to pollution based on 8 pollution and environmental indicators, including traffic proximity, particulate matter, and proximity to superfund sites. These indicators are combined with demographic data from the U.S. Census Bureau American Community 5-year Summary Survey enabling users to identify areas with minority or low-income populations who also face potential pollution issues.

EJSCREEN's capabilities could provide support for educational programs, grant writing, and community awareness efforts so that users can participate meaningfully in decision-making processes that impact their health and environment. While EJSCREEN is being shared publicly to improve work on environmental justice, EPA is not mandating state governments or other entities use the tool or its underlying data.

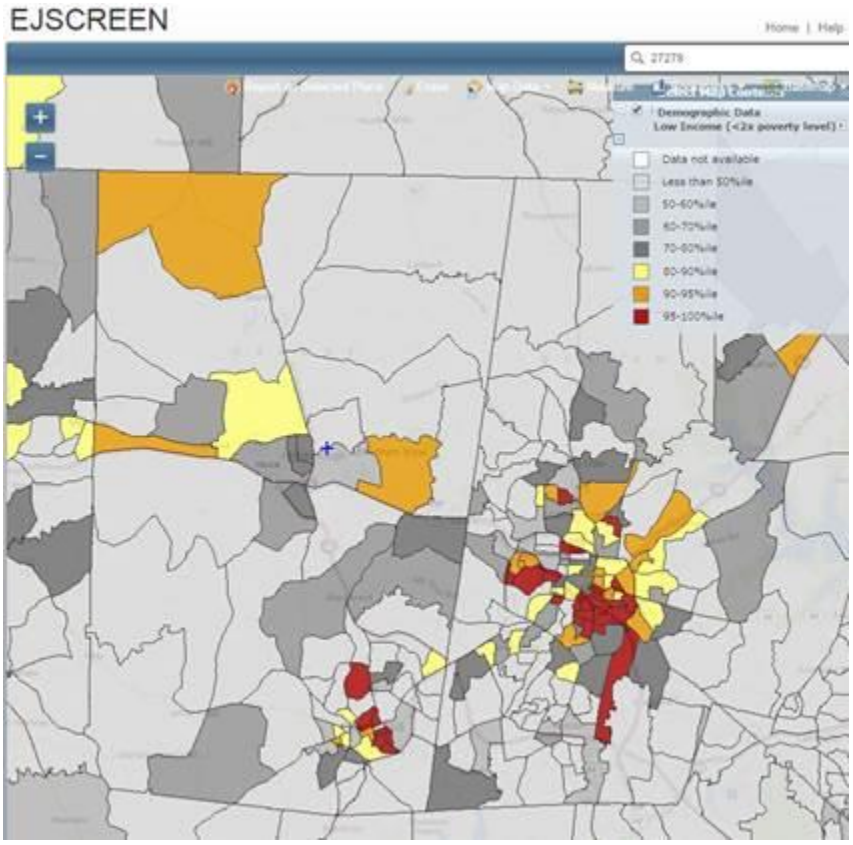
EJSCREEN does not direct EPA decisions; it does not provide a basis for identifying areas as EJ communities, and it is not an appropriate standalone tool for making a risk assessment. As a screening tool, its data may have levels of uncertainty, and is therefore incomplete in capturing the total number of pollution problems people face.

Today's release of EJSCREEN initiates a stakeholder engagement period over the next six months. EPA will collect feedback on the datasets and design of the tool – as well as how it could be further enhanced – and will release a revised version in 2016.

<u>Environmental justice</u> is defined as the fair treatment and meaningful involvement of all people, regardless of race or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA's goal is to provide all people with equal access to the environmental decision-making process to maintain a healthy environment in which to live, learn, and work.

To access the tool, visit: http://www2.epa.gov/ejscreen

ORANGE COUNTY, NC



It's Official: 2014 Hottest Year on Record

Four independent global data sets registered 2014 as the warmest year on record, the Weather Channel reported, citing an annual review by international scientists sponsored by the National Oceanic and Atmospheric Administration (NOAA) and published in the Bulletin of the American Meteorological Society. The only major region of the world with below-average annual temperatures was Eastern North America.

The review compiled by NOAA's Center for Weather and Climate and based on contributions of more than 400 scientists found that atmospheric carbon dioxide levels reached a global average of 397.2 parts per million, a 1.9-ppm-increase in 2014; the global average was 354 ppm in 1990, the review's first year.

Other highlights of the *State of the Climate in 2014* report include

- Record highs for sea surface temperatures**,** particularly in the North Pacific Ocean, as well as for global upper ocean heat **(**oceans absorb more than 90 percent of Earth's excess heat), and global sea levels (oceans expand as they suck up heat**);**
- Continued Arctic warming and low sea ice extent;
- Highly variable temperature patterns and record-high sea ice extent in the Antarctic; and
- An above-average number of tropical cyclones.

Human activities are implicated in the record high. Deke Arndt, a NOAA climate scientist and one of the report authors pointed out that it's no coincidence that it's the lower atmosphere, rather than the upper atmosphere, that's warming.

"The changes that we see in the lower part of the atmosphere are driven by a change in the composition of the atmosphere," Arndt said. "If an external forcing—such as the sun or some orbital phenomenon—would be driving the warming, we would see a warming across the board in most of the atmosphere. And we don't."

Now it appears that 2015 is well on its way to topping 2014 as the warmest on record. A strengthening El Nino is transferring heat from the tropical Pacific around the globe, and the National Aeronautical and Space Administration (NASA) and the Japan Meteorological Agency have reported that the global warmth of June 2015 matched or exceeded any previous June in historical records.

Study: 2-Degree Target Unsafe

New research says keeping within 2 degrees Celsius of pre-industrial temperatures—the target scientists and global leaders agree represents a safe level of climate change—may be inadequate and "highly dangerous." Meeting the target, the study says, could lead to runaway ice melt that causes rising sea levels and ocean circulation changes far more serious than previous projections.

"We conclude that continued high emissions will make multi-meter sea level rise practically unavoidable and likely to occur this century," James Hansen—NASA's former lead climate scientist and 16 other co-authors write in the new, not-yet-peer-reviewed discussion paper due to be published in the journal *Atmospheric Chemistry and Physics*. "Social disruption and economic consequences of such large sea level rise could be devastating. It is not difficult to imagine that conflicts arising from forced migrations and economic collapse might make the planet ungovernable, threatening the fabric of civilization."

A better strategy, the authors say, is to return to an atmosphere with 350 parts per million of carbon dioxide—we've reached about 400 parts per million.

Pope, Mayors Urge Action on Climate Change

A month after the release of his encyclical on the environment, Pope Francis urged world leaders to take a "strong position" on climate change in advance of the United Nations climate talks in Paris later this year.

"I have great hopes for the Paris summit in December and hope a fundamental agreement is reached," said Francis at a two-day conference of mayors from nearly 60 cities around the world to discuss the issues of climate change and fighting forms of modern slavery. "The U.N. needs to take a strong position on this."

The mayors in attendance signed a pledge stating that "human-induced climate change is a scientific reality and its effective control is a moral imperative for humanity."

The meeting, the *Globe and Mail* reports, represents a fundamental shift in how the issue of climate change is framed.

The Climate Post offers a rundown of the week in climate and energy news. It is produced each Thursday by Duke University's Nicholas Institute for Environmental Policy Solutions and cross-posted on the Huffington Post and National Geographic NewsWatch. Like us on Facebook, follow us on Twitter, or subscribe to our YouTube channel for more updates.

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N.C. Republican puts $175M in climate change campaign

By Bruce Henderson
and Jim Morrill
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A Charlotte entrepreneur has quietly launched a $175 million campaign to convince his fellow conservative Republicans that climate change is real and business can fix it.

Jay Faison, a son of the late Charlotte developer Henry Faison, made his own fortune 18 months ago when he sold audio-visual equipment company SnapAV. Then he went to work on what he calls "the biggest risk and the biggest opportunity of our time."

ClearPath, the nonprofit foundation he started with $165 million from the sale, aims to demystify climate science and seek market-based solutions as a counterweight to governmental approaches.

Its website, which went online Tuesday, is packed with pieces on energy efficiency, renewable energy, electric vehicles and companies reducing their carbon footprints.

Faison

Carefully footnoted, it cites authorities on the threats of higher temperatures, rising sea levels, dwindling water supplies and global instability.

Faison, who is 47 and a Charlotte native, glimpsed that future on hunting and fishing trips that increasingly took him into a warming world.

"The ducks come South later in the year, and the trout move upriver. You just notice these changes, and it doesn't seem natural," he said. "People who live outdoors notice, and these are changes that have just happened over the past decade or two."

Polls suggest ClearPath will struggle to win over many conservative Republicans.

A Gallup poll in April found only 37 percent think climate change will occur in their lifetimes, Politico reported. Forty percent predicted it will never happen.

But Republicans who promote climate action insist conservative voters are ready, after years of polarizing debate, to listen to new approaches.

"If the question is posed – can

SEE **CLIMATE,** PAGE 8A

CLIMATE

CONTINUED FROM PAGE 1A

free enterprise solve climate change? – then it can be enthusiastically answered, 'You bet we can,' " said Bob Inglis, a former member of Congress from South Carolina. "It's all about showing them a solution that fits with their values."

Inglis leads the online forum republicEn.org, at George Mason University in Virginia, which focuses on free-enterprise solutions to climate change. He views Faison as the ideal messenger.

"He's a businessman and a Republican, he's handsome and articulate – it couldn't be better positioning to turn heads and change minds on climate change," he said. "This is not a San Francisco liberal who's trying to dupe somebody into something they don't believe."

Faison's own notion of success: "American leadership solving the

biggest problem we've ever faced. Many countries have solutions and are well past us, and doing it without doing harm to their economies. Americans can choose to do very little or we can choose to lead."

Information campaign

Like his friend, ClearPath advisory board member Shannon Smith believes in commercial solutions to energy and environmental problems. Smith is CEO of Charlotte's Abundant Power Group, which helps buildings pollute less and operate better.

The foundation's message "has to be trustworthy and unbiased," Smith said.

"Republicans perceive the issue as biased due to liberal overreach over how to handle the issue governmentally. We missed the signal for the noise," he said.

Faison says he's "tired of political rock throwing." But he seeded a separate entity with $10 million to allow for more political participation.

> 'If the question is posed – can free enterprise solve climate change? – then it can be enthusiastically answered, "You bet we can." '
>
> **BOB INGLIS**
> REPUBLICEN.ORG

"I'm pretty active in North Carolina now on what's going on in Raleigh – that's been interesting," he said. "There's a need for good, clear information in Raleigh, and we're helping with that."

Faison's $10 million would be more than all but 13 super PACs and other groups spent on the 2014 elections, says the Center for Responsive Politics, a nonpartisan research group. NextGen Climate Action Committee, started by billionaire hedge fund manager Tom Steyer, spent nearly $66 million in 2014.

"There's no doubt (the money) will make an impact," said state Rep. Charles Jeter, a Huntersville Republican. "If he wants to play in legislative races, it will make an impact on anybody who wants to have these chairs."

The conservative-dominated legislature this year moved to freeze a green-energy standard that helped make North Carolina a national leader in solar power. It hasn't viewed climate change as a pressing issue.

But some Republican members side with Faison on the science.

"There's enough scientists saying we've got a huge risk here, we would be stupid not to protect ourselves from that risk. Even if they're wrong," said state Rep. Chuck McGrady, a Hendersonville Republican who once led the national Sierra Club.

Sen. Jeff Tarte, a Cornelius Republican who is co-sponsoring a bill to extend renewable energy tax credits, said the facts are beyond debate.

"To not believe in climate change is to say that there were never dinosaurs on the planet, that Columbus sailed off the edge of the Earth and that the moon landing occurred on a back lot in Burbank," he said.

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Reading, writing and climate change

6/11/15 N+O

By Catherine Rampell

BERLIN I'm in a different country, but sometimes it feels like I'm on a different planet. I realize that's a cliche, but in a way it's true. The planet comes up in Germany a lot, and it doesn't sound anything like the one I live on in the United States.

At home, our planet is doing more or less OK. And if it's not – if, instead, the climate is slowly changing – there's not much we can do about it. A third of Americans say that climate change is not a serious problem or not a problem at all, according to a recent YouGov survey. Just one in 10 Germans feels the same way.

It's little wonder why.

In the United States, where Republican politicians compete to outdoubt each other on the issue, we're still fighting over whether schoolchildren can be taught that climate change is real. In Germany, children have been learning about sustainability and climate change for years.

And the efforts are only intensifying.

Take Emmy-Noether-Schule, an 800-student secondary school in East Berlin I visited recently. Educators there consider climate change so pressing that they integrate it into just about every class you can think of (including, when the instructor is so inclined, Latin). About one-quarter of the content in the 10th-grade English textbook is about threats to planet Earth. That means when kids learn to use the conditional mood in English, their grammar exercises rely on sentences like this: "If we don't do something about global warming, more polar ice will start to melt."

Likewise, in an 11th-grade geography class dedicated entirely to sustainability, students write poetry about "klimawandel" (climate change). My favorite couplet, from an ode by student Hannah Carsted: "The water level rises/ The fish are in a crisis."

During my visit, Hannah and her classmates asked me about U.S. skepticism on an issue that, as far as the rest of the world is concerned, seems fairly settled. Why haven't Americans been chastened by extreme weather events, such as Superstorm Sandy or the California drought (yes, they knew about both), that are predicted to proliferate if we do nothing to curb carbon emissions? Why don't we believe what scientists tell us? I tried to explain the vast, vocal network of conspiracy theorists who believe that 97 percent of climate scientists have been hoaxing the world – and who have created a parallel universe of pseudoscience to prove it.

"That just seems unimaginable," another student declared.

It's easy to write off this reaction as unique to crunchy-granola East Berlin, which is kind of the Berkeley of Germany. But the textbook I mentioned is used throughout the country, and this summer German education ministers will issue guidelines for teaching sustainability in English, French, Spanish, the visual arts, music, history, mathematics, biology, chemistry, physics and even phys-ed. And similar efforts are underway in developing economies such as the Dominican Republic, South Africa, Vietnam, Kenya and Mauritius, according to Alexander Leicht, UNESCO'S chief of the Education for Sustainable Development section.

In France, as in Germany, course work on sustainability and climate change has been part of most schools' curricula for a while – partly the result of a 1992 U.N. treaty that the United States also signed, then ignored. And as France gears up to host a major U.N. climate conference Nov. 30-Dec. 11, education officials are exploring whether to require every French school to conduct its own model-U.N.-style simulated negotiation in which students play-act international negotiations on emissions targets, then learn what happens to our (shared) planet as their efforts succeed. Or, perhaps more likely, stall.

The American public seems a bit less interested in those U.N. proceedings, let alone in simulating them in schools nationwide. The French foreign minister warned recently that the talks will be hamstrung by the toxicity of the issue in the United States. Which seems true enough; in that YouGov survey, which was conducted in 15 countries across four continents, Americans were not only most likely to express indifference about climate change, we were also most likely to say our own government was already "doing too much" to stop it.

What intrusive government interventions could these Americans possibly be referring to? That, dear friends, remains unimaginable.

WASHINGTON POST WRITERS GROUP

BUZZ OFF The winner and new champ, at center: Sawyer.

How to Win the Battle of the Bugs

You don't need harsh chemicals to keep the biters at bay. We reveal new, safer options.

WOULD YOU RATHER be eaten alive by mosquitoes and ticks that can carry debilitating—and even deadly—diseases or douse yourself in harmful repellents full of potentially dangerous chemicals? Almost three-quarters of Americans say they worry more about insect-carried diseases, such as Lyme and West Nile as well as newer threats like chikungunya and Powassan, according to a recent Consumer Reports survey of 2,011 U.S. adults.

Here's the real dilemma, though: Most people also say that safety is key when they choose a repellent, but only about a third think the products now on the market are safe for adults. Even fewer—23 percent—think the repellents are safe for kids.

If you're conflicted about what to do, we have good news: For the first time ever in Consumer Reports' tests of insect repellents, new, safer products—made with milder, plantlike chemicals—were the most effective. (See Ratings on page 36.) The top scorers outperformed products that contained deet, a chemical that did best in our previous Ratings but can cause serious side effects (see the facing page). The active ingredients in the top repellents are picaridin and oil of lemon eucalyptus, both chemically synthesized compounds that are similar to or come from natural ingredients. The secret sauce in best-scoring Sawyer Fisherman's Formula is picaridin; in Repel Lemon Eucalyptus, it's oil of lemon eucalyptus. They are not side-effect-free, but "those problems are much less severe than deet," says Urvashi Rangan, Ph.D., executive director of Consumer Reports' Food Safety and Sustainability Center. "Still, all repellents should be used sparingly and only for the time you need them—especially on children and older people."

That's why an effective bug-avoidance strategy requires a full arsenal. Our new tests provide clarity on that, too, identifying non-chemical approaches that offer some relief (setting up a fan on your back patio, for example) and those that don't help much if at all (think citronella candles, wristbands, and "all-natural" products with geraniol, lemongrass, and rosemary oils).

The Swat Team Bares Arms

To find effective spray-on repellents, we went to an outside lab and tested 15 pump sprays and aerosols. The products contained

PROP STYLING: ARIANA SALVATO/APOSTROPHE

PHOTOGRAPH BY TRAVIS RATHBONE

deet, oil of lemon eucalyptus, picaridin, a chemical called IR3535, and products made with natural plant oils.

Our brave testers had a different repellent applied to each of their forearms and, 30 minutes later, reached into an 8-cubic-foot cage containing 200 disease-free, female mosquitoes in need of a blood meal to lay their eggs. We used culex mosquitoes (the kind that transmit West Nile and are most active between dusk and dawn) and aedes (a variety that likes to feed on humans, is active all day long, and carries chikungunya). Our experts watched and recorded bites every hour.

A repellent failed if a tester was bitten two or more times in one 5-minute session, or once in two consecutive sessions. For ticks, we marked each tester's bare arms with three lines, then released, one at a time, five disease-free deer ticks to crawl on them. The repellent failed if two ticks crossed into the treated area.

What Bugs a Bug Most?

The top-performing products contained 20 percent picaridin (Sawyer Fisherman's Formula) and 30 percent oil of lemon eucalyptus (Repel Lemon Eucalyptus). They kept mosquitoes and ticks away for at least 7 hours. Two deet products also earned at least Very Good scores, and the repellent that was 15 percent deet (Repel Scented Family) outperformed the 25 percent deet product (Off! Deep Woods VIII), possibly because of its inactive ingredients. The IR3535 products, Coleman SkinSmart and BullFrog Mosquito Coast, didn't make our list of top sprays. Some of the plant-oil products couldn't ward off the aedes mosquitoes for even half an hour. To see the bugs in action on our testers' arms, go to *ConsumerReports.org/cro/insects0715*.

Repellents: The Bottom Line

GO PLANTLIKE Look first for products with 20 percent picaridin or 30 percent oil of lemon eucalyptus; we think they're safer than those with deet.

LIMIT DEET If you do opt for deet, avoid concentrations of more than 30 percent (which are potentially dangerous) or below 8 percent (which may not work as well).

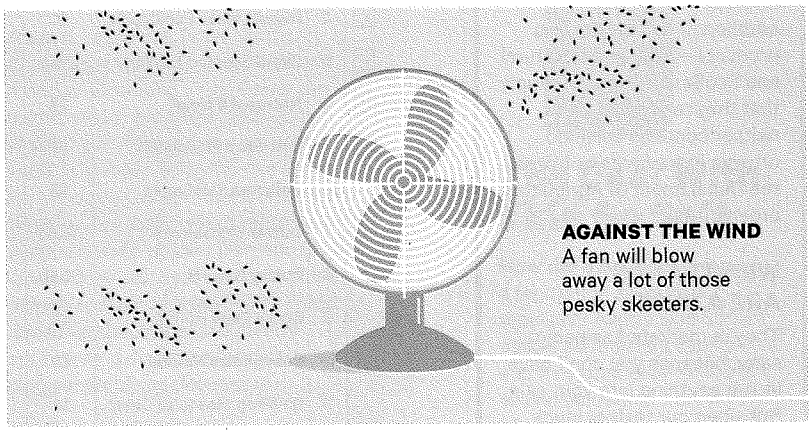
SKIP THESE Don't bother with "all-natural" plant-oil repellents. Skip wristbands, too. Neither worked well in our tests.

Get a Pest-Free Backyard

We tried a candle, a diffuser, and a fan. Here's what worked.

TO FIND OUT HOW WELL area repellents worked, we simulated a backyard barbecue in a 25x30-foot room and unleashed 250 aedes mosquitoes, known to be aggressive biters. We suited up four testers in protective suits and sat them at a "picnic" table, where we lit an Off! Citronella Bucket, $8.50, containing a candle with 0.5 percent oil of citronella. Then we counted how often mosquitoes landed on them. We tested again with the Bug Band Portable Diffuser, $20, which uses a battery-operated blower to propel the scent of 20 percent geraniol, another plant oil. Last, we cranked up an oscillating pedestal fan to its highest speed to see whether it could literally blow mosquitoes away.

What we found. Neither the citronella bucket nor the geraniol diffuser kept the mosquitoes at bay. But the fan showed some promise: It cut mosquito landings by 45 to 65 percent, at least among people sitting close to the fan. Our survey found similar results: 45 percent of people who used fans said they were especially helpful, compared with 31 percent of those who tried candles. What else can you do? Clean out gutters and empty old tires and birdbaths (where mosquitoes breed) and clear away ivy and decaying leaves (where they hide). For ticks, keep your lawn mowed, remove leaves, and let in as much sun as you can. Consider fencing, to keep out deer and other animals that carry ticks.



AGAINST THE WIND A fan will blow away a lot of those pesky skeeters.

The Scoop on Deet and Its Alternatives

DEET (N, N-diethyl-meta-toluamide) has been the go-to insect repellent since it was introduced in the 1950s. But consumers are still confused by it: 64 percent of people we surveyed admit that they don't know how much deet a repellent should contain for it to be considered safe. And balancing safety and effectiveness is tricky. Products with 15 percent or more deet do work, though concentrations above 30 percent are no better, past tests have found. And deet, especially in high concentrations, can cause rashes, disorientation, and seizures. That's why we say you should avoid repellents with more than 30 percent deet and not use it at all on babies younger than 2 months. But go too low—such as 7 percent deet—and it won't stop bites for long.

PICARIDIN AND OIL OF LEMON EUCALYPTUS—two repellents introduced in the last decade—make good alternatives to deet. Here's why.

They work. The repellents we tested that contain 20 percent picaridin and 30 percent oil of lemon eucalyptus (p-Menthane-3,8-diol) warded off mosquitoes for at least 7 hours and kept deer ticks away for at least 6 hours. But the concentration is important: A spray that contained just 5 percent picaridin performed worse than the 7 percent deet product we tested.

They're safer. Picaridin is made to resemble the compound piperine, which occurs naturally in black pepper plants. Oil of lemon eucalyptus comes from the gum eucalyptus tree. Both have less serious side effects than deet has. Oil of lemon eucalyptus can cause temporary eye injury. The Food and Drug Administration says it should not be used on children under age 3. Of the two, picaridin is a better choice for kids, although it can cause some irritation of skin, eyes, and lungs.

ILLUSTRATIONS BY OLIVER MUNDAY

NATURAL REPELLENTS DON'T DO THE JOB

Products with natural plant oils, such as citronella, lemongrass, and rosemary, often have labels that talk a good game, with claims such as "proven effective" or "repels mosquitoes for hours." But don't believe it. Unlike repellents with chemically synthesized ingredients (including picaridin and oil of lemon eucalyptus), plant-oil products are exempt from scrutiny by the Environmental Protection Agency. That's because the EPA considers them "minimum risk." But none of those products we tested lasted more than 1 hour against aedes mosquitoes, and some failed almost immediately. In addition, the names of two products—Babyganics Natural and EcoSmart Organic—imply that they're organic. But neither contains certified organic ingredients or bears the Department of Agriculture organic seal.

WRISTBANDS ARE A BUST

They're marketed as being safer, because you don't have to rub anything into your skin. But when our testers stuck their arms into a cageful of mosquitoes while wearing one of two wristbands—the Coleman Naturals Insect Repellent Snap Band (containing citronella oil) or the Super Band Wristband (containing geraniol oil)—the bugs started biting immediately. Given those results, we've rated them as poor performers and recommend that you skip them.

In February the Federal Trade Commission charged another maker of repellent wristbands, Viatek, with deceptive marketing of its Mosquito Shield Bands, which the FTC says contain mint oil. The FTC says the company's claim that the bands protect against mosquitoes wasn't backed up with scientific evidence. The case will be decided by a U.S. District Court; the FTC is seeking penalties and consumer refunds.

TRY THESE

A1 Sawyer **A2** Repel **A3** Repel **A4** Natrapel **A5** Off!

AVOID THESE

A14 Off! **A15** EcoSmart

Ratings: Insect Repellents

Scores in context: Of the 15 insect repellents we tested, the highest scored 96; the lowest, 7. All products are listed in order of performance.

☑ CR Best Buy ☑ Recommended

● Excellent ◓ Very Good ○ Good ◒ Fair ● Poor

INSECT REPELLENTS

Recommended	Rank	BRAND & PRODUCT	PRICE	Cost per Oz. ($)	SCORE	Active Ingredients	Type	TEST RESULTS: Effectiveness Aedes Mosquitoes (hr.)	Effectiveness Culex Mosquitoes (hr.)	Effectiveness Deer Ticks (hr.)	Resists Damage to Materials
☑	1	**Sawyer** Fisherman's Formula Picaridin	$8.25	2.06	**96**	Picaridin 20%	Pump	8.0	8.0	8.5	○
☑	2	**Repel** Lemon Eucalyptus	$7	1.75	**87**	Oil of lemon eucalyptus 30%	Pump	7.0	8.0	7.3	●
☑	3	**Repel** Scented Family	$7.50	1.15	**82**	Deet 15%	Aerosol	5.0	8.0	8.5	○
☑	4	**Natrapel** 8 Hour	$8	1.33	**81**	Picaridin 20%	Aerosol	7.8	8.0	6.0	○
☑	5	**Off!** Deep Woods VIII	$7	1.75	**74**	Deet 25%	Aerosol	8.0	8.0	4.9	○
	6	**Coleman** SkinSmart	$8	1.33	**69**	IR3535 20%	Aerosol	3.1	6.0	8.2	○
	7	**Cutter** Skinsations	$4.50	0.75	**33**	Deet 7%	Pump	1.3	2.9	6.0	○
	8	**Cutter** Natural	$5.50	0.92	**29**	Plant oils	Pump	0.9	0.6	7.9	◓
	9	**Burt's Bees** Herbal	$8	2.00	**28**	Plant oils	Pump	1.0	1.3	6.2	●
	10	**Babyganics** Natural	$9	1.50	**25**	Plant oils	Pump	0.5	1.0	6.8	●
	11	**BullFrog** Mosquito Coast	$8	1.33	**25**	IR3535 20%	Aerosol	0.8	3.5	4.7	○
	12	**All Terrain** Kids Herbal Armor	$9	2.25	**23**	Plant oils	Pump	0.6	1.1	6.6	○
	13	**California** Baby Natural Bug Blend	$15.50	2.38	**22**	Plant oils	Pump	0.5	0.5	6.7	●
	14	**Off!** FamilyCare II Clean Feel	$6	1.00	**18**	Picaridin 5%	Pump	0.5	0.9	5.2	◓
	15	**EcoSmart** Organic*	$7	1.17	**7**	Plant oils	Pump	0.5	0.5	1.3	●

*Does not contain certified organic ingredients.

Find the Best Insect Repellent for You

BEST ALL-AROUND

- **1 Sawyer Fisherman's Formula Picaridin** $8.25

This pump spray stood out in several ways. It protected for 8 hours against mosquitoes, including the aggressive ones that spread chikungunya. And it protected for more than 8 hours against ticks. It also has less serious side effects, especially for kids. The only negatives: It's a little pricey, and it discolored leather and vinyl and removed nail polish.

LESS LIKELY TO STAIN

- **2 Repel Lemon Eucalyptus** $7

Of the top repellents, the Repel Lemon Eucalyptus pump was least likely to damage or discolor materials. But it did take off nail polish.

PLEASANT SCENT AND FEEL

- **2 Repel Lemon Eucalyptus** $7
- **4 Natrapel 8 Hour** $8
- **5 Off! Deep Woods VIII** $7

When it comes to scent and feel, these stood out. The Repel had a mostly eucalyptus scent with a hint of lemon, and it was slightly oily. The Natrapel had a floral perfumey aroma, and it was oily. The Off had a mild aroma that was mostly floral and a little fruity. It left a thin, dry coating.

Don't Spray It on Your Face, and Other Tips

Proper use is essential, even with safer repellents. That means:

- Apply repellents only to exposed skin or clothing (as directed on the product label). Never put it on under clothing. Use just enough to cover and only for as long as needed; heavy doses don't work better.
- Don't apply repellents over cuts, wounds, or irritated skin.
- When applying to your face, spray first on your hands, then rub in, avoiding your eyes and mouth, and using sparingly around ears.
- Don't let young children apply. Instead, put it on your own hands, then rub it on. Limit use on children's hands, because they often put their hands in their eyes and mouths.
- Don't use near food, and wash hands after application and before eating or drinking.
- At the end of the day, wash treated skin with soap and water, and wash treated clothing in a separate wash before wearing again.

The Danger in the Bite

MOSQUITO-BORNE DISEASES

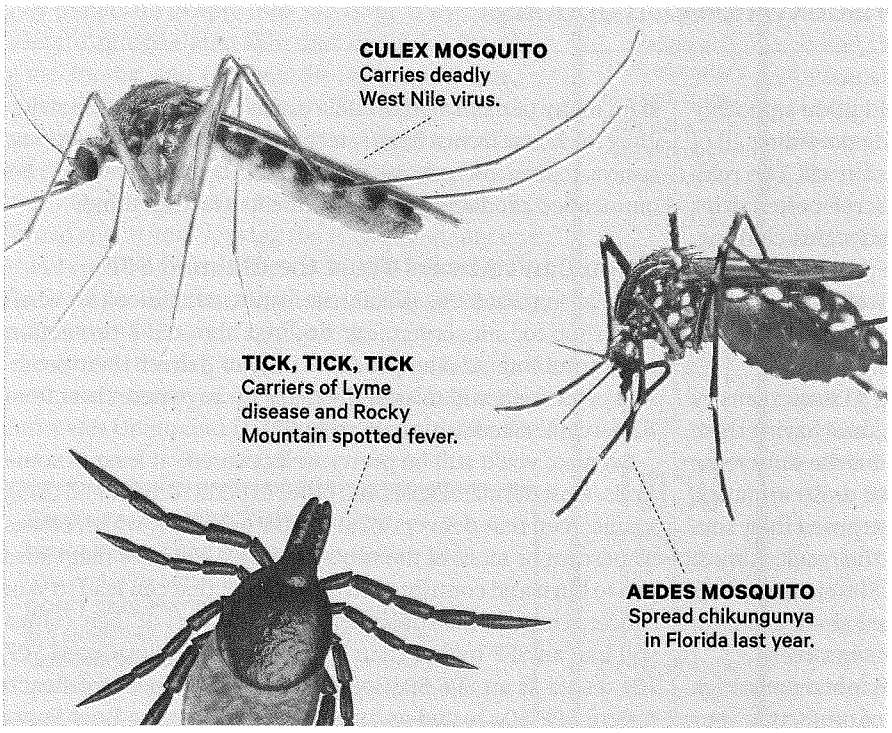
West Nile was reported in 47 states last year and killed 85 people in the U.S. **Chikungunya** isn't as widespread—yet—or as deadly. Of the almost 2,500 cases reported in the continental U.S. since January 2014, there were no deaths, and only 11 cases were from bites received in the continental U.S. (all in Florida). The rest were brought back from the Caribbean, Asia, or Africa. But experts worry that chikungunya may be prone to large outbreaks in urban settings. The mosquitoes that carry it bite all day long. Plus, roughly 70 to 90 percent of infected people develop symptoms, compared with 20 percent of those infected with West Nile.

WHAT TO DO See a doctor if you develop signs of either disease: fever, headache, and body aches for West Nile; and fever and joint pain for chikungunya. Both are viral, so antibiotics won't help. But over-the-counter pain relievers can ease symptoms.

TICK-BORNE DISEASES

Lyme disease affects about 300,000 people each year, mostly in the Northeast and Upper Midwest. But that geographic reach is expanding, and doctors in new areas may be less familiar with the disease. **Other tick-related diseases** include Rocky Mountain spotted fever, most often in North Carolina, Oklahoma, Arkansas, Tennessee, and Missouri; babesiosis, in the Northeast and Upper Midwest; ehrlichiosis, in the Midwest and South; and an emerging virus, Powassan, mainly in the Northeast and Great Lakes region.

WHAT TO DO See a doctor if you develop a bull's-eye rash accompanied by flu-like symptoms, which indicates Lyme. Prompt treatment can stop the infection and prevent more serious complications, such as joint pain and facial paralysis (Lyme disease); heart, joint, or kidney failure (Rocky Mountain spotted fever); blood clots and bleeding (babesiosis); difficulty breathing or bleeding disorders (ehrlichiosis); and neurological problems (Powassan).



SKIP COMBO PRODUCTS Repellents with sunscreen aren't a good idea.

The Deal With Skin So Soft

How did a bath oil develop a reputation as an insect repellent? Avon's Skin So Soft makes no repellent claims, and its ingredients—mineral oil and emollients—are purely cosmetic. But because it had so many fans, we tested the pump spray—in 1993—and found that it did not fend off mosquitoes at all. Other Skin So Soft products are now marketed as repellents. One, Skin So Soft Bug Guard Plus IR3535 Expedition, combines a repellent with sunscreen. But we think such products are a bad idea: Sunscreens should be applied liberally and often, so the combo could lead to unnecessarily high doses of the repellent. We haven't yet tested Avon's stand-alone repellent, Skin So Soft Bug Guard Plus Picaridin, but we plan to include it in our next round of testing. That product contains just 10 percent picaridin. In our tests of similar products, the two with 20 percent picaridin performed very well, and the one with 5 percent didn't.

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The Stormwater Almanac

Volume 6, Number 2 July 2015

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Festival for the Eno

10 a.m. to 6 p.m. July 4-5

For more information, visit www.enoriver.org/festival/

Eno River pilot study using herbicide to treat invasive plant hydrilla began May 29

For more information, visit http://nc-ipc.weebly.com/eno-river-hydrilla-project.html

This is a publication of the …

Town of Hillsborough
Stormwater Management Program

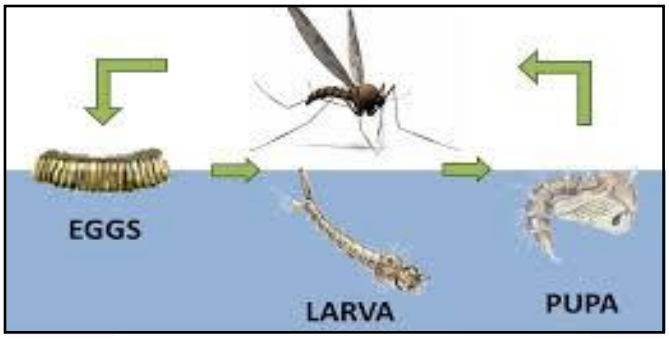
Issues available online at www.ci.hillsborough.nc.us.

Our Stormwater Drains to the Eno River!

Are Stormwater BMPs a Source of Mosquitos?

By Haley Moser, Stormwater Intern

Citizens often believe that engineered stormwater controls — or "best management practices" (BMPs) — are breeding grounds for mosquitos.



Life Cycle of Mosquitos

"I get asked about this a lot," Stormwater Program Manager Terry Hackett says. "While BMPs can foster an environment for mosquitoes, those that are designed and maintained correctly generally do not have any issues with the insects."

The BMPs that foster mosquito growth are designed to hold permanent water, such as retention ponds or underground basins. The stagnant water in these environments provides an ideal breeding location since mosquitoes require a minimum of four consecutive days of uninterrupted still water for larvae to hatch to adulthood. To combat mosquito growth, design features can be implemented into BMPs as a proactive measure against mosquitos. The most common design feature is the use of a *deep pool*, a water body with a minimum depth of 18 inches. The depth of such pools allows for predators, such as the mosquito fish, which survive by finding and eating mosquito larvae in the four-day development period. Another benefit of deep pools is they can aid in water flow if spread throughout a BMP. Moving water deters mosquitos from breeding as it creates an unsafe environment for the larvae.

Mosquitos *continued on Page 2*

Gold Park Wetland Aquatic Sampling, June 2015

Insect	*Abundance*
Mosquito Fish	Abundant
Damselfly larvae	Prevalent
Dragonfly	Prevalent
Clams	Prevalent

Insect	*Abundance*
Midge larvae	Scarce
Snails	Scarce
Beetles	Abundant
Frogs	Prevalent

Mosquitos continued from Page 1

Aquatic Insects Can Indicate Water Quality

It's not always easy to identify water quality based on smell or color, and it can be expensive to send samples to a lab. That's why looking at a waterbody's aquatic insect population is helpful.

Different insects thrive based on their tolerance to various levels of pollution. The predominant presence of insects that are tolerant of pollution indicates poor water quality. These include blackfly larvae, midge larvae and aquatic worms. Species like dragonfly and damselfly larvae can tolerate some pollution but generally indicate good water quality. The presence of pollution sensitive species like mayflies and caddis flies indicate excellent water quality.

A sample of the aquatic insect population at the Gold Park wetland included dragonflies, damselflies and beetles, indicating good water quality. That finding is interesting given that the wetland removes pollution from stormwater runoff. This indicates the wetland is functioning well.

Engineered Stormwater Wetland at Gold Park

Plenty of research suggests that properly maintained BMPs are not sources of mosquitos. An N.C. State University paper reports that no mosquito larvae were found in 66 percent of the facilities sampled in a 2004 study of 52 stormwater ponds in North Carolina. Other studies show that mosquitos are more prevalent in catch basins and inlets, rather than in stormwater BMPs. Catch basins and inlets often contain high volumes of organic material, which provide mosquitos with refuge from predators. Organic material is commonly associated with elevated levels of mosquito populations.

So what about town-owned stormwater BMPs? Recently, town stormwater staff conducted aquatic sampling surveys of the stormwater wetland at Gold Park. Different areas throughout the wetland were sampled, and the species found were recorded along with their relative abundance. Results are provided in the table on Page 1. No mosquito larvae or pupae were found during the survey.

Mosquito Fish, Clams and Dragonfly Larvae Sampled from the Stormwater Wetland at Gold Park

Staff repeatedly found mosquito fish, a major predator of mosquito larvae, in all areas of the wetland. Also prevalent were dragonfly and damselfly larvae, both of which also are predators of mosquito larvae. A midge larvae was found in one sample, but coincidentally stormwater staff witnessed a mosquito fish eat the larvae before a picture could be taken. Also found in the wetland was a moderate abundance of frogs, which would consume adult mosquitos able to develop out of the larval life stage. What is most interesting is that all of these species found their way to the stormwater wetland naturally. The wetland was not stocked with them.

For more information, visit: www.ci.hillsborough.nc.us/content/stormwater-management.

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Town of Hillsborough Stormwater Management Division

Only Rain Down the Drain