$E=(LG)^2$

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DOWN TO EARTH WITH DR. G

by KATIE WALKER

Though "going green" used to be a novel sort of idea around campus, Frostburg's students have really begun to embrace the idea of sustainability. To some, "going green" means engaging in environmentally-conscious practices such as recycling and car pooling. To others, bringing attention to important issues via discussion is equally important.

FSU students Rick Sours and Chris Landrum attempted to do just that when they began producing the TV segment, *Going Green with Dr. G.* The show, which airs on the FSU-TV3 channel, featured host FSU President Dr. Gibralter as he discussed an array of environmental issues.

Since the show *Going Green with Dr. G* proved to be successful, its new producers are broadening the topics a bit. New subjects include environmental and health-related issues, such as proper handwashing techniques. The show is now more geared toward student life, and students Matt Fowler and Antonio DeBarros are the new producers. The segment is now called *Down to Earth with Dr. G.*

image by MICHAEL MCALEXANDER

Professor Michael McAlexander, who is the show's executive producer, plays an important role as well. "I like the show and feel it covers important topics that are relevant to the university," he said.

He also feels Dr. Gibralter is a great host. "It is truly a pleasure working with the president, and the students working on the show really enjoy meeting him."

Dr. Gibralter is excited about the show and is an advocate of FSU's sustainability efforts. "The shows are fun, and I get to interview a lot of different people who have many different ideas about our planet and sustainability," he said. Dr.Gibralter hopes the show will help students discover ways they can make a difference as well. He considers himself to be a mere part of the show's broader goal of increased student involvement. "I let the students who produce the program make up the script and create the ideas because these shows are ultimately a learning experience for them—I consider myself to just be there to help them learn," he said.

> "I like the show and feel it covers important topics that are relevant to the University" ~ Professor McAlexander

As Season 3 of the show is set to commence, the producers of *Down to Earth* are seeking more student involvement and suggestions.

Any student who is interested in the program or has an idea for a future show should contact Michael McAlexander at mcmcalexander@frostburg.edu.

Behind the Articles by FOLAMI WARE

E=(LG)^2 is Frostburg State University's sustainability magazine that tackles various issues concerning the earth and the environment. Its first issue was released for the 2008 spring semester and has been going strong ever since. The class members of the Editing and Production class, taught by Dr. Sydney Duncan, are the ones responsible for putting the magazine together each semester. They dedicate much of their hard work, time, and energy to the magazine, making sure it comes out well. Working on the magazine can be hectic, but the class worked well with one another while putting together their own publication for the fall semester. E=(LG)^2 will be a great success due to the good relationship that the staff has with each other and the collectiveness that they share.

Table of Contents

image by ABIGAIL YEAGER

Amphibians: Why Should We Care?

by DEREK BOZZELL

image by MELISSA BRANNON

Populations of amphibians have been in dramatic decline globally for over two decades. To the average person, that doesn't really mean much. Why should it? Frogs don't really have that much of an impact on the day-to-day of life, most people have never seen a salamander, and only those versed in herpetology even know what a caecilian is. Despite seeming unimportant, there are many actually several reasons that the amphibian decline should be considered one of the most important ecological events in recent history.

Due to their unique life histories, amphibians serve as what are referred to as indicator species, meaning they act as sort of an early warning system for biologists. Amphibians are dependent on both water and land. They generally have a two-stage pattern of development, with the larval stage being aquatic and the adult stage terrestrial. Because they rely on both land and water, amphibians are sensitive to a wider range of environmental factors than most animals.

Their unique physiology also lends itself to making amphibians indicator species. Amphibians have porous skin; meaning they can absorb water, oxygen and other compounds through their skin. This makes them extremely sensitive to contaminants and pollutants in water. Even small amounts of water pollution will have disastrous effects on an amphibian population by causing mutations and physical deformities.

The cause for the decline in amphibian populations are many and complex. Global warming is a widespread problem. Rising temperatures not only affect water temperatures, but also allow for the spread of diseases that would otherwise not be able to survive in mild and cooler climates. A fungus called *Batrachochytrium dendrobatidis* has greatly expanded its range due to warming. It causes a disease called chytridiomycosis in amphibians. This fungus spreads quickly through populations and generally results in death.

The sensitivity to water pollution and contaminants is another big part of the decline. Even low concentrations of pollutants or otherwise harmful compounds can cause very serious mutations in developing larva. The fact that these pollutants can travel far from the source well into otherwise pristine areas adds to the problem. Another important, although seemingly unrelated factor in amphibian decline, is ozone depletion. The ozone layer decreases the amount of ultraviolet-B (UVB) rays that reach the earth's surface. In areas where the amount of ozone has decreased over time, more ultraviolet radiation reaches amphibian eggs. Unlike bird eggs, amphibian eggs do not have a hard protective shell, and are relatively open to impacts from the environment. Higher levels of UVB radiation cause mutations in the DNA of developing larva. This can result in death, or the development of physical deformities. Things like introduced predators, and even increased noise levels interfere with frogs' lives. Frogs cannot hear each other call if there is a highway built next to their pond. Amphibians are among the sensitive group of species on the planet. They are extremely sensitive to environmental impacts.

Climate Action Plan

by ABIGAIL YEAGER

On September 9th, FSU held an open house to discuss its new climate action plan. This plan is based on sustainability, which LGLG defines as "improving the quality of life for current and future generations by addressing environmental, social and economic needs at Frostburg State University." The FSU Bobcat illustrated the strategies of the plan. The brains of the Bobcat are education and research, the heart is mitigation, the soul is outreach, and the pockets are finance.

Education and research strategies try to educate the students and community on sustainability. These include a possibility of a minor in sustainability studies, co-curricular activities, IDIS 150 or 350 courses, and general education category.

Changing consumption of resources to make the campus more sustainable and reduce emissions in Frostburg is part of mitigation strategies. In 2008, 63% of Frostburg's emissions came from purchased electricity. 24% came from on-campus automobiles, 11% from transportation, 2% from solid waste and less than 1% from refrigerants and chemicals. FSU wants to lessen emissions by conserving resources and energy, purchasing renewable energy, upgrading technology and equipment, and offsetting remaining omissions. Outreach strategies involve connecting with the campus community, then the off-campus community to raise awareness and support. This should promote sustainability and expand the community's consciousness of sustainability.

Finance plans include things like revolving funds. These are projects that pay for themselves, like the low flow shower heads that cost $7,500 to install but save $5,000 a month. Frostburg State University has the goal, starting in 2006, of having a 100 percent reduction by 2030. As stated at the open house, "the countdown to climate neutrality at FSU begins now. Be a part of it!"

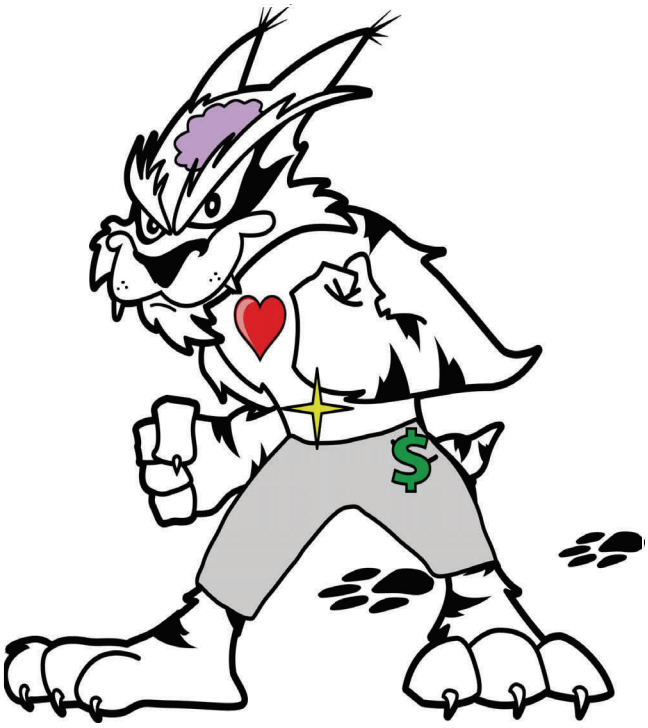

image by SEAN HENRY and ANN TOWNSELL

Frostburg State University	State of Maryland
(as proposed in 2009 CAP)	(MD Commission on Climate Change)
15 percent reduction by **2010**	**10** percent reduction by **2012**
20 percent reduction by **2014**	**15** percent reduction by **2015**
25 percent reduction by **2016**	**25** percent reduction by **2020**
50 percent reduction by **2020**	**90** percent reduction by **2050**
100 percent reduction by **2030**	
Base year: **2006**	Base year: **2006**

CHILL and Sustainability Integrate

by BLAIR BEDFORD and BRETT NIEVES

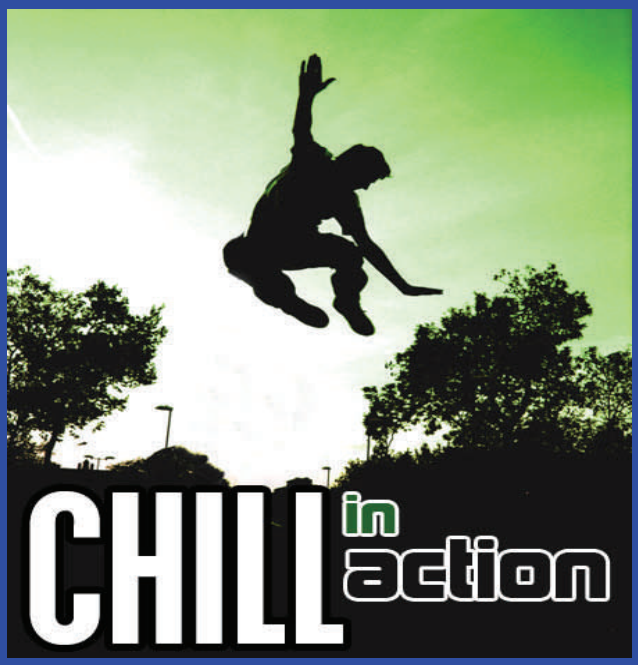

Image Curiosity of: CHILL Website
www.frostburg.edu/chill/

Sustainability reaches a variety of aspects in daily life, from recycling sustainable materials to clothing made by reused substances found in nature. Sustainability also influences personal wellness, as the two are intertwined through Frostburg's own CHILL Program which is designed to promote healthy living in the everyday lives of college students.

"Creating Healthy, Informed, and Lasting Lifestyles" is the goal of the CHILL Program, formed in September of 2008. This Frostburg-based program, funded by AstraZeneca Pharmaceutics, advocates a vigorous lifestyle of wellness through fitness programs, nutrition, and stress management.

In collaboration with the sustainability efforts taking place around campus, the CHILL Program incorporates sustainability into its own efforts of creating a healthy lifestyle for the students of Frostburg. April Baer, an active member of the CHILL Program, finds the combination inevitable. "[Those are] so easy to integrate with each other," Baer explains of incorporating wellness and sustainability.

> "I think students care about sustainability," says April Baer, coordinator of FSU Wellness.

To promote this conjunction further, CHILL is striving to bring healthier foods on campus, endorsing principles of both the program and sustainability efforts. President Doctor Jonathan Gibralter and the Living Green, Learning Green initiative at Frostburg are in the process of working with Armark to bring healthier foods on campus.

Along with sustainability endeavors, the CHILL Program is also paving the way to make Frostburg a smoke-free campus.

According to Baer, sustainability is a time-consuming process. But she also trusts that the students of Frostburg take heed to creating a more sustainable lifestyle with time and effort. "I think students care about sustainability," says Baer.

As for those who are still neglectful concerning sustainability and wellness, the CHILL Program's April Baer can't fathom their lack of compassion. "If you don't care about sustainability, you live in the stone age," she says.

Mainstream Music Goes Green:

Just a Ploy or a Genuine Effort?

by BLAIR BEDFORD & LUNDEN GILLESPIE

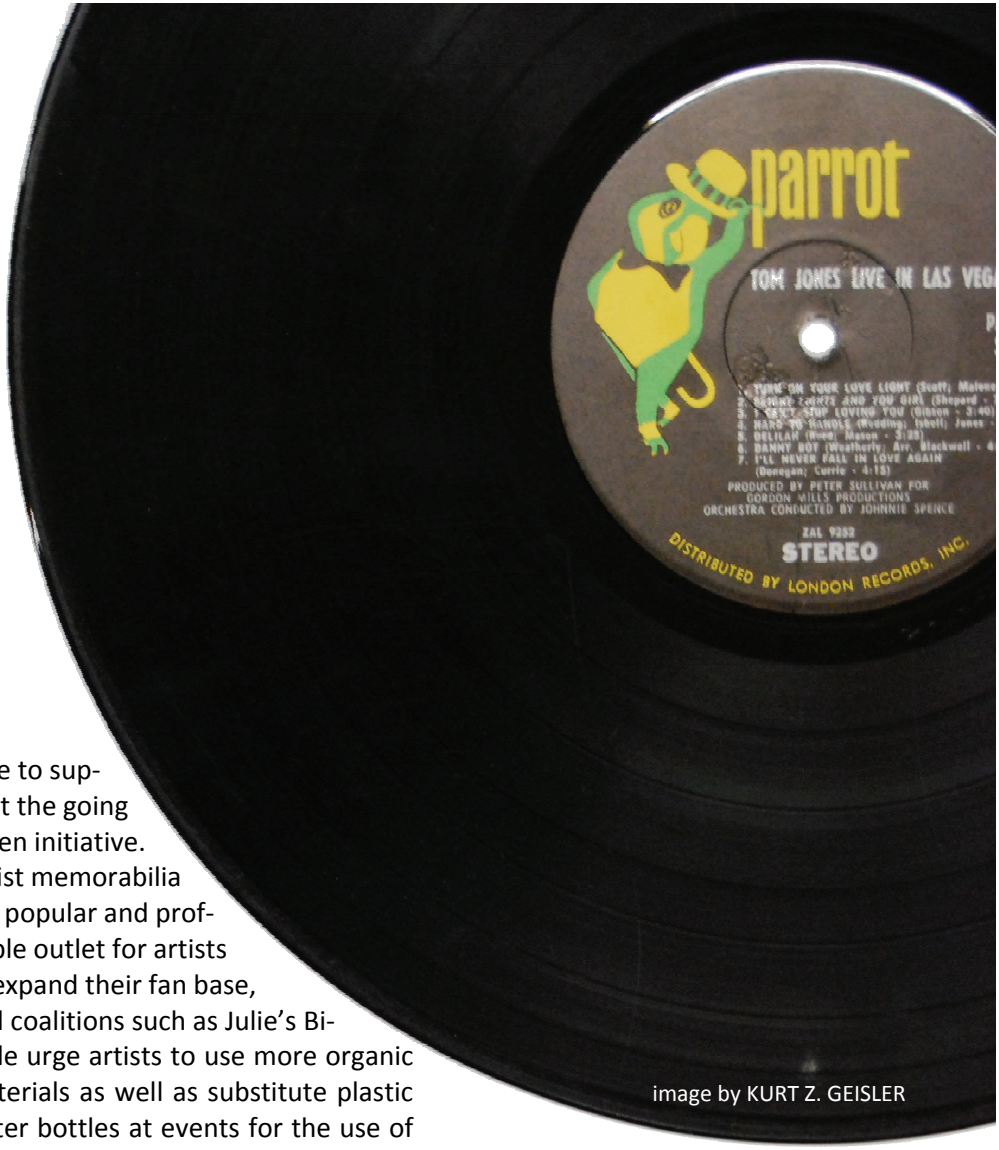

image by KURT Z. GEISLER

From CD cover to sold- out concerts, music artists in the industry choose more green alternatives to apply to different aspects of their business.

Members of what is referred to as the "eco-inspired" music community take steps to eliminate some of the not-so-green practices in the music industry.

According to the Austin Chronicle, huge stars in the industry such as the Dave Matthews Band, The Vans Warped Tour, Pearl Jam, and other notable bands support the "going green" efforts by either using biodiesel fuel in their tour buses or using disposable plates and silverware for the crew during tours. Companies like SMART (Sustainable Minded Artists Recording and Touring) help artists find more renewable resources to go green on their tours and still make a profit.

"I feel that it's a positive thing," states sophomore Arrielle Evans, concerning the music industry going green, "And it's a good way to make people more aware of the current state of the environment because everyone listens to music."

Julie's Bicycle, a coalition that helps the music industry to reduce greenhouse gas emissions, proposes several alternatives that artists can take to support the going green initiative. Artist memorabilia is a popular and profItable outlet for artists to expand their fan base, and coalitions such as Julie's Bicycle urge artists to use more organic materials as well as substitute plastic water bottles at events for the use of water fountains.

With participation comprised of several record labels and music vendors, the music industry offers a more earth-friendly packaging option for CDs. With this option, music companies are able to minimize the weight of the overall package of the album as well as maximize the content that can be recycled after buying an album.

Positive and negative criticisms have already arisen questioning the motives behind the "going green" initiative of the music industry. "I am for the [music] green campaign to a certain extent," Sophomore Law and Society Major Imani Dunigan says, "But is it just because they think it will appeal to others, or because everyone else is hopping on the green bandwagon? They could be genuine. But who knows the truth?"

Music studios have chosen to go green by installing solar panels, using biodegradable cleaning products for the studio, and other green initiatives. Atlanta-based Tree Sounds Studios is a clear example of the green initiative with participation from artists such as Outkast, Elton John, and others committing to more sustainable practices around the studio.

"As far as I can tell, it is having a positive impact on the environment rather than serving solely as a cry for 'mainstream attention,'" states Sophomore Emily Hornbaker, "When major record labels agree to scale down waste and materials for music, it positively influences the population at large."

For an increase in revenue or through genuine efforts to save the environment, the music industry's green initiatives are more prevalent, leading the way for a better environmentally-conscious image.

FOSSIL

FOOLS

by SIDNI GIORDANO
images by KURT GEISLER

The Appalachian Mountains are home to one of the most diverse ecosystems in the world. The people who live throughout the region have developed a folk culture that is strongly associated with the landscape. The vast mountain chain possesses distinct characteristics, such as its unique elevation and moisture, which allows a high concentration of biodiversity. As a result of ranging elevation levels and climate change, an array of species exist throughout the region. Unfortunately, crude mining practices make it impossible for indigenous plants and animals to survive, ultimately leading to the destruction of the Appalachian Mountains.

Under Mining the Community

In addition to disregarding the environment, mining corporations also support practices that are dangerous to the local community as well. Liquid waste generated by mountaintop removal is stored in huge coal slurry impoundments, carelessly located at the top of the watershed. Coal impoundments also hold contaminated sludge filled with toxic chemicals created by coal washing, a process done to produce "clean coal." Clean coal is a widely advertised concept that coal companies use to market their product. An extreme instance of coal company negligence resulted in the nation's largest coal slurry spill at the Martin County Coal Company in Inez, Kentucky, on Oct. 11, 2000. A coal impoundment collapsed and released 306 million gallons of toxic sludge down 100 miles of waterways. Massey Energy Company received an $110,000 fine for the incident, which was later reduced to $5,600. Dust pollution caused by mining is another example of how inconsiderate coal corporations are to local communities because it can cause respiratory problems and contributes to lung disease.

The Role of the Government

America has a costly addiction to coal, partly because many believe that the progress of our nation depends on energy. Coal corporations are continually putting pressure on politicians to make sure they get their way. Even though the Bush administration was well aware of the environmental harm caused by mountaintop removal, they supported the technique because of funding received by the coal companies during his 2000 election.

The Clean Water Act is a federal law to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands. Many believe that mountaintop removal is in clear violation of the Clean Water Act because the process is polluting the headwaters of rivers that provide drinking water to millions of Americans. In June 2009 the Obama administration announced a plan to protect rivers and streams from mining debris.

Employment Issues

Mountaintop removal produces more than 126 million tons of coal a year, providing energy for more than 25 million homes. Although mountaintop removal employs far less people than traditional mining, approximately 14,000 Appalachian residents rely on mining as a source of income. Supporters and advocates of coal fear that new restrictions on mountaintop mining could jeopardize some of those jobs. The Obama administration plans to solve the unemployment dilemma by having agencies work together to develop new economic opportunities and create green economy jobs in Appalachia. Most major coal corporations are not based in Appalachia.

Getting Involved

In a historic sense, coal played an important role in the development of Western Maryland. For example, coal was one of the main reasons that people moved to Frostburg in great numbers, which is represented by the coal symbol located on the Frostburg crest. This may be a factor that deters people from speaking out against coal because they don't want to sound hypocritical. Dr. Kara Rogers-Thomas, folklorist and Sociology professor at Frostburg State University, is an expert on the Appalachian region. She says that she, like many others, does not want to downplay the significance of the coal industry, "It's just the form that it has taken today, the form of radical strip mining is so out of control and it has such incredible permanent environmental and cultural impacts. I think that if you really love Appalachia, you almost have to speak out against it." If you would like to actively participate in the anti-mountaintop removal campaign, or for further information, visit www.ilovemountains.org. Informing others about the horrors of coal mining, writing letters to local government officials and the U.S. Environmental Protection Agency are simple ways you can make a difference. Getting involved is important in order to unify and strengthen the effort and to stop the destruction of the beautiful Appalachian Mountains.


image by LUNDEN GILLESPIE

The Coffee Connection

by KURT GEISLER

If you walk into the Lane Center on any given morning, more than likely you'll find a line of tired looking students waiting outside of Java City. Whether buying a simple cup of coffee or waiting for a specialty drink to be made, students are willing to wait as long as it takes in order to get their morning brew. However, very few think about where the beans come from. In the world of competitive coffee corporations, where you get your beans plays a big role in what a consumer will or will not drink. And in today's market, the consumer wants organic.

But what does organic mean? With the "Go Green" initiative circulating in the mind of consumers, the word 'organic' seems to be on the tip of everyone's tongue as a way to prevent further destruction of the world's natural recourses. AFIC.com defines going organic as any type of food grown with "little or no synthetic fertilizers and pesticides." By not using chemicals, farmers are able to reduce the toxins in the air and preserve natural water sources within the area. Organic farms also provide a steady income for its workers. By becoming USDA certified, farmers are given a new market which they are able to sell their products to and have a steady source of income.

Java City officially started selling organic coffee two years ago, but Shawn Hamilton, Vice President of Plant Operations and Coffee Buying, will tell you that "Java City has been caring the coffee now for about ten years." Becoming the fastest growing segment of Java City, the customer demand for organic coffee has grown by 20% since last year. Brett Zugnoni, Director of Marketing, believes that this increase has to do with "organic-consumer driven trends." "Consumers feel better knowing that the product they're buying is helping people," Zugnoni says, "And many will tell you that the coffee just taste better." Student Abigail Yeager, says that she would "rather have organic coffee that has no extra additives" and that "the less processing that occurs the more natural nutrients that [she] can receive…" as she indulges in her "morning boost."

Although consumers are becoming more aware of organic products, the movement still has a long way to go before making a dent in the food market. "Only 2% of the food market is organic," Hamilton commented, "And coffee only makes up a small part of this percentage." Also, due to high application costs, many farmers, who may already be considered organic, won't become certified. The Organic Certification Trade Association (CCOF) charges a $275 one time application fee, an amount of money which many farmers need to live off of. And by applying, farmers may not be able to qualify, even if they have made the proper changes to the way they raise crops. Becoming certified is only half the battle; farmers risk producing very little due to certification demands. This is especially true of coffee. "There is a lot to gamble going into organic," says Hamilton, "Very little coffee is produced for about two years after certification."

Going through the process of becoming certified and keeping up with the demands of the certifications may be better for the environment, but if the coffee buyer isn't interested, then many farmers won't see the point. Paying an extra ten cents for a cup of coffee may not seem like much to a consumer, but when companies choose to buy organic coffee over non-organic, the prices are substantially different. Zugnoni notes that another reason some customers may not be interested in organic products is because they are "dirty" and feel that without the use of the chemicals, the organic product will have more bacteria and pose some kind of health risk. Luckily, due to the different stages it takes to produce a coffee bean from the cherry, the likelihood of some "bad bean" finding its way into your cup of coffee is highly unlikely.

> "I'd rather have organic coffee that has no extra additives. In my opinion, the less processing that occurs, the more natural nutrients that I can receive while having my morning boost.
> - Abigail Yeager

PUTTING AN END TO INVASIVE PLANTS

by JESSICA PALUMBO

If you look outside of your dorm, house, or apartment window, you will see all the benefits of living in Appalachia: the abundant source of wildlife, plants, and animals at your fingertips. In Allegany and Garrett counties alone, there are several native species of plants including milkweed, peppermint, Jerusalem artichoke, ginger, and golden rod that serve sustainability purposes.

It is important to consider native plants when living in a community. A native plant is any plant that occurs and grows naturally in a specific region or locality; they help to regulate the ecological balance of the community by keeping native animals and insects from becoming endangered.

When a non-native plant, a plant that has been introduced by people or natural means to a foreign habitat, is introduced into an environment, the plant can spread and become invasive, killing off native plants. Invasive plants establish easily and spread aggressively into new areas and environments, often with detrimental effects on native plant species. They can interfere with ecosystem functions and hybridize with native species, resulting in negative genetic impacts. According to the Wildflower Center in Austin, Texas, invasive plants are a significant threat to almost half of the native species currently listed as federally endangered. The Center estimates that preventing the spread of invasive plants combined with damage to crops, fisheries, and forests costs the U.S. $137 billion annually.

"Invasive plants are a significant threat to almost half of the native species currently listed as federally endangered."

Japanese stilt grass is a threat to local native plants. Stilt grass spreads rapidly due to high speed production. It grows along stream banks, ditches, and trails and forms a large seed bank which allows the seeds to spread during floods. It often out-competes native vegetation in areas where light levels are low. Allegany and Garrett counties team together to help control the spread of this plant by chopping large patches of the plant with weed eaters and covering the land with layers of tarps and newspapers to contain the spread of its seeds.

The Discovery Center at Deep Creek Lake currently provides plant nurseries to help preserve some of the native plants that have become endangered in the area. The milkweed plant is just one of the many beneficial species that is quickly disappearing. Citizens and county officials often mow down these plants without realizing their vital role in sustaining nature. Milkweed is important for the local survival of the monarch butterflies as well as lady bugs. Monarch caterpillars feed only on the milkweed plant, and the monarch caterpillars and lady bugs use the milkweed plant to lay their eggs.

To help keep ecological balance and sustain native plants in your community, check with preservation organizations, such as the Garrett County Discovery Center. It is an important aspect of any community, and plenty of resources are available. For more information on local native plants, visit the Garrett County Discovery Center's website: http://discoverycenterdcl.com/.

ORGANIC FOODS

by KATHERINE WARN

The popularity of organic food is growing. While most people want to eat organically, some are not clear on the actual definition. Put simply, organic foods are those that are produced, processed, and packaged without using chemicals. They put fewer burdens on the environment and protect the topsoil from erosion. While they are obviously environmentally friendly, organic foods have health benefits as well. Containing phenolic compounds, they protect us from heart disease and cancer. Even after you wash an apple, you're still ingesting over 30 pesticides.

Eating organically and living in Frostburg can be challenging, but not impossible. Food Lion located in Frostburg has organic foods like cereal and peanut butter but the selection is not very wide as the selection seen in other stores. Martin's grocery store in LaVale dedicates two aisles to eating and living green. They offer everything from macaroni and cheese and soup to toilet paper, shampoo, and toothpaste.

While buying organic products will take some of the strain off the environment, it could put a strain on your budget. For example, a 16 oz. box of organic cereal at Martin's costs $3.69. The comparable non-organic brand is $2.39.

Shelby DeVore, a student at FSU, says that she tries to eat organically but can't always afford it. "I try to buy organically every other time I go to the market," she says.

Making the effort to try and buy what you can afford organically will make a difference. Changes in the environment will happen but everyone taking an active part in sustainability can help to prevent them.

image by KURT GEISLER

Price List: Organic vs. Non– Organic

Cereal (Cocoa Puffs) $3.69 v.s. $2.39

Chicken Noodle Soup $2.40 v.s. $.77

Macaroni and Cheese $1.69 v.s. $1.09

Peanut Butter $3.99 v.s. $2.69

Toilet Paper $1.49 v.s. $1.49

Local Wilderness Recipes

by JESSICA PALUMBO

Sweet Ginger Candy- 1] Rootstock of wild ginger plant can be harvested all year. 2] Wash rootstock in warm water until clean. 3] Boil until tender. Dry and add to pot of hot sugar syrup. 4] Let simmer for 20-30 minutes. (Roots can be dried and ground to replace commercial ginger).

Cattail Goodies- 1] Harvest starchy core at the base of each cattail stalk between Fall and early Spring. 2] Wash clean. Slice and add to frying pan with butter or bacon grease. 3] Add garlic, pepper, salt, onions, and green pepper to your liking. (It doesn't take much spice to taste good). 4] Stir often with spatula to get an even cook of each slice. Cook until browned. 5] Serve with almost anything, or enjoy the savory potato-like dish by itself.

From Point A to Point B, The Green Way

by GABRIELLE GALLOWAY
and
ABIGAIL YEAGER

image by ABIGAIL YEAGAR

There use to be a time when sixteen year old teenagers wanted roller-skates, a new bicycle, or maybe even a new skateboard! Now the only thing on their minds are their drivers' license and a new car. Every year, thousands of new drivers are introduced to the wonderful world of automobiles. With the use of automobiles steadily increasing, emission of greenhouse gases and use of the nonrenewable resource of oil is also steadily increasing. As the concern for the environment arises, car companies such as Honda, Toyota, and Ford all have their own models of hybrids. In addition to hybrid cars, there are other environmentally friendly modes of transportation, such as carpooling and public transportation.

Hybrid cars are becoming more useful, as they are one step closer to sustaining our environment longer than the use of classic automobiles. These cars are run by a gasoline powered motor, as well as an electric or hydrogen powered motor. Hybrid cars help reduce the emission of greenhouse gases and causes of global warming, by only using gasoline when needed such as going up a hill. The electric motor kicks in when the car has been idle. When gasoline is burned and emitted into the environment, it combines with oxygen to emit nearly twenty pounds of carbon dioxide into the environment. Hybrids also reduce emissions by allowing twenty to thirty more miles per gallon than the classic automobile. For example, the Toyota Prius generally gets around forty-five miles per gallon.

It may not seem like hybrids are making a sustainable difference in the environment, they are certainly helping to reverse global warming. They are also helping to save gasoline. Hybrids are one step closer to completely gasoline free automobiles.

So why wouldn't someone want to buy a hybrid? Most car buyers would consider hybrids to be more expensive than the normal gasoline-powered automobile. Honda and Ford both have hybrids starting around $19,000. While Hybrids may seem costly, they still do not cost more than a luxury vehicle or an SUV. Paying the extra bucks most certainly would pay off by not having to spend as much money on gas, oil changes, and other costly repairs.

Carpooling is another option that is both environmentally friendly and saves money. Instead of taking multiple cars to school, you might consider carpooling with your friends, emitting less carbon dioxide, and saving you all gas money.

Public transportation is also environmentally friendly and FSU has a shuttle for students, which is run by Allegany County Transit (ACT), and it is free for students. Taking the bus will reduce emissions, which is better for the environment. According to the ACT website, public transportation "is 91 times safer to travel than a car." It saves money because "for every $10 million invested in public transportation, more than $15 million is saved in transportation costs." Public transportation can also reduce "auto fuel consumption by 1.5 billion gallons annually."

Honda and Ford both have hybrids starting around $19,000.

If you care about the environment or your wallet, you might consider one of the options presented in this article. Hybrid cars, carpooling, and public transportation can save you money, and will help save the world for our next generation.

Honeybees in Decline!

by LINDSAY WALLS

When people consider the keystone species of the world, honey bees probably don't jump out in their minds. The fact is that honey bees are incredibly important… and they are disappearing. Why would anyone care about a few less annoying, stinging creatures? Honey bees are essential to agriculture; they are responsible for pollinating some of the most valuable crops all over the world including berries, nuts, fruits, and vegetables. According to the Agricultural Research Service (ARS), about one mouthful in three in the human diet directly or indirectly benefits from honey bee pollination. Honey bee pollination adds about $15 billion dollars in value to crops.

Unfortunately, these bees are slowly and unexplainably dying off due to a syndrome called "colony collapse disorder" (CCD). CCD is when all the mature bees who manage the colony suddenly disappear, and there is not even a buildup of dead bees found in or around the hive. The United States, Europe, Germany, Taiwan, and many other countries are experiencing the buzz that CCD has stirred in the agricultural world. In the 1940's, there were about 5 million managed honey bee colonies, but today there are only 2.5 million. According to David Bernard, a master beekeeper from Damascus, Maryland, "a lack of honey bees in places with heavy agricultural influence can result in lower output from crops, or misshapen or low quality fruits and vegetables. Many foods would just not be able to form properly without honey bee pollination."

> Bees are slowly and unexplainably dying off due to a syndrome called "colony collapse disorder."

So what causes this bizarre phenomenon? Not even the most experienced professionals can give a definite answer, but there are some theories. Some believe the poor nutrition of the bees is the cause of their vanishing act; the high fructose corn syrup beekeepers feed them during winter to supplement their natural stores is now under heavy scrutiny. Others attribute CCD to the honey bee's tendency to develop immunodeficiency disorders caused by bee mites (Varroa destructor) and the "deformed wing virus" and "acute bee paralysis virus" that is transmitted from the mites. Of course, there are those who believe pesticides, antibiotics, miticides, or climate changes are wholly responsible for killing the bees. Most professionals believe CCD is not caused by one single factor but rather a combination of factors, because it is difficult to determine a single cause with so many experimental variables present.

So what are people doing to stop CCD from eventually wiping out the entire honey bee population? ARS held a CCD research workshop that brought in over 80 major bee scientists and countless important figures in the agricultural industry to decide what needs to be further researched. The focus of the research will be on four major possible causes: pathogens, parasites, environmental stresses, and bee management stresses. Bee keepers are making efforts to improve the health and reduce the mortality of the bees by using the best management tactics they can. Though scientists and bee keepers are at the forefront of the battle for the bees, they aren't the only ones who can help reduce the declining population- *you* can help too. The ARS recommends not using pesticides haphazardly, especially during mid-day when honey bees are the most likely to be buzzing through your garden foraging for nectar. They also encourage planting good nectar sources for the bees such as red clover, foxglove, bee balm, and joe-pye weed. David Bernard says "educating the public is the best way to secure their involvement in the issue. Also, convincing public servants and legislature to allocate funding to try to find the cause of CCD and help treat and prevent it is key to stopping CCD."

> "The fact is that honey bees are incredibly important… and they are disappearing."

The loss of honey bees can devastate the agricultural industry, which directly affects the life of every person in the world. Honey bees willingly do their part to provide for the human population, and we should make every effort to try to protect theirs.

image by MELISSA BRANNON

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