EXPLODING MYTHS

LAWNS, LANDSCAPES, THE ENVIRONMENT AND YOU

PRESENTED BY ERIC M. WENGER MG CLASS OF 1996

ARE ALL NATIVES SPECIES GOOD?
ARE ALL NON-NATIVE SPECIES BAD?
WHERE DOES POLLUTION COME FROM AND WHO IS RESPONSIBLE?
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ARE ALL NATIVES SPECIES GOOD? ARE ALL NON-NATIVE SPECIES BAD?
WHERE DOES POLLUTION COME FROM AND WHO IS RESPONSIBLE?
“Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

The IPM approach can be applied to both agricultural and non-agricultural settings, such as the home, garden, and workplace. IPM takes advantage of all appropriate pest management options including, but not limited to, the judicious use of pesticides. In contrast, organic food production applies many of the same concepts as IPM but limits the use of pesticides to those that are produced from natural sources, as opposed to synthetic chemicals.”
THE INTELLIGENT PERSONS METHOD*
Circa 1996 – Bob Alde, Master Gardener

Identify the problem or issue before any decisions are made on how to treat or solve the problem.

Use the least toxic, most effective method that can give positive results without negatively impacting non-target species or areas.

Sometimes no treatment is needed and can give positive results
WHOM AND WHAT ARE THE PLAYERS?
BELIEFS VS. REALITY

* **Humans**
  * Population – where will we live?
  * Development – what will be left?
  * Pollution – can we stop it?
  * Culture – do we have to change our culture?

* **Nature**
  * All living creatures – can we co-exist?
  * Natural Progression – what is natural?
  * Species – native, non-native, what is best and who should decide?
MYTH:
“ALL MAINTAINED LAWNS ARE A MAJOR SOURCE OF POLLUTION”

FERTILIZER AND PESTICIDES ARE RUNNING OFF INTO STORMDRAINS AND WATERWAYS

OTHER INPUTS SUCH AS TRUCKS AND MOWING EQUIPMENT CONTRIBUTE TO POLLUTION

TURFGRASS IS A MONOCULTURE

MISUSE AND MISAPPLICATION IS THE NORM
Perfect lawns aren’t perfect for the environment, research shows
Posted January 22, 2015 at 3:28 pm · By ASU News
Filed under AppalachianScene, General, Geology, Research, Sustainability, Today

http://www.news.appstate.edu/2015/01/22/chuanhui-gu/
FACT – PROPERLY MAINTAINED TURFGRASS IS BENEFICIAL IN STOPPING RUNOFF INTO OUR STREAMS, TRIBUTARIES AND THE CHESAPEAKE BAY.

HEALTHY TURF = LESS RUNOFF
A COOLER ATMOSPHERE
MORE OXYGEN
SOME FACTS

PROPERLY MAINTAINED TURFGRASS IS BENEFICIAL IN STOPPING RUNOFF INTO OUR STREAMS, TRIBUTARIES AND THE CHESAPEAKE BAY¹

TURFGRASS SCIENCE, SUPPORTED BY MANY STUDIES ACROSS THE COUNTRY, INDICATE THAT PROPER LAWN CARE ACTUALLY IMPROVES WATER RUNOFF QUALITY OVER POORLY MAINTAINED SITES THAT ARE MOSTLY WEEDS OR IMPERVIOUS SITES SUCH AS http://newjerseyturf.com/articles/2008_03.PDF

AND THERE HAVE BEEN MAJOR ADVANCEMENTS IN EQUIPMENT AND TECHNOLOGY THAT ARE REDUCING EMISSIONS AND THOSE ADVANCEMENTS ARE BECOMING MORE WIDELY ACCEPTED http://www.afdc.energy.gov/pdfs/48369.pdf


ACCORDING TO THE CHESAPEAKE STORMWATER NETWORK AND AN EXPERT PANEL ASSEMBLED BY THE US EPA PROPER LAWN MAINTENANCE ACTUALLY IMPROVES WATER RUNOFF QUALITY ESPECIALLY COMPARED TO POORLY OR NON-MAINTAINED SITES


NEWER TECHNOLOGIES ARE IMPROVING AND BECOMING MORE WIDELY AVAILABLE

MYTH
“TURFGRASS DOESN’T SUPPORT DIVERSE SPECIES”

http://www.nysta.org/benefitsofturf_brochure.pdf
MYTH “NATURAL HABITATS ARE MORE DIVERSE...”

HOW DIVERSE ARE HOT SULFUR SPRINGS?
…”BUT ALL TURF IS A NON-DIVERSE MONOCULTURE”
DIVERSITY CAN ACTUALLY REFER TO THE HABITAT ITSELF, EACH HABITAT MAY SUPPORT VERY FEW SPECIES OR MANY DIFFERENT SPECIES.

SOME SPECIES SPECIALIZE AND HAVE ADAPTED TO THEIR HABITAT

CONSIDER THE HOT SULPHUR SPRINGS, THERE ARE SPECIES THAT LIVE THERE AND NOWHERE ELSE

DON’T ASSUME A SPECIFIC HABITAT IS DEVOID OF LIFE OR IS A POOR HABITAT JUST BECAUSE IT SUPPORTS FEWER SPECIES
IMPORTANT NATIVE POLLINATORS
“SOLITARY BEES” IN MAINTAINED TURF

PLUS: SPIDERS, ANTS, CRICKETS, WORMS,
BEETLES, WEEVILS, CATERPILLARS, MOTHS,
BEES, WASPS, FUNGI, BACTERIA, AND
MORE...
SOME BENEFITS OF TURFGRASS

SEQUESTRATION OF NITROGEN, OTHER NUTRIENTS AND SEDIMENT

TURF          MULCH          BARE SOIL

WHICH IS BEST?

http://www.practicideas.com/awareness-soil-erosion/
MORE BENEFITS OF TURFGRASS

MUCH COOLER THAN ARTIFICIAL TURF SPORTS FIELDS
ARTIFICIAL TURF

Cost: High Initial Cost of Installation

Heat: High Temperatures in Full Sun

Health: Bacterial Breeding Ground/MRSA

Injury: Increased Incidence Skin Abrasion and Concussion

Other Serious Issues with Infill and Runoff

http://www.njwec.org/PDF/Factartificialalterfdf

ACCORDING TO THE OHIO STATE UNIVERSITY, LAWN GRASSES:

- Prevent soil erosion and stabilizes dust
- Rainwater Absorption
- Reduces glare and noise
- Natural air cleaner
- Cools the environment

*Improves and restores the soil*


http://edis.ifas.ufl.edu/pdffiles/FE/FE63200.pdf


http://www.academia.edu/5192859/Covenants_cohesion_and_community_the_effects_of_neighborhood_governance_on_lawn_fertilization
The largest source of pollution to the Bay comes from agricultural runoff, which contributes roughly 40 percent of the nitrogen and 50 percent of the phosphorus entering the Chesapeake Bay.

Chesapeake Bay Foundation

http://chesapeake.usgs.gov/sciencesummary-nutrientmodelresults.html

Nitrogen Pollution to the Chesapeake Bay
By Sector

Agriculture: 38%
Stormwater: 16%
Sewage/Industry: 19%
Septic: 4%

17% Manure
15% Fertilizer
6% Air
10% Fertilizer
6% Air
13% Vehicles
7% Air to Tidal Water
4% Septic

Source: Chesapeake Bay Program
* 1% Natural Air Pollution
1 Agricultural Emissions of Air Pollution
2 Assuming that roughly 40% of total stormwater nitrogen comes from the air
December 2012

Chesapeake Bay Foundation
Saving a National Treasure | cbf.org
Think Before You Remove Your Lawn! – The Benefits of Turfgrass
By Dr. Ranajit (Ron) Sahu

Consultant Paper Summary

Driven primarily by concerns over water supply limitations, as well as by environmental impacts such as pesticide residues in stormwater, some groups encourage the reduction or even elimination of lawn and turf areas associated with homes, as well as in public spaces. While concerns associated with water supply may be legitimate in some areas of the country, this paper argues that the push to remove grass areas can be short-sighted since such actions:

1. Do not recognize the numerous benefits that accrue from having turfgrass areas;
2. Overlook the myriad ways by which healthy turf areas can be maintained optimally with far lower water usage, thereby preserving all or most of its benefits; and
3. Rely often on erroneously based data, preconceived perceptions and emotion, which have no place in thoughtful policy making. Indeed, after reviewing published, fact-based research, turfgrass proves itself to be much more than an aesthetic choice for homeowners and areas.

In fact, turfgrass has many lifestyle and environmental benefits including the:
• Capture of Water Runoff and Dust in the Air • Lessening of the Heat Island Effect • Capturing and Storing of Carbon in Roots • Boosting of One’s Oxygen Footprint

https://opei.org/content/uploads/2012/03/Benefits-of-Green-Spaces.pdf
MYTH: “YOU CAN’T HAVE A GARDEN THAT SUPPORTS POLLINATORS AND A GOOD LAWN”
“IF YOU CREATE IT, THEY WILL COME”

WHAT IS NEEDED FOR A NATIVE HABITAT?

* Pollen/Nectar
* Water
* Undisturbed areas

PLANT TYPES

* Available all season
* Native
* Non-native
* Hybrid cultivar
WHAT CAN YOU EXPECT?
MULTIPLE SOURCES OF POLLEN AND NECTAR THROUGHOUT THE GROWING SEASON WILL ENCOURAGE DESIRED SPECIES TO VISIT YOUR LANDSCAPE

Heirloomseeds.com
DIVERSE PLANTINGS THAT INCLUDE FOOD AND NECTAR SOURCES ARE IMPORTANT
FOOD AND NECTAR
(CAN’T SAY IT ENOUGH)
CHOOSE A VARIETY OF PLANTS AND HABITAT FEATURES

- Native Milkweed
- Dill
- Fennel
- Parsley
- Sunflower
- Monarda
- Agastache
- Yarrow
- Annual flowers

- High Water Source
- Low Water Source
- Misters
- Cover/Protection
- Rocks
- Mulch
- Shade
WHAT ABOUT AMPHIBIANS
FROGS, SALAMANDERS AND TOADS?

Virginiaherpetologicalsociety.com
FRESH WATER IS A MUST FOR INSECTS, BIRDS AND AMPHIBIANS

WATER FEATURES ARE APPRECIATED BY HUMANS AND OTHERS

Eric M Wenger
THE BEAUTY OF NATURE IS ALL AROUND US
NATIVE VS NON-NATIVE

HAVE YOU HUGGED A NATIVE STINK BUG LATERLY?
MYTH “ALL NON-NATIVE SPECIES ARE BAD”
“ALL NON-NATIVE SPECIES ARE BAD”

WHAT IS THIS PLANT?

WHAT AREN’T THE DEER EATING?

JUST WHAT IS THIS PILEATED WOODPECKER EATING?

www.naturefriendmagazine.com

https://davermfarm.wordpress.com/tag/winter-flowering-plants

Eric M Wenger
CREATE A DIVERSE LANDSCAPE AND YOU WILL CREATE DIVERSITY IN YOUR LANDSCAPE
MYTH “YOU CAN HAVE A GREAT NATIVE PLANT GARDEN EVEN IF YOU HAVE SHADE AND DEER”

MANY OF OUR BEST PLANT CHOICES ARE NON-NATIVE SPECIES: OSMANTHUS, HELLEBORUS, PIERIS JAPONICA, BOXWOOD, ETC...

Eric M Wenger
A MIXED LANDSCAPE OF NATIVE AND NON-NATIVE DEER RESISTANT PLANTS

Eric M Wenger
PROFESSOR DOUG TALLAMAY

ITEA VIRGINICA
VIRGINIA SWEETSPIRE
A NATIVE SPECIES

WHICH IS BETTER?

BUDDLEIA
BUTTERFLY BUSH
A NON-NATIVE SPECIES

http://www.bringingnaturehome.net/what-to-plant.html
BUDDLEIA DAVIDII AND ITS MANY CULTIVARS ARE WIDELY USED IN THE LANDSCAPE TRADE.

THESE PLANTS OFFER A WIDE RANGE OF FLOWER COLOR, HARDINESS AND RESISTANCE TO DEER.

AND ARE HIGHLY ATTRACTIVE TO BUTTERFLIES, BEES AND OTHER POLLINATORS.

THIS A NON-NATIVE INVASIVE SPECIES
One important thing to remember, though, is that *Buddleia* is still an exotic plant.

While it is an excellent source of nectar for adult butterflies, it's not a **host plant** for any native caterpillars.

When planning your wildlife-friendly garden, be sure to include **native shrubs** and flowers to attract the most butterflies.

For more information (and credit for the list of cultivars above): "Back from the ban" (PDF), *Digger*, publication of the Oregon Association of Nurseries, October 2013.
WHAT TO DO ABOUT BUDDLEIA?

Buddleia Lo & Behold® ‘Blue Chip’
Buddleia ‘Asian Moon’
Buddleia Lo & Behold® ‘Purple Haze’
Buddleia Lo & Behold® ‘Ice Chip’ (formerly ‘White Icing’)  
Buddleia Lo & Behold® ‘Lilac Chip’
Buddleia ‘Miss Molly’
Buddleia ‘Miss Ruby’
Buddleia Flutterby Grande™ Blueberry Cobbler Nectar Bush
Buddleia Flutterby Grande™ Peach Cobbler Nectar Bush
Buddleia Flutterby Grande™ Sweet Marmalade Nectar Bush
Buddleia Flutterby Grande™ Tangerine Dream Nectar Bush
Buddleia Flutterby Grande™ Vanilla Nectar Bush
Buddleia Flutterby Petite™ Snow White Nectar Bush
Buddleia Flutterby™ Pink Nectar Bush

http://insects.about.com/od/butterfliesmoths/fl/Non-Invasive-Buddleia-for-the-Butterfly-Garden.htm


Miss Molly' buddleia is a non-invasive variety that attracts butterflies, but doesn't require deadheading.
Image courtesy of Proven Winners.
Photo: Tim Wood/Spring Meadow Nursery, Inc.
ITEA VIRGINICICA

 ITEA VIRGINICICA IS A NATIVE PLANT WITH SEVERAL CULTIVARS COMMONLY USED IN THE LANDSCAPE TRADE.

 ITEA SHOWS SOME RESISTANCE TO DEER FEEDING, BUT CAN BECOME INVASIVE ESPECIALLY IF DEER DO FEED UPON IT.

 ITS FLOWERS ARE ATTRACTIVE TO SOME POLLINATORS AND BIRDS

 THIS IS A NATIVE PLANT

 GOOD REPLACEMENT PLANT FOR NANDINA DOMESTICA OR AZALEA
NAME THE NATIVES

Eric M Wenger

http://www.mijntuin.org/plants/4103-Gierstgras-Heavy-Metal
WHAT IS THIS BUG AND SHOULD YOU KILL IT?

DOGbane BEETLE CHRYSOCHUS AURATUS
NATIVE BEETLE OF DOGBANE MILKWEED
TO ATTRACT MANY SPECIES OF BIRDS AND BENEFICIAL INSECTS
PESTS ARE NEEDED IN YOUR LANDSCAPE

ARE YOU READY FOR A LANDSCAPE THAT FEEDS THE INSECTS THAT ATTRACT BIRDS TO YOUR GARDEN?
MYTH “WILDLIFE NEEDS A WILD HABITAT”
WILDLIFE NEEDS HABITAT!

POLLEN AND NECTAR PRODUCING PLANTS – BUTTERFLIES, MOTHS, BIRDS

PLANTS THAT ARE FOOD SOURCES FOR INSECTS - CATERPILLARS

WATER – BIRD BATH S (HIGH AND LOW), PONDS, ETC... NOT JUST FOR BIRDS

SHELTER – ROCKS AND BOXES FOR AMPHIBIANS, GROUND INSECTS, BIRDS, BATS

FIELDS AND MEADOWS - DON’T EXPECT BLUEBIRDS WITHOUT A NEARBY MEADOW

FRUIT TREES AND EVERGREENS – ATTRACT MIGRATORY AND RESIDENT SPECIES

TALL OLD GROWTH TREES – FOR HAWKS, OWLS AND OTHER RAPTORS

STANDING DEADWOOD - WOODPECKERS
ALL OF THESE BIRDS WERE PHOTOGRAPHED IN SUBURBAN NEIGHBORHOODS IN MONTGOMERY COUNTY MARYLAND

WHAT DO THEY HAVE IN COMMON?
CREATE HABITATS WITH PLANTS BUT ALSO STRUCTURES

Kinsmangarden.com
Parentmap.com
Cvgss.org
THIS WAS TURF AT ONE TIME

CREATE A USEFUL AND BEAUTIFUL LANDSCAPE WITH PROPER PLANNING AND UNDERSTANDING
MYTH “NATIVE PLANTS ARE ALWAYS BEST”
WHAT IF DEER ARE EATING YOUR NATIVE PLANTS?
MYTH “NATIVE SPECIES ARE ALWAYS GOOD”

WHITETAIL DEER ARE NATIVE
NATIVE HABITATS
OR
CREATIVE HABITATS
THERE ARE MANY WAYS TO CREATE A DIVERSE HABITAT
MYTH: “HONEY BEES ARE THE ONLY POLLINATORS THAT ARE IN TROUBLE”
THERE ARE MANY MORE POLLINATORS THAN JUST HONEY BEES
MYTH “NEONICITINOIDS ARE KILLING OFF BEES”

http://www.science20.com/jon_entine_the_contrarian/bee_deaths_mystery_solved_neonicotinoids_neonics_may_actually_help_bee_health-149615#.VG4xhWqiHfU.twitter

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There are as many or more bee colonies today as there were before neonicotinoids were introduced.

No conclusion can be made yet and there is still a lot we don’t know but the facts so far do not support a direct connection.
WHERE DOES POLLUTION COME FROM?
MYTH “POLLUTION ONLY COMES FROM PEOPLE”
POLLUTION ALSO COMES FROM NATURE
HUMAN BEINGS DO CREATE BILLIONS OF GALLONS OF WASTE WATER
HUNDREDS OF MILLIONS OF GALLONS OF SEWAGE SPILLS AND LEAKS INTO OUR WATERWAYS EVERY YEAR

https://data.montgomerycountymd.gov/Community/DEP-Reported-Sanitary-Sewer-Overflows/pah9-6f8f
MYTH “TREATED WATER THAT IS RETURNED TO OUR WATERWAYS IS FREE OF POLLUTANTS”

TECHNICAL REPORT 2012
Toxic Contaminants in the Chesapeake Bay and its Watershed: Extent and Severity of Occurrence and Potential Biological Effects

2.6 PHARMACEUTICALS
PHARMACEUTICAL ANTIDEPRESSANTS
PHARMACEUTICAL ANTIBIOTICS

2.7 HOUSEHOLD AND PERSONAL CARE PRODUCTS

2.8 POLYBROMINATED DIPHENYL ETHER FLAME RETARDANTS

2.9 BIOGENIC HORMONES

http://executiveorder.chesapeakebay.net/ChesBayToxics_finaldraft_11513b.pdf
QUESTION EVERYTHING

DON’T BE IGNORANT – BUT PLEASE UNDERSTAND

ACCORDING TO THE ENCARTA ENGLISH DICTIONARY

IGNORANT MEANS: LACKING KNOWLEDGE
“caused by a lack of knowledge, understanding, or experience”

RESULTING FROM A LACK OF KNOWLEDGE
“lacking knowledge or education in general or in a specific subject”
FIND ALL AVAILABLE INFORMATION

* USE ALL AVAILABLE RESOURCES NOT JUST FROM MEDIA OUTLETS THAT LIKE TO SENSATIONALIZE
* CHECK FOR PEER REVIEWED SCIENCE
* DON’T BE AFRAID TO ASK QUESTIONS

* CREATE A HABITAT
* BE CREATIVE
* THINK OUTSIDE THE BOX
* IF YOU CREATE IT THEY WILL COME
* POLLEN, NECTAR, WATER, SHELTER
* FIND THE BEAUTY
WE CAN ALL MAKE A DIFFERENCE
https://data.montgomerycountymd.gov/Community/DEP-Reported-Sanitary-Sewer-Overflows/pah9-6f8f


https://www.landcarenetwork.org/legislative/TheRoleofTurfgrassesinEnvironmentalProtection.pdf

http://www.greenpassport.us/pollution-chronic-malady.html


http://www.pollinator.org/NativeBees.htm

http://www.science20.com/jon_entine_the_contrarian/bee_deaths_mystery_solved_neonicotinoids_neonics_may_actually_help_bee_health-149615#.VG4xhWqiHfU.twitter
College of Agriculture and Natural Resources

HOME AND GARDEN INFORMATION CENTER
University of Maryland Extension

GROW IT EAT IT
Maryland's Food Gardening Network

Master Gardeners
UNIVERSITY OF MARYLAND EXTENSION