



LIVING LANDSCAPES MATTER
Fact Sheet
The Environmental Benefits of an Everyday Yard

Living landscapes with appropriate grasses, trees, shrubs and plants provide a host of environmental benefits. You needn't deaden your landscape with mulch, rocks, and artificial turf ("plastic grass"). If you do, you'll miss out on these important ecological and environmental benefits of everyday green spaces. Remember, nature starts at your back door.

HEAT: Turfgrass dissipates the heat island effect in urban areas.

- On a hot, sunny summer day, roof and pavement surface temperatures can be 50–90°F hotter than the air.ⁱ Called the "heat island effect," air temperatures in cities, even after sunset, can be as much as 22°F warmer than air in neighboring regions.ⁱⁱ
- Surface temperatures could be as much as 95 to 140 degrees Fahrenheit higher on synthetic turf than natural grass when exposed to sunlight.ⁱⁱⁱ
- Lawns can be 31 degrees cooler than asphalt and 20 degrees cooler than bare soil.^{iv}

AIR QUALITY: Turfgrass improves air quality.

- Research has shown that turfgrasses remove "atmospheric pollutants such as carbon dioxide, ozone, hydrogen fluoride, and peroxycacetylene nitrate from the air."^v
- Grass also plays a vital role in capturing dust, smoke particles^{vi} and other pollutants that harm people^{vii}.

CARBON: Turfgrass is the largest carbon sink in the country.

- Plants absorb carbon dioxide from the atmosphere to use in photosynthesis. Some of this carbon is transferred to soil as plants die and decompose.^{viii}
- Lawns sequester more carbon than it takes to maintain them. The dense canopy and fibrous root system in a lawn sequesters carbon so well, that it outweighs the carbon used for maintaining the grass by as much as seven-fold.^{ix}
- An average-sized home lawn in the United States has the potential to sequester 20.3 to 163.4 kg C/lawn/year.^x
- Grasses remove about 6 tons of carbon dioxide per acre per year from the atmosphere.^{xi}

OXYGEN: Our lawns are incredible oxygen making machines.

- A 25 square foot area of lawn will supply enough oxygen to support one person for a day.
- A turf area 50' x 50' will produce enough oxygen to meet the daily needs of a family of four.^{xii}

BIODIVERSITY: Turfgrass supports biodiversity and wildlife.

- Grass, trees, shrubs and other plant life provides food and habitat for birds and small mammals. Insects, spiders and worms live among the grass blades and below the surface in the turf.

WATER RUN-OFF: Turfgrass assists in controlling water runoff and cleans rain water before it goes into the ground.



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- Grassy areas mitigate storm water runoff. They slow down and absorb runoff, while also cleansing water of impurities and dust.
- The biology of turfgrass makes lawns a nearly ideal medium for the biodegradation of all sorts of environmental contamination.^{xiii} Turfgrasses are excellent at filtering excess nutrients and sediment.^{xiv}
- The grass filtration system is so effective that rain water filtered through a healthy lawn is often as much as 10 times less acidic than water running off a hard surface.^{xv}
- Microbes in the soil help break down chemicals into harmless materials.^{xvi}
- Turfgrasses can remediate contaminated soil by cleaning it and grasses are more effective at cleansing contaminated soil than trees or shrubs.^{xvii}

SOIL EROSION: Turfgrass controls soil erosion.

- Turfgrass controls erosion through its natural, dense and fibrous root system, which holds soil in place.^{xviii}
- A dense lawn is 6 times more effective than a wheat field and 4 times better than a hayfield at absorbing rainfall.^{xix}

FIRE BREAK: Turfgrass is a natural and effective fire break.

- Healthy turfgrass can be a significant deterrent to wild fires, as a green lawn is poor fuel for a fire and can protect property.^{xx}
- Green grass retards the spread of wildfires because of its low fuel value, and it provides a defensible space around structures where firefighters can work effectively.^{xxi}

NOISE POLLUTION: Turfgrass helps control noise pollution.

- Grassy areas absorb noise, which cut down on excessive sound, a growing problem in urban areas, where hardscape and pavement reverberate sound.
- Grassy slopes alongside lowered expressways reduce noise 8-10 decibels.^{xxii}

PLAY SPACE: Turfgrass provides a safe place for children and pets to play.

- Research shows that children reap numerous health, social and personal benefits from spending time outside playing.^{xxiii}
- Combinations of trees and grasses foster human activities such as recreation, which is important for children's development.^{xxiv}
- Outdoor play increases fitness levels and builds active, healthy bodies, an important strategy in helping the one in three American kids who are obese get fit.^{xxv}
- Exposure to natural settings may be widely effective in reducing ADHD symptoms.^{xxvi}
- Children's stress levels fall within minutes of seeing green spaces.^{xxvii}
- Children gain attention and working memory benefits when they are exposed to greenery, according to researchers.^{xxviii}



SOURCES

- ⁱ Source: Environmental Protection Agency, <http://www.epa.gov/hiri/impacts/index.htm>
- ⁱⁱ Source: Environmental Protection Agency, <http://www.epa.gov/hiri/impacts/index.htm>
- ⁱⁱⁱ Source: Sports Turf Managers Association, http://www.stma.org/sites/stma/files/STMA_Synthetic_Guide_2nd_Edition.pdf. Original study: Buskirk, E.R., E.R. McLaughlin and J.L. Loomis. 1971. Microclimate over artificial turf. *J. Health, Phys. Ed., Rec.* 42(9):29-30.
- ^{iv} Source: National Association of Landscape Professionals, <https://www.loveyourlandscape.com/LYL/LYL/Benefits-of-Landscapes.aspx>
- ^v Source: <http://www.agsod.com/pdfs/Trees-Are-Sacred-Grass-Is-Bad-Why.pdf> Citation: (1999, December) Texas Turfgrass Research. Texas Turfgrass Consolidated Progress Reports. Retrieved April 25, 2005, from <http://aggierturf.tamu.edu/aggierturf2/publications/progressreports/progress99.pdf>.
- ^{vi} Source: The Lawn Institute, <http://www.thelawninstitute.org/pages/environment/benefits-of-lawn/air-quality-and-turfgrass/>
- ^{vii} Source: University of California, Riverside. <https://agops.ucr.edu/turf/topics/turfprotects.htm>
- ^{viii} Source: Live Science <http://www.livescience.com/32354-what-is-a-carbon-sink.html>
- ^{ix} Source: U.S. Department of Agriculture, <http://www.reeis.usda.gov/web/crisprojectpages/0223645-evaluation-of-turfgrasses-for-stress-tolerance-in-a-transition-zone-environment.html>
- ^x Source: University of Arkansas, <http://hortsci.ashspublications.org/content/46/5/808.full>
- ^{xi} Source: <http://www.agsod.com/pdfs/Trees-Are-Sacred-Grass-Is-Bad-Why.pdf> Citation: Duble, R. L. Impact of Turfgrass. Retrieved April 25, 2005, from <http://agro302.tamu.edu/agro302-700+rduble/ppt/intro2.pdf>.
- ^{xii} Source: The Lawn Institute, <http://www.scienturfigsod.com/growing-great-lawns/lawns-and-the-air-that-we-breathe/>
- ^{xiii} Source: The Lawn Institute, <http://www.thelawninstitute.org/pages/environment/benefits-of-lawn/grass-purifies-water/>
- ^{xiv} Source: U.S. National Arboretum, <http://www.usna.usda.gov/Education/MythsFacts.pdf>
- ^{xv} Source: The Lawn Institute, <http://www.thelawninstitute.org/pages/environment/benefits-of-lawn/grass-purifies-water/>
- ^{xvi} Source: The Lawn Institute: <http://www.thelawninstitute.org/pages/environment/benefits-of-lawn/grass-purifies-water/>
- ^{xvii} Walton, B.T., E.A. Guturie, and A.M. Hoylmar, 1994, Toxicant Degradation in the Rhizosphere in T. Anderson and JR. Coats, editors, *Bioremediation through the Rhizosphere Technology*, ACS Ser. 563. American Chemical Society. Washington, D.C., page 11-25; Toal, E. M., C. Yeomans, K. Killham, and A.A. Meharg, 2000, A Review of Rhizosphere Carbon Flow Modeling, *Plant Soil*, 222: 263-281
- ^{xviii} Source: U.S. National Arboretum, <http://www.usna.usda.gov/Education/MythsFacts.pdf>
- ^{xix} Source: University of Nebraska – Lincoln, http://platte.unl.edu/c/document_library/get_file?folderId=327507&name=DLFE-6375.pdf
- ^{xx} Source: U.S. Department of Agriculture, <http://www.reeis.usda.gov/web/crisprojectpages/0223645-evaluation-of-turfgrasses-for-stress-tolerance-in-a-transition-zone-environment.html>
- ^{xxi} Source: Dr. Ron Sahu, Think Before You Remove Your Lawn! The Benefits of Turfgrass <http://static1.squarespace.com/static/50a39d4ce4b0f822f291399c/t/50b67849e4b0cf86c3e8fc20/1354135625408/Lawn+Benefits+-+Ron+Sahu.pdf>
- ^{xxii} Source: The Lawn Institute, <http://www.thelawninstitute.org/pages/environment/benefits-of-lawn/environmental-benefits-of-lawns/>
- ^{xxiii} Source: National Wildlife Federation, <http://www.nwf.org/What-We-Do/Kids-and-Nature/Why-Get-Kids-Outside/Health-Benefits.aspx>
- ^{xxiv} Taylor, et al, 1998, *Growing Up in the Inner City: Green Spaces as Places to Grow*
- ^{xxv} Study: CDC's National Center for Chronic Disease Prevention and Health Promotion. Division of Adolescent and School Health. Childhood Obesity. 20 Oct. 2008. <http://www.cdc.gov/HealthyYouth/obesity>
- ^{xxvi} Study: Wells, N.M. (2000). At Home with Nature: Effects of "greenness" on children's cognitive functioning. *Environment and Behavior* (32), 6, pp 775-795. <http://eab.sagepub.com/cgi/content/abstract/32/6/775>
- ^{xxvii} Study: Kuo, PhD, Frances E., and Andrea Faber Taylor, PhD. "A Potential Natural Treatment for Attention-Deficit/Hyperactivity Disorder: Evidence From a National Study." *American Journal of Public Health* 94.9. Sept. 2004.



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^{xxviii} Source: The Washington Post, <http://www.washingtonpost.com/news/energy-environment/wp/2015/06/15/why-green-spaces-are-good-for-your-kids-brain/?postshare=3751434485282465>