The Intentional Creation of Green and Natural Spaces is Instrumental in Animal, Human and Environmental Health Going Forward

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This research is part of the One Health Creating Solutions project.
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Abstract
Animal, Human, and Environmental Health are all interconnected and reliant upon one another. Humans tend to think of themselves and their actions as separate from nature, rather than part of the larger interrelated system. Our species elitist thinking has resulted in our greatest challenges going forward as a planet, such as climate change, extreme weather events and wildfires, food insecurities, increased antimicrobial resistance, zoonosis, and currently a pandemic. The One Health Solutions VIP course analyzes complex global problems and encourages the development of solutions in an attempt to slow and possibly reverse humanity’s role in changing our planet and provide health for all (animals, humans, and the environment). Students chose an individual topic that they were passionate about and felt like the One Health approach could benefit. After becoming experts in their own area, they brought their expertise and we as a class chose an overarching topic to focus on the rest of the semester. The intentional creation of green and natural spaces was determined to be critical for several reasons. Soil health is instrumental in combatting climate change, antimicrobial resistance, and food insecurities. The soil and the microorganisms within the soil are capable of sequestering more carbon than the atmosphere and plants combined. Green and natural spaces act as filtration for our water systems and help prevent flooding during extreme weather events. In addition to the recreation these spaces offer for humans and our four-legged companions, green and natural spaces have been shown to reduce addictions, stress and decrease symptoms of ADD, ADHD and positively affect cognitive function. Green and natural spaces also provide the opportunity to discuss zoonoses with the public and encourage them to do their part in limiting the spread of disease. Recognition of rabies symptoms in wildlife and pets is important for the protection of us all. Also, we must be cognizant of the pathogens that our pets may spread in their feces, so it is important that we all clean up after them. We as consumers are very powerful and have the ability to spend our money at organizations that align with the core beliefs of One Health. B Corps meet the highest standards of social and environmental performance. There are several companies registered as B Corps that you may recognize such as Ben and Jerry’s Ice Cream, New Belgium Brewing, Warby Parker, and Etsy. There are several various measures that our government officials at various levels can support as well. We identified several, such as new construction requiring green space and renewable energy, utilizing parks and government buildings as infrastructure for solar/wind energy, or as horizontal or rooftop gardens. Additionally, larger strategic plans incentivize regenerative agriculture, natural fertilizers/pesticides, joining the 30×30 initiative, creating natural wildlife corridors that maintain habitats, and creating a national water management and conservation strategy that prioritizes water. Together we will thrive and divided we will fall.

Keywords
biological and life sciences, environmental sciences, medical and health sciences, One Health Creating Solutions

Comments
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**VIP: One Health Solutions**

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**Why?**
- Human health is dependent upon nature and spending time in the outdoors. Spending time in the outdoors boosts both physical and mental health.
- Parks can strengthen communities, welcome everyone and improve quality of life.
- Parks and green spaces help protect us from climate change, by serving as carbon sinks, reduce heat in metropolitan areas and absorb runoff.

**Soil Health / CO2 Sequestration**
- Right below our feet rests the key to combating climate change.
- Healthy soil is teeming with microorganisms that are capable of safely sequestering CO2 from the atmosphere.
- In fact, the soil is capable of holding more carbon than the atmosphere and plants combined. Estimates propose that worldwide soil rehabilitation practices could restore atmospheric CO2 to safe levels in under 5 years.

For more information please see Justyne Wyer’s poster: Regenerate Idaho

**Health Water Systems**
- Green spaces and parks can absorb and filter water prior to it entering our water systems.
- Management of green spaces and parks must use appropriate drought resistant plants, eco-friendly fertilizers and management strategies to ensure our water runoff is not contributing to the detriment of our water systems.
- Currently, 22 million tons of carbon dioxide are being dissolved into the ocean on a daily basis.
- Carbon dioxide absorption causes a reaction that results in carbonic acid, which is lowering the pH of the ocean.
- The increasing acidity of the ocean is causing detrimental effects to wildlife such as shellfish and coral reefs.

For more information please see Lexi Shusterove’s poster: Coral Reefs and Mitch Welch-Stockton’s poster: Ocean Acidification

**Mental Health / Addiction**
- Having access to green space can result in lessened frequency and intensity of cravings for alcohol, drugs, and unhealthy foods.
- There is growing evidence that access to green space for children can decrease symptoms of attention deficit and hyperactivity disorders and positively affect cognitive function.
- Studies have shown positive connections between nature exposure and psychological and physiological well-being, including reduced stress, improved sleep, and improvements in the symptoms of anxiety or depression disorders.

For more information please see Jessica Meyer’s poster: Regenerate Addiction

**Responsible Consumerism / Small Businesses / Industry**
- As individual consumers, we have the power to determine how and where we spend our money.
- By spending our money and investing in B Corporations we support businesses that align with our values.
- B Corps are verified and meet the highest standards with regards to social and environmental performance, public transparency, and legal accountability in order to balance profit and purpose.
- Society can not rely on the government and nonprofits alone to solve our most challenging problems.
- B Corps simultaneously work toward the creation of high quality jobs that have dignity and purpose while trying to reduce inequality, lower levels of poverty and increase or maintain a healthier environment.

**How?**
Each of us as individuals, businesses, city, county, state and federal government have the power to prioritize the creation and maintenance of green and natural spaces.

**Responsible Growth / Renewable Energy**
- New home construction should require green spaces and renewable energy.
- Solar and wind energy can be installed in parks and on pavilions and provide energy to nearby homeowners.

For more information please see Kassidi Petersen’s poster: Rabies and One Health, when the forest Enters the City

**Local Government**
- Intentionally create green and natural spaces that allow for equitable use in all communities.
- Fees for not recycling, composting
- Starter kits and incentives foryard foliage; create rock yards with utilizing certain trees and shrubs
- Prioritize construction and expansion projects that include sustainable and renewable energy.
- Creating alternative urban green spaces such as horizontal and roof top gardens to combat food insecurity and climate change

**State and Federal Government**
- Encourage better regenerative agriculture by incentivizing farmers to improve runoff and soil health.
- Build partnerships between farmers and research scientists to improve the environment and crops simultaneously.
- Laws that prioritize sustainable and natural fertilizers and pesticides.
- Refitting government buildings to be more sustainable and carbon neutral if not carbon negative.
- Incentives for renewable energy.
- Tax credits for green initiatives (no expiration).
- Cohesive State and Federal laws for pet vaccination and pet waste.
- Decriminalize drug charges and implement the use of mental health care and treatment centers.
- Ensure that natural wildlife corridors are maintained and habitats are not fragmented.
- A national water management and conservation strategy that prioritizes water.
- A national (City, County, State and Federal) plan that incentivizes joining the 30x30 initiative and the creation of green space creation and preservation.
- Prioritize One Health as a nation creating tasks forces and funding National water management strategy.

**Infectious Disease / Consequences of Human and Pet Use**
- If we are going to increase the amount of parks and green space in our cities, we need to be aware of the chance for infections diseases being spread to pets and people.
- We can prevent this by increasing the regulation of owners to make sure they clean up after their pets and maintain their properties.
- We would also need to increase education of handling wildlife and how to notice signs of diseases.
- Identified by the Centers for Disease Control as one of five zoonosis and Kassidi Petersen’s poster: Rabies and One Health, when the forest Enters the City.

For more information please see Jessica Meyer’s poster: Toxocariasis: the Neglected Parasitic Disease.

**Responsibility in Education**
- Education must be a priority to teaching children the importance of healthy environment and healthy living.
- We need to teach children that it is required to take care of the environment and that it is something that needs to be passed on to future generations.

For more information please see Jessica Meyer’s poster: Toxocariasis: the Neglected Parasitic Disease.

**Literature Cited**
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