

Draft Proposal

**An Action Plan for Olympia's Reduction of Pesticide Use on
the City Landscape**

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DRAFT Project Proposal for Spring Quarter 2004

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Through my involvement with the Health Olympia Task Force, I will help the community work on a plan to eliminate the use of pesticides on the landscape and to find alternatives that are safer for the urban environment. Through the use of native plants which are pest-resistant, the need for less pesticides, fertilizers, and water will be required. Each year ground water is contaminated through the use of pesticides that find there way to the watershed. By establishing a method of treating pests in a non-chemical manner, natural processes will provide a healthier environment that will supply a habitat with a balanced natural order creating healthy populations of pests controlled by natural enemies that can help to prevent infestations of pests.

Overview

The purpose of the project is to create a community awareness that will help to eliminate the use of pesticides that find their way into watersheds contaminating them with pesticides that harm the fragile ecosystem here in Thurston County. By reducing the use of pesticides our health and the health of the environment will be improved. This has to become a long term goal for the health benefits of the community to be realized. Following examples from other communities we will be able to establish a proven approach to guide our community to a healthier way to of treating pests by using a chemical free approach. By using a non-chemical strategy to deal with pests the natural order is kept in balance. To propose this change we will have to show that by changing our approach to dealing with pests we will become a leading community that takes our health as a top priority. Other communities have also eliminated pesticides and are enjoying safer communities.

With the guidance of members from Washington Toxic Coalition, Audubon, People for Puget Sound the task force has experience in carrying through a task that is focused and well planned. Beginning with the City of Olympia to create a city that is willing to lead Thurston County into a pesticide free community other cities within the county can follow their example to have a pesticide free County. The advantage to begin with one city and grow to the whole county and beyond gives us time to learn how to take on a policy that will benefit and protect the northwest quality of life. We value our outdoor lifestyle, our children, salmon and our water. Improving the quality of our community will guide other communities to follow our example for creating a healthy community as well.

Background (my knowledge base)

During past quarters I have had the opportunity to work on projects that looked at pesticides and how the content of the ingredients put more than nitrogen, phosphorus, and potassium into the soil. Fertilizers also include inert ingredients that have been added by way of micronutrients. These inert ingredients range from lead, cadmium, arsenic, nickel, and other heavy metals that are linked to harming living organisms. Human-health is impacted in various manners from the ingestion of these heavy metals. The presents of these products in the environment are creating a host of problems for the entire ecosystem. I have analyzed soil samples ranging from residential to farm soils in eastern Washington. These soils have contaminants that are above background levels for the state of Washington.

My desire to find ways to remediate the soils and stop the use of pesticides which bioaccumulate in the soil and the food supply have brought me to look at Phytoremediation as an answer. While looking at remediation as ways for communities to cleanse their soils and protect their watershed the use native plants, turf, and trees help achieve this goal.

Our reliance on chemical answers to remove pests and give us the enviable “green lawn” has put our community at unnecessary risk. Changing the impression of what a healthy landscape should be is where I want to focus my work.

The Plan (How will I do this?)

As a member of the Health Olympia Task Force I would like to focus my work in the outdoors working with city and community members who are using alternative methods to deal with pests and protect the lands that we share.

Community connections

Resources (needs of support)

Appendixes

Bibliography

Alloway, B.J. ed. 1995 *Heavy Metals in Soil* 2nd Edition. London New York. Blackie Academic & Professional (pp.26,30)

This book is great for finding information on heavy metals in soils and information on plant up-take of metals. Good source for evaluating how to stabilize soil to reduce up-take.

Barak, Phillip. 1996 SoilScience/Horticulture/Agronomy326 reprint from *Agricultural Research*, USDA-ARS, and November 1995 p.4-9 downloaded 5/6/03 from <http://www.soil.wisc.edu/~barak/soilscience326/agres.htm>

This paper was very useful in learning about Phytoremediation and also about the work of Rufus Chaney.

Brown, Sally. et. al. 2003 *Heavy Metals in the Environment Effects of Biosolids Processing on Lead Bioavailability in an Urban Soil*. Published in Journal of Environmental Quality 32:100-108

Looking at lead availability in soil. I was interested in the testing technique use in this paper. Using the atomic adsorption spectrometer seems to be a more used method for accurately assessing metals in the soil extraction.

Carson, Rachel. 1962 *Silent Spring*. Houghton Mifflin Company, New York

This book is a good source even today. Rachel Carson was a woman ahead of her time. The questions that she asked lead to the EPA and awareness by the public to the health risks with pesticides.

CDC 2000 *Health Report on Heavy Metals* downloaded 2/14/03

<http://www.cdc.gov/nceh/dls.htm>

I only downloaded the part of the report that pertained to heavy metals and other chemicals that are found in pesticides. This report gives good explanation on each chemical with health risks associated with it.

Chaney, Rufus et. al. 1997 *Phytoremediation of Soil Metals*. Current Opinions in Biotechnology 8:279-284

Thesis dealing with Phytoremediation and the cost saving through the use of soil remediation and sale of extractable metals. Great information gained in understanding how to use hyperaccumulators in the process. Good sources provided for future reference.

Cooperband, Leslie. 2002 *Building Soil Organic Matter with Organic*

Amendments. Center for Integrated Agricultural System, College of Agricultural and Life Sciences, University of Wisconsin-Madison. <http://www.wisc.edu/cias/> downloaded April 11, 2003

This publication provides information on how to incorporate organic matter into farm soils. Good working table of contents with each section separated out. Guidelines are helpful in decision making process of using organic amendments. Good resource section at the end.

Cooperband, Leslie. 2003 Compost Lecture. The Evergreen State College

Good explanation of compost and how it can be used in farm use. A useful explanation for making compost on the farm.

Freeman, Harry ed., 1997 *The Standard Handbook of Hazardous Waste Treatment and Disposal* Second Edition. McGraw Hill

Information on Phytoremediation and a group of studies from many sources.

Information on different plants and their hyperaccumulating ability. Information on how to setup studies. Good source list.

Freyfogel, Eric ed., 2001 *The New Agrarianism Land, Culture and the Community Life*. Washington D.C. Island Press

Good collection of essays from various viewpoints on agrarianism. I found the stories of renewing the soil and man not trying to dominate it but listening to the soil for its needs the most inspiring for what I am looking at. In particular I found Scott Russell Sanders Learning from the Prairie a useful essay dealing with agricultural chemicals and a return to a more sustainable closed nutrient cycle.

Gleba, Dolores 1999 *Use of plant roots for phytoremediation and molecular farming* Proceedings of the National Academy of Sciences of the United States of America. May 25; 96 (11): 5973-5977 Colloquium

Useful for looking into “value-added” ideas while accomplishing remediation

Useful paper for looking at conducting lab work and constructing a scientific paper. Good sources at the end of paper.

Hammer, D. 2002 *Changes in the Rhizosphere of Metal-Accumulating Plants Evidenced by Chemical Extractants*. Journal of Environmental Quality 31 no5 S/O

WN:0224402385017 downloaded 5/8/03 from Wilson Web.

Interesting look at adding extraction agents to the soil to help the plants hyperaccumulate. His use of the Atomic absorption spectrometer to measure metal extraction helped me to see one more tool that I can use for my study.

Robinson, Brett H. 1997 *The Phytoextraction of Heavy Metals From Metalliferous Soils*.

PhD thesis Massey University, Palmerston North. Downloaded on 5/18/03

<http://www.gsnz.org.nz/gsthbr.htm>

Looking at increasing pH to remove more heavy metals from the soil. Different group of sources to look into.

Rosemeyer, Martha. 2003 *Food System Sustainability*. Lecture. The Evergreen State College.

Useful in understanding the need to have a closed nutrient cycle to have a safe food system.

Rosset, Peter. 2000 *Lessons from the Green Revolution*. Tikkun Magazine downloaded 2/10/03 <http://www.foodfirst.org/media/printformat.php?id=148>

I found this a useful history of the Green Revolution and an understanding of how we got to this high-input chemical place. Looks at more than the U.S. Raises good questions to spring from.

United States Environmental Protection Agency. 2002 *RCRA Orientation Manual*.

EPA530-R-02-016 downloaded 4/28/03 <http://www.epa.gov>

Book easily understood by non-lawyer types. Nice table of contents. I used Subtitle C for the most part because it deals with the heavy metals and recycling.

Taylor, Nancy ed., 1999 *Organic Resource Manual*. Washington State Department of Agriculture Organic Food Program's website. downloaded 5/5/03

<http://www.wa.gov/agr/fsah/organic/ofp.htm>

Information on what it takes to be certified organic, regulations, and standards both Washington and national. Good helpful information including marketing products. Sources at the end are very useful.

Washington State Department of Agriculture and Washington State Department of Ecology. 2001 *Levels of Nonnutritive Substances in Fertilizers*. Report to the Legislature downloaded 4/28/03 <http://wa.gov/agr/pmd/fertilizer/metals.htm>

Wilson, Duff. 2001 *Fateful Harvest*. HarperCollins Publishers Inc., New York

This book started me on the path of Phytoremediation of farm soil. This is an intriguing book that I found difficult to put down. After meeting Patty Martin she was just as the picture painted in the written word. It became hard for me not to want to help fight for health rural communities, farm soils and safe food.

Web resources

Washington Toxics Coalition www.watoxics.org

Northwest Coalition for Alternatives to Pesticides www.pesticide.org

People for Puget Sound www.pugetsound.org

Contacts

Events