

THE ALTERNATOR

Vol. 17 No. 1

Spring 2003

Generating Alternative Currents in Agriculture, Energy and Lifestyles



INSIDE

Ecology Laboratory

4

Did You Know?

5

Earth Week

6

Letters

6

Renew

7

Published by

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Into the Woods in Search of Stewardship

By: Michele Gauger, MS3 Student

It is a humid morning, and the dew is still fresh on the grass as we approach the trail armed with transect tapes, stakes, colored flagging and identification guides. We weave around tree limbs and poison ivy in search of the next sampling plot and hammer in the first stake. The question is why are we here and why are we doing this?

We want to preserve for future generations three Slippery Rock University forest properties totaling 135 acres. Shrouded by black cherries, maples, oaks and hawthorns, these properties need a stewardship plan to ensure ecosystem health and proper use. Forests are renewable and self-generating; but these qualities may be compromised through increased habitat fragmentation and development in our communities.

This past summer I had the chance to enjoy sunny days in western Pennsylvania and began research, along with Frank Cetera and Dr. Steven Doherty, that will eventually lead to development of a federally guided forest stewardship plan for the university's forest properties.



TREE LOVERS: Graduate students Michele Gauger and Frank Cetera begin to develop a forest stewardship plan. Part of the process included measuring to plot boundaries for tree sampling. (inset).

(continued on page 2)

DIY Sustainability at Home: Plastic Bag Drying Rack

You are probably conscious, or at least trying to be, of economic, cultural, and artistic aspects of the world of sustainability in your own home. One strategy for convenience, saving money and reducing waste in landfills is to reuse plastic bags. These kitchen items are great for freezing food, taking your lunch to work, or storing leftovers, and reusing them can save homeowners up to \$22 a month. Unneeded costs in your kitchen should be scrutinized for their effect on your pocketbook, the environment, and your senses. After all, the kitchen is the heart of the home and should be a pleasing and useful environment.

Although plastic bags actually take up little room themselves in storage, they do seem to take up lots of room when drying draped over the kitchen faucet, your vinegar bottles, or the back posts of your kitchen chairs. They also are derived from petroleum, a non-renewable resource. Finally, the costs can be extravagant to buy and use plastic bags a single time only. A 25 count box of 1 gallon freezer bags from a top brand name manufacturer costs \$3.89, or 15¢ per bag.

A typical kitchen may have anywhere between one to five bags in use per day. Of course bags from other bought items such as bread and cereal can be reused, but it also helps to

(continued on page 3)

In Search of Stewardship

(continued from page 1)

The forest properties include approximately 33 acres of the 83-acre home-
stead of the Robert A. Macoskey Center for Sustainable Systems Education and Research. This area encompasses an old-field successional forest composed mainly of black cherry and maple and a dense old orchard area consisting mainly of hawthorn and black cherry. Other properties include 42 acres in the Wolf Creek Narrows area, known as the Miller Tract, site of a past maple sugaring operation, and approximately 60 acres surrounding the Old Stone House near the intersection of state Routes 8 and 173, which is dominated by oak.

The Forest Stewardship Program was started in 1990 by the U.S. Bureau of Forestry, to focus on private forestland owners and their role in responsible management of their property. Today between 45 and 50% of forestland in the United States is private forestland and in Pennsylvania alone there are over 500,000 forest landowners.

In Pennsylvania, 4 million of the 11.7 million hectares of original forest were transformed between the years of 1660 through the 1970's. These mixed mesophytic forests are some of the most complex in the eastern deciduous forest system. Currently most of the population in the region is 60-100 year old trees,

created through past logging activities, fires, and agricultural abandonment.

Part of the stewardship planning process relies on data about current forest ecosystem health, so Frank and I spent this summer conducting this research. Our days involved sampling each forest property by identifying tree and seedling species, along with other site characteristics. Stewardship forests are not only managed for their timber value but also for multiple uses including conservation, recreation, and education. Preserving these forests ensures future land use, watershed protection, natural beauty, and proper resource management. Managing university forest properties will become more important as our demand for resources and space increases

All three of the university's properties have no written management plan. As these forest stands develop and are stressed by a variety of factors, they begin to show signs of growth present in typical Pennsylvania forests, such as the lack of sufficient advanced



Graduate student Michele Gauger measures tree diameter at breast height (DBH) for a forest preservation plan to safeguard University property.

regeneration under mature canopy conditions. The most prominent factors contributing to this lack of regeneration are deer pressure on seedling growth, and even-aged stand management silvicultural practices. Much of the land of Pennsylvania has been exploited in various ways leading to forest stands with poor quality stems, less valuable species, and variable stocking crown cover. Thus, stewardship may be the road map to more responsible forestry. The final plans for each forest will assess their present condition, list recommendations based on goals of the landowners, consider silvicultural practices, and create multiple use practices if not already in place. Forests cannot be properly managed

except through a holistic approach, which considers all known scientific factors and human values. Comprehensive, coordinated, and ecologically informed management is important today as public resources are increasingly impacted, misused, or depleted.

I want to thank Frank for all of his hard work this past summer for this project, Vivas Macoskey for her support of this research, Butler County Department of Conservation and Natural Resources forester Bob Shurtleff for all of his guidance, Butler County Planning for their financial backing of this project through their mini grant program, and Dr. Steven Doherty for his partnership on the grant, plan development, and never ending support. Many thanks!



Plastic Bag Drying Rack

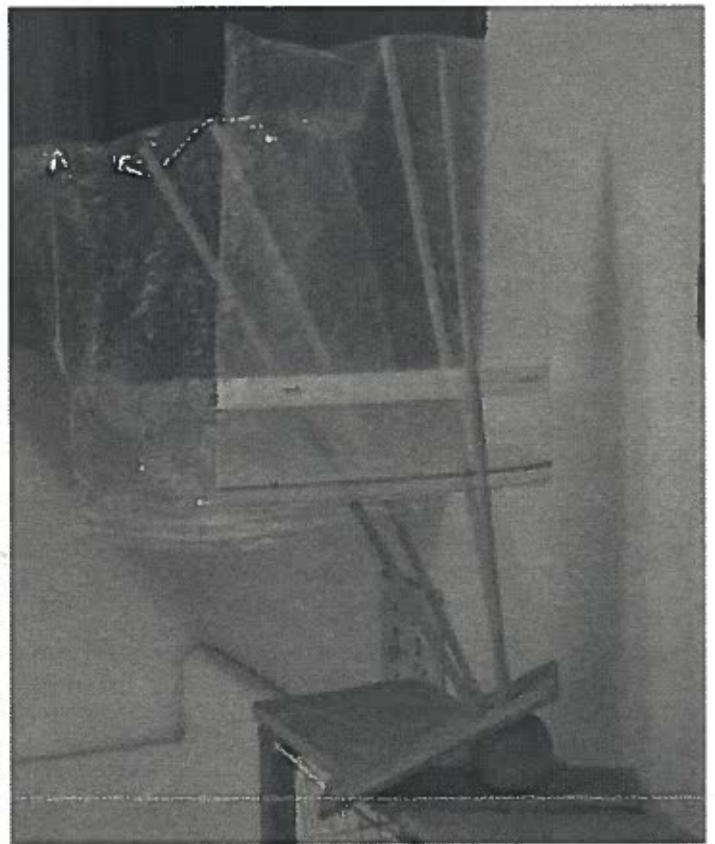
(continued from page 1)

have some high quality store bought plastic bags on hand. In any case, washing, drying, and reusing bags can save \$4.50 to \$22.50 per month based on the above numbers if one were to buy and use bags only one time apiece. The fringe benefits to this practice include acting on concerns for non-renewable resources and streaming of waste into landfills.

While these are all good reasons to reuse plastic bags, some still refrain due to the unsightliness in the kitchen. People are generally not in the habit of laying their dishes throughout the kitchen to dry, or their washed clothes scattered over the living room furniture to dry. By providing an aesthetically pleasing dedicated tool in the kitchen, the drying bags assume a more dignified role; while the holder brings some charm and personal character to the room,

especially when you design and build it yourself.

This column was initially triggered by the offering for a plastic bag drying rack in a nationally known company's catalog. After a first thought of "I'd like to have that!" the price loomed into view. It seemed unduly expensive, especially with shipping and handling thrown in. It would be easy to make a less expensive original model rather than buying this item through the catalog. The catalog version cost \$15 plus S&H and had room to dry 7 bags. The version pictured here cost about \$4.15 (plus some screws and mineral oil found lying around), 30 minutes of time for assembly, and has room to dry 4 bags. A larger model could easily be made for a different household's needs. A less expensive model could also be created if you have more scrap or craft materials around the house.



This plastic bag drying rack helps recycle plastic bags.

This drying rack is working perfectly and has taken up a permanent position in the kitchen. It has also inspired others to create their own drying racks. Perhaps this simple example will inspire you to share your DIY Sustainability ideas and stories with the rest of our readership. Remember these food safety tips when reusing plastic bags: Do not reuse

plastic bags that have been used to store meat, dairy, or other food items that easily spoil; always wash plastic bags with soap and hot water, and rinse thoroughly; allow washed bags to completely air dry before reusing; and discard any plastic bags that have absorbed odors or food substances such as oils and fats. ♻️

THE ALTERNATOR

Editor: Frank Raymond Cetera

The Alternator is assembled quarterly by the ALTER Project, the MS3 program and the Robert A. Macoskey Center at Slippery Rock University. The Robert A. Macoskey Center is an education and research facility that supports Slippery Rock University's Master of Science in Sustainable Systems (MS3) degree, as well as other environmental and science oriented academic programs. The views expressed herein do not necessarily represent those held by the university. Letters and submissions are welcome.

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The Alternator, the ALTER project, the Macoskey Center and the Sustainable Systems graduate program wish to thank Frank Cetera for his contribution to sustainability at Slippery Rock University. During his years as an MS3 candidate, Frank has acted as editor to the Alternator, prepared interpretive information for the Macoskey Center trails, helped inventory SRU forest resources, was president of the local North Country Trails chapter, and participated in so many work days and social learning events at the Macoskey Center. We wish him and Sue peace and prosperity in their pursuit of a more just world full with infinite possibilities.

Center Ecology Laboratory Celebrates 3rd Anniversary

By: Valentin Kefeli, Ph D, Slippery Rock Watershed Coalition, ALTER member
Bruno Borsari, MS3 Faculty

The basement Ecology Laboratory of the Robert A. Macoskey Center for Sustainable Systems Education and Research remains a less visible component of the homestead to visitors, and also to students who regularly study and work on the premises. However, despite its humble location and size, this ecological laboratory has been a true asset to SRU students, professors and ALTER members, for the investigation of many science and sustainability issues. Students have been the primary beneficiaries of this effort and their work has allowed them direct exposure to the local, scientific community.

A Little Bit of History

The Ecology Laboratory was founded in September 1999 based on the conception of ecologically pure research methods without the use of hazardous chemicals. In January 2000, the Macoskey Center Laboratory was equipped with recycled furniture and shelves. Other materials included a small refrigerator, ultra-violet light, fluorescent lights, and glassware. When Dr. Bruno Borsari joined the MS3 program in August 2000, he accepted enthusiastically to supervise with Dr. Valentin Kefeli the activities and projects of the laboratory. This new partnership helped to generate new ideas and approaches while contributing tremendously to the expansion of the program.

The Research Program

The laboratory was conceived to combine natural phenomena and laboratory investigation in four related branches of study relating to a philosophy of sustainability:

Philosophy:

Eco-spirituality, Permaculture, Sustainable Development, Biospheric Cycles.

Ecology:

Water Systems, Wastewater Cleaning, Plant-Soil Relationships, Composting Processes (Nitrogen : Carbon Ratios), Effects of UV-C Light on Cell Division and Elongation.

Biology:

Properties of Root Exudates, Leaves as Sources of Botanical Herbicides, Sanitary Properties of Plants, Plant Propagation Through Cuttings, Micro Bacterial Evaluation of Air, Water, and Soil.

Biochemistry:

Plant Phenolics, Phenolics in Soil, Phenolics Identification, Chemotaxonomy.

The realm of investigations spans from the study of waste water systems and composting, to the identification of selected plant exudates and their effect on seed germination (biotest). Other notable research endeavors study the effects of UV-light on cell division and elongation. The bacterial evaluation of Macoskey Center air and water quality is also an important component of the research program. Studying the cycle of phenolic substances within plant and soil systems has led to conceive possible applications for these natural plant excreta that could be used as alternatives to herbicide application. Their capabilities as plant growth inhibitors have amplified the investigative interests of the Macoskey team in this direction.



Papyrus from the former greywater system resides among much plant growth in the basement lab.

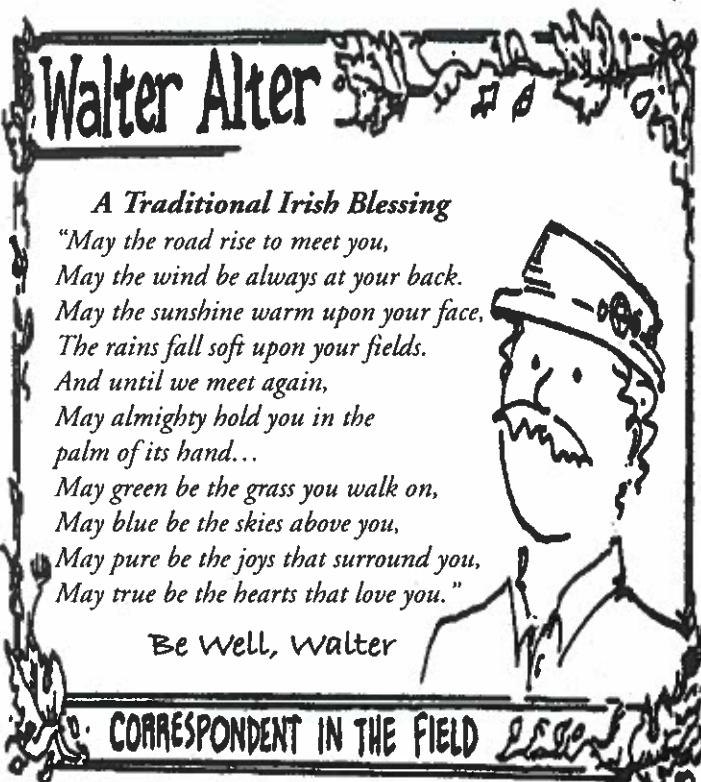
The most important aspect of the laboratory is the continued integration of students in the research activities being carried on. Initial student investigations in 1999 by Anthony Liguori, Chris Hill, Dan McGurk, and A. Owczarchik centered on the properties of fabricated soil components such as saw dust, dead leaves, compost, pond sediments, and topsoil. The laboratory's main period of research activity is fall through spring to correspond with student semester schedules. This is the period of plant dormancy outdoors, however, in the lab, plants can be forced to grow due to the availability of artificial growing conditions. The laboratory enjoys continued success under the management of Valentin Kefeli, Ph D, who mentors 10 – 12 students yearly, and oversees 3 – 4 research projects within the laboratory.

Another goal of the laboratory is to carry on common projects with other entities such as the Slippery Rock Watershed Coalition, Jennings Environmental Education Center, Robert Morris University, and other departments within the Slippery Rock University educational system. In fact, it was at 1998's SRWC Watershed Symposium held at Jennings Environmental Education Center in which university partners met with Margaret Dunn, Dave Johnson and Will

Taylor and began a tight collaboration that led to the creation of the laboratory.

Scholarly Achievements

Primary outlets for the dissemination of research findings have been the Slippery Rock University Research Symposium and the SRWC Watershed Symposium. These events are held annually and our work has appeared as published abstracts in SRU's Journal of Scholarly Endeavors (Volumes I & II), and in the SRWC Watershed Symposium program. The research has also been presented at The Pennsylvania Consortium of University Biologists (CPUB) conference and the Annual Conference of the American Society of Plant Physiologists (in 2001 and 2002). Last August, a one-hour workshop of our research on botanical herbicides was presented at Millersville university's Pennsylvania Conference for Excellence in Teachers' Preparation (CETP-PA). Many thanks go to the College of Health, Environment and Science for their continued support, and for former Interim Dean Leona Parascenzo and Assistant to the Dean Mary Ann King, for their roles in helping to establish the laboratory. In addition, Macoskey Center Director Thomas Reynolds is to be credited with the laboratory layout design, and for participating in the organization and implementation of the design with MS3 students Jeff Reidenbough and Frank Cetera. Finally, recognition of the current research team continuing studies in the laboratory under the supervision of Drs. Borsari and Kefeli goes to Heather Mikulas (MS3 student), Mahesh Poon (SRU Environmental Science major from Nepal) and Ryoko Funada (SRU Chemistry major from Japan).



Did You Know?

- ❖ Upcoming events at the Robert A Macoskey Center for Sustainable Systems Education and Research include:
Feb. 22: Work Day **April 12:** Work Day
March 22: Work Day **April 24:** Organic Lunch (On Campus)
All dates are tentative until confirmed. Contact the Center at (724) 738-0606, macoskey.center@sru.edu for more information.
- ❖ Macoskey Center graduate assistant Megan Ward has recently completed work on a 28 page booklet designed to education readers about the benefits and science of composting. The project was funded primarily through a Pennsylvania Department of Environmental Protection grant administered through the Butler County Recycling and Waste Management Office. For more information, or to learn how to obtain a copy of the booklet for yourself, contact the Center at (724) 738-0606 or macoskey@sru.edu
- ❖ The Macoskey Center and the Master's of Science in Sustainable Systems program once again were partners in the annual Empty Bowls Dinner to benefit the New Castle City rescue Mission, the Butler Area Agency on Aging, and the Feed My Sheep Food Cupboard. Attendees are treated to local entertainment, beautiful hand made bowls to eat out of and then keep, and tasty soup and fresh bread for a small donation. This years offerings included Vegetable Medley and Cream of Potato and Chives.
- ❖ Macoskey Center resident and MS3 student Brooke Cuttino participated as an actress in the staging of Attilio Favorini and Lynne Conner's *In the Garden of Live Flowers*. This production of Rachel Carson's life story culminated a yearlong celebration of the environmentalist's life. Carson was most famous for writing the book *Silent Spring*, which revealed the dangers of pesticide use.
- ❖ ALTER member Valentin Kefeli of Biomost, Inc in Cranberry, Pennsylvania, Maria V. Kalevitch from Robert Morris University, and Bruno Borsari (Editor) from Slippery Rock University of Pennsylvania have collaborated to publish Natural Growth Inhibitors and Phytohormones in Plants and Environment. "This book represents the authors' lifetime dedication to the study of inhibitors and phytohormones as well as its practical applications for achieving a more sustainable agriculture...this effort proposes a more logicitic approach to the study of plant physiology, in which the plant-soil interactions are discussed, with a profound description of different allelochemicals and their effects on plants growth." (Kluwer Academic Publishers, Dordrecht, Hardbound ISBN 1-4020-1069-9, October 2002, 340 pp. USD 118.00)
- ❖ A group of artists and peace activists, in cooperation with the Thomas Merton Center in Pittsburgh, are developing an *International Peace Flag*. Volunteers are needed to do peace symbol research, survey internationals in the US and abroad regarding peace symbolism from their region of the world, and to help distribute the survey through the internet via list-serves, mass mailings to friends, or other avenues. For more information visit www.thomasmertoncenter.org (on the home page, click on International Peace Flag); or contact Mary Beth Steisslinger (steisslinger.mb@eudoramail.com) for an electronic copy of the survey.

Earth Week 2003 at SRU

April 22 Ag Encounters Day on the Quad
Lawrence and Butler County Extension turns the quad into a farm for the day, with animals, visits by local elementary schools, and farm equipment to check out.

SRU Cares Day

11:30 a.m. – 1 p.m. (common hour)
Institute for Community Service-Learning and Nonprofit Leadership sponsored trash cleanups at various sites across campus.

April 24 Good Food Lunch

11 a.m. – 1 p.m., MPR University Union
Speaker: Kim Seeley, Milky Way Farms

April 26 Earth Fest

Robert A Macoskey Center for Sustainable Systems Education and Research
Ongoing: Guided Tours of the Center
11 a.m. – 4 p.m.: Ecological Art Exhibition (Harmony Barn)
11 a.m. – 4 p.m.: Quilting Showcase at Slippery Rock Township Building
11 a.m. – 4 p.m.: Kite Flying with "Pittsburgh Fly" Kite Club
11 a.m. – 12 noon: Kite Making Workshop
11 a.m. – 12 noon: Music, Band TBA
12 noon – 1 p.m.: Black Sheep Puppets
12 noon – 1 p.m.: Tree Grafting Workshop with Jack Stupka
1 p.m. – 2p.m.: Music, Acoustic Shadows of Blue and Grey
1 p.m. – 2 p.m.: Earth Kids Activities
1 p.m. – 3 p.m.: Children's Theater, "Mountain Myths"
3 p.m. – 4 p.m.: Music, Band TBA
3 p.m. – 4 p.m.: Earth Kids Activities 

MACOSKEY CENTER WEB SITE UPDATE

With the relaunch of the Slippery Rock University Web site, the Macoskey Center pages are now located at:

<http://msfweb1.sru.edu/pages/756.asp>

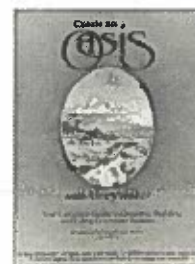
Please visit the site and provide feedback as appropriate. Look for details on the Macoskey Center Web site update in our next issue.

A Letter From Our Readers...

Dear Alternator,
Read your article about greywater (*Playing with Dirty Water: Greywater Treatment at the Macoskey Center, Spring 2002*) with interest as I had just asked one of my sons if he could come up with an idea to pipe my kitchen greywater out onto our small piece of lawn. I've got a dishpan in our sink, plus a pewter pitcher on the counter – any leftover water I use to water my plants indoors or outdoors. Fortunately our kitchen is only around the corner from our front door. I'm in my eighties now and not in a rush – so this works okay for me, until someone comes up with a better way to save our precious water.


Good luck,
Jean Dickinson

Jean, numerous possibilities exist for using greywater, and no one solution is right for every application. To help you on your way, check out a copy of Create an Oasis With Greywater: Your Complete Guide to Choosing, Building and Using Greywater Systems by Art Ludwig. The revised 4th edition, published in February 2000, is a wealth of information from basic nuts and bolts of plumbing, irrigation, and systems descriptions, to supply and reference lists, and health and legal guidelines. Published by Oasis Design, Ludwig's book is packed with 24 figures and 35 photos to further guide the reader along. (49 pages, \$14.95, ISBN 0964343304)



In The Summer 2003 Alternator...

- News and views from the Robert A. Macoskey Center for Sustainable Systems Education and Research
- Reader submissions
- And much more!!

Readers are encouraged to submit articles, ideas, artwork, humor, news, poetry, fiction, book and music reviews, announcements and other commentary. Submissions should be "Word" formatted and on disk, or double-spaced hard copy. Please include information on how to contact you. Material should be sent to: Alternator Editor, The Robert A. Macoskey Center for Sustainable Systems Education and Research, Slippery Rock University, Slippery Rock, PA 16057; or e-mailed to TheAlternator@SRU.edu. The Alternator editor reserves the right to edit for length, style and interest. Material will be included in upcoming issues as space allows. Submissions are accepted on a rolling basis for quarterly issues corresponding to seasonal releases. 

Another perennial favorite, Joseph Jenkins' 2nd edition (July 1999) of The Humanure Handbook: A Guide to Composting Human Manure, contains a full chapter on alternative greywater systems. Illustrations by Tom Griffin are both humorous and educational, while the 302 pages pack a whopping amount of useful material. (Jenkins Pub, \$19.00, ISBN 0964425890)

...And a Letter From the Editor

Dear Readers,

I have truly appreciated the opportunity to work as Editor of the Alternator for the past three years. Though Editor itself fails to describe my experiences and rewards as writer, community member, student, friend, and husband during my time in Slippery Rock. I arrived as a Master of Science in Sustainable Systems (MS3) student and Macoskey Center resident in August 1998, I leave today as ever so much more.

My path now takes me to Harrisburg where I will work as Watershed Programs Coordinator for the Pennsylvania Organization for Watersheds and Rivers (POWR). I am looking forward to many new experiences and opportunities,

and am eager to support the sustainability movement through my future endeavors.

The sustainability of communities and the existence of great ways of life are rooted deep in the processes and entities of our natural world. Watersheds and rivers are intertwined with all other forms, and within them are rooted our culture - beautiful art and music reflecting the hues of ridges and shores - struggles for survival and creativity that produce an environmentally minded society of intuitive thinkers - design and planning of our human surroundings that reflect and work with our natural environs.

So as we keep our waterways flowing and full of life, we keep alive the tributaries of our heritage, and build a lifestyle of a cooperative existence that reflects beauty and goodness. I wish all of you continued success in the venues where you work for sustainability; as I know that you will work with me to support watersheds and rivers, and all the other entities of sustainability, for the benefit of all.

With Best Regards,

Frank Raymond Cetera,
Editor (June '00 - March '03)

This issue dedicated to Suzanne; I love you - Frank 

SUPPORT THE ALTERNATOR

Please help The Alternator remain a quality resource for sustainability and education. The Annual Gift year runs from January 1 to December 31. Regular Annual Gifts for the full year are billed at the rate of \$10.

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_____ **Master of Science Sustainable Systems T-shirt.** (\$15). L or XL (Circle choice).

Original artwork and text that reads: "A Sustainable Tomorrow Lies in Harmony with all Life, Slippery Rock University Master of Science in Sustainable Systems"

_____ **Process: A Spiritual Journey to a Partnership with Nature.** (\$5)

The only published work by Dr. Robert A. Macoskey available.

_____ **TOTAL**

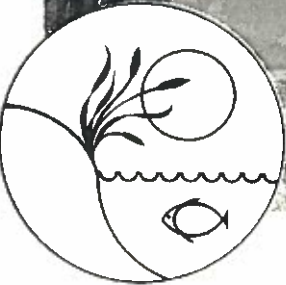
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The revamped "Harmony" slate is courtesy of slate roofer Joe Jenkins.