



When we walk the talk, park visitors will listen

From John Reynolds

As California struggles through this most recent energy crisis, we've heard a variety of calls to action.

With changing tides comes changing land stewardship values. It is only now that we are experiencing rolling black outs that there are some mutterings about one very simple solution to this whole problem. And it's one of the basic tenants that our organization was founded upon.

Conservation is an old word with a rich history in public lands and our National Parks. It was the call to arms that led the first environmentalists toward land stewardship. And, it's something that we have forgotten to add to our arsenal of tools, until now when we are in the midst of a crisis.

As we rush to keep our electric grid from collapsing, we need to look a little more closely and ask whether or not we are applying these same lessons in our parks. We give ranger led programs, produce web pages, write brochures, and do countless other things to encourage our park users to live in a more sustainable way when they visit their National Parks. But what do we actually do in our own places of work and with our own jobs to live in a more sustainable way?

As America's preeminent conservation agency, how far do we go to walking the talk we give to our visitors? In many cases, we go far beyond the call, presenting shining examples for the public. The newly designed transportation system and visitor center at Zion are a testament to sustainable thinking. In designing their visitor center, they made use of passive heating and cooling systems and incorporated solar power panels into the



Rangers at Joshua Tree are using electric vehicles to conduct business. A commitment to greener energy is crucial in getting park users to follow our example. By using solar panels to charge vehicles, they become one of the cleanest forms of transportation around.

building design. The shuttle system has cut back on overall fuel usage and pollution, setting a fantastic example to our users. It also introduces natural quiet into the valley and encourages visitors to look up instead of at the vehicle in front of them.

Here in our own region, we are taking steps to live and work in a more sustainable way. At Pt. Reyes, site managers used carpeting made almost completely from recycled materials as floor covering while revamping visitor centers. By recycling old carpets into new ones we help keep tons of materials out of landfills. Employee housing at Channel Islands and Joshua Tree is now completely powered off the grid with photovoltaic electricity (no fear of roving power out

ages there). Throughout the regions, park visitors are seeing that we can walk the talk when we want.

These are great examples of big projects that are helping to create a greener nation. However, we need to take this a step further and incorporate these and more ideas into our day to day jobs. For some, this is an easy transition. For many, learning how to do things in a greener fashion is a hard move to make. Once we begin to see the correlation between our parks and our actions, it becomes clearer why living green is such a crucial component to how we do business.

Little actions in the work place can have long lasting ramifications in protecting

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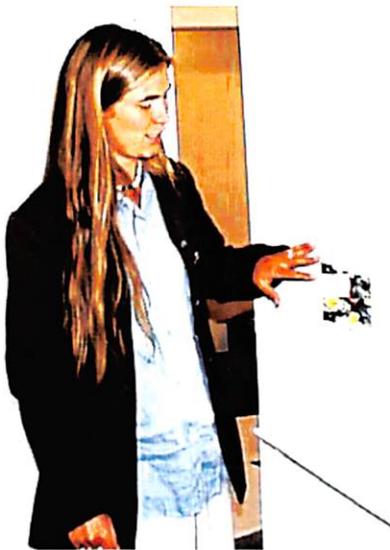
The Presidio makes major cutbacks in energy use

James Meadows of the Presidio Trust explains some of the steps they are taking to avoid an energy crisis.

Like all Californians, those of us who live and work at the Presidio are responding to our State's ongoing energy crisis. I'd like to share with you some of the short and long-term strategies the Presidio Trust is implementing to use our limited resources more sustainably.

To relieve pressure on the State's energy grid, the Trust regularly reduces consumption at peak hours during 2nd and 3rd stage energy alerts. The conservation program limits the number of illuminated street lights and decreases light use in Trust-occupied buildings. Similar efforts in 1999 resulted in savings of more than 165,000 kwh.

As part of the California Public Utilities Commission's "Summer Initiative," PG&E will fund the Trust's Energy Efficiency Measures Program. Designed to



June Barnard of the Presidio trust instructs others in the use of an occupancy sensor .



Presidio Trust facilities employees were used to retrofit the existing lights and create more efficient lighting.

produce measurable reductions in energy usage, the program will enable lights to be retrofitted and equipment to be upgraded throughout the Presidio. The Trust will replace up to 7,000 lights in residential buildings and install efficient motors, lights, lighting controls and energy management systems in nonresidential buildings. Overall, the projects could save up to 290 kwh during the summertime's peak demand and 1,780,000 kwh per year.

The Trust now conducts all its building rehabilitations according to "smart building" principles, which include stringent energy efficiency requirements. In Fiscal Year 2000, these requirements saved 115,700 kWh of electricity and 38,000 therms of gas.

The Trust is exploring the use of Micro Cogeneration Plants, operated with highly efficient fuel cell technology, to improve energy conservation in the long-term. In addition making the park's electric supply more reliable, these plants naturally create heat-a by-product that could be reused to heat Presidio buildings. Furthermore, these plants could help the Trust avoid the inefficiencies involved in importing energy to the park. A Micro Cogenerations Feasibility Study has been completed. The project now awaits an environmental assessment.

Working with the Department of Energy and the Presidio Alliance, the Trust is participating in the outreach-oriented "Rebuild America" program. Sponsoring conservation-minded community events and conferences, the program has helped educate the Presidio's tenants on how to maximize their buildings' energy efficiency. The Trust, Alliance and Thoreau Center have also prepared a brochure advising park community members of practical, easy, and effective strategies for reducing consumption at home and in the workplace.

By doing our share now and planning for the future, we believe the Presidio can become a true leader in sound energy-use practices.

Recycled fluids make GOGA's shop safe and green

Allan Ponds from Golden Gate passes on some new information on environmentally sensitive antifreeze, oils, and lubricants.

Just a short note to let you know that Marin Roads and Trails operation has made several changes in our operation to use environmentally friendly products.

We substituted the following products with:

1. Standard Chevron SAE 30 to Mobil 76 Firebird Re-Refined Oil 15w-40
2. Standard Antifreeze to Sierra Antifreeze/Coolant.
3. Standard Hydraulic Oil to Mobil Biodegradable EAL 224H Vegetable Oil-Base Hydraulic Fluid.

The 76 family of Firebird Re-Refined Motor Oils are high-quality, environmentally-responsible lubricants, reborn from re-refined base stocks to help conserve valuable non-

renewable petroleum resources. We have built this into a loop system with DownTime handling our used oil.

Sierra Antifreeze-Coolant is a premium propylene glycol (PG) based coolant which provides engine protection comparable to that provided by premium brand conventional ethylene glycol (EG) based coolants.

In the four key areas of engine protection freeze protection, boilover protection, corrosion prevention, and heat transfer Sierra Antifreeze provides outstanding performance.

Because of its propylene glycol formulation, Sierra Antifreeze is less toxic and safer than ethylene glycol coolants to children, pets, and wildlife in case of spills, leaks, boilovers, or careless disposal.

Mobil Oil Corporation has introduced the

first biodegradable, non-toxic hydraulic fluid with performance characteristics comparable to the premium mineral oil-based fluids. This hydraulic fluid can be used in nearly every application where the corresponding grade of mineral-oil fluid is called for. In particular, any business operating equipment on or near water or regulated lands.

Depending on contamination and/or degradation levels, it has been found that small amounts of spilled or leaked Mobil EAL 224H will not adversely affect ground water or the environment.

We are also looking into the possibility of using a new product SOYGOLD a 100% soybean oil-based biodiesel fuel. It is still in the research stages at this time.

Re-refined oil is safe for vehicles and cannot void manufactureres' vehicle warranties

As long as oils are American Petroleum Institute (API) certified and meet your other technical requirements (such as SAE viscosity and Mil specs), it doesn't matter whether it is made with re-refined or virgin base stock. The manufacturer can't just void the warranty because you are using re-refined oil.

If the oil (regardless of type) meets the manufacturers warranty requirements, the warranty must be honored. (Information on warranties is found in the Magnuson-Moss Warranty Act). To find out more about API certification, check out their website: http://www.api.org/programs_services/quality/enginoil.htm

The U.S. Department of Defense is using re-refined oil in all types of equipment. King County, Seattle, has used re-refined oil since 1992 in cars, trucks, big equipment, police cars, and now in more than 1,200 buses.

Many parks are getting on board and following federal policy to use re-refined oil in vehicles and equipment.

For more information on our regional policy to purchase and use re-refined oil, please refer to the Regional Director's Memo "Use of Re-refined Oil and Environmentally Preferred Products" dated April 21, 1999. If you don't have a copy, contact Sonya Capek, PWR Solid Waste Coordinator, by cc mail or phone (206)-220-4271.

Walk...

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these resources. What we do and how we live can have a direct effect on the future of our parks. When we buy supplies and materials, are we buying things that are sustainable? Whether you're a purchasing agent, a site supervisor, or Jane Ranger in the park, start taking the time to look and

see if the product you are buying is made from recycled materials. When you are done with it, find out how it can be recycled and kept out of a landfill.

Managers need to take this a step further and find ways that facilitate their staff living a greener existence. Do we make lockers available to staff so that they can ride their bikes to work? Do we look for ways to help our staff get to work in a less polluting fashion? When it's time to trade in vehicles, are we pushing GSA to expand their fleet of cleaner vehicles or are we even considering them? Do we look at fuel economy when we buy cars? Have you considered having an energy audit done at your site to help cut back on power usage?

No one said it was going to be an easy transition. But when we start articulating the connection between working green and protecting our parks, it makes it much easier to use a compact florescent bulb or turn down the furnace. We can't expect the public to listen to our messages if we fail to heed them ourselves.

Green is business as usual in the shop

Shop goes green by recycling filters and oil while making waste

Sometimes the machine shop can be one of the greenest places in the park. Ed Billington from Yosemite shows how.

Yosemite National Park's Machine Shop has undergone an extensive "greening" effort in its operation. This operation maintains a fleet of 600 vehicles and equipment, from lawn mowers to bulldozers and every thing in between. Roughly half are park owned and half are leased from GSA. Their actions currently include the use of re-refined oil, the use of vegetable based hydraulic oil, recycling of oil filters and tires, a solvent free shop and the use of alternative fueled (propane) forklift.

Re-refined oil (Union 76 Firebird) is purchased, used, then returned to the refinery for recycling. This closed loop action saves the shop \$1.00 per gallon. Cost of 10W-30 is \$2.55 per gallon in bulk. 15W-40 is also available. Both can be purchased in quarts, gallons and 55-gallon drums. Over 500 gallons of this oil are used each year. This re-refined oil meets or exceeds all manufacturers' requirements (Cummins, Caterpillar, Detroit Diesel etc.).

GSA encourages the use of re-refined oil in all of its vehicles. All re-refined oil used here consists of 100% re-refined base stock. No virgin oil is used in the base stock. Information on Union 76 Firebird re-refined lubricants can be obtained by phoning 1-(800) 435-7761. GSA has a contract with the Department of Defense for a similar product. Call 1-(800) 345-6333 for information.

Greenplus vegetable hydraulic oil is non-petroleum based hydraulic oil. We use the Canola based oil in all hydraulic systems on vehicles and equipment. This hydraulic fluid exceeds major hydraulic manufacturer's performance requirements.

Research shows one gallon of Canola based hydraulic oil in 1,000 gallons of water is totally potable. Whereas, one gallon of petroleum based hydraulic oil can contaminate 1,000,000 gallons of water. The cost of this product is \$9.64 per gallon with

a \$5.72 per gallon one-time system flush charge. The 35% cost increase are offset by potential HAZMAT spill clean-up costs. Using Greenplus protects our environment and reduces disposal costs. Along with these critical benefits, a reduction of health risks to operators and mechanics has been documented. More information can be

obtained from the Greenland Corp. at (406) 682-5237.

The recycling of oil filters is accomplished by first draining the filter so the oil can be recycled. The filters are then crushed in a specialized crushing machine. The crushed filters are recycled into rebar.



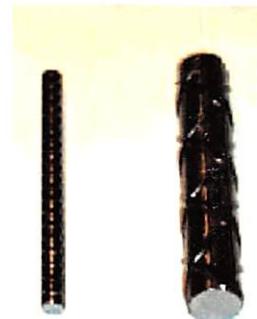
First, remove and recycle all oil from used filter.



Next, use a specialized crusher to shrink the used filters.



These result in small, non hazardous waste raw materials that are then



Recycled into rebar. A completely closed cycle.

and stores at Yosemite National Park

scarce and safe

Our shop changes approximately 100 filters per month. If the filters were left uncrushed, a hazard waste disposal problem is created. One 55-gallon drum of uncrushed filters costs \$75.00 for disposal. A similar 55-gallon drum of uncrushed filters costs \$600.00 for disposal. Our Oberg crushing machine costs \$2700.00, which will be recovered in less than 18 months. Additional information about the Oberg can be obtained by calling (206) 435-9100.

Tire recycling is accomplished with an on-site 28-foot trailer provided by Total Tire Recycling of Sacramento. The recycler handles delivery and removal of the trailer, thus freeing the machine shop of hauling permit requirements. Our cost is \$650.00 per trailer load. This represents 50% savings over landfill charges. The recycled tires are sorted with some being reused after recapping and others being converted into electrical energy through co-generation.

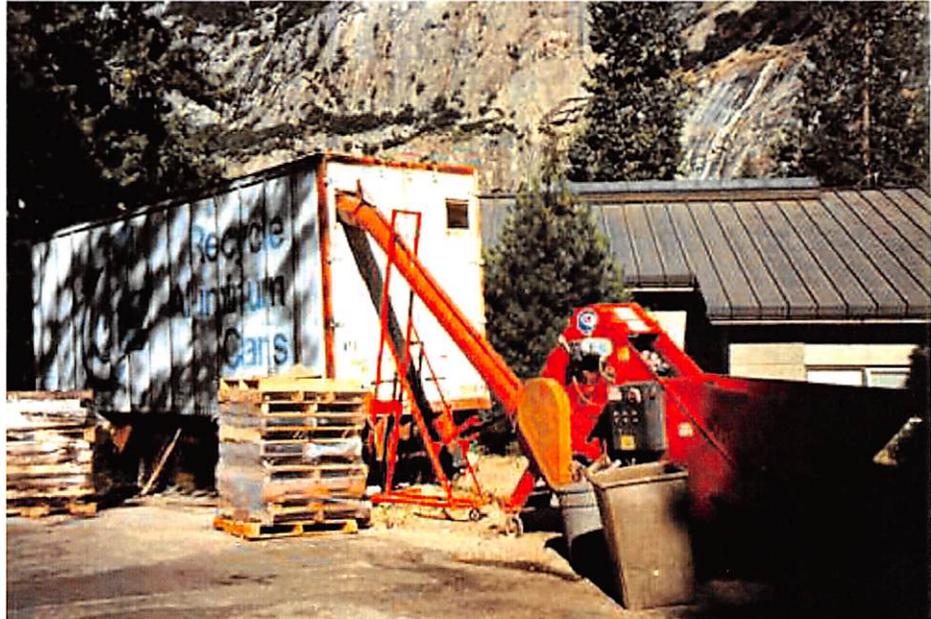
The Machine Shop's sustainable design incorporates floor drains, which lead to an oil/water separator. Clean up of the sealed floors is done with a soapy water solution. No absorbent type floor sweep is needed.

The savings are spectacular. The cost for monthly absorbent floor sweep was \$960.00 to \$1,200.00. The estimated cost of pumping the oil/water separator is \$2,000.00. The separator has been on line for 3 years without needing to be pumped out. Another example is the parts cleaning process. No petroleum-based products are used for cleaning parts. An enzyme-based product is used that separates, then consumes the oils.

The new attitude of the Yosemite National Park Machine Shop has infected many other areas within Yosemite. Other work units are now developing their own greening projects. This is truly a life learning project-Re-educate, Recycle, Re-invest.

For these outstanding efforts towards sustainability, the Yosemite National Park Machine Shop was the recipient of the Department of Interiors Environmental Achievement Award for the year 2000.

Monument Point Reyes National Seashore Redwoods National Park San Francisco Maritime National Historical Park Santa Monica Mountains National Recreation Area Sequoia National Park Whiskeytown-Shasta-Trinity National Recreation Area Yosemite National Park Haleakala National Park Hawaii Volcanoes National Park Kalaupapa National Histor



Everything from florescent tubes to kitchen grease is being recycled at Yosemite by the concessionaire, eliminating tons of waste.

Concessionaire wins sustainability award

Yosemite Concession Services Corp. (YCS) was honored by the California Integrated Waste Management Board for its progressive environmental and waste reduction programs. The Waste Reduction Awards Program (WRAP) recognizes the most productive waste recycling programs. This marks the eighth consecutive WRAP award for YCS, the company contracted by the NPS to operate concessions in the park.

YCS established an environmental initiative that has achieved outstanding results to date: the company recycles 25 percent of waste from its facilities and diverts 41 percent of waste through its Waste Diversion Programs. In 1999, YCS' recycling program accounted for 740 tons of recycled material and 580 tons of organic waste diverted to other uses.

YCS recycles 25 different materials, including items such as fluorescent lamps, Freon, and propane canisters; industrial wastes such as kitchen grease and automotive fluids; and basic items like paper, plastic, cardboard, and glass. "We are very pleased that our recycling efforts have been recognized by the state and continue to look at more ways to reduce our impact on the natural environment," said Cindy Bower, YCS president.

Aspects of the program include the use of post-consumer content packaging for hotel toiletries and amenities, as well as reuse of unused toiletries such as shampoo, conditioner, and toilet paper rolls by nearby non-profit organizations. In addition, all YCS' lodging facilities and hotels encourage voluntary reuse of linens and towels and provide recycling containers for glass, aluminum, plastic and paper in guests' rooms.

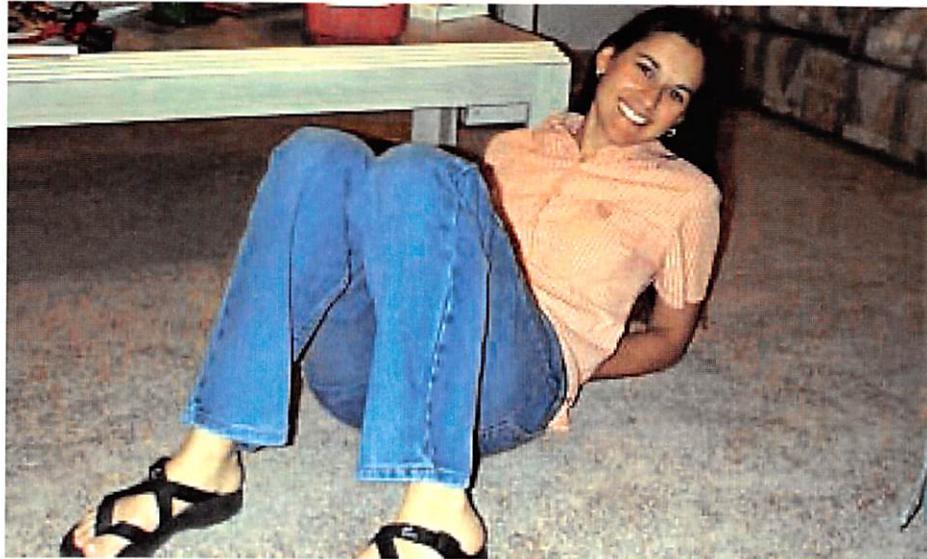
YCS' food and beverage operations are an important part of this initiative with efforts that include using plastic wrap rather than polystyrene packaging for food items, limited packaging for take-out, bulk condiment dispensers whenever possible, and recycling of cardboard, plastic, glass and paper. The company also uses native vegetation in its landscaping efforts to both conserve water and reduce the amount of non-indigenous plants in the park. In addition, YCS employees groom the Wawona Hotel's nine-hole golf course without pesticides or fertilizers.

Recycled fiber carpeting is a fresh idea in green flooring

With a little bit of forethought, you can help keep millions of tons of garbage out of landfills, reduce indoor air pollution, and have aesthetically appealing floor coverings.

Recycled fiber carpeting costs virtually the same as more traditional ones but comes with none of the disadvantages. At present, over 5 billion pounds of carpeting make their way into landfills each year in the United States alone. Most of that material can and is now starting to be recycled into an increasingly diverse line of floor coverings. Although colors and styles are relatively limited, there is still enough out there on the market to meet the needs of most consumers.

GSA has approved the use of a number of makers of recycled fiber carpets. Both Point Reyes National Seashore and Joshua Tree National Park have recently purchased recycled carpet for living quarters and visitor centers. High quality, longevity, and competitive costs made this an easy sale



Joshua Tree ranger, Dena Hicks, enjoys "new" recycled carpeting in employee housing at the Cottonwood Ranger Station.

for both parks. At present, recycled carpet is available through GSA from both Shaw and Mohawk. Other distributors include DuPont at 1 (888) 422-3999 and Millien at 1 (864) 503-2020. To learn about additional distributors, contact the Carpet and Rug In-

stitute at 1 (800) 882-8846 or the National Association for Plastic Container Recover at 1 (704) 423-9400. To find out how the carpeting is working out, please contact the facility chiefs at either Point Reyes or Joshua Tree.

PacWest has always been cutting edge with sustainable technology

Steve Butterworth shares some feelings about the great strides made by the Pacific West Region towards sustainability.

This region has been a leader in energy conservation issues over the past decade. More of our employees have been recognized by the Department of Energy's award programs than any other region. Our parks have generated more financing incentives with their local utilities than any other region.

This region has been the NPS leader in installing solar projects in support of the Million Solar Roof Initiative. We are the first region to install a fuel cell unit. We were the first to have a formal sustainability program which had energy management as a prime consideration.

This list could go on but what is important to recognize is that park employees have been doing great things for years.

Organizationally, the NPS has been establishing close working relationships with the US Department of Energy, energy offices of the various states, electric utilities large and small, solar proponent associations, and manufacturers.

It is paying off during this crisis. I have contacts within the State of California to help coordinate mutual opportunities for renewable power. I have contacts with the Bonneville Power Administration working on six solar projects in CA, one in ID, one in WA, and have already installed three projects in NV, one in AZ, and one in CA. BPA is assisting parks by helping secure financial rebates and I am working with parks to secure financial assistance that could amount to over \$300,000 over the next couple months. And there will be much more financial assistance after that.

To give you some idea of the projects un-

derway or awaiting approval, here is a list:
 JOTR - a solar project to power headquarters
 YOSE - a solar project to power some of the El Portal complex
 WHIS - a solar project to power some of their visitor center
 CHIS - two solar projects to power some of park headquarters
 PORE - four new solar projects;
 MOJA - two new solar projects
 LAVO - a solar project to power a building.

So far, I have focused on solar projects to reduce grid dependency and contribute to the energy crisis. But many parks are doing the basic energy conservation related to: using less, changing lights, installing sensors, etc. One very promising project involves our computer specialists as we look for new technologies to cut down the lead created by the growth.

The Computer: A Doorway to Greener Resources

Amy Loskota, a Conservation and Resource Assistant out of Fort Vancouver, recommends a number of good green resources available from the web.

Green Electronic Media is the backbone of the recycling and sustainability communities. All the information needed to say, research and purchase an environmentally preferable paint is available at our fingertips via the World Wide Web. I encourage you to learn to use your computer to prevent paper waste and to speed up research. For hiring employees, to hiring college interns through Americorps and the Student Conservation Association to planning your own green building project, I have included this list of links to further greening of the National Park Service.

AmeriCorps - The domestic Peace Corps engages more than 40,000 Americans in intensive, results-driven service each year. We're teaching children to read, making neighborhoods safer, building affordable homes, and responding to natural disasters through more than 1000 projects. Most AmeriCorps members are selected by and serve with projects like Habitat for Humanity, the American Red Cross, Boys and Girls Clubs, and many more local and national organizations. Others serve in AmeriCorps*VISTA (Volunteers in Service to America) and AmeriCorps*NCCC (the National Civilian Community Corps). After their term of service, AmeriCorps members receive education awards to help finance college or pay back student loans. <http://americorps.org/whoware.html>

The Student Conservation Association (SCA) - America's largest and oldest provider of national and community conservation service opportunities, outdoor education and career training for youth. SCA volunteers and interns annually perform more than one million hours of conservation ser-

vice in national parks, forests, refuges, and urban areas in all 50 states.

<http://www.sca-inc.org/>

San Diego Earth Times On-Line Find articles covering a wide variety of local, national and international environmental topics. The *SDET* archive contains every article published since our first issue in Dec '93 — more than 1,000 articles.

We also offer a searchable Calendar of Earth-Friendly Events, an Archive Search Engine, Web links and more ... So, Welcome, and happy browsing.

<http://www.sdearthtimes.com/index.html>

Eco - A broad list of Environmental Career and Internship postings. Excellent way to find interns.

<http://www.eco.org/>

EE Link - Your Link to Environmental Education Resources on the Internet. The following links are to our main resource sections, which offer: Resources for professionals, publications, communities and professional development opportunities, Grant Resources, general information, specific grants, and a grant search page. Classroom Resources, materials, activities and programs for K-12 classrooms organized by topic area. Job Resources updated job postings, links to job listings and a specific job search page. Organization & Project Links state & regional, international, and topical. Calendar: national calendar of events.

<http://eelink.net/>

Environmental Building News: Buildings have a tremendous impact on the environment—both during construction and through their operation. "Green building" is a loosely defined collection of land-use, building design, and construction strategies that reduces these environmental impacts. Benefits of building green include reduced energy consumption, protection of ecosystems, and occupant health. These

FREE articles from past issues provide an analysis of all aspects involved with green building in pdf format:

<http://www.buildinggreen.com>

Enviro-link - A comprehensive resource for individuals, organizations and businesses working for social and environmental change. Offers grants, employment posting, and resources aplenty.

<http://envirolink.netforchange.com/>

Environmental Protection Agency - The EPA's page of Environmental Education Resources Grants, links, and tons of brochures and publications.

<http://www.epa.gov/enviroed/index.html>

Greenworks Channel - Pennsylvania's public television systems presents free access to their many television shows about various green topics (i.e. green building options, green history, recycling) viewed easily on your computer with a free download of Real Player 4 or higher. Their web pages host environmental videos, interactive educational programming, environmental workshops, conferences, and live events. I suggests "The First Green Building" a foray into the building of EPA's first green office building.

<http://www.greenworks.tv>

Green Dream Employment - A listing service and search engine for non-profit, green, and socially conscious

The Green Voice

The Green Voice is a publication of the Pacific West Region of the National Park Service. It is intended to share current trends in park sites about "green" issues that might be appropriate throughout the service. If you have story ideas or comments, please submit them to David Smith at the Oakland Regional Office. You can also send them via CC Mail to david_smith@nps.gov.

Making Painting Greener and Safer at Fort Vancouver

Gary Bickford of Fort Vancouver National Historic Site writes about the use of paints that are eco-friendly and much safer for those using them.

Fort Vancouver National Historic Site Maintenance Staff chose to use an environmentally friendly primer and exterior paint for the Regular Cyclic project to repaint three buildings this fiscal year.

These products are considered to be ecosystem safe and/or environmentally preferable. Ecosystem safe paints take into account the entire ecosystem surrounding the painting process. Ecologically safe paints are made with alternative chemicals specifically designed to not pollute the air, poison the people around the paint, or pollute the natural areas they are used in.

Safe paints are designed to not pollute the air, poison the people, or pollute the natural areas they are used in.

Economically the cost is about 1/4th more per gallon of paint when compared to mainstream paints. The main cost in painting structures is in the man-hours to accomplish quality prep work and applying the primer and paint. The additional cost per gallon was not a factor in our decision to use these sustainable products.

Advanced Formulations Manufacturing of San Diego has created a line of ecosystem safe paints for interior and exterior paints. The maintenance staff at Fort Vancouver NHS used AMF exterior paint on three buildings this

fiscal year and found this paint to be equal in coverage, workability, and performance compared to exterior paint used in the past.

The **Best Paint Company** of Seattle makes a line of ecosystem-safe paints. The owners are both professional painters. We used **Best's Universal Primer** as an alternative to an oil-based primer and it worked equally as well as any oil-based primer we have used in the past.

Sustainable Paint Manufacturers

Best Paint Co.

Seattle, WA 98107

(206) 783-9938

Offers: Duracryl Exterior, Mircosol Interior, and offers a variety of Masonry and Marine coatings.

AFM/Advanced Formulations Manufacturing 3251 3rd Ave.

San Diego, CA 92103

(619) 239-0321

Offers: Safecoat exterior and interior and a diverse line of industrial coatings.



Fort Vancouver carpenter Lauren Wright uses environmentally friendly primer and exterior paint for cyclic repairs to the site. Staff found the safer paints to be equal in quality to more environmentally hazardous paints currently in use by many parks. These paints mean safer working conditions for employees and a cleaner environment as well.