

e
j

A magazine
of the Knight Center
for Environmental
Journalism
at Michigan
State University

Fall 2003

The forgotten environmental stories



What has become of the issues
that once dominated the headlines?

Environmental redux

Not truly forgotten, but issues have been unreported for too long



Corbin Sullivan, a master's student in the School of Journalism at Michigan State University, is editor of *EJ*.

Some of you may notice that the face next to this column is different than the previous three issues. There's a simple explanation. I'm Corbin Sullivan, the second editor of *EJ*, following the co-creator, Kristen Tuinstra. I have some big shoes to fill, considering the recent accolades awarded the magazine. (See story below.)

My goal is to keep *EJ* on its current track, getting better with each future issue and eventually printing three and then four issues per year. This installment is a bit of a trip to the distant and not-so-distant past with forgotten environmental stories.

It's tricky to define what actually constitutes a forgotten environmental story. In truth, none of the stories we included in this issue are truly forgotten because there was someone around to interview, Internet sites to give us information and landscapes and animals of which to take pictures. But if we went by this measure, we'd be forced to go through much painstaking field research to

Like every story worth telling, a good environmental story is like the landfills and chemical dumps that our brethren so often report on. If there's enough "stink" surrounding them, the flies will gather, and soon the stories will no longer be unknown or forgotten.

dig up the stories that absolutely no one knows about. We're not scientists, we're writers.

The next option was to consider the audience's knowledge of environmental stories. Our ever-expanding audience is more educated about environmental issues than the general population, but our job is to inform, not rehash, so we had the task of out-sourcing our resourceful readers.

Forgotten environmental stories aren't hard to find; it depends on whom you ask. Odds are the majority of the U.S. population has either forgotten or never heard of the

demise of the passenger pigeon, and few if any could actually tell you anything about the damming of the Nelson River in Manitoba. But, like every story worth telling, a good environmental story is like the landfills and chemical dumps that our brethren so often report on. If there's enough "stink" surrounding them, the flies will gather, and soon the stories will no longer be unknown or forgotten.

The end result, as you will read, is an amalgam of stories we thought had been out of the press long enough to be forgotten, or were never reported, period.

Tuinstra wins MUCC's Ben East Award for *EJ* magazine

Kristen Tuinstra, the founding editor of *EJ* magazine, has been awarded the prestigious Ben East Award for her contributions in creating and editing the first three issues of the Knight Center for Environmental Journalism's magazine.



Kristen Tuinstra

Tuinstra received the award June 21 at the 66th annual banquet of the Michigan United Conservation Clubs in Marquette, Mich. The Ben East Award is the highest honor in Michigan environmental journalism and natural resources reporting.

The judges praised both Tuinstra and *EJ*, which is published each semester by students and faculty in Michigan State

University's Knight Center. The judges said the magazine has "earned enthusiastic reviews from the editors of *Time* and *Audubon* magazines."

Tuinstra earned her bachelor's degree in creative writing from Western Michigan University in 1997. She earned her master's degree from MSU's journalism school in December 2002. While at MSU she studied environmental journalism at the Knight Center and developed a five-year business plan for *EJ* as part of her master's degree project.

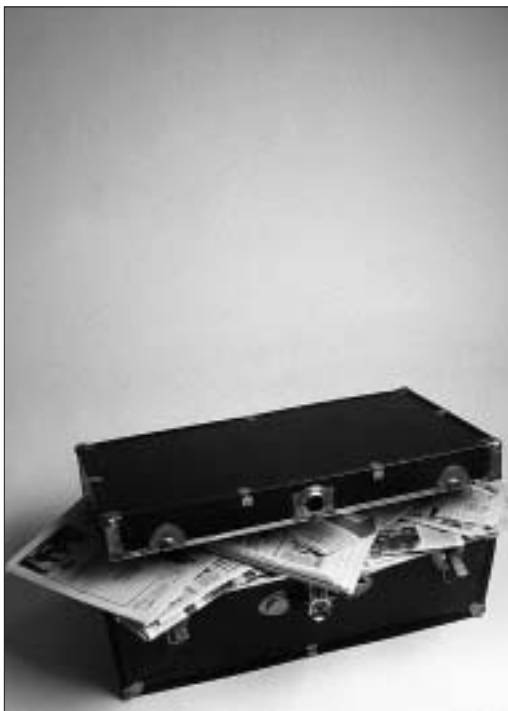
In the fall of 2001 she began editing *EJ News*, the Knight Center's 20-page newsletter. She proposed transforming the periodical into a full-color magazine. She enlisted Randy Yeip, another master's degree student, to design the magazine and under her leadership the first issue of *EJ* was

published in the winter of 2002.

"I'm delighted that Kristen has been honored for her hard work, dedication and leadership in creating *EJ*," said Jim Detjen, director of the Knight Center for Environmental Journalism. "This is the first time a student journalist has won this important award, which honors the best environmental journalism in Michigan."

The Michigan United Conservation Clubs is an organization of more than 500 conservation clubs and nearly 100,000 members. Founded in 1937, it is the nation's largest statewide conservation organization. It publishes *Michigan Out-of-Doors* and *Tracks* magazines; produces television programs about the outdoors and natural resources issues; provides environmental education; and works to conserve Michigan's natural resources.

cover | the forgotten environmental stories



A dam dilemma

The 1977 Northern Flood Agreement was full of promises. But more than 25 years later, the Pimicikamak say Manitoba Hydro has not met the provisions of the treaty. **page 16**

Suspiro de vida

Air pollution has the Mexico City Metropolitan Area in a virtual choke hold. Can this burgeoning metropolis tame its pollutants and rediscover the breath of life? **page 20**

From the morgue

What were the top environmental stories of 10, 25, 50 and 100 years ago? *EJ* opens journalism's archives and revisits some long-forgotten newsmakers. **page 23**

Intersection of species

With every housing and industrial development, wildlife are forced out of areas in which they once thrived. Can these animals survive urban sprawl? **page 24**

also | featured stories

The big yellow threat

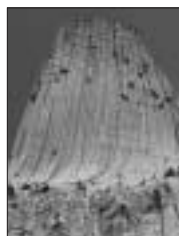
School buses are thought to be safe, but what about the unseen dangers they present? Brian McKenna looks at the noxious air they emit — and what our kids may be inhaling on their commute to school.



page 9

Losing their religion?

Millions of tourists make use of public lands. But for many American Indian tribes, these are sacred sites with religious significance. Is there a resolution to this conflict between sanctity and sport?



page 12

Zero waste

Imagine a world in which everything is recycled, where not a single piece of waste is sent to the incinerator or the landfill. Proponents say it's more than just a bedtime fairy tale. Just don't count on it happening anytime soon.



page 10

An unforgettable experience

Did you miss out on the sixth annual Great Lakes Environmental Journalism Training Institute? Don't worry; we've got pictures from the five-day event capturing the activities of this unique learning experience.



page 35

et cetera | departments

Campus: Training institute features Great Lakes topics, Students form environmental journalism group **pages 4, 27** . . .

Names in the News: Updates from Knight Center faculty, students, alumni **page 5** . . . **From the Director:** Photojournalist reveals truth about earth **page 6** . . . **Lakes:** City recovers from pipeline leak, dead zones plague Lake Erie **page 7** . . . **Nature Essay:** "Sediment of Lives" by Nate Matthews **page 29** . . . **Resource:** Online information on this issue's story topics **page 34**

Cover photo by Randy Yeip



Vol. 2, No. 2 Copyright 2003

The purpose of *EJ* (ISSN 1538-5361) is to provide news and commentary about environmental journalism at Michigan State University and at the local, national and international level.

EJ is published by the Knight Center for Environmental Journalism at Michigan State University.

Jim Detjen executive editor
Dave Poulson editorial adviser
Corbin Sullivan editor
Barb Miller editorial assistant
Randy Yeip art director

Contributors: Christina Carels, Kristen Dykema, Eric Freedman, Susana Guzman, Debbie Hakes, Jeremy Herliczek, Jessica Hulett, Nate Matthews, Brian McKenna, Steve McKinley, Debbie Munson, Alex Nixon, Karessa Weir

Contact Information:

EJ Magazine
382 Communication Arts Building
Michigan State University
East Lansing, MI 48824-1212
Fax: (517) 355-7710
E-mail: detjen@msu.edu
mille384@msu.edu
Web: <http://environmental.jrn.msu.edu>

Subscriptions: If you would like to be on our mailing list for upcoming issues of *EJ*, contact us at the above mailing or e-mail address.

Supporters: The Environmental Journalism Program thanks the following organizations for their support:

John S. and James L. Knight Foundation
George Gund Foundation
MSU College of Communication Arts and Sciences
MSU School of Journalism

Advertising: Call (517) 432-5155 for rate information.

Submissions: To contribute an article, photos or artwork, contact us at the address above.

Printed on recycled paper.
100% post consumer waste.

MICHIGAN STATE
UNIVERSITY



Training days

Sixth environmental journalism institute features rock climbing, sailing

EAST LANSING, Mich. — They rock climbed in Grand Ledge. They canoed on the Grand River. They sailed on Lake Huron. They searched for 200-million-year-old fossils.

During five days in June, 25 American and Canadian journalists participated in the sixth Great Lakes Environmental Journalism Training Institute organized by the Knight Center for Environmental Journalism at Michigan State University.

Held June 17–21 at MSU and locales around Michigan, the journalists learned about environmental issues affecting the Great Lakes. They heard from top environmental experts as well as prominent journalists at *The Washington Post*, *Detroit Free Press*, *The Detroit News* and *The (Louisville) Courier-Journal*.

A special focus was the threat of terrorism on the Great Lakes region. Eric Pianin, the national environmental writer for *The Washington Post* and an alumnus of MSU's journalism school, discussed this issue in his keynote address June 17.

The next day John Bellow of *The Detroit News* and Tom Henry of *The (Toledo) Blade* offered tips on covering potential terrorist attacks on the Great Lakes' water supplies and the region's nuclear power plants. Jim Bruggers, environmental writer at *The Courier-Journal*, discussed how terrorism threats have caused the Bush Administration to restrict access to environmental information.

Other speakers included Dennis Schornack, the U.S.



Photo by Steve McKinley

Rebecca Williams, a producer for the Great Lakes Radio Consortium who claims to be "moderately afraid of heights," climbs a rock face during a session she called a fun yet educational break from lectures and that helped bond participants. See more photos from the Great Lakes Environmental Journalism Training Institute on page 35.

"It was a difficult decision to select this year's fellows from a very strong pool of applicants."

Jim Detjen,
director, Knight Center for Environmental Journalism

Also in Campus

Environmental Journalism Association forms; yellow bikes raise awareness; MSU compiles campus sustainability report; Biodome project seeks funds [Page 27](#)

chairman of the International Joint Commission, and Mike Donahue, executive director of the Great Lakes Commission, who discussed threats to Great Lakes' fisheries from invasive aquatic species such as the round gobies and zebra mussels.

Other topics included the impact of global climate change on the Great Lakes, how water use affects lake levels, environmental journalism ethics and computer-assisted reporting.

One highlight was a sailing trip on the Appledore V, a 65-foot, two-masted schooner, on Lake Huron on June 21.

This year's institute marked the sixth time the Knight Center has organized a workshop to teach journalists about Great Lakes environmental issues. The institutes, which are supported by grants from the George Gund and John S. and James L. Knight foundations, have trained 150 journalists since 1996.

The institute was organized by Jim Detjen, Knight Center director; Dave Poulson, assistant Knight Center director; and Barb Miller, Knight Center secretary.

Journalists are awarded fellowships to attend the institute and are selected through a competitive process. "We had a truly outstanding group of applicants this year," said Detjen. "It was a difficult decision to select this year's fellows from a very strong pool of applicants."

**Participants in the 2003
Great Lakes Environmental Journalism
Training Institute**

- **Yanik Dumont Baron**
Radio-Canada, Toronto
- **Paul Brinkmann**
reporter, *Green Bay (Wis.) Press-Gazette*
- **Jennifer Chambers**
regional writer, *The Detroit News*
- **Kory Dodd**
University of Maryland graduate, former intern,
The Baltimore Sun and Newsday
- **Dan Egan**
reporter, *Milwaukee Journal Sentinel*
- **Jane Elder**
freelance writer, executive director of the
Biodiversity Project, Madison, Wis.
- **Victoria Fenner**
reporter, Radio 1, Canadian Broadcasting Corp.
- **Julie Gedeon**
freelance journalist, contributor
to *Canadian Geographic*
- **Bob Gross**
environmental and science reporter,
The Oakland Press, Pontiac, Mich.
- **Corydon Ireland**
natural resources reporter, *Democrat
and Chronicle*, Rochester, N.Y.
- **Mike Ivey**
reporter, *The Capital Times*, Madison, Wis.
- **Judith Joy**
environmental and agricultural writer, *Centralia
(Ill.) Morning Sentinel*
- **Jeff Kart**
environmental reporter, *The Bay City (Mich.) Times*
- **Molly Kavanaugh**
Lake Erie reporter, *The (Cleveland) Plain Dealer*
- **Tim Martin**
senior writer, *Lansing (Mich.) State Journal*
- **Fred Martino**
director of news and public affairs,
WGVU-TV, Grand Rapids, Mich.
- **Hugh McDiarmid Jr.**
reporter, *Detroit Free Press*
- **Steve McKinley**
freelance reporter/photographer, Toronto, Canada
- **Kathleen Murphy**
reporter, Stateline.org, Washington, D.C.
- **Rick Pluta**
managing editor, Michigan Public Radio,
East Lansing, Mich
- **Marie Savage**
author/freelance writer, Sidney, Canada
- **Terri Taylor**
television producer, Pittsburgh, Pa.
- **Avon Waters**
environmental reporter, *The Herald Bulletin*,
Anderson, Ind.
- **Rebecca Williams**
reporter, Great Lakes Radio Consortium,
Ann Arbor, Mich.

NAMES IN THE NEWS

JIM DETJEN, director of the Knight Center for Environmental Journalism, led a group of 16 Boy Scouts in July to the Florida High Adventure Sea Base in the Florida Keys. He also co-taught with Professor **ERIC FREEDMAN** the Reporting in the British Isles course in England, Ireland and Scotland in May and June. An article Jim wrote on the future of environmental journalism for the *Nieman Reports* magazine last winter will be published in a book by the Nieman Foundation for Journalism of Harvard University.

BRIAN FOLEY, M.A. '05, joined the environmental journalism program this fall after earning a dual degree in history and environmental studies from the University of California at Santa Barbara. While there he wrote a senior thesis on the environmental history of water appropriation in the Owens Valley by the City of Los Angeles. He is an Eagle Scout and has traveled in China and the American West.

EMILY FRIEDMAN, B.A. '03, began working in July for Habitat for Humanity in Ohio as part of a position with AmeriCorps.

SUSANA GUZMAN, M.A. '04, was the co-winner of the Rachel Carson Award for outstanding graduate student in the environmental journalism program during the 2002–03 academic year. She also won the Len Barnes AAA of Michigan Scholarship. She is working on a survey of Mexican environmental writers as part of her master's project.

DEBBIE HAKES, M.A. '05, joined the environmental journalism program this fall with a strong interest in photojournalism and magazine writing. She earned a bachelor's degree summa cum laude in business administration from Saginaw Valley State University. She has backpacked in Africa and has traveled extensively in China, Taiwan and Japan.

JOSEPH HARRY, Ph. D. Mass Media '99, has received tenure at Slippery Rock University in Slippery Rock, Pa., where he teaches journalism and mass communication courses. He presented a research paper at the AEJMC conference in Kansas City in July.

JEREMY HERLICZEK, M.A. '03, is the

co-author of *A Taste of Freedom*, a new 96-page cookbook that documents in words and photographs the stories of America's refugees. The co-authors are Vincent Delgado and Becky Shink. The book can be ordered from www.a-taste-of-freedom.com. Sales will aid Benefits Refugee Services, a program of the Catholic Social Services of Lansing.

JESSICA HULETT, B.A. '04, was awarded the Edward J. Meeman Award for outstanding undergraduate environmental journalism student during the 2002–03 academic year. She also won the Mary Elizabeth Magner Neil overseas study scholarship, the Michigan Press Association community journalism scholarship and was elected a member of the Mary Gardner Scholars honor society. An article she wrote on zero wastes for the spring 2003 environmental writing class will be published in the December issue of *Michigan Out-of-Doors*.

NATE MATTHEWS, B.S. '03, won the Marc Wesley Scholarship of the Michigan Outdoors Writers Association.

STEVE MEADOR, M.A., produced a 20-minute documentary about the Bath school bombing in 1927, now airing on Public Broadcasting Stations throughout Michigan. The piece won honorable mention in the East Lansing Film Festival in March. He also is working on a 60-minute documentary about dioxin contamination in Midland, which he hopes to complete this fall.

DEBBIE MUNSON, M.A. '04, is editor of Echo, an online service that compiles daily environmental news in southeastern and western Michigan. Echo is a service of the Mackinac Chapter of the Sierra Club. For a free subscription, send an e-mail to Debbie_munson@yahoo.com.

AMY NEVALA, M.S. (Fisheries and Wildlife) '97, has been hired as a science writer at the Woods Hole Oceanographic Institute in Woods Hole, Mass. Her e-mail is amy_nevala@hotmail.com.

DAVE POULSON, assistant director of the Knight Center for Environmental Journalism, was a judge for the Society of Environmental Journalists annual print award for in-depth stories. He also spoke in Racine, Wisc., at a Great

Lakes Information Network conference. GLIN is a group of nonprofit, government and university agencies that provide environmental information throughout the Great Lakes region. Dave also participated in a conference in Hannover, Germany, on improving that country's university curriculum for teaching science writing.

CORBIN SULLIVAN, M.A. '04, was the co-winner of the Rachel Carson Award for outstanding graduate student in the environmental journalism program during the 2002–03 academic year. He also won the Augenstein Scholarship. Corbin also was elected president of the MSU Environmental Journalism Association, a new student group, for the 2003–04 academic year.

RACHANEE THERAKULSATHIT, B.A. '02, has released her first album, *Chosen Path*. She is performing her contemporary Christian rock music at clubs in Grand Rapids, Ann Arbor, Lansing and other parts of Michigan. You can find out more about her at www.rachanee.net.

AILEO WEINMANN, M.A. '05, joined the environmental journalism program this fall after earning a bachelor's degree with high honors in American culture from the University of Michigan. He has worked as an assistant editor for *Smart Business* magazine, assistant editor for the Michigan Journal of Community Service Learning and as a freelance writer for Filmcritic.com. He has been involved in a wide range of community service activities helping the homeless, preserving natural areas and working for Habitat for Humanity.

KARESSA WEIR, M.A. '04, and her husband, Brian Wheeler, are the parents of Elliott MacNaughton Wheeler, who was born May 4. Karessa is freelancing for *The Jackson Citizen-Patriot*.

ELAINE WOLFF, B.A. '00, began work in July as a public health service officer in the U.S. Public Health Service. She works in the Federal Department of Health and Human Services in Washington, D.C. She will assist in tracking and coordinating public health emergencies ranging from disease outbreaks to hurricanes and other natural disasters. She also wrote a paper, "Mercury in the Environment: The Problems, Risks and Consequences," for the Annapolis Center for Science-Based Policy.

from the director | jim detjen

At first glance

Photojournalist's beautiful scenes reveal ugly truth about Earth



Jim Detjen is a professor and director of the Knight Center for Environmental Journalism at Michigan State University. He is the founding president of the Society of Environmental Journalists and was president of the International Federation of Environmental Journalists from 1994 to 2000.

Outside the Natural History Museum in London, an open-air exhibition of more than 150 giant photographs is on display. The photos are stunning in their beauty. They show scenes of the Earth, its landscapes and its people taken from a helicopter 100 to 10,000 feet above the planet.

The photos were taken by Yann Arthus-Bertrand, a French photojournalist, as part of a remarkable and extremely-popular exhibit, known as "Earth from the Air." Since 1990, Arthus-Bertrand has taken hundreds of thousands of aerial photos in an effort to create an ongoing visual record of the "state of the planet."

Much as photographs taken of Earth by astronauts in the 1960s are said to have changed the way people perceived the planet, Arthus-Bertrand's powerful photos are doing so today.

How so?

First, the beautiful patterns, rhythms, contours and contrasts in the photos draw in viewers. Scenes of a caravan of camels crossing the Sahara Desert, a colorful tapestry of quilts covering the ground in Morocco or a flock of scarlet ibis gliding over a river delta in Venezuela are visually captivating, almost hypnotic in their beauty.

Often, upon viewing one of Arthus-Bertrand's photos, a viewer is left wondering, "What is that?" — and is drawn in to read the photo's caption.

When that happens, he has captured you, much like a spider luring you into his web. For when viewers read the captions they are frequently surprised and sometimes shocked by the environmental significance of the image.

For example, one photo shows a wintry scene of a city containing snow-covered high-rise apartment buildings. It's only when viewers read the text that they realize they are looking at the abandoned city of Pripiat, Ukraine. The Chernobyl nuclear power plant accident of 1986 caused the city of 50,000 people to be evacuated; 17 years later it is still a radioactive no man's land. Seeing a photo of an enormous abandoned city



Photo by Yann Arthus-Bertrand/Impact Photos

This image, part of the "Earth from the Air" exhibition, shows a heart shape in a mangrove swamp in New Caledonia, France. More photos can be viewed at the exhibition Web site, www.earthfromtheair.com, or Yann Arthus-Bertrand's Web site, www.yannarthusbertrand.com.

brings home the impact in a way that tens of thousands of words cannot.

Another photo shows a half dozen empty fishing vessels stranded in what appears to be a wide panorama of mud stretching far to the horizon. It's only when readers examine the description that they realize they are looking at the dried up Aral Sea in Kazakhstan. Once the fourth largest inland body of water in the world, this massive lake has lost three-quarters of its volume of water because of a disastrously misguided plan to irrigate cotton crops with water from the lake.

A third shows a group of people, apparently vacationers, relaxing serenely in a naturally-heated blue lagoon in Iceland. But when readers analyze the caption, they find out that "the average tourist uses as much water in 24 hours as a third-world villager uses in 100 days."

Not all of Arthus-Bertrand's images are linked to environmental problems. Many are simply beautiful, capturing scenes of wildlife or natural panoramas. And some show positive efforts that are being undertaken around the planet.

Arthus-Bertrand, 57, has been interested in nature his entire life. He discovered the beauty of the planet from the air while photographing lions from a hot air balloon floating above Kenya during the 1970s. Later he founded a firm specializing in aerial photography.

His books have been published in more than 20 languages; *The Earth from the Air* (Thames & Hudson), has sold more than 1.5 million copies worldwide since it was first published in 1999.

At many journalism schools, there is a strong emphasis on the importance of investigative reporting and powerful writing. But photojournalism is also a powerful tool. A number of prominent photojournalists, such as W. Eugene Smith, have used photographs to document environmental catastrophes, such as mercury pollution in Minamata, Japan.

Arthus-Bertrand follows in the footsteps of Smith. His photos use the power of the visual image to tell a compelling story about the state of our planet at the beginning of the 21st Century.



Spilling over

Michigan township recovers from deadly pipeline leak

By Karessa Weir

Horses graze on the thawing ground, oblivious to the back-drop of huge gasoline tanks. Birds sing in trees that are slowly regaining their foliage, and the stream shows no signs of the rainbow-colored film that coated it just three years ago.

The marshy environment is going through its usual spring rituals, but deep underground, in pockets of standing water and in the lives of its inhabitants, signs still remain of the more than 70,000 gallons of gasoline that spilled here.

A valve in the pipeline that provides Michigan with a significant amount of its gasoline ruptured early one morning and forever changed the environment and community in Blackman Twp., Mich.

Marta Satterelli lost her dog and feared for the safety of her children. Michelle White contracted an infection in her breast and still has trouble sleeping. Her children report problems of bedwetting or having trouble going to the bathroom. Sheila Comperchio gave up her dream of opening a daycare center in her home.

The sheen of the fuel coated their backyards, the fumes killed their trees and thousands of tons of soil had to be removed from their property.

The residents say, and state environmental workers agree, that the residue from the spill can still be found in the com-

munity. Wolverine Pipe Line Co., which owns and operates the pipeline that ruptured, claims it has done everything it can to remove the gasoline and the rest of the disposal has to be left to nature.

SPILL HISTORY

At 8:30 a.m. on June 7, 2000, a valve on a 16-inch gasoline pipeline burst in a township just north of Jackson, Mich. Before workers in Wolverine Pipe Line's Texas headquarters could shut it off, 71,400 gallons of gasoline spewed into a marsh and a creek that runs into the Grand River.

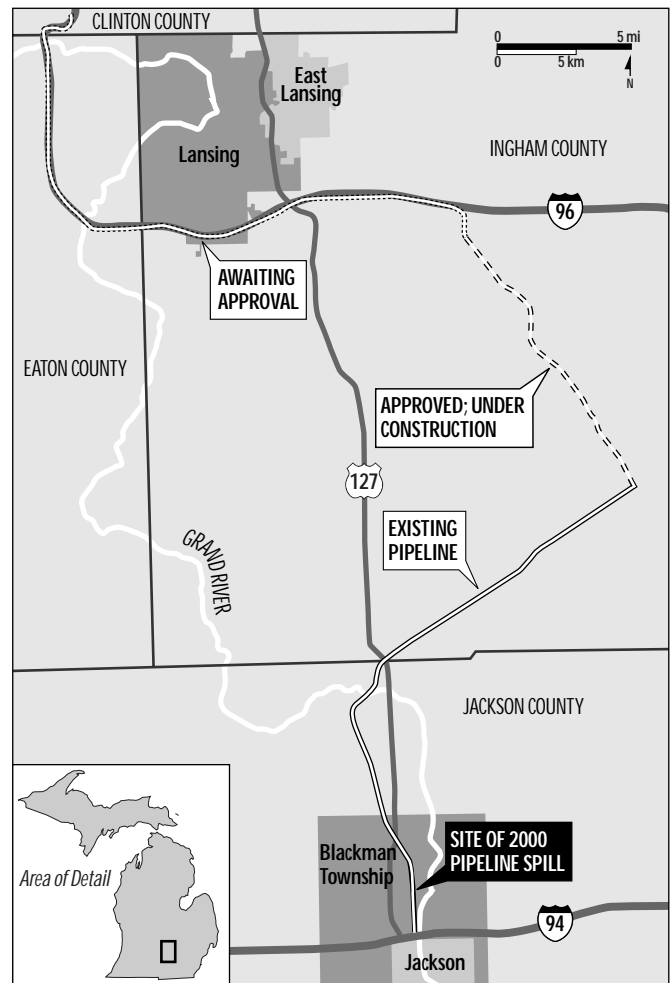
By 10:30 a.m., more than 600 homes were evacuated and the odor of gasoline was strong within a mile of the spill. Residents reported seeing fish jumping out of the creek to escape the poisoned water. Gov. John Engler declared a state of emergency.

"Basically, we worked as fast as we could, because the amount of gas and the fact that it was a residential area meant our main concern was an immediate explosive risk," said Jim Sygo, who served as emergency management coordinator for the state Department of Environmental Quality.

The gas line that ruptured was approaching a terminal area, where a dozen large gasoline tanks store fuel for distribution around the region. The area surrounding the terminal is mostly wetlands, with reeds

Pipeline fight

Wolverine Pipe Line's "Spartan Project" would connect the company's existing pipeline to a Lansing terminal. The company has won approval for the project from all municipalities along the route, but the City of Lansing continues to fight the company in court.



Source: Wolverine Pipe Line Co.

Randy Yeip/EJ

and high ground. But the main problem after the rupture, Sygo said, was that it occurred in a culvert under the railroad tracks, giving the gasoline an easy path down into a creek that leads to the Grand River.

"We worked with the Department of Public Works in Jackson to create an earthen dam to try to prevent it from flowing directly into the Grand

River," Sygo said.

A second earthen dam was built upstream, which fortunately held in the days following the spill as heavy rains hit the area. The first dam broke and sent polluted water heading toward the river.

A year later, more than 1 million gallons of water and

continued on page 31 ►

Erie silence

Scientists, politicians hope lake's emerging dead zones will speak to them

By Kristen Dykema

Phosphorus-polluted dead zones almost killed Lake Erie in the 1960s and '70s. And the lake might be dying for a second time as scientists have again found areas in the lake's central basin that are deprived of oxygen, killing fish, plants and insects.

About 30 years ago, Lake Erie had dead zones because high levels of phosphorus led to excessive algae blooms. The blooms died and the decaying material consumed all of the surrounding water's oxygen.

Scientists say the high levels of phosphorus in Lake Erie and the rest of the Great Lakes came from sewage, detergents and fertilizer. In an effort to halt contamination, the United States and Canada signed the Great Lakes Water Quality Agreement in 1972. In the same year, Congress passed the Clean Water Act, restricting the amount of phosphorus in laundry detergents. Canada mandated that phosphorus in laundry detergent be limited to 2.2 percent by weight.

A 1978 amendment to the agreement called for no more than 1,100 metric tons of phosphorus loading into Lake Erie annually as an attempt to prevent excessive algae growth. From 1967 to 1972, the Environmental Protection Agency reported that annual phosphorus loadings to Lake Erie averaged about 24,000 metric tons.

In today's terms, \$8 billion was spent in the 1970s and '80s to clean up Lake Erie's central basin, and the problem was thought to be solved. But in the 1990s, dead zones again appeared in the lake, and now scientists are trying to find the cause.

The issue is most relevant to Lake Erie's central basin because it is flat and shallow with an average depth of 60 to 80 feet. And scientists say other shallow waters, such as Michigan's Lake St. Clair and Green and Saginaw bays, also are vulnerable.

The United States and Canada must decide together how to deal with the problem, said Paul Bertram, an environmental scientist with the EPA's Great Lakes National Program Office in Chicago.

"The phosphorus levels have increased, but we're not seeing more algae," he said. "And there's been no increase in phosphorus loadings from tributaries or sewage



Thousands of zebra mussels are washed up on the beaches of Lake Erie. The Great Lakes are teeming with the mussels, which may be contributing to rising phosphorus levels in Lake Erie.

treatment facilities. We need to determine what's going on."

Bertram said a possible culprit is the golf-ball sized zebra mussels that have steadily invaded the Great Lakes.

Zebra mussels, native to the Caspian Sea and first detected in North America in 1988, are found throughout the Great Lakes and the Mississippi River and its tributaries. They might be contributing to rising phosphorus levels in Lake Erie because they expel phosphorus from the organic matter they eat. The phosphorus sinks to the bottom and helps algae grow, draining oxygen from the deep water.

Bertram said automatic-dishwashing detergent is another possible cause for increasing phosphorus levels. The United States limits phosphorus in laundry detergent to 0.5 percent by weight, but phosphate is still permitted in dishwashing detergents and commercial cleaning agents.

In February, Minnesota legislators proposed a bill that would restrict phosphorus levels in household automatic-dishwashing detergents.

Joe Rathbun, an environmental scientist for the Michigan Department of

Environmental Quality, said the department is trying to get a handle on how big a problem phosphorus from dishwashing detergent is to Lake Erie.

Rathbun said he is surprised that only a few states have reached the point of proposing legislation to limit the amount of phosphorus in dishwashing detergents.

"It's a complex problem," he said. "We can't really do anything about the zebra mussels, but we can do plenty about the pollution."

Dennis Griesing, vice president of governmental affairs for the Washington-based Soap and Detergent Association, said there's no environmental benefit to limiting phosphorus in detergents.

"Phosphorus doesn't go directly into the environment," he said. "It goes to wastewater treatment plants."

Griesing said phosphate is essential in dishwashing detergent. "It softens water and takes out calcium and magnesium and grabs onto dirt particles," he said.

Griesing said there was a push in Europe to use phosphorus-free detergents in the 1990s, but the effort didn't work.

continued on page 32 ►

Photo courtesy of Great Lakes Environmental Research Lab

THE BIG YELLOW THREAT

Think your kids are safe on the bus? Take a deep breath; reports indicate your children may not be able to



Ever since NBC's Tom Brokaw jolted me with the news, in June 1999, that "pollution was as high as 10 times more inside the car than it was outside," I've had a sense of resignation about driving.

The groundbreaking study, produced by the Research Triangle Institute with a \$400,000 grant from the California Air Resources Board, went on to say that "closing windows didn't keep pollution out. Neither did closing air vents nor using air conditioning."

In other words, your passenger cabin is not the safe retreat from the noxious, dirty air you might think it is. It's often a chemical cocktail. Toxic pollution emitting from the diesel truck or bus in front of you — and from other nearby sources — sifts under the car carriage, jimmying through crevices about the car body, then enters our lungs, where it lingers and does its damage.

Children are especially vulnerable to the ultra-fine particulate matter from diesel exhaust, since higher breathing rates in smaller bodies lead to higher exposure. Inhaling these pinhead particulates is associated with exacerbating asthma, bronchitis and pneumonia. That's added to the fact that the Environmental Protection Agency, the U.S. National Toxicology Program and the International Agency for Research on Cancer classify diesel exhaust as a probable human carcinogen.

With little political relief in sight, whenever I'm stuck in traffic behind a truck or school bus, I simply try to get away from them as rapidly as possible. All the more so when my family is in tow.

But that's not possible for the 24 million students who ride the nation's approximately 500,000 school buses. They must accept the indoor environments provided for them. And it's often a toxic one, according to two recent public health reports that came about largely because of the watershed following the California Air Resources Board investigation.

Dr. Gina Solomon's *No Breathing in the Aisles* (2001) found that children riding inside a diesel school bus may be exposed to as much as four times the level of diesel exhaust as someone riding in a car immediately in front of that same bus. The study was pro-



UNEARTHED

A commentary on health and environmental issues

BY BRIAN MCKENNA

duced by the National Resources Defense Council and Coalition for Clean Air.

"I'm more concerned about asthma than cancer," said Solomon, a senior scientist with the NRDC. "When doctors see asthma they should be asking about the environmental triggers."

In February 2002, Solomon and colleagues presented compelling evidence — in the prestigious journal *Environmental Health Perspectives* — that "fine particulates from diesel exhaust may cause asthma, not just irritate it." Solomon postulated that particulates bypass respiratory defenses and stimulate an immune response that cascades into inflammation, airway constriction, mucous production and symptoms of asthma.

Cancer is a significant byproduct, with educated estimates going as high as 125,000 additional cancers in the United States over a lifetime of exposure to diesel particulates, according to a joint study in 2000 by the State and Territorial Air Pollution Administrators and the Association of Local Air Pollution Control Officials.

Convinced by the mounting evidence, California's South Coast Air Quality Management District in June 2001 approved \$17.9 million in grants for 28 school districts to purchase 169 new natural gas school buses (or less-polluting diesel models). The grants covered Los Angeles, Orange and parts of Riverside and San Bernardino counties. New rules now require that they only purchase natural gas buses.

Natural gas school buses emit 90 percent less soot than conventional new diesel buses, according to the Union of Concerned Scientists. The Union produces a "Pollution Report Card" that grades America's school bus fleets. In February 2002 they reported that school districts in at least 19 states currently use natural gas buses, including Texas (Northside Independent School District), Indiana (Evansville-Vanderburgh School Corporation) and Oklahoma (Tulsa Public Schools).

The Union would like to see all diesel school buses equipped with a sign that says, "hazardous to your health."

continued on page 32 ►



Dan Crane chuckles as he and his wife, Gail, make one of two yearly trips to the Granger Recycling Center in Lansing Twp., Mich. Their efforts are on par with many Michigan residents, but fail to approach zero waste.

WASTE

PHOTOS AND STORY BY JESSICA HULETT

Eliminate the need for landfills? Some say the idea can become reality — but it likely won't be anytime soon

The frigid air makes not a sound on a wintry Saturday morning in early April. Snow flurries gracefully dance to the ground and ice burdens trees around Lansing, Mich., with a heavy armor after a rain and a freeze.

But that doesn't stop a few brave souls from doing their part to do the world some good by recycling. Cars pull into the Granger Recycling Center on Wood Street in Lansing Twp. with truck beds, car trunks and minivans packed with detergent bottles and newspapers. An old, brown carnival of what could have been tiger cages and dunk tanks await magazines, milk jugs, cardboard, tin cans, brown bottles and clear jars — leftovers from the crowd on any given day in the Lansing area.

The only sounds to be heard are the crashing of glass, plopping of newspapers and thudding of cardboard as those items become the tops of piles waiting to be recycled. What appear to be brown metal cages wait stacked to the side, full of several of the recyclables. The cardboard and newspaper bins are dented and worn,

survivors of frequent dumping since the recycling center opened in 1989.

On this quiet morning, Dan and Gail Crane of DeWitt dump newspapers, tin cans and other items from a full truck bed, one of approximately two trips each year the couple makes to the recycling center.

"We looked at the newspaper and it said June," said Gail Crane. "Luckily it was June 2002."

"We just start cleaning out the garage when company's coming and load up."

WASTE NOT

Recycling is one of many ways to work toward "zero waste," the concept of communities recycling and reusing products in an effort to eliminate the need for landfills.

The GrassRoots Recycling Network (GRRN) says that "waste is inefficiency." In one article from its Web site, Helen Spiegelman calls nature a zero-waste system and says that businesses must learn to be like nature by taking products and packaging back into production instead of allowing

them to be incinerated and landfilled.

John Trotti, editor of *MSW Management*, the trade publication for municipal solid waste professionals, said in his editorial from the March/April 2002 issue that those supporting zero waste are bashing the current system without giving clear insight as to what needs to be done to achieve this goal and how much it will cost.

"When you think about it, it's a little like asking doctors to do away with illness and then putting a few teeth in the suggestion by closing hospitals," he said in the editorial. "That way people don't have to get sick. No hospitals, no illness, right?"

Trotti said that an individual can choose to create no waste, but won't succeed because nature doesn't work that way.

Michigan has no policy for zero waste, and state media report that landfills will fill to capacity in 15 years. But Pete Pasterz, manager of the Office of Recycling and Waste Management at Michigan State University, doesn't believe that landfills are almost full.

"I've been hearing that for the 20 years I've been studying waste," he said. "What happens is that, as the landfills start filling up, owners petition to the state to expand.

"No one wants to live next to a landfill, so the owner can buy the adjoining land for pretty cheap. Why wouldn't they expand?"

Wesley Sherman, solid waste engineering coordinator for the Michigan Department of Environmental Quality, said that expanding landfills is easier than siting new ones.

"There's an economy to be had if you expand your landfills from the location where you currently are; there are no siting procedures," he said. "If you have one landfill you have a risk at one location. If you have two landfills you have risks at two locations.

The business side of landfilling is also a factor of expansion. Sherman said landfills are primarily for-profit organizations, and must balance making money by filling the landfill with spending money to expand.

RECYCLING WOES

Right now, Michigan is far from the strongest state in terms of recycling.

In a 1999 report from the Michigan Recycling Coalition, funded by a grant from the U.S. Environmental Protection Agency, Michigan had a 20 percent recycling rate, meaning residents recycled about 1.4 pounds of waste per day. The average for the Great Lakes states is 26 percent. According to BioCycle's 12th annual study, "The State of Garbage in America," Minnesota led the nation with a 45 percent recycling rate in 1999.

"Granted, other states have different ways of rating, but we're on the lower end of the spectrum," said Matt Flechter, the DEQ's recycling and composting coordinator. "We have a solid waste policy that was signed

"No one wants to live next to a landfill, so the owner can buy the adjoining land for pretty cheap. Why wouldn't they expand?"

Pete Pasterz,
MSU Office of Recycling
and Waste Management

back in 1988 and that's the waste policy we're still going on."

Flechter said many people would like to see a revised policy with less emphasis on incineration, a large part of the way Michigan dealt with solid waste in 1988.

While only about 20 percent of Michigan's waste is recycled, close to 60 percent is landfilled because recycling is about twice as expensive per ton of waste. Recycling activities are costly because they are either labor or mechanical intensive, with the goal of pulling valuable materials out of a mixture.

"The fact of the matter is, the reason we landfill waste is because it is less expensive than every other form of dealing with waste," Johnson said.

Although landfilling is economically the most efficient way of disposing of Michigan's garbage currently, Johnson said that in terms of materials, it isn't very efficient at all.

"You expend a lot of energy to make a variety of materials and then you throw 'em away," he said. "And all the energy that went into creating those materials is now buried."

Solution? Reuse.

"If we could turn back time and all of our beverages were in glass bottles, that would be the most energy-efficient way of doing it," he said. "Glass is a durable product, and once you make the glass, you can collect it and reuse it over and over again."

Johnson said a long-term advantage to

landfills that many people overlook is the mining possibilities of metals and plastics from landfills, another form of reuse.

"It's in this casket, this hole in the ground," he said. "There's a future benefit, I think."

Mining for valuable items in landfills also carries an economic benefit. It's cheaper than the actual mining process and creates additional landfill capacity.

Michigan saw a bit of mining about seven years ago when Carleton Farms Landfill in Sumpter Twp. — one-third of its waste ash from Detroit's incinerator — tried sorting through old ash, looking to remove metal that wasn't sorted out before incineration.

Using a machine with a conveyor belt and magnets, the landfill partnered with a recycling center, which sold the metal found in Carleton Farms. The landfill hoped to make money and free up space for dumping.

Ghalib Hanouti, solid waste technical section supervisor for the Wayne County Department of Environment, said the project didn't last long because the machine started breaking down. Because of the amount of old ash to sort through, the machine sometimes ran 16 to 24 hours a day and would become clogged. Moreover, the landfill had to hire someone to monitor and clean the machine, making the project less feasible economically.

DOING THE RIGHT THING

Back at the Granger Recycling Center, area residents continue to take advantage of the opportunity to bring their rainbows of detergent bottles and piles of cardboard to be plopped into the waiting receptacles.

Climbing into the bed of the truck, Gail Crane pulls a dark gold shopping bag from among the boxes and bags.

"Now that's what I wish I had," she said, showing the bag to Dan, "some Godiva Chocolate."

Dan laughed. The two finished doing their part to save a little waste, driving along the trail of bins to dump each item. 🗑️



A cage at Granger's Recycling Center in Lansing Twp., Mich., holds plastic milk jugs deposited by recyclers.

LOSING THEIR RELIGION?

When sacred places become public lands, conflict and competition go hand in hand

BY ERIC FREEDMAN

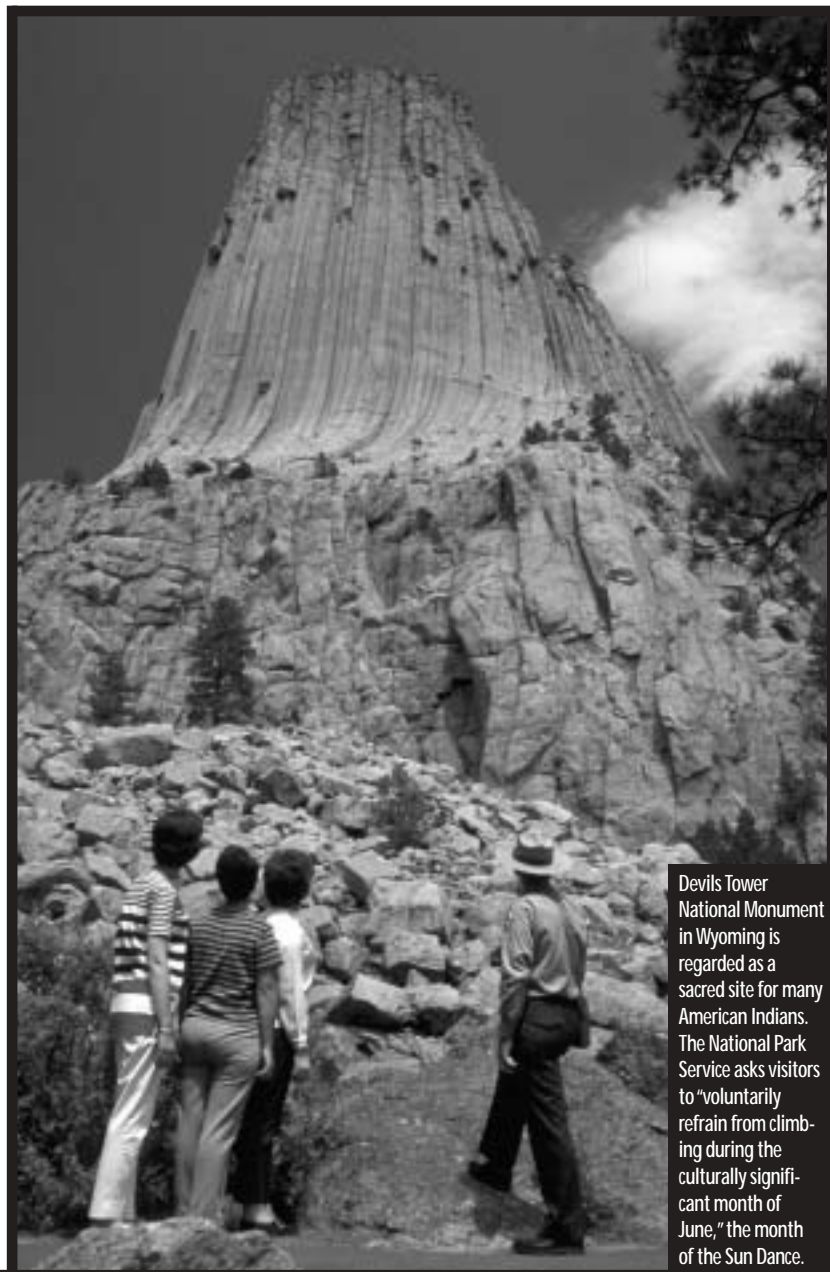


Photo courtesy of National Park Service

Devils Tower National Monument in Wyoming is regarded as a sacred site for many American Indians. The National Park Service asks visitors to “voluntarily refrain from climbing during the culturally significant month of June,” the month of the Sun Dance.

Devils Tower — Mato Tipila — is a rugged 1,267-foot-high butte, a magnet for climbers and a sacred place steeped in American Indian culture and history. It’s a natural wonder, a monolith that literally towers above the Belle Fourche River, America’s first national monument and an economic asset for the northeastern corner of Wyoming.

Roughly 850 miles to the south, New Mexico’s

Sandia Mountain lures 1 million hikers, birders, rock climbers, cable-car riders and other recreational users each year — as well as members of the Sandia Pueblo and other tribes who worship at shrines and sacred spots there. The mountain within Cibola National Forest rises from the desert in natural contrast to the artificiality of the office buildings that tower high above the asphalt of downtown Albuquerque, a short drive away.

At places like Devils Tower and Sandia Mountain throughout the country, American Indian religions and cultures are inextricably interwoven with the physical attributes and history of the land. “The Euro-American concept of what is sacred is vastly divergent from the Native American concept,” commentator Rayanne Griffin writes, with sites deemed “sacred because of their relation to the concepts of sacred time and creation.” And a judge who handled a lawsuit that challenged climbing restrictions at Devils Tower said he was “not persuaded that a legitimate distinction can be drawn in this case between the ‘religious’ and ‘cultural’ practices of those Native Americans who consider Devils Tower a sacred site.”

Like Devils Tower and Sandia Mountain, many sacred sites are on public land. That creates potential — and actual — conflicts among indigenous peoples, government, commercial interests, recreational users — and environmentalists. Those conflicts reflect clashes in social values, in economics and in how the nation makes tough political and policy decisions about our natural resources.

Conflicts aren’t surprising. After all, there were repeated government-backed and government-financed efforts to destroy American Indians’ religions and cultures and to convert them to Christianity in the 1800s. Only much later did government policies evolve to recognize and then try to accommodate diverse religious-cultural practices and beliefs. But by enacting culturally supportive laws and regulations, the government set the stage for disputes over incompatible competing uses of public lands.

The country has witnessed growing American Indian self-identification, recognition of legal rights (including property rights), political activism and more favorable media coverage. Contributing factors include rising ethnic consciousness triggered by such incidents as the 1969 takeover of Alcatraz Island in San Francisco Bay, the African-American civil rights movement, the development of college-level American Indian studies programs and reduced media stereotyping. With revenues from casinos of \$12.7 billion annually, plus income from natural resources and business activities on reservation land, many tribes can now afford to actively participate in litigation, lobbying, administrative rulemaking and other policymaking processes.

GREEN INTERESTS, TRIBAL INTERESTS

Tribal and environmentalist goals sometimes coincide directly when both groups pursue a shared purpose: reduced user impact on natural resources. Such alliances sometimes influence decisions by land agencies, legislators, judges, journalists and the public. For instance, the management plan for Devils Tower requires the National Park

Grounds for dispute

Devils Tower National Monument in Wyoming and Sandia Mountain in New Mexico’s Cibola National Forest — both public lands — are considered sacred sites by many American Indians.



Service to analyze the impact of climbing on natural and cultural resources, and it requires the agency to consult with tribes. As the plan notes, climbing activities “have affected nesting raptors, soil, vegetation, the integrity of the rock, the area’s natural quiet and the rock’s physical appearance.”

In a climber-versus-American Indian conflict at Cave Rock in Nevada’s Humboldt-Toiyabe National Forest, a U.S. Forest Service environmental impact statement recognized the need to preserve both “the physical and spiritual characteristics” of the site, which is sacred to the Washoe. The rock on the eastern shore of Lake Tahoe is the eroded neck of an extinct volcano that the Advisory Commission on Historic Preservation says has ceremonial value, and more: Climbing threatens the rock’s integrity, and installation of permanent climbing hardware “directly affects the property’s physical integrity.” Similarly, the Park Service management plan for Utah’s Rainbow Bridge National Monument at the foot of Navajo Mountain emphasizes the sacred character of the world’s largest natural bridge to the Navajo, Hopi and San Juan Southern Paiute, as well as environmental

concerns such as erosion, noise, trampling of vegetation, litter, graffiti and vandalism.

Sometimes tribes and greens litigate or lobby together. Meanwhile, the Sierra Club is promoting such alliances when preservation of sacred sites and preservation of natural resources serve overlapping purposes. The November-December 2002 issue of its magazine, *Sierra*, devoted two articles totaling 13 pages to the common ground between environmentalists and American Indians in protecting sacred sites.

TWO BATTLEFIELDS

In 2002, after eight years of litigation — and 19 years after the tribe submitted its formal land ownership claim to the U.S. Interior Department — the Sandia Pueblo accepted a proposed settlement that would give it varying degrees of control over land in Cibola National Forest. Their claim stems from a 1748 Spanish colonial land grant that ambiguously defined the eastern border of the pueblo near Sandia Mountain. The lawsuit alleged that Forest Service activity makes it “more difficult for the Sandia to worship in privacy” as tradition requires. U.S. District Judge Harold Greene weighed competing testimony about centuries-old documents and accepted the interpretation of a New Mexico historian retained by the tribe. As a result, he ordered the Forest Service to hand over the land, including the western face of the mountain. Negotiation and lobbying then began in earnest involving U.S. senators, pueblo and local officials, the major concessionaire and owners of adjacent homes. Congress enacted a settlement that the president signed in February 2003.

More than a half-day’s drive to the north, Devils Tower is regarded as a place of creation and religious practice by many American Indians, as well as a secular, athletic pilgrimage site for more than 6,000 climbers and an uncounted number of climber-watchers annually. Recognizing a conflict, the Park Service’s climbing management plan cites “the reverence many American Indians hold for Devils Tower as a sacred site” and asks visitors to “voluntarily refrain from climbing during the culturally significant month of June,” the month of the Sun Dance. The Park Service hopes to educate the public about the site’s sacred character so the number of climbers each June voluntarily drops to zero.

A users’ association, a commercial guiding service and recreational climbers sued the government to challenge the plan. The Cheyenne River Sioux Tribe intervened on the side of the Park Service; tribal, Christian and Jewish groups also backed the Park Service in friend-of-the-court briefs. U.S. District Judge William Downes and the 10th Circuit U.S. Court of Appeals upheld the voluntary policy.

continued on page 33 ►



Knight Center for Environmental Journalism

For Potential Students:

- Earn a journalism degree with an emphasis on the environment! Our program offers bachelor's, master's and Ph.D. degrees.
- Listen to reknowned environmental journalists speak.
- Participate in workshops and other programs designed just for environmental journalism students.

For Environmental Journalists:

- MSU's Knight Center is the North American headquarters of the International Federation of Environmental Journalists.
- The next Great Lakes Environmental Journalism Training Institute is scheduled to be held in June 2004.
- MSU's Knight Center is home of the Meeman Archives, a collection of environmental journalism published in the last 20 years.

Visit our Web site at environmental.jrn.msu.edu for more information or contact Barb Miller at (517) 432-1415 or mille384@msu.edu.

Photos from top to bottom:

1. Jim Detjen (center) with environmental journalists at the International Federation of Environmental Journalists 1998 Annual Conference in Sri Lanka. 2. Great Lakes Environmental Journalism Training Insitute participants enjoy a tour of the National Oceanographic and Atmospheric Administration. 3. A NOAA scientist shows journalists invasive species observation techniques. 4. At the 2000 Society of Environmental Journalists Conference, students buried a time capsule containing items popular at the time. The capsule will be opened in 2050.

For more information on the environmental journalism program or to subscribe to EJ, complete the following form and send it to: Barb Miller, 382 Communication Arts Building, Michigan State University, East Lansing, MI 48824-1212.

Name: _____

Address: _____

City/State/ZIP: _____

Phone: _____ E-mail: _____

Affiliation: _____

FROM THE COVER

The forgotten environmental stories

A DAM DILEMMA

Manitoba Hydro's promise to the Pimicikamak First Cree Nation
By Debbie Munson

SUSPIRO DE VIDA

Air pollution problems in the Mexico City Metropolitan Area
By Susana Guzman

FROM THE MORGUE

Top environmental stories of the past 100 years
By Corbin Sullivan and Alex Nixon

INTERSECTION OF SPECIES

Continued urban sprawl and city animal adaptation
By Corbin Sullivan



10 PAGES OF COVERAGE



Manitoba Hydro's Lake Winnipeg project, begun in the late 1960s, promised to be both an engineering marvel and a economic benefit to the surrounding Cree First Nations. Instead, Pimicikamak Vice Chief William Osborne says it has introduced environmental and cultural harms to his people.

A DAM DILEMMA

BY DEBBIE MUNSON

For William Osborne, the hardest part of the day is telling his children they have something to hope for. "As a father and leader, it's very difficult for me to promise them there is a future, that there is hope. I feel like I am lying to them and I know it's hard for them to believe me," Osborne, 44, said of both his familial and official duties as Vice Chief of the Pimicikamak Cree Nation in Northern Manitoba. The Pimicikamak — pronounced *pima-Chick-a-mack* — traditionally have called the village of Cross Lake, and the surrounding miles of boreal forest, home. Osborne's dilemma comes from his desire to see his children, and now grandchildren, benefit from life more than he did. In Cross Lake, that has become an increasingly difficult thing to guarantee.

When Osborne was only 20 years old, the land he calls Mother Earth underwent a dramatic change. Twenty-five years later, he is still waiting to see the benefits of a hydroelectric project that was supposed to bring tangible rewards to his community.

In the late 1960s, Manitoba's province-owned energy utility, Manitoba Hydro, began to develop a massive engineering feat — to divert 85 percent of the Churchill River's northern flow, joining it with the Nelson River to the south. The company then built a series of dams and generating stations along the Nelson from its head at Lake Winnipeg to its end at Hudson Bay.

Unlike typical hydro projects that flood deep mountain gorges or man-made reservoirs, water from the backed-up rivers spilled over onto 50,000 square miles of northern prairie and boreal forest, about one-quarter of Manitoba's total land area.

In addition to developing the Nelson, Manitoba Hydro also manipulated Lake Winnipeg's relationship with the river. The lake, which is the seventh largest freshwater lake in North America, became a holding tank for the re-engineered Nelson. During periods of high energy demand, a control station releases water into the river. When the demand is low, Lake Winnipeg's natural outflow is contained.

With energy demand typically highest during the winter months, Manitoba Hydro reversed the seasonal flows of Lake

Manitoba Hydro's wake

The 1977 Northern Flood Agreement promised protection and compensation for harms associated with hydro projects. Five First Nations, shown below, entered into the historic agreement.



Source: JustEnergy

Randy Yeip/EJ

“My people are starting to realize this isn't just about lights and warmth in the house. It's about the energy market. They are suffering so others can make money off of them.”

William Osbourne

Winnipeg and the Nelson, creating a power corridor that provides the entire province with electricity and then some; 40 percent of Manitoba Hydro's electricity is exported to utility companies in the United States at a price that Osborne says does not reflect the environmental costs involved.

“My people are starting to realize this isn't just about lights and warmth in the house. It's about the energy market,” he said. “They are suffering so others can make money off of them.”

LASTING IMPACT

The environmental and social impacts resulting from the large-scale hydro project are undeniable. The thousands of acres of trees and vegetation now underwater are rotting and emitting the greenhouse gases carbon dioxide and methane. Soil containing natural mercury has eroded into the rivers and lakes, contaminating water and fish supplies with toxic methyl mercury.

Habitat previously used for hunting and trapping is flooded or has been destroyed by fluctuating water levels. High water flows during the winter have made travel across ice dangerous and in some cases fatal.

Dead, floating trees extend hundreds of feet from the shoreline, making lake and river access difficult. And, according to Osborne, traditional burial grounds have been flooded, washing away the sacred remains. Osborne said he feels the subtle psychological impacts that affect his people's ability to simply survive. The unemployment rate in Cross Lake is more than 85 percent, with most families relying on welfare checks for a monthly income. The community suffers from some of the highest alcoholism and suicide rates in the country.

“Water is the key to life, it doesn't matter who you are,” Osborne said. “It affects everything: the survival of the people, the environment, the whole nation.”

TRIBAL STRIFE

At the heart of Cross Lake's trouble is a document known as the NFA, the Northern Flood Agreement of 1977. Regarded by the

Pimicikamak as an official treaty, the NFA was signed by Canada, Manitoba, and Manitoba Hydro — known as the “Crown Parties” — and five Cree First Nation communities, including the Pimicikamak of Cross Lake.

The NFA was designed to provide the five First Nation parties protection from the environmental and social harms associated with hydro projects. It also gave the affected parties the legal right to expect the mitigation and remedy of unavoidable impacts, like flooding and habitat destruction.

The agreement may be broad in scope, but it does state three specific goals and promises, including the guaranteed replacement of every flooded acre with four acres of undamaged land. The agreement also provided for the monetary compensation of lost hunting, fishing and trapping profits and the eradication of mass poverty and unemployment in the affected communities.

“This agreement is one of a kind, there is nothing like it in the world,” Osborne said. “But the three major issues have not been resolved and my people have been waiting patiently for 25 years. My people have died waiting to see the benefits of the NFA.”

Manitoba Hydro maintains that the NFA has successfully provided for impacts related to the hydro project. Company documents state that more than \$50 million has been spent on Cross Lake programs and mitigation alone, and that 3,279 loss and damages claims filed by community members have been settled.

“We feel we have dealt fairly with Cross Lake. We have tried to compensate for any changes caused by the project, but people tend to be idealistic about the majesty of cultures built on living off the land,” said Glenn Schneider, spokesperson for Manitoba Hydro.

Schneider said that the general public doesn't have much knowledge about northern Manitoba and that there is a 30-year history that needs to be closely examined.

“We understand why people are sympathetic, and we realize that there certainly were impacts on the communities. But the effects on wildlife tend to be temporary. ▶

The animals don't sit there and drown when the water levels rise. They adapt," he said.

Schneider also said that the Pimicikamak were compensated for the relocation of traplines, although he held that hunting and trapping difficulties are not at the root of economic woes in Cross Lake.

"Fishing and trapping are not sufficient for the modern lifestyle that the Pimicikamak want and deserve," Schneider said. "But they will have to go to the federal government for help with social issues like unemployment and poverty. Other aboriginal communities in northern Manitoba have the same problems, even where the environment has not been impacted."

Kate Kempton, legal counsel to the Pimicikamak, says this is just a corporate excuse for adding to the historical disadvantage of aboriginal communities in the region.

The province-owned utility was not required to conduct an environmental assessment of northern Manitoba before beginning construction of the hydro project. The environmental regulations that exist today did not apply to Manitoba Hydro's developments in the 1970s. The baseline data that would have been collected in an environmental survey does not exist, putting the Pimicikamak at a major disadvantage when they file NFA claims. It also affects the ease with which utility companies in the United States can import Manitoba Hydro's electricity, because documentation of the environmental, social and economic costs is not available.

The re-engineering of the Nelson River took place at a time when American's were becoming more aware of the potential environmental harms associated with hydroelectric power.

"There is no doubt that construction of dams in the United States had devastating effects on top species in the Colorado and Columbia rivers. But on the Nelson, and in Cross Lake, the top species at risk is people," said Dr. Steve Hoffman, professor of political science and environmental studies at the University of St. Thomas in St. Paul, Minn.

Hoffman, author of the 2002 report "Powering Injustice: Hydroelectric Development in Northern Manitoba," also serves as an adviser to the St. Paul-based public interest group Minnesotans for an Energy-Efficient Economy, known as ME3.

"There truly is a cultural void when tribal leaders are talking about solving a problem in the abstract and the company talks in western economic terms," he said. "The history and way of life of the Pimicikamak is completely unknowable to the company."

TO THE COURTS

Last December, the Pimicikamak took their cause to the United States, requesting a

"There truly is a cultural void when tribal leaders are talking about solving a problem in the abstract and the company talks in western economic terms. The history and way of life of the Pimicikamak is completely unknowable to the company."

Dr. Steve Hoffman,
University of St. Thomas

contested case hearing in front of the Minnesota Public Utilities Commission. A hearing of this sort is a fact-building procedure in front of an administrative judge, who then reports any recommendations to the PUC. The timing of the Pimicikamak request came as Minneapolis-based Xcel Energy was finalizing a 10-year, 500 megawatt energy trade agreement with Manitoba Hydro. According to state law, it is the responsibility of the PUC to consider the environmental, social and economic costs associated with the importation of energy.

Xcel Energy, formed by a 2000 merger of Denver-based New Century Energies with Minnesota's Northern States Power Company, estimates that 12 percent of its energy is purchased from Manitoba Hydro. According to a company spokesperson, the imported energy serves customers in five of Xcel's 12 midwestern states: Minnesota, North Dakota, South Dakota, Wisconsin and Michigan's Upper Peninsula.

On Dec. 19, the Minnesota PUC denied the Pimicikamak Cree Nation's request for a hearing and approved the new trade agreement between Xcel and Manitoba Hydro. In the unanimous decision, the PUC noted that the dispute should be handled by Manitoba and the Canadian government, through implementation of the Northern Flood Agreement.

"There is a flaw in the PUC regulations,"



Pimicikamak lawyer Kate Kempton said about the decision. "The impacts of hydro projects are not well understood or taken into consideration. The PUC looks at things like air emissions from coal, instead of the damages of hydro development on watersheds, forests, shorelines and entire ecosystems."

But Xcel Energy says the obvious benefits of hydro power are being overlooked.

"Having the trade agreement between Xcel and Manitoba Hydro has made it possible to avoid building a new coal plant here in Minnesota," said Ed Legge, company spokesperson. Legge said the PUC demands Xcel to balance power production and purchases on a three-legged stool of affordability, reliability and environmental responsibility.

"If we didn't purchase the energy, the environmental impacts would still continue," he said. "The energy will just be sold to someone else and in the end could be sold to Xcel through a third party."

Ken Bradley, coordinator of the Just Energy campaign — part of Minnesotans for an Energy-Efficient Economy — says that type of reasoning is ridiculous.

"Does that mean we should be able to buy crack, because if we don't the dealer will just sell it elsewhere?" Bradley said. "No, that still doesn't make it right to buy it, or to sell it for that matter."

Bradley is working to bring a fact-finding



The environmental consequences of Manitoba Hydro's Lake Winnipeg project are evident in fluctuating water levels, as rivers and lakes alternately flood or dry up (left). The company's dams are blamed for the erosion of thousands of miles of shoreline, where debris often collects (right).



Photos courtesy of JustEnergy

delegation to Cross Lake. He said the delegation will attempt what the PUC refused to do in December: to gather the facts and conduct a comprehensive environmental impact statement about hydroelectric projects in northern Manitoba.

"The general public needs to be educated about the effects of hydro power, and about the possibilities of sustainable, clean energy like wind. Any changes by Xcel at this point will have to come from a consumer driven campaign," Bradley said.

WAITING FOR THE WINDFALL

While Bradley's Just Energy campaign attempts to educate the public, the residents at Cross Lake are still searching for a way to receive the benefits they have been waiting for since 1977.

When the NFA was signed, five Cree Nations were involved. Now, four of those nations have entered into Master Implementation Agreements with Manitoba Hydro, plans the Pimicikamak call "buy-out agreements." Critics of the agreements see them as a way for Manitoba Hydro to get the Cree out of the way, once and for all.

"These are short-term contracts that are capped," said lawyer Kate Kempton. Once an implementation agreement is signed, she said, the community cannot expect anything more from Manitoba Hydro. A lump sum of

cash is paid to the Cree Nation and any legal rights that the Northern Flood Agreement guaranteed become void.

"The Pimicikamak have resisted entering into a buy-out agreement because they regard the NFA as a treaty," Kempton said. "Treaties are the basis of their culture, they are seen as an ongoing relationship of respect. They do not see this as a disagreement that has to be solved, but as an agreement made in good faith by all parties."

Osborne says the Pimicikamak relationship with Manitoba Hydro is not based on money, but on respect for Mother Earth and the spirit of the NFA.

"Look at the recent war in Iraq and the devastation caused by bombing. That country will need rebuilding, not with a lump sum of money, but with a plan," Osborne said. "We have that plan in the NFA, and eventually the Crown Parties will do what needs to be done."

RESOLUTION ON THE HORIZON

After years of public relations and legal battles — the most recent being the Minnesota PUC decision — Manitoba Hydro and the provincial government agreed to stop negotiating a possible implementation agreement for Cross Lake. Instead, last December — 25 years after the NFA was signed — the two Crown Parties and the

Pimicikamak entered a 15-month action plan. The plan, which began Jan. 1, will begin to administer the promises Cross Lake residents have been waiting for. As part of the PUC's decision, Xcel Energy will monitor the action plan and report to the commission on any developments.

Legal counsel Kate Kempton said she believes the new action plan is a positive development, but that much more is needed in the way of compensation, mitigation and remedies for the Pimicikamak.

"Twenty-five years of damage cannot be rectified in 15 months," she said.

The first step of the plan involves building a bridge that the Cross Lake community has requested for years. The bridge will be constructed across a waterway near the village where navigating the ice in winter is dangerous because water levels, related to the opening and closing of the Lake Winnipeg control structure, can change dramatically. The plan also calls for the clean up of debris and trees that are clogging waterways, and the implementation of community programs that support traditional activities like hunting, fishing and trapping.

"We are not going to give up, we will continue to hold the fire to their feet," Vice Chief Osborne said. "This plan just proves that you can eat an elephant. You just have to do it one bite at a time." 🐘

Air pollution in the Mexico City Metropolitan Area is among the worst in the world.
Can this growing metropolis escape the choke hold of pollutants
and rediscover the breath of life?



SUSPIRO DE VIDA

BY SUSANA GUZMAN

Mexico City Metropolitan Area is cleaner now than 10 years ago. But the nearly 3.5 million vehicles and thousands of industries that consume 40 million liters of fuel every day still make this urban area one of the most polluted in the world. The area includes Mexico City, 37 municipalities from the State of Mexico and one from Hidalgo.

Of the five criteria pollutants considered a human health risk — ozone, carbon monoxide, nitrogen oxide, lead and particulate matter — ozone and matter particulates are of major concern. These pollutants have shown a trend of stabilization. However, the ambient concentrations are high enough to be considered a health hazard for the 20 million inhabitants of the Mexico City Metropolitan Area.

Since 1988, the ozone standard has been exceeded by around 85 percent every year. The standard has been exceeded on more than 40 percent of the days since 1995, when monitoring began. (The exception was 1999, when just 10 percent of the days exceeded standards.) There are, however, some points of light in an otherwise dark history. Mexico has made gains in the battles against lead and sulfur dioxide.

“The presence of lead and sulfur dioxide have declined due to the changes in the composition of the gasoline, the reduction of the sulfur content of diesel, and the closing of the 18 de Marzo oil refinery,” explains Mario Molina, a 1995 Nobel laureate in chemistry. Carbon monoxide concentrations have also declined, after an aggressive program that began requiring catalytic converters on new automobiles.

In Mexico City, like many other polluted cities, the combustion processes of vehicles and industry are dirtying the air. In addition, small and medium-sized industries are a major source of pollution, while larger

Haazy metropolis

The Mexico City Metropolitan Area, a region of some 20 million people, encompasses Mexico City, 37 municipalities from the State of Mexico and one from Hidalgo.



Source: U.S. Department of Energy

Randy Yeip/EJ

Two cities battle air pollution

The Mexico City Metropolitan Area shares similar geographic qualities with the Los Angeles metropolitan area. However, the air pollution problem in the MCMA exceeds that of the South Coast Air Basin.

	Mexico City Metropolitan Area	South Coast Air Basin*
Population (2000)	18 million	15 million
Total area	5,300 km ²	27,800 km ²
Urbanized area	1,500 km ²	17,500 km ²
GDP per capita (U.S. dollars)	\$7,750	\$32,700
Fuel consumption (1999)	5.3 million liters/day	10 million liters/day
Vehicle fleet (1999)	3.2 million	9.3 million
Average vehicle age	10 years	10 years
Peak ozone concentration (1999)	321 ppbV ^(a)	176 ppbV
Peak PM ₁₀ ^(b) concentration (1999)	202 µm/m ³	139 µm/m ³

* Comprised of the non-Antelope Valley portion of Los Angeles County, Orange County, Riverside County and non-desert portion of San Bernardino County.

(a) ppbV=parts per billion by volume

(b) PM₁₀ is particulate matter (PM) with a mass median aerodynamic diameter less than 10 micrometers.

Source: U.S. Department of Energy

Randy Yeip/EJ

industries have implemented anti-pollution equipment to reduce their emissions.

The battle against pollution in Mexico has been waged through international cooperation, in which institutions like United Nations for Environmental Program, the World Bank or countries like the United States have been involved. Scientists and authorities from Los Angeles worked closely with Mexican authorities over a decade. Why? Because both urban areas share similar air quality problems.

MEXICO CITY AND LOS ANGELES

Mexico City and Los Angeles County are among the largest metropolitan areas in the world — 18 million and 15 million, respectively. They have similar pollution problems with pollutants like ozone and particulate matter. Similar geographic shapes — a valley surrounded by mountains — serve to trap the pollutants, adding to both cities’ problems.

However, despite the size of its vehicle fleet — 9.3 million, triple the Mexican fleet — the maximum levels of ozone in California has faded away to less than half of what they were in the 1950s. “Compared to Los Angeles, the MCMA is experiencing the levels of pollutants of the ‘70s,” says Molina. The result is that the air in Los Angeles is far cleaner than in Mexico City.

The air quality in Los Angeles has improved because there are not as many old cars as in Mexico and its emissions control programs have been effective. In Mexico, half of the vehicles are old and don’t meet modern emission standards, explains Molina. In addition, the lack of monetary resources in Mexico affects the anti-pollution programs. For instance, the GDP per capita in the U.S. was \$32,700 in

2000; in Mexico, it was \$7,750 during the same period.

HEALTH AT RISK

The major concern about air pollution is human health. It is the drive behind the environmental standards against air pollution.

“In susceptible populations, like cardiovascular patients, an excess of 500 deaths has been observed every year,” says Mauricio Hernandez, a researcher of the National Institute of Public Health. Concerned about the health impact, Hernandez believes health authorities have failed to pressure Mexico City authorities to clean the air.

“The ozone standard is violated every day in Mexico City,” says Hernandez. “Pollutants like ozone interfere with pulmonary development, a chronic health effect. The poor are more vulnerable to the pollution due to nutritional factors, such as the lack of vitamin C and E ingestion.”

HISTORICAL ASSESSMENT

In 1997, Mexican environmental authorities announced that Molina, a Mexican-American scientist, would lead an interdisciplinary study about air pollution in Mexico. Control pollution measures, programs and information available up to then would be analyzed for a dozen institutions and researchers from Mexico and the United States. The study represents an impartial effort to understand the causes of the pollution.

After five years of research, the project has provided two major results. “The first stage of the project was used for the Mexican government to formulate the PROAIRE 3, the governmental program to face the air pollution problem” for the next decade, says Molina.

A second result is a book titled *Air* ▶

Quality in the Mexico Megacity: An Integrated Assessment, published in 2002 and edited by Mario Molina and Luisa T. Molina, both experts from the Massachusetts Institute of Technology.

For Mario and Luisa, solving the air pollution problems is not a matter of science and technology by itself. A planned urbanization that guarantees the health of millions of residents should take into account the social and economical forces driving the pollution, and the will of their politicians.

For example, the minibuses have represented an important environmental problem. About 50 percent of Mexico City's residents use the 27,000 "micros" as their primary mode of transportation. "The minibuses should be cleaner," points out Molina. "If you see this from an integral approach, this system affects the transportation efficiency because it produces pollution and traffic at the same time."

Taxis are another example. Old car models run constantly along the roads to pick up customers. "It is important to have interaction with the taxi organizations in order for them to comply with the environmental standards," Molina said. "Taxis five years old should have been replaced, but it didn't happen due to the lack of resources. The authorities gave the taxis eight years more to replace them, but they didn't comply with the environmental standards either."

As a recommendation, Molina thinks that low-interest loans may be offered to the taxi owners. "We keep working, it is not sufficient to set standards," he said. "They should be realistic to comply with them."

In a second stage, researchers and authorities are assessing the costs of the measures, strategies and health to group them by priorities. "We need up-to-date information about the inventories," explains Molina. "We are figuring out how the pollutants are produced in the atmosphere and who is producing what, because the pollution inventories stem from estimations of how much pollution, for example, a vehicle can emit."

LONG WAY TO GO

The implementation of new technology, changes in the composition of the gasoline, as well as political decisions — like closing down the "18 de Marzo" refinery settled in the middle of the city — have reversed the trend of some primary pollutants, such as lead and sulfur dioxide.

"The concentrations of lead are not of public health concern any longer," Molina said. "As is the case in Los Angeles, the most significant progress for the MCMA has come from the use of new technologies and improved fuel quality that mitigate exhaust emissions from automobiles."

"Sulfur dioxide is now at relatively low levels, below the national standard," Molina continued. "Dust storms, frequent in the past, have been eliminated." Nevertheless, other pollutants like ozone, nitrogen oxides and particulate matter show little improvement.

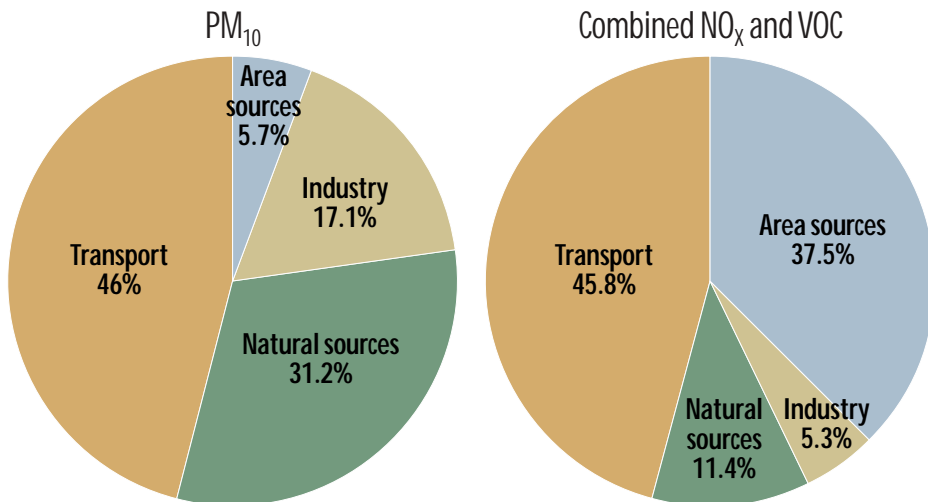
Even though scientists have assessed that some criteria pollutants have been declining over the past decade, they also warn that more effort needs to be made to avoid major environmental and health problems in the future. 🌍

"We keep working, it is not sufficient to set standards. They should be realistic to comply with them."

Mario Molina,
1995 Nobel laureate

Emissions inventory

Air pollution in the Mexico City Metropolitan Area comes from several sources. Here is the breakdown of pollution contributors. Oxides of nitrogen (NO_x) and volatile organic compounds (VOC) combine to form ozone air pollution.



*Industry" excludes heavy industry; "area sources" includes lubricant industry, solvent emissions, forest fires, services sector, and others; "transport" includes private vehicles, public transport, taxis and trucks; "natural sources" includes biogenic emissions and soil erosion. Source: Comision Ambiental Metropolitana on July 25, 2000



The winds around Mexico City swirl in the valley, making each day's pollution level uncertain. The top photo shows Mt. Iztaccihuatl and Mt. Popocatepetl on one of the clearer days in the valley. But as the pictures descend, so does the cloud of pollution that often blankets the city, making even the closest buildings hard to pick out.

Photos courtesy of www.sdg.ac.at/diplk/arsstudio/photo/mexico/gallery.htm

FROM THE MORGUE

EJ culled environmental journalism's archives for the hot stories of the past 100 years. What is the legacy of each in the present cultural landscape?

COMPILED BY CORBIN SULLIVAN AND ALEX NIXON

Passenger pigeon: U.S. Fish and Wildlife Service; Levittown: Library of Congress; Times Beach: Environmental Protection Agency; northern spotted owl: U.S. Fish and Wildlife Service



100 YEARS AGO PASSENGER PIGEONS

The Passenger Pigeon was more than a bird. It was an event.

When the massive flocks made their way across the country, people would peek out their windows, sit on rooftops with rifles or just cower inside as the multitudes darkened the sky. The Passenger Pigeon was once the most numerous bird species on earth, with numbers upwards of 5 billion.

Passenger Pigeons were gunned down with reckless abandon. The skies were so thick with them at some points that a rifle aimed blindly in the sky could bring down one, or even two birds. The phrase "stool pigeon" was coined by hunters who would capture a pigeon, nail its foot to a wooden stool and watch as its struggling brought the rest of the flock closer for the kill.

In one hunting competition, each hunter had to kill 30,000 birds to be considered for a prize.

The slaughter quickly took its toll. By 1896, only 250,000 pigeons remained in a single flock. In 1900, the last wild Passenger Pigeon was shot in Ohio, and the last captive pigeon died in 1914.

The Passenger Pigeon remains one of the few instances where the exact date of extinction is known. The irreversible tragedy invoked fear in society, giving it the realization of the permanent damage caused by unregulated harvest.



50 YEARS AGO URBAN SPRAWL

The end of World War II brought an immense housing crunch; there weren't enough open doors for returning soldiers and the families they were about to start.

William Levitt had the answer. He built "Island Trees," which later became Levittown. It was America's first suburb — rows of single-family, cookie-cutter houses built just outside New York City to accommodate a burgeoning population.

Levittown was a cultural phenomenon, doing away with the upper middle class standard of suburban living. Until the war, most who lived outside the city lived in custom-built homes, and they were appalled by the unfinished quality of the new suburbs. It was the right solution for the time, providing the "American dream" for families who depended on the city for their livelihood but didn't want to live there. It was also the beginning of one of today's hottest environmental topics: urban sprawl.

Combined with the increasing use of the automobile, the advent of suburbs kept cities expanding, making the city more important as a center of society. Wetlands, prairies and farm fields were plowed under to make room for the relentless expansion of suburbia.

Governments are beginning to heed the warnings of extinction and habitat destruction, but land use solutions are few and far between.



20 YEARS AGO SUPERFUND SITES

Superfund sounds like a promotion for an investment or a plot device for a spy movie. Maybe that's what Congress intended when it created a fund controlled by the Environmental Protection Agency for investigating and cleaning up thousands of contaminated sites.

Begun in 1980, the Superfund project was a response to "citizen concern" for the multitude of contaminated sites produced by careless chemical dumping. The Times Beach Superfund site near Eureka, Mo., was one of the largest and most publicized hazardous areas tackled by Superfund, an instigator for the legislation. The entire 500-acre area was evacuated and never resettled, though the Missouri Route 66 State Park now resides in the same area.

As of 2002, the Superfund program had investigated 44,700 potentially hazardous sites, and 74 percent of those have been made available for redevelopment. Though not a resounding success — more than half of the remaining sites were the most contaminated to start — it does show progress.

Superfund symbolized the realization that the environment could not be used without worry as a giant trash can. The EPA was not a mystical blue fairy that magically cured the dioxins and mercury deposits, but it took the initiative to ensure that the fairy wasn't the only alternative.



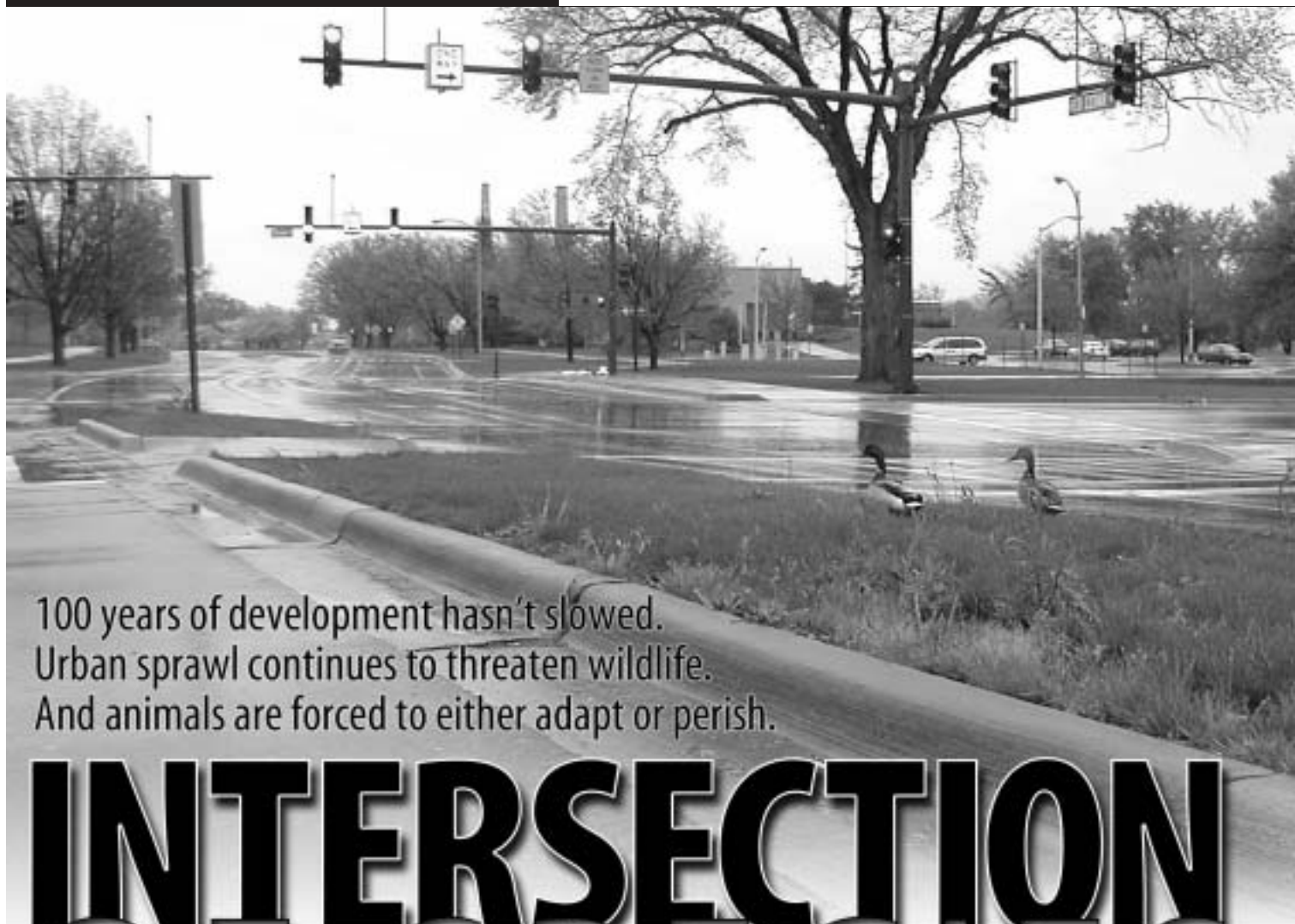
10 YEARS AGO THE SPOTTED OWL

In 1990, the northern spotted owl was declared "threatened" under the Endangered Species Act. Loggers in the Pacific Northwest were blamed for decimating the owl populations by cutting stands of old-growth forest.

The timber industry accused environmentalists of trying to put loggers out of business. Some estimates projected 28,000 lost jobs in the 1990s due to the owl's listing. Environmentalists said the owls needed the oldest trees to survive, and at the rate forests were being cut, all the trees might be gone in 20 years.

In 1992, critical habitat was designated for the northern spotted owl, listing the types of land that were needed for the owl to recover. But it wasn't until 1994 that any land was protected from logging. The Northwest Forest Plan ended the gridlock between the timber industry and environmentalists. The plan allowed timber sales from federal lands to resume, but at lower rates than the timber industry was used to. Roughly 80 percent of old-growth forests on 24.5 million acres of federal land would be protected.

The spotted owl population in the region continues to decline. By some estimates, there has been a 50 percent drop, prompting some to call for the owl to be listed as endangered. And competition for territory and food from the more aggressive barred owl may be forcing the spotted owl out of the forests.



100 years of development hasn't slowed.
Urban sprawl continues to threaten wildlife.
And animals are forced to either adapt or perish.

INTERSECTION OF SPECIES

PHOTOS AND STORY BY CORBIN SULLIVAN

Raccoons are capable of producing an uncannily convincing human banter while they mill about for food in the dead of night. It's an obvious quirk of evolution but has proven useful. In many parts of North America, the bandits of the animal world are almost entirely dependent on human refuse and the habitats created by urban sprawl for their way of life. While they're knocking over garbage cans in search of fast food leftovers, their guttural chirping noises can be misleading. I once woke to a raccoon cracking open a jar of Skippy, but before I left the tent to find it scurrying away, I was convinced it was the dirty children who were sleeping in the adjacent campsite.

While raccoons might be one of the most recognized of urban wildlife, they are not

alone. A host of other animals, including whitetail deer, opossums, squirrels, skunks and hundreds of bird species make the parks, sewers and trees of America's cities their homes. When people see these animals, they tend to view them as intruders into the human landscape, interlopers on land that is rightfully claimed and marked proudly by pavement and steel. It's the typical irony brought by human hypocrisy.

Though we as a species take pride in our ability to adapt, calling it one of our defining traits, we fail to recognize the same in the animals that have not only adapted to urban environments, but in most cases thrive. Disdain swells instead of pride when we step out our door and find a family of opossums playing dead or smell the thick

stench of skunk road-kill. The reality is these city animals are simply playing the hand humans dealt, and playing it well.

SPRAWLING AMERICA

Urban sprawl is an ever-growing concern in the United States, but not for a lack of land. A quick glance at a U.S. map shows that there is still far more undeveloped land in the vastness of America than the urbanized areas that are the epicenters for sprawl. The growing anxiety is more among environmentalists than developers. Worries of habitat destruction — losses of wetlands and forests — have environmental lobbyists pushing for smart land use decisions in every state in the union.

But animals like the raccoon and opossum would seem to discount their concerns. After

all, there weren't always humans to scavenge from. All the animals that now prosper in urban settings are also capable of surviving in the wilderness. There must be something that sets urban animals apart from the poor creatures that are driven further toward extinction with each new shopping center.

The main linking trait among most flourishing urban animals is that they are "opportunistic" species. Similar to the plants that pop up in bare plots of dirt or through sidewalk cracks, most city animals share the ability to succeed where others have failed. Many, such as the raccoon and opossum, are omnivores, so they have a virtually unlimited food supply that grows exponentially with the voluminous food waste produced by American society.

Simply being able to adapt would not be enough for some animals, since they are considered pests and would likely be exterminated if easily found. Fortunately for most urban wildlife, their waking hours come during the night. The raccoon, skunk and opossum are all nocturnal, so their forays into the parks and streets often go unnoticed. These animals also make their homes in the kinds of nooks and crannies that are provided by the overlooked aspects of human homes: attics, chimneys and under porches, houses and sheds.

Urban wildlife fit into the human world like pieces of a puzzle. Humans can't fill all the gaps, so the animals are the missing pieces. They take up the spaces and use the resources that are left behind.

LIVING IN DISHARMONY

Even with the apparent success of various species of urban wildlife, their relationship to humans is a relatively new phenomenon. The majority of America was settled only 200 years ago, and major urban centers hadn't reached all corners of the country until about 1900. The theory, according to The Fund for Animals, is that most urban wildlife was already existent in the areas that became cities, so instead of vacating, the animals found a new niche.

One imagines that most city animals went unnoticed during the massive urban growth of American cities. Dirt roads, horses, poor sewage systems and lack of street lighting were distractions from the scavengers that crept around at night. Even those that ventured during the day wouldn't have been as noticeable because of an integrated agricultural and urban environment. Cincinnati, known as "Porkopolis" in the late 1800s because of its pig processing industry, was teeming with pigs in yards, streets and sometimes in buildings. A raccoon would be a small worry next to herds of pigs roving the streets. But cities have modernized, and

the problems that come with urban wildlife have become more apparent.

Most city animal problems are actually selfish expectations on the part of people, considering we caused their inconvenience, but they are problems nonetheless. Raccoons, skunks and opossums are foragers and diggers, so they often damage gardens and lawns in search of food and shelter. Garbage cans are also an attractive food source, and an improperly sealed disposal bin can mean a waste strewn yard if urban animals catch its scent.



"Obviously one doesn't shoot squirrels in an urban backyard."

"Pest removal" post on Gardenweb.com

Deer are a less common urban animal, but they can also prove to be a nuisance. Whitetail deer are extremely populous throughout the middle part of the country, but are unable to make a home in the same kinds of human shelters that smaller animals can find. Instead, their inclusion as a city animal is more because of spillover from woodlands adjacent to urban areas. The deer feed on lawn grasses and garden vegetables, often destroying both, but they pose the biggest problem on the roads. While hitting a raccoon or a skunk with a car can be an unpleasant experience, hitting a deer can be a life-threatening event. States such as Wisconsin and Michigan have more than 40,000 deer-related accidents every year, according to their respective insurance information services. All told, deer cause more than \$665 million in auto damages each year in the United States.

Both deer and the smaller urban animals can present a risk for disease transmission

to humans and their livestock. Deer are sometimes carriers of bovine tuberculosis, a potentially devastating disease if introduced to cattle populations. Raccoons and skunks are both natural rabies carriers, so contact with domestic pets and humans could lead to passage of the disease.

DON'T SHOOT

Naturally, the reaction to urban wildlife problems is to seek ways to get rid of the animals. The first solution, more often than not, seems to be slaughter, but there are several reasons why this option is not entirely viable.

Frequent postings on Gardenweb.com ask for "pest removal" advice. Most mention the possibility of killing the animals, but as a post by a Seattle resident points out, dispensing with urban wildlife can be difficult: "Most of you folks who've battled squirrels with traps and assorted firearms sound like you're out in the country, rural areas. Obviously one doesn't shoot squirrels in an urban backyard."

Trapping can also be a problem, because there are plenty of pets that are just as likely to wander into the traps. For those who are more conscious of the animal's suffering, relocation is an option, but most animals don't fare well under the stress of transportation and new environments. Some may have been raised completely on the security and benefits of human surroundings and refuse, and may not have the ability to survive in the wild. Relocation is also expensive and inefficient.

The best remaining option for dealing with urban wildlife is to make it want to leave.

Arlington, Texas, has a fairly extensive program of public education that is aimed at helping people rid their property of pesky urban wildlife with non-traditional means. Instead of shooting or trapping, the city suggests removing attractants such as garbage cans and pet food that keep the animals interested in their property. Ammonia soaked rags and cayenne pepper stuffed in suspected hiding spots can also be a repellent, according to the Arlington Animal Services. For the less typical urban animals, such as deer, the Arlington program suggests planting foliage that isn't as appetizing to their palate. For those who would choose to disobey city gun laws, the animal services warn that shooting unwanted urban wildlife is only a temporary solution. More will always be there to take their place.

Urban dwelling animals likely will not go away. As long as there is trash to feed on, they will be there. Minimal efforts can ensure that they won't destroy property or terrorize pets, but the long-term goal is certainly not to rid cities of wildlife. Humans would do better to accept the animals that were there before them, as they have done in turn. 🌍

Apply now for the

SEVENTH GREAT LAKES ENVIRONMENTAL JOURNALISM TRAINING INSTITUTE

June 1–5, 2004 at Michigan State University



2003 class aboard the schooner Appledore

For information,
contact Barb Miller
at (517) 432-1415;
e-mail: mille384@msu.edu.

Or watch the Knight
Center Web page,
environmental.jrn.msu.edu,
for application materials and
deadlines.

Since 1996, more than 145 journalists from the United States and Canada have received fellowships to participate in this four-and-a-half day workshop. The institute has prompted dozens of stories while teaching the skills needed to cover complicated and controversial environmental issues.

- **“After 20 years in the business, I can honestly say the institute’s curriculum was the best of any training program I’ve been a part of.”**
Hugh McDiarmid Jr.,
Detroit Free Press



The institute covers the hottest environmental issues in the region, hones computer-assisted reporting skills and helps journalists hurdle roadblocks to information. And it does it with a unique blend of instruction from journalists, scientists and newsmakers. A popular feature is the institute’s emphasis on experiential learning.

- **“It was the perfect demonstration of why recreational land use conflicts exists. It taught an important lesson in an entertaining fashion.”**
Steve McKinley, a Toronto journalist

Journalists from the eight states bordering the Great Lakes and the Canadian province of Ontario are invited to apply. The fellowship pays for room and board, reading materials, computer training, tours and tuition. There is no cost to apply. Journalists selected to participate pay a \$75 registration fee and their travel to and from East Lansing, Mich.

Extended learning

Environmental Journalism Association to benefit undergraduates, *EJ* magazine

There's a new buzz going around the Communication Arts and Sciences Building this semester.

As with all good things, the expanding interest in the environmental journalism program at Michigan State University came with time. The latest byproduct of the program is the Environmental Journalism Association.

With its first meeting this fall, EJA is opening a new dimension to the Knight Center for Environmental Journalism. The center started in 1999, but until recently, it gathered most of its interest from graduate students at MSU. That's why EJA was founded.

The new student association fosters a feeling of community by getting people to meet each other and participate in a few environmentally-related activities over the course of the school year. Those could include field trips and service activities that help students get a better feel for the environment they want to report about.

The association is also designed to build a newsroom structure for the program's magazine, *EJ*. By bringing together writers, photographers and designers to brainstorm ideas for upcoming issues, everyone can feel like they are an integral part of the magazine throughout the production process.

Membership in EJA is open to MSU students in any discipline. Contact Corbin Sullivan at sulli234@msu.edu to get more information.

PROJECT EMPLOYS YELLOW BIKES IN AWARENESS CAMPAIGN

Whizzing across campus most days are students riding old bicycles that have been painted bright yellow. They are part of the "MSU Bike Project," an innovative effort aimed at saving energy, increasing exercise and improving air quality on campus.

The project was launched by the University Committee for a Sustainable Campus and is patterned after similar efforts in Portland, Ore., Madison, Wis., and other communities.

Earlier this year the Office of Campus Sustainability received a donation of old and abandoned bikes that had been found on campus and had been collected by MSU police. The bikes were refurbished, painted yellow and then distributed to interested faculty around the campus.

The Knight Center for Environmental Journalism oversees three of these bikes and makes them available at no cost to interested students and faculty.

"So far, we have had strong interest in this program, especially from international students," said Jim Detjen, director of the Knight Center for Environmental Journalism. "We have asked for additional bikes and will make

them available after we receive them."

People interested in getting bikes for their departments or volunteering to help get bikes in shape should contact Terry Link, director of the Office of Campus Sustainability, at (517) 355-1751 or link@msu.edu.

Students interested in borrowing bikes from the Knight Center should contact Barb Miller at (517) 432-1415 or mille384@msu.edu.

UNIVERSITY COMPILES FIRST CAMPUS SUSTAINABILITY REPORT

Each year Michigan State University sends enough material to landfills to cover a football field 18 feet high with debris.

In an average week, more than 50 percent of the MSU student body drinks little or no alcohol, while 22 percent report drinking three or more times a week.

MSU stores sell 140 million sheets of copy paper a year.

These statistics are taken from the Campus Sustainability Report, a 75-page document published in September by the Office of Campus Sustainability. The report brings together a wide range of data that profiles the campus's changing environmental, social and economic climate during the past 10 years.

Among its other findings are a 27 per-

cent increase in energy consumption, a 50 percent decrease in serious crime and a 138 percent increase in financial aid during the past decade.

The idea for the report began when the University Committee for a Sustainable Campus was formed in 1999.

"There was a need to provide a wide range of benchmarks against which change could be measured," said Pete Pasterz, manager of MSU's Office of Recycling and Waste Management and a member of UCSC.

To receive a copy of the report, visit www.ecofoot.msu.edu or contact Terry Link, director of the Office of Campus Sustainability and the principle author of the report, at link@msu.edu.



Photo courtesy of Student Greenhouse Project

STUDENTS SEEK FUNDING FOR BIODOME PROJECT

Michigan State University has expanded a good deal from its primarily agricultural roots. The nickname changed long ago from the "Aggies" to the Spartans, and one of the most watched projects on campus now is the particle accelerating Cyclotron. But a group of students is trying to resuscitate some of those agricultural roots in a more modern way.

The Student Greenhouse Project started in 1998 with the goal of bringing a year-round indoor representation of a tropical valley to the MSU campus. The garden, referred to as the Biodome, would be a replacement for the Botany greenhouse and butterfly house that was razed — amid much protest — in 1997.

If built, the Biodome would reside on the north side of campus behind the Student Services and Old Horticulture buildings. It would be open through the winter as a study area, a place for relaxation and a stage for small-scale performances such as plays and poetry readings.

The project is still short of funding, but the students continue to display their scale models at important campus events. Pictures and information are available on the Web at greenhouse2001.msu.edu.

Student's photo captures beauty of Red Cedar River, wins award



This photo, taken last fall by Michigan State University sophomore Christina Carels of Rochester, Mich., is a view of the Red Cedar River on the campus of MSU in East Lansing, Mich. Many students and community members view the river as being badly polluted. This image perpetuates attitudes and behaviors that result in significant littering and abuse. Water quality in the stream has improved to the point that it now supports diverse populations of pollution-intolerant fish and insect life. Carels' photo was awarded first place in a contest implemented by environmental student organizations and faculty to raise awareness about the river's beauty, hopefully resulting in protection and greater use of this wonderful resource. The award included a \$150 prize. The Resource Development Undergraduate Organization sponsored the contest and hopes to make this an annual event.

Photo and caption submitted by John L. Hesse, adjunct faculty, Department of Fisheries and Wildlife/Bailey Scholars.

WINNER OF THE 1995 NOBEL PRIZE IN CHEMISTRY



Mario J. Molina

will give the keynote address at a workshop for Mexican environmental journalists

January 14–16, 2004, in Mexico City, Mexico

For information:

Contact Barb Miller at mille384@msu.edu or 517-432-1415, or Jim Detjen at Detjen@msu.edu or (517) 353-9479.

Sponsored by:

- Knight Center for Environmental Journalism at Michigan State University
- International Center for Journalists
- Knight Center for the Americas at the University of Texas at Austin.

Professor Molina is the Institute Professor at the Massachusetts Institute of Technology. A native of Mexico City, he has spent the past 35 years researching the chemistry of the stratospheric ozone layer. In 1995 he was the co-winner of the Nobel Prize in Chemistry for his pioneering work in determining how man-made chemicals are causing the decay of the ozone layer.

This workshop will teach Mexican environmental journalists about air pollution, environmental journalism techniques, the new Mexican Freedom of Information law, computer-assisted reporting and a variety of environmental issues.

Sediment of lives

A camping trip to Bighorn Canyon provides a lesson in legacies

Photo courtesy of National Park Service

Bighorn Canyon National Recreation Area, which straddles parts of Wyoming and Montana, is home to the oldest known granite on earth.

During the re-construction of Wyoming's Route 14A, highway engineers received on-the-job climbing instruction from the National Outdoor Leadership School to help them remain safe while they cut the road through the harsh cliffs of the Bighorn Mountains.

The ancient mountain range, a massive arch of Precambrian granite, rises 13,000 feet above surrounding plains of sagebrush and grama and buffalo grass. To the west, the Bighorn River basin stretches flat and tan, bounded in the distance by the volcanic Absarokas. To the east, steep slopes cut with cliffs and canyons descend into Powder River country, a greener plain rolling toward a horizon hiding North Dakota's Black Hills.

The eight cylinders powering my 1972 Econoline roared through the damp air as I coasted at dawn down this eastern face in 2nd gear, engine compression slowing my descent. Before me, 14A slashed acute, north/south angles down the steep slope. A rising August sun flashed flat golden beams over my white knuckles, blinding me each time the camper rotated eastward around a switchback.

The Bighorns boast the oldest granite found on the face of the earth, formed of

magma that cooled deep within the lithosphere more than 2 billion years ago, then was forced upward sometime during the Mesozoic. The rising bedrock had thrust overlying sedimentary rock layers skyward, then split and bent them back upon themselves so that the oldest lay broken below the granite peaks and the youngest crumbled around their bases.

Some inspired geologist had prevailed upon the state highway commission to mark this inverted geologic timeline. As my camper struggled downward, the morning sun caught the reflective brown signs labeling the rock layers; Cambrian, Ordovician, Silurian, Devonian and Mississippian road cuts rolled past my open windows at a cautious 30 miles per hour.

The Ordovician layer, an ocean floor laid down 440 to 500 million years ago, contains the oldest vertebrate fossils known, jawless, armored fishes whose genetic sequences may still lie coded, in part, in our chromosomes.

• • •

The tiny town of Dayton, Wyo., lies waiting at the bottom of this long descent. I stopped at its diner to eat breakfast, to let the engine cool and to ask directions to the day's

destination: a nearby canyon on the Tongue River. The Tongue is a tributary of the Powder. It draws strength from melting snow and rain captured by headwaters high in the Bighorns east through the center of town.

Poking around, I found a potholed access road and followed the river upstream, returning toward the mountains up a deepening valley. The camper's aluminum siding scraped against thick, dusty bushes as I cranked the loose wheel to avoid the tire-puncturing edges of broken cobbles.

The canyon rose above my camper, watching as I rolled west. Layered rust and sienna cliffs rose on both sides of the river. Small bushes struggled to grip the motte-like scree below the steep walls. Stone barbicans with juniper finials guarded the access road.

I pulled the camper under some shade and bathed in the river to wash off the night's drive, then climbed into my bunk above the cab and took a nap.

• • •

I woke at noon to the strange song of a foreign language and stepped outside. A crumpled, two-door Oldsmobile was parked upstream, a small group of American Indians lounging around it. ▶

There were four. A slender, middle-aged woman sitting on the dented hood wore glasses, dirty lenses in thick plastic frames. Her shoulders hunched as she stared at the river. The tips of her ears poked through the bangs of her dull hair.

A wiry teenage boy stood beside her. His eyes darted around the canyon, dark and birdlike. Three cans of Pabst dangled from plastic rings twined in his fingers.

Opposite from me a heavy shape sat in the passenger seat, a man I couldn't see well. Only the top and back of his head and the thick meat of his shoulder showed around the reclining velour.

The fourth, and last, stood silent, apart from the others. He was huge, six-and-a-half feet of thick muscle with two black braids, a broken nose and no shirt. Horizontal Sun Dance scars slashed livid bars across his bulging pectoral muscles.

I must have been staring. He sauntered over, splashing Vodka from a plastic bottle of Stolichnaya into a 32-ounce gas station soda cup. The large red and white plastic cup looked small in his massive hand.

"I'm a kindergarten teacher," he said, flatly. "I just got out of prison." He looked at me, evaluating. "Got any food?" he asked.

I told him I was out and, afraid he might think I was lying, invited him into the camper to prove it, showing him its empty dust-covered cupboards. I pulled the peanut butter jar from under a pile of fly-fishing magazines on the counter and offered him a scoop.

He looked disdainfully at my dirty spoon, then sat down on the camper's pullout couch to sip his Stoli and gazed out the window, falling silent. Not knowing what else to do, I sat there with him. To kill the uneasy silence, I picked up a book and pretended to read, keeping watch out of the corner of my eye, but a few minutes later, when the woman and the skinny teenager came looking for their friend I abandoned the pretense, put the book down and we all sat in the camper together, staring at each other and out the door at the cliffs above.

They were Crow, from a reservation north of the Bighorns in Montana. I learned this from the boy, who talked a lot. He asked me for food and for money and for marijuana, but I had none, so he asked what I was reading, what it was about and if I was in college. He had recently returned from Los Angeles and his gaze shifted between his two friends as he bragged of drugs and schools and jails.

As the boy ran out of stories, quiet descended. Uncertainty and road dust settled through the tense air so that when the big warrior spoke up, breaking a thousand-yard stare to point up at a large arch topping one of the canyon's stone towers, I jumped.

"I brought my brother here to see that big

I wanted to tell her what I thought I knew, of the unity of man and nature through evolution, of the disconnect, the arrogance, generated by relying on the supernatural to explain creation, but sitting there watched by the man with those thick scars on his chest I felt shallow, lost in a tiny present.

hole," he said. "Him," he nodded with authority toward the Olds where the other Indian hadn't moved. "Someday I will climb with him and sit with him up there and watch the sun rise." As he spoke, I could see expectation lighting his battered face, perhaps from imagining the glory of climbing and conquering the arch-topped spire, then it passed and he fell silent again.

The woman watched him speak, then looked at the cliff where he pointed. A sad expression drew her forehead together and she spoke for the first time. "Why is it like this?" she asked, plaintively. When her mouth opened, I could see her tongue struggling in the gaps left by missing teeth. "This canyon...." She trailed off to gesture helplessly up at the sheared rock cliffs and asked me how I thought they had been created, as if my comments might help her work through their place in her modern life. We talked, and from our conversation I gathered the canyon had once been somehow sacred to her people. In her words I could feel the conflict, the rift between Crow culture and a Christianity that had forced its way into her life.

I wanted to tell her what I thought I knew, of the unity of man and nature through evolution, of the disconnect, the arrogance, generated by relying on the supernatural to explain creation, but sitting there watched by the man with those thick scars on his chest I felt shallow, lost in a tiny present.

The Sun Dance is an ancient plains tribe festival, held on the summer solstice, during which the bravest young men allow skewers of bone to be thrust through the skin of their chests, then tied to rawhide ropes hung over high tent poles. The ropes are drawn taught until these "dancers" lift from the ground, hanging in pain for days until the bone skewers rip from their flesh. Their sacrifice is considered a great honor; their pain and release symbolize the cycle of life and death.

• • •

The three left eventually, their curiosity in the dirty white boy with his books satisfied. I had become accustomed to their presence by then, so when the big one's brother stumbled to the door I was not, at first, as nervous.

He was obviously younger, also tall, but not muscular, just padded with that sweaty fat that comes from drinking too much. His round scalp glistened underneath the in-

long black stubble of a ragged buzz cut.

Swaying in the doorway, both hands grasping the sills for balance, he blinked at me through fumes rising from vomit stains on his shapeless gray shirt, then reached down to the ground to pick up a large rock. He held it for a moment, weighing a granite cobble broken from the exposed bedrock and rounded by floodwaters from the nearby river, then handed it to me.

I took the rock, but not knowing what he wanted, dropped it. It bounced down the camper's yellow linoleum steps to thunk into the sandy road at his feet. He watched dust puff from the impact, then picked it up again and thrust it back aggressively, with a drunk's blind insistence. I shook my head, confused and growing uneasy.

Frustrated, he started to speak, then stopped and instead grabbed my wrist, this time placing the rock clumsily in my hand and curling my digits around it with his own sweating fingers. Then he leaned forward, bowing through the doorway. Turning his head sideways to blink up at me from his left eye, he spoke. "Crush my skull," he said, pantomiming. His meaty fist thumped loosely against his scalp.

Blood rushed to my face and goose bumps sprouted along my scalp. There was a deadness in his gaze, a blank stare that made me think of crypts, of depthless holes, and I felt sick. I tossed the rock past him onto the road, and when he went after it, shut and locked the camper door, my hands shaking.

I saw him later through the window as he wobbled out of the nearby outhouse, a dark stain spreading from the crotch of his faded jeans, and I decided to leave early. Yet, as I started the camper, the woman walked over and leaned into my open window, then held out a handful of change.

"You have less than us," she said. "Go buy some food."

"You better take it, college boy," the Sun Dance warrior called out from where he lay on the grass next to their car, staring up at the clouds. "She'll be offended."

• • •

We're connected, the dead and the living. Our sins and our victories form the earth's uppermost crust, a sediment of lives that will someday be thrust upward, exposed like Ordovician sandstone. As that guarded canyon haunted those four Crow, our own

Wolverine: Continued from page 7

crumbled remains will haunt our children. What lessons will they learn? The past is a fertile soil.

• • •

A few years after visiting the Bighorns, I found an arrowhead on Michigan's Keweenaw Peninsula, near a Lake Superior beach.

A friend and I were returning from a late October exploration of the peninsula's southern shoreline, taken in brightly colored kayaks rented from an outfitter in Copper Harbor. The last night out we had camped next to a fall that poured water golden with tannic decay down a stair of dark basalt directly into the lake. Blue and gold had mixed as the plunging river displaced the frigid waves.

The campsite, a carbonized swath of compact dirt, was well used, trampled but clean. Only a few small shards of broken glass glistened in the fire pit at its center. It was an ideal spot. Fine fishing by the falls, flat ground for the tent, low bushes blocking the wind.

Others before me thought so as well. That last morning, as I had walked a narrow, eroding path to the water to wash my pot after cooking, my eye somehow focused on a small white triangle jumbled in the dirt and I reached down to pick up a perfect late woodland point, meticulously chipped from quartzite, a metamorphic sandstone.

Later that evening we took off for home from Houghton Airport in my friend's single engine plane, a red and white Piper Cherokee. A strong crosswind jostled our ascent as the falling sun shone underneath dropping cloud cover. The trees below had peaked during our trip and now, lit at a low angle, they flamed with color — orange, scarlet and yellow leaves catching the sunset and casting it upwards against and above the rising plane's white wings. The painted light illuminated dark tendrils of water vapor swirling down from the low clouds. Looking down at the receding colors, I couldn't stop thinking of that eroding beach campsite, and wondered if the one who had lost his point there once carried his own Sun Dance scars.

Author's note: Based on linguistic evidence, ethnohistorians believe a westward migration of Paleo-Indians from the upper Great Lakes region that occurred during the late woodland period (1200-800 B.C.) included the tribe that spawned the Crow.

13,000 tons of soil and creek sediment had been removed from the site. Most of the residents had returned to their homes, and testing on air and water quality by the DEQ had been completed. But at least one resident reported that after digging a shovel into the bank of the creek in his back yard, a pool of rainbow-colored water seeped up from the ground — remnants of the gasoline spill.

Many of the long-term effects of the massive spill are yet to be determined. The pipeline company paid to have all the homes connected to municipal water because it still has not yet been determined whether gasoline reached underground water that supplied the residential wells.

As far as the state is concerned, there are two outstanding issues in the cleanup: Significant amounts of gasoline remain in the wetlands, which the company wants to allow to evaporate, and some may have worked its way into the groundwater.

"There was never an opportunity to flush the gasoline from the wetlands and the contractors were not able to capture much of it," Sygo said. "We've allowed them to let it degrade as long as the water isn't moving. We are still watching that process closely."

Sygo said hydrogeological studies have shown so far that heavy clays above the water table have protected the groundwater. But the state is continuing to monitor that as well.

The cause has now been attributed to a 20 3/4-inch long fracture in a weld of a stopple valve in the pipeline. Wolverine Pipe Line spokesman Ron Embry said the weld was about 20 to 25 years old. The company has inspected the length of the pipeline from Detroit to Chicago and found four other welds that were at least as old. The welds had not been inspected since they were installed. By the end of the summer of 2000, Wolverine had again halted its gas supply and shut down the pipeline to repair those welds.

"We wanted to make sure we could trust the integrity of the steel along the pipeline," said Embry.

ENVIRONMENTAL IMPACTS

When the valve on the underground pipe ruptured, gasoline bubbled up from the ground, into a culvert and straight on to a creek that drains into the Grand River.

The creek also abuts a wildlife sanctuary operated by the Grand River Environmental Action Team (GREAT), a nonprofit environmental group.

Tests in the months following the spill revealed gasoline compounds of ethylbenzene and xylene at above-acceptable levels in the sediments surrounding the spill area.

To this day, families near the spill report that gasoline continues to reappear on their property. However, Wolverine, which has spent around \$10 million on clean-up, feels its part in

the clean up is nearly complete.

"The remediation work is essentially complete except in the immediate area along the railroad tracks adjacent to the terminal," Embry said.

The company plans to let the remaining gasoline disperse through the natural filtration processes of the wetlands in which it spilled.

Environmental officials have signed off on this plan, as long as continued monitoring assures that water in the wetlands is standing and not traveling into a creek or river. But the process will take years to dissipate the gasoline components.

"In the wetlands, it wouldn't surprise me if there were still measurable levels of gasoline today and in the future," Sygo said.

GREAT is continuing to negotiate with Wolverine on the impacts to its wildlife sanctuary. The group wants the company to pay for replacing plants and trees destroyed by the spill. It also wants the waterline to be extended to its property to allow for canoe expeditions.

Wolverine has given a \$2,000 donation to the group's annual Grand River clean-up project and agreed to pay for new plantings along the creek.

But questions still remain about the impact on wildlife and aquatic life. Studies by GREAT have not been completed.

THE SPARTAN PROJECT

Based in Houston, Wolverine Pipe Line Co. operates 1,100 miles of pipeline throughout the Midwest. It has created a network of pipelines that supply Michigan with a significant amount of gasoline. Its underground pipe system originates in Joliet, Ill., and continues through Michigan to Detroit. Spurs of the system carry fuel to Muskegon, Lansing, Bay City and Monroe.

Just two months before the spill, Wolverine had filed a request with the state to expand its pipeline system in Michigan. Dubbed the Spartan Project, the plan was to construct a 12- and 16-inch diameter pipeline system through Jackson, Ingham and Clinton counties.

Originally, the company wanted to travel straight north along U.S. 127, taking it through East Lansing. Following objections of the residents, the company has now created an alternative route to take the pipeline along the I-96 corridor south of Lansing and then north through communities on the west side of Ingham County to the Lansing Terminal.

The Michigan State Public Service Commission approved the alternative route in March 2001. Despite local opposition, all the townships along the alternate route have approved the plans, said Summer Peake, local spokeswoman for the Spartan Project. The city of Lansing is continuing to fight the public service commission's ruling, but the company hopes to begin construction this summer.

The pipeline is expected to be complete and operating by 2004.

Erie: Continued from page 8

"Phosphorus is more effective in not clogging machines, which is what they found in Europe," he said.

"We represent a company that doesn't use phosphorus in its detergent. But the detergent is more expensive," Griesing said. "That type of company doesn't make up a half-percent of market share. The consumers have shown what they want."

Dave Dolan, a professor of natural and applied sciences at the University of Wisconsin-Green Bay, said he supports any bill that would restrict phosphorus in dishwashing detergent. But he said the biggest part of the problem is the way agricultural land is treated. Dolan worked as a data analyst for the International Joint Commission for 13 years and tracked the amount of phosphorus loadings entering the Great Lakes.

"I think regulating automatic-dishwashing detergent is important," he said. "You don't want to leave any source uncontrolled. I agree with more control, but agriculture is the biggest problem. Right now limiting phosphorus in agriculture is voluntary. It's voluntary such as in manure spreading. There's supposed to be a limited amount farmers put on fields, but no one monitors it."

"There is phosphorus in fertilizer, and it's uncontrolled," he said. "The agricultural influence on the lakes goes up and down. Rain brings phosphorus levels up."

Phosphorus levels in Lake Erie have been rising since 1995. Scientists say if this continues for another three years, Lake Erie could face the same problems it did in the 1970s.

Currently, the EPA is funding a two-year, \$2 million study on Lake Erie.

Unearthed: Continued from page 9

In February, Congress passed, and President Bush signed, the Omnibus Spending Bill for 2003, which will provide a total of \$5 million in matching funds to school districts to begin retrofitting diesel-powered buses with emissions control equipment.

Though important, that's a drop in the bucket.

In the absence of money for new natural gas buses (which cost an extra \$30,000) or particle traps (an estimated \$5,000 each), clean school bus activists are focusing attention on some relatively cost-free remedies, like no-idling policies. The EPA joined the effort and produced an excellent information Web site, "Clean School Bus USA," which provides an excellent primer on the issues as well as offering information about grants.

The UCS only graded six states and the District of Columbia as "ahead of the curve," 23 states as "middle of the road," 19 states as "behind the curve" and two states — Washington and California — as flunking out altogether.

"It's been patchy," said Solomon. "In some places across the country, school districts jump to attention when local parents and activist groups get involved. In other places nothing much is happening."

Michigan is rated as "middle of the road," but there are several important institutions that are silent on the issue. For example, the Michigan Education Association, which represents many teachers and school bus drivers, has no policy on the issue. Instead, they have a blanket statement: "The Association believes that school personnel, students and their families should be notified of potential hazards and the action plan for corrections. ... The Association further believes that affected local districts have a responsibility to post immediate notice of these hazards through the public media." No one has applied that statement to diesel issues to this point.

The Mid-Michigan Asthma Coalition makes no mention of the issue in their education and outreach. Nor does the Lansing School District, which has 79 diesel buses.

"We aren't set up for natural gas," said Nathan Rowen, director of transportation services for the district. Rowen says that no citizen's group has approached him on the diesel issue. He said he is open to using the best technology, but notes that the district is in a budget crisis.

The nearby St. Johns school district has turned to biodiesel, which releases less harmful emissions, but Rowen said this would be difficult for Lansing because, among other reasons, "there is no electrical outlet for this." However, he said "at this point there is a grant for biodiesel available, but it is only for a year."

In other areas of Michigan, things are improving. *The Detroit News* reported in May

that "the state Department of Management and Budget ... buys about 265,000 gallons of a biodiesel blend for 120 trucks to help meet federal requirements for alternative fuel use." And several other districts are turning to biodiesel.

In what may turn out to be the most significant initiative, four environmental groups have begun a clean school bus campaign focusing on the greater Detroit area. The effort is spearheaded by the Michigan Environmental Council, the Ecology Center and the East Michigan Environmental Action Council.

One of the campaign's leaders is Elizabeth Harris, executive director of EMEAC. "Our goal is to work with school districts and others to do three things: reduce or stop idling near schools, help them apply for EPA money to retrofit buses and to encourage the use of low sulfur," she said.

"The issue will not go away," Solomon says. Indeed, it appears to be on a roll.

Physicians will soon dramatically increase their involvement. In October, the American Academy of Pediatrics released the second installment of "The Green Book," and will for the first time cover this issue.

"Most pediatricians would say this issue is very important," said Dr. Ruth Etzel, editor of the publication. "Diesel worsens asthma and is involved in new onset of asthma."

The ultimate goal is to clean up the trucking and off-road vehicle and construction industries, a far more formidable task.

In 2001, the Bush administration and trucking industry defeated an EPA clean air regulation that would have dramatically cut diesel pollution from new heavy-duty trucks and buses.

In April, then-EPA Director Christine Todd Whitman proposed ordering reductions of more than 90 percent in non-highway diesel engines. The order would have required makers of diesel-powered bulldozers, farm combines and other equipment not used on roadways to install modern emission controls between 2008 and 2014.

"This is perhaps the only good environmental proposal to come out of the Bush administration in two years," said Solomon.

But a month later, after a series of lost skirmishes — staged privately — with the White House, Whitman resigned.

It's a long fight to better protect our children's health.

Still, with all the progress mounted by various clean school bus initiatives, I feel less fatalistic about the future.

Someday the diesel movement will be strong enough to more effectively take on the "rolling smokestacks" of the trucking industry. It will join the hydrogen-car movement in helping to create greener roads across the country. And I'll be able to sit in traffic with a smile on my face — and the vents open.

Sacred: Continued from page 13

BALANCING COMPETING DEMANDS

Disputes about access or use of sacred sites mirror sometimes-competing, sometimes-incompatible demands from tribes, government, businesses interests, environmentalists, the tourism industry and recreational users such as climbers, hunters and campers. In dozens of ongoing and potential sacred site conflicts nationwide, a common question is whose preference counts and how much it counts in setting public policy.

It's largely been up to formal institutions of government — courts, Congress and state legislatures, and federal and state agencies — to answer that question. Attempts by all sides to secure an answer favorable to themselves have also involved informal activities to build public and political support.

Land ownership claims may be based on treaties, colonial and post-colonial documents, oral and written history and custom. To pursue such claims and to press for other measures to protect sacred sites, American Indian groups are using formal and informal rules to change the rules, including litigation, lobbying, rulemaking, negotiation and media coverage with varying success.

In response, government entities may reject or accept tribal claims in whole or in part. If ownership is transferred, tribes can exercise sovereignty over the land, including restricting non-members' access to sacred sites.

As an alternative, government may reject ownership demands but recognize cultural-religious claims. Resulting policies may include interpreting a site for non-American Indian visitors through signs, brochures and ranger presentations. Agencies also may decide against interpreting a sacred site — in other words, to avoid drawing visitors' attention to it — to prevent disrespectful behavior or physical damage. That happened in Minnesota's Chippewa National Forest, where the Forest Service removed an interpretive marker at Turtle Mound, a wooded place sacred to the Dakota and Chippewa, at the Leech Lake Tribal Council's request.

The voluntary ban on climbing in June at Devils Tower and a similar voluntary discouragement of climbing year-round at Cave Rock are administrative actions that are site-specific, meaning they apply only to an individual piece of public land. Similarly, Congress has legislatively protected cultural-religious assets at individual sites in the Southwest such as El Malpais National Monument and Grand Canyon National Park, and has legislatively guaranteed Hopi and Navajo access to and use of sacred sites.

However, the federal government has also taken steps to recognize sacred sites on a systematic basis. Congressional measures

include the American Indian Religious Freedom Act, the Religious Freedom Restoration Act and the Native American Graves and Repatriation Act. President Bill Clinton issued a 1996 executive order requiring agencies to accommodate ceremonial use of sites. Individual agencies can issue rules, such as one empowering the Bureau of Land Management to temporarily bar the general public from parts of wilderness areas "to protect the privacy of native people engaged in religious activities."

In the Sandia Mountain settlement, no side won everything and nobody lost everything when the government agreed to accommodate American Indian religious and cultural practices as an alternative to ceding ownership. The tribe failed to achieve its original proclaimed goal of ownership. But through compromise and negotiation, the tribe yielded its ownership claim in exchange for protecting sacred sites and discouraging incompatible competing uses, such as development.

Perhaps the tribe expected to win ownership, or perhaps the claim was intended as a tool to leverage a politically realistic and publicly palatable arrangement. Either way, the settlement guarantees free access for members of the Sandia Pueblo and other federally recognized tribes to a newly designated T'uf Shur Bien (Green-treed Mountain) Preservation Trust Area for religious and traditional uses. Other elements of the deal are designed to give the tribe veto power over any new uses of the wilderness.

ASSERTING COMPETING RIGHTS

It's expensive to press for ownership or restrictions on competing public uses of sacred sites. It may be a protracted process and raises questions of who pays and how much. There are legal fees and court expenses, of course. But the Sandia also retained an expert historian to interpret colonial documents, for example, and incurred travel costs including lobbying trips to Washington to testify at a Senate hearing and to negotiate the settlement.

Often, sites are sacred to many tribes. Even the name for Devils Tower differs among tribes of the Northern Plains: Mato Tipila (Bear Lodge) and He Hota Paha (Grey Horn Butte) to the Lakota; Bear's Tipi to the Arapaho; Bear's House to the Crow; and Tree Rock to the Kiowa.

One tribe generally pays most or all of the costs, although there may be financial or other contributions, such as legal services from pro bono groups. In the Devils Tower case the Indian Law Resource Center provided litigation support alongside tribal attorneys and private law firms. The center offers repre-

sentation to protect the rights, cultures and traditional lands of indigenous peoples. For instance, the Cheyenne River Sioux intervened in the suit between the climbers and the Park Service, while the Northern Arapaho, Sisseton-Wahpeton Sioux and Upper Sioux Indian Community filed friend-of-the-court briefs.

Interestingly, some conflicting uses of sacred sites can be viewed as based in customs and traditions as well, although not with as deep a heritage. While tribal interests — demonstrated by pilgrimages, legends and rituals — are easily categorized as customs, climbers can be seen as practicing customs too. "Climbing at Devils Tower National Monument has roughly a 100-year history. Today, climbers are 'part of a monument culture' and the National Park Service recognizes climbing as an historical activity at the monument," commentator Charlton Bonham notes, adding that, "to be fair, not all climbers disrespect Native American practices at the monument."

Opposition to restricted access to sacred sites may reflect economics because recreational activities support local businesses, fill motel rooms and restaurants, create jobs and produce sales tax revenue. Restraints on public activities may cause management and enforcement headaches, spark public criticism of the land agencies and cut income for those agencies from admissions, campgrounds and concession fees.

These disputes also may attract involvement on more philosophical and political grounds from environmentalists, religious freedom groups, property rights advocates and opponents of government land ownership. Religious-affiliated organizations participated as friends of the court in the Devils Tower litigation, siding with the Park Service and Cheyenne River Sioux. They disputed the climbers' argument that the voluntary no-climbing policy unconstitutionally supports religion in violation of the First Amendment.

Non-governmental, non-tribal interests also may face problems in paying for litigation, lobbying and rulemaking. As one solution, they too may find pro bono lawyers. In the Devils Tower case and in a separate suit over a voluntary policy that discourages non-Indians from walking under Rainbow Bridge, pro-access forces were represented in part by Mountain States Legal Foundation. That pro bono organization supports the property rights movement in conflicts with government.

As pressure builds for more recreational use and development of public lands, conflicts over land and spirit, over environmental protection and cultural preservation will continue in the shadow of Devils Tower, of Sandia Mountain, of Rainbow Bridge, of Cave Rock and of other sites as sacred to the American soul as the Statue of Liberty. 🌐

In case you forgot

Web sites on Manitoba Hydro, pipelines and more keep stories on our radar

Manitoba Hydro

www.hydro.mb.ca

There are multiple sides to the Manitoba energy issue, and one for sure is Manitoba Hydro itself. This company does its part to tell everyone that it is environmentally and socially conscious. The issues are spelled out by the creator of controversy on their Web site.

www.justenergy.org

The Pimicikamak found representation in JustEnergy. They lay out the case against Manitoba Hydro as the aboriginal people see it. It's a story that reflects the way Native peoples have been disregarded by the conquering Europeans throughout the history of North American settlement. There's a bevy of pictures here that will definitely not be found on the Manitoba Hydro site.



Sacred Sites

www.sacredsites.com

Cultures throughout the world and across time also identified with areas and monuments as their own sacred sites. While not all the sites are natural, they are built in an area for a reason, whether it is the holy lands or an ancient crossroads of trade. This Web site gives us an atlas of sacred sites around the world.

cougar.ucdavis.edu/nas/varese/nas191/Mark/ndnsacredsites.html

The people who originally settled the land we call home had a spirituality that is often forgotten today. They were close to the land, and identified its resources and edifices as part of their heritage and culture. Sacred sites remain today, though many of the tribes have long since been forced off their lands. This Web site gives you a bit of background on some of the many sites.



Jackson Pipeline

www.jackson-mich.org

The pipeline spill affected more than just a river and some trees. The people of Jackson had to deal with the fumes and dying vegetation. Meanwhile, they had to make a living and keep up with the daily routine. This Web site gives a little look into the life around Jackson.

www.msu.edu/~mckeownc

The Grand River Environmental Action Team was around long before the spill. But the organization was formed to ensure disasters like that caused by the pipeline wouldn't happen to the Grand River. Peruse this Web site to find GREAT's mission and a bit about their programs.

www.wolverinepipeline.net

Wolverine is in the process of upgrading its pipelines in Michigan so spills like the one in Jackson don't happen again. Their Web site gives a little insight into the workings of the company behind the spill.



Zero Waste

www.zerowasteamerica.org

Zero waste can be a difficult concept to get a hold on. The idea that we could actually recycle or reuse every bit of trash we throw away without a thought is somewhat daunting. But this site gives a bit more depth as well as expanding on some other aspects of dealing with waste.

www.grrn.org

The Grass Roots Recycling Network is just that — it's there to get people involved in making a change if the government won't take action. Zero waste is among their campaigns, but they also provide more short term goals that might help the crusaders of the world feel the sense of accomplishment they need to keep going.

Lake Erie

www.epa.gov/glnpo/lakeerie/eriedeadzone.html

The oxygen depletion in Lake Erie has no simple solution, but it's heartening to know that somebody's trying. The EPA has outlined the problem and how they're planning to solve what could become a plague to all of the Great Lakes in time.

www.great-lakes.net

The Great Lakes Information Network can keep you abreast of problems and triumphs across the Great Lakes region. The Web site compiles research, lake programs and news stories about the environment. It also includes the human aspects, such as the economy, that play into what happens to the lakes.

An unforgettable experience

A look back at scenes from the Sixth Great Lakes Environmental Journalism Training Institute
PHOTOS BY STEVE MCKINLEY



Above: Participants in the 2003 Great Lakes Environmental Journalism Training Institute discussed the conflicts between recreation and preservation while learning to responsibly climb a rock face threatened by overuse. From left are Yanik Baron, Rebecca Williams, Mike Ivey, Rick Pluta and Kory Dodd.



Left: Toronto-based broadcaster Yanik Baron tries to thumb a ride home from a passing Canadian freighter.

Below: Health scientist John Hesse, one of the region's foremost fish contaminant experts, demonstrates how to clean Great Lakes fish to minimize human exposure to the pollutants that they may accumulate.

Below left: Fellows in the program helped hoist the sails of a double-masted schooner during a tour of Saginaw Bay to discuss environmental problems created by an industrial past and the current crop of exotic invaders.





A magazine
of the Knight Center
for Environmental
Journalism
at Michigan
State University

Non-Profit
Organization
U.S. Postage
PAID
East Lansing, MI
Permit No. 21

School of Journalism
382 Communication Arts Building
Michigan State University
East Lansing, MI 48824-1212

be more than just a blip on the screen

Looking good has never been more important.

Interactive multimedia influences surround us. And if you want people to give your publication a second look, it's important to make that first look count.

Raydar Media can help. We'll work with you to develop an identity that suits your content and attracts attention.

Contact us today. We'll help get you back on the radar screen.



Raydar Media is the design firm of choice for EJ.



design services in logo development, promotional materials, newsletters and more

specializing in newspaper and magazine design/redesign, including stylebook development and newsroom training

visit our web site to request a free estimate and to learn about upcoming seminars/workshops

randy yeip, principal • yeip@raydarmedia.com
1839 green st. #211 • harrisburg, pa 17102
717.213.0772 • www.raydarmedia.com