

AN ECO-SYSTEM OF ONE'S OWN

Brushing your teeth, checking your e-mail, ordering lunch, hitting the gym—almost every move you make affects the health of the planet.

From the cell-phone/gorilla connection to the growing e-waste factor, ALEX SHOUMATOFF explores the global impact of the average American routine.

PLUS: ADAM SPANGLER highlights four seminal climate-change reports and explains the difference between “organic” and “natural”

MORNING JUICE

YOUR UNWITTING COMPLICITY in the degradation of the planet begins the moment you wake up. You switch on your nightstand light, sending a message for increased demand to the power grid. The amount of energy is minute, it's true, but remember that you're sharing America's grid with 301 million people—the 5 percent of the world's population who collectively consume a quarter of the earth's energy.

More than half of this grid is powered by coal-fired plants, which account for 40 percent of our national output of greenhouse gases. With their emissions regulations gutted by the current administration, power plants belch carbon dioxide, mercury, nitrogen oxide, and sulfur dioxide, an active ingredient of both acid rain and smog. Some of this pollution is drifting all the way up to the Arctic and poisoning fish, ringed seals, polar bears, and pregnant Inuit women.

If you live in Southern California, your little shot of wattage could have come from one of the many old, unrenovated coal plants—there are dozens in the Four Corners region alone—that are blanketing the Great American Desert in a red haze of toxic pollution. This is all the more deplorable when you consider that two-thirds of the energy from whatever turbine you're drawing on is lost between

The Intergovernmental Panel on
Climate Change (I.P.C.C.) of the United Nations:

“THE PHYSICAL SCIENCE BASIS OF CLIMATE CHANGE”

A 21-page summary of the I.P.C.C.'s report—the full text with recommended solutions is to be released in parts throughout 2007—states with more than 90 percent certainty, up from 66 percent in the last report, in 2001, that it is “very likely” humans are the cause of climate change. What the report's authors (some 600 scientists) are absolutely certain of is that the world's climate is changing in a very significant way and will continue to do so for the foreseeable future. If you consider the conservative nature of the U.N., and the great number of interests its members represent, the power of its report—the fourth in 17 years—rests not so much in what it says as in who is saying it. The need to satisfy this broad constituency is the reason the report suggests human influence is “very likely” instead of “virtually certain,” as some scientists called for. If the past is any indication, the report, which represents a six-year review of hundreds of previous studies and stands as a kind of once-and-for-all admission of human involvement in climate change, may underestimate the potential problem. As demonstrated in the 2001 report, whose predictions for world temperature rise over the following five years matched the worst-case-scenario numbers, I.P.C.C. estimates tend to be on the safe side, a fact that could help prolong a theoretical debate that should be long over. To read the full summary, which was published in February, go to ipcc.ch.

the plant and your lightbulb due to resistance in the power lines. One easy thing you can do is spring for compact fluorescent bulbs. They last longer than incandescent bulbs and use only a third of the energy.

If you live in the Northeast, a lot of your power comes from massive hydroelectric dams in northern Quebec. Canada is the world's largest producer of hydropower, and the U.S. is its biggest customer. There are already 279 large dams in the vast wilderness, seething with rivers, known as the Boreal, which blankets 58 percent of Canada and is homeland to the Cree and many other “First Nations,” as Canada's native ethnic groups are known. Sudden releases from some of the dams, triggered by such things as a spike in air-conditioner use down in the States, drown countless thousands of nests of migratory water birds every summer, and at least two caribou herds have been swept away to their deaths at their historic river crossings.

Hydro-Québec, the agency that provides the province of Quebec with its electricity, now plans to divert as much as 72 percent of the 380-mile-long Rupert River's torrential flow into the Eastmain Reservoir, so that it can generate an additional 888 megawatts for New England. Critics fear that this diversion will ruin the river, turning it into a trickle, and will poison the Cree's fishing areas on the Eastmain with mercury leached out of the bedrock.

You're not even dressed yet, and look at all the chaos you've wrought.

“EXCREMENT OF OIL”

Still not fully awake, you stumble into the bathroom and slip out of your cotton pajamas. The usual way of growing cotton is highly petrochemical-intensive, requiring 110 pounds of nitrogen fertilizer per acre. Some of the fertilizer is broken down by soil bacteria into nitrate, a toxic and highly soluble chemical that can leach into groundwater or get washed into lakes, creating oxygenless dead zones. Absorbed into the air, nitrate turns into nitrogen oxide, another ingredient of acid rain. Cultivating cotton, unless it's organic, also requires copious amounts of water. Center-pivot irrigation systems flinging water on the cotton fields in the High Plains are sapping the region's vast Ogallala aquifer.

Water conservation is probably not uppermost in your mind as you empty your bladder. The average flush uses three and a half gallons, but some older toilets have eight-gallon tanks. This is almost criminal, given that 1.2 billion people around the world, including one of seven Europeans, don't have access to clean, potable water. According to the U.N., more than 2.7 billion people will face severe water shortages by 2025. Many social scientists predict that the next big wars will be over water. Nevertheless, the average American family blissfully consumes 300 gallons a day, when you add in watering the lawn and washing dishes, clothes, and cars. This works out to 495,000 gallons per person every year. Compare this with 193,000 gallons in Japan, 153,000 in Germany, and 44,000 in Mali.

And before you rip off three feet of toilet paper, consider that each year 500,000 acres of virgin boreal forest in northern Alberta and Ontario are being clear-cut to make the stuff. These forests are home to some 500 First Nation communities, as well as caribou and bears, moose and wolves, and, in the summertime, billions of songbirds. As Allen Hershkowitz, an expert on paper consumption at the Natural Resources Defense Council, once explained to me, “We're wiping our asses with endangered habitat.” For brands that use recycled paper, check out the N.R.D.C.'s Web site.

Now for your shower, which means more water. After drying off with your cotton towel, you fire up your battery-powered toothbrush. Since it costs only \$6 and the bristles are wearing down, you'll probably throw away the whole unit when the battery runs out—which is just what the companies that make these gizmos want you to do. The battery will likely end up in a landfill, releasing its corrosive acids and heavy metals, including lead, into the eco-system. The toothbrush itself is plastic, as is most everything in your indoor environment. America's insatiable appetite for oil is not just about fuel. It has a lot to do with petrochemicals, including plastics—what Norman Mailer called “the excrement of oil.” Plastic production accounts for 5 percent of U.S. fossil-fuel consumption. Meanwhile, just 4 percent of plastic products are recycled.

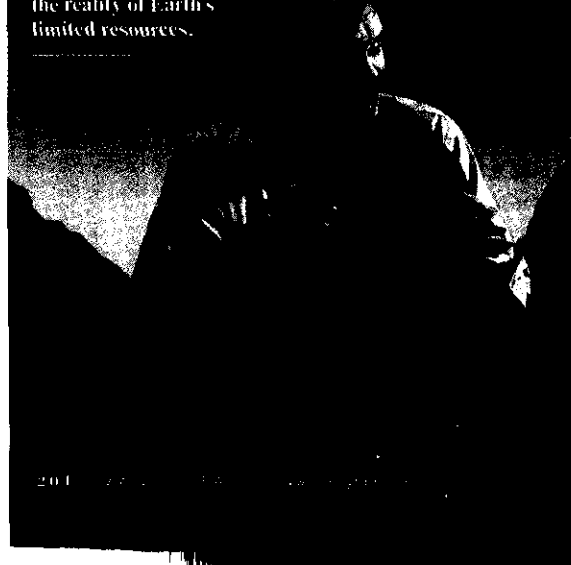
Putting on deodorant? Fine, but stay away from anti-perspirants. They zap you with aluminum, or equally neurotoxic compounds in the aluminum family. The process of mining bauxite and refining it into aluminum is environmentally devastating. It involves decapitating hills, gouging pits, and releasing vast quantities of toxic waste in gas and solid form. And yet only half of the beverage cans in the U.S. are recycled.

If you're a shaving man, you can take comfort in the fact that your shaving cream is no longer compressed with ozone-depleting chlorofluorocarbons, or CFCs, which were phased out in 1995 by the Montreal Protocol. But your razor is probably a disposable composite of metal and plastic. Chances are, it will end up at the incinerator, where its heavy-metal-based coloring and stabilizing agents (usually cadmium, lead, or antimony) will be released into the atmosphere. Instead of chucking your disposable razor after four or five shaves, why not get an old-fashioned straight razor and a strop. Or a disposable razor-blade sharpener? They haven't been popular since the 1950s, but a vintage Stag safety-razor sharpener, which I found on eBay for \$9.95, keeps a single blade sharp for a whole year. No wonder they stopped pushing them.

The day we dispose of the idea of disposability will be a great one for the planet.

APPETITE FOR DESTRUCTION

An economy based
on more and more
consumption must
eventually collide with
the reality of Earth's
limited resources.



Suddenly, a ringtone shatters the morning calm. The first cellular-telephone call was made on April 3, 1973, and now there are more than 200 million wireless subscribers in the U.S. filling the airwaves with a billion minutes of chatter a year. You answer the cell phone, not realizing that the popularity of this device is helping to kill some of the last wild gorillas on earth.

Cell phones, laptop computers, and electronic appliances contain thin strips of metal called capacitors, which control voltage and store energy. These capacitors are made of tantalum, a metal extracted from a mineral composite called coltan. Coltan is found in only a few places in the world. Eighty percent of it is in the Democratic Republic of Congo (formerly Zaire). Some of the richest deposits are in the same national parks in eastern Congo where the gorillas dwell. The miners don't get much for the long hours they put in ripping up streambeds. They are fed bush meat from the forest: okapi (the exceedingly rare "forest giraffe"), elephant, and lowland gorilla—all mowed down by hunters with Kalashnikov rifles.

So maybe there should be a disclaimer on every cell phone: WITH APOLOGIES TO THE GORILLAS.

Done with your call, you go to the closet and slip on some wool trousers, which come courtesy of vast herds of sheep belching and farting methane—a greenhouse gas that's 20 times more powerful than carbon dioxide. New Zealand, where there are about 10 sheep for every person, is one of the world's greatest mammalian-methane emitters. All kinds of clothing have impacts, though. Fur and leather, as everyone knows, mean slaughtering animals. One type of rayon is made from a particular kind of wood pulp called "dissolving pulp," which is milled mostly in Indonesia, at plants that are huge consumers of rain-forest resources.

Fortunately, eco-friendly fashion is coming into vogue. You can buy organic-cotton garments at H&M now, and in 2005 Bono of U2 launched an all-organic line, called Edun.

You open the front door and pick up your newspaper. Let's say it's *The New York Times*, the heftiest rag of all. The impacts of publishing All the News That's Fit to Print are horrific. Each Sunday edition eats up 62,860 trees. It takes 17 trees to make a ton of newsprint, and the U.S. consumed 10.6 million tons in 2005—25 percent of the world total. For his 2002 book, *Bronx Ecology: Blueprint for a New Environmentalism*, Allen Hershkowitz compared the amount of paper refuse in New York City to the biomass of the Brazilian rain forest and found that the city had almost as much cellulose fiber per acre as the forest.

The paper industry is the world's third-greatest industrial polluter, behind the manufacturers of chemicals and steel. The mills emit tons of toxic chemicals, including mercury, lead, and dioxins. Dioxins are carcinogens that can combine with other toxins to make them mutagenic—meaning that they alter your DNA. Not only dioxins but 100,000 other synthetic compounds have made their way into eco-systems far and near, infecting food chains and accumulating in their top carnivores—eagles, polar bears, humans.

Americans consume paper at an annual rate of 740 pounds per capita, seven times that of the world as a whole. From 2000 to 2005, the global consumption of paper increased by more than 20 percent, from 300 million tons to about 366.

The advent of the computer has paradoxically generated vastly more paper consumption. One reason is that almost no businesses or government agencies print on both sides of the page. If you recycled your *Times* every day for a year, that would keep more than 6,000 tons of pollution out of the air. But of the 62 million newspapers that will be printed today around the country, 44 million will be thrown away. This week, the equivalent of 500,000 trees will be dumped into landfills or incinerated. Most of them are grown in the South, which produces a quarter of the


BUYER BEWARE: FOOD LABELS

Organic foods and those produced in more environmentally considerate ways are growing increasingly popular with consumers. With labels claiming they're everything from hormone-free to salmon-safe, more of these foods are turning up on grocery-store shelves every day. Though many of these claims are made in good faith, only some are certified, and others are little more than a marketing strategy. Certification can come from anywhere: nonprofits, industry-sponsored organizations, state and federal governments, or individuals. What's a conscientious customer to do? Start by learning what the various certification labels mean.


MOST RELIABLE

LABELS ARE VERIFIED BY AN INDEPENDENT THIRD PARTY.

USDA ORGANIC


 Foods certified: meat, dairy, wine, produce, processed and frozen foods, grains. Assures that a food has been produced and processed consistent with national organic standards: no hormones, antibiotics, genetic engineering, or radiation was used, nor were most synthetic pesticides and fertilizers. The U.S.D.A.'s National Organic Program is in charge of the legal definition of "organic" in the U.S. However, enforcement and the consistency of the standards have been issues. (ams.usda.gov/nop)

CERTIFIED HUMANE RAISED & HANDLED


 Foods certified: meat, poultry, eggs, dairy. Indicates animals were pastured and raised humanely from birth through

slaughter, without antibiotics or hormones. The gold standard of labeling. (certifiedhumane.org)


MARINE STEWARDSHIP COUNCIL

 Foods certified: seafood. Ensures fish and shellfish are harvested within sustainable yields; maintains marine biodiversity, productivity, and ecological processes. (msc.org)


SALMON-SAFE

 Foods certified: wine, fruit, eggs, beef, lamb, produce. Means products were created using healthy farming practices that keep Pacific Northwest waterways clean enough for wild salmon to thrive. (salmonsafe.org)

FAIR TRADE CERTIFIED

 Foods certified: coffee, tea, chocolate, tropical fruit, rice, sugar. Encourages sustainable farming methods; assures that farmers and workers receive fair compensation. (transfairusa.org)

RAINFOREST ALLIANCE CERTIFIED

 Foods certified: bananas, citrus, coffee, cocoa. Products come from farms and forests where rivers, soil, and wildlife are protected, and workers have fair wages and dignified living conditions. In addition, R.A. endorses the Forest Stewardship Council certification of wood products. (rainforest-alliance.org; fscus.org)

LESS RELIABLE

LABELS ARE NOT NECESSARILY VERIFIED BY AN INDEPENDENT THIRD PARTY.

GRASS-FED OR PASTURED

Foods certified: meat, eggs, dairy. Means livestock were fed primarily grass—no animal by-products—in a confined or unconfined area. Some grass producers provide independent documentation that their animals are fed a vegetarian diet. (Look for the U.S.D.A. Process Verified shield.)

NO HORMONES ADMINISTERED

Foods certified: beef, pork, poultry. Means the animal was never administered any hormones. Hormones are forbidden in the raising of poultry and pork; products bearing the "No hormones added" label must also say, "Federal regulations prohibit the use of hormones."

LEAST RELIABLE

LABELS DO NOT HAVE A STANDARD DEFINITION AND ARE NOT VERIFIED BY AN INDEPENDENT THIRD PARTY.

ANTIBIOTIC-FREE

Foods certified: meat, poultry, eggs, dairy. Means that the animals were raised without antibiotics during their lifetime.

FREE-RANGE OR FREE-ROAMING

Foods certified: poultry, meat, eggs. Means the animals have had daily access to the outdoors,

but there are no standards regarding length of time or outdoor conditions.

CAGE-FREE

Foods certified: poultry. Implies birds were not housed in cages, but does not guarantee birds had access to the outdoors.

NATURAL

Foods certified: meat, poultry, processed foods. Means product does not contain artificial flavors, colors, chemical preservatives, or artificial or synthetic ingredients, and is minimally processed in a way that "does not fundamentally alter the raw product." Label is permitted on products from animals that were administered growth hormones or antibiotics.

SOURCES: The Green Guide's Smart Shoppers' Cards, thegreenguide.com; the Consumer Unions Guide to Environmental Labels, eco-labels.org.

Camille Parmesan:

“ECOLOGICAL AND EVOLUTIONARY RESPONSES TO RECENT CLIMATE CHANGE”

Human beings have not yet been seriously affected by the earth's warming climate, but according to one of the most comprehensive research papers in the history of ecological studies, the rest of the organisms on our planet have been drastically changing on an evolutionary scale. University of Texas ecologist Camille Parmesan analyzed 866 individual, peer-reviewed papers in which changes in species and eco-systems were attributed to changes in climate. Parmesan found that these so-called biological-impact studies, when put together in a global context, show some alarming patterns. Spring, for instance, is beginning earlier on all but one continent and in both the Pacific and Atlantic Oceans, affecting flowering, hibernation, migration, and breeding. Previously synchronic relationships between predators and prey, as well as those between insects and plants, are falling apart with negative consequences, both for individual species and their greater eco-systems. The health of rabbit populations, for example, directly affects the health of the animal's predator,



the hawk, just as tropical-fish populations depend on their coral-reef habitats. Recorded climatic alterations are pushing species toward the poles, greatly restricting habitat range and causing once nurturing environments to become uninhabitable. Case

studies show that tropical corals and amphibians are already negatively impacted, while polar and high-alpine species have recently become extinct. In conclusion, Parmesan stresses that, while species have in some cases adapted to these environmental changes, there is little evidence that they will be able to adapt fast enough to survive. To read the full report (published in the *Annual Review of Ecology, Evolution, and Systematics*, Vol. 37, 2006), see annualreviews.org.



world's paper. The last native forests in Dixie are being sacrificed for plantations of pine that has been genetically engineered to yield the most pulp in the shortest time.

SUGAR SHOCK

Now it's time for breakfast. Cornflakes sound pretty harmless, but unless your milk is one of the expensive organic brands, it comes from cows pumped full of bovine growth hormone, which makes them 10 to 15 percent more productive but shrinks their life spans and wrecks their reproductive systems. Corn is grown in an unholy stew of fertilizers and pesticides, and much of it is genetically modified. The impact of G.M. crops on the genetic integrity of the natural environment is still being elucidated. Europe wants nothing to do with them, but in the U.S. more than 100 million acres of farmland are devoted to growing G.M. crops.

So maybe you want to skip breakfast and just have a cup of coffee, one of 500 billion drunk worldwide each year, a fifth of them in the U.S. Coffee makes you alert. It gives you ideas. But this beverage has a lot of bad karma. Brazil is the world king of coffee production. By 1816 three-quarters of a million Brazilians, a sixth of the population, were enslaved and working on plantations, and the magnificent coastal rain forest was being obliterated, to quench the West's already burgeoning thirst.

Coffee's social-justice issues persist. For every \$2.50 cup sold at yuppie hangouts, the grower gets less than a penny—unless it's fair-trade coffee, which currently guarantees growers \$1.26 a pound (about 4 cents a cup). Most plantations, meanwhile, are carved out of rain forests and treated with ecologically damaging pesticides.

Do you take it with sugar? The average American consumes 110 pounds of the stuff each year, and no wonder—it's in everything, from bacon to vegetable juice. The karma of sugar is even more ghastly than coffee's, and it is still accumulating. In the Dominican Republic, tens of thousands of Haitians are slaving as debt peons on sugar plantations, their papers confiscated so they have no way of escaping.

Let's hope you're drinking your coffee out of a ceramic mug. A single polystyrene cup, which most of us know by the brand name Styrofoam, can take several hundred years to decompose. In 2003, Americans went through 73 billion plastic or polystyrene cups and plates and 64 billion paper ones, generating 1.7 million tons of waste. Styrene molecules migrate into your food from containers and, once in your system, become estrogen mimics. These have bizarre effects on reproductive anatomy and fertility (precocious puberty, undescended testes) and may increase your chances of getting breast or testicular cancer.

ON THE ROAD

Time now to hop in the car and put yourself into circulation with the 241,193,974 other registered vehicles in the land. During the typical weekday rush hour, there are at least 50 million cars and trucks on the road.

We have more cars than anybody in the world, and they are collectively responsible for 30 percent of our greenhouse-gas emissions. America's 34 million sport-utility vehicles spew up to 30 percent more carbon monoxide and hydrocarbons than passenger cars, and up to 75 percent more nitrogen oxide. Pickup trucks are an even greater problem. There are more of them—39 million—and they don't get any better mileage.

So here is where you can make your single greatest contribution to the health of the planet: trade in your mighty guzzler for a car that gets 40 miles to the gallon. Until hydrogen-fuel-cell and electric cars finally hit showrooms, you have two choices: hybrid or, surprisingly enough, diesel.

Every gallon of gas you burn puts 20 pounds of carbon dioxide into the atmosphere, and for every additional mile you get to the gallon, you keep one ton of CO₂ out of the atmosphere in a year. In traffic, hybrids get 50 m.p.g. or more, which explains why they're taking off with conscience-stricken Americans. Susan Sarandon made headlines in 2004 by pointedly driving up to the Oscars in her Prius. This year, le tout Hollywood arrived in eco-friendly hybrids.

The new generation of diesel cars and trucks have the potential to be even greener. Diesel vehicles are 30 to 40 percent more fuel-efficient and emit up to 20 percent less CO₂ than gasoline vehicles. There's a new Volkswagen—available only in Germany, for now—that gets 70 m.p.g. Diesel engines can also run on biodiesel—an extract of vegetable oil that singer Willie Nelson is trying to bring to a pump near you.

Combine these two approaches and you get the greenest ride yet: the diesel hybrid, an idea that's said to be gaining traction among the Big Three.

After the usual hour or so in bumper-to-bumper traffic—traffic that could be reduced if more of us carpooled, rode bicycles, or took mass transit—you arrive at the office. Here you are exposed to many more toxic petrochemicals than at home. Almost everything you touch is excrement of oil: your keyboard and mouse, the copy machine the coffee machine.

You log on and download your e-mail. Your computer screen, like your TV screen a

Peter Schwartz and Doug Randall:

“AN ABRUPT CLIMATE CHANGE SCENARIO AND ITS IMPLICATIONS FOR UNITED STATES NATIONAL SECURITY”

It should come as no surprise that a public report funded by the Department of Defense would examine the most extreme scenario in the debates over climate change, but as the authors state, the scenario—that global warming could thrust New England and northwestern Europe into an ice age—is plausible, “and would challenge United States national security in ways that should be considered immediately.” Unfortunately for the Pentagon, there is no one to attack. The foe behind abrupt climate change is freshwater. More specifically, it is the influx of freshwater from melting glaciers into the North Atlantic. This enormous addition of freshwater is thought to hold the power to interfere with and even collapse ocean currents, such as the Gulf Stream, that bring warm water and air from the tropics to northern latitudes. These currents bestow a mild climate upon countries such as England, which would otherwise be much colder because of their geographic location. The technical name given to this system of circulation paths is the thermohaline conveyor, a term that speaks to the importance of temperature and salt to the process. Warm seawater from the tropics is less dense than the colder waters to the north, and thus flows near the surface as it heads north along the Gulf Stream, bringing with it the warming air. As the poles warm and glaciers melt, the influx of freshwater prevents the warm surface current from reaching the north and dispensing its heat.

What exactly will happen if and when the conveyor shuts down is the report's focus.

It seems counter-intuitive, but global warming could spawn regional cooling, even to the point where New England and Northern Europe could be hastened into a mini ice age, similar to a period called the Younger Dryas. Average temperatures could drop as much as five degrees Fahrenheit; precipitation levels would decrease while winter storms and winds would intensify; food production would collapse and famine would be widespread. Scientists add the adjective “abrupt” because this scenario could take hold in less than 10 years. To read the full report, published in October 2003, go to epa.gov/climatechange.



home, contains thousands of toxic chemicals, lead being the worst. As for your printer, it would be easy to make one that could last for decades, but that would be suicide in an economy based on ever more production and consumption. E-waste is the fastest-growing segment of the human waste stream. Most of America's discarded equipment is shipped to China, India, and Pakistan, where it is stripped by women and children working under appallingly hazardous conditions. Instead of throwing your old system away, log on to the Environmental Protection Agency's eCycling page to find the nearest e-waste recycling facility. Some of them take cell phones too.

QUESTIONS ABOUT THE MENU

After a morning exploring the Web's infinite possibilities for procrastination, you're ready for lunch. But what to eat? you wonder, perusing the menu. Everything's a no-no.

Fish is supposed to be the healthiest, but most fish are contaminated with mercury released by power plants and industrial factories. In adults, mercury in sufficient quantities can cause memory loss, baldness, blindness, and infertility. In unborn babies, it has also been linked to cerebral palsy, deafness, blindness, mental retardation, shortened attention span, and learning and developmental disabilities. The most mercury-loaded fish are tilefish, shark, swordfish, king mackerel, grouper, orange roughy, marlin, and albacore tuna—fresh, frozen, or canned.

But this is about the planet's health, not yours. Huge factory trawlers are hoovering up fish, then processing and canning them even before returning to port. Gigantic nets are dipping all the way to the benthic zone, a mile down, and hauling up marine life that hasn't even been identified, then grinding it into dog food. Twenty-mile-long baited lines are hooking more seabirds, including albatross and petrels, than fish.

Twenty-four percent of the world's marine fisheries are over-extended, depleted, or recovering. The latest study predicts that they will all fail in the next 40 to 50 years. Cod, which used to swim in schools of hundreds of millions known as “mountains,” are down to the wire; by 1995 all the major cod fisheries on the Grand Banks off Newfoundland were closed, and they have shown little sign of recovery.

There are plenty of Maine lobsters, now that the cod, which prey on their young, are gone, so dig in. Wild Pacific salmon—king, coho, sockeye, pink—are O.K., too, but don't go looking for wild Atlantic salmon: there are only a few thousand left, and the commercial fisheries are all closed. What is passed off as wild is usually farmed. Sinking waste and uneaten food from the salmon farms create anoxic dead zones in their coastal waters.

The best thing for the fish would be another World War. Many species rebounded dramatically during the last one, when the seas were unsafe for fishing.

What about red meat? Americans are the most insatiable beef consumers in the world, eating more than 6.7 billion hamburgers a year. But the production of beef is incredibly inefficient and resource-intensive. Eighty percent of the grain produced in the U.S. is fed to livestock. A 1,050-pound steer eats 2,700 pounds of feed during the three years it gets to live. The rangeland of the American West is turning into desert after so many years of use, and other countries are clearing rain forest to run cattle for a few years, until the soil gives out.

But let's end lunch on a positive note. You can eat all the chocolate you want—as long as it comes from Bahia, Brazil. (Most U.S. chocolate is from the Ivory Coast, which has child-labor issues.) In Bahia, the cacao trees are planted in the understory of what little remains of the Atlantic coastal forest, in the shade of the big trees, giving local farmers an incentive not to clear it. This is helping to protect the four species of lion tamarins and many other species endemic to this fast-disappearing emerald forest.

BOTTLENECKS

Following an afternoon of frantic e-mail exchanges, you inch your way home through the same traffic. Ten thousand exhaust pipes are oozing carbon dioxide, the cranked-up air conditioners adding to the very heat they're designed to relieve.

Stressed out by the gridlock, you decide to take a detour to the gym and sweat away your frustration. At the front desk, you grab a bottle of water. It has been only 10 or 15 years since bottled water was popularized as a healthy alternative to sugary soft drinks, and now you can't imagine life without it. The plastic water bottle has become, along with the cell phone, an accessory of modern life, like the 18th-century aristocrat's powdered wig and snuff box.

Global consumption of bottled water rose 57 percent between 1999 and 2004. The U.S., not surprisingly, is the largest consumer, downing 6.9 billion gallons in 2004. The bottles are made mostly from polyethylene terephthalate. Those sold in America use up 1.5 million barrels of oil a year, enough to fuel 100,000 cars. Worldwide, 2.7 million tons of plastic a year are used to make water bottles, which have become a monumental waste problem.

Recycling helps, but before you recycle, why not re-use? It may be healthier to refill your empty bottle from the drinking fountain than to buy a new one, since municipal water supplies are obsessively checked for safety, while water bottlers operate with little

or no oversight. Some bottled water is just tap water anyway, spiked with a few minerals that have no appreciable health benefit.

You do your weekly shopping at the supermarket and help the checkout girl load your provisions into plastic bags. Americans go through 380 billion of these throwaway totes a year. They are used for an average of just 25 minutes each, and they are not biodegradable. Freighter-loads of them are dumped in huge slicks out at sea, internally strangling dolphins and sea turtles that ingest them. Schlepping canvas bags is a minor inconvenience, but one that will make a huge difference if enough of us do it.

HAPPY ENDINGS

At last you make it home, adjust the thermostat, and settle in for a couple of hours of relaxation in front of the TV. But you're having trouble concentrating on the latest round of *So You Think You Can Dance* because you're freaking out about all the debt you're in.

A quarter of Americans are compulsive consumers, addicted to the rush of coming home with stuff they've bought—be it a new handbag or a \$2,000 plasma TV. Before long, the feeling wears off, so they buy something else. In the U.S., average household debt has almost doubled over the past decade, while the average credit-card balance per household is approaching \$10,000. Meanwhile, the square-footage of the American house has ballooned over the last 10 years, leading to a commensurate demand for energy, and more rape of the boreal and Amazon forests.

Finally it's time to hit the sack. But your complicity doesn't stop even when you're dead to the world: for the next eight hours, your appliances and the thermoregulation of your space continue to suck energy from the grid.

The incredible spurt in American consumption since the 1970s would not have been possible if we didn't have the world set up so that the lion's share of its resources flow to us, and if we weren't so rich. The U.S. economy is so massive that in gross domestic product each state is comparable to a foreign country: Mississippi to Peru, Florida to Brazil, California to Italy, Texas to Canada, North Carolina to Sweden.

It is this affluence, and the unnecessary spending that it sucks you into, that is driving much of the destruction of the planet. As many as a million flights a year are taken by passengers solely for the purpose of keeping up their elite status, so they can hang out in the business-class lounge at the airport, get pre-boarded, and collect their luggage first. Airplane fuel adds 600 million tons of carbon dioxide a year to the atmospheric mix—3.5 percent of the global human total.

It doesn't take a rocket scientist to figure out that sooner or later an economy based on more and more consumption is going to collide with the reality that the earth has only so many raw materials to offer. How can I reduce my ecological footprint? people are beginning to wonder, as they realize that we are bringing the roof down on ourselves. What can I do to make myself carbon-neutral? The sad truth is that real carbon neutrality is impossible because, apart from everything else, each of us takes up to 26,000 breaths a day, and each breath removes oxygen from the atmosphere and replaces it with carbon dioxide.

As far as I am aware, no one has gone so far as to sacrifice himself for the environment, but you could do the next best thing and go belly-up. Lose your credit cards or, if you must have one, make it an "affinity card" that applies a percentage of your purchases to a green cause—say, planting mango groves in Indonesia. Get repo'd. That will take care of your automobile emissions problem, plus having to walk or bike everywhere will do wonders for the waistline.

Then there are all the things that you can do without—from plastic bags to blood diamonds, to digital and electronic appliances containing tantalum. Slip a ceramic mug in your handbag, fold your toilet paper as many times as you can, turn the lights off when you're not in the room, and, if you *really* want to be a self-policing Nazi, instead of counting the calories you're burning, start calculating the carbon you're emitting.

If all that cramps your style somewhat, consider this: even if we don't release another molecule of CO₂ into the atmosphere, what's already there is going to take 100 years to cycle out—and we haven't even felt its full effects. But if we can keep warming to 2 degrees centigrade through 2100, we might save the coral reefs that are left. We might also forestall the rest of the ghastly crashes projected for this century (no glaciers, no fish, no Amazon rain forest, etc.), so it's worth doing everything we can.

The U.S. is responsible for 35 percent of worldwide carbon emissions since industrialization. Thanks in part to our oblivious hyper-consumption of oil, trees, minerals, and other natural resources around the world, species are disappearing 100 to 1,000 times faster than they have in millennia. Our belief in the "myth of superabundance," a phrase coined back in 1963 by Secretary of the Interior Stuart Udall, now has to be retired. The sooner America gets it, the fewer of our fellow creatures are going to die, and the more hospitable and habitable the planet we leave to our children and grandchildren will be. □

Sir Nicholas Stern:

"STERN REVIEW: THE ECONOMICS OF CLIMATE CHANGE"

If he wasn't one before, Sir Nicholas Stern, chief economic adviser at the British Treasury, is now an environmentalist. Opening the summary of conclusions from his groundbreaking report, Stern states, "There is still time to avoid the worst impacts of climate change, if we take strong action now." Those impacts include what he calls "the greatest and widest-ranging market failure ever seen." The usually didactic study of economics rarely serves up such brimstone, but after determining that climate change will negatively

impact the basic elements of life (potable water, food production, and air quality) and force hundreds of millions of people to suffer as their health and their economies crumble, Stern concludes with what can only

be described as the best news the environmental community could ask for from an economist: "The benefits of strong and early action far outweigh the economic costs of not acting." The report foretells that if governments do not take "strong, deliberate policy action," as much as 20 percent of global G.D.P. (gross domestic product) will be lost, creating economic and social disorder "on a scale similar to those associated with the great wars." By implementing measures to curb greenhouse emissions—such as reducing deforestation, regulating polluting industries, and transitioning to low-carbon lifestyles through increased international support for energy research and development, especially in the poorest countries—we could avoid the worst scenarios at a cost of only around 1 percent of G.D.P. each year. National wealth, it turns out, will begin to disappear along with the countless species that aren't adjusting fast enough to the changing environment. Stern's report warns in economic terms that humanity might be one of those species. So what is the world waiting for? To read the full report (published by Her Majesty's Treasury, last October), see hm-treasury.gov.uk.

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