Safeguarding the Environment

Open space conservation is often the cheapest way to safeguard drinking water, clean the air, and achieve other environmental goals.

Don Riepe, National Park Service

Green heron.

Communities are realizing that keeping water clean is almost always cheaper than cleaning it up.

Thirsty?

- **Increase in chlorine added to Chicago's drinking water as a result of source contamination since 1965: 30 percent**
- **Increase in Cincinnati water bills to pay for activated carbon filtration needed to remove pesticide contamination: 10 percent**
- **Amount spent to protect Milwaukee drinking water against Cryptosporidium bacteria, which killed 103 residents in 1993: $54 million**
- **Annual reduction in water treatment costs after the city of Gastonia, North Carolina, relocated its drinking water intake to a lake without surrounding development: $250,000**
- **Estimated cost to New York City to buy watershed lands to protect upstate drinking water supplies: $1.5 billion**
- **Estimated cost to New York City to build a filtration plant if upstate watershed lands are developed: $6 billion to $8 billion** [117]

The purchase of watershed lands can provide clean drinking water without constructing an expensive treatment plant. Sterling Forest, New York.

Cesar Alonso

Sterling Forest, on the New York-New Jersey border, is more than just a pretty woodland. The 16,000-acre forest gathers drinking water for more than two million people—a quarter of New Jersey's population. A few years ago the private owners of the forest proposed the construction of 13,000 homes, eight million square feet of commercial and light industrial development, and three golf courses. New Jersey officials calculated that this would so pollute the watershed that a new filtration plant would be required. Estimated cost: $160 million.

As an alternative, New Jersey officials offered $10 million toward the purchase of the land. The Trust for Public Land and the Open Space Institute entered negotiations with the owners and helped raise $55 million from public and private sources to preserve more than 90 percent of Sterling Forest. The purchase helped consolidate 150,000 contiguous acres of parks and protected land, conserving important habitat for bears, bobcats, beavers, and birds, including scarlet tanagers, while protecting seven miles of the Appalachian Trail. [114]

Communities nationwide face billions of dollars in expenses to treat polluted drinking water. Development of watersheds brings pollution from septic and sewer systems, from lawn and garden chemicals, and from highway runoff. Currently, 36 million Americans drink water from sources that violate EPA contaminant standards, and the agency has estimated that $140 billion will be needed over the next 20 years to make drinking water safe.[115]

As a result, more and more communities are realizing that keeping water clean is almost always cheaper than cleaning it up. Recognizing this, Congress has authorized the use of a portion of federal clean water funds for watershed acquisition. A 1991 study by the American Water Works Research Foundation concluded that "the most effective way to ensure the long-term protection of water supplies is through land ownership." [116]

Other communities also are reducing filtration costs by protecting watersheds:

• New York City is spending $1.5 billion to protect 80,000 acres of its upstate watershed—which seems like a lot of money until you understand that the alternative is an $8 billion

Wayne Morris

Securing land around Mountain Island Lake and its tributaries will protect the primary drinking water source for metropolitan Charlotte, North Carolina.

All wet

- **Estimated annual value of water quality improvement by wetlands along a three-mile stretch of Georgia's Alchovy River: $3 million** [119]
- **Estimated fraction of U.S. commercially valuable fish and shellfish that are spawned in wetland habitat: 75-90 percent** [120]
- **Estimated annual value of water storage and aquifer recharge in a single 557,000-acre Florida swamp: $25 million** [121]
- **Estimated value of all economic benefits generated by a single acre of wetland: $150,000 to $200,000** [122]

water filtration plant that would require an additional $300 million a year in operating costs.[118]

• With TPL's help, the San Antonio (Texas) Water System and the Edwards Underground Water District recently acquired more than 5,000 acres atop the Edwards Aquifer, where development would have polluted drinking water for 1.5 million people.

• In North Carolina, TPL recently purchased and conveyed to Mecklenburg County 1,300 acres on Mountain Island Lake, the water source for over half a million people in and around Charlotte. In 1996 the North Carolina legislature guaranteed at least $30 million a year to protect the state's water resources—including funds for the purchase of watershed land and easements.

Other communities are working to protect both water *quality* and water *quantity* by guaranteeing that rainwater recharges underground aquifers. Pervasive development can cover large areas with impervious surfaces (such as roads and rooftops) which shunt runoff away from drinking water aquifers and into culverts and streams. In these areas, there is simply not enough undeveloped open space to absorb rainfall. ►

Save the species!

Natural ecosystems support endangered species and other genetic resources of incalculable economic and biological value. In recognition of this value, state and federal laws protect endangered species in the path of development. But these essential laws can also prompt costly litigation and development delays without guaranteeing the network of protected habitat a species may need to survive.

Booming San Diego County, California—often cited as an endangered species "hot spot"—is pioneering an alternative approach to endangered species protection. Under the auspices of California's Natural Communities Conservation Program, local, state, and federal officials are working with landowners and conservation groups to develop a regional system of habitat reserves while easing development regulations on less sensitive land.

In support of this program, the Trust for Public Land has purchased and transferred to public ownership several crucial parcels, including songbird habitat along the Sweetwater River; coastal sage habitat in the Tijuana River Estuarine Research Reserve; breeding ground for the endangered California gnatcatcher; and five square miles of mesa, woodlands, meadows, and wetlands within Escondido city limits.

Such efforts support community economies by allowing guided development to continue while protecting valuable biological resources. By protecting the land on which other species live, we also protect the ecosystems on which all species—including our own—depend.

Anthony Mercieca

California gnatcatcher.

Banking land on the Cape

Long a favorite with summer vacationers, Cape Cod has been the fastest growing region of Massachusetts in recent years. The Upper Cape has become an extension of the Boston megalopolis 90 miles to the northwest. Elsewhere, summer homes have been converted to year-round residences for retirees and telecommuters.

In some communities, development has been so furious that property taxes have doubled to pay for schools and other services. The water table is being polluted by septic tanks, and roads are clogged with traffic.

In November 1998, voters decided that one sure way to protect the Cape's open land was to buy it. Fifteen communities—every town on Cape Cod—passed a 3 percent property tax surcharge to fund the purchase of open space for a Cape Cod Land Bank, at an average annual cost of $57 per household.

"People have to understand that every parcel that isn't saved is going to cost them, both in higher taxes and in a deteriorating lifestyle," said Representative Eric Turkington, who sponsored the state enabling legislation that made the votes possible.[126]

Researchers settled on $33 trillion a year as the most likely value of nature's worldwide environmental services.

► A 1998 report by the Massachusetts Clean Water Council showed that as much as 30 percent of that state's natural groundwater recharge may be lost due to development.[123]

Nature's Economic Services

Watershed conservation is only the most obvious way that protected open space can help communities meet environmental goals in a cost-effective manner. Open land provides the space for nature to perform life-sustaining services that otherwise would have to be provided technologically at great expense:

- degradation of organic wastes
- filtration of pollutants from soil and water
- buffering of air pollutants
- moderation of climatic change
- conservation of soil and water
- provision of medicines, pigments, and spices
- preservation of genetic diversity
- pollination of food crops and other plants

In one much-quoted study, 13 researchers led by Robert Costanza, an ecological economist at the University of Maryland, judged the worldwide annual value of 17 natural environmental services to be between $16 trillion and $54 trillion. Within this range, the researchers settled on $33 trillion a year as the most likely value of nature's worldwide environmental services. [124]

Robert Cadena

Wetlands filter pollutants and are essential to fisheries. Barnegat Bay, New Jersey.

The Value of Wetlands, Forests and Wooded Buffers

Forested open space and wetlands are particularly valuable. Trees control erosion, help clean the air of pollutants, mitigate global warming by absorbing carbon dioxide and other greenhouse gasses, and help shelter and cool our homes. The forestry organization American Forests estimates that trees in the nation's metropolitan areas contribute $400 billion in stormwater retention alone—by eliminating the need for expensive stormwater retention facilities. [125]

Wetlands serve as wildlife habitat, absorb storm and flood water, and reduce pollutant and sediment loads in watershed

Eric Swanson

Protecting the Barton Creek watershed from development preserves Austin, Texas's wildlife and water quality.

runoff. These are all services society would have to pay for otherwise. Natural open space provides these services for free; in its absence, society must pay for them.

Protected buffers along rivers, lakes, streams, and reservoirs help preserve clean waters that generate profits from tourism and fisheries. In the Pacific Northwest, the U.S. Forest Service is acquiring stream buffers to help protect a fishing industry that accounts for 60,000 jobs and $1 billion in annual income.[127] In one project, TPL helped the Forest Service acquire 790 acres along Washington's Bogachiel River to protect runs of chinook, coho, pink, and chum salmon, and steelhead and cutthroat trout. The purchase helped "show citizens that the land was more valuable for fishing and tourism than it was for timber," says N. J. Erickson, who administers the Pacific Northwest Streams Acquisition Program for the Forest Service.

Protected buffers also filter pollutants and nutrients from agricultural and residential runoff—a serious hazard to inland and coastal waters and the important economies they support. Scientists recently discovered a 7,000-square-mile "dead zone" in the Gulf of Mexico off Louisiana. Caused by excess nutrients in the rivers feeding the Gulf, this zone of depleted oxygen threatens a fishery worth $26 billion a year.[128]

States, communities, and the federal government are attempting to stem such losses by setting aside environmentally sensitive stream buffers. The U.S. Department of Agriculture helps farmers set aside wetlands through the Conservation Reserve Program, which will help fund restoration of 420,000 acres of wetlands, forests, and native grasses along the Illinois and Minnesota Rivers. A similar program pays farmers to retire flood-prone or eroding cropland along rivers and streams leading into Chesapeake Bay, where agricultural runoff threatens the $90 million blue crab fishery. [129]

Even the most ambitious attempts to place a dollar value on natural systems must fail, for ultimately these systems have value beyond our ability to measure. But that their loss results in significant economic loss is undeniable, and their preservation is essential to any effort to "grow smart" and create a livable future for all Americans. ■

TPL's Public Finance Program

In November 1998 the Trust for Public Land worked in support of 29 state and local park and open space bond measures, 26 of which passed, generating $2.6 billion in new funding.

TPL's Public Finance Program works with citizen groups, elected officials, and public agencies to help craft, pass, and implement public finance measures for conservation. TPL's team of campaign strategists includes experts in law, public finance, policy research, communications, public opinion polling, direct mail, and legislative analysis.

TPL offers the following services:

- **Feasibility Assessment: research, public opinion surveys, and analysis to ascertain the level of public support for new parks and open space funding.**
- **Measure Development: identification of the most appropriate sources of funding and design of a measure that meets legal requirements, that will attract public support, and that protects priority conservation lands.**
- **Campaign Management: assistance with polling, political strategy, direct mail outreach, and coalition building.**

For more information, call 617-367-6200 or see http://www.tpl.org/tech.