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## **EcoFocus: Mountaintop coal digging has dire consequences**

Impact includes pollution, warming

By William H. Schlesinger

If you were to pick up the Appalachian Trail in New York state, and hike 600 miles south, after passing through some of the nation's most scenic vistas, you'd reach some very disturbing topography. Treeless hills rising to a flat top - much like the arid mesas of the desert Southwest - are separated by valleys filled with broken rock and barren streams. Welcome to mountaintop removal coal mining.



A mountaintop mining site in West Virginia. (Photo courtesy of Vivian Stockman)

Mountaintop removal is a relatively new form of strip mining in the southern Appalachians, and it is environmentally devastating. To access coal seams, forests are clear cut and explosives are used to blast up to 800 feet off mountain tops (the equivalent of an 80-story building). Heavy equipment is used to push mountaintop soils and mining discard into adjacent river valleys, burying hundreds of miles of ecologically important headwater streams.

To date, more than 500 mountains have been destroyed in the Appalachians, forever altering the region's topography. Current regulations require mining companies restore the original contour of the landscape, with some vegetation cover. But, because of compacted soils and fractured rock, blast sites seldom support reforestation. Their soils are especially low in nitrogen and phosphorus - two essential nutrients for plant growth.

On one former mining site in Maryland, 15 years after the site was restored, it contained a mere 2 percent of the biomass found on adjacent forested lands. Even on mine sites where forests have been successfully reestablished, carbon sequestration - an important ecosystem service - is compromised. Studies indicate after 60 years, when compared to unspoiled sites, reclaimed sites sequester 62 percent less carbon.

### **Process buries streams**

During mountaintop removal, nearby streams are buried. This makes the restoration of natural drainage difficult. Often, new channels are dug, but the water flowing into them originates from adjacent mine spoils. As a result, the water contains elevated levels of toxic metals, such as selenium and sulfate concentrations higher than seawater. Native fish, mussels and other aquatic species are absent from affected streams. And local residents, often rural and poor, suffer. Not only do they lose access to fishing and swimming sites, but they are often unable to drink poisoned groundwater supplies.

Given the multitude of problems it causes, why is mountaintop removal so widespread in the southern Appalachians? The answer is simple: Blasting mountains provides easy access to energy-rich coal supplies, and a handful of mining companies benefit tremendously from streamlined excavation strategies.

Before mountaintop removal, most mines in the southern Appalachians were underground. This labor-intensive removal process involved large mining crews, considerable safety risks, and a commitment to longer-term infrastructure. By allowing access to coal seams without the high costs of underground mining, mountaintop removal made eastern coal competitive. And it has had an explosive growth trajectory.

Between 1985 and 2001, more than 1,200 miles of streams were buried by valley-fill operations in the southern Appalachians. In some areas of West Virginia, more than 25 percent of the land surface is under permit for current or future mountaintop removal, and in western Maryland, 15 percent of the landscape is under some form of reclamation. One doesn't have to click down many levels on Google Earth to see the shocking rearrangement of the land - it looks like a moonscape.

For upstate New Yorkers, mountaintop removal may seem like a distant problem. In the last year of reported data, only 20 percent of the electricity supplied by Central Hudson Gas and Electric was derived from coal. But we should be concerned.

Nationally, more than 50 percent of electricity is derived from coal. Coal from any source produces lots of carbon dioxide when burned; weaning our energy sources from coal is an important part of any effort to combat global warming. Legislation discouraging the use of coal will have the ancillary benefit of discouraging mountaintop removal as a way of coal mining.

The U.S. House and Senate both have bills before them seeking to overturn a Bush administration rule that made it all too easy for mountaintop mining operations to dump debris into valley streams. This is a small step in the right direction.

New Yorkers have another option: a check-off for renewable energy on their electric bill. In the last year of data, less than 1 percent of our electricity came from renewable sources. A simple check-off will help ensure renewable energy supplies grow more rapidly in the coming years - helping reduce mountaintop removal and eliminate this wholesale destruction of some of the richest areas of biological diversity in the United States.

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