

# CANRWORLD

INTERNATIONAL ACTIVITIES

## PhD student uses remote sensing to study environmental effects of genocide

By Nancy Weiss

Combine a bright mind with an Ivy League undergraduate education and an interest in the way the world looks from a satellite, add an abiding interest in the effect of resource allocation on human beings and a new-found taste for the law, stir in incredible energy, enthusiasm, and charm, and you have a snapshot of Russell Schimmer.

Schimmer might be called a boy wonder, except he is beyond boyhood and will not burn out in a flash of brilliance. If his current work is any indication, he will stay the course and use his myriad talents in exciting ways. He is combining work on a law degree at the University of Connecticut Law School with the pursuit of a PhD in the Department of Natural Resources Management and Engineering, on the use of remote sensing in studying environmental impacts of genocide.

After spending his childhood in a small town in Maine, Schimmer made his way to New Haven, where he majored in archeology at Yale. While doing fieldwork at the Henry Whitfield House in Guilford, he began to assemble aerial photos, old maps, and geologic references. He digitized the information and wrote a paper his senior year on how the landscape had changed once the first settlers arrived.

Schimmer's work caught the eye of one of his advisors at Yale, Professor Robert Gordon. During Schimmer's senior year, Gordon suggested he take an introductory course in remote sensing and look into the effects of copper mine tailings. Using remote sensing, they could study how waste material from mining operations gets into the environment. Soon Schimmer was off to the Baghdad Copper Mine in Arizona to document the entire process of mining the ore, extracting the copper, and depositing the tailings, which are highly acidic. This November, he'll be giving a paper on his research at Pecora 17, a remote sensing symposium sponsored by NASA and the U.S. Geological Survey.

"I'm very interested in how large-scale resource extraction companies affect developing countries," Schimmer said in a recent interview after a quick trip to Southeast Asia to

look at mining operations there.

His mind began to ruminate on whether the West can set a better example of how to deal with environmental waste. He wondered whether legal and environmental monitoring might help determine why some practices are so destructive to countries and some are less so. He observed the roles

training to ask questions. First, in terms of understanding the events, were there people who saw what happened? And second, could he see changes in the environment from the satellite photos?

He observed the "Pompeii effect" in the countries he studied. The changes were abrupt and dramatic,

[index.html#schimmer](#).

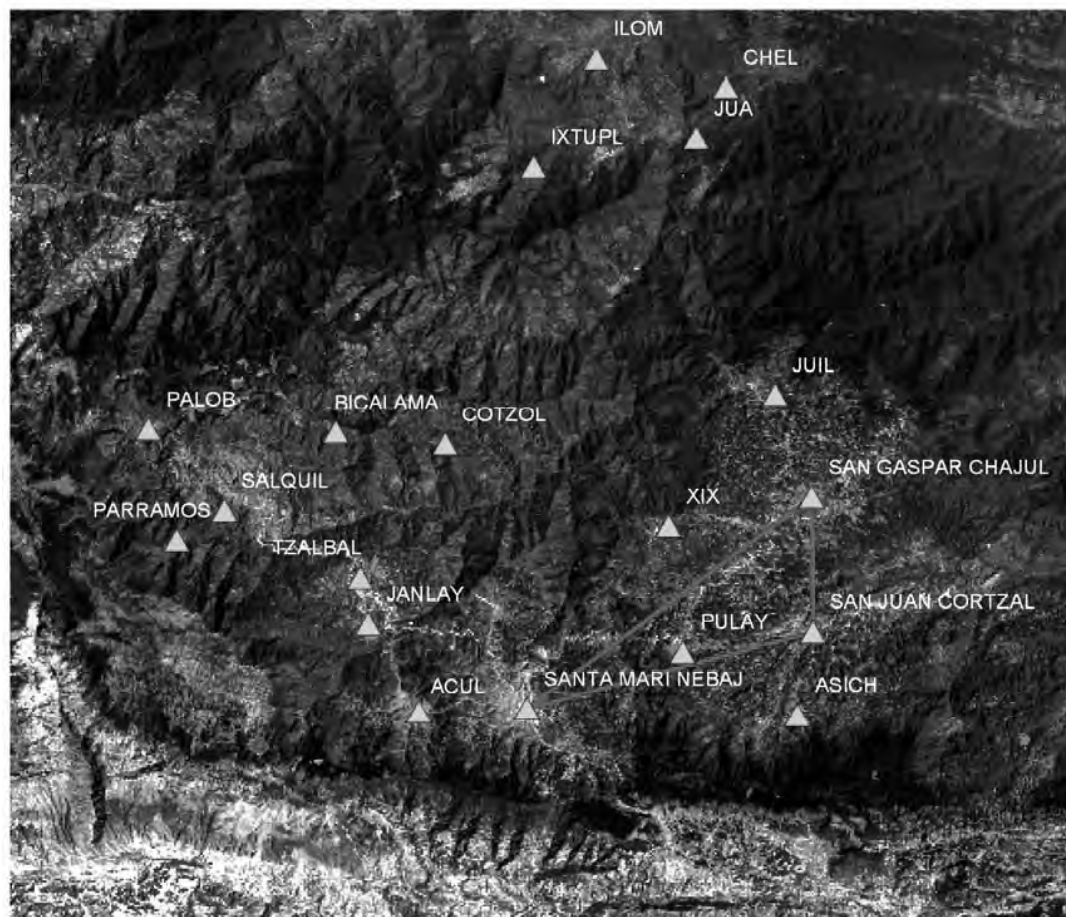
According to Schimmer, the study of Darfur has broad implications. "Remote sensing is an amazing way to actually understand how to manage land resources. What I am hoping will come from the Darfur project is a way to quantify the effects of land use. We can see the impact of livestock, with the effects of declining rainfall. Perhaps we can better manage how the resource, i.e. grazing land, is being used, which leads to competition for declining resources. Ultimately this type of competition can lead to conflict," he adds.

To prove genocide, one needs to show a target group, an intent to destroy that group, and a large-scale system of violence against that group. Remote sensing, which documents the time when changes occur in a way that is incontestable, can be part of the body of evidence proving genocide. Schimmer notes that as NASA releases all the land satellite images taken for the last three decades, there will be volumes of new information for scientists to study.

Schimmer heard about the work of Dan Civco, professor in the Department of Natural Resources Management and Engineering and director of the Center for Remote Sensing, from a former student of Civco's who now runs the Center for Earth Observation at Yale. The UConn program is well known and Schimmer thought perhaps he

could convince the UConn Law School and the College of Agriculture and Natural Resources to accept him in a dual degree program. A conversation with Associate Professor Tom Meyer convinced Schimmer to apply to the PhD program. The Law School's Dean Kurt Strasser was enthusiastic about the idea, and Schimmer was launched on his ambitious way.

Now that he has completed one year of law school, and despite commuting each day on I-91 from New Haven to Hartford and then to Storrs, Russ Schimmer is enthusiastic about his work. His drive to gather all the credentials he needs in life to use his skills effectively is admirable. He is a young man from whom more great things will come.



This 1986 Landsat TM image shows the locations of towns and villages in the Department of El Quiché, Guatemala, where acts of genocide occurred during the implementation of Guatemalan President Efraín Ríos Montt's "scorched earth" strategy, 1982–1983. The triangle shows the location of the "Ixil Triangle," an area heavily impacted by the violence. Image courtesy of Genocide Studies Program ([www.yale.edu/gsp](http://www.yale.edu/gsp)).

of the mining companies, native governments, the military, the church, and nongovernmental organizations in the lives of the people who work for large mining interests. He formed the opinion that some U.S. companies are trying to improve the lives of native people, but the process is slow and difficult.

As Schimmer's ideas were coalescing on copper and gold mining during the same period, he was hired by Ben Kiernan, director of the Genocide Studies Program at Yale, to see if the techniques of remote sensing could be applied to documenting genocide around the world. They whittled down the twenty places in their study to three: Guatemala, East Timor, and Rwanda.

Schimmer used his archeological

frozen in time, and could be documented using the satellite images. As resolution of the images became finer, it was possible to show when significant changes had occurred. He asked the follow-up question of whether there could be reasons other than genocide to explain the alterations, including the effects of climate and resource extraction, such as agriculture and even mining. All of his training was coming together to take him in an innovative direction.

Between 2006 and 2008, Schimmer published four working papers on using remote sensing to track genocide in the former Yugoslavia, Guatemala, Rwanda, East Timor, and Darfur. The papers are posted on the Web at [www.yale.edu/gsp/publications/](http://www.yale.edu/gsp/publications/)