

# A Photographer Responds to Pesticide Poisoning

By Judith Perry

Laurie Tümer, a photographer who teaches digital imaging, writing and photography, lives and works in New Mexico and is represented by Photo-Eye Gallery in Santa Fe. For more about her work, visit [www.photoeye.com/](http://www.photoeye.com/) and [www.laurietumer.com](http://www.laurietumer.com).

Tümer's images, inspired by the research of Dr. Richard Fenske, provide a picture of the ubiquitous presence of pesticides.

For the past 20 years, Fenske has developed the use of fluorescent tracers to show farmworkers how their skin is exposed to pesticides during application.

If pesticides could be seen on our clothes, skin and children's toys, this is what they would look like. These haunting images shock farmworkers (and should shock us all) into examining the belief that these chemicals stick only to objects on which they are sprayed.

Tümer uses the same tracers to show pesticides in our homes, gardens and on our bodies.

In the last few years, I have become much more aware of chemicals and pesticides in the environment and in our food. When Tümer sent me an announcement about her new body of photographic work, "Glowing Evidence," which reveals what pesticides would look like if we could see them, I knew we had to talk.

I've been drawn to Tümer's work since we met in graduate school 10 years ago. Her work is an extension of her daily life – something I've long been interested in as an important goal for an artist: a balanced, whole life. The images speak of what Tümer calls that "deep space of home" and what is generally called a connection to "place." The images are personal and emotional, and therein lies their strength.

Looking at and discussing art lets us broaden the boundaries with which we look at the world. Artists facilitate 'opening up' to new ways of thinking

and seeing. Through sharing stories and creating dialogue, we learn from each other and ultimately find common ground. We all share the same concerns, and as Tümer mentions, dialogue is the only thing that will create change personally, politically and socially. I hope that this dialogue moves toward that end.

Perry: How did this project come about?

Tümer: In 1998 I saw swarms of what appeared as termites going into cracks adjacent to my kitchen.

I called a pest control company that advertised (and still advertises) as providing “organic pest control.” I thought of myself as environmentally aware and knew I had sensitivities to chemicals, so I tried to be as careful as I could and chose a company that claimed to use “natural” ways to eradicate pests. The company assured me that it would use crushed chrysanthemum, nothing toxic. I walked around with them as they sprayed the outside and periphery of my house. My windows and doors were opened. About 20 minutes later, I became very ill – like I had a severe flu. My joints swelled and my face got puffy. They had in fact used a synthetic version of chrysanthemums – a synthetic pyrethroid. Also, many so-called inert chemicals are mixed with a pesticide, some as carriers for pesticides. These, alone or combined with pesticides, can be more toxic than the pesticide itself. 1

Perry: What happened next – were the reactions temporary?

Tümer: This began a nightmare that included two emergency room visits, evacuating my house for six months while an environmental clean-up company decontaminated it, staying with friends who took care of me, boarding my dog, and eventually renting another house for a while. These episodes often have lingering effects, which is what happened to me. Since I’ve found that my more acute symptoms flare up around pesticides, I still have to be extremely careful about where I go. I don’t go out to eat anymore, since most restaurants routinely spray, nor do I travel, since airplanes are routinely sprayed.

Perry: Have you become sensitive to other chemicals or products?

Tümer: I’ve become allergic to things from the natural terpenes in trees to a lot of scented products. My symptoms include migraines, weakness, flu-

like symptoms, heart palpitations. I ask my students not to wear perfumes, because they give me bad headaches. I always have at least someone else in a class who is sensitive to fragrances, so this is a growing problem for a lot of people. Often someone's laundry detergent, fabric softener or scented "natural" or "organic" sunscreen can really make me sick. When I leave school, my clothes and hair smell like 20 types of lotions, detergents and whatever cleaners the janitors have used. Once home I immediately shower and wash my clothes. Often my clothes smell like a particular fabric softener, and I have to wash them several times or put them on the porch for days.

Of over 5000 chemicals used in fragrance products, fewer than 20% have been tested by the FDA, and some that have are neurotoxic – such as toluene, methyl ethyl ketone, ethanol and benzyl chloride. Multiple sclerosis, Parkinson's disease, Lupus and Alzheimer's disease are all neurological disorders. 2

Perry: How did your experience affect your artwork?

Tümer: During the six months I was convalescing, I read more about pesticides. I couldn't believe that despite Rachael Carson's book *Silent Spring* having been published in the early 1960s and being required reading in most colleges today, pesticide use is greater today than ever. I learned that in New Mexico alone, pest control companies make approximately 4,500 applications daily. That doesn't include agricultural or home user applications. 3

I learned that pesticide poisoning from chemicals sprayed according to label instruction is more prevalent than I ever imagined. At least a million people a year experience pesticide poisoning, 200,000 die from such exposures, many in developing countries. 4

I wondered: What if we could actually see these invisible chemicals in and around our homes?

Would their use be as tolerated? I tried to imagine ways to visually represent these pesticides. Then someone gave me an article about Dr. Richard Fenske, a leading environmental scientist. 5

Fenske developed a demonstration using fluorescent tracer dyes, UV light and a camera to show farmworkers their pesticide exposures. Despite

being a simulation – the dyes are mixed with water instead of pesticides — this depiction is accurate. Lighter areas under UV light indicate pesticides. The photographs are so surprising, particularly those showing exposure despite wearing protective gear, that farmworkers are motivated to adhere to rigorous clean-up at home of chemicals brought from work.

I have been given access to Fenske's archives for my work, and his colleagues have taught me how to apply the tracers. I show what pesticides would look like in and around my home and garden, in restaurants, movie theaters, grocery stores, schools, the nearby Rio Grande, an organic farm and other places where pesticides settle by routine spraying or drift, exploring what Fenske's demonstration implies for those of us who are not farmworkers but are exposed daily to agricultural chemicals.

The lenticular prints in the series intensify the juxtaposition of the invisible and visible by placing them in the same photograph. Most know lenticular photography from novelty postcards that animate when the card is tipped. In my large-scale lenticular prints, animation occurs when viewers walk around the images, changing their angle of view.

Perry: What does Dr. Fenske's process show?

Tümer: Fenske's tracer demonstration is one of many devices used worldwide to train farmworkers about health and safety. For the demonstration, pesticide tanks generally are filled with water and tracers, then workers go to the field where they normally spray, and then they are put in a darkened room under ultraviolet light. The light illuminates the tracer dyes, which appear white. Theoretically these would be the pesticides. This shows farmworkers how, despite protective gear, they have pesticides on their skin and under their masks and clothes. Much of Fenske's research focuses on how skin is the major pathway of exposure.

The actual pesticide usually is not used in the demonstration, to minimize risk to farmworkers and photographers. These programs also show workers how to wash themselves after being around pesticides – how not to touch their families until they've washed, what symptoms to expect with pesticide poisoning and what to do if they feel sick. Videos show how to wash children's toys, kitchen areas, etc., which they are instructed to do many times a day. 6

Some trainers put small amounts of tracer dyes on their hands and greet each worker with a handshake. When everyone is seated, the room is flooded with ultraviolet light and workers hands glow! This introduces the idea of how contamination is spread. (Fluorescent tracers are widely used in many disciplines to demonstrate contamination, as in electronic labs to show workers how easily parts are contaminated.)

Perry: So, despite protective gear, farmworkers see that pesticides contaminate them and their families. Isn't there a kind of irony to these pictures?

Tümer: Definitely! Irony is a springboard for my work.

Perry: How are you creating these images? And how are you printing these photographs, since I assume you don't work with chemicals anymore?

Tümer: Some are composites of Fenske's slides and my images. A composite may have as many as 20 elements that I piece together using computer software. Others are just as they are seen through the lens of my camera, after I have sprayed objects or areas in my yard with tracer dyes and then photographed them under ultraviolet light. I print everything digitally now, since I no longer tolerate darkroom chemicals.

I was a darkroom junkie for years. Now most darkroom chemicals burn my skin, eyes and nose. I still have my darkroom but use it only a few times a year and only with an assistant. I feel a need to continue a project called 'Works on Rock' that started before I got sick. I coat rocks with a photo emulsion and print them as one would paper.

My assistant mixes the chemistry off site, brings it in, and while we're working, keeps it in buckets with lids. I have excellent ventilation in my darkroom, but I use a respirator as I expose the rock – then I go to the porch adjacent to the darkroom while she puts these pieces through the chemistry. I think this shows how addicted we are to our chemicals!

Perry: Tell me about printing images on rocks — how that began.

Tümer: I started printing on rocks about 12 years ago after a trip to North Africa to see cave paintings in a remote area called the Tassili N'Ajers. I've been interested in rock art for years. What I saw on the Tassili showed evidence of people living "in partnership with nature," a term Terence

McKenna uses in writing about evolution and archaic revival – he wrote about this specific area and suggests this was the paradise referred to in the Bible. These artists integrated the surface of the rock in their compositions. When I returned I began to experiment, making photographs on rocks. I have made hundreds of self-portraits on stones, and more recently the subjects are dried flowers from my garden. It is an obsession still in spite of the chemicals – something I'm not sure I completely understand.

Perry: I bet many artists are unaware of hazards related to the materials they use. Do you think the art world will move toward an 'organic state'?

Tümer: Many early photographers died young because of the toxicity of these chemicals. Although the chemicals are not nearly as toxic as they were, they still pose health and environmental hazards. *Overexposure: Health Hazards in Photography*, by Susan D. Shaw and Monona Rossol, offers suggestions to minimize health risks in the darkroom. The book includes a brief and poignant letter to the public by photographer John Pfahl, describing how he developed chemical sensitivities and, ultimately, cancer from his darkroom exposures.

More students are coming into the photography program where I teach saying they can't do darkroom work because the chemicals make them sick, or they don't want to subject themselves to the chemicals. I encourage these students to explore digital imaging. Many photographers are turning to digital partly because of health issues. As the technology becomes more sophisticated, I think photographers who are married to wet processes will join the digital trend – not that digital photography is without some health risks too.

In Santa Fe, some printmaking studios advertise being nontoxic, and I know many painters who clean their brushes with baby oil. Awareness and publicity are increasing about the toxicity of chemicals used by artists.

Perry: So, you completely restructured your art practice and much of your daily life as a result of chemical sensitivity. That must have been quite a challenge.

Tümer: Do you know that amazing photograph of Matisse lying in his sickbed holding this long pole with a brush attached to it; he used it to draw on the wall? I love this because when you are consumed with making

art or anything you love to do, you find a way. I'm grateful for every day I feel relatively well and for what I am able to do. This has focused my work more than it was before.

Perry: The thought of being a chemical junky is a bit shocking, but I guess we are exposed to chemicals much more than we realize. What don't most people know about chemicals?

Tümer: We are exposed to chemicals more than we realize or care to think about it. And there are many misconceptions and misinformation about them. *Glowing Evidence* is partly about dispelling basic myths, such as that synthetic pesticides stick just where they're sprayed. Fenske's research illustrates that these particles stick to farmworkers' skin and clothes as much as to what is sprayed, because pesticides settle by drift. Ground sprays can travel from inches to hundreds of feet of targets; drift from aerial spraying can disperse hundreds of miles. <sup>7</sup> The politics of drift is a big subject. <sup>8</sup>

Another myth is that synthetic pesticides dissipate quickly, when in fact many have half lives (a measure of how fast they break down) of many years. Sunlight breaks down these chemicals, but indoors they don't break down so fast and can accumulate. <sup>9</sup> In homes where pesticides are used routinely, children can have a higher rate of leukemia and asthma. Children are generally more vulnerable to adverse health effects associated with these chemicals, and because they are on the floor more often, their exposure is even greater. Pesticides can be found in carpet dust brought in from the outdoors. They get on kid's toys, which kids chew. <sup>10</sup> Industrial pollutants (including pesticides) can also disrupt hormones, creating problems linked to learning disabilities, infertility and cancers. <sup>11</sup>

Perry: Aren't these pesticides regulated?

Tümer: This is another myth: People believe that if a pesticide is on the market, it must be safe. Some have been approved by the EPA, although this doesn't necessarily mean they are safe. Pesticides are poisons. A product sprayed according to label instructions poisoned me. Totally legal. Products on the shelf are sometimes still being evaluated by the EPA. For example, the EPA was reviewing Dursban while it was on the market. After almost 10 years, they concluded that Dursban was linked to serious health problems and banned it. The anecdotal evidence in EPA's report on Dursban is painful to read. Recently, the EPA was going to reverse this ban

because of political pressure, but through public pressure, the ban remains. Bill Moyers did a great service with his documentary *Trade Secrets*, exposing the political shenanigans of large corporations that produce industrial pollutants. 12

Perry: This interesting tension exists in this work where you have very beautiful images that speak to very frightening circumstances. I've not been a big fan of 'political art,' because it often is presented in a very confrontational way that I think doesn't allow people in, and if there is a personal connection to an issue, it doesn't feel genuine or is lost. How do you see this?

Tümer: I see this series as an example of how art and science can support each other. The art historian F. David Peat wrote: "It may be the case that art helps us to visualize the world and new ideas and concepts in science only become real as they are projected into visual mental models, i.e., when they are seen within the theater of the mind. Thus, when changes in art influence the way we see the world, they inevitably exert an influence on the way science sees nature." I like to think that these images can provide important mental models. People make changes ultimately, not art.

People have challenged me about the paradoxes and perils of making arresting and even beautiful images about tragic politics. Many signifiers within this series address these paradoxes, such as Robert Adams book *Beauty in Photography* featured in my photograph *In My Study*. Adams talks about Lewis Hine caught in this tension "but able to strike a perfect balance; he wanted to show both what was bad so we would oppose it and what was good so we would value it." Perhaps this is all I am doing – photographing the things and places I love that are tainted by these contaminants.

Perry: How do you keep from being completely overwhelmed by what you are doing?

Tümer: I do get overwhelmed. Then I try to change gears. I fuss in my garden and yard and plan next year's garden. I dig in the dirt. I collect, press and photograph flowers and leaves. I do life-affirming things; have tea parties with friends.

Perry: I have some sensitivities – minor compared with what you face – and I thought it was me. I thought I had to change my habits – eat better,



etc. – but maybe it's not me; maybe our bodies simply are not made to deal with the chemicals we are exposed to!

Tümer: I think most people are dealing with chemical sensitivities to some degree. I have read that almost 20% of New Mexico's population has chemical sensitivities to some degree. 13

As someone with extreme chemical sensitivities, it's important for me to keep the immediate home environment as free of chemicals as possible; to drink good water – a good thing for everyone, I think. Buying organic produce and meat is essential. What's life without a good cup of Java? And a nice little dulce! A glass of organic wine! I think it's important to tune in to how particular foods make us feel, and if meat or a bit of chocolate every day makes me feel my best, then why not?

Perry: What about food – that seems like another area where, if people understood, they would not tolerate synthetic chemicals in the food supply, GMOs, spraying, so-called "enriched products." We truck products across the country at great expense to the environment, detaching most of us from seasonal and regional growing cycles, and often don't even know where the food comes from.

Tümer: Yes, we are so disconnected from our food source and mostly so unaware of what goes into the foods we buy. Within the Glowing Evidence series are images from visits to local organic farms. This hopeful side of the project provides solace in the face of overwhelming bad news. I'd like to visit and photograph more organic farms, partly because I'm likely to feel OK there. Supporting local, sustainable, organic farming is one of our best hopes for eating healthier foods and living in a more beautiful world. 14

Perry: Do you see yourself as an activist for these issues?

Tümer: Yes. Many ways exist to take action, and I am amazed at how sometimes one voice can catalyze change. Rachel Carson, for example, was responsible for the banning of DDT, and because of her the EPA was formed. Letter campaigns are very important. My dogged letter campaign at the college where I teach has made administrators consider an Integrated Pest Management program instead of a "spray and pray method." I am in the middle of an exchange with the office of the New Mexico attorney general trying to make it illegal for pest control companies

to use misleading green advertising. I am also interested in opportunities to make legislators and the general public more aware of Multiple Chemical Sensitivities. 15

As an English instructor, I expose students to new information about the environment, politics, history, health, the media, etc., in research projects. Teaching within this discipline is perhaps the most subversive thing I do. Real exchanges about this information, where we both learn, make real changes occur. I impress on students how they can advocate for themselves and their community and how powerful the written and spoken word can be to generate change.

And dialogues like this are, I think, a way change happens – politically, socially and personally.

## References

1 Krohn, Jacqueline, M.D. *The Whole Way to Natural Detoxification; The Complete Guide to Clearing your Body of Toxins*. Martley & Marks, 1996. Explains the synergistic effect of inert ingredients in pesticides; provides an overview of general pesticide use since 1960; explains classes of pesticides. Krohn specializes in environmental and occupational medicine. She has written several other books; see

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2 <http://www.herc.org/news/perfume/risks.htm>

<http://www.herc.org/news/perfume/fabric.htm> Information about perfumes and fabric softeners.

3 Fagerlund, Richard. "How to Stop Poisoning Your Home with Pesticides." *Crosswinds Weekly*, Feb. 4-11, 1999. Fagerlund, an entomologist at the University of New Mexico, oversees their Integrated Pest Management system. He has published several books, including *Ask the Bugman!*, and has a syndicated column and Web site by the same name ([www.askthebugman.com](http://www.askthebugman.com)).

4 [www.helloindya.com/neem/pest\\_management.html](http://www.helloindya.com/neem/pest_management.html) Statistics from a World Health Organization and United Nations Environmental Programme report

(WHO/UNEP 1989).

[www2.gol.com/users/bobkeim/pesticides/poison.html](http://www2.gol.com/users/bobkeim/pesticides/poison.html) [link is now out of date] Statistics about pesticide poisoning worldwide.

5 <http://depts.washington.edu/pnash/> Richard Fenske is Director of Pacific Northwest Agricultural Safety and Health Center (PNASH).

[www.aenews.wsu.edu/June00AENews/June00AENews.htm](http://www.aenews.wsu.edu/June00AENews/June00AENews.htm)

[www.ewg.org/](http://www.ewg.org/) [Environmental Working Group; search "fenske" for articles]

<http://ehpnet1.niehs.nih.gov/docs/2003/5754/abstract.html>

[www.ourstolenfuture.org/NewScience/oncompounds/OPs/2002/2002-1031curletal.htm](http://www.ourstolenfuture.org/NewScience/oncompounds/OPs/2002/2002-1031curletal.htm) Articles related to Fenske's research, including his recent findings on children's pesticide exposures and on organic food and children.

6 Croet. Un Lugar Seguro Para Sus Ninos (Pesticide Safety).

7 [www.pesticide.org](http://www.pesticide.org) Drift: Indiscriminately from the Skies. PDF 77K by Caroline Cox, staff scientist for Journal of Pesticide Reform. Spring 1995. Includes free information on pesticides. Useful fact sheets on specific pesticides and articles on alternatives to pesticides.

8 [www.greenpeace.org](http://www.greenpeace.org) Many articles about the politics of drift.

9 [www.ourstolenfuture.org/NewScience/oncompounds/dioxin/2003/2003-0805schechteretal.htm](http://www.ourstolenfuture.org/NewScience/oncompounds/dioxin/2003/2003-0805schechteretal.htm) Thirty years after Agent Orange spraying ended in Vietnam, research scientists report that some food being eaten by Vietnamese today remains heavily contaminated by dioxin and related chemicals. Links to primary research.

10 [www.ourstolenfuture.org/NewScience/human/cancer/2002-08maetal.htm](http://www.ourstolenfuture.org/NewScience/human/cancer/2002-08maetal.htm) Synopsis of a study by Ma, X., P.A. Buffler, R.B. Gunier, G. Dahl, M.T. Smith, K. Reinier and P. Reynolds. 2002. "Critical Windows of Exposure to Household Pesticides and Risk of Childhood Leukemia" from Environmental Health Perspectives 110:955-960.

[www.nrdc.org/health/](http://www.nrdc.org/health/) How organophosphate and carbamate pesticides

enter homes on shoes and become imbedded in carpet dust.

11 [www.ourstolenfuture.org](http://www.ourstolenfuture.org) A spin-off from a book by the same name. Many say Dumanoski and her colleagues' research and writings on hormone disruption continue where Rachel Carson left off.

12 Transcripts from Bill Moyers' Trade Secrets: A Moyers Report

[www.pbs.org/tradesecrets/transcript.html](http://www.pbs.org/tradesecrets/transcript.html)

[www.pbs.org/tradesecrets/problem/bodyburden.html](http://www.pbs.org/tradesecrets/problem/bodyburden.html)

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[www.pbs.org/tradesecrets/program/overview.html](http://www.pbs.org/tradesecrets/program/overview.html)

13 [www.tldp.com/issue/210/mcsundersi.htm](http://www.tldp.com/issue/210/mcsundersi.htm) This article by physician Dr. Ann McCampbell includes statistics for some other states on the population of chemically sensitive individuals. Campbell's health has been seriously compromised by a pesticide poisoning. She has written extensively about the subject and contributed a chapter on MCS in Richard Fagurlund's book Ask the Bugman!

14 Kimbrell, Andrew. The Fatal Harvest. New York: Island Press, 2002. Forty essays with photographs lay out the truth about our ecologically destructive agricultural system and how small-scale organic farming is a viable solution.

[www.rodaleinstitute.org/home.html](http://www.rodaleinstitute.org/home.html) The Rodale Institute continues research, education and certified organic production projects that began in the 1930s. J.I. Rodale coined the term organic!

15 <http://chemicalsensitivityfoundation.org/> Board of doctors and other professionals, with links to information about Multiple Chemical Sensitivities.

[www.wtv-zone.com/infchoice/mcs\\_australia.html](http://www.wtv-zone.com/infchoice/mcs_australia.html) One of many groups offering information about MCS and support for sufferers.