

Mendocino Redwood Company's Forestry Pesticide Use

By Britt Bailey

We do not often think about pesticides being an integral aspect of logging or timber management. For most of us, unless we see a truck hauling logs, we are unconnected from the detailed realities of the logging industry. However, pesticide use is a fundamental and vexing aspect of the industry and its forest vegetation control.

Aside from Alaska, California has more forested land than any other state in the nation. Located in northern coastal California, Mendocino County ranks third in the state in timber sales and production.¹ From 2000-2002 (the most recent data available), logging companies in Mendocino County used 38,390 pounds of pesticides.^{ii, iii} Even logging companies certified as sustainable, meaning they have committed to developing and adopting of environmentally friendly methods, are using excessive amounts of chemicals. The Forest Stewardship Council has certified Mendocino Redwood Company, a major logging company in the county, as sustainable. The Forest Stewardship Council is an international body, which accredits certification organizations in order to guarantee the authenticity of their claims.^{iv}

One of the most insidious threats to our environment is the immense chemical assault unleashed annually as millions of pounds of pesticides are applied to our crops, roadsides, and forests. Once applied, pesticides can move off site of application and contaminate waterways. Rivers, streams, tributaries and other bodies of water are unique and vital ecosystems. They provide rich biodiversity and necessary habitat for fish, birds, fish and other organisms. While habitat destruction, non-native plants, and water diversions certainly function to degrade water ecosystems, pesticide applications are also clear contributors.

Pesticides are applied to control weeds and reduce vegetation in typically clear-cut sites where shrubbery and undergrowth may compete with young trees. Forestlands receive roughly 1% of the 5.6 billion pounds of pesticide used nationally,^v and its applications in these settings may be on the rise. In the southern states, herbicide use increased 53% from 1996 to 1998.^{vi} Pesticide use in Mendocino County's forests has increased annually following an apparent national trend. In 2000, approximately 9600 pounds of pesticides were used in Mendocino County forests, while in 2002 pesticide use had risen to 18,700 pounds.

The primary pesticide used by the logging industry in Mendocino County is an herbicide, imazapyr. In 2002, 5400 pounds of imazapyr was used. Imazapyr's sheer volume of use coupled with its persistence in the environment is alarming.

Imazapyr

Imazapyr is the chemical name for pesticides better known by their trade names, Arsenal and Chopper. Both are manufactured by the BASF Corporation. Arsenal and Chopper are non-selective broad-spectrum systemic herbicides. When absorbed by plant foliage and roots, the pesticides accumulate and cause disruption of protein synthesis leading to interference of the cell growth of plants. The result of exposure is death of new leaves and ultimately death of the plant.^{vii}

Chopper and Arsenal do not possess a great deal of risk to human health. Most of the risk to people would take place during application. If contact occurs, the pesticides

can be irritating to the eyes, cause skin rashes, and redness or swelling at the site of exposure. Imazapyr is not a known carcinogen nor does it cause reproductive effects.

Imazapyr's Effect in the Environment

Imazapyr's greatest hazard is its persistence in the environment. Persistence is measured as the amount of time it takes for one half (1/2) of a chemical's active ingredient to breakdown into degradation products in the environment. According to guidelines established by the Forest Stewardship Council, pesticides with a persistence of greater than 100 days should not be used in forests certified as sustainable.^{viii} The Environmental Protection Agency reports that the half-life or persistence of imazapyr can continue up to 17 months with an average of 2-5 months.^{ix} Imazapyr's persistence places it squarely in a debatable category though the Forest Stewardship Council has not considered the pesticide unacceptable for usage. Consequently, Mendocino Redwood Company is not in violation of the sustainability guidelines. However, its continued use may disturb the essence and intent of the guidelines development.

In addition to the pesticide's unacceptable persistence rating, it contaminates groundwater. Traces of imazapyr have been detected in groundwater eight years after application on nearby soils.^x Chemicals that contaminate groundwater can greatly impact the health of water species and their habitat as well as potentially cause human health impacts. Clean water sources are becoming increasingly scarce. Programs centered on sustainability and protection of the environment should not be exacerbating this problem.

Imazapyr Use in Mendocino Forests

Mendocino Redwood Company is responsible for approximately two-thirds of the imazapyr usage in Mendocino.^{xi} Given Mendocino Redwood Company's commitment to Forest Stewardship guidelines, its use of imazapyr containing pesticides, Arsenal and Chopper, is a problem. Given the likelihood of groundwater contamination as well as the chemical's persistence in the environment, imazapyr should not be used. The Forest Stewardship Council should re-evaluate imazapyr's acceptability and Mendocino Redwood Company should identify less toxic alternatives that would better satisfy the mission to which they have committed themselves. Some alternatives may involve hand-clearing, use of biological controls, and reconsideration of cutting methods that aggravate weed problems.

ⁱ California Agriculture Statistics Service. Summary of County Agricultural Commissioner's Reports, Gross Values by Commodity Groups – California 2002-2003. September 2004.

ⁱⁱ "Pounds of pesticide" means pounds of the active ingredient only. In addition to the active ingredient, pesticide products also contain Inerts, adjuvants, surfactants, and other additional materials that are not reflected in this data.

ⁱⁱⁱ State of California, Department of Pesticide Regulation. 2000-2002 Annual Pesticide Use Reports Indexed by Commodity Mendocino County.

^{iv} FSC. Principles and Criteria of Forest Stewardship with Respect to Chemical Pesticides. February 2000.

^v Pimentel, D.; Levitan, L. 1986. Pesticides: Amounts applied and amounts reaching pests. *BioScience* 1986; 36(2):86-91

^{vi} Dubois, M.R.; McNabb, K.; Straka, T.J. Costs and cost trends for forestry practices in the South. *Forest Landowner* 1999; 5:3-8.

^{vii} Tomlin, C.D.S. (ed.). *The Pesticide Manual - World Compendium*. 10th ed. Surrey, UK: The British Crop Protection Council, 1994. 584

^{viii} FSC. Principles and Criteria of Forest Stewardship with Respect to Chemical Pesticides. Principle 6.6 February 2000.

^{ix} USEPA-OPP. 1984. Memo from S. Creeger, Hazard Evaluation Division to R. Taylor, Registration Division.

^x Borjesson, E. et al. The fate of imazapyr in a Swedish railway embankment. *Pesticide Management Science* 2004; 60(6); 544-549.

^{xi} State of California Department of Pesticide Regulation. 2002 Pesticide Use Report Database. October 2003 release.