



Herbicide Monitoring in the Northwestern Tribal Territories

This is the third of a series of newsletters that describe efforts by the Department of Pesticide Regulation (DPR) to address tribes' concerns on forest herbicide application in northwestern California. This project began in late 1997 with a series of meetings with several Northern California Tribes, including the Hupa, Karuk, and Yurok. As a result, the tribes asked DPR to sample surface water, vegetation, and other materials for herbicide residues. With partial funding from the U.S. Environmental Protection Agency (U.S. EPA), DPR initiated a three-year study. Tribal environmental monitoring workgroups were formed to guide the project. The workgroups recommended surface water and plant samplings as priorities. This progress report describes monitoring and other activities from Fall 1999 through Spring 2000.

Surface Water Monitoring

Northwestern California has large areas of private forestry land. Herbicides were applied to some of these lands for weed management. With cooperation from the timber company and concurrence from the tribes, sampling sites were selected based on accessibility and the highest likelihood of detecting herbicide residues, i.e., nearest to the largest application. Water samples were collected from aerial applications (applied using helicopter) for potential off-site movement during application and rain runoff during the first significant rainfall event following application. Ground applications (using backpack sprayers) were monitored for rain runoff. For rain runoff sampling, a sample was collected each hour over an eight-hour period to capture any peak herbicide concentration.



Water sampling using an auto-sampler at a tributary near Hunter Creek.

On September 14 and 16, 1999, samples were collected from tributaries flowing through sites treated aerially with triclopyr in the Hunter and Hoppaw Creek watersheds. On September 20, water samples were collected from a tributary through a site treated with glyphosate in the Wilson Creek watershed. No herbicide residues were detected in the water samples. The first rainfall event following the application was on October 27, 1999. Samples collected on the Hunter Creek and Wilson Creek tributaries contained no detectable amount of the herbicides. Triclopyr was detected only in the Hoppaw Creek tributary with a peak concentration of 0.430 ppb.

In the spring of 2000, ground applications of atrazine were monitored in rain runoff in the Bear Creek and Blue Creeks areas. The Bear Creek application was made on March 23, 2000, and rain runoff was monitored on April 16, 2000

at the first significant rain. The sampling site was approximately 500 feet from the application. A ground application near a tributary to Blue Creek made on April 24, 2000 was monitored following a rainfall event on April 25th. The sampling site was approximately 1300 feet from the application. No herbicide residues were detected at Bear Creek and Blue Creek areas.

On April 23 - 26, 2000, aerial applications of 2,4-D and triclopyr were applied to about 1000 acres in the Hunter Creek watershed area. Two areas were selected for monitoring during application. Herbicide residues were detected at one site, with highest concentrations at 0.584 ppb for 2,4-D and 1.06 ppb for triclopyr. The first rain runoff was monitored on April 27 at two sites selected to catch runoff from most of the application areas. 2,4-D and triclopyr were detected at one site with peak concentrations at 0.241 ppb and 0.388 ppb, respectively.



DeeAn Jones preparing sampling equipment on Hunter Creek

Plant Materials Monitoring

On January 20, 2000, the workgroup took a field trip to survey the plant community in proposed treatment areas and select plants for herbicide monitoring. The plants selected, includes maidenhair fern, Oregon grape root, beargrass, willow, tan oak acorns, huckleberry and yarrow.

In the fall of 2000, plant samples were collected to determine off-site movement of herbicide applications and dissipation of the herbicides in treated plants over time. The study is in progress.



Field trip with Karen Wiese (botanist), Susan Burdick and other Yurok members for plant identification and selection

Ongoing Discussions

Since summer 1999, we have conducted seven meetings with the Yurok Environmental Workgroup, with other tribes invited. At these meetings guest speakers presented materials on various herbicides related topics as requested by the tribal workgroup. On September 9, 1999, Dr. Michael O'Malley, a consultant with DPR, discussed the health effects of pesticides. On January 21, 2000, Dr. O'Malley provided more discussions about health effects, and Ms. Sharan Campleman, from the Public Health Institute/Calif Cancer Registry, discussed records from the cancer registry. On November 15 and February 14, 2001, Mr. Brian Finlayson from the Department of Fish and Game discussed the procedures for sampling fish tissue for herbicide residue analysis. Heather Casjens, DPR, presented a review of literature of the effects of herbicides on amphibians. On April 4, she presented a review of studies of the effects of herbicides on fish. We will continue to hold more meetings to discuss progress, priority of monitoring and other pesticide related issues.