

## No-Spray Buffer Zones Critical to Prevent Herbicide Soil Persistence Following Invasive Conifer Treatments

WESTMINISTER, Colorado. November 10, 2023— Invasive conifers such as lodgepole pine threaten New Zealand ecosystems and biodiversity by quickly outcompeting local flora. It led New Zealand to launch [The National Wilding Conifer Management Programme](#) to manage the problem.

An article in the journal [Invasive Plant Science and Management](#) shows how scientists are dealing with the invasive conifers.

One way to effectively control dense and mature invasive conifer infestations is to aerially apply a herbicide mixture of triclopyr, dicamba, picloram, and aminopyralid that's locally known as TDPA. However, concern existed that TDPA rates used to control these tree weeds may persist in the forest floor, soil and water.

Scientists examined persistence of all herbicides in cast needles, forest floor (including litter) and soil following aerial application at three New Zealand sites. They collected water from a local stream at two sites and across all sites in cast needles following spraying.

Scientists detected:

- **Most active ingredients persisted in a heavy lignin-rich layer of dead needles overlaying the soil at all sites for up to two years.**
- **Only triclopyr in mineral soil, where it declined to below detection levels within one year.**
- **All herbicides in stream water on the day of spray application at one site and during a rainfall event one month later.** However, amounts did not exceed New Zealand environmental and drinking water standards. Scientists attributed this to a 30-meter (32.82 yard) no-spray buffer zone at the site.
- **Herbicides at one site in water up to four months after spraying.** Amounts exceeded New Zealand drinking water standards on one occasion one month after spray application. No spray buffer zones were used at this site.

“The studies showed that forest litter and not the soil retains most of the herbicide mixture,” says the Chair of [Wilding Pine Network](#), an independent body of community groups and trusts involved in wilding conifer control. “The studies also found maintaining no-spray buffer zones of 30 meters (32.82 yards) near riparian areas is critical in protection of waterways from run-off.”

The work is part of a larger study that also includes evaluating herbicide effects on post-control vegetation restoration.

“The results of the conifer control research projects will give managers and regulators important guidance on the impact of herbicides, and specifically TDPA on the environment,” says the Chair. “It also gives information about their effects on regeneration of both native and conifer trees.”

### About *Invasive Plant Science and Management*

*Invasive Plant Science and Management* is a journal of the Weed Science Society of America, a nonprofit scientific society focused on weeds and their impact on the environment. The publication presents peer-reviewed original research related to all aspects of weed science, including the biology, ecology, physiology, management and control of weeds. To learn more, visit [www.wssa.net](http://www.wssa.net).