

A NEW APPROACH TO WEED CONTROL ON TASMANIAN ROADS

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ROADSIDE VALUES

Roadsides are often considered an unimportant asset, and in many people's minds the fact that a plant grows by the wayside is enough to define it as a valueless weed. Some people consider any plant which is not cultivated is second rate and any natural species as worthless bush to be controlled at every opportunity. A Local Government Act in Tasmania allows indiscriminate cutting of native trees but requires permission before interfering with exotics! Roadsides are in fact valuable havens, harbouring rare plants, unusual plant communities and fine examples of indigenous species. Roadsides are comparable in total area with some of our National Parks, and contain rare flora and fauna as well as fine examples of our cultural heritage. They are also viewed by multitudes each day, framing almost every countryside view.

ROADSIDE WEEDS

Though many roadside plants are valuable, not all of them are. For a variety of reasons some plants are definitely undesirable. Of the many definitions of a weed three are undesirable as roadside plants.

Natural weeds are the prolific, opportunistic, gratuitous plants which rush in to spoil our hard work just after we have dug and tidied the garden, or, on roadsides, just after we have scraped the verges and dug out the drains. In nature, these plants are designed to colonise bare soil. They are very useful, the first in the plant succession. On roadsides they do not seem to understand that they should not grow, even though our traditional activities make an ideal environment for them! Some natural weeds are exotic; dandelions and gorse are such examples in Tasmania, but of course there are native examples too including blackwood and silver wattle.

Social weeds show little more sensitivity than natural weeds. These are perfectly good, useful species of plants growing in the wrong location. For example, the pine tree *Pinus radiata* is planted as a crop in Tasmania, and as such is a useful tree. When its seedlings escape the plantation and lodge in table drains they are "plants out of place", too large for the roadside we have made; and therefore weeds.

Likewise, exotic pasture grasses are acceptable in grazing paddocks, but quite undesirable in road verges where no stock will keep them in control and they become expensive to mow; more weeds. Even the most attractive of trees become a nuisance if growing directly under power lines, and the tastiest fruit tree is nothing but a weed where its fruit makes a road pavement slippery and dangerous.

Ecological weeds are also a particular menace on roadsides. Rampant exotics with no natural predators to keep them in check, they rampage the verges. Sometimes they march stealthily out onto the carriageway, narrowing the traffic lanes and blocking sight lines. At other times they are less bold and simply swamp the indigenous species refuged in the roadside corridors.

Weed extension, training and the community

It is not uncommon for roadsides to contain rare plants because of the alienation to farmland or other uses of all the surrounding habitat, and in such locations environmental weeds pose a huge threat: unstoppable, unwanted, but largely uncontrollable for fear of damaging the rare plants.

CHARACTERISTICS OF ROADSIDES

In many ways roadsides are ideal havens for weeds. They are very long, narrow pieces of land, open to attack at almost every location.

Vehicle movement is the express purpose of every road, and yet this very movement in the vulnerable corridor is a primary means of spreading weeds. Some vehicles are devoted to carrying seed, hay, stock and other farm produce. Any escaping material can cause an immediate weed problem. Some vehicles service infrastructure such as pipelines and cables. Tyres can pick up weeds, seeds and diseases in one work site and transport them to many others. Gravel and road-making materials are carted around the countryside, and even the most benign passenger vehicle will regularly suck up material in one place and carry it in its own wind to dump it in another location on the roadside.

Dramatic profiles are an inevitable characteristic of many roadsides, especially in hilly Tasmania. As we lay out our flat ribbons of road we inevitably create cut and fill batters and disturb large quantities of soil. The batters are too steep and smooth for easy or natural revegetation, and remain bare for many years. The wind of passing cars dislodges the soil, which collects in the drain and forms a perfect seed bed; weed bed. As the silt builds up and rampant weeds grow they block the drain, so drains are scraped and the whole cycle starts again. Weeds grow thickest where there is plenty of water and fine soil; in a drain.

Anonymity is both a positive and negative factor. As already mentioned, roadsides contain many treasured plants simply because no-one cared to cultivate them as they did the paddocks. In this way the neglect has been benign. However the neglect of problem plants on roadsides has led to the unchecked spread of many weeds. In my own locality I have watched as the first one of many weed species have moved onto our roadsides. One small gorse bush, one pampas grass, one *Erica lusitanica*. The one has spread to become a few, and before long whole corridors are filled with weeds. Soon the weeds are over the fence and into the farmland. The neglect which allows this kind of weed spread would never be entertained in our domestic gardens.

ROADSIDE WEED CONTROL

The most common practices for weed control on Tasmanian roads are: scraping, where plants and collected silt are simply removed from their location; herbicide spraying, where unwanted plants are left dead in their place; and slashing, where the bulk of above ground material is removed, leaving roots and some shoots still intact in the soil. In part each method is effective, but in large measure each is at best ineffective and at worst counter-productive.

As previously discussed, scraping simply re-opens a new weed bed and may destroy valuable plants along with weeds. The scrapings are rarely carried away but usually windrowed, thus exposing even more soil and potential weed bed.

Weed extension, training and the community

Herbicide is generally non-selective in its destruction and leads to denudation of the ground and creation of a new weed bed. We have one striking example of this in Tasmania, where almost every table drain is infested with the large pasture grass *Paspalum*. This invasion was caused by repeated indiscriminate sprayings of the drains in spring when most other plants are vigorous but *Paspalum* is dormant. In this way all competition was removed, leaving a seed bed ready for autumn invasion by the *Paspalum*. Herbicide spraying has actually promoted this major weed.

Weed control by slashing is undoubtedly effective in the short term, reducing the biomass. It may also prevent seed spread if carried out at the correct time. However the removal of foliage only encourages the development of latent buds and lignotubers, and trees are encouraged to coppice or form epicormic regrowth and thus the unwanted vegetative material is actually increased rather than decreased.

In our opinion, the millions of dollars spent in Tasmania on roadside weed control of one kind or another is largely misspent (and there are \$2 million spent by the power authority in tree cutting alone). Almost all of the work consists of repetitive, indiscriminate programs carried out regardless of needs or results.

Greening Australia and a number of others in the community have begun a process to try to improve roadside vegetation management. Some new approaches have been identified and are being tried in small ways.

NEW APPROACHES TO EFFECTIVE ROADSIDE WEED CONTROL

New techniques can be sorted into different categories. Some of the suggestions are quite inexpensive, but even the more costly and labour intensive ones could be easily financed by simply abandoning the old ineffective practices and relocating the funds.

There are four categories of technique: awareness raising, so that workers have a better understanding of what plants really are roadside weeds, and why; maintenance and construction practices which avoid the creation of weed havens; selective control of weeds, using methods tailored to the specific problems which exist; and joint professional and community-based initiatives for control of roadside weeds.

WEED AWARENESS RAISING

Most people in the general community have a fairly low awareness about weeds. Before being exposed to weed experts most of us would have simply thought a weed was a dandelion or blackberry. In controlling roadside weeds, we have found it is useful to remember that there are no bad plants, not even good ones, only some plants in a helpful situation and others inappropriately placed. Plants come to us with their own special characteristics and we need to use them wisely, not try to change their nature.

In attempting to change the attitudes of some Tasmanian road workers, Greening Australia (Tas) has held numerous discussions, training sessions, field days and plant identification exercises. They have shown many colour slides of different plants and tried to explain their growing habits, benefits and impediments in different roadside locations. With this increased knowledge the workers have begun to appreciate that their real task is to find effective ways to manage each of the roadside plants, not simply to seek ways to destroy them all.

WEED AVOIDANCE

As already noted, many common roadside practices create areas of disturbance and exposed soil. In new road-making a certain amount of ground remodelling is essential; however roads which minimise that reshaping are better aesthetically, ecologically, from a landcare point of view and for weed prevention. They are generally also cheaper in the long run.

Where disturbance is necessary it is also most desirable to encourage rapid revegetation for all of the above reasons. Revegetation is generally most effective when batters are laid back and bare areas topsoiled, roughened, seeded and mulched. Bare roadsides with smooth, steep batters have been common in the past. These encourage erosion, drain silting and weed invasion and subsequent spread. They also look awful.

One very effective procedure in roadside weed control is therefore to avoid soil disturbance where possible, both in construction and maintenance work. Where plants must be removed, be selective and do not carry out blanket denudation. If soil disturbance is unavoidable then reinstate the vegetation immediately.

In Tasmania we have devoted considerable effort to these principles in enlightening road design engineers and in training maintenance and construction workers. We are producing a land calendar to (amongst other things) alert operators to the times of year when weed seeds are most prolific, so they can defer soil disturbing activities. In the field and in training sessions we are helping with identification of native plant communities so these can be kept pristine, and we are encouraging the use of already-disturbed and weedy areas for spoil dumps, vehicle parks etc.

One outstanding example of soil-conscious road making was tried in one Tasmanian forest location near St Helens. Here, APPM and Forestry Commission jointly planned and constructed a road along a granite ridge-top to minimise soil disturbance. The road location dictated a complete reversal of usual logging operations but was in every way most successful, allowing logging on a very mobile soil which would otherwise have been unharvestable. Minimum soil and vegetation disturbance also meant minimum opportunity for weed invasion.

SELECTIVE WEED CONTROL

Despite all the work on awareness and avoidance, Tasmanian roadsides do have many weeds which need to be treated. The problems range from the rampant pasture grasses *Phalaris* and *Paspalum* blocking drains to large trees growing under power lines and massive infestations of gorse in close proximity to valuable native plant communities and even to rare and threatened species. Each specific weed problem needs to be treated in its own appropriate way.

Greening Australia is working with HEC tree clearing gangs to teach them effective pruning techniques in place of their old hacking method which actually promoted unwanted regrowth.

To out-compete weeds and reduce the biomass and need for mowing, we are assisting with work on native grasses. Though the field is largely new and untried in our State, we have commissioned the preparation of a native grasses handbook and have also assisted both State and Local Government authorities to establish trial plots for kangaroo grass this winter.

Weed extension, training and the community

Where vigorous weeds and rare indigenous plants grow together very particular care is needed. With specialist advice from the Department of Primary Industries and Fisheries, Greening Australia (Tas) has involved local authority workers in hand removal and cut stump poisoning of gorse plants growing over rare plants of *Spyridium microphyllum* and *Acacia axillaris* on the St Pauls River.

These are just a few examples of the diverse methods being tried as replacements for the old, ineffective, blanket weed control methods which were previously so common on our roadsides.

JOINT ROADSIDE STEWARDSHIP

To raise the public interest and awareness of their potential involvement in roadsides, Greening Australia (Tas) has selected lengths of healthy indigenous roadsides for special attention. On one such roadside a group of "Friends of the Roadside" has been formed. In July they held a joint working bee with the responsible authorities. Volunteers used knapsack sprays and kitchen knives to attack individual problem weeds in a Bradley-style campaign against invading plants. On the same day the professionals mowed the weed-infested drains with a heavy duty tractor-mounted slasher, in a new program replacing the old indiscriminate spraying regime.

Except for the odd mistakes, the outing was very successful and we believe it shows a pattern for the future where both public opinion and volunteer working bees can help the professional road managers to improve their roadside practices and be more selective in weed control. Such days are not only useful work, but they also serve to allow the public and the road workers to better understand each other's points of view. In addition the rather scorned road workers come to feel more highly valued and then become more motivated and creative in their maintenance work.

CONCLUSION

In conclusion, we are able to report that the Tasmanian program of roadside weed control is proving interesting and beginning to show success. As new ideas are taken up by different groups we are seeing their initiative blossoming and even more selective and innovative weed control methods being developed. There is no doubt that in the expensive business of weed control money will be saved, ecological values will be upheld and the community's sense of responsibility and participation will be enhanced, all while pursuing more efficient and effective weed control on roadsides.