

INVASIVE ALIEN PLANTS

PRACTICAL TIPS ON THE MANAGEMENT AND ERADICATION OF INVASIVE ALIEN PLANTS

What is the difference between a weed, an invasive alien plant, a bush encroacher and an exotic plant?

A weed is a general term used to describe any plant growing where people do not want it to grow. Examples of these would be plants growing up through paving or growing between crops, competing for water and nutrients. An invasive alien plant is any plant which does not occur naturally within a region, and which has rapidly colonised land or water, often displacing naturally occurring vegetation. Such plants enter a region, either by being imported for horticultural or economic reasons or the seeds and spores have entered a region accidentally in animal feed or stuck to people's clothing. A bush encroacher is a woody species (usually indigenous), which has started to colonize a grass-dominated ecosystem. Exotic plants are plants imported from another region or part of the world into a region where they do not occur naturally. Unlike invasives, these exotic plants do not have a habit of spreading outside of areas where they have been purposefully planted.

Why are invasive alien plants bad?



A stand of invasive alien plants.

- They spread rapidly, displacing naturally occurring flora and fauna thus reducing species diversity.
- The bark, stems and foliage of many invasive alien plant species do not properly break down as they would in their home region, e.g. pine needles. This has a leaching effect on the soil as nutrients removed from the soil by the plant are not returned by normal decomposition.
- Soil pH can be altered by some species of invasive alien plants, e.g. gum trees, making rehabilitation after removal of invasive alien plants difficult.
- Many invasive alien tree species take up much more ground water than indigenous species.
- They increase the severity of fires as they increase the fuel load resulting in "hot" burns.
- Invasive alien plants are not as effective at binding the soil on river and stream banks and reducing the velocity of water flow during peak flow periods. They can thus be a contributing factor to damage caused by flooding.



Do I have a legal obligation to keep my land free of invasive alien plants?

Yes, you do. In terms of the Conservation of Agricultural Resources Act 1983, Regulation 15 (which is applicable to all land regardless of whether it is agriculturally zoned or not) and the National Environmental Management: Biodiversity Act of 2004, all land owners have a legal obligation to keep their land free of invasive alien plants.

Management versus eradication?

When dealing with severe infestations on large areas of land, you must decide whether you have the means to eradicate all invasive alien plants or to manage them so as to ensure that they do not begin to spread into areas that are still relatively free of alien plants. An eradication programme, which aims at containing high infestations and eradicating areas of low infestation first, achieves a lot more, economically and environmentally, over the long term. Some areas may be beyond an eradication programme and it might be better to manage the problem rather than eradicate it. This would allow you to place more resources into an eradication programme in areas with a higher percentage of indigenous vegetation.

It is important to work out a proper management programme that will help you set control, eradication and rehabilitation targets over the short, medium and long term. Invasive alien plant management is only effective if it is approached with the knowledge that it is a systematic task that will take time and require an initial action and a series of follow-up treatments before you start to see clear results. The benefits are, however, worth the effort and it is often wise to discuss the drafting of a management plan with your local conservation officer or agricultural extension officer, if you are in a more rural part of the EMA.

What are the benefits of eradicating/controlling invasive alien plant infestations on my land?

- An increase in the value of your property, either from an aesthetic viewpoint if you live in an urban area, or a productivity perspective if the land is still used for agricultural purposes.
- Better visibility over one's property as alien thickets often hide activities like illegal dumping, which brings a variety of pests.
- The return of wildlife such as birds, butterflies and other creatures.
- An increase in plant diversity.
- Better soil binding ability, which reduces soil erosion.
- More efficient nutrient recycling due to better decomposition of leaf litter.
- More stable soil pH.

What should I consider when planning my invasive alien plant control programme?

There are a number of publications available that will guide you on how best to treat infestations; however, a successful alien plant eradication programme needs to take into account a number of variable factors such as:

- Percentage infestation.
- Density of infestation.
- Size of infestation
- Dominant species present.
- Topography of the land.
- Soil conditions.
- Watercourses.
- Climate and seasons.
- Available resources.

Tips to follow when planning your eradication programme

Each of these variables may affect the manner in which you approach your management programme. The following are some considerations to include within your programme:

- Divide your property into areas of high, moderate and low infestation. Start clearing in the areas with the lightest infestation and only once these areas are under control should you progress to more densely infested areas. The benefit of this approach is that lightly infested areas have greater potential to recover, and are cheaper and quicker to manage. Also, lightly infested areas have the potential to get much worse, while dense infestations have already peaked.
- To avoid the threat of soil erosion when working on dense infestations on steep areas, always work horizontally along the contours. Cut horizontal bands of approximately 3 m in width, roll back all the cut material so that it forms a “frill” along the band. This will help slow down water run-off. Leave about a 2 m swath of uncut material before starting on the next 3 m wide band. As the cut bands start to re-vegetate, start work on the uncut bands.
- Start clearing from the top of slopes and water courses as this will limit the amount of seed being washed to lower areas that may be relatively free of infestation.
- On gentle gradients, start working from the outside and work inwards.
- There will always be some measure of coppice and seed germination after the initial clearance work. Proper follow-up work is thus essential and should be conducted regularly. If this is not done you will have to start again from the beginning, which can be a costly exercise. Research has shown that, if the programme is executed properly and consistently, the costs and time expended on each consecutive follow-up drops drastically. You will then reach a “maintenance” stage where one monitors the area regularly for any seedlings that may have germinated. These, in most cases, can be pulled out by hand. Follow-up work can be undertaken on a 3- to 6-monthly basis, depending on the rate of re-growth.

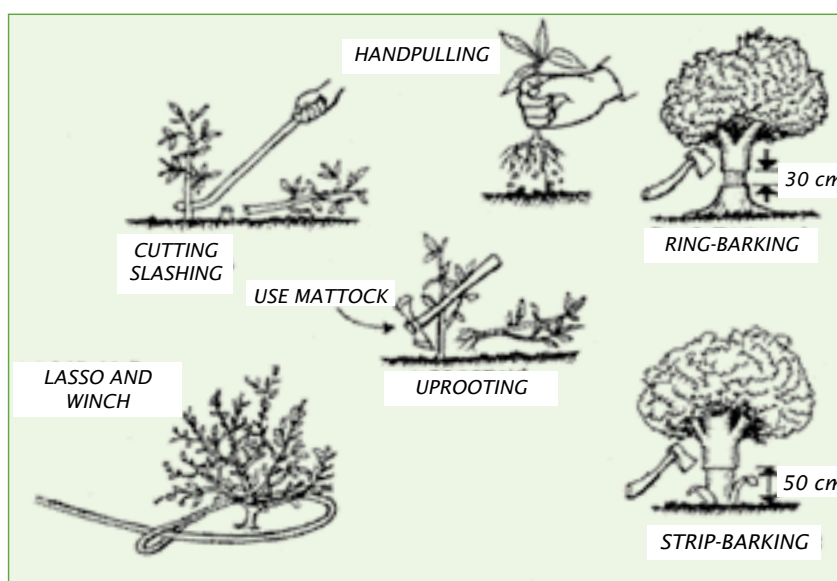


Clearing of invasive alien plants.

Eradication methods

- The use of **herbicide** is essential to the success of an eradication/ control programme as it greatly reduces the re-growth potential. Unfortunately, if the wrong herbicide is chosen, one can do more harm than good to the environment. When choosing the most appropriate herbicide for the job, consider the following:
 - ✓ The relative toxicity to humans and animals.
 - ✓ Selective vs non-selective herbicides? There are advantages and disadvantages to each type. When dealing with light to moderate infestations in grass-dominated veld types, a broad-leaf selective herbicide is recommended so as to reduce the danger that spray drift could kill natural grass. In areas of heavy infestation, a non-selective herbicide is a better choice, but use it with care.
 - ✓ Residual effect. Some active ingredients will remain in the environment for months, even years, before denaturing. Others start to denature as soon as they enter the soil. If a persistent herbicide is used, ensure that it is not used near any watercourse or area with a high water table.

- ✓ Is it registered for the plants you wish to target?
 - ✓ Always observe all safety precautions printed on the labels and manufacturers' instructions when mixing and applying herbicide. To ensure that empty containers are not used for carrying drinking water, or any other substance for human consumption, always destroy and properly discard them at a registered landfill site.
 - ✓ Herbicide should be applied during the active growing season, with the exception of the indigenous Bracken Fern (*Pteridium aquilinum*) which should be treated at the end of the active growth season, in autumn.
 - ✓ Herbicides can be applied in various ways. They can be sprayed onto dense infestations or painted onto the main stem of the plant or cut stump.
 - ✓ Spraying herbicide on small infestations is not recommended. Cut and apply herbicide to the stumps either with a brush or sponge.
 - ✓ Spray only on windless days when there is no danger of droplets drifting onto non-target species.
- **Invasive trees** growing away from any structures or roads can be ring-barked, poisoned and left standing rather than felled. They will slowly collapse over time and will be a wonderful habitat for birds such as woodpeckers and barbets. If trees are felled, particularly on slopes, then they should be felled across the slope to act as natural barrier lines against soil erosion.
 - Moderate to low infestations in **wetland areas** can be treated by controlled burning at the beginning of autumn, followed by mechanical removal or herbicide application in mid spring. *Please note, however, that wetlands are protected by law, and no heavy machinery should be used to remove invasive alien plants, no matter how high the infestation, without prior authorization from relevant government departments.*
 - Spindly invasive alien plant species, such as Triffid Weed (*Chromolaena odorata*), growing on sandy soils, where there is between 30-40% grass still present, can be eradicated using annual controlled burns.
 - Uprooting should be reserved for small plants and shrubs. This method is not recommended for trees with a stem diameter of more than 100mm.



Methods of alien vegetation clearing.

For more information please contact:

- Plant Protection Research Institute
ntjg@natal1.agric.za or 033 355 9416/ 033 355 9413
- National Department of Agriculture, Directorate: Agricultural Land and Resource Management,
PieterB2@nda.gov.za or 033 345 3515/ 033 345 3557
- Ezemvelo KZN Wildlife, mortyk@kznwildlife.com
or 031 274 1150
- eThekweni Municipality Parks, Recreation and Leisure Department: Natural Resources Management Division
MkhwanaziSibusiso@durban.gov.za or 031 311 6717
- eThekweni Municipality Environmental Management Department
pettersont@durban.gov.za or 031 311 7011
- Your local Conservancy