Northland
REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

MADAGASCAR RAGWORT

Senecio madagascariensis



Identify it early. Stop it spreading.
Protect your stock and pasture.

April 2026

Introduction

Madagascar ragwort is a major threat to pastoral farming in Northland. It invades pasture rapidly and causes significant losses in pasture utilisation and productivity. It is highly toxic to cattle and horses and can cause irreversible liver damage. The plant is spreading across Northland and has the potential to become New Zealand's most damaging pastoral weed.

This guide gives you the information you need for early identification, prevention, control and pasture management so you can protect your property.

Key facts about Madagascar ragwort

Several factors make Madagascar ragwort a much more serious threat than other pasture weeds:

» Major impact on pasture: Stock avoid grazing near it, which creates a 'shadow effect'. This allows the plant to spread and results in large areas of pasture loss. Infestations can devastate productivity, with reports of carcass weight reductions of up to 35% and milk solid losses of up to 65% per hectare.

» Dangerous to stock: It is poisonous and can be fatal to livestock. It remains toxic in hay and silage, and there is no treatment available for affected animals.

» Establishes easily and rapidly: A single adult plant can produce up to 10,000 seeds within six weeks of germination. It can germinate year-round after warm rainfall. Most seed drops close to the parent plant, but seeds can also travel long distances by wind or as contaminants or 'hitchhikers'.

» Difficult and costly to control: No single method works at all life stages. Effective control usually requires a combination of pasture improvement and management, along with repeated and carefully timed herbicide applications, especially where infestations are well-established.

Madagascar ragwort is a weed that needs to be taken seriously

» Prevention, early detection and early intervention are essential to keep it from establishing.

» Established infestations require planned and prioritised control, timed around germination peaks to prevent mass seeding and reduce the seed bank.

» Competitive, healthy pasture is key to reducing germination and density. Madagascar ragwort thrives in low fertility soils and pastures weakened by drought or overgrazing.



How to identify it

Daisy-like flowerheads. **Photo John Virtue**





Madagascar ragwort

» Is a branching, erect, annual to short-lived perennial herb.

» Has bright yellow, daisy-like flowers, 1–2 cm in diameter. Each flower has 13–15 petals. Flowers can be present year-round, but are most common in autumn and spring.

» Has narrow, lance-shaped leaves that are usually 2-7 cm long and have finely toothed edges. Leaves are sessile (no stalk) and alternate along the stem.

» Has white, fluffy seedheads. Seeds are small, cylindrical and 2–3 mm long. Each seed has rows of very fine short hairs and a silky pappus (parachute).

» Has a shallow, branched taproot with fibrous roots. Stems can root if they touch the ground.

» Can vary in size and shape depending on environmental conditions.

It is known as 'fireweed' in Australia, where it is a Weed of National Significance.



Photo Julianne Bainbridge



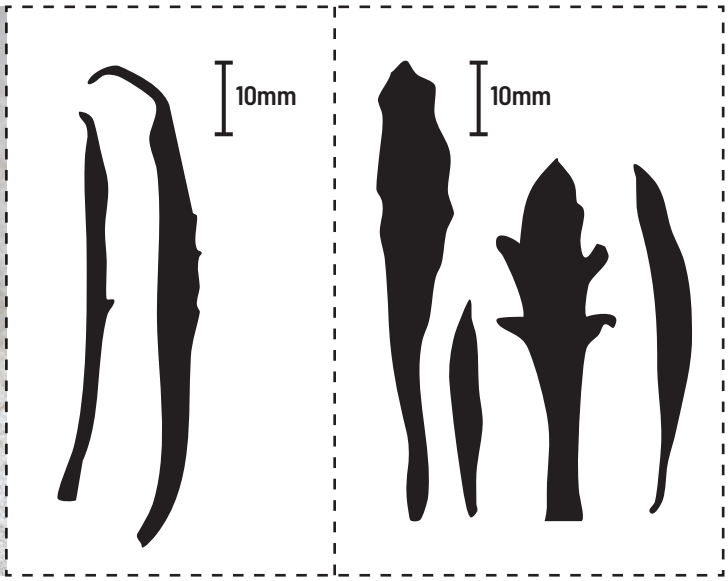
Young plant, showing lance shaped, toothed leaves. **Photo John Virtue**

Know the difference



Gravel groundsel (left) with bracts wider than the 0.8mm wide metal tool, while Madagascar ragwort (right) has bracts the same width or smaller than the tool. **Photo Trevor James**

Source Schmidt-Lebuhn et al 2022



Comparison of typical leaf shape and size of Madagascar ragwort (left) and gravel groundsel (right).

Similar species

There are a number of other yellow flowering pasture weeds that look very similar to gravel groundsel. There are also several similar native Senecio species, but these are unlikely to be found in pastures.

Gravel groundsel *(Senecio skirrhodon)*

Gravel groundsel is widespread in New Zealand and can look identical to Madagascar ragwort, but it is more commonly found on roadside and gravelly/sandy areas, rather than in pasture.

The best way to tell the difference is by the width of the involucral bracts around the base of the flower head where it attaches to the stalk. Gravel groundsel usually has bracts that are wider than 0.8 mm, whereas Madagascar ragwort has bracts that are 0.8 mm or smaller. A 10x magnifying glass is usually needed to be able to measure this accurately.

The leaves can also be an indicator but they are less reliable. Madagascar ragwort leaves are simpler, less variable and narrower, whereas gravel groundsel leaves can be larger, wider and more variable or lobed.

Buttercup *(Ranunculus acris or Ranunculus repens)*



From a distance, a paddock of these yellow-flowering plants can look similar to a Madagascar ragwort infestation, but these are easily distinguished by their buttercup-type flower and leaf shape.

Ragwort *(Jacobaea vulgaris)*

Photos Trevor James



Has a similar yellow daisy-type flower but has more finely divided leaves, and grows as a rosette before becoming a much taller, upright plant.

Where is it and where can it grow?

Madagascar ragwort originates from southern Africa and is a major weed in Australia and Hawaii.

In New Zealand it is currently only known to be in Northland. It is widespread in the Far North and Kerikeri area, and increasingly common in the mid-north. It has been confirmed as far south as Pakaraka, Kaikohe, and Waima in the Hokianga.

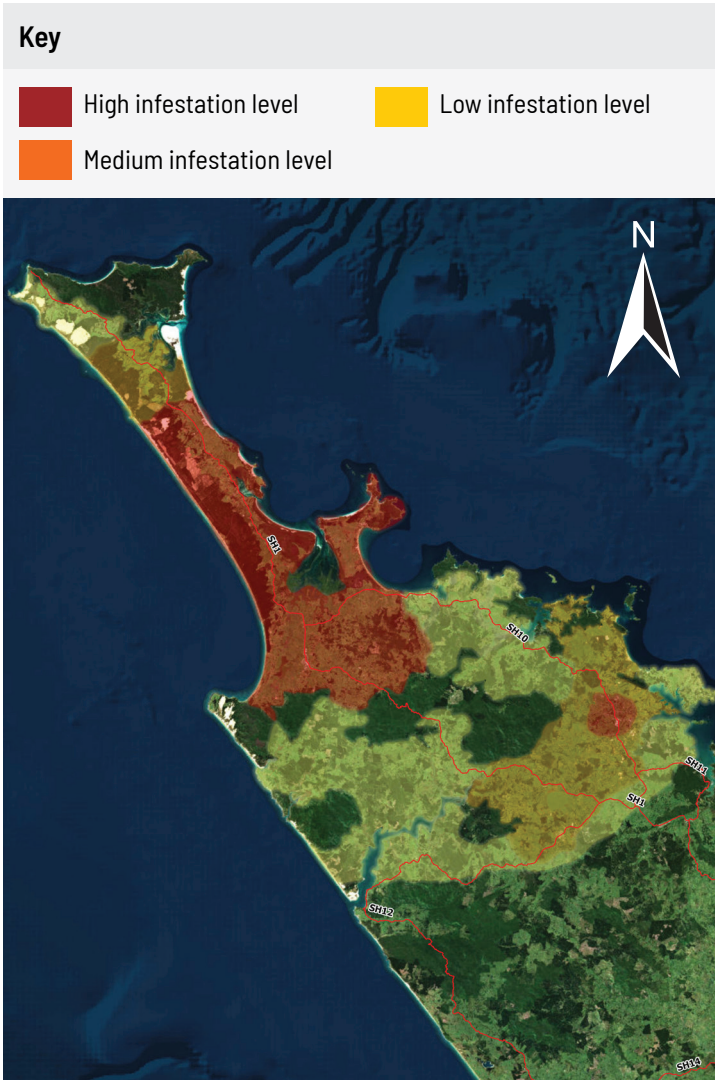
It is thought to have been in Northland for approximately 20 years, but it was only confirmed in 2022 by genetic analysis which differentiated it from gravel groundsel *(Senecio skirrhodon).*

Its distribution is likely to be significantly underestimated given the length of time it has been established.

It has a wide environmental tolerance; climate modelling and overseas experience indicate most of the North Island and large areas of the South Island are susceptible. Frost can kill young seedlings, but older established plants are more tolerant.

Madagascar ragwort is most prolific in low-fertility pastures, and areas damaged by drought or overgrazing. Dense pasture cover can suppress germination and establishment.

Map details as at February 2026





Seedhead showing seeds attached to parachute-like pappus. **Photo John Virtue**

Lifecycle

» Is annual but behaves as a short-lived perennial where there is sufficient moisture over summer.

» Germination peaks in autumn, but can occur year-round after rain when temperatures are 15–27°C. Exposed soil and soil disturbance are key germination triggers.

» Most seedlings appear between March and June then grow quickly to produce their first flowers in 6–10 weeks.

» A single plant can produce 10,000 viable seeds. Most seeds lack dormancy and germinate readily, but some will stay viable at depth in the soil for up to 10 years.

How does it spread?

The seed can spread via wind dispersal, animals and humans. Via wind, most seed is likely to drop within 100m, but long-range dispersal (>1 km) does occur. Human activity significantly increases the distance seed can spread.

Risk pathways include

» **Contaminated fodder** Hay, baleage, and other fodder crops can carry seed.

» **Stock movements** Seeds can be carried externally or in the gut.

» **Machinery and vehicles** Farm, forestry, and other vehicles can move seed between properties.

» **Clothing and equipmen**t Contaminated gear can spread seed.

What are the impacts?

Stock poisoning

» Madagascar ragwort contains toxic chemicals called pyrrolizidine alkaloids. All parts and growth stages are poisonous to cattle and horses, causing permanent liver damage, and there is no treatment available for affected animals. Alpacas, donkeys, pigs and chickens are also highly susceptible.
It remains toxic even when dried in hay or in silage.

» It is unpalatable to cattle and horses and they avoid eating it. Poisoning is most likely to occur when Madagascar ragwort is dense and there is no alternative pasture or other feed available.

» There is a higher risk of poisoning for young stock or new stock unfamiliar with the plant, or if fed contaminated hay, baleage or silage. Agrichemical treatment or mechanical control makes Madagascar ragwort more palatable to stock, increasing the likelihood of ingestion and poisoning.

» Cattle and horses that ingest it exhibit symptoms that include reduced growth, loss of condition, low milk production, scouring, skin sensitisation to sunlight, weakness, aimless wandering, loss of coordination, jaundice, liver failure and sudden death.

» Sheep and goats can graze it and are about ten times less susceptible to its toxins than cattle, but can still experience cumulative impacts from prolonged or continuous exposure, especially for breeding animals.

Pasture utilisation and productivity losses

While the toxicity of Madagascar ragwort is a serious concern, its most significant impact lies in the loss of pasture productivity. Stock avoid grazing near it due to its toxicity, creating a 'shadow effect' (areas of ungrazed pasture surrounding infestations), which contributes to further spread, rapid intensification and further declines in pasture utilisation. Where infestations have taken hold, declines of up to 35% in carcass weights, and 65% in milk solids have been reported.

Pastures and fodder crops containing it cannot be used to make hay or silage because of the risk of toxic contamination. There is also the risk of seed spread if harvested when setting seed.

High costs of control and management

There is no single control method that is effective for all life stages that does not impact on beneficial pasture species. The very rapid growth rate from germination to seeding and potential for year-round germination makes Madagascar ragwort extremely challenging to manage. Effective control for established infestations requires repeated, carefully timed chemical or physical control, combined with grazing management and pasture improvement. This intensive management represents a significant annual management cost.

Prevention and early eradication





Preventing establishment through on-farm pest and disease prevention, and early detection and control are the best ways to protect your farm. The seeds are very small and easy to move accidentally.

Farm biosecurity measures

» Source hay and fodder from unaffected areas.

» Ensure all machinery and vehicles entering the property are clean.

» Establish a dedicated wash-down area.

» Use a 'quarantine paddock' for new stock. Avoid moving stock from heavily infested areas.

» If you have Madagascar ragwort on your property do not make hay or silage in affected paddocks.

Vigilance

» Investigate any unknown yellow-flowering plant in or near pasture.

» Ensure all staff know what to look for; carry sealable bags on vehicles for immediate removal.

» If unsure, place a good-sized sample with flowers in a **completely sealed bag**, and bring it into your local Northland Regional Council office, or to your rural supplier's Technical Advisor or farm consultant. Be very careful not to disturb seed heads or spread seed when controlling or transporting Madagascar ragwort.

» Spread the word – help make others in your community aware of Madagascar ragwort so they can also avoid accidentally bringing it in, and can be vigilant and act early if required.

Act early

If detected, control must start early and be done regularly to prevent plants seeding, or the seed bank and infestation size can quickly become unmanageable. A single plant can create a significant infestation within a very short period - one plant can produce 10,000 viable seeds that can then be dispersed by wind and can set seed in as little as six weeks after germination. Keep checking the area every two to four weeks to control new plants before flowering.

Control and management





Woody stems on an older plant and shallow fibrous roots.

Effective long-term control of this weed requires an integrated approach that includes pasture improvement, grazing management, and agrichemical or manual control. Control and management advice varies depending on the scale of the infestation, the age and density of the seedbank, and the specifics of your farming operation. Further details on control and management can be found in the report by AgResearch (see back cover for more info).

Pasture and grazing management

Establishing and maintaining competitive pastures is key to reducing the germination rate and density of Madagascar ragwort in pasture. It thrives in low-fertility soils and pastures damaged by drought or overgrazing.

In general

» Rotational grazing is more effective than continuous grazing.
» Minimise soil disturbance to reduce seedling establishment. Cultivation and soil disturbance triggers germination in pastures and can rapidly worsen infestation levels.
» It is important to have a pasture that is competitive year-round, and increased diversity in pasture may be beneficial. Kikuyu pasture is considered competitive in Northland, however in autumn and winter it's growth and competitivity reduces. Tall fescue (or other cool-season grasses) under-sown into kikuyu may increase pasture competitivity.
» Pasture seeded by direct-drill will trigger less germination of Madagascar ragwort than those that are cultivated.
» Adding nutrients (i.e. superphosphate, urea) can increase pasture competitivity but will also increase the competitivity of Madagascar ragwort, so should be done in such a way that the pasture receives more benefit.
» The pasture renovation process can be used to remove seedlings by controlling them in stale seedbeds and annual crops but this process must be managed carefully.
» Consider adding windbreaks around property boundaries or paddock boundaries to reduce the distance windblown seed can travel. Observations suggest that seed can be caught and concentrated by tall shelter belts/tree lines.

Physical control

Hand weeding

This can be highly effective for new infestations with few plants. Early and regular control is needed to prevent plants seeding, otherwise the seed bank and infestation size can quickly become unmanageable.

» Pull plants carefully so they don't snap off at the roots, ideally while they are young and before seed forms.
» If you need to pull plants where seed is present, do so very carefull , place in a sealed bag, and clean clothing and equipment used.
» Keep checking the area every two to four weeks to control new plants before flowering.
» Plants can be burned, but only in non-domestic fireplaces due toxicity.

Mowing, slashing and mulching

Manual control options for large infestations carry significant risk of worsening the issue if done poorly, and must be repeated very regularly. In addition, pruned plants can become woody and more resistant to herbicides. Seed can also accumulate on machinery, and can spread seed from affected paddocks to unaffected ones. Further information can be found in the report by AgResearch (see back cover for more info).

Cut plant material becomes more palatable to stock but remains toxic, and so require withholding periods to avoid stock deaths.

Agrichemical control

Despite considerable trial work overseas there is no single agrichemical control method that effectively controls all life stages without impacting on desirable pasture species. Different approaches are required depending on the age of the plants, and the size and density of the infestation and seedbank.

A large, well-established infestation will require a sustained and ongoing programme that is carefully timed around germination peaks, uses a rotation of chemical options and is integrated with pasture management. Trials to refine and improve control methodologies are ongoing.

The table on page 10 summarises the agrichemical methods most commonly in use in New Zealand for Madagascar ragwort control, their efficacy on the different life stages and impact on pasture. Application rates are not included here due to off-label considerations; please speak with your rural supplier's Technical Advisor or contact Northland Regional Council's Pest Plant Biosecurity team for advice on your specific situation and application rates.

General principles

» For established infestations, timing of control is critical. Control should be timed around germination events to target newly germinated seedling and juvenile plants while they are more susceptible and before they begin flowering. This often means there is a narrow window for effective control.

» The main germination event is usually in autumn, following the first rains, but can occur throughout most of the year, especially after warm rain events. Plants will usually flower 6 to 8 weeks after germination.

» Seedlings and younger plants are far easier to kill than larger plants. Woody adult plants and flowering plants are the most difficult to kill.

» Young plants can be boom sprayed with several options including 2, 4-D based mixtures.

» Some of the recommended products and mixtures will damage clover, and some will also impact grass.

» Adult plants require spot spraying with harsher chemicals that will also damage clovers and sometimes grasses. For well-established infestations it may be more beneficial to trade-off damage to desirable pasture species in the short-term to more rapidly bring an infestation under control and protect other unaffected parts of the farm.

» Some landowners are having success with weed wiping after grazing down legumes prior to application.

» **Sprayed plants can take time to die; do not graze until completely dead and browned off to reduce the risk of poisoning stock.**

» To prevent resistance from evolving, unrelated chemical groups with different modes of action should be rotated between and other forms of non-chemical management should be used to drive down the weed seed bank.

Biocontrol

Several species have been investigated and tested overseas but no suitable biocontrol agents have been identified to date. Biocontrol can be a powerful control tool for weeds that are widespread and hard to control with conventional methods. A feasibility study was completed for New Zealand in 2023 which outlines the next steps for research, which include genetic analysis and further surveys in the native range to identify potential agents. Northland Regional Council is funding the genetic analysis as the first step in this process.

CAUTION: These agrichemical options differ in their withholding periods, non-target risks, recommended timing and methods of application. PLEASE READ THE LABEL THOROUGHLY and ensure that all instructions, safety, and legal requirements are observed. Please also note that some applications may be considered to be an 'Off-label' use. 'Off-label' use is when a product is used to control a pest but the label does not carry a claim for that crop or target. While off-label use is permitted for some products, you are not able to rely on label directions to ensure regulatory controls are complied with. Lower default maximum residue limits (MRLs) may also apply. MRL non-compliances can have serious and negative financial implications, so ensuring you understand the rules and requirements for off-label use and how to comply is important. Please see the New Zealand Growers association website for further information on Off label use.

In addition to formal withholding requirements on the label, due to the Madagascar ragwort becoming more palatable after treatment, ANY sprayed pastures should not be grazed until the Madagascar ragwort has completely browned off.

Current commonly used agrichemical control options.
Talk to your rural supplier's Technical Advisor or Northland Regional Council's Pest Plant Biosecurity team for advice on application rates.

Active ingredient	When to apply	Residual effect	Grass damage	Clover damage*	
When broadcast spraying established infestations with herbicides that do not control adult plants, timing is critical to achieve good control. Plan your control around germination peaks (triggered by rainfall - usually autumn to early winter) to target newly germinated seedling and juvenile plants while they are more susceptible and before they set seed. Wait until as much of the germination has happened as possible, but before the bulk of the plants begin to flower. This is usually 6 to 8 weeks. If treatment occurs too early, seed germinating after this will set seed. If treatment is too late, more mature plants will survive the control and set seed.					
2,4-D amine (dual salt) + dicamba + Bonza®	Seedling to pre-flowering adult plants	Severe	No	Moderate	See note above on timing. The 2,4-D/dicamba/Bonza® mix is more effective on larger plants than the 2,4-D/flumetsulam/Bonza® mix, but higher dicamba rates increase clover damage. Lower rates of dicamba will be less damaging to legumes but less effective on larger plants. For broadacre spraying use high water rates (100–200 L/ha) for best results. It is not recommended to undertake broadacre spraying with this mix more than once within a year to avoid exposing adult/flowering plants more than once which increases the risk of resistance developing.
2,4-D amine (dual salt) + flumetsulam + Bonza®	Seedling to juvenile plants	Slight	No	Slight	See note above on timing. For broadacre spraying use high water rates (100–200 L/ha) for best results. While this mix is in use by some farmers to control seedling to young juvenile plants , it may be the addition of Bonza® rather than the flumetsulam that is improving its efficacy over standard 2,4-D amine applications. Further trials to assess this are underway.
2,4-D amine (dual salt)	Seedling to small plants	Slight	No	Slight	
Picloram + triclopyr	Spot spray – Adult plants	Severe	Slight	Severe	
Aminopyralid + picloram + triclopyr	Spot spray or weed wipe – Adult plants	Severe	Slight	Severe	
Metsulfuron	Spot spray – Adult plants	Severe	Moderate	Severe	

* Clover damage can vary greatly depending on clover growth, time of year and herbicide formulation. Please read the label for specific information.



Further information

Visit nrc.govt.nz/MadagascarRagwort for further information.

» AgResearch report: Review of current control methodologies of Madagascar ragwort and control trial design.

» Manaaki Whenua Landcare Research Report: Feasibility of biological control of Madagascar ragwort.

» AgPest's Madagascar ragwort webpage.

» Virtue, J. G., & Sheehan, M. R. (2022). Fireweed: National best practice management manual for fireweed (Senecio madagascariensis). Department of Agriculture, Fisheries and Forestry, Canberra.

Contact information

For advice, agrichemical application rates and help with identification, contact your rural supplier's Technical Advisor or Northland Regional Council's Pest Plant Biosecurity team.

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