

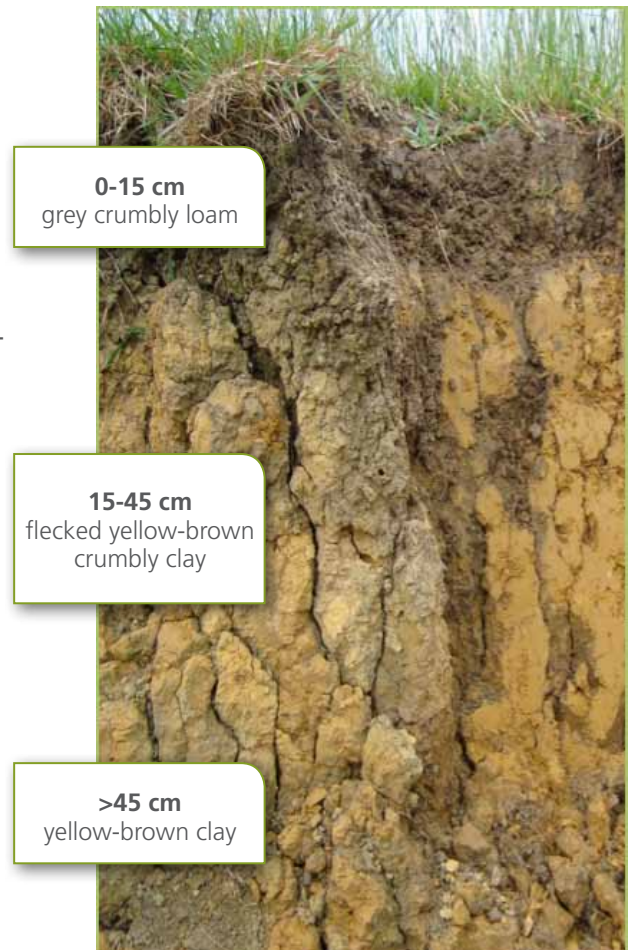
# Young greywacke soils

## Soil types in this group

- Marua brown clay loam - MRr, MRrH\*
- Marua clay loam - MR,MRH\*
- Marua light brown clay loam - MRu, MRuH\*
- Te Ranga clay loam, stony clay loam steepland soil - TRS
- Te Ranga light brown clay loam, stony clay loam steepland soil - TRuS
- Tikitohe gravel silt loam - TV,TVH\*
- Tikitohe red gravel silt loam - TVr,TVrH\*

\*The H denotes the hill variant of this soil type, which occurs on slopes over 20° and has a shallower profile.

This fact sheet uses NZ Soil Bureau map series soil type names and abbreviations.



*Marua clay loam (MR, MRH) soil profile*

## Features of young greywacke soils

- These soils formed on hill country along Northland's eastern edge, from Mangonui south to Bream Tail
- They are part of the Marua and Omaiko soil suites
- Greywacke is a hard, compacted mix of sandstone and siltstone basement rock
- Soils are weakly to moderately leached
- Marua suite soils on steep slopes are prone to landslide erosion during high rainfall events
- Tikitohe and Te Ranga soils are shallow and drought prone

## Structure and drainage management

Issues	Management tips
Marua soils pug easily when wet, sealing soil surfaces	Avoid overstocking and heavy stock on Marua soils to prevent compaction and soil sealing
	Consider draining wetter Marua light brown clay loams
Marua clay loams are difficult to cultivate because of clay content	Oversow or direct drill for pasture renewal where clay prohibits a fine tilth
Hard rock is close to the surface on steep Te Ranga slopes which erode readily even under forested conditions	Consider retiring very steep or marginal pastoral land from grazing if pastoral returns are poor and/or weed invasion is a problem
Streams draining catchments with Te Ranga soils carry a large gravel load due to natural erosion	

## Erosion control

Erosion risks	Soil type	Specific problems	Possible solutions
Slipping (landslide erosion)	Marua suite	Dry summers followed by high intensity rainfall can result in slips	Plant poplars at 10-15m spaces across hillsides; increase planting density (e.g. 5-10m) on active slips  Open plant poplars on slump terraces
Slump terrace formation		Clay washed down through the soil profile creates a slip plane  Water flowing down through the cracks removes support from adjoining slopes, which then slump	
Shallow slipping	Tikitohe soils	Shallow Tikitohe soils slip, exposing subsoil which is difficult to revegetate	Reduce stock pressure to prevent pugging and overgrazing, which can lead to sheet erosion  Restore and create wetlands in less productive low-lying areas to trap sediment
Sheet erosion		Under shallow-rooted pasture in particular, sheets of topsoil slide into waterways, polluting streams and reducing farm production	
Erosion leading to exposure of bare rock	Te Ranga soils	Te Ranga soils are prone to sheet erosion under pasture, increasing weed invasion  Steepland Te Ranga soils slip often, leaving bare rock that is very difficult to revegetate	Consider retiring very steep or marginal pastoral land from grazing if pastoral returns are poor and/or weed invasion is a problem



Typical greywacke hill country, Kaeo River catchment

## Nutrient management

Soil type	Nutrient status	Management strategies
All young greywacke soils	Previous trial work found that the micronutrient molybdenum creates a significant response in these soils	Seek expert advice for soil testing and fertiliser recommendations
Te Ranga suite	Much of the original, naturally fertile topsoil has been lost since deforestation making this marginal land for farming	Consider alternative land uses due to marginal economic returns from pasture
Marua suite	Natural fertility is reasonable	Responds well to fertiliser inputs, but ensure application rates are based on soil test results
Tikitohe suite	Leaching is moderate to strong, and natural fertility is low	Fertilise 'little but often', but seek expert advice for soil testing and fertiliser recommendations

## Drainage classes

Soil symbol	Full name	Drainage class
<b>MARUA SUITE</b> Basement rock: greywacke and argillite		
TRS	Te Ranga clay loam, stony clay loam steepland soil	4 - Well drained
TRuS	Te Ranga light brown clay loam, stony clay loam steepland soil	4 - Well drained
MRr, MRrH	Marua brown clay loam	4 - Well drained
MR, MRH	Marua clay loam	4 $\Rightarrow$ 3 - Moderately well drained
MRu, MRuH	Marua light brown clay loam	3 $\Rightarrow$ 2 - Moderately - imperfectly drained
<b>OMAIKO SUITE</b> Basement rock: quartzite		
TV, TVH	Tikitohe gravel silt loam	4 - Well drained
TVr, TVrH	Tikitohe red gravel silt loam	4 - Well drained

## Northland soil factsheet series

- Northland's climate, topography, historic vegetation and mixed geology have combined to form a complex pattern of soils across the region. There are over 320 soil types in Northland. Other regions in New Zealand average only 20 soil types per region.
- The information in this fact sheet is based on a 1:50,000 mapping scale. Therefore, it is not specific to individual farms or properties. However, it may help you to understand general features and management options for recent alluvial soils.
- Knowing your soils' capabilities and limitations is the key to sustainable production in Northland. Northland Regional Council (NRC) land management advisors are available to work with landowners to provide free soil conservation advice, plans and maps specific to your property.
- Regular soil tests are recommended. If you are concerned about your soil structure or health, the Visual Soil Assessment test could be useful. Contact the land management advisors at Northland Regional Council for more information.
- Further background information about the processes that have formed these soils can be found here: [www.nrc.govt.nz/soilfactsheets](http://www.nrc.govt.nz/soilfactsheets)

Contact a land management advisor on  
0800 002 004 or visit [www.nrc.govt.nz/land](http://www.nrc.govt.nz/land)