Recent sands

Soil types in this group

- Marsden sand - MD, MDH
- Pinaki sand - PN, PNH
- Whananaki sand - WD

*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.

Features of recent sands

- Recent sand soils formed less than 4,000 years ago and cover 15% of Northland
- They are part of the Pinaki soil suite
- These soils are developing on stabilised former dunes inland of the mobile coastal sand dunes
- Topsoils are not well defined because organic matter has not built up yet, however they do support plant growth
- West coast dunes are more fertile than east coast dunes, because they are closer to nutrient-rich source rivers such as the Waikato
- East coast variants were carried around North Cape, leaving only fine, low fertility silica

Pinaki sand (PN)

Drainage classes

Soil symbol	Full name	Drainage class
PINAKI SUITE Formed from sands deposited by ocean currents		
MD, MDH	Marsden sand	6 - No natural water retention capability
PN, PNH	Pinaki sand	5 - Excessively drained
WD	Whananaki sand	5 - Excessively drained

Structure and drainage management

Issues	Management tips
Low organic matter content and lack of fine particles result in these soils having a very low water holding capacity and are consequently susceptible to drought	Maintain dense vegetation cover to help build up organic matter, prevent soil loss and reduce leaching
All recent sands have begun to develop soil structure, but it is weak and very loose making any type of disturbance a threat to soil structure (e.g. logging, soil cultivation)	Logging and excavation should be restricted to wet months to reduce wind erosion
Sand drift from nearby loose dunes can bury pasture	Cultivation should be kept to an absolute minimum to avoid destroying the developing soil structure and losing topsoil
Recent sands have no binding elements such as clays, and are prone to leaching of applied fertiliser and urine or effluent	
Whananaki sands have the finest texture in this suite with more organic matter including thin silt, clay or even iron cemented layers from estuarine deposits	These soils can provide good wintering options, however high nutrient leaching from intensive stocking or standoffs needs to be avoided in sensitive catchments such as around dune lakes

Erosion control

Erosion risks	Soil type	Specific problems	Possible solutions
Wind erosion	All recent sands	Loss of cover can lead to formation of sand blows. These areas are difficult to stabilise and revegetate Even the actions of stock that create bare ground can increase vulnerability to wind erosion Loose sand drifts adjacent to paddocks can bury fences and pasture	Maintain dense vegetation cover at all times Forestry can reduce wind erosion and help stabilise dunes Align tracks across rather than with the prevailing wind Stabilise mobile dunes adjacent to pasture with native spinifex; its roots grow over the surface, rather than deep into the ground, creating low, rounded dunes less susceptible to wind erosion Detention dams may be useful to slow water and maintain pasture species Appropriately engineered flumes or armouring may be required to stabilise severe gully erosion and enable conservation plants (e.g. salt tolerant willows, sand kanuka, flax) to establish
Gully erosion	All recent sands	Drainage depressions are prone to gully erosion Severe gully erosion	

Nutrient management

Soil type	Nutrient status	Management strategies
All recent sand soils	Minimal clay content in these free draining soils makes them prone to leaching; both east and west coast sands are low in micro nutrients, especially copper, which is essential for stock health	Seek advice from your fertiliser consultant and vet for nutrient requirements Fertilising 'little but often' improves efficiency and reduces leaching risk
West coast sands	West coast sands are naturally higher in phosphate than east coast sands	Maintaining good pasture covers helps build soil organic matter and retain nutrients in topsoils
East coast sands	East coast sand is deficient in phosphate	Seek advice from your fertiliser rep for attaining correct fertility

Pinkaki sand (PN, PNH) landscape, Pouto Peninsula

Pinaki sand (PN, PNH), right side, spreading over older Red Hill sand

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 sand 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 staff 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**

Contact a land management advisor on **0800 002 004** or visit **www.nrc.govt.nz/land**

Northland REGIONAL COUNCIL