

# URBAN REPORTING AREA

# STATE OF AUCKLAND SOIL REPORT CARD

2018



SOIL QUALITY



TRACE ELEMENTS



**Soil quality:** Soil samples are tested at 47 sites within the reporting area for four key chemical, physical and biological factors including:

- soil acidity
- amounts of soil carbon
- amounts of soil nitrogen
- plant available phosphorous
- air-filled space (macroporosity)
- soil density.

**Trace elements:** Soil samples are tested for eight trace elements including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

Grades will vary for individual sites, land use and soil type.



## QUICK FACTS

THE URBAN REPORTING AREA OCCUPIES

**11%**  
OF THE REGION  
(565KM<sup>2</sup>)

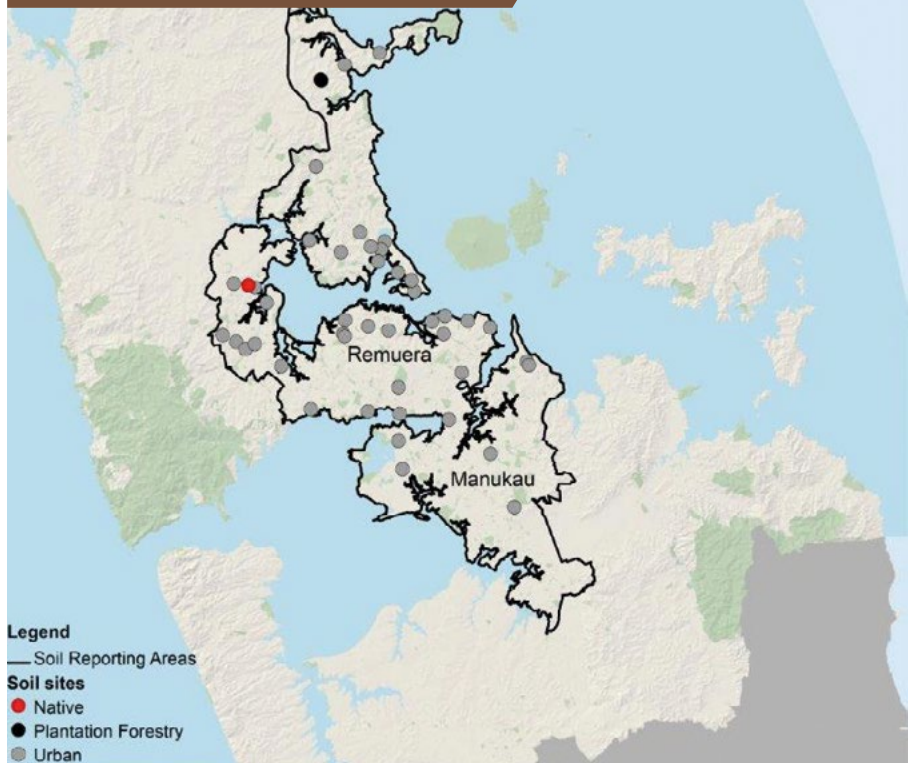
THE MAJORITY OF SOIL SITES LOCATED IN URBAN AUCKLAND WERE RESAMPLED FOR THE SECOND TIME IN 2017

**20%**  
NATIVE BUSH AND SCRUB

## 25% IS GREEN SPACE

MEASUREMENTS FOR PLANT AVAILABLE PHOSPHORUS AND AIR FILLED SPACE (MACROPOROSITY) WERE INCLUDED IN THE 2017 SOIL SAMPLING ANALYSES

### MONITORING SITES – URBAN REPORTING AREA





## MONITORING BACKGROUND

Auckland Council monitors soil quality to observe and report any changes that occur in the extent, quality or health of the region's soil resources. Soil quality refers to the ability of the soil to sustain biological production (for example the amount of tiny microbes in the soil), maintain environmental quality (for example water purification), and promote plant and animal health.

Recommended guidelines for soil quality are those defined by nationwide studies and trace element background concentrations are taken from a regional study (as outlined in ARC TP 153). Soil quality guidelines are refined over time as a result of new research and continuous monitoring; therefore changes can be reflected in overall grade scores.

## MONITORING RESULTS

Data used to produce this report card includes:

- number of sites – 47
- land use/last year sampled (number of sites)
  - urban parks and reserves/2017 (45 sites)
  - plantation forestry/2016 (2 sites).

### Summary of monitoring results

Soil test	Number of sites outside guideline range
Soil acidity	11/47
Total carbon	3/47
Total nitrogen	9/47
Soil bulk density	6/47
Plant available phosphorus	24/7 (16 below)
Air-filled space (macroporosity)	13/47 (13 below and compact)
Trace elements	16/47 (9 above for lead)

## MONITORING INTERPRETATION

Test results reveal that that urban soil sites have some health issues. The main issues are:

- a high percentage of sites demonstrating signs of soil compaction particularly in park reserves. This means that when it rains the soil cannot filter the rainfall as efficiently as it could be that can result in excessive surface runoff
- a high percentage of sites have low plant available phosphorus. However, this doesn't cause as big an issue as it would for land being used for rural agronomic production
- a high percentage of sites have lead concentrations exceeding normal amounts. This is likely due to pollution from vehicle exhausts in days before lead free petrol. However, none of the lead concentrations are high enough to be a threat to public health.



## FIND OUT MORE

This report card is part of a series prepared by the Auckland Council's Research and Evaluation Unit, which undertakes monitoring and research to provide information and evidence to inform the council's activities and reporting. More report cards can be found at: [aucklandcouncil.govt.nz/environment](http://aucklandcouncil.govt.nz/environment). The report card series includes reporting on freshwater, terrestrial, marine, air, soil, capacity for growth, demographics and quality of life.

For more information: e-mail [rimu@aucklandcouncil.govt.nz](mailto:rimu@aucklandcouncil.govt.nz) or call us on 09 301 0101.

## GET INVOLVED

Auckland Council provides more than 20 environmental programmes across the region that you can get involved in. To find out more on how you can help visit: [aucklandcouncil.govt.nz](http://aucklandcouncil.govt.nz)