POSITION DESCRIPTION

**Position: Pedometrician**

**Term:** Fixed term for 3 years with potential for open term

**Status:** Full time

**Location:** Palmerston North or Lincoln

**Directly Reporting to:** Capability Leader, Soils & Landscapes Team

**Purpose**

To undertake research, consultancy and research support for soil and landscape mapping, modelling and information management to support and verify sustainable and wise use of natural assets (soil, water, carbon, and as well as a range of ecosystem services).

**Primary Objectives**

The position is part of the Soils & Landscapes team within Landcare Research. The team comprises more than 40 staff, at five sites across New Zealand. We lead research on understanding the complex inter-relationships that control the response of soils and landscapes to climatic and human-induced pressures, evaluating current risk, offering sustainable land use and natural resource allocation options.

This position will contribute to research on the characterisation and evaluation of New Zealand’s soil and land resources. Specifically the researcher will:

* Conduct research and application in digital soil mapping (pedometrics), soil carbon accounting, morphometrics and proximal sensor interpretation.
* Contribute to on-going development of S-map and soil information, its spatial coverage and fitness to support key models and tools. This will include soil attribute mapping (e.g. soil carbon).
* Be expected to support, and in time develop sizable research or consultancy contracts on soil-land-water interactions

**Key Accountabilities**

**Independence, Reasoning and Decision Making**

* Conducts work requiring independent judgement in the evaluation, selection and adaptation and modification of standard techniques, processes and criteria.
* Refers to knowledge of precedents in a specialty area, principles and practice in related areas.
* May require some planning guidance.

**Communication**

* Contributes to science extension activities, and may take some responsibility for some of these.

**External Relationships and Influence**

* Often recognised externally as a source of advice in an area of expertise.
* Able to obtain co-operation of others in complying with technical and other requirements of their tasks.
* Contributes to national or regional change in environmental/social/economic outcomes.

**Leadership, Strategy and Planning**

* Expected to lead the development of procedures and practices in areas where they have specialist expertise.
* Contributes to planning and decision-making of contracts or programme in which involved.

**Personnel and Financial Accountability**

* Limited financial authority. Likely to manage equipment, small facility, or small project.
* Expected to supervise and manage some tasks performed by other staff.

**Health, Safety and Environment:**

* Take all practicable steps to ensure your own health and safety in the workplace, and that no action or inaction on your own part harms others.
* Comply with Health, Safety and Environmental Legislation and Regulations and Landcare Research safe work policies, procedures and instructions.

**Person Specification**

**Essential**

1. **Education/Qualifications and Learning**

Possesses a PhD in soil science (or postgraduate qualification with experience) with expertise in pedometrics (spatial modelling of soil properties and classes).

1. **Knowledge, Skills and Experience**
* Demonstrated experience and knowledge of pedology, digital soil mapping, farm systems, soil-landscape relationships and pedotransfer modelling
* Expertise in spatial and integrative modelling, including ecosystem services scaling and depiction and working with databases
* Competence in the use, including scripting/programming, of a range of modelling tools – for example SQL, python, R, C/C++, gis (Arcgis and open source).
1. **Personal Attributes**
* Ability to work both independently and as part of a team
* Well organised, capable of independently and effectively planning time and resources
* Flexible, pragmatic, self starter
* Excellent written and oral communication skills
* The ability to work to high standards and within deadlines
* Some refereed publications, including senior authorship, and presentation of research to external audiences (usually science conferences)
* Availability to travel throughout New Zealand

**Desirable**

1. **Technically savy including:**
* Experience in land and/or environment modelling (e.g. nutrients, sediment or soil processes)
* Familiarity with precision agriculture and proximal sensing technologies
* Cross-platform experience (Linux, Windows)
* Familarity with Open Geospatial technical standards (e.g. IS19100 or Open Geospatial Standards)
1. **Practical and hands-on:**
* Experience in conducting field work
* Experience working alongside landowners/ stakeholders including iwi, farmers and regional councils

**Interactions/Regular Contacts**

**Direct reports:** None

**Internal:** Portfolio Leaders**,** Research Priority Area Leaders, Scientists and Technicians

**External:** Researchers in other Crown Research Institutes and Universities, Government officials at the Ministry for the Environment (MfE), Ministry of Primary Industries (MPI), Regional Councils and industry representatives from fertilizer companies, DairyNZ and other commercial customers**.**

**Delegations**

**Financial delegations:** As per the financial delegations policy for Research Priority Area Leader and Job Leader roles.

**Personnel delegations:** Nil

**Performance Criteria**

Landcare Research has a Performance Appraisal & Development process which provides an opportunity for the employee and their manager to discuss and agree what contribution the individual employee is expected to make during a regular review period towards achieving the strategic goals and objectives of the Company.

Goals and objectives will be agreed annually. These will be consistent with the Key Accountabilities and Personal Attributes contained within this Position Description, and will include performance measures (statements of achievement), together with any support and professional development required by the employee to achieve those objectives.

**Working Environment & Physical Demands**

Landcare Research undertakes to ensure its workplaces are safe and that no person is harmed as result of our work activities. The list below is provided to give an indication of the type of environment and potential hazards which may be encountered in this role.

***(tick appropriate boxes)***

|  |  |  |
| --- | --- | --- |
| Physical | Biological/Chemical | Environmental |
| [x]  Office/computing | [x] Soils, potting mixes, composts | [x] Adverse weather/heat/sun |
| [ ]  Standing for long periods | [x] Sewage and wastewaters | [x] Alpine conditions |
| [ ]  Manual handling/lifting | [x] Bio solids | [ ] Off-shore islands |
| [x]  Hiking/tramping - easy | [ ] Insects | [ ] International travel |
| [x]  Hiking/tramping - hard | [ ] Microorganisms | [ ] Polar environments |
| [ ]  Camping out – “roughing it” | [ ] Pathogens | [x] Isolated environments |
| [x]  River-crossings | [ ] Animals – contact/handling  | [x] Geothermal areas |
| [x]  On-road driving | [ ] Plants and fungi | [x] Urban environments |
| [x]  Off-road 4WD/ATV driving | [ ] Chemicals/toxins | [x] Rural/farm environments |
| [ ]  Charter flying/Helicopters | [ ] Flammable liquids/gases | [x] Production forestry blocks |
| [ ]  Travel in Boats/Ships | [ ] Dusts/fumes/vapours | [x] Mines/earthworks/excavations |
| [ ]  Construction work | [ ] Compressed gases | [ ] Old mine shafts/pits |
| [ ]  Operating tools & equipment | [ ] Cryogenic substances | [x] Roadside work |
| [ ]  Deft/fine manual tasks | [ ] Other | [ ] Working at heights |
| [ ]  Microscopy | [ ] Radioactive substances & equipment | [ ] Noise (in environment or from equipment) |
| [ ]  Swimming/Snorkelling/Diving | [ ] Electricity | [x] Confined space work |
| [ ]  Night time/shift work | [ ] Lasers |  |
|  | [ ]  Firearms/hunters |  |