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Compiling myrtle rust surveillance data for the 2017-18 New Zealand incursion

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As the observed distribution of myrtle rust (*Austropuccinia psidii*) changes within New Zealand, many stakeholders are interested in the spread of this disease, resulting in a number of organisations carrying out various levels of monitoring. There is a need to compile these monitoring data from multiple sources and provide easy access to basic disease distribution information, for the benefit of all interested parties. This should include not only locations of positive myrtle-rust detections, but also the rate of monitoring in areas where it has not yet been detected (confirmed absence). This project provided visual information in the form of maps that are easy to interpret by general and/or specific users. Resolution was useful and informative while maintaining privacy of landowners. A series of maps is presented, showing the advance in sampling effort and the disease distribution across New Zealand, as measured from surveillance effort from Ministry for Primary Industries, Department of Conservation, botanical gardens, Plant and Food Research and the Myrtle Rust Reporter app (NatureWatch NZ). Further analysis of such data will inform ongoing management and research.

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Location of overseas botanic gardens with New Zealand Myrtaceae in relation to myrtle rust occurrence

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New Zealand's productive systems and natural ecosystems depend on a robust biosecurity framework to exclude invasive pests, diseases and weeds. Risk assessment is an important component of this biosecurity framework identifying potential threats posed by invasive organisms to specific plants and plant systems before they arrive in New Zealand. A major challenge in risk assessment is determining the potential impact of a pest or disease when it is not present in New Zealand. The International Plant Sentinel Network (IPSN), a network of botanic gardens and arboreta, aims to provide early warning of new and emerging tree and plant pests and diseases. The utility of the IPSN in providing information on the potential impact of myrtle rust for New Zealand's indigenous Myrtaceae. Botanic gardens were identified around the world with New Zealand Myrtaceae and where myrtle rust is present. This is a first step in an ex-post study on the use of sentinel or expatriate plants as a biosecurity risk-assessment tool. The approach could be extended to other plant pathogens or pests to explore their impact on New Zealand indigenous or cultivated plant species overseas.