

Better Red than Dead ...

Taking Positive Environmental Action

PROJECT CRIMSON
renewing pohutukawa and rata



About Project Crimson

- “Red is better than dead”. The Project Crimson Charitable Trust, sponsored by Carter Holt Harvey in partnership with the Department of Conservation, was established in 1990 in direct response to research, which discovered that 90% of the stands of pohutukawa in some parts of New Zealand had disappeared. Project Crimson is working to replace the dead, grey skeletons of pohutukawa and rata on our coastlines and in our forests with a blaze of crimson blooms.

About the Pohutukawa and Rata

- The mainland pohutukawa and New Zealand tree rata belong to the genus *Metrosideros*.
- Mainland pohutukawa, (*Metrosideros excelsa*) occurs naturally in the upper half of the North Island, (North of New Plymouth and Gisborne) although it grows from one end of the country to the other. It is easily distinguished from rata by the hairs on the under side of the leaves.
- One of New Zealand’s tallest flowering trees Northern rata, (*Metrosideros robusta*) grows throughout the North Island forests and extends as far south as Hokitika. It usually begins life as an epiphyte high in the forest’s canopy.
- Southern rata, (*Metrosideros umbellata*) is the most widespread of all the New Zealand rata. It grows from high Northland and Coromandel outcrops to the subantarctic Auckland Islands.
- Only 30 plants of the rare Bartlett’s rata, (*Metrosideros bartlettii*) remain.

Tuning In

- Have students brainstorm everything they know about the pohutukawa and rata, eg
 - what they look like and where you find them
 - time of year of flowering
 - songs and stories students know about the pohutukawa tree
 - cultural significance, historically and today
 - what do the Maori names pohutukawa and rata mean?
- Tell students that the pohutukawa and the three



species of tree rata, native to New Zealand are disappearing from our coastline and forests.

- What is threatening their existence?
- What can be done to help redress the problem?
- Discuss the environmental and social impacts on the pohutukawa and rata.

Class Research Project

- Mindmap the areas for research and study under the headings above.
- Undertake the following research survey of of pohutukawa or one of the three rata in the local area. Plot this information on a grid.
- Check the variety of pohutukawa planted.
- Is it a species endemic to your region? (Check this with the Project Crimson website).
- Measure trees per hectare or number per km of coastline.
- Measure growth and/or height of trees.
- Measure girth of the tree at breast height.
- Compare ways in which plants disperse seeds.
- Conduct experiments to show the impact of wind dispersal on seeds.
- Check out weather forecasts for your district

over the months of February-March to find the prevailing winds. What impact would this have on seed dispersal for your region?

- Does the size and weight of the seed impact on the method of seed dispersal? Compare seeds from different plants?
- Only 10% of pohutukawa seeds germinate. Why? Check the Science Roadshow Post Activity sheet for more activities and enter your data on: www.roadshow.org

Grow Your Own Seedlings

- Discover what makes ideal growing and establishment conditions for pohutukawa and rata.
- Local seed can be gathered in April: Check the Project Crimson website for seed collection, propagation and planting details.
- What factors improve growing conditions?
- Which growing mix is more successful, eg punga logs, rotting driftwood or commercial mixes?
- Once the seed has germinated what protection does it need?
- What’s the best location for planting in your area?

Project Crimson



- Monitor the length of time it takes the seeds to germinate.
- Compare the growth rates of your seedlings.
- Calculate the germination success of your seed.
- Keep a diary to monitor daily progress of your planting.



Let's Become Experts

- Compare the pohutukawa and the three species of rata, Northern, Southern and Bartlett's.
- List their characteristics - leaves and shoots, flowers, root systems, bark, crown, wood, fruit and seed.
- List the differences between the species.
- List the locations where they are found.
- Are their growing habits the same?
- Are their juvenile stages similar?
- Does a red rata or pohutukawa ever produce a yellow flower?
- Explore the symbiotic relationships of pohutukawa and rata with birds, insects, and other plant life species.
- What are epiphytes? Why do some rata need host plants to begin life? What other plants in New Zealand grow as epiphytes?



Investigate Your Trees

- Monitor a pohutukawa tree or rata over a period of a week or months to assess insects, birds or animals found on or around the tree.
- Identify all the species found.
- Keep a log of the time of day or month of the year that these are found.
- Identify what they are doing to the tree.
- At what stage of their life cycle are insects affecting the tree?

- Are there times of the day when invertebrates are more active?
- Are there time zone feeding times of invertebrates?
- Are there times of the year pests create most or more damage?
- What pollinators like red flowers? What pollinators like white flowers?
- Create a class collage or mural showing the different species and the relationships they have with the pohutukawa and rata.



Star Wars Computer Game

- Create a Star Wars computer or board game to show all the threats which impact pohutukawa and rata.
- Include the following:
 - *Host plants for epiphytes lost through logging or firewood collection*
 - *Aerial seed beds disturbed by possum*
 - *Competition for seeds from weeds*
 - *Genetic pollution of hybridised species*
 - *Competition for the traditional pollinators of pohutukawa and rata*
 - *Sensitivity to fire*
 - *Inability of seed to regenerate in grazed pasture grasses.*
- Write instructions on how to play the game.



Solving the Problem

- Communicate with your local council or DOC office to ask what is being done to support Project Crimson in your area.
- Find out if your local nursery has trees which are grown from seed local to your region. On Arbor Day plant a tree or seedlings at your school, or work with the community to plant a public reserve or roadside area. Check the website for information on planting details.
- Ask local farmers how they manage or conserve native species on their land.
- Check the DOC website to discover what other trees grow in our native bush ... www.doc.govt.nz

Curriculum Strands/ Achievement Objectives

Environmental Education Guidelines

To develop knowledge and understanding of:

- *the special features of New Zealand trees*
- *the impact of human activities on the environment*
- *the functions of plants in the natural environment*

Science

Making Sense of the Living World

- *Students can investigate special features of common animals and plants and describe how these help them to stay alive (AO2)*
- *Explain using information from personal observation and library research where and how a range of familiar New Zealand plants and animals live AO4*

Making Sense of Planet Earth and Beyond

- *Students can justify their personal involvement in a school or class initiated local environment project AO4*

Curriculum Levels 4-8 (adapt for level 3)

- Approach your local Forest and Bird group to see if they have any projects underway in their area to protect pohutukawa and rata in your region. Offer them your seedlings for planting.
- Discuss with them the best place to plant and to protect your seedlings.
- Report back to the class or the community on the outcome of these findings or graph the results of your research using a pictogram.



Inform Other People

- Send an electronic post card to your friends from the Project Crimson website.
- Apply for funding for a specific community project to increase the colour red in your area.
- Check out the Project Crimson website for details.



Print and Web Resources

Print

- Pohutukawa Tree of Aotearoa, Linda Bercusson and Jacinda Torrance, Tandem Press 1998
- Learning Media; Bruce Mason, Item 90127, Yrs 9-13, He Kohikohinga, Item 92378, Yrs 4-8, Koroua Pohutukawa, Te Reo Maori, Item 94225, Yrs 4-8
- New Zealand National Geographic No 13, 1992
- Forest and Bird Magazine No 290, Nov 98

Internet

- www.projectcrimson.org.nz
- www.roadshow.org