

STRATEGIC PLAN

FRIENDS OF TAWA BUSH RESERVES



Kohekohe flowering in Redwood Bush, June 2015.

Friends of Tawa Bush Reserves Inc.



R3585

Friends of Tawa Bush Reserves – Message from the President

Kia ora tatau

Twenty years ago our group formed in response to plans to clear a stand of native forest, hundreds of years old, at the top of Larsen Crescent. This remnant forest included a stand of matai which is now uncommon in the Wellington region, and rare in Wellington City, and also substantial specimens of the tawa tree after which the township was named. The group succeeded in gaining protection for the area which is now known (and loved) as Larsen Reserve. The bush is Tawa's taonga (treasure), and we are committed to serving as its guardians on behalf of the community.

Since that time, our resolve to know about other areas of Tawa's bush that could be at risk, and have a plan to protect them, remains firm. Our work has extended to cover the length and breadth of Tawa.

We've acted to get possum problems under control, allowing the bush to flourish, flower and fruit in abundance, which in turn has seen the native bird population thrive. We've developed fantastic bush walking tracks that made it easy for local residents to access their bush while protecting the forest floor from uncontrolled trampling.

We initiated the project which resulted in the Tawa Valley Shared Pathway, and we've grown and planted thousands of trees.

Our work has not gone unnoticed. We've been recognised through regional and community awards. Our greatest reward however, comes from seeing the enjoyment and pleasure people of all ages feel when they can experience our unique natural environment.

Tawa's bush and forest sustains native wildlife and makes an important contribution to the wider region's ecology. Since implementing our pest control programme, kereru, bellbirds, kakariki and kaka have migrated into the Tawa bush from other protected areas such as Colonial Knob and Porirua Scenic Reserves, and Zealandia, and in some cases have even established breeding populations. Tui were probably already been here for some while and survived in small populations but numbers exploded following pest control.

A plan for the future

'Tē tōia, tē haumatia - Nothing can be achieved without a plan, workforce and way of doing things'

This strategic plan helps us, and our partners to focus on how we can ensure the long-term sustainability of Tawa's bush, as well as improve the resilience and effectiveness of our own organisation.

Much of the bush, forest and rural land around Tawa is privately owned - an estimated 75% of the bush and forest on the western hills. Residential development has steadily pushed up into this land over past decades. Without the work of groups like ours, Tawa would eventually lose the enjoyment of its landscape, and the valuable ecological and recreational asset this undeveloped land represents.

To ensure visitors and the people of Tawa can continue to use walking tracks through reserve bush and pasture land, (some of which date back to at least World War Two) we must constantly look and plan ahead.

Two of the most notable informal tracks run in part through privately-owned bush and forest, and connect to Spicer Road, close to the Te Araroa walkway to Colonial Knob (the second highest point in Wellington). These unique tracks make it possible for many locals to walk from their front door and enjoy an almost unbroken walk through bush and farm land to the summit of Colonial Knob, in less than two hours.

Preserving and maintaining this environment is critical. Doing this requires robust *and* aspirational forward planning. To that end, the Friends of Tawa Bush have a vision to;

- expand the network of tracks and create circuits where possible
- improve the usability of the connection from Redwood Bush to the Te Araroa walkway/Colonial Knob
- continue restoration of bush on reserve land
- Partner with private landowners to improve pest control, bush restoration and connectivity and;
- contribute to improve water quality, notably in Porirua Stream

In recent years residential development efforts have focused on the eastern hills of Tawa, where land is generally more accessible. At one time this side was green landscape albeit pasture. The remaining green landscape of the western hills should be preserved while this is still possible. The unbroken stretch of bush and forest on these hills gives Tawa much of its visual character, and is a valuable ecological and recreational asset to the region.

Our vision for the western hills of Tawa is focused on ensuring that;

- existing bush in Upper Stebbings Valley and the bush above the Redwood Bush reserve be protected and integrated into the reserve
- land between Redwood Bush and Spicer Forest remains in forest or bush
- public access to the tracks from Kiwi Crescent and the top of Brasenose Track to the Te Araroa walkway is formalised, and the surrounding bush and forest areas are maintained

In the eastern hills, we are keen to complete planting of the reserve pasture land in Woodburn Reserve, and to create a link between the track networks in Woodburn and Wilf Mexted Reserves.

A diverse, vibrant and active membership

Manaaki whenua, manaaki tangata, haere whakamua - Care for the land, care for people, go forward.'

Friends of Tawa Bush Reserves owes much of its success to the exceptional blend of skills and knowledge of its members. We want to sustain this core set of skills and knowledge through focused succession planning. This will need to include actively seeking out and recruiting people with relevant but diverse backgrounds.

Our group was established to serve the needs of its community. As such, we are committed to fostering the idea that Tawa's bush is a shared extension of our own private gardens. Doing this means we create a sense of shared ownership and pride. We plan on making it easier for people become involved by ensuring we offer opportunities that fit with diverse skills, interests and lifestyles. Our success is dependent on a strong, active and committed membership.

Partnering for success

Formal and informal partnerships with a wide variety of organisations has underpinned our success and will continue to be integral to the way we work. Our long-standing relationship with Wellington City Council is one example. This is a partnership based on mutual trust and respect. A Council ranger attends our committee meetings and ensures our work receives practical support from the Council as needed. The development of this Strategic Plan has in fact been made possible in part through a Council grant. Our vision is to build on this collaboration to tackle increasingly ambitious projects for the benefit of both Wellington City and the wider region.

Other partnerships include our pest control work with Greater Wellington Regional Council, and numerous ventures with local community groups, schools and workplaces, as well as maintaining links with other conservation groups.

We aim to build on these partnerships and envisage in the future the integration of some of our activities with school curricula. We also want to do more work with neighbouring conservation groups to promote the concept of connecting reserves with 'bush corridors'.

This strategic plan will be a 'living document', which we will progressively add to as we develop our plans to a greater level of detail. Our hope is that it will be a useful resource not only for us, but for similar volunteer groups to use as a model for their own strategic planning projects.

We expect to use this strategic plan over the years as a guide to prioritising our activities to make us more effective in leading the Tawa community to care for, protect and enjoy its native bush.

Ngā mihi,
Wayne Pincott
President, Friends of Tawa Bush Reserves, Inc

STRATEGIC PLAN: FRIENDS OF TAWA BUSH RESERVES

Contract Report No. 3585

December 2015

Appendix 1 reformatted and Message from FOTBR President added November 2016

Project Team:

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Prepared for:

Friends of Tawa Bush Reserves Inc.

Tawa

Wellington



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Contract Report No. 3585

1. INTRODUCTION

Friends of Tawa Bush Reserves (FOTBR) is a Wellington community group formed to promote and increase the protection and restoration of bush areas, to ensure the long term preservation of bush reserves situated in the Tawa Basin, and to work with Wellington City Council (WCC) to achieve these aims.

This strategic plan outlines the vision, objectives and goals developed by the Friends of Tawa Bush Reserves to strengthen the organisation so that it can achieve a revised vision of enriching and engaging its community for the benefit of the native bush and wildlife of the Tawa area. The plan describes actions, and priorities for those actions, to enable the group to achieve these goals and to move closer to achieving their vision.

The aim of developing this strategy has been to provide a framework for building FOTBR into a stronger and more effective organisation in order for it to be successful in protecting and restoring indigenous biodiversity in Tawa. The Group's goals are to:

- restore the biodiversity of Tawa's bush reserves
- improve ecosystems connectivity between Tawa bush reserves
- have their endeavours understood and supported by the community
- improve access to bush reserves in Tawa
- increase the area of native bush in Tawa that is legally protected
- protect the landscape values of the hills that surround Tawa.

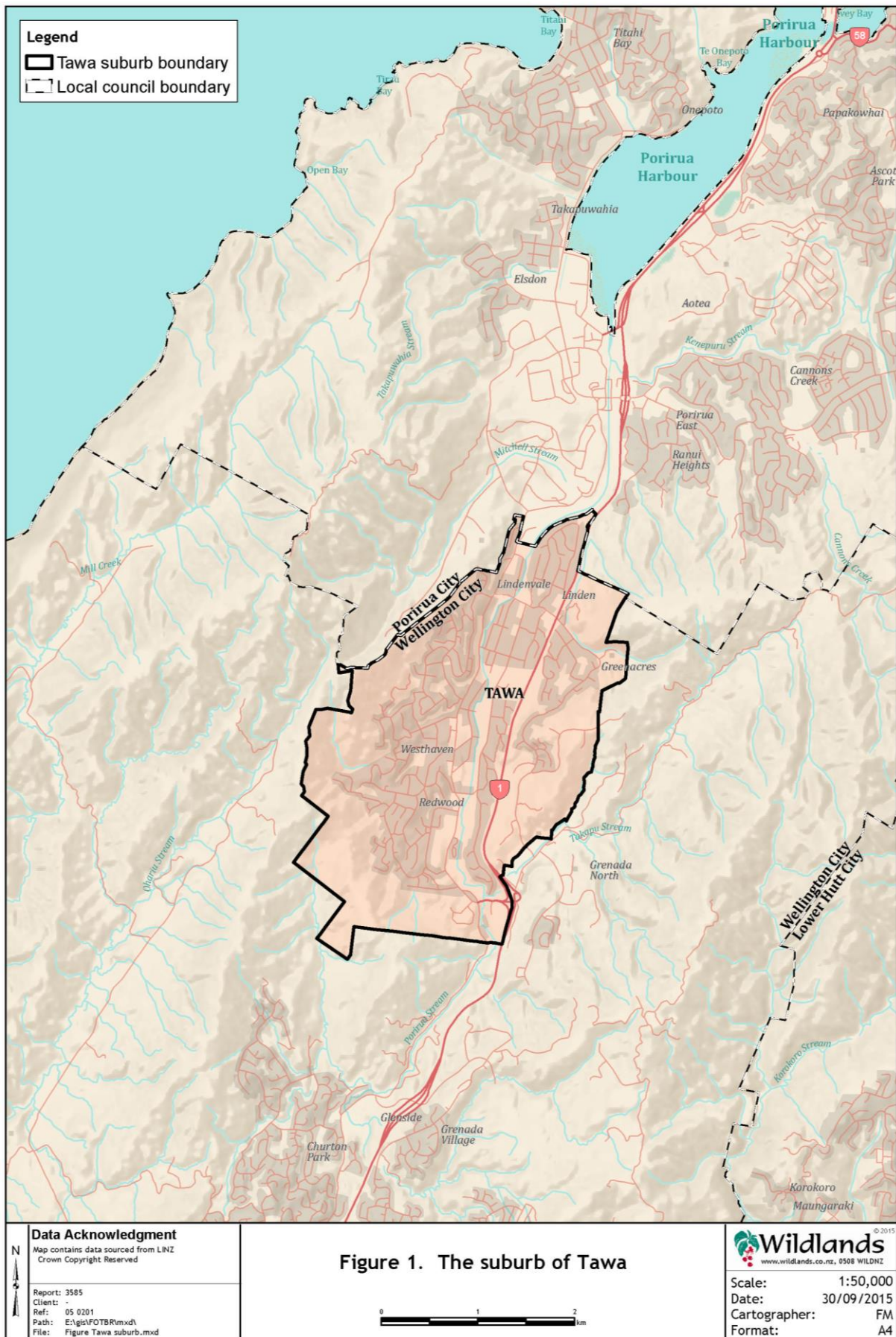
Friends of Tawa Bush Reserves will achieve these goals by actions related to a number of measurable objectives. Much of this work is already being carried out by FOTBR members in association with Wellington City Council and in accordance with a Memorandum of Understanding (Appendix 1). This plan formalises and prioritises this work within the framework of an organisation-wide strategy.

Information about the history of the group, the current and historic natural resources of Tawa, and current group practices can be found in Appendices 2-8 to this Plan.

This plan will be reviewed and revised by Friends of Tawa Bush Reserves every five years.

2. VISION STATEMENT

To enrich and engage our community for the benefit of the native bush and wildlife of the Tawa area.



3. BACKGROUND



Tawa tree
(*Beilschmiedia tawa*).

Friends of Tawa Bush Reserves (FOTBR) has its roots in community action taken in 1975 to protect and preserve remnant native forest in what is now Redwood Bush from residential development (Appendix 2). A further call to action came in 1996 when development threatened another forest remnant in Larsen Crescent. With both areas of forest formally protected members of the residents' group took the name Friends of Tawa Bush Reserves, adopted a formal constitution, and applied to become an incorporated society in 2002.

Over the last fourteen years the group has undertaken tree planting, track building, pest plant and animal control and monitoring, and lobbied for the further protection and preservation of bush areas in Tawa. These efforts have been recognised by the Tawa and Wellington City communities and with the revival of the bush as evidenced by the increase in native birds and the decrease in pest numbers. Many residents of Tawa enjoy the fruits of FOTBR's labours whether it is by walking in the bush or viewing birds in their own gardens.

In 2011 the FOTBR committee was inspired to undertake a project using their influence within the community to garner support for extending protection of bush reserves to include protection of native forest on private land adjoining Wilf Mexted Reserve. Sustainability issues within the group, a declining membership and an ageing core group threatened their ability to achieve this goal, as well as their ability to continue with existing activities. As a result the group decided to review the strategic opportunities to achieve their Mission.



This review included an inventory of the natural resources of Tawa, documentation of our achievements to date, and a review of the structure of the organisation and the roles and activities of key members including the committee. The project was undertaken alongside the development of a strategic plan to guide our future endeavours.

The group looked at the history of the forests of the Porirua basin, including Tawa, beginning with pollen records of vegetation from the late Pleistocene, 80,000 years ago, when the climate was similar to today. They also looked at reports about the vegetation as it was observed in Tawa by early settlers, and what happened as the land was cleared, and later reports describing the condition of the remaining bush before restoration and protection work began in 2002 (Appendix 3).

At the same time the FOTBR committee met regularly to review our vision and develop goals, objectives and actions. The committee looked at where the group was and where they wanted to be, what they wanted to achieve, how to get there, how they would know they had succeeded and who would be accountable.

What follows is FOTBR's plan for the future and records of where they were when they began, what they started with, and where they are today, benchmarks against which FOTBR can measure success.



Northern rātā (*Metrosideros robusta*) in flower adjacent to Woodburn Reserve, Takapu Valley, Tawa. Photograph by Tim Park (Wellington City Council)



4. GOALS, OBJECTIVES, AND ACTIONS

Six goals are set out below, with an accompanying suite of objectives and actions, with the latter prioritised within four levels.

	Action Priority Immediate and Long-Term (Ongoing)	Action Priority Immediate and Short Term (One-Off Projects)	Action Priority As Required	Action Priority As Resources Allow
Goal 1: Biodiversity of Tawa Bush Reserves is Restored				
Objective 1.1 Tawa area supports a diversity of native plant and animal species				
Objective 1.2 Tawa area supports larger populations of native species				
Pest animal control	Maintain existing trap lines and bait stations.		Investigate alternative sources of funding for pest animal control.	
	Monitor and record ¹ the effectiveness of the pest animal programme using chew cards and tracking tunnels.		Train new pest control recruits (Occupational Health and Safety).	
	Record/publish trap catch successes			
Pest plant control (these actions represent business as usual)	Undertake release weeding of restoration planting within the working bee framework.		Reporting of weed incursions to the appropriate agency is undertaken when necessary.	
	Undertake weed control in forest disturbance areas within the working bee framework.			
	Ongoing monitoring and control of new weed incursions is undertaken within forested areas.			

¹ For example on Nature Watch, Trap.org or Google docs.

	Action Priority Immediate and Long-Term (Ongoing)	Action Priority Immediate and Short Term (One-Off Projects)	Action Priority As Required	Action Priority As Resources Allow
Planting	Plant locally appropriate eco-sourced species to restore and buffer existing bush reserves.	Liaise with WCC to develop a list of locally appropriate species for planting.	Identify any additional sites in Tawa reserves suitable for restoration or buffer planting, and plant them.	
			Collect seed from multiple, naturally occurring indigenous parent plants for propagation.	Investigate the potential for an alternative nursery site.
			Maintain a native plant nursery to grow seed sourced locally for planting in Tawa bush reserves.	Call for volunteers to visit Longview and see if there is an opportunity to set up a small nursery/growing on facility there which residents could help with.
Goal 2: Ecosystem Connectivity Between Bush Reserves in Tawa is Restored				
Objective 2.1: Vegetation indicating potential corridors/islands is identified and protected		Identify areas on public land in Tawa where the addition of native plants and pest control would improve connectivity between reserves.		
Objective 2.2: Native vegetation, particularly in small reserves and along riparian and transport corridors, becomes more resilient		Identify threats to the natural recruitment of native species in areas identified as potential corridors/islands.		Control threats to recruitment in areas identified as potential corridors/islands.
			Identify which species are under-represented in small bush reserves, e.g. tawa.	Plant more of the under-represented species into small bush reserves.
Objective 2.3: Areas of exotic vegetation are enhanced with the addition of native trees				Develop a plan which identifies public land in Tawa where the plant species mix can be enhanced by the addition of native species (Appendix 5).

	Action Priority Immediate and Long-Term (Ongoing)	Action Priority Immediate and Short Term (One-Off Projects)	Action Priority As Required	Action Priority As Resources Allow
Goal 3: The work of Friends of Tawa Bush Reserves is sustained by stronger engagement with the community				
Objective 3.1: Membership numbers increase	Activate a marketing and communications role within the operations team.	Call for a volunteer to develop a regular and active method of communication with members that the wider community can also choose to access (Neighbourly, Facebook Group, Newsletter).		
Objective 3.2: Participation numbers increase	Develop a programme of participation events focussed on encouraging the community to: try out FOTBR activities; learn about the local ecosystems/ecology/environment.			Develop and advertise a short programme of autumn/winter talks by guest speakers for members and the wider Tawa community.
Objective 3.3: The wider Tawa community understands and supports the endeavours of Friends of Tawa Bush Reserves		Identify and activate the key operational roles required to fulfil the objectives of this strategic plan. These will include, but not be limited to: marketing and communications, administration, submissions, pest control, working bees, tracks, nursery.	Promote the planting of native trees in private gardens.	Call for volunteers to sit at a FOTBR information table in the central village area on a regular basis OR find a site for an information board.
				Seek opportunities to interact with local schools and youth groups.
Objective 3.4: Better communication of goals and outcomes to internal and external stakeholders	Advertise trapping and bait take successes to the members and wider community and alert people to the need for pest animal and pest plant control at home.	Develop protocols for communications with the media which all committee members agree to practise.	Use new communication channels to inform members about vacancies on the committee.	

	Action Priority Immediate and Long-Term (Ongoing)	Action Priority Immediate and Short Term (One-Off Projects)	Action Priority As Required	Action Priority As Resources Allow
Objective 3.5: Mentor members and provide training opportunities	All committee members will work to make new members feel welcome, encourage new people participating at work bees to join FOTBR, and mentor members to develop skills for moving into key operational roles and also increase the diversity of views of committee members.	Call for volunteers to record the birds they observe in the valley, e.g. Naturewatch, eBird.	Arrange for members to be trained to identify nesting birds, and in the mist netting and banding of birds.	Advertise the opportunity for bird training to the wider community.
Goal 4: Access to Bush Reserves in Tawa Continues To Improve				
Objective 4.1: Tracks are maintained	Where practicable maintain track surfaces and edges, stream crossings, and drainage.	Confirm with WCC that their tracks database has been updated with the latest GPS records and request a digital version of the updated map.	Liaise with Wellington City Council for assistance with track maintenance when required.	Work with WCC on prioritising which tracks need maintenance and maintenance standards and to identify potential future tracks.
Objective 4.2: There is greater track connectivity within and between reserves	Liaise with WCC to develop a short distance, gentle gradient, loop track in Redwood Bush and a second loop track to connect with proposed skyline and/or ridge tracks.	Liaise with the owner of land above Wilf Mexted reserve to enable the development of an access track from Bing Lucas Drive.		Identify and record gaps in track connectivity using a consensus decision-making process.
				Develop strategies and timelines to remedy identified gaps in track connectivity.
Goal 5: An Increased Area of Native Bush has Strong Legal Protection and Public Ownership				
Objective 5.1: Unprotected native bush areas in Tawa attain legal protection		Develop protection action plans for large areas of unprotected native bush contiguous with existing reserves (Appendix 4).		Implement protection action plans.
Goal 6: Landscape Values Have a Higher Degree of Protection				
Objective 6.1: Local government rules protect the green horizon		Identify which areas lack protection.	Lobby local government with regard to the District Plan provisions.	Determine other types of protection for these areas and develop and implement protection action plans.

5. PERFORMANCE INDICATORS

Eight performance indicators are set out below, within three groupings.

Natural Areas

- Amount of accessible natural areas (ha/ resident population).
- Proportion of protected natural areas (percent of native vegetation protected).

Indigenous Species and Populations

- Number of locally appropriate, naturally occurring species recorded in Tawa bush reserves.
- Population sizes of uncommon species in Tawa bush reserves.
- Proportion of exotic invasive species in Tawa bush reserves.
- Number and species diversity of birds within connecting corridors and patches.

Community Engagement

- FOTBR membership numbers.
- Participation rates at biodiversity activities, projects and programmes.

ACKNOWLEDGMENTS

Special thanks to the following people from the Friends of Tawa Bush Reserves and the Tawa community: Richard Mowll, Richard Herbert, Fraser Jackson, Peter Saxton, Helen Challands, Gil and Helen Roper, Robert Tredger, Wayne Pincott, and Brian Pannett. Comments on military history provided by Peter Cooke were very helpful, as was the support of Tim Park and Matt Robertson from Wellington City Council.

MEMORANDUM OF
UNDERSTANDING



MEMORANDUM OF UNDERSTANDING BETWEEN WELLINGTON CITY COUNCIL AND FRIENDS OF TAWA BUSH RESERVES

Friends of Tawa Bush Reserves

MEMORANDUM OF UNDERSTANDING

Between Wellington City Council, Parks and Gardens (WCC) and the Friends of Tawa Bush Reserves Inc.

1. PURPOSE

This Memorandum of Understanding (MOU) recognises the partnership between the Wellington City Council, Parks and Gardens (WCC) and the Friends of Tawa Bush Reserves (FOTBR) for the purpose of jointly realising the objectives of the FOTBR and support of the WCC realisation of Council management plans including Biodiversity Action Plan, Northern Reserves Management Plan and the Outer Green Belt Management Plan. This memorandum applies in relation to work conducted upon WCC reserve and open space. This is not a legal contract, but intends to enhance the partnership by clarifying the commitments, roles and responsibilities of each party.

2. SITE DESCRIPTION

2.2 Status – Wellington City Council, open space, recreation reserve, play areas, road reserves and private land.

2.3 Location –

- Areas within the Spicer Sector of the Outer Greenbelt Management Plan, or
- the Tawa west and Takapu, eastern Tawa and Grenada North (west of the Horokiwi ridge) sectors of the Northern Reserves Management Plan,
- specifically including:
 - Larsen Crescent Reserve,
 - Brasenose Place Play Area/Redwood Bush,
 - Wilf Mexted Scenic Reserve,
 - Woodburn Reserve,
 - Wadham Grove Reserve,
 - St Anne's Square Reserve,
 - Charles Duncan Reserve, and
 - the Tawa Reserves.

2.4 Map – simple location maps attached as Appendices 1-8.

3. SHARED OBJECTIVES

3.1 To actively participate in the management, maintenance, development and monitoring of the bush reserves of the Tawa basin in association with the



Wellington City Council and Greater Wellington Regional Council and other bodies sharing our vision.

4. WCC AGREES TO:

- 4.1 Recognise FOTBR as key community stakeholder and partner with WCC to implement the agreed objectives.
- 4.2 Designate a specific Council Officer (designated Park Ranger) to be the primary contact with the group and liaise closely with the group.
- 4.3 Provide a mutually agreed number of eco-sourced native plants each year upon request.
- 4.4 Provide a seed collection permit if FOTBR wish to collect seed from WCC land with the purpose of growing plants for the local reserves.
- 4.5 Provision/facilitation of training and educational material to promote planting, pest control, community based monitoring and other WCC environmental initiatives.
- 4.6 Provision of practical tools and supplies needed to carry out the agreed objectives in accordance with the recognised roles, and as resources allow.
- 4.7 Recognise FOTBR may obtain resources (especially finance, personnel and equipment) from a third party e.g. Greater Wellington Regional Council to advance the agreed objectives.
- 4.8 Carry out any tasks which require the use of machinery or agrichemicals which are necessary to achieve the agreed objectives as soon as reasonably practicable.
- 4.9 Carry out the following specific tasks to implement the objectives as soon as reasonably practicable: tree care, plant/animal pest reduction, facility monitoring and maintenance, manage recreational use, promotion, signage, stock control, contractor liaison, private land owner liaison, training, mitigation of external concerns/damage and administration issues. The execution of these tasks will be discussed regularly between WCC and FOTBR.
- 4.10 Consult with the group on any significant proposed work in the reserve, including work carried out by other divisions of WCC and contractors which Parks and Gardens is made aware of.
- 4.11 Attendance at regular meetings of FOTBR.

5. FOTBR AGREES TO:

- 5.1 Have an ears and eyes role in general care of the reserve, including safety issues, vandalism, tagging, bylaw adherence, stock control and close liaison with WCC for mitigation as required.
- 5.2 Carry out the following specific tasks within the group's capability to implement the objectives: tree planting/care, rubbish collection, pest plant reduction (weeding and releasing), recreational use promotion/field guidance and administration tasks as required.

- 5.3 Plant and care for the plants provided by WCC, until they are established. FOTBR may also supply trees grown by themselves for planting in the reserve; these trees must be grown from eco-sourced seed.
- 5.4 For safety reasons, **not** allow volunteers to use mechanical equipment (e.g. “power barrows”, weed eaters or chainsaws). Such work will only be carried out by WCC staff, contractors, or other persons approved in writing by WCC.
- 5.5 Unless an emergency situation, inform WCC at least four weeks ahead of when any mechanical works are required.
- 5.6 Supply a quarterly record of volunteer hours carried out.
- 5.7 Conduct regular meetings of the group, to carry out all business necessary.
- 5.8 Provide public contact details so that other volunteers can get in touch.
- 5.9 Work closely with the designated Park Ranger to carry out tasks required, including advising these officers if they are undertaking a specific assignment with other WCC staff.
- 6.5.2 Be an expert local voice to advise/advocate to WCC and community on reserve management issues.

6. HEALTH AND SAFETY

The overall responsibility to ensure that hazards to reserve users are minimised within the natural wilderness character of the reserve rests with WCC.

6.1 Work organisation

- 6.1.1 There must be a Community Group Coordinator (CGC) or nominee on site during working bees who has responsibility for health and safety. The CGC must have completed the WCC health and safety induction process whilst the nominee must have been briefed on the health and safety induction procedures.
- 6.1.2 Any health and safety issues or concerns of CGCs can be escalated to the WCC Park Ranger.
- 6.1.3 The CGC will be responsible for carrying out the health and safety brief to volunteers at the start of each working bee, referring to the Site Safety Assessment (SSA) and Health and safety guide for Wellington city community environmental projects.

6.2 Requirements for all volunteers

- 6.2.1 Volunteers will ensure that they:
 - Perform the required task safely.
 - Keep an eyes-and-ears approach for hazards at all times and report to the appropriate person.
 - Let the CGC know if they feel they cannot safely undertake a task.
- 6.2.2 No volunteer is allowed to work if they are under the influence of drugs or alcohol.



- 6.5.3 All volunteers are required to be continually aware of each other's work practices. If any volunteer considers an operation by a single operator or by a group to be hazardous they should stop that person or persons from working and contact the CGC immediately. The CGC can then re-evaluate the situation and explain any changes to be made to all volunteers.

6.3 Hazard Management

- 6.3.1 There will be a Site Safety Assessment in place prior to work commencing.
- 6.3.2 All volunteers will be briefed on the content of the SSA prior to them commencing work.
- 6.3.3 Group coordinators are expected to be involved in this process and remain aware of the contents of the SSA.
- 6.3.4 An annual review of the SSA will be carried out on site in consultation with WCC and GWRC as applicable.
- 6.5.4 All new hazards that are found should be acted on and must be reported to the CGC and recorded in the SSA.

6.4 Accidents and emergencies

- 6.4.1 All accidents or near misses of a serious nature must be reported to the WCC Park Ranger as soon as practicable.
- 6.4.2 Any accidents involving serious harm must be reported to the WCC Park Ranger on duty immediately via the contact centre: **499 4444**
- 6.4.3 Where a person has been seriously harmed, no person shall alter the accident scene without the permission of the Department of Labour, except to:
- Save life or prevent harm to any person.
 - Maintain access for emergency services.
 - Prevent serious damage or loss of property.
- 6.4.4 Any accidents involving serious harm will need to be investigated by WCC with the cooperation of the volunteers.
- 6.4.5 Wellington City Council will supply first aid kits and can assist with first aid training if requested. It is recommended that each group have a designated person on site who has basic first aid training and is responsible for the first aid kit.
- 6.5.5 A cell phone, or alternative strategy, must be available on site at all times in case of an emergency.

6.5 The use of contractors by volunteer groups

- 6.5.1 All contractor work must be approved by WCC prior to commitment to the work.
- 6.5.6 Contractors must meet Parks and Gardens compliant contractor status before work can be undertaken.



7. TERM OF MOU

This Memorandum of Understanding will continue until either WCC or FOTBR wishes to make any amendments – at such time the two partners will work together to prepare a revised document.

8. AGREEMENT TO MOU

Signed for WCC:

Name _____

Title _____

Date _____

Signature _____

Signed for FOTBR:

Name _____

Title _____

Date _____

Signature _____

Note: The maps to which the appendices below refer had not been added to this MOU at the time of publishing.

APPENDIX 1: Tawa Reserves, overview

APPENDIX 2: Larsen Crescent Reserve Site to be outlined in red

APPENDIX 3: Redwood Bush Reserve Site to be outlined

APPENDIX 4: Wilf Mexted Reserve Site to be outlined

APPENDIX 5: Charles Duncan Reserve Site to be outlined

APPENDIX 6: St Annes Square Site to be outlined

Appendix 7: Oriel Ave Reserve (Wadham Grove) Site to be outlined

APPENDIX 8: Woodburn Reserve Site to be outlined

HISTORY OF NATIVE FOREST AT TAWA

PRE-HUMAN VEGETATION

More than 80,000 years ago during the late Pleistocene the climate was warm, similar to today. The few records that exist for this period are for Wellington Harbour and show that the forest in that area was dominated by rimu (*Dacrydium cupressinum*) and *Cyathea* species (tree ferns). Northern rātā (*Metrosideros robusta*) was present at Seaview (Mildenhall 1994), as it is today.

After this a cool weather period began which lasted until about 10,000 years ago. Temperatures were 4-5°C cooler than today and there were a lot of cold southerly and southwesterly winds. The forest shrunk back into sheltered gullies and warm west facing slopes and also possibly to land below the present sea-level. These places are known as 'refugia'. Much of the Wellington region was covered with grass and low scrub. In Porirua, grasses and tānekaha (*Phyllocladus trichomanoides*) were the predominant plants (Mildenhall 1993).

Ten thousand years ago there was a sudden rise in temperature, reaching an average of 2°C higher than today. Rainfall increased and cold southerly winds, snow, and frosts were less frequent. This period is known as the Post Glacial high. Conifer/broadleaf forest returned rapidly to the region with the help of birds that disperse the fleshy seeds common to many of the tree species. Kahikatea (*Dacrycarpus dacrydium*) grew on fresh, nutrient rich alluvial soils that resulted from rapid erosion caused by higher rainfall. Also present were rimu, akeake (*Dodonea viscosa*), and hutu (*Ascarina lucida*) (Mildenhall 1994).

By about 7,000 years ago a gradual cooling process had begun that continued until the middle of the twentieth century (Plummer *et al.* 1999). As the climate cooled, beech species moved slowly south along the Taraua and Rimutaka Ranges. However, beeches are not present in the south western parts of the Wellington region, including the Porirua basin, and neither were they present in the late Pleistocene.

POST-SETTLEMENT VEGETATION

Anthropogenic vegetation change began with the settlement of New Zealand by Polynesians who arrived 700-800 years ago (McWethy *et al.* 2010). There is evidence of major fires leading to extensive deforestation across the country at around this time (McGlone 1989). According to early European settlers however, Porirua appears to have suffered little of this type of loss (Day 1991; Best 1914). Vegetation was not removed until the Porirua Track was opened up as a bridle road in 1841, which resulted in the almost wholesale clearance of the Tawa basin by 1850. Later, possibly because the area was identified for residential development early on, areas of farmland reverted back to forest.

R.G. Bagnall surveyed regenerating forest with remnant old growth trees in Redwood Bush in 1975 (Bagnall 1979; Bagnall 1981). He found the vegetation to be dominated by kohekohe (*Dysoxylum spectabile*; 48%) and tawa (*Beilschmiedia tawa*; 30%) and lacking in

emergent species such as rimu, pukatea (*Laurelia novae-zelandiae*), and northern rātā. The forest vegetation appeared to be affected by browsing pest animals such as possums (*Trichosurus vulpecula*). The area had been surveyed by Ian Atkinson in 1972 but, in the intervening years, a number of species had disappeared, including swamp maire (*Syzygium maire*), tōtara (*Podocarpus totara*), whekī (*Dicksonia squarrosa*) and kiekie (*Freycinetia banksii*).

PREDICTED PRE-SETTLEMENT VEGETATION

This section describes what the vegetation would have been in the Tawa basin if the area had not been developed. Singers and Rogers (2014) classification of New Zealand's terrestrial ecosystems describes categories, or environmental classes, that recognise physical variables (temperature, moisture availability, landform, and soil gradients), as well as vegetation. They provide a comprehensive classification for the entire country to give a greater understanding of the vegetation types that exist as remnants and what would have been there if the land had not been settled. This is a similar concept to the regional eco-domain classification developed by Isobel Gabites for Wellington City Council (Boffa Miskell 2002) and Greater Wellington Regional Council (Gabites 2003).

The zonal ecosystems from the Singers and Rogers classification that fall in the Tawa basin are: warm temperate forest (unit WF2) and North and South Island mild forest (Units MF6, MF7, and MF8) (Figure 2). Across New Zealand the warm temperate forest classification includes 14 units within the warm temperate zone (17.5-22.5°C mean summer temperature), which is predominantly frost-free. The mild forest classification includes 25 units where mean summer temperatures range from 15°C to 17.5°C.

WF2 occurs at low altitude and comprises tōtara, matai (*Prumnopitys taxifolia*), ribbonwood (*Plagianthus regius*) forest. This unit is described as podocarp forest of abundant tōtara and matai with occasional kahikatea, ribbonwood, and kowhai (*Sophora* sp.), and a wide range of divaricating shrubs. It includes occasional tawa, tītoki (*Alectryon excelsus* subsp. *excelsus*) and maire (*Nestegis cunninghamii*) in more northern and in inland parts of the range. Early successional vegetation on younger alluvial soils, such as the Porirua Stream river terraces, include kānuka (*Kunzea robusta*), kōwhai, and cabbage tree (*Cordyline australis*) treeland and forest. There is a very low percentage of this unit remaining in the Wellington region because it occurs on the most heavily-developed land (Table 1).

MF6 is kohekohe, tawa forest. This is described as podocarp broadleaved forest of abundant kohekohe and frequent tawa, with occasional tītoki, māhoe, porokaiwhiri (pigeonwood, *Hedycarya arborea*) and nīkau, and scattered emergent rimu, pukatea, and northern rātā.

MF7 is tawa, kāmahī (*Weinmannia racemosa*), podocarp forest. It is described as podocarp broadleaved forest of abundant tawa and kāmahī, with emergent rimu, miro (*Prumnopitys ferruginea*), kahikatea, matai, tōtara, and northern rātā and abundant tawa, kāmahī, hīnau (*Elaeocarpus dentatus* var. *dentatus*), rewarewa (*Knightia excelsa*), and pukatea.

MF8, being at a higher altitude than MF6 and MF7, is kamahi-dominant broadleaved podocarp forest. This will have abundant rimu and northern rātā, and occasional miro, hīnau, rewarewa, and maire species. There is a high percentage of this unit remaining in the region because it is found on hills too steep or remote for development.

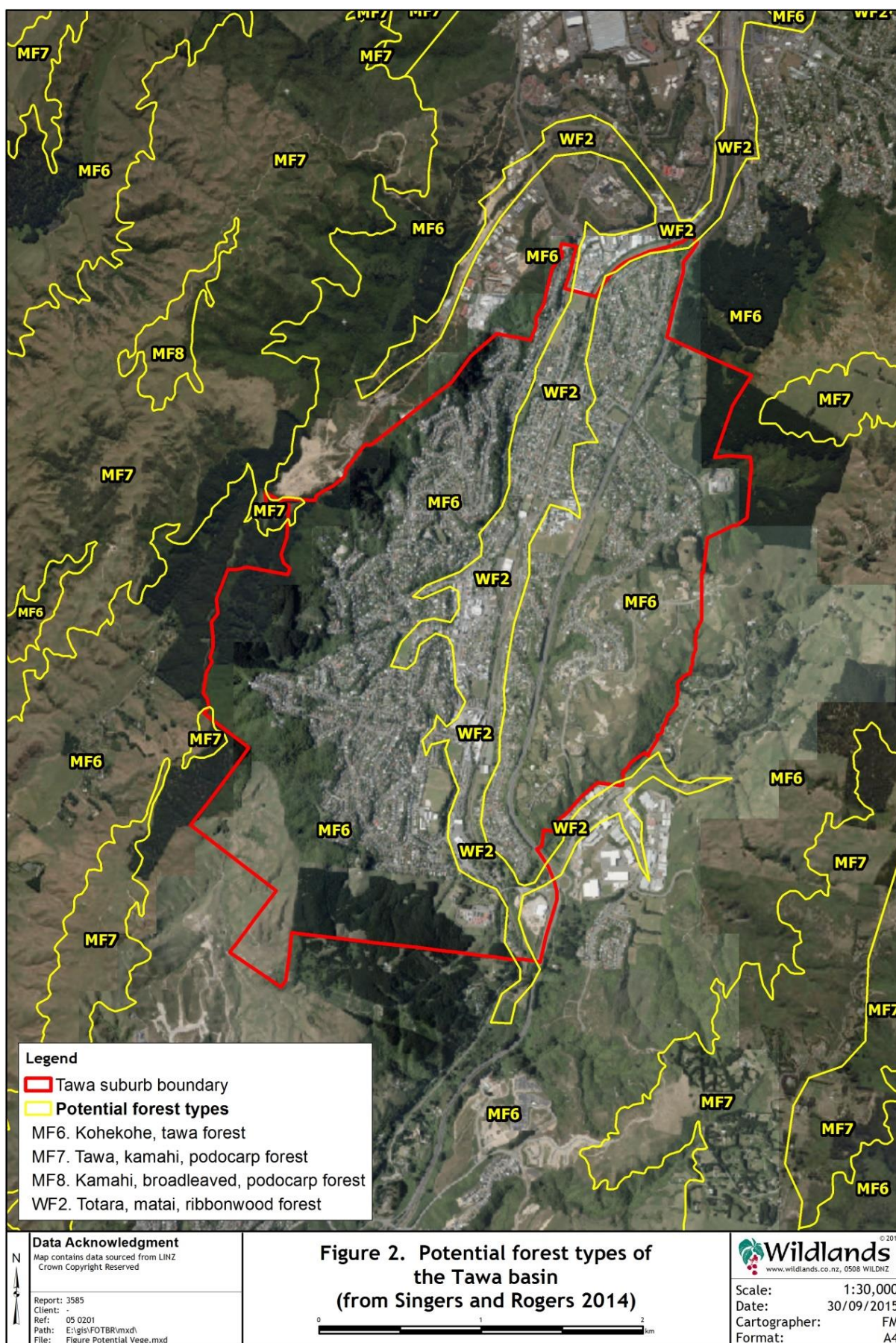


Table 1: Extent of potential vegetation types of the Wellington region.

Forest Code	Original Area in the Region (ha)	Remaining Area in the Region (ha)	Percent Remaining in the Region
WF2	26,106	576	2
MF6	49,271	7,623	15
MF7	66,858	14,608	22
MF8	25,653	21,893	85

Isobel Gabites (Boffa Miskell 2002) described the potential pre-European vegetation as being tall conifers and northern rātā over a tawa dominated canopy for the Tawa basin (Eco-domain 9a; Singers and Rogers units MF6 and MF7) and goes on to say that the basin is typically cold in winter and experiences strong northerly winds. She expects that pre-settlement vegetation on the valley floor would have been dominated by kahikatea, pukatea, and porokaiwhiri with fewer of the frost-sensitive species such as tawa, nīkau (*Rhopalostylis sapida*), and tree ferns, which would have been more prevalent on the hillslopes.

PRESENT DAY VEGETATION

Redwood Bush, Wilf Mexted Reserve and all of the other reserves where Friends of Tawa Bush Reserves are working lie within the MF6 zone. Bagnall (1981) cites Carman (1956) as describing forest that extended across the entire Porirua-Tawa-Ngaauragna depression as comprising very dense podocarp-broadleaf forest, dominated by rimu and northern rātā on the hillslopes where Redwood Bush and Larsen Crescent Reserve lie, with tawa, mamaku (*Cyathea medullaris*) and nikau (*Rhopalostylis sapida*) being particularly abundant in the understorey.

Carman considered that by the 1850s practically all the forest cover at Tawa would have been lost. However, Bagnall found the remains of massive tree stumps present throughout Redwood Bush in 1975 so it is likely that pockets of trees were not completely removed until the late nineteenth or early twentieth Century. At the time that Bagnall undertook his survey there was little evidence of old fallen tree trunks, which, he suggested, was evidence that trees had been logged or that decomposition had been complete.

Bagnall (1979) found that the overall cover in Redwood Bush was 48% kohekohe and 30% tawa, while canopy gaps and māhoe made up much of the remainder. While this matches some of the predicted vegetation composition, a number of canopy species are missing or present in very low numbers. These include rimu, tōtara, kahikatea, pukatea, miro, and northern rātā.

Bagnall compared the species present in Redwood Bush in late 1975 with those recorded by Atkinson in 1972 and found that, even during that short period of time, six species - including tōtara, maire tawake (*Syzygium maire*, swamp maire), and kiekie - had become locally extinct in Redwood Bush. Bagnall also noted that effective recruitment of tawa appeared to have ceased in the late 1930s. A count of rings on the stumps of matai that were felled in 1996 on land adjacent to 79 Larsen Crescent prior to establishment of the reserve indicated that they were probably about 100 years old (Fraser Jackson, pers. comm., 3 December 2014). There have been only two plant surveys undertaken in Tawa reserves since the 1970s: Wassielieff 1986; Mitcalfe *et al.* 1996.

Wellington's indigenous biodiversity is maintained by habitats that can be broadly grouped into nine different categories. From Table 2 it can be seen that lowland forest remnants in Tawa are significant to Wellington City, representing 15% of the overall area of such forest remaining today. Forest remnants on the western and eastern hills of Tawa are part of a significant ecological corridor linking Kāpiti and Mana islands, and Akatarawa Forest Park with other reserves and covenanted private land (Porirua Scenic Reserve, Colonial Knob, Khandallah Reserve, Huntleigh Park, Otari-Wiltons Bush, Johnsons Hill, Wrights Hill, Zealandia and Long Gully being some of the more significant), and reaching as far as the Wellington south coast. An increasing number of indigenous bird species are utilising this corridor (Miskelly *et al.* 2005).

Table 2: A comparison of the areas of the various habitat types supporting indigenous biodiversity in Wellington (information provided by Wellington City Council).

Habitat Type	WN City (ha)	Tawa (ha)	Tawa (%)
Lowland forest	932	140	15
Coastal forest	59	N/A	N/A
Scrub and shrublands	116	8	7
Coastal scrub	813	N/A	N/A
Coastal fringe	1.5	N/A	N/A
Offshore islands	3.4	N/A	N/A
Wetlands	3.5	0	0
Streams	260 km	13 km	5
Urban area	4,190	398	9.5
Harbour and coastal waters	8,900	N/A	N/A

REFERENCES

- Atkinson I.A.E. 1972: Bush remnants at Tawa. Unpublished report. DSIR Botany Division. Accessed online at <http://digitalnz.org/records/35867515> 17/11/2015.
- Bagnall R.G. 1979: A study of human impact on an urban forest remnant: Redwood Bush, Tawa, near Wellington, New Zealand. *New Zealand Journal of Botany* 17(2): 117-126.
- Bagnall R.G. 1981: Vegetation of the Redwood Bush area, Tawa. *Wellington Botanical Society Journal* 41: 4-25.
- Boffa Miskell 2002: Wellington eco-domain delineation. Contract Report prepared for Wellington City Council.
- Best E. 1914: Porirua and they who settled it. *Canterbury Times* 4 March 2014. Accessed online at www.tawahistory.org.nz/projects/best_article_OPPr.html 15 April 2015.
- Day K. Compiler 1991: The old Porirua road. *Porirua Museum History Series No. 5*. Porirua Museum, Porirua City Council. Porirua.
- Gabites I. 2003: Eco-domains for the Wellington region: processes and patterns for defining diversity and distinctiveness. Contract Report prepared for Greater Wellington Regional Council.
- McGlone M.S. 1989: The Polynesian settlement of New Zealand in relation to environmental and biotic changes. *New Zealand Journal of Ecology* 12: 115-129

- McWethy D.B., Whitlock C., Wilmshurst J.M., McGlone M.S., Fromont M., Lic X., Dieffenbacher-Krall A., Hobbs W.O., Fritz S.C., and Cook E.R. 2010: Rapid landscape transformation in South Island, New Zealand, following initial Polynesian settlement. *Proceedings of the National Academy of Sciences of the United States of America* 107(50): 21343-21348
- Mildenhall D.C. 1993: Last Glaciation/Postglacial pollen record for Porirua, near Wellington, New Zealand. *Tuatara* 32: 22-27
- Mildenhall D.C. 1994: Palynostratigraphy and paleoenvironments of Wellington, New Zealand, during the last 88ka, based on palynology of drillholes. *New Journal of Geology and Geophysics* 37: 421-436
- Miskelly C., Empson R., and Wright K. 2005: Forest birds recolonising Wellington. *Notornis* 52: 21-26.
- Mitcalfe B.J., Horne J.C., and Cutler A. 1996: Preliminary list of indigenous vascular plants in (privately owned) Peterhouse St/Larsen Crescent Bush, Tawa (NZMS 260 R27 G.R. 622019). Unpublished list.
- Plummer N., Salinger M.J., Nicholls N., Suppiah R., Hennessy K.J., Leighton R.M., Trewin B., Page C.M., and Lough J.M. 1999: Changes in Climate Extremes Over the Australian Region and New Zealand During the Twentieth Century. *In* Eds. Karl T.R., Nicholls N and Ghazi A. *Weather and Climate Extremes*. Springer Netherlands
- Singers N.J.D. and Rogers G.M., 2014: A classification of New Zealand's terrestrial ecosystems. *Science for Conservation* 325. Department of Conservation.
- Wassilieff M.C. and Clark D.J. 1986: Wilfred Mexted Scenic Reserve. Scenic Reserves of the Lower North Island. *Biological Survey of Reserves No. 14*. Department of Lands and Survey, Wellington.

HISTORY OF THE FRIENDS OF TAWA BUSH RESERVES

INCEPTION AND DEVELOPMENT

This section of the history is based largely on an interview with Fraser Jackson, the inaugural president of Friends of Tawa Bush Reserves, on 3 December 2014. Further comments by Fraser, Brian Pannett, and members of the current Friends of Tawa Bush Reserves committee have also been incorporated into the text.

The suburb we know of today as Tawa was carved out of dense forest by early European settlers in the 1840s. By 1885 a railway line linked the area with Wellington and soon after that the population of Tawa reached 38 (Tawa Historical Society online). The area began to be subdivided into residential plots in 1906 and by 1911 the population had reached 180 (Chapman 2010). Over the following forty years, many families made their homes there with residents commuting to the City for work. The area became a borough in 1953 and was amalgamated into Wellington in 1988.

The Tawa community became involved with protecting bush remnants from development in 1975. At this time residents were concerned about a lack of protection for bush during the development of the suburb of Redwood. When the Oriel Avenue and Peterhouse Street area was subdivided, local residents were successful in protecting part of the Redwood Bush area from development. This initial involvement by the residents may not have been lasting but probably sowed the seed for the actions of others when in 1996 the Larsen Crescent development looked set to extend into a forest remnant now known as Larsen Crescent Reserve.

Land at the top of Larsen Crescent was owned by a developer (Peter Hibma). He had moved to a house next to 94 Larsen Crescent beside the bush after having lived at the beginning of the street for some years. Peter Hibma kept the forest area undeveloped apart from having a workshop building on what is now 100 Larsen Crescent. In the early 1990s the land, including the forest, was offered for sale and purchased by a local Tawa builder, Lee Newman. Newman put together a plan to develop the land and discussed it with the neighbours. Although Newman felt he had the support of the neighbours to develop the land including the bush, opposition to his plans was growing steadily and local residents prepared a submission to Wellington City Council opposing the development in 1996.

A short time before the hearing Newman employed contractors to start felling trees in the forest, including totara and matai. Council obtained an injunction to stop further felling. This was widely publicised and was very much a call to action for the locals. Although there had previously been community meetings about the proposed development this event was the catalyst for a meeting that resulted in the establishment of an informal group which elected a committee. The committee made a decision that the group would not only work towards the conservation and protection of the Larsen Crescent bush, but also the other remnant indigenous forest in the Tawa area. Each remnant was perceived as being integral to the conservation project they had taken on.

The history of local concern was there to be built on. Members of the new group were concerned with both the immediate benefits of the bush for the residents of Larsen Crescent and also with the broader issue of forest loss and degradation in Tawa.

At the Wellington City Council hearing for the Larsen Crescent development both a Forest and Bird Society representative and expert witnesses acknowledged that the vegetation was likely to be a remnant of original forest (Fraser Jackson, pers. comm. 3 December 2014). In 1964, when Fraser Jackson, later to become the first chairman of FOTBR, came to Tawa, there were “no large trees emergent above the canopy at either Larsen Reserve or Redwood Bush and the vegetation was very scruffy”. The upper slopes of the hill were in gorse or pasture.

Following the hearing for the Larsen Crescent development proposal Wellington City Council came to an agreement with the landowner, Newman, to purchase the land. The intention of the Council was to develop and sell part of the property to offset the costs, and to retain what was left of the forest and gazette it as a reserve. Unfortunately, following the sale of land for development, there was no legal street access at one end of the reserve and an easement had to be created across one of the now private properties.

At the first publicly-notified meeting (which was sponsored by Tawa Rotary), when the informal group that was to become FOTBR met, there was an initial proposal that they would work to obtain legal protection for only Larsen Crescent Bush and Redwood Bush but the feeling at the meeting was that protection should be extended to include the goal of protecting all remaining indigenous forest in the Tawa basin.

Once the bush of Redwood and Larson Crescent was given District Plan Conservation status FOTBR adopted a formal constitution and applied to become an incorporated society in 2002 (Fraser Jackson, President’s Report, 12 February 2003). From the beginning, the FOTBR committee met on a regular monthly basis. Meetings were initially held in what had been Peter Hibma’s workshop, an old shed in the reserve, but later were usually held at the home of Allan Todd.

From the start the group were not only involved with operational matters such as weed control, track construction and maintenance, tree propagation, and planting; but also policy matters such as access to, and within, reserves, and submissions on various development plans for Tawa. The President’s report at the end of the Group’s inaugural year states that as well as taking measures to conserve the ecological values of the reserves the group’s objective was to provide reasonable access within the various reserves to enable greater enjoyment of the bush by the people of Tawa (Jackson 2003).

Allan Todd (a Tawa resident since about 1975) was instrumental in the formation and running of FOTBR from the start and as the inaugural secretary was responsible for a lot of the administrative work associated with the incorporation of FOTBR. Todd hosted committee meetings and his wife Marjory was Treasurer for the Group.

Fraser Jackson was President for six years from 2002, Richard Herbert then held the reins for six years until the current president, Richard Mowll, was elected in 2014.

Jackson remembers visiting Auckland’s North Shore reserves and coming to the realisation that access was a major key to their success. He formed an opinion that Tawa reserves

should be more accessible, so that they could be enjoyed, but that there should not be a proliferation of tracks. This was because he recognised that the developing forest understorey was fragile and would not recover easily from repeated disturbance.

Friends of Tawa Bush Reserves expanded their interests from Redwood Bush and Larsen Crescent Reserve to include Wilf Mexted Scenic Reserve and later Woodburn Reserve in the lower Takapu Valley. More recently, FOTBR has been working on the redevelopment of St Annes Reserve, Wadham Grove Reserve, and Charles Duncan Park, a small reserve off Fyvie Avenue, Linden (Figure 3).

The group liaised with Wellington City Council regarding the signage for and naming of Charles Duncan Park. However, there remain some differences between the WCC names of other reserves and the names used by FOTBR, for instance Wadham Grove Reserve as FOTBR call it is known as Oriel Avenue Reserve by WCC.

AWARDS

The Friends of Tawa Bush Reserves and their members have received a number of awards:

- Wellington Airport Regional Community Awards 2004 Heritage and Environment category awarded to Friends of Tawa Bush Reserves
- Heritage and Environment category of the Tawa Community Civic Awards in May 2006 awarded to Friends of Tawa Bush Reserves
- Heritage and Environment category of the Tawa Community Civic Awards in 2008 awarded to Richard Herbert, President of Friends of Tawa Bush Reserves and president and/or active member of four other Tawa organisations
- Excellence in Community Service category of the Tawa Community Civic Awards in 2008 awarded to Allan Todd, founding secretary and treasurer of Friends of Tawa Bush Reserves and an active member of a number of other Tawa organisations

Table 2: Reserves in Tawa where Friends of Tawa Bush Reserves currently undertake planting, weeding or pest control.

Reserve Name	Size (ha)
Charles Duncan Reserve	0.76
Larsen Crescent Reserve	0.72
Oriel Avenue Reserve	0.28
Pikitanga Reserve	2.87
Redwood Bush	10.00
St Anne's Reserve	0.96
Wilf Mexted Reserve	4.00
Woodburn Reserve	16.00
Woodman Drive and Kilkelly Close Reserve	0.75 and 0.25

Table 3: Current president and committee members of the Friends of Tawa Bush Reserves.

Position	Name
President	Richard Mowll
Vice President	Peter Saxton
Secretary	Position vacant
Treasurer	Chris Paice
Committee Member (web master and working bee coordinator)	Richard Herbert
Committee Member	Fraser Jackson
Committee Member	Helen Challands
Committee Member	Gil Roper
Committee Member (nursery)	Helen Roper
Tawa Community Board Chair and representative	Robert Tredger
Wellington City Council representative	Matt Robertson

OPERATIONAL HISTORY

This section is largely informed by an interview undertaken with committee member and past president Richard Herbert on 20 December 2014. Further information came from the committee and the Friends of Tawa Bush Reserves' website.

Larsen Crescent

Larsen Crescent Reserve is a small reserve located on the hillslopes between Larsen Crescent and Peterhouse Street, north of Redwood Bush. It covers an altitudinal range of 70-90 m asl and is completely surrounded by urban residential development. Its legal description is Lot 1 DP 88116 and Lot 13 DP 27445, part Section 41 Porirua Survey District, and designated Open Space B Conservation Reserve site 5B.

The group began work at Larsen Crescent (0.72 ha) by developing a track through the bush between Larsen Crescent and Peterhouse Street (Figure 2). The group then lobbied Wellington City Council to remove the old shed (Peter Hibma's workshop) and the concrete pad on which it stood. Once this was done planting began in the area where the shed had stood and a track was developed off the existing track to Peterhouse Street via the shed site. Weeds were cleared and an area in the northeast of the reserve was planted. Plants were supplied by Wellington City Council.

Notable specimen trees in the Reserve include large matai, tawa and totara trees. Possum control of this area began in 2002 and it is included in the Redwood Bush Key Native Ecosystem (KNE) area.

Redwood Bush

Redwood Bush is a much larger reserve (9.83 ha) and is part of a larger area of regenerating bush that reaches up to the ridgeline. It covers an altitudinal range of 75-140 masl and is bounded by agricultural land (comprising mostly regenerating scrub), pine forest plantation and urban residential development. Its legal description is Lot 1 DP59929, Lot 21 DP 48877, Lot 23 DP48578 and Lot 26 DP 52654 (CT 30A/65), part Section 36 and 38 Porirua Survey District, and designated Open Space B, Conservation Reserve Site 5B.

When this area was first gazetted, many residents with land backing on to the Reserve had short tracks out into the bush and there was an old vehicle track rumoured to date from World War 2. Military Historian Peter Cooke¹ wrote the following about this track, and others like it:

“Dummy roads with highly visible and reflective surfaces were built in a number of places. Arapuni dam had some, as did the hills between Wellington and Porirua which were expected to be the Capital’s final field of battle”.

Cooke’s understanding of the Wellington road was that it went visibly up the hill to the west of Tawa, starting in the valley at the southern end of Tawa, and ended somewhere near the top of the hill. “If the Japanese had followed it”, he said, “it would have given them no advantage”. Cooke has searched for the road but was never able to find it or to verify the story of its existence (Peter Cooke, pers. comm., 23 April 2015).

It is possible that the vehicle track originally reached from Redwood to Ohariu Valley, and was the work of the Makara Army Corps. There are further, similar tracks along the ridgeline which all finish with dead ends. These are sufficiently wide to accommodate a vehicle. However, they are generally overgrown or have been planted.

From April 2000, Greater Wellington Regional Council identified Redwood Bush plus Larsen Reserve and all of the surrounding regenerating bush and the pine plantations as a Key Native Ecosystem (KNE) and, as such, qualified for budget to control pest animals. Fifty-six bait stations were installed, along with eight mustelid traps along the western boundary of Redwood Bush.

In the early days of FOTBR the ‘Army’ track was very overgrown with gorse and one of the first projects undertaken in Redwood Bush was to improve access by clearing gorse from track. At first only a narrow path was cleared and the edges planted. Later, each side of the track was also cleared and planted. Wellington City Council supplied the plants for this project. A lot of honeysuckle was also cleared at this time, with Brian Carter doing a lion’s share of the work. Helene Ritchie, the local City Councillor also helped at working bees.

Early in the experience of the group, Brian Carter was working on the gorse mainly adjacent to the ‘Army Track’ and Fraser urged him to find a route which could be developed down to Achilles Place. The route was determined in consultation with WCC and then developed by Peter. Fraser Jackson also asked Peter, who was the committee member responsible for track development, to develop a route from Achilles to Peterhouse Street. Periodic Detention workers helped with the first stage, cutting and metalling the track, and Wellington City Council provided a contractor to build steps. The second stage was built entirely by FOTBR volunteers a year later. Each section was opened by then Mayor Kerry Prendergast. Peter Saxton managed and contributed to all of the operational activities which led to development of the tracks.

One of the group’s achievements is its part in the development of a walking track along the lower valley. This project was initiated by Peter Saxton when Fraser Jackson was President.

¹ Cooke P.D.F., 2002: Defending New Zealand – Ramparts on the Sea 1840-1950s. Defence of New Zealand Study Group, Wellington.

Peter was responsible for marking a proposed route. Fraser actively promoted the track with local service clubs, the Community Board and Wellington City Council. This project led to the formation of the Tawa Valley Pathway group which, at its inception, shared some committee members with FOTBR.

As more and more people started using the tracks the profile of the work being done by Friend of Tawa Bush Reserves was raised. Even in their own gardens residents noticed an increase in birdlife that was attributed to the hard working volunteers and their management of bait stations. Keeping on top of predatory and browsing animals allowed birds to move in to the area and breed successfully. Some birds that had not been seen for many years including red-crowned parakeet, whitehead, and bellbird moved in from Kapiti Island and Akatarawa Forest Park, via Porirua Scenic Reserve (Miskelly *et al.* 2005). Birds may also have moved north from Otari Wiltons Bush where pest control began in 1993 (Pekelharing 1995), and Zealandia where pest control started in 1999 and where birds such as tomtit and bellbird were later released (McArthur *et al.* 2012).

Goats were a problem in Redwood Bush with a small group periodically roaming into the bush from Spicer Forest until they were finally eradicated by a WCC contractor in 2014.

Table 4: Forest birds observed in the Tawa area and in nearby Porirua Scenic Reserve (New Zealand eBird records; Moylan and Hudson 2007; McArthur *et al.* 2012).

Bird	Scientific Name	Threat Status ¹
Australasian harrier (kāhu)	<i>Circus approximans</i>	Not Threatened
Bellbird (korimako)	<i>Anthornis melanura</i>	Not Threatened
Bush falcon (kārearea)	<i>Falco novaeseelandiae</i>	Nationally Vulnerable
Grey warbler (riroriro)	<i>Gerygone igata</i>	Not Threatened
Kereru (wood pigeon)	<i>Hemiphaga novaeseelandiae</i>	Not Threatened
Kingfisher (kotare)	<i>Todiramphus sanctus</i>	Not Threatened
Morepork (ruru)	<i>Ninox novaeseelandiae</i>	Not Threatened
North Island fantail (piwakawaka)	<i>Rhipidura fuliginosa placabilis</i>	Not Threatened
North Island kaka	<i>Nestor meridionalis septentrionalis</i>	Nationally Vulnerable
Red-crowned parakeet (kakariki)	<i>Cyanorhamphus novaezelandiae</i>	Not Threatened
Shining cuckoo (pīpīwharaua)	<i>Chrysococcyx lucidas</i>	Not Threatened
Silvereye (pihipihi)	<i>Zosterops lateralis</i>	Not Threatened
Tui	<i>Prothemadera novaeseelandiae</i>	Not Threatened
Welcome swallow (warou)	<i>Hirundo tahitica neoxena</i>	Not Threatened
Whitehead (pōpokotea)	<i>Mouhous albigilla</i>	Not Threatened

Wilf Mexted Reserve

This Reserve was created when 1.6 ha of forest were donated to the people of Tawa in 1939 by Wilf Mexted a local farmer and the great grandson of George Mexted who arrived from England in 1841. It is original forest with a canopy of tawa and kohekohe, and occasional kahikatea, miro, rewarewa, and pukatea. A further 2.4 ha including an access way to Bing Lucas Drive is to be added to the Reserve. This land will be a reserve contribution from

¹ Miskelly *et al.* 2008

developer John Walsh. The vegetation on the additional land is mainly regenerating mahoe, a small area of tawa and some gorse.

The legal description for Wilf Mexted Reserve is Section 180 Porirua District and Lot 10 DP 88281, being parts of Sections 48 and 50, Porirua District, and part of Section 6, Takapu District and 38 Porirua Survey District, and designated Open Space B Conservation Reserve Site 5C.

The original Wilf Mexted Reserve was fenced at the time the land was gifted but this fence was not maintained and so there has been occasional stock grazing. This, and browsing by possums, reduced the understorey to a few hardy and unpalatable ferns and also affected the canopy. Greater Wellington Regional Council installed bait stations in this reserve and in the adjacent pine plantation in January 2005 and these have been maintained by FOTBR on a voluntary basis since then.

Friends of Tawa Bush Reserves removed blackberry, gorse, and jasmine from the bush margin at the reserve entrance and undertook replanting with indigenous trees. Weeds were removed along the top, eastern, margin and the area was planted with colonising trees and “Norm Robertson’s podocarps”. These latter trees were propagated by Norm for FOTBR and have also been planted in other reserves around Tawa.

At some time in the 1960s a scout ranger group established a loop track in the reserve. This track was upgraded in 2006 by WCC who employed a contractor to replace bridges and lay metal on the track. However, the zigzag track on the southward side was found to be too steep and the bottom section has been washed out. Brian Carter spent a lot of time realigning this section of the track.

Following negotiations with WCC in 2012 and approval being granted for the new residential subdivision at the top of Bing Lucas Drive, FOTBR has plans for a second track to link the original loop track with Bing Lucas Drive and allow pedestrians to have access from there to Woodburn Reserve in the Takapu Valley.

Woodburn Reserve

In 2006 the Friends of Tawa Bush Reserves were approached by WCC to see if they would be interested in extending their volunteer capability into this 16 ha Takapu Valley reserve. About 9.5 ha of this 16.4 ha reserve is tawa-dominant old-growth forest (Blaschke and Forsyth 2012).

Unlike other reserves managed by the Friends, Woodburn Reserve has a bridle path as well as pedestrian access. Major utility lines for gas and water supply also run through the reserve and trees growing along the easements above the pipelines may need to be removed in the future if maintenance work is required.

The Reserve covers an altitudinal range of 75-140 masl and is bounded by agricultural land that in recent years has been converted to lifestyle blocks, and a pine plantation. Its legal description is Lots 101 & 102 DP 79969 and Lot 52 DP 302319, parts Section 40 and 42 Porirua Survey District, and it is designated Rural.

The Friends have been planting rank pasture at the top of the reserve with tree species supplied by WCC, including northern rātā (*Metrosideros robusta*). Most of the work carried out in this reserve has been by Friends volunteers Brian Carter, Peter Saxton, and Norm Robertson. There are more weeds in this reserve than in others managed by FOTBR. Hawthorn (*Crataegus monogyna*) has been the biggest problem as there were large emergent trees throughout the reserve. Other weeds in the reserve are: old mans beard (*Clematis vitalba*), broom (*Cytisus scoparius*), Himalayan honeysuckle (*Leycesteria formosa*), blackberry (*Rubus fruticosus*), bindweed (*Calystegia silvatica*), and holly-leaved senecio (*Senecio glastifolius*).

In December 2005 the Friends undertook a working-bee to remove the worst of the weeds; primarily old man's beard and Himalayan honeysuckle which continue to be monitored and controlled. In 2008, 2009, and 2010 the Friends planted 500 specimens a year in the pasture above the bush-line north of the cutting to revegetate the western boundary of the reserve area. The plantings were supplied by WCC.

As with other reserves where FOTBR works, tracks have been planned, designed, and created by volunteers. These allow good access to and through the Reserve and often include a seat at a lookout point.

The Friends began maintaining bait stations in Woodburn Reserve for GWRC in October 2006, which has reduced possum numbers, along with five mustelid traps, which have caught stoats, rats and hedgehogs. Rabbits have been observed in the rank pasture and also in bush to the south of the reserve. There is currently no control of rabbits.

The Reserve is not entirely fenced and there have been some issues with roaming stock over the years. In recent times the fencing bordering 66 Bing Lucas Drive has been added. Fencing of the remaining private grazing paddock on the Takapu Road boundary was also fenced around 2012, but was severely damaged in the floods of May 2015. There have been deer in this area for many years. These are not controlled by GWRC unless they are causing damage to property or are a traffic hazard (Glen Falconer, GWRC Biosecurity, pers. comm., 22/12/2015). Deer come under the jurisdiction of the Wild Animal Control Act 1977.

Charles Duncan Reserve

This 0.76 ha Reserve is part of an historic garden planted by Charles Duncan. Charles Duncan had worked as a gardener in Fyvie Castle in northern Scotland before training at Kew Gardens, London. He moved to Wellington in 1850 and six years later married Catherine Mitchell from the Tawa Flat area, as it was then named (Carlisle 2013).

Tawa Section 52, of which Charles Duncan Reserve is a remnant, was originally purchased by Charles Duncan in 1866. As a trained horticulturalist, Charles continued his trade on their farm which he called "Linden Vale" after a favourite spot of his in Kew Gardens; constructing a garden and nursery around their home. His son Stuart Duncan continued to live on the property and subsequent to his death the farm became the Lindenvale subdivision and this remaining portion, Charles Duncan Reserve, was vested in the then Tawa Borough Council as Recreation Reserve in 1981.

The reserve has many exotic trees, including a rare *Banksia* species, some of which may have been planted by Charles Duncan who possibly brought trees with him in 1850 or, more likely,



ordered them from England. Various weedy species are present including cherry and sycamore. A very overgrown hedge and much blackberry, tradescantia, and some gorse kept Brian Carter, who lives nearby, busy weeding and clearing rubbish for some time.

All of the wild cherry trees and all but two sycamore trees have been removed so far from this Reserve. Wellington City Council collects rubbish and weeds removed from the Reserve if they are piled at the roadside. However, carrying the weeds out is difficult and so many are placed into large heaps and composted *in situ*. Originally there was no access to this reserve but FOTBR volunteers constructed a loop track and arranged via WCC to have put steps built by a WCC contractor, which make access easier.

Approximately 2,000 indigenous plants have been established in this Reserve, most of which were grown in FOTBR home nurseries. Restoration of the Reserve suffered a major setback when a series of snowstorms in July 2011 destroyed that season's planting.

The legal description for Charles Duncan Reserve is Lot 1 DP 51563, part Section 52 Porirua Survey District, and designated Open Space B Recreation Reserve. The reserve was named for Charles Duncan, in a formal naming process between FOTBR supported by the Tawa Historic Society, and WCC. WCC also supplied an interpretive panel for the reserve based on material supplied by the Tawa Historical Society.

St Anne's Reserve

This small Reserve is very steep and no planting work has been required so far, although a track has been established to allow through access between upper Greyfriars Crescent and St. Anne's Square. This track is used by children to get to school. Weeding of old man's beard, aluminium plant and blackberry has been carried out and *Muehlenbeckia* vine has been removed from the tree canopy. There are two bait stations here and, apart from maintaining these, the Reserve now takes care of itself.

Wadham Grove Reserve (also known as Oriel Avenue Reserve)

Wadham Reserve is a small reserve (0.28 ha) located at 42 Oriel Avenue on the south western slopes of Tawa between Oriel Avenue (at Wadham Grove) and Pembroke Street, east of Redwood Bush. It covers an altitudinal range of 60-80 masl and is completely surrounded by urban residential development. Its legal description is Lot 47 DP 33779, part Section 36 Porirua Survey District, and designated Open Space B Recreation Reserve.

Although the area was cleared for farming following early European settlement and later for the Redwood subdivision, this small area of predominantly kohekohe forest adjacent to Oriel Avenue remains. There is also some regenerating mahoe in the gully at the northern end of the reserve. The remaining area of the reserve is a steep bank area that had become neglected rank pasture with weeds and a few trees planted by neighbours until it was adopted by FOTBR. In 2004 the Friends undertook a working-bee to remove the worst of the weeds and planted 500 WCC supplied trees on the steep bank. Weed maintenance and some in-fill planting continued in subsequent years. In 2009 WCC improved the drainage of the lower corner area and this section was also cleared of weeds and planted.

Other Areas where Friends of Tawa Bush Reserves Undertake Conservation/Restoration Work

Pikitanga Reserve is a small gully beside a playground where FOTBR maintain two bait stations.

The Woodman Drive Lookout area was planted initially by Tawa Rotary Club over a number of years as part of a Rotary Centenary project. FOTBR has assisted and undertaken some maintenance work there since.

Tawa Valley Pathway (Ara Tawa) is a project that Friends of Tawa Bush Reserves became involved with at its inception around 2005. FOTBR and Tawa Valley Walkway Committee shared some committee members while the latter group was being established. Tawa Valley Walkway Committee then saw the project through to its completion in 2014.

FOTBR has also acted as a co-ordinator to promote planting by other local community groups of WCC supplied trees in agreed areas along Ara Tawa. These have included groups from Tawa Anglican Church, Tawa Lions, Tawa Rotary and Tawa College for the 2013, 2014 and 2015 planting seasons.

The group has also done some tree planting along the rail corridor at Linden Station in Tawa in association with the Growing Places Trust.

Home Nursery Scheme

Two FOTBR members, Richard Herbert and Norm Robertson operated home nurseries home nurseries from the early years of FOTBR. Generally they are growing - on collected seedlings, particularly species that are not normally available from the WCC nursery; e.g. nikau, rimu, kahikatea, and tawa as well as additional numbers of some colonising species. Early on Friends of Tawa Bush Reserves received a grant from Project Crimson to purchase a few northern rātā plants and subsequently also received some northern rātā seedlings from the Forest and Bird nursery. They are they are not currently growing any of this species in their home nurseries. During 2015 the nursery of Norm Robertson was transferred to Tawa College.

A small nursery has also been established by committee member Helen Roper at Tawa College. Helen recently retired from working at Tawa College and has a close relationship with college science staff and the Principal. The current shade house is close to classrooms and would benefit from being moved further away so that noise from the nursery does not affect staff and students.

Future Work Plans for FOTBR

Peter Saxton is investigating the potential for FOTBR to work in remnant bush to the south of Tawa on land near Arohata Women's Prison. Some very large indigenous trees have been observed there. In addition neighbours of Charles Duncan Reserve have lobbied FOTBR to work on a lot to the west of that reserve (Appendix 5).

The recreation area in Spicer Forest will require some work once the Mill Creek wind turbine project is completed. The Friends of Tawa Bush Reserves has made a submission to Porirua

City Council supporting the proposed Porirua Outdoor Recreation Park which will include Spicer Forest.

Friends of Tawa Bush Reserves would also like to do more work with the local schools. However, including them in week day working-bees has proven difficult as the children require a higher level of supervision than the group can provide. The turnout from schools for working bees has been unpredictable and the level of planting skill amongst the students is low.

There is potential to work jointly with the Trees for Survival group to engage local schools either in planting or nursery work. Trees for Survival (TfS) is an environmental education programme which involves young people growing and planting native trees to help landowners revegetate erosion prone land, improve stream flow and water quality and increase biodiversity. Over the last 20 years more than 5,000 school students have been involved with tree planting under the Trees for Survival programme.

The next big initiative for FOTBR will be to link Tawa tracks with the Skyline and Te Araroa walkways. The Skyline Walkway is a 12 km track from the Makara Saddle in Karori to Old Coach Road, Johnsonville. Te Araroa is a national walkway reaching 3,000 km from Cape Reinga to Bluff. The Te Araroa - Colonial Knob route follows Ohariu Road rather than the ridgeline between Colonial Knob and Old Coach Road, which is in private ownership.

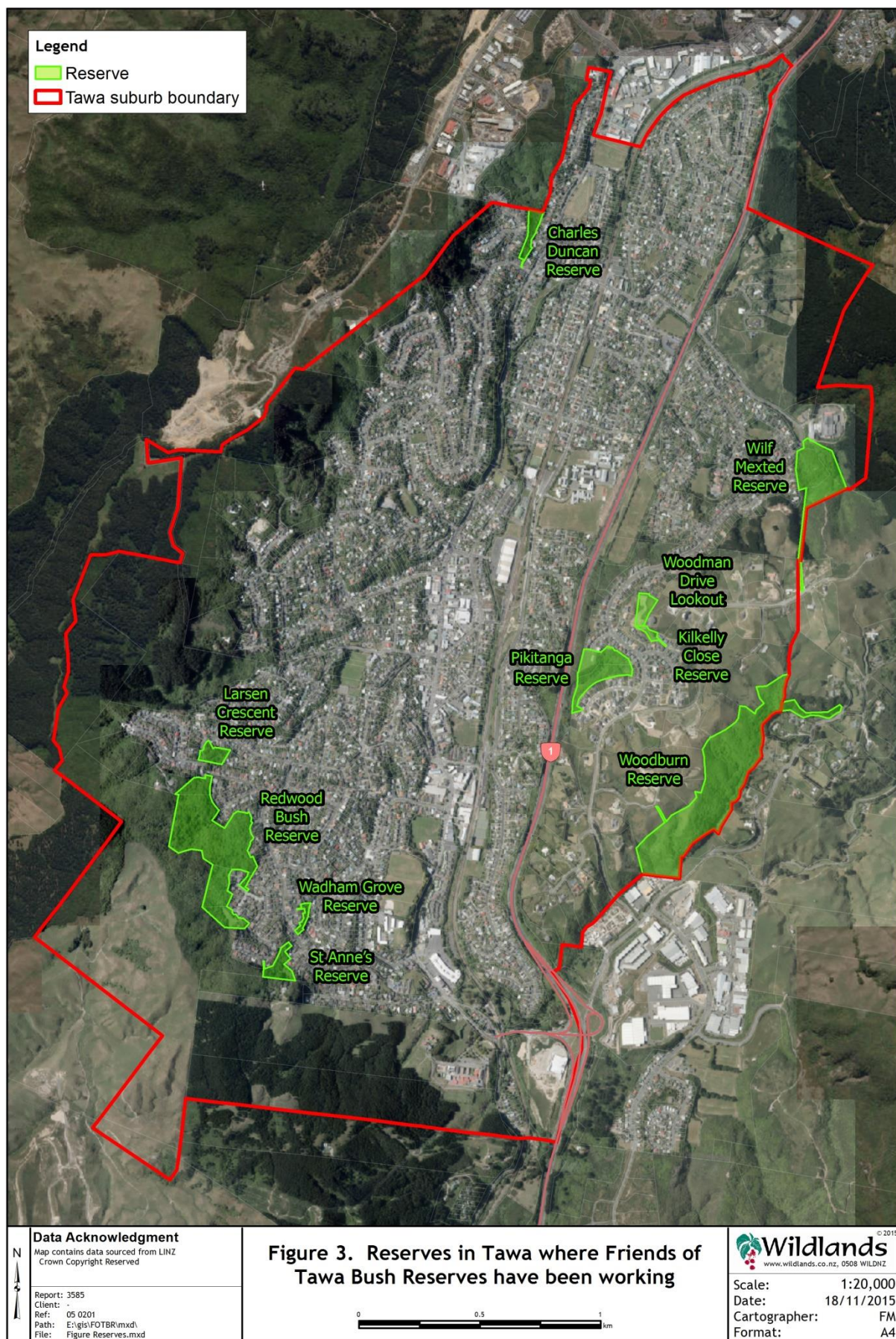
REFERENCES

- Bagnall R.G. 1981: Vegetation of the Redwood Bush area, Tawa. *Wellington Botanical Society Bulletin* 41:4D25.
- Blaschke P. and Forsyth F. 2012: Woodburn Reserve ecological management plan 2012-2016. Blaschke and Rutherford contract report for Wellington City Council.
- Carlisle T. 2013: Duncan Street, the spine of Tawa. *The Wellingtonian* 09/08/2013. Accessed online at <http://www.stuff.co.nz/dominion-post/news/local-papers/the-wellingtonian/features/9016146/Duncan-St-the-spine-of-Tawa>
- Carman A.H. 1970 (Revised edition): Tawa Flat and the old Porirua road, 1840-1870. A.H. Carman, Tawa, New Zealand.
- Chapman K. 2010: Story of a suburb: Tawa. *Dominion Post* 5/12/2010 Accessed online at www.tawalink.com/story_of_a_suburb.html 12/5/2014.
- Day K. (Compiler) 1991: The old Porirua road. *Porirua Museum History Series 5*. Porirua Museum and Porirua City Council. Porirua.
- Growing Places Charitable Trust 2015: Accessed online at <http://www.naturespace.org.nz/groups/growing-places-charitable-trust> on 03/02/2015.
- Jackson F. 2003: President's report for the year ended 31 December 2003.
- McArthur N., Moylan S., and Crisp P. 2012: Baseline survey of the diversity, abundance and distribution of birds in Wellington City reserves. Greater Wellington Regional Council GW/EMI-T-12/231.
- Miskelly C.M., Dowding J.E., Hitchmough R.A., Powlesland R.G., Robertson H.A., Sagar P.M., Scofield R.P., and Taylor G.A. 2008: Conservation status of New Zealand birds. *Notornis* 55: 117-135.

- Miskelly C., Empson R., and Wright K. 2005: Forest birds recolonizing Wellington. *Notornis* 52: 21-26.
- Pekelharing C.H. 1995: Assessing response in tree condition following possum control in Otari Native Botanic Garden, Wellington. Landcare Research contract report prepared for Wellington City Council.
- Tawa Historical Society records accessed online at http://www.tawahistory.org.nz/tawa_history.html 08/04/2015.

RESERVES WHERE FOTBR
HAVE BEEN WORKING



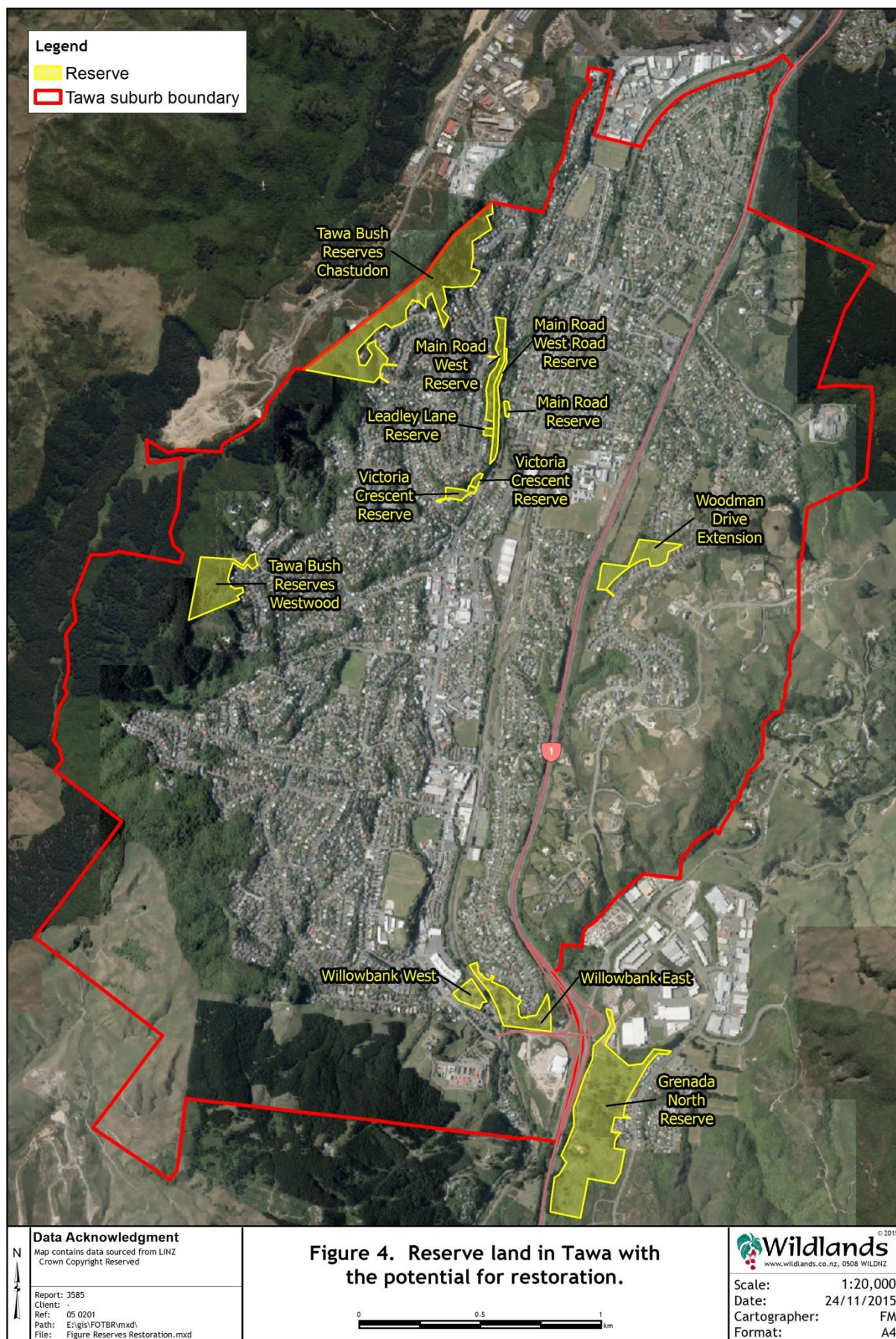


TAWA RESERVES WITH POTENTIAL FOR INDIGENOUS PLANTING

The following are reserves in Tawa where the vegetation is predominantly exotic. These have been identified as having potential value as ecological corridors, patches or stepping stones if indigenous tree planting and weed and pest control is undertaken in them at some time in the future. Spicer Forest and the 'Airstrip Block' could also be added to this list.

Reserve Name	Area (ha)
Central area of Tawa Bush Reserves off Westwood Road	3.67
Northern area of Tawa Bush Reserves off Chastudon Place and Ordley Grove	11.00
Woodman Drive Extension	2.10
Victory Crescent Reserve	0.64
Leadley Lane Reserve	0.02
Main Road West Reserve	1.31
Main Road western Road Reserve	11.00
Main Road Reserve (cnr McLellen and Main Road)	0.01
Willowbank Reserve West	0.87
Willowbank Reserve East	2.40
Grenada North Reserve	14.00

Note that the Grenada North Reserve may be on the route of the proposed link road between Petone and Grenada.



AREAS OF PRIVATELY-OWNED NATIVE FOREST AT TAWA

The following are areas in Tawa which have been identified by Friends of Tawa Bush Reserves as having significant ecological values, or they provide buffer values for existing reserve land. There is potential for such land to be:

- Offered as reserve contributions as a part of future land developments,
- Voluntarily covenanted under the Queen Elizabeth II Trust,
- Protected as significant riparian vegetation under Policy 23 of the Proposed Regional Plan¹; or,
- Purchased by Wellington City Council for reserve purposes².

Note that the Chastudon Place land parcel at the top of the map overleaf is actually owned by WCC. Four other privately owned properties between Westwood Road and Chastudon Place (17 and 23 Westra View, and 5 and 21 Westwood Road) also have significant ecological values but are not shown on the map.

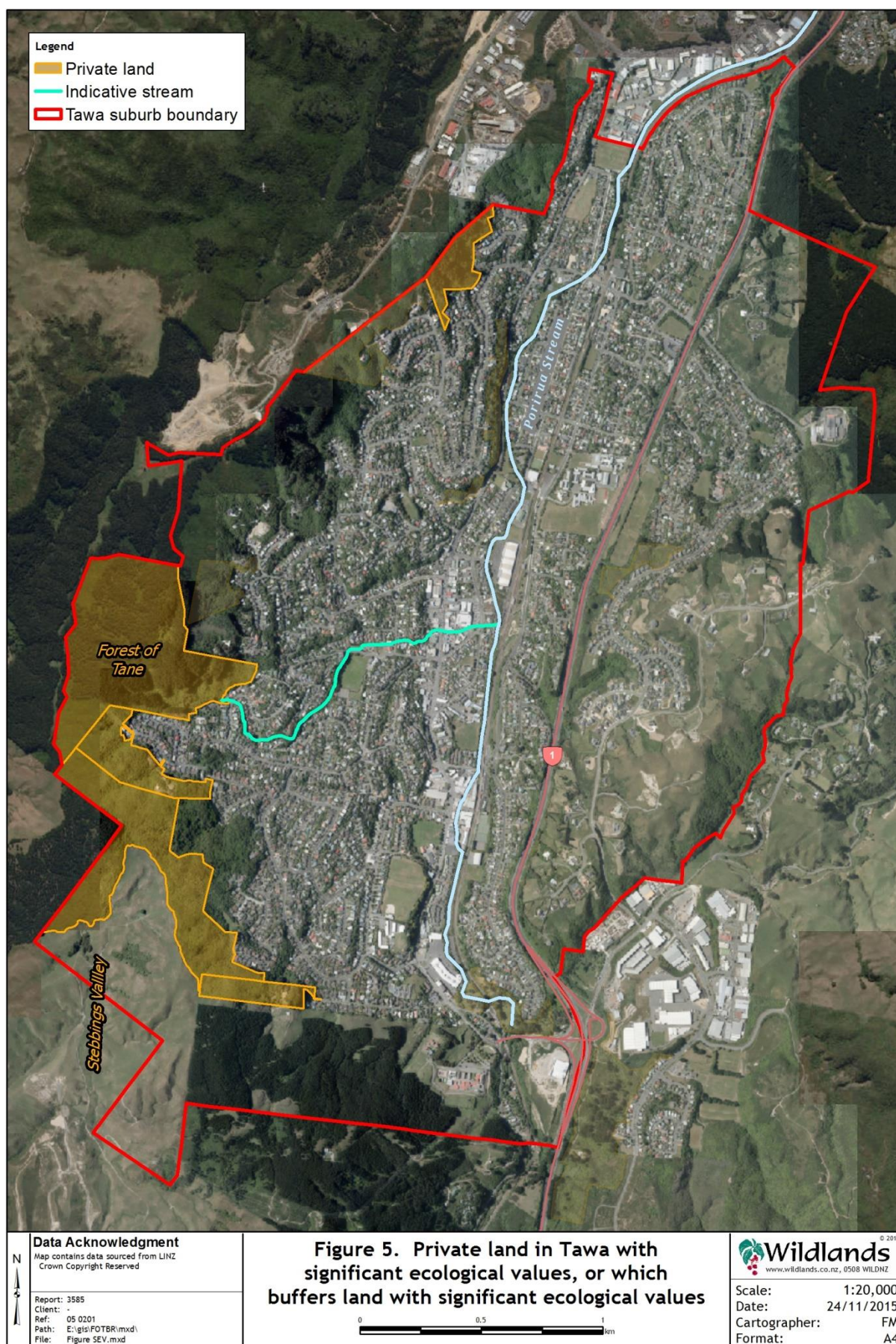
¹ Policy P23: Restoring Te Awarua-o-Porirua Harbour, Wellington Harbour (Port Nicholson) and Lake Wairarapa.

The ecological health and significant values of Te Awarua-o-Porirua Harbour, Wellington Harbour (Port Nicholson) and Lake Wairarapa will be restored overtime by:

- (a) managing activities to reduce sedimentation rates and pollutant inputs, and
- (b) managing erosion-prone land and riparian margins in their catchments, and
- (c) undertaking planting and pest management programmes in harbour and lake habitats and ecosystems.

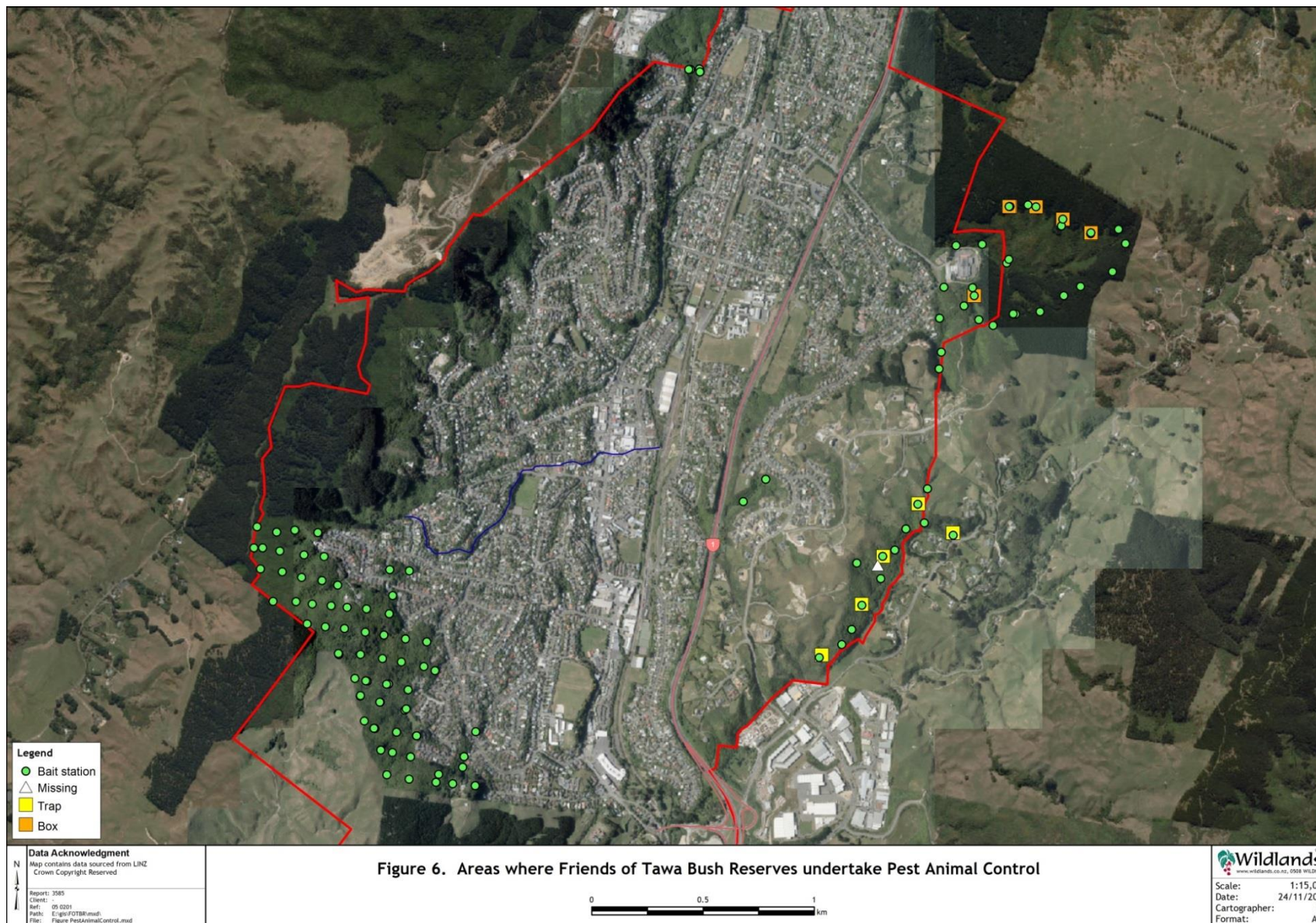
² To achieve this the land would need to meet two of three criteria:

- (a) high landscape values,
- (b) high ecological values, and
- (c) recreation values.



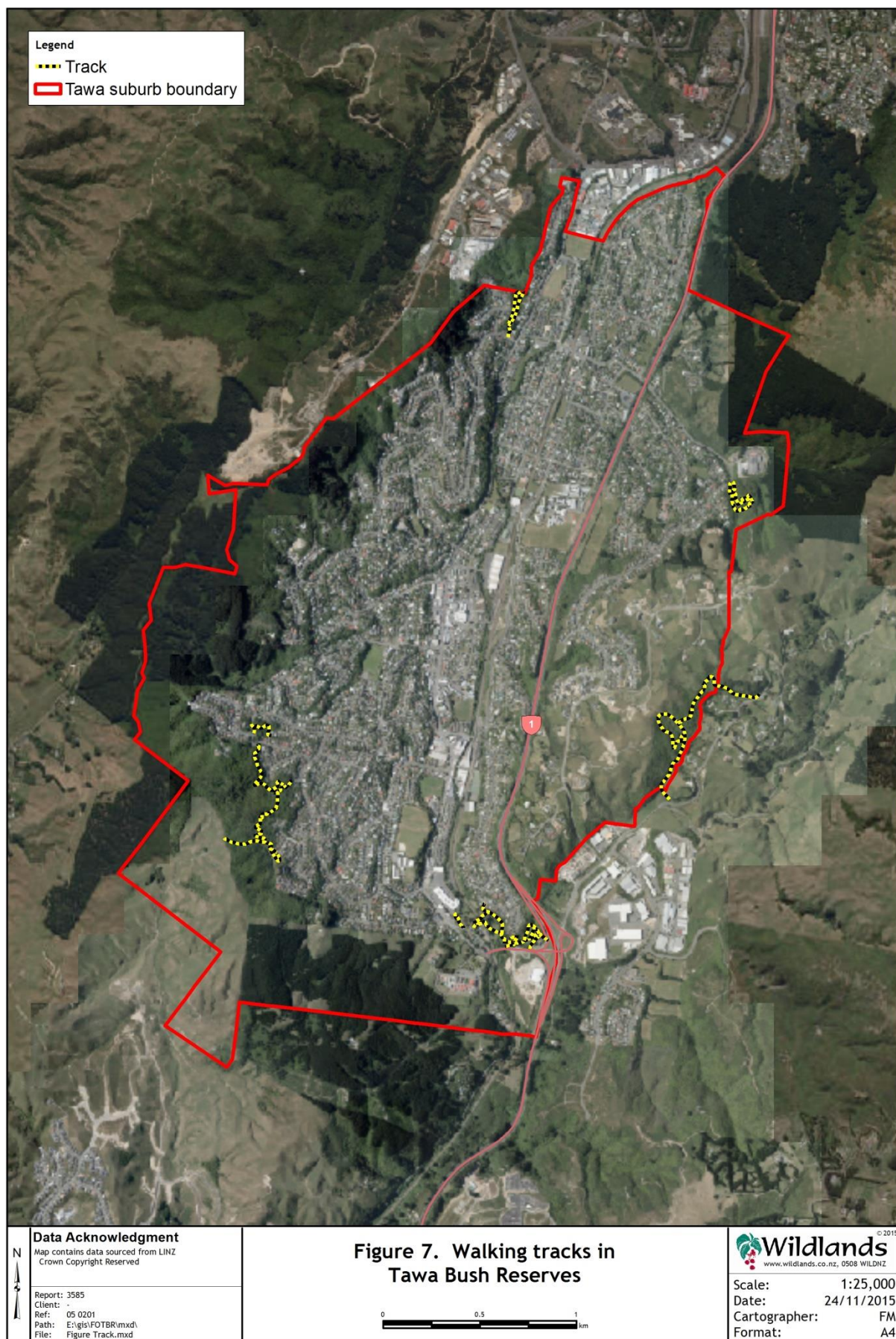
AREAS IN TAWA WHERE FOTBR UNDERTAKE PEST ANIMAL CONTROL

In addition to the traps indicated on the map on the following page there are also four traps along the ridgeline above Redwood Bush. Also note that access to the pine plantation section of the Wilf Mexted Block traps/bait stations is currently suspended as Greater Wellington Regional Council are unable to obtain permission from the owners to clear windfall trees which are a potential hazard.



EXISTING TRACKS IN TAWA BUSH RESERVES

The map on the following page is indicative only. More recent data collected by Peter Saxton (FOTBR) and Matt Robertson (WCC) is yet to be added to the WCC GIS database. This includes tracks in Woodburn Reserve, St Annes and the Wilf Mexted extension. Tracks indicated in Willowbank are not related to FOTBR.





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