1. Conservation policy and planning: values, conservation threats and intervention

This part deals with the policy background to the practical care of archaeological sites. All land managers will need to consider a broad range of values—cultural, policy, local community relations, resource management and logistical matters. Any conflict in values will need to be resolved by good conservation planning.

The statement of outcomes—the long-term results and benefits—was developed in discussion with staff of the New Zealand Historic Places Trust.

1.1 DESIRED OUTCOMES FOR ARCHAEOLOGICAL SITES

If our recommendations outlining the care of archaeological sites are followed, outcomes for archaeological site management will be different from those at the moment. Most sites will continue to be managed as part of farming or forestry operations. At the least, continued heavy stocking with animals or forest reversion on sites will become a matter for decision by land managers. At best, archaeological sites and the landscape areas in which they can be appreciated will have distinctive management that conserves them properly; and guarantees that in the long term they will be available as landscapes or places of commemoration, education and research.

Outcomes of a distinctive management for archaeological sites comprise:

- All archaeological sites are managed with care and in a professional way to maintain authenticity of the original fabric and stratigraphy.
- Reserve land with archaeological values will have distinctive management in sympathy with the values protected and different from that of other classes of land.
- The archaeological landscape is distinguished within the natural landscape by appropriate use of vegetation contrasts and links.
- A large number of sites remain under shrubland or other appropriate cover and are protected, so that in the future a decision could be made to allow for a range of management purposes—including public visitation or to conduct research.
- Land owners and managers have a good relationship with the public and tangata whenua and descent groups:

  — At appropriate sites, members of the public take an interest in, and feel a sense of wonder about, the place and the lives of the people who lived or worked there.

  — Conservation planning and appropriate site management operations are increasingly a source of professional employment and economic return to tangata whenua.

— Sites of Māori or other ethnic origin are maintained in a condition such that the descendant groups appreciate and support the management being carried out.

— Kaitiaki and other descendant group(s) are involved in conservation planning and active management.

- Accessibility and appropriate use is provided for:

  — Where access is part of an approved conservation or management plan, sites are maintained to allow the public to visit and appreciate them and without risk to the site.

  — Sites with high archaeological, historic, landscape and educational values are a valued part of the visitor/tourist infrastructure.

  — Archaeological sites, and the historic landscapes of which they are a part, are maintained so that the cultural features are visible and able to be appreciated from within the reserve and from the surrounding area.

- Site management techniques are understood and supported by the wider public:

  — Appropriate resources are available for the management of archaeological sites.

  — Sound techniques are in widespread use by land managers and are taught in training programmes.

  — Conservation planning can rely on a growing body of experience and proven practices.

1.2 CONSERVATION AND LAND MANAGEMENT OBJECTIVES

In addition to these outcomes, a number of objectives relating to good land management need to be achieved. These are as follows:

- Public access to a range of archaeological sites is maintained and enhanced
- Site management is cost-effective and efficient
- Vegetation covers used are stable and ecologically appropriate
- Māori values are considered in land and conservation management planning
- Archaeological site management is balanced and compatible with biodiversity conservation, recreation, farming and commercial uses
- Sites managed under these guidelines are seen to be examples of good management.

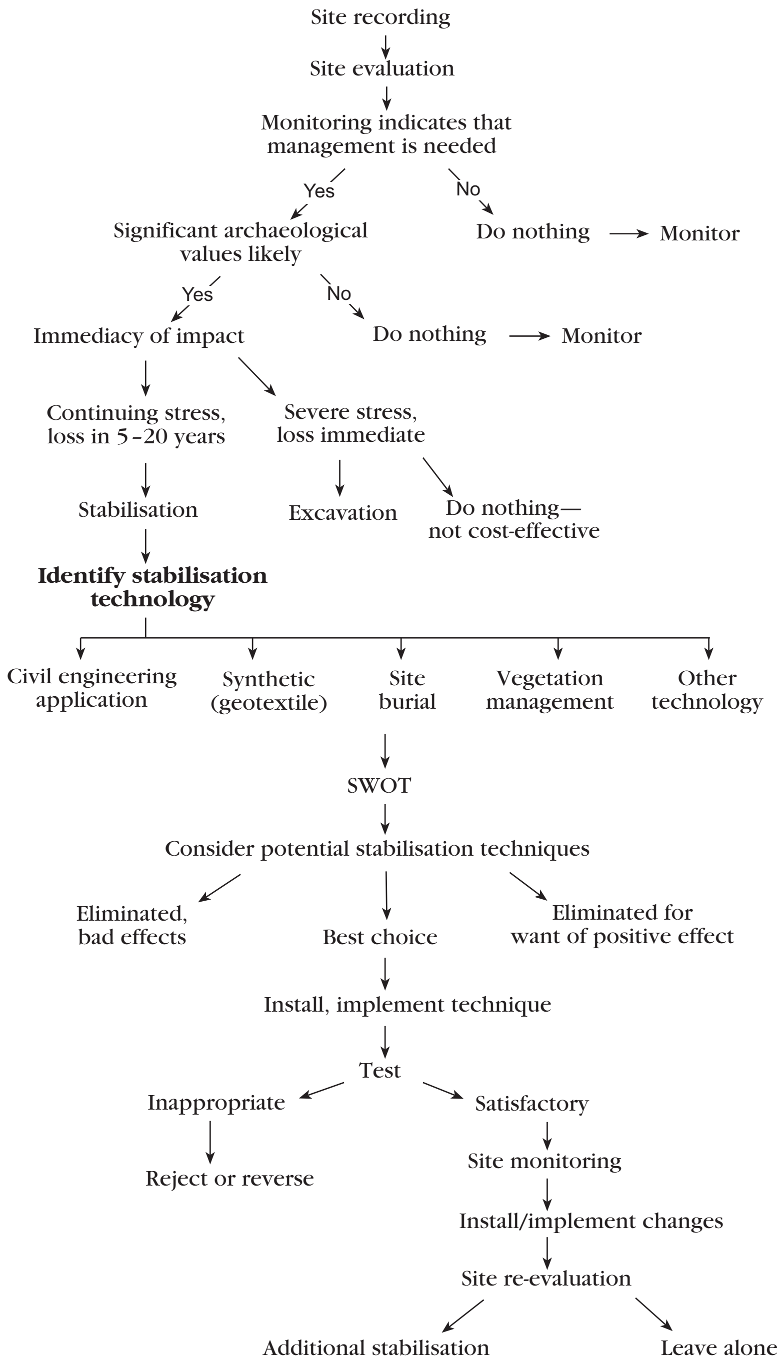
1.3 PRINCIPLES OF CONSERVATION

In the 1990s, the process and principles for conserving historic places, buildings and sites alike, have been systematised. Figure 2 (based on Thorne 1988) shows the process of site conservation.

The Australian ICOMOS Charter (The Burra Charter) of 1981 (Australia ICOMOS 1999; Kerr 1996), the Aotearoa Charter (ICOMOS New Zealand 1992), the International Charter on Archaeological Heritage Management, and the Cultural

Figure 2. A model of the conservation process. SWOT: Strengths, weakness, opportunities, threats. After Thorne (1988).

To intervene or not...



Tourism Charter all have relevance to the task of site preservation. (ICOMOS is the International Council on Monuments and Sites, a UNESCO agency.)

These charters adopt a conservative approach to the preservation of historic places. Although recognising that a range of values need to be considered and respected, they stress the principle of the need to maintain the integrity of surviving fabric. The existing materials of a site or place should have their condition stabilised, and not restored or re-constructed. The box below illustrates key concepts of the charter as they apply to archaeological sites, particularly earthworks.

SOME CONSERVATION CONCEPTS

Authenticity: The physical constituents of a site and its associations for people reflect continuity with and respect for the past. It depends on maintaining the overall form of the site and standing earthworks and the stratigraphy

Conservation: All the processes of caring for a place so as to retain its significance

Preservation/Stabilisation: Maintaining a place with as little change as possible

Restoration: Returning a place to a known earlier state by the re-assembly and reinstatement of surviving but dislodged fabric or by the removal of additions

Reconstruction: Returning a place to a known earlier form by the introduction of new or similar materials… usually where a place has been damaged

Monitoring: Measuring or other recording of condition at time intervals so as to determine whether change is occurring and in particular whether it is accelerating

Intervention: Action taken to improve the condition or reduce deterioration of an archaeological site. Intervention may include ceasing an activity which is damaging a site.

Reconstruction and restoration are further commented on in section 2.6, p. 54.

1.4 VALUES OF ARCHAEOLOGICAL SITES

1.4.1 Potential for archaeological research

Archaeology is an essential part of identifying and evaluating the evidence of past human activities. Sites are not just pieces of dirt with artefacts in them. They are a product of human activities, which have been altered over the succeeding years by physical, biological and chemical processes and human activity. These processes eventually reduce a place to a fairly stable state, but one in which soil layers and surface features can still be detected and investigated. For successful investigation, the condition of a site at this stage should be maintained as far as possible. Further disruption by alteration or destruction needs to be inhibited or prevented if the archaeological evidence is to be preserved. The authenticity of the site requires protection of its scientific and information potential as well as the form of surface earthworks.

1.4.2 Commemorative values

Sites should be not only places of potential archaeological research but also places of commemoration of the past. Some sites may be important simply because an important event happened there and may have no surface expression of that event. All these sites hold different meanings for different groups within New Zealand society. There may be some places the nation does not wish to commemorate, or some particular local community does not wish to see commemorated, interpreted or investigated—for whatever reason. However, these places may need protection through control of the vegetation or other means. Authenticity is still relevant, since no one will hold any particular respect for a site or structure known to have been debased by meaningless reconstruction.

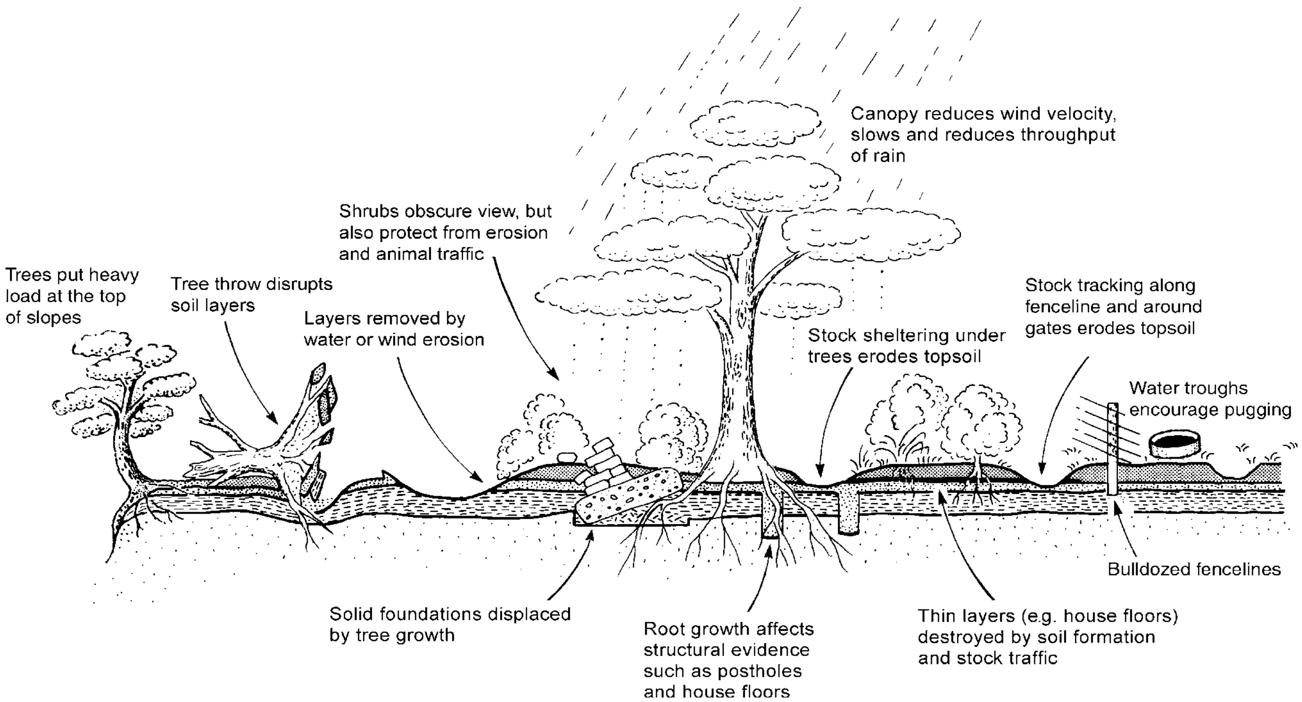


Figure 3. General diagram of threats to surface earthworks and sub-surface layers of an archaeological site.

1.4.3 Other values

Other values will include amenity and recreation values, education about the past, vegetation values and landscape value. Vegetation can itself have historical and commemorative value.

1.5 THREATS TO ARCHAEOLOGICAL SITES

We have stressed that the authenticity of a site depends on maintaining two characteristics. First is the form of standing earthworks and their relationship to standing structures. The second is stratigraphy (the layers of the site) which will in many instances be related to the surface-visible earthworks. Stratigraphy is not only structures in the ground such as the cut marks and fill of terraces, pits, postholes and drains, but also deposits such as oven rake-out and midden and layers of soil that may have formed when the site was abandoned.

A threat is any factor which will destroy the commemorative associations of the place or disturb, disrupt or remove any earthworks or stratigraphic evidence.

1.5.1 Major classes of threat

English experience shows that the risk to archaeological sites is highest on forestry and arable land. There are moderate risks in urban areas and on pasture land (Darvill & Fulton 1998: 225–226). New Zealand experience would also suggest that farming and forestry are major sources of risk (Prickett 1985). Figure 3 gives a shorthand summary of our experience of these classes of threat. There are further threats that need to be managed. These include public visits to land within the *protected area network* and any intensive management to cater for this visitation. The final threat is to sites with unstable and rapidly changing vegetative cover such as weeds or specimen trees (Fig.4). As often as not, this will be land with potentially productive use such as agriculture or forestry.

THREATS TO ARCHAEOLOGICAL SITE CONDITION:

Natural causes:

- Root growth from the site's vegetation cover
- Tree throw, generally caused by wind pushing over the tree and uplifting the tree's root plate
- Soil processes: physical, chemical and bioturbation (disturbance caused by plant roots or animals), including freeze-thaw
- Erosion and gross movement: gullies, sheet erosion, wave and stream erosion at site margins and in landslides or subsidence, deposition of erosion products
- Burrowing animals, principally rabbits and pigs; ground-nesting birds such as petrels may burrow in areas such as coastal headlands.

Human activities:

- Damage caused by excavation of all kinds
- Wear from walking, 4WD vehicles and mountain biking (Fig. 5)
- Damage from camping, tent sites, fire places
- Wear from machinery used in park management including line trimmers and mowers
- Compression of layers, especially where fill is placed or vehicles run over the site.

Farming and forestry:

- Damage caused by farm animals including soil compaction, pugging, tracking (especially near fences and gates), pawing and dust bowls (especially by bulls), scrapes and 'camping' areas for shade or shelter from wind, downhill soil creep, terracette formation and slumping
- Tree root growth disturbing stratigraphy
- The impact of tree felling and hauling
- Damage caused by any kind of machinery use including bulldozing, ploughing, stump pulling and posthole diggers.

1.5.2 Past disturbance and soil formation

The modification of a land surface did not end when its first occupiers departed. In hill country, pre-European sites commonly had a grass, bracken (*Pteridium esculentum*), shrubland and forest succession from the 1820s to the 1840s—a period of rapid population decline and radical changes in settlement pattern for Māori. This forest probably lasted for up to a century until the 'breaking-in' of hill country for farming from the late nineteenth century through to the 1940s. Most sites will have experienced some soil development under these vegetative covers, even without major disturbance such as tree throw.

Figure 4. Root plate of a thrown tree showing midden and ovenstones, Whangapoua, Great Barrier Island. Photograph: Dianne Harlow.

Figure 5. Typical branching tracks in summer (A, above) and winter (B, right) on One Tree Hill. The multiple tracks are fomed because people prefer a grassed surface to a muddy or dusty one. The solution is to limit visiting or to re-route and re-design track so that people are comfortable walking on it. Photographs: Dianne Harlow.

There are many soil-forming forces are at work on archaeological sites. The chemical and physical constituents of the soil break down through weathering and some are leached out of the soil. Trees are felled by the wind. Soil animals live within confined surface horizons, and in some areas of the country wild pigs root for their preferred foods. All the above processes are accompanied by soil development. However, it must be remembered that most of the biological activity is in the topsoil and is inevitable. Topsoils will have formed beneath the bush that covered many archaeological sites before farm development or plantation establishment. Such soils will vary in depth and may contain archaeological evidence. Generally, the topsoil generally provides a protective blanket for all but the most fertile and deeply buried of the old soils or fill preserved in the archaeological site. The surface of the topsoil may show depressions or humps that indicate the presence of a pit or a mound or other sub-surface features beneath it.

An understanding of modern disturbances of the soils on archaeological sites is important in deciding on appropriate management. If a site has been deeply cultivated, pig-rooted, or if large trees have grown on it in the past, it may reasonably be argued that further root growth can do no further harm and trees may be allowed to grow. The interiors of pā have warm, fertile and often sheltered soils. Since abandonment, the surface layers may have been cultivated—initially through Māori horticulture in the early to middle nineteenth century, and then by European arable farming.

Erosion products have buried all or part of some sites, protecting them beneath a robust mantle. Elsewhere, erosion may be removing or destroying some sites, leaving little of archaeological value. Any sort of disturbance of the soil degrades the surface profile of a site.

GENERALISED HISTORY OF COUNTRY SITES ABANDONED AT ABOUT A.D. 1820

- Repeated fires sweep through site, destroying wooden structures
- Short-lived fire weeds and grasses establish
- Pits, trenches, depressions, holes fill in and form a stable profile
- Bracken/manuka cover develops
- Banks, first rapidly, then gradually, attain a more stable profile and angle of repose
- Forest becomes established
- Long-term slow forest processes established
- By 1890–1910, land containing sites is either reserved or subject to forest/shrubland clearance and farm development
- The latter causes rapid changes to soil surfaces and greatly increases erosion.

Later, remnant patches of forest, unsustainable farmland that has reverted to shrubland, and farmland itself, can be subjected to more intensive uses. Plantation forestry introduces roads, farmland may be more closely fenced, fertiliser and stocking density increased. For a number of reasons, the decades since 1945 have seen great increases in the intensity of land management that have been destructive and continue to have potential to cause more destruction. These influences include: farm re-settlement of soldiers after WW II, land development grants, lifestyle blocks, bulldozing and ploughing technology is improved, changes in product demand (e.g. from sheep to cattle, from grazing to arable). Greater efficiency and profitability is unavoidable but it does not need to be accompanied by destruction of archaeological values.

1.6 CONSERVATION PLANNING

The ICOMOS New Zealand Charter stresses the need for close consideration and documentation of the values and management intent behind stabilisation or restoration, and the need to document any changes made. When the values and physical features of a place have been documented, it is possible to develop a *conservation plan* (Kerr 1996). Examples are the Pukerangiora Pa and Te Koru Pa conservation plans (Department of Conservation 1998, 2000). At this stage also, the management agency or landowner should have given an indication of the resources that are available for the proper conservation of the place. Some interventions may have technical merit and be feasible but they may not be possible because of cost.

The Department of Conservation, Queen Elizabeth II National Trust, the New Zealand Historic Places and most local government agencies will have some form of over-arching management strategy and specific plans for land and sites under their management or covenanted with them. International models such as those of English Heritage (1999) also have potential application.

There is no statutory requirement for plans, formal or informal, for freehold land where there are archaeological sites. However, the Historic Places Act 1993 gives protection to all sites. District plans will also often have provisions requiring protective measures for sites. A minimum plan for good freehold land management which accommodates archaeological site protection is as follows:

- Are there any sites on the land?
- What are they?
- How important are they?
- What risks are there to site condition?
- Can they be effectively managed within the general farm or forest operation?
- What operational measures or expenditure (e.g. on fences) is needed to protect the site?
- Where can advice be sought on the above matters?
- Is there financial or other assistance available?

1.7 INTERVENTION

Intervention is any action taken to improve the condition or reduce deterioration of an archaeological site. Intervention may include ceasing any activity which is causing damage to a site. Intervention is one of the key deliberations framed in conservation plans. Planning philosophy stresses the importance of the decision as to whether or not to intervene (e.g. ICOMOS New Zealand, 1992). For archaeological sites, relevant matters to be taken into account are:

- Review of the values and cultural or scientific assessment of the site
- Management intent—what is being sought after by intervention and site management
- The likelihood and rate of change to site condition with *no* intervention
- The impact of intervention on the values of the site

- The proven long-term reliability, cost and cost-effectiveness of the technique used
- The impact of intervention on non-archaeological values of the site and its environs, for example the flora or broader ecological processes
- Public attitudes toward intervention—public education or information may be needed to explain the intervention.

WHEN IS INTERVENTION WARRANTED?

- To prevent degradation of archaeological layers
- To manage vegetation cover that is or will become unstable
- To maintain clear definition and surface visibility of earthworks for public appreciation
- To close off features from public access or viewing
- To encourage greater public visitation
- To maintain views from the site and from one site to another
- To stabilise backfilled archaeological excavations
- When monitoring shows that damage to a site is occurring, and particularly when the condition is accelerating or worsening rapidly
- When minor damage can be easily and effectively arrested.

Intervention may be warranted to protect one or a combination of the following: surface features, stratigraphy, ruins and excavated sites which have been left open to the elements, or backfilled archaeological sites. Restoration and repair are also justified for earthwork sites damaged by machine work, animal or human tracking or natural processes such as tree throw.

It can be accepted that some modification and even deterioration of sites visited by the public is inevitable. The benefits to be gained by greater public awareness will outweigh the disadvantages. The deterioration, however, should be made good at regular intervals so that the public gains an impression of care and concern for the archaeological values. An obviously damaged site will suggest to the public that the site and others like it are unimportant. Also, destruction left by vandals leaves an impression of lack of care and the site is more likely to suffer further deliberate damage: vandalism breeds vandalism.

The archaeological ideal is to establish relatively permanent vegetation which will preserve the site indefinitely by preventing erosion, but which will not cause damage by invasive large roots. As a general rule, stable cover means stable site underneath. An existing native forest has probably taken 100–200 years to establish on a site and is generally stable. There are few grounds for removal of such forest.

On sites which are not to be interpreted for public visiting, it matters little if the site is completely obliterated from view by dense bracken or mānuka. Particular forms of vegetation can be established on sites where the public are to be kept out. Thick shrubland or gorse (*Ulex europaeus*) are examples: these are usually successional species in most parts of the country and will inevitably be invaded by larger shrubs and trees with potentially damaging roots. In the course of a vegetation succession, management should generally be aimed at retarding the development of larger trees within areas of intact archaeological sites. The growth of trees may be more acceptable in damaged areas or on immediate site boundaries if root spread problems have been considered.

For sites which are to be presented to the public, a different kind of vegetation and management will be needed. Grass cover, with or without patches of treeland, or an open, managed treeland are vegetation types most suited to the needs of visitors.

Small incremental changes, reversibility of method (or reversibility by relaxing of vegetation management), and improved monitoring effort are the key steps forward.

WHEN IS INTERVENTION *NOT* WARRANTED?

- When, following a period of monitoring, the site is judged to be in stable condition
- When there is a high risk of intervention causing damage or catastrophe owing to lack of knowledge of the site or ecological setting
- When there are no patches of active erosion
- When there is no risk of earthmoving equipment gaining access, e.g. during fighting fires or to remove gorse
- When there is stable native vegetative cover—climax forest or advanced succession
- When there are no damaging weeds present and the site is not a source of weeds of concern to adjacent landowners
- When there is an expression of wishes by tangata whenua, or other culturally appropriate practices, against intervention
- For ease and simplicity of management, i.e. no-care management.

1.8 Monitoring

Monitoring is essential in most site management. Monitoring is of particular importance because almost all of the technologies in use for archaeological conservation do not have proven long-term effectiveness. It is needed to judge the stability of the site. It allows reflection on the values of the site and the complexity of the forces which may be at work and causing damage. Detailed regular monitoring should be carried out on sites of high significance. Sites of lesser significance should be monitored at longer intervals, or when there is reason to believe that deterioration is accelerating.

For sites under active management, the functions of monitoring are:

- To assess how effective management techniques have been, and whether further inputs are required
- To detect whether further action is needed and take steps to see that it is carried out
- To assist in determining whether a particular management technique has wider applicability.

Every site needs to have a formal annual review of earthworks or site condition evaluating the existing conditions. Special attention should be paid to conflicts between access and condition, the appropriateness of infrastructure, current maintenance operations (e.g. mowing or line trimming) and the causes of any damage. The goal is to clarify and amend future work programmes, conservation plan annotations, mowing plans, etc.

Any acceleration in the rate of movement or cracking of the soil or soil surface should be examined for possible causes. The rate of acceleration may give a clue as to whether catastrophic failure is possible. However, most of the damage done to sites is creeping and accumulative. Fretting (patches of surface erosion) are cause for concern because they are the clearest indicator of a process that in the long term will accumulate severe damage. On many earthwork sites it is possible to observe small areas under active erosion—e.g. where a foot track goes over a bank or where the bank is undermined by sheep camping. In some instances the erosion will heal by natural processes. In others, some intervention is needed. In yet other instances, the eroded profile may be more stable and intervention in the erosion process will interfere with the original fabric, introducing the need for costly long-term maintenance. Another frequent cause of disturbance is the growth of tree weeds (Fig. 6). In time these will become unstable and will be toppled by high winds.

The choice of monitoring technique is not as important as the specification of points on a site at which observations are taken. All monitoring requires accurate site plans on which photo points, written notes, sketches, other measurements or installations can be located. The *Pukerangiora Pa Historic Reserve Conservation Plan* (Department of Conservation 2000) contains a detailed plan of the site with extensive notes on condition, based on low-level aerial photographs and ground inspections with archived photographs.

Monitoring methods are the subject of ongoing research and development of operating procedures by the Department of Conservation and by the Auckland Regional Council.

Figure 6. Monitoring wattle blown over on Matekerepu Historic Reserve, Bay of Plenty. The wattle has grown from seeds fallen into cattle-pugged areas of a former grazed grassland. Although part of a process of natural soil formation and plant succession, in this case to coastal hardwood forest, this type of damage is unnecessary and can be controlled on archaeological sites.