

**Best Practice guide:**

# **Outstanding Natural Features**

**What are they and how should they be identified. How their significance might be assessed and documented ?**



Example of a small landform ONF, Maungaraho dike, Kaipara District

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Marine erosion along a dike through lava flows at Lovers' Leap, Otago Peninsula. This is part of a scheduled Outstanding Natural Feature in Dunedin City District Plan.

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A small geological exposure, South Bream Tail columnar-jointed dacite, Kaipara District



Example of a vulnerable geological exposure on the underside of a large overhanging boulder - Avoca trace fossils, Kaipara District. Photo 0.6 m across

## 1. Summary

After analysis of the wording and content of the Resource Management Act (RMA) and prior legislation it replaced, it is proposed that for the purposes of implementation of the RMA, an **‘Outstanding Natural Feature’** be defined as ***a natural landform, physical system, or exposure of geological material that has outstanding geoscience, scenic/aesthetic, tourism, recreational, community and/or educational values or rarity. A natural landform feature is a distinct and clearly legible entity that is generally smaller than a ‘natural landscape’, which has a broader range of physical, ecological, cultural and perceptual values.***

The following criteria are proposed to be used to assess (possibly score) and document the values of potential outstanding natural features to determine whether they should be considered outstanding in the region or district under investigation.

**Primary criteria:** Geoscience significance; Rarity; Scenic/aesthetic values; Tourism and/or Recreational values; Community values; Educational values.

**Additional/associative criteria:** State of preservation and/or naturalness; Views and visual prominence; Legibility and expressiveness; Memorability; Representative geoscience values; Research potential; Geodiversity; Geohistorical values; Historic and/or archaeological values; Ecological values; Indigenous cultural values.

To aid local authorities (both district and regional) in the management of the diversity of outstanding natural features with different levels of robustness and fragility, it is proposed that features be placed in one of the following categories: Large landforms; Small, vulnerable landforms; Dynamic landforms and natural physical systems; Large exposures of geological material; Small, vulnerable exposures of geological material; Caves; Volcanic cones.



Small vulnerable landform with high tourism values – Putangirua Pinnacles, Wairarapa

## 2. Introduction

**The protection of outstanding natural features (ONFs) from inappropriate subdivision, use and development is a matter of national importance - Section 6(b) of the Resource Management Act 1991**

Twenty-eight years later there is still no agreed definition of what an ONF is, or how it might be identified, assessed and documented. This discussion document is intended to be the first step towards developing a Best Practice Guide for these matters, hopefully with support from the New Zealand earth science community (as represented by their professional societies) and the New Zealand Institute of Landscape Architects. It also categorises ONFs on the basis of size, robustness and character to assist in protecting their differing values. Small and vulnerable features that can easily be damaged or destroyed by only minor works require stricter controls on permitted activities, whereas large and robust features that can accommodate most activities without any significant damage or loss can have controls that are more relaxed.



Large landform – Silver Range sandstone strike ridge, Hawkes Bay Region. Photo: Egon Eberle.



A small landform ONF, Devils Boots, Tasman District

### 3. Background

#### 3.1. Resource Management Act and National Coastal Policy Statement wording

Protection of outstanding natural features (ONFs) is a matter of national importance according to Section 6(b) of the Resource Management Act 1991. They are to be protected “from inappropriate subdivision, use and development”.

This is reinforced in Policy 15 of the New Zealand Coastal Policy Statement (2010), which states:

##### “Policy 15 **Natural features and natural landscapes**

To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use, and development:

- (a) avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment; and
- (b) avoid significant adverse effects and avoid, remedy, or mitigate other adverse effects of activities on other natural features and natural landscapes in the coastal environment; including by:
  - (c) identifying and assessing the natural features and natural landscapes of the coastal environment of the region or district, at minimum by land typing, soil characterisation and landscape characterisation and having regard to:
    - (i) natural science factors, including geological, topographical, ecological and dynamic components;
    - (ii) the presence of water including in seas, lakes, rivers and streams;
    - (iii) legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes;
    - (iv) aesthetic values including memorability and naturalness;
    - (v) vegetation (native and exotic)

- (vi) transient values, including presence of wildlife or other values at certain times of the day or year;
- (vii) whether the values are shared and recognised;
- (viii) cultural and spiritual values for tangata whenua; including their expression as cultural landscapes and features;
- (ix) historical and heritage associations; and
- (x) wild or scenic values”



Spectacular Wharariki Beach sea arches, Tasman District proposed ONF



Example of a vulnerable small geological exposure containing a dinosaur footprint depression at Whanganui Inlet, Tasman District. Photo 0.5 m across

## 4. What is an Outstanding Natural Feature ?

The Resource Management Act (1991) does not provide a definition of either a Natural Feature nor an Outstanding Natural Feature. So what does it mean? To tease out a meaning we need to look at the legislation that predated the RMA and what other categories of the natural environment are covered by the RMA itself and therefore what is left over is presumably what was meant by a natural feature.

### 4.1 Legislation protecting natural features prior to the RMA (1991)

Prior to the passing of the RMA, there was a number of different acts all of which contributed to protecting New Zealand's natural environment. The main goal of the RMA was "to promote the sustainable management of natural and physical resources". Another goal was to combine the existing legislation that was addressing this in a piece-meal way into a single act.

Hayward (1987) reviewed the existing legal situation at the time with respect to geological, geomorphological and landscape features:

#### **Reserves Act, 1977**

This provided "for the preservation and management for the benefit and enjoyment of the public, areas of New Zealand possessing ... natural, scenic, ... geological, scientific, educational, community or other special features of value; ensuring ... the preservation of representative samples of natural ecosystems and landscape which in the aggregate originally gave New Zealand its own recognisable character."

#### **National Parks Act, 1980.**

"The provisions of this Act shall have effect for the purpose of preserving in perpetuity ... areas of New Zealand that contain scenery of such distinctive value, ... natural features so beautiful, unique or scientifically important that their preservation is in the national interest."



Eastern Beach Anticline, a scheduled ONF (small vulnerable geological exposure) in Auckland Unitary Plan.

**Queen Elizabeth II National Trust Act, 1977.**

This established the Trust with a function to encourage and promote the provision, protection and enhancement of open space for the benefit and enjoyment of the people of New Zealand. Open space is defined as “Any area ... that serves to preserve or to facilitate the preservation of any landscape of aesthetic, ... scenic or scientific ... interest or value.”

**Forest Amendment Act, 1976**

This stated that the Forest Service had responsibility for the balanced use of all State forest land, having regard for (among other things) the protection of the land and vegetation for ... scenic, aesthetic and scientific values.

**Town and Country Planning Act, 1977**

This required local bodies to prepare District Schemes and gave them the power to designate for protection areas of landscape or scientific value.

Taken together the above legislation provided for the specific protection of natural abiotic physical features for their scientific (geological), scenic (beauty), aesthetic, educational and landscape values. The National Parks Act specifically used the term “natural features” “so beautiful, unique or scientifically important.” These wordings give us good guidance as to what was meant by the term Outstanding Natural Feature in the RMA which replaced some of these acts.



Muriwai pillow lavas – an internationally significant geological feature, scheduled as an ONF in the Auckland Unitary Plan.

## 4.2. Teasing out the meaning from the RMA itself

The Purposes and Principles of the RMA Clause 6 Matters of National Importance lists all the things that should be protected, including ONFs. Clearly if a class of item is listed in clauses 6a-g then it was considered not to be included in the definition of an ONF.

### “6. Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- (a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
- (b) the protection of **outstanding natural features** and landscapes from inappropriate subdivision, use, and development:
- (c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:
- (d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:
- (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
- (f) the protection of historic heritage from inappropriate subdivision, use, and development:
- (g) the protection of protected customary rights:
- (h) the management of significant risks from natural hazards.”

The above subclauses specifically provide for (among other things) the protection from inappropriate subdivision, use and development of: the natural character of the coastal environment, wetlands, lakes and rivers; significant indigenous vegetation and habitats; historic heritage, outstanding natural features and landscapes.

Of these the RMA does provide a definition of historic heritage:

“historic heritage - (a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand’s history and cultures, deriving from any of the following qualities:

- (i) archaeological: (ii) architectural: (iii) cultural: (iv) historic: (v) scientific: (vi) technological; and
- (b) includes—
  - (i) historic sites, structures, places, and areas; and
  - (ii) archaeological sites; and
  - (iii) sites of significance to Māori, including waahi tapu; and
  - (iv) surroundings associated with the natural and physical resources”.

Thus by elimination of all the other named categories of heritage, natural features must primarily refer to physical (abiotic) features whose major values are neither biotic, historic (human history), cultural nor landscape-related. This leaves physical features that have high geological (including landform) or scenic values and this is generally how they have been applied in most regional policy statements and district

schemes prepared under the RMA over the past 25 years. E.g. Auckland City Council District Scheme, Auckland Unitary Plan, Whangarei District Plan, Hurunui District Plan

The Department of Conservation's NZCPS 2010 Guidance Note Policy 15 Natural features and natural landscapes, p. 12, (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/guidance/policy-15.pdf>) gives an opinion on what constitutes a natural feature of the coastal environment – “include those resources that are the result of natural processes, particularly those reflecting a particular geology, topography, geomorphology, hydrology, ecology or other physical attribute that creates a natural feature or combination of natural features.”

The DOC Guidance Note (p. 12) also defines Landscapes: “Landscape means the natural and physical attributes of land together with air and water which change over time and is made known by people's evolving perceptions and associations.”

The Environment Foundation defines Natural Features as: “discrete landforms or biophysical entities, such as a volcanic cone or wetland. These are “(usually smaller) components of landscapes”, “a distinctive or characteristic part of a [landscape]” or a part of multiple landscapes like a major river corridor. The Geoscience Society has identified and categorised geological sites and landforms in New Zealand that are of international, national, or regional importance. Similarly, wetlands and other such features – which combine geomorphological characteristics with ecological and habitat values – are often identified through the RAMSAR Convention and other forms of international and national recognition. As a result, features are often important in terms of scientific knowledge and public education about natural processes, and frequently (but not always) are landmarks that contribute to the character and values of a locality.” [<http://www.environmentguide.org.nz/issues/landscape/what-are-features/>]



A vulnerable landform ONF – Cape Turakirae raised beach ridges, Wellington

### 4.3 What does natural mean?

In the context of the RMA, a natural feature is clearly one that was made by nature, and excludes those that have been made by humans. It would not exclude natural features that may have had some modification by humans but the extent of the modification might need to be considered before a feature was still considered to be predominantly made by nature.

Natural features therefore refer to:

1. **Natural landforms;**
2. **Natural physical systems/processes** - like rivers, springs, geothermal systems;
3. **Geological exposures of natural rock** – these may be natural exposures, such as cliffs or tidal platforms, or man-made exposures of natural rock, such as road-cuttings and excavations.



This road cut is an exposure of natural rock of national scientific importance as it contains the richest Late Pleistocene fossil fauna in New Zealand. Te Piki Shellbed, Gisborne District.

### 4.4 What does outstanding mean?

The DOC Guidance Note (p. 15) also gives an opinion on what constitutes an outstanding natural feature and landscape:

“Practice and case law provide guidance on the meaning and application of ‘outstanding’ when assessing and evaluating natural features and natural landscapes. The rank of ‘outstanding’ relates to an area’s pre-eminence or exceptional nature, relative to the scale of assessment.”

The NZ Institute of Landscape Architects Best Practice Note definition ([https://nzila.co.nz/media/uploads/2017\\_01/nzila\\_ldas\\_v3\\_1.pdf](https://nzila.co.nz/media/uploads/2017_01/nzila_ldas_v3_1.pdf); p. 5) states

“Outstanding Natural Landscape is a natural landscape that is particularly notable at local, district, regional or national scale”. This definition of ‘outstanding’ can also be applied to outstanding natural features. Natural features can also be notable at the international level. The New Zealand Geopreservation Inventory for example ranks 210 geological features (including landforms) in New Zealand as being of international significance.

Therefore:

**A natural feature may be judged “outstanding” at different levels: outstanding locally, regionally, nationally or internationally. The judgement may be made on aesthetic (scenic) or scientific grounds.**

#### **4.5 Recommended definition of an Outstanding Natural Feature**

For the purposes of the RMA we suggest that **“an ‘Outstanding Natural Feature’ is a natural landform, physical system, or exposure of geological material that has outstanding geoscience, scenic/aesthetic, tourism, recreational, community and/or educational values or rarity. A natural landform feature is a distinct and clearly legible entity that is generally smaller than a landscape, which usually has a broader range of physical, ecological, cultural and perceptual values.”**



Waikawau Valley karst is a scenically- and scientifically-valued ONF, Waikato District

## 5. Criteria for identifying, assessing and documenting ONFs

### 5.1 Getting started and where to find information on potential ONFs

#### 5.1.1. New Zealand Geopreservation Inventory

For geoscientifically significant sites, the primary reference should likely be the New Zealand Geopreservation Inventory site at:

<https://services.main.net.nz/geopreservation/>

This database attempts to list, document and map as many as possible of the scientifically and educationally significant geological and landform sites in New Zealand. The database is owned by the Geoscience Society of New Zealand and people are encouraged to use it for free but may not sell the intellectual data contained in it. Compilation of the Inventory began in 1983 well before the RMA was passed. It attempts to be a complete list of sites of geoscience significance, is periodically updated but clearly it will never be fully comprehensive.

Additionally, not all listed sites are suited or necessarily need to be scheduled as ONFs. Thus, the assessor will need to carefully assess which sites in the inventory should be considered for ONF status. All will meet the outstanding level at the regional/local level at a minimum. If the assessor has a geoscience background, they may know of additional geoscience sites or know colleagues who have worked in the area and may nominate additional sites for consideration.

#### 5.1.2. LINZ topographic maps and Google Earth

The NZ Geopreservation Inventory does not attempt to be a comprehensive list of landform sites that have outstanding aesthetic and scenic values or are of high value for tourism, recreation or to the community. Thus, the assessor may find it useful to conduct a desktop search of google earth and LINZ contour maps that can provide clues that there are some unusual or prominent small landforms that could be considered for ONF status. These may also be named features or indicated by symbols on the maps e.g. named waterfalls, caves, springs, etc.

#### 5.1.3 Drive the roads

It may be necessary to drive some of the roads in the district looking for small scale landforms that are outside proposed Outstanding Natural Landscapes that are visually and scenically prominent or are labelled on road signs for tourists to visit.

#### 5.1.4 Local input

It may be useful to ask local communities and iwi or their representatives to suggest potential landform ONFs that they know are much loved.



A small landform with high scenic and community values scheduled as an ONF is the largest waterfall in Auckland City – Oakley Creek waterfall.

## 5.2 Assessment criteria

The following criteria are recommended for use in identifying potential Outstanding Natural Features (ONFs) and assessing whether they are Outstanding and documenting their values. Because of the adopted definition of an outstanding natural feature, the criteria are divided into primary and additional. To be an outstanding natural feature (as used by the RMA) a feature or site must be outstanding in at least one of the primary criteria. The additional criteria are used to supplement the assessment of value of each site.

### PRIMARY CRITERIA

- (a) **Geoscience significance** - the extent to which the landform, feature or geological site contributes to the understanding of the geology or evolution of the biota in the District, Region, New Zealand or the Earth;
- (b) **Rarity** - the rarity or unique nature of the feature, physical process or geological exposure within the District or Region, and few comparable examples exist;
- (c) **Scenic/aesthetic values** – extent of public appreciation of a natural feature’s visually-striking scenic beauty, or iconicism;
- (d) **Tourism and/or recreational values** – extent of a feature’s use or potential use for tourism or recreation because of the feature’s natural attributes;
- (e) **Community values** – extent of the community’s association with a natural feature which is widely known and highly valued for its contribution to local identity within its community;
- (f) **Educational values** - the existing or potential value of the feature for public education;

### ADDITIONAL CRITERIA

#### Geoscience values

- (g) **Representative values** - the extent to which the feature is an outstanding representative example of the natural landforms, natural physical processes or geological features that strongly typify the character of an area.
- (h) **Research potential** of the feature to provide additional understanding of the geological or biotic history;
- (i) **Geodiversity values** – the diversity of different small landform or geological features within the site;
- (j) **Geohistorical value** - the extent to which a feature is associated with an historically important natural event (e.g. earthquake, tsunami), geologically-related industry, or historically-important individual involved in geoscience research;
- (k) **State of preservation and/or naturalness** of the feature – including degree of natural degradation of values by weathering or erosion, as well as degree of modification by humans;

#### Perceptual values

- (l) **Views and visual prominence** to and from the feature;
- (m) **Naturalness of the setting Geodiversity values** – the diversity of different small landform or geological features within the site;
- (n) **Memorability** of the feature, because of its striking visual character and setting that make such an impact on the senses that it becomes unforgettable;
- (o) **Legibility and expressiveness** of the feature in the surrounding landscape – how clearly the feature’s values can be seen;

#### Associative values

- (p) **\*Ecological value** of the biota, including vegetation, associated with the feature;
- (q) **\*Historic or archaeological values** associated with the feature;
- (r) **\*Indigenous cultural values** - the importance of the feature or site to Mana Whenua (most appropriately undertaken by local iwi).

\* Note that if a potential feature has high historical, archeological, ecological or indigenous cultural values then it should be assessed and protected under these categories in a District Plan independently of this ONF evaluation.

Each of the criteria (a-o) should be considered and where appropriate documented for every recommended ONF. Additional options that have been adopted by some councils and that focus the comparison between sites include: providing a weighted score for each criterion (5.3) justified by a statement of the values, or merely ticking the box instead of providing a score but still justifying the tick level with a statement.

### 5.3. Example of an ONF assessment sheet

<b>ONF Name</b>	
<b>Feature type</b>	A Large Landform, B. Small Landform, C. Dynamic Landform D. Large exposure, E. Small exposure, F. Cave, V. Volcanic cones
<b>DESCRIPTION OF FEATURE</b>	
<b>Primary Values:</b>	
a. Geoscience significance b. Rarity c. Scenic/aesthetic d. Tourism and/or recreational e. Community f. Educational	
<b>Additional Values:</b>	
<b>Geoscience Values:</b> g. Representative values h. Research potential i. Geodiversity values j. Geohistorical k. State of preservation and/or naturalness <b>Perceptual Values</b> l. Views/visual prominence m. Naturalness of setting n. Memorability o. Legibility & expressiveness <b>Associative Values</b> p. Ecological values q. Historic/archaeological r. Indigenous cultural values	
<b>OVERALL EVALUATION</b>	Generally, the feature qualifies in terms of outstanding-ness as a consequence of: a. b. c. d. Summary comment

## 5.4 Example of an ONF Scoring Assessment Sheet

Several councils have opted to give weighted scores for each of the assessment criteria. The primary criteria are weighted to give them greater significance than the secondary criteria. The scores given for all criteria for each potential ONF are summed and the resulting total for each site gives an indication of the perceived significance of each site.

It has been found that scoring focusses the assessor's mind to considering more objectively the relative value of a potential feature under each criterion and the documentation must then justify each score. The total score may or may not play a role in determining whether a potential ONF reaches the level of Outstanding, depending upon the view of the District planners and whether outstanding is being considered at the regional, district or local level.

Here is a suggested weighted scoring scheme (based on schemes used by Auckland City Council – Inner Gulf Islands District Plan and Waitomo and Kaipara draft District plans).

### Geoheritage values assessment:

Significance level/ Values assessment	International/ Superlative	National/ Excellent	Regional/ Very good	District/ Good	Local/ Moderate
<b>GEOSCIENCE CRITERIA</b>					
<b>a</b> Geoscience significance*	64	32	16	8	4
<b>b</b> Rarity*	64	32	16	8	4
<b>c</b> Aesthetic/scenic values*	64	32	16	8	4
<b>d</b> Tourism/recreational values*	32	16	8	4	2
<b>e</b> Community values*	32	16	8	4	2
<b>f</b> Educational values*		16	8	4	2
<b>ADDITIONAL CRITERIA</b>					
<u>Geoscience values</u>					
<b>g</b> Representative values			8	4	2
<b>h</b> Research potential		16	8	4	2
<b>i</b> Geodiversity values		16	8	4	2
<b>j</b> Geohistorical values		16	8	4	2
<b>k</b> State of preservation/naturalness		8	4	2	1
<u>Perception values</u>					
<b>l</b> Views and visual prominence		16	8	4	2
<b>m</b> Legibility and expressiveness		8	4	2	1
<b>n</b> Naturalness of setting		8	4	2	1
<b>o</b> Memorability		8	4	2	1
<u>Other values</u>					
<b>p</b> Ecological values		8	4	2	1
<b>q</b> Historical or archaeological values		8	4	2	1
<b>r</b> Indigenous cultural values		8	4	2	1

### Total score:

**Feature Category:** A Large Landform, B. Small Landform, C. Natural system, D. Large exposure, E. Small exposure, F. Cave



A small geological site with high educational and scientific values – an erratic boulder transported and left behind by a large glacier. New Zealand’s smallest scientific reserve, Te Anau.

## 6. Categories of outstanding natural features

### 6.1 Feature categories

ONFs can be large and robust or small and vulnerable, they can be underground (caves) or dependent on continuation of processes beyond the limit of the feature (e.g. active sand dunes, geothermal features). To assist management and decision-making for such a diverse range of features, it is recommended that ONFs be categorised by type to provide an indication of the kind of values that make them significant, how susceptible to damage they may be from various activities, and how better to manage potential risks to their values. The categories described below are more or less the same as in the Auckland Unitary Plan, the Northland Regional Plan and the draft Waitomo District Plan.

#### A. Large landforms

These are prominent landforms that are sufficiently large and robust to withstand small-scale earthworks or constructions without significant impact. The prime values of such features may relate to the underlying geology which tells of the history of their formation or to their value to the community for their scenic/aesthetic/tourism/recreational/educational values. Major building construction, large scale earthworks (e.g., quarry or significant road cuttings) or planting and harvesting of commercial exotic forest can significantly detract from the integrity or hide these prominent landforms.



A. Example of a robust large landform – Houto conical hill, Kaipara District.

## B. Small, vulnerable landforms

Small landforms or other features that could be damaged or destroyed by relatively small-scale earthworks or constructions. The values of these often spectacular, localised landforms relate to their visual and aesthetic appeal and/or geoscientific interest or educational values. Most earthworks, buildings, constructions or commercial forest plantings would adversely impact on the visual and aesthetic appeal or scientific value of these vulnerable features.



B. Example of a vulnerable landform – Te Wairoa soda spring and travertine mound, Whangarei District ONF.



B. Example of a vulnerable landform – Labyrinth Rocks limestone karst, Tasman District.

### C. Dynamic landforms and natural systems

These are landforms, features or systems that rely on the continuation of natural physical processes in and beyond the feature for their continued existence. Because of this, these dynamic landforms or features are not only susceptible to direct damage, but to more distant actions that may impact the continuation of the natural processes (e.g. sand or shell supply; dune stabilisation; soil erosion in catchments; water extraction; river modifications). Permanent earthworks, building construction, commercial exotic forest plantings, or other actions could adversely affect the functioning and appearance of these features.



C. Example of a dynamic landform - Pouto sand dunes, Kaipara District.



C. Example of part of a natural physical system – Te Waikoropupu Springs, Tasman District

#### **D. Large exposures of geological material**

Outstanding natural features include rock formations and the details that can be seen in or extracted from these rocks. These details can only be seen where rock is visible at the surface either in natural or man-made exposures or cuttings. This category includes exposures of rock that are sufficiently large and robust that small-scale earthworks or road widening will have no significant adverse impact and in most cases will improve the visibility or freshness of features in the rocks. The values of these sites relate to the natural geological features that can be seen within the rocks and the information they contain about the history of their formation, the geological origins of the district or the fossil history of the biota of New Zealand. Large-scale earthworks, construction of buildings, vegetation plantings, grass seeding or constructions of retaining walls or erosion barriers could adversely impact the visual, educational or scientific values of these exposures.



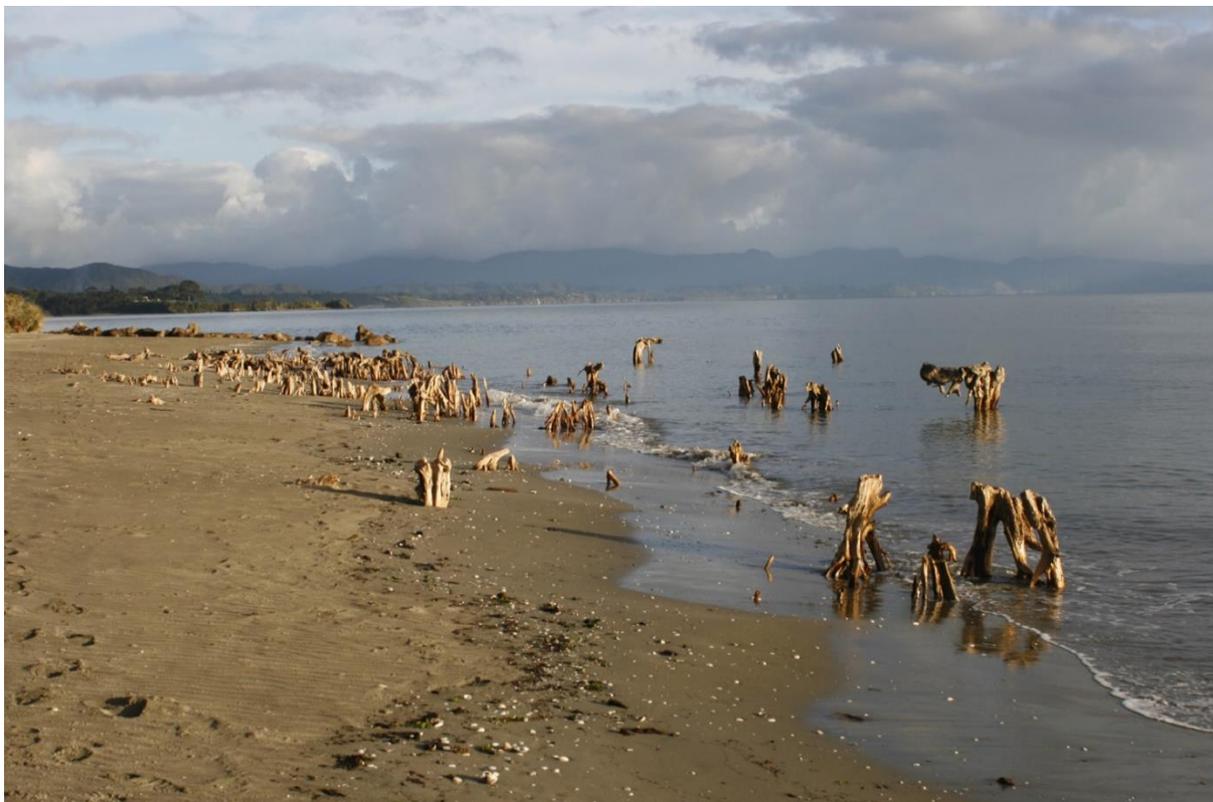
D. Example of a robust exposure of geological material – Cape Kidnappers cliff section, Hawkes Bay Region.

### E. Small, vulnerable exposures of geological material

These are small, natural or man-made exposures that could be damaged or destroyed by small-scale earthworks or construction. Their prime values relate to the information they contain about the history of their geological formation or the fossil biota of New Zealand. Most earthworks, building constructions, vegetation plantings, grass hydroseeding or constructions of walls or erosion barriers are likely to adversely impact the visual, scientific or educational values of these exposures. Periodic vegetation clearance may improve their values.



E. Example of a vulnerable geological exposure – Mangawhai Heads halloysite, Kaipara District proposed ONF.



E. Example of a vulnerable geological exposure – Rangihaeata fossil forest, Tasman District.

## F. Caves

This category includes limestone caves, lava caves and sea caves and their entrances, which may, depending upon their depth underground, be susceptible to damage from significant earthworks constructions or quarrying above them, or from changes in their catchments that may fill them with eroded soil or starve them of water flow.



F. Example of a limestone cave with outstanding speleothems – Nile River caves, West Coast, Buller District.



F. Example of a cave with high recreational values – Ruakuri Cave, Waitomo District.

## V. Volcanic cones

This category has been separated out from larger robust landforms at the request of Auckland and Northland Regional Councils because they perceive enhanced public values attached to their local volcanoes. This category includes moderately small volcanic cones, such as scoria cones, tuff cones, volcanic domes, and small shield volcanoes that are sufficiently robust to withstand small-scale, localised earthworks or constructions without significant impact. They derive their values from their distinctive usually conical form and prominence in the wider landscape setting. Structures in prominent positions, significant permanent earthworks such as farm roads across steep slopes, and rectangular exotic forest plantings can detract from or compromise these natural features, particularly where they protrude significantly into the skyline, alter the cone form or disguise the underlying landform.



V. Example of a volcanic cone ONF – Crater Hill, Auckland City.



V. Example of a volcanic cone – Whatatiri Shield Volcano, Whangarei District ONF.

## 6.2 Example of activity table that relates to categories of ONF

This activity table is derived from the Auckland Unitary Plan, the operative Hauraki Gulf Islands District Plan and the proposed change to the Whangarei District Plan. It applies to ONFs outside the Coastal Environment. The table relates to resource consent requirements for land use and development on ONFs. It provides an indication of the sort of controls that the author believes would be necessary to adequately protect these ONFs as required by the RMA. There are minor differences between all these plans in the listed activities and permission levels indicated and the below example is a compromise between them.

Table 1: Activity table – Outstanding natural features overlay - Land use and development  
\*A-V = feature categories of 6.1

Activity	A	B	C	D	E	F	V
<b>Construction</b>							
Buildings and structures	D	NC	NC	NC	NC	RD	NC
<b>Earthworks</b>							
Removal, fill, modification of more than 5 cu m	D	Pr	D	D	Pr	D	D
Removal, fill, modification of less than 5 cu m	P	RD	RD	D	NC	RD	RD
<b>Rural</b>							
Grazing of sheep and goats	P	RD	RD	P	RD	P	P
Grazing of other stock	P	RD	RD	P	RD	P	RD
Quarries of any sort	Pr	Pr	Pr	D	Pr	Pr	Pr
Forestry	RD	Pr	D	D	Pr	D	Pr
Conservation planting	P	RD	D	NC	NC	P	RD
Fences - post and wire	P	P	RD	P	RD	P	P
Fences - except post and wire	RD	D	NC	D	NC	P	RD
<b>Utilities</b>							
Minor infrastructure upgrading	P	RD	D	RD	NC	RD	RD

P = permitted

RD = restricted discretionary

D = discretionary

NC = non-compliant

Pr = prohibited

### Criteria for allowing discretionary activities

The council will consider the relevant assessment criteria below for the discretionary activities listed above:

1. Whether the nature, form and extent of the proposed works or activity adversely affects the ONF for which the item was scheduled:
  - a. whether the activity will result in increased erosion of the ONF;
  - b. for grazing applications, whether the proposed stocking intensity will result in increased compaction or erosion of the ONF, or will result in changes to the vegetation on site in ways that will affect the values for which the ONF is scheduled e.g. grazing effects on dune vegetation resulting in changes to the nature and form of the dunes;
  - c. for fencing applications, whether the proposed fence requires ground disturbance or earthworks that will affect the values for which the ONF is scheduled;
  - d. whether the activity will interfere with natural processes (e.g. forestry or vegetation planting effects the natural dynamic supply of sand to wind-blown dunes or groundwater to caves).
2. Whether the proposed works or activity will cause adverse visual effects or adversely affect visual appreciation of the ONF.
3. The degree to which the ONF has already been modified so that further modification will not cause significant additional loss of the identified values.
4. The extent to which the modification is necessary.
5. The purpose of the proposed works or activity and whether it has specific connections or relevance to the scheduled ONF.
6. What alternative methods and locations are available to the applicant for carrying out the work or activities that do not affect a scheduled ONF.
7. The extent to which the proposed works will protect the ONF from further damage, such as erosion protection, or remediate it from previous damage. This excludes potential damage from the activity for which consent is sought.
8. In the case of the subdivisions, the extent to which the resultant sites can be developed without affecting the values for which the ONF is scheduled.



Baylys Beach fossil forest in sand dune-lignite sequence ONF, Kaipara District

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Small, vulnerable geological exposure of fossil whale bones of high educational and scientific value, Anatini, Waitaki District