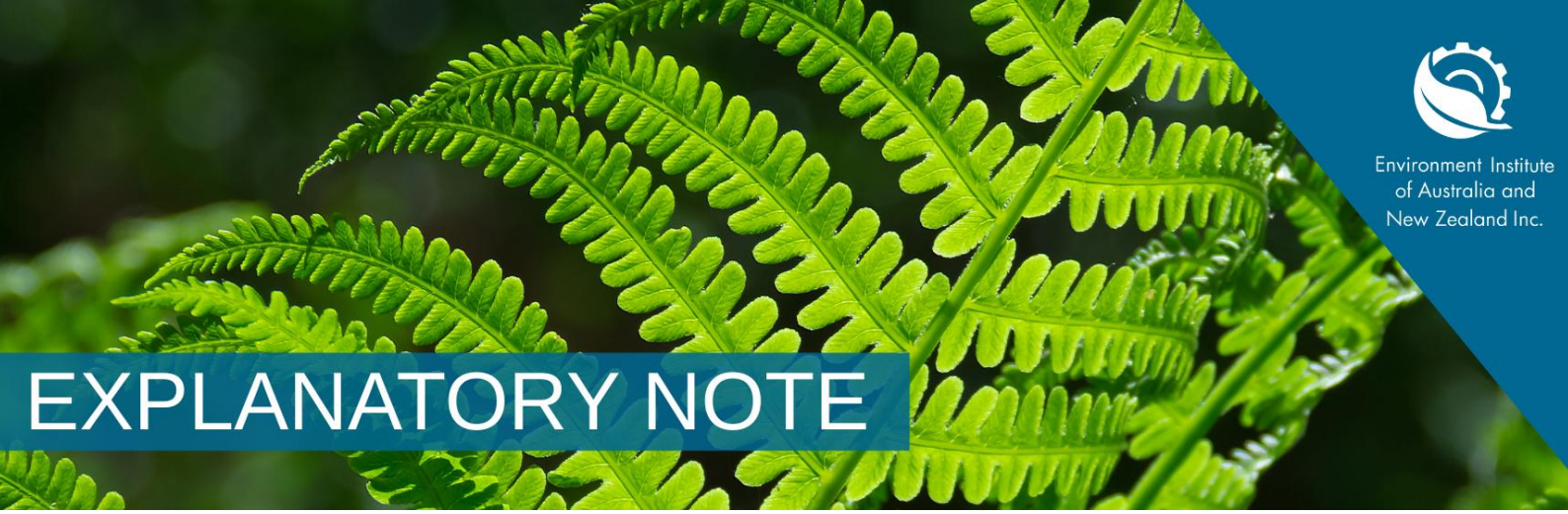

Environment Institute of Australia and New Zealand Inc.

Ecological Impact Assessment (EcIA). EIANZ Guidelines for use in New Zealand: terrestrial and freshwater ecosystems

Interpretation of scale in assessment of ecological values and magnitude of ecological effects

August 2026

About EIANZ

The Environment Institute of Australia and New Zealand (EIANZ) is the peak not-for-profit, multidisciplinary association of environmental practitioners across Australia and Aotearoa New Zealand. Our members include scientists, ecologists, planners, engineers, lawyers, economists and policy specialists, many with direct experience in preparing, reviewing and applying ecological impact assessments and environmental management processes under New Zealand's Resource Management Act 1991 and related national, regional and district planning frameworks.

This advice note reflects practitioner experience and has been prepared through EIANZ's New Zealand Chapter, drawing on expertise in terrestrial ecology, freshwater ecology and ecological impact assessment.

Introduction

Many environmental practitioners will be familiar with the 'Ecological Impact Assessment: EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems' (EcIA Guidelines). The purpose of the guidelines is the provision of a consistent framework for assessing the effects of resource management and use on the ecosystems and their values in New Zealand.

EIANZ published the EcIA Guidelines in 2015 with a second edition published in full in 2018 after receiving feedback on their applicability and workability. EIANZ continues to receive feedback on the implementation of the guidelines and is considering improvements that can be made, particularly with pending changes to New Zealand's environmental use and management legislation. We have held workshops that have identified some of the more acute issues that need some remedy, and welcome feedback on any uncertainties that continue to frustrate their helpfulness. In response to feedback, we have already published a further module on 'Assigning Ecological Value to Marine Benthic Habitats'.

EIANZ emphasises that the guidelines are just that, the '**Guidelines'** established to assist ecologists in the practice of assessing ecological impacts, typically as part of applications for resource consents under the Resource Management Act 1991. EIANZ acknowledges that the guidelines have no statutory standing and are provided as technical guidance in the preparation of an Ecological Impact Assessment in line with international practice. Similarly, EIANZ has not presented the guidelines as 'best practice' but considers the guidance an accepted benchmark for the provision of a consistent and transparent approach to impact assessment in New Zealand.

Advice on scale of assessment

In New Zealand, applications for resource consent submitted under the Resource Management Act (1991) can be accompanied by an Assessment of Ecological Effects. The EcIA Guidelines provide a framework for such an assessment, and the guidelines include commentary and advice on the appropriate scale or extent to which an assessment of ecological values and the magnitude of effects should apply.

Further clarification of the use of 'scale' in an assessment of ecological effects is warranted as we have become aware of circumstances where the guidance on the use of scale has been misrepresented, is misaligned to the EcIA framework, and has the potential to result in a skewed assessment and thus an imbalanced outcome.

The aim of this explanatory note is to provide further interpretation of the use of scale in an assessment of effects within the EcIA framework and to demonstrate where the misapplication or misalignment of scale can result in inappropriate or ineffectual environmental outcomes.

Interpretation of scale of assessment

The scale of assessment in such applications can be challenging and difficult to reconcile. Ecological patterns and processes are deeply **scale-dependent** and can refer to **spatial scale** (which can be scale of measurement or scale of variation) or **temporal scale** (measured and assessed over timeframes) that do not conform to property or project boundaries.

The interpretation of the guidelines s intended to be made as it pertains to determining an appropriate **spatial scale** for effects assessment. The consideration of spatial scale can include physical space, area, connections and/or distance covered by an organism.

The guidelines set out key considerations and guiding principles for practitioners for determining the appropriate spatial scale. This is reflected in two sections of the Guidelines (Sections 5 and 6).

Scale of ecological values (Section 5)

Section 5.1.3 of the guidelines provides guidance on the question of spatial scale. This includes consideration of a range of scales that are material to the ecological feature(s), population or process subject to evaluation and in context of the nature and extent of potential impacts. The scale applied should be ecologically appropriate and regulatory direction should also be considered (e.g., district, regional, national policy and rules). This approach does not exclude reference to other spatial scales (district, regional or national), which can be influential when considering the context of specific ecological values (5.2.1d).

Scale of effects magnitude (Section 6)

Similarly, the Guidelines are clear in the advice that '***generally, the magnitude of effects will be assessed at the same scales as the value assessment*.**' There is no direction that leads to a recommendation to reduce or to amplify the spatial scale in assessing the magnitude of effects. EIANZ maintains this advice and considers it sound and applicable in almost all situations.

Importantly, the Zone of Influence (ZOI) of effects and the scale of assessment are defined in the Guidelines to distinguish the spatial and temporal extent of the effect (ZOI) from 'scale' which provides perspective and ecological context against which to benchmark the magnitude of effect.

Scale is addressed in the Resource Management Act 1991, Schedule 4, clause 7(1)(c), which refers to *any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the* ***vicinity***. Accordingly, an assessment should be addressed to a level of detail that corresponds with the scale and significance of the effects that the activity may have on those ecological features.

In their **significance assessment criteria** (section 8), DOC emphasises that the values should be assessed '*at the local scale, as it best recognises ecological variation across the country. Thus, the Ecological District (ED) framework is the critical scale for making s6(c) RMA significance assessments*' and summarises this as *'Assessing ecological values at the local scale is reinforced, with the ED framework being endorsed as the critical scale for assessments.'*

The EcIA Guidelines (section 6.3.1) state that

"*Generally, it is recommended that an assessment [magnitude] at the scale of the feature (e.g., contiguous dunes, wetland system, forest community) should be done.*

Similarly, if a significance assessment or an assessment of the ecological value of the site has been carried out at the scale of an Ecological District, an assessment of the magnitude of effect should also be assessed at that scale. If an ecological feature or species is considered of high or very high value at a national scale (for example, threatened species, naturally uncommon ecosystems) then the assessment should also look at the magnitude of effect at that scale"

'***Assessing magnitude of effect at the spatial scale of the effect [Zone of Influence] is not recommended****, since it does not assist in developing impact management options. For many activities, this is a narrow perspective on the effect on ecological value and provides no information about the impact of the effect in the context of the local ecosystems, or in the context of the site's value.'*

This statement from the Guidelines emphasises the risks in over- or underestimating the level of effect by benchmarking both the value and/or magnitude against an ecologically inappropriate scale. This can result in a lack of ecological context and/or perspective leading to the potential to reduce or to amplify the spatial scale of an assessment of effects.

Example: Freshwater ecology

As an examplean assessment of aquatic ecological values on streams or rivers at a very local and short-reach scale on a variety of watercourses within a catchment (as typically undertaken), but the magnitude of effect is amplified to an assessment at a whole catchment scale.

In such an example, whilst some kilometres of stream length may be affected or even reclaimed by the proposed activity, at a catchment scale the effects may be assessed (or calculated) such that they amount to a very small percentage (even as little as less than 1%) of the total stream length within the catchment. A conclusion may be reached that no adverse effect has occurred at that catchment scale of magnitude and thus no mitigation is required. Whilst such amplification to a catchment scale provides helpful ecological context for the subject reach, it deviates substantially from the guidance that ***the magnitude of effects will be assessed at the same scales as the value assessment***.

EIANZ's concern with such an example is that the amplification of scale for assessing magnitude means that the guidance is misrepresented and importantly the extent of effect is minimised to such a degree that the effects assessment is discontinued and the remaining steps of minimisation, remediation, mitigation, offsetting, compensation and possibly monitoring are not represented in the assessment.

Example: Terrestrial ecology

As a terrestrial ecology example, a proposal may involve the permanent clearance or conversion of a defined area of rare or threatened habitat within a site. Ecological values may be assessed at the scale of the affected habitat feature or site (defined as the property boundary), including its representativeness, rarity or distinctiveness, diversity and pattern, ecological context, connectivity and role as habitat for threatened or at-risk species.

The magnitude of effect may then be assessed against a substantially larger landscape-scale extent of the habitat, such as an entire dune, forest, wetland or shrubland system between distant geographical boundaries. At the site or habitat-feature scale, the proposal may remove a material proportion of the mapped habitat and cause a detectable and permanent change to its character, composition, connectivity or ecological function. When the denominator is expanded to the wider landscape, however, the affected area may represent only a small proportion of the total habitat extent. This may lead to the magnitude being described as low and, through application of the effects assessment matrix, reduce the overall level of ecological effect.

The wider landscape is relevant ecological context and should be considered. However, contextual information about the wider landscape should not replace the scale at which the ecological values were assessed, particularly where the wider habitat has not been surveyed, mapped or valued to an equivalent level of detail. Nor should the existence of additional habitat elsewhere be used to dilute the permanent loss or modification of a rare, threatened or otherwise important ecological feature within the site or zone of influence.

EIANZ's concern with such an example is that amplification of the assessment scale may understate a detectable ecological loss. This may result in the effects assessment being discontinued before appropriate consideration is given to avoidance, minimisation, remediation, mitigation, offsetting, compensation and possibly monitoring. ***The magnitude of effect should be assessed at the same scale as the ecological value assessment***, with wider district, regional or national context informing, but not supplanting, that assessment.

Concluding comments

In summary, the EcIA Guidelines do not set out an exact methodology for assessments of effects at scale but rather outline guiding principles and important considerations in the determination of ecologically appropriate scales of assessment.

Ecologists should clearly identify the spatial scale at which ecological values have been assessed and the scale at which the magnitude of effects is subsequently determined. Where more than one spatial scale is relevant, the assessment should explain the purpose of each scale and present the effects at those scales transparently. Wider ecological context remains important but should not be used to dilute or amplify effects by substituting a different spatial scale for that used in the value assessment.

Any departure from assessing magnitude at the same scale as ecological value should be treated with extreme caution, be clearly explained, and supported by ecological information of an equivalent quality and level of detail and if a practitioner has departed from the guiding principles this should be clearly stated that it no longer aligns with the Guidelines.

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