TWEED
SHIRE COUNCIL

A19

Biodiversity and Habitat Management

SCHEDULE OF AMENDMENTS

Version	Date of Council Adoption	Effective Date	Description
1.0			Draft version for public exhibition (September 2017)
1.1	16 August 2018	4 September 2018	Adoption by Council

CONTENTS

PART A

Introduction

1. Aim of This Section

The aim of this Section is to ensure that, subject to any relevant overarching state or commonwealth legislation*, the planning and design of new development maintains or improves *ecological values* within Tweed Shire.

2. Objectives of this Section

O1. Retain and restore native vegetation and habitats for native species in patches of a size and configuration that will enable existing plant and animal communities to survive in the long term.

O2. Provide development controls to prevent the degradation of ecological values.

O3. Provide guidance on information required to enable informed decision-making.

O4. Ensure that construction and operational impacts of development are avoided and/or mitigated using current best practice standards.

O5. Provide guidance on acceptable measures to avoid or minimise the impact of proposed development on biodiversity including for proposals affected by Part 7 of the *Biodiversity Conservation Act 2016*.

O6. Compensate for unavoidable habitat losses in accordance with applicable legislation, or in the absence of such legislation, contemporary best practice.

3. Application of this Section

This Section applies in the following circumstances where a development application (DA) is required:

Applies to:	Circumstance
Development types listed below where proposed on the following land: (see http://www.tweed.nsw.gov.au/Mapping)	Any of the following: • Privately owned land holdings with an area >= 2500m^2 containing bushland • Privately owned land holdings with an area >= 2500m^2 containing or adjoining waterways • Lots containing E2, E3, E4, RE1, RE2, W1, W2, W3, zones (or equivalent) under the applicable Local Environmental Plan • Lots within 100m of a flying fox camp • Lots within 50m of a raptor nest • Public land
The following development types where proposed on land listed above:	Any of the following: • Development that establishes or increases a development envelope • Subdivision
Other application	Any of the following: • Development where the Biodiversity Offset Scheme (BOS) applies under Part 7 of the Biodiversity Conservation Act 2016 (*see Figs 1, 2 and 3 and Tables 1 and 2* below for further details). • This Section of the DCP may also be recommended by Council in cases where the proposed development is considered likely to result in biodiversity impacts that are not adequately addressed in the development application.
Exclusions:	This Section does not apply to public infrastructure development carried out by, or on behalf of, Council.

** For example, biodiversity offsets delivered under the Biodiversity Conservation Act 2016, are not necessarily confined to the Tweed Shire.*

ADVISORY NOTES:

1. *This Section of the DCP applies mostly to larger scale development (including subdivision) on larger parcels of land containing bushland or waterways. It does not generally apply to small privately owned parcels (or land holdings) zoned for residential, business or industrial purposes, or development within an established development envelope (e.g. changes of use or additions to dwellings that do not increase the overall footprint of the development). See dictionary for the definition of "development envelope".*
2. *DCP A16 Preservation of Trees and Vegetation may apply to development on small lots.*
3. *"Land holdings" refers to one or more contiguous lots in the same ownership.*
4. *This Section of the DCP addresses vegetation clearing which is part of a development proposal. Clearing that is not associated with a development proposal may be subject to State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 and DCP A16 – Preservation of Trees and Vegetation.*

4. What is Biodiversity?

Biodiversity includes the full range of natural variety and variability within and among living organisms, and the ecological complexes in which they occur. It encompasses multiple levels of organisation, including genes, species, populations, communities, ecosystems and the ecological relationships within and between them.

There is no single measure of biodiversity; rather there are many individual components only some of which are readily measurable. The components of biodiversity are commonly measured by the use of indicators. For example the area and condition of native vegetation is commonly regarded as a general indicator of ecological integrity and biodiversity function, while the presence of a specific suite of habitat features is often used to "predict" the presence of individual fauna species.

The term *"Biodiversity Theme"* is used in this Section to identify specific groupd of biodiversity indicators, which represent one or more *biodiversity elements* of interest. Examples include the type and condition of native vegetation to define vegetation of high conservation status, the size and spatial configuration of bushland to indicate wildlife corridors, or the density of preferred koala feed trees to indicate areas of important koala habitat.

5. Relationship to the Local Environmental Plan

This Section of the DCP supports the aims of other provisions of the relevant Local Environmental Plan in relation to the conservation and management of the natural environment.

6. Relationship to Overarching Legislation

Environmental Planning and Assessment Act 1979 (EP&A Act)

This Section of the DCP addresses the objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act) relating to the protection and conservation of the natural environment, in particular the following objects of the EP&A Act (previously s5):

1.3(a) *to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*

1.3(b) *to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,…*

1.3(e) *to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,….*

This Section of the DCP also sets out matters that the consent authority will take into account in considering the following "matters for consideration" under the EP&A Act (previously s79C):

4.15(1)(b) *the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,*

4.15(1)(c) *the suitability of the site for the development,….*

4.15(1)(e) *the public interest.*

Biodiversity Conservation Act 2016 (BC Act)

This Section of the DCP also addresses the purpose of the *Biodiversity Conservation Act 2016* (BC Act) relating to the impacts of proposed development and land use change on biodiversity. In addition to adopting the principles of ecologically sustainable development, the following particular purposes of the BC Act are relevant:

1.3 (a) *to conserve biodiversity at bioregional and State scales, and*

1.3 (b) *to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations, and….*

1.3(d) *to support biodiversity conservation in the context of a changing climate, and…*

1.3(h) *to support conservation and threat abatement action to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature, and…*

1.3(k) *to establish a framework to avoid, minimize and offset the impacts of proposed development and land use change on biodiversity, and*

1.3(l) *to establish a scientific method for assessing the likely impacts on biodiversity values of proposed development and land use change, for calculating measures to offset those impacts and for assessing improvements in biodiversity values, and*

1.3(m) *to establish market-based conservation mechanisms through which the biodiversity impacts of development and land use change can be offset at landscape and site scales, and ….*

The Part 7 of the BC Act, together with the *Biodiversity Conservation Regulation 2017* (BC Regs) and some aspects of the Local Land Services Act 2013 (LLS Act), outlines the framework for assessment and approval of biodiversity impacts associated with certain proposals that require development consent. Subject to the provisions of the BC Act, such developments are ultimately determined under the Environmental Planning and Assessment Act 1979.

Part 6 of the BC Act introduces a Biodiversity Offsets Scheme (BOS). A development to which the Biodiversity Offset Scheme applies will be required to prepare a Biodiversity Development Assessment Report (BDAR) to accompany a development application. Where a BDAR is required, it must be prepared by an accredited assessor in accordance with the Biodiversity Assessment Method (BAM) established under the BC Act.

The BAM and the BC Act itself adopts the *mitigation hierarchy* which requires the proponent to formally consider measures to avoid and minimise biodiversity impacts before proposing biodiversity offsets. If the avoid and minimize measures proposed are considered acceptable by the consent authority biodiversity offsets must be delivered in accordance with the BOS, and the proponent cannot commence the development until offset obligation has been met.

Council's main role as the consent authority under Part 7 of the BC Act is (among other things) is to determine:

1. ensure that any residual impacts are offset (or otherwise addressed) in accordance with the BC Act (s7.13).
2. if any measures proposed to avoid and minimise biodiversity impacts are acceptable (BC Act, s7.13); and
3. if the development will result in a serious and irreversible impact on biodiversity values (BC Act, s7.16);

Section 7.13(6) of the Act enables Councils to determine their own standards to avoid or minimise biodiversity impacts, namely:

> *7.13(6) This section does not operate to limit the matters that a consent authority may take into consideration:*
>
> *(a) in relation to the impact of proposed development on biodiversity values, the measures that a consent authority may require to avoid or minimise those impacts or the power of a consent authority to refuse to grant consent because of those impacts, or*
>
> *(b) in deciding whether to reduce or increase the number of biodiversity credits to be retired.*

Accordingly, this Section of the DCP sets out the requirements to avoid or minimise the environmental impacts of development.

Biodiversity Assessment Pathways

Due to the potential operation of both the EP&A Act and the BC Act, there are two major assessment pathways (Fig 1) which affect the level of biodiversity assessment and the information required to support a development application. The appropriate pathway depends on whether or not the proposed development "triggers" the Biodiversity Offsets Scheme (BOS) under the BC Act (see Tables 1 and 2 below).

Note, the figures and tables below are indicative only and are not a substitute for consulting the legislation or seeking legal advice.

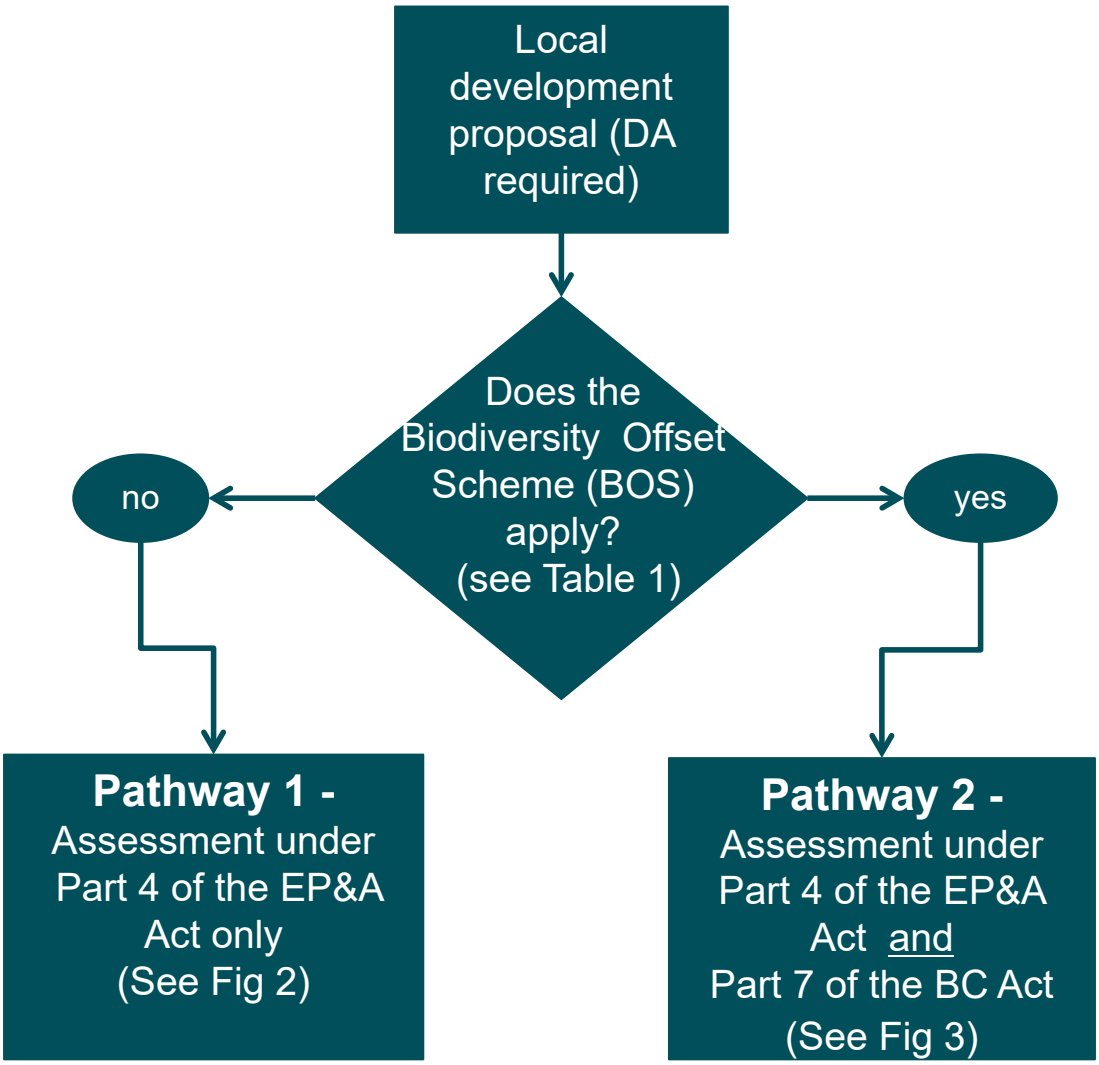


Figure 1 Major biodiversity assessment pathways

Table 1 Does the Biodiversity Offset Scheme (BOS) apply?

(includes development "likely to significantly affect threatened species" under s7.2 of the BC Act)

BOS applies to any of the following:	Reference
• the development is likely to significantly affect threatened species or ecological communities according to the **test of significance#**	BC Act - s7.2(1)(a), s 7.3
• the proposed clearing of native vegetation (see Table 2) that exceeds the **BOS area threshold#**	BC Act - s7.2(1)(b); s7.4(1) BC Regs - s7.(1)(a), s7.2
• the proposed clearing of native vegetation (see Table 2) or other action prescribed by the Regulations is on land included on the **Biodiversity Values Map#**	BC Act - s7.2(1)(b), s7.4(1) BC Regs - s7.1(1)(b), s6.1, s7.3
• the development is carried out in a declared area of **outstanding biodiversity value#**	BC Act - s7.2 (1)(c)
BOS does not apply if the development:	
• involves clearing of native vegetation on **category 1 - exempt land***	BC Act - s7.4
• is on **biodiversity certified land**	BC Act - s7.6

#See: http://www.environment.nsw.gov.au/biodiversity/entryrequirements.htm

* See: https://www.lls.nsw.gov.au/sustainable-land-management/facts-sheets2/land-categorisation-and-the-land-management-framework

Table 2 What is clearing of native vegetation?

(for development applications under Part 4 of the EP&A Act only)

"Native vegetation" includes any of the following:	**Reference**
• Trees, shrubs, understorey plants, groundcover and wetland plants where established in NSW prior to European settlement	LLS Act – s60B (1), s60B(2)
• Dead or non-native vegetation mapped as category 2-vulnerable regulated land*	LLS Act – s60B(3)
"Native vegetation" does not include:	
• marine vegetation including mangroves and saltmarsh	LLS Act – s60B(4)
"clearing" of native vegetation:	
• is defined as (a) cutting down, felling, uprooting, thinning or otherwise removing native vegetation, (b) killing, destroying, poisoning, ringbarking or burning native vegetation.	LLS Act – s60C
• includes all clearing of native vegetation arising from the proposed development (e.g. roads and other infrastructure, fire protection buffers etc.)	LLS Act – s60C
• includes any clearing of native vegetation likely to arise from subdivision	BC Regs - s7.1(3)

* See: https://www.lls.nsw.gov.au/sustainable-land-management/facts-sheets2/land-categorisation-and-the-land-management-framework

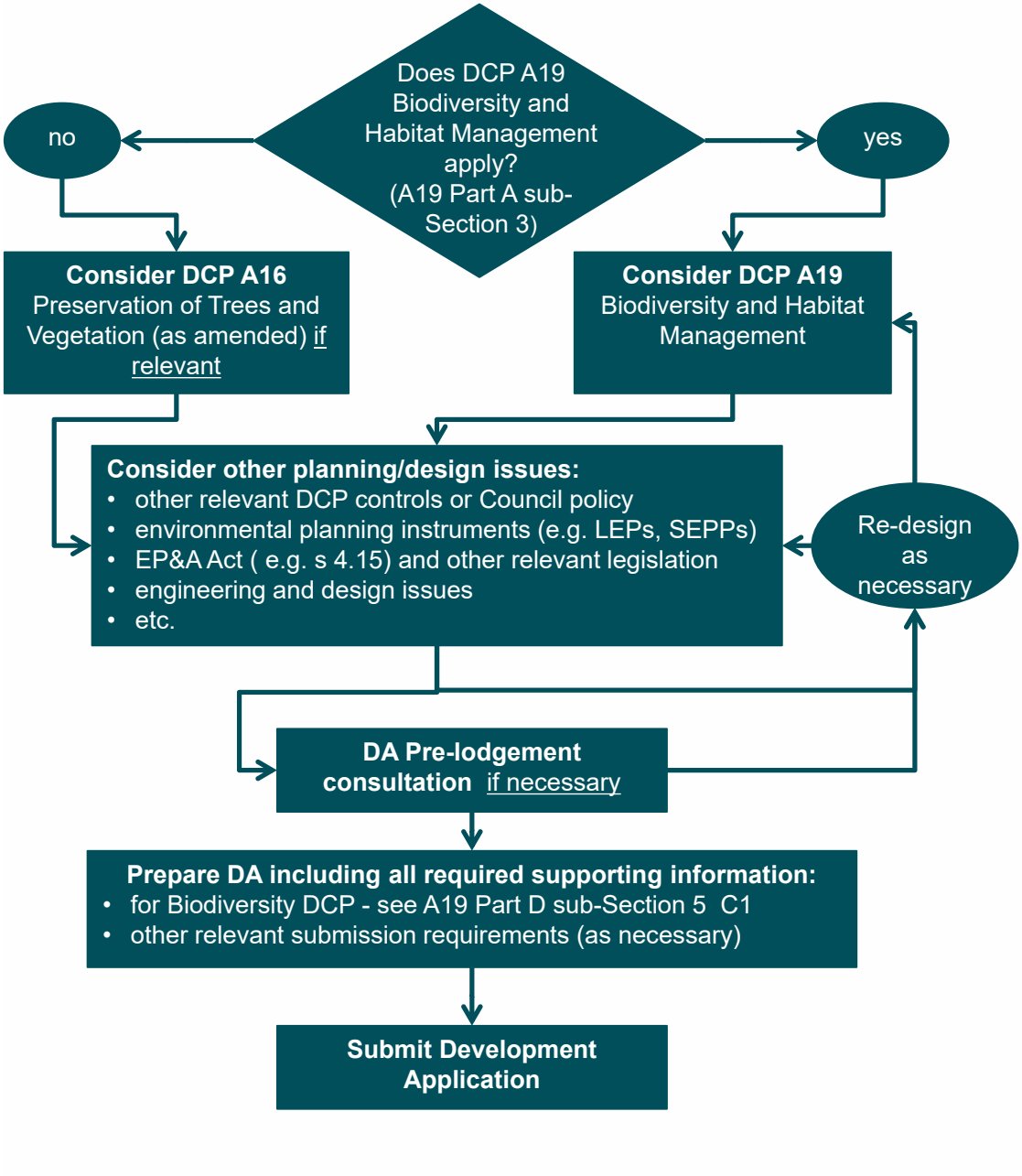


Figure 2 Pathway 1 - Development below the BOS Threshold

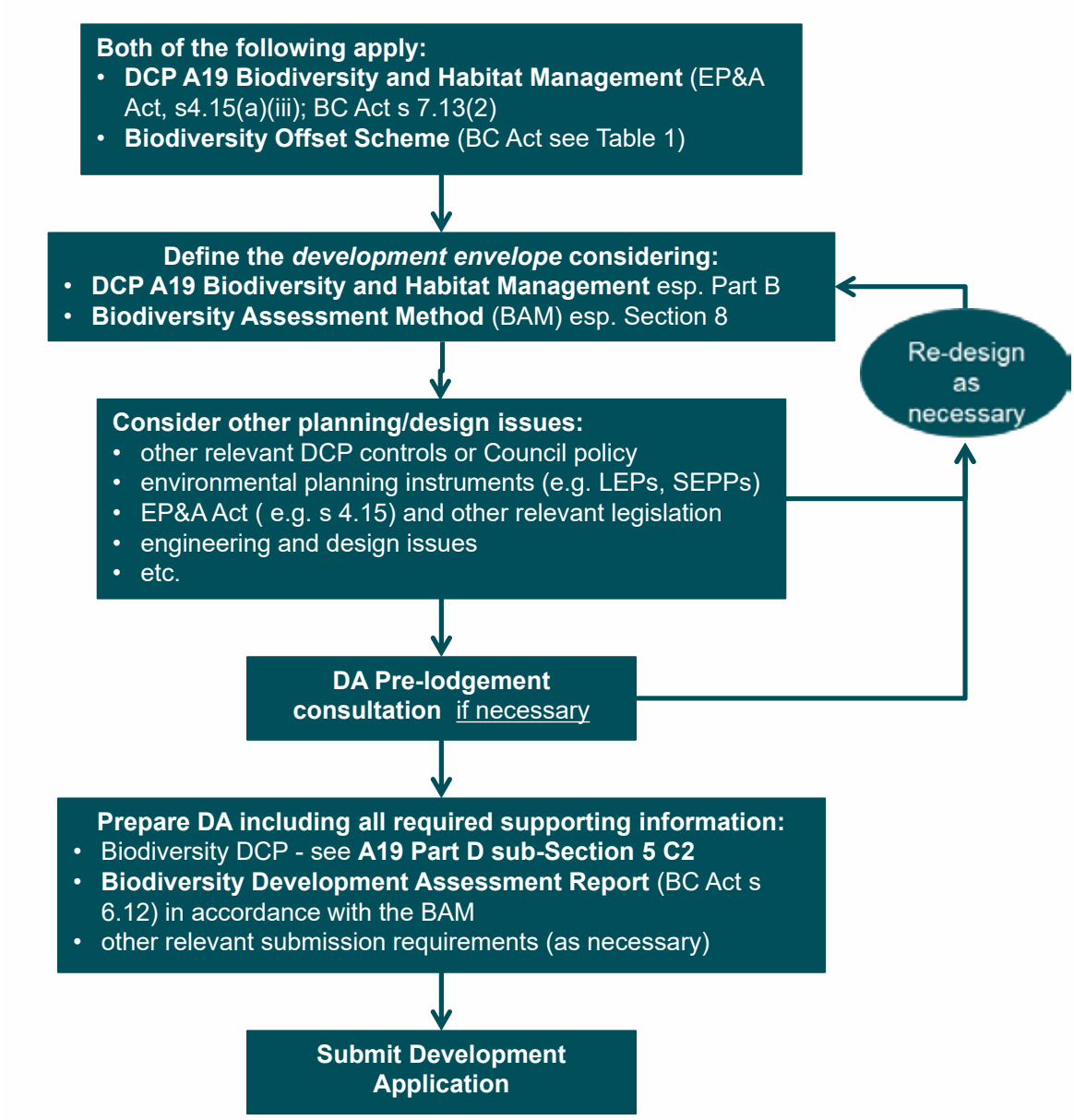


Figure 3 Pathway 2 - Development above the BOS Threshold

Pre-existing Approvals

In some cases, a development application may be required for a proposal that has previously been approved (often in part) through another legislative mechanism (e.g. state significant development approvals that have been delegated to Council, or strategic planning approvals). The ways in which overlapping and existing approvals work is legally complex and is determined by the legislation rather than the DCP. However, notwithstanding specific legal constraints, existing approvals requiring a subsequent development application will normally prevail to the extent to which they remain relevant to the development application under consideration.

7. Relationship to other Sections

Development is required to meet the provisions of all other relevant Sections contained within this DCP. In the event of any inconsistency with other sections of this DCP the provisions of this Section prevail.

In particular, the Subdivision Manual (DCP Section A5) will need to be applied in conjunction with this Section for subdivisions and larger scale developments involving bulk earthworks and/or the provision of civil infrastructure.

Where relevant, development proposals that fall below the thresholds set out in sub-Section 3 of this Part will be assessed under DCP Section A16 - Preservation of Trees and Vegetation.

8. How to use this Section

Step 1: Define the Development Envelope (Part B)

This step involves identifying ecologically significant areas with the potential to influence the shape and form of a proposed *development envelope*. For each biodiversity theme, the development controls focus on identifying "red flag" areas that need to be retained (i.e. avoided and excluded from the development envelope). Depending on the scale and proximity of the proposed development, these retained areas may also need to be protected and/or managed to ensure their long term ecological viability.

Step 2: Manage development impacts (Part C)

Apart from the development envelope, adverse impacts on biodiversity values often arise from the construction or operation of the development itself which may put ongoing pressures on the ecological integrity of the surrounding landscape (e.g. environmental weeds, habitat for exotic pest animals). Part C sets out acceptable outcomes to mitigate impacts arising from the development itself.

Step 3: Prepare the development application (Part D)

This step in the process involves the collation and preparation of material required to support the development application.

ADVISORY NOTE:

This Section of the DCP uses numerous terms with specific meanings. These terms are italicised in the text and defined in the dictionary applying to this Section (Part E). Acronyms used within this Section of the DCP are also included in the dictionary.

9. Biodiversity Planning Principles

The following principles underpin the provisions of this Section. While all development should be consistent with these principles, they may also be used to guide complex or novel development proposals.

P1. **Ecologically Sustainable Development** – the principles of Ecologically Sustainable Development will be followed in the exercise of Council responsibilities:

i. **The precautionary principle** – that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by: (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and (ii) an assessment of the risk-weighted consequences of various options;

ii. **Inter-generational equity** – the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;

iii. **Conservation of biodiversity and ecological integrity** – conservation of biodiversity and ecological integrity should be a fundamental consideration;

iv. **Improved valuation, pricing and incentive mechanisms** – environmental factors should be included in the valuation of assets and services, such as: (i) polluter pays–that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste, (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

P2. **Consistency with overarching biodiversity strategies** – Council's decision-making should be consistent with, and contribute to targets, set out in any relevant adopted local, regional, NSW State or National strategy that addresses the conservation and/or management of biodiversity.

P3. **No net loss** – The carrying out of development should maintain or improve biodiversity outcomes wherever possible within Tweed Shire.

P4. **Climate change** – Development should not compromise the ability of native flora and fauna to respond to climate change.

Habitat Retention

P5. ***In situ* conservation** – biodiversity is best conserved *in situ*.

The prevention of habitat loss and degradation is the first priority and is significantly more cost-effective and less risky than ongoing mitigation or reconstructing habitat in another area (i.e. biodiversity offsetting).

P6. **Habitat fragmentation and connectivity** – Council decision-making should not contribute to habitat fragmentation and where possible, increase landscape connectivity.

Natural areas are strongly influenced by the landscape in which they are embedded. In general, larger, less disturbed and better-connected natural areas are more likely to retain a higher degree of biodiversity in the long term.

P7. **Small remnants** – Small patches of habitat should be retained where possible and measures taken to mitigate edge effects and other relevant threats.

Small isolated patches of habitat are often vulnerable to edge effects and other threats from the adjacent landscape, however such areas commonly support a wide range of native species (including threatened species), represent examples of communities that have been disproportionately cleared, provide refuge habitat and "stepping stones" for fauna and flora to disperse across the landscape.

P8. **Disturbed habitats** – Where possible, measures should be taken to retain and restore disturbed habitats.

Very few natural areas remain free of disturbance or threatening processes. Disturbed habitats represent opportunities for habitat enhancement and are important for many native plants and animals including, in many cases, threatened species.

P9. **Patch diversity** – Measures should be taken to conserve biodiversity at the patch scale.

Patches of bushland or other natural areas that contain multiple vegetation communities commonly support high numbers of species.

P10. **Fauna habitat** – Key fauna habitat resources should be retained and where possible enhanced.

Many native fauna including threatened species have specific resource requirements (e.g. feeding, nesting, roosting) all of which are required for their continued survival. Also, most native animals are not confined to a single ecological community and often make use of resources from a range of different habitats, including in some cases, urban and other developed land.

P11. **Under reserved and over-cleared vegetation communities** – Ecological communities that have been over-cleared or under-reserved in the formal reserve system (e.g. National Parks and Nature Reserves) should be retained and where possible enhanced.

Many vegetation communities have been disproportionately cleared since European settlement or are poorly reserved in the formal reserve system. The long-term future of these communities depends on their conservation on private land.

P12. **Watercourses** – Natural watercourses and adjoining riparian land should be retained and rehabilitated where opportunities arise.

Impact Assessment and Mitigation

P13. **Mitigation hierarchy** – Priority should be given to avoiding impacts at their source, whether through the redesign of a project or by regulating the timing or location of activities. If it is not possible to avoid impacts, opportunities should be sought to minimise and/or mitigate the impacts, ideally to the point that they are no longer significant or where absolutely necessary and technically feasible, residual impacts can be comensated for (see also definition in dictionary for this Section).

P14. **Biodiversity offsets and compensation** – Subject to P13 above, any residual impacts on biodiversity arising from development should only be permitted where satisfactory arrangements have been made to compensate for, or offset the loss, preferably on or near the impact site.

P15. **Habitat heterogeneity** – Ecological mapping and assessments should recognise that there can be considerable local variation within and between habitats belonging to individual ecological communities described at regional scales.

Ecological communities are commonly described regionally in general terms but are characterised at specific sites by local variations reflecting individual site-specific responses to environmental conditions, disturbance history and location in the region.

P16. **Indirect and cumulative impacts** – Ongoing pressures on biodiversity arising from indirect and/or cumulative impacts of development must be understood, minimised and effectively mitigated.

P17. **Habitat restoration and management** – In fragmented landscapes, such as much of the Tweed Shire, it is not sufficient to simply prevent direct habitat loss. Retained habitats associated with development should be actively managed (through a management plan or other mechanism) to prevent the ongoing degradation of biodiversity values.

P18. **Ecological buffers** – Where possible, development adjoining natural areas should provide for, and ensure the management of, an ecological buffer to minimise adverse impacts on biodiversity values.

P19. **Bushfire** – Measures to mitigate bushfire risk should take into account the natural fire regimes essential for supporting the relevant ecological community(s) and avoid negative impacts on biodiversity.

P20. **Weeds and cultural plantings** – Development adjacent to natural areas should avoid the use non-indigenous plants or have measures in place (such as slashed bushfire asset protection zones) to limit their dispersal into natural areas.

P21. **Introduced animals** – Development should not cause or exacerbate adverse impacts on biodiversity from introduced animals.

P22. **Fauna protection** – Where appropriate, developments should integrate measures to protect and facilitate native fauna occupancy and movement (such as suitable design of swimming pools, fences, landscaping, road crossings and nature strips, nest structures etc.).

P23. **Construction impacts** – Where appropriate, measures should be implemented to ensure the impacts on biodiversity and other natural resources arising from construction phase of the development are effectively mitigated.

P24. **Ecological assessment** – assessment of biodiversity values should address site, landscape and regional values in accordance with contemporary best practice.

P25. **Costs of ongoing management** – in accordance with the principles of Ecologically Sustainable Development (see P1 above) the proponent or development itself should bear the costs of managing ongoing pressures placed on biodiversity values as a result of the development.

PART B

Defining the Development Envelope

1. Biodiversity Themes and Objectives

1.1 Bushlands and Wetlands

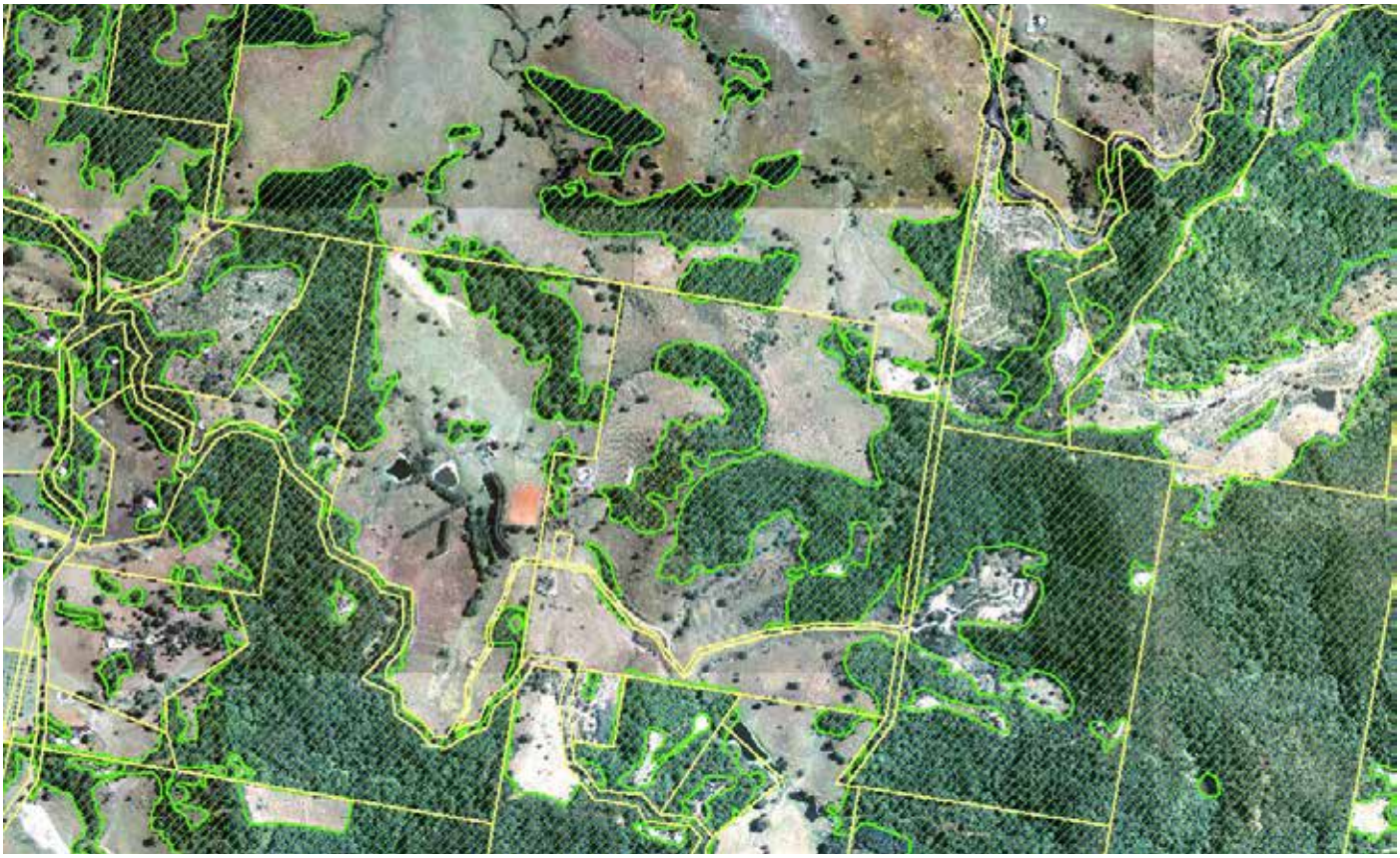
Clearing of bushland for urban development and agriculture is recognised as the most important threat to biodiversity in Australia. Consequently, clearing of native vegetation is listed as a *key threatening process* under both the NSW State and Commonwealth threatened species legislation.

The conservation values of wetlands are well recognised and many of the larger wetland areas in the Shire are protected under the Coastal Management State Environmental Planning Policy (previously SEPP 14 – Coastal Wetlands). Wetlands are particularly susceptible to alterations to their drainage and this is also recognised as a *key threatening process* under the NSW State threatened species legislation.

High rates of bushland and wetland loss on the NSW North Coast have resulted in a large number of *over-cleared vegetation types and landscapes*, many of which are *endangered ecological communities* (EECs). Land clearing and drainage have also contributed heavily to the large number of threatened species that occur on the NSW north coast.

Apart from the direct loss of native vegetation and habitat, clearing of bushlands and wetlands is also responsible for a number of indirect impacts, which also threaten the viability of remaining natural areas. These include changes arising from: altered habitat conditions at the bushland edge; habitat isolation; invasion by weeds and pest animals; inappropriate bushfire management; loss of key habitat features required by fauna; removal of part of the species' range and; increased soil erosion and runoff.

A map showing the indicative distribution of bushland (including wetlands) in the Shire can be viewed at: http://www.tweed.nsw.gov.au/Mapping



Aerial photo showing mapped bushland outlined in green

Objectives

O1. Retain bushland and wetlands in patches of a size and configuration which will enable existing plant and animal communities to survive and develop in the long term.

O2. Provide for the improved management of retained bushland and wetland habitat.

O3. Mitigate indirect and ongoing impacts of development on bushland and wetland values.

1.2 Wildlife Corridors

As clearing fragments natural habitats, remnant patches become progressively more isolated from each other. For many species this results in a major inability to disperse and successfully reproduce. In general, the more isolated the remnant, and the more hostile the intervening habitat (usually urban or pastoral), the less likely it is that plants and animals can survive there in the longer term. One of the most effective ways of reducing the adverse consequences of habitat fragmentation is to retain or rehabilitate connections (corridors) among remnant areas. A network of connected habitats facilitates the movement of flora and fauna between patches.

For fauna, movement may be either short term, for example to avoid unfavourable environmental conditions (fire, food shortage etc.), or long term. Long-term dispersal includes movements undertaken for the purpose of finding a mate or establishing a new territory.

For plants too, corridors can be important; only limited numbers of plants have seed dispersal mechanisms such as wind that allow dispersal across vast areas of unsuitable habitat. Many slower growing, longer-lived species rely on water or fauna to disperse their seeds.

Maintaining and improving habitat connectivity also allows plants and animals to respond better to climate change.

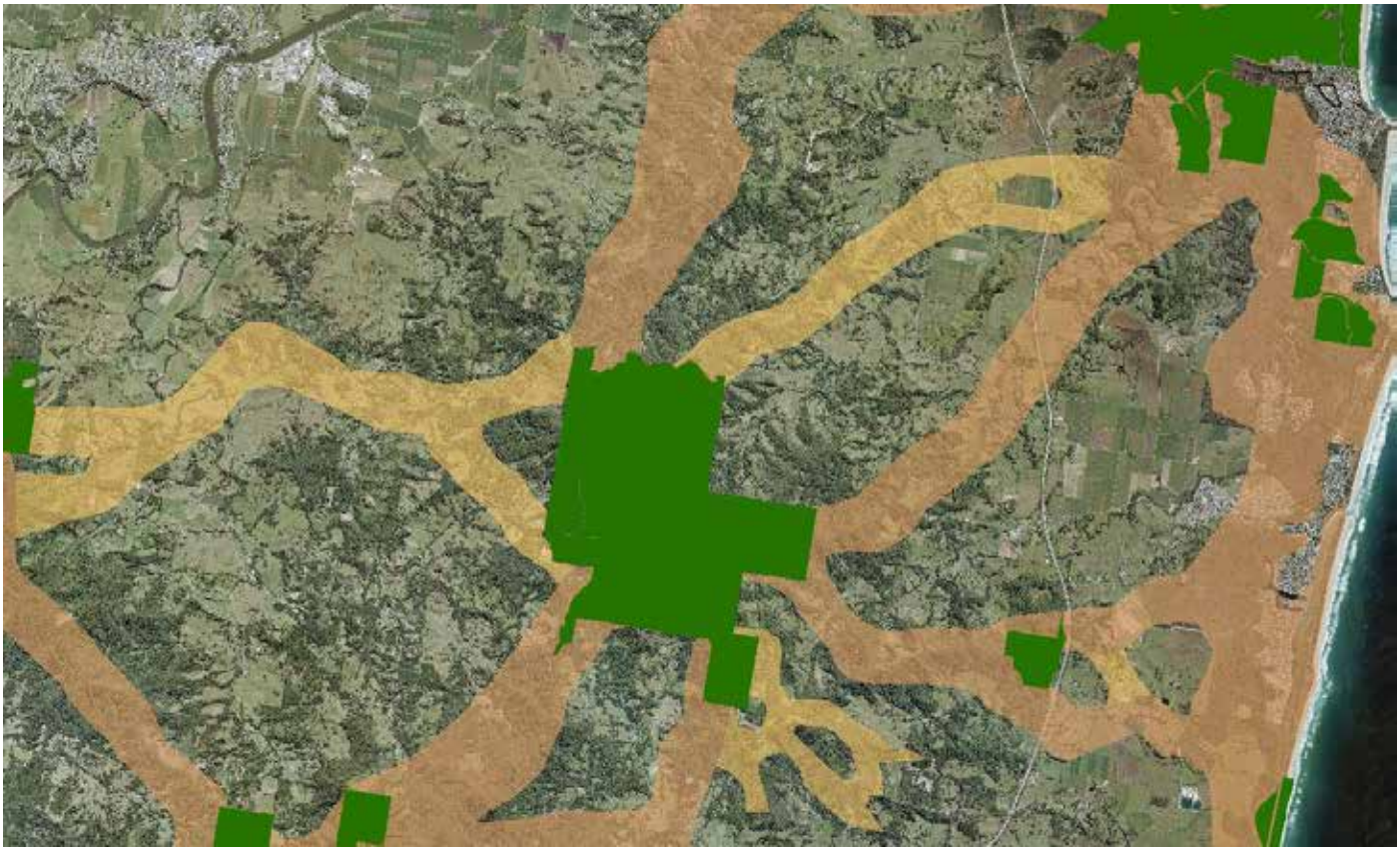
See http://www.tweed.nsw.gov.au/Mapping to view NSW Office of Environment and Heritage Regional Fauna Corridor mapping.

Objectives

O1. Retain bushland habitat within existing wildlife corridors.

O2. Encourage restoration and revegetation of bushland to increase habitat connectivity.

O3. Mitigate indirect and ongoing impacts of development on wildlife corridors.



Aerial photo showing NSW Office of Environment and Heritage Regional Fauna Corridor mapping showing notional regional-scale habitat linkages between areas of National Park (dark green).

1.3 Threatened and Significant Species

As a result of the major changes to the natural landscape caused by human activities over the past 150 years, many species (both plants and animals) have suffered dramatic declines in population size and contraction in range. Many of these have been listed as *threatened species* under State or Commonwealth threatened species legislation.

In addition to clearing of native vegetation, *threatened species* and *other significant species* face many other challenges. These include predation by foxes, dogs and cats, road mortality, bushfire and grazing impacts, climate change, removal of dead wood and bushrock, competition from weeds and exotic animals such as Indian mynas and rabbits, infections and diseases, poaching and seed collection, and hydrological alterations. Many of these threats are scheduled as key *threatening processes* under State and Commonwealth threatened species legislation.

The Tweed region supports one of the highest concentrations of *threatened* plants and animals in Australia. As of February 2018 this included 122 animal species (birds, mammals, reptiles, frogs, fish and invertebrates) of which 26 are listed as *endangered* and five, *critically endangered*. Additionally, the koalas on the Tweed/Brunswick coast and long-nosed potoroos at Cobaki have both been scheduled as *endangered populations* under the NSW State threatened species legislation. There are also more than 50 species of birds protected under the Japanese Australian Migratory Bird Agreement (JAMBA) and/or the Chinese Australian Migratory Bird Agreement (CAMBA) for the conservation of migratory birds and their habitats.

In relation to plants, there are at least 239 significant species of which 95 are considered *threatened* under State and Commonwealth legislation (56 are *endangered, 2 critically endangered*) with the remainder considered rare, poorly known, at the edge of their geographical range, or in the case of some 54 species, found nowhere else but the Tweed region. There are also 11 vegetation communities that occur on the Tweed listed as *endangered ecological communities* (EECs) under the State legislation. Lowland Rainforest (< 600m AHD) and Littoral Rainforest are both listed as *critically endangered ecological communities* under the Commonwealth threatened species legislation.

A list of *threatened and other significant flora and fauna* species found on the Tweed and a Threatened Fauna Habitat Database can be viewed at: http://www.tweed.nsw.gov.au/Biodiversity.

Objectives

O1. Retain and enhance habitat features necessary to maintain and increase populations of threatened and other significant plants, animals and communities.

O2. Improve the management of retained habitat features.

O3. Mitigate indirect and ongoing impacts of development on threatened and other significant plants and animals.

Stotts Island Nature Reserve is one of the largest remaining areas of lowland floodplain rainforest in NSW. Like other floodplain vegetation it is classified as an *endangered ecological community* in NSW. Lowland floodplain rainforest is listed as *critically endangered* under Commonwealth legislation. Photo credit: Mark Kingston

Showy flowers of the endangered Durobby (*Syzygium moorei*) are clustered directly on the branches trunk of this large rainforest tree. Also known also as Coolamon, this species is one of around 50 species that are confined to the Tweed and neighbouring valleys. Photo credit: John Turnbull

Juvenile (left) and female (right) Glossy Black Cockatoos (*Calyptorhynchus lathami*) drinking from a pothole in the carpark at Sutherland Point. Regularly observed on the Tweed Coast, this *vulnerable* species feeds exclusively on the seeds a few species of she-oak and is dependent on large tree hollows to breed. Photo credit: Tanya Fountain

1.4 Koala Habitat

The koala is an iconic Australian species that has suffered dramatic decline in numbers and distribution in NSW since the arrival of Europeans. Most koala populations in NSW now survive in fragmented and isolated habitat. Major threats to koalas in Tweed Shire arise both directly and indirectly from human activity including clearing and fragmentation of koala habitat, high intensity bushfire, road strike, predation by domestic and wild dogs, disease, drowning (e.g. domestic pools), and in some cases forestry practices. Particularly in urban settings, these pressures are exacerbated by the fact that koalas feed on a very limited range of trees, have a complex social structure governing mating and dispersal, require large tracts of contiguous bushland to sustain viable populations and are slow to recover from disturbance.

Throughout NSW the koala is listed as a *vulnerable* species under both NSW State and Commonwealth threatened species legislation. Further to this, the Tweed/Brunswick Coast koalas are also recognised as an *endangered population* under State threatened species legislation. There is also a State Environmental Planning Policy, under the *Environmental Planning and Assessment Act 1979*, SEPP 44 – Koala Habitat Protection which seeks to maintain permanent free-living populations of koalas in NSW.

In response to recent declines of koalas, Council adopted the Tweed Coast Comprehensive Koala Plan of Management (TCCKPoM) in February 2015 (see http://www.tweed.nsw.gov.au/PlanningPolicies) which contains the full range of statutory and non-statutory provisions including detailed development controls. Development on the Tweed Coast is subject to development controls contained in the TCCKPoM (see Figure 1 of TCCKPoM).

In addition to development controls contained in the TCCKPoM, this Section of the Tweed DCP also addresses development elsewhere in Tweed Shire that may affect koalas or their habitat. A map showing the indicative distribution of koala habitat in the Shire can be viewed at: http://www.tweed.nsw.gov.au/Mapping.

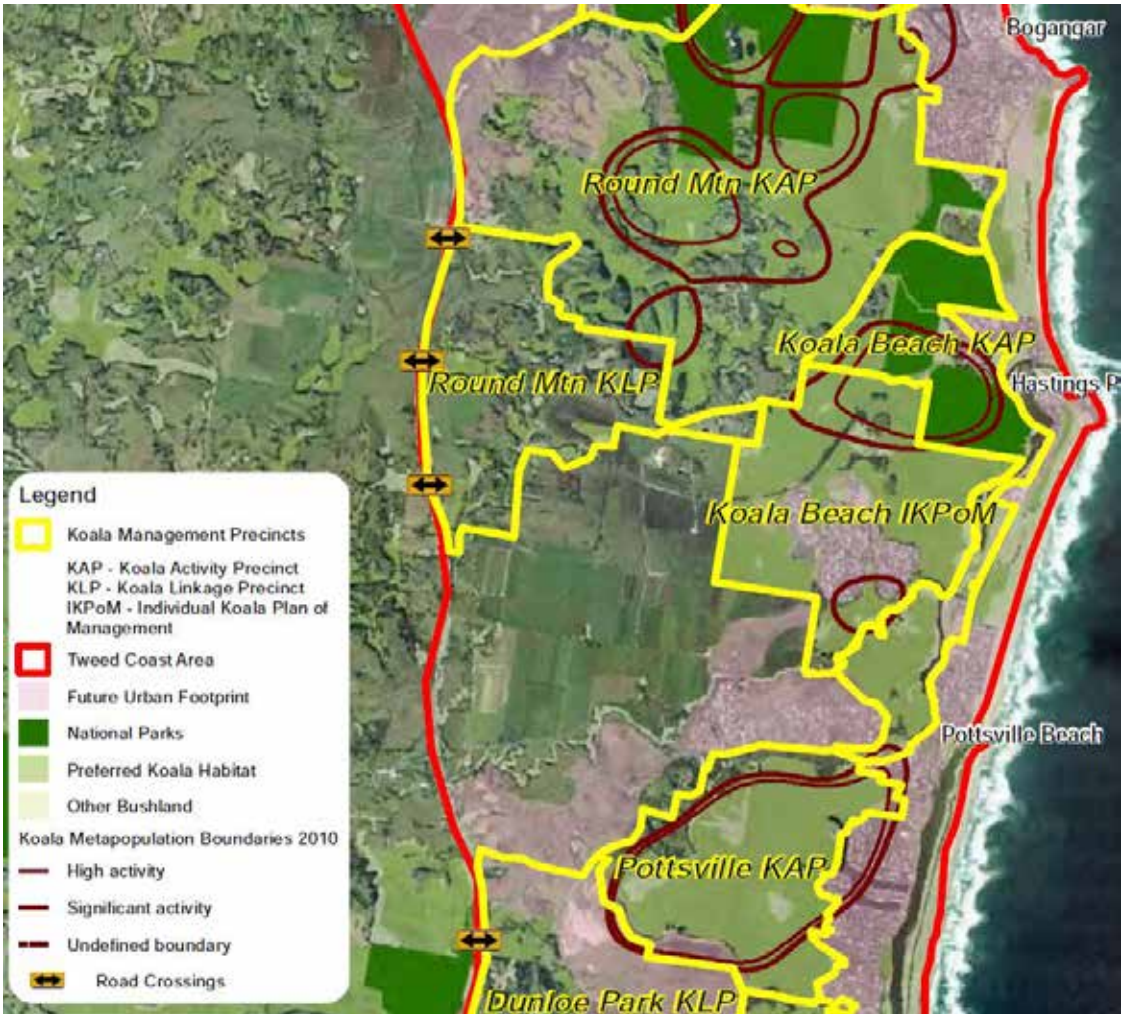
Objectives

O1. Retain and increase koala populations and their habitats.

O2. Provide for the improved management of retained koala habitat.

O3. Mitigate indirect and ongoing impacts of development on koala populations and their habitats.

O4. Recognise and integrate the development control provisions of the Tweed Coast Comprehensive Koala Plan of Management into the Tweed DCP.



Excerpt from Tweed Coast Comprehensive Koala Plan of Management 2015.

Koala feeding on a newly planted Swamp Mahogany tree at Tanglewood. Photo Credit: Tanya Fountain

1.5 Waterways and Riparian Areas

Freshwater, marine and estuarine waterways are important features of the NSW north coast landscape. As the interface between land-based and waterway ecosystems riparian areas play a major role in limiting, filtering and buffering inputs into waterways. They are also necessary for the long-term survival of aquatic ecosystems, providing shade, shelter, food and habitat diversity, and stream bank protection.

Riparian vegetation also provides essential linkages facilitating the movement of terrestrial flora and fauna between larger areas of habitat. These areas can be highly species diverse and commonly contain threatened and other significant species. Riparian areas generally support a higher diversity and density of flora and fauna because they occupy a very small proportion of the landscape, are more fertile and better watered than the surrounding landscape, and commonly provide essential resources to many fauna that spend much of their time elsewhere in the landscape.

The importance of riparian areas is recognised in State legislation such as the *Water Management Act 2000* (WM Act). Under the *Environmental Planning and Assessment Act 1979* development within 40m of a watercourse is Integrated Development and requires approval by the Office of Water under the WM Act.

Maps showing the indicative distribution riparian areas and waterways in the Shire can be viewed at: http://www.tweed.nsw.gov.au/Mapping

Objectives

01. Retain and restore native vegetation within riparian areas.
02. Improve the water quality, bank and bed stability and ecosystem functions of waterways and riparian habitats.
03. Provide for the improved management of riparian and aquatic habitats.
04. Mitigate indirect and ongoing impacts of development on riparian and aquatic habitats.

Waterway bank erosion on the Oxley River at Eungella. Photo Credit: Matt Bloor

Riparian restoration project on the Oxley River at Eungella. Photo Credit: Matt Bloor

6.1 Flying-fox Camps

Three species of flying-fox roost in large numbers in camps in northern NSW: the grey-headed, black and little red flying-fox. All these species are protected under the *Biodiversity Conservation Act 2016*. Grey-headed is also listed as a *vulnerable species* under both NSW State and Commonwealth threatened species legislation

Flying-foxes are nomadic, with little red flying-foxes being the most nomadic and irregular in their movements. Flying-foxes move throughout eastern Australia in response to the often unpredictable availability of native food resources, primarily the nectar, pollen and fruits of native trees. As a result, and because of their wide-ranging habits, they have an important ecological role in dispersing native seed and pollen, thus maintaining native vegetation, including forests.

Camps are vital to the conservation of flying-foxes as they provide access to food, sites for mating, breeding and raising young; and stopover sites for animals migrating throughout their range. Although some flying-fox camps are used year-round, most are only occupied when food resources are available within approximately 50 km.

The widespread and continued clearing and modification of native vegetation in eastern Australia has resulted in the substantial reduction of flying-fox foraging and roosting habitat. Flying-foxes are increasingly roosting in camps near urban areas when food is locally available. In these locations, they can generate significant noise and odour, health concerns, nuisance from droppings and damage to vegetation. For these reasons, planning for new urban development should be located well away from known flying-fox camps. (see also NSW Flying-fox Camp Management Policy 2015 and Tweed Flying-fox Camp Management Plan 2018).

A map showing the distribution of known flying fox camps in the Shire can be viewed at: http://www.tweed.nsw.gov.au/Mapping.

Objectives

01. Retain existing flying-fox camps and their habitat.
02. Provide for the improved management of flying fox camps and adjacent areas.
03. Mitigate indirect and ongoing impacts of development on flying foxes and their habitats.
04. Mitigate potential impacts of flying-fox camps on new development.

Grey-headed Flying fox roosting in a paperbark tree at Bray Park. Photo Credit: Tanya Fountain

Part of a flying-fox camp at Bray Park. Flying foxes are increasingly roosting in camps near urban areas when food is locally available. Flying foxes can generate significant noise and odour, health concerns, nuisance from droppings and damage to vegetation. Photo Credit: Tanya Fountain

1.7 Other Key Habitats

While the biodiversity themes above capture the vast majority of features of concern there remain a few other features that need to be appropriately managed in relation to accommodating new development. For example, very large trees, stags (large dead trees) and trees with hollows, not only provide habitat for threatened species but also for many of the more common animals such as possums, gliders, parrots and cockatoos.

Similarly, raptors, such as white-bellied and wedge-tailed eagles, whistling and brahminy kites and ospreys commonly build their large nests in isolated trees or built structures such as communication towers and power poles.

The preservation and management of existing nest sites and the use of artificial nest sites appears to have been largely responsible for the recovery of the osprey on the NSW north coast where numbers have recovered from near local extinction.

A map showing the distribution of known osprey nests in the Shire can be viewed at: http://www.tweed.nsw.gov.au/Mapping.

Objectives

O1. Retain other key habitat features that commonly occur outside of bushland and provide essential habitat for threatened and other fauna.

O2. Provide for the improved management of these habitats and adjacent areas.

O3. Mitigate indirect and ongoing impacts of development on other key habitat features and the fauna that need them.

Barn Owl chicks emerging from a large tree hollow in a Sydney blue gum at Eungella.
Photo Credit: Tanya Fountain

Osprey using an artificial nest cradle at Hastings Point. The use of artificial nest sites appears to have been largely responsible for the recovery of the osprey on the NSW north coast where numbers have recovered from near local extinction. Photo Credit: Tanya Fountain

1.8 Climate Change

Climate change is predicted to be the greatest threat to biodiversity in many regions and is listed as a *key threatening process* under both NSW state and Commonwealth threatened species legislation. The global climate has changed significantly during the last 100 years, with the average surface temperature of the Earth increasing by $0.74 \pm 0.18^{o}C$. Projected consequences are much less certain but include changes in temperature, precipitation patterns, ocean circulation patterns, and increases in extreme weather events and mean sea level.

Scientific evidence is rapidly mounting to indicate that we are already seeing the impacts of changes in climate on biodiversity in the form of changes in species ranges and life cycle events, with winners and losers emerging as conditions change.

While many of the impacts on biodiversity can be mitigated in part by improved management and increasing habitat connectivity, the consequences of sea level rise is likely to have substantial implications for estuarine, wetland and floodplain communities that are highly sensitive to changes in water tables, especially where their landward migration is impeded by development or topographic conditions.

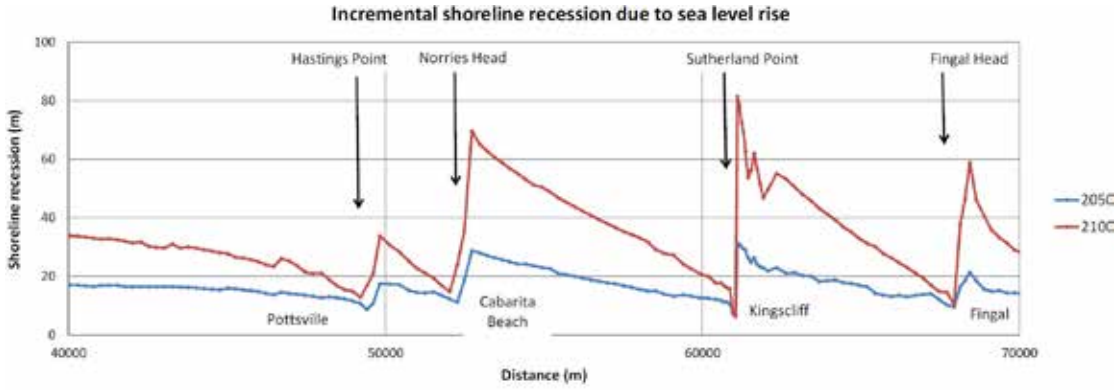
Objectives

O1. Ensure that the management of retained areas minimises any adverse impacts of climate change on biodiversity.

O2. Improve the ability of flora and fauna to adapt to climate change.

O3. Mitigate indirect and ongoing impacts of development that may exacerbate the impacts of climate change on biodiversity.

Increases in extreme weather events and sea level rise caused by climate change represent a major threat to the remaining coastal and floodplain vegetation on the Tweed coast.



According to the Tweed Shire Coastal Hazards Assessment 2013 shoreline recession due to climate change is likely to be most acute on the beaches immediately north of the Tweed coast headlands where the 2100 shoreline is predicted to move landwards by 50m or more.

2. Development Envelope Controls

The following objectives and development controls apply to all *biodiversity themes*.

2.1 Objectives

O1. Specify the *biodiversity elements* that the development must avoid (red flags).

O2. Specify any setbacks, buffers or other measures required to minimise the ongoing impacts of the development on biodiversity values.

O3. Specify "avoid or minimise" measures that may be either included in a Biodiversity Development Assessment Report (BDAR) or additional to those matters considered in a BDAR prepared in accordance with the *Biodiversity Conservation Act 2016*.

O4. Specify how *red flagged* areas and associated ecological setbacks are to be protected and managed.

O5. Provide for minor variations to *red flagged* areas that maintains or improves biodiversity outcomes.

O6. Provide additional flexibility where improved biodiversity outcomes are assured.

2.2 Controls

Habitat Retention

ADVISORY NOTES:

1. *Habitat retention controls under C1 define "red flagged" areas and ecological setbacks that should be retained.*

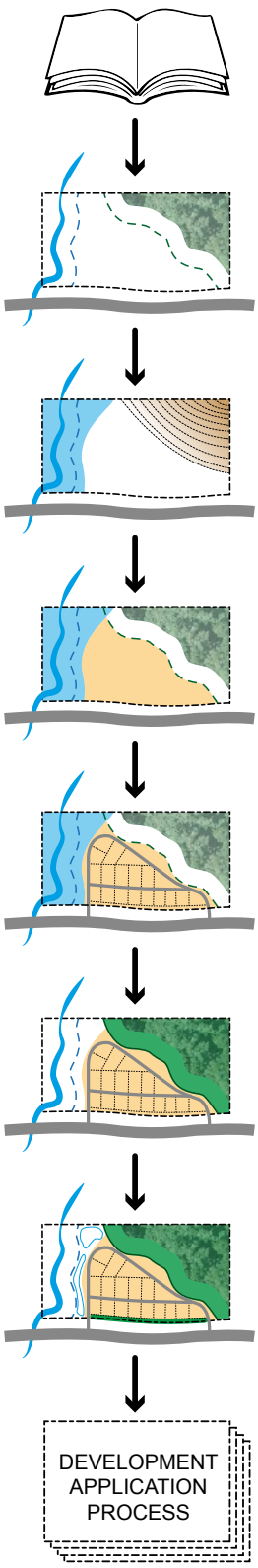
2. *Some, but not all, areas to be retained also require formal protection and/or management. Protection and management controls are covered under C9 and C10.*

3. *An "ecological setback" is not the same as an "ecological buffer". In this Section of the DCP an ecological buffer implies management, whereas an ecological setback does not. An ecological setback is to be managed as an ecological buffer where a Habitat Management Plan is required under C10.*

4. *Note also, a "development setback" such as a bushfire asset protection zone may overlap some or all of the same land as an ecological setback (e.g. see C20-C23). See dictionary and graphics at C20-C21 for further details on the operations of setbacks and buffers.*

5. *C6 allows for minor variations to the habitat retention controls where necessary to achieve practical outcomes. Other acceptable solutions may be considered under C26.*

Defining the Development Envelope



Step 1

Familiarise yourself with the relevant development controls in this DCP, particularly those directly below (i.e. Part B of this Section).

Step 2

Identify and map potential red flagged areas and ecological setbacks in accordance with C1 below.

Step 3

Identify and map other relevant constraints such as steep land, flood prone land and bushfire setbacks.

Step 4

Map area of land potentially available to establish a development envelope consistent with the zoning and other provisions applying to the land under the Local Environmental Plan.

Step 5

Examine options for the design of the development considering issues such as site access, essential infrastructure, subdivision or development layouts and relevant development controls.

Step 6

Identify any areas required to be protected under C9 and/or managed for ecological purposes under C910.

Step 7

Consider the need for minor (see C6) or other variations (see C26) to enable practical outcomes consistent with relevant planning objectives and principles in this Section.

Step 8

Proceed with refining the development design consistent with other relevant development controls.

C1. The following biodiversity elements and the associated *ecological setbacks* (including any n*ative vegetation* therein) are *red flagged* and must be retained on site:

Red Flags[a]	Ecological Setback[b] (m)
Bushland	
Listed ecological communities (EECs)	30
Over-cleared vegetation types	20
Over-cleared landscapes	20
Old growth	30
Important wetlands	50
Other wetlands	20
Other bushland on a slope greater than 18 degrees[e]	20
Pre-existing protected habitat	20m or as above, whichever is larger
Wildlife Corridors	
Land within a defined wildlife corridor	20
Threatened and Significant Species	
Areas within a *species polygon for threatened fauna* or other *significant fauna* that are known or predicted to occur at the site	20
Areas within a *species polygon for threatened flora* or other *significant flora* that are known to occur at the site	10
Koala Habitat (not applicable to development subject to Tweed Coast Comprehensive Koala Plan of Management)	
Core koala habitat	20
Primary or Secondary (class A) koala habitat	20
Isolated or scattered *primary koala food trees* with evidence of koala activity	20
Any other areas where koalas are present	20
Waterways and Riparian Areas	
First order stream	10[d]
Second order stream	20[d]
Third order stream	30[d]
Fourth order stream	40[d]
Estuarine area	50[d]
Flying Fox Camps	
Year round or intermittently occupied flying fox camp	20[c]
Other Habitat Features	
Very large native trees[f]	10
Stags and hollow-bearing trees[f]	10
Raptor nests	50

[a] See Dictionary for definitions of italicised terms

[b] Where more than one red flag applies or an *ecological setback/buffer* is specified in another adopted plan or policy (e.g. a locality plan), the larger *ecological setback/buffer* shall be used.

[c] A further development setback of 100m is required to separate residential, commercial and educational buildings - see development control C23

Cont. over

Red Flags[a]	Ecological Setback[b] (m)
Other Habitat Features	

[d] Distances measured from the top of the bank of the waterway

[e] See http://www.tweed.nsw.gov.au/Mapping for indicative mapping of steep land

[f] A larger development setback may need to be considered to prevent damage to built structures in the event of tree or stag fall.

C2. Unless adequate pre-existing biodiversity offset arrangements have been made under a Council-endorsed strategic planning process (e.g. a master plan) or a State or Federal government approval, clearing of bushland or other habitat not red flagged under C1 will generally not be supported unless all of the following apply:

a) the area to be cleared is less than 5000m^2;

b) the clearing does not result in a significant decrease in habitat connectivity;

c) there are no other suitable locations on the site;

d) an ecological setback of at least 20m is maintained; and

e) adequate provision is made to compensate for any clearing in accordance with C28- C30.

ADVISORY NOTE:

Potential clearing in excess of C2a may be acceptable for some larger scale developments however this should be addressed at the strategic planning stages prior to the submission of individual development applications.

C3. In the case of pre-existing offsetting arrangements or other biodiversity management measures secured under a Council-endorsed strategic planning process (e.g. a master plan) or a State or Federal government approval such arrangements shall be:

a) implemented to the extent to which they are relevant to the development application under consideration; and

b) only varied because of specific impacts of the development, changed circumstances, or new information not previously considered.

C4. In the case of bushland or wetland vegetation on the coastal floodplain (as per Council's 1 in 100 year flood mapping – See http://www.tweed.nsw.gov.au/Mapping) consideration shall be given to increasing the ecological setbacks required under C1 to allow for future landward migration of native vegetation affected by climate change induced increases in tidal inundation and rises in the water table.

ADVISORY NOTE:

The application of C4 will need to be considered in the context of other potential uses of such land (e.g. site filling, open space, continuing agriculture etc.) within the relevant planning timeframe based on best practice modelling at the time.

C5. For development involving subdivision:

a) *a development envelope(s)* is to be formally defined for created lots greater than or equal to one hectare to ensure that future development of the subdivided lot(s) avoid any relevant *red flagged areas* and associated ecological setbacks

b) with the exception of individual *very large trees*, stags or hollow-bearing trees any proposed lot(s) with an area less than one hectare shall not include *red flagged areas*.

ADVISORY NOTES:

1. *C5 a) requires the development envelope to be formally defined at subdivision stage. This provides certainty to the proponent and any prospective purchaser. It also means Council should not need to reassess individual development applications for lots previously subdivided under this Section of the DCP.*

2. *A common mechanism to define a development envelope is through the use of a restrictive covenant under the Conveyancing Act 1919.*

3. *A development envelope does not need to be defined (for the purposes of this Section of the DCP) if there are no relevant red flags or ecological setbacks.*

4. *C5 b) prevents small lots from being created over red flagged areas. This avoids creating situations where biodiversity values cannot be maintained without placing onerous management obligations on small lot owners.*

C6. Minor variations to the *red flagged* areas identified in C1 may be considered to achieve practical outcomes. Some examples include:

- minor incursions into the *ecological setbacks;*
- *ecological setbacks* arising from adjoining land not in the same ownership;
- *ecological setbacks* that necessarily overlap with access roads or other linear infrastructure (e.g. a narrow access road that does not require clearing with bushland on both sides);
- isolated patches of *bushland* with an area less than 1000m^2;
- strips of *bushland* less than 10m wide;
- areas in *low condition* with an area less than 5000m^2;
- *bushland* dominated by exotic species;

- *Threatened* or *other significant fauna* that are considered vagrant, highly nomadic or are not closely associated with habitat on the site;
- Threatened or other significant flora that occur as seedlings or saplings outside of bushland habitat;
- *secondary (class B) koala habitat* without evidence of koala activity;
- areas subject to a controlled activity approval under the *Water Management Act 2000;*
- stags and raptor nests where it is possible and feasible to relocate them nearby (Note, this has only been proved sucessful for osprey).

C7. A minor variation referred to in C6 above must not:

a) trigger a *red flag* in another *biodiversity theme* unless it also represents a variation for that theme; or

b) conflict with any statutory consideration that would require the retention of the area.

C8. A development application seeking a variation referred to in C6 above must:

a) clearly identify the variation sought;

b) demonstrate that alternative layouts have been considered and that the impacts cannot reasonably be avoided;

c) show how the variation impact is consistent with the relevant planning principles and objectives of this Section of the DCP.

Protection of Retained Habitat

ADVISORY NOTES:

1. *C9 outlines the circumstances in which areas of retained habitat are to be provided with formal long term protection from further development. See definition of "protected habitat" in the dictionary for details of the ways in which this can be achieved.*

2. *The requirements for protection of retained habitat under C9 depend on the type and scale of the development with larger developments potentially incurring a greater burden of protection.*

3. *Protection of retained habitat does not necessarily imply ongoing management. Management controls are covered under C10.*

4. *As it is not possible to anticipate all relevant development scenarios, C11 provides for individual consideration of the protection and management requirements for complex or novel development proposals guided by the provisions of C9 and C10.*

5. *Applicants are advised that specific areas protected in perpetuity under C9 may be rezoned for environmental protection at some time in the future to reflect the preferred dominant land use.*

C9. The following areas that are within the same lot (or lots) to which the development application applies are to be protected in perpetuity as *protected habitat*:

Development Type and Scale		Protection Requirement
LEP Zoning	**Number of lots possible[1]**	
Subdivision in Residential, Tourist or Industrial Zones (e.g. R1, R2, R3, RU5, SP3, IN1, IN4 or equivalent)	>= 25	a) all relevant red flagged areas across the entire site and b) associated ecological setbacks within 100m of the development envelope(s) and c) ecological setbacks to important wetlands, estuarine areas, third order streams or greater across the entire site.
	6-24	a) all relevant red flagged areas[5] within 100m of the development envelope(s) and b) associated ecological setbacks within 100m of the development envelope(s) and c) important wetlands, estuarine areas, third order streams or greater and associated ecological setbacks across the entire site.
	<= 5	a) all relevant red flagged areas[5] within 100m of the development envelope(s) and b) associated ecological setbacks within 100m of any proposed development envelope(s).
Subdivision in Rural Residential Zones[2] (e.g. R5, or equivalent) for proposed lots >= 2ha		a) all relevant red flagged areas[5] on the proposed lots and b) associated ecological setbacks within 100m of any proposed development envelope(s) and c) ecological setbacks to third order streams or greater.
Subdivision in Rural Residential Zones (e.g. R5 or equivalent) for proposed lots[3] 1 - 2ha		All relevant red flagged areas[5] on the proposed lots
Subdivision in Rural or Environmental Zones (e.g. RU1, RU2, E2, E3 or equivalent)		Only if considered necessary to protect red flagged areas[5]
Subdivision in Business or other Zones (e.g. B1-B7, SP1, SP2, RE2 or equivalent)		To be determined on a case by case basis generally consistent with residential or industrial development of a similar impact and scale
Larger scale developments not involving subdivision[4]		a) all relevant red flagged areas[5] across the entire site within 200m of the development envelope(s) and b) associated ecological setbacks within 200m of the development envelope(s).

Cont. over

Development Type and Scale		Protection Requirement
LEP Zoning	Number of lots possible[1]	
Other Development		To be determined on a case by case basis consistent with C11. Only if considered necessary to protect *red flagged* areas (and contiguous *bushland*)

[1] Calculated as the total area of the lot (or lots in the same ownership) / minimum lot size possible

[2] A dwelling entitlement is required to ensure long term protection and management by the owner.

[3] Under C5 lots under 1.0 ha are not to contain *red flagged* areas.

[4] To be determined during assessment on a case by case basis but does not include dwellings and associated uses.

[5] including any contiguous bushland.

Management of Protected Habitat

ADVISORY NOTES:

1. *C10 outlines the circumstances in which areas of retained habitat are to be managed under a Habitat Management Plan.*

2. *The requirements for management of retained habitat under C10 depend on the type and scale of the development with management obligations being less onerous for small developments.*

3. *It is likely that in some cases (e.g. some urban subdivisions) proponents may seek to dedicate areas to be managed to Council. Under C16 this may be possible providing adequate arrangements are made to fund the implementation of the required Habitat Management Plan. See also Section A5 of this DCP (Subdivision Manual).*

4. *As it is not possible to anticipate all relevant development scenarios C11 provides for individual consideration of the protection and management requirements for complex or novel development proposals guided by the provisions of C9 and C10.*

C10. The following areas that are within the same lot (or lots) to which the development application applies are to be managed under an approved Habitat Management Plan (see C12) for the duration specified:

<table>
<tr><th colspan="2">Development Type and Scale</th><th colspan="2">Management Requirement</th></tr>
<tr><th>LEP Zoning</th><th>Number of lots possible[1]</th><th>Applies to:</th><th>Minimum duration:</th></tr>
<tr><td rowspan="3">Subdivision in Residential, Tourist or Industrial Zones (e.g. R1, R2, R3, RU5, SP3, IN1, IN4 or equivalent)</td><td>>= 25</td><td rowspan="3">Any areas protected under C9</td><td>In perpetuity</td></tr>
<tr><td>6-24</td><td>Establishment period plus 10 years maintenance</td></tr>
<tr><td><= 5</td><td>Establishment period plus 5 years maintenance</td></tr>
<tr><td colspan="2">Subdivision in Rural Residential Zones[2] (e.g. R5, or equivalent) for proposed lots >= 2 ha</td><td rowspan="2">Any areas protected under C9</td><td>In perpetuity</td></tr>
<tr><td colspan="2">Subdivision in Rural Residential Zones (e.g. R5 or equivalent) for proposed lots[3] 1 – 2 ha</td><td>To be determined on a case by case basis. Only required if considered necessary to manage sensitive and/or significant areas likely to be affected by development</td></tr>
<tr><td colspan="2">Subdivision in Rural or Environmental Zones (e.g. RU1, RU2, E2, E3 or equivalent)</td><td>Any areas protected under C9</td><td>To be determined on a case by case basis. Only required if considered necessary to manage sensitive and/or significant areas likely to be affected by development</td></tr>
<tr><td colspan="2">Subdivision in Business or other Zones (e.g. B1-B7, SP1, SP2, RE2 or equivalent)</td><td colspan="2">To be determined on a case by case basis generally consistent with residential or industrial development of a similar impact and scale</td></tr>
<tr><td colspan="2">Larger scale developments not involving subdivision[4]</td><td>Any areas protected under C9</td><td>In perpetuity</td></tr>
<tr><td colspan="2">Other Development</td><td colspan="2">To be determined on a case by case basis consistent with C11. Only required if considered necessary to manage sensitive and/or significant areas likely to be affected by development</td></tr>
<tr><td colspan="4">[1] Calculated as the total area of the lot (or lots in the same ownership) / minimum lot size possible
[2] A dwelling entitlement is required to ensure long term protection and management by the owner.
[3] Under C5 lots under 1.0 ha are not to contain red flagged areas.
[4] To be determined during assessment on a case by case basis but does not include dwellings and associated uses.</td></tr>
</table>

ADVISORY NOTES:

Although the developer will normally be responsible for preparing a Habitat Management Plan required under this DCP, the management plan must also be implemented, sometimes on an ongoing basis. There are numerous options (and combinations thereof) for resourcing this:

1. ***Management by the developer*** *– this option is most suitable for developments not involving subdivision and smaller scale urban developments with management obligations of limited duration. This option is also be appropriate for the initial stages of larger scale urban development. Although it is possible for a developer to retain ownership of lands subject to a Habitat Management Plan and undertake ongoing management for most developers this is not a preferred option.*

2. ***Management by future individual landholder(s)*** *– this option involves a covenant or other legal mechanism to ensure that future landholders accept management responsibility for the area on their land covered by an approved Habitat Management Plan. Such arrangements are most suitable for developments involving the subdivision or other development of rural, environmental and rural residential land. For land zoned for rural residential (R5) development this may mean that the minimum lot size for the zone is not achievable and the creation of one or more larger lots are necessary to ensure ongoing management of important habitat.*

3. ***Community title*** *– this option is most appropriate for urban and tourist developments with ongoing management obligations. It involves the use of strata fees to fund the habitat management obligations.*

4. ***Sinking fund*** *– this option involves the developer providing a pool of funds, perhaps derived from a surcharge on each block of land sold, which is invested to fund the management obligations. This option is most appropriate for large scale urban developments with ongoing management requirements. Although it is possible for a developer to retain ownership of lands subject to a Habitat Management Plan and undertake ongoing management using the fund, many developers prefer to dedicate the land to Council and make arrangements for it to manage the land using the sinking fund. Council would, of course need to agree to this. See C16 and Section A5 of this DCP (Subdivision Manual) for further details on dedications.*

5. ***Special Rate*** *- Another option for large scale urban developments with ongoing management requirements is the use of a special rate levied on future landholders. Such a mechanism requires approval by the Independent Pricing and Regulatory Tribunal (IPART) and the support of Council. In this case the relevant land would be dedicated to Council who would then take on the management obligations using the funds generated from the special rate.*

6. ***Biodiversity Stewardship Agreement*** *– This is a voluntary agreement under the Biodiversity Conservation Act 2016 that will provide for the permanent protection and management of biodiversity and allows for the creation of biodiversity credits.*

C11. In cases where the protection and/or management requirements under C9 and/or C10 do not precisely match the development under consideration, the protection or management requirements shall be determined on a case by case basis generally consistent with the nature and scale of development specified in under C9 and/or C10.

C12. The Habitat Management Plan referred to in C10 above, must be prepared in accordance with Council's Habitat Management Plan Guideline as updated from time to time (see http://www.tweed.nsw.gov.au/PlanningPolicies) and include measures that:

a) restore and enhance any retained *bushland* habitat;

b) ensure that any *ecological setback* is managed as an *ecological buffer* to improve the ecological integrity of the retained bushland or other habitat feature;

c) appropriately manage and control environmental weeds and pest animals as relevant to the site;

d) consistent with C20 and C21 below, include bushfire management actions in retained or revegetated habitat that are directed toward maximising *ecological values* of the retained areas;

e) in the case of any area(s) affected by wildlife corridors, improve habitat connectivity;

f) in the case of any area(s) affected by any *threatened flora, threatened fauna*, *other significant flora* or *other significant fauna*, address their ongoing management, relative to the impacts of the development and the requirements of any relevant *recovery plan*;

g) in the case of any area(s) affected by koala habitat, address the ongoing management of any koalas or their habitat relative to the impacts of the development considering any relevant provisions of the Tweed Coast Comprehensive Koala Plan of Management;

h) acknowledge any individual koala plan of management required under SEPP 44 - Koala Habitat Protection and integrate (or cross reference) any provisions that cover the same areas as the Habitat Management Plan;

i) in the case of waterways and riparian areas, ensure that: (i) the waterway itself and the associated *ecological setback* is managed as an *ecological buffer* to minimise erosion and sedimentation and/or is revegetated with *native vegetation* appropriate to the site, and (ii) where appropriate, livestock are excluded from accessing the waterway (except designated crossings);

j) in the case of any area(s) affected by a flying fox camp, address the ongoing management of flying foxes consistent with any relevant *recovery plan* or applicable flying fox plan of management and integrate (or cross reference) any provisions that cover the same areas as the Habitat Management Plan;

k) in the case of any other key habitat features ensure that the feature is preserved and the area is managed to encourage the continued use by fauna;

l) consider the likely impacts of climate change and implement contemporary best practice management to mitigate any adverse impacts on the viability of local flora or fauna populations, or the ecological integrity of their habitats including, where relevant and possible, allowing for the landward migration of coastal, or floodplain vegetation affected by climate change induced increases in tidal inundation or rises in the water table;

m) provide for the ongoing management of any biodiversity offset in accordance with C28 and/or C30 below;

n) consider and effectively minimise the ongoing threats from the development in accordance with Part C below or where otherwise identified as part of the development consent process;

o) where applicable, manage threats to ecological values from areas adjacent to the development site;

C13. Implementation of the Habitat Management Plan referred to in C10 and C12 above shall commence no later than the *physical commencement* of the development. In the case of staged development, implementation of the Habitat Management Plan shall clearly and proportionally reflect the staging of the development particularly in relation to the location and impacts of development.

C14. Where development consent is granted subject to final approval of a Habitat Management Plan, there shall be no *physical commencement* until the Habitat Management Plan has been approved by Council.

C15. Council shall not grant consent for development subject to final approval of a Habitat Management Plan unless it is satisfied that the draft Habitat Management Plan submitted with the development application is compliant with the provisions of C12.

C16. Council may consider accepting the dedication of lands requiring a Habitat Management Plan under C10 providing adequate arrangments are made to resource the required management actions (see also Section A5 of this DCP – Subdivision Manual).

Additional Controls - Koala Planning

C17. In relation to koalas and their habitat, the development control provisions (Part 5) of the Tweed Coast Comprehensive Koala Plan of Management apply to development on the Tweed Coast (see http://www.tweed.nsw.gov.au/PlanningPolicies).

ADVISORY NOTE:

The provisions of State Environmental Planning Policy No. 44 - Koala Habitat Protection will continue to apply until the Tweed Coast Comprehensive Koala Plan of Management until it is approved under the SEPP 44. Notwithstanding, it is expected that any development proposal consistent with the Tweed Coast Comprehensive Koala Plan of Management would be compliant with SEPP 44.

C18. For development outside of the Tweed Coast:

a) the provisions of State Environmental Planning Policy No. 44 - Koala Habitat Protection continue to apply, including the preparation and approval by the Department of Planning and Environment of an individual koala plan of management for land that contains core koala habitat and has an area, together with any adjoining land in the same ownership, greater than one hectare;

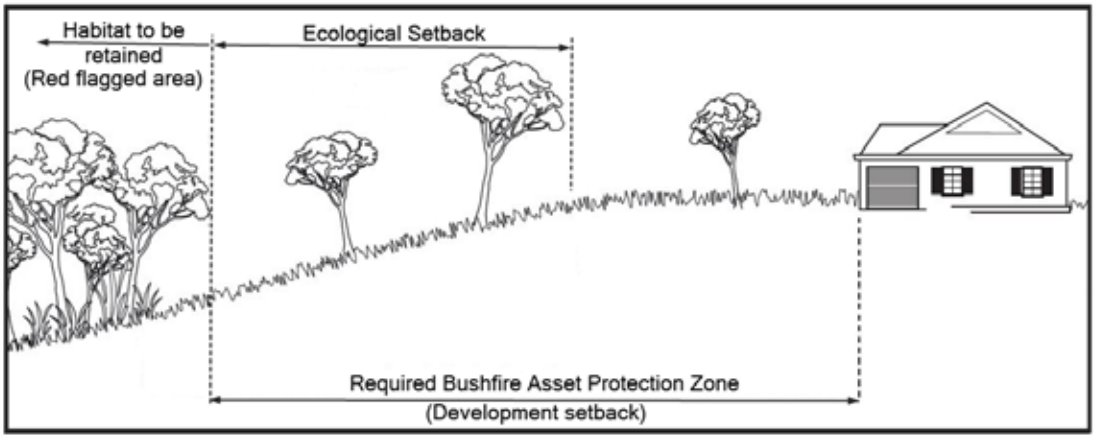
b) other provisions of this Section of the DCP, including those relating to habitat retention (e.g.C1), formal protection (e.g. C9) and management (e.g. C10, C12) apply to koalas and their habitat.

Additional Controls - Waterways and Riparian Areas

C19. In relation to development adjoining waterways and riparian areas Council may, where considered appropriate require bank stabilisation works, adequate arrangements for public access, measures to minimise pollution and sedimentation and/or measures to reduce the impacts of biting insects.

Development Setbacks

C20. *Development setbacks* required to manage potential bushfire risk shall not overlap with *red flagged areas* referred to in C1 or other retained bushland.

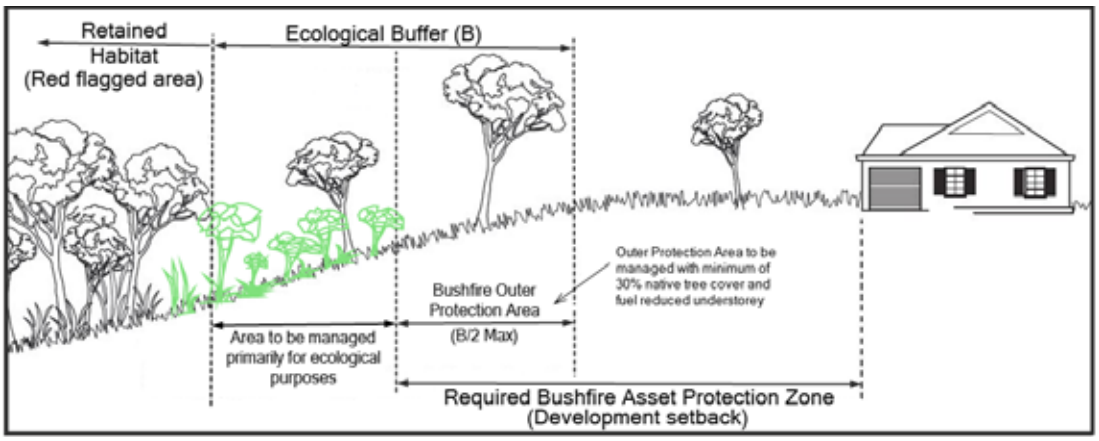


Typical scenario under C20 showing the *development setback* for the required bushfire asset protection zone (APZ) measured from the edge of the retained habitat. In almost all cases required APZ distance will exceed the ecological setback required under C1.

C21. A *development setback* required to manage potential bushfire risk may overlap with an *ecological setback* to be managed as an *ecological buffer* in a Habitat Management Plan where:

a) no more than the outer half of the *ecological buffer* is used for that purpose; and

b) the overlap is managed to maximise ecological values within the scope of the bushfire management requirements (i.e. maintaining a minimum of 30% native tree canopy cover and a fuel reduced understorey).



Typical scenario showing the *development setback* for a required bushfire asset protection zone (APZ) partially overlapping with an *ecological buffer* required under C10. The area of overlap is to be managed as an APZ Outer Protection Area consisting of approximately 30% native tree canopy cover with a fuel reduced understorey. The remainder of the ecological buffer is to be managed primarily for ecological purposes in accordance with the associated Habitat Management Plan.

C22. A clearing entitlement under the NSW Rural Fire Service 10/50 Vegetation Clearing Code of Practice for NSW (or similar subsequent provision) shall be regarded as a *development setback*.

C23. In relation to any flying fox camp, residential, commercial and educational buildings shall be located no less than 100m from the outer edge of the flying fox camp or the relevant *ecological buffer* where a Habitat Management Plan is required under C10. This area shall be maintained largely free of suitable flying fox roosting habitat.

Serious and Irreversible Impacts (SAII) under the *Biodiversity Conservation Act 2016*

C24. If the development application is required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under the Biodiversity Conservation Act 2016, the proponent, when conducting the impact assessment of potential SAII entities for serious and irreversible impacts on biodiversity values (as specified in the Biodiversity Assessment Method; BAM), shall also include an assessment of any threatened species or communities listed at http://www.tweed.nsw.gov.au/PlanningPolicies/TSC_SAII.pdf that would be impacted by the proposed development.

ADVISORY NOTES:

1. *The BAM (under the BDAR is prepared), requires an assessment of potential serious and irreversible impacts on threatened species or communities listed in the Office for Environment and Heritage guideline "Guideline to assist a decision-maker to determine a serious and irreversible impact".*
2. *As provided for in the BAM (see s10.2.1.5), C24 requires the assessment of additional threatened species or communities with the potential to experience serious and irreversible impacts.*
3. *Under s7.16. of the Biodiversity Conservation Act 2016, Council must refuse to grant consent to a development application if it is of the opinion that the proposed development will have a serious and irreversible impact on biodiversity values.*

Measures to Avoid or Minimise Impacts under the *Biodiversity Conservation Act 2016*

C25. For the purposes a development application affected by s7.13 of the *Biodiversity Conservation Act 2016*:

a) the measures that the consent authority requires to avoid or minimise the impacts of a proposed development on biodiversity values (see s7.13(6) of the BC Act) include (but are not limited to) all controls (except C28-C30 which relate to offsets and habitat compensation) relevant to the development application contained in this Section of the DCP; and

b) any avoid or minimise measures proposed in a Biodiversity Development Assessment Report (BDAR) that accompanies such an application shall be considered in the context of all matters relevant to the determination of the development application.

ADVISORY NOTES:

1. *Although the BAM (under which the BDAR is prepared) requires the proponent to consider and document the measures proposed to avoid and minimise impacts on biodiversity values, s7.13 of the BC Act also allows the consent authority to determine any further measures it may require to avoid or minimise biodiversity impacts.*

2. *C25 makes clear that both the BDAR and the provisions of this Section of the DCP are relevant to Council's determination of the development application.*

Other Acceptable Solutions

C26. Other acceptable solutions may be appropriate (including any variations relating to development controls contained in Part C) but the applicant needs to demonstrate that:

a) a clearly equivalent or superior long-term ecological outcome can be assured; and

b) the variation is consistent with all relevant planning principles and objectives of this Section of the DCP.

C27. It is strongly advised that any proposal that involves variations to the development controls in this Section of the DCP or offsetting are discussed through Council's pre-lodgement consultation process (see Part D).

Habitat Compensation and Biodiversity Offsets

C28. If the development application under consideration **is not** required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under the *Biodiversity Conservation Act 2016*, any *native vegetation, threatened* or *other significant fauna* habitat cleared, damaged, or degraded as a result of the development shall be offset or otherwise compensated for in accordance with contemporary best practice or adopted Council policy. Such areas are to be secured in perpetuity as *protected habitat* and managed under the Habitat Management Plan referred to in C12 above.

C29. Council may waive the requirement for offsetting under C28 where the proponent can demonstrate that they have voluntarily created equivalent habitat on the land (or adjoining land in the same ownership) which is the subject of the development application. Such areas are to be secured in perpetuity as protected habitat and managed under the Habitat Management Plan referred to in C12 above.

C30. If the development application under consideration **is** required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under the *Biodiversity Conservation Act 2016*, Council may consider seeking to reduce the number of biodiversity credits by up to 50% of the number that may otherwise be required to be retired (pursuant to s7.13(4) of the BC Act) where all of the following apply:

a) the offset is secured on the development site or within Tweed Shire;

b) the BDAR is accompanied by a biodiversity stewardship site assessment report in accordance with Stage 3 of the BAM;

c) at the proposed biodiversity stewardship site, the structural condition (as calculated using the BAM) of the tallest growth form is not more than the following proportions of the structural condition benchmarks for the relevant plant community type:

i. 20% for forests

ii. 30% for shrublands

iii. 50% for treeless wetlands.

ADVISORY NOTES:

1. *Applicants are strongly advised to discuss any proposals involving offsets with Council officers prior to lodgement of the development application.*

2. *Development proposals involving substantial biodiversity offsets delivered outside of the shire are unlikely to be consistent with the aims of Tweed LEP 2014. Proponents are encouraged to provide for offsets within the Tweed Shire and to design development so that offsets within the Tweed Shire can be achieved.*

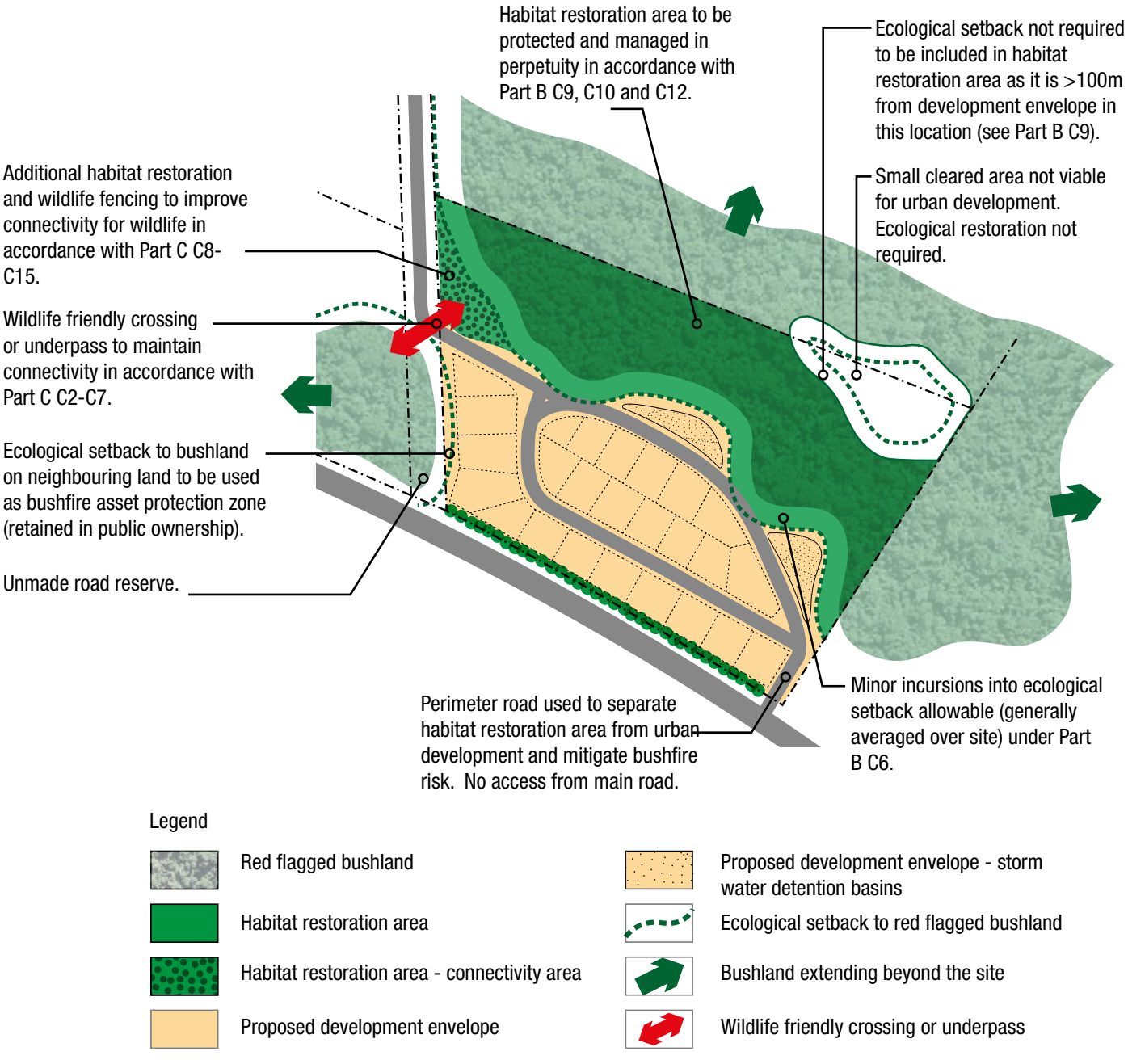
3. *Subject to assessment, proposed clearing under the BOS thresholds may be able to be offset locally in accordance with C28.*

4. *For proposed clearing over the BOS thresholds C30 seeks to encourage proponents to ensure that any required offsets are delivered locally by reducing the offset obligation. Note, this requires concurrence from the NSW Office of Environment and Heritage (OEH). The amount of any proposed reduction in the credits to be retired will depend on feedback from OEH and the extent to which the offset is likely to mitigate the biodiversity impacts on the development site and within the Shire.*

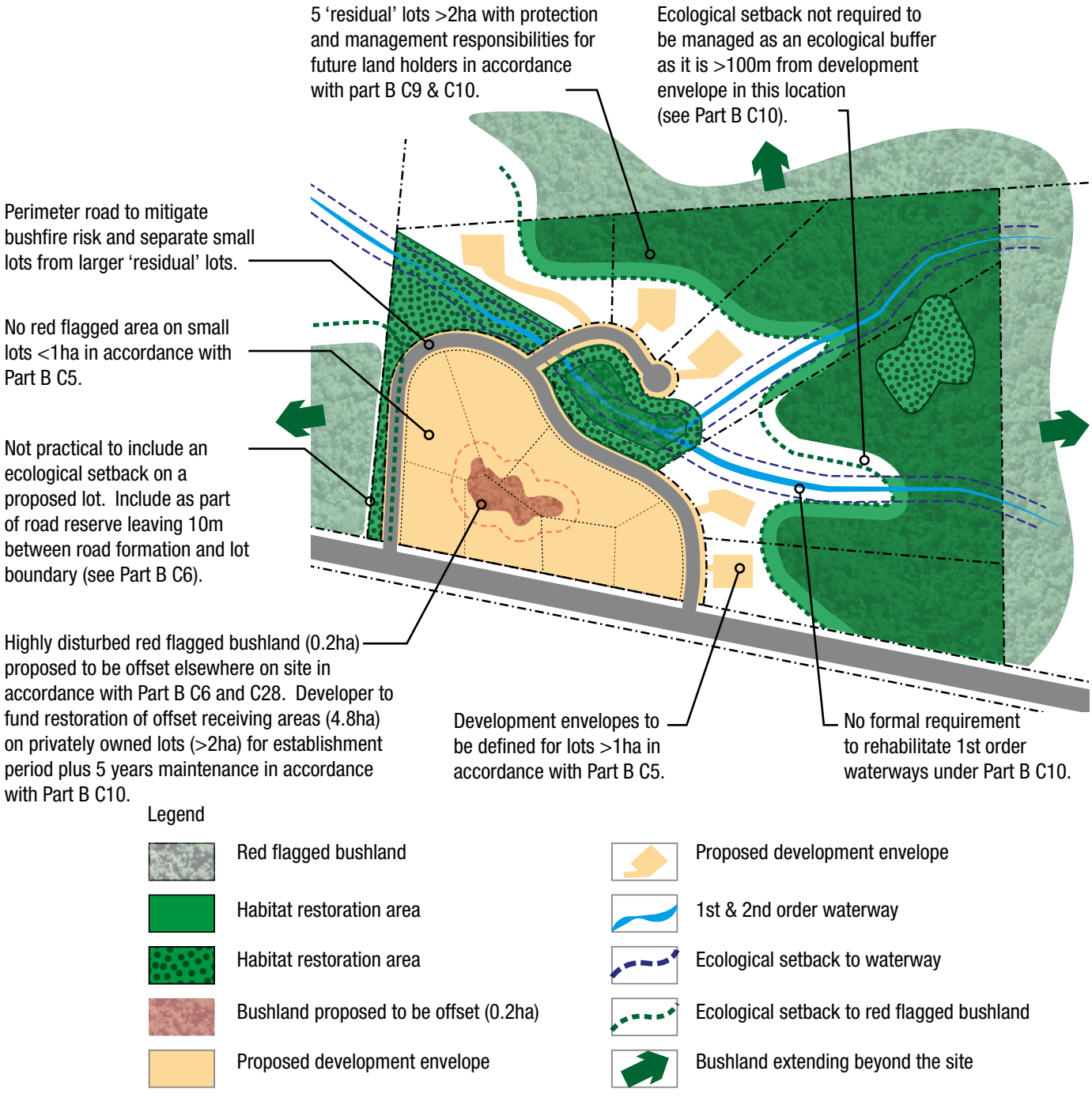
5. *The purpose of C30c is to ensure that the initial condition of the vegetation at the offset receiving site is sufficiently disturbed to effectively compensate for the proposed loss at the development site.*

3. Some examples of acceptable solutions

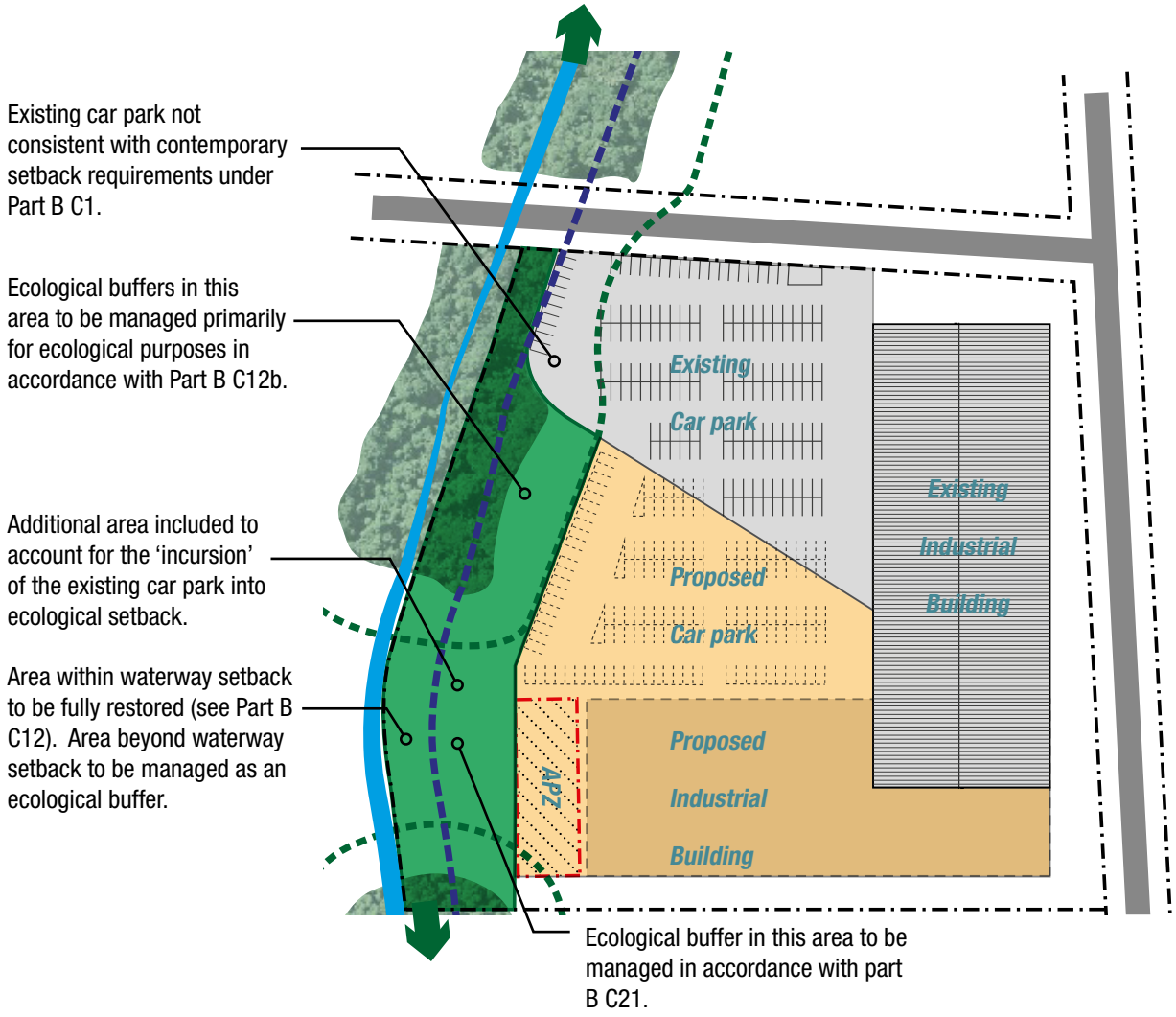
The following graphics show how the development controls above are intended to be used to define an acceptable *development envelope* for a range of development scenarios.



Scenario 1 - 25 lot urban subdivision development (R1 zone) containing and adjacent to ecologically significant bushland.



Scenario 2 - Rural residential development (R5 zone) on land containing 1st and 2nd order waterways and ecologically significant bushland.

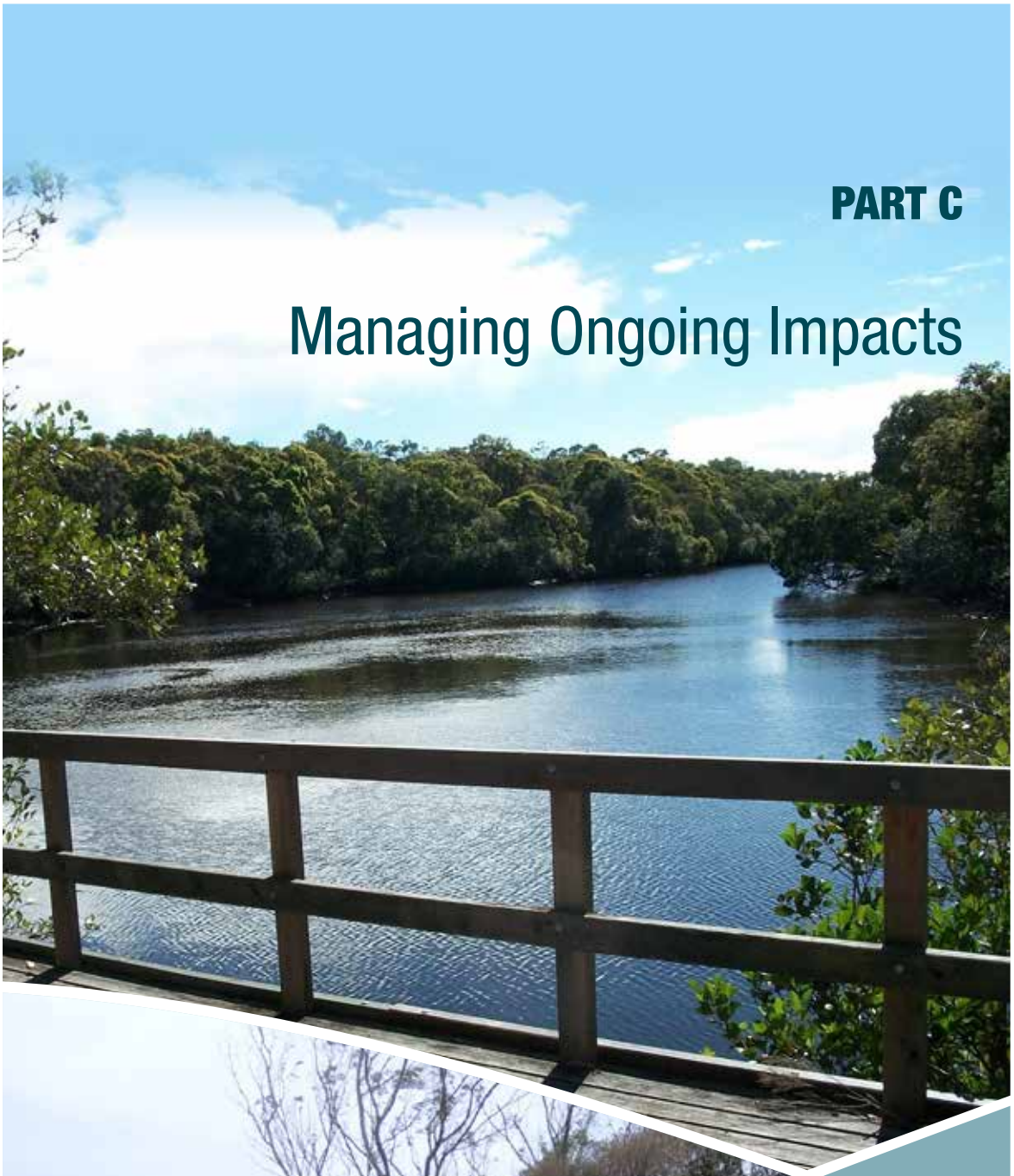


Legend

- Red flagged bushland
- Habitat restoration area*
- Existing development envelope
- Proposed addition to development envelope
- 3rd order waterway
- Ecological setback to waterway
- Ecological setback to red flagged bushland
- Bushland extending beyond the site

*Note: Restoration areas to be provided with long term protection and actively managed in accordance with Part B C9 & C10.

Scenario 3 - Expansion of an industrial development (IN1 zone) on a 1ha site with adjoining waterway and riparian vegetation.



PART C

Managing Ongoing Impacts

Apart from the *development envelope*, adverse impacts on biodiversity values often arise from poor subdivision design, inadequate provisions to manage construction impacts and ongoing pressures on the ecological integrity of the surrounding landscape once the development is completed.

The development controls in this Part are confined to a number of biodiversity-specific issues relating to roads, fencing, noise and lighting, feral animals, domestic animals and environmental weeds.

Additional development controls with the potential to affect biodiversity values are contained elsewhere in this DCP. In particular, proponents must comply with development controls relating to:

- Stormwater and water sensitive urban design
- Groundwater
- Landforming
- Bushfire management
- Soil and earthworks
- Erosion and sediment control
- Acid sulfate soils
- Subdivision layout and design
- Master plans
- Landscaping
- Construction impacts
- Open space and land dedication.

1. Roads

Research has confirmed that transport infrastructure and in particular roads have both direct and indirect impacts on fauna. Direct impacts such as road mortalities and habitat loss can be significant for fauna populations with low numbers or widely dispersed individuals. It has been estimated that road strike accounts for over 2.5 million animals each year in NSW alone. Roads can also have indirect impacts: by acting as barriers to fauna movement; through edge effects which alter the suitability and nature of adjoining habitat; by exacerbating threats from weeds disease, bushfire, feral animals and pollution; and by disturbance due to road noise, head lights and street lighting. However, in highly developed landscapes road reserves themselves are sometimes the only important areas of remaining habitat.

The decline of koalas on the Tweed Coast is a pertinent example of how roads not only affect individuals but the long term viability of entire populations. According to the NSW Scientific Committee, road strike is one of the major sources of koala population decline over the last few decades and the Pacific Motorway has effectively isolated the Tweed Coast koalas from populations to the west. Another frequent casualty of road strike is the endangered bush stone curlew which is a ground dwelling bird attracted to streetlights at night in search of insects.

Numerous mitigation measures are available to reduce the impacts of roads on biodiversity including: (1) locating new roads away from sensitive habitats; (2) providing overpasses (land bridges, canopy bridges), or underpasses (bridge structures, culverts) to reduce barrier effects; (3) measures to minimise road strike (e.g. speed limits, exclusion fencing, traffic calming, signage, non-insect attracting lighting, improving driver visibility); (4) active management of adjacent habitat to reduce edge effects (e.g. management of weeds, feral animals and bushfire); and (5) compensating for habitat loss and residual impacts.

The Queensland Department of Transport and Main Roads have produced comprehensive guidelines on fauna sensitive road design which are available at: http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Fauna-sensitive-road-design-volume-1.aspx.

Objectives

01. Avoid locating new roads in environmentally sensitive areas.
02. Ensure that any residual impacts of roads on wildlife arising from development are appropriately mitigated using best practice fauna sensitive road design.
03. Ensure that appropriate mitigation strategies (including fauna sensitive road design elements) are employed to minimise environmental impacts during road construction and upgrading.
04. Ensure that roads (including roadsides) are maintained to minimise impacts on wildlife.

Perimeter roads at Koala Beach help separate sensitive bushland from urban development and at the same time reducing the risk to properties from bushfire.

2. Fencing and Barriers

While fauna exclusion fencing can be an important tool to keep native fauna from dangerous situations such as busy roads, inappropriate fencing can inadvertently restrict fauna movement increasing the risk to native animals and in some cases cause direct mortality through entanglement.

Entanglement is mostly an issue in rural areas (including rural residential areas) where there is extensive use of barbed wire. More than 75 species of native animal are occasional or regular victims of entanglement in barbed wire fences. Nocturnal animals such as gliders, owls and bats are especially prone, as are wetland birds where barbed wire fencing is located too close to wetland habitat.

For urban development fencing also needs to be properly considered to ensure that species which move across

the ground such as koalas, wallabies, bandicoots, echidnas, other small mammals, reptiles and even frogs are not prevented from moving between suitable habitat or directed into hazardous areas such as urban areas or busy roads.

Fencing and barriers are also useful structures to limit or control human access into environmentally sensitive areas.

See http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Fauna-sensitive-road-design-volume-1.aspx. for examples of wildlife friendly fencing solutions.

Objectives

O1. Ensure the use of fauna friendly fencing in situations where wildlife are likely to move between areas of suitable habitat.

O2. Require fauna exclusion fencing (or other measures) to prevent wildlife from entering areas likely to represent a significant mortality risk.

O3. Ensure that fencing or other structures do not restrict movement in the landscape or inadvertently direct native animals into dangerous situations.

O4. Ensure that, where appropriate, fencing, barriers or other measures are used to limit or control access by humans to environmentally sensitive areas.

Wildlife exclusion fencing along Tweed Coast Road helps prevent wildlife such as koalas, wallabies and bandicoots from accessing busy roads where they are vulnerable to motor vehicle road strike.

3. Noise and Lighting

Noise arising from development has the potential to alter wildlife behaviour. Animals rely on meaningful sounds for communication, navigation, avoiding danger and finding food. Excessive noise can affect the health of individual animals and have implications for species reproduction, survivorship and habitat use with many species avoiding noisy areas. Music festivals, quarries and busy roads are examples of development that can generate noise that may impact wildlife.

Artificial lighting is also known to affect wildlife behaviour. Some examples of disturbance due to lighting include; delaying or preventing normal nocturnal activities, disorientating migrating birds, deterring marine turtles from nesting, and attracting insect eating species to light sources where they may be at risk to road strike or predation. The bush stone curlew is a locally occurring endangered species that is attracted to street lighting where they sometimes fall prey to foxes or are hit by motorists. The impacts on native animals from lighting can be minimised by avoiding unnecessary lighting in sensitive areas, controlling light spill and using non-insect attracting street lighting in environmentally sensitive areas.

Objectives

01. Avoid locating excessively noisy developments adjacent to environmentally sensitive areas.
02. Ensure that any residual noise impacts on wildlife arising from development are appropriately mitigated.
03. Mitigate the impacts of artificial lighting on native fauna where there is a significant risk of mortality.

The bush stone curlew is a locally occurring endangered species that is attracted to street lighting where they sometimes fall prey to foxes or are hit by motorists.

4. Pest Animals

Australia's native plants and animals adapted to life on an isolated continent over millions of years. Since European settlement they have had to compete with a range of introduced animals for which they have no evolutionary experience. Pest animals impact on native species by predation, competition for food and shelter, destroying habitat, and by spreading diseases.

The impacts of many pest animals including rabbits, goats, dogs, cats, foxes, pigs, cane toads, honey bees and mosquito fish are scheduled as key *threatening processes* under the NSW State and Commonwealth threatened species legislation. Other species such as the indian myna (a bird) and tilapia (a fish) are not formally recognised but are known to aggressively compete with native species.

Pest animals can also have significant impacts on human settlements. For example, feral dogs can be aggressive towards people and rabbits are capable of undermining infrastructure including building foundations.

While there are a wide range of methods available to manage and/or control invasive animal numbers, new development should avoid the creation of conditions conducive to colonisation by pest animals.

Indian Myna, first recorded in Tweed Shire in 2002 is a threat to native species such as lorikeets and rosellas, kookaburras and sugar gliders that nest in tree hollows

Cane toads breed prolifically, prey on and compete with native species, have no natural predators and are poisonous at all stages in their life cycle.

Objectives

O1. Ensure that developments do not create conditions conducive to colonisation and proliferation of pest animals.

O2. Ensure that, where necessary, exotic pest animals are appropriately managed during the operation of the development.

O3. Prohibit the keeping of pest animals in new subdivisions.

5. Domestic Animals

Like their feral counterparts, domestic animals such as cats, dogs and rabbits can have significant impacts on native wildlife especially where allowed to roam freely. One study found the 75% of Canberra's domestic cats hunt, killing about 480,000 native animals each year including around a quarter of all native birds in that city. Unfortunately many owners are unaware of their cats hunting behaviour or the fact that these animals may roam 1- 2 km into nearby bushland to do so.

While domestic dogs are easier to contain than cats, admissions to wildlife care facilities suggest that domestic dogs continue to be a major source of wildlife mortality particularly in urban areas. Wildlife carers report that even bites from small dogs commonly result in death due to infection. Domestic dogs also disturb wildlife by chasing animals, barking, flushing animals from the undergrowth and disturbing sensitive areas such as ground nests and shorebird roost sites. They are also known to dig up marine turtle nests. Domestic dogs are a significant threat to Threatened species such koalas and ground nesting birds such as the beach stone curlew, bush stone curlew, little tern, pied and sooty oystercatchers and marine turtles.

Objectives

01. Ensure that, where permitted, domestic animals are appropriately contained.
02. Limit the keeping of domestic animals in situations where there is a high risk of impacts on threatened species.

Roaming domestic cat caught on camera at night with native mammal (sugar glider) prey near Pottsville. Credit: Pamela Gray

6. Environmental Weeds

Environmental weeds are plants that represent a threat to the conservation values of natural ecosystems. They invade and degrade native plant communities and often result in a loss of habitat for native animals. Many environmental weeds are also very effective at colonising cleared or disturbed areas, effectively preventing the regeneration of native plant communities. Environmental weeds are a major threat to biodiversity on the NSW North Coast.

The impacts of environmental weeds including exotic vines and scramblers, lantana, bitou bush and boneseed, and escaped garden plants are recognised under the NSW State and/or the Commonwealth threatened species legislation as *key threatening process*.

As a large number of environmental weeds originate from domestic gardens, new developments need to be designed to minimise their impacts, especially where adjoining sensitive natural habitats.

See http://www.tweed.nsw.gov.au/Biodiversity for a list of environmental weeds known in Tweed Shire.

Objectives

O1. Ensure that developments do not create conditions conducive to colonisation and spread of environmental weeds.

O2. Ensure that, where necessary, environmental weeds are appropriately managed during the operation of the development.

Camphor laurel shown in bright green is a native tree from China which now covers thousands of hectares in the Tweed Shire. It invades native vegetation communities and inhibits natural regeneration of endangered rainforest and other communities. Photo credit: Mark Kingston

Lantana is one of numerous introduced scramblers and vines that invade native vegetation communities effectively limiting natural regeneration. Photo credit: Michael Corke

7. Development Controls

Roads

C1. Roads and associated civil infrastructure are considered part of the *development envelope* and their location shall be consistent with the provisions of sub-Section Part B above.

C2. In cases where Council considers that ongoing wildlife impacts are likely to arise from new or upgraded roads the proponent may be requested to carry out additional fauna surveys to determine the likely impacts on biodiversity and explore fauna friendly road design options such as speed limits, traffic calming, signage, exclusion fencing and fauna crossing structures (underpasses, overpasses etc.).

C3. Where ongoing wildlife impacts are likely, the road design is to incorporate best practice fauna sensitive design features to facilitate safe unimpeded wildlife movement and minimise any other ongoing impacts on biodiversity values, paying particular attention to the requirements of any *threatened fauna* or *other significant fauna*.

C4. Appropriate environmental safeguards are to be employed to minimise biodiversity impacts during road construction and upgrading.

C5. Measures are to be in place to ensure that any fauna sensitive road design features referred to in C3 above are monitored and maintained to minimise impacts on wildlife.

C6. Fauna friendly road design structures shall be maintained by the proponent for a minimum period of five years after road dedication unless otherwise agreed by Council.

C7. Where a Habitat Management Plan is required under Part B C10 above, any measures or related conditions of consent to mitigate road impacts on biodiversity shall be incorporated into the Habitat Management Plan and implemented accordingly.

Fencing

C8. In situations where wildlife are likely to move between areas of suitable habitat (e.g. rural residential development), fencing must be designed to permit the free movement of native fauna (unless designed to specifically exclude such movement such as along roads).

C9. The development design shall consider the potential impacts on biodiversity, paying particular attention to *threatened fauna* or *other significant fauna* to ensure that fencing or other structures do not inadvertently direct native animals into dangerous situations.

C10. Fauna exclusion fencing (or other measures) shall be used where there is a significant fauna mortality risk arising from crossing from one area of suitable habitat to another (e.g. busy roads) or entering built up areas (e.g. urban development with dogs). Such measures shall be designed to minimise any other ongoing impacts on biodiversity values, paying particular attention to the requirements of any *threatened fauna* or *other significant fauna*.

C11. Any fauna exclusion fencing or other measures (including temporary structures to perform the same task) shall be constructed and operational prior to *physical commencement*.

C12. Fencing design shall include suitable clearances to maintain functionality and allow for access for replacement and routine maintenance.

C13. All exclusion fencing, fauna friendly fencing or other structures designed to protect fauna shall be monitored and maintained to minimise impacts on wildlife.

C14. Where appropriate, fencing, barriers or other measures shall be used to limit or control human access (e.g. motor vehicles) to environmentally sensitive areas.

C15. Where a Habitat Management Plan is required under Part B C10 above, any wildlife fencing measures or related conditions of consent shall be incorporated into the Habitat Management Plan and implemented accordingly.

Noise and Lighting

C16. In cases where Council considers that wildlife impacts are likely to arise from noise, the proponent may be requested to carry out additional fauna surveys to determine the likely impacts on biodiversity, paying particular attention to *threatened fauna* or *other significant fauna*, and explore appropriate mitigation measures including, but not limited to, suitable buffers to environmentally sensitive areas, traffic speed restrictions, timing of noisy activities and/or installing appropriate noise barriers.

C17. Council shall not approve development where the impacts of noise on biodiversity values cannot be adequately mitigated.

C18. Where the *development envelope* contains or adjoins known bush stone curlew habitat or microbat colonies, street lighting must be of a type that does not attract insects.

C19. Sports field lighting (or similar high intensity outdoor lighting) shall be designed to avoid light spill into adjoining natural areas.

C20. Development adjacent to beaches must prevent lighting arising from the development spilling onto beaches to avoid potential impacts on shorebird and turtle behaviour (e.g. nesting).

C21. Where a Habitat Management Plan is required under Part B C10 above, any measures or related conditions of consent to mitigate noise and lighting impacts shall be incorporated into the Habitat Management Plan and implemented accordingly.

Domestic Animals

C22. Council may prohibit the keeping of domestic animals where there is unacceptable residual risk (i.e. a risk that cannot be mitigated by other measures such as exclusion fencing) arising from the development to *threatened or other significant species*. In such cases, Council will require:

a) a restrictive covenant under Part 6 (Division 4) of the Conveyancing Act 1919 to ensure that the domestic animal(s) in question (e.g. dogs) are not kept or brought onto the allotment; and

b) conditions of consent to prohibit domestic animals entering the site during construction.

C23. The application of condition C22 does not apply to:

a) "assistance animals" as defined under the *Disability Discrimination Act 1992* or

b) a "working dog" as defined under the *Companion Animals Act 1998*, in the case of non-urban zoned land.

C24. Where permitted, all domestic animals are to be contained within the landholders property and prevented from roaming in natural areas.

C25. For larger scale developments involving subdivision, where domestic dogs are permitted, adequate provision should be made for exercising them off leash. Such areas shall be designed to prevent dogs from accessing natural areas.

C26. Where natural areas are to be dedicated to Council and they meet the criteria identified in Council's Wildlife Protection Area Policy, such areas shall be declared Wildlife Protection Areas for the purposes of the *Companion Animals Act 1998*.

C27. Where a Habitat Management Plan is required under Part B C10 above, any measures or related conditions of consent to manage domestic animals shall be incorporated into the Habitat Management Plan and implemented accordingly.

Pest Animals

C28. Developments must be designed to minimise the likelihood of pest animal establishment/ proliferation and, where relevant, include measures to control pest animals.

C29. Standing water bodies and constructed wetlands shall be designed to minimise their suitability for cane toads and other aquatic pest species (e.g. *Gambusia spp.*). Such areas shall be regularly monitored and managed to contain and adequately control pest animal populations.

C30. Where a Habitat Management Plan is required under Part B C10 above, any additional measures or related conditions of consent to manage pest animals within the *development envelope* shall be incorporated into the Habitat Management Plan and implemented accordingly.

C31. For developments involving subdivision a restrictive covenant under Part 6 (Division 4) of the *Conveyancing Act 1919* shall be applied to prohibit the keeping of *declared pest animals* (foxes, rabbits etc) and/or other pest animals considered to pose a significant risk to biodiversity relevant to the site.

Environmental Weeds

C32. Developments must be designed to minimise the likelihood of environmental weed establishment and, where relevant, include measures to control environmental weeds.

C33. Landscaping treatments for proposed public land shall be consistent with the following until such time as Tweed Shire Council Development Design Specification D14: Landscaping Public Open Space is comprehensively reviewed:

a) a minimum of 80% locally occurring Australian native species and maximum of 25% non-locally occurring Australian native species to apply to all trees

b) a minimum of 20% locally occurring native species and maximum of 25% Australian native or exotic species to apply to other plants (shrubs, ground cover and similar)

c) where practical locally occurring native plants should exceed these amounts

d) preferred turf species is *Cynadon dactylon* (Green Couch) with justification if an alternative species is proposed

e) industry bred plants (cultivar or variety) are acceptable

f) no noxious or environmental weeds are to be used.

C34. For larger scale urban developments involving subdivision or civil works involving private land adjacent to natural areas Council may:

a) require a suitable plant list to be developed and provided to all landholders at sale as a basis for landscaping; and/or

b) apply landscaping controls to avoid the proliferation of environmental weeds relevant to the site.

35. Where a Habitat Management Plan is required under Part B C10 above, any additional measures or related conditions of consent to manage environmental weeds within the *development envelope* shall be incorporated into the Habitat Management Plan and implemented accordingly.

PART D

Preparing the Development Application

1. Statutory Considerations

In determining an application for development consent which involves impacts on biodiversity and biodiversity values, the consent authority must have regard to various statutory provisions and statutory instruments. Common examples include:

- Environmental impacts on the natural environment under Section 4.15 (previously s79C) of the *Environmental Planning and Assessment Act 1979*
- Development affecting koala habitat under SEPP 44 – Koala Habitat Protection
- Development affecting coastal wetlands and littoral rainforest mapped under the Coastal Management SEPP (previously SEPP 14 and SEPP 26)
- Development that is "likely to significantly affect threatened species" as set out in the NSW *Biodiversity Conservation Act 2016*. (Note, this includes development that exceeds the BOS threshold under the BC Act)
- Potential impacts under other threatened species legislation such as the NSW Fisheries Management Act 1994 and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
- Specific Council LEP Clauses including the overall aims of the LEP
- Clearing or other works within 40m of a designated stream under the *Water Management Act 2000.*

Proposed developments should also be consistent with any relevant strategies plans or policies prepared and adopted by State, Commonwealth or Local authorities. Some examples of particular relevance include:

- Far North Coast Regional Conservation Plan 2010 (http://www.environment.nsw.gov.au/biodiversity/regconsplans.htm)
- State and Federal Threatened Species Recovery Plans
- Tweed Coast Koala Plan of Management 2015 (http://www.tweed.nsw.gov.au/Koalas)
- Tweed Shire Coastal Management Programs (previously Coastal Zone Management Plans).

ADVISORY NOTE:

As this Section of the DCP takes into account these statutes and strategies, it is expected that in general, developments consistent with this Section of the DCP should also be consistent with the relevant Acts and strategies. However, this does not (and cannot) remove the requirement for the relevant statutory assessments to be included in the development application.

2. Approvals required by other Agencies

In some cases, additional approvals may be required from other agencies before a development can proceed. Some examples include:

- Dredging and reclamation work in water (Department of Primary Industries - Fisheries),
- Development in a bushfire prone areas (Rural Fire Service)
- Works within 40m of the bed or banks of a waterway (Department of Primary Industries – Office of Water

3. Pre-lodgement Consultation

Consultation with Council officers on the application of the DCP is encouraged.

Where the applicant requires written advice or where complex issues arise (such as Threatened fauna) applicants are encouraged to discuss the proposal with Council's Development Assessment Panel (see http://www.tweed.nsw.gov.au/GetAdvice for further details).

Prior to attending a pre-lodgement meeting the applicant should have considered the controls specified in this Section of the DCP and assembled sufficient information to permit a preliminary biodiversity constraints assessment. This will facilitate discussion on ways to maintain or improve biodiversity outcomes, including alternative designs if necessary.

Pre-lodgement consultation is strongly encouraged for proposals that:

- intend to seek a variation to the development controls under C6 or C26 in Part B ; or
- involve biodiversity offsets or habitat compensation under Part B C28 - C30.

4. Variations to Development Controls

Development controls C6 - C8 and C26 under Part B allow for variations to the controls outlined in this Section subject to certain conditions. Proposed variations should be discussed with Council staff and must be properly documented in the development application.

5. Development Application Submission Requirements

Once all relevant issues relating to the location and size of the proposed *development envelope*, the design the proposed development itself and the possible impact of any additional statutory issues have been considered, the following information is required to support the development application. This information is additional to the general information requirements outlined in other Sections of this DCP.

5.1 Objective

O1. Ensure that development proposals are supported by sufficient information to demonstrate impacts on biodiversity and biodiversity values and allow the consent authority to determine the application.

5.2 Controls

ADVISORY NOTES:

1. *The submission requirements detailed below reflect the biodiversity assessment pathways identified in Part A Figure 1 within this Section of the DCP.*
2. *For proposals assessed under the EP&A Act only (i.e. BOS does not apply; see Pathway 1 in Part A Fig1 & Fig 2) a scaled assessment approach has been adopted whereby relatively straightforward low risk development proposals require only minimal assessment whereas more complex proposals, especially those with likely impacts on threatened species are required to provide a higher level of justification.*

C1. For development proposals required to be assessed under the *Environmental Planning and Assessment Act 1979* only (i.e. BOS does not apply; see Pathway 1 in Part A Fig1 & Fig 2), the following submission requirements apply:

Requirement	Scope and Content
Minor Ecological Assessment:	
Development where: 1. the proposed *development envelope* does not overlap with red flagged areas or associated ecological setbacks in Part B C1; and 2. a Habitat Management Plan is not required under Part B C10 or C11.	1. Site plan and aerial photo showing the extent of any ***red flagged areas*** and ***ecological setbacks*** as defined in Part B C1 in relation to the proposed development envelope. 2. A signed statement from a qualified ecologist stating that the *proposed development envelope* does not impinge on red flagged areas or *ecological setbacks* in Part B C1 or require a Habitat Management Plan under Part B C10 or C11. Note, this will normally require a site visit to ensure that threatened other significant flora or fauna habitat are not present within the proposed *development envelope*. 3. A signed statement from a qualified ecologist stating that the Biodiversity Offset Scheme (BOS; see Part A, Table 1) does not apply to the proposed development including: a) information to support the conclusion that the proposal does not exceed the BOS threshold; and b) a response to the five part test of significance set out under s7.3(1) of the BC Act. Note, this will normally require a site visit to ensure that no threatened flora or fauna habitat are present within the proposed d*evelopment envelope*. 4. Details of any site visits or ecological surveys, (including historical surveys) conducted on the site.
Baseline Ecological Assessment:	
Development where: 1. the proposed *development envelope* overlaps with *red flagged areas* or associated ecological setbacks in Part B C1; or 2. a Habitat Management Plan is required under Part B C10 or C11.	1. A signed statement from a qualified ecologist stating that the Biodiversity Offset Scheme (BOS; see Part A, Table 1) does not apply to the proposed development including: a) information to support the conclusion that the proposal does not exceed the BOS threshold; and b) a response to the five part test of significance set out under cl 7.3(1) of the BC Act. 2. A Baseline Ecological Assessment prepared in accordance with the Baseline Ecological Assessment Guideline as updated from time to time (http:// www.tweed.nsw.gov.au/PlanningPolicies).

Cont. over

Requirement	Scope and Content
Draft Habitat Management Plan:	
if required under Part B C10 or C11.	1. In accordance with Council's Habitat Management Plan Guidelines as updated from time to time (http://www.tweed.nsw.gov.au/PlanningPolicies); and 2. In accordance with other relevant development controls (e.g. Part B C12, C26). Note, additional considerations may also arise from specific conditions of consent.
Response to Statutory Considerations:	
All proposals as relevant	As required
Response to Development Controls:	
All proposals	Checklist and explanatory notes to establish how the proposal is consistent with each development control within this Section.
Record of Pre-lodgement Consultation:	
In accordance with Section 3 of this Part	Summary and record of Pre-lodgement consultation minutes where relevant
Variations to Development Controls:	
In accordance with Section 4 of this Part	1. Details of any proposed variation to the development controls see controls referred to under Section 4 of this Part. 2. Response to establish consistency with the Biodiversity Planning Principles under Part A 3. Response to establish consistency with relevant specific objectives under Part B and/or Part C of this Section of the DCP.

C2. For development proposals required to be assessed under the Environmental Planning and Assessment Act 1979 and the Biodiversity Conservation Act 2016 (i.e. BOS applies; see Pathway 2 in Part A Fig1 & Fig 3), the following submission requirements apply:

Requirement	Scope and Content
Biodiversity and Development Assessment Report (BDAR):	
All proposals where the BOS applies (see Pathway 2 in Part A Fig1 & Fig 3)	1. BDAR to be prepared in accordance with the Biodiversity Assessment Method (under the BC Act 2016) as updated from time to time (http://www.environment.nsw.gov.au/biodiversity/assessmentmethod.htm). 2. Consistent with the BAM (see section 10.2.1.5) the BDAR shall include an assessment of additional candidate entities of serious and irreversible impacts as detailed in Part B C24 within this Section of the DCP.
Draft Habitat Management Plan:	
if required under Part B C10 or C11.	1. In accordance with Council's Habitat Management Plan Guidelines as updated from time to time (http://www.tweed.nsw.gov.au/ PlanningPolicies); and 2. In accordance with other relevant development controls (e.g. Part B C12, C26). Note, additional considerations may also arise from specific conditions of consent.
Response to Statutory Considerations:	
All proposals	As required
Record of Pre-lodgement Consultation:	
In accordance with Section 3 of this Part	Summary and record of Pre-lodgement consultation minutes where relevant
Variations to Development Controls:	
In accordance with Section 4 of this Part	1. Details of any proposed variation to the development controls (see controls referred to under Section 4 of this Part). 2. Response to establish consistency with the Biodiversity Planning Principles under Part A 3. Response to establish consistency with relevant specific objectives under Part B and/or Part C of this Section of the DCP.

6. References to Technical Information

Note, at the time of adoption of this Section of the DCP not all of the technical information referred to below was available. Contact Council for details.

Plans and Policies

See: http://www.tweed.nsw.gov.au/PlanningPolicies

- Tweed Coast Comprehensive Koala Plan of Management 2015
- Tweed Vegetation Management Strategy 2004
- Local Environmental Plans

Guidelines

See - http://www.tweed.nsw.gov.au/PlanningPolicies

- Habitat Management Plan Guideline
- Baseline Ecological Assessment Guideline
- Candidate entities for potential serious and irreversible impacts on biodiversity values in Tweed Shire

Fauna Sensitive Road Design Guidelines, http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Fauna-sensitive-road-design-volume-1.aspx.

Indicative Mapping

See - http://www.tweed.nsw.gov.au/Mapping

- Bushland and Wetlands
- Riparian Areas and Waterways
- Steep Land (>18 deg)
- Flying-fox Camps
- Koala Habitat
- Osprey Nests
- Regional Fauna Corridors

Other Supporting Information

See - http://www.tweed.nsw.gov.au/Biodiversity

- Vegetation communities and associated ecological attributes
- Threatened Fauna Habitat Database
- Environmental Weeds of Tweed Shire
- Threatened and other significant fauna of the Tweed Shire
- Threatened and other significant flora of the Tweed Shire

PART E

Dictionary Applying to this Section

APZ: Bushfire Asset Protection Zone established under the *Rural Fires Act 1997*

BC Act: refers to the *Biodiversity Conservation Act 2016*

BC Regs: refers to the *Biodiversity Conservation Regulation 2017.*

BAM: Biodiversity Assessment Method established under the *Biodiversity Conservation Act 2016.*

BDAR: Biodiversity Development Assessment Report prepared in accordance with the *Biodiversity Conservation Act 2016.*

BOS: Biodiversity Offsets Scheme established under the *Biodiversity Conservation Act 2016.*

Biodiversity element: an individual indicator of biodiversity.

Biodiversity offset: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. See also *mitigation hierarchy*.

Biodiversity theme: a sub-group of overall biodiversity consisting of one or more biodiversity elements. In this section of the DCP biodiversity themes include the groupings under Part B section1 bushlands and wetlands, wildlife corridors, threatened and significant species, koala habitat etc.

Biodiversity values: as defined in s1.5 of the *Biodiversity Conservation Act 2016* viz:

> (a) vegetation integrity—being the degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state,
>
> (b) habitat suitability—being the degree to which the habitat needs of threatened species are present at a particular site,
>
> (c) biodiversity values, or biodiversity-related values, prescribed by the regulations.

Bushland: areas of vegetation dominated by woody native vegetation (e.g. forests, woodlands, shrublands, heathland etc.), native wetland vegetation or naturalised exotic tree species (e.g. camphor laurel). Bushland does not include overgrown gardens, orchards, tree plantations (native or otherwise) or native grasslands. A map showing the indicative distribution of bushland (including wetlands) in the Shire can be viewed at: http://www.tweed.nsw.gov.au/Mapping.

Core koala habitat: is defined under SEPP 44 as an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population. For the purposes of this DCP, *core koala habitat* can be assumed to include *preferred koala habitat* where there is contemporary evidence of koala activity or records within the last three koala generations (18 years).

Critically endangered ecological community: ecological communities that face an extremely high risk of extinction in the near future as listed under NSW State and/or Commonwealth threatened species legislation. See "Vegetation communities and ecological attributes" spreadsheet at http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities that are likely to qualify as *critically endangered ecological communities.*

Critically endangered species: species that face an extremely high risk of extinction in the near future as listed under NSW State and/or Commonwealth threatened species legislation. Lists of threatened and other significant species known to occur in the Tweed Shire can be found at http://www.tweed.nsw.gov.au/Biodiversity.

DA: Development application under Part 4 of the *Environmental Planning and Assessment Act 1979*.

Declared pest animal: an animal declared by a pest control order under the *NSW Local Land Services Act* 2013 or similar subsequent NSW state legislation.

Defined wildlife corridor: an area of land mapped or otherwise designated as a wildlife corridor that has been adopted by Council or the NSW State government for the purposes of development control.

DCP: refers to a Development Control Plan prepared in accordance with the E*nvironmental Planning and Assessment Act 1979*.

Development envelope: an area of land inclusive of all existing or proposed buildings and other associated infrastructure including but not limited to roads, driveways, waste water systems, landscaping, bush fire asset protection zones, ecological setbacks, other *development setbacks* and easements for telephone and electricity connections etc. It does not include lands retained for extensive agriculture or nature conservation.

Development setback: an area of land required to separate elements of the *development envelope* (such as habitable buildings) from an incompatible land use or environmental hazard. Examples include setbacks required to manage bushfire risk, noxious industries, odour and noise due to flying-fox camps. See Part B controls C20 and C21 for guidance on addressing overlaps between *development setbacks* and *ecological setbacks* or *ecological buffers*.

Ecological buffer: an *ecological setback* requiring specific management to minimise ongoing impacts of the development. The management requirements for the *ecological buffer* will depend on the ecological asset and will typically be set out in a habitat management plan. See controls Part B C20 and C21 for guidance on addressing overlaps between *development setbacks* and *ecological setbacks* or *ecological buffers*.

Ecological values: includes the composition, structure and function of ecosystems, and includes (but is not limited to) species, populations and ecological communities, and their habitats.

Ecological setback: an area of land required to separate the *development envelope* from an ecological asset or *red flagged* area for the purpose of minimising ongoing impacts of the development. Unlike an *ecological buffer*, an *ecological setback* does not imply any specific management. Note, almost all cases, the development setback required to manage bushfire risk will be larger than the ecological setbacks required under this DCP. See Part B controls C20 and C21 for guidance on addressing overlaps between *development setbacks* and e*cological setbacks* or *ecological buffers*.

Endangered ecological community (EEC): ecological communities that face a very high risk of extinction in the near future as listed under NSW State and/or Commonwealth threatened species legislation. See "Vegetation communities and ecological attributes" spreadsheet at http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities that are likely to qualify as EECs.

Endangered population: an isolated population of a species that faces a very high risk of extinction in the near future as listed under NSW State and/or Commonwealth threatened species legislation. Lists of endangered populations known to occur in the Tweed Shire can be found at http://www.tweed.nsw.gov.au/Biodiversity.

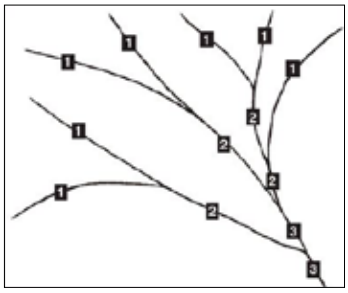
Endangered species: a species that faces a very high risk of extinction in the near future as listed under NSW State and/or Commonwealth threatened species legislation. Lists of threatened and other significant species known to occur in the Tweed Shire can be found at http://www.tweed.nsw.gov.au/Biodiversity.

EP&A Act: refers to the *Environmental Planning and Assessment Act 1979.*

Establishment period: the period commencing with the implementation of the relevant approved habitat management plan(s) and ending when the works specified in that plan meet the performance criteria (as defined by the approved habitat management plan) to the satisfaction of Council. The establishment period represents time necessary to carry out initial environmental repair, restoration and monitoring prior to ongoing maintenance.

Estuarine area: any part of a river, lake, lagoon or coastal creek whose level is periodically or intermittently affected by coastal tides, up to the highest astronomical tide.

First order stream: the topmost sections of a dendritic waterway network mapped at 1:25000 scale as defined by the Strahler stream classification system (see diagram). Where two flow paths of order 1 join, the section downstream of the junction is referred to as a second order stream. Where two second order streams join, the waterway downstream of the junction is referred to as a third order stream, and so on. *Ecological setbacks* associated with specific stream orders are measured from the top of the highest bank.



Fourth order stream: the fourth topmost sections of a dendritic waterway network mapped at 1:25000 scale as defined by the Strahler stream classification system. (see diagram and further explanation under the definition of *first order stream*). *Ecological setbacks* associated with specific stream orders are measured from the top of the highest bank.

Important wetlands: wetlands protected under NSW State or Commonwealth legislation or policy. Includes wetlands mapped under the NSW Coastal Management State Environmental Planning Policy (SEPP; previously SEPP 14 Coastal Wetlands).

Key threatening process: threats that adversely affect *threatened species*, populations or ecological communities, or could cause species, populations or ecological communities to become *threatened* as listed under NSW State and/or Commonwealth threatened species legislation.

Land holding: one or more contiguous lots in the same ownership.

Listed ecological communities: critically endangered, endangered or vulnerable ecological community listed under NSW State and/or Commonwealth threatened species legislation.
See Vegetation communities and ecological attributes spreadsheet at
http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities that are likely to qualify as listed *ecological communities*.

LLS Act: refers to the *Local Land Services Act 2013.*

Low condition: 1. Native woody vegetation is in low condition if:
The over-storey per cent foliage cover is <25% of the lower value of the over-storey per cent foliage cover benchmark for that vegetation type AND <50% of vegetation in the ground layer is indigenous species or >90% is ploughed or fallow. 2. native grassland, shrubland, wetland or herbfield in low condition if: <50% of vegetation in the ground layer is indigenous species or >90% is ploughed or fallow. For further details see: Gibbons, P., Ayers, D., Seddon, J., Doyle, S. and Briggs, S. 2005. BioMetric Version 1.8A Terrestrial Biodiversity Assessment Tool for the NSW Property Vegetation Plan Developer. Operational Manual. NSW Department of Environment and Conservation.

Mitigation hierarchy:

- **Avoidance:** measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.
- **Minimisation:** measures taken to reduce the duration, intensity and / or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.
- **Rehabilitation/restoration:** measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimised.
- **Offset:** measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity.

Native vegetation: For the purposes of this Section of the DCP, native vegetation means any of the following types of plants native to New South Wales:

(a) trees (including any sapling or shrub or any scrub),

(b) understorey plants,

(c) groundcover (being any type of herbaceous vegetation),

(d) plants occurring in a wetland.

A plant is native to New South Wales if it was established in New South Wales before European settlement.

Offset receiving site: an area of land to be set aside for the purposes of securing a *biodiversity offset*.

Old growth: old-growth forest is ecologically mature forest where the effects of disturbances are now negligible. See http://www.epa.nsw.gov.au/resources/pnf/OGRFreviewFieldIdent.pdf for details.

Other significant fauna: animal species, other than threatened fauna, as listed in "Threatened and other significant fauna of the Tweed Shire" http://www.tweed.nsw.gov.au/Biodiversity as updated from time to time.

Other significant flora: plant species, other than *threatened flora*, as listed in "Threatened and other significant flora of the Tweed Shire" http://www.tweed.nsw.gov.au/Biodiversity as updated from time to time.

Other wetland: a wetland, other than an *Important wetland*. Wetland has the same meaning as a wetland under the *Environmental Planning and Assessment Regulation 2000 – Schedule 3, viz:*

(a) natural wetland including marshes, mangroves, backwaters, billabongs, swamps, sedgelands, wet meadows or wet heathlands that form a shallow waterbody (up to 2 metres in depth) when inundated cyclically, intermittently or permanently with fresh, brackish or salt water, and where the inundation determines the type and productivity of the soils and the plant and animal communities, or

(b) artificial wetland, including marshes, swamps, wet meadows, sedgelands or wet heathlands that form a shallow water body (up to 2 metres in depth) when inundated cyclically, intermittently or permanently with water, and are constructed and vegetated with wetland plant communities.

Over-cleared landscapes: a Mitchell Landscape in which more than 70% native vegetation cover has been cleared. NSW is divided into 580 relatively homogeneous landscape units in terms of geomorphology, soils and broad vegetation types mapped at a scale of 1:250,000 (Mitchell 2002, 2003), which are colloquially termed "Mitchell Landscapes" after their author.

Over-cleared vegetation types: a vegetation type of which more than 70% has been cleared in the Catchment Management Area. See Vegetation communities and ecological attributes spreadsheet at http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities regarded as over-cleared.

Physical commencement: any physical works including clearing vegetation, the use of heavy duty equipment for the purpose of breaking ground for bulk earthworks, or infrastructure for the proposed project.

Preferred koala habitat: areas of *Primary koala habitat, Secondary (Class A) koala habitat or Secondary (Class B) koala habitat*. See Vegetation communities and ecological attributes spreadsheet at http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities regarded as *preferred koala habitat*. See http://www.tweed.nsw.gov.au/Mapping for details of indicative areas affected.

Primary koala food trees: any of the following tree species: Swamp Mahogany *Eucalyptus robusta* (includes any hybrids); Forest Red Gum *Eucalyptus tereticornis*; Small-fruited Grey Gum *Eucalyptus propinqua*; Tallowwood *Eucalyptus microcorys*.

Primary koala habitat: Areas of forest and/or woodland wherein *primary koala food tree* species comprise the dominant or co-dominant (i.e. ≥ 50%) overstorey tree species. See Tweed Coast Koala Habitat Study 2011 for details. See also Vegetation communities and ecological attributes spreadsheet at http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities regarded as *primary koala habitat*.

Protected habitat: areas of existing habitat (or other land) provided with formal long term protection designed to limit further development. *Protected habitat* can be established by various mechanisms, including but not limited to restrictive covenants, rezoning, voluntary planning agreements, formal conservation agreements, biodiversity stewardship agreements, or in some cases dedication to Council or other public authority. The mechanism(s) to establish *protected habitat* must be conditioned or otherwise approved by Council.

Recovery plan: a plan or series of priority management actions adopted by the NSW State of Commonwealth governments to respond to threats faced by threatened species, populations or ecological communities.

Red flags or red flagged areas: an area of land with high biodiversity conservation value which should be excluded from any *development envelope*.

Second order stream: the second topmost sections of a dendritic waterway network mapped at 1:25000 scale as defined by the Strahler stream classification system. (see diagram and further explanation under the definition of *first order stream*). Ecological setbacks associated with specific stream orders are measured from the top of the highest bank.

Secondary (class A) koala habitat: areas of forest and/or woodland wherein *primary koala food tree species* are present but not dominant or co-dominant and usually (but not always) growing in association with one or more secondary food tree species. See Tweed Coast Koala Habitat Study 2011 for details. See also Vegetation communities and ecological attributes spreadsheet at http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities regarded as *Secondary (class A) koala habitat*.

Secondary (class B) koala habitat: areas of forest and/or woodland wherein primary koala food tree species are absent, but with habitat containing secondary and/or supplementary food tree species only. See Tweed Coast Koala Habitat Study 2011 for details. See also Vegetation communities and ecological attributes spreadsheet at http://www.tweed.nsw.gov.au/Biodiversity for details of vegetation communities regarded as Secondary (class B) koala habitat.

SEPP: refers to a State Environmental Planning Policy under the *Environmental Planning and Assessment Act 1979*.

SAII: refers to serious and irreversible impacts – see s 6.7 of the BC Regs.

Species polygon: an area of land enclosing the known or predicted habitat of targeted flora or fauna. In most cases known records will be used for flora and predicted habitat will be used for fauna.

TCCKPoM: refers to the Tweed Coast Comprehensive Koala Plan of Management (see http://www.tweed.nsw.gov.au/PlanningPolicies.

Third order stream: the third topmost sections of a dendritic waterway network mapped at 1:25000 scale as defined by the Strahler stream classification system. (see diagram and further explanation under the definition of first order stream). *Ecological setbacks* associated with specific stream orders are measured from the top of the highest bank.

Threatened fauna: any animal species listed as *critically endangered, endangered* or *vulnerable* under NSW State or Commonwealth threatened species legislation. For indicative lists, see "Threatened and other significant fauna of the Tweed Shire" http://www.tweed.nsw.gov.au/Biodiversity as updated from time to time.

Threatened flora: any plant species listed as *critically endangered, endangered* or *vulnerable* under NSW State or Commonwealth threatened species legislation. For indicative lists, see "Threatened and other significant flora of the Tweed Shire" http://www.tweed.nsw.gov.au/Biodiversity as updated from time to time.

Threatened species: any individual species listed as *critically endangered, endangered* or *vulnerable* under NSW State or Commonwealth threatened species legislation. . For indicative lists of threatened and other significant species of the Tweed Shire see http://www.tweed.nsw.gov.au/Biodiversity.

Very large native trees: locally indigenous trees that have a trunk diameter of greater than or equal to 0.8 metres measured at 1.4 metres above the natural ground. Trees are locally indigenous if they existed within the area covered Tweed Shire before European settlement.

Vulnerable species: a species that faces a high risk of extinction in NSW in the medium-term future as listed under NSW State and/or Commonwealth threatened species legislation.
For indicative lists of threatened and other significant species of the Tweed Shire see http://www.tweed.nsw.gov.au/Biodiversity.

WM Act: refers to the *Water Management Act 2000.*

TWEED
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