

Queensland Environmental Offsets Policy

Significant Residual Impact Guideline

Nature Conservation Act 1992
Environmental Protection Act 1994
Marine Parks Act 2004

December 2014



Prepared by: Biodiversity Integration and Offsets, Ecosystem Outcomes,, Department of Environment and Heritage Protection

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December 2014

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1 Introduction

The purpose of this guideline is to assist in deciding whether or not a prescribed activity will, or is likely to have a significant residual impact on a matter of state environmental significance (MSES).

This guideline applies to any activity prescribed in the Environmental Offsets Regulation 2014 that requires an approval in relation to MSES, under any of the following:

- *Nature Conservation Act 1992*;
- *Marine Parks Act 2004*; or
- *Environment Protection Act 1994*.

For projects that may require an authority under the *Sustainable Planning Act 2009*, guidance is available from the Department of State Development, Infrastructure and Planning.

An environmental offset condition may be imposed under certain Queensland legislation that applies to development assessment where the activity is a prescribed activity under the *Environmental Offsets Act 2014*. The *Environmental Offsets Act 2014* places limits on when a condition may be imposed and provides for the subsequent assessment, delivery and compliance with offset conditions once imposed.

An administering agency may impose an environmental offset condition on an authority only if it is satisfied that the prescribed activity will, or is likely to have a significant residual impact on a prescribed environmental matter.

As per Section 8 of the *Environmental Offsets Act 2014*, a significant residual impact is generally an adverse impact, whether direct or indirect, of a prescribed activity on all or part of a prescribed environmental matter that:

- a) remains, or will or is likely to remain, (whether temporarily or permanently) despite on-site avoidance and mitigation measures for the prescribed activity; and
- b) is, or will or is likely to be, significant.

A significant residual impact for a prescribed environmental matter in a protected area or legally secured offset area is defined in the *Environmental Offsets Act 2014* and is outlined in sections 8 and 12 of this guideline.

Assessment frameworks for the activities to which this guideline applies have an 'avoid, mitigate, offset' obligation that requires in the first instance, avoiding impacts on prescribed environmental matters and if avoidance cannot be achieved, demonstrating that impacts have been carefully managed and minimised (mitigated). If after avoidance and mitigation, there is still an impact on prescribed environmental matters, an offset may be required where the impact is, or is likely, to be significant.

If there is still an impact on the MSES after all reasonable avoidance and on-site mitigation measures for the prescribed activity have been or will be undertaken, this guideline should be used to determine the 'significance' of the impact.

The requirement to provide environmental offsets does not mean that development with unacceptable impacts will be approved. Offsets simply provide an additional tool that can be used in the application and assessment process.

In relation to projects that may require authorities under multiple pieces of legislation, the *Environmental Offset Act 2014* requires administering agencies to consider any existing environmental offset conditions for the activity that have been imposed. The Act also provides circumstances where an authority holder can seek to remove an offset condition that is duplicated between authorities. This is explained in detail in section 1.1.3 of the Queensland Environmental Offsets Policy version 1.1.

Figure 1 displays the development application process, showing when an offset may be required and reference to when this guideline is used.

The definitions listed in this guideline are accurate as at December 2014. The relevant legislation should be referred to in the event of any updates or changes to these definitions. Some definitions are sourced from their common dictionary meaning.

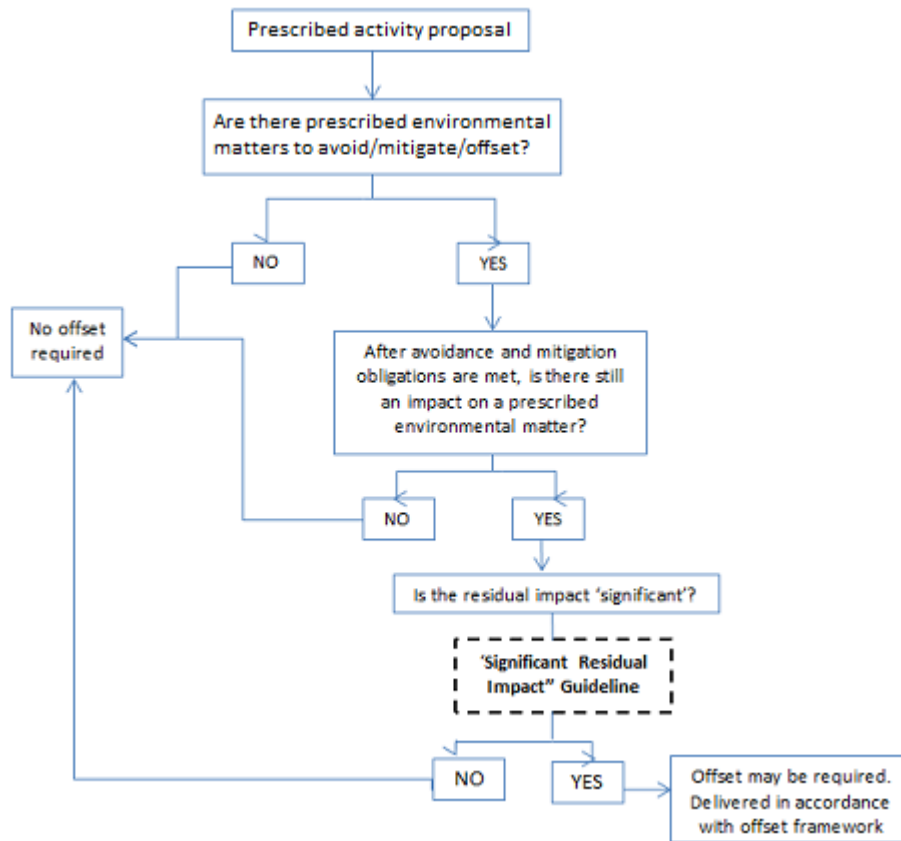


Figure 1: Application process in determining environmental offset requirements under the Queensland Environmental Offset Framework.

1.1 Interpreting the criteria

The criteria contained in this guideline provide direction for identifying when an impact on a prescribed environmental matter that is MSES, may be 'significant'.

However, the criteria will need to be considered in the context of each individual application and should be used as guidance only, with two exceptions. The significant residual impact criteria for a prescribed environmental matter that is a protected area or is, or is in, a legally secured offset area, is already defined in the *Environmental Offsets Act 2014* (refer to sections 8(2) and 8(4)) and are therefore statutory criteria. For completeness these criteria are repeated in this guideline—refer to sections 3.6 and 3.10.

Generally, supporting information will need to accompany the application for a prescribed activity where there is likely to be a significant residual impact. Supporting information would usually take the form of technical reports or studies carried out by appropriately qualified specialists to confirm the extent, location and nature of the MSES and the impact of the activity on any MSES and may be included in an Environmental Impact Statement where this is required.

1.2 Rehabilitation works

Where rehabilitation requirements on the impact site are included in a condition of the authority, they may be a relevant consideration in determining the significance of the impact. For example, demonstration of how rehabilitation can mitigate an impact may be based on the production of a well-structured rehabilitation and management plan which identifies and commits to actions to ensure minimal disruption to the healthy functioning of the matter.

Should a proponent successfully demonstrate that rehabilitation works can mitigate an impact to the extent that the impact on MSES would not be considered to be significant, this could negate the requirement for an offset. This circumstance would need, as a minimum, to consider:

- the extent and duration of impact on the matter and its sensitivity to disturbance
- timeframe for rehabilitation relative to the impact occurring and the ability of the matter to maintain its viability during this timeframe
- likely success of rehabilitation works to return the impacted matter to its original condition and
- the time-lag effect—between impact and rehabilitation successfully delivering the original condition for the matter—on the matter's viability.

Rehabilitated land can be considered as an offset for future projects, it cannot be considered as a meeting the offset obligation for the project that is subject to the rehabilitation condition.

1.3 Criteria to determine a significant impact

This guideline outlines the criteria for identifying when an impact on prescribed environmental matters—matters of State environmental significance—may be significant. Please note that this document is for guidance only, and the context of the impact needs to be considered for each development, with decisions based on detailed site assessment.

Where an activity impacts on more than one matter, the significance of the impact on each matter will need to be identified and assessed.

The significant impact criteria provide a trigger for consideration of offsets. Once this trigger has been met or exceeded, then the total of the impact is included for consideration—not just the component of impact exceeding the criteria.

NOTE: In the interests of aligning with Commonwealth assessment requirements, the significant residual impact criteria for some matters (for example, protected wildlife habitat) have been developed in a manner that is consistent with the Commonwealth's significant impact guideline for the purpose of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBCA).

2. Regulated vegetation

Regulated vegetation is a 'prescribed regional ecosystem' that:

- is an endangered or of concern regional ecosystem, as defined under the *Vegetation Management Act 1999*; or
- intersects with an area shown on the vegetation management wetlands map, as defined under the *Vegetation Management Act 1999*, to remove doubt this refers to that component of a regional ecosystem that lies within a mapped wetland; or
- is located within the defined distance from the defining banks of a watercourse identified on the vegetation management watercourse map, as defined under the *Vegetation Management Act 1999*.

Criteria for identifying when an impact on essential habitat for threatened species, other than koalas in South East Queensland, may be significant is outlined in section 5 (Protected wildlife habitat) of this guideline. Criteria for koalas in South East Queensland are outlined in section 6 of this guideline.

The definition of prescribed regional ecosystem is in the *Environmental Offsets Regulation 2014*, and does not include regrowth vegetation.

Within an urban area, as defined under the *Sustainable Planning Regulation 2009*, an environmental offset may only be required for significant residual impacts on endangered regional ecosystems.

Table 1 details significant residual impact criteria for regulated vegetation. Where the criteria indicated by ticks have been exceeded (refer to table notes), this indicates a significant residual impact.

2.1 Significant residual impact test—criteria Table 1

		Clearing in a regional ecosystem that is: <i>endangered, or of concern</i>	Clearing in the portion of a regional ecosystem that lies within a mapped wetland	Clearing in a regional ecosystem that is within the defined distance of a watercourse
1	<p>For clearing for linear infrastructure:</p> <ul style="list-style-type: none"> - greater than 25m wide in a grassland (structural category) regional ecosystem; or - greater than 20m wide in a sparse (structural category) regional ecosystem; or - greater than 10m wide in a dense to mid-dense (structural category) regional ecosystem. <p>For clearing other than clearing for linear infrastructure:</p> <ul style="list-style-type: none"> - area greater than 5 ha where in a grassland (structural category) regional ecosystem; or - area greater than 2 ha where in a sparse (structural category) regional ecosystem; or - area greater than 0.5 ha where in a dense to mid-dense (structural category) regional ecosystem. 	✓	✓	✓
2	Clearing within 50m of the defining bank	N/A	✓	N/A
3	Clearing within 5m of the defining bank	N/A	N/A	✓

NOTES:

For a prescribed activity to have a significant residual impact on a regional ecosystem that lies within a mapped wetland, criteria 1 and 2 must be exceeded.

For a prescribed activity to have a significant residual impact on a regional ecosystem that is within the defined distance of watercourses, criteria 1 and 3 must be exceeded.

The values of the wetland and watercourses themselves are not covered in this section (only the vegetation associated with these natural features) —the values of the wetland and watercourses themselves are considered in section 5.

2.2 Explanation of key terms

Dense regional ecosystem is a regional ecosystem with a dense structural category in the Regional Ecosystem Description Database (REDD), which is available to download from www.ehp.qld.gov.au (search for 'download REDD')

Defining bank is the bank which confines the seasonal flows but may be inundated by flooding from time to time. This can be either:

- a) the bank or terrace that confines the water before the point of flooding, or
- b) where there is no bank the seasonal high water line which represents the point of flooding.

Note: further guidance on a defining bank can be found at Department of Natural Resources and Mines website (available in chapter 4.7 of the 'Managing weeds—a self-assessable vegetation clearing code' from www.dnrm.qld.gov.au (search for 'managing weeds').

Mid-dense regional ecosystem is a regional ecosystem with a mid-dense structural category in the Regional Ecosystem Description Database (REDD), which is available to download from www.ehp.qld.gov.au (search for 'download REDD')

Sparse regional ecosystem is a regional ecosystem with a sparse structural category in the Regional Ecosystem Description Database (REDD), which is available to download from www.ehp.qld.gov.au (search for 'download REDD')

3. Connectivity areas

3.1 Landscape Fragmentation and Connectivity tool

EHP has developed a Landscape Fragmentation and Connectivity (LFC) tool to be used as a decision support tool to assist to identify and quantify any significant impact on connectivity for an individual impact area. It is a GIS tool that measures the extent and arrangement of the current regulated vegetation against the extent that would remain if the prescribed activity were to occur at that impact site.

The tool is available as a data package through the Queensland Government Spatial Catalogue—Qspatial (search on “offsets”). <http://qldspatial.information.qld.gov.au/catalogue/custom/index.page>. The data package contains a manual which explains how to install the tool and interpret the results.

The LFC tool creates a log file each time it is run which retains the complete history of all processing steps and results, including a statement describing the significance of the proposed impact on *Connectivity areas*. The tool also creates a set of GIS files which can be viewed using ArcGIS software. EHP can run that assessment on the proponent’s behalf if they do not have access to the required software.

The assessment officer can use the outputs from the LFC tool in deciding on the significance of the impact on connectivity areas and whether an offset may be required.

To determine whether the impact of the prescribed activity on connectivity is significant the LFC tool applies the following tests.

3.2 Significant residual impact test for Connectivity

In deciding if an offset is required for connectivity areas, the administering agency must consider the significance of the ecosystem tract in the context of the local and the regional landscape.

A development impact on connectivity areas is determined to be significant if either of the following tests are true:

1. The change in the core remnant ecosystem extent at the local scale (post impact) is greater than a threshold determined by the level of fragmentation at the regional scale (see table below); or
2. Any core area that is greater than or equal to 1 hectare is lost or reduced to patch fragments (core to non-core).

The approach used to determine if either test is true is described below.

Test 1—change in core remnant ecosystem extent at the local scale

The change threshold for the local core remnant extent is derived from the following table:

Regional scale extent of core remnant ecosystem (per cent)	Change threshold for local core scale remnant ecosystem (per cent)
>90	50
70–90	30
50–70	20
30–50	10
10–30	5
< 10	2

If the level of local change is greater than the relevant threshold from the table, that part of the significant impact test is true.

Test 2—Loss or fragmentation of core remnant ecosystem at the site scale

If the number of core areas that are greater than or equal to one hectare in area is greater pre-impact than post-impact, that part of the significant impact test is true.

Figure 2 depicts the process of connectivity area fragmentation.

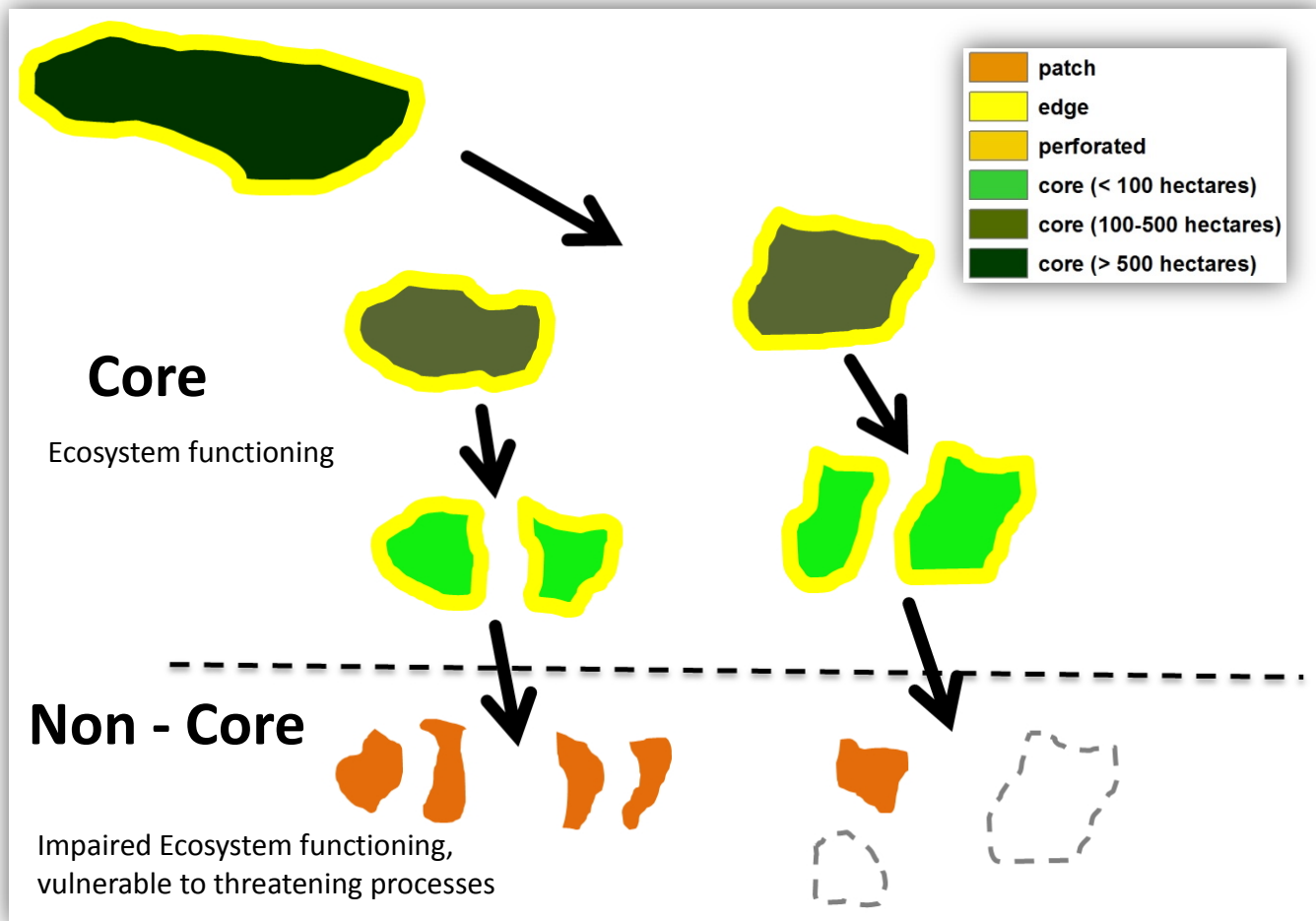


Figure 2: The process of connectivity area fragmentation (core to non-core)

3.3 Co-location of matters

Where a connectivity impact is co-located with another matter(s), each must be offset. If the matters can be located in the same non-remnant offset site the highest multiplier must be used to calculate the offset area required. If the matters cannot be located in the same non-remnant offset site, each must be offset independently.

3.4 Explanation of key terms

- Connectivity areas are areas of remnant vegetation¹ outside urban areas containing prescribed regional ecosystems that are required for ecosystem functioning.
- Edge is an area outside a core area. The edge is subject to fragmentation—the edge effect zone.
- Core is an area of mapped remnant ecosystem (not degraded by fragmentation) that is enclosed within an edge effect zone.
- Patch is a small fragment that is completely degraded by the edge effect.
- Local scale is an area within a 5km buffer of the impact area.
- Regional scale is an area within a 20 km buffer of the impact area.

For additional information on Connectivity areas please contact the Department of Environment and Heritage Protection via email: offsets@ehp.qld.gov.au

¹ Remnant vegetation - means a regional ecosystem located in a category B area on the regulated vegetation management map.

4. Wetlands and Watercourses

An offset may be required for the following wetlands:

- wetland in a wetland protection area as shown on the Map of referable wetlands under schedule 12, part 2 of the Environmental Protection Regulation 2008;
- wetlands of high ecological significance as shown on the Map of referable wetlands under schedule 12, part 2 of the Environmental Protection Regulation 2008; and
- wetland or watercourse in a high ecological value waters as identified under the Environmental Protection (Water) Policy 2009, schedule 2.

NOTE: This criterion only addresses impacts on wetlands and watercourse and does not address impacts on riparian vegetation that lies within the mapped wetland or is within the defined distance of a watercourse. Vegetation associated with wetlands and watercourses is dealt with under 'regulated vegetation'.

4.1 Significant residual impact criteria:

An action is likely to have a significant residual impact on prescribed wetlands or watercourses if it is likely that the action will result in environmental values being affected in any of the following ways:

- areas of the wetland or watercourse being destroyed or artificially modified;
- a measurable change in water quality of the wetland or watercourse—for example a change in the level of the physical and/or chemical characteristics of the water, including salinity, pollutants, or nutrients in the wetland or watercourse, to a level that exceeds the water quality guidelines for the waters; or
- the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected; or
- a substantial and measurable change in the hydrological regime or recharge zones of the wetland, e.g. a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland; or
- an invasive species that is harmful to the environmental values of the wetland being established (or an existing invasive species being spread) in the wetland.

4.2 Explanation of key terms:

AWQ guidelines means the national guidelines made by the Commonwealth under the program known as the National Water Quality Management Strategy, published by the Natural Resource Management Ministerial Council.

QWQ guidelines means the document called 'Queensland water quality guidelines 2009' published by the department.

Note—a copy of the guidelines may be inspected at the department's office at level 3, 400 George Street, Brisbane and on the department's website at www.ehp.qld.gov.au

Watercourse has the same meaning as in the *Water Act 2000*

Water quality guidelines, for particular water, means —

(a) the following documents:

- (i) site specific documents for the water;
- (ii) the QWQ guidelines;
- (iii) the AWQ guidelines;
- (iv) other relevant documents published by a recognised entity; and

(b) for water mentioned in the Environmental Protection (Water) Policy 2009 schedule 1, column 1—the indicators stated in the document opposite the water in schedule 1, column 2.

Wetland environmental values include:

- a) the health and biodiversity of the wetland's ecosystem;
- b) the wetland's natural state and biological integrity;
- c) the presence of distinct or unique features, plants or animals and their habitats, including extinct in the wild wildlife, vulnerable wildlife, near threatened wildlife and least concern wildlife under the *Nature Conservation Act 1992*;
- d) the wetland's natural hydrological cycle;
- e) the natural interaction of the wetland with other ecosystems, including other wetlands.

For additional information on offsets for wetlands please contact the Department of Environment and Heritage Protection via email: planning.support@ehp.qld.gov.au

5. Protected wildlife habitat

This section applies to the following MSES prescribed in the Environmental Offsets Regulation 2014:

- an area of essential habitat on the essential habitat map for an animal or plant that is endangered or vulnerable wildlife (section 2(3)(b), Schedule 2, EO Reg);
- an area that is shown as a high risk area on the flora survey trigger map and that contains plants that are endangered or vulnerable wildlife (section 6(1), Schedule 2, EO Reg)
- an area that is not shown as a high risk area on the flora survey trigger map, to the extent the area contains plants that are endangered or vulnerable wildlife (section 6(2), Schedule 2, EO Reg)
- an area of habitat (e.g. foraging, roosting, nesting or breeding habitat) for an animal that is endangered, vulnerable or a special least concern animal (section 6(4), EO Reg)

NOTE: koala habitat in South East Queensland is addressed in Section 6.

Where potential habitat for a species occurs that is likely to be impacted, the following significant residual impact criteria apply:

5.1 Significant residual impact criteria:

Endangered and vulnerable wildlife habitat (including essential habitat)

An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:

- lead to a long-term decrease in the size of a local population; or
- reduce the extent of occurrence of the species; or
- fragment an existing population; or
- result in genetically distinct populations forming as a result of habitat isolation; or
- result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat; or
- introduce disease that may cause the population to decline, or
- interfere with the recovery of the species; or
- cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species.

Special least concern (non-migratory) animal wildlife habitat

An action is likely to have a significant impact on a special least concern (non-migratory) animal wildlife habitat if it is likely that it will result in:

- a long-term decrease in the size of a local population; or
- a reduced extent of occurrence of the species; or
- fragmentation of an existing population; or
- result in genetically distinct populations forming as a result of habitat isolation; or
- disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species.

5.2 Explanation of key terms:

Habitat is the area occupied, or periodically or occasionally occupied, by any species, population or ecological community and includes all the different aspects (both biotic and abiotic) used by species during the different stages of their life cycles.

Essential habitat is a category B area shown on the regulated vegetation management map under the *Vegetation Management Act 1999*:

- a) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or
- b) in which the protected wildlife, at any stage of its life cycle, is located.

Long-term decrease means any decline in a local population that is greater than which would be apparent without the action being present.

Population for a species is defined as an occurrence of the species in a particular area. In relation to endangered, vulnerable and special least concern species, occurrences include but are not limited to:

- a geographically distinct regional population, or collection of local populations; or
- a population, or collection of local populations, that occurs within a particular bioregion.

For additional information on offsets for threatened species please contact the Department of Environment and Heritage Protection via email: Threatened.Species@ehp.qld.gov.au

6. Koala habitat in South East Queensland

An offset may be required for significant residual impacts on habitat for the koala in the South East Queensland planning area – as identified in the South East Queensland Regional Plan. This includes habitat that is:

- an area of essential habitat as identified on the essential habitat map, as defined under the *Vegetation Management Act 1999*;
- an area that is not mapped as habitat, but which contains, or is known to contain koalas.

Loss of koala habitat has been listed as the greatest threat to survival due to koala's inability to source food, with replacement of trees more important for population viability than complete ecosystem regeneration.

6.1 Significant residual impact criteria for koala habitat in SEQ

A significant residual impact on koala habitat in SEQ is any prescribed activity that will:

- remove a non-juvenile koala habitat tree.

6.2 Application

This is relevant for activities for which an offset may be required for koala habitat in South East Queensland (that is, the area identified as the South East Queensland region under the South East Queensland Regional Plan).

6.3 Explanation of key terms

Koala habitat tree means:

- a) a food tree of the *Corymbia*, *Melaleuca*, or *Lophostemon* or *Eucalyptus* genera; or
- b) a preferred shelter species such as *Angophora*.

Non-juvenile koala habitat tree means a koala habitat tree that:

- a) is more than 4m high; or
- b) has a trunk with a circumference of more than 31.5cm at 1.3m above the ground.

For additional information on offsets for koalas in SEQ please contact the Department of Environment and Heritage Protection on 13 74 68.

7. Protected areas

Protected areas are declared under the *Nature Conservation Act 1992* for the conservation of Queensland's natural and cultural resources. An offset may be required for the following classes of protected areas:

- national parks; and
- national parks (Aboriginal land); and
- national parks (Torres Strait Islander land); and
- national parks (Cape York Peninsula Aboriginal land);
- regional parks; and
- nature refuges.

7.1 Significant residual impact criteria

Under section 8(2) of the *Environmental Offsets Act 2014*, an impact on a protected area is significant if a prescribed activity results, or will or is likely to result, in one or more of the following:

- the authorised clearing or inundation of all or part of the protected area for the construction of private or publicly owned infrastructure on the area;
- the exclusion of, or reduction in, the public use or enjoyment of all or part of the protected area;
- a reduction in the natural or cultural values of all or part of the protected area.

8. Explanation of key terms:

Clearing means to remove, cut down, ringbark, push over, poison or destroy in any way including by burning, flooding or draining; but does not include destroying standing vegetation by stock, or lopping a tree. Clearing for routine transport, electricity or safety purposes under the associated Acts are exempt to the extent set out in those Acts.

Inundation means to cover with water, especially flooding an area (as in the construction of a dam).

Exclusion of, or reduction in, the public use or enjoyment means fencing or installing a gate in an area so that the public can no longer access it or causing the public to be excluded from an area in another way such as by signage or excluding the public under an authority issued under another act (for example the *Mineral Resources Act 1989*) such that the public can no longer legally access, use and enjoy the area.

Lopping a tree, means cutting or pruning its branches, but does not include—

- (a) removing its trunk; and
- (b) cutting or pruning its branches so severely that it is likely to die.

Natural values means the natural and physical features of the area; including wildlife, soil, water, minerals and air.

Cultural values means places or objects that have anthropological, archaeological, historical, scientific, spiritual or sociological significance or value, including such significance or value under Aboriginal tradition or Island custom.

For additional information on offsets for protected areas please contact the Department of National Parks, Recreation, Sport and Racing via email at parkspolicy@npsr.qld.gov.au or on 13 74 68.

9. Fish Habitat Areas and Highly Protected Zones of State Marine Parks

Fish Habitat Areas (FHAs) are declared under the Fisheries Act for the protection and management of high value fish habitat along the Queensland coast. A two tiered management approach is applied in declared FHAs, management A or B. Management A is the higher, more restrictive management level whereas management B is applied in locations where existing or planned uses require a more flexible management approach. Only works that are for a prescribed FHA development purpose, listed in the Fisheries Regulation 2008, may be considered for approval within a FHA. All FHAs are defined as a prescribed environmental matter and therefore approvals for works within a FHA are subject to offset considerations. Plans of each declared FHA and the FHA management policies are available on the National Parks Recreation Sport and Racing (NPRSR) website www.nprsr.qld.gov.au (search for 'fish habitat areas').

Marine parks are declared under the *Marine Parks Act 2004* over Queensland state waters to protect and conserve the values of the marine environment while allowing for its sustainable use. Zoning plans for each marine park are the primary tool used for managing the marine parks, with these zones used to manage different activities and separate potentially conflicting uses, while maintaining each park's unique biodiversity values. Each marine park zone has specific management objectives. Only works that are compatible with the management objectives of the zone within which they are proposed, may be considered for approval. The highly protected zones of the marine parks are defined as a prescribed environmental matter and therefore permissions for works within these zones are subject to offset considerations. These highly protected zones are:

- preservation zones
- marine national park zones
- scientific research zones
- buffer zones
- conservation park zones.

Plans of the marine parks and zoning arrangements are available on the NPRSR website www.nprsr.qld.gov.au (search for 'gbr marine park').

9.1 Significant residual impact criteria:

Works are considered to result in a significant residual impact to a declared FHA or highly protected zones of marine parks if:

- the works are not for a purpose or a structure type listed below; and
- the works will result in a residual disturbance footprint within the declared FHA and/or highly protected marine park zone of 40m² or greater in area.

NOTE: If the works are determined to result in a significant residual impact, the impact area that will be used for the purpose of offset calculations will be the entire residual disturbance footprint area, not just that component that is greater than 40m².

Works purposes or structure types that are not considered to result in a significant residual impact and therefore do not require offsetting:

- construction of a private or public erosion protection wall, if the wall is less than 25m in length or has a **residual disturbance footprint** of less than 40m² in area;
- **public works** to facilitate general community access, safe use and appreciation of FHA and marine park (means: public boat ramps and associated queuing beaches, public pontoons, public jetties, public fishing platforms, public bird hides, public boardwalks, access steps and walkways, navigation aids and signage). Note: capital dredging is not captured under this purpose;
- public works for the enhancement or management of the FHA or marine park (e.g. installing a fence or bollards to prevent uncontrolled vehicle access);
- maintenance of existing approved structures (or structures that predated the declaration of the marine park or FHA);

- **maintenance** dredging of an existing approved navigation channel or approved dredge area;
- placement of a material within an existing approved dredge material placement area or an existing approved beach nourishment site where the proponent can demonstrate historical ongoing use;
- removal of existing structures;
- works for habitat restoration projects;
- works for public health and safety (e.g. runnelling for mosquito control);
- works associated with research, education and monitoring;
- structures that span the declared FHA or highly protected zones of marine parks (e.g. powerlines, bridges with no permanent components in contact with the substrate within the declared FHA or highly protected zones of marine parks);
- directional drilling beneath the declared FHA or highly protected zones of marine parks with no element of the drilling works breaking the substrate surface of the FHA or highly protected zones of marine parks; or
- works within a declared FHA that are compatible with a Fisheries Self Assessable Code.

9.2 Explanation of key terms:

Highly protected area means:

- (a) a zone classified, under the *Marine Parks Act 2004*, as a conservation park zone, marine national park zone or preservation zone; or
- (b) another area prescribed under a regulation or zoning plan, under the *Marine Parks Act 2004*, as a highly protected area.

Maintenance means works to keep a structure in due condition, operation or force; keep unimpaired; keep its function.

Public Works means works by, or on behalf of Local, State and Commonwealth Government.

Residual Disturbance footprint means the area of approved works within the declared FHA or highly protected marine park zone within which the habitats, substrate type and profile, hydrology and flora and fauna communities will not be completely restored to their pre-works condition and be effectively functioning within five years of the commencement of the approved works. Note the area directly beneath a permanent structure is considered to be permanently impacted.

Zone means a zone established for a marine park by a zoning plan.

For additional information on offsets in declared FHAs please contact the Department of Agriculture, Fisheries and Forestry on the contact details provided below:

Email: planningassessment@daff.qld.gov.au
 Contact number: 13 25 63

For additional information on offsets in MSES zones of marine parks please contact the Department of National Parks, Recreation, Sport and Racing on 13 74 68.

10. Waterway providing for fish passage

An environmental offset may be required for any part of a waterway that provides for passage of fish (other than that part of a waterway within an urban area) if the construction, installation or modification of waterway barrier works carried out under an authority will limit the passage of fish along the waterway.

Many Australian fish need free fish passage along waterways in order to complete seasonal and flow related migration and movements to access seasonally available food sources or breeding habitat. Stream connectivity and habitat diversity are crucial components of healthy waterways. Waterway barriers (such as dams, weirs and stream crossings) fragment fish habitat and hamper fish movement through the creation of physical barriers and alterations to local hydrology and and/or water quality.

Increased water depth upstream of barriers can result in loss of in-stream plants, leading to reduced food supply or loss of breeding habitat. Barriers to fish passage also result in indirect impacts such as alteration of local flow conditions and water quality up and or downstream.

Barriers to fish passage can restrict and/or isolate fish communities, preventing access to, and benefits of fish habitats otherwise available to them. Poorly designed structures can injure or kill fish moving over or around them, or fish may become stranded and subjected to inappropriate water quality, lack of food, increased predation, crowding or other conditions that impact on their health, wellbeing and productivity.

10.1 Significant residual impact criteria:

An action is likely to have a significant impact on a waterway providing for fish passage if there is a real possibility that it will:

- result in the mortality or injury of fish; or
- result in conditions that substantially increase risks to the health, wellbeing and productivity of fish seeking passage such as through the depletion of fishes energy reserves, stranding, increased predation risks, entrapment or confined schooling behaviour in fish; or
- reduce the extent, frequency or duration of fish passage previously found at a site; or
- substantially modify, destroy or fragment areas of fish habitat (including, but not limited to in-stream vegetation, snags and woody debris, substrate, bank or riffle formations) necessary for the breeding and/or survival of fish; or
- result in a substantial and measurable change in the hydrological regime of the waterway, for example, a substantial change to the volume, depth, timing, duration and frequency of flows; or
- lead to significant changes in water quality parameters such as temperature, dissolved oxygen, pH and conductivity that provide cues for movement in local fish species.

10.2 Explanation of key terms:

Fish means fish regulated under the *Fisheries Act 1994*.

Passage, for fish, means the natural movement patterns of fish species required to maintain the biological integrity of the species.

Waterway includes a river, creek, stream, watercourse or inlet of the sea.

Waterway barrier works means a dam, weir or other barrier across a waterway.

For additional information on offsets in fish passage please contact the Department of Agriculture, Fisheries and Forestry on the contact details via email: planningassessment@daff.qld.gov.au

11. Marine plants

Marine plants are part of the mosaic of fish habitats, and are an integral and usually highly visible feature of the coastline. Queensland has a very high diversity of marine plant species, including mangroves, seagrass, saltcouch, algae, samphire (succulent) vegetation and adjacent plants, such as melaleuca (paper barks) and casuarina (coastal she-oaks). Effective management and protection of all marine plants and adjacent coastal areas is important in ensuring sustainable fish habitats and fisheries production.

Marine plants are protected under the *Fisheries Act 1994*. Marine plants are vital natural resources that provide shelter, food and nursery areas to about 75% of fish species caught in Queensland. Marine plants are a fundamental part of fish habitats in Queensland, as they help sustain fish for the future of commercial, traditional and recreational fishing. Marine plants provide a range of important environmental services including shoreline stability and protection from coastal conditions.

11.1 Significant residual impact criteria

An action is likely to have a significant residual impact on marine plants where the, impacts of the development shall result in:

- private infrastructure works impacting more than 17m² of fish habitat or public infrastructure works impacting more than 25m² of fish habitat; *and*
 - temporary impacts are expected to take 5 years or more for the impact area to be restored to its pre-development condition; or
 - a proposed reduction in the extent of marine plants through removal, destruction or damage of marine plants; or
 - fragmentation or increased fragmentation of a marine ecological community; or
 - adverse changes affecting survival of marine plants through modifying or destroying abiotic (non-living) factors (such as water, nutrients, or soil) necessary for a marine plant's survival; or
 - alteration in the species composition of marine plants in an ecological community, that causes a decline or loss of functionally important species; or
 - interference with the natural recovery of marine plant communities.

11.2 Explanation of key terms:

Fish habitat is defined under the *Fisheries Act 1994* and includes land, waters and plants associated with the life cycle of fish, and includes land and waters not presently occupied by fisheries resources.

Marine plants are defined under the *Fisheries Act 1994* and include the following:

- a) a plant (a tidal plant) that usually grows on, or adjacent to, tidal land, whether it is living, dead, standing or fallen;
- b) material of a tidal plant, or other plant material on tidal land;
- c) a plant, or material of a plant, prescribed under regulation or management plan to be a marine plant.

Temporary refers to the term of impact on fish habitat productivity and assumes proposed mitigation outcomes can be achieved by returning natural tidal profiles immediately after the approved disturbance to enable marine plants to re-establish and for the colonising marine plants to grow to a size to produce flowers and fruit within five (5) years of the original impact.

For additional information on offsets in fish passage please contact the Department of Agriculture, Fisheries and Forestry via email: planningassessment@daff.qld.gov.au

12. Legally secured offset areas

Legally secured offset areas are any areas declared as an environmental offset protection area, high nature conservation value under the *Vegetation Management Act 1999* or another area prescribed under a regulation.

12.1 Significant residual impact criteria

Under section 8(4) of the *Environmental Offsets Act 2004*, an action is likely to have a significant residual impact on a legally secured offset area or other prescribed environmental matters within the legally secured offset area where the impacts of the development is likely to result in one or more of the following:

- for the prescribed environmental matter, or matters, for which the area was set aside for the purposes of an environmental offset—a use of the area that is inconsistent with how the environmental offset was or is required to be undertaken to achieve a conservation outcome for the prescribed environmental matter under a delivery or management plan or agreement;
- for any other prescribed environmental matter in the area—a significant residual impact as mentioned elsewhere in this guideline.

For additional information on offsets for legally secured offset areas please contact the Department of Environment and Heritage Protection via email: offsets@ehp.qld.gov.au

13. Appendix 1

Definitions

Table 2 provides definitions of some terms used throughout this guideline.

Table 1 Definitions used in this guideline

Term	Definition
Ecological community	Ecological community is defined as a group of interacting species residing in the same location.
Extent of occurrence	Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon, excluding cases of vagrancy ²
Hydrological regime	Hydrological regime describes the variation in flow rates and the volumes of water in the ecosystem due to precipitation, infiltration, evaporation, soil and subsoil characteristics and climatic and seasonal variations.
Invasive species	Invasive species is an introduced species, including a displaced native species which is not endemic to the site, which out-competes native species for space and resources or which is a predator of native species.
Life cycle	Life cycle is the series or stages of reproduction, growth, development, ageing and death of an organism.
Local population	Local population is the population residing in the study area. If the study area demonstrates connectivity with surrounding habitats, assessment of a significant residual impact should extend to include these surrounding populations. This includes local populations of migratory or nomadic fauna, and the study site therefore needs to include all species that are likely to occur within the study site.
Species composition	Species composition refers to the identity of all the organisms present in an ecological community.
Water quality	Water quality is fundamental for the health of aquatic ecosystems and sustains ecological processes. Water quality is commonly defined by its chemical, physical and biological characteristics, with all these integral for the conservation of aquatic and aquatic dependant ecosystems.

² More information can be found: <http://www.ehp.qld.gov.au/wildlife/threatened-species/wildlife-category.html> - "Make a Nomination".