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OV1 Biodiversity Overlay Mapping Methodology

The OV1 Biodiversity Overlay encompasses the following layers comprising their respective constructs:

Matters of State Environmental Significance (MSES)

Comprised of the following combined layers from DES's *Method for Mapping Matters of State Environmental Significance: For the State Planning Policy 2019: Version 6.01*:

- Conservation areas
  - 1. Protected areas:
    - a. Protected area (estate) (date published 8 Sept 2021)
    - b. Protected area (nature refuge) (date published 8 Sept 2021)
- Wetlands
  - 5. High Ecological Significance wetlands (date published 6 July 2022)
- Wildlife habitat
  - 7. Wildlife habitat
    - a. Endangered and vulnerable wildlife (date published 6 July 2022)
    - b. Special least concern animal (date published 6 July 2022)
    - c. Koala habitat areas – state / core habitat (date published 8 Sept 2022)
    - d. Koala habitat areas – local refined (date published 8 Sept 2022)
- Regulated vegetation
  - 8. Regulated vegetation under the *Vegetation Management Act 1999* that is:
    - a. Regulated vegetation (category B) (date published 8 Sept 2022)
    - b. Regulated vegetation (category C) (date published 8 Sept 2022)
    - d. Regulated vegetation (essential habitat) (date published 8 Sept 2022)
    - e. Regulated vegetation (defined watercourse / intersecting a watercourse) (date published 8 Sept 2021)
    - f. Regulated vegetation (wetland) (date published 8 Sept 2021)
- Offsets
  - 9. Legally secured offset areas
    - b. Legally secured offset area (regulated vegetation offsets) (date published 8 Sept 2021)

Note – MSES mapping layers listed in DES's *Method for Mapping MSES* that is not mapped in the State Planning Policy Interactive Mapping System as affecting the Ipswich local government area and thus not included, are as follows:

- Conservation areas
  - 1. Protected areas:
    - c. Protected area (special wildlife reserves)
  - 2. Marine park (highly protected areas)
  - 3. Declared fish habitat area (A and B areas)
  - 4. Strategic environmental area (designated precinct)
- Wetlands
  - 6. Declared High ecological value waters:
    - a. High ecological value waters (wetland)
    - b. High ecological value waters (watercourse)
- Regulated vegetation
  - 8. Regulated vegetation under the Vegetation Management Act 1999 that is:
    - c. Regulated vegetation (category R)
- Offsets
  - 9. Legally secured offset areas
    - a. Legally secured offset area (offset register)

Matters of Local Environmental Significance (MLES)

- Modelled locally significant priority species mapping (refer to *Explanatory Note: Approach to Mapping Locally Significant Priority Species for Inclusion as a Matter of Local Environmental Significance – Version 1*)

Strategic Corridor Links

This layer employs the Regional biodiversity corridor mapping from the *South East Queensland Regional Plan 2017 – ShapingSEQ* and modification to include additional corridors in alignment with the Ipswich City Council's *Nature Conservation Strategy 2015*.

Initial mapping exercises have commenced on the identification of refined urban biodiversity corridors for the new planning scheme. This body of work requires further consideration of the corridor mapping application in the new planning scheme and for the Council as a whole, and is planned to be included in the overlay package through an early major amendment to the new planning scheme. This approach will enable greater engagement and clearer communication of the proposed inclusion with the community and Council.

Explanatory Note: *Approach to Mapping Locally Significant Priority Species for Inclusion as a Matter of Local Environmental Significance – Version 1.*

Purpose

Following is an overview of the Locally Significant Priority Species (LSPS) mapping developed to inform Matters of Local Environment Significance for the new Ipswich Planning Scheme.

An outline is provided on development of the individual likely distribution maps for each species and aggregate map.

The process to develop was iterative, involving environmental consultants and council officer knowledge.

Background

As a result of a prioritisation process[1] 26 species were determined to be LSPS – refer table 1 below.

No.	Taxonomic Name	Common Name	Type
	Flora (Plants)		
1	*Acacia obtusifolia*	Blunt leaf wattle	Tree
2	*Asplenium paleaceum*	Scaly asplenium	Forb
3	*Atalaya hemiglauca*	Whitewood	Tree
4	*Elattostachys bidwillii*	Northern white tamarind	Tree
5	*Eleocharis dulcis*	Chinese water chesnut	Aquatic
6	*Ficus rubiginosa forma rubiginosa*	Small-leaved fig	Tree
7	*Grahamia australiana*	Grahamia	Forb
8	*Indigofera baileyi*	Baileys indigo	Forb
9	*Melaleuca comboynensis*	Cliff bottlebrush	Tree
10	*Melaleuca quinquenervia*	Broad-leaved paperbark, swamp paperbark	Tree
11	*Stephania renifolia*	Kidney-leaved snake vine	Vine
12	*Tephrosia juncea*	Rush-leaved tephrosia	Forb
13	*Zornia floribunda*	Narrow-leaved zornia	Forb
	Fauna (Animals)		
14	*Aepyprymnus rufescens*	Rufous bettong	Macropod
15	*Biziura lobata*	Musk duck	Waterbird
16	*Chalinolobus picatus*	Little pied bat	Microbat
17	*Cyclorana alboguttata*	Green stripe frog, striped burrowing frog	Frog
18	*Cyclorana brevipes*	Superb collared frog, short-footed frog	Frog
19	*Limnodynastes salmini*	Salmon striped frog	Frog
20	*Litoria brevipalmata*	Green-thighed frog	Frog
21	*Litoria tyleri*	Tyler's tree frog, southern laughing tree frog	Frog
22	*Melithreptus gularis*	Black-chinned honeyeater	Passerine Bird
23	*Notamacropus dorsalis*	Black-striped wallaby	Macropod
24	*Oxyura australis*	Blue-billed duck	Waterbird
25	*Phascogale tapoatafa*	Brush-tailed phascogale	Dasyrid
26	*Pomatostomus temporalis*	Grey crowned babbler	Passerine Bird

Table 1: List of 26 Locally Significant Priority Species for inclusion as a Matter of Local Environmental Significance within the Planning Scheme.

[1] Refer *Explanatory Note – Determining Locally Significant Priority Species for Inclusion as A MLES* (A7859328)

Mapping Methodology

Individual Likely Distribution Map – Technical Processes

- Each species likely distribution map comprises a spatial layer of habitat attributes and data specific to it.
- The spatial layer is generated through the application of habitat mapping rules specifically modelled for each species - refer Attachment 1.
- The mapping rules were defined in the report *Review of Locally Significant Species for the Ipswich Local Government Area (2019)* by environmental consultants Ecosure. Council further refined the rules based on local knowledge and data confidence and limitation.
- The methods to define the mapping rules uses a similar approach to that which the State Government uses for mapping EVNT and priority species in Queensland - known as the Biodiversity Assessment and Mapping Methodology (BAMM). This methodology identifies essential habitat, which is defined as vegetation in which a threatened species has been known to occur (Ecosure:2019).
- Habitat mapping for Moreton Bay Regional Council (BAAM 2017, Ecosure 2018) follows a similar BAMM approach, using ecological knowledge of the species, known records and spatial data layers including RE mapping, canopy height, remnant patch size, water/wetland features and altitude. It was considered that this approach would be most applicable for mapping LSPS potential habitat distribution.
- Two categories of rules are applied to develop a species spatial layer:
    - Mandatory –
        - Regional Ecosystem (RE) Vegetation Community Type; and/or
        - Wetland Habitat Type.
    - Supplementary –
        - Single patch size *(applicable to fauna only);*
        - Multiple patch size *(applicable to fauna only);*
        - Canopy height;
        - Altitude;
        - Stream *(applicable to fauna only);* or
        - Known habitat *(lies within a specified distance of a known species record).*
- Each species layer is generated using one, if not both, of the mandatory rules applicable.
- Depending on applicability supplementary rules may be also applied along with the mandatory rules.
- Individual rules that identify potential habitat are summarised as follows:
    - Regional ecosystems - Remnant and regrowth RE mapping were used to –
        - Identify potential habitat for terrestrial species
        - Develop habitat patch size rules for some fauna species
    - Wetland habitat type - A specified distance around a wetland was included in some rules for fauna species associated with wetlands, but use surrounding vegetation communities (e.g., some frogs).
    - Stream Order, stream characteristics and rules for proximity to water - Ordered stream mapping was used to identify potential habitat for species associated with waterways. A specified distance around a stream was included in some rules for fauna species that are associated with waterways, but also use surrounding vegetation communities.
    - Canopy height - Lidar mapping was used to develop canopy height rules for some species. Canopy height was also used to develop habitat patch rules for some fauna species (e.g., gliders).

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    - Altitude limits - Digital elevation mapping was used to delimit suitable habitat for species that do not occur at low altitudes.
    - Multiple, single and potential habitat patch size and distance rules - Patch size rules were used to define the dimensions of potential habitat patches that provide suitable habitat for fauna species. These rules considered factors such as home ranges, ability to traverse unsuitable habitat in fragmentated landscapes and the height of canopy trees. A minimum patch area was specified for many fauna species.
- The following spatial datasets is used:
    - Remnant Regional Ecosystem Mapping Version 12.1 *(2019 Queensland Government - Department of Environment & Science) -*
    - Wetland data - Version 5 – Wetland Areas *(Queensland Government – Department of Environment & Science)*
    - Wildnet Surveys Extract *(February 2022)*
    - Stream Order Mapping *(Ipswich City Council)*
    - Flora & Fauna Database *(Ipswich City Council 11 October 2021)*
    - 1 meter Contours *(2019 Lidar Supply)*
    - Vegetation Canopy Extract *(2019 Lidar Supply)*
- Accuracy of rules is constrained by:
    - Limited species occurrence records within the Ipswich LGA and South-east Queensland
    - Absence of ecological information such as habitat requirements
    - Limitations in spatial resolution of available data sets, including:
        - species occurrence records
        - Regional Ecosystem and wetland mapping layers
- Ground validation of mapping was not undertaken.
- To ensure consistency and comparability, each map contains the following metadata:
    - Species (name)
    - Common name

Aggregate Likely Distribution Map

- The individual spatial layers for the 26 LSPSs are combined to generate an aggregate map.
- The layer can be queried for LSPS are likely to be associated with a point on the map.

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Taxonomic Name	Common name	Kingdom	Environment	MANDATORY		(C) SUPPLEMENTARY					
				(A) Habitat rule - Regional Ecosystem Vegetation Community type	**(B) Habitat rule - wetland habitat type**	**Habitat rule - single patch size** *(applicable to fauna only)*	**Habitat rule - multiple patch size** *(applicable to fauna only)*	**Habitat rule - canopy height**	**Habitat rule - altitude**	**Habitat rule - stream**	**(D) Habitat rule - known habitat** - *Lies within specified distance of a Known Species Record (Point Source Data)*
FLORA SPECIES											
Acacia obtusifolia	Blunt leaf wattle	Flora	Terrestrial	12.8.14, 12.8.19, 12.8.2, 12.8.20	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Asplenium paleaceum	Scaly asplenium	Flora	Terrestrial	12.11.10, 12.11.11, 12.11.4, 12.12.13, 12.12.16, 12.12.18, 12.9-10.16	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Atalaya hemiglauca	Whitewood	Flora	Terrestrial	12.3.10, 12.8.22, 12.8.23	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Elattostachys bidwillii	Northern white tamarind	Flora	Terrestrial	12.2.11, 12.3.16, 12.9-10.16, 12.11.6, 12.12.13, 12.12.18	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Eleocharis dulcis	Chinese water chesnut	Flora	Wetland	Not Applicable	2b, 2c, 4b, 4c	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Ficus rubiginosa forma rubiginosa	Small-leaved fig	Flora	Terrestrial	12.3.21, 12.9-10.16, 12.11.11	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Grahamia australiana	Grahamia	Flora	Terrestrial	12.8.19, 12.9-10.5	Not Applicable	Not Applicable	Not Applicable	<= 5 m	Not Applicable	Not Applicable	
Indigofera baileyi	Baileys indigo	Flora	Terrestrial	12.8.14, 12.8.17, 12.11.24	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Melaleuca comboynensis	Cliff bottlebrush	Flora	Terrestrial	12.8.19, 12.9-10.5	Not Applicable	Not Applicable	Not Applicable	Not Applicable	>= 250 m	Not Applicable	
Melaleuca quinquenervia	Broad-leaved paperbark, swamp paperbark	Flora	Wetland	12.2.5, 12.2.7, 12.2.10, 12.3.4, 12.3.5, 12.3.6, 12.3.11, 12.3.20, 12.5.2, 12.5.3, 12.5.4, 12.9-10.4, 12.9-10.12, 12.9-10.21, 12.9-10.28, 12.11.27, 12.12.12	<= 500 m from 4a, 4b, 4c, 6, 9, 50	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Stephania renifolia	Kidney-leaved snake vine	Flora	Terrestrial	12.8.21, 12.11.11, 12.12.13	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Tephrosia juncea	Rush-leaved tephrosia	Flora	Terrestrial	12.5.4a, 12.9-10.2, 12.9-10.19a, 12.12.9	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Zornia floribunda	Narrow-leaved zornia	Flora	Terrestrial	12.2.11, 12.5.4, 12.8.24, 12.11.6, 12.12.5	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	

Taxonomic Name	Common name	Kingdom	Environment	MANDATORY		(C) SUPPLEMENTARY					
				(A) Habitat rule - Regional Ecosystem Vegetation Community type	**(B) Habitat rule - wetland habitat type**	**Habitat rule - single patch size** *(applicable to fauna only)*	**Habitat rule - multiple patch size** *(applicable to fauna only)*	**Habitat rule - canopy height**	**Habitat rule - altitude**	**Habitat rule - stream**	**(D) Habitat rule - known habitat** - *Lies within specified distance of a Known Species Record (Point Source Data)*
FAUNA SPECIES											
Aepyprymnus rufescens	Rufous bettong	Fauna	Terrestrial	12.3.3, 12.3.19, 12.5.1, 12.5.2, 12.5.3, 12.5.7, 12.8.14, 12.8.16, 12.8.17, 12.8.24, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.7, 12.9-10.12, 12.9-10.17, 12.9-10.19, 12.9-10.27, 12.11.5, 12.11.14, 12.12.5, 12.12.28	Not Applicable	Removed - Potential habitat patch >= 100 ha	Removed - Summed area of potential habitat patches >= 100 ha AND potential patches <= 150 m apart	Not Applicable	elevation > 100 m	Not Applicable	1,000 m
Biziura lobata	Musk duck	Fauna	Wetland	Not Applicable	4C	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	2,500 m
Chalinolobus picatus	Little pied bat	Fauna	Terrestrial	12.3.3, 12.3.19, 12.5.1, 12.5.2, 12.5.3, 12.5.7, 12.8.14, 12.8.16, 12.8.17, 12.8.24, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.7, 12.9-10.12, 12.9-10.17, 12.9-10.19, 12.9-10.27, 12.11.5, 12.11.14, 12.12.5, 12.12.28	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	2,500 m
Cyclorana alboguttata	Green stripe frog, striped burrowing frog	Fauna	Wetland	Not Applicable	2a, 2c, 4a, 4c, 50	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	1,000 m
Cyclorana brevipes	Superb collared frog, short-footed frog	Fauna	Wetland	12.3.3, 12.3.7, 12.3.8, 12.3.10a, 12.3.18, 12.3.19, 12.5.2x1, 12.5.7, 12.8.14, 12.8.23, 12.9-10.3, 12.9-10.6, 12.9-10.11, 12.11.18, 12.12.28	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	1,000 m

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Taxonomic Name	Common name	Kingdom	Environment	MANDATORY		(C) SUPPLEMENTARY					
				(A) Habitat rule - Regional Ecosystem Vegetation Community type	**(B) Habitat rule - wetland habitat type**	**Habitat rule - single patch size** *(applicable to fauna only)*	**Habitat rule - multiple patch size** *(applicable to fauna only)*	**Habitat rule - canopy height**	**Habitat rule - altitude**	**Habitat rule - stream**	**(D) Habitat rule - known habitat -** *Lies within specified distance of a Known Species Record (Point Source Data)*
Limnodynastes salmini	Salmon striped frog	Fauna	Wetland	Not Applicable	2a, 2c, 4a, 4c, 50	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	1,000 m
Litoria brevipalmata	Green-thighed frog	Fauna	Wetland	Removed - 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.8, 12.3.9, 12.3.11, 12.3.20, 12.5.6a, 12.8.3,12.8.4, 12.8.5, 12.8.8, 12.8.9, 12.8.13, 12.8.21, 12.8.23, 12.9-10.6, 12.9- 10.15, 12.11.3	2a, 4a, 40, 50	Not Applicable	Not Applicable	Not Applicable	>= 26m	Not Applicable	1,000 m
Litoria tyleri	Tyler's tree frog, southern laughing tree frog	Fauna	Wetland	Removed - 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.8, 12.3.9, 12.3.11, 12.3.20, 12.5.6a, 12.8.8,12.8.9, 12.8.23, 12.9-10.6, 12.11.3	2a, 4a, 50	Not Applicable	Not Applicable	Not Applicable	>= 26m	Not Applicable	1,000 m
Melithreptus gularis	Black-chinned honeyeater	Fauna	Terrestrial	12.9-10.2, 12.9-10.4, 12.11.3, 12.12.3, 12.12.7, 12.12.28	Not Applicable	Potential habitat patch >= 5 ha	Not Applicable	Removed - >= 10 m	Not Applicable	<= 500 m from stream	2,500 m
Notamacropus dorsalis	Black-striped wallaby	Fauna	Terrestrial	12.3.3, 12.3.10, 12.3.19, 12.5.1, 12.5.2, 12.5.3, 12.5.7, 12.8.14, 12.8.16, 12.8.17, 12.8.23, 12.8.24, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.6, 12.9-10.7, 12.9-10.12, 12.9-10.17, 12.9-10.19, 12.9-10.27, 12.11.5, 12.11.14, 12.12.5, 12.12.28	Not Applicable	Removed - Potential habitat patch >= 50 ha	Removed - Summed area of potential habitat patches >= 50 ha AND potential	Not Applicable	Not Applicable	Not Applicable	1,000 m

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Taxonomic Name	Common name	Kingdom	Environment	MANDATORY		(C) SUPPLEMENTARY					
				(A) Habitat rule - Regional Ecosystem Vegetation Community type	**(B) Habitat rule - wetland habitat type**	**Habitat rule - single patch size** *(applicable to fauna only)*	**Habitat rule - multiple patch size** *(applicable to fauna only)*	**Habitat rule - canopy height**	**Habitat rule - altitude**	**Habitat rule - stream**	**(D) Habitat rule - known habitat -** *Lies within specified distance of a Known Species Record (Point Source Data)*
							patches <= 150 m apart				
Oxyura australis	Blue-billed duck	Fauna	Wetland	Not Applicable	4c	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	2,500 m
Phascogale tapoatafa	Brush-tailed phascogale	Fauna	Terrestrial	12.3.3, 12.3.5, 12.3.6, 12.3.7, 12.3.11, 12.3.16, 12.3.19, 12.5.1, 12.5.2, 12.5.3, 12.5.7, 12.8.4, 12.8.9, 12.8.13, 12.8.14, 12.8.16, 12.8.17, 12.8.21, 12.8.24, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.7, 12.9-10.12, 12.9-10.15, 12.9-10.16, 12.9-10.17, 12.9-10.19, 12.9-10.27, 12.11.11, 12.11.5, 12.11.14, 12.12.5, 12.12.15, 12.12.28	Not Applicable	Removed - Potential habitat patch >= 100 ha	Removed - Summed area of potential habitat patches >= 100 ha AND potential patches <= 150 m apart	Not Applicable	Not Applicable	Not Applicable	1,000 m
Pomatostomus temporalis	Grey crowned babbler	Fauna	Terrestrial	12.2.8, 12.2.11, 12.3.3, 12.3.7, 12.3.11, 12.5.3, 12.5.4, 12.5.6, 12.5.7b, 12.8.14, 12.8.16, 12.8.17, 12.8.24, 12.9-10.2, 12.9-10.7, 12.9-10.11, 12.11.5, 12.11.14, 12.11.22, 12.12.2, 12.12.11, 12.12.12, 12.12.23	Not Applicable	Potential habitat patch >= 5 ha	Not Applicable	Not Applicable	Not Applicable	Not Applicable	2,500 m

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OV2 Waterway Corridors and Wetlands Overlay Mapping Methodology

The OV2 Waterway Corridors and Wetlands Overlay encompasses the following layers comprising their respective constructs:

Watercourses and Buffers (Minor, Medium and Major)

- Council stream order mapping (streams from 1-8), with exception of the Brisbane River and part of the Bremer River, to determine the waterway centreline and refined by overlaying and retaining streams where they correlate with MSES – Regulated vegetation (intersecting a watercourse);
- For the Brisbane River and Bremer River (extent from the Brisbane River confluence to Arnold Street, Wulkuraka), applying the marked edge of bank determined by visual analysis of aerial photography dated Friday, 27 August 2021; and
- Applying a buffer in accordance with Table 1 – Riparian Buffer Area Distances below, from either the centreline of mapped waterway corridors or the edge of bank as identified in the dot points above.

Wetlands and Wetland Buffers

- MSES – High ecological significance wetlands;
- Local wetlands using 'Map of Queensland Wetland Environmental Values' mapping (published 18 March 2020) supporting schedule 2 of the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*; and
- Applying a buffer from the edge of mapped wetlands as referenced in Table 1 – Riparian Buffer Area Distances.

Table 1 - Riparian Buffer Area Distances

Type	Stream Order	Measurement
Minor waterway	1 and 2	10m
Medium waterway	3 and 4	25m
Major waterway	5 to 8	50m
Wetland	-	100m