Method for mapping Matters of state environmental significance

For the State Planning Policy 2017

Version 6.01

Queensland Government

Prepared by: Land Use Planning, Environment Policy and Planning, Department of Environment and Science

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Acknowledgements would not appear on the verso if there is an acknowledgements page.

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Contents

Changes made to the document from 6.0

- Included a new subcategory of MSES Protected Area, being 'special wildlife reserves'. This is a class of protected area under the *Nature Conservation Act 1992* which was came into effect on 11 September 2019. All protected areas are MSES with the exception of 'coordinated conservation areas'.
- Clarified legally secured offsets do not contain 'advanced offsets'. These are a mechanism under the Environmental Offsets Act 2014 for registering expressions of interest for land based offset areas. These areas are not yet legally secured and therefore not MSES.
- Updated HEV MSES method to align with latest Queensland Wetland Mapping data (Version 5) and query for determining natural, low-modifed wetlands.
- Removed references and guidance to matters of local environmental significance (MLES). This guidance are addressed in the State Planning Policy 2017 (SPP) Biodiversity guidance material or other advice provided from the Department of Environment and Science (DES).

Purpose and methods

Purpose of the mapping: for land use planning, development and offsets

This document has been prepared to describe the methodology used to spatially represent matters of state environmental significance (MSES) used for plan making, development assessment and offsets.

The State Planning Policy 2017 (SPP) sets out the state's interest for biodiversity as:

'Matters of environmental significance are valued and protected, and the health and resilience of biodiversity is maintained or enhanced to support ecological integrity.'

Schedule 2 of the Environmental Offsets Regulation 2014 (Offset Regulation) also defines a list of matters of state environmental significance, which is a prescribed matter under the Environmental Offsets Act 2014. The code provisions under the State Development Assessment Provisions (SDAP) refer to the definition under the Offset regulation.

SPP MSES Definition

The State Planning Policy 2017 (SPP) defines matters of state environmental significance as:

1. protected areas (including all classes of protected area except coordinated conservation areas) under the Nature Conservation Act 1992
2. 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zones under the Marine Parks Act 2004
3. areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008
4. a designated precinct, in a strategic environmental area under the Regional Planning Interests Regulation 2014, schedule 2, part 5, s15(3)
5. wetlands in a wetland protection area or wetlands of high ecological significance shown on the map of referable wetlands under the Environmental Protection Regulation 2008 (note this has been replaced with the map of Queensland wetland environmental values under the Environmental Protection Regulation 2019)
6. wetlands and watercourses in high ecological value waters identified in the Environmental Protection (Water) Policy 2009, schedule 1
7. legally secured offset areas as defined under the Environmental Offsets Act 2014.
8. threatened wildlife under the Nature Conservation Act 1992 and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006
9. marine plants under the Fisheries Act 1994 (excluding marine plants in an urban area)
10. waterways that provide for fish passage under the Fisheries Act 1994 (excluding waterways providing for fish passage in an urban area)
11. High risk area on the flora survey trigger as described by the Environmental offsets Regulation 2014, schedule 2, part6(1)
12. regulated vegetation under the Vegetation Management Act 1999 that is:
    a. category B areas on the regulated vegetation management map, that are 'endangered' and 'of concern' regional ecosystems
    b. category C areas on the regulated vegetation management map that are 'endangered' and 'of concern' regional ecosystems
    c. category R areas on the regulated vegetation management map
    d. areas of essential habitat on the essential habitat map for an animal that is 'endangered wildlife' or 'vulnerable wildlife' or a plant that is 'endangered wildlife' or 'vulnerable wildlife' wildlife prescribed as 'endangered wildlife' or 'vulnerable wildlife' under the Nature Conservation Act 1992
    e. category A,B,C,R areas that are located within a defined distance8 from the defining banks of a relevant watercourse identified on the vegetation management watercourse and drainage feature map
    f. category A,B,C,R areas that are located within 100 metres from the defining bank of a wetland identified on the vegetation management wetlands map.

NOTE: mapping associated with ix), x) or xi) categories of MSES will not be displayed for SPP purposes.

MSES in relation to existing laws and policies

The MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirement of other Acts or regulations.

Limitations of MSES mapping

This is a biophysical mapping product. The data used to create it is scale dependent and care needs to be exercised in using the mapping at very large scales and it should not be used as a 'point of truth'. It provides an indication of where the biodiversity values are expected to exist in the landscape. Site surveys will generally be required to determine if the depicted values are present. Please see the SPP (biodiversity) guideline for more information regarding site surveys mapping amendments.

How to access the mapping

MSES mapping is published online by the Department of State Development Infrastructure Local Government and Planning (DSDILGP) and viewable to an allotment scale from the SPP Interactive Mapping System (IMS) or the development assessment mapping system (DAMS), available at www.dilgp.qld.gov.au. The mapping data can be obtained for use in a geographic information system (GIS) from the Queensland Spatial Catalogue (QSpatial) at http://qspatial.information.qld.gov.au.

For further information, refer to the SPP and associated guideline for biodiversity or email SPP@dsdmip.qld.gov.au.

Table 1 MSES methodology refers to layer names that are available on QSpatial on Internal government databases. A MSES mapping methodology can also be located on the EHP website at https://www.ehp.qld.gov.au/management/planning-guidelines/method-mapping-mses.html.

Update and amendment policy

MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of environment databases managed by state government agencies. The original data includes, but is not limited to:

- vegetation management regulated maps
- regional ecosystems remnant vegetation
- threatened species sightings (WildNet and other databases)
- protected area tenure mapping
- marine park zoning information
- Queensland wetland mapping

If there are inconsistencies in the mapping, please raise with relevant custodian of the original data, recognising that changes may not be possible. Please see *Contacts for MSES mapping sources* section below for sources of state government data in MSES.

The department will only accept MSES mapping refinements on specific MSES mapping layers[1] from local government intended for use in planning schemes. Please see the section *Limited ability to refine MSES mapping for local planning schemes* on the refinement process. All other requests will be considered, however no guarantee will be provided on updating the mapping.

1 Limited MSES mapping layers for refinement include wildlife habitat (excluding koala habitat) and some wetland mapping.

MSES mapping methodology tables

The method for mapping MSES areas is provided in Table 1.

MSES Mapping layers

Conservation areas

1. Protected areas:
   a. Protected area (estate)
   b. Protected area (nature refuge)
   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

5. High Ecological Significance wetlands
6. Declared High ecological value waters:
   a. High ecological value waters (wetland)
   b. High ecological value waters (watercourse)

Wildlife habitat

7. Wildlife habitat
   a. Endangered and vulnerable wildlife
   b. Special least concern animal
   c. Koala habitat areas – state
   d. Koala habitat areas – local refined

Regulated vegetation

8. Regulated vegetation under the Vegetation Management Act 1999 that is:
   a. Regulated vegetation (category B)
   b. Regulated vegetation (category C)
   c. Regulated vegetation (category R)
   d. Regulated vegetation (essential habitat)
   e. Regulated vegetation (defined watercourse)
   f. Regulated vegetation (wetland)

Offsets

9. Legally secured offset areas
   a. Legally secured offset area (offset register)
   b. Legally secured offset area (regulated vegetation offsets)

These indicative layers will not be included on the SPP Interactive Mapping System (IMS):

10. Marine plants (HAT trigger)
11. Fish waterways for waterway barrier works:
    a. stream
    b. estuaries
12. Protected plants (high risk trigger)

Limited ability to refine MSES mapping for local planning schemes

This guide is intended for local government planners who are preparing planning schemes involving MSES.

Local government planning scheme refinement only

The department will only accept MSES mapping refinements from local government intended for use in planning schemes. All other mapping refinement requests will be considered, however no guarantee will be provided on updating the mapping.

What MSES mapping layers can be refined?

The majority of layers in MSES are sourced from data that is managed by various state agencies. Amending the data requires contacting the custodians of the source data. If the custodian accepts the mapping, it will be updated in MSES in time. See Contacts for refining other MSES mapping sources below.

There are limited layers that can be refined under the MSES mapping method. These include the following layers:

Wildlife habitat
- Endangered and vulnerable wildlife
- Special least concern animal

Declared High ecological value waters:
- High ecological value waters (wetland)
- High ecological value waters (watercourse)

What is the process for MSES mapping refinement?

1. Before commencing the mapping process, contact planning support (planning.support@des.qld.gov.au) and request specific advice on how to proceed based on the mapping's objective. This should occur prior to lodging the state interest check.
2. Proposed mapping requests for the above MSES mapping can be submitted through planning.support@des.qld.gov.au
3. The proposed mapping, its method and supporting material will be considered by the department in its appropriate representation of the MSES category.
4. Once a decision has been made on the suitability of the mapping, the department will notify the applicant of the decision.
5. If the department agrees with the proposed refinement, an amendment to the MSES mapping will occur during the next updating schedule.

What should be submitted for a MSES mapping refinement?

Species habitat

If another method for mapping species habitat is proposed, the following is required for approval by the department:

- Description and purpose of mapping. For example, identify if there are multiple categories assigned to the habitat for purposes other than MSES.
- Methodology, highlighting the different approach used other than the MSES method for wildlife habitat below (and in Appendix A, B or C), and any references to similar methods supplied.
- GIS data (in ESRI ArcGIS) format and related information including geodatabases, layer files/mxd, metadata, technical documentation.
- Additional information that support the proposed mapping (for example, species records).

User sourced species records

For the purpose of delineating MSES species habitat, it is recommended that species point data records be submitted to WildNet, the Queensland Government standard database for species records and information. As much detail as possible on the record should be provided. Please refer to the Queensland WildNet guidelines for more information (https://www.qld.gov.au/__data/assets/pdf_file/0014/100616/wildnet-data-form-guidelines.pdf). If User sourced species records must meet the minimum collection standards as stated in Appendix A.

Koala habitat areas

SEQ koala habitat areas are a regulatory map under the Nature Conservation Act 1992 and are managed by a separate review process. Contact seqkoala@des.qld.gov.au for information on the process to amend the regulation map.

Wetland mapping

Proposed alternate wetland mapping should follow Queensland wetland definition and delineation guidelines (https://wetlandinfo.des.qld.gov.au/resources/static/pdf/resources/reports/buffer-guide/qld-wetland-definition-and-delineation-guideline-part-b.pdf) when locally refining the Queensland wetlands mapping.

What are the timeframes for departmental review?

A minimum three (3) months is required, once a mapping is submitted, to allow time for DES to provide a technical review of the mapping.

For local governments who developing planning instruments, it is not recommended to submit the mapping at the time of the state interest review stage. Before commencing the mapping process, contact planning support (planning.support@des.qld.gov.au) and request specific advice on how to proceed based on the mapping's objective.

Further enquiries

Contact planning.support@des.qld..gov.au for any further enquiries on proposed MSES mapping.

Table 1: Matters of State environmental significance (MSES) – technical summary of layers

The following table provides a summary on how each layer was determined. This includes a general summary (Overview) and Geographic Information Systems (GIS) rules for extracting the information from data sources.

The product was compiled using ESRI ArcGIS 10x GIS desktop software. Data was derived from internal government geodatabases. All further mentions of 'query' in Table 1 refer to ArcGIS feature class queries, based on Structure Query Language (SQL). Other GIS software packages may vary when selecting or filtering subset data. In the "GIS rules" column of Table 1, GIS processes are CAPITALISED for directions on extracting the data.

MSES layers	SPP definition	Overview	GIS rules	GIS sources
1. Protected areas: a. Protected area (estate) b. Protected area (nature refuges c. Protected area (special wildlife reserves) *Nature Conservation Act 1992*	Protected areas (including all classes of protected area except coordinated conservation areas) under the Nature Conservation Act 1992	Include following categories only: • National Park • National Park (Aboriginal land) • National Park (Torres Strait Islander land) • National Park (Cape York Peninsula Aboriginal land) • Conservation Park • Resources Reserve • Forest Reserve • Nature Refuge Areas^ • Areas of critical habitat* • Special wildlife reserves Notes: ^Nature Refuge Area extents are not defined by cadastral property boundaries. Ensure that the data only contains the refuge area portion of a property and not include the whole cadastral boundary, unless specified. *currently, there are no areas of this class of protected area	Direction: • For estates, SELECT listed estate types using the query: EST_TENURE IN ('NP', 'NS' , 'NY' , 'CP', 'FR', 'RR') • For nature refuges, COPY the entire dataset. • For special wild reserves COPY the entire dataset.	QSpatial data: • Protected areas of Queensland • Nature Refuges - Queensland • Special - Queensland Internal use data: • QPWS_SIS.QLD_ESTATE_DCDB/QPWS_SIS.ESTATE • EN.QLD_NATURE_REFUGE • QPWS_SIS.QLD_SPEC_WILDLIFE_RES

MSES layers	SPP definition	Overview	GIS rules	GIS sources
		declared under the NCA. State Forests are not included as MSES.		
2. Marine park (highly protected) *Marine Parks Act 2004*	'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zones under the Marine Parks Act 2004	Include the following Highly Protected MP zones only: • Marine National Park zone • Marine Conservation Park zone • Scientific Research zone • Preservation zone • Buffer zone	Direction: SELECT listed Marine Park Zones using the query: ZONE IN ('Marine National Park Zone', 'Conservation Park Zone', 'Scientific Research Zone', 'Preservation Zone', 'Buffer Zone')	QSpatial data: Queensland State Marine Parks Zoning: • Moreton Bay marine park zoning 2008 • Great Barrier Reef coast marine park zoning Internal use data: • QPWS_SIS.QLD_STATE_MARINE_PARKS
3. Declared fish habitat area (A and B areas) *Fisheries Act 1994*	Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008	Include: • Fish Habitat Areas A and B	Direction: SELECT listed Fish Habitat Areas using the query: TYPE_ABBR IN ('FHAA', 'FHAB') Note: currently, copying the data entirely also suffices.	QSpatial data: • Queensland fish habitat areas Internal use data: • QPWS_SIS.QLD_FISH_HABITAT_AREA
4. Strategic environmental area (designated precinct) *Regional Planning Interests Act 2014*	A designated precinct, in a strategic environmental area under the Regional Planning Interests Regulation 2014, schedule 2, part 5, s15(3)	Include: • Strategic Environmental Areas- Designated Precincts	Direction: SELECT of DSDILGP Strategic Environmental Areas layer. Designated precincts only using the query: RPITYPE = 'Strategic Environmental Area - Designated Precinct'	QSpatial data: • Regional Planning Interests Act- Strategic Environmental Areas Internal use data: • DSDIP.QLD_DSDIP_RPI_SEA
5. High Ecological Significance wetlands *Environmental Protection Act 1994*	Wetlands in a wetland protection area or wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the	Include: • HES wetlands on the Map of Queensland Wetland Environmental Values Exclude:	Direction: Extract the following: 'HES' wetlands from the Queensland wetland environmental values ,ap using the "SIGNIFICANCE" field Remove Any Map Amendment	QSpatial data: • Queensland wetland environmental values Internal use data: • ENVEP.QLD_WETLAND

MSES layers	SPP definition	Overview	GIS rules	GIS sources
	Environmental Protection (Water and Wetland Biodiversity) Policy 2019	• Wetland map amendments made under the Environmental Protection Regulation Note: The data used on the Map of Queensland Wetland Environmental Values is based on Queensland Wetlands Mapping Version 2 (2009). To ensure currency, the latest version of the mapping can be used to validate wetlands on the Map of Queensland Wetland Environmental Values.	Register amendments QSpatial directions use the query: SIGNIFICANCE ='HES'	_EPP_WEV
6. Declared High ecological value waters: a. High ecological value waters (wetland) b. High ecological value waters (watercourse) *Environmental Protection Act 1994*	Wetlands and watercourses in high ecological value waters identified in the Environmental Protection (Water and Wetland Biodiversity) Policy 2019, schedule 1	For MSES layer include: • Natural wetlands on the Queensland wetlands mapping that are within (clipped to) HEV areas For MSES Drainage layer, include: • River/drainage lines that are within (clipped to) HEV areas	Direction: DES Healthy Waters have prepared MSES-specific data for the two layers: • HEV wetlands, and • HEV watercourses HEV wetlands Derived directly from Wetlands v5. SELECT natural wetlands from the Queensland Wetland Mapping that are not highly modified: Query: HYDROMOD_ NOT IN ('H2M1', 'H2M1a', 'H2M1c','H2M5', 'H2M6', 'H2M6a', 'H2M6b', 'H2M6c', 'H2M6e', 'H2M7', 'H3C1', 'H3C1a', 'H3C1b', 'H3C1c', 'H3C1d', 'H3C2', 'H3C3') AND HYDROMOD IS NOT NULL AND LEGEND NOT IN('01-50_RE') SELECT HEV waters from the “intent for waters” EPP. There are 3 regional datasets if QSpatial datasets are used. SELECT MI_TYPE IN('HEV' , 'HEVm_fw' , 'HEVm_mar') INTERSECT wetlands with HEV	QSpatial data: HEV waters: • Environmental Protection (Water and Wetland) Amendment Policy (No.1) 2020 - Management Intent - Queensland Source Wetlands: • Wetland data - version 5 - wetland areas - Queensland Source Watercourses: • Vegetation management watercourse and drainage feature map (1:100000 and 1:250000) – latest version 1.4 Internal use data: • ENVHW.QLD_EPP_MANAGEMENT_INTENT • HERB.QLD_WETLAND_AREAS • VEGMGT.QLD_VEG_WATERCOURSE_100K_CUR

MSES layers	SPP definition	Overview	GIS rules	GIS sources
			waters. HEV watercourses For watercourses, use the regulated vegetation watercourse layer As above, SELECT MI_TYPE IN('HEV' , 'HEVm_fw' , 'HEVm_mar') INTERSECT watercourses with HEV waters.	• VEGMGT.QLD_VEG_WATERCOURSE_100K_SEQ • VEGMGT.QLD_VEG_WATERCOURSE_25K_CUR Prepared internal layers • ENVHW.QLD_EPP_HEV_OUTLINE • ENVHW.QLD_EPP_HEV_WETLANDS • ENVHW.QLD_EPP_HEV_WATERCOURSE
7. Wildlife habitat a. Endangered or vulnerable wildlife b. Special least concern animal c. SEQ koala habitat area i. core ii. locally refined *Nature Conservation Act 1992*	Threatened wildlife under the Nature Conservation Act 1992 and selected special least concern animals under the Nature Conservation (Wildlife) Regulation 2006	Comprises habitat for: • 'Endangered' or 'Vulnerable' threatened wildlife under the *Nature Conservation Act 1992* • Special least concern animals under the *Nature Conservation Act 1992* including: ○ Echidna ○ Platypus ○ Migratory birds (JAMBA,CAMBA, Bonn) • Koala habitat areas as defined by the Nature Conservation (Koala) Conservation Plan separated by ○ Core ○ Locally refined	Mapping for individual layers include: 1. Endangered or vulnerable wildlife - as per Appendix B 2. Special least concern animal - per Appendix C 3. SEQ koala habitat areas under the Nature Conservation (Koala Conservation) Plan 2017. See the method on the department website at (https://environment.des.qld.gov.au/__data/assets/pdf_file/0023/102893/spatial-modelling-koalas-seq.pdf). Appendix A provides general guidance on the principles of mapping wildlife habitat applied to all mapping of species. Appendix B and C provides detailed methods for specific layers, excluding SEQ koala habitat areas.	QSpatial data: • Wildnet database species records • Habitat suitability models (various) • South East Queensland Koala Conservation Strategy 2019-2024 ○ Koala habitat area - core ○ Koala habitat area - locally refined
Regulated vegetation - *Vegetation Management Act 1999*				

MSES layers	SPP definition	Overview	GIS rules	GIS sources
8. Regulated vegetation a. Category B endangered and of concern	Category B areas on the regulated vegetation management map, that are 'endangered' and 'of concern' regional ecosystems	Include: • VMA classes 'E' and 'OC' dominant and subdominant remnant vegetation that intersect Category B on the Regulated Vegetation Map	Direction: SELECT remnant vegetation that is VMA class 'endangered' or 'of concern' using the query: VM_STATUS IN ('rem_end', 'rem_oc') SELECT from regulated vegetation mapping that is Category B using the query: RVM_CAT = 'B' CLIP remnant vegetation layer to the extent of RVM layer	QSpatial data: • Vegetation management regional ecosystem and remnant map – latest version • Vegetation management - regulated vegetation management map- latest version Internal use data: • VEGMGT.QLD_VEG_RVMREREM_CODE_CUR • VEGMGT.QLD_VEG_RVM_100K_CUR
b. Category C endangered or of concern	Category C areas on the regulated vegetation management map that are 'endangered' and 'of concern' regional ecosystems	Include: • Endangered ('E') and Of concern ('OC') dominant and subdominant high value regrowth that intersect Category C on the Regulated Vegetation Map	Direction: SELECT regrowth veg that is VMA class 'endangered' or 'of concern' using the query: VM_STATUS IN ('hvr_end', 'hvr_oc') SELECT from regulated vegetation mapping that is Category C using the query: RVM_CAT = 'C' CLIP regrowth vegetation layer to the extent of RVM layer.	QSpatial data: • Vegetation management regional ecosystem and remnant map – latest version • Vegetation management - regulated vegetation management map- latest version Internal use data: • VEGMGT.QLD_VEG_RVMREREM_CODE_CUR • VEGMGT.QLD_VEG_RVM_100K_CUR
c. Category R (GBR riverine)	Category R areas on the regulated vegetation management map	Include: • all Category R areas on the Regulated Vegetation Management Map.	Direction: SELECT Regulated Vegetation Mapping that is Category R using the query: RVM_CAT = 'R'	QSpatial data: • Vegetation management - regulated vegetation management map- latest version 1.41 Internal use data: • VEGMGT.QLD_VEG_RV

MSES layers	SPP definition	Overview	GIS rules	GIS sources
				M_100K_CUR
d. Essential habitat	Areas of essential habitat on the essential habitat map for an animal that is 'endangered wildlife' or 'vulnerable wildlife' or a plant that is 'endangered wildlife' or 'vulnerable wildlife' wildlife prescribed as 'endangered wildlife' or 'vulnerable wildlife' under the Nature Conservation Act 1992	Include: Regulated vegetation that is areas of essential habitat under the Vegetation Management Act 1999	Direction: COPY the latest regulated vegetation essential habitat mapping.	QSpatial data: • Vegetation management - essential habitat map – latest version Internal use data: • VEGMGT.QLD_VEG_EHAB_CODE_NOATTRIB_CUR
e. defined watercourse	Category A,B,C,R areas that are located within a defined distance from the defining banks of a relevant watercourse identified on the vegetation management watercourse and drainage feature map	Include: Watercourses and drainage feature shown on the Vegetation Management Watercourse Map Note: The state-wide MSES watercourse mapping is currently linear. 'Buffering' the data does not apply the MSES definition. See Appendix B for information on how to apply a local distance to the MSES mapping.	Direction: COPY the latest regulated vegetation watercourse mapping.	QSpatial data: • Vegetation management watercourse and drainage feature maps o (1:250000-100000) and o 1:25000) – latest version
f. Wetland	Category A,B,C,R areas that are located within 100 metres from the defining bank of a wetland identified on the vegetation management wetlands map.	Include: Regulated vegetation categories (A,B,C,R) that intersect the regulated vegetation wetlands, buffered by 100m.	Direction: SELECT Regulated Vegetation Mapping (RVM) that is Category A,B,C or R using the query: RVM_CAT IN ('A','B','C','R') BUFFER regulated vegetation wetland mapping by 100 metres	QSpatial data: • Vegetation management - regulated vegetation management map- latest version • Vegetation management wetlands map – latest version

MSES layers	SPP definition	Overview	GIS rules	GIS sources
			(GDA94). CLIP RVM to the extent of buffered wetlands layer.	Regulated vegetation wetlands Internal use data: • VEGMGT.QLD_VEG_RVMREREM_CODE_CUR Remnant wetlands • VEGMGT.QLD_VEG_REGROWTHWETL_100K_CUR Regrowth wetlands • VEGMGT.QLD_VEG_REGROWTHWETL_100K_CUR
9. Legally secured offsets a. Legally secured offset area (offset register) b. Legally secured offset area (regulated vegetation offsets) *Environmental Offsets Act 2014*	Offset areas legally secured under a covenant, conservation agreement or development approval condition.	Include: Offset Register offset location sites Property map of assessable vegetation offset areas (current, s20B(1)(b) and RVM Category A)	Direction: For Offset register offset locations (a), Select 'land based offsets' from the Offset Register. OFFSET_CLASS = 'Land based offset' For vegetation offsets (b), SELECT from the PMAV layer using the query: PMAV_TYPE = ‘s20B(1)(b)’AND PMAV_STAT = ‘Current’ AND PMAV_CAT = ‘A’	QSpatial data: For Offset register offset locations (a): • Data not yet currently publicly available for the Offset Register. Contact EHP for offset register data. For PMAV vegetation offsets (b): • Vegetation Management Act property maps of assessable vegetation Internal use data: For Offset register offset locations (a): • ENVOFF.OFFSET_REGISTER\ENVOFF.OFFSET_LOCATIONS For PMAV vegetation offsets (b): • ENVOFF.OFFSET_REGI

MSES layers	SPP definition	Overview	GIS rules	GIS sources
				STER\ENVOFF.PMAV_OFFSET_SITES
MSES layers that will not appear on the SPP Interactive Mapping System, for information only				
10. Marine plants (HAT trigger) *Fisheries Act 1994*	Marine plants under the Fisheries Act 1994 (excluding marine plants in an urban area)	The trigger area for Marine plants, which is Highest Astronomical Tide (HAT). Note: this is an information layer only, which indicates the trigger for Marine Plants and not the MSES value.	Direction: COPY the latest Highest Astronomical Tide mapping.	QSpatial data: • Highest astronomical tide – Queensland Internal use data: • ENVESR.QLD_ESA_AREA_BELOW_HAT
11. Fish waterways for waterway barrier works: a. Waterways for water barrier works (stream) b. Waterways for water barrier works (estuaries) *Fisheries Act 1994*	Waterways that provide for fish passage under the Fisheries Act 1994 (excluding waterways providing for fish passage in an urban area)	Include: Streams and estuaries that are waterways for waterway barrier works.	Direction: COPY the latest waterways for water barrier works from QSpatial which includes: streams (lines) estuary (polygon)	QSpatial data: • Queensland waterways for waterway barrier works
12. Protected plants (high risk trigger) *Nature Conservation Act 1992*	High risk area on the flora survey trigger as described by the Environmental offsets Regulation 2014, schedule 2, part6(1)	Include: The high risk area from the flora survey trigger map	Direction: COPY the latest protect plants flora survey trigger map.	QSpatial data: • Nature Conservation Act protected plants flora survey trigger map spatial layer Internal use data: • ENVWIL.QLD_NCA_PROTPLANTS_TRIGGERMAP

Appendix A – Guidelines and principles for mapping wildlife habitat

The purpose of this guideline is to detail the approach used in the mapping of MSES wildlife habitat. Consultation with the Department of Environment and Science on the proposed methodology to be used to map MSES wildlife habitat prior to doing the mapping is essential to ensure a timely review by the State.

See the above section: 'Limited ability to refine MSES mapping for local planning schemes' for more information on the refinement process.

Wildlife habitat principles

When mapping wildlife habitat for MSES, the following principles should be followed to ensure that the products are current, transparent and repeatable.

- use of the most recent and up-to-date information available
- prioritise the most rigorous methods for identifying and mapping habitat
- as far as possible, information should be drawn from reputable centralised databases and broadly available spatial data.

Wildlife habitat is mapped in MSES using the most appropriate data listed in order of preference and subject to availability:

1. peer/expert reviewed and approved modelled habitat; or
2. expert approved habitat maps that have been accepted by the relevant government authority; or
3. point records buffered by 1,000m that are within remnant vegetation, wetlands, and other areas of possible habitat such as regrowth and natural landscape features. Excludes high mobility fauna.

MSES wildlife habitat applies to

- 'Core' habitat for modelled species under the habitat suitability model framework.
- remnant and high value regrowth vegetation within 1000m of a species record
- prescribed wildlife habitat under Queensland legislation
- wildlife habitat that is approved for use by the department

Applying modelling and records to natural areas

In general, modelled, expert mapped, or record derived habitat should be restricted to natural areas. Natural areas includes those areas mapped as remnant vegetation, regrowth vegetation.

Natural areas may not be restricted to regulated vegetation under the Vegetation Management Act 1999. In some instances, species may have strong habitat affiliations, or are known to utilise areas outside of vegetated natural areas (e.g. beaches or other natural non-vegetated landscape features). Where appropriate, such areas may be incorporated.

Habitat suitability model (HSM) framework

For a model to be used in MSES, the model must depict the areas within the landscape that define the most important areas for a species (i.e. core habitat) rather than broad species distributions. It is advisable that habitat models follow the overall Habitat Suitability Model (HSM) Framework employed by the Queensland Department of Environment and Science. Proposed new species models that follow the HSM framework or amendments to current HSMs should be submitted to the Department at biodiversity.planning@des.qld.gov.au.

The HSM framework determines the known extent, possible extent and importance of habitat for threatened taxa listed under Queensland and/or Australian government legislation and for priority taxa listed as part of bioregional assessments. The approach shifts the conservation focus away from specific point locations (sites of taxa presence based on historic records) in the landscape to areas where the taxon is, or is likely to be present. The framework aims to be consistent, repeatable and transparent, documenting reasons for a particular level of assessment. It is conducted irrespective of tenure or the significance of areas for other conservation reasons.

Habitat categories used by the HSM framework

Habitat areas are classified into known and possible, preferred and general, to produce four habitat value categories: preferred habitat known (PHK); preferred habitat possible (PHP); general habitat known (GHK); or general habitat possible (GHP).

Preferred habitat

'Preferred habitat' is an area or location with crucial resources for the maintenance of populations of the taxon. Preferred habitat may be defined from known records or potential areas according to expert knowledge of habitat relationships.

Preferred habitat known (PHK): Preferred habitat is considered known where the taxon is present (based on high accuracy records/expert advice) and there are indications of reproduction, or where a significant number of individuals are present, or important resources (such as nest sites, roost caves, major food sources) are present, or where important movement corridors for breeding and/or non-breeding (including migratory) individuals have been identified.

Preferred habitat possible (PHP): Preferred habitat is considered possible where there exists suitable habitat capable of supporting one or more breeding units, and/or important resources (such as nest sites, roost caves, major food sources) are present, or the area is proximal to known occurrences/populations, or may act as a potentially important corridor for the species.

General habitat

General habitat is an area or location that has been used by transient individuals of a taxon, or where a species has been recorded but there is insufficient information to assess the area as preferred habitat.

- General habitat known (GHK): General habitat is considered known where the taxon is present.
- General habitat possible (GHP): General habitat is considered possible according to expert knowledge of habitat relationships, and may include areas of sub-optimal habitat.

A confidence level is then applied to particular location and its habitat value based upon the level of certainty in the ascribed value and its importance. Confidence values usually range from Very High to Low (e.g. PHK Very High).

‘Core’ habitat

Core habitat comprises a combination of habitat value and confidence of occurrence which experts consider best define the most important areas for the taxon. Remaining areas of habitat for the taxon are identified as being non-core.

Using species point records

MSES wildlife habitat mapping from species records uses recent and accurate flora and fauna sightings from WildNet and other reputable sources. The records are then filtered using the following criteria:

- recent sightings later than 1975 for fauna,
- recent sightings later than 1950 for flora,
- precision (accuracy) of sighting to within 500m,
- highly mobile species listed as ‘endangered’ or ‘vulnerable’ are only included where the location is considered likely to be, or is a known roosting, breeding or important feeding site,
- all species that have approved habitat suitability models for a particular extent will have their point records (within the modelled extent) removed to avoid duplication.

High mobility fauna

High mobility fauna contain species that have large home ranges (generally greater than 100ha per reproductive unit). Where no home range information exists, the allocation is based on life history characters or taxa of similar size and biology. Therefore species sighting records are generally not applicable to determine habitat.

Table 1 of this appendix provides a list of high mobility fauna that are listed for protection in the *Nature Conservation Act 1992* as ‘endangered’, ‘vulnerable’ or ‘special least concern’ (echidna, platypus, or migratory shorebird species under JAMBA,CAMBA, Bonn).

High mobility fauna, are further divided into two types:

- H1 - includes those taxa that have large home ranges, however whose records are most likely to be of animals in habitat that they specifically use (e.g. roosting or feeding waders, perched owls);

- H2 - includes those taxa with large home ranges whose records are often of moving animals (e.g. soaring raptors or seabirds, large parrots and flying-foxes, sea turtles and sea mammals) that may or may not be using the habitat in which they were observed. H2 records are only included if they are known to reflect actual breeding sites or, important roost or feed sites.

Sightings of highly mobile type 2 fauna that are not known to be breeding or important roost or feeding sites must be excluded from MSES mapping (refer to Table 2 below).

Table 2. MSES high mobility fauna

Scientific name	Common name	Class	High Mobility Type	NCA Status	Migratory (JAMBA, CAMBA, Bonn)
Acrocephalus orientalis	oriental reed-warbler	Chordata/Aves	H1	SL	Yes
Actitis hypoleucos	common sandpiper	Chordata/Aves	H1	SL	Yes
Anas querquedula	garganey	Chordata/Aves	H1	SL	Yes
Anous stolidus	common noddy	Chordata/Aves	H2	SL	Yes
Anthochaera phrygia	regent honeyeater	Chordata/Aves	H1	E	
Apus pacificus	fork-tailed swift	Chordata/Aves	H2	SL	Yes
Arctocephalus tropicalis	Subantarctic fur seal	Chordata/Mammalia	H2	V	
Ardenna carneipes	flesh-footed shearwater	Chordata/Aves	H2	SL	Yes
Ardenna grisea	sooty shearwater	Chordata/Aves	H2	SL	Yes
Ardenna pacifica	wedge-tailed shearwater	Chordata/Aves	H2	V	Yes
Ardenna tenuirostris	short-tailed shearwater	Chordata/Aves	H2	SL	Yes
Arenaria interpres	ruddy turnstone	Chordata/Aves	H1	SL	Yes
Bulweria bulwerii	Bulwer's petrel	Chordata/Aves	H2	SL	
Calidris acuminata	sharp-tailed sandpiper	Chordata/Aves	H1	SL	Yes
Calidris alba	sanderling	Chordata/Aves	H1	SL	Yes
Calidris canutus	red knot	Chordata/Aves	H1	E	Yes
Calidris ferruginea	curlew sandpiper	Chordata/Aves	H1	E	Yes
Calidris melanotos	pectoral sandpiper	Chordata/Aves	H1	SL	Yes
Calidris ruficollis	red-necked stint	Chordata/Aves	H1	SL	Yes
Calidris subminuta	long-toed stint	Chordata/Aves	H1	SL	Yes
Calidris tenuirostris	great knot	Chordata/Aves	H1	E	Yes
Calonectris leucomelas	streaked shearwater	Chordata/Aves	H2	SL	Yes
Calyptorhynchus lathami	glossy black-cockatoo	Chordata/Aves	H2	V	
Carcharias taurus	greynurse shark	Chordata/Pisces-	H1	E	

Scientific name	Common name	Class	High Mobility Type	NCA Status	Migratory (JAMBA, CAMBA, Bonn)
		Elasmobranchii			
Caretta caretta	loggerhead turtle	Chordata/Reptilia	H2	E	Yes
Casuarius casuarius johnsonii (northern population)	southern cassowary (northern population)	Chordata/Aves	H1	V	
Casuarius casuarius johnsonii (southern population)	southern cassowary (southern population)	Chordata/Aves	H1	E	
Cecropis daurica	red-rumped swallow	Chordata/Aves	H2	SL	Yes
Charadrius bicinctus	double-banded plover	Chordata/Aves	H1	SL	Yes
Charadrius dubius	little ringed plover	Chordata/Aves	H1	SL	Yes
Charadrius leschenaultii	greater sand plover	Chordata/Aves	H1	V	Yes
Charadrius mongolus	lesser sand plover	Chordata/Aves	H1	E	Yes
Charadrius veredus	oriental plover	Chordata/Aves	H2	SL	Yes
Chelonia mydas	green turtle	Chordata/Reptilia	H2	V	Yes
Chlidonias leucopterus	white-winged black tern	Chordata/Aves	H2	SL	Yes
Crocodylus porosus	estuarine crocodile	Chordata/Reptilia	H1	V	Yes
Cuculus optatus	oriental cuckoo	Chordata/Aves	H2	SL	Yes
Cyclopsitta diophthalma coxeni	Coxen's fig-parrot	Chordata/Aves	H1	E	
Cyclopsitta diophthalma macleayana	Macleay's fig-parrot	Chordata/Aves	H2	V	
Dasyurus maculatus gracilis	spotted-tailed quoll (northern subspecies)	Chordata/Mammalia	H1	E	
Dasyurus maculatus maculatus	spotted-tailed quoll (southern subspecies)	Chordata/Mammalia	H1	V	
Dermochelys coriacea	leatherback turtle	Chordata/Reptilia	H2	E	Yes
Diomedea antipodensis antipodensis	Antipodean albatross	Chordata/Aves	H2	V	Yes
Diomedea antipodensis gibsoni	Gibson's albatross	Chordata/Aves	H2	V	Yes
Diomedea epomophora	royal albatross	Chordata/Aves	H2	SL	Yes
Diomedea exulans	wandering albatross	Chordata/Aves	H2	V	Yes
Dugong dugon	dugong	Chordata/Mammalia	H2	V	Yes
Eclectus roratus macgillivrayi	eclectus parrot	Chordata/Aves	H2	V	
Eretmochelys imbricata	hawksbill turtle	Chordata/Reptilia	H2	E	Yes

Scientific name	Common name	Class	High Mobility Type	NCA Status	Migratory (JAMBA, CAMBA, Bonn)
Erythrotriorchis radiatus	red goshawk	Chordata/Aves	H2	E	
Esacus magnirostris	beach stone-curlew	Chordata/Aves	H2	V	
Falco hypoleucos	grey falcon	Chordata/Aves	H2	V	
Fregata ariel	lesser frigatebird	Chordata/Aves	H2	SL	Yes
Fregata minor	great frigatebird	Chordata/Aves	H2	SL	Yes
Gallinago hardwickii	Latham's snipe	Chordata/Aves	H1	SL	Yes
Gallinago megala	Swinhoe's snipe	Chordata/Aves	H1	SL	Yes
Gelochelidon nilotica	gull-billed tern	Chordata/Aves	H2	SL	Yes
Glareola maldivarum	oriental pratincole	Chordata/Aves	H2	SL	Yes
Grantiella picta	painted honeyeater	Chordata/Aves	H1	V	
Hirundapus caudacutus	white-throated needletail	Chordata/Aves	H2	SL	Yes
Hirundo rustica	barn swallow	Chordata/Aves	H2	SL	Yes
Hydroprogne caspia	Caspian tern	Chordata/Aves	H2	SL	Yes
Lathamus discolor	swift parrot	Chordata/Aves	H1	E	
Lepidochelys olivacea	olive ridley turtle	Chordata/Reptilia	H2	E	Yes
Limicola falcinellus	broad-billed sandpiper	Chordata/Aves	H1	SL	Yes
Limnodromus semipalmatus	Asian dowitcher	Chordata/Aves	H1	SL	Yes
Limosa lapponica	bar-tailed godwit	Chordata/Aves	H1	V	Yes
Limosa limosa	black-tailed godwit	Chordata/Aves	H1	SL	Yes
Lophochroa leadbeateri	Major Mitchell's cockatoo	Chordata/Aves	H2	V	
Macroderma gigas	ghost bat	Chordata/Mammalia	H2	E	
Macronectes giganteus	southern giant-petrel	Chordata/Aves	H2	E	Yes
Macronectes halli	northern giant-petrel	Chordata/Aves	H2	V	Yes
Megaptera novaeangliae	humpback whale	Chordata/Mammalia	H2	V	Yes
Monarcha frater	black-winged monarch	Chordata/Aves	H2	SL	Yes
Monarcha melanopsis	black-faced monarch	Chordata/Aves	H2	SL	Yes
Motacilla cinerea	grey wagtail	Chordata/Aves	H2	SL	Yes
Motacilla tschutschensis	eastern yellow wagtail	Chordata/Aves	H2	SL	Yes
Myiagra cyanoleuca	satin flycatcher	Chordata/Aves	H2	SL	Yes

Scientific name	Common name	Class	High Mobility Type	NCA Status	Migratory (JAMBA, CAMBA, Bonn)
Natator depressus	flatback turtle	Chordata/Reptilia	H2	V	Yes
Ninox strenua	powerful owl	Chordata/Aves	H1	V	
Numenius madagascariensis	eastern curlew	Chordata/Aves	H1	E	Yes
Numenius minutus	little curlew	Chordata/Aves	H2	SL	Yes
Numenius phaeopus	whimbrel	Chordata/Aves	H1	SL	Yes
Oceanites oceanicus	Wilson's storm-petrel	Chordata/Aves	H2	SL	Yes
Onychoprion anaethetus	bridled tern	Chordata/Aves	H2	SL	Yes
Orcaella heinsohni	Australian snubfin dolphin	Chordata/Mammalia	H2	V	Yes
Pandion cristatus	eastern osprey	Chordata/Aves	H2	SL	Yes
Pezoporus occidentalis	night parrot	Chordata/Aves	H1	E	
Phaethon lepturus	white-tailed tropicbird	Chordata/Aves	H2	SL	Yes
Phaethon rubricauda	red-tailed tropicbird	Chordata/Aves	H2	V	Yes
Phalaropus lobatus	red-necked phalarope	Chordata/Aves	H2	SL	Yes
Philomachus pugnax	ruff	Chordata/Aves	H1	SL	Yes
Phoebetria fusca	sooty albatross	Chordata/Aves	H2	V	Yes
Phoebetria palpebrata	light-mantled sooty albatross	Chordata/Aves	H2	SL	Yes
Plegadis falcinellus	glossy ibis	Chordata/Aves	H2	SL	Yes
Pluvialis fulva	Pacific golden plover	Chordata/Aves	H1	SL	Yes
Pluvialis squatarola	grey plover	Chordata/Aves	H1	SL	Yes
Probosciger aterrimus	palm cockatoo	Chordata/Aves	H1	V	
Procellaria aequinoctialis	white-chinned petrel	Chordata/Aves	H2	SL	Yes
Procellaria parkinsoni	black petrel	Chordata/Aves	H2	SL	Yes
Procellaria westlandica	Westland petrel	Chordata/Aves	H2	SL	Yes
Psephotus chrysopterygius	golden-shouldered parrot	Chordata/Aves	H1	E	
Pterodroma heraldica	Herald petrel	Chordata/Aves	H2	E	
Pterodroma leucoptera	Gould's petrel	Chordata/Aves	H2	SL	Yes
Pteropus conspicillatus	spectacled flying-fox	Chordata/Mammalia	H2	V	
Rhipidura rufifrons	rufous fantail	Chordata/Aves	H2	SL	Yes

Scientific name	Common name	Class	High Mobility Type	NCA Status	Migratory (JAMBA, CAMBA, Bonn)
Rostratula australis	Australian painted snipe	Chordata/Aves	H1	V	
Sousa sahulensis	Australian humpback dolphin	Chordata/Mammalia	H2	V	Yes
Stercorarius longicaudus	long-tailed jaeger	Chordata/Aves	H2	SL	Yes
Stercorarius maccormicki	South Polar skua	Chordata/Aves	H2	SL	Yes
Stercorarius parasiticus	Arctic jaeger	Chordata/Aves	H2	SL	Yes
Stercorarius pomarinus	pomarine jaeger	Chordata/Aves	H2	SL	Yes
Sterna dougallii	roseate tern	Chordata/Aves	H2	SL	Yes
Sterna hirundo	common tern	Chordata/Aves	H2	SL	Yes
Sterna sumatrana	black-naped tern	Chordata/Aves	H2	SL	Yes
Sternula albifrons	little tern	Chordata/Aves	H2	SL	Yes
Sternula nereis	fairy tern	Chordata/Aves	H1	E	
Sula dactylatra	masked booby	Chordata/Aves	H2	SL	Yes
Sula leucogaster	brown booby	Chordata/Aves	H2	SL	Yes
Sula sula	red-footed booby	Chordata/Aves	H2	SL	Yes
Symposiarchus trivirgatus	spectacled monarch	Chordata/Aves	H2	SL	Yes
Thalassarche bulleri	Buller's albatross	Chordata/Aves	H2	V	Yes
Thalassarche carteri	Indian yellow-nosed albatross	Chordata/Aves	H2	V	Yes
Thalassarche cauta	shy albatross	Chordata/Aves	H2	V	Yes
Thalassarche chrysostoma	grey-headed albatross	Chordata/Aves	H2	V	Yes
Thalassarche impavida	Campbell's albatross	Chordata/Aves	H2	SL	Yes
Thalassarche melanophris	black-browed albatross	Chordata/Aves	H2	SL	Yes
Thalassarche salvini	Salvin's albatross	Chordata/Aves	H2	SL	Yes
Thalassarche steadi	white-capped albatross	Chordata/Aves	H2	V	Yes
Thalasseus bergii	crested tern	Chordata/Aves	H2	SL	Yes
Tringa brevipes	grey-tailed tattler	Chordata/Aves	H1	SL	Yes
Tringa glareola	wood sandpiper	Chordata/Aves	H1	SL	Yes
Tringa incana	wandering tattler	Chordata/Aves	H1	SL	Yes
Tringa nebularia	common greenshank	Chordata/Aves	H1	SL	Yes

Scientific name	Common name	Class	High Mobility Type	NCA Status	Migratory (JAMBA, CAMBA, Bonn)
Tringa stagnatilis	marsh sandpiper	Chordata/Aves	H1	SL	Yes
Tringa totanus	common redshank	Chordata/Aves	H1	SL	Yes
Tyto novaehollandiae kimberli	masked owl (northern subspecies)	Chordata/Aves	H1	V	
Xenus cinereus	terek sandpiper	Chordata/Aves	H1	SL	Yes

Appendix B - Method for mapping Endangered and Vulnerable MSES layer

This dataset incorporates core habitat from approved departmental Habitat Suitability Models and localities containing known records of Endangered and Vulnerable taxa.

Modelled Habitat

Modelled core habitat was compiled from recognised species habitat models developed in collaboration with experts. Modelled habitat depicted in this dataset may include both remnant and non-remnant areas. Modelled Core habitat for the following Endangered and Vulnerable species was included:

Species	Status	Version, release date	Custodian
Boronia keysii	V	Habitat Suitability Model - Boronia keysii, V2.0 (2017)	Healthy Land and Water
Calyptorhynchus lathami (Glossy black cockatoo)	V	Habitat Suitability Model - Calyptorhynchus lathami, V1.2 (2017)	Healthy Land and Water
Casuarius casuarius johnsonii (Sthn. population Cassowary)	E	Habitat Suitability Model - Casuarius casuarius johnsonii, V2.1 (2019)	Biodiversity Assessment Team, DES
Crinia tinnula (Wallum froglet)	V	Habitat Suitability Model - Crinia tinnula, V2.1 (2019)	Biodiversity Assessment Team, DES
Denisonia maculata (Ornamental snake)	V	Habitat Suitability Model - Denisonia maculata, V2.1 (2019)	Biodiversity Assessment Team, DES
Litoria freycineti (Wallum Rocketfrog)	V	Habitat Suitability Model - Litoria freycineti, V2.1 (2019)	Biodiversity Assessment Team, DES
Litoria olongburensis (Wallum Sedgefrog)	V	Habitat Suitability Model - Litoria olongburensis, V2.1 (2019)	Biodiversity Assessment Team, DES
Melaleuca irbyana	E	Habitat Suitability Model - Melaleuca irbyana, V2.1 (2019)	Biodiversity Assessment Team, DES
Petaurus gracilis (Mahogany Glider)	E	Habitat Suitability Model - Petaurus gracilis, V3.1 (2019)	Biodiversity Assessment Team, DES
Petrogale persephone (Proserpine rock-wallaby)	E	Habitat Suitability Model - Petrogale persephone, V1.5 (2017)	Biodiversity Assessment Team, DES

Phascolarctos cinereus (Koala)	V	Within the SEQ Regional Plan area: Spatial modelling and planning for koalas in southern South East Queensland, V1.0 (2019) Within the SEQ Bioregion (excluding of the SEQ RP area): Habitat Suitability Model - Phascolarctos cinereus, V1.7 (2019).	Biodiversity Assessment Team, DES
Pezoporus wallicus wallicus (Eastern Ground Parrot)	V	Habitat Suitability Model - Pezoporus wallicus wallicus, V2.1 (2019)	Biodiversity Assessment Team, DES
Taudactylus pleione (Kroombit tinkerfrog)	E	Habitat Suitability Model - Taudactylus pleione, V1.0 (2016)	Biodiversity Assessment Team, DES
Xeromys myoides (Water Mouse)	V	Habitat Suitability Model - Xeromys myoides , V3.1 (2019)	Biodiversity Assessment Team, DES

The majority of modelled outputs listed above, used the QLD Herbarium's Version 11 regional ecosystem mapping and high value regrowth mapping (internal). Exceptions to this include the Petrogale Persephone and Taudactylus Pleione modelled outputs (incorporated finer scale mapping and aerial photographic interpretation) and the Calyptorhynchus lathami and Boronia keysii models (externally produced models for which no update was received from the custodian – both models utilised version 10 of the Queensland Herbarium's Remnant Regional Ecosystem Mapping).

Taxa records

In addition to modelled habitat, known records of endangered and vulnerable taxa were extracted from the Biodiversity Assessment Team's internal "Threatened Species Records for Queensland, Version 11" database (flfa_evnt_v11_records). Records in the database are vetted in accordance with Biodiversity Assessment and Mapping Methodology (BAMM) v2.2. Specifically, only non-duplicate records at or after 1950 (flora), or 1975 (fauna) and with accuracies of than or equal to 2,000m are retained. Fauna records of taxa categorised as highly mobility and which are considered unlikely to be associated with habitat, are excluded. Known cultivated records of flora are also excluded. In addition, records located greater than 2km distant from the Queensland Bioregion are largely excluded (some records located outside of 2km from the Queensland Bioregion on small islands are not present in the QLD bioregion coverage, were manually selected and reincorporated).

Records contained within the flfa_evnt_v11_records database, were compiled from multiple sources:

- flora records were primarily extracted from Herbrecs (extracted 31/10/2018), WildNet (07/11/2018), Corveg (07/11/2018) and the Australian Tropical Herbarium database (02/05/2018). Additional records were submitted by Biodiversity Planning Assessment (BPA) and Aquatic Conservation Assessment (ACA) expert panel members and Local Governments.
- fauna records were primarily extracted from the Queensland Historical Fauna Database (QHFD) (07/11/2018) which is a corporate database maintained by the Biodiversity Assessment Team. Additional records were also collated from WildNet (07/11/2018) and QBERD (22/11/2018) and individual experts.

To account for changes made to wildlife categories under the NCA on the 19 September 2019 (post extract of records) a wildnet taxonomy table (dated the 27/11/2019) was acquired and used to update all key taxonomic and status fields. To account for three newly listed species (Botaurus poiciloptilus - Australasian bittern, Rhodamnia rubescens - Scrub turpentine and Rhodomyrtus psidioides - Native guava) which were upgraded from least concern to endangered (NCA), additional records were sourced from an internal draft record database flfa Version 12. Records associated with two other species (Halobaena caerulea Blue petrel and Hirundapus caudacutus - White-throated needletail) which were similarly upgraded from least concern to endangered in the September 2019 changes, were not incorporated as they reflected high mobility taxa sightings considered unlikely to be associated with habitat.

For the purpose of the current MSES update, a further vetting process was undertaken to remove modelled species records. Specifically, for species for which modelled core habitat was available, records were excluded for the modelled area extent. For four such species (Phascolarctos cinereus (Koala), Calyptorhynchus lathami (Glossy black cockatoo), Melaleuca irbyana (Swamp Tea-tree) and Xeromys myoides (False water mouse), the modelling exercise was not performed across the whole of the species known distribution, and as such, records outside of the modelled area were retained. Additionally, core habitat for Phascolarctos cinereus was excluded from the SEQ Regional Plan area (for the purpose of MSES, core habitat for the species within the SEQ Regional Plan area is represented by mapping produced in support of the Koala Conservation Strategy).

Attribute Descriptions:

Attribute	Description	Values
BK_HSM	Boronia keysii essential habitat	Core
CA_HSM	Calyptorhynchus lathami essential habitat	Core
CC_HSM	Casuarius casuarius johnsonii essential habitat	Core
CT_HSM	Crinia tinnula essential habitat	Core
DM_HSM	Denisonia maculata essential habitat	Core
KT_HSM	Taudactylus Pleione essential habitat	Core
LF_HSM	Litoria freycineti essential habitat	Core
LO_HSM	Litoria olongburensis essential habitat	Core
MI_HSM	Melaleuca irbyana essential habitat	Core
PG_HSM	Petaurus gracilis essential habitat	Core
PP_HSM	Petrogale persephone essential habitat	Core
PS_HSM	Phascolarctos cinereus essential habitat	Core
PW_HSM	Pezoporus wallicus wallicus essential habitat	Core
XM_HSM	Xeromys myoides essential habitat	Core
MSES_EV_HSM	Indicates that modelled core habitat for one or more endangered/vulnerable taxa is present	Core habitat for one or more endangered/vulnerable taxa
MSES_EV_REC	Indicates that one or more endangered/vulnerable taxa has	One or more endangered/vulnerable taxa

Attribute	Description	Values
	been recorded in the locality	recorded in locality
Area_Ha	Area in hectares	numeric

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Appendix C - Method for mapping Special Least Concern Animal layer

This dataset incorporates localities around known records of Special Least Concern fauna. Known records of Special Least Concern fauna were extracted from the following sources:

- Queensland Historical Fauna Database (QHFD) on 28/08/2019
- WildNet on 03/09/2019

Records were then vetted in accordance with Biodiversity Assessment and Mapping Methodology (BAMM) v2.2. Specifically, only non-duplicate records at or after 1975 and with accuracies of than or equal to 2,000m are retained. Records of taxa categorised as highly mobility and which are considered unlikely to be associated with habitat, were excluded. In addition, records located greater than 2km distant from the Queensland Bioregion were excluded.

Attribute Descriptions:

Attribute	Description	Values
MSES_SL_REC	Indicates that one or more special least concern taxa has been recorded in the locality	One or more special least concern taxa recorded in locality
Area_Ha	Area in hectares	numeric

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Appendix D –Applying the regulated vegetation watercourse distance

The mapping data in MSES 8E VEG Watercourse only depicts the centreline of a watercourse, which requires further local application of the MSES definition. Underlined terms are defined in the Glossary of terms.

To be a defined MSES, a distance from the watercourse defining bank is required to be applied. Any RVM category areas (A, B, C or R) within that distance is MSES. Distance varies dependant on the location (coastal or non-coastal bioregion - see figure 1) and the stream order (see figure 2). For some areas in Queensland, a stream order is provided in the attributes of the dataset which supports the identification of a distance from the bank of a watercourse. Where a stream order is not provided for in the dataset, determine the stream order using the process identified in figure 2.

Once the coastal/non-coastal bioregion and stream order is identified, the local MSES watercourse map can be developed using the relevant distance stipulated by Table 3 below. This distance is applied from the defining bank of the watercourse using a rectified image of an appropriate scale.

For more information, contact the Department of Natural Resources and Mines at:

- Email: vegetation@dnrme.qld.gov.au
- phone: 135VEG (135834)
- online: https://www.dnrm.qld.gov.au/our-department/contact-us/vegetation-contacts/online-enquiries

Table 3 – Distance from the defining banks of watercourses based on bioregion and stream order.

Watercourse stream order	Distance from the defining bank (meters)
Coastal bioregions and sub-regions	
1 or 2	10
3 or 4	25
5 or greater	50
Non-coastal bioregions and sub-regions	
1 or 2	25
3 or 4	50
5 or greater	100

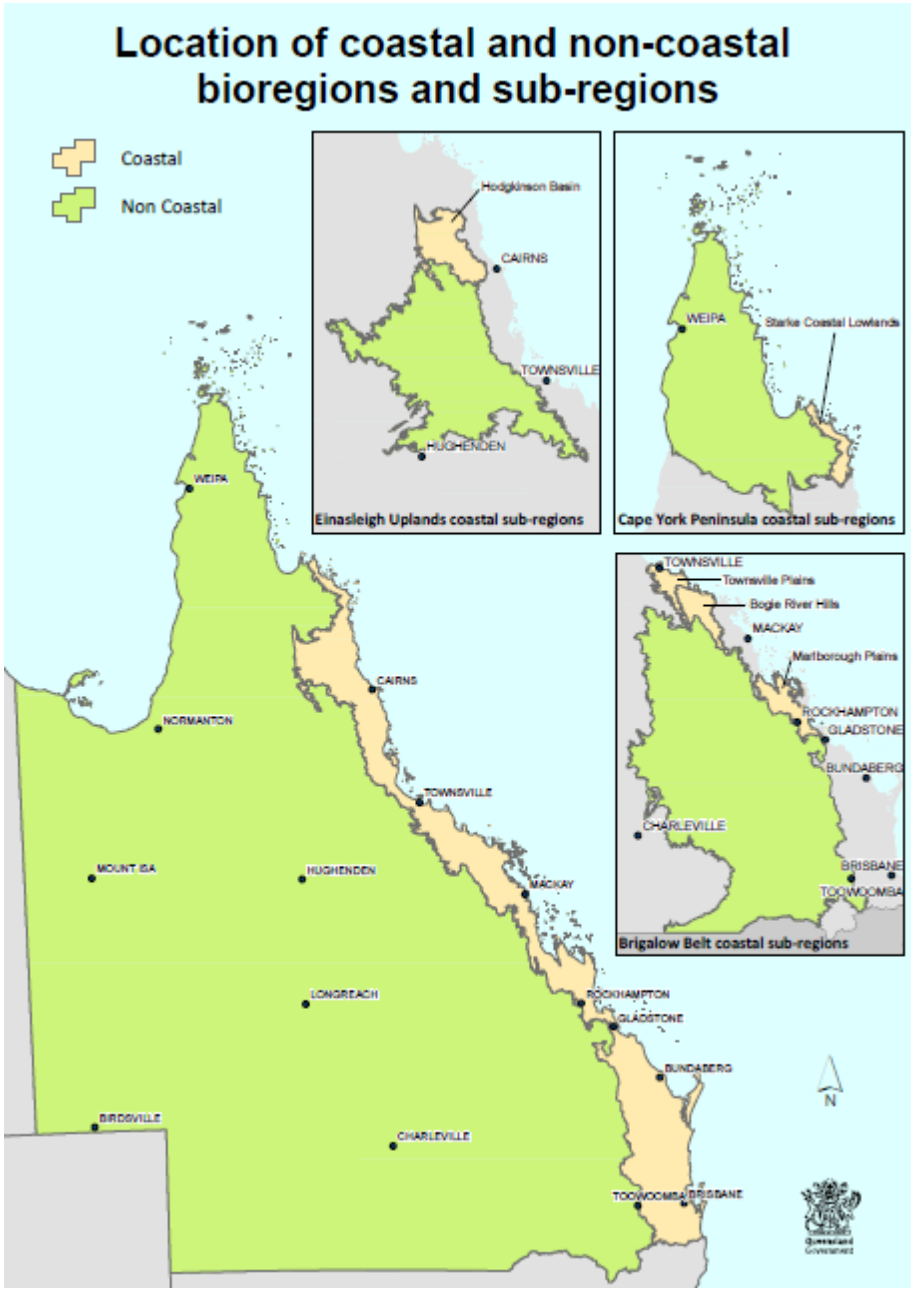

Figure 1 Location of coastal and non-coastal bioregions and sub-regions

When two streams of the same order join, the resulting watercourse becomes one stream order larger. If two streams of different orders join, the resultant stream order is that of the larger stream.

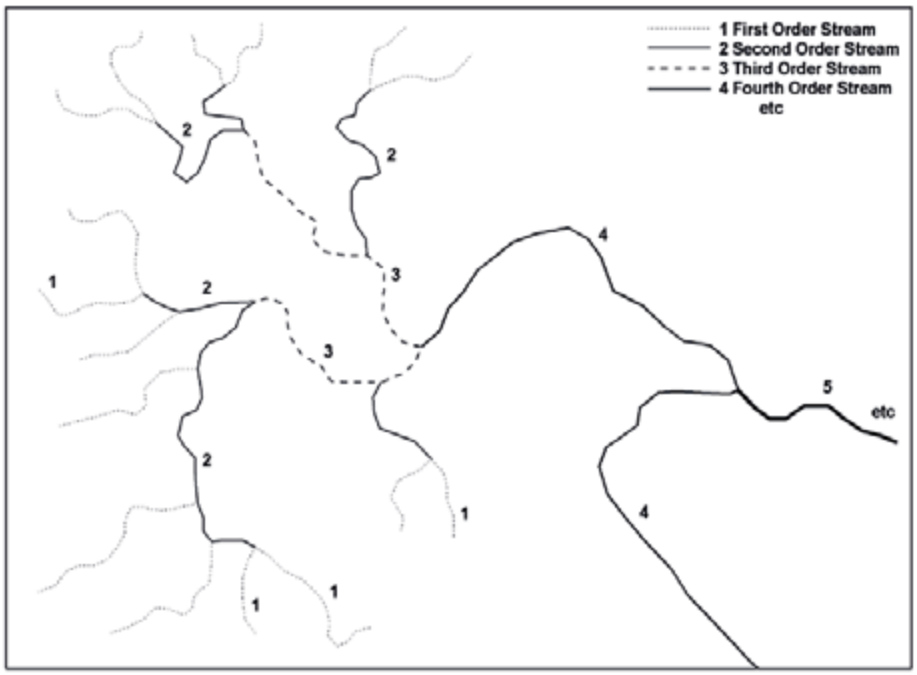

Figure 2 Diagrammatic view of stream ordering

Glossary of terms for this section

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

(1) the bank or terrace that confines the water before the point of flooding, or

(2) where there is no bank the seasonal high water line which represents the point of flooding.

Stream order is a numerical ordering classification of each watercourse segment according to its position within a catchment, as shown in Figure 2. Stream orders are determined using the vegetation management watercourse and drainage feature map.

Contacts for MSES mapping sources

MSES Theme	MSES	Agency/Contact (if applicable)
CONSERVATION	• Protected areas under the Nature Conservation Act 1992 • Marine parks zonings under the Marine Parks Act 2004 • Fish habitat areas under the Fisheries Regulation 2008	Department of Environment and Science (DES) -Protected Area Strategy and Investment
	• strategic environmental area under the Regional Interests Planning Act 2014	Department of State Development Infrastructure Local Government and Planning -Regional Planning
WETLANDS	• high ecological significance (HES) wetlands shown on the Queensland Map of Wetland Environmental Values under the Environment Protection Regulation 2019	Department of Environment and Science (DES) -Environment Policy and Programs Planning.support@des.qld.gov.au
SPECIES	• endangered and vulnerable wildlife • special least concern animal	Department of Environment and Science (DES) -Environment Policy and Programs Planning.support@des.qld.gov.au
Koalas	• Koala habitat areas - core • Koala habitat areas - locally refined	Department of Environment and Science (DES) seqkoala@des.qld.gov.au
Regulated Vegetation	• Category B areas - 'endangered' or 'of concern' regional ecosystems • Category C areas - 'endangered' or 'of concern' regional ecosystems • Category R areas • Regulated vegetation that intersect 100 within wetland • Regulated vegetation that intersect with defined watercourse banks	Department of Resources (DOR) -Vegetation Management Policy vegetation@dnrme.qld.gov.au
OFFSETS	• Legally secured offset areas	Department of Environment and Science (DES) -Environmental offsets
SUPPORTING MAPPING	• Regional ecosystems mapping • Queensland wetlands mapping	Queensland Herbarium

References

Department of Environmental and Heritage Protection (2014), Biodiversity Assessment and Mapping Methodology Version 2.2, Biodiversity Assessment, Ecosystem Analysis and Support, Conservation and Sustainability Services Division, Department of Environment and Heritage Protection, Brisbane. Available: http://www.des.qld.gov.au/assets/documents/plants-animals/biodiversity/planning/biodiversity-assessment-mapping-methodology.pdf

Department of Environment and Science (DES) 20 January 2020. Spatial modelling for koalas in South East Queensland: Report version 1.0. Koala Habitat Areas (KHA) v1.0, Locally Refined Koala Habitat Areas (LRKHA) v1.0. Brisbane: Department of Environment and Science, Queensland Government. Available:

https://environment.des.qld.gov.au/__data/assets/pdf_file/0023/102893/spatial-modelling-koalas-seq.pdf