***A methodology for the evaluation of wetlands on the Swan Coastal Plain, Western Australia***

**Preliminary evaluation scoring**

The preliminary evaluation provides an initial assessment to determine if the individual wetland or wetland portion is of high conservation value.

Using the information collected during step 1 of the evaluation procedure and on the *Wetland evaluation desktop and site assessment form,* assess the wetland by answering a ‘yes’ or ‘no’ to each preliminary evaluation criterion. If a ‘yes’ can be answered to any one of the criteria then the wetland is considered to support the highest level of values, attributes and functions. Wetlands supporting a high level of values, attributes and functions are automatically assigned to Conservation management category.

For wetlands that are assigned to a Conservation management category under the preliminary evaluation, a secondary evaluation is not required; however, a full site assessment and secondary evaluation is encouraged so additional information on the values of the wetland can be obtained. The additional information may assist in management planning and monitoring of the wetland.

Failure to meet any one of the preliminary evaluation criteria in no way precludes assignment of a wetland to Conservation management category during the secondary evaluation.

Answer ‘yes’ or ‘no’ in the right column to each criterion below. The criterion should be left blank if a ‘yes’ or ‘no’ answer cannot be determined.

**Preliminary evaluation criteria.**

| **No.** | **Criteria** | **Y/N** |
| --- | --- | --- |
| 1 | The wetland is currently recognised as internationally or nationally significant for its natural values. Lists/registers include:   * The Ramsar Convention on Wetlands * State Government endorsed candidate sites for the Ramsar Convention on Wetlands * Directory of Important Wetlands in Australia * National Heritage List * or equivalent. |  |
| 2 | The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and is identified as significant for its natural values under one or more of the following:   * *Conservation Reserves for Western Australia Systems 1, 2, 3, 5* * *Conservation Reserves for Western Australia, The Darling System – System 6* * *A Systematic Overview of Environmental Values of the Wetlands, Rivers and Estuaries of the Busselton – Walpole Region* * *The Environmental Significance of Wetlands in the Perth to Bunbury Region* * *Bush Forever, Swan Bioplan* (including *Peel Regionally Significant Natural Areas*) or equivalent. |  |
| 3 | The wetland supports a breeding, roosting, or refuge site or a critical feeding site for populations of fauna listed by the Australian Government (for example, *Environment Protection and Biodiversity Conservation Act 1999*, migratory bird agreements such as JAMBA, CAMBA and RoKAMBA) or the State (for example, threatened and specially protected fauna listed under the *Wildlife Conservation Act 1950*). |  |
| 4 | The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and supports one or more of the following:   * an occurrence of a threatened ecological community * a confirmed occurrence of a priority 1 or priority 2 ecological community * a confirmed occurrence of a declared rare (threatened) flora species. |  |
| 5 | Equal to or greater than 90% of the wetland supports vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B. |  |
| 6 | The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and is known to support internationally, nationally or state-wide scientific values including geoheritage and geoconservation. |  |
| 7 | The wetland is spatially dominated by vegetation in a good or better condition using the vegetation condition scale outlined in Appendix B and meets one of the following:   * ≤ 10% of wetlands of the same type are assigned Conservation management category within the Swan Coastal Plain (by area) * ≤ 10% of all wetlands in the same consanguineous suite are assigned Conservation management category (by area) * ≤ 10% of wetlands of the same type in its consanguineous suite are assigned Conservation management category (by area) * best representative of its type within its consanguineous suite domain. |  |

Note: If a wetland does not satisfy any of the above preliminary evaluation criteria or, does satisfy the preliminary evaluation criteria but is not considered to be commensurate with the values of a Conservation management category wetland then a secondary evaluation including a full site assessment is required.

**Secondary evaluation scoring**

A secondary evaluation provides additional information on the wetland’s attributes, functions and values. Using the information collected in steps 1-3 and on the *Wetland evaluation desktop and site assessment form,* complete the secondary evaluation below.

Assess the individual wetland by considering all the criteria listed under each attribute/function/value. Criterion are scored as H = high value, I = intermediate value, L = low value. Note, at least one score (H, I or L) should be recorded for each attribute/function/value with the exception of Scientific and Educational, and Cultural. It is also possible for a wetland to meet more than one score in each attribute/function/value. Criterion that only have a high score should not be changed to intermediate or low – if the high score is not met, the criterion should not be scored. Scores can be tallied into the final table.

It is important that scores are justified by providing the relevant information in the *Wetland evaluation* *desktop and site assessment form*. In addition, comments can be added to the template under the relevant criteria to emphasise or further demonstrate that the wetland meets the allocated score.

Refer to Appendix A for examples on how to apply the secondary evaluation. Score the secondary evaluation criteria and tally the number of high, intermediate and low scores recorded for each attribute/function/value.

**Secondary evaluation criteria.**

| **Attributes/ functions/ values** | **General criteria** | **Criteria** | **Score** |
| --- | --- | --- | --- |
| **Geomorphology** | | | |
| 1 | Representativeness | ≤ 20% of wetlands of the same type are assigned Conservation on the Swan Coastal Plain by area. | **H** |
| 2 |  | ≤ 20% of wetlands in the same consanguineous suite are assigned Conservation by area. | **H** |
| 3 |  | ≤ 20% of wetlands of the same type in the same consanguineous suite are assigned Conservation by area. | **H** |
| 4 |  | The wetland is outstanding in some geomorphic aspect, for example size, origin, height relative to sea level, depth, age. | **H** |
| 5 | Naturalness | Alteration to the wetland’s geomorphology by % area:  < 25% altered  25-75% altered  > 75% altered.  Note: Alteration of geomorphology refers to a modification of the landform, for example by filling, excavation, drains. Clearing of vegetation in itself does not constitute a change in geomorphology. | **H**  **I**  **L** |
| 6 | Scarcity | The wetland exhibits unusual geomorphology or unusual internal geomorphic features compared to other wetlands of the same type in the consanguineous suite. | **H** |
| 7 |  | The wetland is the best example of its type in its consanguineous suite. | **H** |
| **Wetland processes** | | | |
| 8 | Representativeness | The wetland is an important component of the natural hydrological cycle providing natural functions (e.g. flood protection, recharge/discharge, hydrological storage, support for groundwater dependent ecosystems).  The wetland’s vegetation, geomorphology, hydrology or sediments are modified; however, the wetland is still a component of the hydrological cycle providing natural and artificial functions (e.g. flood remediation, recharge/discharge, hydrological storage, support for groundwater dependent ecosystems).  The wetland’s vegetation, geomorphology, hydrology or sediments are modified to the extent that the wetlands hydrological functions are artificial such as storage, or the wetland has been disconnected from the natural hydrological cycle and no longer provides natural attributes and functions. | **H**  **I**  **L** |
| 9 |  | The wetland supports a representative process (e.g. wetland process typical of the wetland’s hydrological setting, sediment accretionary process typical of the wetland’s geomorphic setting or hydrochemical process typical of the wetland’s geological setting). | **H** |
| 10 | Naturalness | The wetland is not subject to altered wetland processes or, is subject to altered wetland processes and the wetland’s natural attributes and functions are maintained.  The wetland is subject to altered wetland processes and the wetland’s natural attributes and functions have been changed; however, they have the potential to be rehabilitated.  The wetland is subject to altered wetland processes to the extent that the wetland no longer supports natural attributes and functions.  Note: processes to consider include hydrological, hydrogeological, sedimentological, chemical, biological. | **H**  **I**  **L** |
| 11 | Scarcity | The wetland exhibits unusual processes compared to other wetlands of the same type in the consanguineous suite. | **H** |
| **Linkages** | | | |
| 12 | Representativeness | The wetland is a hydrological link in a larger or more complex and intact system. | **H** |
| 13 | Naturalness | The wetland is part of a continuous ecological linkage or wildlife corridor, or a regionally significant ecological linkage or wildlife corridor connecting bushland or wetland areas.  The wetland is part of a fragmented ecological linkage or wildlife corridor.  The wetland is disturbed and isolated, surrounded by either a built or highly disturbed environment with no nearby native vegetation or waterways to support an intact or fragmented ecological linkage or wildlife corridor. | **H**  **I**  **L** |
| 14 | Scarcity | The wetland has unusual hydrological, hydrogeological, hydrochemical or ecological linkages with adjacent wetlands or bushland. | **H** |
| **Habitats** | | | |
| 15 | Representativeness | The wetland is isolated from other undisturbed wetlands or bushland and as a result, maintains important ecological or genetic fauna or flora diversity within its consanguineous suite domain. | **H** |
| 16 |  | The wetland contains evidence of surface water or groundwater expression that is vital for maintaining regionally significant populations of native aquatic or terrestrial flora or fauna.  The wetland contains evidence of surface water or groundwater expression that is important for maintaining populations of native aquatic or terrestrial flora or fauna. | **H**  **I** |
| 17 |  | The wetland provides a nursery for native fauna populations, or maintains fauna populations at a vulnerable stage of their life cycle. | **H** |
| 18 | Naturalness | The wetland supports habitats that are unaltered or the wetland has been altered and its natural habitats are maintained.  The wetland supports habitats that are altered; however, the habitats are still identifiable and have the potential to naturally regenerate or be rehabilitated after weed control, if required.  The wetland is altered and as a result is no longer supporting natural habitats which can be rehabilitated. | **H**  **I**  **L** |
| 19 | Scarcity | The wetland supports habitats that are unusual compared to other wetlands of the same type on the Swan Coastal Plain. | **H** |
| **Flora** | | | |
| 20 | Representativeness | The wetland’s current diversity of native flora is similar to what would be expected in an unaltered state.  The wetland supports a reduced diversity of native flora due to human induced disturbances.  The wetland supports a significantly reduced diversity of native flora species due to human induced disturbances. | **H**  **I**  **L** |
| 21 |  | The wetland is identified in a vegetation complex (Heddle et al. 1980) which is represented by:  ≤ 30% of the pre-European extent  30-50% of the pre-European extent.  Note: statistics can be obtained from Local Biodiversity Program (2013) – to allow for vegetation type and extent mapping error due to the mapping scale used, the extent of remnant vegetation is considered an overestimate. The 30% and 10% thresholds are assessed at actual 40% and 15% levels. | **H**  **I** |
| 22 | Naturalness | Using the vegetation condition scale outlined in Appendix B, the wetland’s vegetation condition by area is:  ≥ 75% Good, Very Good, Excellent or Pristine  25-75% Good, Very Good, Excellent or Pristine  < 25% Good, Very Good, Excellent or Pristine. | **H**  **I**  **L** |
| 23 |  | The wetland or ≥ 50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.  The wetland or 10-50% of the wetland boundary is surrounded by land dominated by remnant native vegetation.  The wetland or < 10% of the wetland boundary is surrounded by land dominated by remnant native vegetation. | **H**  **I**  **L** |
| 24 | Scarcity | The wetland supports an occurrence of declared rare, priority 1, priority 2, priority 3 or priority 4 flora, or an occurrence of three or more significant flora taxa. | **H** |
| 25 |  | The wetland is likely to support declared rare, priority 1, priority 2, priority 3 or priority 4 flora; however, the occurrence cannot be located or its habitat has been altered and is no longer in a natural state. | **I** |
| 26 |  | The wetland supports an occurrence of a threatened ecological community, priority 1 or priority 2 ecological community. | **H** |
| 27 |  | The wetland supports an occurrence of a priority 3 or priority 4 ecological community. | **I** |
| **Fauna** | | | |
| 28 | Representativeness | The wetland is an ecological refuge for regionally significant fauna species or fauna assemblages.  The wetland has the potential to be an ecological refuge but is disturbed and its attributes and functions require rehabilitation. | **H**  **I** |
| 29 |  | The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regionally significant native fauna.  The wetland supports a permanent or seasonal feeding, breeding, roosting or watering site for regional or local fauna but only in association with other surrounding natural areas. | **H**  **I** |
| 30 | Naturalness | The wetland’s current diversity of native fauna is similar to what would be expected in an unaltered state, or the wetland supports diverse fauna compared to other wetlands of the same type.  The wetland supports a reduced diversity of fauna compared to other wetlands of the same type.  The wetland supports limited attributes and functions for fauna populations due to human induced disturbances. | **H**  **I**  **L** |
| 31 | Scarcity | The wetland is likely to support a breeding, roosting, refuge or feeding site for populations of fauna listed by the Australian Government (e.g. *EPBC Act 1999*, JAMBA, CAMBA, RoKAMBA Agreements) or the State (e.g. threatened or specially protected fauna listed under the *Wildlife Conservation Act 1950*). | **H** |
| 32 |  | The wetland supports a breeding, roosting, refuge or feeding site for priority 1, priority 2, priority 3 or priority 4 fauna. | **H** |
| 33 |  | The wetland supports an occurrence of a threatened ecological community, priority 1 or priority 2 ecological community. | **H** |
| 34 |  | The wetland supports an occurrence of a priority 3 or priority 4 ecological community or a breeding, roosting, refuge or feeding site for significant fauna. | **I** |
| **Cultural** | | | |
| 35 | Representativeness | The wetland or its immediate surrounds is identified for its natural values on a national or State heritage list or the wetland supports other known regional heritage values. | **H** |
| 36 |  | The wetland or its immediate surrounds is identified for its natural values on a municipal heritage list or the wetland supports other known local heritage values. | **I** |
| 37 |  | The wetland or its immediate surrounds is identified on a national, State or local list or register for its Aboriginal cultural value. | **H** |
| 38 |  | The wetland is important to the local community for its natural values. | **H** |
| 39 |  | The wetland is or has the potential to be a site for public or private based recreation. | **I** |
| 40 |  | The wetland is the subject of a recognised ecological restoration / rehabilitation project by a community group, landowner or land manager that aims to improve the wetland’s natural, heritage, cultural or social values.  The wetland is likely to support heritage, cultural or social values; however, the values cannot be confirmed or the values have been disturbed and are no longer as important or significant.  The wetland did support heritage, cultural or social values; however, these have been significantly disturbed and are no longer important or the values have been removed. | **H**  **I**  **L** |
| **Scientific and educational** | | | |
| 41 | Representativeness | The wetland supports known important teaching or research characteristics and for this reason is an existing or potential education or research site.  Note: the wetland must still support the relevant teaching or research characteristics.  The wetland has the potential to be used as a study or research site. | **H**  **I** |
| 42 |  | The wetland supports known scientific, geoheritage or geoconservation values. | **H** |

**Secondary evaluation criteria scores tally.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes/functions/values** | **Scores** | | |
|  | **High** | **Intermediate** | **Low** |
| Geomorphology |  |  |  |
| Wetland processes |  |  |  |
| Linkages |  |  |  |
| Habitats |  |  |  |
| Flora |  |  |  |
| Fauna |  |  |  |
| Cultural |  |  |  |
| Scientific and educational |  |  |  |
| **Total score** |  |  |  |
| **Defining attributes/functions/values** |  | | |
| **Applicable management category** |  | | |