Security classification: Public | March 2017

Groundwater dependent ecosystem mapping data dictionary

Version 1.5

Queensland groundwater dependent ecosystem (GDE) mapping is stored as five feature classes in a single file geodatabase:

- Ecosystems dependent on the surface expression of groundwater (point features)
- Ecosystems dependent on the surface expression of groundwater (line features)
- Ecosystems dependent on the surface expression of groundwater (area features)
- Ecosystems dependent on the sub-surface presence of groundwater (area features)
- Ecosystems dependent on the subterranean presence of groundwater – caves (area features)

The following sections define the attribute fields for the five feature classes. Attribute fields with a specific set of allowed values are shown numbered with explanatory text provided in italics. Attributes consistent with the National Atlas of Groundwater Dependent Ecosystems are identified with an asterisk after the attribute field name (short).

Ecosystems dependent on the surface expression of groundwater (point features) – 'surface expression GDE (points)'

Field name (short)	Field description	Field values explained
GDE_CLASS*	GDE class	1. Surface ecosystems dependent on the surface expression of groundwater 2. Surface ecosystems dependent on the sub-surface presence of groundwater 3. Subterranean (caves and aquifers)
AQ_NAME*	Name of the source aquifer	*Name of the source aquifer or aquifers*

Field name (short)	Field description	Field values explained
AQ_GEOL*	Broad geology type of the source aquifer	1. Fractured rock – *a network of cracks, joints, faults or other breaks in the rock that cut through the rock matrix.* 2. Cavernous (includes karstic) – *caverns, cells or coarse pore spaces.* 3. Unconsolidated sedimentary – *loosely arranged or un-stratified sediments, where particles are not cemented together.* 4. Consolidated sedimentary 5. Fractured & cavernous 6. Fractured and consolidated sedimentary 7. Cavernous & consolidated sedimentary 8. Unknown 9. No data
AQ_POROSTY*	Porosity of the source aquifer. Porosity is the percentage of rock or soil that is void of material. Porosity determines available habitat and affects the rate of water flow.	1. Primary – *the spaces between grains in consolidated or unconsolidated aquifers.* 2. Secondary – *the void caused by fractures.* 3. Tertiary – *fractures may be enlarged by solution or other processes, creating large voids or conduits.* 4. Primary & Secondary 5. Primary & Tertiary 6. Secondary & Tertiary 7. All 8. Unknown 9. No data
AQ_CONFIN*	Confinement of the source aquifer	1. Unconfined – *water table aquifer, receives recharge from the land surface.* 2. Confined & semi-confined aquifers – *overlain by a low permeability layer, so it does not receive direct vertical recharge and is less responsive to surface conditions. Water in a confined aquifer is typically under pressure.* 3. Unknown 4. No data

Field name (short)	Field description	Field values explained
AQ_GFS*	Groundwater flow system of the source aquifer.	1. Shallow alluvial, Local – *less than 5 kilometres.* 2. Shallow alluvial, Intermediate – *between 5 and 50 kilometres.* 3. Shallow alluvial, Regional – *greater than 50 kilometres.* 4. Basin, Local – *less than 5 kilometres.* 5. Basin, Intermediate – *between 5 and 50 kilometres.* 6. Basin, Regional – *greater than 50 kilometres.* 7. Bedrock, Local – *less than 5 kilometres.* 8. Bedrock, Intermediate – *between 5 and 50 kilometres.* 9. Bedrock, Regional – *greater than 50 kilometres.* 10. Perched
GW_SALINTY*	Salinity of groundwater from the source aquifer.	1. < 1500 mg/L TDS – *Fresh* 2. 1,500 - 3,000 mg/L TDS – *Brackish* 3. 3,000 - 35,000 mg/L TDS – *Saline* 4. > 35,000 mg/L TDS – *Hypersaline* 5. Fluctuating 6. Stratified 7. Unknown 8. No data
GW_PH*	pH of groundwater from the source aquifer.	1. < 6 – *acidic* 2. 6 – 8 – *neutral* 3. > 8 – *alkaline* 4. Fluctuating 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_RECHARG*	Dominant recharge process of the source aquifer.	1. Infiltration (local) – *flow of rainfall from less than 5 kilometres into a solid substance through pores or small openings.* 2. Infiltration (distant) – *flow of rainfall from greater than 5 kilometres into a solid substance through pores or small openings.* 3. Inundation (local) – *flow of floodwater from less than 5 kilometres into a solid substance through pores or small openings.* 4. Inundation (distant) – *flow of floodwater from greater than 5 kilometres into a solid substance through pores or small openings.* 5. Marine through-flow – *flow of marine water into a solid substance through pores or small openings.* 6. Combination 7. Palaeo – *old or ancient, no current recharge sources.* 8. Unknown

Field name (short)	Field description	Field values explained
GW_CONN_SP*	Spatial connectivity between the GDE and groundwater, including the type and direction of connection	1. Connected, gaining – *where a groundwater table intersects the GDE and the hydraulic gradient is towards the GDE. Common examples are stream sections where groundwater levels are above the water level in the stream, the groundwater system discharges water to the stream and as a result increases the flow in the stream.* 2. Connected, losing – *where a groundwater table intersects the GDE and the hydraulic gradient is away from the GDE. Common examples are stream sections where groundwater levels are below the water level in the stream, the stream discharges water to the groundwater system.* 3. Connected, variable gaining / losing – *where a groundwater table intersects the GDE and the hydraulic gradient varies temporally towards and away from the GDE.* 4. Disconnected, losing – *where a groundwater table does not intersect the GDE zone and a zone of unsaturated material exists between the bed of a river and the groundwater table beneath it.* 5. Unknown 6. No data
GW_CONN_TM*	Temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 3. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 4. Permanent, near permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater*. 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_CON_T_D	Detailed temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Episodic – *only has groundwater connection after unpredictable rainfall and runoff events* 3. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 4. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 5. Near-permanent – *has groundwater connection that may be static or flowing, with varying levels. However there is a possibility that the flow could cease during long or extreme conditions (e.g. rare or non-cyclic conditions).* 6. Permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater.* 7. Unknown 8. No data
GDE_TYPE	Type of GDE	1. Surface expression GDE 2. Terrestrial GDE 3. Subterranean GDE
RULE_ID	GDE mapping rule-set identifier	For example, ‘EMDB_RS_03’
RULE_NAME	GDE mapping rule-set name	For example, ‘Alluvia – eMDB’
RULE_PART	GDE mapping rule-set part name	For example, ‘wetlands (excluding riverine regional ecosystems) on alluvia’
URL_RULE	Mapping rule-set documentation URL	For example, ‘http://www.example.pdf’

Field name (short)	Field description	Field values explained
GDE_CONF	Confidence in the groundwater dependence of the ecosystem.	1. Known GDE 2. High confidence 3. Moderate confidence 4. Low confidence 5. Unknown confidence
C_MODEL	Conceptual model name	*For example, 'Alluvia'*
URL_CMODEL	Conceptual model documentation URL	*For example, 'http://www.example.pdf'*
DATA_SRC	Principal source dataset used to delineate the GDE point, line or area	*For example, '2009 WETLANDS V3', '2009 RE V7', 'QLD SPRINGS DATABASE V1'*
GDE_EVID	Evidence supporting GDE identification	1. Field survey 2. Expert opinion 3. Report 4. Journal article 5. Stream gauge 6. Monitoring bore
VENT_ID	Unique identifier for an individual spring vent. Multiple vents from the same wetland are differentiated using underscore and a number.	*For example, '302_1'*
NAME	Name of the spring ecosystem.	*For example, 'Aberc3'*
COMPLXNAME	Name of the spring ecosystem complex.	*For example, 'Abercorn'*

Field name (short)	Field description	Field values explained
REGION	Description of the spring ecosystem region as either GAB or a drainage catchment.	*For example, 'GAB'*
SPRING_STATUS	Description of the water regime of the spring ecosystem.	1. Spring – *spring with permanent water regime.* 2. Ephemeral – *spring with non-permanent water regime.* 3. Not Sure
ELEVATION	Mean elevation in metres of a spring ecosystem. Referenced to Australian Height Datum and calculated from Ellipsoidal Height.	*For example, '808'*
POINT_ID	Unique numeric spring ecosystem identifier from the Queensland Wetlands Mapping data.	*Value is > 0*
WETRE	Wetland regional ecosystem code.	*For example, '11.3.22'*
WETCLASS	Wetland class (or system).	1. R – *riverine* 2. E – *estuarine* 3. P – *palustrine* 4. L – *lacustrine* 5. M – *marine* 6. - – *not a water body/wetland*
WTRREGIME	Water regime modifier of the wetland point.	1. WR0 – *uncertain inundation* 2. WR1 – *rarely inundated (20% of images)* 3. WR2 – *immediately inundated (40-60% of images)* 4. WR3 – *commonly inundated (80-100% of images)* 5. TI – *tidally influenced (estuarine, marine systems)*

Field name (short)	Field description	Field values explained
HYDROMOD	Hydrological modifier of the wetland point.	1. H1 – *No modifications observed.* 2. H2M1 – *Modified - Riverine wetlands associated with dams and weirs located in a natural channel.* 3. H2M2 – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed due to levee bank.* 4. H2M2p – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed due to levee bank and dominated by exotic pasture species.* 5. H2M3 – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed the water body classification from estuarine to a fresh water system*. 6. H2M3p – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed the water body classification from estuarine to a fresh water system and dominated by exotic pasture species*. 7. H2M4 – *Modified – springs.* 8. H2M4a – *Modified - springs (dormant).* 9. H2M5 – *Modified - Palustrine/Lacustrine wetlands where ecological character has changed due to gross mechanical disturbance e.g. cropping.* 10. H2M6 – *Modified - Palustrine/Lacustrine wetlands that have been converted, completely or mostly, to a ring tank or other controlled storage*. 11. H2M7 – *Modified - Riverine wetlands that have been converted mostly to canals or irrigation channels*. 12. H2M8 – *Modified - Palustrine/Lacustrine/Riverine wetlands with no obvious structures but where the local hydrology has been totally altered by irrigation activity*. 13. H3C1 – *Artificial wetlands - dams, ring-tanks*. 14. H3C2 – *Artificial wetlands - channel drain/canals, bore drains*. 15. H3C3 – *Artificial wetlands - levee bank across a floodplain*. 16. U – *Unknown* 17. - – *not a water body/wetland*

Field name (short)	Field description	Field values explained
SALINMOD	Salinity modifier of the wetland point.	1. S1 – *fresh, < 0.5 parts per thousand* 2. S2 – *hypo-saline, 0.5 – 30 parts per thousand* 3. S3 – *saline, > 30 parts per thousand* 4. TI – *tidally influenced (estuarine, marine systems)* 5. - – *not a water body/wetland*
RE1 RE2 RE3 RE4 RE5	These fields separate the first five concatenated wetland regional ecosystem codes (WETRE) into five individual regional ecosystem attributes (e.g. RE1, RE2, RE3, RE4, RE5).	*For example, '2.3.9a'*
RE1_stem RE2_stem RE3_stem RE4_stem RE5_stem	These fields separate the first five concatenated wetland regional ecosystem codes (WETRE) into five individual regional ecosystem attributes (e.g. RE1_stem, RE2_stem, RE3_stem, RE4_stem, RE5_stem) where suffix letters representing vegetation communities (e.g. 'a') have been removed.	*For example, '2.3.9'*

Ecosystems dependent on the surface expression of groundwater (line features) – 'surface expression GDE (lines)'

Field name (short)	Field description	Field values explained
GDE_CLASS*	GDE class	1. Surface ecosystems dependent on the surface expression of groundwater 2. Surface ecosystems dependent on the sub-surface presence of groundwater 3. Subterranean (caves and aquifers)
AQ_NAME*	Name of the source aquifer	*Name of the source aquifer or aquifers*
AQ_GEOL*	Broad geology type of the source aquifer	1. Fractured rock – *a network of cracks, joints, faults or other breaks in the rock that cut through the rock matrix.* 2. Cavernous (includes karstic) – *caverns, cells or coarse pore spaces.* 3. Unconsolidated sedimentary – *loosely arranged or un-stratified sediments, where particles are not cemented together.* 4. Consolidated sedimentary 5. Fractured & cavernous 6. Fractured and consolidated sedimentary 7. Cavernous & consolidated sedimentary 8. Unknown 9. No data
AQ_POROSTY*	Porosity of the source aquifer. Porosity is the percentage of rock or soil that is void of material. Porosity determines available habitat and affects the rate of water flow.	1. Primary – *the spaces between grains in consolidated or unconsolidated aquifers.* 2. Secondary – *the void caused by fractures.* 3. Tertiary – *fractures may be enlarged by solution or other processes, creating large voids or conduits.* 4. Primary & Secondary 5. Primary & Tertiary 6. Secondary & Tertiary 7. All 8. Unknown 9. No data

Field name (short)	Field description	Field values explained
AQ_CONFIN*	Confinement of the source aquifer	1. Unconfined – *water table aquifer, receives recharge from the land surface.* 2. Confined & semi-confined aquifers – *overlain by a low permeability layer, so it does not receive direct vertical recharge and is less responsive to surface conditions. Water in a confined aquifer is typically under pressure.* 3. Unknown 4. No data
AQ_GFS*	Groundwater flow system of the source aquifer.	1. Shallow alluvial, Local – *less than 5 kilometres.* 2. Shallow alluvial, Intermediate – *between 5 and 50 kilometres.* 3. Shallow alluvial, Regional – *greater than 50 kilometres.* 4. Basin, Local – *less than 5 kilometres.* 5. Basin, Intermediate – *between 5 and 50 kilometres.* 6. Basin, Regional – *greater than 50 kilometres.* 7. Bedrock, Local – *less than 5 kilometres.* 8. Bedrock, Intermediate – *between 5 and 50 kilometres.* 9. Bedrock, Regional – *greater than 50 kilometres.* 10. Perched
GW_SALINTY*	Salinity of groundwater from the source aquifer.	1. < 1500 mg/L TDS – *Fresh* 2. 1,500 - 3,000 mg/L TDS – *Brackish* 3. 3,000 - 35,000 mg/L TDS – *Saline* 4. > 35,000 mg/L TDS – *Hypersaline* 5. Fluctuating 6. Stratified 7. Unknown 8. No data

Field name (short)	Field description	Field values explained
GW_PH*	pH of groundwater from the source aquifer.	1. < 6 – *acidic* 2. 6 – 8 – *neutral* 3. > 8 – *alkaline* 4. Fluctuating 5. Unknown 6. No data
GW_RECHARG*	Dominant recharge process of the source aquifer.	1. Infiltration (local) – *flow of rainfall from less than 5 kilometres into a solid substance through pores or small openings.* 2. Infiltration (distant) – *flow of rainfall from greater than 5 kilometres into a solid substance through pores or small openings.* 3. Inundation (local) – *flow of floodwater from less than 5 kilometres into a solid substance through pores or small openings.* 4. Inundation (distant) – *flow of floodwater from greater than 5 kilometres into a solid substance through pores or small openings.* 5. Marine through-flow – *flow of marine water into a solid substance through pores or small openings.* 6. Combination 7. Palaeo – *old or ancient, no current recharge sources.* 8. Unknown

Field name (short)	Field description	Field values explained
GW_CONN_SP*	Spatial connectivity between the GDE and groundwater, including the type and direction of connection	1. Connected, gaining – *where a groundwater table intersects the GDE and the hydraulic gradient is towards the GDE. Common examples are stream sections where groundwater levels are above the water level in the stream, the groundwater system discharges water to the stream and as a result increases the flow in the stream.* 2. Connected, losing – *where a groundwater table intersects the GDE and the hydraulic gradient is away from the GDE. Common examples are stream sections where groundwater levels are below the water level in the stream, the stream discharges water to the groundwater system.* 3. Connected, variable gaining / losing – *where a groundwater table intersects the GDE and the hydraulic gradient varies temporally towards and away from the GDE.* 4. Disconnected, losing – *where a groundwater table does not intersect the GDE zone and a zone of unsaturated material exists between the bed of a river and the groundwater table beneath it.* 5. Unknown 6. No data
GW_CONN_TM*	Temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 3. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 4. Permanent, near permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater*. 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_CON_T_D	Detailed temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Episodic – *only has groundwater connection after unpredictable rainfall and runoff events* 3. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 4. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 5. Near-permanent – *has groundwater connection that may be static or flowing, with varying levels. However there is a possibility that the flow could cease during long or extreme conditions (e.g. rare or non-cyclic conditions).* 6. Permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater.* 7. Unknown 8. No data
GDE_TYPE	Type of GDE	1. Surface expression GDE 2. Terrestrial GDE 3. Subterranean GDE
RULE_ID	GDE mapping rule-set identifier	*For example, 'EMDB_RS_03'*
RULE_NAME	GDE mapping rule-set name	*For example, 'Alluvia – eMDB'*
RULE_PART	GDE mapping rule-set part name	*For example, 'wetlands (excluding riverine regional ecosystems) on alluvia'*
URL_RULE	Mapping rule-set documentation URL	*For example, 'http://www.example.pdf'*

Field name (short)	Field description	Field values explained
GDE_CONF	Confidence in the groundwater dependence of the ecosystem.	1. Known GDE 2. Derived GDE – high confidence 3. Derived GDE – moderate confidence 4. Derived GDE – low confidence 5. Unknown confidence
C_MODEL	General conceptual model name	*For example, 'Alluvia'*
C_MODEL_R	Regional conceptual model name	*For example, 'Sedimentary rocks (Great Artesian Basin)'*
C_MODEL_L	Local conceptual model name	*For example, 'Lower Balonne alluvial floodplain'*
C_MODEL_S	Site conceptual model name	*For example, 'Goondoola Basin'*
URL_CMODEL1 URL_CMODEL2 URL_CMODEL3 URL_CMODEL4	Conceptual model(s) documentation URL(s)	*For example, 'http://www.example.pdf'*
GDE_D_RULE	GDE decision rule identifier. This attribute only applies to the eastern Murray-Darling Basin and Wide Bay-Burnett regions.	*For example, 'WBB_DR_18'*
DATA_SRC	Principal source dataset used to delineate the GDE point, line or area	*For example, '2009 WETLANDS V3', '2009 RE V7', 'QLD SPRINGS DATABASE V1'*

Field name (short)	Field description	Field values explained
GDE_EVID	Evidence supporting GDE identification	1. Field survey 2. Expert opinion 3. Report 4. Journal article 5. Stream gauge 6. Monitoring bore
EVID_SRC	The best published reference about the GDE.	*For example, 'Pearson L. (1988) Mitchell-Palmer Karst A Speleological Field Guide'*

Ecosystems dependent on the surface expression of groundwater (area features) – 'surface expression GDE (areas)'

Field name (short)	Field description	Field values explained
GDE_CLASS*	GDE class	1. Surface ecosystems dependent on the surface expression of groundwater 2. Surface ecosystems dependent on the sub-surface presence of groundwater 3. Subterranean (caves and aquifers)
AQ_NAME*	Name of the source aquifer	*Name of the source aquifer or aquifers*
AQ_GEOL*	Broad geology type of the source aquifer	1. Fractured rock – *a network of cracks, joints, faults or other breaks in the rock that cut through the rock matrix.* 2. Cavernous (includes karstic) – *caverns, cells or coarse pore spaces.* 3. Unconsolidated sedimentary – *loosely arranged or un-stratified sediments, where particles are not cemented together.* 4. Consolidated sedimentary 5. Fractured & cavernous 6. Fractured and consolidated sedimentary 7. Cavernous & consolidated sedimentary 8. Unknown 9. No data

Field name (short)	Field description	Field values explained
AQ_POROSTY*	Porosity of the source aquifer. Porosity is the percentage of rock or soil that is void of material. Porosity determines available habitat and affects the rate of water flow.	1. Primary – *the spaces between grains in consolidated or unconsolidated aquifers.* 2. Secondary – *the void caused by fractures.* 3. Tertiary – *fractures may be enlarged by solution or other processes, creating large voids or conduits.* 4. Primary & Secondary 5. Primary & Tertiary 6. Secondary & Tertiary 7. All 8. Unknown 9. No data
AQ_CONFIN*	Confinement of the source aquifer	1. Unconfined – *water table aquifer, receives recharge from the land surface.* 2. Confined & semi-confined aquifers – *overlain by a low permeability layer, so it does not receive direct vertical recharge and is less responsive to surface conditions. Water in a confined aquifer is typically under pressure.* 3. Unknown 4. No data
AQ_GFS*	Groundwater flow system of the source aquifer.	1. Shallow alluvial, Local – *less than 5 kilometres.* 2. Shallow alluvial, Intermediate – *between 5 and 50 kilometres.* 3. Shallow alluvial, Regional – *greater than 50 kilometres.* 4. Basin, Local – *less than 5 kilometres.* 5. Basin, Intermediate – *between 5 and 50 kilometres.* 6. Basin, Regional – *greater than 50 kilometres.* 7. Bedrock, Local – *less than 5 kilometres.* 8. Bedrock, Intermediate – *between 5 and 50 kilometres.* 9. Bedrock, Regional – *greater than 50 kilometres.* 10. Perched

Field name (short)	Field description	Field values explained
GW_SALINTY*	Salinity of groundwater from the source aquifer.	1. < 1500 mg/L TDS – *Fresh* 2. 1,500 - 3,000 mg/L TDS – *Brackish* 3. 3,000 - 35,000 mg/L TDS – *Saline* 4. > 35,000 mg/L TDS – *Hypersaline* 5. Fluctuating 6. Stratified 7. Unknown 8. No data
GW_PH*	pH of groundwater from the source aquifer.	1. < 6 – *acidic* 2. 6 – 8 – *neutral* 3. > 8 – *alkaline* 4. Fluctuating 5. Unknown 6. No data
GW_RECHARG*	Dominant recharge process of the source aquifer.	1. Infiltration (local) – *flow of rainfall from less than 5 kilometres into a solid substance through pores or small openings.* 2. Infiltration (distant) – *flow of rainfall from greater than 5 kilometres into a solid substance through pores or small openings.* 3. Inundation (local) – *flow of floodwater from less than 5 kilometres into a solid substance through pores or small openings.* 4. Inundation (distant) – *flow of floodwater from greater than 5 kilometres into a solid substance through pores or small openings.* 5. Marine through-flow – *flow of marine water into a solid substance through pores or small openings.* 6. Combination 7. Palaeo – *old or ancient, no current recharge sources.* 8. Unknown

Field name (short)	Field description	Field values explained
GW_CONN_SP*	Spatial connectivity between the GDE and groundwater, including the type and direction of connection	1. Connected, gaining – *where a groundwater table intersects the GDE and the hydraulic gradient is towards the GDE. Common examples are stream sections where groundwater levels are above the water level in the stream, the groundwater system discharges water to the stream and as a result increases the flow in the stream.* 2. Connected, losing – *where a groundwater table intersects the GDE and the hydraulic gradient is away from the GDE. Common examples are stream sections where groundwater levels are below the water level in the stream, the stream discharges water to the groundwater system.* 3. Connected, variable gaining / losing – *where a groundwater table intersects the GDE and the hydraulic gradient varies temporally towards and away from the GDE.* 4. Disconnected, losing – *where a groundwater table does not intersect the GDE zone and a zone of unsaturated material exists between the bed of a river and the groundwater table beneath it.* 5. Unknown 6. No data
GW_CONN_TM*	Temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 3. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 4. Permanent, near permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater*. 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_CON_T_D	Detailed temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Episodic – *only has groundwater connection after unpredictable rainfall and runoff events.* 3. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 4. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 5. Near-permanent – *has groundwater connection that may be static or flowing, with varying levels. However there is a possibility that the flow could cease during long or extreme conditions (e.g. rare or non-cyclic conditions).* 6. Permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater.* 7. Unknown 8. No data
GDE_TYPE	Type of GDE	1. Surface expression GDE 2. Terrestrial GDE 3. Subterranean GDE
GDE_PCT	Percentage of the polygon that is potentially a GDE	1. Specific percentage – *for example, 5, 10, 15* 2. 01-50_GDE – *1 to 50% of the polygon is potentially groundwater dependent.* 3. 51-80_GDE – *51 to 80% of the polygon is potentially groundwater dependent.* 4. 81-100_GDE – *81 to 100% of the polygon is potentially groundwater dependent.*
RULE_ID	GDE mapping rule-set identifier	*For example, 'EMDB_RS_03'*
RULE_NAME	GDE mapping rule-set name	*For example, 'Alluvia – eMDB'*

Field name (short)	Field description	Field values explained
RULE_PART	GDE mapping rule-set part name	*For example, 'wetlands (excluding riverine regional ecosystems) on alluvia'*
URL_RULE	Mapping rule-set documentation URL	*For example, 'http://www.example.pdf'*
GDE_D_RULE	GDE decision rule identifier. This attribute only applies to the eastern Murray-Darling Basin and Wide Bay-Burnett regions.	*For example, 'WBB_DR_18'*
GDE_CONF	Confidence in the groundwater dependence of the ecosystem.	1. Known GDE 2. Derived GDE – high confidence 3. Derived GDE – moderate confidence 4. Derived GDE – low confidence 5. Unknown confidence
C_MODEL	Conceptual model name	*For example, 'Alluvia'*
C_MODEL_R	Regional conceptual model name	*For example, 'Sedimentary rocks (Great Artesian Basin)'*
C_MODEL_L	Local conceptual model name	*For example, 'Lower Balonne alluvial floodplain'*
C_MODEL_S	Site conceptual model name	*For example, 'Goondoola Basin'*
URL_CMODEL1 URL_CMODEL2 URL_CMODEL3 URL_CMODEL4	Conceptual model(s) documentation URL(s)	*For example, 'http://www.example.pdf'*
DATA_SRC	Principal source dataset used to delineate the GDE point, line or area	*For example, '2009 WETLANDS V3', '2009 RE V7', 'QLD SPRINGS DATABASE V1'*

Field name (short)	Field description	Field values explained
GDE_EVID	Evidence supporting GDE identification	1. Field survey 2. Expert opinion 3. Report 4. Journal article 5. Stream gauge 6. Monitoring bore
EVID_SRC	The best published reference about the GDE.	*For example, 'Pearson L. (1988) Mitchell-Palmer Karst A Speleological Field Guide'*
WETLAND_ID	A numeric identifier that indicated contiguous areas with the same (dissolved by) wetland class (treating lacustrine and palustrine as equivalent), hydrology modifier and catchment.	Values is > or = 0
WETLAND_AREA	Area (in hectares) of each WETLAND_ID.	Value is > 0
WETRE	Wetland regional ecosystem code.	*For example, '11.3.22'*
WETREPCT	Percentage of the polygon occupied by the wetland regional ecosystem. Concatenated percentages separated by a slash occur where there is more than one wetland regional ecosystem.	*For example, '80/20'*
WETCLASS	Wetland class (or system).	1. R – *riverine* 2. E – *estuarine* 3. P – *palustrine* 4. L – *lacustrine* 5. M – *marine* 6. - – *not a water body/wetland*

Field name (short)	Field description	Field values explained
WTRREGIME	Water regime modifier of the wetland polygon.	1. WR0 – *uncertain inundation* 2. WR1 – *rarely inundated (20% of images)* 3. WR2 – *immediately inundated (40-60% of images)* 4. WR3 – *commonly inundated (80-100% of images)* 5. TI – *tidally influenced (estuarine, marine systems)*

Field name (short)	Field description	Field values explained
HYDROMOD	Hydrological modifier of the wetland polygon.	1. H1 – *No modifications observed.* 2. H2M1 – *Modified - Riverine wetlands associated with dams and weirs located in a natural channel.* 3. H2M2 – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed due to levee bank.* 4. H2M2p – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed due to levee bank and dominated by exotic pasture species.* 5. H2M3 – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed the water body classification from estuarine to a fresh water system*. 6. H2M3p – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed the water body classification from estuarine to a fresh water system and dominated by exotic pasture species*. 7. H2M4 – *Modified – springs.* 8. H2M4a – *Modified - springs (dormant).* 9. H2M5 – *Modified - Palustrine/Lacustrine wetlands where ecological character has changed due to gross mechanical disturbance e.g. cropping.* 10. H2M6 – *Modified - Palustrine/Lacustrine wetlands that have been converted, completely or mostly, to a ring tank or other controlled storage*. 11. H2M7 – *Modified - Riverine wetlands that have been converted mostly to canals or irrigation channels*. 12. H2M8 – *Modified - Palustrine/Lacustrine/Riverine wetlands with no obvious structures but where the local hydrology has been totally altered by irrigation activity*. 13. H3C1 – *Artificial wetlands - dams, ring-tanks*. 14. H3C2 – *Artificial wetlands - channel drain/canals, bore drains*. 15. H3C3 – *Artificial wetlands - levee bank across a floodplain*. 16. U – *Unknown* 17. - – *not a water body/wetland*

Field name (short)	Field description	Field values explained
SALINMOD	Salinity modifier of the wetland polygon.	1. S1 – *fresh, < 0.5 parts per thousand* 2. S2 – *hypo-saline, 0.5 – 30 parts per thousand* 3. S3 – *saline, > 30 parts per thousand* 4. TI – *tidally influenced (estuarine, marine systems)* 5. - – *not a water body/wetland*
WETSUB	Flags if the polygon has a blank wb_class and <80% of the polygon is mapped as palustrine or lacustrine wetland on the regional ecosystem mapping	1. 0-50_RE – between 1 and 50% of the polygon is mapped as a wetland on the regional ecosystem mapping 2. 51-80_RE – between 51 and 80% of the polygon is mapped as a wetland on the regional ecosystem mapping
SOURCE	Denotes source wetland polygon is derived from.	1. fromMT – from multi-temporal satellite data 2. fromWT – from wet scene satellite data 3. manual – from manual addition to water body map 4. modMT – from manual modification of multi-temporal satellite data 5. modWT – from manual modification of wet scene satellite data 6. fromRE – from regional ecosystem mapping 7. topo – from topographic data

Field name (short)	Field description	Field values explained
LEGEND	Combination of WETCLASS, SOURCE and WB_SUB to be used as wetland legend.	1. M_WB – marine wetland system derived from water body data 2. E_WB – estuarine wetland system derived from water body data 3. L_WB – lacustrine wetland system derived from water body data 4. P_WB – palustrine wetland system derived from water body data 5. R_WB – riverine wetland system derived from water body data 6. E_RE – estuarine wetland system derived from regional ecosystem data 7. L_RE – lacustrine wetland system derived from regional ecosystem data 8. P_RE – palustrine wetland system derived from regional ecosystem data 9. R_RE – riverine wetland system derived from regional ecosystem data 10. 01-50_RE – between 1 and 50% of the polygon is mapped as palustrine or lacustrine wetland on the regional ecosystem mapping 11. 51-80_RE – between 51 and 80% of the polygon is mapped as palustrine or lacustrine wetland on the regional ecosystem mapping
XRE	For any polygon with source from regional ecosystem mapping (fromRE), shows all regional ecosystems present in a polygon derived from regional ecosystem data. This may include non-wetland regional ecosystems in mosaic polygons.	*For example, '12.3.5/12.3.6'*

Field name (short)	Field description	Field values explained
XRE_PERCENT	For any polygon with source from regional ecosystem mapping (fromRE), shows the percentages of each regional ecosystem mapped as present in a polygon derived from regional ecosystem data.	*For example, '80/20'*
XRE_CLASS	For any polygon with source from regional ecosystem mapping (fromRE), shows the complete list of wetland systems present in a polygon derived from regional ecosystems polygons.	*For example, 'P/P'*
RE	Regional ecosystem code. Concatenated codes occur where there is more than one regional ecosystem, with each code separated by "/".	*For example, '12.3.5/12.3.6'*
PERCENT	Percentage of the polygon occupied by each regional ecosystem. Concatenated percentages occur where there is more than one regional ecosystem.	*For example, '80/20'*

Field name (short)	Field description	Field values explained
DBVG5M	The broad vegetation group code for use at a mapping scale of 1:5 million.	1. 1 – rainforests, scrubs 2. 2 – wet eucalypt open forests 3. 3 – Eucalypt woodlands to open forests 4. 4 – Eucalypt open forests to woodlands on floodplains 5. 5 – Eucalypt dry woodlands on inland depositional plains 6. 6 – Eucalypt low open woodlands usually with spinifex understorey 7. 7 – *Callitris* woodland – open forests 8. 8 – *Melaleuca* open woodlands on depositional plains 9. 9 – *Acacia aneura* (mulga) dominated open forests, woodlands and shrublands 10. 10 – Other acacia dominated open forests, woodlands and shrublands 11. 11 – Mixed species woodlands – open woodlands (inland bioregions) includes wooded downs 12. 12 – Other coastal communities or heaths 13. 13 – Tussock grasslands, forblands 14. 14 – Hummock grasslands 15. 15 – Wetlands (swamps and lakes) 16. 16 – Mangroves and saltmarshes
RE1 RE2 RE3 RE4 RE5	These fields separate the first five concatenated wetland regional ecosystem codes (WETRE) and regional ecosystem codes (RE) into five individual regional ecosystem attributes (e.g. RE1, RE2, RE3, RE4, RE5).	*For example, '2.3.9a'*

Field name (short)	Field description	Field values explained
RE1_stem RE2_stem RE3_stem RE4_stem RE5_stem	These fields separate the first five concatenated wetland regional ecosystem codes (WETRE) and regional ecosystem codes (RE) into five individual regional ecosystem attributes (e.g. RE1_stem, RE2_stem, RE3_stem, RE4_stem, RE5_stem) where suffix letters representing vegetation communities (e.g. 'a') have been removed.	*For example, '2.3.9'*

Ecosystems dependent on the sub-surface presence of groundwater (area features) – 'terrestrial GDE (areas)'

Field name (short)	Field description	Field values explained
GDE_CLASS*	GDE class	1. Surface ecosystems dependent on the surface expression of groundwater 2. Surface ecosystems dependent on the sub-surface presence of groundwater 3. Subterranean (caves and aquifers)
AQ_NAME*	Name of the source aquifer	*Name of the source aquifer or aquifers*

Field name (short)	Field description	Field values explained
AQ_GEOL*	Broad geology type of the source aquifer	1. Fractured rock – *a network of cracks, joints, faults or other breaks in the rock that cut through the rock matrix.* 2. Cavernous (includes karstic) – *caverns, cells or coarse pore spaces.* 3. Unconsolidated sedimentary – *loosely arranged or unstratified sediments, where particles are not cemented together.* 4. Consolidated sedimentary 5. Fractured & cavernous 6. Fractured and consolidated sedimentary 7. Cavernous & consolidated sedimentary 8. Unknown 9. No data
AQ_POROSTY*	Porosity of the source aquifer. Porosity is the percentage of rock or soil that is void of material. Porosity determines available habitat and affects the rate of water flow.	1. Primary – *the spaces between grains in consolidated or unconsolidated aquifers.* 2. Secondary – *the void caused by fractures.* 3. Tertiary – *fractures may be enlarged by solution or other processes, creating large voids or conduits.* 4. Primary & Secondary 5. Primary & Tertiary 6. Secondary & Tertiary 7. All 8. Unknown 9. No data
AQ_CONFIN*	Confinement of the source aquifer	1. Unconfined – *water table aquifer, receives recharge from the land surface.* 2. Confined & semi-confined aquifers – *overlain by a low permeability layer, so it does not receive direct vertical recharge and is less responsive to surface conditions. Water in a confined aquifer is typically under pressure.* 3. Unknown 4. No data

Field name (short)	Field description	Field values explained
AQ_GFS*	Groundwater flow system of the source aquifer.	1. Shallow alluvial, Local – *less than 5 kilometres.* 2. Shallow alluvial, Intermediate – *between 5 and 50 kilometres.* 3. Shallow alluvial, Regional – *greater than 50 kilometres.* 4. Basin, Local – *less than 5 kilometres.* 5. Basin, Intermediate – *between 5 and 50 kilometres.* 6. Basin, Regional – *greater than 50 kilometres.* 7. Bedrock, Local – *less than 5 kilometres.* 8. Bedrock, Intermediate – *between 5 and 50 kilometres.* 9. Bedrock, Regional – *greater than 50 kilometres.* 10. Perched
GW_SALINTY*	Salinity of groundwater from the source aquifer.	1. < 1500 mg/L TDS – *Fresh* 2. 1,500 - 3,000 mg/L TDS – *Brackish* 3. 3,000 - 35,000 mg/L TDS – *Saline* 4. > 35,000 mg/L TDS – *Hypersaline* 5. Fluctuating 6. Stratified 7. Unknown 8. No data
GW_PH*	pH of groundwater from the source aquifer.	1. < 6 – *acidic* 2. 6 – 8 – *neutral* 3. > 8 – *alkaline* 4. Fluctuating 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_RECHARG*	Dominant recharge process of the source aquifer.	1. Infiltration (local) – *flow of rainfall from less than 5 kilometres into a solid substance through pores or small openings.* 2. Infiltration (distant) – *flow of rainfall from greater than 5 kilometres into a solid substance through pores or small openings.* 3. Inundation (local) – *flow of floodwater from less than 5 kilometres into a solid substance through pores or small openings.* 4. Inundation (distant) – *flow of floodwater from greater than 5 kilometres into a solid substance through pores or small openings.* 5. Marine through-flow – *flow of marine water into a solid substance through pores or small openings.* 6. Combination 7. Palaeo – *old or ancient, no current recharge sources.* 8. Unknown
GW_CONN_TM*	Temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 3. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 4. Permanent, near permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater*. 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_CON_T_D	Detailed temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Episodic – *only has groundwater connection after unpredictable rainfall and runoff events.* 3. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 4. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 5. Near-permanent – *has groundwater connection that may be static or flowing, with varying levels. However there is a possibility that the flow could cease during long or extreme conditions (e.g. rare or non-cyclic conditions).* 6. Permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater.* 7. Unknown 8. No data
GDE_TYPE	Type of GDE	4. Surface expression GDE 5. Terrestrial GDE 6. Subterranean GDE
GDE_PCT	Percentage of the polygon that is potentially a GDE	1. Specific percentage – *for example, 5, 10, 15* 2. 01-50_GDE – *1 to 50% of the polygon is potentially groundwater dependent.* 3. 51-80_GDE – *51 to 80% of the polygon is potentially groundwater dependent.* 4. 81-100_GDE – *81 to 100% of the polygon is potentially groundwater dependent.*
RULE_ID	GDE mapping rule-set identifier	*For example, 'EMDB_RS_03'*
RULE_NAME	GDE mapping rule-set name	*For example, 'Alluvia – eMDB'*

Field name (short)	Field description	Field values explained
RULE_PART	GDE mapping rule-set part name	*For example, 'wetlands (excluding riverine regional ecosystems) on alluvia'*
URL_CMODEL1 URL_CMODEL2 URL_CMODEL3 URL_CMODEL4	Conceptual model(s) documentation URL(s)	*For example, 'http://www.example.pdf'*
GDE_D_RULE	GDE decision rule identifier. This attribute only applies to the eastern Murray-Darling Basin and Wide Bay-Burnett regions.	*For example, 'WBB_DR_18'*
GDE_CONF	Confidence in the groundwater dependence of the ecosystem.	1. Known GDE 2. Derived GDE – high confidence 3. Derived GDE – moderate confidence 4. Derived GDE – low confidence 5. Unknown confidence
C_MODEL	Conceptual model name	*For example, 'Alluvia'*
C_MODEL_R	Regional conceptual model name	*For example, 'Sedimentary rocks (Great Artesian Basin)'*
C_MODEL_L	Local conceptual model name	*For example, 'Lower Balonne alluvial floodplain'*
C_MODEL_S	Site conceptual model name	*For example, 'Goondoola Basin'*
URL_CMODEL	Conceptual model documentation URL	*For example, 'http://www.example.pdf'*
DATA_SRC	Principal source dataset used to delineate the GDE point, line or area	*For example, '2009 WETLANDS V3', '2009 RE V7', 'QLD SPRINGS DATABASE V1'*

Field name (short)	Field description	Field values explained
GDE_EVID	Evidence supporting GDE identification	1. Field survey 2. Expert opinion 3. Report 4. Journal article 5. Stream gauge 6. Monitoring bore
EVID_SRC	The best published reference about the GDE.	*For example, 'Pearson L. (1988) Mitchell-Palmer Karst A Speleological Field Guide'*
WETLAND_ID	A numeric identifier shared by contiguous areas with the same wetland class, hydrology modifier and catchment.	Values is > or = 0
WETLAND_AREA	Area (in hectares) of each WETLAND_ID.	Value is > 0
WETRE	Wetland regional ecosystem code.	*For example, '11.3.22'*
WETREPCT	Percentage of the polygon occupied by the wetland regional ecosystem. Concatenated percentages separated by a slash occur where there is more than one wetland regional ecosystem.	*For example, '80/20'*
WETCLASS	Wetland class (or system).	1. R – *riverine* 2. E – *estuarine* 3. P – *palustrine* 4. L – *lacustrine* 5. M – *marine* 6. - – *not a water body/wetland*

Field name (short)	Field description	Field values explained
WTRREGIME	Water regime modifier of the wetland polygon.	1. WR0 – *uncertain inundation* 2. WR1 – *rarely inundated (20% of images)* 3. WR2 – *immediately inundated (40-60% of images)* 4. WR3 – *commonly inundated (80-100% of images)* 5. TI – *tidally influenced (estuarine, marine systems)*

Field name (short)	Field description	Field values explained
HYDROMOD	Hydrological modifier of the wetland polygon.	1. H1 – *No modifications observed.* 2. H2M1 – *Modified - Riverine wetlands associated with dams and weirs located in a natural channel.* 3. H2M2 – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed due to levee bank.* 4. H2M2p – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed due to levee bank and dominated by exotic pasture species.* 5. H2M3 – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed the water body classification from estuarine to a fresh water system*. 6. H2M3p – *Modified - Palustrine/Lacustrine wetlands where size and/or hydrology has changed the water body classification from estuarine to a fresh water system and dominated by exotic pasture species*. 7. H2M4 – *Modified – springs.* 8. H2M4a – *Modified - springs (dormant).* 9. H2M5 – *Modified - Palustrine/Lacustrine wetlands where ecological character has changed due to gross mechanical disturbance e.g. cropping.* 10. H2M6 – *Modified - Palustrine/Lacustrine wetlands that have been converted, completely or mostly, to a ring tank or other controlled storage*. 11. H2M7 – *Modified - Riverine wetlands that have been converted mostly to canals or irrigation channels*. 12. H2M8 – *Modified - Palustrine/Lacustrine/Riverine wetlands with no obvious structures but where the local hydrology has been totally altered by irrigation activity*. 13. H3C1 – *Artificial wetlands - dams, ringtanks*. 14. H3C2 – *Artificial wetlands - channel drain/canals, bore drains*. 15. H3C3 – *Artificial wetlands - levee bank across a floodplain*. 16. U – *Unknown* 17. - – *not a water body/wetland*

Field name (short)	Field description	Field values explained
SALINMOD	Salinity modifier of the wetland polygon.	1. S1 – *fresh, < 0.5 parts per thousand* 2. S2 – *hypo-saline, 0.5 – 30 parts per thousand* 3. S3 – *saline, > 30 parts per thousand* 4. TI – *tidally influenced (estuarine, marine systems)* 5. - – *not a water body/wetland*
WETSUB	Flags if the polygon has a blank wb_class and <80% of the polygon is mapped as palustrine or lacustrine wetland on the regional ecosystem mapping	1. 0-50_RE – between 1 and 50% of the polygon is mapped as a wetland on the regional ecosystem mapping 2. 51-80_RE – between 51 and 80% of the polygon is mapped as a wetland on the regional ecosystem mapping
SOURCE	Denotes source wetland polygon is derived from.	1. fromMT – from multi-temporal satellite data 2. fromWT – from wet scene satellite data 3. manual – from manual addition to water body map 4. modMT – from manual modification of multi-temporal satellite data 5. modWT – from manual modification of wet scene satellite data 6. fromRE – from regional ecosystem mapping 7. topo – from topographic data

Field name (short)	Field description	Field values explained
LEGEND	Combination of WETCLASS, SOURCE and WB_SUB to be used as wetland legend.	1. M_WB – marine wetland system derived from water body data 2. E_WB – estuarine wetland system derived from water body data 3. L_WB – lacustrine wetland system derived from water body data 4. P_WB – palustrine wetland system derived from water body data 5. R_WB – riverine wetland system derived from water body data 6. E_RE – estuarine wetland system derived from regional ecosystem data 7. L_RE – lacustrine wetland system derived from regional ecosystem data 8. P_RE – palustrine wetland system derived from regional ecosystem data 9. R_RE – riverine wetland system derived from regional ecosystem data 10. 01-50_RE – between 1 and 50% of the polygon is mapped as palustrine or lacustrine wetland on the regional ecosystem mapping 11. 51-80_RE – between 51 and 80% of the polygon is mapped as palustrine or lacustrine wetland on the regional ecosystem mapping
XRE	For any polygon with source from regional ecosystem mapping (fromRE), shows all regional ecosystems present in a polygon derived from regional ecosystem data. This may include non-wetland regional ecosystems in mosaic polygons.	*For example, '12.3.5/12.3.6'*

Field name (short)	Field description	Field values explained
XRE_PERCENT	For any polygon with source from regional ecosystem mapping (fromRE), shows the percentage of all regional ecosystems present in a polygon derived from regional ecosystem data.	*For example, '80/20'*
XRE_CLASS	For any polygon with source from regional ecosystem mapping (fromRE), shows the complete list of wetland systems present in a polygon derived from regional ecosystems polygons.	*For example, 'P/P'*
RE	Regional ecosystem code. Concatenated codes occur where there is more than one regional ecosystem, separated by "/".	*For example, '12.3.5/12.3.6'*
PERCENT	Percentage of the polygon occupied by the regional ecosystem. Concatenated percentages occur where there is more than one regional ecosystem.	*For example, '80/20'*

Field name (short)	Field description	Field values explained
DBVG5M	The broad vegetation group code for use at a mapping scale of 1:5 million.	1. 1 – *rainforests, scrubs* 2. 2 – *wet eucalypt open forests* 3. 3 – *Eucalypt woodlands to open forests* 4. 4 – *Eucalypt open forests to woodlands on floodplains* 5. 5 – *Eucalypt dry woodlands on inland depositional plains* 6. 6 – *Eucalypt low open woodlands usually with spinifex understorey* 7. 7 – *Callitris woodland – open forests* 8. 8 – *Melaleuca open woodlands on depositional plains* 9. 9 – *Acacia aneura (mulga) dominated open forests, woodlands and shrublands* 10. 10 – *Other acacia dominated open forests, woodlands and shrublands* 11. 11 – *Mixed species woodlands – open woodlands (inland bioregions) includes wooded downs* 12. 12 – *Other coastal communities or heaths* 13. 13 – *Tussock grasslands, forblands* 14. 14 – *Hummock grasslands* 15. 15 – *Wetlands (swamps and lakes)* 16. 16 – *Mangroves and saltmarshes*
RE1 RE2 RE3 RE4 RE5	These fields separate the first five concatenated regional ecosystem codes (RE) and wetland regional ecosystem codes (WETRE) into five individual regional ecosystem attributes (i.e. RE1, RE2, RE3, RE4, RE5).	*For example, '2.3.9a'*

Field name (short)	Field description	Field values explained
RE1_stem RE2_stem RE3_stem RE4_stem RE5_stem	These fields separate the first five concatenated regional ecosystem codes (RE) and wetland regional ecosystem codes (WETRE) into five individual regional ecosystem attributes (e.g. RE1_stem, RE2_stem, RE3_stem, RE4_stem, RE5_stem) where suffix letters representing vegetation communities (e.g. 'a') have been removed.	*For example, '2.3.9'*

Ecosystems dependent on the subterranean presence of groundwater (area features) – 'subterranean GDE – caves (areas)'

Field name (short)	Field description	Field values explained
GDE_CLASS*	GDE class	1. Surface ecosystems dependent on the surface expression of groundwater 2. Surface ecosystems dependent on the sub-surface presence of groundwater 3. Subterranean (caves and aquifers)
AQ_NAME*	Name of the source aquifer	*Name of the source aquifer or aquifers*

Field name (short)	Field description	Field values explained
AQ_GEOL*	Broad geology type of the source aquifer	1. Fractured rock – *a network of cracks, joints, faults or other breaks in the rock that cut through the rock matrix.* 2. Cavernous (includes karstic) – *caverns, cells or coarse pore spaces.* 3. Unconsolidated sedimentary – *loosely arranged or unstratified sediments, where particles are not cemented together.* 4. Consolidated sedimentary 5. Fractured & cavernous 6. Fractured and consolidated sedimentary 7. Cavernous & consolidated sedimentary 8. Unknown 9. No data
AQ_POROSTY*	Porosity of the source aquifer. Porosity is the percentage of rock or soil that is void of material. Porosity determines available habitat and affects the rate of water flow.	1. Primary – *the spaces between grains in consolidated or unconsolidated aquifers.* 2. Secondary – *additional voids caused by fractures.* 3. Tertiary – *fractures may be enlarged by solution or other processes, creating large voids or conduits.* 4. Primary & Secondary 5. Primary & Tertiary 6. Secondary & Tertiary 7. All 8. Unknown 9. No data
AQ_CONFIN*	Confinement of the source aquifer	1. Unconfined – *water table aquifer, receives recharge from the land surface.* 2. Confined & semi-confined aquifers – *overlain by a low permeability layer, so it does not receive direct vertical recharge and is less responsive to surface conditions. Water in a confined aquifer is typically under pressure.* 3. Unknown 4. No data

Field name (short)	Field description	Field values explained
AQ_GFS*	Groundwater flow system of the source aquifer.	1. Shallow alluvial, Local – *less than 5 kilometres.* 2. Shallow alluvial, Intermediate – *between 5 and 50 kilometres.* 3. Shallow alluvial, Regional – *greater than 50 kilometres.* 4. Basin, Local – *less than 5 kilometres.* 5. Basin, Intermediate – *between 5 and 50 kilometres.* 6. Basin, Regional – *greater than 50 kilometres.* 7. Bedrock, Local – *less than 5 kilometres.* 8. Bedrock, Intermediate – *between 5 and 50 kilometres.* 9. Bedrock, Regional – *greater than 50 kilometres.* 10. Perched
GW_SALINTY*	Salinity of groundwater from the source aquifer.	1. < 1500 mg/L TDS – *Fresh* 2. 1,500 - 3,000 mg/L TDS – *Brackish* 3. 3,000 - 35,000 mg/L TDS – *Saline* 4. > 35,000 mg/L TDS – *Hypersaline* 5. Fluctuating 6. Stratified 7. Unknown 8. No data
GW_PH*	pH of groundwater from the source aquifer.	1. < 6 – *acidic* 2. 6 – 8 – *neutral* 3. > 8 – *alkaline* 4. Fluctuating 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_RECHARG*	Dominant recharge process of the source aquifer.	1. Infiltration (local) – *flow of rainfall from less than 5 kilometres into a solid substance through pores or small openings.* 2. Infiltration (distant) – *flow of rainfall from greater than 5 kilometres into a solid substance through pores or small openings.* 3. Inundation (local) – *flow of floodwater from less than 5 kilometres into a solid substance through pores or small openings.* 4. Inundation (distant) – *flow of floodwater from greater than 5 kilometres into a solid substance through pores or small openings.* 5. Marine through-flow – *flow of marine water into a solid substance through pores or small openings.* 6. Combination 7. Palaeo – *old or ancient, no current recharge sources.* 8. Unknown
GW_CONN_TM*	Temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 3. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 4. Permanent, near permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater*. 5. Unknown 6. No data

Field name (short)	Field description	Field values explained
GW_CON_T_D	Detailed temporal nature of the connection between the GDE and groundwater	1. Ephemeral – *only has groundwater connection after unpredictable and rare (i.e. extreme) rainfall and runoff events.* 2. Episodic – *only has groundwater connection after unpredictable rainfall and runoff events.* 3. Intermittent – *has groundwater connection during alternating wet and dry periods, but less frequently and/or less regularly than seasonal connectivity.* 4. Seasonal – *has groundwater connection during alternating wet and dry periods on a regular basis according to season.* 5. Near-permanent – *has groundwater connection that may be static or flowing, with varying levels. However there is a possibility that the flow could cease during long or extreme conditions (e.g. rare or non-cyclic conditions).* 6. Permanent – *has groundwater connection that may be static or flowing, with varying levels. However is predictably connected to groundwater.* 7. Unknown 8. No data
RESID_TIME*	Residence time of groundwater	1. Short 2. Long 3. Unknown 4. No data
SAT_REGIME*	Saturation regime	1. Permanent 2. Intermittent 3. Ephemeral 4. Unsaturated 5. Unknown 6. No data
GDE_TYPE	Type of GDE	1. Surface expression GDE 2. Terrestrial GDE 3. Subterranean GDE

Field name (short)	Field description	Field values explained
GDE_CONF	Confidence in the groundwater dependence of the ecosystem.	1. Known GDE 2. Derived GDE – high confidence 3. Derived GDE – moderate confidence 4. Derived GDE – low confidence 5. Unknown confidence
RULE_ID	Mapping rule-set identifier	*For example, 'EMDB_RS_03'*
RULE_NAME	Mapping rule-set name	*For example, 'Alluvia – eMDB'*
URL_RULE	Mapping rule-set documentation URL	*For example, 'http://www.example.pdf'*
C_MODEL	Conceptual model name	*For example, 'Alluvia'*
URL_CMODEL	Conceptual model documentation URL	*For example, 'http://www.example.pdf'*
GDE_EVID	Evidence supporting GDE identification	1. Field survey 2. Expert opinion 3. Report 4. Journal article 5. Stream gauge 6. Monitoring bore
DATA_SRC	Principal source dataset used to delineate the GDE point, line or area	*For example, '2009 WETLANDS V3', '2009 RE V7', 'QLD SPRINGS DATABASE V1', 'M. Godwin 1:10,000 karst mapping, Wallace Creek Limestones, Eastern Area'*
EVID_SRC	The best published reference about the karst region.	*For example, 'Pearson L. (1988) Mitchell-Palmer Karst A Speleological Field Guide'*
DATA_SCALE	The scale of the digital mapping used to describe the mapping unit.	*For example, '100000'*

Field name (short)	Field description	Field values explained
ASF_NAME	The Australian Speleological Federation number and name of some of the caves in the mapping unit karst area. May also include any relevant bore numbers.	*For example, 'Camooweal Four Mile Cave C13'*
ASF_CODE	The Australian Speleological Federation regional code used in the Karst Index Database	*For example, 'CH'*
ASF_NUM	The Australian Speleological Federation number of the karst feature or one or more of the caves in the mapping unit area	*For example, 'U50'*

Citation

Queensland Government (2017) *Groundwater dependent ecosystem mapping data dictionary: version 1.5*, Queensland Government, Brisbane.