

QLIS





Natural Resource

DATA MODEL



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Queensland NATURAL RESOURCE DATA MODEL

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1. Introduction

1.0 Background

In July 1991, the Queensland Land Information Council (QLIC) was established to provide policy oriented advice on broader land information matters. QLIC is a multi-agency body whose principal aim is to ensure an integrated and coordinated approach to the development of Land Information Systems in Queensland.

In November 1991, QLIC established an inter-agency working party to undertake charter planning for a Queensland Land Information Strategy (QLIS). In 1992, the Information Policy Board appointed the Queensland Department of Lands as the Lead Agency for the coordination of the development of QLIS.

Responsibility for coordination of the Natural Resources Information theme of QLIS was formalised by the establishment of the Natural Resources Theme Coordinating Committee in 1993. This committee is chaired by the Department of Primary industries as Theme Coordinator and is composed of representatives from the Departments of

- Primary Industries
- Environment and Heritage
- Lands
- Housing, Local Government and Planning and
- Minerals and Energy.

A major initiative of the Natural Resources Theme Coordinating Committee in 1994 was the establishment of a project named the "Evaluation of Existing Information Systems Relating to Natural Resource Data". The project was intended to provide a foundation for systems development within agencies, and to provide a basis for the development of future standards.

This report is an output of stage III of that project.

1.0 About this Document

The substantive part of this document is divided into four sections which cover:

Section 2 - How to Read the Data Model describes the meaning of the columns which make up the structure of the tables of the Data Model.

Section 3 - Interpreting the Data Model defines the range of information which has been included and excluded from the Data Model.

Section 4 - The Queensland Natural Resource Data Model contains the Data Model itself.

Section 5 - List of Sources details the nature of contacts where information was acquired for inclusion in the Data Model.

2.

How to Read the Data Model

The body of this report is the tabular data model presented in Section 4. Section 3 provides a summary description of the meaning of the content, particularly emphasising limitations on its interpretation. It represents the ‘fine print’ which should always accompany the tables to discourage misrepresentation.

This section, by contrast, provides a broader view of the background of the model. The structure of the tables is introduced and the meanings of terms are explained. It represents ‘the manual’ available for reference if the information contained in Section 4 needs further explanation.

2.0 Spatial Entities and their Attributes

The data model describes the information content of datasets from a spatial information viewpoint. It focuses on the data elements which are able to be displayed on a map and the headings under which information is stored about those elements.

The data elements which are able to be displayed on a map are referred to as *Spatial Entities*. The headings under which information is stored about spatial entities are referred to as *Attributes* of those entities. Figure 1 illustrates this relationship.

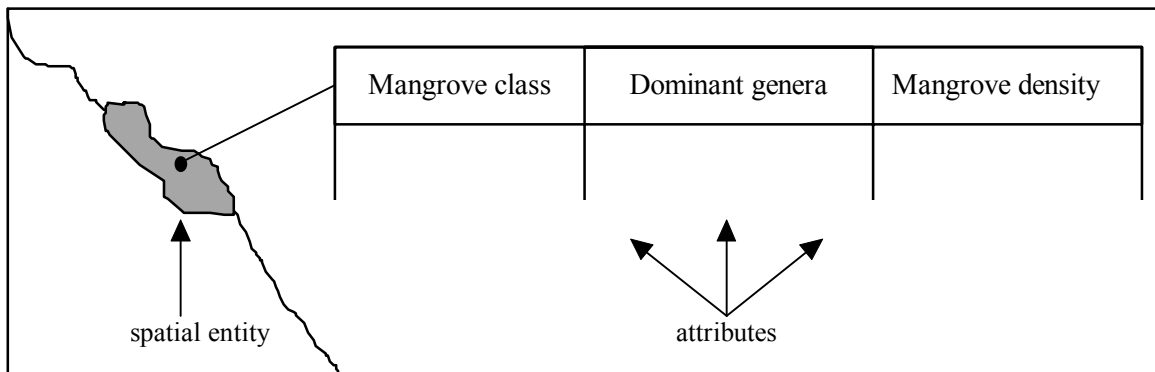


Figure 1. Relationships between spatial entities and attributes

This information is recorded in the tables as shown in Figure 2, with Spatial Entity Names in column 1 and Attributes in column 4.

Spatial Entity Name	Attribute		
Mangrove			on date - mangrove class name on date - dominant genera on date - mangrove density

Figure 2. Representation of spatial entities and attributes

2.0 Spatial Entities

Apart from the Spatial Entity Name, two other columns of each table describe spatial entities in more detail.

Spatial Entity Type (column 2) is a description of the type of real world spatial information the entity represents. For a polygon entity such as that shown in Figure 1 this column explains the rationale for the particular boundary position. Point entities commonly have a spatial entity type of “Sample Site” as their extent has no relationship to the extent of anything in the real world.

Figure 3 illustrates the complete classification of spatial entity types.

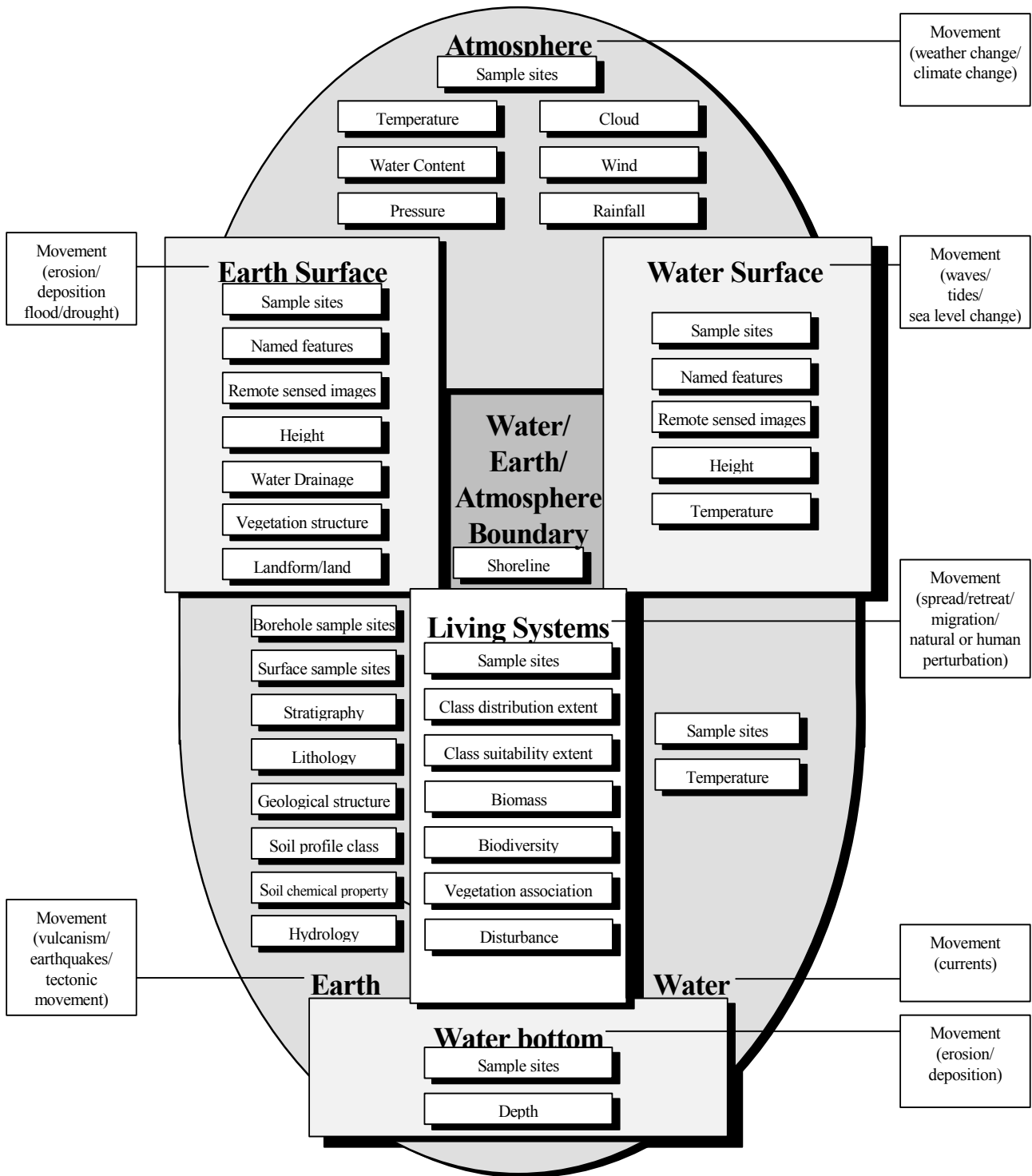
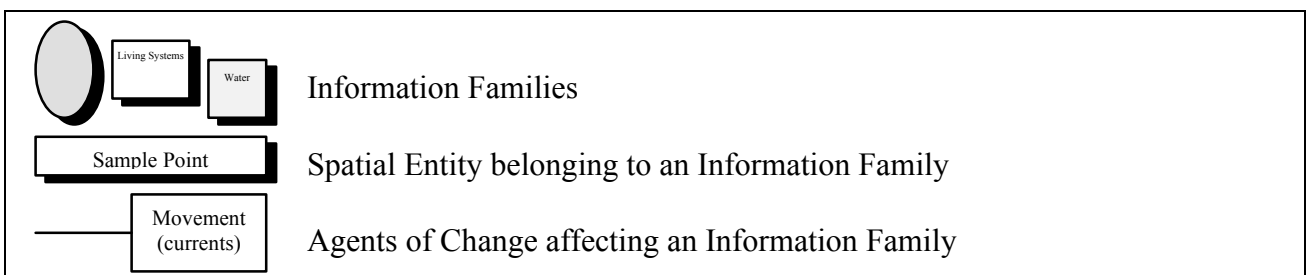


Figure 3. A Classification of Natural Resources Spatial Entity Types
 (Principal Natural Resource Spatial Entities grouped by Information Family)



Object Type (column 4) is a description of the type of spatial entity which is present in the recorded dataset. Object types naming follows the conventions of the Spatial Data Transfer Standard. (SDTS, AS/NZS 4270)

Figure 4 provides a list of SDTS object types. Detailed definitions and illustrations are contained in Section 2 of part 1 of the AS/NZS 4270 standard.

Zero dimensional	One dimensional	Two dimensional	Aggregate
Point Entity point Label point Area point Node	Line segment String Arc Link Chain Complete chain Area chain Network chain Ring G-ring GT-ring	Interior Area G-polygon GT-polygon Universe polygon Void polygon Pixel Grid cell	Digital image Grid Layer Raster Graph Planar graph 2D manifold Network

Figure 4. SDTS Spatial Object Names

Columns discussed to this point are shown in Figure 5.

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute
Mangrove	Class distribution extent	GT-polygon	on date - mangrove class name on date - dominant genera

Figure 5. Description of spatial entities

2.0 Attributes

The naming of attributes incorporates information about the relationship of the attribute to the spatial entity. In particular, aspects of database structure, which are collapsed in the attribute entity view are often retained in the attribute name.

An example is the case of soil surveys. For a particular site (point) information may be recorded separately for several vertical bands. Some measurements are carried out on **intervals**, (standard measured depth ranges such as 1m-2m) some are on **horizons** (physically and chemically distinct layers in the soil) and other simply apply to the point. This results in attributes such as

- interval particle sizes
- horizon structure and
- slope

which provide an indication of the differences.

Similarly the example included in Figure 2 and Figure 5 indicates that the information stored has a temporal component, with the potential for multiple entries for the same region on different dates.

The information stored in the final two columns describes each attribute in further detail.

Information Level (column 5) summarises the relationship between the attribute and the original real world source.

- Raw Source Data data recorded directly from the site or directly from material removed from the site
- Interpreted Data data derived from processing of the raw source data
- Modelled Data data output from a model which used raw, interpreted or extrapolated data as input
- Management Information data which has been selectively filtered and processed to extract some essence for management purposes.

Information Class (column 6) is a classification of the type of real world information recorded in the attribute. This classification, illustrated in Figure 6, shares a coarser high level classification named “Information Classes” with the Spatial Entity Type column. (Figure 3) Most of the class names are self-explanatory, but the following definitions may be useful:

- Synthetic Product information with values which have a significant human intellectual input, being
 - an aggregation of several objectively measurable natural resource properties (eg biogeographic region name, rock type) or
 - arbitrarily assigned labels to entities (eg a river name) or classifications of attribute values (eg remnant vegetation status)
- Class Location/Distribution the relationship between a living systems class (eg named species or group of species) and a spatial position, either sample location or definitive distribution.

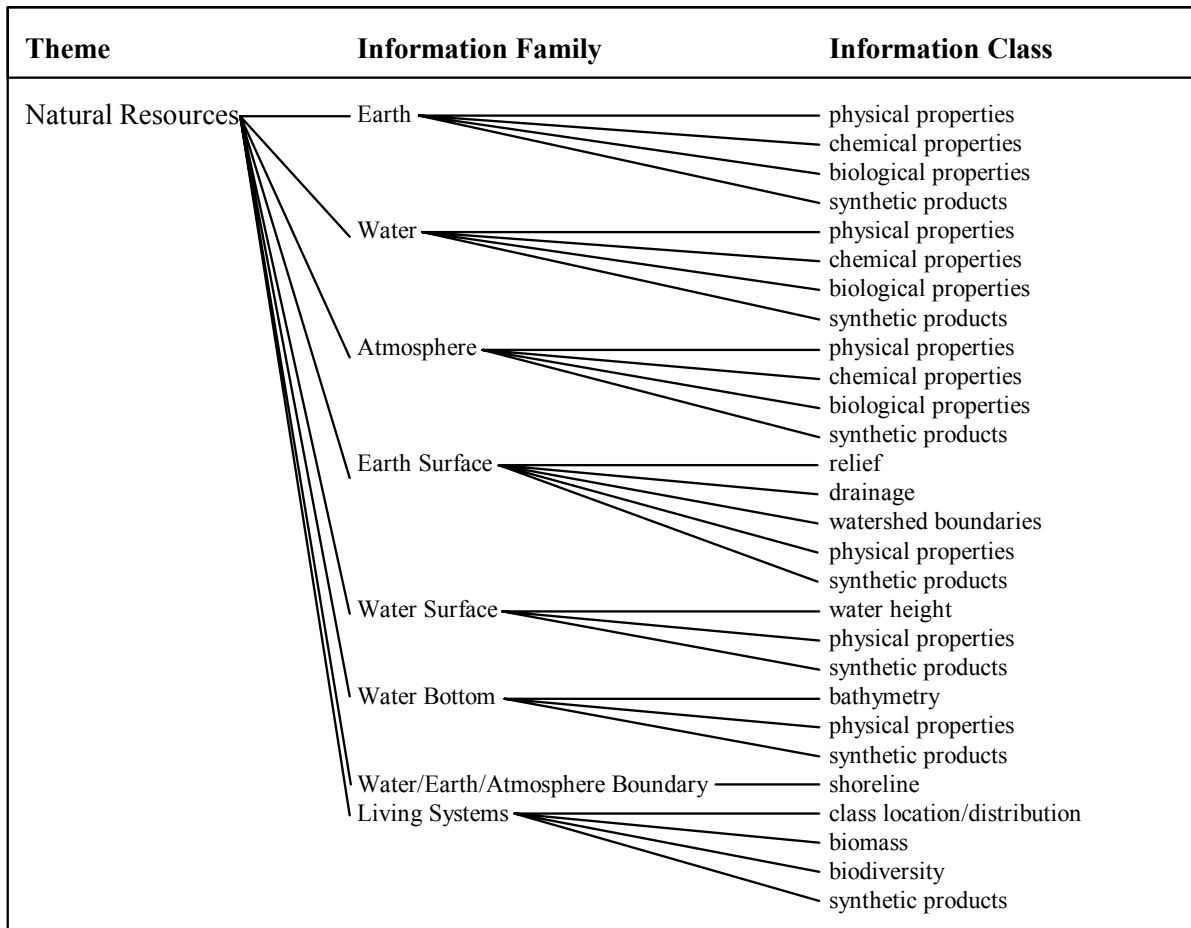


Figure 6. Natural Resource Information Classes

The final appearance of the tables is shown in Figure 7. Additional context information is provided by *Page Headings* which provide the custodian organisation name and a broad information type name and optional *Section Headings* which list the dataset names where these are not implied by the spatial entity names. Also, where appropriate, the information level and information class of the spatial entity is listed under the pseudo-attribute ‘(spatial representation)’.

QDPI Fisheries Information Collections					
Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Vegetation Inventory Mangrove	Class distribution extent	GT-polygon	(spatial representation) on date - mangrove class name on date - dominant genera on date - mangrove density	interpreted data interpreted data interpreted data interpreted data	Living systems - class distribution Living systems - synthetic product Living systems - class distribution Living systems - biomass

Figure 7. Complete representation of entities and attributes

3. Interpreting the Data Model

This section provides a concise description of the meaning of the content of the data model presented in Section 4. Refer back to Section 2 for a more extensive description of the structure of tables and the meanings of terms.

Key Spatial Entities and Attributes of Queensland Natural Resource Data Collections

The information in Section 0 is tabulated to group attributes with their associated spatial entities, and spatial entities within information collections.

Column headings are defined as follows:

1.	Spatial Entity Name	A descriptive title for the spatial entity	(an entity is analogous to a database row)
2.	Spatial Entity Type	A generic type title for the spatial entity	(Figure 3)
3.	Object Type	The topological type of the spatial entity	(based on SDTS entity types - Figure 4)
4.	Attribute	The name of a characteristic of the spatial entity for which information is stored (an attribute is analogous to a database column)	
5.	Information Level	An indication of the level of a of the attribute information (raw source data / interpreted data / modelled data / management information)	
6.	Information Class	An indication of the natural resource content of the information	(Figure 6)

Attributes listed are chosen for their natural resource information significance. To avoid obscuring this aspect, many classes of attribute have been omitted in some or all cases, including:

- identification numbers, names or codes (internal database and user oriented)
- project details
- location details duplicating spatial information (including coordinates, coordinate reference systems, survey detail)
- officer names (data collection and data entry)
- dates
- data collection equipment details
- sample quality information
- attributes for which a dataset is not the authoritative source (eg climate/ weather information)
- attributes which belong to QLIS themes other than Natural Resources

Inclusion or exclusion of attributes has in all cases been decided with the intent of providing the clearest possible impression of the scope of the information contained in datasets.

Complexities of database structure have been collapsed to standardise information into the entity attribute format. Indications of structure remain in compound attribute names, such as a borehole attribute “depth range intact strength” which refers to a measurement of material strength which is repeated for several depth ranges within a single borehole.

Names of contributors of source information, and the nature of contributions are acknowledged in Section 5.

NOTE: Information is intended only to give a concise indication of the range of natural resource information which is available covering areas of Queensland.

Information is not necessarily available from a computer database at this time, although in all cases there is an intention for computer availability when resources permit. (However in most cases information is currently stored in a computer database)

Information which is stored on computer is not necessarily stored in spatial software such as a GIS system.

Many information sets are not state-wide, or statewide coverage varies widely in quality and the range of attributes stored.

The information is intended to be used in conjunction with QLID, the Queensland Land Information Directory. QLID provides details of scale, extent of coverage, date of currency and other metadata not included here. In all cases, the custodian agency or individual is the most authoritative source of meta-information and should be contacted to confirm details obtained from compiled sources such as this or QLID.

For further details of the background of the model, including the structure of the tables and meanings of terms, refer to Section 0.

4. The Queensland Natural Resource Data Model

4.0 QDNR/CSIRO Soil Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Survey Site	Earth surface - sample Site	entity point	horizon depth	raw source data	Earth - physical property
			horizon structure	raw source data	Earth - physical property
			horizon electrical conductivity	raw source data	Earth - physical property
			horizon particle size	raw source data	Earth - physical property
			erosion	raw source data	Earth - physical property
			horizon pH	raw source data	Earth - chemical property
			interval pH	raw source data	Earth - chemical property
			interval electrical conductivity	raw source data	Earth - chemical property
			interval chloride (salinity)	raw source data	Earth - chemical property
			interval nutrients (N, P, K, trace elements)	raw source data	Earth - chemical property
			interval exchangeable cations	raw source data	Earth - chemical property
			interval particle sizes	raw source data	Earth - physical property
			interval moisture	raw source data	Earth - physical property
			slope	raw source data	Earth surface - physical property
			relief	raw source data	Earth surface - physical property
			aspect	raw source data	Earth surface - physical property
			micro-relief	raw source data	Earth surface - physical property
			forest strata description	raw source data	Earth surface - physical property
			dominant species	raw source data	Living systems - class location

QDNR/CSIRO Soil Information Collections (continued)

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Soil Class UMA (Unique Map Area) (scale 1:50,000)	Earth - soil profile class	gt-polygon	(spatial representation)	interpreted data	Earth - physical property
			soil profile class name	interpreted data	Earth - physical property
			subsidiary soil profile class name	interpreted data	Earth - physical property
			water holding capacity	interpreted data	Earth - physical property
			erosion potential	interpreted data	Earth - physical property
			soil variability	interpreted data	Earth - physical property
			geological substrate	interpreted data	Earth - physical property
			nutrients	interpreted data	Earth - chemical property
			landform	interpreted data	Earth surface - physical property
			current land use	interpreted data	Earth surface - physical property
Soil Class Association UMA (Unique Map Area) (scale 1:100,000 to 1:250,000)	Earth - soil profile class	gt-polygon	(spatial representation)	interpreted data	Earth - physical property
			soil profile class name	interpreted data	Earth - physical property
			subsidiary soil profile class name	interpreted data	Earth - physical property
			soil variability	interpreted data	Earth - physical property
			geological substrate	interpreted data	Earth - physical property
			landform	interpreted data	Earth surface - physical property
			current land use	interpreted data	Earth surface - physical property
Land System UMA (Unique Map Area) (scale 1:500,000)	Earth surface - landform/land system	gt-polygon	(spatial representation)	interpreted data	Earth - physical property
			soil variability	interpreted data	Earth - physical property
			geological substrate	interpreted data	Earth - physical property
			dominant land system	interpreted data	Earth surface - physical property
			subsidiary land system	interpreted data	Earth surface - physical property
			land zone	interpreted data	Earth surface - physical property
			vegetation structure	interpreted data	Earth surface - physical property
			landform	interpreted data	Earth surface - physical property
			current land use	interpreted data	Earth surface - physical property
			vegetation species	interpreted data	Living systems - class location
Soil pH (scale 1:2,000,000)	Earth - soil chemical property	gt-polygon	(spatial representation)	interpreted data	Earth - chemical property
			soil pH	interpreted data	Earth - chemical property
Soil Phosphorus (scale 1:1,000,000)	Earth - soil chemical property	gt-polygon	(spatial representation)	interpreted data	Earth - chemical property
			soil Phosphorus level	interpreted data	Earth - chemical property
Soil Potassium (scale 1:1,000,000)	Earth - soil chemical property	gt-polygon	(spatial representation)	interpreted data	Earth - chemical property
			soil Potassium level	interpreted data	Earth - chemical property

4.0 QDPI Fisheries Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Commercial and Recreational Catch					
.5 degree square grid cell	Water surface - sample site	grid cell	catch on date at depth - species, catch on date at depth - abundance catch on date at depth - (species/abundance)	raw source data raw source data raw source data	Living systems - class distribution Living systems - biomass Living systems - biodiversity
Vegetation Inventory					
Mangrove	Living systems - class distribution extent	gt-polygon	(spatial representation) on date - mangrove class name on date - dominant genera on date - mangrove density	interpreted data interpreted data interpreted data interpreted data	Living systems - class distribution Living systems - synthetic product Living systems - class distribution Living systems - biomass
Seagrass	Living systems - class distribution extent	gt-polygon	(spatial representation) on date - seagrass community type on date - seagrass density	interpreted data interpreted data interpreted data	Living systems - class distribution Living systems - class distribution Living systems - biomass
Central Qld Fisheries Habitat Inventory					
Coastal Wetlands Extent	Living systems - class distribution extent	gt-polygon	(spatial representation) aquatic habitat type dominant vegetation type	interpreted data interpreted data interpreted data	Living systems - class distribution Living systems - class distribution Living systems - class distribution
Habitat Assessment	Water - sample site	entity point	water quality aquatic fauna riparian vegetation	raw source data raw source data raw source data	Water - properties Living systems - class location Living systems - class location
Levee and Pond Banks	Earth surface -Landform	string	(spatial representation) bank type bank condition	interpreted data interpreted data interpreted data	Earth surface - physical properties Earth surface - physical properties Earth surface - physical properties
Classified satellite image	Earth surface - remote sensed image	grid cell	vegetation type cover type	interpreted data interpreted data	Living systems - class distribution Living systems - class distribution
Sample records	Water - sample site	entity point	species species abundance species size species frequencies	raw source data raw source data raw source data raw source data	Living systems - class location Living systems - biomass Living systems - biomass Living systems - biodiversity
Management Area	(Administration area)	gt-polygon	(spatial representation) management type	raw source data raw source data	(Land Administration theme) Living systems - synthetic product

4.0 QDNR Drought Management Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Spatial Climate Sets					
5km square grid cell	Earth surface - sample site	grid cell	daily - air temp minimum (1957-1994)	interpreted data	Atmosphere - physical properties
			daily - air temp maximum (1957-1994)	interpreted data	Atmosphere - physical properties
			daily - vapour pressure (1957-1994)	interpreted data	Atmosphere - physical properties
			daily - surface pressure (1957-1994)	interpreted data	Atmosphere - physical properties
			daily - pan evaporation (1966-1994)	interpreted data	Atmosphere - physical properties
			daily - radiation (1957-1995)	interpreted data	Atmosphere - physical properties
			daily - rainfall (1890-1995)	interpreted data	Atmosphere - physical properties
			monthly - rainfall (1890-1995)	interpreted data	Atmosphere - physical properties
			mean day air temp minimum (366 days)	interpreted data	Atmosphere - physical properties
			mean day air temp maximum (366 days)	interpreted data	Atmosphere - physical properties
			mean day vapour pressure (366 days)	interpreted data	Atmosphere - physical properties
			mean day surface pressure (366 days)	interpreted data	Atmosphere - physical properties
			mean day pan evaporation (366 days)	interpreted data	Atmosphere - physical properties
Livestock Numbers					
Local Govt Area	(Administrative area)	gt-polygon	<all attribs from ag and livestock census>	interpreted data	Living systems - class distributions
5km square grid cell	Earth surface - sample site	grid cell	<all attribs from ag and livestock census>	interpreted data	Living systems - class distributions
GMS satellite images					
5km square grid cell	Earth surface - sample site	grid cell	Infrared band 1	raw source data	Earth surface - physical properties
			Infrared band 2	raw source data	Earth surface - physical properties
			Infrared band 3 - water vapour	raw source data	Earth surface - physical properties
			Visible light band	raw source data	Earth surface - physical properties
Global sea surface temperature					
1 degree grid cell	Earth surface - sample site	grid cell	monthly - sea surface temperature (= a)	interpreted data	Earth surface - physical properties
			mean monthly sea surface temperature (= b)	interpreted data	Earth surface - physical properties
			anomaly temperature (= a - b)	interpreted data	Earth surface - physical properties
NOAA satellite images					
1km square grid cell	Earth surface - sample site	grid cell	reflectance red	raw source data	Earth surface - physical properties
			reflectance near infra-red	raw source data	Earth surface - physical properties
			NDVI	raw source data	Earth surface - synthetic product
			cloud mask for date	raw source data	Atmosphere - physical properties
			orientation angles of satellite and sun	raw source data	-

4.0 QDNR Forest Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Forest Type					
50m square grid cell	Earth surface - sample site	grid cell	dominant species	interpreted data	Living systems - class distribution
Murray Darling Forest Cover and Structure					
25km square grid cell	Earth surface - sample site	grid cell	landcover	interpreted data	Earth surface - physical properties
Forests and Woodlands of Queensland					
1km square grid cell	Earth surface - sample site	grid cell	landcover	interpreted data	Earth surface - physical properties
Remnant Vegetation of SE Queensland					
remnant vegetation status (based on 25m square grid cell)	Living systems - disturbance extent	gt-polygon	remnant vegetation status	interpreted data	Living systems - synthetic products
FORWOOD					
production timber regions	Living systems - class distribution extent	gt-polygon	(spatial representation) timber type (14 classes) production type	raw source data raw source data raw source data	(Land administration) Living systems - class distribution (Socioeconomic)
State of the Forests Report					
1km square grid cell	Earth surface - sample site	grid cell	timber type (15 classes)	interpreted data	Living systems - class distribution
Government Plantations					
plantation (scale 1:500 000)	(Administrative area)	gt-polygon	forest type (exotic/hoop/other)	interpreted data	Living systems - class distribution
National Rainforest Conservation Plan					
rainforest class	Living systems - class distribution extent	gt-polygon	rainforest type (6 classes) non-rainforest type (6 classes)	interpreted data interpreted data	Living systems - class distribution Living systems - class distribution
National Forest Inventory					
1km square grid cell (NOAA)	Earth surface - sample site	grid cell	forest density (5 classes)	interpreted data	Earth surface - physical properties

4.0 QDNR State of the Rivers Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
River Catchment	Earth surface - water drainage	gt-polygon	(spatial representation)	interpreted data	Earth surface - watershed boundaries
River Subcatchment	Earth surface - water drainage	gt-polygon	(spatial representation)	interpreted data	Earth surface - watershed boundaries
River Reach	Earth surface - water drainage	string	(spatial representation)	interpreted data	Earth surface - watershed boundaries
			reach environs condition (very poor, poor, moderate, ...)	interpreted data	Earth surface - synthetic product
			bank stability (very unstable, unstable, ...)	interpreted data	Earth surface - synthetic product
			bed and bar stability (very unstable, unstable, ...)	interpreted data	Earth surface - synthetic product
			channel diversity (very poor, poor, ...)	interpreted data	Earth surface - synthetic product
			riparian vegetation condition (very poor, poor, ...)	interpreted data	Earth surface - synthetic product
			aquatic vegetation condition (very poor, poor, ...)	interpreted data	Living systems - synthetic product
			aquatic habitat condition (very poor, poor, ...)	interpreted data	Living systems - synthetic product
			scenic and recreational values (very poor, poor, ...)	interpreted data	Earth surface - synthetic product
			conservation value and representative habitat (very poor, poor, ...)	interpreted data	Living systems - synthetic product
			overall condition (very poor, poor, ...)	interpreted data	Earth surface - synthetic product
Survey Site	Earth surface - sample site	entity point	survey event - reach environs water level (completely dry, isolated pools, ...)	raw data	Water surface - water height
			survey event - total reach environs floodplain width (m)	raw data	Earth surface - drainage
			survey event - total reach environs valley-flat width (m)	raw data	Earth surface - drainage
			survey event - local reach environs meander wavelength (m)	raw data	Earth surface - drainage
			survey event - local reach environs channel pattern (straight, mildly sinuous, ...)	raw data	Earth surface - physical proerties
			survey event - local reach environs disturbance (sand or gravel mine, other mine, ...)	raw data	Earth surface - physical proerties
			survey event - local reach environs vegetation type (rainforest, eucalypt ...)	raw data	Living Systems - class location/distribution
			survey event - reach environs floodplain feature presence (oxbows, billabongs, ...)	raw data	Earth surface - physical properties
			survey event - reach channel habitat type (pool, riffle, ...)	raw data	Earth surface - physical properties
			survey event - reach channel habitat cross-section type (pool, riffle, ...)	raw data	Earth surface - physical properties
			survey event - reach channel habitat cross-section bank width (m)	raw data	Earth surface - physical properties
			survey event - reach channel habitat cross-section bank height (m)	raw data	Earth surface - physical properties
			survey event - reach channel habitat cross-section bank slope (deg)	raw data	Earth surface - physical properties
			survey event - reach channel habitat cross-section water point depth (m)	raw data	Earth surface - physical properties
			survey event - bank part instability type (eroding, slumping, ...)	raw data	Earth surface - physical properties
			survey event - bank part slope (vertical, steep, moderate, ...)	raw data	Earth surface - physical properties
			survey event - bank part shape (concave, convex, ...)	raw data	Earth surface - physical properties
			survey event - bank side overall instability (high, mod, low, min)	raw data	Earth surface - physical properties
			survey event - bank side susceptibility to erosion (high, mod, low, min)	raw data	Earth surface - physical properties
			survey event - factors affecting stability (flow & waves, seepage, ...)	raw data	Earth surface - physical properties
			survey event - artificial bank protection measures (trees, rock wall, ...)	raw data	Earth surface - physical properties
			survey event - levee banks (natural, man-made, absent)	raw data	Earth surface - physical properties
			survey event - levee bank height (m)	raw data	Earth surface - physical properties

QDNR State of the Rivers Information Collections (Continued)

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Survey Site (contd)	Earth surface - sample site	entity point	survey event - levee bank width (m)	raw data	Earth surface - physical properties
			survey event - bar type (point, alternate sides, mid-channel island, ...)	raw data	Earth surface - physical properties
			survey event - bar size (% of bed surface)	raw data	Earth surface - physical properties
			survey event - bar gravel angularity (very angular, angular, ...)	raw data	Earth surface - physical properties
			survey event - bar gravel shape (sphere disc, ...)	raw data	Earth surface - physical properties
			survey event - bar gravel surface cover (algae or silt, clean)	raw data	Earth surface - physical properties
			survey event - bed compaction (tight armoured, packed, ...)	raw data	Earth surface - physical properties
			survey event - factors affection bed and bar stability (sand extraction, ...)	raw data	Earth surface - physical properties
			survey event - passage for fish etc (no passage, very restricted, ...)	raw data	Earth surface - physical properties
			survey event - overall bed stability (severe erosion, moderate erosion, ...)	raw data	Earth surface - physical properties
			survey event - bank riparian zone width (m)	raw data	Earth surface - physical properties
			survey event - bank riparian zone proportion bare of vegetation (%)	raw data	Earth surface - physical properties
			survey event - bank riparian zone vegetation structural type cover (%)	raw data	Earth surface - physical properties
			survey event - bank riparian zone vegetation weed/ exotic abundance (%)	raw data	Living Systems - class location/distribution
			survey event - bank riparian zone vegetation local species checklist recorded (yes,no)	raw data	Living Systems - class location/distribution
			survey event - bank riparian zone vegetation ecological type abundance (rare, abundant)	raw data	Living Systems - biodiversity
			survey event - aquatic visible depth (m)	raw data	Water - physical properties
			survey event - water too turbid to assess vegetation - presence only (yes, no)	raw data	Water - physical properties
			survey event - aquatic proportion bare of vegetation (%)	raw data	Water - physical properties
			survey event - aquatic vegetation weed/ exotic abundance (%)	raw data	Living Systems - class location/distribution
			survey event - submerged/ floating leaf vegetation total cover (%)	raw data	Water - physical properties
			survey event - submerged/ floating leaf vegetation exotic abundance (%)	raw data	Living Systems - class location/distribution
			survey event - submerged/ floating leaf vegetation type cover (%)	raw data	Water - physical properties
			survey event - floating vegetation total cover (%)	raw data	Water surface - physical properties
			survey event - floating vegetation exotic abundance (%)	raw data	Living Systems - class location/distribution
			survey event - floating vegetation type cover (%)	raw data	Water surface - physical properties
			survey event - emergent vegetation total cover (%)	raw data	Water surface - physical properties
			survey event - emergent vegetation exotic abundance (%)	raw data	Living Systems - class location/distribution
			survey event - emergent vegetation type cover (%)	raw data	Water surface - physical properties
			survey event - instream debris type cover (%)	raw data	Water surface - physical properties
			survey event - bank overhang type length (% of bank length)	raw data	Water surface - physical properties
			survey event - bank overhang type width (m)	raw data	Water surface - physical properties
			survey event - overall aquatic rating for all aquatic life (very high or pristine, ...)	raw data	Living Systems - synthetic product
			survey event - recreational opportunity type (pristine natural, semi-natural,...)	raw data	Earth surface - physical properties
			survey event - scenic value assessment criterion (1 - 10)	raw data	Earth surface - synthetic product
			survey event - initial remnant habitat value for aquatic animal or plant spp (1-10)	raw data	Living Systems - synthetic product
			survey event - initial remnant habitat value for riparian animal or plant spp (1-10)	raw data	Living Systems - synthetic product
			survey event - initial remnant habitat value as wildlife corridor (1-10)	raw data	Living Systems - synthetic product
			survey event - initial representative aquatic habitat quality ranking (1-10)	raw data	Living Systems - synthetic product
			survey event - initial representative riparian habitat quality ranking (1-10)	raw data	Living Systems - synthetic product

4.0 QDNR Groundwater Information Collection

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
borehole	Earth - borehole sample site	entity point	drill event - bore water flow type (surface/artesian/...)	raw source data	Earth - physical property
			condition inspection event - leakage	raw source data	Earth - physical property
			condition inspection event - flow irregularities (rust,...)	raw source data	Earth - physical property
			condition inspection event - precipitates (CO ₃ ,Fe, SO ₄)	raw source data	Earth - chemical property
			condition inspection event - est extraction (Ml/year)	interpreted data	Earth - physical property
			elevation (metres)	raw source data	Earth - physical property
			measurement event - water level (in m/ft/mmm/ftm/kpa/psi)	raw source data	Earth - physical property
borehole geological strata	Earth - borehole sample site	3d entity line	drill event - strata description	raw source data	Earth - physical property
			zone - Stratigraphy (Stratigraphic Unit)	raw source data	Earth - synthetic product
borehole aquifer	Earth - borehole sample site	3d entity line	drill event - standing water level (m)	raw source data	Earth - physical property
			drill event - flow indicator (above ground Y/N)	raw source data	Earth - physical property
			drill event - water quality (ref or description)	raw source data	Earth - physical property
			drill event - yield (litres/second)	raw source data	Earth - physical property
			drill event - hydrological/physical condition of bed	raw source data	Earth - physical property
			drill event - lithology	interpreted data	Earth - synthetic product
			drill event - geological unit formation name	interpreted data	Earth - synthetic product
borehole tested zone	Earth - borehole sample site	3d entity line	pump test event - discharge time series (litres/second)	raw source data	Earth - physical property
			pump test event - drawdown time series (metres)	raw source data	Earth - physical property
			pump test event - temperature time series (°C)	raw source data	Earth - physical property
			pump test event - pressure on arrival (metres)	raw source data	Earth - physical property
			pump test event - static head (metres)	raw source data	Earth - physical property
			pump test event - calculated static head (metres)	interpreted data	Earth - physical property
			pump test event - design yield (l/sec)	interpreted data	Earth - synthetic product
			pump test event - transmissivity (m ² /day)	interpreted data	Earth - physical property
			pump test event - storativity (m ² /day)	interpreted data	Earth - physical property

QDNR Groundwater Information Collection (Continued)

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
water measurement point	Earth - sample site	3d entity point	field measurement - conductivity (μ Siemens/cm at 25°C)	raw source data	Earth - chemical property
			field measurement - pH	raw source data	Earth - chemical property
			field measurement - temperature (°C)	raw source data	Earth - physical property
			field measurement - Nitrate (mg/l)	raw source data	Earth - physical property
			field measurement - Dissolved Oxygen (mg/l)	raw source data	Earth - chemical property
			field measurement - Redox potential - Eh (mVolts)	raw source data	Earth - physical property
			lab measurement - conductivity (μ Siemens/cm at 25°C)	raw source data	Earth - chemical property
			lab measurement - pH	raw source data	Earth - chemical property
			lab measurement - Colour (Hazen)	raw source data	Earth - chemical property
			lab measurement - Turbidity (NTU)	raw source data	Earth - chemical property
			lab measurement - Silica	raw source data	Earth - chemical property
			lab measurement - Hardness	interpreted data	Earth - chemical property
			lab measurement - Alkalinity	interpreted data	Earth - chemical property
			lab measurement - Figure of Merit	interpreted data	Earth - chemical property
			lab measurement - Sodium Adsorption Ratio	interpreted data	Earth - chemical property
			lab measurement - Residual Alkalinity Hazard (m_/l)	interpreted data	Earth - chemical property
			lab measurement - Total Dissolved Ions	interpreted data	Earth - chemical property
			lab measurement - Total Dissolved Solids	interpreted data	Earth - chemical property
			lab measurement - Sodium (mg/l)	raw source data	Earth - chemical property
			lab measurement - Potassium (mg/l)	raw source data	Earth - chemical property
			lab measurement - Calcium (mg/l)	raw source data	Earth - chemical property
			lab measurement - Magnesium (mg/l)	raw source data	Earth - chemical property
			lab measurement - Iron (mg/l)	raw source data	Earth - chemical property
			lab measurement - Manganese (mg/l)	raw source data	Earth - chemical property
			lab measurement - Zinc (mg/l)	raw source data	Earth - chemical property
			lab measurement - Aluminium (mg/l)	raw source data	Earth - chemical property
			lab measurement - Boron (mg/l)	raw source data	Earth - chemical property
			lab measurement - Copper (mg/l)	raw source data	Earth - chemical property
			lab measurement - Bicarbonate (mg/l)	raw source data	Earth - chemical property
			lab measurement - Carbonate (mg/l)	raw source data	Earth - chemical property
			lab measurement - Chloride (mg/l)	raw source data	Earth - chemical property
lab measurement - Fluoride (mg/l)	raw source data	Earth - chemical property			
lab measurement - Nitrate (mg/l)	raw source data	Earth - chemical property			
lab measurement - Sulphate (mg/l)	raw source data	Earth - chemical property			
lab measurement - Phosphate (mg/l)	raw source data	Earth - chemical property			

4.0 QDNR Stream Gauging Station Information Collection - HYDSYS

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
stream gauging station	Earth surface - sample site	entity point	stream cross-section (set of distance[m], level[m] pairs)	raw source data	Water bottom - bathymetry
			field measurement - gauge height time series (metres)	raw source data	Water surface - water height
			field measurement - discharge rate time series (cu m/ sec)	raw source data	Water - physical property
			calculated discharge rate time series (cu metres/ sec)	interpreted data	Water - physical property
			field measurement - Rainfall time series (mm)	raw source data	Earth surface - physical property
water measurement point	Water - sample site	3d entity point	lab measurement - Conductivity time series (mSiemens/cm at 25°C)	raw source data	Water - chemical property
			lab measurement - Turbidity (NTU)	raw source data	Water - physical property
			lab measurement - Colour - true (Hazen)	raw source data	Water - physical property
			field measurement - Temperature time series (°C)	raw source data	Water - physical property
			lab measurement - pH time series	raw source data	Water - chemical property
			lab measurement - Alkalinity (mg/l)	raw source data	Water - chemical property
			calculated Hardness as CaCO3 (mg/l)	interpreted data	Water - chemical property
			lab measurement - Hydrogen (mg/l)	raw source data	Water - chemical property
			calculated Total dissolved solids as CaCO3 (mg/l)	interpreted data	Water - chemical property
			lab measurement - Total dissolved ions (mg/l)	raw source data	Water - chemical property
			lab measurement - Total suspended solids (mg/l)	raw source data	Water - physical property
			lab measurement - Calcium as Ca - soluble (mg/l)	raw source data	Water - chemical property
			lab measurement - Chloride as Cl (mg/l)	raw source data	Water - chemical property
			lab measurement - Magnesium as Mg - soluble (mg/l)	raw source data	Water - chemical property
			lab measurement - Nitrate as NO3 (mg/l)	raw source data	Water - chemical property
			lab measurement - Kjeldahl Nitrogen (mg/l)	raw source data	Water - chemical property
			lab measurement - Organic Nitrogen (mg/l)	raw source data	Water - chemical property
			lab measurement - Nitrate + nitrite as N - soluble (mg/l)	raw source data	Water - chemical property
			lab measurement - Ammonia as N - soluble (mg/l)	raw source data	Water - chemical property
			field measurement - Oxygen - dissolved (mg/l)	raw source data	Water - chemical property
			lab measurement - Total Phosphorus as P (mg/l)	raw source data	Water - chemical property
			lab measurement - Total react P (orthophosphate) - soluble (mg/l)	raw source data	Water - chemical property
			lab measurement - Potassium as K (mg/l)	raw source data	Water - chemical property
			lab measurement - Sodium as Na (mg/l)	raw source data	Water - chemical property
			lab measurement - Sulphate as SO4 (mg/l)	raw source data	Water - chemical property
			lab measurement - Aluminium as Al - soluble (mg/l)	raw source data	Water - chemical property
			lab measurement - Boron as B (mg/l)	raw source data	Water - chemical property
			lab measurement - Cadmium as Cd (µg/l)	raw source data	Water - chemical property
			lab measurement - Chromium as Cr (µg/l)	raw source data	Water - chemical property
			lab measurement - Copper as Cu - soluble (µg/l)	raw source data	Water - chemical property
			lab measurement - Copper as Cu - total (µg/l)	raw source data	Water - chemical property
lab measurement - Flouride as F (µg/l)	raw source data	Water - chemical property			
lab measurement - Iron as Fe - soluble (µg/l)	raw source data	Water - chemical property			
lab measurement - Iron as Fe - total (µg/l)	raw source data	Water - chemical property			

QDNR Stream Gauging Station Information Collection - HYDSYS (Continued)

Spatial Entity Name	Spatial Entity Type	Object Typ	Attribute	Information Level	Information Class
stream gauging station	Earth surface - sample site	entity point	lab measurement - Lead as Pb - total (µg/l)	raw source data	Water - chemical property
			lab measurement - Lead as Pb - soluble (µg/l)	raw source data	Water - chemical property
			lab measurement - Manganese as Mn - total (µg/l)	raw source data	Water - chemical property
			lab measurement - Manganese as Mn - soluble (µg/l)	raw source data	Water - chemical property
			lab measurement - Nickel as Ni - total (µg/l)	raw source data	Water - chemical property
			lab measurement - Nickel as Ni - soluble (µg/l)	raw source data	Water - chemical property
			lab measurement - Silica as SiO2 - soluble (mg/l)	raw source data	Water - chemical property
			lab measurement - Zinc as Zn - soluble (µg/l)	raw source data	Water - chemical property
			lab measurement - Zinc as Zn - total (µg/l)	raw source data	Water - chemical property
			lab measurement - Organochlorines - other (µg/l)	raw source data	Water - chemical property
			lab measurement - 4, 4' - DDE (pp) (µg/l)	raw source data	Water - chemical property
			lab measurement - Endosulfan (alpha isomer) (µg/l)	raw source data	Water - chemical property
			lab measurement - Endosulfan (beta isomer) (µg/l)	raw source data	Water - chemical property
			lab measurement - Endosulfan sulfate (µg/l)	raw source data	Water - chemical property
			lab measurement - Endosulfan ether (µg/l)	raw source data	Water - chemical property
			lab measurement - Endosulfan total (µg/l)	raw source data	Water - chemical property
			lab measurement - Organophosphates - total (µg/l)	raw source data	Water - chemical property
			lab measurement - Carbamates - total (µg/l)	raw source data	Water - chemical property
			lab measurement - Pyrethroids - total (µg/l)	raw source data	Water - chemical property
			lab measurement - Atrazine (µg/l)	raw source data	Water - chemical property
			lab measurement - Prometryne (µg/l)	raw source data	Water - chemical property
			lab measurement - Floumeturon (µg/l)	raw source data	Water - chemical property
			lab measurement - Diuron (µg/l)	raw source data	Water - chemical property
			lab measurement - Chlorophyll-a (µg/l)	raw source data	Water - biological property
			lab measurement - Sub-phyllum Cyanophyceae - total count (cells/ml)	raw source data	Water - biological property
			lab measurement - Dactylococopsis (cells/ml)	raw source data	Water - biological property
			lab measurement - Merismpedia (cells/ml)	raw source data	Water - biological property
			lab measurement - Microcystis aeruginosa (cells/ml)	raw source data	Water - biological property
			lab measurement - Anabaena (cells/ml)	raw source data	Water - biological property
			lab measurement - Anabaena circinalis (cells/ml)	raw source data	Water - biological property
			lab measurement - Sub-phyllum Cyanophyceae - total count (trichomes/ml)	raw source data	Water - biological property
			lab measurement - Microcystis aeruginosa (colonies/ml)	raw source data	Water - biological property
			lab measurement - Microcystis aeruginosa (ave cells/colony)	raw source data	Water - biological property
			lab measurement - Anabaena (trichomes/ml)	raw source data	Water - biological property
			lab measurement - Anabaena (ave cells/trichome)	raw source data	Water - biological property
			lab measurement - Anabaena circinalis (trichomes/ml)	raw source data	Water - biological property
			lab measurement - Anabaena circinalis (ave cells/trichome)	raw source data	Water - biological property
			lab measurement - Oscillatoria (trichomes/ml)	raw source data	Water - biological property
			lab measurement - Planktolynbya (trichomes/ml)	raw source data	Water - biological property

4.0 DoE Vegetation Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
HERBRECS Collection Site	Earth surface - sample site	entity point	plant scientific name	raw source data	Living systems - class location
			pastoral district	interpreted data	(Land administration)
			altitude	interpreted data	Earth surface - relief
			habitat class	interpreted data	Living systems - synthetic product
CORVEG Site	Earth surface - sample site	entity point	pastoral district	interpreted data	(Land administration)
			biogeographic region	interpreted data	Living systems - synthetic product
			conservation significance	interpreted data	Living systems - synthetic product
			landform	raw source data	Earth surface - landform/land systems
			slope	raw source data	Earth surface - landform/land systems
			aspect	raw source data	Earth surface - landform/land systems
			soils	raw source data	Earth surface - landform/land systems
			geological substrate	raw source data or interpreted data	Earth surface - landform/land systems
			disturbance/degradation index	raw source data	Earth surface - landform/land systems
			disturbance/degradation agent	raw source data	Earth surface - landform/land systems
			stem density	raw source data	Living systems - biomass
			basal area	raw source data	Living systems - biomass
			forest strata description	raw source data	Earth surface - landform/land systems
			dominant species plant scientific names	raw source data	Living systems - class location
Vegetation Pattern	Living systems - class distribution extent	gt-polygon	(spatial representation)	interpreted data	Living systems - class distribution
			vegetation pattern class name	interpreted data	Living systems - class distribution
Vegetation Cover	Earth surface - vegetation structure	gt-polygon	(spatial representation)	interpreted data	Surface description property
			percentage cover	interpreted data	Surface description property
Local Area Vegetation Inventory	Living systems - class distribution extent	gt-polygon	(spatial representation)	interpreted data	Living systems - class distribution
			inventory of plant scientific names	interpreted data	Living systems - class distribution
Biogeographic Region	Living systems - vegetation association	gt-polygon	(spatial representation)	interpreted data	Living systems - synthetic product
			biogeographic region	interpreted data	Living systems - synthetic product
Biogeographic Province	Living systems - vegetation association	gt-polygon	(spatial representation)	interpreted data	Living systems - synthetic product
			biogeographic province	interpreted data	Living systems - synthetic product

4.0 DoE Fauna Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Naturesearch 1 minute grid cell	Earth surface - sample site	gt-polygon	survey rain status	raw source data	Atmosphere - physical property
			survey temperature	raw source data	Atmosphere - physical property
			survey wind status	raw source data	Atmosphere - physical property
			survey sky (cloud) status	raw source data	Atmosphere - physical property
			survey vegetation (land use)	raw source data	Earth surface - landform/land systems
			sighting type (roost/kill/...)	raw source data	Earth surface - landform/land systems
			sighting reproducibility	raw source data	Earth surface - landform/land systems
			sighting trap method (if trapped)	raw source data	Earth surface - landform/land systems
			sighting animal scientific name	interpreted data	Living systems - class location
			sighting animal common name	interpreted data	Living systems - class location
			sighting animal species group	interpreted data	Living systems - class location
			sighting animal endangerment status	interpreted data	Living systems - synthetic product
			sighting animal introduced status	interpreted data	Living systems - synthetic product

4.0 DoE Environmental Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Air quality (29 sites mainly in populated areas) (measurements average over half hour) (not all measures at any one site)	Atmosphere - sample site	entity point	visibility (Nephelometer)	raw source data	Atmosphere - physical property
			Ozone O ₃	raw source data	Atmosphere - chemical property
			particulate matter < 10µm (TEOM)	raw source data	Atmosphere - physical property
			particulate matter < 2.5µm (Aerosol)	raw source data	Atmosphere - physical property
			Nitric oxide (NO)	raw source data	Atmosphere - chemical property
			Nitrogen dioxide (NO ₂)	raw source data	Atmosphere - chemical property
			total oxides of Nitrogen (NO _x)	raw source data	Atmosphere - chemical property
			Sulfur dioxide (SO ₂)	raw source data	Atmosphere - chemical property
			Carbon monoxide (CO)	raw source data	Atmosphere - chemical property
			photochemical fog potential (AirTrak)	raw source data	Atmosphere - chemical property
			Lead (Pb)	raw source data	Atmosphere - chemical property
			total suspended particulate matter	raw source data	Atmosphere - physical property
			particulate matter < 10µm	raw source data	Atmosphere - physical property
			wind speed	raw source data	Atmosphere - physical property
			wind direction	raw source data	Atmosphere - physical property
			std deviation of wind dir and speed	raw source data	Atmosphere - physical property
			air temperature	raw source data	Atmosphere - physical property
			relative humidity	raw source data	Atmosphere - physical property
solar radiation	raw source data	Atmosphere - physical property			
Ambient water quality (200 primary sites - approx 350 total) (monthly measurements) (non-interval measurement .2m depth) (interval measurements every 2m)	Water - sample site	entity point	organic Nitrogen - mg N/L	raw source data	Water - chemical property
			Ammonia Nitrogen - mg N/L	raw source data	Water - chemical property
			Oxidised Nitrogen - mg N/L	raw source data	Water - chemical property
			total Nitrogen - mg N/L	raw source data	Water - chemical property
			reactive Phosphorus - mg P/L	raw source data	Water - chemical property
			total Phosphorus - mg P/L	raw source data	Water - chemical property
			Chlorophyll - µg/L	raw source data	Water - chemical property
			suspended solids - mg/L	raw source data	Water - physical property
			faecal coliforms - No/100ml	raw source data	Water - biological property
			interval - temperature - deg C	raw source data	Water - physical property
			interval - dissolved Oxygen - %sat	raw source data	Water - chemical property
			interval - conductivity - mS/cm	raw source data	Water - physical property
			interval - turbidity - NTU	raw source data	Water - physical property
			Secchi depth (visibility/clarity) - m	raw source data	Water - physical property

4.0 DoE Coastal Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Wave height measurements (15 sites mainly on east coast) (measurements hourly)	Water surface - sample site	entity point	Hsig - wave height - metres	raw source data	Water surface - height
			THsig - wave period - seconds	raw source data	Water surface - physical property
			Hrms - RMS height - metres	interpreted data	Water surface - height
			Hmax - maximum height - metres	interpreted data	Water surface - height
			Tc - crest period - seconds	raw source data	Water surface - physical property
			Tz - zero crossing period - seconds	raw source data	Water surface - physical property
			H10 - avg highest 10% wave ht - metres	interpreted data	Water surface - height
			TH10 - avg highest 10% wave period - secs	interpreted data	Water surface - physical property
			THmax - period of max height - seconds	raw source data	Water surface - physical property
			Tzmax - max zero crossing period - secs	raw source data	Water surface - physical property
			Hm ₀ - estimated significant wave ht - m	interpreted data	Water surface - height
			T02 - avg period - seconds	interpreted data	Water surface - physical property
			Tp - period at peak spectral energy - secs	raw source data	Water surface - physical property
			EPS4 - spectral width parameter	interpreted data	Water surface - physical property
			SumE60 - sum of energy above .60Hz	interpreted data	Water surface - physical property
GF - groupiness factor	interpreted data	Water surface - physical property			
HASIG - horizontal asymmetry factor	interpreted data	Water surface - physical property			
Storm surge tide levels (22 DoE sites + 7 DOT sites) (measurements hourly avg over 10mins)	Water surface - sample site	entity point	height - metres	raw source data	Water surface - height
COPE beach profiles (Coastal Observation Program - Engineering) (70 COPE stations - 5-30 pts per profile) (measurements monthly)	Earth surface - sample site	complete chain	seaward distance from reference point	raw source data	Earth surface - relief
			height above AHD	raw source data	Earth surface - relief
COPE weather processes (Coastal Observation Program - Engineering) (70 COPE stations - 5-30 pts per profile) (measurements daily)	Earth surface - sample site	entity point	average wave height - metres	raw source data	Water surface - height
			maximum wave height - metres	raw source data	Water surface - height
			wave period - seconds	raw source data	Water surface - physical property
			wave direction - magnetic degrees	raw source data	Water surface - physical property
			surf zone width - wave traversal time -secs	raw source data	Water surface - physical property
			water current speed - metres per minute	raw source data	Water - physical property
			water current direction - left/right/none	raw source data	Water - physical property
			offshore bar - yes/no	raw source data	Water bottom - bathymetry
			wind speed - miles per hour	raw source data	Atmosphere - physical property
			wind direction - magnetic degrees	raw source data	Atmosphere - physical property
			fixed contour/berm elevation and distance to - metres	raw source data	Earth surface - relief
			distance to vegetation line - metres	raw source data	Earth surface - physical property
			sand level at pole - metres	raw source data	Earth surface - physical property

DoE Coastal Information Collections (continued)

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Marine Biophysical Classifications					
Biophysical area (area of attribute value cluster)	Living systems - vegetation association	g-polygon	(spatial representation)	modelled data	Living systems - synthetic property
			classification name	interpreted data	Living systems - synthetic property
			mud fraction	interpreted data	Earth - physical property
			sediment origin (CO ₃ faction)	interpreted data	Earth - physical property
			reef morphology	interpreted data	Living systems - class distribution
			mangrove/saltmarsh biogeography	interpreted data	Living systems - class distribution
			littoral crab biogeography	interpreted data	Living systems - class distribution
			hermatypic coral species richness	interpreted data	Living systems - class distribution
			tidal range	interpreted data	Water surface - height
			cyclone incidence	interpreted data	Atmosphere - physical property
			rainfall	interpreted data	Atmosphere - physical property

4.0 DoE/ Australian Marine Conservation Society Information Collection - Intertidal Wetlands Database

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class			
Intertidal Wetlands Site	Living systems - sample site	entity point	biogeographic region	interpreted data	Living systems - synthetic property			
			physiographic province	interpreted data	Living systems - synthetic property			
			Aboriginal/Islander significance	interpreted data	(Cultural)			
			European heritage significance	interpreted data	(Cultural)			
			conservation/management status	interpreted data	Living systems - synthetic product			
			conservation listing status	interpreted data	Living systems - synthetic product			
			site services - value of wetland to humanity	interpreted data	(Cultural)			
			cultural/social/conservation significance criteria (15)	interpreted data	Living systems - synthetic product			
			CONCOM significance criteria (8)	interpreted data	Living systems - synthetic product			
			RAMSAR significance criteria (11)	interpreted data	Living systems - synthetic product			
			geology/ lithology	interpreted data	Earth - physical property			
			soil type	interpreted data	Earth - physical property			
			water quality	interpreted data	Water - property			
			catchment area (ha)	interpreted data	Earth surface - synthetic product			
			runoff coefficient	interpreted data	Earth surface - synthetic product			
			clearing (%)	interpreted data	(Cultural)			
			catchment land-use	interpreted data	(Cultural)			
			potentially impacting infrastructure	interpreted data	(Cultural)			
			human activity - existing & trends	interpreted data	(Cultural)			
			management plan detail incl plans	interpreted data	Living systems - synthetic product			
			mobile fauna scientific name	interpreted data	Living systems - class location			
			tide range	interpreted data	Water surface - height			
			rainfall	interpreted data	Atmosphere - physical property			
			storm surge	interpreted data	Water surface - height			
			current/ waves	interpreted data	Water surface - height			
			cyclone frequency	interpreted data	Atmosphere - physical property			
			citation - author, title/publication, keywords	interpreted data				
			citation - graphic (.PCX or .GIF file)	interpreted data				
			Habitat within Intertidal Wetlands Site	Living systems - vegetation	entity point	habitat name	interpreted data	Living systems - synthetic product
						habitat forming species - description and trends	interpreted data	Living systems - synthetic product
fauna scientific name	raw source data	Living systems - class location						
fauna management notes	interpreted data	Living systems - synthetic product						
fauna general notes	interpreted data	Living systems - synthetic product						
fauna origin (native/introduced/unknown)	interpreted data	Living systems - class location						
fauna species abundance	interpreted data	Living systems - biodiversity						
crab species count	raw source data	Living systems - biodiversity						
mollusc species count	raw source data	Living systems - biodiversity						
survey intensity description	raw source data							
survey (date) - proportion vegetation flowering/ fruiting	raw source data	Living systems - class location						

4.0 DoE Wet Tropics Management Authority Information Collection

Spatial Entity Name	Spatial Entity Type	Object Typ	Attribute	Information Level	Information Class
Geology	Earth - Stratigraphy/Earth - Lithology	gt-polygon	(spatial representation)	interpreted data	Earth - physical property
			name	interpreted data	Earth - physical property
			parent type	interpreted data	Earth - physical property
Soil	Earth - soil profile class	gt-polygon	(spatial representation)	interpreted data	Earth - physical property
			type	interpreted data	Earth - physical property
			height	interpreted data	Atmosphere - physical property
Rainfall Points	Atmosphere - sample site	entity point	height	interpreted data	Atmosphere - physical property
Rainfall Isohyet	Atmosphere - Rainfall	chain	height	interpreted data	Atmosphere - physical property
Cyclones	Atmosphere - pressure	chain	date	interpreted data	Atmosphere - physical property
Contours	Earth surface - height	chain	height	interpreted data	Earth surface - relief
Digital Elevation Model	Earth surface - height	grid cell	height	interpreted data	Earth surface - relief
Drainage	Earth surface - water drainage	chain	class (primary(maj)/ primary(min)/secondary)	interpreted data	Earth surface - drainage
Catchments	Earth surface - height	gt-polygon	class (primary/secondary)	interpreted data	Earth surface - watershed boundary
Cleared Vegetation	Earth surface - vegetation structure	gt-polygon	type	interpreted data	Earth surface - physical property
Landcover	Earth surface - landform/land systems	gt-polygon	(spatial representation)	interpreted data	Earth surface - physical property
Mountains	Earth surface - named feature	entity point	name	interpreted data	Earth surface - synthetic product
			mountain type	interpreted data	Earth surface - synthetic product
			(spatial representation)	interpreted data	Water/Earth/Atmos boundary - shoreline
Coastline	Shoreline	chain	(spatial representation)	interpreted data	Water/Earth/Atmos boundary - shoreline
Rivers	Shoreline	chain	(spatial representation)	interpreted data	Water/Earth/Atmos boundary - shoreline
Water Storages	Shoreline	chain	(spatial representation)	interpreted data	Water/Earth/Atmos boundary - shoreline
Water Storages	Earth surface - named feature	gt-polygon	name/ id	interpreted data	Earth surface - synthetic product
Islands	Shoreline	chain	(spatial representation)	interpreted data	Water/Earth/Atmos boundary - shoreline
Islands	Earth surface - named feature	gt-polygon	name	interpreted data	Earth surface - synthetic product
Reefs	Earth surface - named feature	gt-polygon	name	interpreted data	Earth surface - synthetic product
Vegetation	Earth surface - sample sites	entity point	name	interpreted data	Living systems - synthetic product
			rare/threatened code	interpreted data	Living systems - synthetic product
			name	interpreted data	Living systems - synthetic product
Rare Vegetation	Earth surface - sample sites	entity point	rare/threatened code	interpreted data	Living systems - synthetic product
Rainforest	Living systems - class distribution extent	gt-polygon	vegetation type	interpreted data	Living systems - class distribution
Rare Fauna Habitat	Living systems - class distribution extent	gt-polygon	zone canopy	interpreted data	Living systems - class distribution
Key Preservation Areas	Living systems - class distribution extent	gt-polygon	type	interpreted data	Living systems - synthetic product
Cassowaries	Living systems - class distribution extent	gt-polygon	(spatial representation)	interpreted data	Living systems - class distribution
Biogeographic Regions	Vegetation association	gt-polygon	(spatial representation)	interpreted data	Living systems - synthetic product
Bioclimate	Living systems - class suitability extents	gt-polygon	(spatial representation)	modelled data	Living systems - synthetic product
Disturbance	Living systems - class distribution extent	gt-polygon	class of disturbance	interpreted data	Living systems - synthetic product
Landscape Units - World heritage values	Earth surface - landform/land systems	gt-polygon	name	interpreted data	(Cultural)
Logging History	Living systems - class distribution extent	gt-polygon	history year	interpreted data	(Cultural)

4.0 Queensland Museum Fauna Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
sample point	Living systems - sample site	entity point	animal scientific name	raw source data	Living systems - class location
			animal common name	raw source data	Living systems - class location
			IUCN number	raw source data	Living systems - class location
			type of specimen description	raw source data	Living systems - synthetic product
			sex of collected specimen	raw source data	Living systems - class location
			age of collected specimen	interpreted data	Living systems - class location
			host and origin tissue type of collected specimen	raw source data	Living systems - class location
			storage mode of collected specimen	raw source data	Living systems - synthetic product
			collection country	raw source data	(Land Administration theme)
			collection state	raw source data	(Land Administration theme)
			collection region	raw source data	(Land Administration theme)
			collection altitude/depth	interpreted data	Earth surface - relief
			collection habitat	raw source data	Living systems - class location
			collection date	raw source data	(temporal)
			collected specimen registration date	raw source data	(temporal)

These attributes are an approximation of the range of natural resource and other spatial information attributes found across 13 separate information collections:

- Mammals,
- Reptiles,
- Birds,
- Arachnids,
- Molluscs,
- Fish,
- Crustaceans,
- Worms,
- Sessile Marine Invertebrates and
- Insects.

4.0 DME Geoscientific Information Collection

Spatial Entity	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Borehole	Earth - borehole sample site	entity point	interval/rock observation - structural measurements	raw source data	Earth - physical property
			interval/rock - relationships	raw source data	Earth - physical property
			interval/rock observation - geophysical measurements	raw source data	Earth - physical property
			interval/rock observation - sample analysis results	raw source data	Earth - chemical property
			interval sample biostratigraphic analysis - fossil type	raw source data	Living systems - class location
			hydrology aquifer description	raw source data	Earth - biological property
			samples hydrocarbon producing details	raw source data	Earth - physical property
samples coal producing details	raw source data	Earth - physical property			
Surface Geology Site	Surface - Sample site	entity point	interval/rock observation - structural measurements	raw source data	Earth - physical property
			interval/rock - relationships	raw source data	Earth - physical property
			interval rock name	raw source data	Earth - synthetic product
			interval/rock observation - geophysical measurements	raw source data	Earth - physical property
			interval/rock observation - sample analysis results	raw source data	Earth - chemical property
Seismic Survey Profile	Earth - geological structure	string	(spatial representation)	raw source data	Earth - physical property
			structural unit	interpreted data	Earth - synthetic product
			tenure	interpreted data	(Land Administration theme)

DEFINITIONS:

Intervals are somewhat arbitrary groupings of similar material,

Rock types occur within intervals and are more homogeneous

Samples are arbitrary portions of an interval or of rock which are subjected to controlled analysis in a laboratory

The Surface Geology Site entity is subdivided into three distinct classes depending on the nature of site:

- Soil and stream sediment sites
- Geological sites with mineral occurrence
- Geological sites without mineral occurrence

The nature of recorded attributes vary between these classes.

DME Geoscientific Information Collection (continued)

Spatial Entity	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Airborne Geophysical Survey Sample	Earth - surface sample site	entity point	cosmic radiation	raw source data	Atmosphere - physical property
			magnetic field (nanoTessler)	raw source data	Earth - physical property
			radiometric field (counts/second of gamma rays)	raw source data	Earth - physical property
			corrected magnetic field (nanoTessler)	interpreted data	Earth - physical property
			corrected radiometric field - Potassium (counts/second)	interpreted data	Earth - chemical property
			corrected radiometric field - Thorium (counts/second)	interpreted data	Earth - chemical property
			corrected radiometric field - Uranium (counts/second)	interpreted data	Earth - chemical property
			corrected radiometric field - Total (counts/second)	interpreted data	Earth - physical property
Ground Gravity Survey Sample	Earth - surface sample site	entity point	raw gravity (milliGals)	raw source data	Earth - physical property
			corrected gravity - "Bouguer Gravity" (milliGals)	interpreted data	Earth - physical property
Geology Polygon	Earth - stratigraphy/ Earth - lithology	gt-polygon	(spatial representation)	interpreted data	Earth - synthetic product
			stratigraphic name	interpreted data	Earth - synthetic product
			geological age	interpreted data	Earth - physical property
			lithology	interpreted data	Earth - physical property
Geology Line	Earth - geological structure	string	(spatial representation)	interpreted data	Earth - physical property
			feature type (boundary/fault/fold axis/...)	interpreted data	Earth - physical property
Geology Point	Earth - geological structure	entity point	(spatial representation)	interpreted data	Earth - physical property
			strike and dip	interpreted data	Earth - physical property
			fossil presence	interpreted data	Earth - physical property
			excavation presence	interpreted data	Earth surface - physical property
Province	Earth - geological structure	gt-polygon	(spatial representation)	interpreted data	Earth - synthetic product
			structural unit name	interpreted data	Earth - synthetic product

Geology (polygon, line and point) is mapped at a variety of scales for different applications:

- Detailed 1: 25,000 to 1: 85,000
- Standard Published maps 1: 100,000 and 1: 250,000
- Regional 1: 500,000 and 1: 1,000,000
- Generalised 1: 2,500,000

4.0 DNR Land Boundaries Information Collections

Spatial Entity	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
SEQ+ Relief - Scale 1:25,000					
5m contours	Earth surface - height	chain	height feature code	interpreted data raw source data	Earth surface - relief
additional spot heights	Earth surface - height	chain	height	interpreted data	Earth surface - relief
SEQ+ Drainage - Scale 1:25,000					
drainage break lines	Earth surface - water drainage	chain	(spatial representation)	interpreted data	Earth surface - drainage
coastline	Shoreline	chain	(spatial representation)	interpreted data	Shoreline
canals and drains	Earth surface - water drainage	chain	(spatial representation)	interpreted data	Shoreline
creeks and rivers	Earth surface - water drainage	chain	(spatial representation)	interpreted data	Shoreline
creek/river heights	Water surface - height	area point	perenniality height	interpreted data	Water surface - height
swamps and lakes	Shoreline	gt-polygon	(spatial representation) height	interpreted data	Shoreline
dams	Shoreline	gt-polygon	(spatial representation)	interpreted data	Water surface - height Shoreline
SEQ+ Vegetation - Scale 1:25,000					
Vegetation class	Earth surface - vegetation structure	gt-polygon	(spatial representation) density type	interpreted data interpreted data interpreted data	Earth surface - synthetic product Earth surface - physical property Living systems - class distribution
Brisbane+ Relief - Scale 1:2,500					
1m contours	Earth surface - height	chain	height feature code	interpreted data raw source data	Earth surface - relief
spot heights	Earth surface - height	chain	height	interpreted data	Earth surface - relief
SEQDA Relief - Scale 1:2,500					
grid point at 30 metre centres	Earth surface - height	grid cell	height (+/- 0.1 metres)	interpreted data	Earth surface - relief
SEQDA Drainage - Scale 1:2,500					
drainage break lines	Earth surface - height	chain	(spatial representation)	interpreted data	Earth surface - drainage
coastline	Shorelines	chain	(spatial representation)	interpreted data	Shoreline
Rectified Aerial Photography					
2m pixel (nominal 1:25,000) (east SEQ + Cairns only)	Earth surface - remote sensed images	pixel	24 bit colour value	raw source data	Earth surface - physical property
1m pixel (nominal 1:25,000) (SEQDA Project Peri-urban Area only)	Earth surface - remote sensed images	pixel	24 bit colour value	raw source data	Earth surface - physical property
0.5m pixel (nominal 1:2,500) (SEQDA Project Urban Area only)	Earth surface - remote sensed images	pixel	24 bit colour value	raw source data	Earth surface - physical property

4.0 DNR Land Protection Information Collections

Spatial Entity	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
PestInfo					
Sample point	Earth surface - height	entity point	altitude of point	raw source data	Earth surface - relief
			site description at point	raw source data	Earth surface - drainage
			date of observation	raw source data	(temporal)
			spatial accuracy	raw source data	(accuracy)
			lot/plan number	raw source data	(Land Administration theme)
Land parcel (identifier only stored - spatial from DCDB)	(Land Administration Theme)	gt-polygon	species name (plant/animal, genus, species)	raw source data	Living systems - class location
			species density	interpreted data	Living systems - biomass
			date of observation	raw source data	(temporal)
Species distribution area	Living systems - class distribution extent	gt-polygon	(spatial representation)	interpreted data	Living systems - class location
			species name (plant/animal, genus, species)	raw source data	Living systems - class location
			species density	raw source data	Living systems - biomass
			date of observation	raw source data	(temporal)

4.0 Transport Department Maritime Division Marine Information Collections

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Raw Soundings					
- Sounding	Water bottom - sample site	entity point	depth	raw source data	Water bottom - bathymetry
Hydrographic Plans					
- Sounding	Water bottom - sample site	entity point	depth	raw source data	Water bottom - bathymetry
- Level	Water bottom - sample site	entity point	depth	raw source data	Water bottom - bathymetry
- Contour	Water bottom - depth	Chain	probe analysis (spatial representation)	interpreted data	Earth - physical property
- Coastline	Shoreline	Chain	depth (spatial representation)	interpreted data	Water bottom - bathymetry
				interpreted data	Shoreline
Qld Marine Info System					
- Sounding	Water bottom - sample site	entity point	depth	raw source data	Water bottom - bathymetry
- Feature	Water surface - named feature	entity point	type (island, reef, gutter, reach,...) name	interpreted data	Earth surface - physical property
- Contour	Water bottom - depth	Chain	(spatial representation)	interpreted data	Earth surface - synthetic product
- Sandbank edges	Shoreline	Chain	depth (spatial representation)	interpreted data	Water bottom - bathymetry
- Mangrove edges	Shoreline	Chain	(spatial representation)	interpreted data	Water bottom - bathymetry
- Coastline	Shoreline	Chain	(spatial representation)	interpreted data	Shoreline
- Contour	Water bottom - depth	gt-polygon	(spatial representation)	interpreted data	Shoreline
			depth range	interpreted data	Water bottom - bathymetry
Tide Records					
- tide station	Water surface - sample site	entity point	height at date/time min, mean, max heights	raw source data	Water surface - water height
- coastal locations	Water surface - sample site	entity point	predicted height at time/date relative to nominated tide station min, mean, max heights	interpreted data	Water surface - water height
				modelled data	Water surface - water height
				modelled data	Water surface - water height

4.0 Transport Department Geological Services Information Collection

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Engineering Borehole Log					
Borehole	Earth - borehole sample site	entity point	water table depth	raw source data	Earth - physical property
			depth range - material composition	raw source data	Earth - physical property
			depth range - soil strengths	raw source data	Earth - physical property
			depth range - soil moisture content	raw source data	Earth - physical property
			depth range - rock weathering states	raw source data	Earth - physical property
			depth range - rock intact strength (S^{50})	raw source data	Earth - physical property
			depth range - rock defect spacing (mm)	raw source data	Earth - physical property
			depth range - standard penetrometer test (SPT) N values	raw source data	Earth - physical property

4.0 Bureau of Meteorology Australian Data Archive for Meteorology (ADAM) Information Collection

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Terrestrial weather observation station	Earth surface - sample site	entity point	observation - air temperature	raw source data	Atmosphere - physical properties
			observation - soil temp (10/20/50/100cm)	raw source data	Earth - physical properties
			observation - wet bulb temp	raw source data	Atmosphere - physical properties
			observation - dew point	raw source data	Atmosphere - physical properties
			observation - precipitation since previous observation	raw source data	Atmosphere - physical properties
			observation - rain (.001mm,second) (pluviograph)	raw source data	Atmosphere - physical properties
			observation - pressure	raw source data	Atmosphere - physical properties
			observation - wind speed/direction	raw source data	Atmosphere - physical properties
			observation - cloud (3 levels)	raw source data	Atmosphere - physical properties
			observation - visibility	raw source data	Atmosphere - physical properties
			observation - state of sea	raw source data	Water - physical properties
			observation - sea swell state/direction	raw source data	Water surface - height
			upper air observation - air temperature	raw source data	Atmosphere - physical properties
			upper air observation - dew point	raw source data	Atmosphere - physical properties
			upper air observation - pressure	raw source data	Atmosphere - physical properties
			upper air observation - wind speed/direction	raw source data	Atmosphere - physical properties
			daily - air temp min/max	raw source data	Atmosphere - physical properties
			daily - ground temp min	raw source data	Atmosphere - physical properties
			daily - wet bulb temp min/max	raw source data	Atmosphere - physical properties
			daily - precipitation	raw source data	Atmosphere - physical properties
			daily - evaporation	raw source data	Atmosphere - physical properties
			daily - max wind gust speed/direction	raw source data	Atmosphere - physical properties
			daily - wind run (km) (2 heights)	raw source data	Atmosphere - physical properties
			daily - sunshine hours	raw source data	Atmosphere - physical properties
			daily - dust/fog/frost/haze/hail/snow/strong wind/gale/thunder	raw source data	Atmosphere - physical properties
			daily - river height	raw source data	Water surface - height
			monthly - air temp day count (5 temps)	interpreted data	Atmosphere - physical properties
			monthly - min/mean/max air min/max temp (4)	interpreted data	Atmosphere - physical properties
			monthly - mean 9am/3pm air temp	interpreted data	Atmosphere - physical properties
			monthly - ground temp < -1 degree day count	interpreted data	Earth - physical properties
			monthly - min/mean/max ground min temp	interpreted data	Earth - physical properties
			monthly - mean 9am/3pm ground temp (10/20/50/100cm)	interpreted data	Earth - physical properties
			monthly - mean 9am/3pm wet bulb temp	interpreted data	Atmosphere - physical properties
			monthly - mean 9am/3pm dew point/relative humidity	interpreted data	Atmosphere - physical properties
			monthly - total month precipitation	interpreted data	Atmosphere - physical properties
			monthly - precipitation day count	interpreted data	Atmosphere - physical properties
			monthly - mean of evaporation per day	interpreted data	Atmosphere - physical properties
			monthly - mean 9am/3pm sea level/station pressure	interpreted data	Atmosphere - physical properties
			monthly - max wind gust speed/direction	interpreted data	Atmosphere - physical properties
			monthly - mean wind run (km) (2 heights)	interpreted data	Atmosphere - physical properties
			monthly - mean 9am/3pm total cloud amount	interpreted data	Atmosphere - physical properties
monthly - dust/fog/frost/haze/cloud/partial cloud/clear day counts	interpreted data	Atmosphere - physical properties			
monthly - hail/snow/strong wind/gale/thunder day counts	interpreted data	Atmosphere - physical properties			

Bureau of Meteorology Australian Data Archive for Meteorology (ADAM) Information Collection (continued)

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Marine weather observation station (ship/drifted buoy)	Water surface - sample site	entity point	observation - air temperature	raw source data	Atmosphere - physical properties
			observation - sea surface temperature	raw source data	Water - physical properties
			observation - wet bulb temp	raw source data	Atmosphere - physical properties
			observation - dew point	raw source data	Atmosphere - physical properties
			observation - precipitation since previous observation	raw source data	Atmosphere - physical properties
			observation - pressure tendency (rising or falling)	raw source data	Atmosphere - physical properties
			observation - cloud (3 levels)	raw source data	Atmosphere - physical properties
			observation - visibility	raw source data	Atmosphere - physical properties
			observation - state of sea	raw source data	Water - physical properties
			observation - sea swell state/direction/height/period	raw source data	Water surface - height
			observation - wave height/period	raw source data	Water surface - height
			observation - water ice status	raw source data	Water - physical properties
			Cyclone	Atmosphere - sample site	entity point
observation - cyclone speed	interpreted data	Atmosphere - physical properties			
observation - cyclone direction	interpreted data	Atmosphere - physical properties			
observation - intensity code	interpreted data	Atmosphere - physical properties			
observation - swell height/bearing/direction	interpreted data	Water surface - height			
observation - max tide height/bearing/direction	interpreted data	Water surface - height			
observation - max wave height/bearing/direction	interpreted data	Water surface - height			
observation - max centre wind strength/bearing/direction	interpreted data	Atmosphere - physical properties			
observation - mean eye diameter	interpreted data	Atmosphere - physical properties			
observation - mean extent of gales	interpreted data	Atmosphere - physical properties			
observation - mean extent of hurricanes	interpreted data	Atmosphere - physical properties			
observation - mean isobar radius	interpreted data	Atmosphere - physical properties			
observation - mean wind direction/speed	interpreted data	Atmosphere - physical properties			
observation - underlying surface (water, land, coast)	interpreted data	Earth surface - physical properties			
observation - swell period/height	interpreted data	Water surface - height			

4.0 AUSLIG Geodata Information Collection

Spatial Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
Framework theme - Waterline	Shoreline	chain	(spatial representation)	interpreted data	Shoreline
- Water body junction	Shoreline	chain	(spatial representation)	interpreted data	Shoreline
- Island	Earth surface - named feature	gt-polygon	(spatial representation)	interpreted data	Shoreline
			state	interpreted data	Earth surface - synthetic product
			name	interpreted data	Earth surface - synthetic product
- Mainland	Earth surface - named feature	gt-polygon	(spatial representation)	interpreted data	Shoreline
			state	interpreted data	Earth surface - synthetic product
- Sea	Water surface - named feature	gt-polygon	(spatial representation)	interpreted data	Shoreline
			name	interpreted data	Earth surface - synthetic product
Relief theme - Elevation	Sample site	entity point	height	interpreted data	relief
Hydrography theme - Canal	Earth surface - water drainage	chain	(spatial representation)	interpreted data	Earth surface - drainage
			name	interpreted data	Earth surface - synthetic product
- Watercourse connector	Earth surface - water drainage	chain	(spatial representation)	interpreted data	Earth surface - drainage
			name	interpreted data	Earth surface - synthetic product
			perenniality	interpreted data	Earth surface - physical property
- Watercourse	Earth surface - water drainage	chain	(spatial representation)	interpreted data	Earth surface - drainage
			name	interpreted data	Earth surface - synthetic product
			perenniality	interpreted data	Earth surface - physical property
- Waterbody junction	Shoreline	chain	(spatial representation)	interpreted data	Shoreline
- Lake	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
			name	interpreted data	Earth surface - synthetic product
			perenniality	interpreted data	Earth surface - physical property
- Land subject to periodic inundation	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
- Mangrove polygon	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
- Reservoir	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
			name	interpreted data	Earth surface - synthetic product
- Saline coastal flat	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
- Swamp	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
			name	interpreted data	Earth surface - synthetic product
- Waterline	Shoreline	chain	(spatial representation)	interpreted data	Shoreline
- Watercourse	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
			name	interpreted data	Earth surface - synthetic product
			perenniality	interpreted data	Earth surface - physical property
- Waterbody void	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
- Foreshore flat	Shoreline	chain	(spatial representation)	interpreted data	Shoreline
- Foreshore flat	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline
- Foreshore flat void	Shoreline	gt-polygon	(spatial representation)	interpreted data	Shoreline

4.0 ERIN Information Collections

Entity Name	Spatial Entity Type	Object Type	Attribute	Information Level	Information Class
ANCA Bird Banding Locations	Earth surface - sample point	entity point	bird scientific name	raw source data	living systems - class location
			year of banding	raw source data	(temporal)
Mangrove Atlas Mangrove Species Location	Earth surface - sample point	entity point	scientific name	raw source data	Living systems - class location
			altitude locality	interpreted data interpreted data	Earth surface - relief Earth surface - synthetic product
Marine Protected Area	Water surface - sample point	entity point	area name	raw source data	Earth surface - synthetic product
			area designation	interpreted data	Living systems - synthetic product
			management agency	interpreted data	Earth surface - synthetic product
			state	interpreted data	Earth surface - synthetic product
			biogeographic region	interpreted data	Living systems - synthetic product
			IUCN code	interpreted data	Living systems - synthetic product
Biosphere Reserve	(Land administration)	gt-polygon	(spatial representation)	interpreted data	Living systems - synthetic product
			reserve name	interpreted data	Earth surface - synthetic product
Barlow Region	Living systems - vegetation association	gt-polygon	(spatial representation)	interpreted data	Living systems - synthetic product
			Barlow region name ERIN region name	interpreted data interpreted data	Living surface - synthetic product Living surface - synthetic product
Biogeographic Region	Living systems - vegetation association	gt-polygon	(spatial representation)	interpreted data	Living systems - synthetic product
			biogeographic region name	interpreted data	Living systems - synthetic product
Census of Australian Vascular Plants CAVP Regions	Living systems - vegetation association	gt-polygon	(spatial representation)	interpreted data	Living systems - synthetic product
			number of species	interpreted data	Living systems - biodiversity
			number of genera	interpreted data	Living systems - biodiversity
			number of families	interpreted data	Living systems - biodiversity
			number of endemic species	interpreted data	Living systems - biodiversity
			number of introduced species	interpreted data	Living systems - biodiversity
			number of taxonomic group members (35 attributes for separate groups)	interpreted data	Living systems - biodiversity

5. List of Sources

QDNR/CSIRO SOIL INFORMATION COLLECTIONS

- analysis of LRIS data model and “Australian Soil and Land Survey” handbooks
- interview with Mr Mike Grundy
- interview with Mr Col Ahern and Ms Monika Weinand

QDPI FISHERIES INFORMATION COLLECTIONS

- analysis of survey questionnaire response (prepared by Mr Stuart Hyland and Ms Karen Danaher)
- interview with Mr Malcolm Dunning and Ms Karen Danaher

QDNR DROUGHT MANAGEMENT INFORMATION COLLECTIONS

- interview with Mr John Carter
- interview with Mr Tim Danaher

QDNR FOREST INFORMATION COLLECTIONS

- analysis of survey questionnaire (prepared by Ms Rosalie Buck)
- informal discussions with Ms Rosalie Buck and Mr Geoff Gibson

QDNR GROUNDWATER INFORMATION COLLECTION

- analysis of data dictionary supplied by Mr Peter Hill

DoE VEGETATION INFORMATION COLLECTIONS

- analysis of survey questionnaire (prepared by Mr Steve Jones and Mr Peter Bostock)
- informal discussions with Mr Peter Bostock
- interview with Mr Peter Young

DoE FAUNA INFORMATION COLLECTIONS - NATURESEARCH

- analysis of system documentation provided by Ms Liz Horler

DoE ENVIRONMENTAL INFORMATION COLLECTIONS

- interview with Mr Andrew Moss (Water Quality)
- interview with Mr David Wainwright (Air Quality)

DoE COASTAL INFORMATION COLLECTIONS

- interview with Mr Jim Waldron (Wave Height, Tide Levels, Beach Profiles, Weather Processes)
- interview with Mr Tim Stevens (Marine Biophysical Classification)

DoE / AUSTRALIAN MARINE CONSERVATION SOCIETY INFORMATION COLLECTIONS

- interview with Mr Eddie Hegerl

DoE WET TROPICS MANAGEMENT AUTHORITY INFORMATION COLLECTION

- analysis of data dictionary supplied by Mr Steve Jones (DoE)

QUEENSLAND MUSEUM INFORMATION COLLECTIONS

- analysis of survey questionnaire (prepared by Mr Paul Avern)

DME GEOSCIENTIFIC INFORMATION COLLECTION

- analysis of survey questionnaire (prepared by Mr Ben Heath)
- interview with Mr Mark Thornton

DNR LAND BOUNDARIES INFORMATION COLLECTIONS

- interview with Mr Keith Wilson

DNR LAND PROTECTION INFORMATION COLLECTIONS

- interview with Mr Gordon Paris

TRANSPORT DEPARTMENT MARITIME DIVISION MARINE INFORMATION COLLECTIONS

- interview with Mr Wayne Bagnell

TRANSPORT DEPARTMENT GEOLOGICAL SERVICES INFORMATION COLLECTIONS

- telephone interview with Ms Rose Peters

BUREAU OF METEOROLOGY AUSTRALIAN DATA ARCHIVE FOR METEOROLOGY (ADAM) INFORMATION COLLECTION

- interview with Mr Barry Gordon

AUSLIG GEODATA INFORMATION COLLECTION

- analysis of survey questionnaire (prepared by Mr Steve Dawson)

ERIN INFORMATION COLLECTIONS

- analysis of material supplied by Mr Gaston Rozenbilds