



## Draft Impact Assessment Report

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## Six Mile Creek Dam Safety Upgrade Project

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Prepared for Seqwater  
25 January 2019

## Abbreviations

ABBREVIATION	MEANING
µg	microgram (one millionth of a gram)
AADT	Average Annual Daily Traffic
ABS	Australian Bureau of Statistics (Commonwealth)
ACH Act	<i>Aboriginal Cultural Heritage Act 2003 (Cth)</i>
ADWG	Australian Drinking Water Guidelines
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ALA	Atlas of Living Australia
ALARP	As Low As Reasonably Practical
AMTD	Adopted Middle Thread Distance
ANCOLD	Australian National Committee on Large Dams
ANZECC	Australian and New Zealand Environment and Conservation Council
AQIA	Air Quality Impact Assessment
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS	Australian Standard
ASC	Australian Soil Classification
ASS	Acid Sulfate Soils
AWQG	Australian Water Quality Guidelines
BOD	Biological Oxygen Demand
BoM	Bureau of Meteorology (Commonwealth)
BTEX	benzene, toluene, ethyl benzene and xylene
CAMBA	the Agreement between the Government of Australia and the Government of the People's Republic of China for the protection of Migratory Birds and their Environment signed in Canberra on 20 October 1986.
CEMP	Construction Environmental Management Plan
OCG	Office of the Coordinator-General
CHMP	Cultural Heritage Management Plan
Ck	Creek
CRG	Community Reference Group
CLR	Contaminated Land Register
cm	Centimetre
Cth	Commonwealth

ABBREVIATION	MEANING
DAF	Department of Agriculture and Fisheries'
dB	Decibel
DBH	Diameter at Breast Height
DCF	Dam Crest Flood
DCL	Dam Crest Level
DEM	Digital Elevation Model
DEO	Desired Environmental Outcomes
DES	Department of Environment and Science
DG	Dangerous Goods
DNRME	Department of Natural Resources, Mines and Energy (Queensland)
DO	Dissolved Oxygen
DoEE	Department of Environment and Energy (Commonwealth)
DS	Downstream
DSDMIP	Department of State Development, Manufacturing, Infrastructure and Planning
DTMR	Department of Transport and Main Roads (Queensland)
E	Endangered under the <i>Nature Conservation Act 1992</i> (Qld) or <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EAP	Emergency Action Plan
EC	Electrical Conductivity
EFO	Environmental Flow Objective
EIS	Environmental Impact Statement
EL	Elevation Level
EMP	Environmental Management Plan
EMR	Environmental Management Register
EMS	Environmental Management Systems
EO Act	<i>Environmental Offsets Act 2014</i>
EP Act	<i>Environmental Protection Act 1994</i> (Qld)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EPP (Air) 2008	<i>Environmental Protection (Air) Policy 2008</i>
EPP (Noise) 2008	<i>Environmental Protection (Noise) Policy 2008</i>
EPP (Waste) 2000	<i>Environmental Protection (Waste) Policy 2000</i>
EPP (Water) 2009	<i>Environmental Protection (Water) Policy 2009</i>

ABBREVIATION	MEANING
ERA	Environmentally Relevant Activity under the <i>Environmental Protection Act 1994</i> (Qld)
ERP	estimated residential population
ESA	Equivalent Standard Axles
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
ESP (soil)	Exchangeable Sodium Percentage
ET	Evapotranspiration
EVR	Endangered, Vulnerable or Rare listed species under the <i>Nature Conservation Act 1992</i> (Qld) or the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EVs	Environmental Values
FIA	Failure Impact Assessment
FSL	Full Supply Level
GBO	General Biosecurity Obligation
Ha	Hectare
HEV	High Ecological Value
IAIA	International Association of Impact Assessment
IAQM	The United Kingdom Institute of Air Quality Management
IAS	Initial Advice Statement
IAR	Impact Assessment Report
IECA	International Erosion Control Association
JAMBA	the Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment signed in Tokyo on 6 February 1974.
Kg	Kilograms
kL	Kilolitre
km	kilometre
km <sup>2</sup>	Square kilometre
KRA	Key Resource Area
kV	Kilovolt
L	Litre
LC	Least Concern
L/s	Litres per Second

ABBREVIATION	MEANING
LGA	Local Government Area
m	metre
m <sup>3</sup> /s	metre cubed per second
mBGL	Metres Below Ground Level
Mg	Milligrams
ML	Megalitre
MLES	Matters of Local Environmental Significance
mm	millimetre
MNES	Matters of National Environmental Significance
MSDS	Material Safety Data Sheet
MSES	Matters of State Environmental Significance
MSES Wetlands	High Ecological Value Wetlands of State Environmental Significance
NATA	National Association of Testing Authorities
NC Act	<i>Nature Conservation Act 1992 (Qld)</i>
NC Reg	<i>Nature Conservation (Wildlife) Regulation 2006</i>
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NEPM (Ambient Air)	National Environment Protection (Ambient Air Quality) Measure
NHL	National Heritage List
NO <sub>2</sub>	Nitrogen dioxide
NOX	Oxides of nitrogen
NP	National Park
NT Act	<i>Native Title Act 1993 (Cth)</i>
OEMP	Operational Environmental Management Plan
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
PMPDF	Probable Maximum Precipitation Design Flood
PPE	Personal Protection Equipment
PPM	Parts per Million
QC	Quality Control
QGWMIP	Queensland Government Water Monitoring Information Portal
QH Act	<i>Queensland Heritage Act 1992 (Qld)</i>

ABBREVIATION	MEANING
QWQG	Queensland Water Quality Guidelines
RAMSAR	The Convention on Wetlands of International Importance
RE	Regional Ecosystem
REDD	Regional Ecosystem Description Database
RNE	Register of National Estate
ROL	Resource Operations Licence
ROP	Resource Operations Plan
SARA	State Assessment and Referral Agency
SDPWO Act	<i>State Development and Public Works Organisation Act 1971 (Qld)</i>
SDAP	<i>State Development Assessment Provisions</i>
SEIFA	The Socio-Economic Indexes for Areas
SEQ	South East Queensland
SIA	Social Impact Assessment
SILO	Scientific Information for Land Owners
SIP	Stocked Impoundment Permit
SMEC	SMEC (Australia) Pty Ltd
SO <sub>2</sub>	Sulphur dioxide
SPP	State Planning Policy
TEC	Threatened Ecological Communities
TIA	Traffic Impact Assessment
TMP	Traffic Management Plan
TMR	(Department) of Transport and Main Roads
TSP	Total Suspended Particulate Matter
TSS	Total Suspended Solids
US	Upstream
UXO	Unexploded Ordinance
VM Act	<i>Vegetation Management Act 1999 (Qld)</i>
VOCs	Volatile organic compounds
WHL	World Heritage List
WONS	Weeds of National Significance
WQMP	Water Quality Management Plan
WQO	Water Quality Objectives

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ABBREVIATION	MEANING
WROLA Act	<i>Water Reform and Other Legislation Amendment Act 2014</i>
WRP	Water Resource Plan
WSSR Act	<i>Water Supply (Safety and Reliability) Act 2008</i>
WTP	Water Treatment Plant

## Glossary of Terms

TERM	DEFINITION
Algal mat	A thin layer of algae formed over the surface of the benthos.
Allocated water	Water that a person or entity has been granted an entitlement to extract.
Alluvial (alluvium)	Weathered material transported and deposited by the movement of water.
Alluvial forests	Forests growing in alluvial soils, mainly sand and silt, that a river has carried in suspension and then deposited.
Alluvial plain	A plain formed by the deposition of alluvial material over a long period of time.
Anabat	A bat detector that can record the signals of bats for computer analysis. It converts the ultrasonic echolocation signals of bats into audible electronic signals which can be recorded and processed, to assist in identification of the species.
Anaerobic	Having or producing no oxygen.
Annual Exceedance Probability (AEP)	The probability of a specified magnitude of a natural event being exceeded in any year.
Annual Proportional Flow Deviation	Annual proportional flow deviation is the statistical measure of changes to flow season and volume in the simulation period calculated using the formula in Technical Report 5 of "Fitzroy Basin Water Allocation and Management Planning Technical Reports" (DNRW, 1999)
Anoxic	Without or depleted of oxygen.
Anthropogenic	Effects, processes, objects or materials which do not occur in natural environments but are as a result of, or derived from human activities.
Aquatic macrophyte	Submerged, emergent or floating aquatic vegetation that is visible to the naked eye.
Aquiclude	A boundary layer that prevents soil water infiltration.
Aquifer	A water-bearing stratum of permeable rock, sand, or gravel, able to transmit substantial quantities of water.
Aquitard	A formation which contains groundwater but cannot transmit it rapidly enough to furnish a significant supply to a well or spring.
Argillaceous	Rocks composed of clay minerals, or having notable proportion of clay in their composition such as shale and slate.
Australian Height Datum (AHD)	The datum used for determining elevations in Australia which uses a national network of bench marks and tide gauges, and has set mean seal level as zero elevation.
Average Recurrence Interval (ARI)	The average interval (in years) between the occurrence of a flow, discharge or rainfall greater than or equal to a specified amount.
B horizon	The second or subsurface zone of soil made of clay and oxidized materials and organic matter obtained from the A horizon by leaching.
Benthic	Pertaining to the bottom of a body of water.
Benthos	A term for all of the flora and fauna that live in or on the bottom substrate of waterbodies, including creeks, rivers and wetlands.
Biodiversity	Biodiversity is short for "biological diversity". It describes the variety of life forms and their habitats that make up a region. Biodiversity includes the diversity of plant and animal species, the diversity of ecosystems formed by communities of these organisms, and the genetic diversity within and between species.
Biofilm	A thin layer of living cells, such as bacteria, protozoa and algae, which coat the surface of a living or non-living substrate.
Biogenic sediment	Sediment produced by the actions of living organisms.
Biotic	Pertaining to living organisms, and usually applied to the biological aspects of an organism's environment.



TERM	DEFINITION
Borrow pit	A small excavation providing earth to be used for construction material.
Bunding	An artificially created boundary, usually in the form of an embankment used to prevent sediment and substances from entering a water stream or storage facility.
Calcareous	Limy or chalky rock or soil containing a high proportion of calcium carbonate.
Carbonaceous	Sediment or rock containing very small grains of carbon distributed evenly throughout the rock, giving it a black colour.
Catchment	The area of land, which collects and transfers rainwater into a waterway.
Cation	A positively charged ion in solution.
Cease to flow	The period where water ceases to flow.
Channelisation	The formation of deeper channels within a waterway.
Colluvium	Loose bodies of sediment transported by gravity which have been deposited or built up towards the base of a low grade slope.
Community	An assemblage of interdependent populations of different species (plants and animals) interacting with one another, and living in a particular area.
Compensatory habitat	A vegetation or habitat offset to maintain the extent of remnant vegetation or habitat for threatened species that will be loss as a result of the Project.
Connectivity	Refers to the ease with which organisms move between particular landscape elements.
Controlled action	An action (including a project, development, undertaking, activity, or series of activities) that is likely to have a significant impact on a Matter of National Environmental Significance, as defined by the Commonwealth Minister for the Department of Sustainability, Environment, Water, Populations and Communities. If an action is controlled, it is subject to a rigorous assessment and approval process under the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth).
Covenant	An agreement or contract between two parties (i.e. landholder and council).
Critical storm duration	The critical storm duration is the duration of rainfall that will result in the highest peak flood levels at a particular location.
Culvert	A covered channel that carries water, often be covered by a bridge or a road.
Dead storage	The volume in a water storage below the lowest operable level.
Dendritic	Having a form resembling a shrub or tree.
DERM	Department of Environment Resource Management
Dermosols	Soils lacking strong texture contrast and having a structured B horizon.
Desiccation	Drying out due to the effects of the environment.
Dissolved Oxygen (DO)	The amount of oxygen dissolved in water.
Diversity	The variety of a particular factor.
Ecology	The study of the interrelationships of organisms with and within their environment.
Ecosystem	A biophysical environment containing a community of organisms.
Edge effect	All changes at an ecosystem boundary and within adjacent ecosystems; the negative influence of a disturbed habitat edge on the interior conditions of a habitat, or on species that use the interior habitat.
Electrical conductivity	A measure of the ionic activity of a solution in term of its capacity to transmit current.
Electrofishing	A fish sampling technique which uses electric fields and electric currents to capture fish by controlling fish movement and/or immobilising fish.

TERM	DEFINITION
Embankment dam	Embankment dams are made mainly from natural materials. The two main types are earth fill dams and rock fill dams. Earth fill dams are made up mostly from compacted earth, while rock fill dams are made up mainly from dumped and compacted rock fill. The materials are usually excavated or quarried from nearby sites, preferably within the reservoir basin.
Embayment	Small bay between minor headlands.
Emergent macrophyte	Aquatic plant rooted in the channel substrate with stems, flowers and most mature leaves projecting above the water surface
Emerson test	A classification of soil aggregates based on their coherence in water. The conditions under which they slake, swell and disperse allow the different aggregates to be separated into eight classes. The test is particularly valuable in a soil conservation context as it grades soil aggregates according to their stability in water.
Endangered	A species is endangered if: <ul style="list-style-type: none"> <li>• there have not been thorough searches conducted for the wildlife and the wildlife has not been seen in the wild over a period that is appropriate for the life cycle or form of the wildlife; or</li> <li>• the habitat or distribution of the wildlife has been reduced to an extent that the wildlife may be in danger of extinction; or</li> <li>• the population size of the wildlife has declined, or is likely to decline, to an extent that the wildlife may be in danger of extinction; or</li> <li>• the survival of the wildlife in the wild is unlikely if a threatening process continues.</li> </ul>
Endangered Regional Ecosystem	A regional ecosystem is listed as endangered under the <i>Vegetation Management Act 1999</i> (Qld) if remnant vegetation is less than 10 per cent of its pre-clearing extent across the bioregion; or 10-30% of its pre-clearing extent remains and the remnant vegetation is less than 10,000 hectares.
Endemic	Restricted to a certain region or part of region.
Environment	The total of all the external conditions that act upon an organism.
Environmental flow	Freshwater flow that is maintained solely for environmental reasons, e.g. flows to act as an environmental cue, to deliver nutrients and sediment downstream etc.
Environmental flow	The flow of water that is required to maintain aquatic and riparian ecosystems in streams and rivers.
Environmental Flow Objective (EFO)	Performance indicators set out in the <i>Water Resource (Fitzroy Basin) Plan 1999</i> for the measurement of the environmental performance of the Fitzroy Basin.
Environmental quality	Human (individual or social) concepts of desirable ecological situations.
Ephemeral	Transitory, short-lived.
Erosion	The process by which rocks are loosened, worn away and removed from parts of the Earth's surface. Seven processes of erosion discussed separately; in practice they overlap and it is often difficult to isolate the net effects of any one process. <b>Rainsplash erosion:</b> the detachment and removal of soil and debris by raindrop impact. <b>Overland flow OR surface runoff:</b> water flowing over the surface before being concentrated into definite streams. <b>Sheet erosion, sheet wash, or slope wash:</b> the combined effect of overland flow and rainsplash. <b>Gully erosion:</b> the rapid development of gullies, usually in first- or second-order tributaries of streams, BUT also in situations unrelated to an integrated drainage

TERM	DEFINITION
	<p>system (eg highly dispersive soils)</p> <p><b>Mass Movement:</b> downhill movement of debris <i>en masse</i> rather than as individual particles. It can occur slowly (creep), or rapidly (rock falls, slumps, landslides).</p> <p><b>Surface rock creep:</b> the movement of stones down sloping surfaces.</p> <p><b>Fluvial erosion:</b> the detachment and removal by streams of material in solution, suspension, or as bed load. Includes removal of debris supplied to the streams by slope wash, mass movement, and gullies.</p>
Essential habitat	Vegetation in which a species of wildlife is known to occur that is listed as endangered, vulnerable, near threatened under the <i>Nature Conservation Act 1992</i> (Qld).
Eutrophic	A body of water impacted by high concentrations of nutrients.
Eutrophication	The process whereby water bodies, such as lakes, estuaries, or slow-moving streams receive excess nutrients that stimulate excessive plant growth. This enhanced plant growth, reduces dissolved oxygen in the water when dead plant material decomposes and can cause other organisms to die.
Evaporation	The process that changes a liquid or a solid into a gas. In the tropical hydrological cycle, this involves the conversion to water vapor and the return to the atmosphere of the precipitation (rainfall) that has reached the earth's surface.
Evapotranspiration	The combined effect of evaporation and transpiration.
Exotic species	Introduced species not native or endemic to the area in question.
Failure Impact Assessment (FIA)	An assessment carried out by a registered professional engineer who evaluates the number of people whose safety would be at risk if there was a dam failure. The assessment, if accepted by the chief executive of the Queensland Department of Natural Resources and Water, will result in the dam being given a failure impact rating according to the number of people at risk.
Fauna	The collective animals of a given region (see definition for 'animals').
Feral	An introduced or domestic animal living in the wild.
Fish way flow	Flows that are released through a structure designed to allow fish passage up or down stream where a hydraulic structure such as a dam blocks the natural channel. Specific flows are necessary to attract particular species to use the fishway.
Flood plain	That portion of a river valley that is covered during periods of high flood water.
Flora	The collective plants growing in a geographic area (see definition for 'plants').
Flow duration curve	A cumulative plot showing the percent of time that given flow volumes are equalled or exceeded.
Flow regime	The variation in flow characteristics, such as volume, for a particular stream over time.
Fluvial	The river system.
Fragmentation	A process of landscape alteration in which natural areas are subdivided into smaller patches.
Full Supply Level (FSL)	The maximum normal operating water surface level of a reservoir.
Geomorphology (geomorphol	The form or shape of the landscape and the processes that modify and change it.

TERM	DEFINITION
ogical)	
Groundwater	Water found underground in porous rock or soil strata.
Habitat	The biophysical medium or media occupied (continuously, periodically or occasionally) by an organism or group of organisms.
Historical No Failure Yield (HNFY)	This is the maximum volume of water that can be supplied from the dam for every year of the simulation period.
Holocene	Refers to a geological period of time between the present and 10,000 years before present.
Hydraulic	Mechanical properties of liquids.
Igneous rock	Rock produced under conditions involving intense heat, as rocks of volcanic origin or rocks crystallised from molten magma.
Inundation area	The area that will be flooded with water above the existing water level, from raising of the dam.
Invertebrate	Animals that don't have a backbone, e.g. insects, crustaceans.
Kandosols	Soils lacking strong texture contrast and having a massive B horizon.
Kurosols	Soils with strong texture contrast and having pH <5.5 in B horizon.
Lacustrine habitat	Lake environment, pertaining to standing water bodies.
Lentic habitat	Standing or still water habitats such as lakes and ponds.
Lime	Calcium carbonate nodules.
Listed species	A plant or animal included in a schedule of endangered, vulnerable, or near threatened biota, such as the schedules in the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) or the <i>Nature Conservation (Wildlife) Regulation 2006</i> (Qld).
Littoral vegetation	Vegetation that occurs within the littoral zone.
Littoral zone	Region of shallow water near the shore of a body of water where light reaches the bottom.
Lotic habitat	Flowing water habitats such as rivers and streams.
Macroinvertebrate	Organisms without a backbone which are large enough to be seen with the naked eye.
Macrophyte	An aquatic plant that is large enough to be seen with the naked eye.
Mass movement	The downslope movement of earth caused by gravity. Includes but is not limited to landslides, rock falls, debris avalanches, and creep. It does not however, include surface erosion by running water.
Matter of National Environmental Significance (MNES)	<p>The matters of national environmental significance include:</p> <ul style="list-style-type: none"> <li>• listed threatened species and communities</li> <li>• listed migratory species</li> <li>• Ramsar wetlands of international importance</li> <li>• the Commonwealth marine environment</li> <li>• World heritage properties</li> <li>• National heritage places</li> <li>• nuclear actions</li> </ul> <p>as defined by the Commonwealth Minister for the Department of Environment and Water (see 'controlled action').</p>
Metamorphic sediment	Rock or sediment that has exhibited a change in structure or composition.

TERM	DEFINITION
/ rock	
Metamorphosed sedimentary rocks	Changed in form or nature, a metamorphic rock is created by heat and pressure such that the minerals, fabric, colour are changed, but not the composition.
Microchiropteran bats	Microchiropteran bats are relatively small mammals. These species are specially adapted for flight with wing membranes up to 25cm. They use both eye sight and echolocation for finding their way around at night and locating prey, being mostly insects.
Microhabitat	Within this habitat area there is a low availability of ground microhabitat including leaf litter, logs and branches.
Migratory species	A migratory species listed and protected under the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth).
Mudstone	A sedimentary rock composed of clay-size particles but which lacks the stratified structure characteristic of a shale.
Native species	A species that is indigenous to Australia or an external Territory, or periodically or occasionally visits.
Natural environment	The complex of atmospheric, geological, and biological characteristics found in an area in the absence of artefacts or influences of a well-developed technological human culture.
'Least Concern' regional ecosystem	A regional ecosystem is listed as 'Least Concern' under the <i>Vegetation Management Act 1999</i> (Qld) if remnant vegetation is over 30 per cent of its pre-clearing extent across the bioregion, and the remnant area is greater than 10,000 hectares.
'Of Concern' regional	A regional ecosystem is listed as of concern under the <i>Vegetation Management Act 1999</i> (Qld) if remnant
Ecosystem	vegetation is 10-30 per cent of its pre-clearing extent across the bioregion; or more than 30 per cent of its pre-clearing extent remains and the remnant extent is less than 10,000 hectares.
Noxious	Harmful to the environment or ecosystem.
Old growth forests	Forests that are both little disturbed and ecologically mature.
Opportunistic	When the conditions are ideal.
Overtopping	The process whereby the water level rises above the height of the dam wall.
Pelagic zone	The water column associated with the surface or middle depths of a water body, away from the bottom.
Perennial	Lasting for an indefinite amount of time.
Permeability	The capacity of a material (rock) to transmit fluids (groundwater).
Permeable rock	Rock through which water can pass, either via: (a) a network of pores between the grains; or (b) interconnected joints, bedding planes and fissures (more correctly termed 'pervious rock').
pH	Measure of the acidity or alkalinity of a substance, with 1 being the most acidic, 7 being neutral and 14 being the most alkaline.
Plant	A member, alive or dead, of the plant kingdom or of the fungus kingdom, and includes a part of a plant and plant reproductive material.
Pool	An area in a stream that has no water flow and that is often deeper than other parts of the stream.
Population	Occurrence of a species or ecological community in a particular area.
Porosity	Is a measure of void spaces in various rock types.

TERM	DEFINITION
Potadromous species	Organisms which complete their entire life cycle in fresh water.
Potentiometric surface	The water level surface that can be defined from the mapping of water level elevations in bores tapping into a confined aquifer.
Precipitation	A collective term for the moisture, either liquid or solid, that falls on the earth from the atmosphere. In North Queensland this is usually in the form of rain.
Probable Maximum Flood (PMF)	The flood resulting from the worst flood-producing catchment conditions that can be realistically expected in the prevailing meteorological conditions.
Propagation	The reproduction of plants.
Quantitative	An assessment based on the amount or number of something.
Ramsar wetland	Under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth), a Ramsar wetland is either: <ul style="list-style-type: none"> <li>• an Australian wetland on the List of Wetlands of International Importance kept under the Ramsar Convention; or</li> <li>• a wetland declared to be a Ramsar wetland by the Commonwealth Environment Minister.</li> </ul>
Near Threatened	A species listed and protected under Schedule 5 of the Queensland Wildlife Regulations 2006
Recharge	The process involving the infiltration of water from the surface to groundwater.
Recovery plan	A recovery plan is a document stating the research and management actions necessary to stop the decline, support the recovery and enhance the chance of long-term survival in the wild, of a stated species or community of protected wildlife.
Regional ecosystems (RE)	Regional ecosystems were defined by Sattler and Williams (1999) as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.
Regrowth	A young, usually even-aged forest stand that has regenerated after disturbance.
Rehabilitation	Making the land useful again after a disturbance. It may involve the recovery of ecosystem functions and processes in a degraded habitat.
Relocation	The relocation of an animal from one location to another.
Remnant vegetation	Small remaining areas of naturally occurring vegetation in a landscape that has been altered by human activity such as agriculture. These remnants were once part of a continuously vegetated landscape.
Riffle zone	An area within a stream that is characterised by shallow water, rocky sediment and fast water flows.
Rill erosion	The removal of soil by numerous small channels only several inches deep. Rills occur mainly on recently cultivated soils or recent cuts and fills.
Riparian	Pertaining to, or situated on the bank of, a body of water, especially a watercourse such as a river.
Riverine	Pertaining to rivers.
Run	An area in a stream that is characterised by moderately straight channels and medium water flow.
Salinity	The concentration of any salt.
Sediment	Any usually finely divided organic and / or mineral matter deposited by air or water in non-turbulent areas.

TERM	DEFINITION
Sedimentary rock	A rock that has generally formed from initially unconsolidated sediment such as clay, silt, sand or gravel, however it should be noted that certain types of sedimentary rock form from chemical processes such as certain types of limestone.
Sedimentation pond	An artificial retention basin designed to trap suspended sediments carried in overland water flow before discharge into a water storage facility.
Sheet erosion	Erosion of thin layers of earth-surface material, more or less evenly, from extended areas of gently sloping land by broad continuous sheets of running water, without the formation of rills, gullies, or other channelised flow.
SIGNAL 2	An index of macroinvertebrate communities that gives an indication of the types of pollution and other physical and chemical factors affecting a site.
Sodic	Refers to the dominance of sodium on the exchange complex of the soil. High levels of sodium can cause moisture infiltration problems and the accompanying, generally high soil pH, can cause nutrient disorders.
Soil aggregation	The lumping together of soil particles into a coherent mass.
Soil profile	The physical and chemical features of the soil imagined or seen in vertical section from the surface to the point at which the characteristics of the parent rock are not modified by surface weathering or soil processes.
Species	A group of biological entities that (a) interbreed to produce fertile offspring; or (b) possess common characteristics derived from a common gene pool.
Species richness	A botanical term indicating a measure of the number of species of plants or animals occurring in a given area.
Spotter/catcher	An ecologist who is accredited by the Queensland Parks and Wildlife Service (QPWS) to capture and relocate fauna (mainly mammals) from trees prior to vegetation clearance.
Spring	The point where groundwater flows out of the ground, and is thus where the aquifer surface meets the ground surface.
Strata	Plural of stratum, strata refers to the process whereby material, whether natural or artificial, forms parallel layers upon one another.
Stress	The result or consequent state of a physical or chemical, or social, stimulus on an organism or system.
Sublabile	Minerals that are not fully subject to ready change or breakdown.
Submerged Macrophytes	Aquatic plant the grows beneath the surface of the water, although flowers may protrude through the water surface, and some leaves may float on the water surface
Sub-population	An assemblage of subpopulations that occur in more or less discrete habitat patches. The overall population is a metapopulation.
Sub-species	A geographically separate population of a species, being a population that is characterised by morphological or biological differences from other populations of that species.
Substrate	The underlying base to something, e.g. the streambed.
Systematic	In a methodical and organised way.
Taxa	Taxonomic group of any rank (for example as species, genus, family, class, order).
Terrain	A tract of land and its physical features with emphasis on bedrock geology.
Terrestrial	Pertaining to land, the continents, and/or dry ground. Contrasts to aquatic.
Tertiary	The period of geological time extending from about 65 to 2 mya.
Threatened	A collective term for native plants and animals which are presumed extinct, endangered and vulnerable.

TERM	DEFINITION
Threatened species and ecological communities	Threatened species or ecological communities listed and protected under the provisions of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth).
Topography	Description or representation of natural or artificial features of the landscape; the description of any surface, but usually the earth's.
Total dissolved solids (TDS)	A measure of the total amount of dissolved mater in water, and indication of the total salinity of water.
Trailing bank vegetation	Riparian vegetation that hangs over the bank of a creek into the water.
Translocation	The transfer of plants and animals from one part of their range to another.
Transmissivity	The rate at which groundwater can flow through an aquifer section of unit width under a unit hydraulic gradient. It is the average permeability of a section of the entire aquifer at a given location multiplied by the thickness of the formation.
Transpiration	The loss of water from plants, normally as vapor.
Trophic	Describes the diet of groups of plants or animals within the various levels of a food web.
Turbidity	The clarity of a waterbody; depends on the concentration of particles that are suspended in the water column.
Unallocated water	Water to which an entitlement to extract has not been granted.
Understorey	A general term for the plants of a community occurring at levels lower than the top stratum.
Velocity	The rate of water movement with respect to time.
Vulnerable	A species is vulnerable if: <ul style="list-style-type: none"> <li>• its population is decreasing because of threatening processes, or</li> <li>• its population has been seriously depleted and its protection is not secured; or</li> <li>• its population, while abundant, is at risk because of threatening processes; or</li> <li>• its population is low or localised or depends on limited habitat that is at risk because of threatening processes.</li> </ul>
Weathering	Changes in the coherence, texture and composition of rocks and minerals by either physical (mechanical) or chemical processes as a result of exposure at the Earth's surface.
Wetlands	Low-lying areas regularly inundated or permanently covered by shallow water. Usually important areas for birds and other wildlife.
Wildlife	An animal, plant or specimen derived from an animal or plant.