DELWP Output Data Standard

Core Standard for Natural Resource Management Reporting

March 2021

VICTORIA State Government | Environment, Land, Water and Planning

Acknowledgements

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of cultural and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the broader protection of Country and its waterways in the 21st century and beyond.

Cover photo credit: Martin Potts, Greening Australia

Printed by Green Scribble – Brunswick.

ISBN 978-1-76105-229-3 **(print)**

ISBN 978-1-76105-230-9 **(pdf)**

Accessibility

If you would like to receive this publication in an alternative format, please telephone the DELWP Customer Service Centre on 136186, email customer.service@delwp.vic.gov.au, or via the National Relay Service on 133 677 www.relayservice.com.au. This document is also available on the internet at www.delwp.vic.gov.au.

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Secretary's foreword

I am pleased to endorse this revision of the Output Data Standard on behalf of the Department of Environment, Land, Water and Planning (DELWP), to promote best practice data collection and management.

This updated version brings together more than two years of collaboration across DELWP and our major delivery and reporting partners.

The Data Standard is crucial to DELWP's ability to report against natural resource management (NRM) investment outcomes and to make informed decisions on adaptive management and program improvements.

The Data Standard is a practical guide for natural resource managers to understand how to collect and report data on DELWP-funded activities; what they did and where they did it. The Data Standard operates within DELWP and in many of our partner organisations, including Catchment Management Authorities, Parks Victoria, and Trust for Nature.

The key pillars of this approach are consistency, efficiency, transparency, and stability – all ensuring we are continually improving the way we approach our work and report outcomes.

This update supports the Victorian Government's Water for Victoria and Biodiversity 2037. It also includes a new chapter to accommodate data collection associated with the recently released Marine and Coastal Policy (2020). It aligns with Pupangarli Marnmarnepu 'Owning Our Future', Aboriginal Self-Determination Reform Strategy (2020-2025).

The Integrated Catchment Reporting team at DELWP will continue to work with the Aboriginal Self Determination Reform Branch to include a dedicated chapter focused on Traditional Owners in the next update.

DELWP is also updating on-ground delivery standards for activities such as pest management and fencing. This improved guidance helps ensure our data collection meets the diverse monitoring, evaluation, and reporting requirements of Victoria's natural resource management sector.

The cross-departmental collaboration with longstanding industry and agency partners on this project is an excellent example of our One-DELWP ethos.

I look forward to seeing the continued collaboration, innovation, and valuable improvements to data collection and management systems into the future.

John Bradley
Secretary

Part 1: Overview

Introduction

The Victorian Department of Environment, Land, Water and Planning (DELWP) Output Data Standard is one of the standards developed under the Monitoring, Evaluation and Reporting Framework (MER Framework) 2012. The Output Data Standard specifies what and how output data must be spatially reported and provides guidance for reporting outputs delivered under DELWP investment.

The Output Data Standard (the Standard) describes the minimum information requirements for reporting on the most common goods and services (i.e. outputs) that the department purchases through its range of investment programs. Specifically, they provide a consistent set of data labels linked to a point, line or area (polygon) on a map. This is important for tracking investment and management effectiveness over time.

The Standard provides descriptors for the outputs from natural resource management (NRM) investment and clarity on reporting requirements. They are the basis for consistent output data and reporting by DELWP on investment outputs and enable:

- broad and consistent public reporting, such as Budget Paper 3 reporting
- tracking of investment
- compilation of data from across NRM investors.
- accurate tracking of adaptive environmental management effectiveness over time

The Standard is periodically reviewed to encompass a broader range of outputs with the capacity to support reporting across all NRM programs and investments including other State agency and Federal NRM programs. **Policy and program officers and decision makers** managing reviews of the Standard should refer to **Part 4** (Governance) for details of the governance arrangements underpinning the Standard.

Who should use this Standard?

The Standard applies to all DELWP programs that invest in NRM, and to the agency partners delivering those programs as described in their funding agreements. They specify the minimum standard for reporting on outputs, principally for program and financial acquittal. Where/if other spatial data requirements are needed for specific programs they will be specified and will be explicit in those programs' agreements.

Program investment managers should be familiar with the Standard and their use in program financial acquittal and budget reporting. They should ensure that, if/where any other spatial data requirements are applied that data can be mapped/translated to this Standard.

Reporting organisations (where required under agreement) should be familiar with them and ensure the data they provide to DELWP meets the Standard as described in their funding or program agreements.

Data Managers should ensure the Standard is complied with as described in their funding or program agreements. They have been developed to specify the minimum standard for reporting on outputs.

Outputs in the current standard have been tailored to fit the needs of a range of DELWP NRM programs. The Standard is continually evolving to encompass a broader range of outputs with the capacity to support reporting across all NRM programs and investments including other State agency and Federal NRM programs.

The following groups and organisations were involved in developing this version (v3) of the Standard, including input from each of their major reporting and/or collaborating partners:

- Environment and Climate Change Group (DELWP)
- Water and Catchments Group (DELWP)
- Victorian Catchment Management Authorities (CMAs)
- Parks Victoria (PV)
- Agriculture Victoria (Department of Jobs, Regions and Precincts - DJPR)
- Forests, Fire & Regions Group (DELWP)
- Aboriginal Self-Determination Reform Branch (DELWP)
- Trust for Nature (TfN)

How to use this document

This document is provided in five parts (**Table 1**). We recommend that all readers familiarise themselves with the key features of the Standard by reading **Part 1** of the document and then navigate to the relevant sections as needed.

For example:

Practitioners using the Standard to collect and record output data should familiarise themselves with **Part 1** (Overview) and **Part 2** (Common Attributes) before applying the Standard in accordance with **Part 3** (Output Data). Further guidance on their use is contained in chapter notes and in other guidance documents such as the Spatial output reporting guideline at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**

Policy and program officers and decision makers managing reviews of the Standard should refer to **Part 4** (Governance) for details of the governance arrangements underpinning the Standard.

Data curators and analysts using the Standard to organise and interpret data will find initial advice in the notes at the beginning of each chapter and may also refer to external guidelines (Spatial output reporting guideline at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**) to gain an understanding of the protocols and assumptions underpinning data collected using the Standard.

Funding bodies using the Standard in the delivery of their programs should refer to **Part 2** (Common Attributes) and **Part 3** (Output Data Standard) for developing output data requirements associated with works programs and funding agreements. Funding bodies are also encouraged to ensure that the DELWP Delivery Standard are also referred to in the delivery of their program of works. The Delivery Standard can be located at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**

Table 1 provides a summary of the five parts of the Standard.

Table 1: Output Data Standard document structure

Part	Title	Includes	[Link or page reference]
Part 1	Overview	Introduction Key Features Related documents Structure of the Output Data Standard	Page 6
Part 2	Common Attributes	Reporting requirements for Common Attributes	Page 13
Part 3	Output Data	Collection and Reporting requirements for Output Data	Page 17
Part 4	Governance arrangements	Governance and control of the standard	Page 114
Part 5	Appendices	[Various reference tables etc]	Page 116

Key Features

What is an output?

Outputs are the goods or services delivered through project investment. Generally, outputs are completed activities that are funded through agency programs. Each output represents a discrete item that contributes to the delivery of a broader project or program.

In some cases, the goods or services may not entirely fit into a specific output. For instance, a fence may be made up of a length of fencing (fence output type) and some bollards (bollard output type). While these may constitute two different outputs, the purpose of reporting on outputs is to provide a general description of the item that was delivered. In this case, the output type should be considered as a single 'fence' output.

What is output data?

Output data is numerical, textual and spatial information that describes the location and characteristics of the outputs from environmental investment and effort.

Essentially, it is a set of points, lines and/or polygons that can be mapped and queried to help answer questions about the 'what, where and why' of Victoria's investment in environmental outcomes. More information on how output data is recorded spatially is provided in the definition for spatial data below.

What are management outcomes?

Management outcomes are the measurable changes directly attributable to implementation of a strategy or plan through delivery of projects and programs. Measurable changes may include physical change to the landscape, changes to land management, changes in community support or improvements to strategic planning. They provide the basis for measuring and monitoring program effectiveness.

Management outcomes may be reported at any scale and at the end of a specific timeframe (usually five or more years). They should be a part of planning and reporting at site scale, landscape scale, regional scale or state-wide scale.

Management outcomes are important components of site-scale project planning and should be documented as part of a project logic to clearly articulate the expected measurable outcomes for a project. The Output Data Standard requires expected management outcomes arising from an output to be reported as part of the Common Attributes. **Part 2** describes the requirements for reporting Common Attributes while a list of expected management outcomes is provided in **Part 5** (Appendices).

Reporting management outcomes

Recording and reporting outputs enables DELWP to tell the story about the outputs delivered to achieve strategic objectives described in state-wide and regional strategies and plans.

Where there is no specific state/regional strategy or plan in place, programs and projects should report on the most relevant management outcome outlined in this Standard.

A project manager may look at a range of evidence to understand the progress of a project; however, from a strategic planning viewpoint, the crucial evidence is linked to the intent of the appropriate plan or strategy.

For example, a fence may be built to control rabbit numbers and the higher order intent may be to improve vegetation structure and diversity. However, strategically, the intent may be to protect habitat to encourage the recovery of a threatened species of bird. If the funding and planning has been provided for the recovery of the bird, and it is linked to a management outcome in a specific state or regional plan, then this is the management outcome required to be recorded as an attribute of the Standard Output.

An alternative approach, trialled in a previous iteration of this Standard, was to document the immediate management outcome of an output. This approach has been shown subsequently to limit the ability to identify how management outcomes are linked to strategic planning. Using this alternative approach in the above example, species recovery would be reported as species control – for a completely different species.

Management outcomes are important components of site-scale projects. They should be developed as part of the project logic and clearly articulate the expected measurable outcomes from a project. Only the broader, strategic management outcomes need to be provided in reported standard outputs.

Spatial data and reporting

The standard outputs need to be provided spatially to enable otherwise complex, abstract data to be interpreted by a wide range of stakeholders, without need for specialised training or software. Accurately locating outputs on a map allows DELWP subject matter experts to interpret, rationalise and project impacts of their investments, whilst concurrently allowing all stakeholders to view the scope and scale of their work and its contributions to work across the state. The value of this interpretive ability cannot be understated for business intelligence as well as natural resource management and conservation purposes. The initial collection, collation and reporting of output data is the responsibility of delivery agencies.

Individual outputs are captured as either a polygon, line or point feature. In the Standard, each output includes a description of the appropriate spatial data feature.

Sometimes it can be difficult to use these spatial features to describe output data. For example, several outputs may not be specifically considered spatial in nature, including partnerships, publications and information management systems. It is important for these outputs to be attached to a spatial feature so that the output database can be a complete record of all outputs, rather than needing two separate databases. It also simplifies reporting by requiring agencies to report only once, rather than having to use two different reporting processes.

For convenience, each non-spatial output should be registered to a point feature located on the office of the delivery agent.

The Spatial output reporting guideline at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting** provides guidelines on how to record spatial data.

Metadata statement

Spatial data submitted with the output data each year must be accompanied by a metadata statement consistent with the concepts and guidelines developed by the Australia New Zealand Land Information Council (ANZLIC). In accordance with the National Metadata Directory System, a set of mandatory core metadata elements are required. Any additional information that is deemed relevant to interpret the data supplied should also be provided in an accompanying document.

For detailed information on creating a metadata profile for your spatial data, please visit: **https://www.anzlic.gov.au/resources/anzlic-metadata-profile**

Reporting DELWP output data

Outputs should be provided to the timeline specified by the relevant funding agreements with investment programs. Delivery Agents (see part 2, **Table 1**) should provide data to DELWP in an ESRI file geodatabase format (model geodatabase available on request (**delwpstandarddata@delwp.vic.gov.au**), only if no alternate format is described in individual funding agreements.

If required, additional spatial data requirements specific to individual funding programs, including reporting schedules, will be described in funding agreements. This is to be discussed with the funding agency during development of project proposals and funding agreements.

The Spatial output reporting guideline at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting** provides further guidance on reporting requirements.

Data accuracy

Spatial data should be as accurate as possible. For purposes of mapping, the underlying data is usually mapped at 1:25,000. Positional accuracy should provide a reasonable guide to the location of reported outputs and clearly distinguish the location of one activity from another. For polygons the area (hectares) mapped should be a reasonable representation of the area over which the output was delivered.

Related documents

Monitoring, Evaluation and Reporting Framework

The DELWP MER Framework, developed in 2012, aims to improve the capacity of Victorian NRM agencies to deliver improved policy, program and project outcomes. The Framework supports a consistent approach to the documentation and implementation of MER on programs and projects to drive adaptive management (**Figure 1**).

Under DELWP's MER Framework, outputs are a key step in a program logic, or the description of the assumptions about how program actions lead to long-term change (**Figure 2**).

A copy of the framework is located on the DELWP Integrated Reporting website: **https://www.water.vic.gov.au/__data/assets/pdf_file/0017/52415/DSE-MER-Framework-WEB_November-2012.pdf**

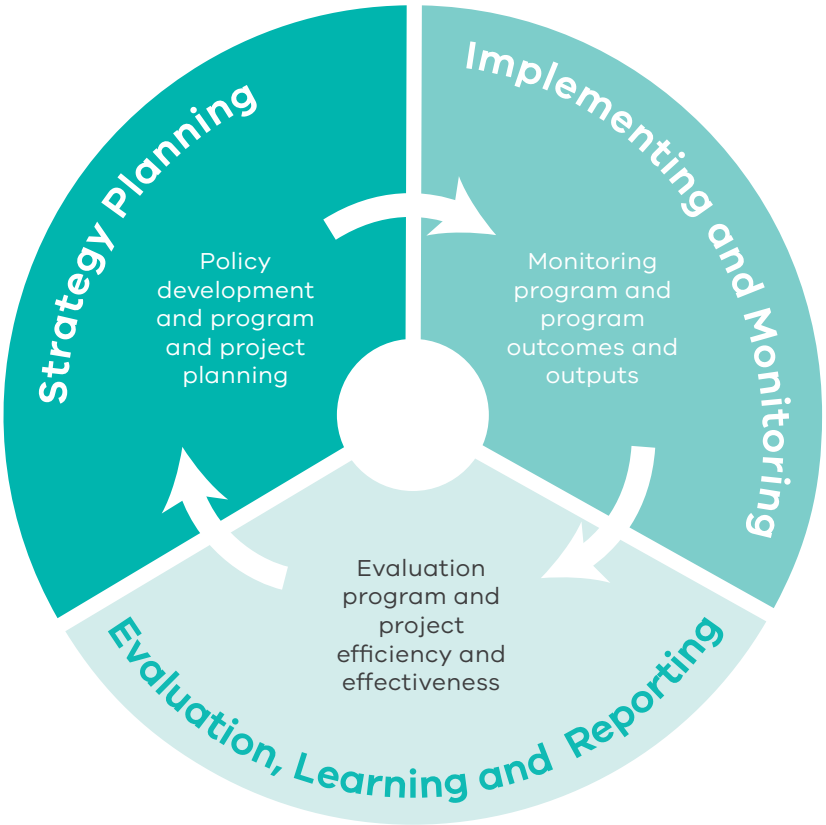


Figure 1: Key elements of the adaptive management cycle.

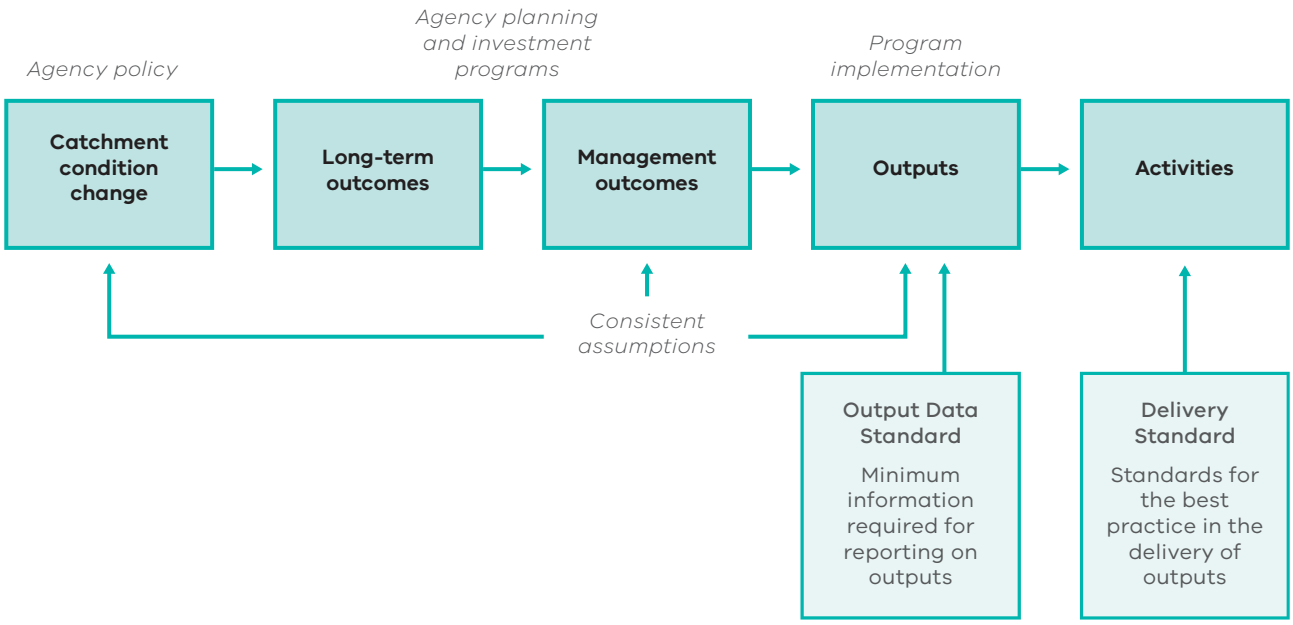


Figure 2: A program logic that links the outputs delivered through a program to the expected management outcomes, long-term outcomes and, ultimately, the aim of the initiative, in this case, the condition of catchments.

Figure 2. illustrates the importance of the Standard within the program logic. If all elements of the program logic are in place and documented, the following information can be derived:

- appropriate activities and outputs to deliver a strategy or plan
- assumptions about the contribution of outputs to expected outcomes
- measurable management outcomes expected in the life of strategies and plans
- longer-term outcomes expected from investment in strategies and plans
- a description of how these elements support the broader achievement of policy objectives for protection and enhancement of our catchments.

Consistency is required in each stage of the logic. We will improve reporting if we plan, using consistent language and support the collection and collation of consistent data. The Standard supports consistency within the lower levels of the logic and will support consistent planning and reporting on activities across programs and agencies.

DELWP Delivery Standards Compendium

The DELWP Delivery Standards are in a separate compendium of documents that details minimum state-wide standards for the conduct of management activities and the delivery of outputs that should be applied to all DELWP NRM programs. The delivery standards are under review at the time of writing and will include a widened scope of activity and updated best-practice methods and guidance. They can be applied to any NRM program.

DELWP's Output Delivery Standards can be found at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**

On-line Resources

An on-line resource with links to a number of key reporting documents, including the current version of the Output Data Standard and Technical Guidance Documentation is available at the following DELWP webpage: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**

In the future DELWP will use this page to update related information; including any additional guidance for reporting.

Structure of the Output Data Standard

There are two parts that describe the reporting requirements of the Standard:

Common Attributes – Describes the data that must be reported for each output data entry (**Part 2**)

Output Data – Describes the data that must be reported specific to the type of output recorded (**Part 3**)

Under Output Data in **Part 3**, outputs are divided into four classes, and within each class, outputs are given a two- digit number:

1. **Structural works: Outputs associated with stand-alone environmental goods**
   - 1.1. Channel
   - 1.2. Water storage
   - 1.3. … etc.
2. **Environmental works: A mixture of goods and services outputs that modify characteristics of the environment (e.g. vegetation)**
   - 2.1. Vegetation… etc.
3. **Management services: Service outputs that involve changes in the behaviour of land managers**
   - 3.1. Grazing… etc.
4. **Planning and regulation: A mixture of goods and services outputs to communicate, administer, plan or gather information.**
   - 4.1. Approval and Advice… etc.

What does an output standard look like?

Each Output Standard consists of the following:

Scope: A detailed description of what should be reported using this output and includes additional information about similar outputs.

Terminology: Definitions of any key terms specific to the output. Commonly used terms are defined in the glossary.

Program logic: A program logic diagram that summarises the typical decision pathways between each output and relevant management outcomes in strategic plans and strategies. The program logic is a starting point only. The logic for delivery of outputs should be documented in project planning and will be different for each context.

Output specific attributes: A table of attributes and appropriate values, in addition to the common attributes, that are to be reported specifically for that output.

Part 2: Common Attributes

Attribute data

Each output requires the following common attribute data. For most outputs there are also additional requirements to provide 'specific attributes'. These are described individually for each output in a table on the relevant page.

Only one funding source per output

In many cases, a single project may include the use of multiple fund sources. For example, a waterway project may deliver 5km of fence. 2.5 km of the fence is funded by the RRAP and 2.5 km of the fence is funded by On-Ground Works. The output data provided to DELWP for such a project must have two unique records - one that identifies that half of the fence was funded by the RRAP, and the other that identifies half was funded by On-Ground Works.

Can a Project ID have more than one output in more than one year?

The one Project ID may be used to relate different output types completed in relation to the one project. For example, in the first year Fencing (1.9 Fence), or Weed control (2.2), may be used, while in a second year, revegetation (2.1 Vegetation), and additional weed control (2.2), may be undertaken. In this situation, four outputs, two recorded for each year, are used in relation to the one project, each with the same Project ID. In the case of a baiting program (2.3 Pest Animal Control), where the baiting station is revisited, and baiting reapplied each year over several years, it is appropriate to provide a separate output (for 2.3 Pest Animal Control) for each financial year active treatment was undertaken for the spatial extent identified.

Terminology Variations

Please note that definitions provided at the beginning of each chapter will vary slightly dependent on individual context, this is necessary to ensure accuracy and compatibility with established terminology between practical application contexts. For example, a waterway in the context of earthworks for irrigation drainage has a slightly different definition in the context of monitoring structures for wetland or marine environments.

Description of common attribute data required for each output.

Attribute	Description	Source
Output ID	Unique identifier for each output delivered. The Output ID should be composed of a two-to-six letter agency code (e.g. PV, NECMA, TFN, etc), followed by a unique number and followed by a dash, then the financial year in which it is being reported. e.g. EGCMA000001-20/21 Where an output is composed of more than one spatial feature, the Output ID applies to both spatial features. It is crucial that each ID is unique to the output to avoid indexing conflicts in the database once received.	Provided by delivery agent as part of output reporting

Attribute	Description	Source
Output Data Standard version	1.1, 1.2, 2.1 etc This version of the Standard is v3.0	See Output Data Standard
Output Delivery Standard Version	DELWP V2.1 DELWP V3.0 (Level 1) DELWP V3.0 (Level 2) DELWP V3.0 (Level 3) Other	See Delivery Standards
Output Title	Used to simplify data collection by grouping goods and services which have similar data requirements, e.g. Channel, Assessment.	See individual outputs for relevant values
Output Type	Provides a more detailed classification of outputs.	See individual outputs for relevant values
Activity Type	Broadly defines the changes being made to the output using terms such as: install, maintain, modify, remove, develop and review.	See individual outputs for relevant values
Year Completed	Identifies the financial year in which the output was completed. Outputs are reported annually, per financial year. Where the same output is delivered again in the following year (e.g. maintenance of vegetation) the outputs should be reported separately. The Financial year is to be expressed as a 4 digit integer with the financial years divided by a forward slash where 17/18 is used to denote the Financial year 2017/2018.	Provided by delivery agent as part of output reporting
Fund Source	The name of the key fund source. This could be a DELWP investment program or, where the investor is not DELWP, the appropriate agency title for the investment source. This information enables the story about how the output helps deliver on the agency strategy and plans to be told. It is important that the fund source name can be traced to a specific purpose. So 'DELWP funding' is not sufficient but 'DELWP Waterway Health Program' would be. The same applies to other fund sources such as the Australian Government. In the case of funding from private individuals, it would be enough to identify the funding source as 'Private landholder'.	Provided by relevant agency or investment program
Project ID	An identifier used for outputs delivered under a single project E.g. a fence, weed control and rubbish control outputs are delivered as part of a single project and should have the same Project ID. The Project ID should identify the relevant investment program. *Details specific to individual investment programs (Victorian Waterway Program Investment Framework (VWPIF) use of Project Information Retrieval System (PIRs) or Enquire code for example) will be contained in individual funding agreements.*	Provided by relevant agency or investment program

Attribute	Description	Source
Delivery agent (receiving funds)	Identify the delivery partner or relevant government agency responsible for the management, coordination and reporting of the output to DELWP. This information identifies outputs that are delivered with significant support from community groups or are delivered through government agencies. If delivery is shared across multiple agencies, provide the major delivery partner. This is general information, so there is no need to specify the exact name of the group – use one of the following: • Landcare • Management committee • Friends-of group • Private land manager • Traditional Owner • Aboriginal Victorians • CMA • Parks Victoria • DELWP • Trust for Nature • Coastcare • Non-Government organisation • Community groups • Not for Profit organisation • Research organisation • Water corporation • Local council • Government agency • Other	Provided by delivery agent as part of output reporting
On ground works agent (carrying out works)	Identify the community partner or relevant government agency involved in the primary on-ground works delivery of the output. This information identifies outputs that are delivered with significant support from community groups or are delivered through government agencies. If delivery is shared across multiple agencies, provide the major delivery partner. This is general information, so there is no need to specify the exact name of the group – use one of the following: • Aboriginal Victorians • CMA • Coastcare • Community groups • Delivery agent staff • DELWP • Friends-of group • Government agency • Landcare • Management committee • Non-Government organisation • Not for Profit organisation • Parks Victoria • Private land manager • Research organisation • Traditional Owner • Trust for Nature • Water corporation • Other	Provided by delivery agent as part of output reporting

Attribute	Description	Source
Planned Management Outcome	The key management outcomes that the output is contributing to in the appropriate plan or strategy. If there is no specific management outcome documented in a plan (or no plan exists), provide an appropriate title from the list in Appendix C.	Provided by relevant agency or investment program
Planned Management Outcome Direction of Change	Broadly defines the outcomes sought using the following categories: • Increase • Maintain • Reduce	See individual outputs for relevant values
Specific Attribute #1 (e.g. Volume of water conveyed)	Specific attributes are provided within each Standard. Provide a new tabular column for each specific attribute as required.	
Unique Site ID	A Unique Site ID is required for all DELWP funded on-ground outputs on sites where multiple outputs will be captured over time. This ID will be used to analyse outputs at the site scale, and to reduce substantial double counting issues for riparian metrics like 'length area of riparian land improved or protected', where outputs are delivered at the same work site within the same year and across multiple years (e.g. a hectare of weed control, fencing and revegetation at the same site is one hectare of land improved, not three). It will also be used to more accurately answer questions such as 'what is the length of land improved over EC5', particularly in a riparian context. This ID grouping is generally not at the landholder or property scale, but at the individual on-ground works site scale, i.e. at a scale that will reduce the double counting issues described above. Many properties will have more than one site. If new on-ground works do not overlap with a current site, then give the new site a different Unique Site ID. DELWP can provide further advice as needed: **delwpstandarddata@delwp.vic.gov.au**. To accommodate pre-existing Site IDs, the format of the Unique Site ID is not prescribed. Any outputs physically delivered on any DELWP Funded site must include its Unique Site ID, unless stated otherwise in program specific funding agreements. The ID is to use letters and numbers only, be no longer than 20 characters long and include no special characters (e.g. >, =, &, etc.) These IDs are intended to be unique IDs to each Site and enable longer-term reporting.	See advice in the spatial output reporting guideline note for more detail. **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**

Part 3: Output Data

1. Structural works

Structural works are outputs associated with the management of man-made structures.

Output Title	Output types		
(1.1 Channel):	Channel	Drain	
(1.2 Water storage):	Constructed wetland Dam	Reuse system Sump Tank	Trough Weir
(1.3 Pump):	Ground water	Surface water	
(1.4 Irrigation infrastructure):	Spray Irrigation	Surface Irrigation	Sump
(1.5 Waterway structure):	Chute Fish barrier Fishway Fish hotel / Lunker	Flow regulator Groyne Outlet Gross pollutant trap Rock Bank Root Ball	Pile field Rock Seeding Sill Large wood A Large wood B Large wood C Large wood D
(1.6 Terrestrial structure):	Hygiene station Sediment trap Jute mat Coir logs	Thatching Revetment (not water related) Silt fence	Straw bale Rock bund Check-dam
(1.7 Terrestrial feature):	Man-made ground feature Connectivity infrastructure Artificial/Temporary Pond	Natural ground feature Rocks	Nest box

Output Title	Output types		
(1.8 Monitoring structure):	Bore Hide Trap	Measuring station Buoy/mooring	Photo point structure
(1.9 Fence):	Bollard	Fence	
(1.10 Visitor facility):	Building	Operations	Recreational
(1.11 Road):	Firebreak	Road	Trail
(1.12 Crossing):	Bridge Causeway crossing	Culvert	Ford
(1.13 Marine and Coastal Structure):	Armouring Artificial reef Breakwater	Gross pollutant trap Groyne Hybrid reef	Natural reef Sand bags Sea wall

1.1 Channel

Scope

These data record the length of channels and drains that have been installed, maintained, modified or removed.

Related outputs: Where the output is part of an irrigation or reuse system, associated structures (e.g. dam, pump), plan/strategy (e.g. Irrigation Farm Plan), irrigation infrastructure (upgrading of existing), water storage (re- use) or assessments (survey), they should be recorded as separate outputs.

Terminology

Channel: Conveys water from one point to another, generally to irrigators from a source.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Community drain: Initiated by landholders, who remain responsible for ongoing operation and maintenance.

Drain: Designed to carry surplus water away from an area.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

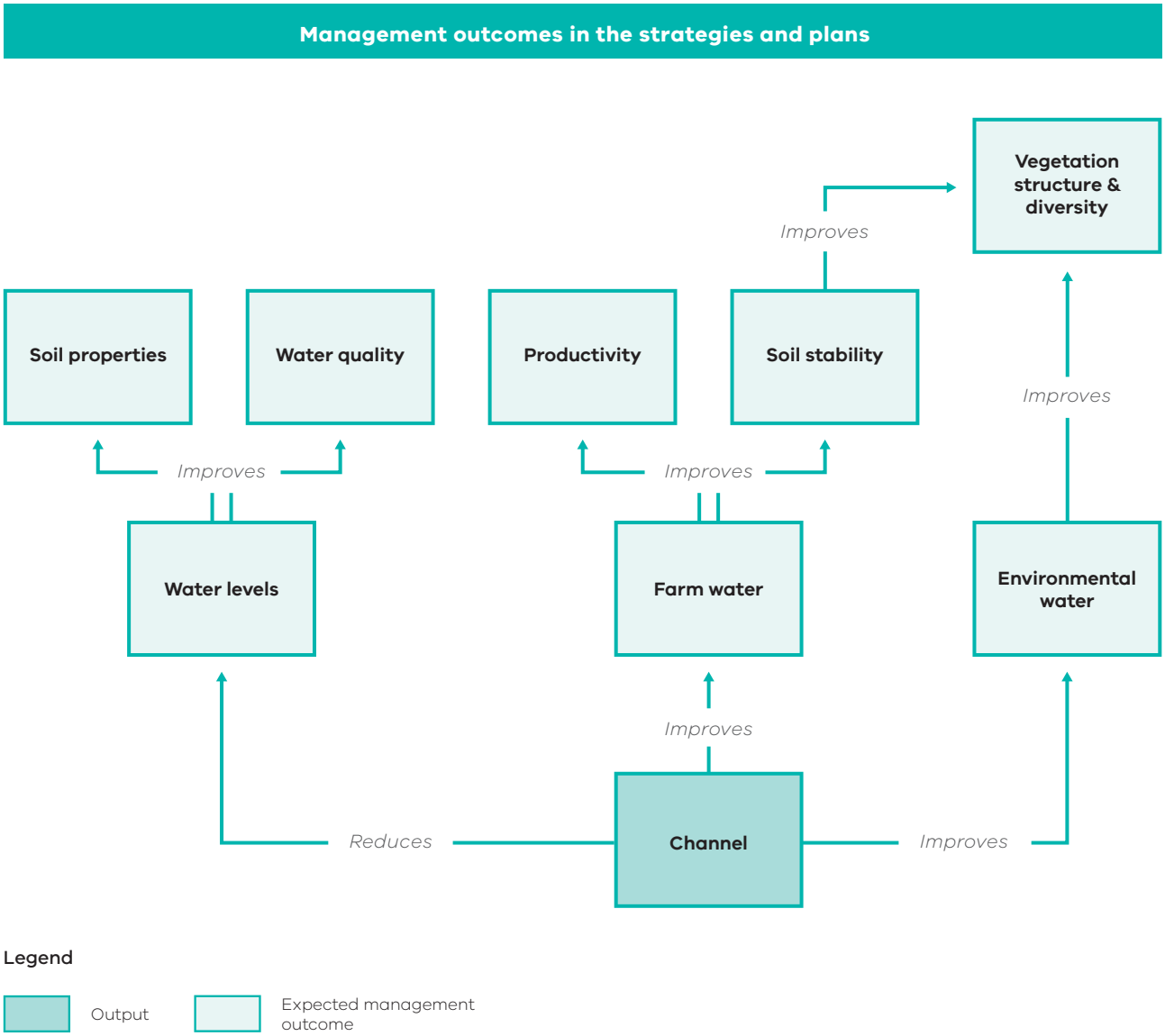
Primary drain: Owned and operated by rural water corporations or CMAs.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Swale drain: A shallow ditch intended to drain water.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 1 (1.1 Channel):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following specific attributes must be collected and reported for each output delivered.

Table 1.1: Channel specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial Object	Water volume	Specific Type
Description	Select one from list	Select one from list	Select one from list	Location of structure	Volume of water conveyed	Select one from list
Valid values	Channel	Install	Coast – Dune	Line	ML	Community
	Drain	Maintain	Coast - Shore			Environmental Water
		Modify	Estuary			Irrigation Supply
		Remove	Marine - Intertidal			Primary
			Marine - Subtidal			Swale
			Stream/River			
			Terrestrial			
			Wetland			

1.2 Water storage

Scope

These data record the number of structures intended to store water (e.g. dams, troughs, constructed wetlands and weirs) that have been installed, modified, maintained or removed.

These water storages serve a variety of purposes, including improving access to farm water for irrigation, re-use systems, flow and turbidity management (e.g. constructed wetlands), habitat and as off-stream watering points for livestock.

This output may relate to both natural and man-made water storages/bodies.

Related outputs: Often a water storage output is delivered in conjunction with other outputs, which should all be recorded in addition to this output. For example, fences to exclude stock or channel/pump as part of an irrigation system upgrade.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Constructed wetland: man-made inland, standing, shallow bodies of water, which may be permanent or temporary, fresh or saline.

Dam: A barrier constructed to hold back and store water.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Sump: A dam constructed for use as part of an irrigation re-use system.

Tank: A large storage chamber for water.

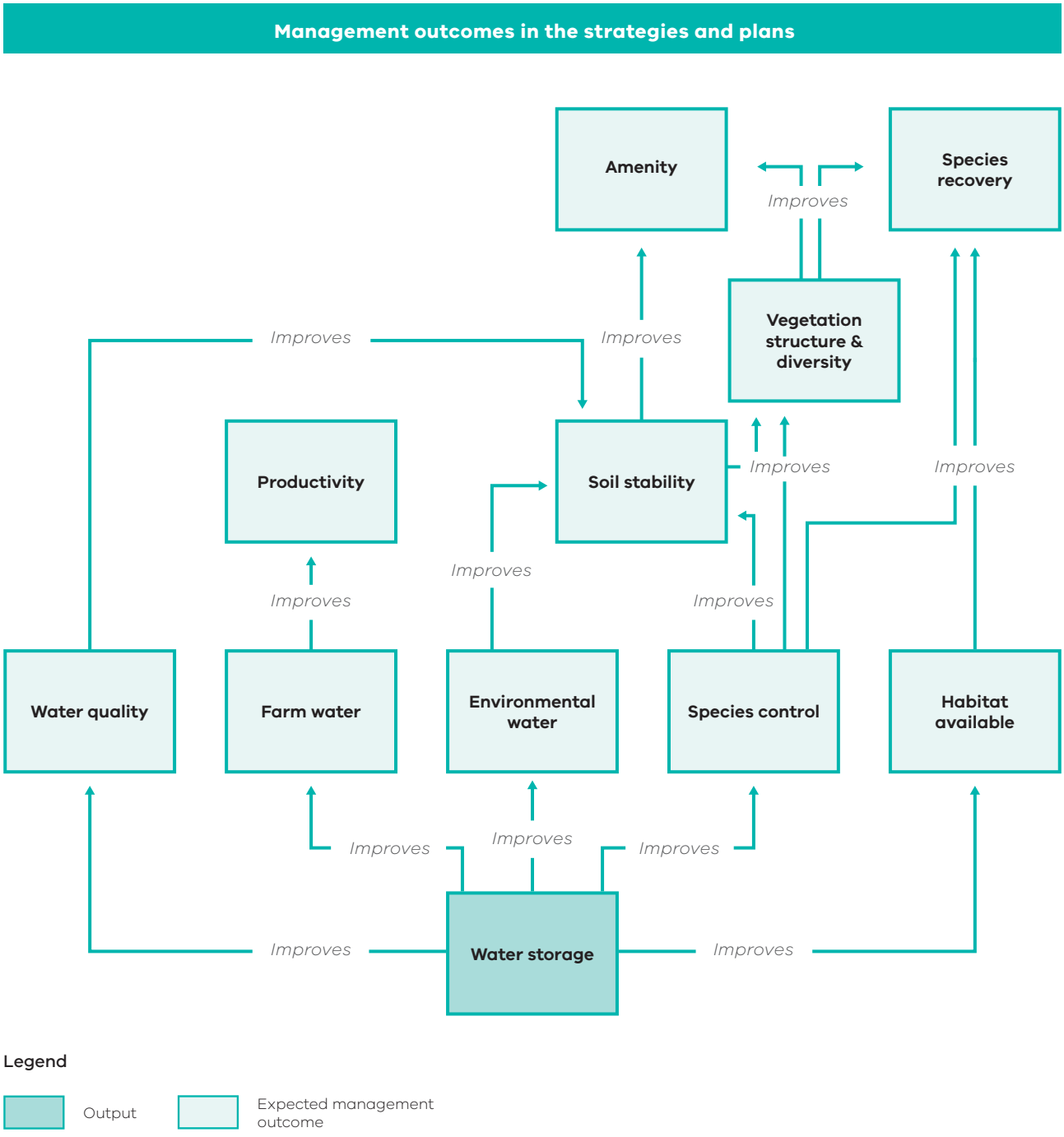
Terrestrial: Land area inland of the tertiary dune.

Trough: An open container for livestock to drink from.

Waterway: A natural channel in which water regularly flows, including but not limited to, a river, stream or watercourse.

Weir: A low dam built across a waterway to raise the level of water upstream or regulate its flow.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 2 (1.2 Water storage):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.2: Water storage specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial object	Water Volume	Specific Type
Description	Select one from list	Select one from list	Select one from list	Location of structure	Volume of water stored	Select one specific type for the output
Valid values	Constructed wetland	Install	Coast – Dune	Point	ML	Effluent
	Dam	Maintain	Coast - Shore		N/A	Irrigation
	Sump	Modify	Estuary			Livestock
	Tank	Remove	Marine - Intertidal			Re-use system
	Trough		Marine - Subtidal			N/A
	Weir		Stream/River			
			Terrestrial			
			Wetland			

1.3 Pump

Scope

These data record the number of pumps and associated infrastructures (i.e. pump housing) that have been installed, maintained, modified, removed or replaced.

This output includes the installation of connections and housing for the pump.

Related outputs: Pumps can be associated with the delivery of other outputs, such as water storage, irrigation infrastructure and channel. It is at the discretion of the DELWP investment program whether a pump should be recorded in addition to this output or as an activity within the outputs. Inspection of pumps should be recorded under the 'Assessment' output.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Ground water: Underground water that is held in the soil and impervious rocks.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

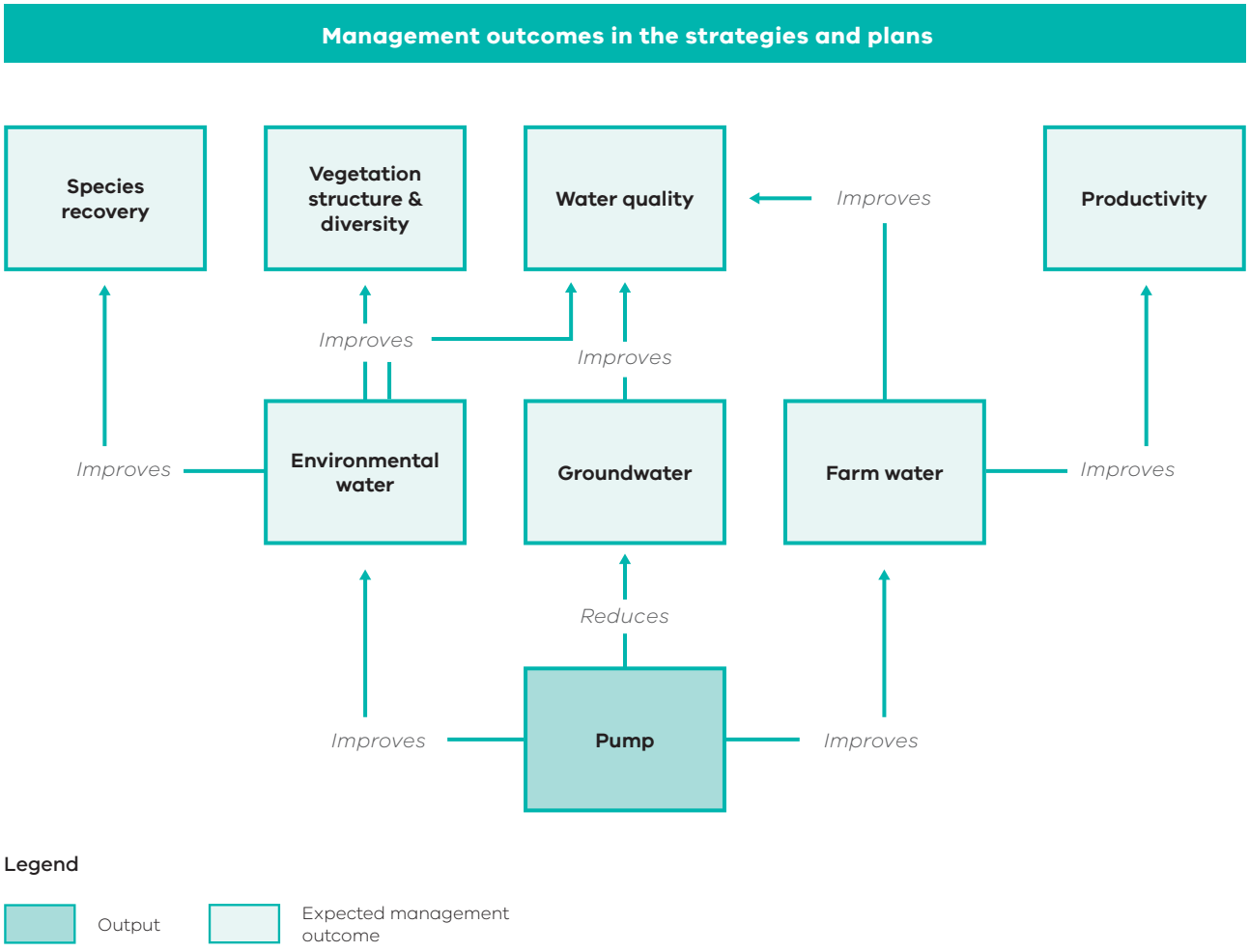
Pump: A device that moves water by mechanical action.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Surface water: Water that collects on the surface of the ground.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 3 (1.3 Pump):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.3: Pump specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial object	Tenure
Description	Select one from list	Select one from list	Select one from list	Location of structure	Land manager
Valid values	Ground water	Install	Coast – Dune	Point	Private
	Surface water	Maintain	Coast - Shore		Public
		Modify	Estuary		
		Remove	Marine - Intertidal		
			Marine - Subtidal		
			Stream/River		
			Terrestrial		
			Wetland		

1.4 Irrigation infrastructure

Scope

These data record the area where irrigation infrastructure has been installed, modified or maintained.

This includes land-forming or laser levelling to improve the efficiency of irrigation systems.

This output relates to irrigation improvements rather than irrigation structures.

This output should be used in combination with other outputs (such as 1.1 Channel, 1.2 Water storage, or 1.3 Pump) to describe overall irrigation infrastructure improvements.

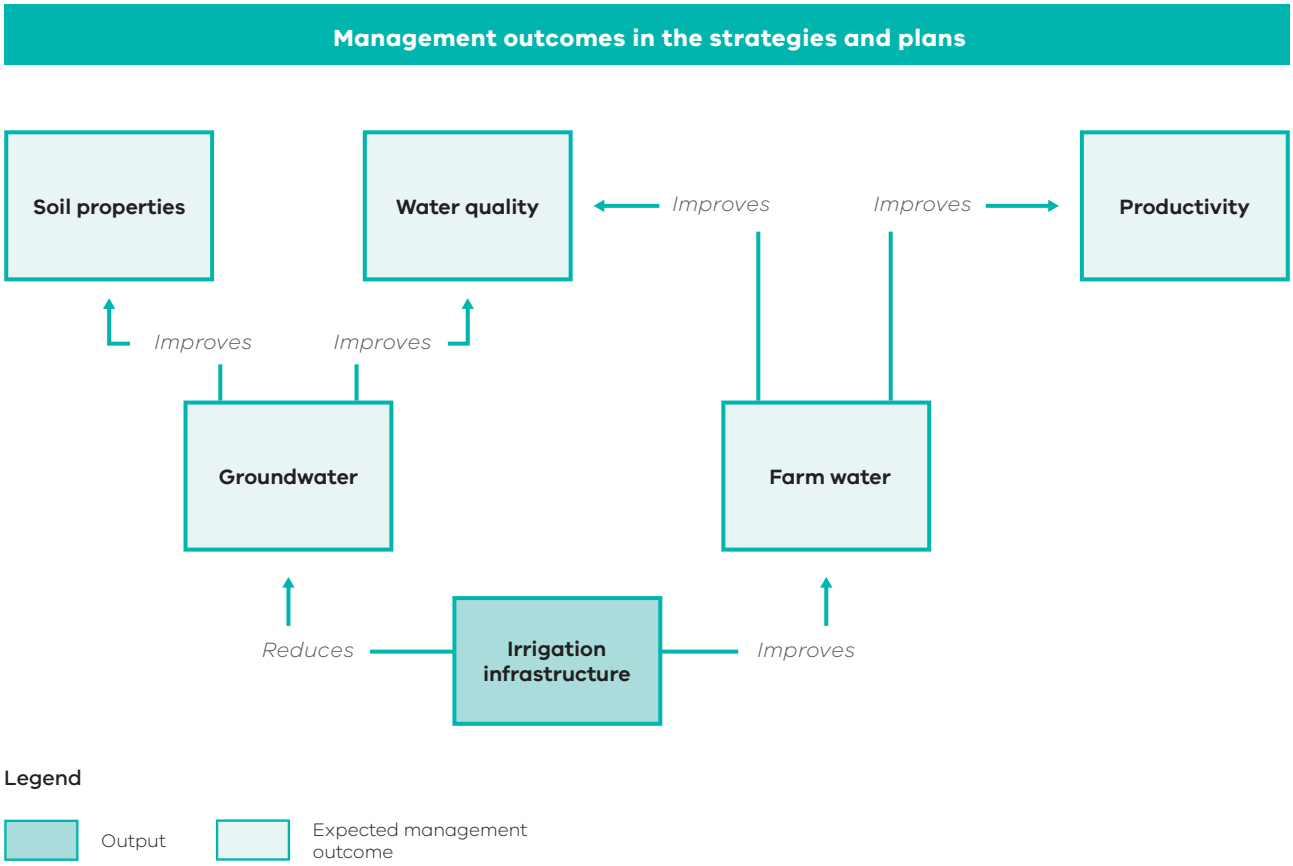
Related outputs: Any associated structures covered by other outputs (e.g. water storage, channel or pump) should be recorded in addition to this output.

Terminology

Gravity irrigation system: irrigation method that applies irrigation water to paddocks by letting it flow from a higher level of supply through to fields at a lower level.

Pressurised irrigation system: irrigation method that applies irrigation water to paddocks using a pressurised system to transport water.

For an example of how this Standard can be applied in relation to works undertaken under the Sustainable Irrigation Programs, see Case Study 3 – Sustainable Irrigation - Spatial output reporting guideline at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**.



Logic Diagram 4 (1.4 Irrigation infrastructure): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.4: Irrigation infrastructure specific attributes

Title	Output type	Activity type	Spatial object	Previous type	Specific activities	Water savings
Description	Select one from list	Select one from list	Location of irrigation structure	Select the previous type of infrastructure where there was some	List the activities	Estimate the water savings
Valid values	Spray Irrigation	Maintain	Polygon	Flood/furrow	Automated Flood	ML
	Sump	Modify		Drip	Automation	
	Surface Irrigation	Install		Other	Centre Pivot	
		Remove		N/A	Fixed Sprays	
					Lateral	
					Laser levelling	
					Laying pipe	
					Linear Move	
					Pipe & Riser	
					Re-Use	

1.5 Waterway structure

Scope

These data record the number of waterway structures that have been installed, replaced, modified, removed or maintained.

Related outputs: Any associated agreement or plan/strategy (e.g. seasonal watering plan, environmental water management plan or species management plan) should be recorded as a separate output. The management of culverts should be recorded within the 'Crossing' output. Earth works done within a waterway must be recorded under the 'Earth works' output.

Terminology

Chute: Short channel that cuts across the neck of land separating the two ends of a river oxbow.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Fish barrier: An obstruction that prevents fish moving along a waterway.

Fish hotel / Lunker: Crib-like, wooden structures installed along the toe of a stream bank to create overhead cover and resting areas for fish.

Fishway: A structure that allows fish to swim upstream past a waterway barrier (e.g. a weir).

Flow regulator: A device located in a waterway that restricts the rate at which water is released.

Gross Pollutant Trap: A structure that uses physical processes to trap solid waste such as litter and coarse sediment.

Groyne: A protective structure that extends from the edge of the water to most often change flow, trap sediment and prevent erosion of the waterway.

Large wood: Single or multiple pieces of timber deliberately placed in a waterway for habitat.

The complexity of Large Wood installations:

a. Single trunk
b. 2 trunks
c. 3 trunks
d. More than 3 trunks or complex.

Guidance can be located at (**https://www.ari.vic.gov.au/__data/assets/pdf_file/0021/436710/recording-info-reintroduced-aquatic-habitat-fact-sheet.pdf)**

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Outlet: A pipe or hole through which water may be released.

Pile field: Lines of timber logs generally driven vertically into the waterway.

Pile: A heavy beam or post driven vertically into the bed of a waterway or ground.

River Related Works: Identifies if the output occurred on the left, right or both sides of the river (when facing downstream)

Rock seeding: Boulders placed in the waterway bed to obstruct flow and create localised scour and related habitat.

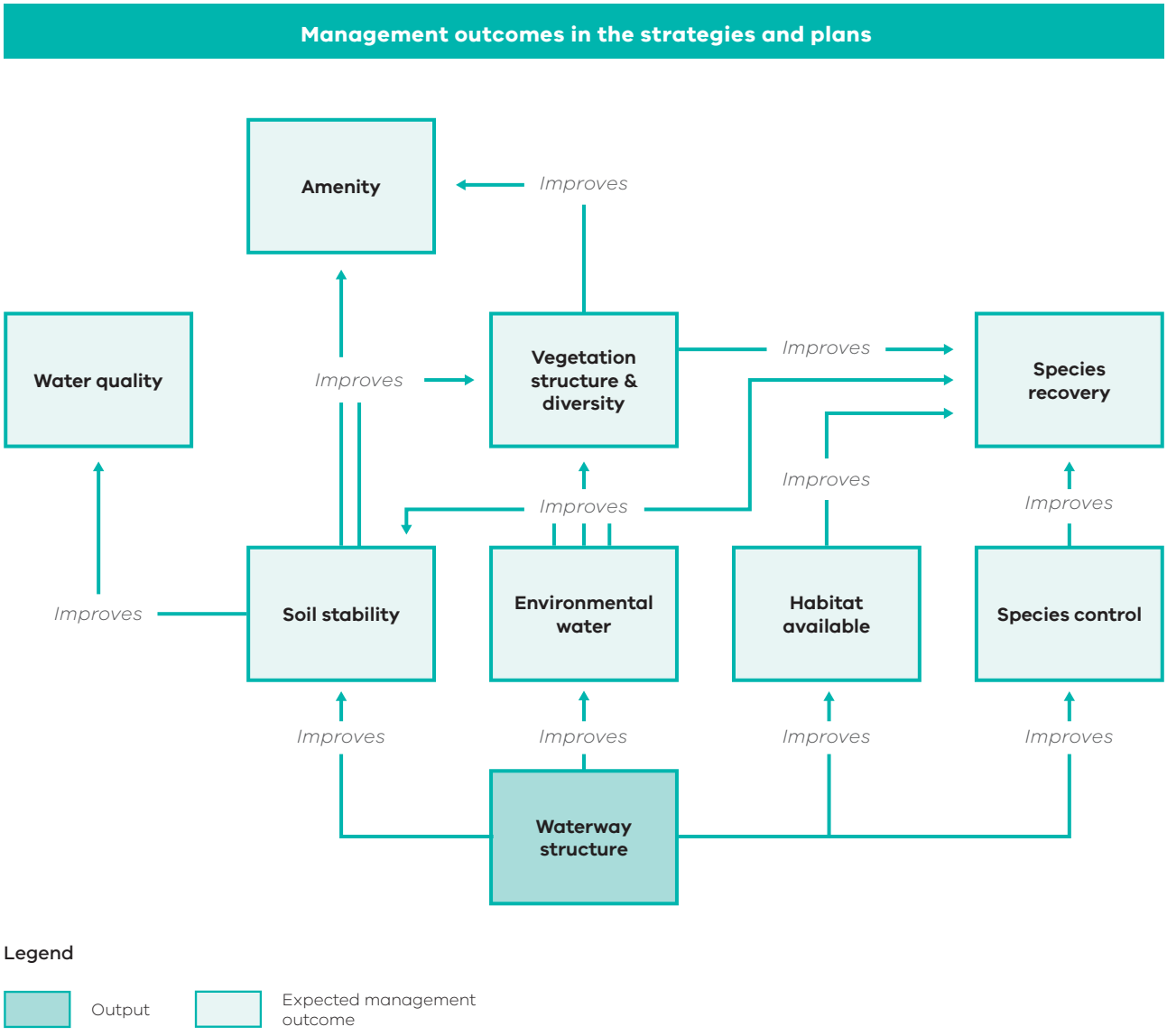
Sill: A structure placed perpendicular to flow and across the channel to create habitat, assist fish migration and control bed erosion.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Waterway: A river, wetland or estuary.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 5 (1.5 Waterway structure):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.5: Waterway structure specific attributes

Output Title	Output Type	Activity Type	Environment Type	River Related Works (when facing downstream)	Spatial Object	Area/ Size
Description	Select one from list	Select one from list	Select one from list	Select one from list	Location of structure	Select one from list
Valid values	Chute	Install	Coast – Dune	Left Bank	Point	1-5m
	Fish Barrier	Maintain	Coast - Shore	Right Bank		5-10m
	Fish Hotel / Lunker	Modify	Estuary	Both Banks		10-20m
	Fishway	Remove	Marine - Intertidal	N/A		more than 20m
	Flow regulator	Replace	Marine - Subtidal			1-5m²
	Gross Pollutant Trap		Stream/River			5-10m²
	Groyne		Terrestrial			10-20m²
	Large wood A		Wetland			more than 20m²
	Large wood B					N/A
	Large wood C					
	Large wood D					
	Outlet					
	Pile field					
	Rock seeding					
	Rockbank					
	Root ball					
	Sill					

1.6 Terrestrial structure

Scope

These data record the number of terrestrial structures that have been installed, maintained, modified or removed.

This output includes sediment traps, the establishment of hygiene stations for managing pathogens (in specific *Phytophthora cinnamomi*) and temporary erosion control structures (e.g. hay bales or coir logs).

Related outputs: Any associated agreement, plan or inspection (i.e. assessment) associated with the structure should be recorded as a separate output. Silt fence is also related to activities under Marine and Coastal Structure and Fence outputs, though is to be recorded here, under terrestrial structure.

Terminology

Check Dam: A small, sometimes temporary, dam constructed across a swale, drainage ditch, or waterway to counteract erosion by reducing water flow velocity. Sandbag check dams are typically used in drains less than 500 mm deep, with a gradient less than 10% (1 in 10).

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Coir Logs: Fibre rolls consisting of small-diameter (150– 200 mm) biodegradable straw-filled logs. Geo logs have a larger diameter (approx. 300 mm) compared to fibre rolls. They can be used as check dams in wide, shallow drains so long as the logs can be anchored to prevent movement.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Jute Mat: Jute or coir mesh is a form of erosion control mat used to provide temporary scour protection in low to medium velocity drains.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Pathogen: a bacterium, virus, or other microorganism that can cause disease.

Revetment: Sloping structures placed on banks or cliffs in such a way as to absorb the energy of incoming water. An underlying geotextile or rock filter layer is generally required unless all voids are filled with soil and vegetated.

River Related Works: Identifies if the output occurred on the left, right or both sides of the river (when facing downstream)

Rock Bund: A permeable bund constructed from geo-textile encasing rock and are predominately used in areas of concentrated flow. They are sometimes used as an in-stream measure, however removal of the bund from the stream often resuspends sediment. Rock bunds are most effective in removing coarse particulates.

Sediment trap: a temporary containment area that allows sediment in collected storm water to settle out during infiltration.

Silt Fence: Temporary, permeable barriers of geo-textile installed in a trench and supported by star pickets or wooden posts.

Straw Bale: Straw bales can be used to form temporary flow diversion banks to protect exposed soils and excavations from imminent storms.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

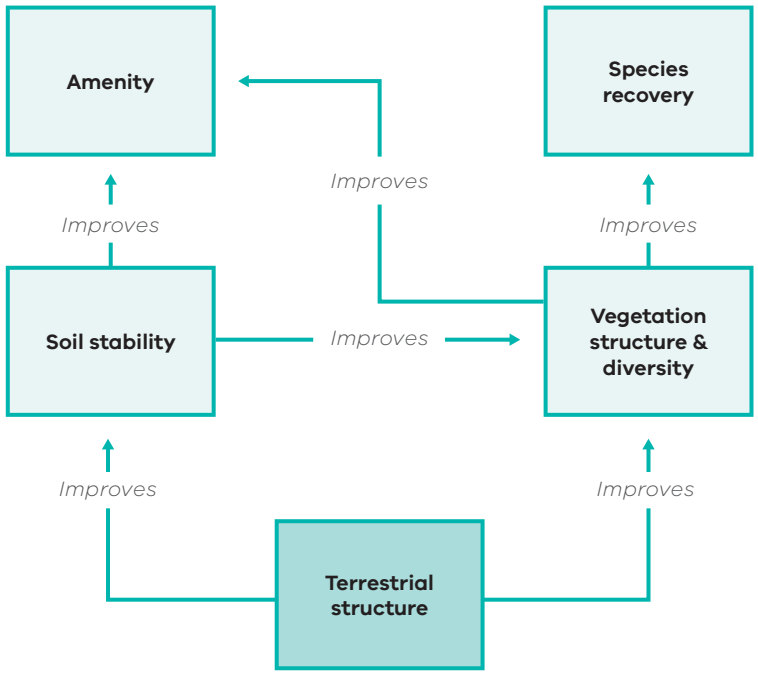
Terrestrial: Land area inland of the tertiary dune.

Thatching: Temporary erosion control mats containing an organic mulch reinforced with a synthetic mesh that will eventually breakdown under direct sunlight.

Waterway: A river, wetland or estuary.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Management outcomes in the strategies and plans



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Output

Expected management outcome

Logic Diagram 6 (1.6 Terrestrial structure): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.6: Terrestrial structure specific attributes

Output Title	Output Type	Activity Type	Environment Type	Spatial Object	Area (m2) or Length (m)
Description	Select one from list	Select one from list	Select one from list	Location of structure	Select one from list
Valid values	Check-Dam	Install	Coast – Dune	Point	1-5m
	Coir logs	Maintain	Coast - Shore		5-10m
	Hygiene station	Modify	Estuary		10-20m
	Jute mat	Remove	Marine - Intertidal		more than 20m
	Revetment	Replace	Marine - Subtidal		1-5m^2
	Rock Bund		Stream/River		5-10m^2
	Sediment Trap		Terrestrial		10-20m^2
	Silt Fence		Wetland		more than 20m^2
	Straw Bale				N/A
	Thatching				

1.7 Terrestrial feature

Scope

These data record the number of terrestrial-related habitat features that have been installed, maintained, modified or replaced.

Related outputs: Water-related habitat features (e.g. large wood) should be recorded under the 'Waterway structure' output. Inspection of terrestrial habitat features should be recorded under the 'Assessment' output and any associated agreement, plan/strategy or assessment should be recorded as a separate output.

Terminology

Artificial/temporary pond: pond replicating aquatic habitat in species usual range.

Connectivity Infrastructure: Structures re-connecting habitat severed by roads e.g. possum/koala rope bridges, glider poles, possum tunnels.

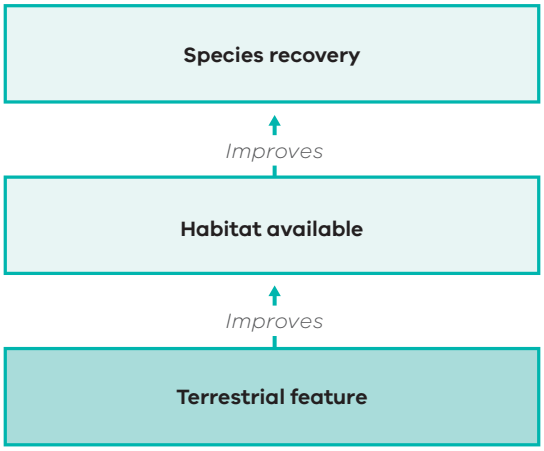
Habitat feature: A structure that is suitable for fauna habitat.

Man-made ground feature: A constructed structure that is suitable for fauna habitat.

Natural ground feature: A naturally formed structure used as habitat.

Nest box: A man-made enclosure provided for animals to nest. This includes Artificial Tree Hollow, Bee Hotel and Bat Box.

Management outcomes in the strategies and plans



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Output

Expected management outcome

Logic Diagram 7 (1.7 Terrestrial feature):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.7: Terrestrial feature specific attributes

Output Title	Output Type	Activity Type	Spatial Object	Target Species
Description	Select one from list	Select one from list	Location of structure	Enter taxon ID from Victorian Biodiversity Atlas
Valid Values	Artificial/ Temporary Pond	Install	Point	
	Connectivity infrastructure	Maintain		
	Man-made ground feature	Modify		
	Natural ground feature	Replace		
	Nest box			
	Rocks			

1.8 Monitoring structure

Scope

These data record the number of monitoring structures that have been installed, maintained, modified or removed.

Related outputs: Use of monitoring structures for the assessment of fauna behaviour or reports generated from the structure should be recorded under separate outputs. The output does not include the establishment of locations for monitoring that do not require a permanent structure (e.g. transects, quadrats).

Terminology

Bore: A pipe installed vertically in the ground through which groundwater is pumped and/or monitored.

Buoy/Mooring: A float moored or anchored in water. In this context, for the purpose of anchoring or marking a site or as a witness point for recording observation data.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/ hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Hide: A camouflaged shelter used to get a close view of wildlife.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Measuring station: A place set up for recording, observing or measuring information, data or phenomena in the local environment or from a specific vantage point. The information may come from natural or man-made sources.

Photo point structure: A permanent structure installed as a housing for a remote or motion activated camera, or as a permanent witness point (Fluker Post) for locating a photo point objective

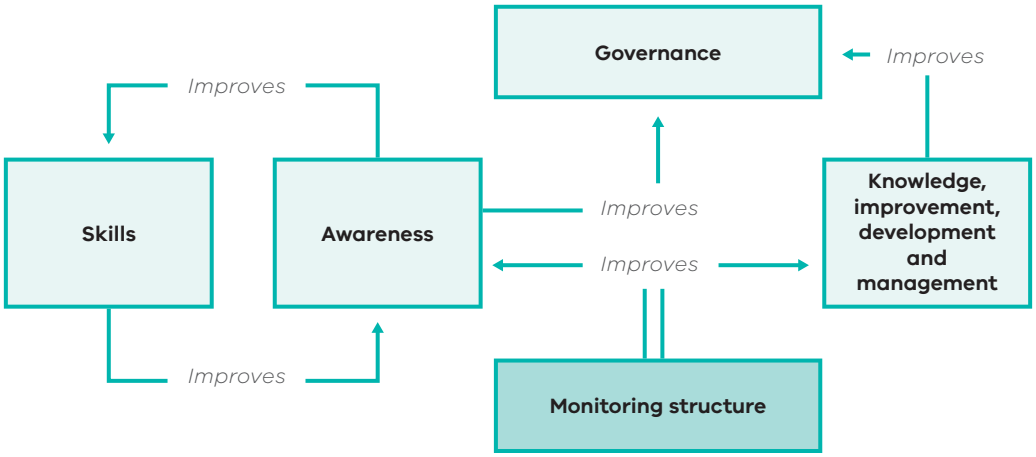
Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Trap: A device or enclosure designed to catch and keep animals.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Management outcomes in the strategies and plans



Legend

Output

Expected management outcome

Logic Diagram 8 (1.8 Monitoring structure): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.8: Monitoring structure specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial Object	Description
Description	Select one from list	Select one from list	Select one from list	Location of structure	Identify what the structure is intended to monitor
Valid values	Bore	Install	Coast – Dune	Point	Depth
	Buoy/ Mooring	Maintain	Coast - Shore		Fauna
	Hide	Modify	Estuary		Flora
	Measuring Station	Remove	Marine - Intertidal		Flow
	Photo point structure	Replace	Marine - Subtidal		Groundwater
	Trap		Stream/River		Soil
			Terrestrial		Surface Water
			Wetland		Water quality
					Wave
					Weather

1.9 Fence

Scope

These data record the length of fences and bollards installed, replaced (i.e. full replacement of wire and posts), modified, removed or maintained (e.g. rewiring).

Associated access points (e.g. cattle grids, gates) should be considered a feature of the fence/barrier and not recorded separately.

The fence output must be recorded as a line in all circumstances (install, maintain, remove, modify, replace).

A polygon is also required when the fence leads to a new area of land that is protected or improved.

This is applicable to all new fence installations (i.e. where 'install' is selected as the activity type in the specific attributes). There may also be times when other fence activity types (e.g. replace, modify, or maintain) lead to a new area protected/improved in which case a polygon (representing only the newly protected and improved area) must be recorded. More often these activities will simply enclose a pre-existing fenced area and in this case no polygon is to be recorded, e.g. a replacement fence after a flood. In this case, the area protected/improved attribute should be left blank because the purpose of this activity is to continue to protect an area that was fenced, not an activity to protect/improve a new area.

Lines and polygons for the same output are to be linked by using the same Unique Site ID and Project ID (Common Attributes).

Related outputs: Plans and agreements, and outputs such as vegetation and weed management that may be associated with the delivery of fencing should be recorded as separate polygons in addition to the fence polygon. However, changes to grazing regimes are not to be recorded as an output associated with fencing. Grazing regime change should be recorded in accordance with Chapter 3.1 – Grazing.

Note: Silt Fence is captured under Terrestrial Structure Outputs, with other erosion and sediment control devices.

No longer used – 'A Waterway Fence'

The terms 'Waterway' or 'Waterway fence' must not be used in the 'Specific Type' attribute for fence outputs.

A waterway fence is a description for a flood-proof fence. In this version of the standard (v3), the specific type attribute has been changed to 'Flood Fence', to assist with clarifying its purpose. The principle applies to previous versions of the standard.

River Related Works

When reporting fence, you must always specify 'Left Bank', 'Right Bank', 'Both Banks' or 'not applicable' in the 'River-related works' specific attribute. This enables DELWP to identify whether the fence is associated with a waterway and is therefore a riparian output. Fences installed for purposes other than riparian outputs must specify 'not applicable' in the 'River-related works' specific attribute.

Terminology

Area Protected/Improved: The area constrained/excluded by construction of the fence. In a waterway context this is the enclosed area up to the edge of the waterway.

Bollards: One of a series of posts preventing vehicles entering an area.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Conventional fence: Standard post and wire fencing, typical on many rural properties.

Electric fence: A fence through which an electric current can be passed.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison).

Fence: A barrier or other upright structure enclosing an area of ground to mark a boundary or control access.

Flood fence: Fencing designed to exclude stock but remain resistant to floodwater, including suspended fences and hinged flood gates.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

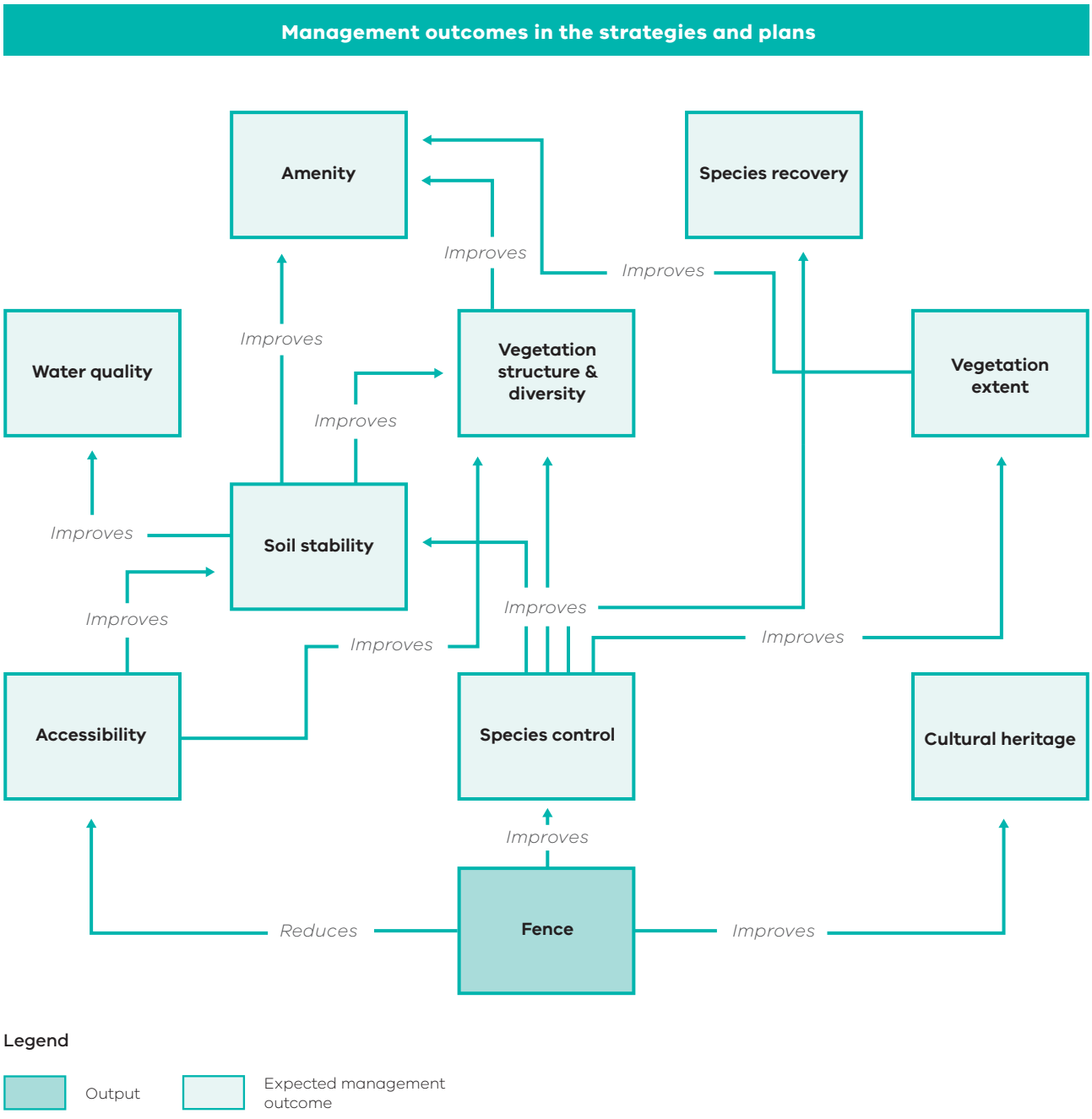
Mesh fence: Prefabricated wire fencing often used for sheep (e.g. ring-lock, hinge joint).

River Related Works: Identifies if the output occurred on the left, right or both sides of the river (when facing downstream)

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 9 (1.9 Fence):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.9: Fence specific attributes

Title	Output Type	Activity Type	Environment Type	River Related Works (when facing downstream)	Spatial Object	Change in Access	Specific Type	Target Group	Area Protected / Improved	Total Volunteer Number	Total Volunteer Hours
Description	Select one from list	Select one from list	Select one from list	Select one from list	Location of structure. Where sections of fence are >10 m apart they should be recorded separately. (select either or both, as described in guidance above)	Identify whether the management outcome area represents the containment or exclusion of the disturbance	Select one from list	Select animals not wanted on site	Calculate the area contained/ excluded by construction of fence (Also to be represented by a polygon feature, linked to line feature by Unique Site ID common attribute)	Enter number or select N/A	Enter number or select N/A
Valid values	Bollard	Install	Coast - Dune	Left Bank	Line	Containment	Combination	Domestic Stock	Hectares	Number	Number
	Fence	Maintain	Coast - Shore	Right Bank	Polygon	Exclusion	Conventional	Environmental Pest Animals		N/A	N/A
		Modify	Estuary	Both Banks			Electric	Native Species			
		Remove	Marine - Intertidal	N/A			Flood	Public			
		Replace	Marine - Subtidal				Mesh				
			Stream/River				Other				
			Terrestrial								
			Wetland								

1.10 Visitor facility

Scope

These data record the number of visitor facilities (e.g. picnic area, camping ground, toilet or viewing platform) that have been installed, maintained, modified, removed or replaced.

Related outputs: Associated agreements or plans (e.g. site design/plan) and roads or trails should be recorded as separate outputs.

Terminology

Building facilities: Includes a range of buildings, such as picnic shelter, information shelter, hut or toilet block.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

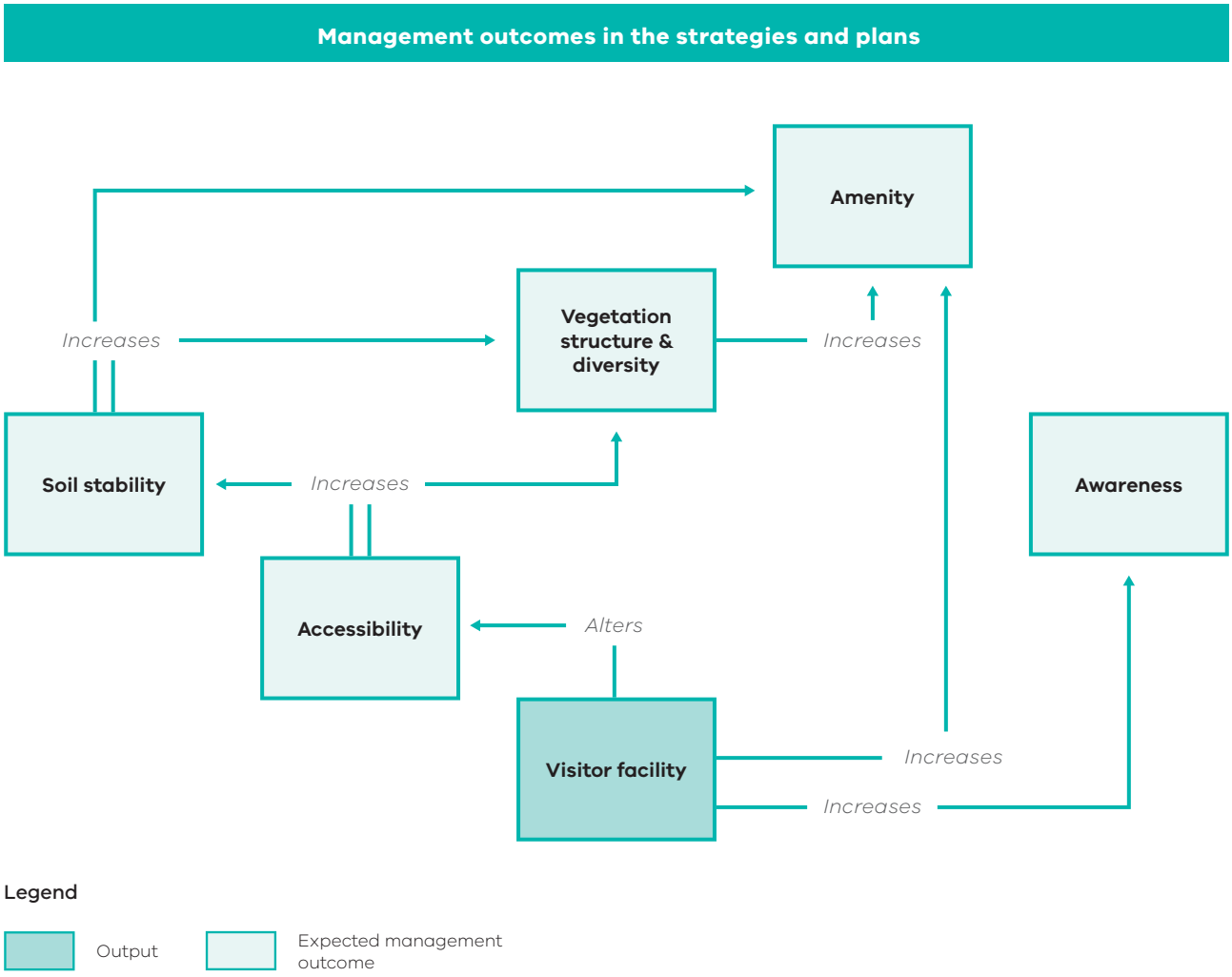
Operations facilities: Facilities to support day-to-day operations, such as a payment point, rubbish bin or car park.

Recreation facilities: Facilities directly targeted at visitor recreation, such as a horse yard, hang gliding launch, trail bike prop or jetty.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 10 (1.10 Visitor facility):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.10: Visitor facility specific attributes

Title	Output type	Activity type	Environment Type	Spatial object	Data storage	Specific type
Description	Select one form list	Select one form list	Select one form list	Location of structure	Identify where the assessment data is stored	Select one from
Valid values	Building	Install	Coast – Dune	Point	PV Asset system	Barbeque
	Operations	Maintain	Coast - Shore		Recweb	Bench-seat
	Recreational	Modify	Estuary		Other	Boardwalk
		Remove	Marine - Intertidal		N/A	Boat ramp
		Replace	Marine - Subtidal			Car park
			Stream/River			Elevated stairs
			Terrestrial			Generator
			Wetland			Hand rail
						Hang Gliding launch
						Horse yards
						Hut
						Information shelter
						Jetty / Pier
						Payment point
						Picnic shelter
						Picnic table
						Retaining wall
						Rubbish bins
						Signage
						Toilet block
						Trail bike prop
						Viewing platform

1.11 Road

Scope

These data record the length of roads, trails and firebreaks that have been installed, maintained, modified or removed.

Related outputs: Inspection of roads should be recorded under the 'Assessment' output.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Firebreak: An obstacle to the spread of fire.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Operational road: Roads used for management purposes, including fire prevention and suppression activities, that are not public roads. These may be available for public use but road conditions cannot be guaranteed.

Private road: Roads established for private use only.

Public road: Roads primarily used to provide access for the general public and listed in the Register of Public Roads.

Road: A wide way leading from one place to another, primarily used for motorised transport. Roads are defined by categories and class and can be used for public or operational purposes.

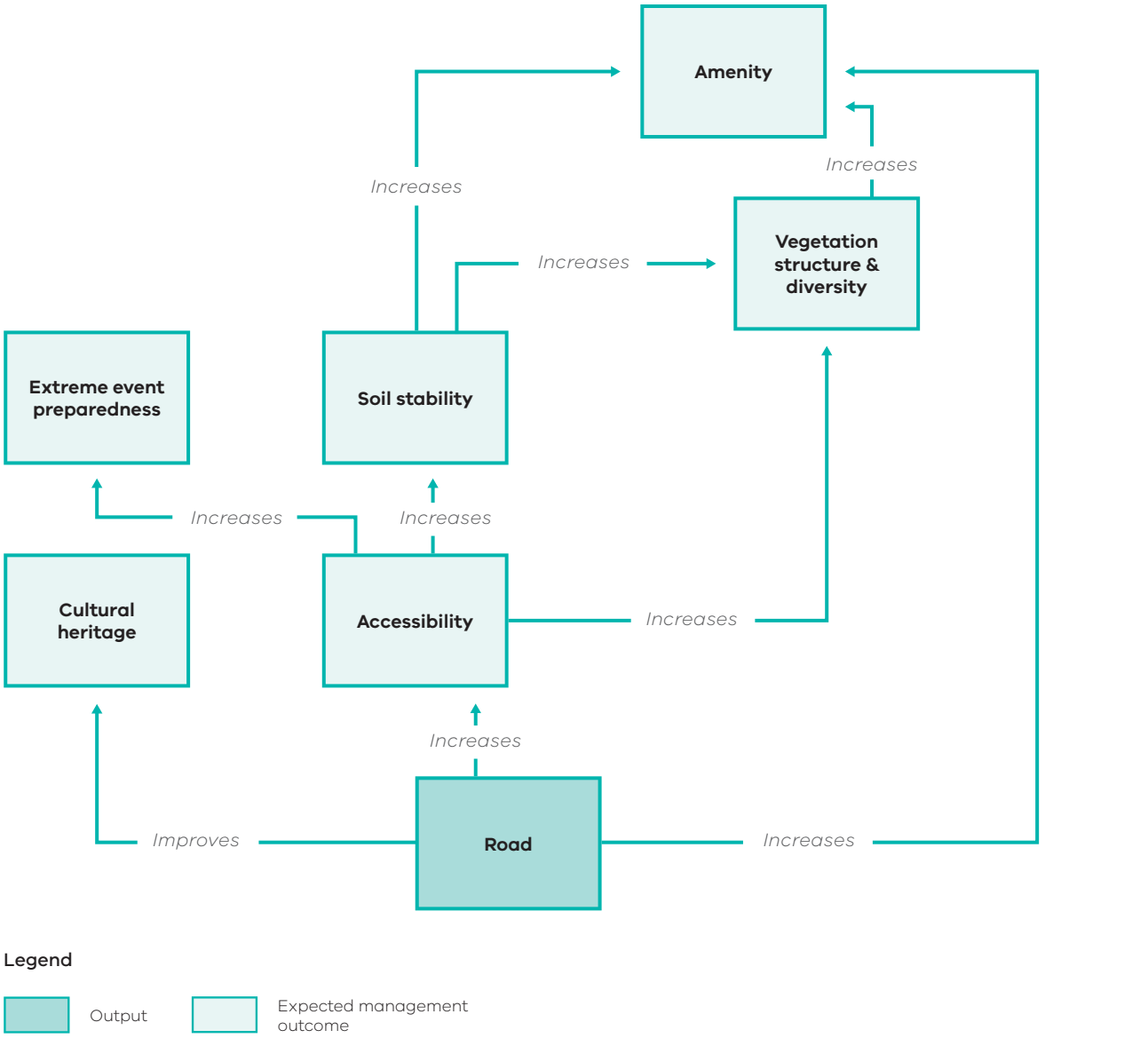
Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Trail: A rough path primarily used for non-motorised transportation.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Management outcomes in the strategies and plans



Logic Diagram 11 (1.11 Road):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.11: Road specific attributes

Title	Output type	Activity type	Environment Type	Spatial object	Data storage	Specific type
Description	Select one from list	Select one from list	Select one from list	Select one from list	Select one from list	Select one from list
Valid values	Firebreak	Install	Coast – Dune	Line	PV asset system	Operational
	Road	Maintain	Coast - Shore		Recweb	Private
	Trail	Modify	Estuary		Other	Public
		Remove	Marine - Intertidal		N/A	N/A
			Marine - Subtidal			
			Stream/River			
			Terrestrial			
			Wetland			

1.12 Crossing

Scope

These data record the number of bridges, culverts, causeway crossings and fords that have been installed, maintained, modified or removed.

Related outputs: Where the crossing functionality is associated with the delivery of other outputs, these outputs should be recorded in addition to this output (e.g. fire regime, visitor facility, road).

Terminology

Bridge: A structure carrying a road, trail, railroad, or canal across a waterway, ravine, road, railroad or other obstacle.

Causeway crossing: A raised road or trail across low or wet ground.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Culvert: A tunnel carrying a waterway or open drain under a road or railroad.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Ford: A shallow place in a waterway allowing people to walk or drive across.

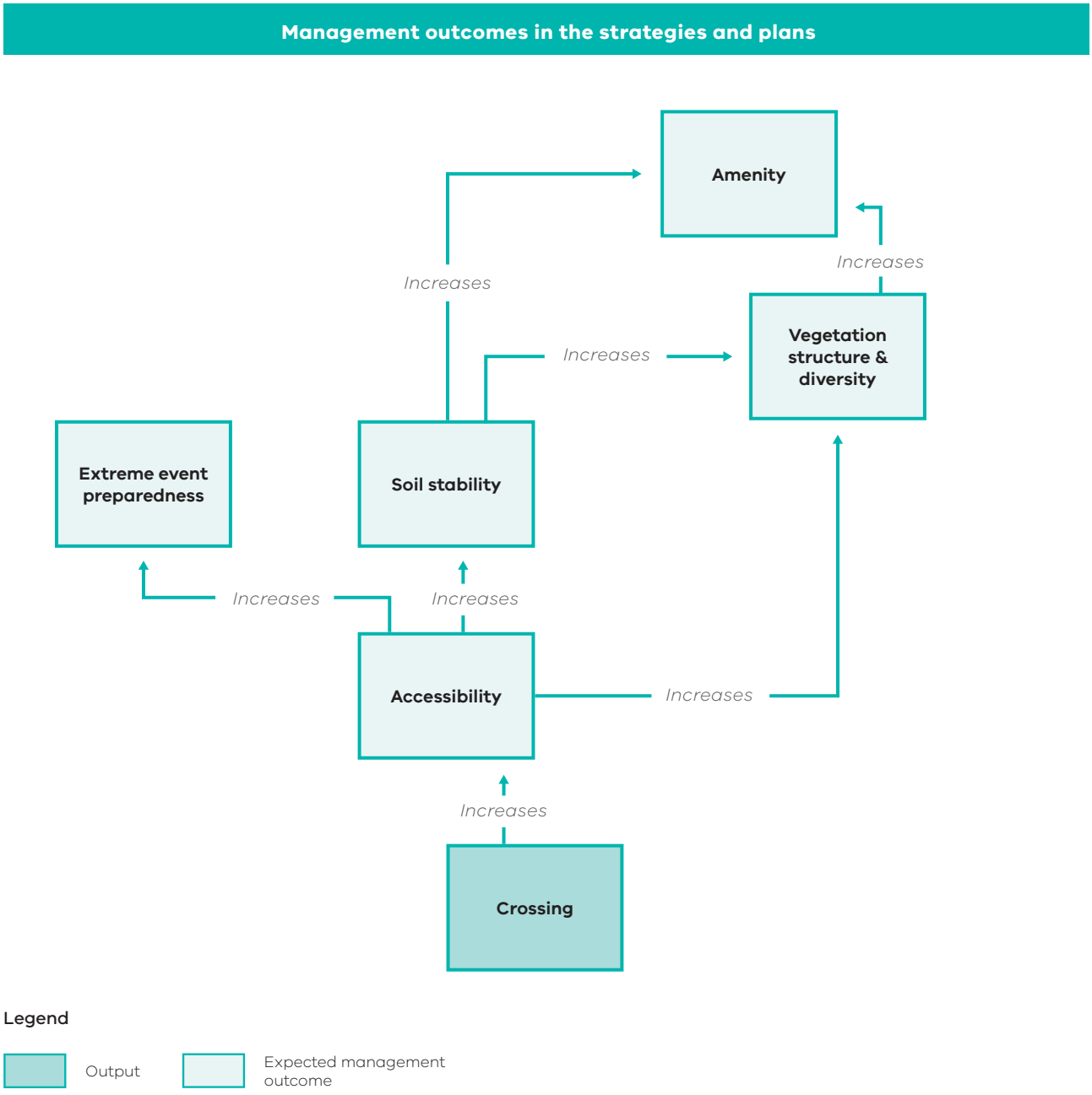
Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 12 (1.12 Crossing):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.12: Crossing Specific attributes

Title	Output type	Activity type	Environment Type	Spatial object	Data storage	Specific type
Description	Select one from list	Select one from list	Select one from list	Location of structure	Identify where the assessment data is stored	Select one from list
Valid values	Bridge	Install	Coast – Dune	Point	PV asset system	900-1,200 mm
	Causeway crossing	Maintain	Coast - Shore		Recweb	900-1800 mm
	Culvert	Modify	Estuary		N/A	1,500-1,800 mm
	Ford	Remove	Marine - Intertidal			2,100- 2,400 mm
			Marine - Subtidal			2,100-2,700 mm
			Stream/River			3,000- 3,600 mm
			Terrestrial			Concrete
			Wetland			Concrete/ steel
						Concrete/ steel/timber
						Concrete/ timber
						Log earth fill
						Log fill
						Steel
						Unknown

1.13 Marine and Coastal Structure

Scope

These data record the number of marine and coastal structures that have been installed, replaced, modified, removed or maintained. For the purposes of this standard, the marine and coast environment includes marine subtidal and intertidal areas and coastal shore and dunes. The legislated definition of the marine and coastal environment is much broader as described in the *Marine and Coastal Act, 2018*.

Related outputs: Any associated agreement or plan/strategy (e.g. regional coastal plans or species management plan) should be recorded as a separate output. Earth works done in a marine and coastal context (e.g. dredging and beach renourishment) must be recorded under the 'Earth works' output. The management of visitor facilities (e.g. jetty) should be recorded within the 'Visitor facility' output. Silt fence is captured under the 'Terrestrial structure' output.

Terminology

Artificial reef: A man-made structure that may mimic some characteristics of a natural reef typically built to provide a hard surface for marine life to attach.

Breakwater: A barrier built out into the sea to protect a coast or harbor from the force of waves.

Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Gross pollutant trap: Structures using physical processes to trap solid waste such as litter.

Groyne: A protective structure that extends from the edge of the water to most often change flow, trap sediment and prevent erosion of the waterway.

Hybrid reef: A combination of a natural and artificial reef.

Intertidal: Area between low and high tide marks (also known as littoral zone).

Natural reef: A ridge of natural material at or near the surface of the ocean.

Revetment: Sloping structures placed on banks or cliffs in such a way as to absorb the energy of incoming water. Often constructed to be permeable using stones or concrete blocks.

Sand bags: Sand-filled cloth or geotextile bags that can be stacked to form temporary marine and coastal structures including, but not limited to, breakwaters, groynes and revetments.

Sea wall: A wall or embankment erected to prevent the sea encroaching on or eroding an area of land.

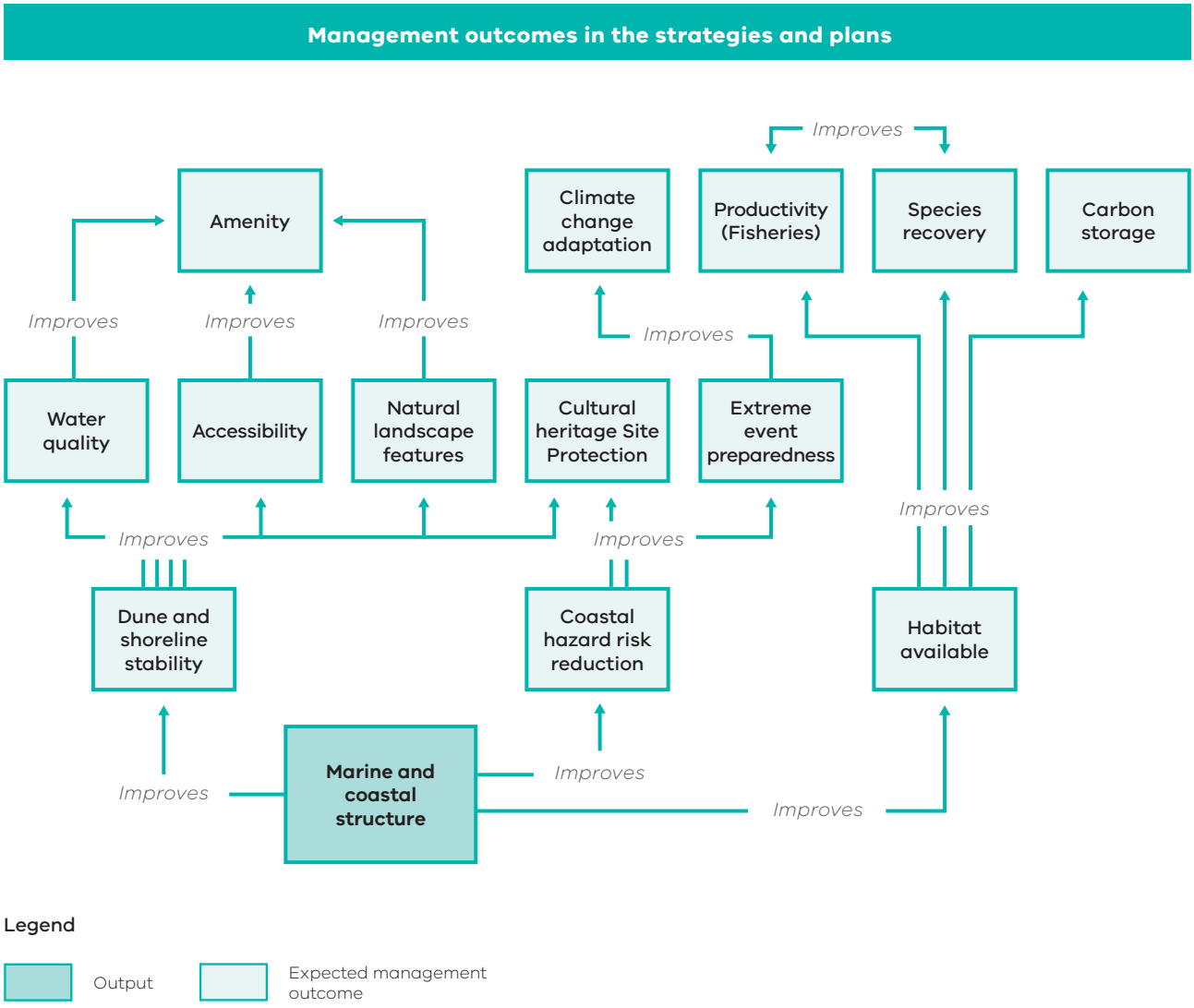
Shore: Foreshore, beach.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Subtidal: Area which remains underwater including during low tide.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 13 (1.13 Marine and Coastal Structure): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 1.13: Marine and Coastal Structure Specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial Object
Description	Select one from list	Select one from list	Select one from list	Location of structure
Valid values	Artificial reef	Install/ Establish	Estuary	Polygon
	Armouring	Maintain	Coast – Dune	
	Breakwater	Modify	Coast - Shore	
	Gross pollutant trap	Remove	Marine - Intertidal	
	Groyne	Replace	Marine - Subtidal	
	Hybrid reef		Stream/River	
	Natural reef		Terrestrial	
	Sand bags		Wetland	
	Sea wall			

2. Environmental works

Environmental works outputs are a mixture of goods and services outputs involving the modification of environmental characteristics (e.g soil, water, vegetation).

Output title	Output types			
(2.1 Vegetation):	Biotope structure and diverstiy Biotope overstory	EVC structure and diversity EVC multi strata EVC overstory Mixed Mixed species		Native indigenous Native non-indigenous Non-native
(2.2 Weed control):	Non-woody	Woody		
(2.3 Pest animal control):	Herbivore	Pathogen	Predator	
(2.4 Over-abundant wildlife control):	Herbivore	Nuisance	Predator	
(2.5 Threatened species response):	Restore ecological community	Restore individual species		
(2.6 Emergency species response):	Ecological community	Fauna/animal Flora/plant		
(2.7 Soil treatment):	Biological Chemical	Temperature Mechanical		
(2.8 Earth works):	Armouring Battering	Barrier Dredging	Levee Levelling	
(2.9 Rubbish removal):	Commercial Chemical	Domestic Litter trap	Mixed	

Environmental works outputs are a mixture of goods and services outputs involving the modification of environmental characteristics (e.g soil, water, vegetation).

The *Spatial object* should apply the terms *controlled* and *treated* in accordance with the guidance provided in the Spatial Output Reporting Guideline at: **https://www.water.vic.gov.au/waterways-and-catchments/our-catchments/integrated-reporting**.

Application of these terms is specifically applicable when capturing the spatial location of Environmental Works, specifically:

(2.2 Weed control):
(2.3 Pest animal control):
(2.4 Over-abundant wildlife control):
(2.7 Soil treatment):

What's the difference between treated versus controlled extent?

Many of the outputs identified under the Environmental Works section of the DELWP Output Data Standard require the identification of the 'Treated' or 'Treatment area' attribute as either an area or as a percentage of the total 'controlled', 'gross area', or as defined by the 'Spatial object'. This spatial object may be a polygon feature, as in the case of 2.2 Weed control output, or a point feature, as in the case of 2.6 Emergency species response output.

The term 'controlled' area is the 'gross area' over which works are effectively performed or looked over for a particular threat. This may be a property or paddock, or section of these, or it may be a section of a river reach or wetland. It is often the area identified in contracts that depict or define the area over which works are to be performed. The area controlled is the area that the spatial object should represent.

The term 'treated' is a sub-unit of the 'controlled' area for which particular treatments such as the spraying of targeted weeds were undertaken. Hence, 'treated' will be smaller than, and expressed as a portion, or percentage of, the 'controlled' area. The area treated is a specific attribute of the output and should be represented as a text description, not a spatial object.

In summary, for weed control the controlled area can also be thought of as the area over which contractors are required to walk and look over or around for the threat of weeds, whether they are spraying or not. The treated area is the percentage of the controlled area they actually spray (or treat).

Figure 3 provides a sketch showing the relationship between the 'controlled' or gross area for which treatments, such as the spraying of targeted weeds, are performed, and the area identified by use of the term 'treated'.

The figure on the left shows how the 'controlled' area should be a fair depiction of the area over which works are performed, whereas the depiction of the 'controlled' area on the right shows a large area to the bottom that is realistically outside the area of effective control. A pragmatic approach must be applied to estimating the polygon size for the spatial object. DELWP will provide feedback to CMAs in cases where the spatial object for controlled is unrealistic for the area treated.

Figure 3 shows a graphical representation of the difference between 'controlled' vs 'treated extents'

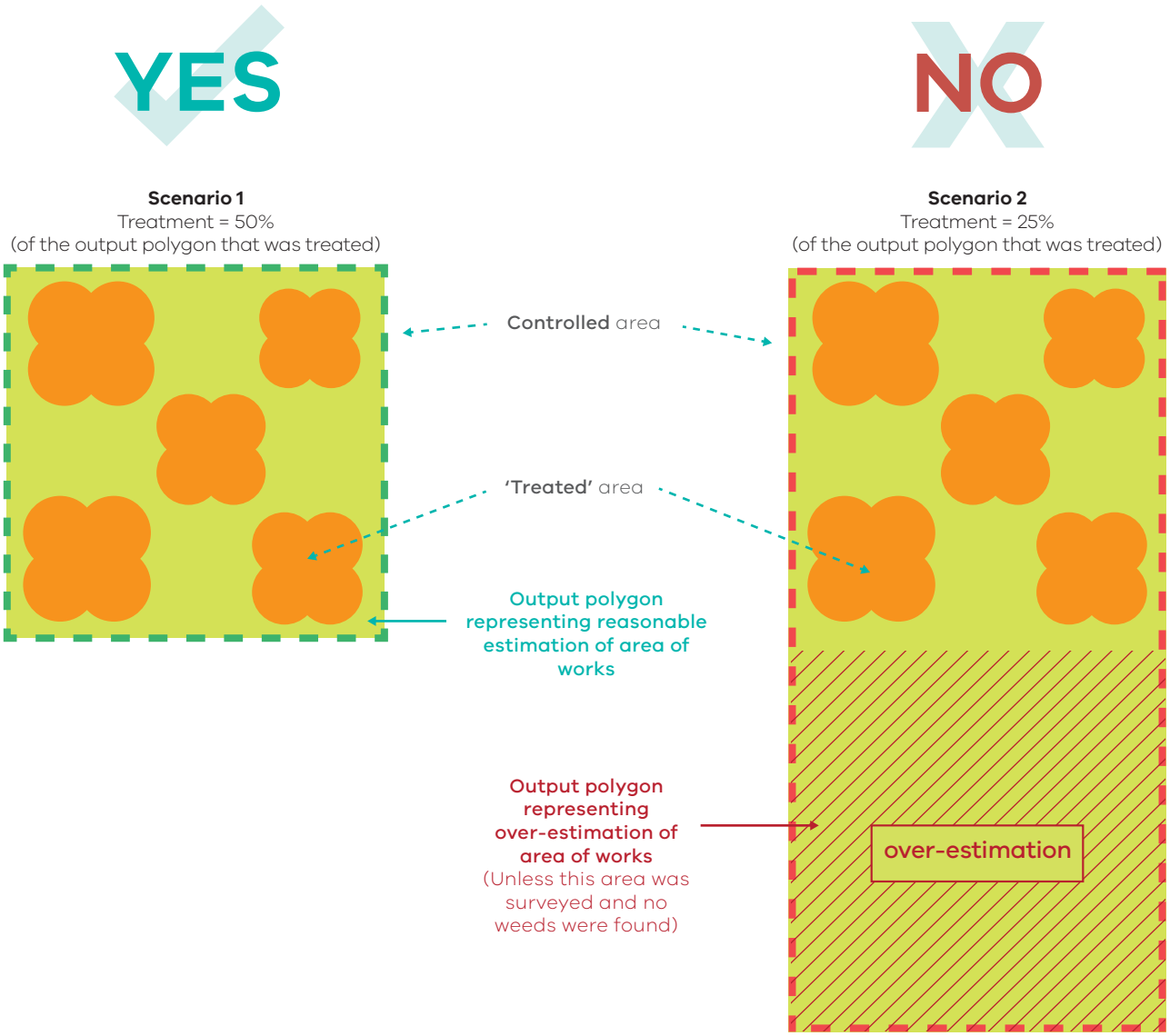


Figure 3: Sketch showing the area identified by use of the term 'treated', which is defined as a sub-unit of the controlled or gross area for which treatments, such as spraying of the targeted weeds, are effectively performed.

2.1 Vegetation

Scope

These data record the area where vegetation has been established (e.g. revegetation, buffers), modified (e.g. supplementary planting) or maintained (e.g. thinning, slashing or mulching).

The output covers native and non-native species. While not frequently used, non-native species may be planted to manage soil stability in agricultural areas (e.g. grasslands). This output does not cover agricultural crops or pasture for the purpose of agricultural productivity, it may only be used in conjunction with agricultural practice change where a clear environmental outcome is achieved.

Natural regeneration is a management outcome (i.e. improved vegetation structure and diversity) and therefore cannot be recorded as an output. Regeneration may be encouraged by the delivery of this vegetation output and/or other outputs (e.g. fence, grazing regime, management agreement, fire regime), which must be recorded in addition to this output.

Related outputs: Other than thinning of native vegetation, which should be recorded here, removal of vegetation (native or non-native) is to be recorded under the 'Weed control' output. Site preparation outputs (e.g. weed control) should also be recorded in addition to this output.

The vegetation output can be used in combination with the agricultural practice output (3.2) to identify changes to land cover where this is viewed to have significant environmental benefits. Hence, the vegetation output can be used to identify the establishment of native vegetation (e.g. native pasture, saltbush), and non-native vegetation (e.g. legumes, crop types).

Terminology

Biotope overstory: CBiCS which provides a unified way to classify all marine habitats and biotopes from the littoral (intertidal) zone to the deep sea (Edmunds and Flynn 2018). The biotic (plants and animals) component is the core classification component, and centres around the idea of a biotope; a community of species in a defined habitat. See: **http://www.veac.vic.gov.au/documents/VEAC%20Marine%20Environment%20ATLAS.pdf**.

Biotope structure and diversity: Combined Biotope Classification Scheme (CBiCS), which provides a unified way to classify all marine habitats and biotopes from the littoral (intertidal) zone to the deep sea (Edmunds and Flynn 2018). The biotic (plants and animals) component is the core classification component, and centres around the idea of a biotope; a community of species in a defined habitat. See: **http://www.veac.vic.gov.au/documents/VEAC%20Marine%20Environment%20ATLAS.pdf**

Buffer: Either a) an area of land revegetated or maintained to assist in the mitigation of threats to soil and water quality; or b) a zone between an area being managed for biodiversity values and areas being managed for other means, to limit the impact of outside activities within the biodiversity-managed zone or to stop fire and smoke from within remnant.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Ecological Vegetation Class (EVC) structure and diversity: EVC is a classification of plant communities defined by a combination of floristics, lifeform, position in the landscape, and an inferred fidelity to specific environments. About 300 EVCs have been described for Victoria.

Establish: Establishment of vegetation to a minimum standard in formerly cleared areas, outside a remnant patch. Commonly termed revegetation.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

EVC multi strata: See Table 3-1: Planting standard for various project objectives. DELWP Output Delivery Standard, Ch:3 – Vegetation.

EVC overstory: See Table 3-1: Planting standard for various project objectives. DELWP Output Delivery Standard, Ch:3 – Vegetation.

Indigenous: Originating or occurring naturally in a specific place.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Mixed: A mixture of indigenous and/or non-indigenous native species.

Native vegetation: Plants native to Victoria, including trees, shrubs, herbs and grasses.

Remnant: Native vegetation established or regenerated on a largely natural landform. The species present are those normally expected in that vegetation community. Largely natural landforms may have been subject to some past surface disturbance, such as some clearing or cultivation, but do not include man-made structures, such as dam walls and quarry floors.

Revegetation: Establishment of native vegetation to a minimum standard in formerly cleared areas outside a remnant patch.

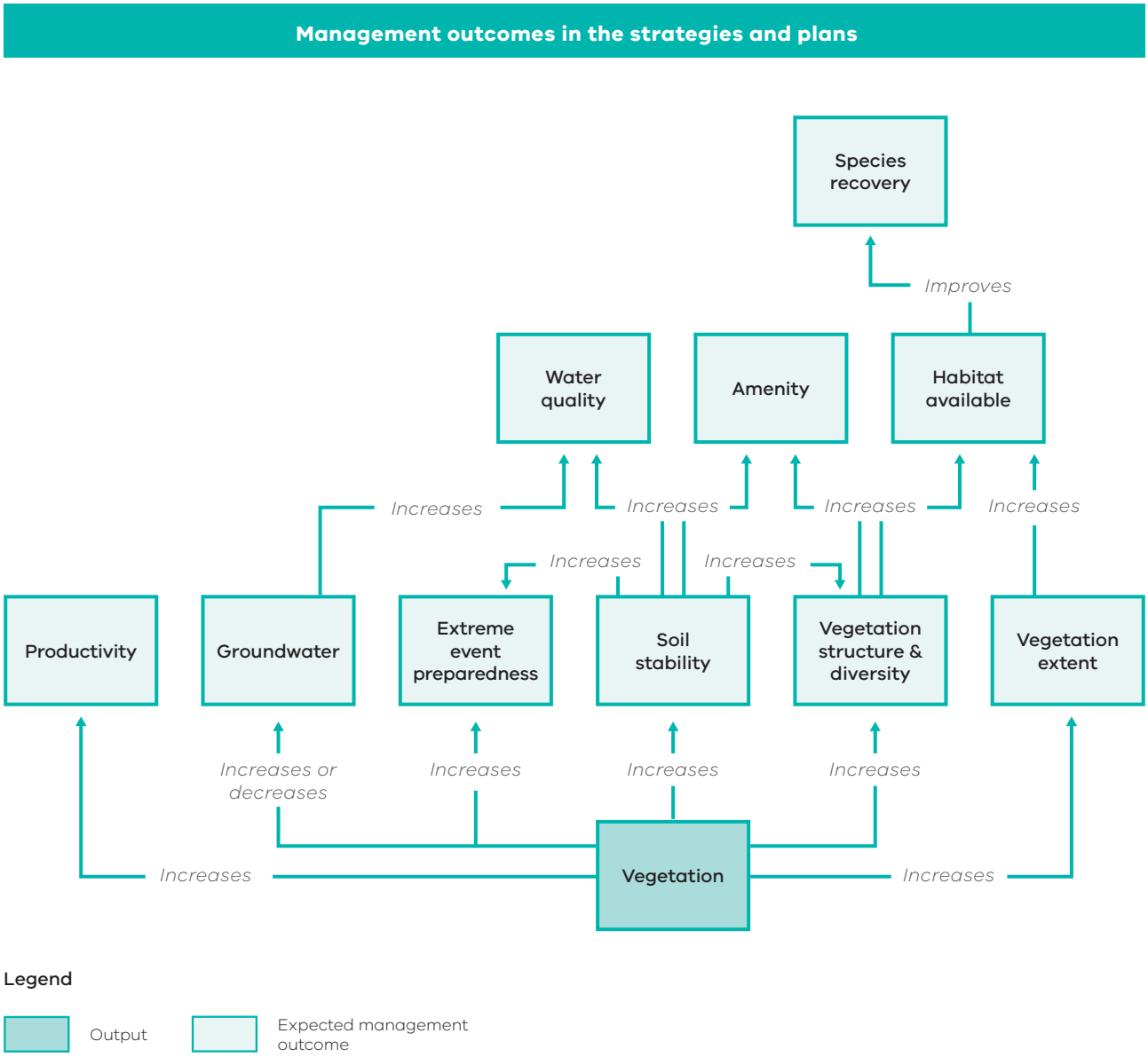
River Related Works: Identifies if the output occurred on the left, right or both sides of the river (when facing downstream)

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Supplementary planting: Establishment of plants within a remnant patch of native vegetation. Typically includes the planting or direct seeding of understorey life forms.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 14 (2.1 Vegetation):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 2.1: Vegetation specific attributes

Output Title	Output Type	Activity Type	Environment Type	River Related Works (when facing downstream)	Spatial Object	Specific Activities	EVC / Biotope	Total Volunteer Number	Total Volunteer Hours
Description	Select one from list	Select one from list	Select one from list	Select one from list	Area where vegetation has been established, maintained or modified	Select multiple from list	Select EVC / Biotope from DELWP Output Delivery Standard Vegetation Chapter	Enter number or select N/A	Enter number or select N/A
Valid values	Biotope overstorey	Establish	Coast – Dune	Left Bank	Polygon	Direct Seeding	EVC / Biotope Class	Number	Number
	Biotope structure and diversity	Maintain	Coast - Shore	Right Bank		Long stem planting		N/A	N/A
	EVC multi strata	Modify	Estuary	Both Banks		Mulching			
	EVC overstorey		Marine - Intertidal	N/A		Seed bank introduction			
	EVC structure and diversity		Marine - Subtidal			Seedling planting			
	Mixed		Stream/River			Supplementary watering			
	Native - Indigenous		Terrestrial			Thinning			
	Native - Non-Indigenous		Wetland						
	Non Native								

2.2 Weed control

Scope

These data record the gross area over which weeds were controlled by killing, removing or restricting them. It recognises that weed control generally involves a combination of searching for and treating target weed species within the area designated for control. The proportion of the gross output area where actual weed treatment occurred is indicated by the treatment attribute.

Where two or more target species of the same output type (woody or non-woody) are controlled over the same gross area, one output may be used. However, if the control targets weeds of both types, it is encouraged that a separate output is recorded for each (e.g. one for treatment of (woody) willows; another for treatment of non-woody weeds). The decision to amalgamate or separate the output is best determined by the on-ground practitioner or will be determined by the investment program.

Related outputs: Where weed survey is conducted without simultaneous treatment action, this should be recorded as an 'Assessment' output.

Weed control conducted as part of site preparation for revegetation is regarded as being separate and should be recorded under this output.

This output should not be used for methods captured by other outputs (e.g. fire, grazing, watering, fence), which should be recorded in addition to this output.

Terminology

Aquatic weeds: Non-woody aquatic species that pose a serious threat to fisheries, the aquatic environment or human health and are declared under Section 75 of the *Fisheries Act 1995* (e.g. Spartina, alligator weed, reed sweet grass). Some plants may be treated as weeds in certain locations irrespective of their declared status.

Asset-based protection: This approach is used to manage a species only where reducing its adverse effects provides the greatest benefits by achieving protection and restoration outcomes for specific, highly valued assets. This approach is used for widespread weeds.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Containment: The application of measures in and around an infested area to prevent the spread of an invasive plant species. This may include reduction of the density or area of the infestation where appropriate. A containment program may include eradication of satellite infestations.

Eradication: When a species (including plant propagules) has been removed or killed and no longer occurs at that site. In practice, this means it is no longer detected by recommended methods of survey for a defined period.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Native vegetation: Plants native to Victoria, including trees, shrubs, herbs and grasses.

Non-woody: Includes ground cover, herbs, vine cacti/succulent and aquatic weeds.

Prevention: Preventing high-risk invasive species from establishing (at a defined site).

River Related Works: Identifies if the output occurred on the left, right or both sides of the river (when facing downstream)

Specific activities: The treatment methods used to manage weeds.

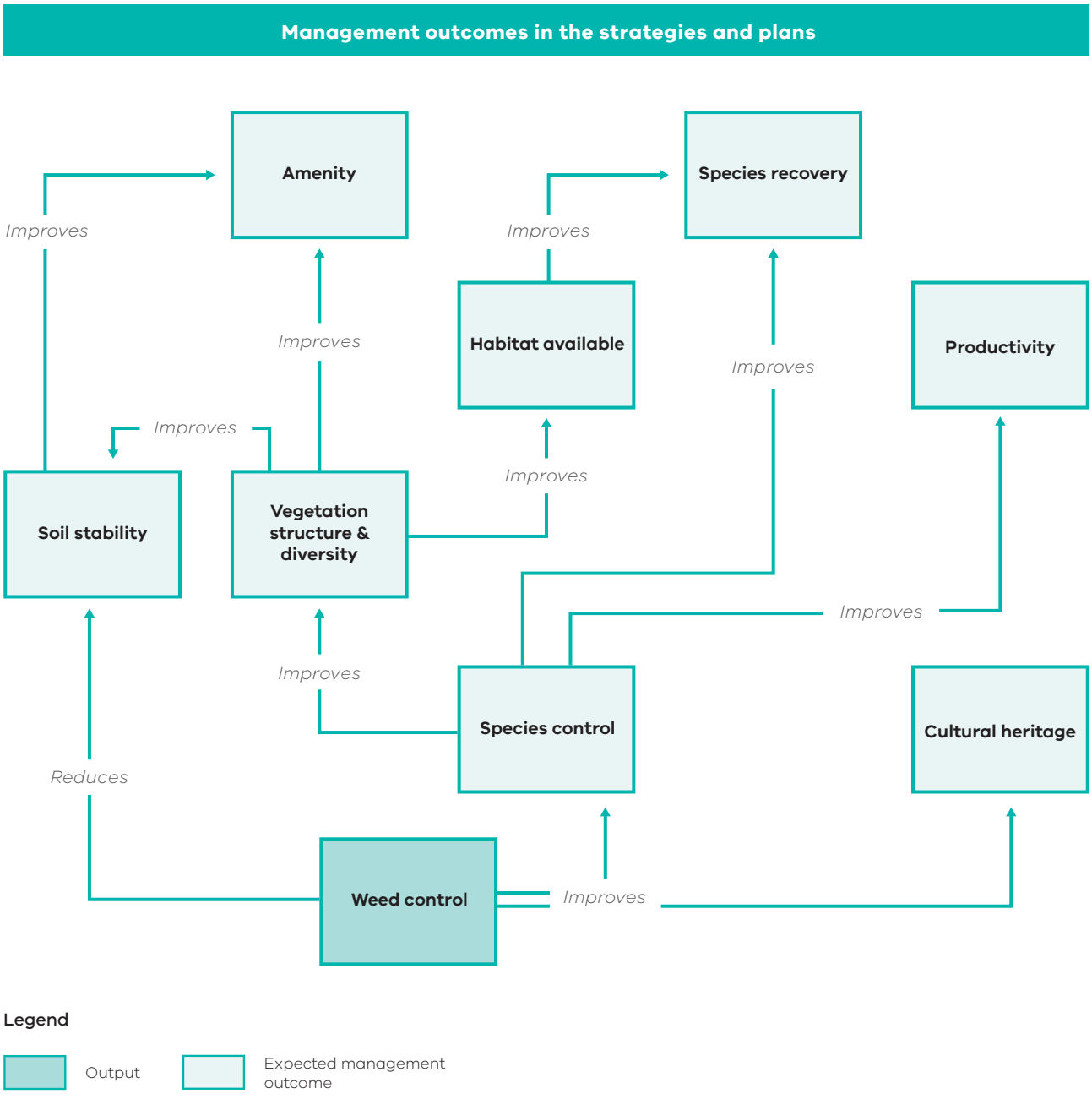
Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Weed: A plant that requires some form of treatment to reduce its effects on the economy, the environment, human health and/or amenity.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Woody: Plants that have wood as the main substance of the trunk or branches, such as a tree or shrub.



Logic Diagram 15 (2.2 Weed control):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 2.2: Weed control specific attributes

Title	Output Type	Activity Type	Environment Type	River Related Works (when facing downstream) (when facing downstream)	Spatial Object	Specific Activity	Management Aim	Treatment	Target species Arrangement	Target Species	Total Volunteer Number	Total Volunteer Hours
Description	Select one from list	Select one from list	Select one from list	Select one from list	The gross area over which weeds were controlled, including the area searched for target weeds and treated where present	Select primary treatment method from list	Select one from list	Estimate percentage (nearest 10%) of the output polygon that was treated	Select one from list identifying the arrangement of the target species within output polygon	Select species ID from Victorian Biodiversity Atlas (Appendix 7)		
Valid values	Non-woody	Establish	Coast – Dune	Both Banks	Polygon	Biological	Asset based protection	Percentage	Complete coverage		Number	Number
	Woody	Maintain	Coast - Shore	Left Bank		Chemical	Containment		Large patches		N/A	N/A
		Modify	Estuary	Right Bank		Fire	Eradication		Majority coverage			
			Marine - Intertidal	N/A		Heat	Prevention		Scattered individuals			
			Marine - Subtidal			Manual			Small patches			
			Stream/River			Mechanical						
			Terrestrial									
			Wetland									

2.3 Pest animal control

Scope

These data record the gross area over which pest animals were controlled by killing, removing or restricting them.

It recognises that pest animal control generally involves a combination of searching for and treating target species within the area designated for control. The proportion of the gross output area where actual pest animal treatment occurred is indicated by the treatment coverage attribute.

Animal control activities (pest animal control (including exotic wildlife such as deer) must be reported as a polygon representing the area in which the actual control method was delivered. It should be mapped as accurately as possible to the locations of control, including searching (unless searching is not accompanied by control activities, whereby searching becomes an 'assessment' and should be recorded as a 4.3 Assessment output).

Activities that are delivered at multiple points, such as fox baiting, should have the extent/ boundary of the bait stations mapped. Information about the number and density of bait stations within the polygon is required.

Like animal control activities E.g. rabbit management, that are delivered at different locations over a wide area should be mapped at their separate locations but can be considered as a single control and have the delivery information to report attributed to it.

Native animal management should be recorded under either the 'Over-abundant wildlife control', 'Threatened species response' or 'Emergency species response' outputs.

Pest animal control conducted as part of site preparation for revegetation should be recorded under this output (2.3).

As a general rule, based on current research advice, the following standard buffers should be applied when spatially depicting the gross area controlled using baits for pest animal control:

Species Buffer point by....

Deer – 2 kilometres

Fox – 1 kilometre

Goat – 1 kilometre

Over abundant marine wildlife or pests – 5 metres

Pig – 5 kilometres

Rabbit – 200 metres

Feral cat – 1 kilometre

Feral horse – 5 kilometres

Feral cattle – 5 kilometres

Related outputs: This output focuses on activities associated directly with the pest animals, however, the output will often be completed in close association with the delivery of other outputs. These should be recorded as separate outputs, e.g. grazing, fence, harbour removal (i.e. rubbish dumped on site or weeds) or the establishment of management agreements or management plans.

Terminology

Asset-based protection: The approach used to manage a species only where reducing its adverse effects provides the greatest benefits by achieving protection and restoration outcomes for specific highly valued assets. This approach is used for established pest animals.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Containment: The application of measures in and around an invaded area to prevent the spread of an invasive animal species. This generally applies to the species being confined within an area and may include reducing the density of the population or area that the species occupies, where appropriate.

Eradication: When a species has been removed or killed and no longer occurs at that site. In practice, this means it is no longer detected by recommended methods of survey for a defined period.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Pest animal: An animal species declared or able to be declared by the Minister under the *Catchment and Land Protection Act 1994* in one of four pest animal classes: Prohibited Pest Animal, Controlled Pest Animal, Regulated Pest Animal and Established Pest Animal.

Poisoning: This includes baiting.

Prevention: Preventing high-risk invasive species from establishing at a defined site.

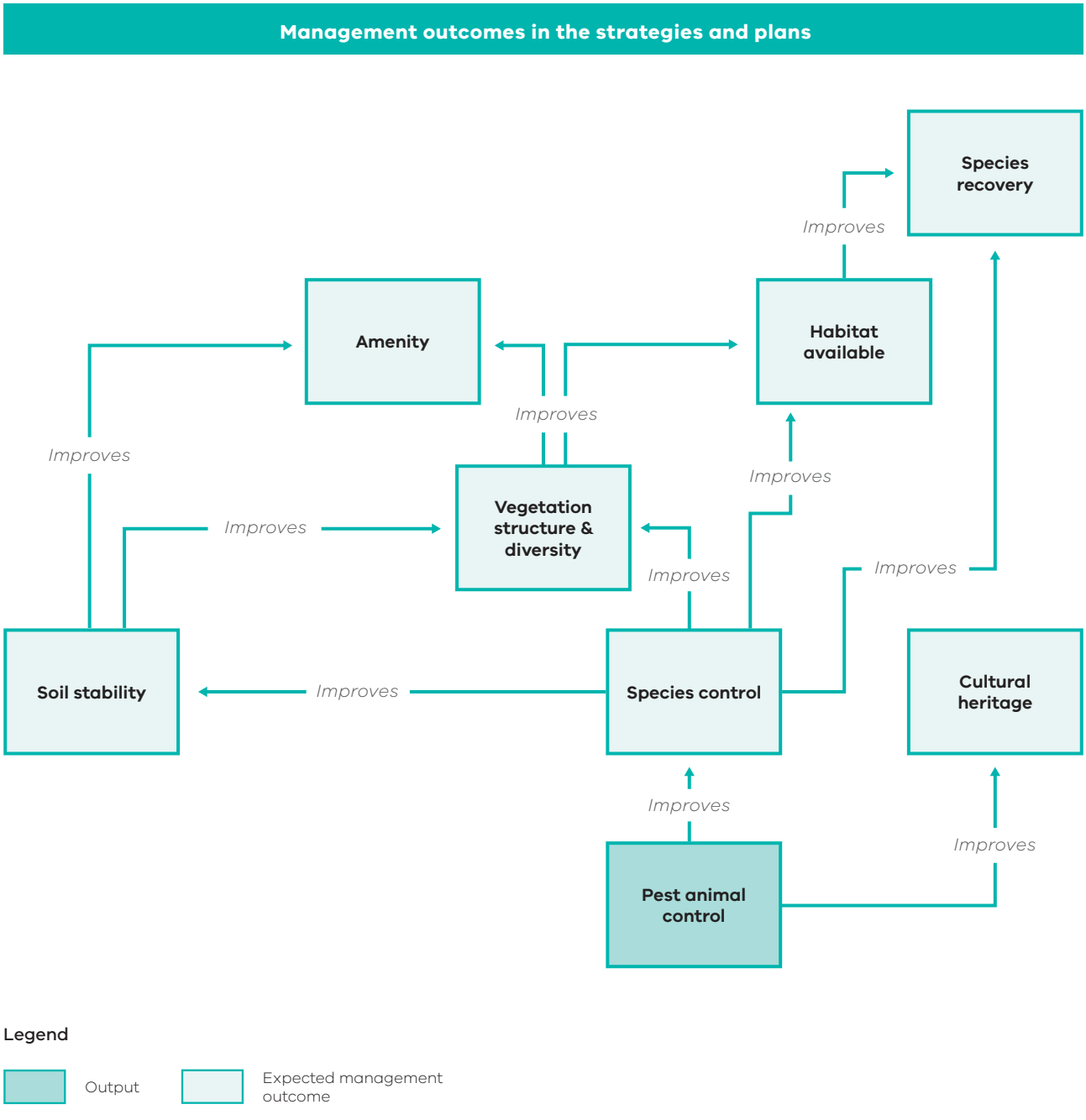
Remnant: Native vegetation that is established or has regenerated on a largely natural landform. The species present are those normally expected in that vegetation community. Largely natural landforms may have been subject to some past surface disturbance, such as some clearing or cultivation, but do not include man-made structures such as dam walls and quarry floors.

Specific activities: The treatment methods used to manage pest animals.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 16 (2.3 Pest animal control):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered. Target species link to the Victorian Biodiversity Atlas (VBA): **https://vba.dse.vic.gov.au/vba/index.jsp**

Table 2.3: Pest animal control specific attributes

Title	Output Type	Activity Type	Environment Type	Management Aim (Objective of control)	Specific Activities	Target Species	Spatial Object	Number of Animals Treated	No. of bait stations within surveyed area polygon	Target Treatment Coverage	Total Volunteer Number	Total Volunteer Hours
Description	Select one from list	Select one from list	Select one from list	Select one from list	Select one from list	Enter species ID from Victorian Biodiversity Atlas	The gross area over which pests were controlled, including the area searched for target pests and treated where present	Enter number or select N/A (bait take, carcasses etc)	Enter number or select N/A	Estimate the percentage (nearest 10%) of the output polygon that was treated		
Valid values	Herbivore	Establish	Coast – Dune	Asset Based Protection	Bait		Polygon	Number	Number	Percentage	Number	Number
	Pathogen	Maintain	Coast - Shore	Containment	Biological			N/A	N/A		N/A	N/A
	Predator	Modify	Estuary	Eradication	Destroy in situ							
			Marine - Intertidal	Prevention	Fertility Control							
			Marine - Subtidal		Fumigate							
			Stream/River		Ground Shoot							
			Terrestrial		Harbour Destruction							
			Wetland		Heli Shoot							
					Manual removal							
					Muster							
					Trap							

2.4 Over-abundant wildlife control

Scope

These data record the gross area over which populations of over-abundant wildlife were restricted, removed, maintained or translocated.

It recognises that wildlife control generally involves a combination of searching for and treating target species within the area designated for control. The proportion of the gross output area where actual treatment occurred is indicated by the treatment coverage attribute.

Where a wildlife survey is conducted without simultaneous treatment action, it should be recorded as an 'Assessment' output.

Related outputs: Pest animal control activities should be recorded under the pest animal output.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Manual removal: Includes the removal phase of translocate activities as well as manual removal for other purposes.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Nuisance: In this standard 'nuisance' describes the type of impact an animal may have on people or in the environment and the reason for management. For example, Over-abundant flying foxes or large parrots may be encouraged to leave a specific area using approved disturbance methods. **NOTE: In Victoria, all wildlife is protected under the Wildlife Act 1975. It is illegal to destroy or interfere with wildlife. An Authority to Control Wildlife (ATCW) is required for managing wildlife.**

Over-abundant: A greater number of individuals within a population than is sustainable.

Specific activities: The methods used to control over- abundant wildlife.

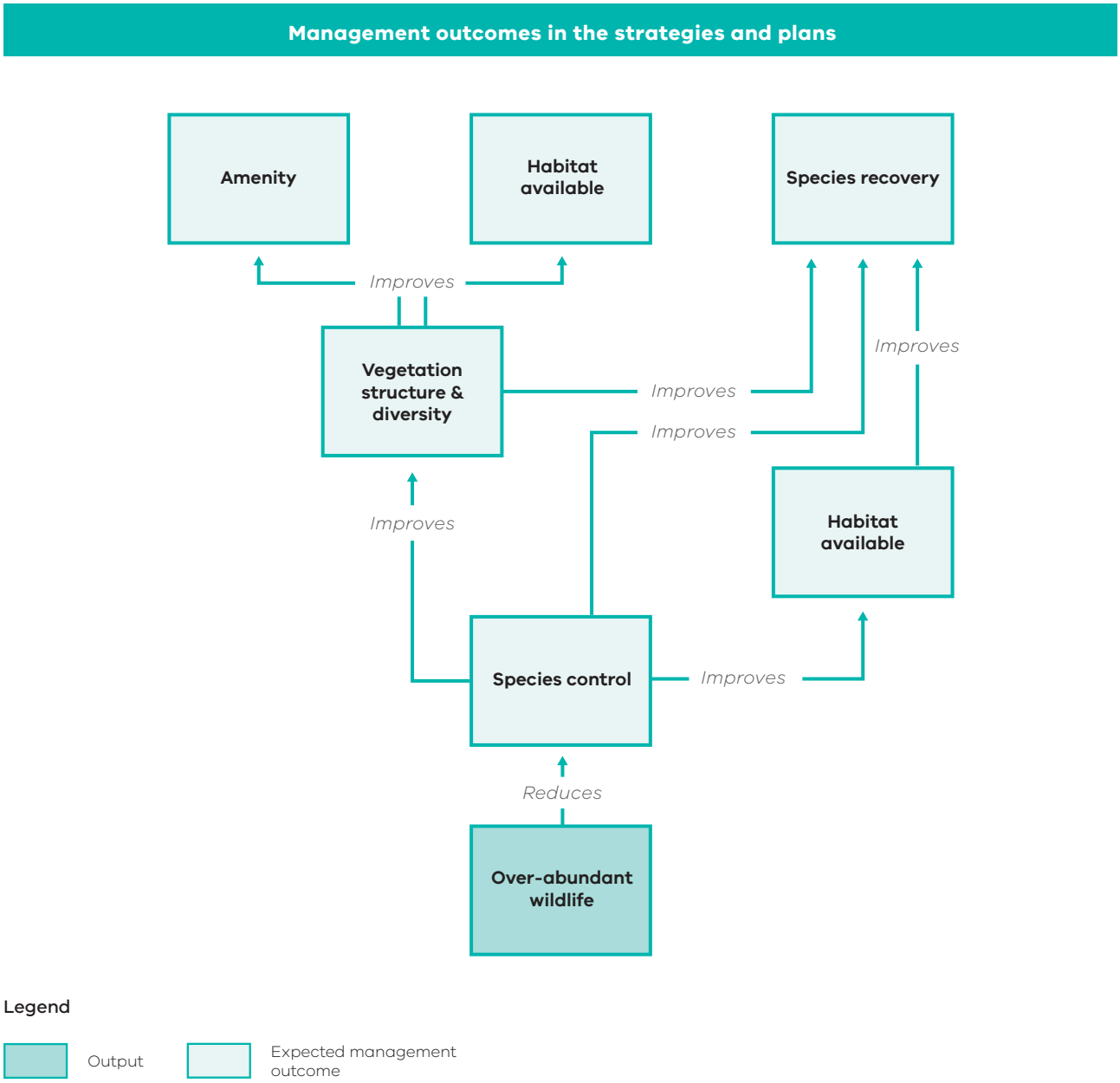
Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Translocate (Release): Indicates the release phase/site of previously removed wildlife in a new location as part of abundance control.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Wildlife: Native to Victoria or designated as wildlife under the *Wildlife Act 1975* – includes exotic deer (e.g. Sambar, Red, Fallow and Hog).



Logic Diagram 17 (2.4 Over-abundant wildlife control): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered. Target species link to VBA: **https://vba.dse.vic.gov.au/vba/index.jsp**

Table 2.4: Over-abundant wildlife control specific attributes

Title	Output Type	Activity Type	Environment Type	Management Aim (Objective of control)	Specific Activities	Target Species	Spatial Object	No. of bait stations within surveyed area polygon	Target Treatment Coverage	Total Volunteer Number	Total Volunteer Hours
Description	Select one from list	Select one from list	Select one from list	Select on from list	Select one from list	Select species ID from Victorian Biodiversity Atlas (Appendix 7)	The gross area over which over-abundant wildlife was controlled, including the area searched for target species and treated where present. Due to the diffuse nature of animal treatment this will be an estimate	Enter number or select N/A	Estimate the percentage (nearest 10%) of the output polygon that was treated	Enter number or select N/A	Enter number or select N/A
Valid values	Herbivore	Establish	Coast – Dune	Asset Based Protection	Aerial Shoot		Polygon	Number	Percentage	Number	Number
	Nuisance	Maintain	Coast - Shore	Containment	Bait			N/A		N/A	N/A
	Predator	Modify	Estuary	Eradication	Destroy in situ						
			Marine - Intertidal	Prevention	Disturb						
			Marine - Subtidal		Fertility Control						
			Stream/River		Ground Shoot						
			Terrestrial		Manual removal						
			Wetland		Muster						
					Translocate (release)						
					Trap						

2.5 Threatened species response

Scope

These data record the number of threatened species populations that were established, maintained or modified.

This output is for long-term activities targeted to specific threatened species or communities not already captured by existing outputs (e.g. fence, emergency species recovery). It is largely about captive breeding/ propagation and reintroduction.

An element of searching is generally required and should be considered part of the output. However, where the effort to complete a search is considered important to the management outcome, it should be recorded as an 'Assessment' output.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/ hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Recovery: A return to a normal or target state of health.

Restore ecological community: Targeted works aimed at returning to a normal or target state of health a naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat. Types of ecological communities listed under national environmental law include woodlands, grasslands, shrublands, forests, wetlands, marine, ground springs and cave communities.

Restore individual species: Targeted works aimed at returning to a normal or target state of health an Individual species.

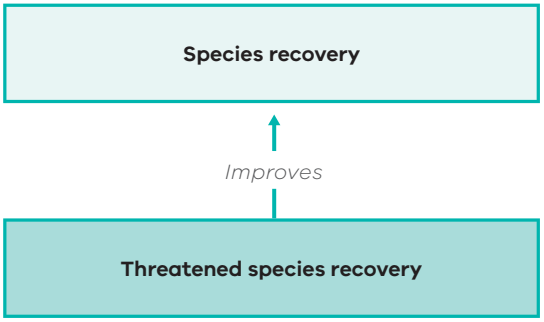
Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Threatened species: Any fauna and flora species and ecological communities that are listed as threatened under Victorian legislation (*Flora and Fauna Guarantee Act 1988*) or included in DELWP's Threatened Species Advisory Lists.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Management outcomes in the strategies and plans



Legend

Output

Expected management outcome

Logic Diagram 18 (2.5 Threatened species response): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2**, the following attributes must be collected and reported for each output delivered. Target species link to VBA: **https://vba.dse.vic.gov.au/vba/index.jsp**

Table 2.5: Threatened species response specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial Object	Specific Activities	Treatment Area	Target Species	Ecological Community
Description	Select one from list	Select one from list	Select one from list	Location of response	Select one from list	Hectares	N/A	Text
Valid values	Restore Ecological Community	Establish	Coast – Dune	Point	Caging	N/A		N/A
	Restore Individual Species	Maintain	Coast - Shore		Captive Breeding			
		Modify	Estuary		Collect/ store seed or vegetative material			
			Marine - Intertidal		Connectivity interventions			
			Marine - Subtidal		Cryobanking			
			Stream/River		Establish new population			
			Terrestrial		Fenced-wild captive breeding			
			Wetland		Genetic interventions			
					Genetic testing			
					Germplasm			
					Inoculation of soil			
					Other			
					Pollination			
					Propagation			
					Species Introduction/Reintroduction			
					Supplementary watering/ feeding			
					Wild to wild translocation.			

2.6 Emergency species response

Scope

These data record the number of incidents in which an emergency response is undertaken to treat wildlife affected by events such as chemical spills, bushfire, entanglement, strandings, etc.

Searching for threatened species may be required and should be considered part of the output. However, where the effort to complete a search is of importance to the management outcome this should be recorded as an 'Assessment' output.

Related outputs: This output is intended for the short-term activities targeted to specific emergency recovery of wildlife. Longer-term threatened species' related activities should be recorded under the 'Threatened species recovery' output.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Ecological community: A naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat. Its structure, composition and distribution are determined by environmental factors such as soil type, position in the landscape, altitude, climate and water availability. Types of ecological communities listed under national environmental law include woodlands, grasslands, shrublands, forests, wetlands, marine, ground springs and cave communities.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Fauna: Any animal-life which is indigenous to Victoria, whether vertebrate or invertebrate, and in any stage of biological development, and includes fish and any other living thing generally classified as fauna but does not include humans

Flora: Any plant-life which is indigenous to Victoria, whether vascular or non-vascular, and in any stage of biological development, and includes any other living thing generally classified as flora.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Recovery / Rehabilitation: A return to a normal or target state of health. Includes "temporary care and release" as well as "Extraction to temporary housing".

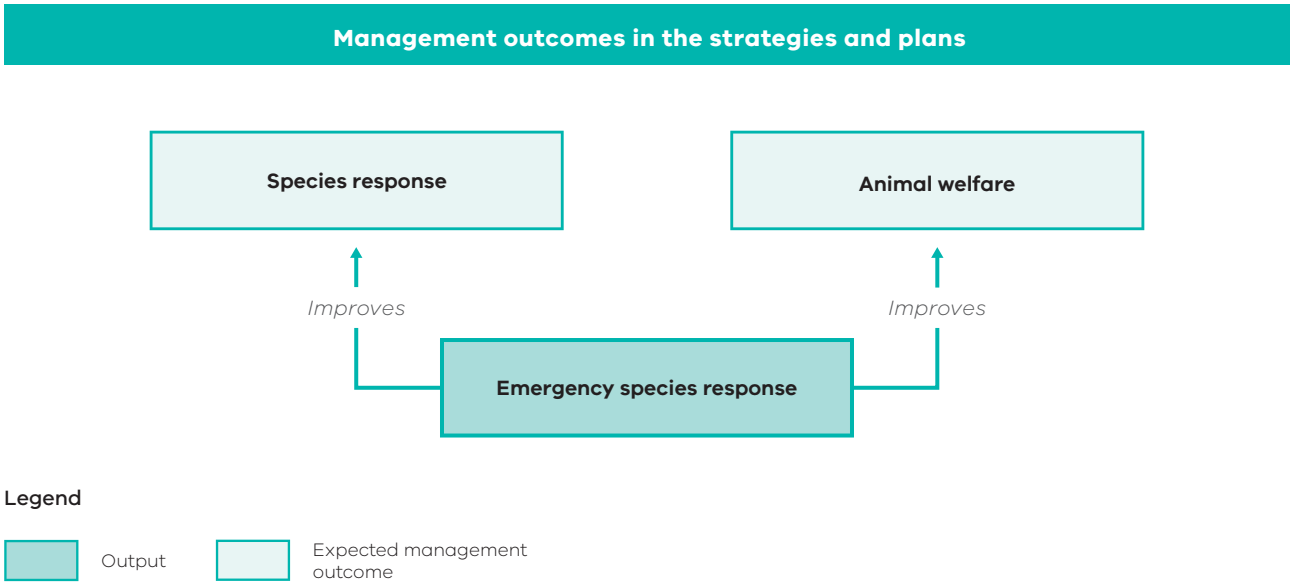
Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Translocation: Includes extraction and wild to wild translocation

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Wildlife emergency: Human-induced or natural events that result in harm to individuals or groups of animals.



Logic Diagram 19 (2.6 Emergency species response): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered. Target species link to VBA: **https://vba.dse.vic.gov.au/vba/index.jsp**

Table 2.6: Emergency species response specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial Object	Specific Activities	Treatment Area	Target Species	Event Type
Description	Select one from list	Select one from list	Select one from list	Location of response	Select one or more from list	Estimate the are over which response undertaken	Enter species ID from Victorian Biodiversity Atlas	Select one or more from list
Valid values	Ecological community	Establish	Coast – Dune	Point	De-oiling	Hectares	N/A	Chemical Spills
	Fauna/ animal	Maintain	Coast - Shore		Disentanglement	N/A		Disease
	Flora/plant	Modify	Estuary		Extraction and wild to wild translocation			Entanglement
			Marine - Intertidal		Extraction to temporary housing			Fire
			Marine - Subtidal		Rehabilitation			Flood
			Stream/River		Translocation			Stranding
			Terrestrial		Veterinary Treatment			Other
			Wetland		Whale / Dolphin Recovery			
					Other			

2.7 Soil treatment

Scope

These data record the area where soil has been treated through application or removal of a chemical, biological, mechanical or temperate-related input.

The activities in this output focus on treating soil acidification and reducing the impacts of salinity.

Related outputs: Any activities associated with soil treatment in a waterway, channel or along the coast should be recorded under the Earth Works (2.8) output. The delivery of associated outputs (e.g. assessment, plan) should be recorded in addition to this output.

Terminology

Biological: Introduction of flora or fauna to the soil to improve soil condition.

Clay topping/ripping: Incorporating clay into the soil.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Salinity: Accumulation of salt in the soil profile that adversely affects plant growth.

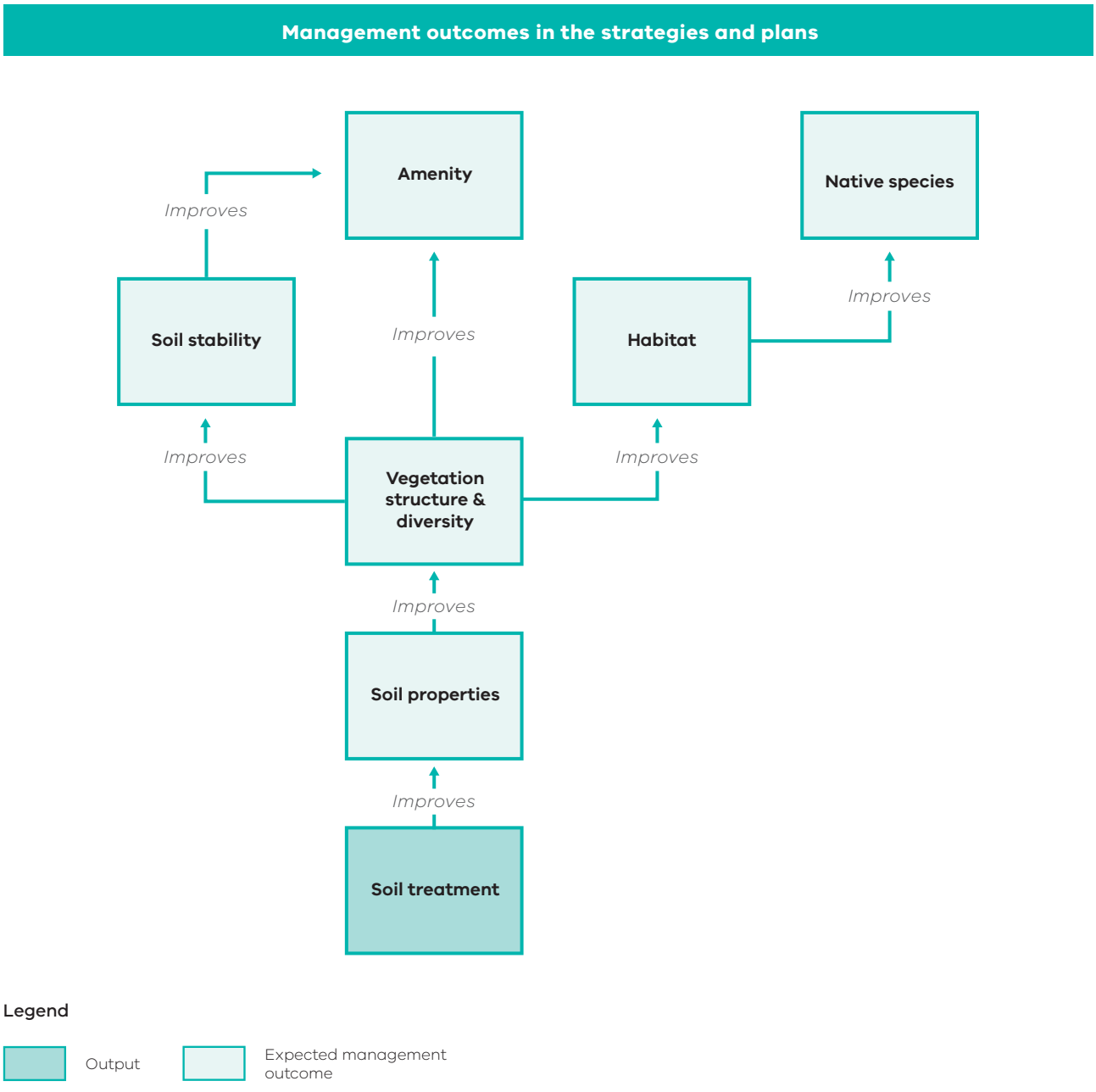
Soil acidification: The process by which soil pH decreases over time.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Temperature: heating or cooling of the soil.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 20 (2.7 Soil treatment):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2**, the following attributes must be collected and reported for each output delivered.

Table 2.7: Soil treatment specific attributes

Output Title	Output Type	Activity Type	Environment Type	Spatial Object	Specific Activities
Description	Select one from list	Select one from list	Select one from list	Location where soil treatment was done	Select one from list
Valid values	Biological	Establish	Coast – Dune	Polygon	Biological Additive
	Chemical	Maintain	Coast - Shore		Chemical Ameliorant
	Mechanical	Modify	Estuary		Clay Topping
	Temperature	Remove	Marine - Intertidal		Drying
			Marine - Subtidal		Liming
			Stream/River		Organic Matter
			Terrestrial		Ripping
			Wetland		Scraping

2.8 Earth works

Scope

These data record the area of earth that has been altered through the establishment, maintenance, modification or removal of earth (soil, sand, silt and rocks). It includes activities for estuary opening.

Related outputs: The construction of waterway structures (e.g. pile fields, fishways), channels, water storages and upgrading irrigation infrastructure (e.g. laser levelling) should be recorded separately. Activities associated with conducting assessments or developing plans should also be recorded separately.

Terminology

Armouring: The protection of a waterway bed via a coarse surface layer over finer sediment.

Battering: Modification of the waterway/gully to a designed bank angle.

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Dredging: The process of removing bed sediment from a waterway/estuary using a dredge.

Earth works: The process of moving earth.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Levee: An embankment built to prevent the overflow of a river.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

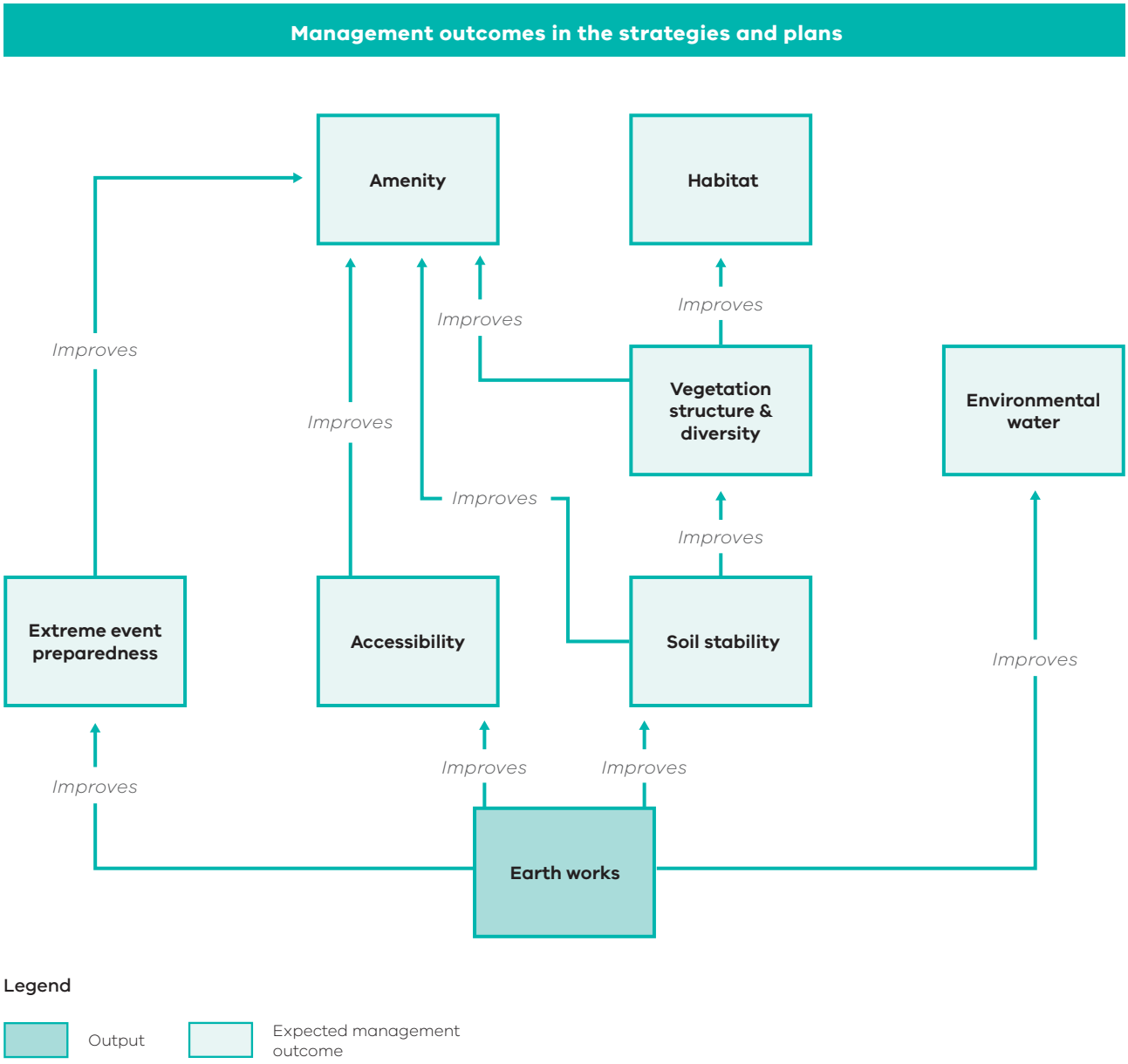
River Related Works: Identifies if the output occurred on the left, right or both sides of the river (when facing downstream)

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Waterway: A river, wetland or estuary.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 21 (2.8 Earth works):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 2.8: Earth works specific attributes

Title	Output Type	Activity Type	Environment Type	River Related Works (when facing downstream)	Spatial Object	Specific Activities	Treatment Area
Description	Select one from list	Select one from list	Select one from list	Select one from list	Location where earth work was altered	Select one from list	Calculate area over which works undertaken
Valid values	Armouring	Establish	Coast – Dune	Both Banks	Point	Beach Renourishment	Hectares
	Battering	Maintain	Coast - Shore	Left Bank		Estuary Closing	N/A
	Barrier	Modify	Estuary	Right Bank		Estuary Opening	
	Dredging	Remove	Marine - Intertidal	N/A		Flood Protection	
	Levee		Marine - Subtidal			Land Reclamation	
	Levelling		Stream/River			Wetland Reclamation	
			Terrestrial			Other	
			Wetland				

2.9 Rubbish removal

Scope

These data record the area over which rubbish or litter removal has been established, maintained or modified.

The output generally involves a combination of searching for and removing rubbish within the area designated for management. The proportion of the gross output area where removal occurred is indicated by the treatment coverage attribute.

A survey conducted without simultaneous treatment action should be recorded as an 'Assessment' output.

Related outputs: This output should not be used for the removal of rubbish from existing structures (e.g. fences) as a result of a flood, etc. Such activities should be captured under the 'Maintain' activity type for that output.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 2.9: Rubbish removal specific attributes

Output Title	Output Type	Activity Type	Environment Type	Spatial Object	Specific Activities	Treatment Coverage
Description	Select one from list	Select one from list	Select one from list	The gross area over which rubbish was removed, including the area searched for rubbish and treated where present.	Select primary treatment method from list	Estimate the percentage (nearest 10%) of the output polygon that was treated'.
Valid values	Chemical	Establish	Coast – Dune	Polygon	Manual	Percentage
	Commercial	Maintain	Coast - Shore		Mechanical	
	Domestic	Modify	Estuary			
	Litter trap		Marine - Intertidal			
	Mixed		Marine - Subtidal			
			Stream/River			
			Terrestrial			
			Wetland			

3. Management services

Management services outputs involve the modification of land management, generally described as behaviour or practice change. Often associated with a management agreement, such changes may be delivered immediately (e.g. planned burning) or across the year (e.g. controlled grazing).

Output title	Output types		
(3.1 Grazing):	Access management Agronomic / Pastoral Biomass reduction	Fuel load management Native vegetation protection	Revegetation Species control Weed control
(3.2 Agricultural practices):	Dryland	Irrigation	
(3.3 Water):	Consumptive Cultural Water Holdings	Environmental Water Holdings	Mixed Unregulated flow
(3.4 Fire):	Cultural Ecological	Fuel reduction Weed control	

3.1 Grazing

Scope

These data record the area over which grazing by livestock has been established, maintained, modified or removed.

The grazing output should only be reported when we specifically invest in stock management. It should not be reported when grazing regime is changed due to investment in other outputs, such as fencing or a management plan.

Outputs that represent the benefits/outcomes of the investment, but have no specific investment activities associated, must not be reported.

Related outputs: This output should not be used for the establishment of structures to control stock access (e.g. fence) or the establishment of management agreements or management plans, which should be recorded in addition to this output. It should only be used where grazing management is a direct output of investment, not where it is a result of other outputs such as fencing.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Continuous: Livestock have ongoing and uncontrolled access to defined area.

Controlled: Livestock grazing occurs in a controlled manner based on specified times, livestock density and grazing duration.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Exclusion: Complete removal of livestock from a defined area.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

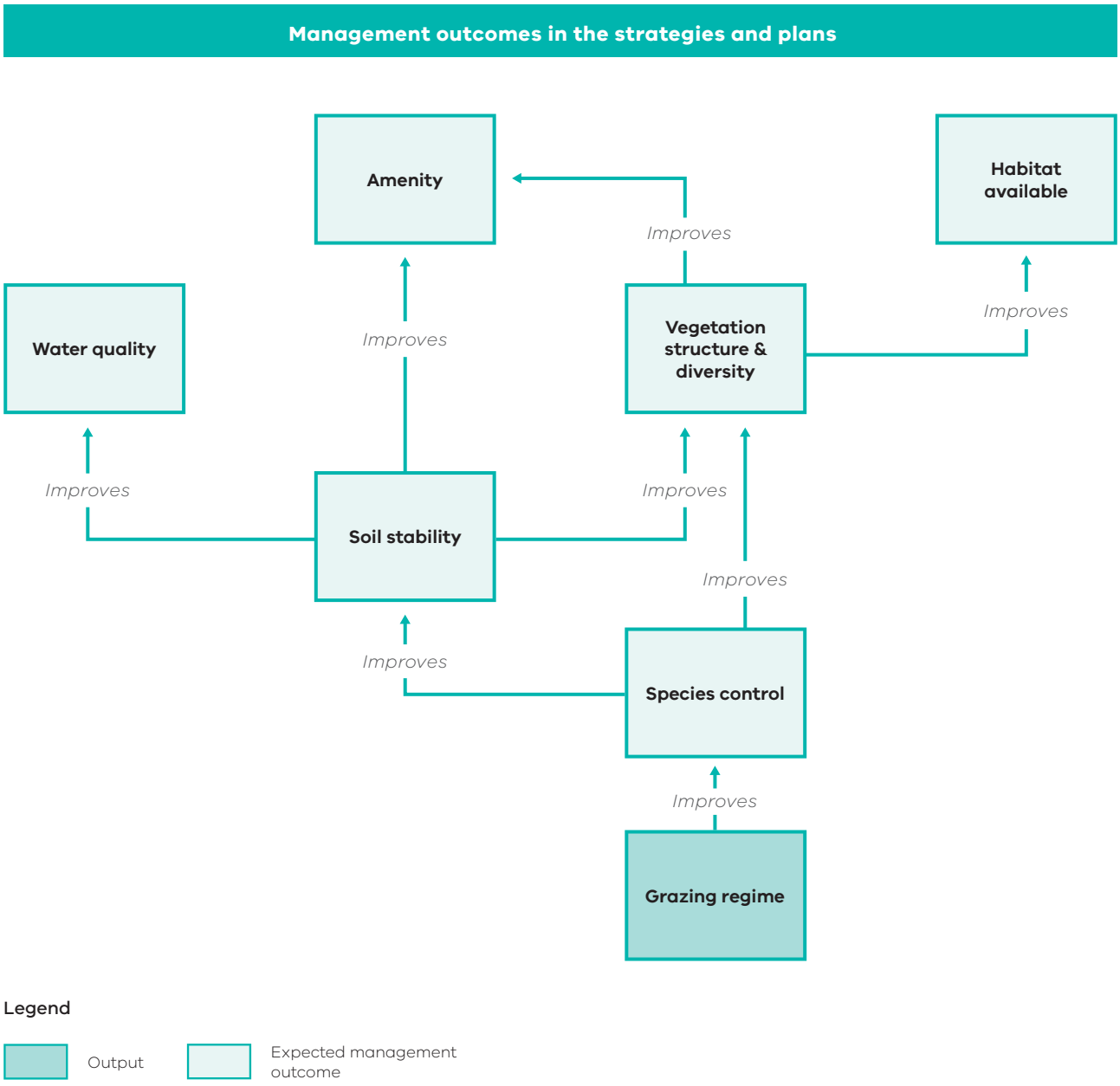
Marine – Subtidal: Area which remains underwater including during low tide.

River Related Works: Identifies if the output occurred on the left, right or both sides of the river (when facing downstream)

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 22 (3.1 Grazing):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 3.1: Grazing specific attributes

Title	Output Type	Activity Type	Environment Type	River Related Works (when facing downstream)	Spatial Object	Specific Activities	Timing	Intensity
Description	Select one from list	Select one from list	Select one from list	Select one from list	Area over which grazing output has occurred	Select one from list	Select one from list	Select one from list
Valid values	Access management	Establish	Coast – Dune	Both Banks	Polygon	Continuous	Autumn	High
	Agronomic / Pastoral	Maintain	Coast - Shore	Left Bank		Controlled	Spring	Medium
	Biomass reduction	Modify	Estuary	Right Bank		Exclusion	Summer	Low
	Fuel load management	Remove	Marine - Intertidal	N/A			Winter	N/A
	Native vegetation protection		Marine - Subtidal				N/A	
	Revegetation		Stream/River					
	Species Control		Terrestrial					
	Weed Control		Wetland					

3.2 Agricultural practices

Scope

These data record the area over which agricultural practices have been established, modified, maintained or removed. This may include retaining groundcover, changes in cropping practices or nutrient management.

The focus of this output should be to improve or support environmental and/or productivity outcomes.

Related outputs: This output is specific to practices associated with agricultural land use or land management. It should not cover grazing activities. It should only be used where the agricultural practice is a direct output of investment, not where it is a result of other outputs such as engagement events or other capacity building focused activities.

Terminology

Biomass / groundcover retained: Retention of organic matter (e.g. stubble).

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Land use: The management and/or modification of natural environment.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

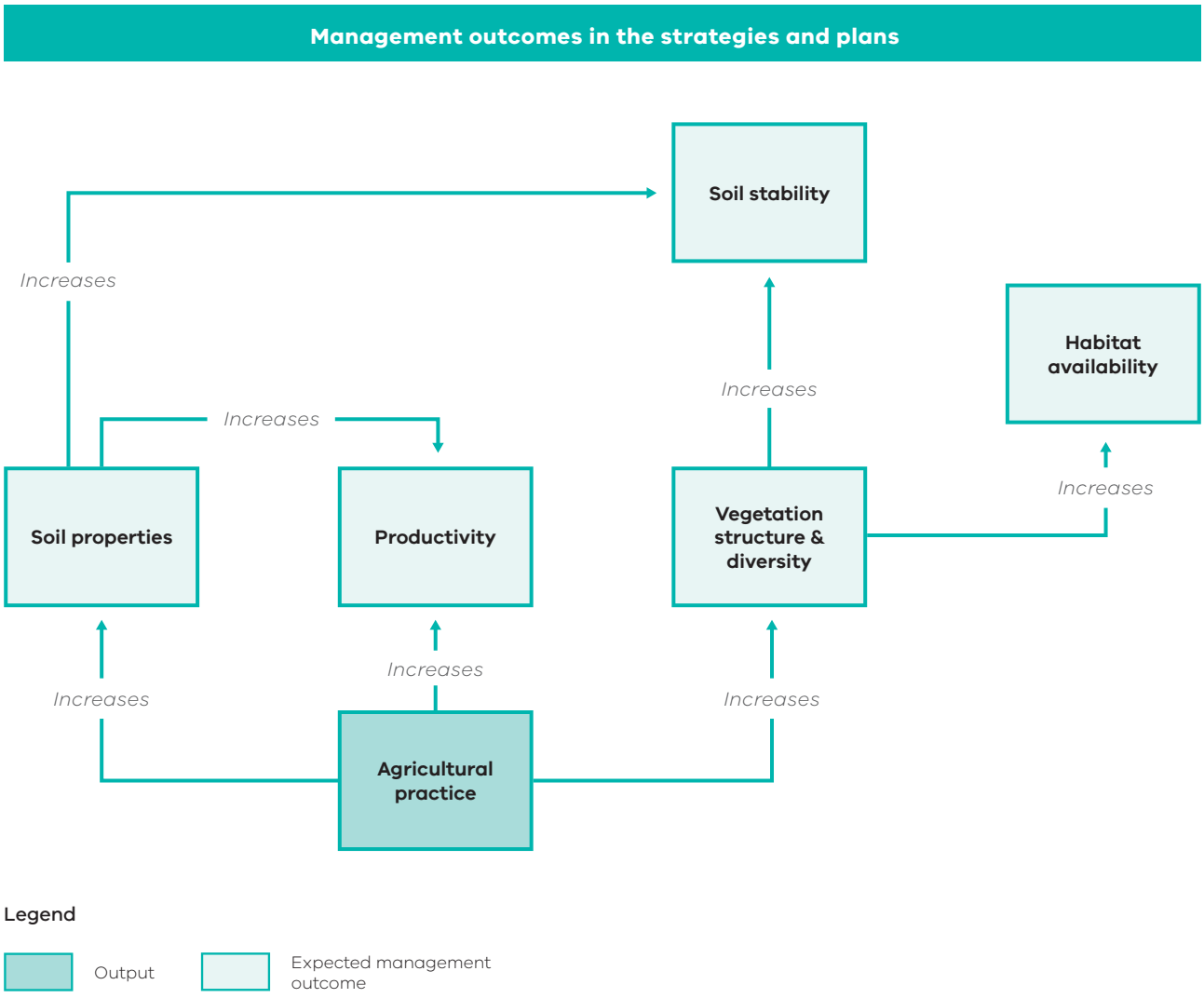
Marine – Subtidal: Area which remains underwater including during low tide.

Nutrient management: A system used to manage the amount, form, placement, and timing of the application of nutrients to plants.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 23 (3.2 Agricultural practices):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 3.2: Agricultural practices specific attributes

Output Title	Output Type	Activity Type	Environment Type	Spatial Object	Specific Activities
Description	Select one from list	Select one from list	Select one from list	Area over which agricultural practice output has occurred	Select one from list
Valid values	Dryland	Establish	Coast – Dune	Polygon	Biomass/ groundcover Retained
	Irrigation	Modify	Coast - Shore		Chemicals
		Maintain	Estuary		Cropping
		Remove	Marine - Intertidal		Horticulture
			Marine - Subtidal		Irrigation Management
			Stream/River		Nutrient Management
			Terrestrial		Other
			Wetland		

3.3 Water

Scope

These data record the number of sites and area over which water has been delivered or removed.

As a general rule, the polygon for a section of a watercourse will developed by buffering the section of the watercourse between the point where the release of water commenced to where the release effectively stops impacting the section of watercourse. This includes the delivery of water into wetlands, where the source of water released to the delivery point into the wetland, is to be identified.

A buffer distance of 20m is typically applied.

Related outputs: Associated plans (e.g. seasonal watering plan, environmental water management plan), management agreements, the establishment of structures (e.g. dam, pump) or monitoring sites should be recorded in addition to this output.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Consumptive: Consumptive uses include the supply of urban drinking water, irrigation, industrial uses and power generation.

Cultural flows: The Victorian Water Accounts definition library does not presently have a definition for cultural water holdings. DELWP uses the term 'cultural flows' as defined by the Echuca Declaration and Share Benefits (water for the environment/urban that also is delivered to support other uses/values). **https://www.mldrin.org.au/what-we-do/cultural-flows/**

Delivery: Allocate or direct water to site.

Dewatering: Put into effect flow regime by removing water from site.

Environmental water holdings: Water held by the Victorian Environmental Water Holder (VEWH) and delivered to sites downstream to support environmental values.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Manage: Put into effect flow regime through management of flows at priority sites.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

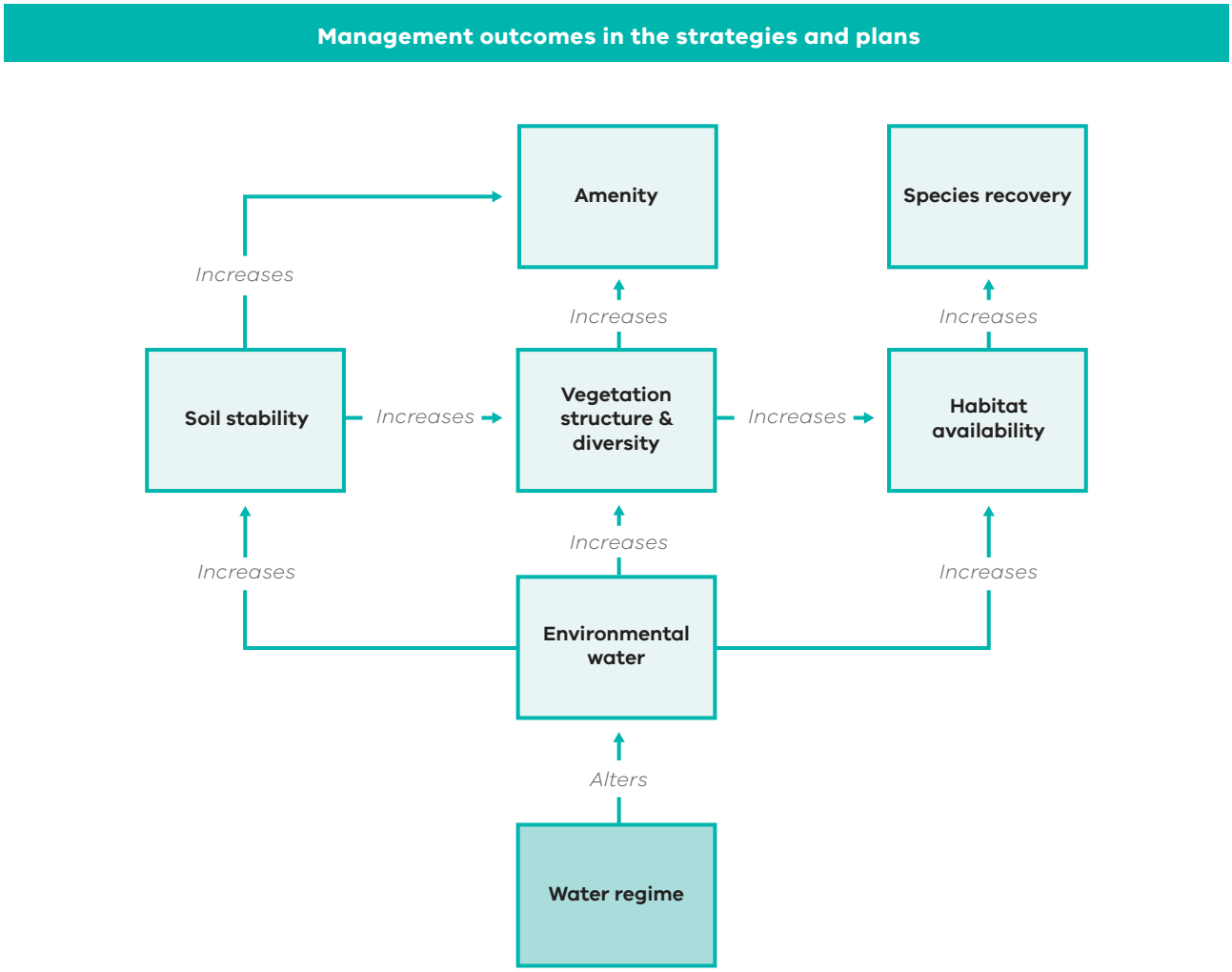
Mixed: A water flow comprising more than one of any of the described flow types from this chapter.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Unregulated flow: Natural flows along a river that cannot be captured, held and released from major weirs, reservoirs or storages.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 24 (3.3 Water):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 3.3: Water specific attributes

Title	Output Type	Activity Type	Environment Type	Spatial Object	Timing	Volume of water	Type of flow	Flow start date	Flow end date
Description	Select one from list	Select one from list	Select one from list	Area over which water output has occurred	Timing of water released/ withheld	Identify the total volume of water delivered	Select one or more from list	Select Date	Select Date
Valid values	Consumptive	Establish	Coast – Dune	Polygon	Autumn	ML	Bank Full	Date	Date
	Cultural Water-Holdings	Maintain	Coast - Shore		Spring	N/A	Base Flow		
	Environmental Water-Holdings	Modify	Estuary		Summer		Cease to Flow		
	Mixed	Remove	Marine - Intertidal		Winter		Drying		
	Unregulated Flow		Marine - Subtidal				Fill		
			Stream/River				Flooding		
			Terrestrial				Fresh		
			Wetland				Low Flow		
							Overbank Flow		
							Partial Fill		
							Top-up		

3.4 Fire

Scope

These data record the area over which fire has been applied to manage risks and/or ecological resilience.

Terminology

Cultural Fire: Fire deliberately put in to the landscape authorized and led by Traditional Owners of that Country, for a variety of purposes, including but not limited to: ceremony, protection of cultural and natural assets, fuel reduction, regeneration and management of food, fibre and medicines, flora regeneration, fauna habitat protection and healing Country's spirit.

(Source: Traditional Owner Cultural Fire Strategy, FFR)

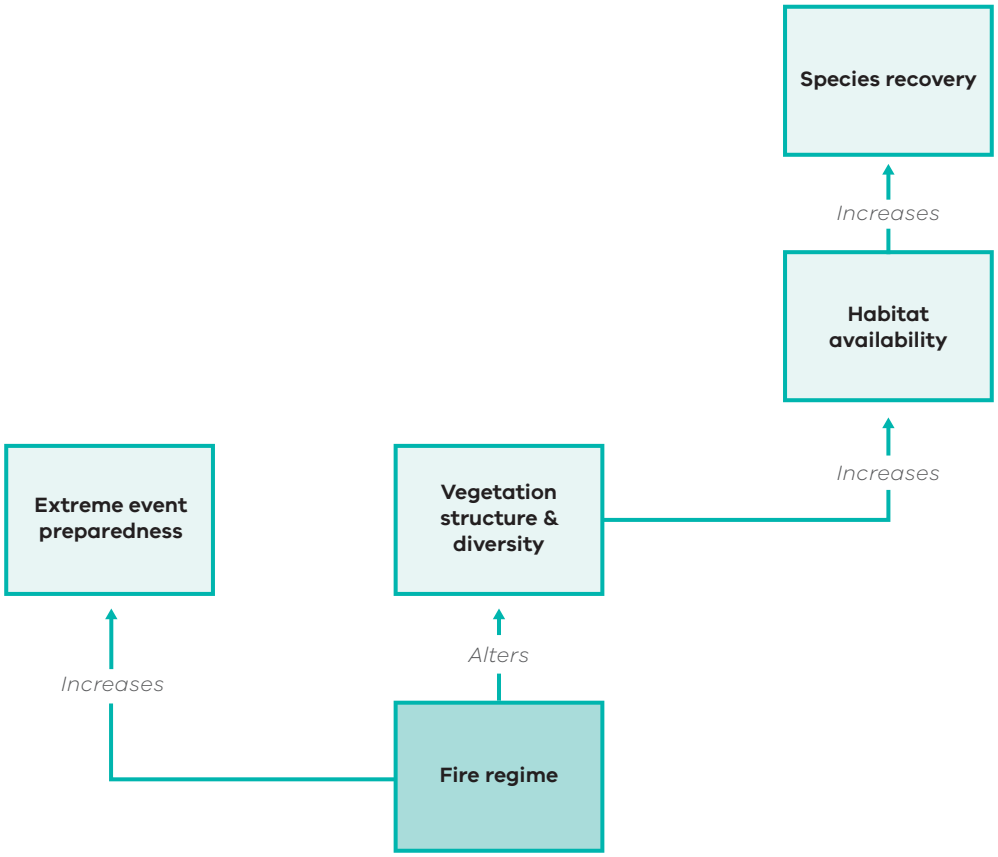
Planned Burning: Deliberate introduction of fire into the landscape to modify fuel hazard and contribute to ecological objectives

(Source: Code for Bushfire Management, FFR)

Fuel: Living and dead vegetation that can be ignited. It is often classified as dead or alive and as natural fuels or activity fuels (resulting from human actions, usually logging operations). Fuel components refer to such items as downed dead woody material by various size classes, litter, duff, herbaceous vegetation, live foliage, etc.

Weed control: The use of controlled burning activities to reduce fuel loads and improve herbicide use efficiency and targeting of weeds in the landscape. Fire can be used to control and suppress weeds, however, should only be used as a last resort because of the inherent risk of using fire. It generally does not kill the targeted weed but is primarily used to reduce the overall cover of weeds and the need for large amounts of chemical.

Management outcomes in the strategies and plans



Logic Diagram 25 (3.4 Fire):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 3.4: Fire specific attributes

Title	Output Type	Activity Type	Spatial Object
Description	Select one from list	Select one from list	Area over which fire output occurred
Valid values	Cultural	Establish	Polygon
	Ecological	Maintain	
	Fuel Reduction		
	Weed control		

4. Planning and regulation

Planning and regulation outputs are a mixture of goods and services outputs related to the information needs of planning and regulation.

Non-physical outputs such as management services, and planning and regulation must be represented as spatial objects. However, the following rules should be applied to avoid large polygons that cover a whole region and obscure other works.

Output title	Output types		
(4.1 Approval and advice):	Advice Lease	Licence Notice	Permit Referral response
(4.2 Management agreement):	Binding non-perpetual	Binding perpetual	
(4.3 Assessment):	Agronomic Cultural Ecological Fauna Flora Geological	Geospatial Groundwater Heritage Invasive species Litter audit Necropsy/Sampling	Property Social Soil Surface Water Threatened species Weather
(4.4 Engagement event):	Conference Field day	Meeting Presentation	Training Workshop
(4.5 Partnership):	Aboriginal Victorians Agency Community groups	Corporate Educational Mixed	NGO Traditional Owners Research
(4.6 Plan):	Engagement Management	Property	Strategy
(4.7 Publication):	Audio	Visual	Written
(4.8 Information management system):	Database	Decision - support	

4.1 Approval and advice

Scope

These data record the number of decisions made in regard to permits, licences, leases and planning referrals, as well as advice provided to another agency or individual.

Approvals include permits processed for the regulation of works on waterways and responses made as a referral authority to planning scheme referrals relating to matters including floodplain management, irrigation development guidelines, soil protection, salinity management and native vegetation.

Note: Advice should only be used where:

- it is considered to make a noteworthy contribution towards a desired management outcome (e.g. input to stream flow management plans); or
- significant effort is required to meet compliance with regulatory requirements such as 1080 baiting or advice (neighbour notification).

It is noted that the details contained in the Approval and Advice output are typically sourced from the Integrated Planning and Works System (IPAWS) for statutory referrals, advice and permits where statutory approvals and advice (such as floodplain statutory approvals and advice) are exported from IPAWS and used to populate information into this output. IPAWS is being used by all CMAs and the data is typically exported once a year.

Terminology

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Irrigation Development Guidelines (IDG) referrals: IDG provide guidance to both irrigation developers and government agencies on the process, matters for consideration, conditions and approvals required to obtain or modify a Water Use Licence (WUL) or Take and Use Licence (T&UL).

IDG are regionally based and implemented by the relevant CMA(s) and Rural Water Corporation(s) (RWC).

Lease: Permission for exclusive use and possession of a parcel of land or a building for a defined term.

Licence: Permission for non-exclusive use of a parcel of land for a defined period.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Permit: A document or certificate that gives permission to do or not do something as governed by the Waterway Protection By-law, which is a legislative instrument under the *Water Act 1989*.

Referrals: Section 55 of the *Planning and Environment Act 1987* and Section 202 of the *Water Act 1989* require referral to Floodplain Management Authorities (FMAs) for specific decisions. In addition to this, councils, other agencies or individuals may seek advice or guidance from FMAs on flooding related issues.

Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

T&UL: A water licence under section 51 of the Water Act that grants the holder the right to take and use water from waterways (both regulated and unregulated), dams (both on-stream and off-stream), springs and soaks, and works of an authority or groundwater.

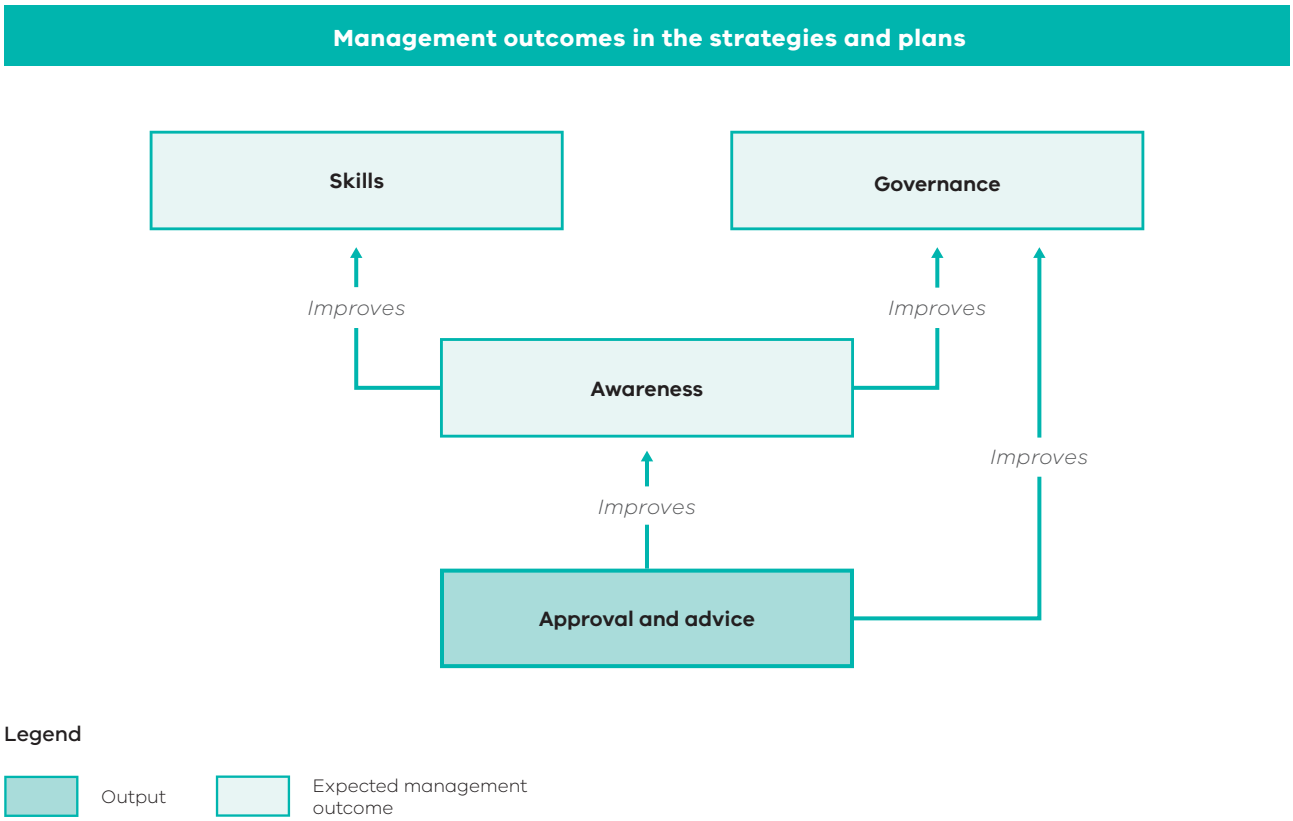
Terrestrial: Land area inland of the tertiary dune.

Works on waterway (WOW) permit: To undertake works or activities in, on or over a designated waterway, a permit or written authorisation from the Authority is required by law.

The permit process is designed to provide common and best practice guidance for ensuring works or activities have appropriately addressed hydraulic, physical and environmental impacts on the 'health' of our important waterways.

Waterway: A river, wetland or estuary.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.



Logic Diagram 26 (4.1 Approval and advice):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.1: Approval and advice specific attributes

Title	Output type	Activity type	Environment Type	Spatial object	Status	Specific type
Description	Select one from list	Select one from list	Select one from list	Identify the centre of the location/ property relating to the administered item	Select one from list	Select one from list
Valid values	Advice	Establish	Coast – Dune	Point	Exempt	Drainage declaration
	Lease	Maintain	Coast - Shore		Issue	Flood
	Licence	Modify	Estuary		Refuse	Game management
	Notice	Remove	Marine - Intertidal		Reject	Land management
	Permit		Marine - Subtidal		Support	Marine & Coastal Act Approval
	Referral response		Stream/River			Native vegetation
			Terrestrial			New irrigation
			Wetland			Soil and salinity
						Water Access
						Works on waterway (WOW)
						Weeds and pest animals

4.2 Management agreement

Scope

These data record the number of agreements that have been developed or reviewed in relation to the management of a specific location (e.g. landholder property).

This output includes agreements attached to title, legal conservation covenants or agreements placed on the property title for a parcel of land.

Where the agreement includes the restriction of access/use for native vegetation outcomes (e.g. through covenanting), the vegetation structure and diversity expected management outcome should be selected.

This output should be used when the expected management outcome is achieved through the establishment of a management agreement, including in situations where the works associated with the management agreement are recorded under other outputs. In this instance, the management agreement is recorded as an output (including the management agreement area (ha)) in addition to the works delivered, which are each recorded as separate outputs, and linked by the use of a Unique site ID and Project ID (common attributes).

Where a management agreement output relates to an individual property, or a wetland, a polygon describing the area to which the plan relates is appropriate.

Where a management agreement output relates to a collection of properties, the point location for the partner head office should be used, and a calculated area of each location covered by the output should be entered in the 'Area' attribute, expressed in Hectares (Ha).

Where the output relates to a single area that is less than a quarter of an agency area (for example, a sub-catchment or smaller) a polygon must be used.

Where a management agreement output relates to the agency area as a whole, the point location for the agency head office should be used.

Related outputs: Outputs delivered in association (e.g. assessments, plans) or those described in the agreement (e.g. grazing, fencing) should be recorded separately. Memorandums of understanding or service level agreements governing the allocation of resources or funding should be captured under the 'Partnership' output.

Terminology

Agreements: Documented agreements to formalise a partnership or arrangement between two or more

Binding: Agreement imposing a legal obligation (e.g. agreement on title).

Coast – Dune: The area above the beach, from the primary (or fore) dune to the tertiary (or back/hind) dune.

Coast – Shore: Foreshore, beach.

Estuary: Estuaries are where rivers meet the sea and the fresh river water mixes with the salt water of the ocean. The definition of estuaries also includes coastal inlets (like Tamboon Inlet and Anderson Inlet), smaller bays (like Swan Bay and Limeburners Bay) and coastal barrier lagoons (like Jack Smith Lake and Lake Dennison). These inlets may also be classed as wetlands.

Marine – Intertidal: Area between low and high tide marks (also known as littoral zone).

Marine – Subtidal: Area which remains underwater including during low tide.

Non-perpetual: Lapse of agreement at the end of a fixed term or when the land changes ownership.

Parties. This may be the result of developing a plan or going through a planning process.

Perpetual: An agreement that is binding on future landowners as well as the current landowner.

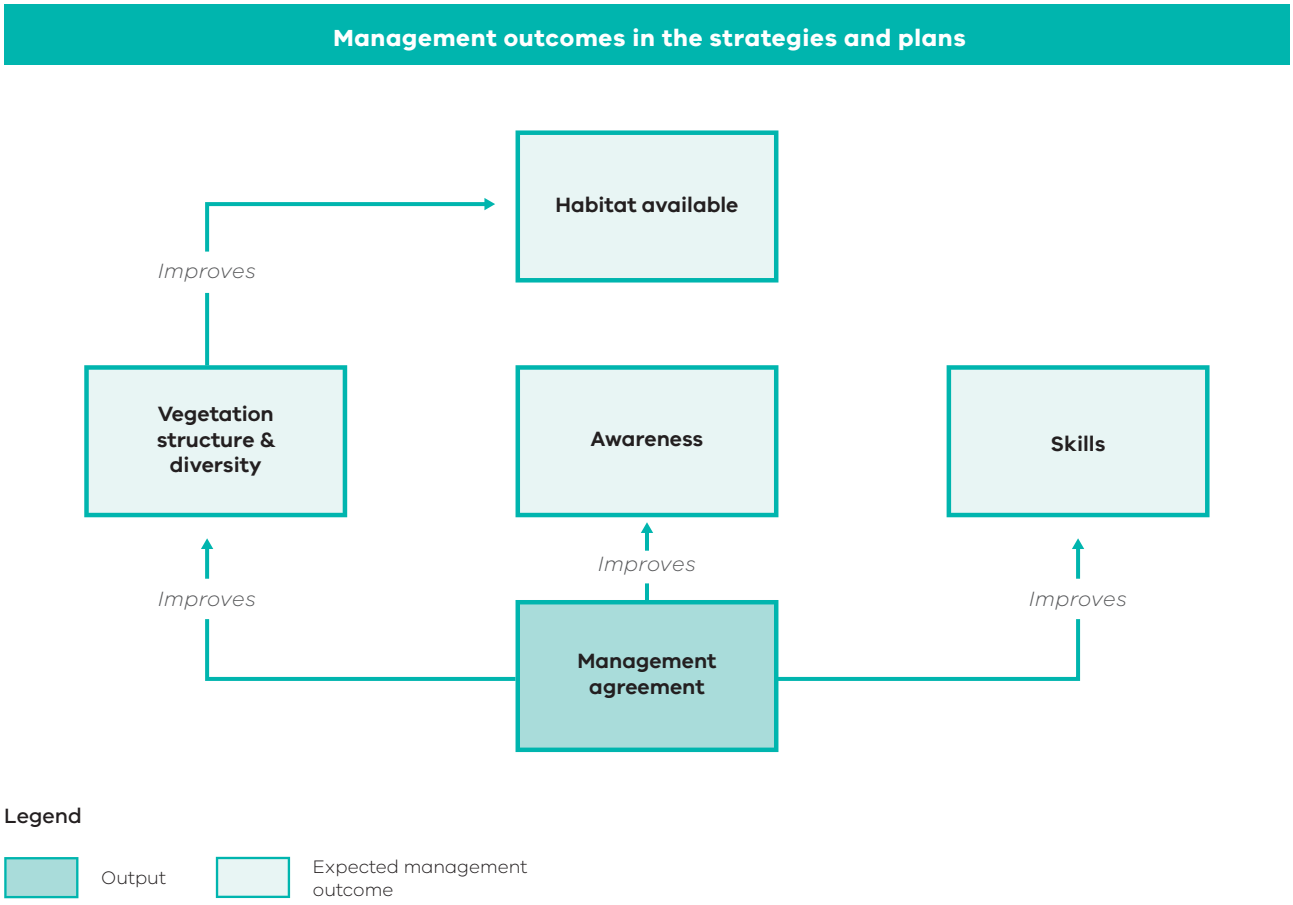
Stream/River: Rivers are defined here as major rivers, streams or creeks and their feeders (tributaries), and include the water, the channel and surrounding land (known as riparian land). Riparian refers to land or vegetation that adjoins a river, wetland or estuary.

Terrestrial: Land area inland of the tertiary dune.

Wetland: Wetlands are areas whether natural, modified or artificial, subject to permanent or temporary inundation, that hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be formed by natural processes or human activities. Wetlands include freshwater and saline lakes, swamps and shallow waters in Victoria's estuaries, bays and inlets.

Long-term agreements

It is noted that where the duration for an agreement is either long-term or perpetual, such as in the case of many riparian agreements and Trust for Nature Covenants, a value of 99 years should be used. 'Long-term' for riparian agreements refers to those agreements which are binding on the existing landholder for the time of their ownership of the property (which could be for several decades) but they are not on title, so are not binding on future owners.



Logic Diagram 27 (4.2 Management agreement): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.2: Management agreement specific attributes

Output Title	Output Type	Activity Type	Environment Type	Spatial Object	Area under agreement	Party	Duration
Description	Select one from list	Select one from list	Select one from list	Area/s covered by the agreement (select either/or, not both) in accordance with guidance above	Calculate area under agreement	Identify the status of the party entering into the agreement	Duration of the agreement where relevant. Agreements on property title are considered permanent (99 years should be used
Valid values	Binding Non-Perpetual	Establish	Coast – Dune	Point	Ha	Private Landholder	Years
	Binding Perpetual	Maintain	Coast - Shore	Polygon		Public Landholder	
		Modify	Estuary				
		Remove	Marine - Intertidal				
			Marine - Subtidal				
			Stream/River				
			Terrestrial				
			Wetland				

4.3 Assessment

Scope

These data record the application of assessments of social, land, water and biodiversity characteristics.

It includes monitoring activities done to ensure compliance with policy and regulation and new and emerging weeds and pest animals.

Related outputs: The installation of a monitoring structure or plan associated with the assessment should be recorded as a separate output. The output does not refer to the 'assessment' of reports or applications, which should be recorded under the 'Advice and approvals output'. Nor should it be used to record 'sighting' the data produced from the assessment (e.g. presence/absence), which should be recorded in the appropriate DELWP database (i.e. Victorian Biodiversity Atlas, **https://vba.dse.vic.gov.au/vba/index.jsp**).

Terminology

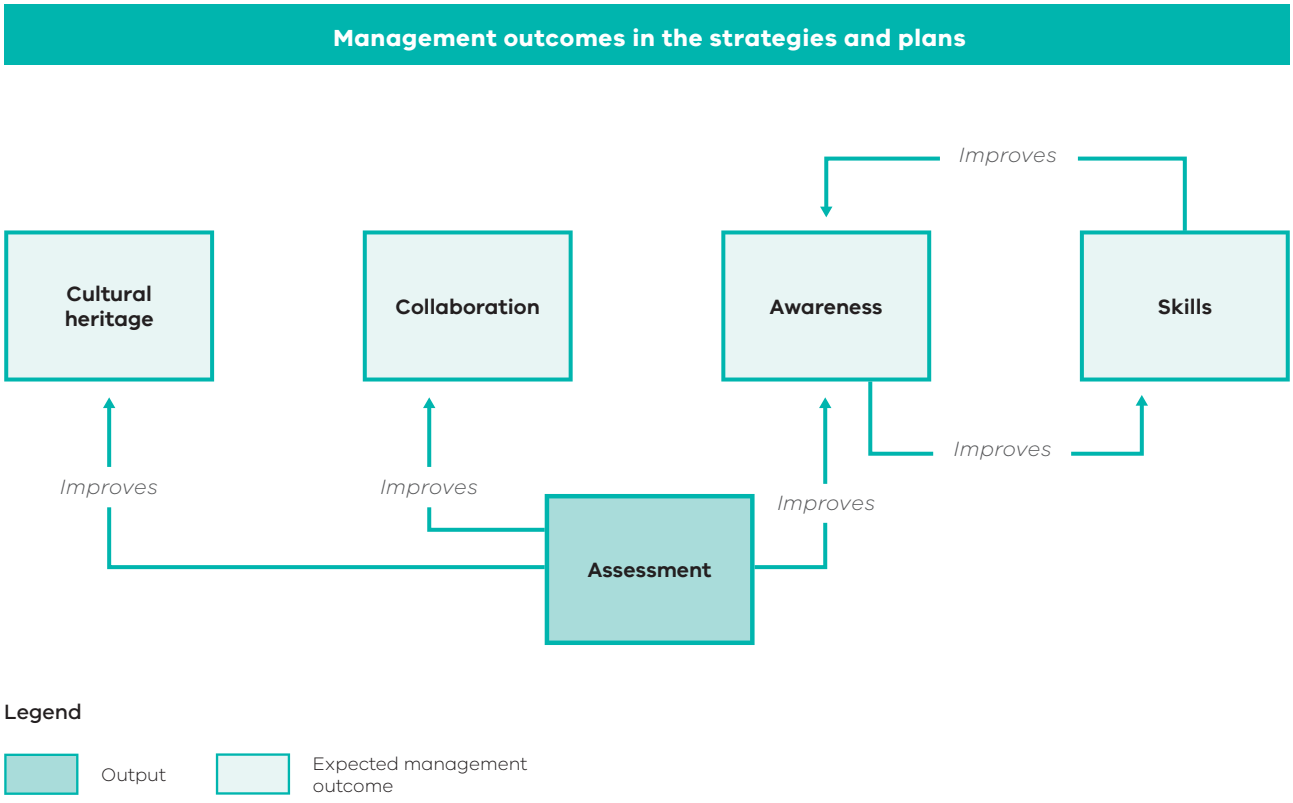
Assessment: Site-specific assessment of condition, outcomes or management issues present. This information is used to inform future decision-making and activity at that site.

Litter Audit: To survey and/or assess any solid or liquid domestic or commercial waste, refuse, debris or rubbish and without limiting the generality of the above, includes any waste glass, metal, plastic, paper, fabric, wood, food, soil, sand, concrete or rocks, abandoned vehicles, abandoned vehicle parts and garden remnants and clippings, but does not include any gases, dust or smoke, or any waste that is produced or emitted during, or as a result of, any of the normal operations of the mining, building or manufacturing industry or of any primary industry.

Necropsy / Sampling: Involves dissection of the deceased animal (carcass) for the purpose of determining cause of death. An experienced veterinarian and/or veterinary pathologist must be involved.

Specific activities: The method used to conduct the assessment.

Threatened Species: Any fauna and flora species and ecological communities that are listed as threatened under Victorian legislation (*Flora and Fauna Guarantee Act 1988*) or included in DELWP's Threatened Species Advisory Lists.



Logic Diagram 28 (4.3 Assessment):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.3: Assessment specific attributes

Output Title	Output Type	Activity Type	Spatial Object	Data storage	Database ID	Specific Activities	Activity Stage	Total Volunteer Number	Total Volunteer Hours
Description	Select one from list	Select one from list	Area where assessment was conducted	Identify where the assessment data is stored. Including DELWP databases where appropriate	Identify the ID for the entries into the database	Select one from list	Select one from list	Enter number or select N/A	Enter number or select N/A
Valid values	Agronomic	Establish	Polygon	Agency database	VBA ID	Inspection	Pre treatment	Number	Number
	Cultural	Maintain		ALA		Model	Post treatment	N/A	N/A
	Ecological	Modify		Birdlife Australia Bird Data Atlas		Remote	N/A		
	Fauna			Coastkit		Survey			
	Flora			iNaturalist		Visual			
	Geological			Litterwatch		Other			
	Geospatial			Monitoring sites database					
	Groundwater			NVIM					
	Heritage			Salinity register					
	Invasive species			STAR					
	Litter Audit			VBA					
	Necropsy / Sampling			Victoria Water data warehouse					
	Property			Waterwatch/ estuary watch data warehouse					
	Social			Other					
	Soil			N/A					
	Surface water								
	Threatened Species								
	Weather								

4.4 Engagement event

Scope

These data record the number of engagement events held with members of the community and/or agency staff that were coordinated, attended, established, sponsored and/or supported, or where displays were presented. It also records the number of volunteers and total volunteer hours to track active participation rates.

This includes a wide range of engagement events including those to raise awareness or provide skills and training about an NRM issue for potential and active members of the NRM volunteer community.

Note: This output is not intended to capture every engagement event, only those that are considered to make a noteworthy contribution towards a desired management outcome.

The spatial location should show where the engagement event occurred.

Where an engagement event (4.4) is held at an office location remote from the actual project area, the spatial location assigned should be that of where the engagement event was held. The 'Name/Title' attribute should identify the location to which the overall project relates.

Related outputs: Engagement events often lead to and/or support the delivery of additional outputs. Where other outputs are delivered as part of the event these should be recorded in addition to this output (e.g. vegetation, pest treatment).

Terminology

Awareness raising: Proactively sharing knowledge with the public in order to alert them and potentially gain their future participation in NRM and community activities.

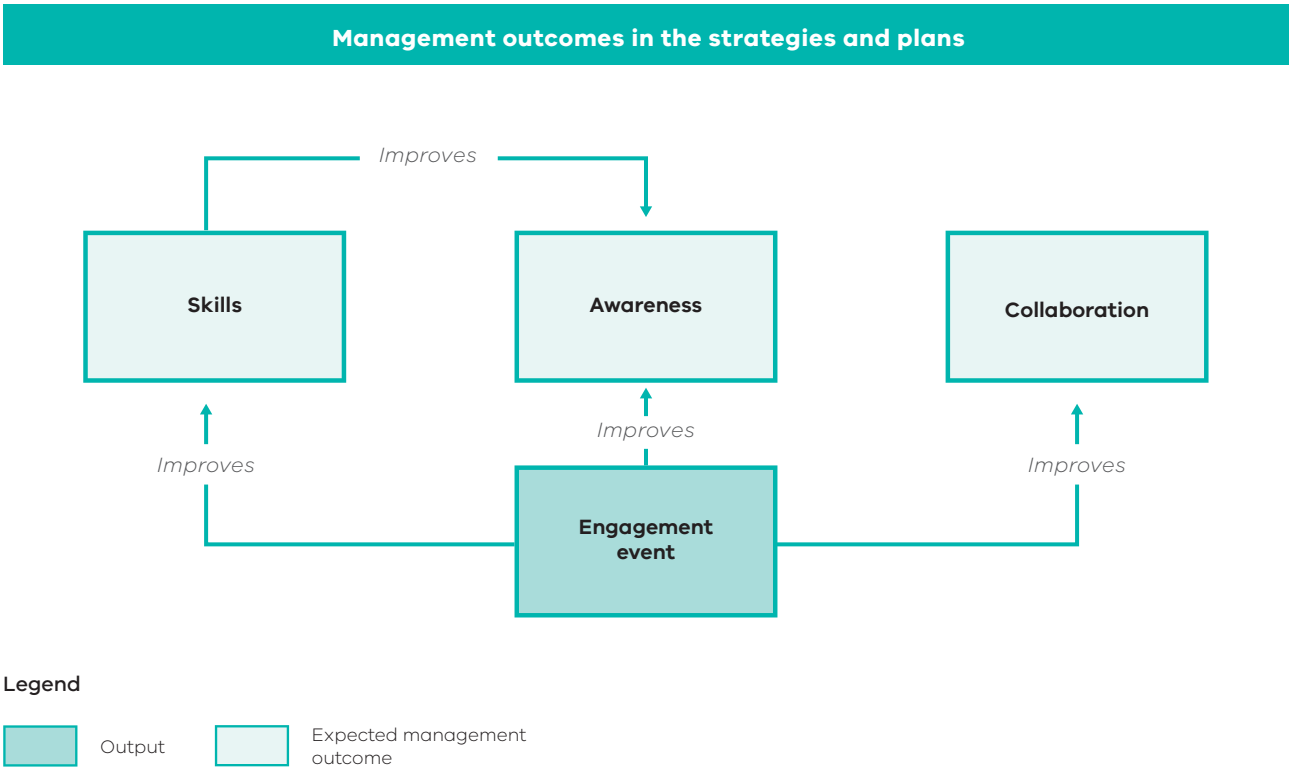
Community-based NRM (CBNRM) group: For example, Panyyabyr Landcare Group – (GHCMA).

Field day: An event devoted to specific location(s) to discuss a specific topic(s).

Target audience: The audience for the engagement event. It may be geographically defined, based on group/organisation membership or be a sector of the community.

Training: Structured activities designed to improve or refresh existing skills or develop new ones.

Workshop: An educational event or series of meetings emphasising interaction and exchange of information among a (usually) small number of participants.



Logic Diagram 29 (4.4 Engagement event):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.4: Engagement event specific attributes

Title	Output Type	Activity Type	Engagement Level	Spatial Object	Name/title	Participants
Description	Select one from list	Select one from list	Select one from list	Location where the event was held	Provide the name of event	Total number of participants who attended
Valid values	Conference	Attend	Inform	Point	Text Field	Number
	Field Day	Coordinate	Consult			
	Meeting	Establish	Involve			
	Presentation	Sponsor	Collaborate			
	Training	Support	Empower			
	Workshop					

	Event length	Number of events	Target Audience	Focus	Total Volunteer Number	Total Volunteer Hours
	Length of the event, to the nearest hour	Where events have identical values for all other attributes (e.g. location, type, year completed) they can be captured together	Select multiple from list	Record the primary focus for the event	Enter number or select N/A	Enter number or select N/A
	Hours	Events	Aboriginal Victorians	Conservation Awareness	Number	Number
			Catchment Management Authority	Conservation management/ techniques	N/A	N/A
			Coastcare	Cultural Awareness		
			Community Groups	Cultural Safety		
			DELWP	Data management and reporting		
			Friends-of Group	General occupational health and safety		
			Government Agency	Planning		
			Landcare	Recruitment		
			Local Council	Survey and monitoring		
			Management Committee			
			Non Government Organisation			
			Not For Profit			
			Parks Victoria			
			Private Land Manager			
			Research Organisation			
			Traditional Owner			
			Trust For Nature			
			Water Corporation			
			Other			

4.5 Partnership

Scope

These data record the number of formal partnerships established between organisations and/or individuals that are established, maintained or modified.

These partnerships can provide an opportunity to engage with industry and the community to support the achievement of both short-term outputs and long-term condition change objectives.

Partnerships should be based on the agreement documentation (e.g. memorandum of understanding, or equivalent) that may be legally binding, or may not be binding but which identifies commitment, and is signed by all partners to the agreement.

There is one partnership for each such agreement, which may comprise two or more partners. Where there is separate agreement documentation with each partner, each agreement may be viewed as a separate partnership.

Terminology

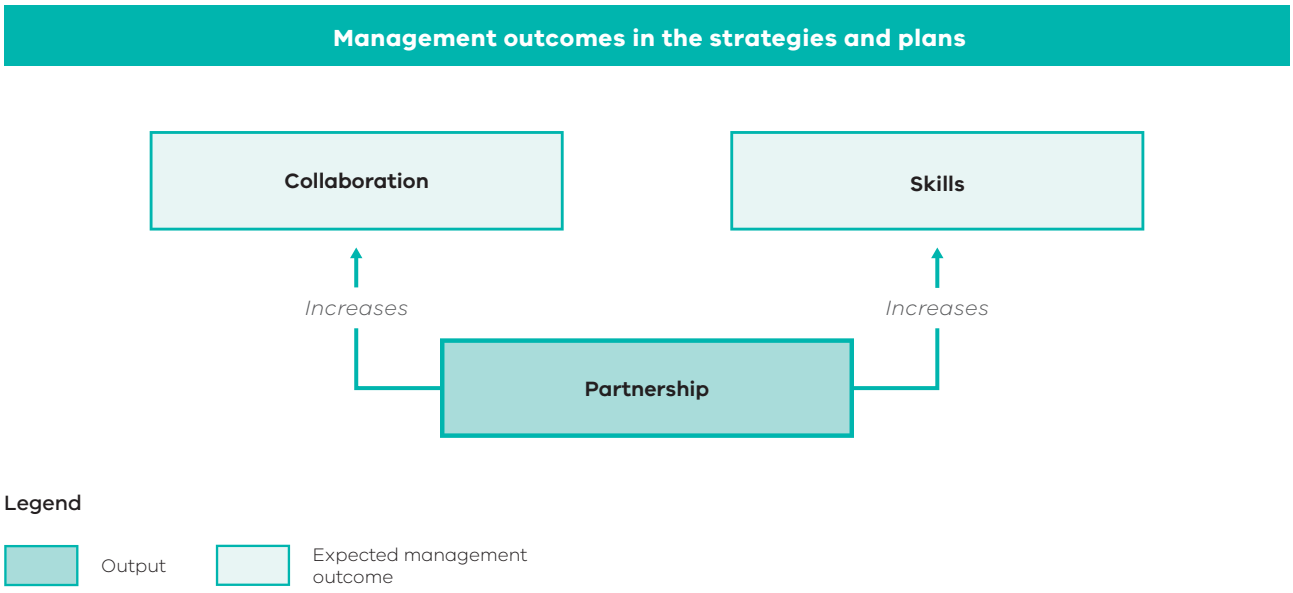
Aboriginal Victorian: Aboriginal Victorian refers to both Aboriginal and Torres Strait Islander peoples. They may have connections in and outside of Victoria. The use of the term Indigenous is retained in the names of programs, initiatives and publication titles and, unless otherwise noted, is inclusive of both Aboriginal and Torres Strait Islander peoples.

Letter of agreement: A letter outlining the conditions of a partnership.

Memorandum of Understanding: Document that formalises a partnership or arrangement between two or more parties but is not legally binding.

Partnership: An association of two or more organisations that has been formalised through arrangements such as a memorandum of understanding or committee/working group terms of reference.

Traditional Owner: An Aboriginal person who has traditional connection(s) to an identified geographical area of Country.



Logic Diagram 30 (4.5 Partnership):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.5: Partnership specific attributes

Title	Output Type	Activity Type	Spatial Object	Parties	Duration
Description	Select one from list	Select one from list	Identify a location to 'represent' partnership operations	Identify the organisations or individuals who are parties to the partnership	Duration of the partnership, where considered permanent 99 years should be used
Valid values	Aboriginal Victorians	Establish	Point	List	Years
	Agency	Maintain			
	Community groups	Modify			
	Corporate				
	Educational				
	Mixed				
	NGO				
	Research				
	Traditional Owners				

4.6 Plan

Scope

These data record the number of plans or strategies (e.g. management plan, strategy, engagement) that have been developed or reviewed.

Plans and strategies must be for a defined location. The scale, however, may vary ranging from individual property management plans or site designs through to regional strategies and plans (e.g. stream flow management plan, environmental watering plan, seasonal watering plans). The content may also vary from plans dealing with a specific topic (e.g. irrigation) to plans and strategies dealing with social and cultural themes that impact on or are impacted by environmental values.

Related outputs: Assessments conducted or agreements developed in association with the plan or strategy should be recorded as a separate output.

Terminology

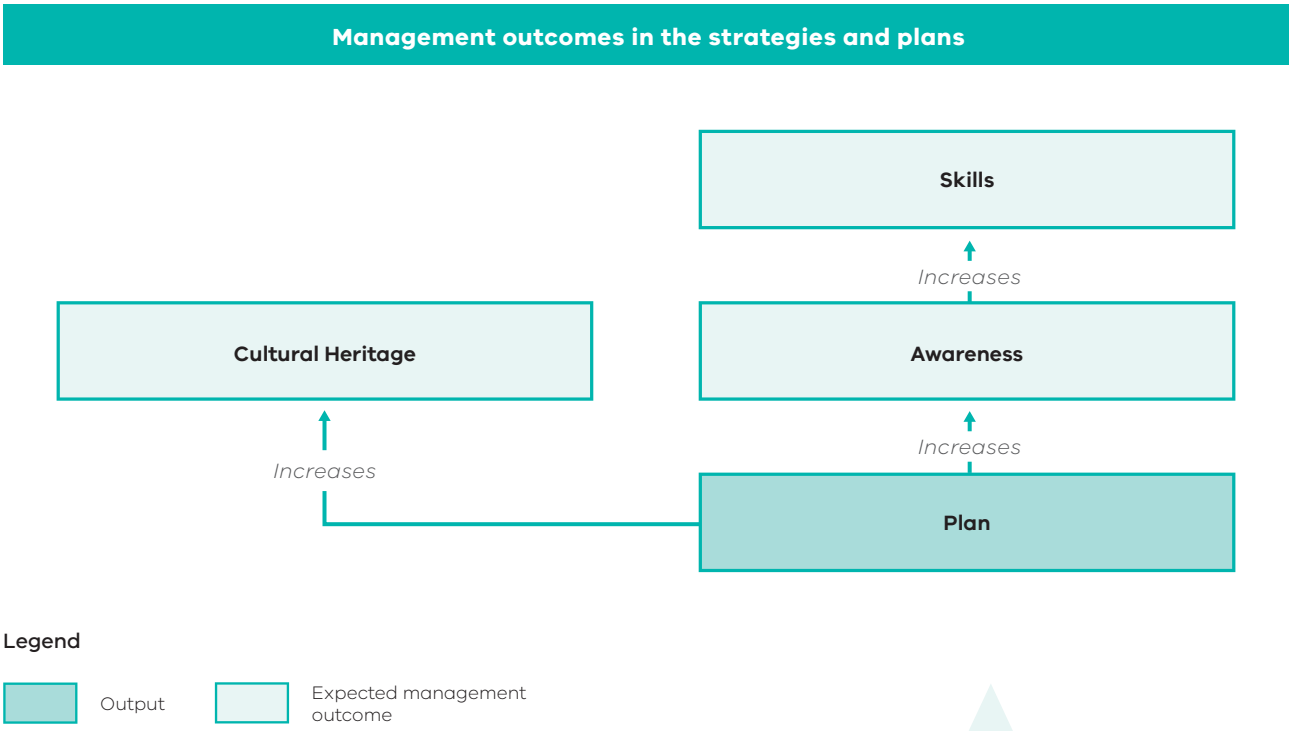
Community-based NRM (CBNRM) group: For example, Panyyabyr Landcare Group – (GHCMA).

Engagement plan: A plan for engagement with stakeholders.

Property: A plan associated with a landowner's property for the management of that land (e.g. whole farm plan, irrigation or dry-land).

Management plan: A plan guiding overall management of an area (e.g. wetland or environmental watering plan).

Strategy: A plan defining an agency's strategy or direction, and the allocation of resources to pursue this strategy.



Logic Diagram 31 (4.6 Plan):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.6: Plan specific attributes

Title	Output Type	Activity Type	Spatial Object	Name/title	Year Commenced	Duration	Focus	Target Audience
Description	Select one from list	Select one from list	Area covered by the plan	Unique identifier for plan/strategy recorded in the outputs	Commencement date (month/ year)	Duration of the plan (years)	Select multiple from list	Abroriginal Victorians
Valid values	Engagement	Establish	Polygon	Full title of plan/ strategy	Month/year	Years	Conservation	Catchment Management Authority
	Management	Modify					Culture/heritage	Coastcare
	Property	Review					Fire	Community Groups
	Strategy						Fish	DELWP
							Flora	Friends-of Group
							Irrigation	Government Agency
							Management practices	Landcare
							Fauna	Local Council
							Other	Management Committee
								Non Government Organisation
								Not For Profit
								Parks Victoria
								Private Land Manager
								Research Organisation
								Schools
								Traditional Owner
								Trust For Nature
								Water Corporation
								Youth
								Other

4.7 Publication

Scope

These data record the number of publications established, maintained or modified (e.g. standards, flyers, newsletters). It includes visual and audio-based communication material.

This output is not intended to capture every publication that an organisation may deliver, only those that are considered to make a noteworthy contribution towards a desired management outcome.

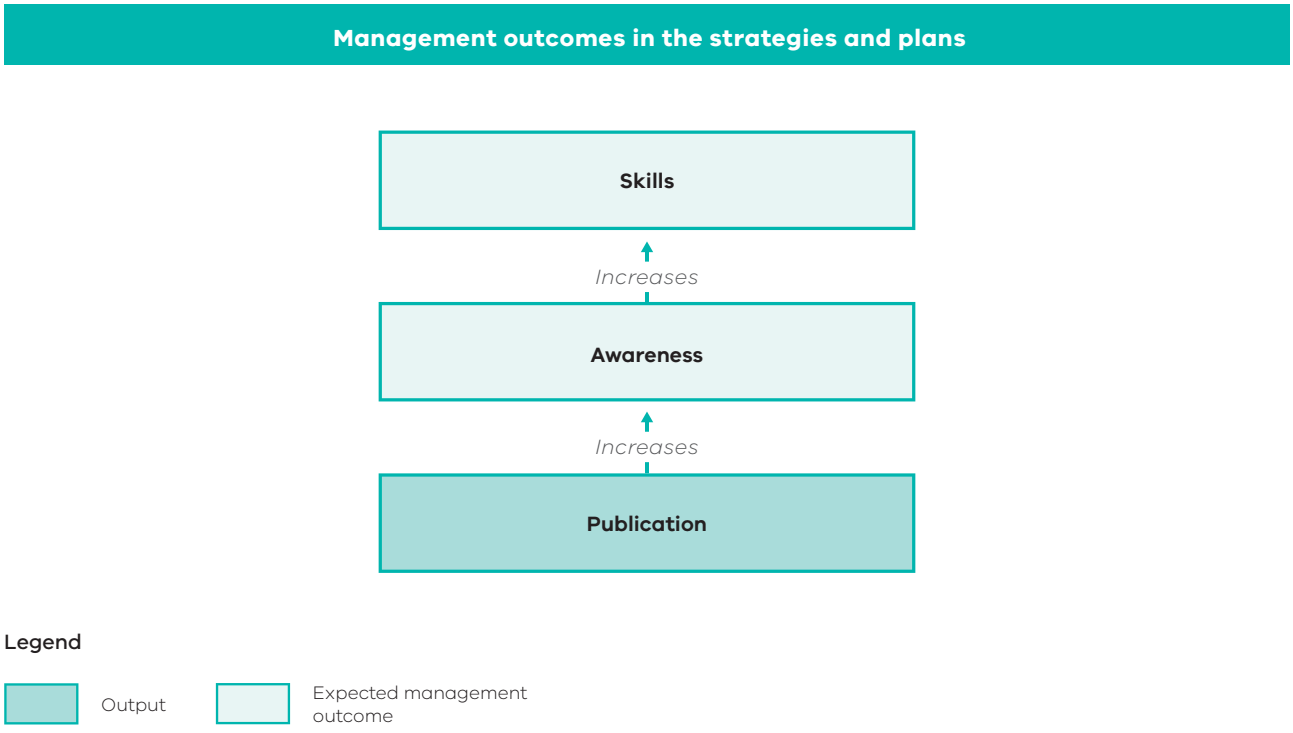
Terminology

Audio: Material disseminated through radio, podcasts, etc.

Publication: The preparation and issuing of a material or other work for public consumption.

Visual: Material disseminated through television, online videos, DVDs, etc.

Written: Printed or online publications.



Logic Diagram 32 (4.7 Publication):
Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.7: Publication specific attributes

Title	Output Type	Activity Type	Spatial Object	Specific Type	Frequency	Target Audience
Description	Select one from list	Select one from list	Identify a location to 'represent' publication's target audience	Select one from list	Select one from list	Select multiple from list
Valid values	Audio	Establish	Point	Booklet	Ad Hoc	Abroriginal Victorians
	Visual	Maintain		DVD	Annually	Catchment Management Authority
	Written	Modify		Fact Sheet	Fortnightly	Coastcare
				Flyer/Pamphlet	Monthly	Community Groups
				Journal Article	Once	DELWP
				Media Release	Quarterly	Friends-of Group
				Newsletter	Weekly	Government Agency
				Newspaper		Landcare
				Podcast		Local Council
				Radio		Management Committee
				Report		Non Government Organisation
				Research Article		Not For Profit
				Social Media		Parks Victoria
				Standard		Private Land Manager
				Television		Research Organisation
				Video		Schools
				Website		Traditional Owners
				Other		Trust For Nature
						Water Corporation
						Youth
						Other

4.8 Information management system

Scope

These data record the number of information management systems or applications that are established, maintained or modified.

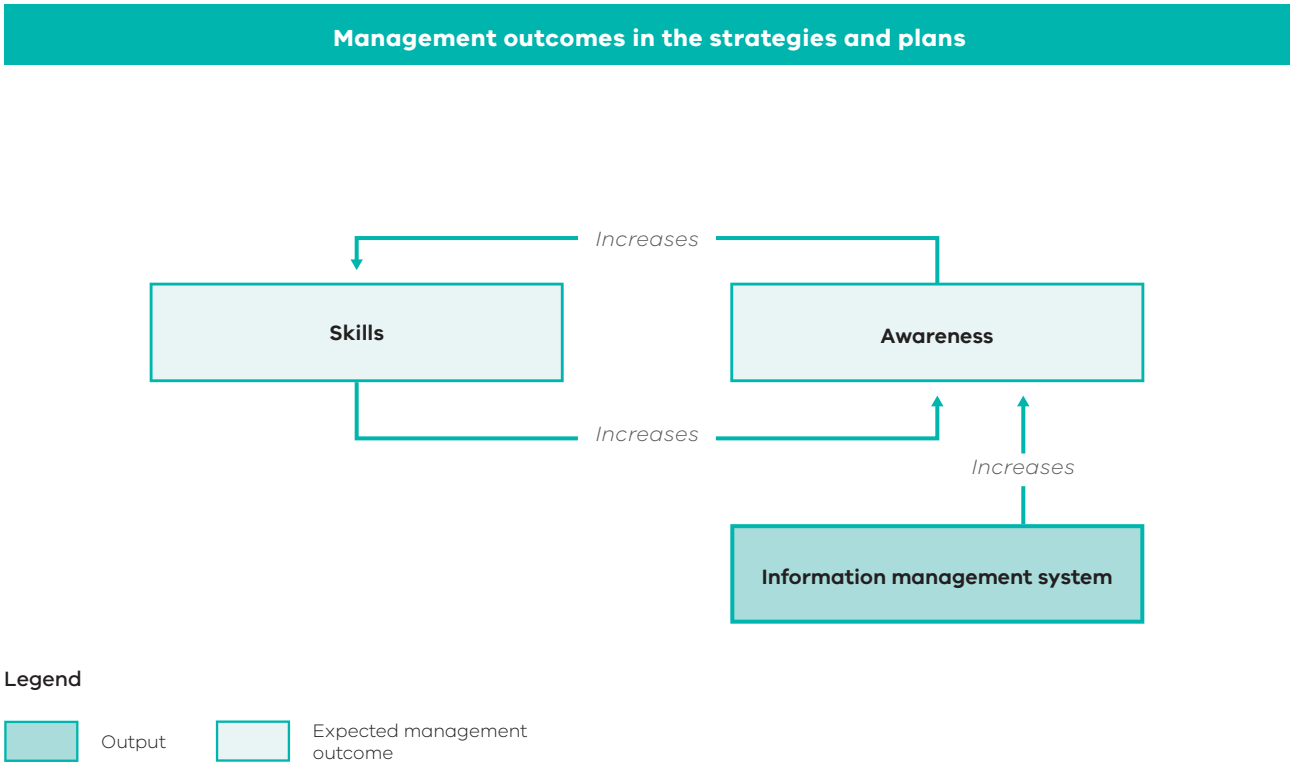
Information management systems are used to store and disseminate output/outcome-related data to assist with planning and other decision-based activities.

Terminology

Database: Any collection of data, or information, that is specially organized for rapid search and retrieval by a computer. Databases are structured to facilitate the storage, retrieval, modification, and deletion of data in conjunction with various data-processing operations.

Decision Support System: An interactive computerized system that gathers and presents data from a wide range of sources for business or strategic planning purposes. (eg. NatureKit).

Note: This output is not intended to capture every database or decision support system, only those that are considered to make a noteworthy contribution towards a desired management outcome.



Logic Diagram 33 (4.8 Information management system): Generalised program logic that clarifies the relationship of this output with expected management outcomes (linked directly or indirectly). Conceptual models should clarify the assumptions and associated confidence in the relationships.

Data reporting

In addition to the Common Attributes detailed in **Part 2** of this document, the following attributes must be collected and reported for each output delivered.

Table 4.8: Information management system specific attributes

Title	Output type	Activity type	Spatial object	Name/title	Owner
Description	Select one from list	Select one from list	Identify a location that 'represents' the output's application	Provide the name of the system	List who will own and maintain the system
Valid values	Database	Establish	Point	Text	Text
	Decision support system	Maintain			
		Modify			

Part 4: Development, governance and control of the Standard

How the current Standard was developed

The Data Standard has been used for over a decade and its development has included periodic improvement with considerable consultation and review.

After an independent review was completed in 2012, the Standard was trialled by Victoria's 10 CMAs in 2013/14. The data received for the 2013/14 year was much improved over previous years, but a further review, conducted by the Mallee CMA on behalf of DELWP, found opportunities for further improvement.

In 2017, DELWP's Biodiversity division led a comprehensive review of the Data Standard against the requirements of the newly released Victorian Biodiversity Plan, *Protecting Victoria's Environment - Biodiversity 2037* (Biodiversity 2037). The resulting report completed in 2019, found that significant changes would need to be made to the Data Standard in order to accurately report against the objectives of Biodiversity 2037.

In response to the Biodiversity 2037 review results, DELWP engaged its Integrated Catchment Management (ICM) team to conduct a wide-ranging review to improve alignment to a broader range of current Victorian Government policy and programs including Water for Victoria and the new Marine and Coastal policy.

The following groups and organisations were involved in developing the latest version of the Data Standard, including input from each of their major reporting and/or collaborating partners:

- Environment and Climate Change Group (DELWP)
- Water and Catchments Group (DELWP)
- Victorian Catchment Management Authorities (CMAs)
- Parks Victoria (PV)
- Agriculture Victoria (Department of Jobs, Regions and Precincts - DJPR)
- Forests, Fire & Regions Group (DELWP)
- Aboriginal Self-Determination Reform Branch (DELWP)
- Trust for Nature

The ICM Team coordinated a Technical Working Group (TWG) comprised of representatives from the partners listed above. The TWG met regularly over 18 months to test, justify and rationalise a comprehensive list of proposed changes to the Data Standard. In addition to reviewing the current user needs and suitability of the Standard, the TWG developed a governance framework for managing future changes to the Data Standard and charted a strategy for improvements to data management, improved Aboriginal inclusion and structured tiering of the Data Standard for use in applications where the terms and needs were too specific and/or resource intensive to be of value to a majority of current users.

Key changes from the 2019/20 review included:

- development of governance arrangements for changes to the data standard
- inclusion of a new output for Marine and Coastal Structure
- inclusion of volunteer numbers and hours to several outputs
- amendments to the common attributes (on ground works agent, delivery standards version)
- development of a Unique Site ID code common attribute
- improved reference to Traditional Owner involvement (further work is planned to include specific outputs related to Aboriginal self determination)

Together, the Output Data Standard and the Delivery Standards represent key components of the DELWP MER Framework. The Delivery Standards provide guidance for consistent management activities and outputs; the Output Data Standard provide guidance on reporting those management activities and outputs.

Governance

Governance and control arrangements are a necessary component of establishing and managing foundational documents such as policies, plans, standards and procedures. The key rationale for establishing a governance framework for the Output Data Standard and Output Delivery Standards includes;

a. Consistency – Setting consistent guidelines around data collection, management and storage across funding streams, departments and partners

b. Efficiency – Reducing replication of reporting outputs across multiple departments and agencies

c. Transparency – Providing confidence and provenance behind the rationale for requirements described in the Standard, specifically where significant costs are associated with changes

d. Stability - Providing a set of guidelines for future management of the standard, regardless of structural, policy or funding changes

Control of the Standards

The Standards Custodian has primary responsibility for overseeing the governance, maintenance and distribution of the standards.

The Standards Custodian is a Director-level appointment within DELWP to ensure authority and oversight of administration related to the Output Data Standard and Delivery Standards. The Standards Custodian is nominally the Chair of the DELWP NRM Directors' Group (NRMDG) – currently the Director, Environmental Policy and Community Partnerships branch.

The Standards Custodian seeks authority from the NRMDG as the Standards Control Board (SCB) for decisions related to management, maintenance and governance of the standards.

What is the Technical Working Group (TWG)?

The TWG is a technically competent group of industry stakeholder representatives who have been identified by the SCB as being significant users of the Output Standard or Delivery Standards.

The role of the TWG is to make recommendations of actions for approval by the SCB, based on technical review of any requested changes to the current published standards.

What does Review of the Standard mean?

A review of the Standard may involve a complete technical investigation and formal update of the scope, terms, attributes and applications of the Output Data Standard and the Delivery Standards and subsequent republishing with a new major version number and ISBN.

However, a review request does not always need to constitute a full review of all applicable standards. A request may be as simple as a terminology update or addition/deletion of an output attribute. In this case, the affected standard will be published under a minor version number, likely in electronic, online format only until a subsequent major review is conducted.

The scope and scale of a Standard review, and the appropriate administration, will be determined by the SCB in consultation with the TWG.

Triggers for Review

Review requests will be referred to the TWG and SCB as required. Reasons for review should be significant, for example:

a. Significant policy and/or program change.

b. Significant changes to MER methodology or development of a new delivery method (e.g. – to account for a major advance in available technology or adaptation pathways for climate change).

c. A significant number of pending change requests for the current published standards.

Part 5: Appendices

Appendix A: Glossary

These proposed terms and definitions are the current agreed definitions which have been based on the (DSE) DELWP MER Framework.

Planning term	Preferred definition
Aboriginal Victorian	Aboriginal Victorian refers to both Aboriginal and Torres Strait Islander peoples. They may have connections in and outside of Victoria. The use of the term Indigenous is retained in the names of programs, initiatives and publication titles and, unless otherwise noted, is inclusive of both Aboriginal and Torres Strait Islander peoples
Activity/Action	The process of using labour and materials to produce outputs. In specific outputs related to planned outcomes.
Adaptive Management	Adaptive management is a systematic approach for improving resource management by learning from management outcomes.
Catchment	An area which, through run-off or percolation, contributes to the water in a stream or stream system (as defined in the Catchment and Land Protection (CaLP) Act 1994).
Catchment management	The co-ordinated management of land and water resources, using catchments as a basis (CaLP Act).
Condition/Quality/Health	The qualitative state of something described using specific criteria. In the program logics in this Standard the word 'condition' describes the qualitative endpoint for environmental policy. These condition outcomes may also include social and economic criteria.
Delivery Agent	The responsible entity administrating delivery of services under a funding agreement with DELWP. In the majority of cases, this will be an external partner, eg. CMA. However, this may also be a DELWP agency, administrating the agreement on behalf of an 'On-Ground Works Agent' – see definition below.
Effectiveness	Achievement of desired management outputs and resource condition. Where efficiency refers to value of the process, effectiveness refers the quality of the result.
Efficiency	Value of return from effort and investment.
Environment	The air, water, and land in or on which people, animals, and plants live, especially as affected by human activity (as defined by Cambridge Dictionaries **<https://dictionary.cambridge.org/dictionary/english/environment>**).
Foundational	Used as a conditional statement to identify activity that supports the capacity to deliver outcomes, but is not attributed to specific outputs.

Planning term	Preferred definition
Goal/Objective	A qualitative description of what is desired in the long term. Goal and Objective are synonyms.
Immediate outcome	The impact of planned outputs measured during the timeframe described by a specific plan or strategy at 1–3 years. Short term is a synonym for immediate.
Indicator	A quantitative or qualitative factor or variable that provides a simple and reliable basis for assessing achievement, change or performance. It is a unit of information measured over time that can help show changes in a specific condition. A given goal or objective can have multiple indicators.
Input	Effort, materials, equipment and funds put into natural resource management to deliver outputs and, in the longer term, achieve management outcomes and resource condition change.
Intermediate outcome	The impact of planned outputs measured at a midpoint between immediate outcomes and longer- term outcomes (usually 5+ years). A specific timeframe may be proposed e.g. at the end of a 5 year strategy. In this standard, this role is filled by management outcomes.
Intervention monitoring	Systematic tactical observation of natural resources which seeks to identify the impact of specific policy, programs and activities.
Land	Soil, water, vegetation and fauna on land (derived from the CaLP Act but excludes a mineral within the meaning of the Mineral Resources (Sustainable Development) Act 1990 and petroleum). This term is also variously used to refer to everything that is not water, an agricultural area or, simply, ground. The Planning and Environment Act 1987 refers to land as buildings and other structures permanently fixed to land and land covered with water as well as any estate, interest, easement, servitude, privilege or right in or over land. Due to this complexity, use the term 'land' with care and always clarify the meaning.
Land, water and biodiversity	A subset of the environment that refers to land, water in the environment, and plants and animals. A synonym for land and water resources and a synonym for natural resources
Long term	A period of time – usually 5 to 20+ years.
Longer term outcome	The proposed impact of planned outputs in the long term; beyond that measurable within the timeframe for activities related to a specific plan or strategy (see long term).
Management	Activities conducted as part of specific plans or strategies.
Management effectiveness	The degree to which natural resource activities and outputs contribute to management outcomes and objectives.

Planning term	Preferred definition
Management outcomes	The impact of planned outputs that will be measured at the end of the timeframe described by a specific plan or strategy (usually 5+ years).
Natural resource/s	A subset of the environment that describes soil, water in the environment, plants and animals. A synonym for land, water and biodiversity, and land and water resources (derived from the CaLP Act, and excludes a mineral within the meaning of the Mineral Resources (Sustainable Development) Act and petroleum).
Natural resource condition	The qualitative state of a natural resource at a specific time covering a defined spatial area and described using specific criteria.
Natural resources management	Any activity relating to the management, use, development or conservation of natural resources.
On-Ground Works Agent	The entity or individuals responsible for undertaking the physical on ground works elements of output delivery under a DELWP funding agreement. This may be a sub-contractor, delivering services to a DELWP funded Delivery Agent (see definition above), employees of a DELWP funded delivery agent or DELWP Agency staff. The important distinction is to define who actually completed the physical work on-ground.
Output	The measurable result (good or service) of activity over a fixed period of time delivered to a standard.
Performance	A quantitative or qualitative description of progress toward defined outcomes.
Performance measure	Quantifiable units of measurement that can be used to determine and assess progress toward outcomes.
Program logic	A conceptual model that shows the rationale behind a program/ project or strategy – what are understood to be the cause-and-effect relationships between activities, outputs, management outcomes and resource condition change.
Standard Output	An output that is part of an agreed list of outputs that form the basis for investment and planning purposes e.g. a list of standard outputs are used by the Victorian Waterway Programs Investment Framework.
Surveillance monitoring	Systematic strategic observation of natural resources which seeks to identify changes in condition and threatening processes. These are often outside the direct influence of natural resource management, but can help provide important contextual information. Also referred to as condition monitoring.
Target	Quantitative description of desired outcome over a defined period.
Traditional Owner	An Aboriginal person who has traditional connection(s) to an identified geographical area of Country.
Water resources	The quality, quantity, or rate of flow, of water (derived from the CaLP Act).

Appendix B: Acronyms

Abbreviation	Description
CMA	Catchment Management Authority
DELWP	Department of Environment, Land, Water and Planning (previously DSE)
DJPR	Department of Jobs, Precincts and Regions
DSE	Department of Sustainability and Environment (now DELWP)
LGA	Local Government Area
MER	Monitoring, evaluation and reporting
NRM	Natural resource management
PIRS	Project Information Retrieval System
PV	Parks Victoria
VEPP	Victorian Environmental Partnerships Program

Appendix C: Expected management outcomes

Expected management outcome title	Description
Accessibility	• Changes to the ease with which people can access a specific location or facility safely • Achieved directly through the strategic delivery of appropriate visitor facilities, roads, crossings and dredging and marine and coastal structures (i.e. to retain recreational and commercial access in marine environments) • Does not include non-human accessibility • Direction of change – increase or maintain accessibility

Expected management outcome title	Description
Amenity	• Influence the desirability or functionality of a feature or facility of a building or place including for liveability • Achieved directly through the strategic delivery of safe and sustainable visitor facilities and roads, and indirectly through the management of aesthetic environmental characteristics (e.g. vegetation, waterway structures, marine and coastal structures, rubbish removal) • Direction of change – increase or maintain amenity
Awareness	• Influence the awareness and understanding by the target audience through the provision of information • Achieved directly through events, publications, plans, agreements, information management systems and/or signs aimed at raising awareness and assessments which provide information for decision-making • Direction of change – increase or maintain awareness of target audience
Carbon storage	• Influence the carbon storage potential of a landscape • Achieve directly through establishment or maintenance of vegetation or indirectly through installing, modifying or removing marine and coastal structures that enhance carbon sequestering in marine and coastal environments (e.g. coastal wetlands, mangroves) • Direction of change – increase carbon storage
Connection to Country/ Traditional Owner knowledge, rights and aspirations	• Influences embedding of Traditional Owner knowledge, rights and aspirations in planning and decision making • Achieved through giving effect to Country plans and taking a self-determination model to Traditional Owner engagement and partnership • Direction of change – increase role and capability of Traditional Owners in planning and decision making
Cultural heritage	• Changes to management, access or impacts to protect and avoid damage to cultural heritage values • Achieved directly through fencing, pest plant and animal control, track rationalisation, erosion control, assessments and cultural heritage management plans • Direction of change – maintain or increase cultural heritage
Climate change adaptation	• Influence the adaptation of ecological, built and social systems to climate change • Achieved directly through installing, modifying, maintaining and removing structures and establishing or maintaining climate adapted vegetation and indirectly through increasing awareness, skills and collaborations via engagement events, partnerships, plans, agreements, assessments and publications. • Direction of change – increase adaptation

Expected management outcome title	Description
Coastal hazard risk reduction	• Influence the gradual emergence of coastal hazards which put at risk coastal values (e.g. people and natural, built, cultural and environmental assets) including, but not limited to erosion and inundation • Achieved directly through installing, modifying, maintaining and removing structures (e.g. proactive asset management). Indirectly through increasing awareness, skills and collaboration via engagement events, partnerships, plans, agreements, assessments and publications • Does not include extreme event preparedness though may contribute to climate change resilience and dune and shoreline stability outcomes • Direction of change – increase or maintain risk reduction
Collaboration	• Influence the collaboration between organisations and/or individuals • Achieved directly through engagement events, partnerships and assessments. May include collaboration to inform decision-making • Does not include management agreements • Direction of change – increase or maintain collaboration
Dune and shoreline stability	• Changes to the extent, risk or severity of the erosion or accretion (accumulation of sediments or debris), taking into account natural dynamic and cyclical nature of these systems • Altered through earth works (e.g. beach renourishment, dredging), installing or removing structures, establishment/maintenance of vegetation (reducing bare ground) and control of access • Direction of change – increase, maintain or reduce dune / shoreline stability
Environmental water	• Changes to the availability and delivery of water to meet environmental objectives • Altered through direct changes to water regimes or installation of in-stream structures (e.g water regulators), water storages, channels and pumps • Direction of change – increase or maintain delivery of environmental water
Extreme event preparedness	• Influence the social and ecological risks associated with extreme events (e.g. wildfire, flood, storm surge) • Achieved directly through the installation of levees (flood mitigation) or coastal structures, modification of vegetation and the alteration of fire regimes (intensity and/or frequency) at a location or indirectly through the construction of fire breaks, roads and crossings which help wildfire suppression • Does not include climate change or drought preparedness • Direction of change – increase or maintain preparedness for extreme events

Expected management outcome title	Description
Farm water use efficiency	• Influence the efficient use of farm water • Achieved directly through the installation of more efficient systems for irrigation (water storage, irrigation infrastructure, channel, pump) • Does not include outputs delivered to influence groundwater (i.e. water logging) • Direction of change – increase or maintain availability of farm water
Governance	• Influence the formal governance structures and processes surrounding natural resource management (between parties). This includes ecologically sustainable use and development of natural resources. • Achieved directly through clearer definition of expectations and priorities and regulatory approaches such as leases, advice and approvals, partnerships, management plans • Direction of change – increase or maintain governance
Groundwater	• Influence the depth to groundwater • Achieved directly through the installation of pumps and drains and indirectly through the establishment of vegetation • It should be noted that the depth to groundwater can be both a threat and a value depending on the landscape context • Direction of change – increase, maintain or reduce depth to groundwater
Habitat available	• Changes in the immediate availability of habitat features for targeted species • Altered through the changes to the natural and man-made features that directly provide or enhance habitat (e.g. logs, reefs, nest boxes) or through changes to the existing habitat features (e.g. removal of fish barriers). Can be indirectly influenced through stabilisation of soil, dunes or shoreline (e.g. pile fields, marine and coastal structures) • Direction of change – increase or maintain availability of habitat
Knowledge improvement, development and management	• Increases knowledge and understanding regarding conservation principles and related information • Achieved directly through engagement events, publications, agreements, assessments • Supported through improved data management and decision systems • Direction of change – maintain or improve knowledge development and management systems
Natural landscape features	• Influence the maintenance and enhancement of natural landscape features • Achieved indirectly through plans, assessments, approvals, partnerships and management agreements • Direction of change – maintain and improve natural landscape features

Expected management outcome title	Description
Productivity	• Changes to the efficiency of production (i.e. ratio of inputs to production) • Achieved directly in the terrestrial environment through agricultural practice change, thinning of vegetation or establishment of vegetation for production outcomes (e.g. shelter belts) and indirectly through water storage structures • Achieved directly in marine and inland aquatic environments through increase in habitat, and pest animal and overabundant wildlife control and indirectly through changes in water regimes and water quality • Direction of change – increase or maintain productivity
Skills	• Influence the ability of the target audience to develop skills • Achieved through the delivery of training and field events and indirectly through farm planning, publications, partnerships • Direction of change – increase or maintain skills of target audience
Soil properties	• Influence the soil properties and processes, e.g. chemistry (salinity), organic matter, biology, compaction • Can be altered directly through including soil treatment and agricultural practice change • Direction of change – increase or maintain soil properties
Soil stability	• Changes to the extent, risk or severity of erosion or sedimentation • Altered through the installation of terrestrial and aquatic sediment control structures, establishment/maintenance of vegetation (reducing bare ground), earthworks (removing sand slugs) and indirectly through agricultural practice change, provision of flushing flows to reduce sedimentation • Direction of change – increase, maintain or reduce soil stability
Species control	• Control the abundance, distribution and/or viability of undesirable flora and fauna at a specific location (generally pests or overabundant wildlife) • Altered directly through the control of pest animals, barriers such as fences and waterway structures, weed control and grazing regime • Indirectly altered through overabundant native species control • Information on target species is captured in output data • Direction of change – increase or maintain control of undesirable species

Expected management outcome title	Description
Species recovery	• Influence the distribution and/or viability of desirable flora and fauna (generally native species) • Altered directly through captive breeding, capture/release and propagation. Indirectly altered through weed control to reduce competition and pest animal control to reduce predation/ competition or rubbish removal to reduce threats • Information on target species captured in output data • Direction of change – increase or maintain desirable species
Stewardship	• Influence the commitment of individuals and organisations to be involved in the maintenance or improvement of natural and cultural landscapes • Achieved directly through partnerships and management agreements and indirectly through engagement events, plans, publications, information management systems (e.g. citizen science databases) and/or signs aimed at raising awareness • Direction of change – increase or maintain stewardship
Vegetation extent	• Influence the extent of native indigenous vegetation outside remnant patches • Directly influenced through the establishment of native vegetation (revegetation or regeneration) or indirectly through fencing or grazing regime change • The focus of this management outcome is on extent; vegetation structure and diversity will also be affected but does not need to be recorded separately • Does not include non-native vegetation (e.g. pasture established to improve soil composition or plantations for productivity outcomes) • Direction of change – increase vegetation extent
Vegetation structure and diversity	• Influence the structure and diversity of remnant native indigenous vegetation • Directly influenced through supplementary planting or thinning, a change in protection status, fire regime change and indirectly through weed control, fencing, grazing regime and animal or over abundant wildlife control, or through outputs which encourage regeneration • Does not include non-native vegetation (e.g. pasture established to improve soil stability or plantations for productivity) • Direction of change – increase or maintain vegetation structure or diversity
Water quality	• Influence characteristics of water quality (e.g. chemical, temperature, biota, turbidity) • Altered directly through the modification of water storages to influence temperature profiles (e.g. dams, weirs), installation of reuse systems or sediment transport (e.g. constructed wetland) or direct removal of pollutants including litter. Altered indirectly through the provision of flushing flows or sediment traps • Does not include vegetation (use with caution as water quality changes are usually longer- term condition change) • Direction of change – increase or maintain water quality

Appendix D: Metadata Statement Template

The following metadata template has been copied from the ANZLIC website to ensure consistency with national minimum standards. DELWP-funded delivery agents may develop their own template, though it must contain equivalent information to that listed below. Logical substitutions are acceptable where doing so improves accuracy. Eg – substituting the 'geographic extents box' with 'PPWCMA Boundary, CMA_100 layer' – which is a DELWP published layer.

1. Minimum metadata for a geographic dataset (**https://www.anzlic.gov.au/sites/default/files/files/anzlicmetadataprofileguidelines_v1-2.pdf**)

Example: Locality polygons dataset.

This example shows the minimum metadata for a geographic dataset called "Localities in Victoria". It provides a brief description of the basic characteristics of the dataset. The example shows that a metadata record for a geographic dataset can be quickly and easily completed. Usually the Metadata File Identifier will be generated and automatically populated by the metadata entry tool.

Note: To enable the loading of three discrete records into the Metadata tool, the file identifier and title is slightly different for each of the three following sample 'locality polygon' metadata records. In a normal environment, the record will be stored only once but presented many different ways with the same file identifier and title.

Identification info			
Title	Localities in Victoria (VMADMIN.LOCALITY_POLYGON) -Minimum elements		
Date	2006-09-11 (publication)		
Language	Eng		
Abstract	This dataset is the definitive set of locality boundaries for the state of Victoria as defined by Local Government and registered by the Registrar of Geographic Names. The boundaries are aligned to Vicmap Property. This dataset is part of the Vicmap Admin dataset series.		
Topic category	Boundaries		
Extent Geographic box			
	West bound longitude 141	North bound latitude -34	East bound longitude 150
		South bound latitude -39	

Metadata	
File identifier	388fab80-4f71-11db-8a85-000f2 07026dc
Hierarchy level	Dataset
Date stamp	2007-08-13
Metadata author	
Organisation name	Department of Sustainability and Environment
Role	Custodian

Appendix E: Units of Measure Table (for VWPIF projects only)

Order	Category (area)	Code	Value	Uom
1	1. Structural Works	1.1	1.1 Channel - Channel	Km
2	1. Structural Works	1.2	1.1 Channel - Drain	Km
3	1. Structural Works	1.2	1.2 Water storage - Trough	Number
4	1. Structural Works	1.2	1.2 Water Storage - Constructed Wetland	Number
5	1. Structural Works	1.2	1.2 Water Storage - Dam	Number
6	1. Structural Works	1.2	1.2 Water Storage - Sump	Number
7	1. Structural Works	1.2	1.2 Water Storage - Tank	Number
8	1. Structural Works	1.2	1.2 Water Storage - Weir	Number
9	1. Structural Works	1.3	1.3 Pump - Ground Water	Number
10	1. Structural Works	1.3	1.3 Pump - Surface Water	Number
11	1. Structural Works	1.4	1.4 Irrigation Infrastructure - Spray Irrigation	Number
12	1. Structural Works	1.4	1.4 Irrigation Infrastructure - Sump	Number
13	1. Structural Works	1.4	1.4 Irrigation Infrastructure - Surface Irrigation	Number
14	1. Structural Works	1.5	1.5 Waterway Structure - Chute	Number
15	1. Structural Works	1.5	1.5 Waterway Structure - Fish Barrier	Number
16	1. Structural Works	1.5	1.5 Waterway Structure - Fish Hotel/ Lunker	Number

Order	Category (area)	Code	Value	Uom
17	1. Structural Works	1.5	1.5 Waterway Structure - Fishway	Number
18	1. Structural Works	1.5	1.5 Waterway Structure - Flow Regulator	Number
19	1. Structural Works	1.5	1.5 Waterway Structure - Gross Pollutant Trap	Number
20	1. Structural Works	1.5	1.5 Waterway Structure - Groyne	Number
21	1. Structural Works	1.5	1.5 Waterway Structure - Large Wood A	Number
22	1. Structural Works	1.5	1.5 Waterway Structure - Large Wood B	Number
23	1. Structural Works	1.5	1.5 Waterway Structure - Large Wood C	Number
24	1. Structural Works	1.5	1.5 Waterway Structure - Large Wood D	Number
25	1. Structural Works	1.5	1.5 Waterway Structure - Outlet	Number
26	1. Structural Works	1.5	1.5 Waterway Structure - Pile Field	Number
27	1. Structural Works	1.5	1.5 Waterway Structure - Rock Seeding	Number
28	1. Structural Works	1.5	1.5 Waterway Structure - Rockbank	Number
29	1. Structural Works	1.5	1.5 Waterway Structure - Root Ball	Number
30	1. Structural Works	1.5	1.5 Waterway Structure - Sill	Number
31	1. Structural Works	1.6	1.6 Terrestrial Structure - Check-Dam	Number
32	1. Structural Works	1.6	1.6 Terrestrial Structure - Coir Logs	Number
33	1. Structural Works	1.6	1.6 Terrestrial Structure - Hygiene Station	Number
34	1. Structural Works	1.6	1.6 Terrestrial Structure - Jute Mat	Number
35	1. Structural Works	1.6	1.6 Terrestrial Structure - Revetment	Number
36	1. Structural Works	1.6	1.6 Terrestrial Structure - Rock Bund	Number
37	1. Structural Works	1.6	1.6 Terrestrial Structure - Sediment Trap	Number
38	1. Structural Works	1.6	1.6 Terrestrial Structure - Silt Fence	Number
39	1. Structural Works	1.6	1.6 Terrestrial Structure - Straw Bale	Number

Order	Category (area)	Code	Value	Uom
40	1. Structural Works	1.6	1.6 Terrestrial Structure - Thatching	Number
41	1. Structural Works	1.7	1.7 Terrestrial Feature - Artificial/ Temporary Pond	Number
42	1. Structural Works	1.7	1.7 Terrestrial Feature - Connectivity Infrastructure	Number
43	1. Structural Works	1.7	1.7 Terrestrial Feature - Man-made Ground Feature	Number
44	1. Structural Works	1.7	1.7 Terrestrial Feature - Natural Ground Feature	Number
45	1. Structural Works	1.7	1.7 Terrestrial Feature - Nest Box	Number
46	1. Structural Works	1.7	1.7 Terrestrial Feature - Rocks	Number
47	1. Structural Works	1.8	1.8 Monitoring Structure - Bore	Number
48	1. Structural Works	1.8	1.8 Monitoring Structure - Buoy/Mooring	Number
49	1. Structural Works	1.8	1.8 Monitoring Structure - Hide	Number
50	1. Structural Works	1.8	1.8 Monitoring Structure - Measuring Station	Number
51	1. Structural Works	1.8	1.8 Monitoring Structure - Photo Point Structure	Number
52	1. Structural Works	1.8	1.8 Monitoring structure - Trap	Number
53	1. Structural Works	1.9	1.9 Fence - Fence	Hectares (Ha)
54	1. Structural Works	1.9	1.9 Fence - Fence	Km
55	1. Structural Works	1.10	1.10 Visitor Facility - Building	Number
56	1. Structural Works	1.10	1.10 Visitor Facility - Operations	Number
57	1. Structural Works	1.10	1.10 Visitor Facility - Recreational	Number
58	1. Structural Works	1.11	1.11 Road - Firebreak	Km
59	1. Structural Works	1.11	1.11 Road - Road	Km
60	1. Structural Works	1.11	1.11 Road - Trail	Km
61	1. Structural Works	1.12	1.12 Crossing - Bridge	Number
62	1. Structural Works	1.12	1.12 Crossing - Causeway Crossing	Number
63	1. Structural Works	1.12	1.12 Crossing - Culvert	Number
64	1. Structural Works	1.12	1.12 Crossing - Ford	Number

Order	Category (area)	Code	Value	Uom
65	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Artificial Reef	Number
66	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Armouring	Number
67	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Breakwater	Number
68	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Gross Pollutant Trap	Number
69	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Groyne	Number
70	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Hybrid Reef	Number
71	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Natural Reef	Number
72	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Sand Bags	Number
73	1. Structural Works	1.13	1.13 Marine and Coastal Structure - Sea Wall	Number
74	2. Environmental Works	2.1	2.1 Vegetation - Biotope Overstorey	Hectares (Ha)
75	2. Environmental Works	2.1	2.1 Vegetation - Biotope Structure and Diversity	Hectares (Ha)
76	2. Environmental Works	2.1	2.1 Vegetation - EVC Multi Strata	Hectares (Ha)
77	2. Environmental Works	2.1	2.1 Vegetation - EVC Overstorey	Hectares (Ha)
78	2. Environmental Works	2.1	2.1 Vegetation - EVC Structure and Diversity	Hectares (Ha)
79	2. Environmental Works	2.1	2.1 Vegetation - Mixed	Hectares (Ha)
80	2. Environmental Works	2.1	2.1 Vegetation - Native Non-Indigenous	Hectares (Ha)

Order	Category (area)	Code	Value	Uom
81	2. Environmental Works	2.1	2.1 Vegetation - Native Indigenous	Hectares (Ha)
82	2. Environmental Works	2.1	2.1 Vegetation - Non Native	Hectares (Ha)
83	2. Environmental Works	2.2	2.2 Weed Control - Non-Woody	Hectares (Ha)
84	2. Environmental Works	2.2	2.2 Weed Control - Woody	Hectares (Ha)
85	2. Environmental Works	2.3	2.3 Pest Animal Control - Herbivore	Hectares (Ha)
86	2. Environmental Works	2.3	2.3 Pest Animal Control - Pathogen	Hectares (Ha)
87	2. Environmental Works	2.3	2.3 Pest Animal Control - Predator	Hectares (Ha)
88	2. Environmental Works	2.4	2.4 Over-abundant Wildlife Control - Herbivore	Hectares (Ha)
89	2. Environmental Works	2.4	2.4 Over-abundant Wildlife Control - Nuisance	Hectares (Ha)
90	2. Environmental Works	2.4	2.4 Over-abundant Wildlife Control - Predator	Hectares (Ha)
91	2. Environmental Works	2.5	2.5 Threatened Species Response - Restore Ecological Community	Number
92	2. Environmental Works	2.5	2.5 Threatened Species Response - Restore Individual Species	Number
93	2. Environmental Works	2.6	2.6 Emergency Species Response - Ecological Community	Number
94	2. Environmental Works	2.6	2.6 Emergency Species Response - Fauna/Animal	Number
95	2. Environmental Works	2.6	2.6 Emergency Species Response - Flora/Plant	Number
96	2. Environmental Works	2.7	2.7 Soil Treatment - Biological	Hectares (Ha)
97	2. Environmental Works	2.7	2.7 Soil Treatment - Chemical	Hectares (Ha)
98	2. Environmental Works	2.7	2.7 Soil Treatment - Mechanical	Hectares (Ha)
99	2. Environmental Works	2.7	2.7 Soil Treatment - Temperature	Hectares (Ha)

Order	Category (area)	Code	Value	Uom
100	2. Environmental Works	2.8	2.8 Earth Works - Armouring	Hectares (Ha)
101	2. Environmental Works	2.8	2.8 Earth Works - Battering	Hectares (Ha)
102	2. Environmental Works	2.8	2.8 Earth Works - Barrier	Hectares (Ha)
103	2. Environmental Works	2.8	2.8 Earth Works - Dredging	Hectares (Ha)
104	2. Environmental Works	2.8	2.8 Earth Works - Levee	Hectares (Ha)
105	2. Environmental Works	2.8	2.8 Earth Works - Levelling	Hectares (Ha)
106	2. Environmental Works	2.9	2.9 Rubbish Removal - Chemical	Hectares (Ha)
107	2. Environmental Works	2.9	2.9 Rubbish Removal - Commercial	Hectares (Ha)
108	2. Environmental Works	2.9	2.9 Rubbish Removal - Domestic	Hectares (Ha)
109	2. Environmental Works	2.9	2.9 Rubbish Removal - Litter Trap	Hectares (Ha)
110	2. Environmental Works	2.9	2.9 Rubbish Removal - Mixed	Hectares (Ha)
111	3. Management Services	3.1	3.1 Grazing - Access Management	Hectares (Ha)
112	3. Management Services	3.1	3.1 Grazing - Agronomic/Pastoral	Hectares (Ha)
113	3. Management Services	3.1	3.1 Grazing - Biomass Reduction	Hectares (Ha)
114	3. Management Services	3.1	3.1 Grazing - Fuel Load Management	Hectares (Ha)
115	3. Management Services	3.1	3.1 Grazing - Native Vegetation Protection	Hectares (Ha)

Order	Category (area)	Code	Value	Uom
116	3. Management Services	3.1	3.1 Grazing - Revegetation	Hectares (Ha)
117	3. Management Services	3.1	3.1 Grazing - Species Control	Hectares (Ha)
118	3. Management Services	3.1	3.1 Grazing - Weed Control	Hectares (Ha)
119	3. Management Services	3.2	3.2 Agricultural Practices - Dryland	Hectares (Ha)
120	3. Management Services	3.2	3.2 Agricultural Practices - Irrigation	Hectares (Ha)
121	3. Management Services	3.3	3.3 Water - Consumptive	Number
122	3. Management Services	3.3	3.3 Water - Cultural Water Holdings	Number
123	3. Management Services	3.3	3.3 Water - Environmental Water Holdings	Number
124	3. Management Services	3.3	3.3 Water - Mixed	Number
125	3. Management Services	3.3	3.3 Water - Unregulated Flow	Number
126	3. Management Services	3.4	3.4 Fire - Cultural	Hectares (Ha)
127	3. Management Services	3.4	3.4 Fire - Ecological	Hectares (Ha)
128	3. Management Services	3.4	3.4 Fire - Fuel Reduction	Hectares (Ha)
129	3. Management Services	3.4	3.4 Fire - Weed Control	Hectares (Ha)
130	4. Planning and Regulation	4.1	4.1 Approval and Advice - Advice	Number
131	4. Planning and Regulation	4.1	4.1 Approval and Advice - Lease	Number
132	4. Planning and Regulation	4.1	4.1 Approval and Advice - Licence	Number
133	4. Planning and Regulation	4.1	4.1 Approval and Advice - Notice	Number
134	4. Planning and Regulation	4.1	4.1 Approval and Advice - Permit	Number

Order	Category (area)	Code	Value	Uom
135	4. Planning and Regulation	4.1	4.1 Approval and Advice - Referral Response	Number
136	4. Planning and Regulation	4.2	4.2 Management Agreement - Binding Non-perpetual	Number
137	4. Planning and Regulation	4.2	4.2 Management Agreement - Binding Perpetual	Number
138	4. Planning and Regulation	4.3	4.3 Assessment - Agronomic	Number
139	4. Planning and Regulation	4.3	4.3 Assessment - Cultural	Number
140	4. Planning and Regulation	4.3	4.3 Assessment - Ecological	Number
141	4. Planning and Regulation	4.3	4.3 Assessment - Fauna	Number
142	4. Planning and Regulation	4.3	4.3 Assessment - Flora	Number
143	4. Planning and Regulation	4.3	4.3 Assessment - Geological	Number
144	4. Planning and Regulation	4.3	4.3 Assessment - Geospatial	Number
145	4. Planning and Regulation	4.3	4.3 Assessment - Ground Water	Number
146	4. Planning and Regulation	4.3	4.3 Assessment - Heritage	Number
147	4. Planning and Regulation	4.3	4.3 Assessment - Invasive Species	Number
148	4. Planning and Regulation	4.3	4.3 Assessment - Litter Audit	Number
149	4. Planning and Regulation	4.3	4.3 Assessment - Necropsy/Sampling	Number
150	4. Planning and Regulation	4.3	4.3 Assessment - Property	Number

Order	Category (area)	Code	Value	Uom
151	4. Planning and Regulation	4.3	4.3 Assessment - Social	Number
152	4. Planning and Regulation	4.3	4.3 Assessment - Soil	Number
153	4. Planning and Regulation	4.3	4.3 Assessment - Surface water	Number
154	4. Planning and Regulation	4.3	4.3 Assessment - Threatened Species	Number
155	4. Planning and Regulation	4.3	4.3 Assessment - Weather	Number
156	4. Planning and Regulation	4.4	4.4 Engagement Event - Conference -	Number of Participants
157	4. Planning and Regulation	4.4	4.4 Engagement Event - Field Day	Number of Participants
158	4. Planning and Regulation	4.4	4.4 Engagement Event - Meeting	Number of Participants
159	4. Planning and Regulation	4.4	4.4 Engagement Event - Presentation	Number of Participants
160	4. Planning and Regulation	4.4	4.4 Engagement Event - Training	Number of Participants
161	4. Planning and Regulation	4.4	4.4 Engagement Event - Workshop	Number of Participants
162	4. Planning and Regulation	4.5	4.5 Partnership - Aboriginal Victorians	Number
163	4. Planning and Regulation	4.5	4.5 Partnership - Agency	Number
164	4. Planning and Regulation	4.5	4.5 Partnership - Corporate	Number
165	4. Planning and Regulation	4.5	4.5 Partnership - Educational	Number
166	4. Planning and Regulation	4.5	4.5 Partnership - Community Groups	Number
167	4. Planning and Regulation	4.5	4.5 Partnership - Mixed	Number
168	4. Planning and Regulation	4.5	4.5 Partnership - NGO	Number
169	4. Planning and Regulation	4.5	4.5 Partnership - Research	Number

Order	Category (area)	Code	Value	Uom
170	4. Planning and Regulation	4.5	4.5 Partnership - Traditional Owners	Number
171	4. Planning and Regulation	4.6	4.6 Plan - Engagement	Number
172	4. Planning and Regulation	4.6	4.6 Plan - Management	Number
173	4. Planning and Regulation	4.6	4.6 Plan - Property	Number
174	4. Planning and Regulation	4.6	4.6 Plan - Strategy	Number
175	4. Planning and Regulation	4.7	4.7 Publication - Audio	Number
176	4. Planning and Regulation	4.7	4.7 Publication - Visual	Number
177	4. Planning and Regulation	4.7	4.7 Publication - Written	Number
178	4. Planning and Regulation	4.8	4.8 Information Management System - Database	Number
179	4. Planning and Regulation	4.8	4.8 Information Management System - Decision Support	Number

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