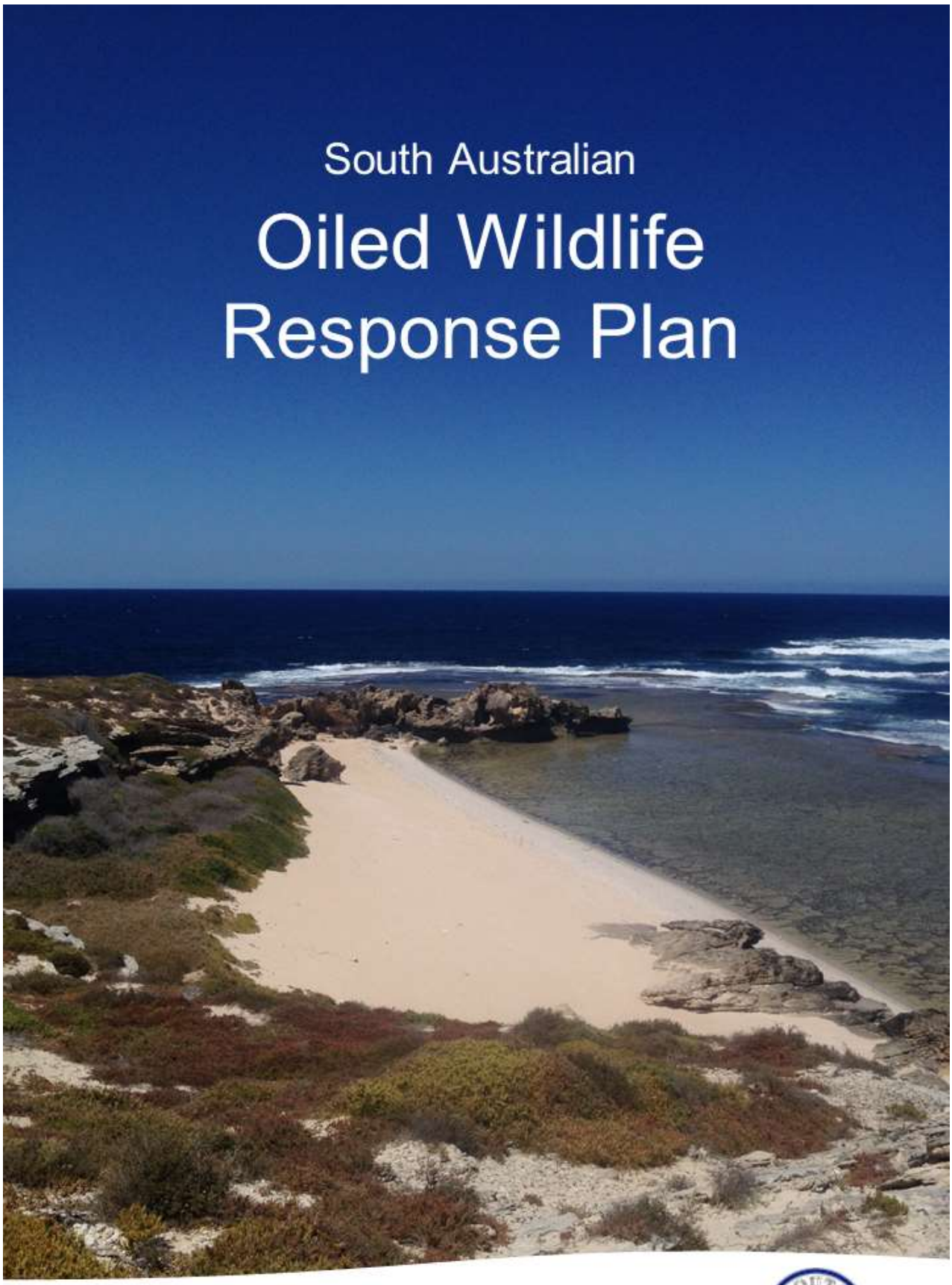
South Australian

Oiled Wildlife Response Plan



AMOSC
Australian Marine
Oil Spill Centre Pty Ltd

Government
of South Australia

Purpose of this Document

This document provides guidance to the Department for Environment and Water (DEW) and the Petroleum Industry, as Oiled Wildlife Response Agencies on the management of an Oiled Wildlife Marine Pollution Incident in South Australia.

History of this Document

This plan is based on the Western Australian Oiled Wildlife Response Plan which was written by R Marshall of Parks and Wildlife and R Bucklow of the Australian Marine Oil Spill Centre (AMOSC). It was reviewed by the Western Australian Government and petroleum industry stakeholders and endorsed by J Sharp, Director General of Parks and Wildlife (WA) and N Quinn, General Manager of AMOSC prior to its release on 08/09/2014.

In 2015, the Western Australian Government invited other jurisdictions to use their plan to develop parallel arrangements in their own states and territories. South Australian took advantage of this offer. Consequently, in 2016 the Western Australian plan was adapted to suit South Australian arrangements, and then adopted in South Australia on 26th August 2016. In November 2018, the SAOWRP was updated to include the Regional Oiled Wildlife Response Plans for 6 regions in South Australia.

Exercise and Review periods

Exercising

Exercising program schedules will be developed in line with DEW and/or Control Agency requirements. The South Australian Marine Spill Contingency Plan (SAMSCAP) will be reviewed later in 2019, including the frequency of exercising.

Review

This plan will be reviewed and updated by Parks and Wildlife (WA); DEW (SA) and AMOSC following an incident, relevant legislation changes, South Australian Marine Spill Contingency Action Plan (SAMSCAP).

Version	Date	Reviewed by	Approved by
V1.1	18/08/2016	Chief Executive, DEWNR	Chief Executive, DEWNR
	26/08/2016	Marine Pollution Committee	State Marine Pollution Committee
V1.2	27/11/2018	Chief Executive, DEW	Chief Executive, DEW
V1.3	15/3/2019	Marine Pollution Committee	State Marine Pollution Committee

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ACRONYMS

AIIMS	Australasian Inter-Service Incident Management System.
AMOSC	Australian Marine Oil Spill Centre.
AMSA	Australian Maritime Safety Authority (Commonwealth).
DotEE	The Department of the Environment and Energy (Commonwealth).
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority (Commonwealth).
OPEP	Oil Pollution Emergency Plan.
OWR	Oiled Wildlife Response.
PA	Port Authority.
SAOWRP	The South Australian Oiled Wildlife Response Plan.

GLOSSARY OF TERMS

For clarity and in the context of this document:

Commonwealth Waters	Means any part of the sea, including the waters, seabed, and airspace, within Australia's exclusive economic zone and/or over the continental shelf of Australia that is not State or Territory waters.
National Plan	The National Plan for Maritime Environmental Emergencies and all policy, guidance and advisory documents produced and published in support.
Oiled Wildlife Response Level	Oiled Wildlife Response is divided into 6 levels based on the number of oiled wildlife, complexity of the response (fauna type and spatial extent) and expected duration of the response.
Petroleum Industry	Means the oil and gas companies operating in Commonwealth and/or State waters.
Responsible Party	Means the entity that has been identified as owning or having the legal responsibility for the ship or facility that caused the incident.
State Waters	Means any part of the sea, including the waters, seabed, and airspace within 3 nautical miles of the territorial sea base line.
SAMSCAP	South Australian Marine Spill Contingency Action Plan.

Other terms which may be useful are explained in the glossary of terms of the South Australian Marine Spill Contingency Action Plan (SAMSCAP), The National Plan for Maritime Environmental Emergencies (National Plan), Australian Marine Oil Spill Plan (AMOS plan) and petroleum industry Oil Pollution Emergency Plans (OPEP).

QUICK REFERENCE GUIDE

	Action	Page Reference
Marine Oil Pollution event occurs with imminent or actual wildlife impact	Go to plan activation in this plan.	Page 16
Key notifications (Duty Officer numbers)	**Department of Planning, Transport and Infrastructure (DPTI)** through **Flinders Ports Signal Station** (08) 8248 3505 **Department for Environment and Water (DEW)** Duty Officer: 0419 806 726 **Australian Marine Oil Spill Centre (AMOSC**) 0438 379 328 **Australian Maritime Safety Authority (AMSA):** Within Australia: 1 800 641 792 Outside Australia: +61 2 6230 6811	
Regional Contacts for Oiled Wildlife Response	**Alinytjara Wilurara And Eyre Peninsula** Duty Officer: (08) 86883223. DEW Ceduna: (08) 8625 3144. DEW Port Lincoln: (08) 8688 3111 DEW Port Augusta on (08) 8648 5300 City of Port Lincoln: (08) 8621 2300 Port Augusta City Council on 08 8641 9100 **Northern And Yorke** DEW Port Augusta: (08) 8648 5300 Port Augusta City Council: (08) 8641 9100	

	Action	Page Reference
Regional Contacts for Oiled Wildlife Response	**Adelaide and Mt Lofty Ranges (AMLR)** DEW Office: (08) 8552 0300 City of Victor Harbor: (08) 8551 0500 **South East** DEW Duty Officer: (08) 87351177 DEW Office: (08) 8735 1204 NR Mt Gambier Office: (08) 8735 1177 Kingston District Council: (08) Coorong District Council: (08) Robe District Council: (08) **Kangaroo Island** DEW Kingscote: (08) 8553 4415 NR Board Kingscote: (08) KI Council Office: (08) 8553 4500 **SA Murray Darling Basin** DEW Victor Harbour: (08) 8552 0300 City of Victor Harbour Office: (08) 8551 0500	
State arrangements	See Roles and Responsibilities section	Page 13
Incident Management Structure	See Incident Management Structure	Page 18
Roles and responsibilities	See Appendix A	Page 53
Stages of Oiled Wildlife Response	See Figure 4 Stages of Oiled Wildlife Response	Page 20
Resources – human	Go to sections 5, 6 and 7 in this plan and relevant regional Oiled Wildlife Response Plan	Pages 44, 48 and 51
Resources - equipment	Go to section 7 in this plan and relevant regional oiled wildlife response plans. References also made at each 'Stages of Oiled Wildlife Response'	Page 52 Page 21

Image courtesy of B. Page, (DEW)

1. INTRODUCTION

The South Australian Oiled Wildlife Response Plan (SAOWRP) sets out the minimum standard required for an oiled wildlife response in South Australian State waters.

This plan describes the management arrangements for implementing a wildlife response. It is a supporting plan of the South Australian Marine Spill Contingency Action Plan (SAMSCAP) which is administered by the Department of Planning, Transport and Infrastructure (DPTI).

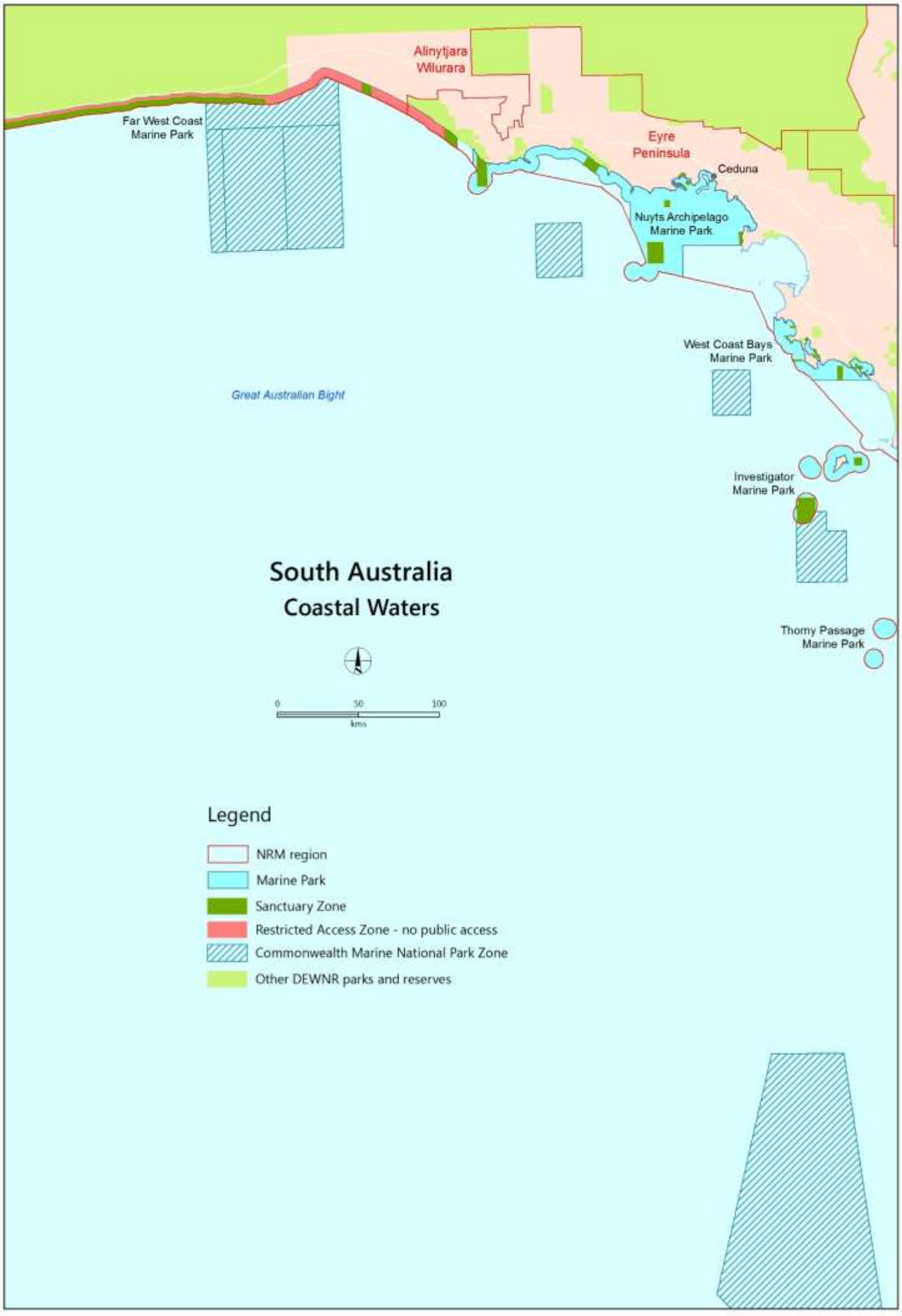
The Department for Environment and Water (DEW) is responsible for the administration and implementation of the SAOWRP.

Terminology used in this plan is consistent with the terminology of the South Australian Marine Spill Contingency Action Plan (SAMSCAP).

Management arrangements are also consistent with SAMSCAP to ensure that DEW and DPTI have a shared understanding of terms and conduct a coordinated and consistent response as the Control Agency for marine oil spills in State waters.

1.1 Scope

The geographical areas covered by the SAOWRP and each of the six (6) Regional Operational Oiled Wildlife Response Plans are shown in Figure 1.


Alinytjara
Wilurara
Far West Coast
Marine Park
Eyre
Peninsula
Ceduna
Nuyts Archipelago
Marine Park
West Coast Bays
Marine Park
Great Australian Bight
Investigator
Marine Park
Thorny Passage
Marine Park
South Australia
Coastal Waters
0
50
100
kms
Legend
NRM region
Marine Park
Sanctuary Zone
Restricted Access Zone - no public access
Commonwealth Marine National Park Zone
Other DEWNR parks and reserves


South Australian Arid Lands
Port Augusta
Upper Spencer Gulf Marine Park
Whyalla
Port Pirie
Eyre Peninsula
Franklin Harbor Marine Park
Northern & Yorke
Investigator Marine Park
Clare
South Australian Murray-Darling Basin
Spencer Gulf
Eastern Spencer Gulf Marine Park
Renmark
Sir Joseph Banks Group Marine Park
Gawler
Port Lincoln
Upper Gulf St Vincent Marine Park
Thorny Passage Marine Park
Gambier Islands Group Marine Park
Gulf St Vincent
Adelaide & Mt Lofty Ranges
Murray Bridge
Lower Yorke Peninsula Marine Park
Neptune Islands Group (Ron and Valerie Taylor) Marine Park
Southern Spencer Gulf Marine Park
Victor Harbor
Kangaroo Island
Encounter Marine Park
Western Kangaroo Island Marine Park
Southern Kangaroo Island Marine Park
Upper South East Marine Park
South East
Naracoorte
Southern Ocean
Millicent
Mount Gambier
Lower South East Marine Park

1.2 Plan Objectives

The objectives of the SAOWRP are:

- To provide operational standards for any oiled wildlife response within South Australia resulting from marine oil pollution incidents;
- To develop skills and knowledge across government agencies and the petroleum industry to ensure an oiled wildlife response can be undertaken safely, effectively and efficiently;
- To provide procedures for the humane treatment of stranded, sick and injured marine fauna during a marine oil pollution incident;
- To provide knowledge and guidelines to facilitate the effective rescue, stabilisation and rehabilitation of wildlife during a marine oil pollution incident;
- To address community and regulatory expectations for oiled wildlife response during a marine oil pollution incident;
- To integrate the industry and Government response to oiled wildlife to ensure collaboration and effective use of resources.

1.3 Oiled Wildlife Legislative Responsibilities

1.3.1 Commonwealth Legislation

The Australian Government Department of the Environment and Energy (DotEE) administers the *Environmental Protection and Biodiversity Conservation Act 1999*. This Act provides a legal framework for the protection and management of Commonwealth marine areas. See Table 1 for Commonwealth legislation relevant to oiled wildlife response.

1.3.2 State Legislation

In accordance with the SAMSCAP, DEW is the lead agency in South Australia for oiled wildlife response. DEW has the statutory authority to treat, protect and destroy wildlife and to permit others to do so in accordance with the *National Parks and Wildlife Act 1972 and Regulations*.

DEW also administers the *Animal Welfare Act 1985* which requires that treatment, housing release and euthanasia of fauna conducted in a humane manner. See Table 2 for State legislation relevant to oiled wildlife response.

Table 1: Commonwealth Legislation Relevant to Oiled Wildlife Response

Commonwealth Legislation	Purpose	Authority
Environmental Protection Amendment Act 2003	Management of Australia's environment	DotEE
Environmental Protection and Biodiversity Conservation Act 1999 and Regulations	Protection of Australia's environment and biodiversity values	DotEE

Table 2: State Legislation Relevant to Oiled Wildlife Response

State Legislation	Action	Authority
National Parks and Wildlife Act 1972 and Regulations	Manage land and waters, flora and fauna	DEW
Wilderness Protection Act 1992 and Regulations	Conservation and protection of flora and fauna	DEW
Animal Welfare Act 1985 and Regulations	Governs the treatment and welfare of animals in South Australia	DEW
Environment Protection Act 1993	Primary Industries and Regions SA (PIRSA) refers petroleum environment plans to the Environment Protection Authority (EPA) and DEW for consideration.	DEW EPA

1.4 Roles and Responsibilities

The designated Control Agency remains the Control Agency for oil spill response and therefore for oiled wildlife response (see Table 3).

By agreement, the responsible agencies will work cooperatively, particularly in situations where a spill which occurs within one agency's jurisdiction is likely to impact on that of another agency.

1.4.1 Oiled Wildlife Response in Commonwealth Waters

DotEE is the jurisdictional authority for wildlife impacted by an oil spill emanating from offshore petroleum operations within Commonwealth waters. However, the SAOWRP may be used as guidance.

1.4.2 Oiled Wildlife Response in State Waters

If an oil spill emanates from a shipping incident, DPTI is the Control Agency and DEW is responsible for oiled wildlife response.

If there is a small petroleum operation spill, the petroleum titleholder may be responsible for the clean-up but DPTI remains the Control Agency.

The agency responsible for the clean-up, (whether it is DPTI, Flinders Ports or the petroleum titleholder), may request resources from the other parties if required.

If the petroleum industry is responsible for the clean-up, the DEW Oiled Wildlife Advisor will provide advice and assistance to the Incident Management Team for functions such as licensing, permits and approvals.

Table 3: Marine Oil Pollution Arrangements

Location	Spill Source	Jurisdictional Authority		Control Agency
		Oil Spill Response	Wildlife	
Commonwealth Waters	Oil and Gas Facility	NOPSEMA	DotEE	Petroleum Titleholder
	Vessel	AMSA	DotEE	AMSA
State Waters	Oil and Gas Facility	DPTI	DEW	DPTI - In cases of a small spill, may be the PA or Title Holder
	Vessel	DPTI	DEW	
Port Authority (PA)	Oil and Gas Facility	Flinders Ports	DEW	
	Vessel	Flinders Ports	DEW	

1.5 Relationships to Other Plans

1.5.1 National Plan

The Australian Maritime Safety Authority (AMSA) manages the National Plan for Maritime Environmental Emergencies (the National Plan).

The National Plan enables an effective response to a marine oil pollution event in Commonwealth waters through an integrated arrangement between all the Australian jurisdictions and the petroleum industry.

The National Plan provides national guidelines for the development of marine oil pollution contingency plans, and a requirement for jurisdictions to develop their operational and tactical plans to deal with oiled wildlife.

The SAOWRP fulfils that obligation.

1.5.2 The South Australian Marine Spill Contingency Action Plan (SAMSCAP)

The SAMSCAP is managed by DPTI. It details the management arrangements for the prevention, preparation, response and recovery for marine oil pollution incidents in State waters.

The rehabilitation of oil-affected wildlife is a recognised response activity under SAMSCAP, with oiled wildlife response guidelines detailed in this plan, which is a supporting plan to SAMSCAP.

The SAMSCAP requires that the petroleum industry and DEW have operational plans for oiled wildlife response and these plans align with SAMSCAP.

Thus, this plan provides guidance for an oiled wildlife response for both petroleum industry and DEW regardless of the spill source. DPTI is the Control Agency for all marine oil spills.

It has been developed in consultation with industry to ensure that our plans are consistent and mesh together in oil spill incidents where both parties have responsibilities or interests.

1.6 Financial Arrangements

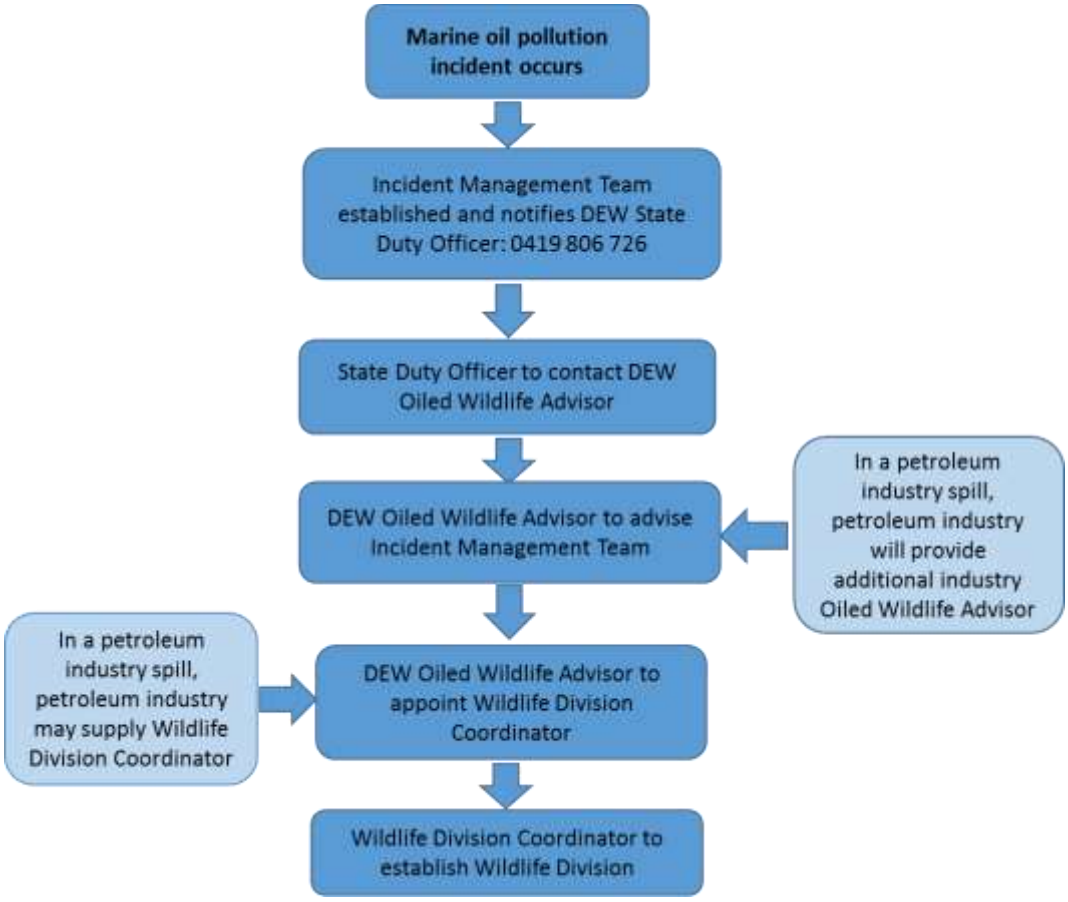
The National Plan and SAMSCAP provide details of recovery arrangements for oil spills in Commonwealth and State waters, respectively.

DEW is not the Control Agency for marine oil pollution or oiled wildlife response.

Therefore, to manage its financial risk, DEW must ensure all expenditure for oiled wildlife response is approved by the Incident Controller.

Testing penguin water proofing. Rena oil spill wildlife response.

Figure 2: Flow Chart of the Activation of an Oiled Wildlife Response



2. PLAN ACTIVATION

This plan should be activated if there is an imminent or actual impact to wildlife as a result of a marine oil pollution incident. See Figure 2 for the SAOWRP activation process.

2.1 State Waters Shipping Spill

DEW may activate this plan following:

- mobilisation by DPTI through the activation of SAMSCAP;
- receipt of a report from the public of oiled wildlife in State waters;
- receipt of a request from the Incident Controller managing a marine oil pollution incident; or
- receipt of a report of oiled wildlife from any other source.

DEW will ensure that the **DPTI Oil Spill Response Coordination team** is notified immediately of a report of an oil spill or oiled wildlife in State waters by contacting the **24 hour reporting hotline: (08) 8248 3505.**

2.2 Titleholder Spill

A Petroleum Control Agency may activate this plan following:

- activation of their Oil Pollution Emergency Plan;
- receipt of a report of oiled wildlife; or
- a request from an Incident Controller managing a marine oil pollution incident.

If the SAMSCAP is activated for a marine oil pollution incident and a wildlife response is required, the relevant regional Oiled Wildlife Response Plan will be activated to provide on ground information specific to the region such as wildlife values, siting of oiled wildlife response facilities, equipment locations and local resources.

If small numbers of oiled animals are found and they can be treated using local resources (veterinarians, wildlife carers or DEW staff), no additional resources may be required and hence the oiled wildlife response may not need to be activated.

The level of escalation of the oiled wildlife response will be determined by the Incident Management Team.

If a DEW officer receives a report of an oil spill, a potential threat to wildlife or oiled wildlife, the officer should obtain all relevant information from the reporter including:

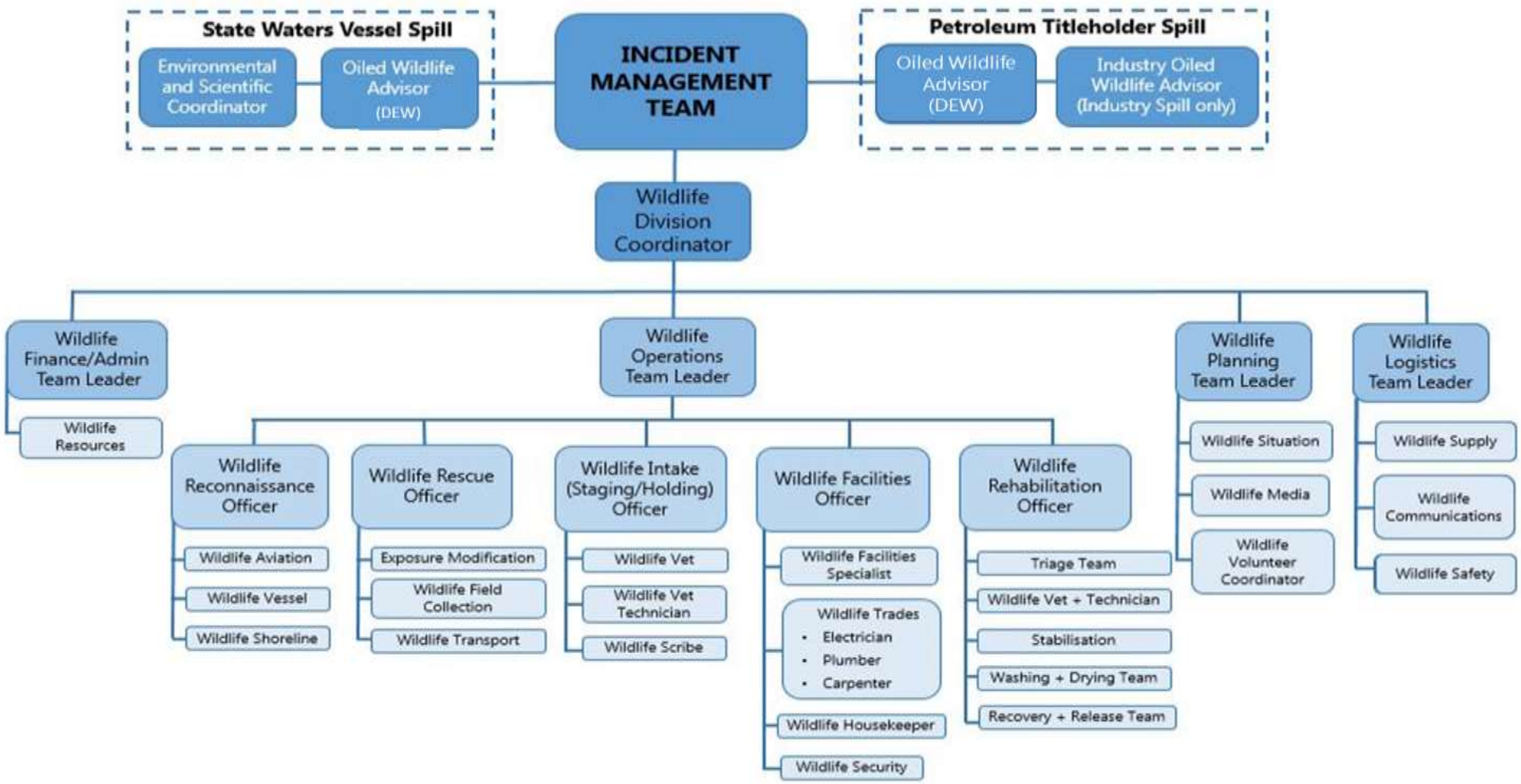
- location;
- access;
- number;
- species; and
- condition of oiled wildlife.

Communicate this information to the **State Duty Officer** as soon as possible. This information will then be provided to the **Oil Spill Response Incident Controller** via the **24 hour reporting hotline: (08) 8248 3505.**

The State Duty Officer will contact the DEW Oiled Wildlife Advisor to advise the Control Agency on the management of the oiled wildlife response.

The incident management team will make decisions on levels of response, and therefore resources (equipment/personnel) required with input and advice from the Oiled Wildlife Advisor(s). All decisions must be approved by the Incident Controller.

Figure 3: Suggested Functions for a Full Scale Oiled Wildlife Response Incident Management Structure



3. OILED WILDLIFE RESPONSE INCIDENT MANAGEMENT STRUCTURE

The oiled wildlife response incident management structure will be consistent with the Australasian Inter-Service Incident Management System (AIIMS) and SAMSCAP. However, the petroleum industry operates under a variety of incident response frameworks.

This section details the oiled wildlife response division structure only. The petroleum titleholders specific Oil Pollution Emergency Plans and SAMSCAP contain further detail into how the 'wildlife division' is positioned within the respective oil spill response Incident Management structures.

The connection to the larger oil spill response and structure of the wildlife division is not prescriptive because the petroleum titleholders and government have different incident structures.

The number of people required to undertake each of the identified functions is dependent on the scale of the response.

In a minor oiled wildlife event, one person may facilitate multiple functions while in a large incident several responders may be required for each function. However, it is important that the identified functions are undertaken and figure 3 provides a guide for that structure.

Refer to Table 3 Marine pollution arrangements to identify the Control Agency and therefore the Incident Controller and Incident Management Team.

The DEW Oiled Wildlife Advisor will provide advice to the Incident Management Team through the Environment and Scientific Coordinator under SAMSCAP.

The petroleum titleholder Oil Pollution Emergency Plan requires that the Industry Oiled Wildlife Advisor and the DEW Oiled Wildlife Advisor will report to the Incident Management Team through the structure identified in the specific Oil Pollution Emergency Plan.

Under both scenarios the DEW Oiled Wildlife Advisor will manage fauna licence requirements through direct contact with the Incident Controller.

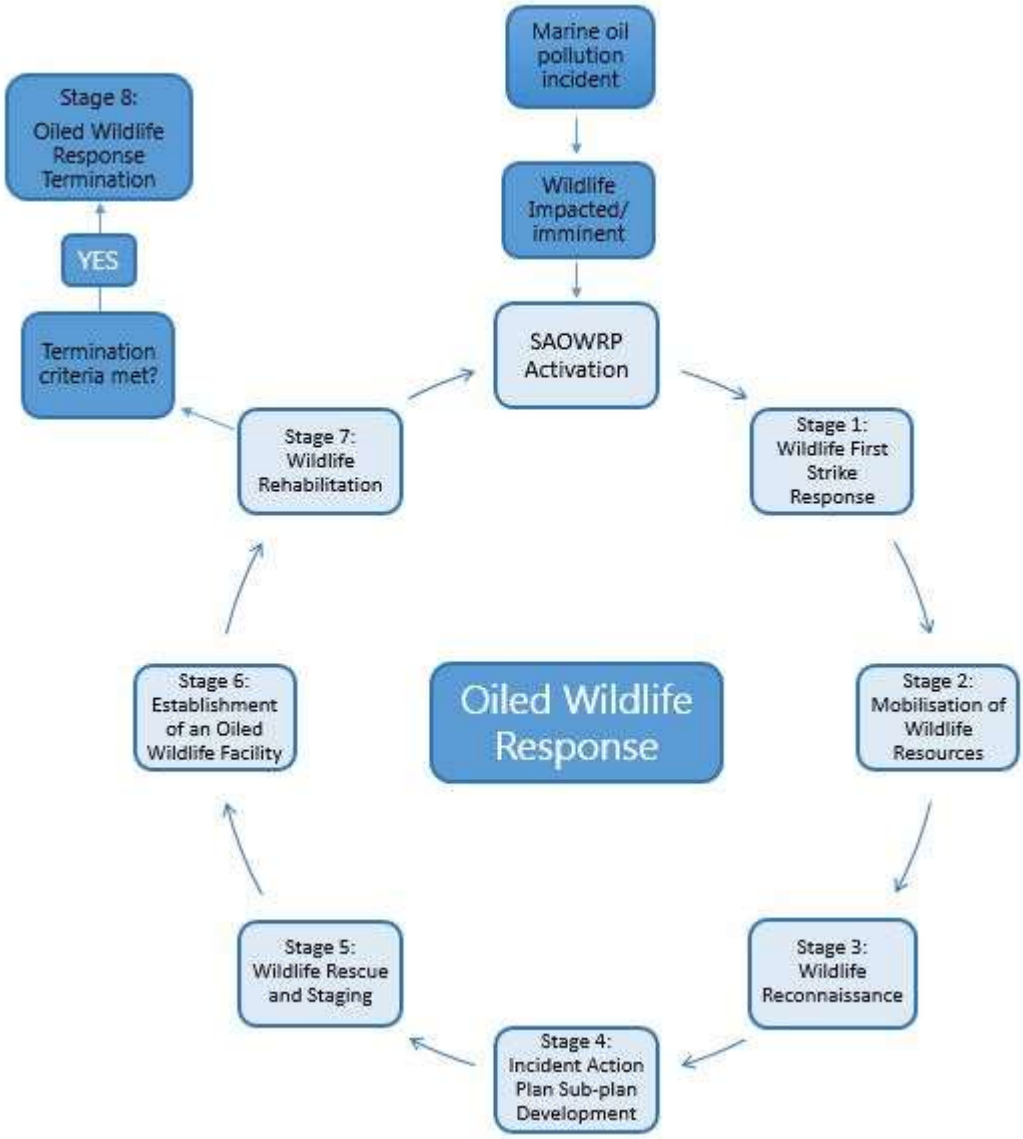
Appendix A of this document provides further detail on the roles and responsibilities of the positions shown in Figure 3 in the activation and incident management structure sections.

3.1 Notification

Key stakeholders, identified in the regional Oiled Wildlife Response Plan, should be notified that a marine oil pollution incident has occurred. These stakeholders will vary for each response depending on whether it is within State or Commonwealth waters and the location of the marine oil pollution.

Key stakeholders include local councils and indigenous groups. Contact lists are provided in the regional Oiled Wildlife Response Plans.

Figure 4: Indicative Stages of an Oiled Wildlife Response



4. STAGES OF OILED WILDLIFE RESPONSE

Figure 4 shows the stages of oiled wildlife response following activation of SAOWRP. Each stage is described in further detail below.

4.1 Stage 1 - Wildlife First Strike Response

The Oiled Wildlife Advisor has already been advised at this stage. The first strike oiled wildlife response activities provide the initial response of the wildlife division including:

- **Activation** of the relevant Regional Oiled Wildlife Response Plan;
- Rapid **assessment** of the situation;
- Gathering information regarding wildlife using the regional Oiled Wildlife Response plan;
- Provision of **advice** to the Incident Management Team regarding the wildlife assets at risk;
- **the potential response level** (1-6), determined by Oiled Wildlife Advisor and Wildlife Division Coordinator, based on the determined risk areas and likely numbers of animals affected (see Table 6 in section 5 for details of oiled wildlife response levels).

The response level is likely to change over the first 72 hours depending on the number of animals requiring treatment. It is the responsibility of the Wildlife Division Coordinator in conjunction with the Oiled Wildlife Advisor to determine the level of the response.

The Wildlife Division Coordinator will liaise directly with the Oiled Wildlife Advisor to determine the resources required, the resources available and preparations to escalate the response if deemed necessary.

The Wildlife Division Coordinator and Oiled Wildlife Advisor will discuss activation and mobilisation of First Strike Oiled Wildlife Response equipment in anticipation of an oiled wildlife response to ensure the availability of equipment at the time it is needed.

First strike Oiled Wildlife Response kits are located in South Australia and their locations are listed in section 7 which also includes a list of equipment that may be sourced from other jurisdictions.

More detailed information on these kits is found in the respective regional Oiled Wildlife Response Plans. Any activation and mobilisation of Oiled Wildlife Response Equipment must be approved by the Incident Controller.

4.2 Stage 2 - Mobilisation of Resources

This stage involves the initial mobilisation of resources. The Oiled Wildlife Response personnel, equipment and facilities mobilised for any event will be determined by the circumstances of the event, however a minimum capacity must be mobilised to provide a safe and effective response capability (and critical mass).

A Wildlife Planning Team Leader will need to be mobilised to assist the DEW Oiled Wildlife Advisor and the Wildlife Division Coordinator. (Note, if the petroleum industry is the Control Agency, these personnel will work with the Industry Oiled Wildlife Advisor.)

A Wildlife Operations Team Leader will also be mobilised to lead the mobilisation of operational resources at the scene when oiled wildlife have been observed.

Further personnel mobilisation along with equipment, and facility acquisition must occur ahead of need if wildlife impact is anticipated.

Indications of the resources needed for each stage of the oiled wildlife response are outlined in this section under each relevant stage. The level and escalation of resource mobilisation will be determined by the Incident Management Team and informed by advice from the Oiled Wildlife Advisor.

Figure 5: Indicative Structure of the Reconnaissance Unit Functions

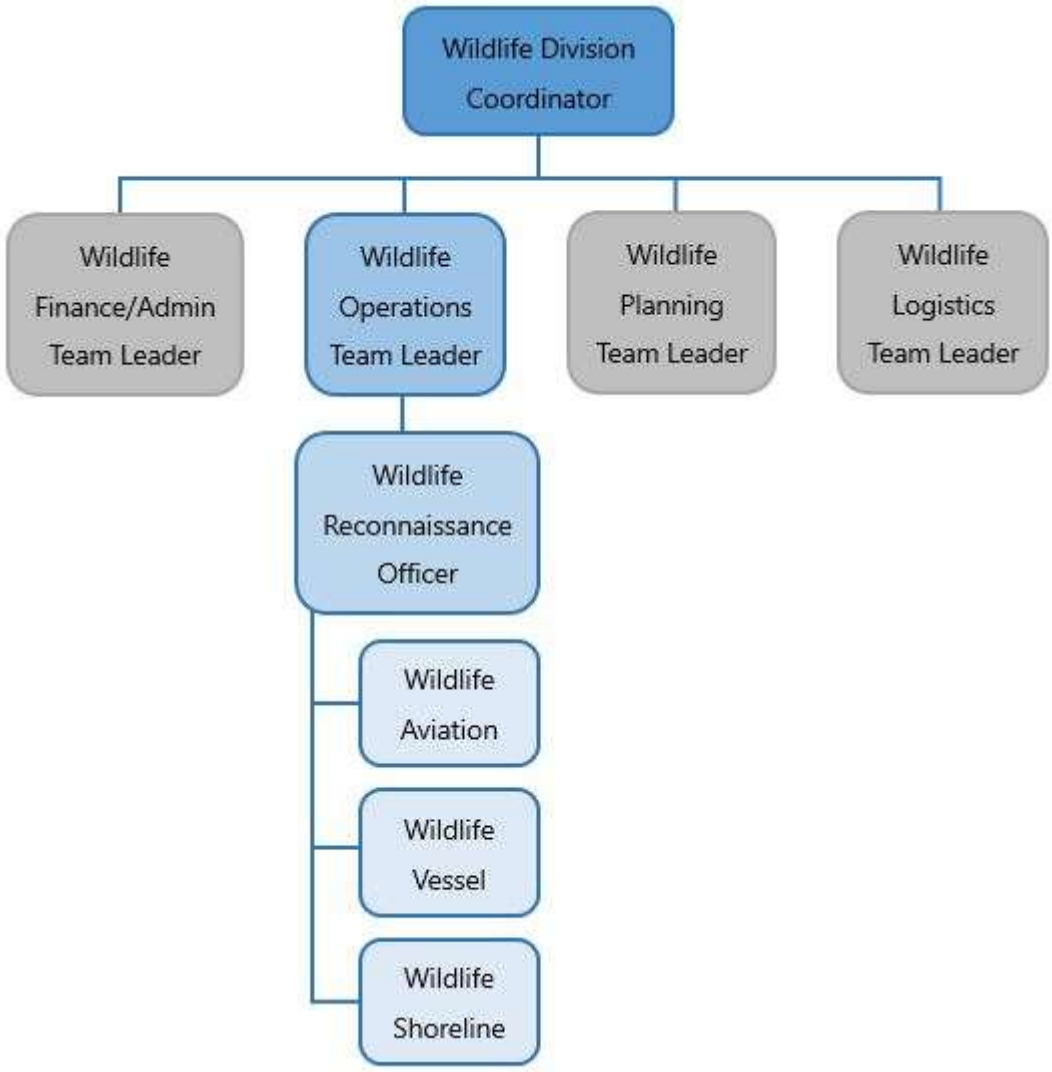


Table 4: Benefits and Limitations of Reconnaissance Methods

Method	Functions	Benefits	Limitations
Aerial Survey	Pilot observers	Large area of coverage	Altitude, visibility, wildlife disturbance
Boat Based Survey	Boat driver crew	Mobile operation and Direct access to collect and transport oiled animals	Limited area of coverage Limited line of site Potential wildlife disturbance
Shoreline Survey	Driver	Mobile operation able to move between access points Direct access to collect and transport wildlife encountered	Limited transport capacity Limited area of coverage to beach environment

4.3 Stage 3 - Wildlife Reconnaissance

Following the implementation of a first strike response and the mobilisation of resources, the operations of the wildlife division will be initiated.

The first stage of the operation is wildlife reconnaissance to determine the best means of monitoring animals (see Figure 5 for structure of the reconnaissance unit).

Real-time wildlife reconnaissance is necessary to ground-truth information contained in the regional Oiled Wildlife Response Plans due to seasonal variation in abundance and distribution of wildlife.

There are a number of methods available for reconnaissance included in Table 4.

The Wildlife Division Coordinator will request access to reconnaissance through the Incident Management Team Operations Officer. The number of personnel required will depend on the scale of the area and logistics required.

Creating a Geo-plot; the Wildlife Planning Team Leader should commence a plot of all known wildlife communities in the local area that may be affected; the hazing (i.e. scaring unoiled wildlife away from oiled areas) and encounter and / or capture can then be determined from this plot.

The South Australian Oil Spill Response Atlas and petroleum titleholder environmental data can be used as source data for the plot as well as information in the regional Oiled Wildlife Response Plan.

Note: Reconnaissance and capture of wildlife should be performed by people with specific expertise to ensure that uniformly reliable information is fed back to the planning section to enable informed decisions.

Wildlife reconnaissance conducted in conjunction with oil spill response Shoreline Clean-up Assessment Teams will provide efficient use of resources.

There may however be circumstances where separate operations are desirable. Aerial observation has its limitations in wildlife reconnaissance, including altitude, visibility and risk of disturbance to wildlife.

Personnel:
The Reconnaissance unit will be established under the Wildlife Operations section.
Aviation, shoreline and vessel personnel functions are detailed in Table 4.

Equipment:
The following basic equipment will be required for Initial Wildlife Reconnaissance:

- Handheld GPS unit
- Digital Camera
- Binoculars
- Spotting Scope
- Field Notebook and Pencil
- Geo-plot output including animal communities at risk.

Equipment will be sourced from the Incident Management Team to support this operation and may include:

- Quad motorbikes or 4WD vehicles
- Small vessels (less than 12m length)
- Aerial support (fixed wing or helicopter).

Aerial view Rena Oil Spill response area

4.4 Stage 4 - Incident Action Plan Wildlife Supporting Plan Development

The Wildlife Planning Team Leader will develop an Incident Action Plan wildlife supporting plan in collaboration with the Wildlife Division Coordinator.

The development of the supporting plan will be informed by data gathered from the regional Oiled Wildlife Response Plan and real time wildlife reconnaissance.

It will include the appropriate response options for oiled wildlife, including:

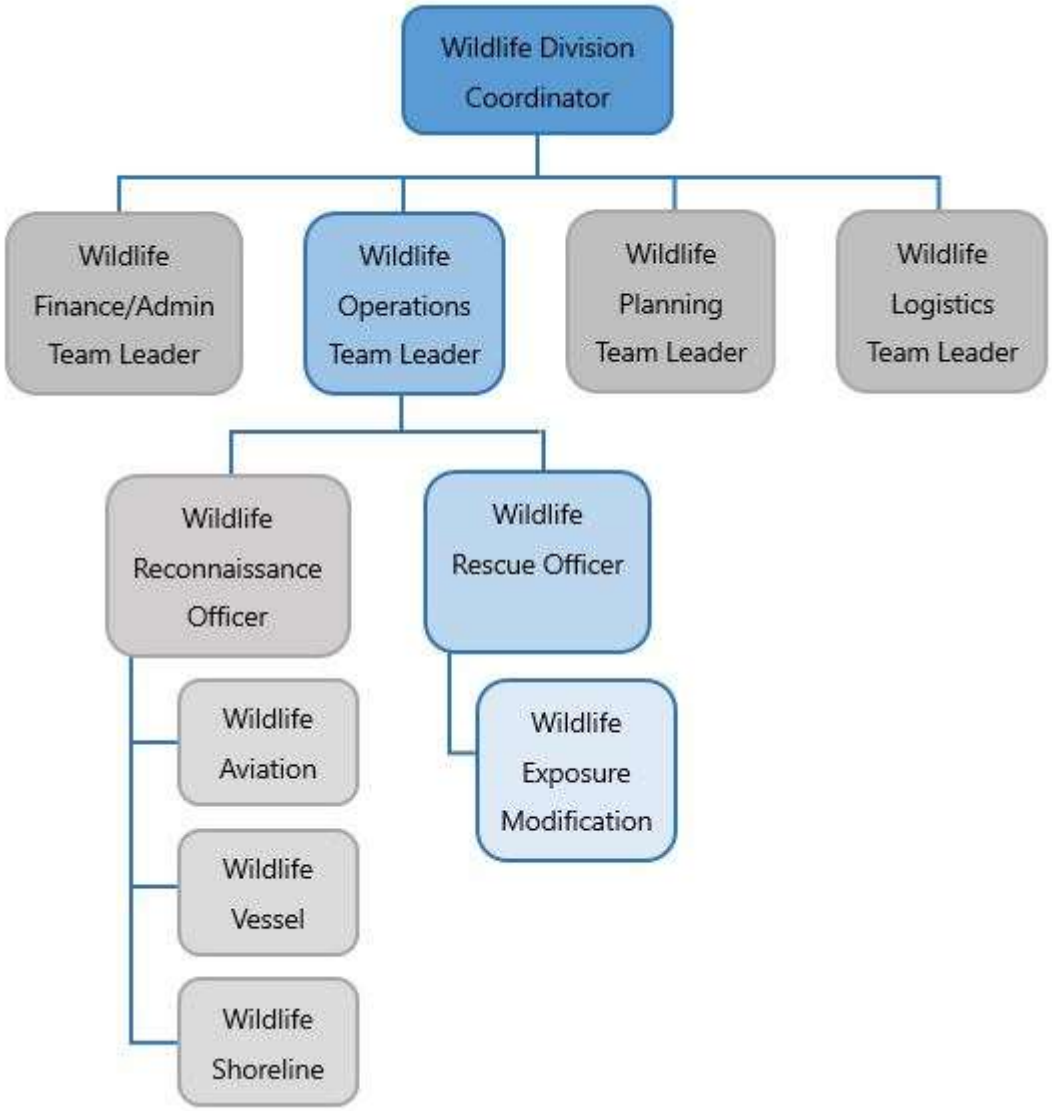
- wildlife priorities for protection from oiling;
- deterrence measures;
- recovery and treatment of oiled wildlife (provided by Wildlife Planning Team Leader and Field Coordinator); and
- resourcing of equipment and personnel.

The Wildlife Division Coordinator and Oiled Wildlife Advisor will discuss activation and mobilisation of resources in anticipation of the response to ensure that personnel and equipment are available when they are required.

The Oiled Wildlife Advisor will then discuss recommendations with the Incident Controller for approval of the supporting plan and mobilisation of resources and personnel.

Figure 6: Indicative Structure of Rescue Unit Function Showing Exposure Modification* Unit

**Exposure modification (prevention of oiling through wildlife deterrence or pre-emptive capture)*



4.5 Stage 5 - Wildlife Rescue and Staging

4.5.1 Exposure Modification

Strategies to prevent wildlife at risk from becoming impacted by oil should be explored. The primary oil spill response objectives of containment, clean-up and prevention of further discharges of oil are the most effective actions to achieve this aim.

Further strategies may include pre-emptive capture and hazing of wildlife. Pre-emptive capture is only effective if a significant proportion of wildlife at risk can be captured safely, and there is the capacity to care for them in captivity. There must also be a workable plan for release when the risk has been eliminated.

Pre-emptive capture can be cost effective and protect high value species or populations. It can be resource intensive and carries inherent risks, but can achieve the best conservation outcome for high value wildlife populations. Pre-emptive capture strategies are outlined for high value species in Appendix H.

Hazing (the scaring of unoiled wildlife away from oiled areas) requires an effective deterrent system, and satisfactory alternative sites for the animals deterred. There are many methods and devices commonly used to haze animals including aircraft, vessels, cracker shells, gas cannons, predator recordings, and predator effigies.

Careful consideration must be given to any significant negative effects which may result from poorly planned or executed hazing operations.

All deterrence, hazing or pre-emptive capture activities must be approved by DEW Fauna Permits through the Oiled Wildlife Advisor as well as having operational approval from the Incident Controller.

The DEW Oiled Wildlife Advisor enables rapid access to department licences to undertake such activities. In a petroleum industry spill, the control agency will be required to fill these roles with adequately trained personnel. DEW will position advisors throughout the response to provide support and ensure the response is suitable.

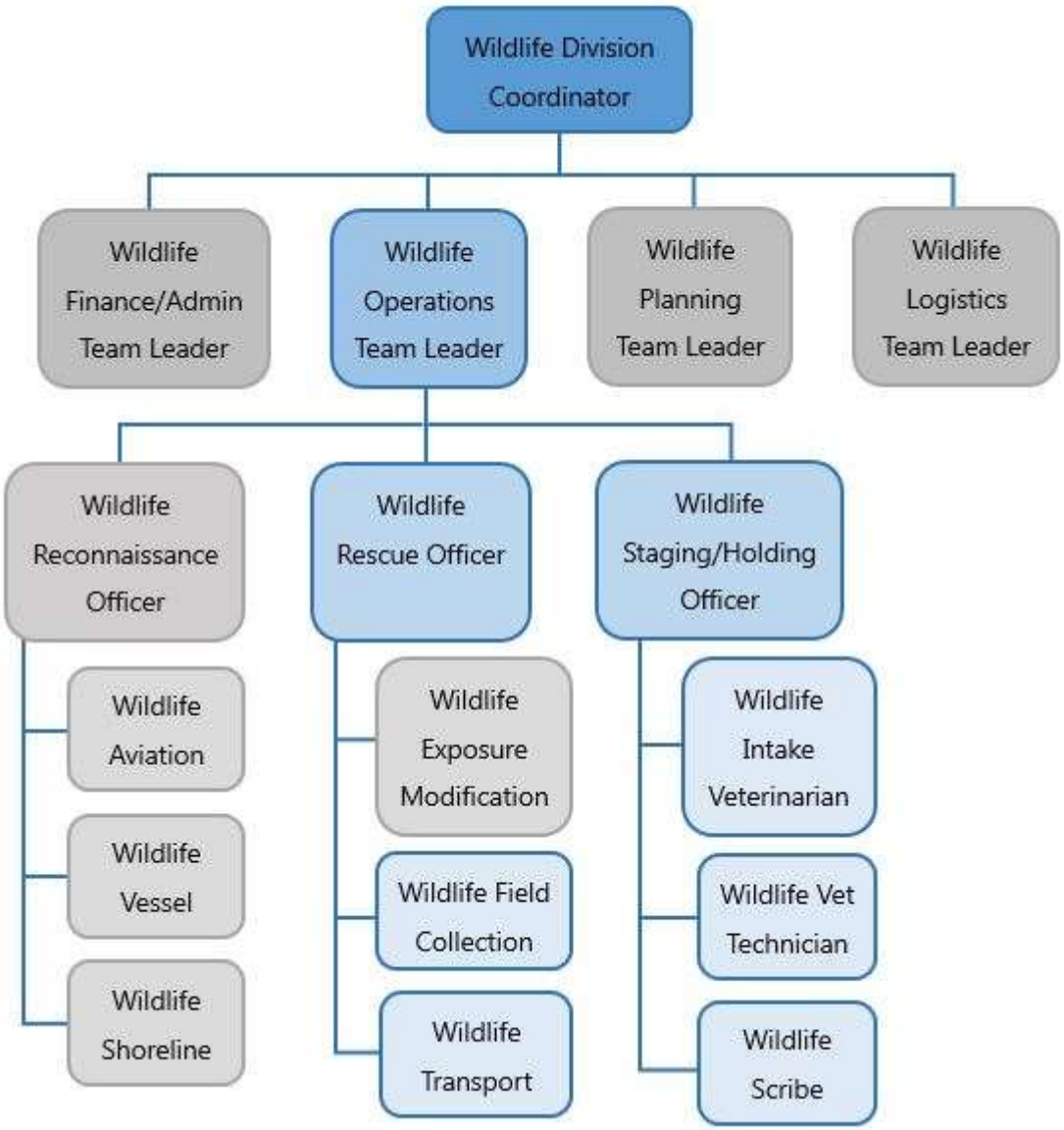
Planning of oiled wildlife rescue operations should strive for the best combination of pre-emptive capture, hazing and the collection and management of oiled animals based on resources available, location and environmental conditions.

The structure of the Wildlife Rescue Unit with the Wildlife Exposure Modification Unit activated is shown in Figure 6.

Personnel:
The positions in the Wildlife Exposure Modification Unit should be filled as soon as the SAOWRP is activated and reassessed continuously to determine staffing requirements as the situation evolves.

If the spill is due to a petroleum industry incident, these positions will be filled by industry personnel and DEW will provide expert advisors to assist as required.

Figure 7: Indicative Structure of Wildlife Field Collection, Transport and Staging/Holding Functions.



4.5.2 Wildlife Rescue, Transport and Staging/Holding

The structure of the Wildlife Rescue (fully activated); the Wildlife Staging/Holding and the units that sit beneath them to undertake the collection, stabilisation and transport of wildlife are shown in Figure 7.

Wildlife search and collection operations are based on the Incident Action Plan, triage principles and the geographical areas expected to have been impacted by oil. Oiled wildlife is highly toxic to any animal that eats it, so it is important to collect all bodies and not leave them on beaches or in uncovered pits where scavengers like raptors, ravens and goannas might find them.

The functions of finding, capturing, holding and transporting oiled wildlife to treatment facilities should be clearly differentiated and defined. All four functions may be performed by a single team or functions could be split into separate teams.

A staging site provides a logistics base for search and capture teams, and shelter and quiet for animals waiting to be transported to a primary care facility. Stabilisation may be initiated at the staging site if prolonged transport is anticipated.

Individuals and numbers of dead wildlife should where possible be documented via photographs, both in situ on beach and id later being identified. Whilst species identification may be possible at the time of collection, heavily oiled or unusual specimens may need to be collected and sorted at another location. The species and location of all carcasses should be recorded. Photographs of beaks may aid in identification of heavily oiled birds.

Wildlife can be held in transport cartons if they have suitable ventilation and protection from weather.

To ensure safety and effectiveness, a field collection team should consist of at least three individuals, but larger teams may be necessary depending on available transport and communication, the length of coastline affected, and the dispersal of impacted animals. Specialised species-specific capture strategies may require large teams if individual animals have not become immobilised.

Field teams return captured wildlife to the staging site, from where the Wildlife Rescue and Staging/Holding unit leaders direct their efforts and liaise with the transport unit.

If the field staging site is staffed by a wildlife intake unit comprising a vet, veterinary technician, and a scribe, captured wildlife can be stabilised and staged for transport.

Further detail on search and rescue operations related to specific wildlife groups, wildlife transport and holding/stabilisation at a staging site are available at:

- Appendix B - Search and Rescue Operations Related to Specific Wildlife Groups
- Appendix C - Wildlife Transport
- Appendix D - Wildlife Holding at Staging Site (Stabilisation, Triage and Quick Wash).

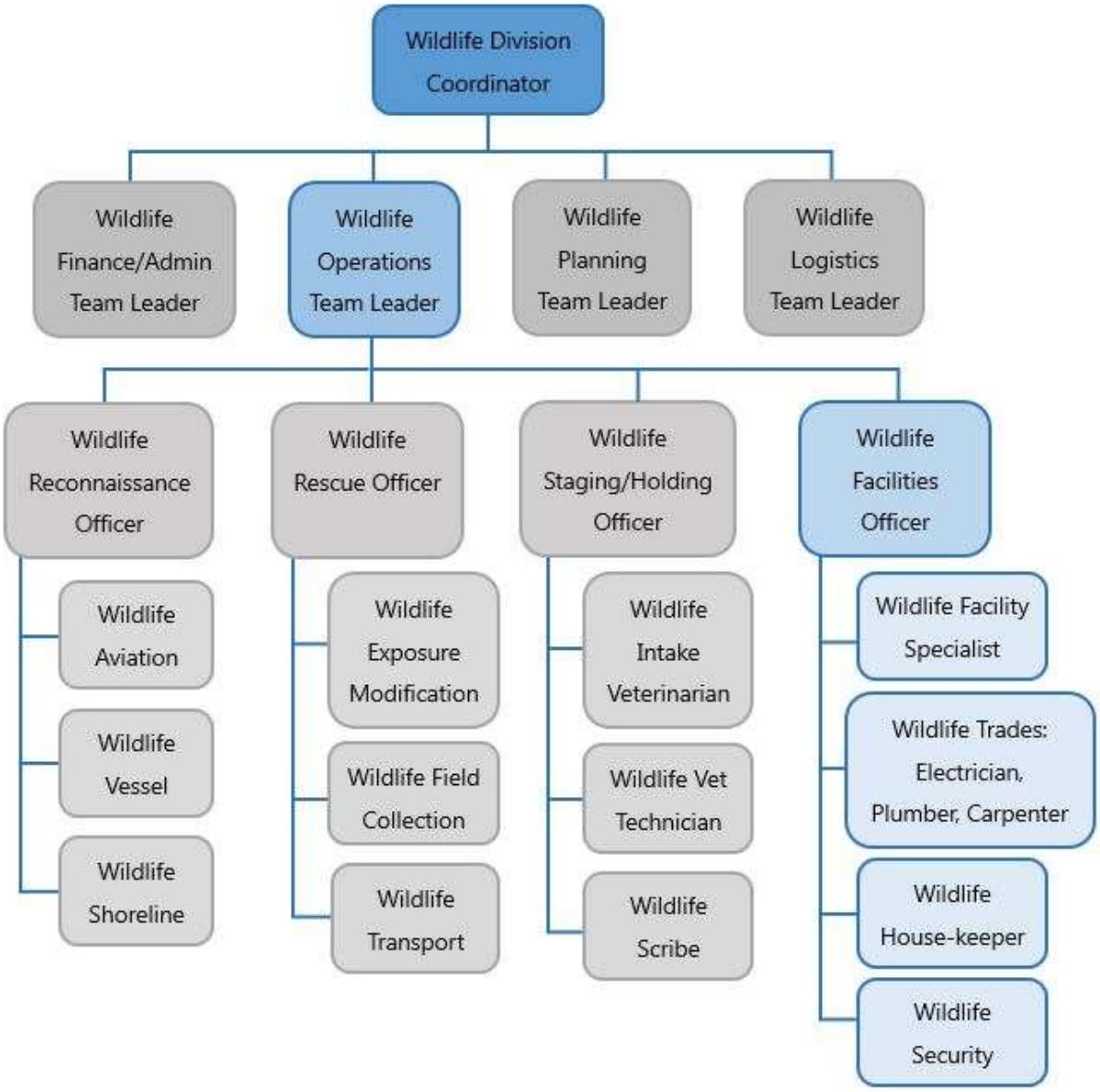
Public information announcements on local television and radio should direct volunteers to an induction training location and discourage untrained members of the public from attempting to capture and collect wildlife.

Personnel:
The number of personnel required for the rehabilitation unit will depend on the level of oiled wildlife response being undertaken. Indicative numbers are included in section 5.

The functions identified in the Wildlife Rescue Unit and Wildlife Staging Unit should be filled at the commencement of wildlife rescue and be continually reassessed throughout the response.

At this point of mobilisation, a Wildlife Logistics Team Leader will be required, (see Figure 7).

Figure 8: Indicative Structure of the Wildlife Facilities Unit and Functions.



4.6 Stage 6 - Oiled Wildlife Response Facility

The structure of the Wildlife Facilities Unit and the units that underpin it when fully activated are shown in Figure 8.

If required, an oiled wildlife facility will be established at a site which has been pre-identified in the regional plan. The Wildlife Division Coordinator will confirm access to the site when the Incident Controller has approved the escalation of the response and approved resource mobilisation.

This may require access to National Plan and industry resources through the current National Plan arrangements.

Establishing the Oiled Wildlife Facility during the First Strike Response period is essential for the intake and holding of oiled wildlife, and other functions which will be undertaken later in the response.

Note: An overall space requirement of approximately 2500 m^2, a water flow capacity reaching 60,000 L/day and an electrical load of 200A are conservative estimates for a centre dealing with 100 to 500 oiled animals at any one time.

A temporary facility management team of up to six contractors would take 1 to 3 days to establish facilities to hold, assess, and initiate cleaning at the site. Post-cleaning rehabilitation facilities in the temporary centre are likely be completed over the ensuing week.

The skills required include a facility development specialist, plumber, electrician, carpenter, and assistant with local knowledge. The size of the team may reduce when the facility is established but these skills will continue to be required while it is in operation.

Personnel:

The functions in the Wildlife Facilities Unit should be filled as soon as wildlife rescue commences. Requirement for this unit needs to be continually reassessed for the duration of the response (see Figure 8).

Equipment:

The locations of oiled wildlife response stock piles across the state are listed in section 7. Detailed equipment and contractor lists can be found in the respective regional plans.

The oiled wildlife response stock piles are basic kits that can be deployed to a spill site quickly and contain sufficient equipment for the initial treatment of up to approximately 100 wildlife casualties. However, they do not represent a 'facility'. Additional equipment will have to be sourced to construct a facility that meets the needs of the response.

Procedures for the mobilisation of the oiled wildlife equipment are:

a) *Mobilisation of National Plan Equipment;*
   - If the oil is from a ship based source, the activation and mobilisation of National Plan oiled wildlife equipment is through DPTI
   - If the oil is from a petroleum industry source, the Incident Controller may request that the National Plan be activated and that National Plan oiled wildlife response equipment be provided via AMSA.

b) *Mobilisation of AMOSC Equipment;*
   - If the oil is from a ship based source, the activation and mobilisation of AMOSC oiled wildlife equipment is through the ***AMSA duty officer (24 hour: (02) 6230 6811) to the AMOSC Duty Officer (24 hour: 0438 379 328)*** who approves its mobilisation.

   - If the oil is from a petroleum industry source, the petroleum titleholder Incident Controller may activate AMOSC to source additional equipment.

4.6.1 Set up and Use of Oiled Wildlife Facilities

Application:

If an oil spill impacts on wildlife, treatment facilities will be required for the first-aid, cleaning and rehabilitation of affected animals. The facilities need to be scalable to enable increases and decreases in wildlife units as the response proceeds. AMSA Oiled Wildlife Response Kits and AMOSC twenty foot oiled wildlife response containers are available to assist with an initial, rapid response and may be sufficient if the spill affects less than 150 animals over a 3 day period. (See section 7 for details)

The AMSA first strike response resources are only intended to provide an initial treatment response and, in the event of a large spill, additional treatment and rehabilitation facilities may need to be established either in situ or away from the spill site.

To assist personnel to establish facilities for first-aid, cleaning and rehabilitation of wildlife, the process of establishing and using an oiled wildlife facility is detailed in Appendix E. The standard operating procedures contained in Appendix F (triage and first aid) and Appendix G (cleaning and drying wildlife) describes the correct treatment processes.

Resources and Equipment:

The custodianship/ownership of the OWR containers box kits and trailer kits is provided as follows for adaptation into the various plans, as required:

- 1 x AMOSC owned OWR container positioned in Fremantle on a response footing
- 1 x AMOSC owned OWR container positioned in Geelong on a response footing
- 4 x National Plan OWR containers in Dampier, Darwin, Devonport and Townsville available through National Plan request
- 1 x New South Wales (NSW) Maritime owned OWR container in Sydney available through National Plan request
- 1x WA Department of Biodiversity and Attractions owned, Kensington, WA available through West Plan Marine Oil Pollution and National Plan request
- 4 x AMOSC OWR box kits located in Broome, Exmouth, Fremantle and Geelong
- 2 x DBCA OWR Trailer Kits in Karratha and Kensington available through West Plan Marine Oil Pollution and National Plan request
- Existing built facilities or temporarily established facilities such as marquees (at least 4m x 4m in size), air conditioned shipping containers, mobile units and site offices will be required
- Sufficient shower and toilet blocks will need to be established
- Laundry facilities – if laundering is to be undertaken on site, separate facilities are needed for personnel clothing and towels or cloths used to dry wildlife. Alternatively, the laundry function may be outsourced
- Resources and equipment as listed in the standard operating procedures:
  - Triage and First Aid (Appendix F)
  - Cleaning and Drying Wildlife (Appendix G).

Nominated Oiled Wildlife Facilities: on Land

Pre-determined locations for land based oiled wildlife facilities are listed in the regional operational plans. Each identified potential site lists access to the amenities required to establish a rehabilitation facility and indicates their suitability for level 1-6 oiled wildlife response. The minimum requirements of an Oiled Wildlife Facility / rehabilitation centre are:

- Sufficient space for receiving, examining and washing wildlife
- Housing areas, rehabilitation pens, and pools
- An administration area
- Adequate ventilation
- Temperature control
- Electricity supply
- Water of sufficient softness for washing
- Suitable animal washing apparatus (with temperature, pressure and delivery control)
- Sewerage, oily waste, general waste and biological waste disposal
- Security
- Decontamination and washing facilities for workers
- Induction and training rooms, toilets and crib rooms for workers
- Volunteer management area (incl. induction and training).

The regional Oiled Wildlife Response Plans provide details of resources and facilities that could be converted to oiled wildlife response rehabilitation centres.

Oiled wildlife response unit shipping container used during the Rena Oil Spill, New Zealand 2011.

Waste water collection -Rena oil spill

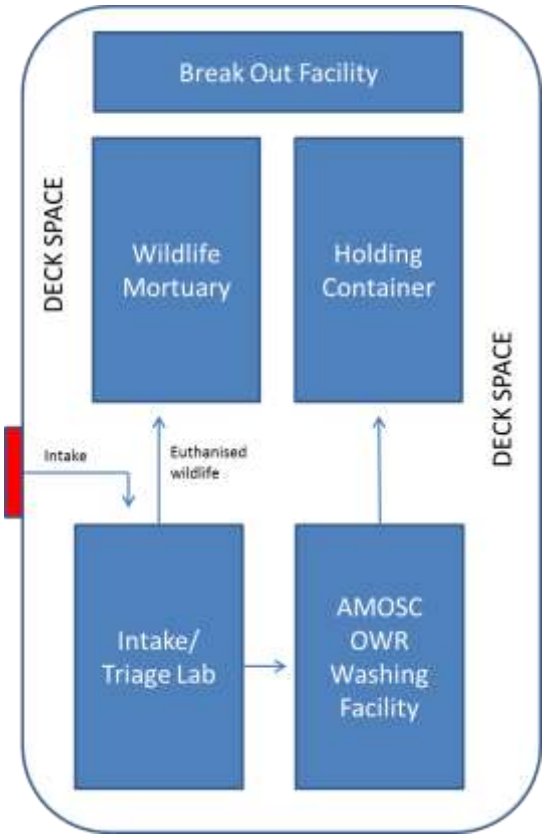


Figure 9: An Indicative Vessel Based Stabilisation/Holding Layout

Figure 10: Indicative Vessel for On-Water Wildlife Triage/Holding/Stabilisation

Table 5: Indicative Specifications for On-Water Holding/Stabilisation Vessels

Vessel Specifications	
Length overall	38 metres
Beam	10.6 metres
Machinery	2 engines
Operating speed	10 knots
Hull	Bow ramp configured to accommodate roll-on/roll off loading of 20ft shipping containers
Deck area	200 m^2
Water	120,000 Litres
Accommodation	5 + crew air conditioned
Pollution control	Oily water separator or oily waste holding tanks

Oiled Wildlife Facilities: On-Water:

If a land based holding and stabilisation facility cannot be located close to the site of collection (within 10 nautical miles as a guide), it may be more practical to establish an "on-water" facility for the stabilisation of oiled wildlife prior to transport to a land based treatment centre.

See figure 9 for an example layout of vessel based staging/holding site.

In these circumstances, vessels/barges and modified shipping containers may be required.

Equipment:

An on-water holding/stabilisation facility requires:

- enough space and equipment for oiled wildlife washing facilities
- mortuary facilities for euthanized wildlife
- triage/intake facilities with a lab bench
- wildlife holding facilities prior to transport.

A transfer vessel will be needed to transport animals from the holding vessel to the oiled wildlife treatment facility. This will require mortuary and holding facilities.

Penguin carry box – Rena oil spill

Vessels

1. Triage/stabilisation/holding vessel

An ideal on-water wildlife stabilisation/holding vessel would have the following:

- accommodation for personnel
- adequate deck space for the required facilities
- the ability to safely load and unload wildlife to and from adjacent vessels (through rescue hatch or hiab)
- facilities for the initial wash-down of animals
- the ability to store oily waste, or have an oily water separator and holding tanks for waste oil.

See Table 5 and Figure 10 for examples of vessel requirements to accommodate a stabilisation / holding operation.

2. Collection Vessels

If an on-water holding facility is used, multiple recovery vessels will be needed to locate, capture and transfer the oiled animals to the holding facility. These vessels need to be surveyed (i.e. approved by DoT) to operate independently of the holding facility.

Responsibility for the Set-Up and Management of Oiled Wildlife Response Facilities:

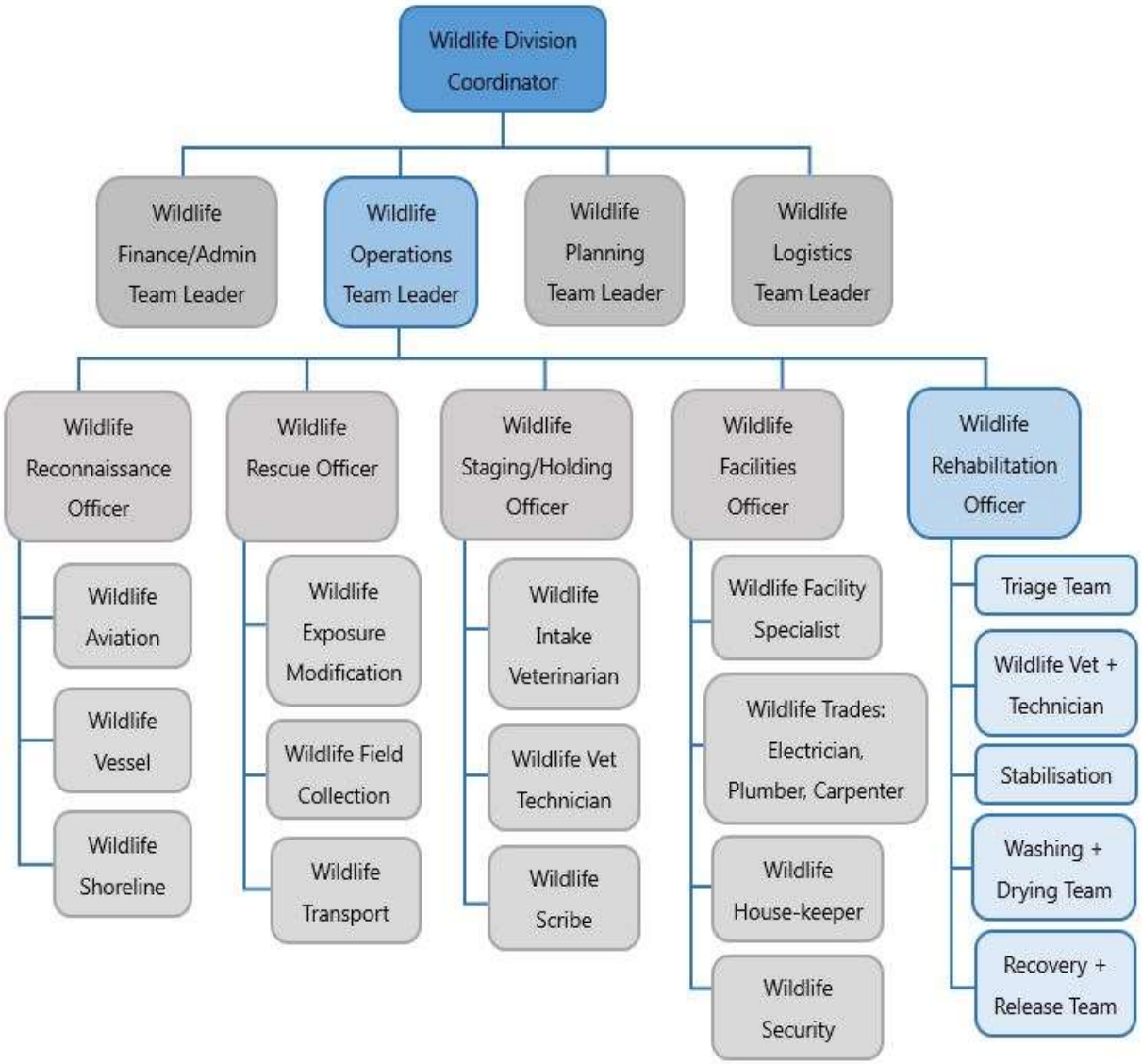
The Wildlife Division Coordinator is responsible for identifying and advising the Oiled Wildlife Advisor of the requirements of the oiled wildlife facilities (including the amount and type of space, fixtures, fittings and services required).

The Logistics Section is then the responsible for sourcing suitable existing facilities or to arranging the establishment of temporary facilities. This may require additional discussion with other Functional Areas.

The Wildlife Facilities Unit Leader is responsible for the operation and functioning of the oiled wildlife facilities and associated site, and reports to the Wildlife Division Coordinator.

Procedural information relating to Oiled Wildlife Facility establishment and use is included in Appendix E - Procedure for set up and use of Oiled Wildlife Facilities.

Figure 11: Indicative Structure of the Wildlife Rehabilitation Unit Functions



4.7 Stage 7 - Wildlife Rehabilitation

Rehabilitation Centre

The requirements of a rehabilitation centre are dependent on its location and the number and type of animals likely be admitted.

Ideally the facility will be planned by a team including trained oiled wildlife response personnel, a wildlife veterinarian, a local government representative and an experienced builder.

Longer term rehabilitation requirements may be moved to more permanent facilities designed for fewer numbers of animals for a longer holding period.

Rehabilitation personnel

The structure of the Wildlife Rehabilitation Unit and the units that underpin it when fully activated are shown in Figure 11.

The number of personnel required for the rehabilitation unit depends on the level of response required.

Indicative numbers are included in section 5.
The functions of oiled wildlife response rehabilitation are shown in Figure 12.

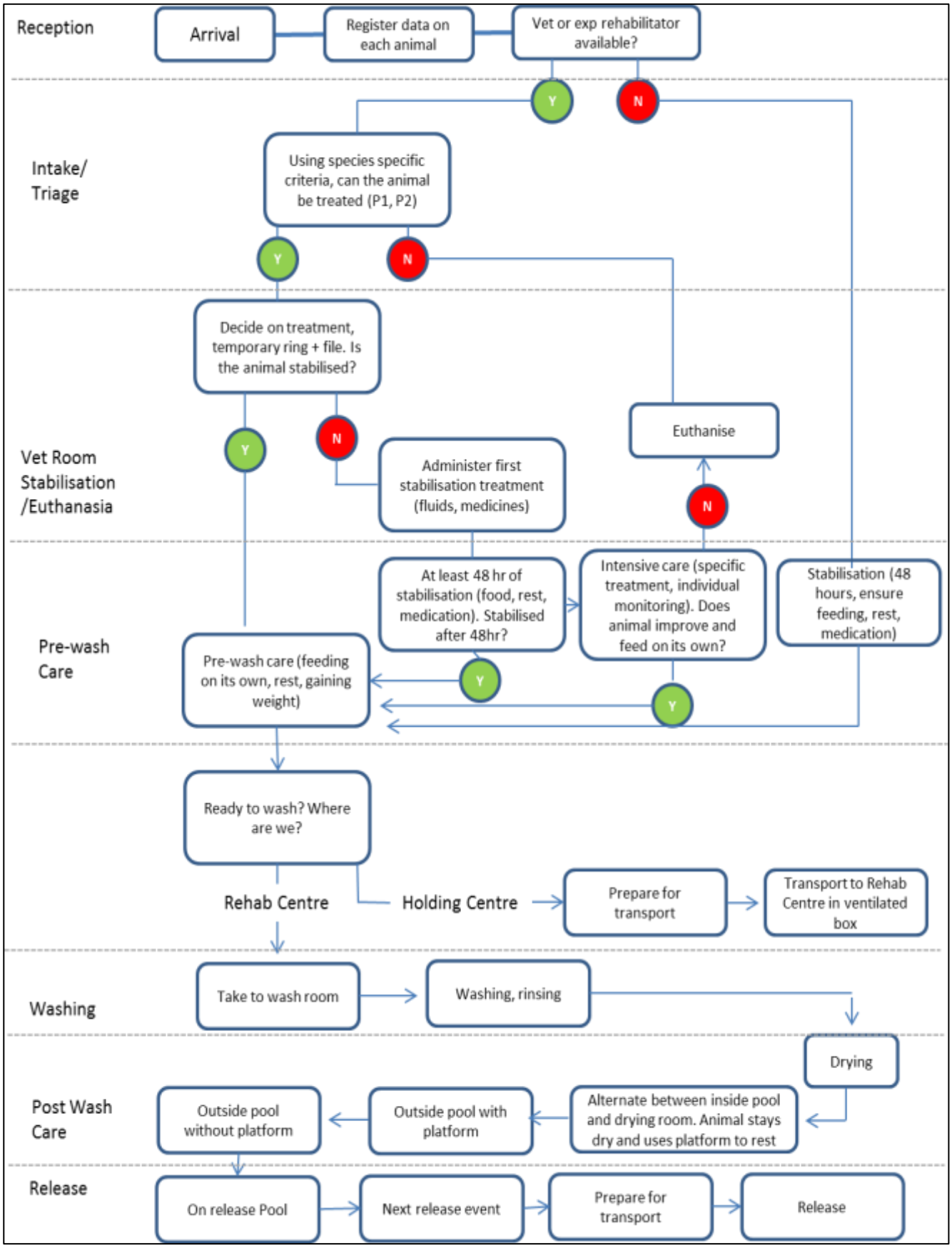
Further detail on rehabilitation procedures such as first aid, triage, cleaning and drying are available at:

- Figure 12 – Overview of oiled wildlife rehabilitation
- Appendix F – Triage and First Aid SOP
- Appendix G – Cleaning and Drying Wildlife SOP.

Triage and treatment facilities at Rena Oil Spill in New Zealand, 2011.

Cleaning oiled wildlife at Rena Oil Spill in New Zealand, 2011.

Figure 12: Indicative Overview of Oiled Wildlife Rehabilitation Process.



Wildlife Housing:

The wildlife housing and rehabilitation requirements will vary depending on the size and circumstances of the spill. If there are only small numbers of animals for a short period existing wildlife care facilities could be used for the cleaning and intensive care period of rehabilitation. For larger numbers of wildlife and longer term incidents, on site construction of facilities may be necessary.

Design and establishment of wildlife rehabilitation housing requires expert advice. Zoos SA is recognised as a leading State agency in wildlife housing and can provide advice as required.

Basic designs can also be found in the 'Oiled Wildlife Response Manual' prepared by the Sea Alarm Foundation, accessed via the Preparedness of Oil-polluted Shoreline Clean-up and Oiled Wildlife interventions website: http://www.posow.org/documentation/manual/wildlife_manual.pdf.

Further information and specifications are available in Appendix E – Procedures for set up and use of oiled wildlife facilities.

Temporary bird rehabilitation area at Rena Oil Spill, New Zealand, 2011.

All rehabilitators in South Australia are required to comply with the minimum standards determined by DEW and mandated as a condition of permit to hold wildlife. Any design of holding areas or pens for wildlife should comply with these standards as a minimum. A copy of the standards can be found at: http://www.environment.sa.gov.au/licences-and-permits/Animals_in_captivity_permits

Wildlife Record Keeping:

Record keeping is a critical aspect of the management of wildlife whether the animals are captured pre-emptively or following oiling. Each individual animal must have records from the point of capture. On arrival at the rehabilitation centre the wildlife should be tracked through the system using their individual treatment records.

An Australian oiled wildlife response record keeping system known as the National Plan Oiled Wildlife Response Database has been developed and can be implemented for tracking wildlife during a spill event.

Important components of the system are an access database, fauna data sheets, and a database manual. A copy of this system's components can be downloaded from the AMSA website under National Plan, General Information section, via the following link: http://www.amsa.gov.au/environment/maritime-environmental-emergencies/national-plan/General-Information/oiled-wildlife/database/index.asp

Always abide by chain of evidence procedures for documenting injured and dead wildlife, as this may be needed if evidence is to be used in potential compensation claim or legal action.

Preventing Wildlife from becoming Re-Oiled:

Wildlife cannot be released until their habitat is remediated and it poses no risk of re-oiling. If the oil source is ongoing, such as a leaking uncapped well or a leaking tanker, this can take months.

Wildlife housing will be required until the source is stopped and the environment cleaned. Planning for the worst case scenario should commence from the inception of the incident to allow effective management.

If pre-emptive capture is undertaken animals can be released once the habitat is clear of oil pollution. Ideally, unoiled wildlife should be returned to their natural habitat as soon as possible, but in some cases it may be preferable to release of animals a long distance from the spill and to allow them to find their own way back. This should only be considered on the basis of expert advice.

Further information is available at Appendix H Oiled Wildlife Response Strategy by Functional Group table.

Success Tracking:

Assessing the success of strategies used is an important aspect of oiled wildlife response. Such an assessment will improve knowledge and assist in the planning of operations for similar events in the future. Methods of marking and or tracking sample groups of oiled wildlife as soon as they are detected, such as banding of birds and tagging of other animals will enable their longer term monitoring and can be used to assess the effectiveness of rehabilitation efforts.

Consideration could also be given to attaching of satellite or radio tracking units to some animals that have been rehabilitated at the time of their release to determine the success of rehabilitation. Specialised equipment and personnel are required for this type of task.

For further detail on aspects of wildlife rehabilitation see:

- Appendix F - Triage and First Aid standard operating procedure
- Appendix G - Cleaning and Drying Wildlife standard operating procedure.

Penguin holding enclosure Rena oil spill

4.8 Stage 8 - Oiled Wildlife Response Termination

Objectives:
The Incident Controller (IC) will stand down functions through the Wildlife Division Coordinator when the appropriate agencies agree that the incident has been satisfactorily controlled and the particular wildlife functions are no longer required. This is likely to involve a progressive stand down of different functions from the wildlife capture through to rehabilitation functions.

Once clean-up operations have finished the rehabilitation of some affected animals may continue and monitoring programs may be required after their release. The Wildlife Division Coordinator (in consultation with the Incident Controller) will demobilise the wildlife response guided by the parameters established by at the beginning of operations and incorporated into the Incident Action Plan.

This procedure assists personnel involved in the demobilisation of a wildlife response. It does not address any other aspects of a wildlife response which are covered in separate procedural documents. Other procedures are listed at the end of this document

The demobilisation of a wildlife response includes dismantling temporary facilities or returning built facilities to their pre-response condition. This could involve a range of physical activities such dismantling marquees or other temporary constructions, removing electrical and plumbing installations, removing furnishings or cleaning facilities and equipment.

Any hazards associated with this need to be mitigated. Incident Action Plans need to flag the end of the response weeks ahead of time if the incident extends over a long period of time (i.e. in excess of two months).

Procedure:
Demobilisation of the wildlife response will be undertaken in accordance with parameters established in the Incident Action Plan (Termination supporting plan) and when the Wildlife Division Coordinator considers that all wildlife affected by the spill have been satisfactorily managed. The decision will be made in consultation with the Incident Controller, the Wildlife Advisor, and the Wildlife Division Coordinator.

Demobilisation of personnel, equipment and facilities used for the wildlife response will generally lag behind that of the wider spill response because cleaning, treatment and rehabilitation of wildlife will usually take longer than the spill response. Factors determining the timing of demobilisation will include:

- the numbers of affected wildlife still being found (if any) and the cut-off below which formal rescue efforts will be suspended;
- the numbers and condition of captive wildlife and the need for ongoing cleaning and rehabilitation operations;
- the condition of clean-up of any impacted wetlands, shorelines or islands and their capacity to support released wildlife;
- the Incident Controller's assessment (with input from the Environment and Scientific Coordinator) that habitats to which wildlife are to be returned are no longer contaminated.

It may be necessary to continue to care for animals captured late in the response after other response resources have been demobilised.

In some cases, some animals will need to remain in rehabilitation longer term. Depending on the cost and feasibility of maintaining facilities established for the incident, consideration may need to be given to re-locating these animals to other facilities.

The Wildlife Division Coordinator is responsible for scaling back and demobilising functions and resources associated with wildlife search and rescue, triage, first aid and transport.

Termination of the Rescue Unit:

As the numbers of affected wildlife being captured fall towards the agreed threshold for ceasing operations, the Wildlife Division Coordinator will oversee the scaling back and termination of wildlife rescue operations.

This will include:

- Ensuring that all animals have been transferred to treatment facilities;
- Standing down search and rescue resources – including vehicles, boats, hazing and other equipment which must be decontaminated, cleaned and serviced, if required, and returned to their owner or custodian;
- Debriefing and standing down rescue personnel;
- Debriefing and standing down, or transferring, transport personnel (note: some vehicles and transport personnel may need to be retained to transport animals yet to be released or moved from the rehabilitation facility);
- De-commissioning of triage and first aid facilities. This will include ensuring that facilities are decontaminated and returned to their previous condition, including replenishing depleted stores and provisions. Temporary facilities will need to be cleaned, decontaminated, dismantled and returned to their owners;
- Ensuring that all contaminated waste has been removed from the site in accordance with waste management procedures for the incident;
- Debriefing and standing down triage and first-aid personnel;
- Ensuring that completed incident records, personnel records and cost recovery paperwork have been duly authorised and forwarded to the Logistics Section for processing and archiving; and
- Ensuring that any requested field samples, photographs, or other evidence gathered is provided to the investigations unit.

Termination of the Rehabilitation Unit:

As rescue operations scale back, and treatment facilities are no longer required, the Wildlife Division Coordinator will oversee the scaling back and termination of rehabilitation operations.

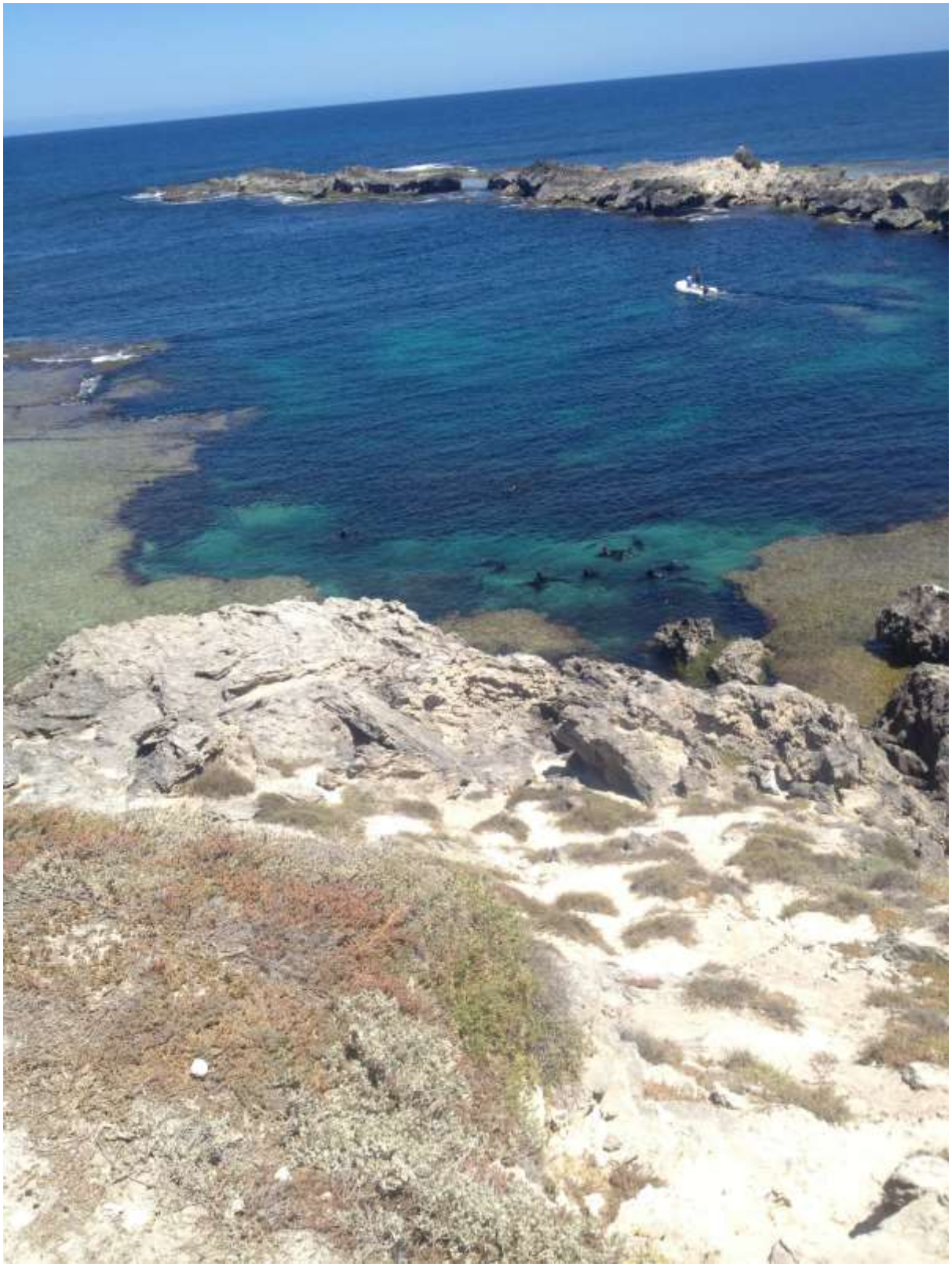
This will include:

- Accounting for all animals. All rehabilitated wildlife have been released back into their natural environments. Animals requiring ongoing rehabilitation are transferred to another care facility if there are too few to justify keeping rehabilitation facilities operational;
- Debriefing and standing down rehabilitation personnel;
- De-commissioning rehabilitation facilities, including transport, washing and drying facilities and rehabilitation facilities;
- Decontaminating and sanitizing facilities and returning them to their previous condition, including replenishing depleted stores and provisions. Temporary facilities will need to be decontaminated, sanitized, dismantled and returned to relevant owners;
- Removing all contaminated waste from the site in accordance with waste management procedures for the incident;
- Reviewing and replenishing the contents of any Oiled Wildlife Response Kit used during the response returning them to their holding locations;
- Completing animal records, incident records, personnel records and cost recovery paperwork and ensuring that they have been duly authorised and forwarded to the Logistics Section for processing/archiving.

De-Brief:

Once the Wildlife Division has been demobilised, the Wildlife Division Coordinator will arrange a hot debrief to analyse participants' involvement in the wildlife response. A subsequent review of systems, including policies and procedures should be undertaken based on lessons learned during the response.

Once the major operational phase of the response is completed an 'all agencies' debrief or after action review of the response should be organised followed up with a formal report.



5. OILED WILDLIFE RESPONSE INCIDENT TYPES AND PERSONNEL REQUIRED

5.1 Oiled Wildlife Response Levels

Oiled wildlife responses are classed as minor if they comprise less than twenty birds and the response lasts less than a week; and are classed as major if they comprise more than a hundred birds and the response last more than a month.

Each response will have different personnel and equipment needs and be of different duration. However, it is important to define the levels between minor and major responses and give guidance to the minimum number of personnel and skill level required to fill roles within the oiled wildlife response structure.

Table 6 should be used as a reference for personnel numbers and skill levels. This table is indicative. The complexity of the response (spatial and temporal) will dictate the response level and therefore the resources it requires.

5.2 Skill Requirements

The skill requirements of oiled wildlife responders are categorised into four competency and skill levels.

The levels are based on competency based training in oiled wildlife response, incident management response, and prior experience in incident response.

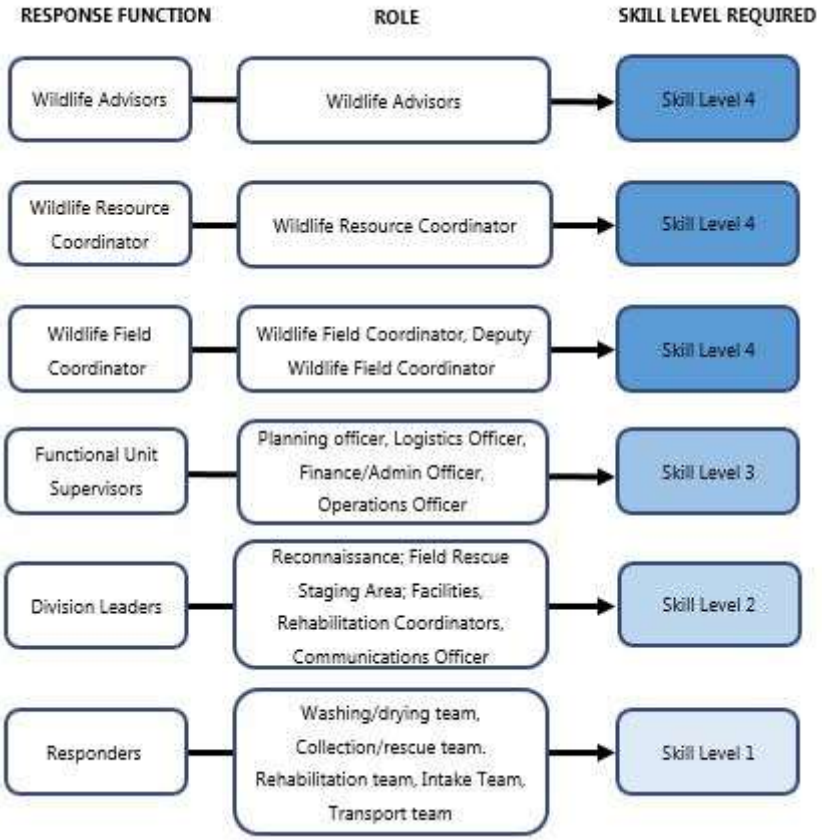
Large numbers of people can be trained to a level rather than a position to undertake numerous roles.

Figure 13 opposite illustrates the skill level required to undertake the roles nominated in the oiled wildlife response structure. Table 7 lists the competency training and skills required to meet each level.

Table 6: Indicative Oiled Wildlife Response (OWR) Levels

OWR Level	Duration of OWR	Birds general	Birds OWR Complex *	Turtles	Dolphins Whales	Pinnipeds	Mammals Terrestrial
Level 1	<3 days	1-2 birds per day or <5 total	No complex birds	None	None	None	None
Level 2	4-14 days	1-5 birds per day or <20 total	No complex birds	None	None	None	None
Level 3	4-14 days	5-10 birds per day or <50 total	1-5 birds per day or <10 total	<5	None	<5	<5
Level 4	>14 days	5-10 birds per day or >200 total	5-10 birds per day	<20	<5 or known habitats affected	5-50	5-50
Level 5	>14 days	10-100 birds per day or >200 total	10-50 birds per day	>20	> 5 dolphins	>50	>50
Level 6	>14 days	>100 birds per day	10-50 birds per day	>20	>5 dolphins	>50	>50
*** Threatened species, protected by treaty or specialist feeders**							

Figure 13: Skill Levels Required to Fill Functional Roles in the Oiled Wildlife Response Structure



The training and skills required to meet the criteria for Levels 1-4 oiled wildlife response personnel are listed in the Table 7 below.

Table 7: Competency Training and Skills Required to Satisfy each Oiled Wildlife Response Skill Level.

TRAINING AND SKILLS REQUIREMENTS	Skill Level 4	Skill Level 3	Skill Level 2	Skill Level 1
Oiled wildlife response trained – introductory level – Respond to oiled wildlife emergencies		Optional	X	X
Oiled wildlife response trained – Rehabilitate Oiled Wildlife			X	
Introduction to AIIMS (or equivalent)	X	X	X	
Oiled wildlife response trained – Management Level – lead a team in oiled wildlife response	X	X		
In depth understanding of oiled wildlife response plans and relevant legislation	X	X		
Competent in L2 and above in incident management	X	X		
AIIMS Planning Officer L2 or AIIMS Operations Officer L2	X			

Note: Alternate training pathways will be assessed and deemed acceptable in lieu of DEW providing the training courses listed above.

5.3 Personnel Required for Each Level

Table 8 provides an indication only of the number of personnel required for each scale of response.

The number of personnel will depend on the complexity, spatial scale, and the variety and species of wildlife involved. Additional personnel will be required as scribes and assistants for the key functional positions.

The skill level required is indicated 1-4, these correspond to Figure 12 and Table 8 opposite and are competency based levels that ensure personnel have adequate knowledge to perform their functions.

- oiled wildlife skill level 4 aligns with International Maritime Organisation level 3,
- oiled wildlife skill level 3 aligns with International Maritime Organisation level 2 and
- oiled wildlife skill level 1 and 2 are both International Maritime Organisation level 1 (oiled wildlife skill level 2 is higher within that band than oiled wildlife 1).
- the role definitions can be found in Appendix A.

Incident Control Centre Briefing Rena Oil Spill

Table 8: Indicative Oiled Wildlife Response Personnel Resourcing

			Oil spill response level					
Category	**Role**	**Skill Level**	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
Strategic	Oiled Wildlife Advisor	4	1*[1]	1*[1]	1*[1]	1*[1]	1*[1]	1*[1]
	Wildlife Division Coordinator**	4			1	1	1	1
	Wildlife Operations Officer**	3			1	1	1	1
	Wildlife Logistics Officer	3		1	1	1	1	1
	Wildlife Planning Officer	3			1	1	1	1
	Wildlife Finance/Admin Officer	3			1	1	1	1
	Wildlife Communications Officer	2			1	1	1	1
	Wildlife Situation Officer	2			1	1	1	1
	Wildlife Supply/Resource Officer	2		1	1	1	1	1
	Wildlife Safety Officer	2			1	1	1	1
	Wildlife Volunteer Coordinator	2			1	1	1	1
Staging area/ facilities	Wildlife Staging Area Manager*	2			1	1	2	2
	Wildlife Staging Area/Intake Team	1			3	3	6	8
	Wildlife Facilities Manager*	2			1	1	1	1
	Wildlife Trades Assistants	specified skill	1	1	1	2	3	3
	Wildlife Housekeeper	1			1	1	2	3
	Wildlife Security	specified skill			1	1	1	1
Reconnaissance	Wildlife Reconnaissance Officer	2			1	1	1	1
	Wildlife Aviation Supervisor	2				1	1	1
	Wildlife Vessel Supervisor	2	1	1	1	1	1	1
	Wildlife Shoreline Supervisor	2				1	1	1
	Wildlife Reconnaissance Team	1			2	4	6	8
Rescue	Wildlife Rescue Officer	2		1	1	1	1	1
	Wildlife Exposure Modification Officer	2	2	1	1	1	1	1
	Wildlife Field Collection Team	1		3	6	9	22	22
	Wildlife Transport Officer	2		1	1	1	1	1
Rehabilitation	Triage Officer	2		1	1	1	1	1
	Triage Team	1		1	4	5	5	6
	Wildlife Veterinarian*	specified skill		1	1	3	3	3
	Wildlife Veterinarian Technician*	specified skill			1	1	1	1
	Wildlife Stabilisation Officer	2	2	1	1	1	1	1
	Wildlife Rehabilitation Officer	2		1	1	1	1	1
	Facilities Team	1		3	4	6	8	8
	Washing/ drying personnel***	1		4	6	10	15	15
	Recovery/release personnel***	1		3	8	10	20	20
	Total number of personnel		**7**	**26**	**59**	**78**	**116**	**122**
NOTES	* 1 person per facility		*** volunteers can be used to make up or numbers in this category where necessary					
	** may have a deputy		Note: all supervisor/coordinator positions should employ a scribe from level 4 or above.					
	1*[1] = in an industry spill there may be two or wildlife advisers (1 DEW, 1 Industry)							

6. OPERATIONAL ASSISTANCE – VOLUNTEERS

Volunteers may be of assistance in the collection, cleaning and rehabilitation of wildlife, record keeping and other general activities particularly if the oil spill is a large or protracted incident.

Managing volunteers is a major consideration in the rescue and rehabilitation effort. Efficient, effective management of potentially large numbers of volunteers requires clear instructions, appropriate equipment and inductions, and regular feedback.

6.1 Wildlife Volunteer Coordinator

The Wildlife Volunteer Coordinator is positioned within the Planning Unit. The Volunteer Coordinator must ensure the following:

1. Volunteers must register prior to undertaking any activity;
2. For safety and legal reasons volunteers must wear a badge identifying them as registered volunteers;
3. Volunteers must be physically able to undertake the activities allotted to them;
4. On arrival volunteers must be inducted on safety, first aid and legal requirements;
5. Each section should identify their requirements for volunteers to the volunteer coordinator;
6. Rosters should be established for volunteers and provided to security;
7. Volunteers must sign on and off each shift;
8. A dedicated phone line or email/website social media site should be established for people seeking to volunteer. Names, addresses, skills and experience should be recorded;
9. Each area leader should ensure volunteers are taking adequate breaks and meals; and
10. Volunteers should be briefed regularly on the status of the spill and the progress of the rescue and rehabilitation efforts.

The role of the Wildlife Volunteer Coordinator is described at Appendix A.

6.2 Legal Requirements

Volunteers that work in partnership with DEW on public and private land will be covered by SAICORP insurance for bodily injury or death under certain criteria when working within the Department's Volunteer Safety Framework procedure.

In order to fulfil this policy several conditions must be met:

- Each volunteer must be registered prior to commencing any volunteer work with the Department. Refer to existing DEW Volunteer management policies and procedures. These can be found at: http://ishare.env.sa.gov.au/Business/Volunteer/SitePages/Home.aspx;
- Volunteers must be registered as individuals, not organisations, and the volunteer register should be signed by the officer in charge;
- A completed declaration specifying the number of volunteers used by the Department during an oil spill is to be provided to the Risk and Audit Coordinator, DEW as soon as possible after the completion of the volunteer work;
- Volunteers must be fit and able; and
- Volunteers must be supervised by Departmental personnel.

6.3 Specialist Volunteers

Whether paid or volunteers, veterinarians, zoo keepers and veterinary nurses are essential for the successful rescue and rehabilitation of wildlife. Veterinarians can provide initial assessment of affected wildlife, determine priorities for treatment, administer veterinary treatment and conduct pathology tests and necropsies.

The husbandry skills of zoo keepers are essential in the rehabilitation process. The Planning Officer will determine the level of specialist assistance required throughout the duration of the response in consultation with Wildlife Division Coordinator.

6.4 On-Site Inductions and Training

On-site training or an induction must be provided to all personnel (volunteers and staff) involved in the collection and treatment of oiled wildlife, unless they have already been trained.

It is essential that this occurs prior to any involvement in the response to minimise the risk of injury to the animals and the people handling them.

Preferably, only experienced people should handle wildlife and teams of volunteers should be led by experienced handlers.

Volunteers who have not received training must be directly supervised by a trained person.

Volunteers must be briefed before they sent to a particular area and trained in the role they are to undertake.

On-site training should include a written description and demonstration of handling and cleaning techniques.

Each person should be provided with a written risk assessment (or Job Safety Analysis and Job Hazard Analysis). These will be prepared by, or on behalf of, the Wildlife Safety Officer.

An induction briefing should address safety, legal requirements and the importance of recording all data for any of the functions undertaken. Volunteers and staff should sign an acceptance of these conditions.

On site inductions and safety requirements will be determined by DPTI as the Control Agency (or the petroleum titleholder, or Flinders Ports if either of those agencies are responsible for the clean-up).

Registration and induction tent- Rena oil spill

Entering the wildlife rehabilitation facility after the Rena oil spill, New Zealand

7. STATE WIDE RESOURCES AND ARRANGEMENTS

7.1 Personnel

DEW and AMOSC may request assistance from either party if their internal pool of trained personnel or expertise has been exhausted. Table 9 below summarises indicative personnel numbers required under varying oiled wildlife scenarios according to skill requirements in the event of an oil spill.

Table 9: Oiled Wildlife Response Level and Personnel Numbers

SKILL LEVEL REQUIREMENT	OIILED WILDLIFE RESPONSE LEVEL AND PERSONNEL NUMBERS					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Skill level 4 personnel	1	1	3	2	2	2
Skill level 3 personnel	2	0	4		4	4
Skill level 2 personnel	4	9	15	17	18	18
Skill level 1 personnel	0	14	33	47	84	90
Technicians (i.e. vets)	0	0	2	3	4	4
Other specified skills	0	0	2	3	4	4
Total	**7**	**25**	**59**	**77**	**116**	**122**

7.2 Equipment

In accordance with this plan, the Petroleum Industry Titleholders, AMOSC, Flinders Ports, DPTI and DEW with endeavour to assist each other with the provision of personnel and equipment resources.
Existing protocols within DEW at Regional and District levels should be followed to acquire necessary resources such as:

- Catering equipment;
- Communications equipment (radios, satellite phones);
- Mapping and aerial surveying equipment;
- Tents, marquees etc.;
- Wildlife capture equipment;
- 4x4 Vehicles, quad bikes; and
- Vessels.

Lists of available local resources are detailed in the regional Oiled Wildlife Response regional operational plans.

Oiled Wildlife Response Equipment:
There are 8 AMSA Oiled Wildlife Response Kits located across Australia (one unit each at Darwin, Dampier, Sydney, Fremantle, Geelong, Perth, Tasmania and Townsville). Adelaide does not have oiled wildlife response kits, however, AMSA has oil-spill response equipment located at Lonsdale, SA (Link: AMSA Oil-spill equipment for Adelaide)

There is also a second Oiled Wildlife Container and two additional AMSA oiled wildlife kits based in Geelong which could be accessed, as could National Plan equipment from other parts of Australia. Individual companies and organisations also have Oiled Wildlife Response equipment which is outlined in the regional Oiled Wildlife Response Plans.

In addition, DPTI has an oiled wildlife response trailer containing first strike equipment. This is garaged at Wakeley Heights and is available on request. It can be towed by a standard four wheel drive vehicle.

Oiled Wildlife Response Kits
A number of First Strike Oiled Wildlife Response Kits exist around Australia. They can be transported to an oil spill if required. DEW or the organisation leading the response will request the deployment of the Oiled Wildlife Response Kits upon notification of an incident involving oiled animals. The veterinary component of the kit should be requested as soon as possible because it will generally take more time to source and transport drugs which are not stored on site or included in the kit contents. If possible, regions should have established kits of non-perishable items in storage in readiness for a spill in their region.
The Oiled Wildlife Response Kits cater for approximately 100 wildlife casualties.

Oiled Wildlife Response Containers
Each Oiled Wildlife Response Container is a washing unit that is fully equipped with water heaters, a water softener, a pressurisation pump, ventilation plant and electrical distribution board; plus a large working area with water outlets, ducted air extraction, lighting and floor drainage.
The container can run up to three cleaning stations and has sufficient water capacity to run more wash stations in an adjacent facility. The container can be deployed at short notice to a site which has access to water and power and can serve as the nucleus to the set-up of a remote Oiled Wildlife Facility.
Procedures for the activation and mobilisation of the oiled wildlife equipment are as follows:

Mobilisation of National Plan Equipment

- If the oil spill is from a ship based source, the activation and mobilisation of National Plan oiled wildlife equipment will be authorised through DPTI.
- If the oil spill is from a petroleum industry source, the Incident Controller may request that the National Plan is activated to support the response and that National Plan oiled wildlife response equipment be provided via AMSA.

Mobilisation of AMOSC Equipment:

- If the marine oil pollution is from a ship based source, then the activation and mobilisation of AMOSC oiled wildlife equipment will be through the ***AMSA duty officer (24 hour: 1800 641 792) to the AMOSC Duty Officer (24 hour: 0438 379 328).***
- If the marine oil pollution is from a petroleum industry source, the petroleum titleholder Incident Controller may activate AMOSC to access additional oiled wildlife equipment.

8. ALINYTJARA WILURARA AND EYRE PENINSULA REGIONAL OILED WILDLIFE RESPONSE PLAN

Government of South Australia
Department for Environment and Water

AMOSC
Australian Marine Oil Spill Centre Pty Ltd

History of this Document

This regional plan was developed by the Department for Environment and Water (DEW) and the Australian Marine Oil Spill Centre (AMOSC) to be consistent with the Western Australia Pilbara Regional Oiled Wildlife Response Plan which was produced jointly by the Western Australia (WA) Department of Parks and Wildlife (Parks and Wildlife) and AMOSC to set out the minimum standard for an OWR in State waters. The South Australian Oiled Wildlife Response Plan contains the general arrangements which apply across the state and seven chapters which comprise the local plans for each of the coastal regions. This chapter describe those local arrangements in the Alinytjara Wilurara and Eyre Peninsula Regions.

The Alinytjara Wilurara and Eyre Peninsula Regional Oiled Wildlife Response Plan was developed in consultation with Alinytjara Wilurara and Eyre Peninsula regional staff**.** The contribution and assistance of AMOSC and the Western Australian Government is both acknowledged and appreciated. The Plan was approved by the Alinytjara Wilurara and Eyre Peninsula Regional Directors and adopted on 25 October 2018.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with South Australian Marine Oil Pollution Plans and petroleum titleholder oil pollution emergency plans, as required.

Review

This plan will be reviewed and updated by the Directors, Alinytjara Wilurara and Eyre Peninsula Regions, DEW and AMOSC initially within twelve months of release. Thereafter, it will be reviewed following an incident or at least once every two years. The table below will be updated as future revisions of the Alinytjara Wilurara and Eyre Peninsula regional plan are reviewed.

Version	Date	Reviewed by	Approved by
V1.1	16/10/2018	Dirk Holman, Shelley Paull, Brett Backhouse and Mark Anderson	Jonathan Clark, EP Regional Director
	25/10/2018	Pia Richter and Brett Backhouse	Mary-Anne Healey AW Regional Director

9. NORTHERN AND YORKE REGIONAL OILED WILDLIFE RESPONSE PLAN

Government of South Australia
Department for Environment and Water

AMOSC
Australian Marine Oil Spill Centre Pty Ltd

History of this Document

This regional plan was developed by the Department for Environment and Water Resources (DEW) and the Australian Marine Oil Spill Centre (AMOSC) to be consistent with the Western Australia (WA) Pilbara Regional Oiled Wildlife Response Plan which was produced jointly by the Western Australia Department of Parks and Wildlife (Parks and Wildlife) and AMOSC to set out the minimum standard for an OWR in State waters. The South Australian Oiled Wildlife Response Plan contains the general arrangements which apply across the state and seven chapters which comprise the local plans for each of the coastal regions. This chapter describe those local arrangements in the Northern and Yorke Peninsula Region.

The Northern and Yorke Peninsula Regional Oiled Wildlife Response Plan was developed in consultation with Northern and Yorke Peninsula regional staff**.** The contribution and assistance of AMOSC and the Western Australian Government is both acknowledged and appreciated. The Plan was approved by the Northern and Yorke Peninsula Regional Director and adopted on 5 November 2018.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with South Australian Marine Oil Pollution Plans and petroleum titleholder oil pollution emergency plans, as required.

Review

This plan will be reviewed and updated by the Director, Northern and Yorke Peninsula, DEW and AMOSC initially within twelve months of release. Thereafter it will be reviewed following an incident or at least once every two years. The table below will be updated as future revisions of the Northern and Yorke Peninsula regional plan are reviewed.

Version	Date	Reviewed by	Approved by
V1.1	5 November 2018	Craig Nixon, Terry Boyce and Ian Falkenberg	Trevor Naismith, Regional Director

10. ADELAIDE AND MT LOFTY RANGES REGIONAL OILED WILDLIFE RESPONSE PLAN

Government of South Australia
Department for Environment and Water

AMOSC
Australian Marine Oil Spill Centre Pty Ltd

History of this Document

This regional plan was developed by the Department of Environment, Water and Natural Resources (DEW) and the Australian Marine Oil Spill Centre (AMOSC) to be consistent with the Western Australia (WA) Pilbara Regional Oiled Wildlife Response Plan which was produced jointly by the Western Australia Department of Parks and Wildlife (Parks and Wildlife) and AMOSC to set out the minimum standard for an OWR in State waters. The South Australian Oiled Wildlife Response Plan contains the general arrangements which apply across the state and seven chapters which comprise the local plans for each of the coastal regions. This chapter describe those local arrangements in the Adelaide and Mt Lofty Ranges Region.

The Adelaide and Mt Lofty Ranges Regional Oiled Wildlife Response Plan was developed in consultation with Adelaide and Mt Lofty Ranges regional staff**.** The contribution and assistance of AMOSC and the Western Australian Government is both acknowledged and appreciated. The Plan was approved by the Adelaide and Mt Lofty Ranges Regional Director and adopted on 29 October 2018.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with South Australian Marine Oil Pollution Plans and petroleum titleholder oil pollution emergency plans, as required.

Review

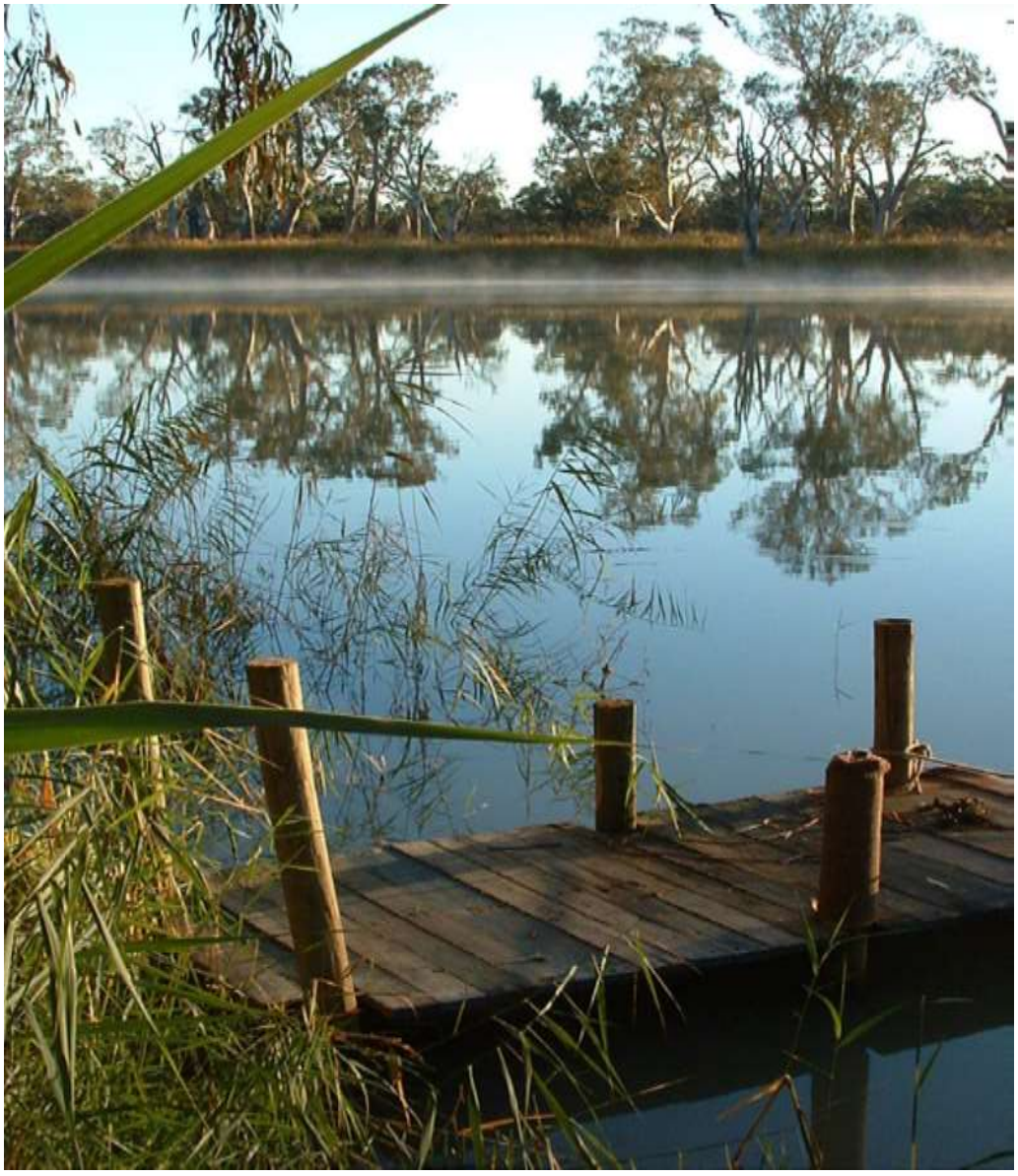
This plan will be reviewed and updated by the Regional Director, Adelaide and Mt Lofty Ranges, DEW and AMOSC initially within twelve months of release. Thereafter it will be reviewed following an incident or at least once every two years. The table below will be updated as future revisions of the Adelaide and Mt Lofty Ranges regional plan are reviewed.

Version	Date	Reviewed by	Approved by
V1.1	29/10/ 2018	Jason VanWeenen, Tony Flaherty and Judy Borlase	Brenton Grear, Regional Director

11. SA MURRAY-DARLING BASIN REGIONAL OILED WILDLIFE RESPONSE PLAN

Government of South Australia
Department for Environment and Water

AMOSC
Australian Marine Oil Spill Centre Pty Ltd



History of this Document

This regional plan was developed by the Department of Environment and Water (DEW) and the Australian Marine Oil Spill Centre (AMOSC) to be consistent with the Western Australia (WA) Pilbara Regional Oiled Wildlife Response Plan which was produced jointly by the Western Australia Department of Parks and Wildlife (Parks and Wildlife) and AMOSC to set out the minimum standard for an OWR in State waters. The South Australian Oiled Wildlife Response Plan contains the general arrangements which apply across the state and seven chapters which comprise the local plans for each of the coastal regions. This chapter describe those local arrangements in the SA Murray-Darling Basin Region.

The SA Murray-Darling Basin Regional Oiled Wildlife Response Plan was developed in consultation with SA Murray-Darling Basin regional staff**.** The contribution and assistance of AMOSC and the Western Australian Government is both acknowledged and appreciated. The Plan was approved by the SA Murray-Darling Basin Regional Director and adopted on 26 October 2018.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with South Australian Marine Oil Pollution Plans and petroleum titleholder oil pollution emergency plans, as required.

Review

This plan will be reviewed and updated by the Director, SA Murray-Darling Basin, DEW and AMOSC initially within twelve months of release. Thereafter it will be reviewed following an incident or at least once every two years. The table below will be updated as future revisions of the SA Murray-Darling Basin regional plan are reviewed.

Version	Date	Reviewed by	Approved by
V1.1	19/10/2018	Sonia Dominelli	
V1.1	22/10/2018	Claire Stephenson	
V1.1	26/10/2018		Mike Williams, Regional Director

12. SOUTH EAST REGION REGIONAL OILED WILDLIFE RESPONSE PLAN

Government of South Australia
Department for Environment and Water

AMOSC
Australian Marine Oil Spill Centre Pty Ltd

History of this Document

This regional plan was developed by the Department of Environment and Water (DEW) and the Australian Marine Oil Spill Centre (AMOSC) to be consistent with the Western Australia (WA) Pilbara Regional Oiled Wildlife Response Plan which was produced jointly by the Western Australia Department of Parks and Wildlife (Parks and Wildlife) and AMOSC to set out the minimum standard for an OWR in State waters. The South Australian Oiled Wildlife Response Plan contains the general arrangements which apply across the state and seven chapters which comprise the local plans for each of the coastal regions. This chapter describe those local arrangements in the South East Region.

The South East Regional Oiled Wildlife Response Plan was developed in consultation with South East Regional staff**.** The contribution and assistance of AMOSC and the Western Australian Government is both acknowledged and appreciated. The Plan was approved by the South East Regional Director and adopted on 28 September 2018.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with South Australian Marine Oil Pollution Plans and petroleum titleholder oil pollution emergency plans, as required.

Review

This plan will be reviewed and updated by the Director, South East Region, DEW and AMOSC initially within twelve months of release. Thereafter it will be reviewed following an incident or at least once every two years. The table below will be updated as future revisions of the South East regional plan are reviewed.

Version	Date	Reviewed by	Approved by
V1.1	28 September 2018	Lucy Dodd	Tim Collins, Regional Director

13. KANGAROO ISLAND REGIONAL OILED WILDLIFE RESPONSE PLAN

Government of South Australia
Department for Environment and Water

AMOSC
Australian Marine Oil Spill Centre Pty Ltd

History of this Document

This regional plan was developed by the Department for Environment and Water (DEW) and the Australian Marine Oil Spill Centre (AMOSC) to be consistent with the Western Australia (WA) Pilbara Regional Oiled Wildlife Response Plan which was produced jointly by the Western Australia Department of Parks and Wildlife (Parks and Wildlife) and AMOSC to set out the minimum standard for an OWR in State waters. The South Australian Oiled Wildlife Response Plan contains the general arrangements which apply across the state and seven chapters which comprise the local plans for each of the coastal regions. This chapter describe those local arrangements in the Kangaroo Island Region.

The Kangaroo Island Regional Oiled Wildlife Response Plan was developed in consultation with Kangaroo Island Regional Staff**.** The contribution and assistance of AMOSC and the Western Australian Government is both acknowledged and appreciated. The Plan was approved by the Kangaroo Island Regional Director and adopted on 28 September 2018.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with South Australian Marine Oil Pollution Plans and petroleum titleholder oil pollution emergency plans, as required.

Review

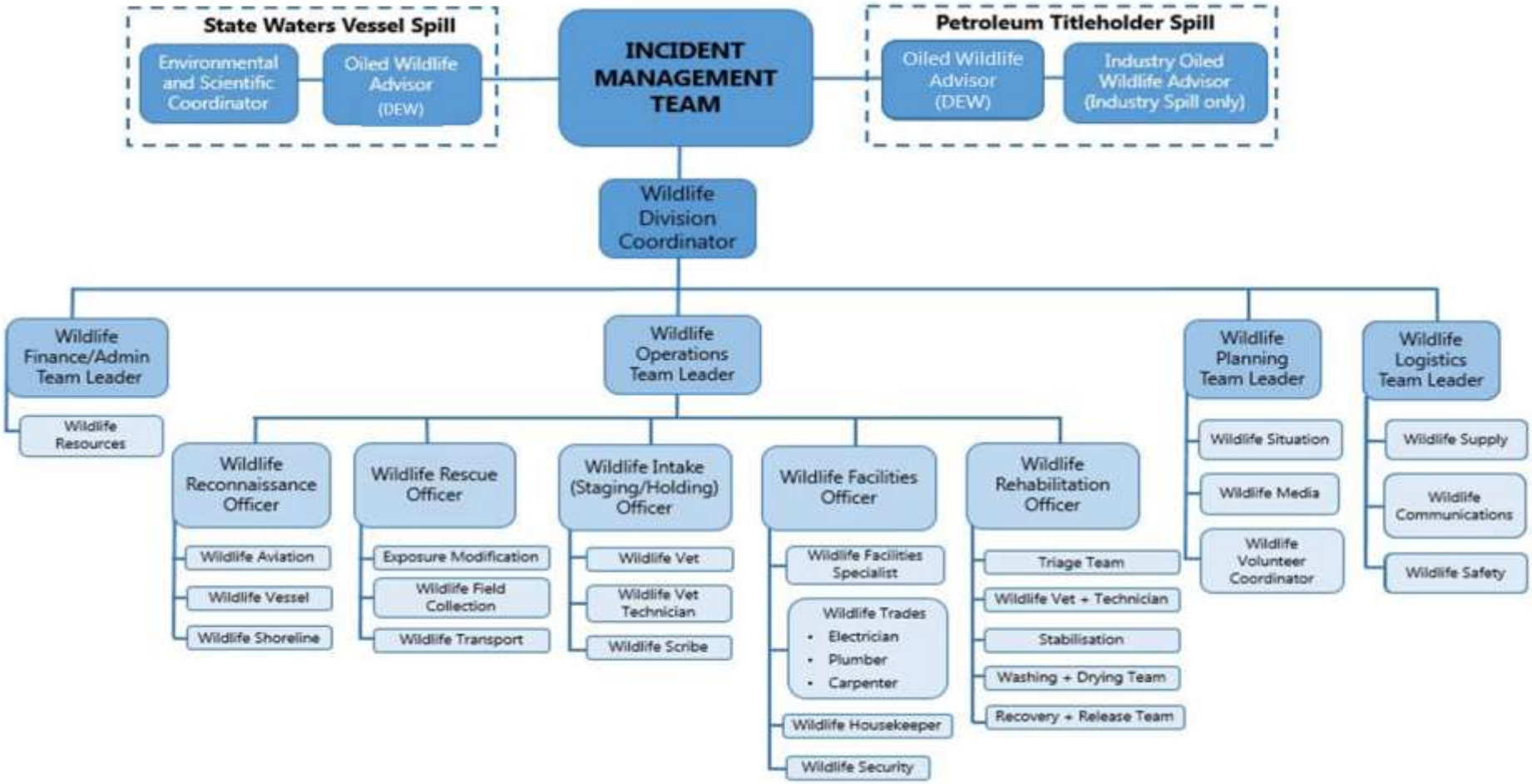
This plan will be reviewed and updated by the Director, Kangaroo Island Region, DEW and AMOSC initially within twelve months of release. Thereafter it will be reviewed following an incident or at least once every two years. The table below will be updated as future revisions of the Kangaroo Island regional plan are reviewed.

Version	Date	Reviewed by	Approved by
V1.1	28/9/2018	Mike Greig and Robert Ellis	Damian Miley, Regional Director

APPENDICES

Appendix A - Roles and Responsibilities

Figure 3: Suggested Functions for a Full Scale Oiled Wildlife Response Incident Management Structure



THE DEW OILED WILDLIFE ADVISOR

The Oiled Wildlife Advisor's role is to advise the Incident Management Team on the wildlife response, ensuring that minimum standards are being met and providing expert advice for critical decision making.

The Oiled Wildlife Advisor's role is to:

- Provide advice on behalf of DEW, the State statutory agency responsible for permitting the capture, retention, destruction and release of wildlife. This can occur through either the Environment and Scientific Coordinator (if the incident occurs in state waters spill or directly to the incident management team (if the control agency is a Petroleum Titleholder);
- Provide updates to the Incident Management Team on the oiled wildlife response situation;
- Serve as the link between the DEW Chief Executive and the response;
- Provide critical wildlife risk information to the incident management team ;
- Expedite licensing as required through DEW for the pre-emptive capture of wildlife or for deterrence activities in state waters;
- Liaise with logistics to ensure the availability and provision of resources to the wildlife response operations; and
- Provision of critical advice on the priority wildlife concerns and general wildlife response.

PETROLEUM INDUSTRY OILED WILDLIFE ADVISOR – FROM CONTROL AGENCY/AMOSC

If the spill resulted from petroleum operations the Control Agency will provide a suitably qualified Industry Oiled Wildlife Advisor. This person will maintain the interface and therefore effective communication between the petroleum industry Incident Controller and the DEW Oiled Wildlife Advisor.
The petroleum industry Oiled Wildlife Advisor also provides the interface between the oiled wildlife response and the Control Agency's Oil Pollution Emergency Plan.

This person should:

- Be trained in the detail of the Oiled Wildlife Response State and Regional Plans;
- Have the authority to act on the petroleum company's behalf;
- Monitor compliance with the plans on the petroleum company's behalf; and
- Liaise with logistics to ensure the availability and provision of resources to the oiled wildlife response operations.

The DEW and the Petroleum Industry Oiled Wildlife Advisors will work together to ensure access to equipment and personnel.

WILDLIFE DIVISION COORDINATOR

The Wildlife Division is established to combat the incident and is overseen by the Wildlife Division Coordinator. It is vitally important that the staff in the Wildlife Operations Unit have knowledge of their role and the management of the oiled wildlife. Under the direction of the Wildlife Division Coordinator, staff coordinate the rescue, transport, treatment, rehabilitation, release, destruction and disposal of wildlife affected by the spill.

The Wildlife Division Coordinator should have wildlife management experience and preferably have experience in wildlife response activities at oil spills. They should also have good knowledge of AIIMS. The Wildlife Division Coordinator is responsible for the overall wildlife response, implementing management strategies and managing staff and volunteers. Thus the Wildlife Division Coordinator is responsible for the rescue, rehabilitation and release of oiled wildlife.

The Wildlife Division Coordinator role includes:

- Obtain briefing from the Incident Management Team
- Liaise with the Wildlife Planning and Logistics sections on the spill situation and the availability of resources
- Appoint appropriate personnel to the positions within the wildlife operations section;
- Brief staff on their roles and responsibilities
- Manage the overall wildlife rescue and rehabilitation operations
- Identify an appropriate site for a rehabilitation centre based on the location and severity of the spill.
- Organise access to the site
- Request resources for rescue and rehabilitation operations through the Wildlife Logistics Team Leader
- Liaise with the Wildlife Planning Team Leader to determine search areas
- Ensure appropriate euthanasia and disposal of wildlife
- Ensure direct and continuous contact with the wildlife operations team, wildlife Logistics and Planning Officers and Wildlife Division Coordinator
- Prepare a report on operational procedures for the Wildlife Division Coordinator
- Maintain a log of events and actions.
- Ensure provision of timely and humane treatment and care to affected animals;
- Manage the Wildlife Division of the incident's Operations Section;
- Liaise extensively and regularly with other Sections and agencies (through Liaison Officers) throughout the incident;
- Liaise with the Shoreline Coordinator to ensure efficient use of resources in the field;
- Liaise with the Logistics Sections to request the establishment of required wildlife treatment facilities and infrastructure for the response. Appoint a Manager of wildlife treatment facilities;
- Ensure records and information are maintained on observed and/or treated wildlife;
- Establish parameters for resource deployment including scaling down and ending operations – to be included in the Incident Action Plan;
- Provide advice on, and ensure compliance with, occupational health and safety regulations;
- Establish law enforcement data collection procedures if requested by the Incident Controller;
- Communicate and provide updates to the Response Media Liaison Officer on wildlife issues; and
- Ensure sectors within the Wildlife Unit maintain detailed records of costs associated with the response for cost recovery purposes and provide those records to the incident Finance and Administration Officers.

WILDLIFE OPERATIONS TEAM LEADER

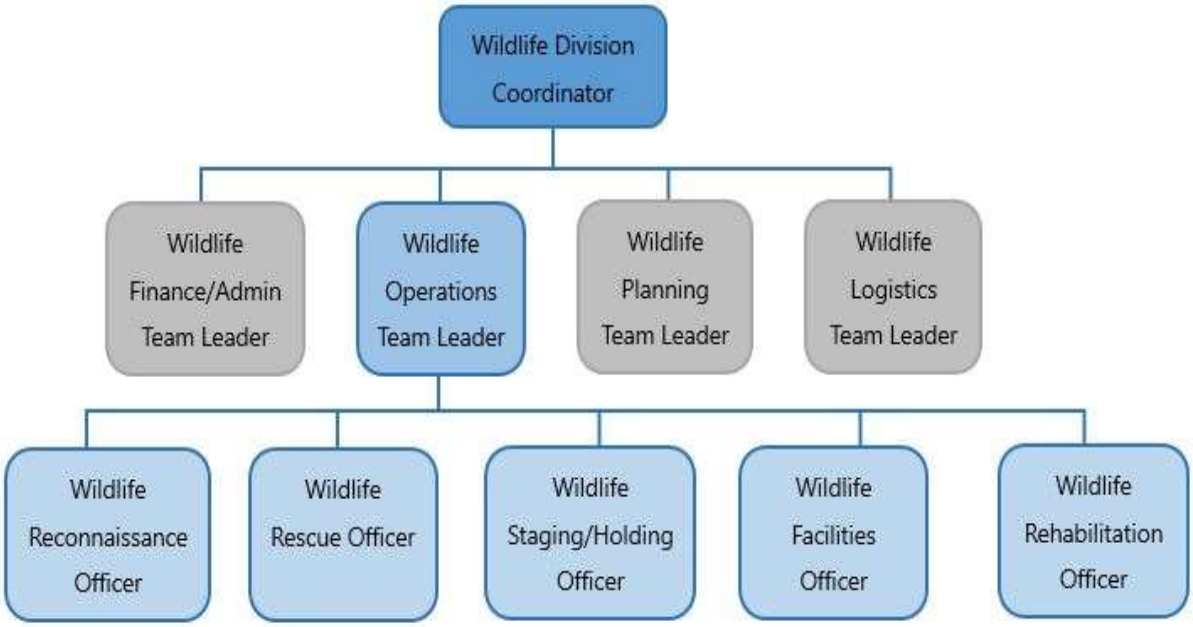
The Wildlife Operations Team Leader is responsible for the overall coordination of the wildlife response.

This position reports to the Wildlife Division Coordinator and liaises with the Wildlife Planning, Logistics and the Administration and Finance Units. Usually, the Wildlife Operations Team Leader is positioned in the forward operating base or staging area from where all major operations are based.

The Wildlife Operations Team Leader role includes:

- Coordinate field operations for the hazing, rescue, rehabilitation and release of affected wildlife

- Plan and coordinate wildlife operations, including participating in the development of the Incident Action Plans
- Ensure accurate field information is being reported to the Wildlife Division Coordinator in a timely manner.

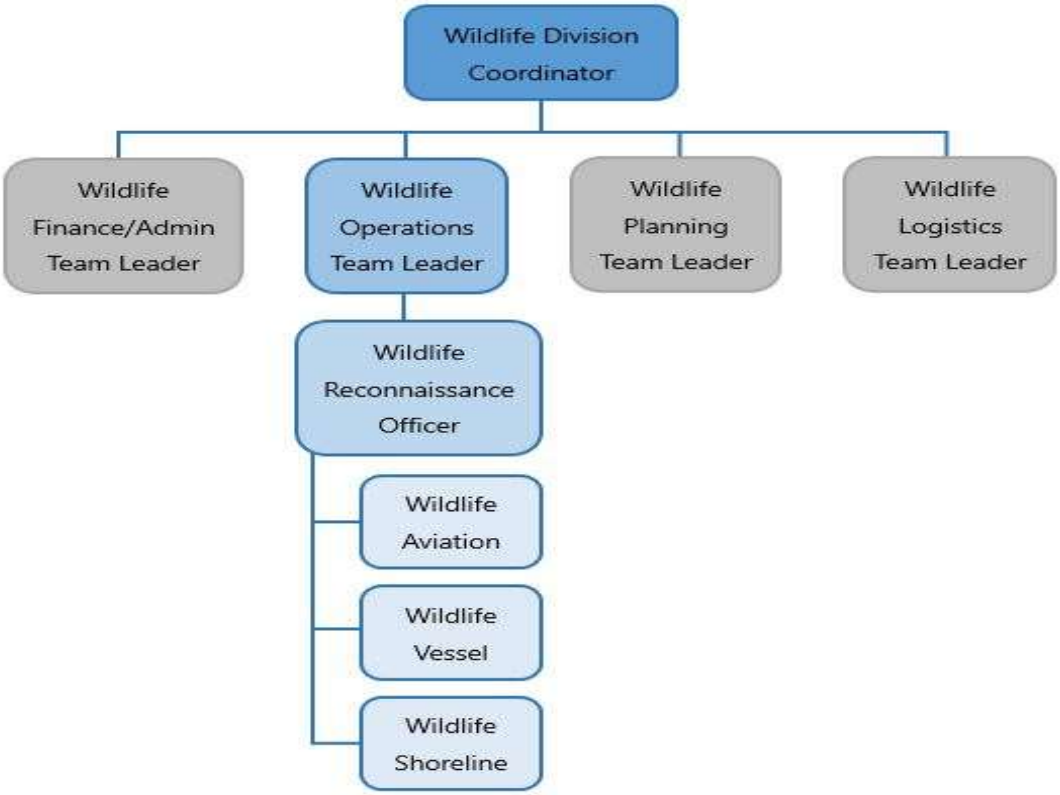


WILDLIFE RECONNAISSANCE OFFICER

The Wildlife Reconnaissance Officer is responsible for observing and confirming the documented wildlife resources at risk in the known expected zone of impact of the spill.

The Wildlife Reconnaissance Officer role includes:

- Organise the collection of reliable information and ensure it is fed back to coordinators in a timely manner
- Organise vessel, aircraft and/or on foot reconnaissance activities
- Ensure shoreline reconnaissance is conducted in concert with shoreline clean-up assessment teams to provide efficient use of resources
- Ensure the safety and welfare of those conducting reconnaissance in the field.

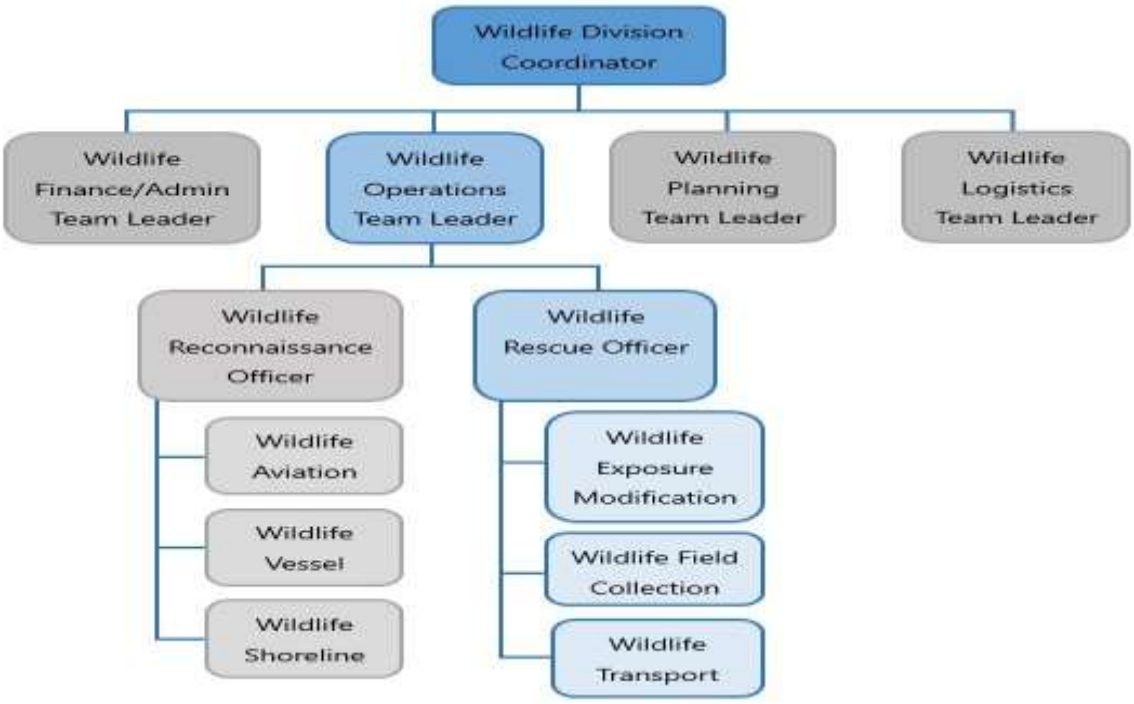


WILDLIFE RESCUE OFFICER

The Wildlife Rescue Officer is responsible for the on-site coordination and management of the capture, initial first-aid and transport of oiled wildlife.

The Wildlife Rescue Officer role includes:

- Obtain briefing from Wildlife Operations Team Leader
- Assess extent of resources required and request staff, volunteers and equipment from Wildlife Operations Team Leader
- Determine search areas in conjunction with the Wildlife Operations Team Leader and Wildlife Planning Team Leader
- Organise search teams to be led by experienced staff
- Organise off-shore collection of wildlife
- Establish initial assessment centres if required
- Coordinate veterinarians to undertake the initial assessment of wildlife
- Organise vehicles, boats, operators and drivers to transport wildlife from collection sites to rehabilitation centre
- Ensure that all volunteers including specialists have been registered and briefed by the wildlife volunteer coordinator and provided with on-site training or induction
- Ensure all wildlife is tagged or banded and that accurate records of the location, assessment, any first aid treatment and destination of each animal collected
- Ensure the safety of personnel (including volunteers) involved in the search and collection of wildlife
- Submit report to Wildlife Operations Team Leader
- Maintain log of events and actions.



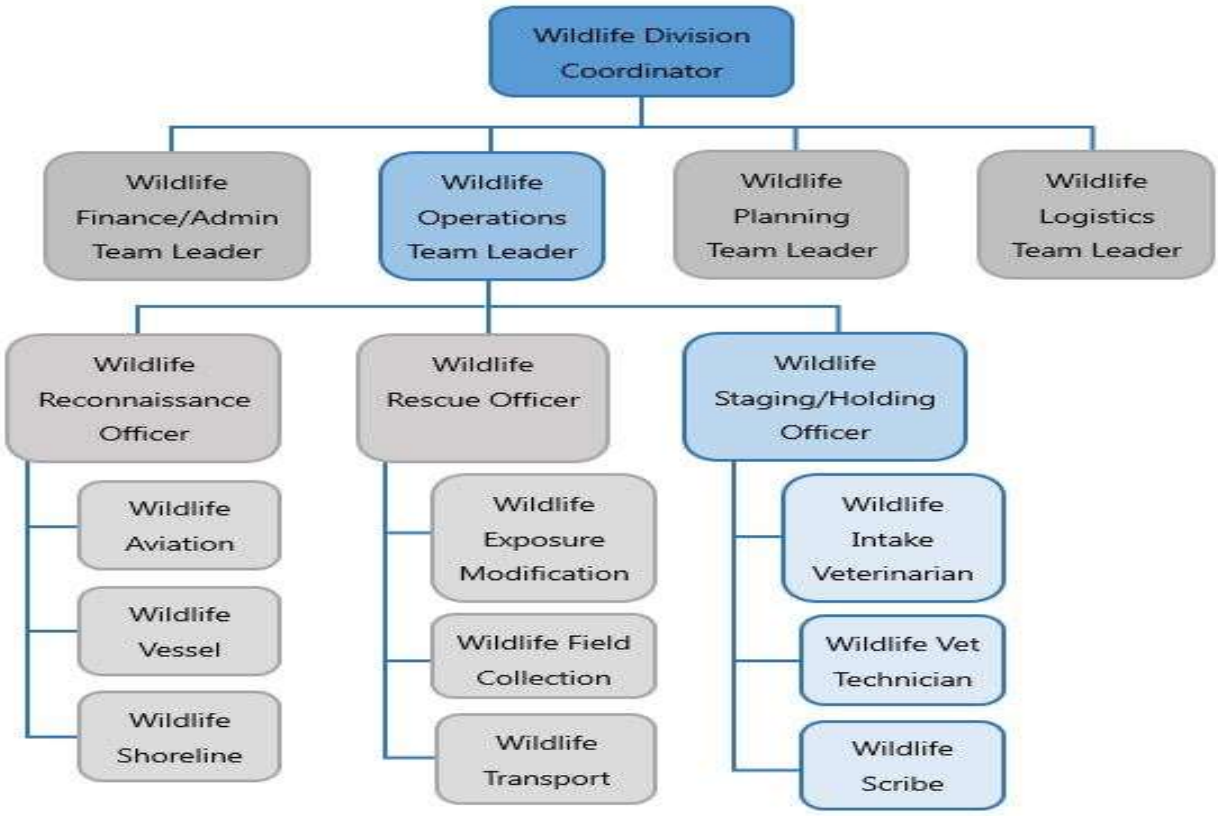
WILDLIFE STAGING OFFICER

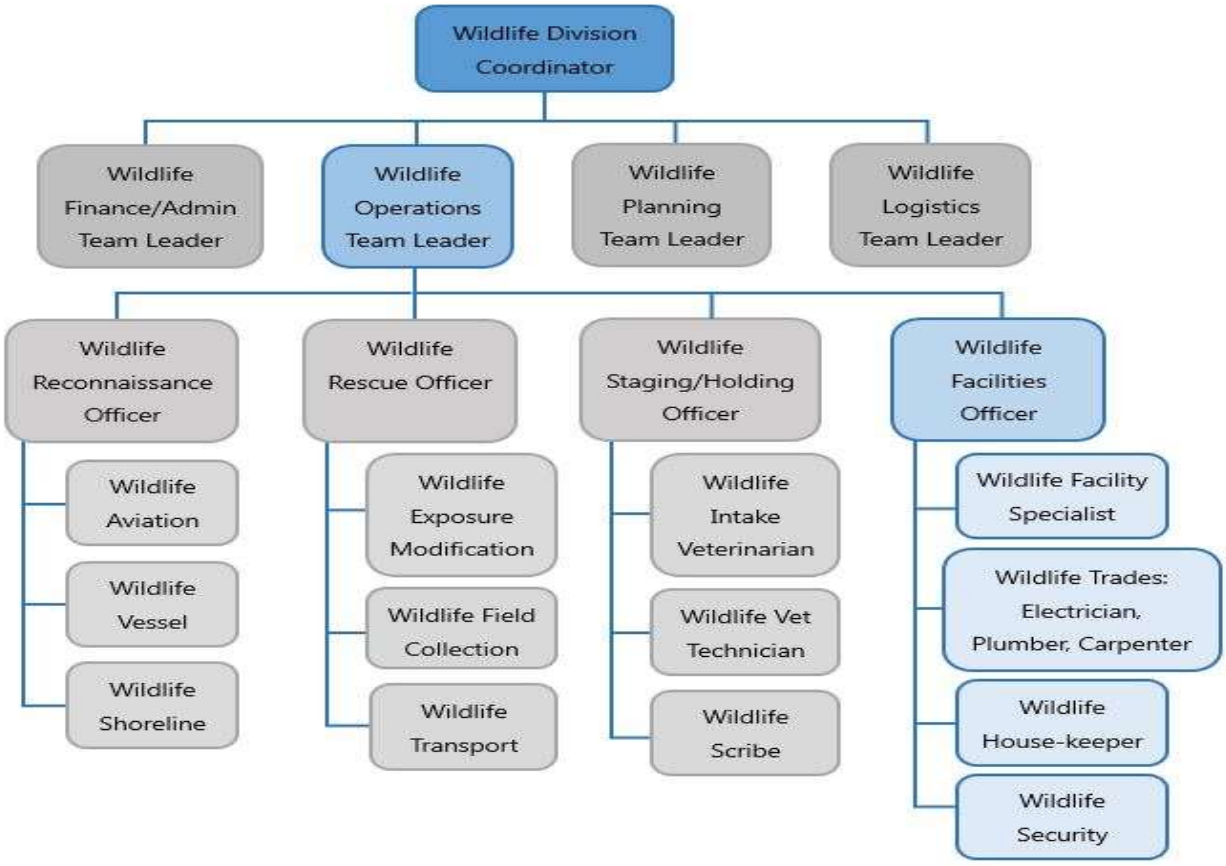
The Staging Area is a designated area where:

- People, vehicles, and equipment gather to be assigned to their role in the incident.
- Crews muster the end of their shift prior to leaving the site
- Incoming crews decontaminate and sign off.
- The Staging Area may be the primary holding area for oiled wildlife until they are transported to the oiled wildlife facility. There are a number of functions undertaken at a Staging Area. These are managed by the Wildlife Staging Officer, who is responsible to the Wildlife Operations Team Leader.

The Wildlife Staging Officer role includes:

- Log the names and call signs of all proceeding and responding crews
- Log the names of the crews and vehicles/vessels departing the incident
- Liaise closely with the planning unit and situations officer and gather information (maps) showing access routes, sector locations, conditions etc.
- Brief incoming crews
- De-brief outgoing crews
- Maintain communications contact with units
- Establish a meeting point for media, VIPs etc.
- Establish a separate area for the intake and triage of animals if they cannot be immediately transported to the oiled wildlife facility, or the oiled wildlife facility is more than a one hour drive away and the animals require initial stabilisation.
- Identify an area separate but close to the staging area for catering, ablutions, and other welfare services
- Arrange for the servicing of the welfare and other facilities outside of peak activity times.
- There may be a need for the Staging Area Officer (or staff) to communicate with the Incident Management Team, or with units travelling between the incident and the Staging Area. When choosing the site for the Staging Area consider is whether or not it can support the communications arrangements as specified in the Communications Plan for the incident.


Wildlife Division Coordinator
Wildlife Finance/Admin Team Leader
Wildlife Operations Team Leader
Wildlife Planning Team Leader
Wildlife Logistics Team Leader
Wildlife Reconnaissance Officer
Wildlife Rescue Officer
Wildlife Staging/Holding Officer
Wildlife Aviation
Wildlife Vessel
Wildlife Shoreline
Wildlife Exposure Modification
Wildlife Field Collection
Wildlife Transport
Wildlife Intake Veterinarian
Wildlife Vet Technician
Wildlife Scribe

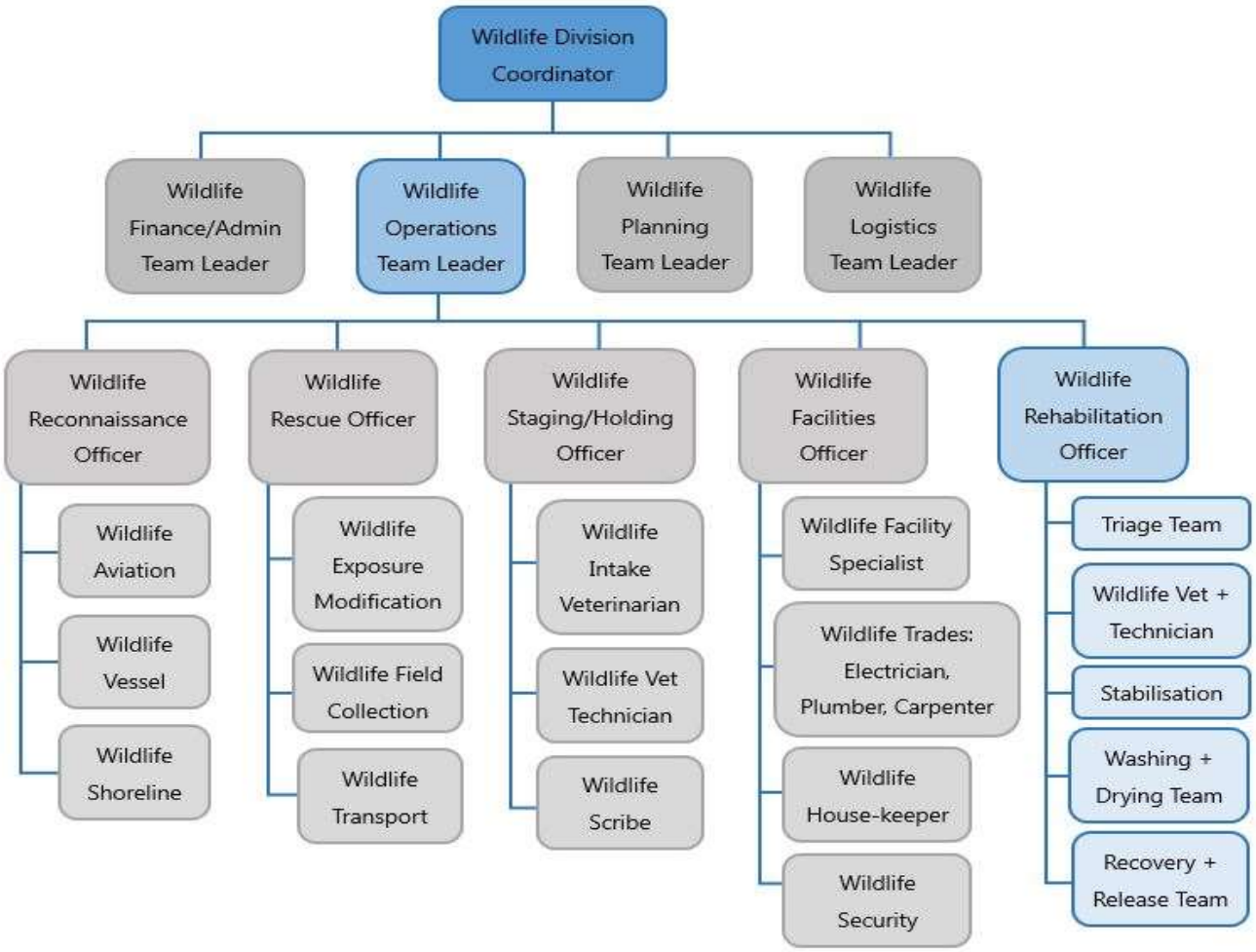

Wildlife Division Coordinator
Wildlife Finance/Admin Team Leader
Wildlife Operations Team Leader
Wildlife Planning Team Leader
Wildlife Logistics Team Leader
Wildlife Reconnaissance Officer
Wildlife Rescue Officer
Wildlife Staging/Holding Officer
Wildlife Facilities Officer
Wildlife Aviation
Wildlife Vessel
Wildlife Shoreline
Wildlife Exposure Modification
Wildlife Field Collection
Wildlife Transport
Wildlife Intake Veterinarian
Wildlife Vet Technician
Wildlife Scribe
Wildlife Facility Specialist
Wildlife Trades: Electrician, Plumber, Carpenter
Wildlife House-keeper
Wildlife Security

WILDLIFE FACILITIES OFFICER

The Wildlife Facilities Officer is responsible for establishing the oiled wildlife facility. Ideally, facilities for the collection, holding and isolation of affected animals should be established within 24 hours of the spill. Cleaning and rehabilitation facilities should be operational within 48 hours. The location of the spill and the location, numbers and species of animals affected may determine the type of facilities used. (See Facilities Section)

The Wildlife Facilities Officer role includes:

- Organise regular waste collection services
- Organise regular cleaning of facilities
- Ensure security of wildlife facilities
- Arrange any running maintenance of the facilities
- Establish personnel checking-in and checking-out systems
  developing staff rosters and maintaining timesheets
- Data entry and collation of records (animal records, personnel records, cost recovery records)
- Support the implementation of Work Health and Safety (WHS) procedures
- Provide requests to the Logistics Team Leader for resourcing of equipment for animal enclosures and rehabilitation
- Liaise with veterinary officers to ensure adequate care is being provided during washing, drying and rehabilitation of the wildlife
- Liaise closely with the logistics unit to request resources (both equipment and personnel) as required
- Coordinate contractors and their site inductions (electricians, carpenters etc.).



WILDLIFE REHABILIATION OFFICER

The Wildlife Rehabilitation Officer is responsible for managing the rehabilitation process for affected wildlife, including veterinary assessment, washing, drying, husbandry and release.

The Wildlife Rehabilitation Officer role includes:

- Obtain briefing from Wildlife Operations Team Leader
- Request access through Wildlife Operations Team Leader to an appropriate rehabilitation centre
- Organise the functional set-up of the rehabilitation centre
- Assess extent of facilities, equipment, staff and volunteers required and allocate accordingly
- Request assistance from veterinarians and keepers through the Wildlife Operations Team Leader
- Establish and manage teams of personnel for tagging, veterinary care, washing, drying, husbandry and eventual release of affected wildlife
- Authorise requests for equipment and materials as required from team leaders
- Request volunteers through Wildlife Planning Officer to ensure appropriate numbers of volunteers are available for each section
- Ensure that all volunteers including specialists have been registered and briefed by the volunteer coordinator and provided with on-site training or induction
- Ensure that accurate records are kept for **each individual animal** at each treatment phase
- Liaise with the Wildlife Safety Officer to ensure the health and safety of staff and volunteers involved
- Advise Media Liaison Officer of permitted access for the media, through the Wildlife Operations Team Leader
- Coordinate closure and cleaning of treatment facilities
- Submit reports to Wildlife Operations Team Leader
- Maintain log of events, actions and staff involved.

WILDLIFE PLANNING TEAM LEADER

The Wildlife Planning Unit is responsible for the collection, analysis and dissemination of incident information; ongoing assessment and predictions of the extent and severity of the spill and the resources required; the allocation and management of human resources; and the collection and reporting of scientific data. This Unit must provide the documentation that the members of the Wildlife Team require to perform their respective functions.

The Wildlife Planning Team Leader is appointed by the Wildlife Division Coordinator, and is responsible for ensuring that the unit fulfils its role, the management of the unit, and keeping members of the incident management team informed of developments and predictions.

The Wildlife Planning Team Leader should have extensive experience in the AIIMS and preferably have local knowledge and experience in oil spills. The following roles report to the Wildlife Team Leader:

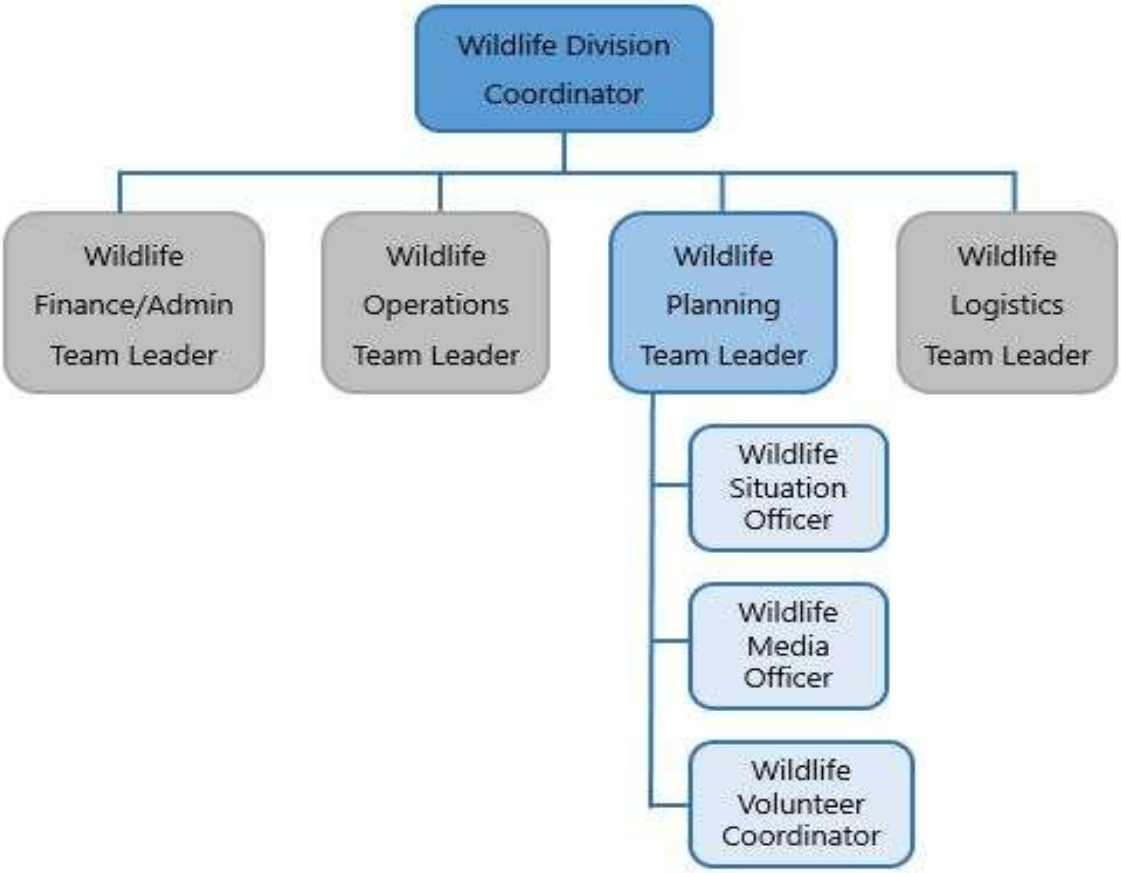
- Wildlife Resources Officer
- Wildlife Situation Officer
- Wildlife Media Officer
- Wildlife Volunteer Coordinator

The Wildlife Planning Team Leader is responsible for coordinating the planning response, liaising with the Wildlife Division Coordinator, Operations, Logistics and external agencies.

The Wildlife Planning Team Leader role includes:

- Obtain briefing from the Wildlife Division Coordinator
- Identify the situation and predict the impact on wildlife. Notify the Incident Controller and Operations Team Leader accordingly

- Appoint personnel to the Resources Officer, Situation Officer, Media Officer and Volunteer Coordinator positions as required
- Determine resource requirements from both within and outside the Department to effectively undertake the Department's responsibilities
- Establish priorities for the allocation of resources
- Arrange for collection, analysis and dissemination of incident information
- Provide information to staff on the type of substance(s) involved in the spill
- Authorise requests for specialist assistance to aid in the identification, handling and treatment of injured wildlife
- Consult with Media Officer and approve media releases to be referred to the Incident Controller for authorisation (subject to the approval of the DEW media units)
- Maintain log of events and actions
- Submit report to Incident Controller.



WILDLIFE SITUATION OFFICER

The Wildlife Situation Officer is responsible for the collection of data and information under direction from the Wildlife Planning Team Leader.

The Wildlife Situation Officer role includes:

- Assemble and disseminate information on:
  - the extent and impact of the spill on wildlife and wildlife habitat
  - weather forecasts

    - predicted movement of the spill and at risk habitats and species.
- Prepare information on the significance (environmental, cultural and historical) of threatened areas
- Ensure that all areas maintain accurate records - provide areas with record sheets identification bands etc.
- Collect and collate wildlife record sheets from field officers
- Prepare register of wildlife, both live and dead
- Prepare report on data on all wildlife involved in the incident and submit to the Planning Officer.
  The report should include information on:
    - wildlife - species and numbers involved
    - collection locations
    - treatment received and success rate
    - rehabilitation
    - release
- Maintain log of events and actions.

WILDLIFE MEDIA OFFICER

The Wildlife Media Officer is responsible for coordinating media requirements from the Department and the media.

The Wildlife Media Officer role includes:

- Obtain briefing from the Planning Officer
- Communicate with the Wildlife Division Coordinator and the Media Liaison Officer from the State or Regional Marine Oil Spill Committee
- Establish media team as required
- Establish cooperative working relationship with the media
- Establish media briefing areas and notify press
- Ensure all authorised media are provided with identification
- Advise field staff of media protocol
- Ensure welfare of wildlife is not compromised by media presence
- Draft press releases on wildlife issues, have them approved by the Planning Officer, the Wildlife Division Coordinator and the DEW official spokesperson
- Arrange interviews with the media and the DEW official spokesperson
- Brief media <u>on wildlife issues only</u>. Inquiries regarding the source, extent and content of the spill should be addressed to the relevant authority. The media may be briefed on foreshore/beach clean-up issues only where the DEW is directly responsible for the management of the land or has taken the lead where a committee of management exists;
- Ensure that there is a media liaison person at each site of activity
- Maintain log of events and actions.

WILDLIFE VOLUNTEER COORDINATOR

The Wildlife Volunteer Coordinator is responsible for managing and coordinating volunteers to assist in the rescue and rehabilitation of oiled wildlife.

The Wildlife Volunteer Coordinator role includes:

- Obtain briefing from Planning Officer
- Liaise with Planning and Operations staff to determine available resources and volunteer requirements
- Identify and contact nominated volunteer organisations to request volunteers
- Arrange briefing location for all volunteers
- Establish volunteer registry and ensure that <u>all</u> volunteers are registered. **If a volunteer is not registered they will not be covered by the relevant agency/company's insurance policy**
- Ensure that all volunteers are briefed on safety, legal considerations and operational procedures

- Establish on-site training or induction facilities for volunteers and staff
- Ensure that no volunteer undertakes operational activities unless they have been given on-site training or are directly supervised by a trained person
- Establish volunteer rosters for each area and ensure that the arrival and departure of all volunteers is logged
- Ensure that the communications staff do not refer volunteers direct to the site but take names and numbers. Establish recorded message if necessary
- Ensure that any injuries received by volunteers are attended to by a qualified first-aid officer no matter how minor
- Document any first-aid received by volunteers
- Submit report to the Planning Officer
- Provide DEW Volunteer Unit with volunteer registry information
- Maintain log of events and actions.

WILDLIFE LOGISTICS TEAM LEADER

The Wildlife Logistics Team Leader is appointed by the Wildlife Division Coordinator, and is responsible for the provision of personnel, facilities, services and materials in support of the incident. It is a demanding role that caters for the needs of the incident, the operational staff and a large number of volunteers. As with any AIIMS role, an individual or multitude of tasks can be delegated to another officer if the workload exceeds the span of control or other procedural limitation of the Wildlife Logistics Team Leader.

The Wildlife Logistics Unit is responsible for supplying facilities, servicing and materials and providing a safe working environment for all personnel involved in the implementation of this plan. The following roles sit within the Wildlife Logistics Unit:

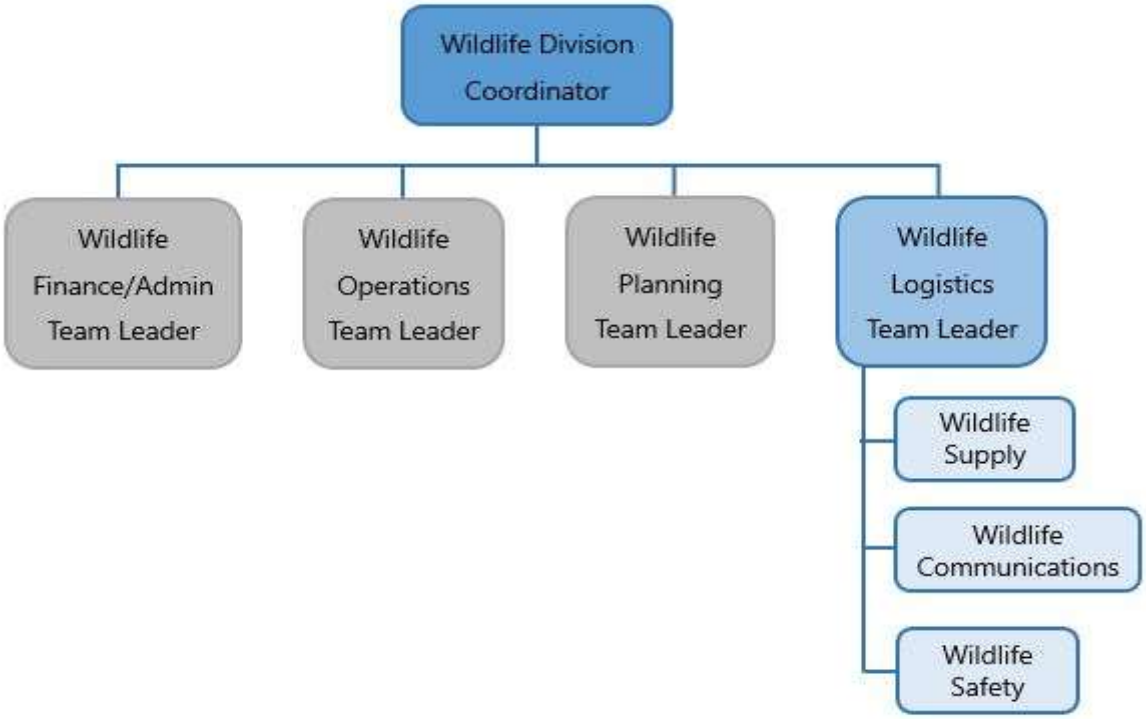
- Wildlife Supply Officer
- Wildlife Communications Officer
- Wildlife Safety Officer

The Wildlife Logistics Team Leader is responsible for coordinating facilities and equipment, security, safety, communications and administrative services for the wildlife division.

The Wildlife Logistics Team Leader role includes:

- Participate in briefing and debriefing from supervisor
- Action logistics requests made by the Wildlife Division Coordinator or assigned Divisional Commander through the response Logistics Section
- Provide specialist logistics support for the wildlife response, including assisting in the day-to-day management of wildlife treatment facilities, such as:
    - Organising regular waste collection services
    - Organising regular cleaning of facilities
    - Ensuring security of wildlife facilities
    - Arranging any running maintenance of the facilities
- Acquisition of stores and equipment as required
- Providing and sourcing resources in accordance with the Incident Action Plan
- Sourcing casual personnel (through the Logistics Section) as directed by the Wildlife Division Coordinator or Divisional Commander
- Establishing personnel checking-in and checking-out systems
- Providing staff and volunteers with required personal protective equipment and clothing
- Developing staff rosters and maintaining timesheets
- Sourcing and providing catering and accommodation for wildlife response personnel through Logistics Section

- Data entry and collation of records (animal records, personnel records, cost recovery records)
- Compiling data for media releases and sitreps
- Arrange for and oversee waste management facilities (including oily water), through the EPA;
- Answering telephones
- Maintaining information and bulletin boards
- Maintaining logs of activities
- Supporting implementation of Work Health and Safety (WHS) procedures.



WILDLIFE SUPPLY OFFICER

The Wildlife Supply Officer is responsible for the provision of equipment and supplies to the operation and planning sections.

The Wildlife Supply Officer role includes:

- Arrange for access and distribution of stored equipment or kits
- Obtain requested equipment and supplies
- Set protocol for requests for equipment and supplies
- Ensure all requests for supplies have been authorised
- Restore supplies on completion of the operation
- Maintain inventory
- Collate all invoices
- Investigate major losses of equipment
- Submit report to Logistics Officer
- Maintain log of events and actions.

WILDLIFE COMMUNICATIONS OFFICER

The Wildlife Communications Officer develops a communications plan containing relevant contact phone numbers, mobile and trunk numbers.

The Wildlife Communications Officer role includes:

- Oversee provision of communications equipment - request if necessary the increase of cells for mobile phones and the upgrading of the DEW status on the trunk network
- Set up communications centre
- Maintain communication links with operations, planning and logistics personnel
- Assist in collation and distribution of information
- Provide support for the reception and supply of information to the public
- Maintain log of events and actions.

WILDLIFE SAFETY OFFICER

The Wildlife Safety Officer is responsible for ensuring a safe environment for staff and volunteers.

The Wildlife Safety Officer role includes:

- Preparation of Job Safety and Job Hazard Analysis documents for all personnel
- Obtain chemical data sheets on chemicals involved in the spill
- Obtain appropriate safety equipment and distribute to staff and volunteers
- Contact St John Ambulance and request their assistance on site
- Ensure that a Level 2 First Aid person is on site at all times when St. John's is not present
- Arrange for First Aid Kits to be available at all locations
- Ensure all accidents are reported and all injuries treated no matter how minor
- Arrange for a medical practitioner to come on site to administer tetanus injections if necessary
- Establish standard procedures to minimise the risk of the spread of infection from wildlife to people
- Provide fire extinguishers to relevant areas
- Develop a safety plan including:
    - Site plans for each operational location
    - Contact numbers for local medical practitioners
    - Emergency contact numbers
    - Information on substances involved
    - Location of first aid kits and safety equipment
    - Names of qualified first-aid staff
    - Quarantine procedures
    - Hygiene procedures
    - Evacuation procedures
    - Safety procedures
- Undertake regular safety audits
- Maintain log of events and actions, and prepare and submit report to the Logistics Officer.

WILDLIFE FINANCE AND ADMINISTRATION TEAM LEADER

The Wildlife Finance and Administration is responsible for maintaining records of expenditure, accounting for monies expended, ensuring the proper and prudent use of funds and ensuring that finance is available to adequately resource the wildlife response. The Wildlife Resources Officer reports to this position.

WILDLIFE RESOURCES OFFICER

The Resources Officer is responsible for the development of staff rosters, ensuring there is adequate staff and acquiring specialist resources as required and acts under the direction of the Wildlife Finance and Admin Team Leader.

The Wildlife Resources Officer role includes:

- Contact staff and allocate to areas according to skills, experience and requirements of each section
- Establish staff rosters and maintain time sheets for each staff member
- Contact and arrange for assistance from veterinarians, zoo keepers and other specialist organisations following approval from Planning Officer.
- Ensure veterinarians and keepers are registered as volunteers
- Develop and maintain rosters and time sheets for specialists
- Ensure staff adhere to rosters
- Ensure staff work according to the provisions set out in *Public Sector (Honesty and Accountability) Act 1995* and all regulations, conditions and agreements subordinate to it
- Provide Operations, Planning and Logistics team members with identification badges
- Maintain accurate records of hours for staff and specialists
- Maintain log of events and actions.

Appendix B - Search and Rescue Operations Related to Specific Wildlife Groups

Seasonal conditions and the fluctuation of food availability can alter wildlife populations causing massive local aggregations, or the abandonment of habitats. When an oil spill occurs it is vital to undertake a real-time assessment of wildlife at risk. The most effective assessments are conducted in the field. They will address the wildlife feeding grounds, aggregation areas and areas that wildlife may cross to get to one of these locations.

Depending on the type of oil, it can be difficult to determine if an animal has been affected. The effects on wildlife of condensate, diesel or light crude, can be difficult to detect. Birds will appear wet, have messy feathers, or may not exhibit typical physical appearance or behaviour. Spills of light hydrocarbons such as condensate and diesel are highly volatile and will spread, evaporate and breakdown quickly. It was thought that light oils do not impact wildlife because the effects are not obvious, however these oils cause severe burns and are toxic. Experienced and/or trained observers of oiled wildlife are needed to detect and assess wildlife affected by light crudes, fuels or condensate.

Captured animals need to be taken to a sheltered, quiet place as soon as possible. This may necessitate a series of transfers to holding/stabilisation facilities on route to the rehabilitation centre. The survival of wildlife depends on minimising stress at all stages of the response. It is essential to minimise handling noise, and other disturbance at all times.

SEARCH AND COLLECTION OF BIRDS – COASTAL AND ISLANDS

Searches should be planned to coincide with the time and location of wildlife being present. However weather, tides and sea states can constrain access to sites. Dawn and dusk are often the optimal search time for seabirds that hunt at sea visually, such as terns and boobies. Searches for shorebirds are optimal at high tide when the birds are concentrated at roost locations.

Any commotion causing birds to move position makes surveys and assessments difficult, so, as far as possible, searches need to minimise disturbance. A careful survey strategy for each area needs to be planned and implemented to achieve this. Responders should keep a low profile, observe animal behaviour and adjust their actions accordingly.

All searchers will carry basic assessment equipment such as binoculars/telescope, an effective zoom camera and a notebook. Safety equipment including Personal Protective Equipment specified by the Job Safety Analysis will also be carried or present at the search site. If it is likely that oiled wildlife will be found, capture and holding equipment should be available. Consideration should be given to the provision of basic care of wildlife in the field such as wiping oil from the head and administration of electrolytes to treat dehydration.

Birds that are oiled are often weak and either cannot fly or do so poorly. This makes collection by hand or with pole nets possible. If birds are located near water, searchers should approach them from opposite directions herding the birds away from the water. They will be easier to capture on land. Capturing birds that can fly is difficult and so they should be photographed or noted and left alone. Birds should only be captured by experienced staff with proven capture skills. Volunteers can assist, but an experienced person who has caught and handled birds of that, or a similar species, previously should lead the team.

Specialist capture techniques will almost certainly be required if pre-emptive capture of unoiled birds is proposed. Capturing healthy, free flying birds is difficult and places the birds at risk. Pre-emptive capture should generally be restricted to species of national or international conservation significance and a risk assessment should be undertaken before making the decision to use this strategy.

CETACEANS

Cetaceans are whales, dolphins, and porpoises and many species inhabit South Australian waters. There is little direct evidence that cetaceans are affected by oil spills however there are records of above-average mortalities occurring during some spill events. There are few effective strategies available to responders. It may be viable to attempt aerial surveillance of cetaceans followed by herding and chasing (hazing) them from slick areas using vessels or aircraft. Towed arrays of seismic survey equipment using soft start procedures may be effective if cetaceans are observed in spill areas. There are maps of important areas of marine species in Australian waters on the DotEE website http://www.environment.gov.au/marine/marine-species/cetaceans/species-found-australian-waters

For strategy details for dealing with cetaceans refer to Appendix F – Oiled Wildlife Response Strategy Considerations and Options Table.

PINIIPEDS

Three species of pinnipeds inhabit and breed in South Australian waters. These are the Australian Sea Lion, the Long Nosed Fur Seal and the Australian Fur Seal. All are large and difficult to manage. Management strategies include pre-emptive captivity, hazing and relocation (if the clean-up can be completed before they swim back to their original location.) Pinnipeds are susceptible to dog viruses so, although it may be tempting to use a dog pound as a temporary holding facility, disease factors must be considered and addressed.

MARINE TURTLES

Leatherback Turtles are endemic to South Australia but they do not nest on the South Australian coastline. The size and weight of marine turtles makes capture, handling and transport a challenge. Any oiled wildlife response should focus on protecting and conserving adult breeding animals as a priority, however, this should not preclude efforts to manage oiled juveniles or undertake pre-emptive capture.

For determining response strategies for marine turtles refer to Appendix F Oiled Wildlife Response Strategy Considerations and Options Table.

MARINE MEGA-FAUNA SUCH AS STING RAYS

Rays of various species inhabit South Australian coastal waters. They are susceptible to oil coating and ingestion because they occasionally feed on the surface. Animals found in an oil spill area should be monitored and tagged if possible. Any animal deaths should be investigated for possible effects from hydrocarbons, and include taking photographs and tissue samples for evidence if required.

Appendix C - Wildlife Transport

Ideally, wildlife should be stabilised within two hours of capture and must be stabilised within five hours. The initial stabilisation should at least consist of rehydration and removal of obvious oil on the head, eyes and beak. Holding and transport time until stabilisation or arrival at a rehabilitation centre should be minimised.

Transport arrangements should be approved by DEW wherever possible. Field stabilisation points will be required if the incident is not close to a service centre. It is likely that rotary or fixed wing aircraft will be required to transport animals from the stabilisation points to the rehabilitation centre. It is critical to maintain fresh air flow to boxes and to control temperature. To achieve this storage and transport should as a minimum:

- Have at least 50mm between boxes – recommended 100mm. Timber baulking can be used to preserve the gap between boxes
- Have two sides of each box exposed to circulating air
- Avoid stacking boxes, but if stacking is necessary boxes should be placed no more than three high. Cartons must not be stacked or packed in together tightly
- temperatures should be controlled between 25°-28°C
- keep lighting low to reduce stress
- minimise noise to reduce stress
- check the animals every hour during transport.

One of the most critical challenges for oiled wildlife response is preventing overheating of captured wildlife particularly in summer when extreme heat conditions may prevail.
Vehicles used for animal transport should provide:

- adequate speed
- a smooth ride
- above all provide a well-ventilated load area for holding properly ventilated transport cartons
- minimal exposure to wind
- a tarpaulin cover over a truck
- a mechanism to prevent exhaust gases from being drawn into the load area through venturi low pressure effects if the load bed is open at the rear.

WILDLIFE TRANSPORT BOXES

Waxed cardboard boxes should not be used as the wax can coat the animal inside. Holes for air circulation and heat exchange should be a maximum of 25mm in size and should be located on all four sides of the boxes (there should not be holes on the top or the bottom of boxes). Boxes need to be in a range of sizes to capture all local wildlife that could be oiled (including pelican sized birds).

Standard hard plastic pet transport carriers are not ideal but can be used if the front door and sides are adequately shaded with towels or sheets. Soft, vinyl, collapsible pet transport carriers are available in different sizes including sizes suitable for larger animals like pelicans.

Appropriate flooring must to be placed inside the boxes. Suspended knotless netting is recommended for seabirds but any soft material can be substituted if necessary. All coastal regions should have a stock of boxes that can be used in the event of an oiled wildlife response or other situation where animals must be captured.

Appendix D - Wildlife Holding at Staging Site (Stabilisation, Triage and Quick Wash)

Stabilisation of oiled animals prevents their continued deterioration. The time lapse between the animal being captured and being stabilised will depend on the circumstances of capture. Preliminary stabilisation can occur in the field or at stabilisation points remote from rehabilitation centres.

Oiled animals must be stabilised if transport to the rehabilitation centre will take more than two (ideal) to five (at the most) hours. Stabilisation in the field may be required when the interval between capture and delivery to the rehabilitation centre exceeds these times. If wildlife is collected over periods exceeding 24 hours or feedback from the rehabilitation facility indicates that earlier stabilisation is necessary, stabilisation must be carried out in the field.

Wipe the gross oil from the beak head and eyes of birds when they are collected prior to boxing. The birds should be placed in appropriate transport holding boxes and then be given electrolyte rehydration as soon as circumstances allow. Rehydration is stressful for birds and should be done immediately on capture if possible. The birds can then settle while boxed.

The stabilization centre must, at a minimum, provide temperature control, hydration, feeding, and sufficient washing to limit chemical burns. Staging and remote stabilisation points will be required if the spill occurs in a remote location.

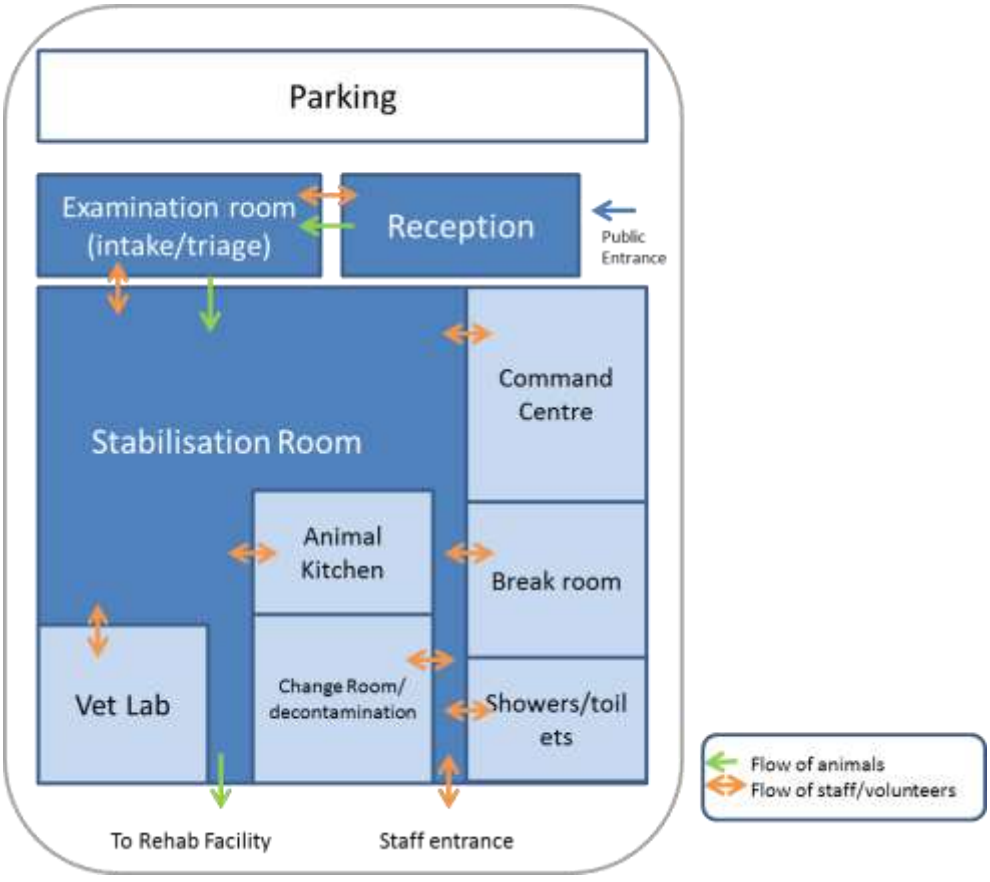


Figure 14: Suggested Layout for a Forward Holding/Stabilisation Facility

TRIAGE

Triage is a process of assessment to determine;

- chances of survival with or without treatment
- the viability of the animal for eventual release to the wild
- the conservation or community significance of the animal.

A score that determines the priority of an animal for attention is allocated in a Priority (P1, P2 or P3) format.

- P1 – Treat and rehabilitate first
- P2 – Treat after Priority 1
- P3 – Animal to be euthanized.

Triage should occur as soon as the animal arrives at the rehabilitation centre. However if the number of animals overwhelms the collection area, or stabilisation point, or if transport resources are limited, or transport times to rehabilitation facilities are excessive triage may need to be carried out in the field and priority given to the P1 wildlife. If staff, transport or other resources are insufficient, additional resources should be sought through the management chain.

To triage a bird effectively, examiners should first determine its species and undertake a range of assessments which may be specific to that species. Assessments include a physical examination, body weight, body temperature and a blood analysis. Expert veterinarian assistance or supervision will be required. If triaging in the field, the species, demeanour and behaviour may be the only guides. If extensive treatment and rehabilitation would be required which would cause undue suffering, or if release to the wild is unsuitable or unlikely, euthanasia is the appropriate option.

WILDLIFE QUICK WASH PRIOR TO TRANSPORT

Like triage, cleaning generally takes place at the rehabilitation centre. However if animals are heavily oiled or coated in oils that cause chemical burns (diesel and lighter oils), or if transport times are excessive, a quick wash may be required as part of the stabilisation process.

In the early stages of washing different detergents should be used to determine which is most effective, and the outcome recorded for future reference. The selected detergent must be efficient to minimise washing time (and stress) and minimise the residue remaining on the bird after washing. Brands such as Blast, Dawn, Biosolve and Suma Star D1 from Diversey have been effective in past spills.

Trained personnel should undertake washing in accordance with approved procedures. Procedures, training and manuals are listed in Appendix E. Critical equipment for washing fauna washing effectively include:

- soft water supply < 50mg of CaCO3 per litre
- effective detergent such as Blast, Dawn, Biosolve or Suma Star D1 from Diversey
- electric or gas water heater with electronic temperature control blending to achieve 39-41°C
- final temperature readout sensor visible from washing basin
- long flexible delivery hose that can move around animals
- positioning of hose over a large sink that can contain the animal and that is a comfortable height for the handler
- pressure regulator (or booster) for the wash head to achieve 45-65 PSI
- diffuser and thumb trigger on the wash head for delivery
- oily water disposal systems (either fixed or into temporary reservoirs).

Water softness is critical to effective washing and determines the design of washing apparatus.

Note: *the AMOSC Oiled Wildlife Response container washing units have integrated water softening equipment. Dehumidified, warmed warm air is required to dry wildlife. The air should never be blown directly onto the animal. Also refer to magnetic cleaning in Appendix G of this plan.*

Appendix E - Procedure for Set Up and Use Of Oiled Wildlife Facilities

Warnings

Contaminated Wastes

Cleaning oil or chemicals from animals produces large amounts of contaminated waste which requires disposal. This includes but is not limited to:

- Contaminated water from washing and rinsing animals
- Pool water
- Contaminated towels, rags, paper, transport boxes etc.
- Used syringes, gloves, coveralls
- Carcasses (unless these are being kept for investigative purposes)
- Plastics, food scraps and other wastes from human activities.

The different waste products must be temporarily stored on site and the Waste Management Unit is responsible for arrangements for regular collection and disposal. The Wildlife Facilities Officer must establish an ongoing close liaison with the Waste Management Unit to ensure appropriate management and disposal of wastes.
See also the AMSA website for information on Management and Disposal of Oil Spill Debris and the SAMSCAP Waste Management Guidelines on the DPTI website.

Disposal of Dead Wildlife

Dead wildlife poses a contamination risk to live animals and humans so should be bagged labelled and refrigerated immediately. Necropsies, biopsies and samples may be needed for investigations or for scientific data. Following necropsy, carcasses may be frozen pending disposal – however frozen tissue is not suitable for pathology, bacteriological and some other examinations so the advice of the vet should be sought before freezing.

Oiled wildlife is highly toxic to any animal that eats it, so it is important to collect all bodies and not leave them on beaches or in uncovered pits where scavengers like raptors, ravens and goannas might find them. The Waste Management Unit must dispose of carcasses and contaminated organic waste. Contaminated carcasses must not be fed to other animals or left in an area where wild animals could feed on them.

The Waste Management Unit, should consult with local councils and relevant waste management authorities to ensure that waste disposal, including carcasses, is compliant with local and state law.

In a large event involving many birds or animals, there may be a need to deploy refrigerated shipping containers for storage of dead wildlife – to enable a more detailed analysis of species impacted but also if there are any delays with the local waste disposal authority over where to dump carcases..
Shipping Containers for carcases may be best deployed near port or ramp facilities away from public rather than at the live wildlife response site. These may not be able to be reused for food transport purposes afterwards and may need to be written off, or stored for other /future uses.

Oiled Carcases are usually collected in plastic bags –at minimum, it is useful for labels to be put on the bags outlining number of carcases and where possible some identification – bird, mammal, etc. and if possible species or genus identification. Similar looking wildlife could be stored in the same bag if necessary, but it is preferable to collect and bag each carcass individually when patrolling the beach. The location should also be included in the labelling. It may be useful for an ecologist to attend the spill site to document impacts to habitat, identify potential re-oiling sites and also assist with identification of species on beach with clean-up crews or volunteers

Also consider how bags of dead wildlife are stored prior to disposal if there is to be any documentation of numbers of species killed and where from, grouped to location and or secondary sorting to species etc. and provision of refrigerated containers and suitable areas and tables etc. for sorting carcasses for identify prior to disposal. It is

better to do this as soon as the animals are collected rather than having to go through smelly, oil filled bags to try and identify them later.

Breeding Sites
Check breeding sites for oiled eggs and chicks.

Hygiene and Quarantine
The risk of the spread of disease is increased if animals are in close proximity to each other or humans. If an animal is suspected of carrying an infectious disease, it should be immediately quarantined from others.
All personnel must be aware of quarantine protocols and appropriate signage displayed. Facilities for staff to disinfect clothing and equipment should be organised early in the response.

Footbaths with antiseptic (Halasept ® or similar) should be positioned at entry points and doorways of wildlife holding areas. These areas should be restricted to authorised personnel and should display appropriate signage. Separate and dedicated clothing, gum boots, gloves and other personal protective equipment should also be available. Pool areas must not be contaminated with antiseptic solution on personal protective clothing or other equipment.

Staff will require personal hygiene facilities such as portable toilets, hand washing areas and showers. All staff must wash thoroughly before eating, drinking or smoking. Staff facilities and areas should be established away from the main wildlife quarantine, cleaning, treatment and rehabilitation areas. Personnel with impaired immune systems and those with colds or flu should not be permitted near affected wildlife.

Personnel and other Safety Issues
During the initial deployment, most personnel will be operating in an unfamiliar environment and under considerable pressure. Any hazards associated with the deployment must be mitigated, including:

- Manual handling – the moving of equipment, furniture, boxes of stores etc. must be undertaken using the correct techniques and equipment
- Unfamiliar operating environment – personnel will be unfamiliar with many of the facility's features e.g. location of electrical switches, evacuation procedures etc. and must be familiarised with their surroundings and procedures during induction and reminders given during briefings.
- Over-work – fatigue-related injuries may occur if personnel over-extend themselves. Rosters must limit shifts to a suitable length for the type of work. Personnel must have adequate rest breaks and their ability to continue in their roles must be monitored. It is essential to provide adequate accommodation and facilities to allow people to recover from their duties.
- Slips, trips, falls etc. – assembling the initial work area will require many people to be working around oiled animals and establishing washing facilities. This increases the risk of slips, trips and falls. Hazards should be identified and rectified as soon as practical. First-aid facilities must be established in accordance with the medical plan and first-aid plan.
- Vehicle movements in and out of facilities, especially at shift changeover, may disrupt local traffic so must be managed to reduce the risk of accidents.
- Personnel should be monitored for exposure to toxic fumes.

Procedure
Responsibility for Setting up and Management of Treatment Facilities
The Wildlife Division Coordinator is responsible for identifying and advising the Oiled Wildlife Advisor(s) of the required wildlife treatment facilities (including the amount and type of space, fixtures, fittings and services required). It is then the responsibility of the Logistics Section to source suitable existing facilities, or establish temporary facilities. This may require additional discussion with other Functional Areas.

If facilities are co-located, day-to-day management responsibility of wildlife treatment lies with either Rescue Team Leader or the Rehabilitation Team Leader as determined by the Wildlife Division Coordinator. If the facilities are spread over a number of sites, day to day management of the individual facilities will be the responsibility of the Team Leader responsible for the procedures being carried out at the particular facility. The Team Leaders will be assisted by Logistics Support personnel from the Wildlife Unit to achieve the effective management of the facilities. Refer to the role descriptions in section 3.

Timing and Criteria for Setting up Treatment Facilities

Ideally, facilities for the collection, holding and isolation of affected animals should be established within 24 hours of the spill. Cleaning and rehabilitation facilities should be operational within 48 hours. The facilities required will depend largely on the location of the spill and the location, numbers and species of animals that may be affected.

Options may include permanent facilities if any exist nearby; temporary facilities set up in existing buildings; or mobile units/tents brought in and/or erected nearby. Facilities should be located as close as possible to the field of operations; preferably within an hour's travelling time.

Built facilities capable of accommodating animal treatment facilities should be identified in advance of any spill occurring and should be reviewed and updated annually as part of regional incident planning. The following criteria need to be considered when identifying adequate facilities:

- Availability for an extended period (possibly months, depending on the scale of the operation)
- Parking - adequate and easy access for unloading animals and waste disposal
- Location - close enough to the spill site to avoid prolonged travelling (preferably less than an hour away)
- Water - access to an unlimited supply of water, and the equipment to heat it. This is crucial because it takes 600-1000 litres to wash and rinse a bird and additional water is required for pools, general cleaning, showers, food preparation etc.
- Ventilation - facilities must be adequately ventilated (to minimise the risk of animal and human disease).
- Heating and cooling – facilities must be able to be heated or cooled as required
- Communication – telephones, internet and good communications systems can be established
- Services – gas (preferably gas instantaneous hot water situated away from combustible fume areas) and electricity must be accessible - preferably through the mains power supply but large generators may be the only alternative in isolated locations
- Three phase power
- Size - large enough to accommodate small and large incidents with sufficient space for:
    - An admissions area
    - Areas for incident control, administration, communications, media liaison, induction and training, meetings, briefings
    - Facilities for personnel – lunch rooms, showers and toilet blocks, first aid etc.
    - Storage for equipment and consumables
    - Triage and first aid (vet hospital) with quarantine and intensive care areas
    - Separate indoor animal holding areas (pre-washing, during drying and for sick animals)
    - Washing and drying stations and drying rooms (e.g. shipping containers, tents, buildings etc.)
    - Rehabilitation (post-wash) facilities including:
        - animal food preparation and storage (including mobile cool rooms and freezers)
        - indoor and outdoor housing for wildlife
        - pools (either available or there is potential to erect portable pools)
- Security – it must be possible to secure facilities from both people and animals (e.g. dogs, cats, foxes, raptors and vermin)
- Contaminated waste storage - collection/disposal will need to be arranged
- Accommodation and service providers are nearby – e.g. catering, first-aid.
- It must be possible to establish one way flow of personnel to separate clean from dirty areas

Calculating Space Required

Facilities will be required for the first aid, cleaning and rehabilitation of affected animals. The size of the facilities will depend on the number and species of animals affected. As a rough guide, if all of the required facilities were to be co-located, the following space would be needed for an incident involving 500 oiled wildlife:

- 3,000 square metres of indoor space to accommodate:
  - Wildlife holding rooms for 500 wildlife casualties (approx. 900 square metres). This will be dependent on the animals involved – see Tables at 5.4.2, 5.4.3.2 and 5.5.3 for suggested minimums)
  - Washing and rinsing areas (approx. 240 square metres)
  - Wildlife food preparation and storage (approx. 180 square metres)
  - Admissions area
  - Triage/first aid facilities
  - Quarantine
  - Rooms for incident control, administration, induction/training, communications/media, meetings, dining room, toilets/showers
- 2,000 square metres of outdoor space to accommodate:
  - 6 pools (5mx3m)
  - Miscellaneous cages/enclosures
  - Wash down areas for personnel and vehicles
- Additional space would be required for parking vehicles/equipment
- Waste storage.

Admissions Area

During a large spill, there may be large numbers of animals arriving at the treatment facilities so it is important to have an admissions area where the crates or boxes containing the animals can be sorted and arranged systematically. Animals should be admitted in the order of their arrival to ensure that waiting periods are minimised.

The admissions area needs to be easily accessible to vehicles transporting animals to and from the facility. It should be large enough to accommodate desks for several people and have sufficient space to accommodate numerous boxes and crates. The amount of space required will depend on the size of the spill and the numbers and species of animals affected. The area should be quiet and well-ventilated and the temperature should be maintained at around 25°C. Boxes and crates should be spaced to allow adequate ventilation and arranged in a way that provides easy access for handlers.

If treatment facilities are not co-located, a separate admission area will be required at each facility.

Triage and First-Aid Facility

The triage/first-aid facility should be on-site, and as close as possible to the impacted wildlife, so the initial assessment and triage of animals can be conducted as soon as possible. The site should be secluded from the activity and noise of the oil spill clean-up operation and, ideally should be located between the admission area and the rehabilitation area.

If built facilities are not available, large marquees (at least 4m x 4m) should be erected at the first-aid site. Separate holding cages are required for untreated animals and treated animals awaiting transfer to the cleaning and drying facility.

Table 10: A Guide for Minimum Temporary Enclosure Sizes

TEMPORARY HOLDING ENCLOSURES	
Birds	**Size - Length x Width x Height (metres)**
Small passerines, parrots and pigeons - finches and wrens	0.3 x 0.2 x 0.2
Large passerines, parrots and pigeons - magpies and cockatoos	0.5 x 0.5 x 0.5
Small waterbirds – ducks and grebes	0.4 x 0.4 x 0.4
Large waterbirds – swans and herons	0.7 x 0.7 x 0.7
Small seabirds – gulls, cormorants, terns and penguins	0.4 x 0.4 x 0.4
Large seabirds – albatrosses and pelicans	0.7 x 0.7 x 0.7
Small raptors – kestrels and hobbies	0.5 x 0.5 x 0.5
Large raptors – eagles, hawks and falcons	1 x 1 x 0.5
Brush turkeys and emu chicks	0.7 x 0.4 x 0.5
Adult emus	1.5 x 0.7
Other Animals	**Size - Length x Width x Height (metres)**
Water rat	0.5 x 0.3 x 0.3
Small turtles	0.5 x 0.3 x 0.3
Large turtles	1.0 x 0.6 x 0.5
Seals (other than leopard seals)	1.5 x 1.8 with solid walls 1.0m high
Leopard seals	Dependent on the size of the animal, must be large enough to allow it to stretch fully in all normal postures.
Cetaceans	Triage of cetaceans would be undertaken on the beach.

Note: the length and width specifications above are per animal.

Holding areas for wildlife need to be well-ventilated and able to be maintained at a constant temperature suitable for the particular species.
In addition to holding space for animals, the first-aid facility will require:

- Enough working space for up to 5 first-aid teams for a large incident (e.g. involving more than 50 pelican-sized animals); each team consisting of a veterinarian plus a vet nurse or an experienced wildlife rehabilitator. Each team needs a treatment table plus shelving for drugs and equipment
- An area set aside for intensive care for weak or debilitated animals
- An isolation area, with its own separate ventilation, for animals suspected of having an infectious disease
- Access to refrigerators and freezers for storage of carcasses pending disposal
- Storage facilities for liquid and solid contaminated waste (with easy access for waste disposal collection).

Cleaning and Drying Facilities

Cleaning Facilities

Cleaning and drying facilities should be co-located. The cleaning facility should be indoors or under cover (tent, shed, etc.), however if the weather is warm and fine, animals can be washed outside during the day providing there is shade or shelter (and under lights at night).

The cleaning facility must have suitable containers nearby to store contaminated waste such as water and used towels, until disposal as determined by the Waste Management Unit.

The amount of space required will depend on the number and species of animals to be washed but should be large enough to accommodate several large sinks, several large washing tables and several rinsing stations with sufficient working space at each one to allow at least 2 people to hold an animal.

Drying Facilities

The drying facility for wildlife should be indoors or in a closable tent or space that can be heated to about 28°C.

The facility needs to be large enough to accommodate solid-bottomed drying enclosures which, in combination with warm air blowers, provide a suitable environment for most sea birds, shore birds and some fresh water birds. The floors of the enclosures should be covered with clean absorbent material.

Birds must have sufficient space to allow them to flap their wings and preen and to move away from any heat source. The size of the enclosure required will vary depending on the species concerned but the following should be considered as minimum sizes. In very still, warm weather, birds can be placed outside in the sun to dry (with shade available).

Table 11: A Guide for Minimum Drying Enclosure Sizes

Birds	Size - Length x Width x Height (metres)
Small passerines, parrots and pigeons - finches and wrens	0.6 x 0.45 x 0.45
Large passerines, parrots and pigeons - magpies and cockatoos	1 x 1 x 1
Small waterbirds – ducks and grebes	0.6 x 0.6 x 0.6
Large waterbirds – swans and herons	1 x 1 x 1
Small seabirds – gulls, cormorants, terns and penguins	0.6 x 0.6 x 0.6
Large seabirds – albatrosses and pelicans	1.5 x 1 x 1
Small raptors – kestrels and hobbies	2 x 2 x 1
Large raptors – eagles, hawks and falcons	3 x 3 x 1
Brush turkeys and emu chicks	2 x 2 x 0.5
Adult emus	5 x 5

Note: the length and width specifications above are per animal.

Drying Facilities for Pinnipeds

Drying facilities are not generally required for healthy adult seals and sea lions. They can be placed directly into outdoor enclosures and allowed to dry naturally. Drying using cool air blowers is, however, recommended for unweaned pups and for debilitated adults, which should be housed in enclosures long enough for the animal to stretch out. An enclosure size of 1.5 x 1.8 metres is usually adequate. The ambient temperature of the drying area should be 10-12°C but this may be varied depending on veterinary advice.

Rehabilitation Facility

Once animals have been cleaned and dried they are moved to rehabilitation facilities to recuperate. Indoor and outdoor facilities may be required, depending on the species, and must be escape-proof, vermin proof, maximise safety for the animals being held and minimise visual and auditory distress. They should be located away from areas of human activity. The animals need to be separated according to their species requirements, health and body condition.

Indoor Housing for Birds

Indoor housing enclosures for individual birds are provided in Table 11 above. Gregarious species should be group housed with their own same species or family and a pen measuring 2.5 x 2.5 metres can hold up to 10 medium-sized gregarious birds. The temperature should be maintained at around 25°-28°C. As birds become stronger, temperatures can be matched to outside temperatures in preparation for moving them to outdoor housing. Facilities for provision of food and water must also be available.

Indoor enclosures can be constructed of cloth or canvas/ tarpaulin-covered wire, plywood, fibreglass or other available materials. Netting or shade cloth can be used to cover the top of the pen.
Hessian and jute materials should not be used.
Uncovered bird wire can cause damage to wild birds and should not be used.

Enclosures can be constructed in all shapes and sizes but must:

- be large enough to allow birds to stand up and stretch wings and neck freely
- have no sharp protrusions inside or out
- protect the animal from rain, draughts and predators
- allow for adequate ventilation and light
- contain appropriate food and water
- be able to be cleaned easily to prevent disease
- have suitable flooring that will not damage the birds' feet.

Outdoor Housing for Birds

Outside facilities are required for birds to improve their body condition and muscle tone and regain waterproofing. The facilities must be larger than the indoor facilities and should consist of an appropriate number of enclosures/cages with water access. Cages should be large enough to allow birds to stretch and flap their wings. This does not apply to large pelagic birds such as albatrosses, gannets or boobies which are unlikely to fly in captivity. Suitable sizes and the number of birds that can be housed are shown below.

Table 12: A Guide for Outdoor Bird Enclosure Sizing

OUTDOOR BIRD ENCLOSURES		
Birds	**Size - Length x Width x height (metres)**	**No of birds**
Small passerines, parrots and pigeons - finches and wrens	3 x 2 x 1	8
Large passerines, parrots and pigeons - magpies and cockatoos	5 x 2 x 2	4
Small waterbirds – ducks and grebes	4 x 2 x 2	2
Large waterbirds – swans and herons	6 x 2 x 2	2
Small seabirds – gulls, cormorants, terns and penguins*	4 x 2 x 2	2
Large seabirds – albatrosses and pelicans	6 x 3 x 2	1
Small raptors – kestrels and hobbies	5 x 3 x 3	1
Large raptors – eagles, hawks and falcons	15 x 10 x 4	1
Brush turkeys and emu chicks	5 x 3 x 2	2
Adult emus	10 x 10 x 2	2

**Penguins may be held together in 'flocks' of up to 10 in a 6 x 3 metre enclosure.*

All birds need to be able to access a pool of some sort to allow them to wade or swim. Children's swimming pools can be used for smaller species like ducks, gulls and terns. Larger pools are required for birds such as gannets,

albatrosses and swans. Pools can be constructed from plywood with heavy duty plastic as a lining but they must be covered so that birds cannot escape or predators get in. Pool water should be reticulated, filtered and kept clean. Access ramps in and out of the water should be provided to prevent the risk of waterlogged birds drowning.
Depending on species, the following should be provided:

- high perches for species such as sea-eagles, bitterns and herons
- submerged logs and perching branches for ducks, cormorants and darters
- artificial burrows on land for penguins
- emerging rocks for smaller waders and some ducks.

At least six large pools are recommended for testing of birds' waterproofing (for treating 500 birds). Each one should be approximately ten metres in diameter.

Indoor Housing for Pinnipeds

Generally pinnipeds do not require indoor housing. They are washed then placed in outdoor enclosures to dry. However, sick, juvenile or emaciated pinnipeds may need to be housed indoors. If so the following should be considered:

- Indoor housing should be established quiet areas which have good ventilation but are free from draughts
- Access passageways and one metre wide gates are required for safe access and handling of the animals.
-

Enclosures:

- Should be 2 x 2 metres with walls 0.6 m high
- Should have a pool area which can be flooded to a depth of about 0.4m
- All surfaces must be able to be cleaned with a pressure hose
- The floor should be covered with a pallet of smooth moulded plastic slats or non-slip rubber
- A localised heat source (e.g. infra-red lamp) should be available if required

Outdoor Housing for Pinnipeds

Requirements will vary depending on the animals concerned. As a guide the following would be required for seals.

- A large pen (approx. 3.4 by 2.1m) able to be filled with water to a depth of at least half a metre
- Access to a pool area with at least 16 square metres surface area, plus haul-out areas
- Visual barriers to protect the animal from the sight of humans walking past
- Adequate shade/shelter from weather.

Housing for Turtles

- Turtles that are unable to swim, or weak turtles that cannot lift their heads to breathe should be placed on moist foam pads and covered with wet towels, or placed in a shower box
- Turtles that can swim must be held in a pool that allows plenty of room to swim and dive. Marine turtles can cope well with exposure to freshwater (at the right temperatures) for up to 6 days, but long term (months) exclusion from salt water results should be avoided (Limpus, 2000). Where possible, marine turtles should be kept in salt water. Chlorine can be added at less than 1ppm to reduce bacterial and algal growth but higher levels will irritate the eyes
- Any substrate on the bottom of the tank must be of sufficient size that it cannot be ingested. Abrasions from rough sides on cement tanks have been reported
- Water temperature must be maintained between 25°-29.5ºC. Even though this temperature may be higher than local waters, it is the optimum range for rehabilitation. Fluctuations in temperature should be avoided; necessary changes of more than 1°-2º should take place over several days. Prior to release, turtles should be gradually acclimatised to the temperature of local waters
- Overcrowding can lead to biting among turtles.

Food Preparation Area

Rehabilitation facilities must include provision for feeding wildlife. This will require:

- Storage facilities for several days' worth of food, unless daily supplies can be guaranteed
- Refrigerators, freezers and airtight containers (some animals will need fresh food)
- Tables for food preparation
- Sinks with cold and hot running water
- Shelves to store buckets, medications, food dishes, knives and serving utensils
- Garbage bins.

An area of between 100 to 200 square metres may be required as a guide.

Laundry Facilities

Towels and cloths used for cleaning and drying animals or lining small cages need to be washed between uses. It is more convenient if this can be done on site, especially during a large-scale response, and will require access to commercial washers and dryers. Separate facilities will be required for washing personnel clothing. If it is not feasible to set up laundry facilities, a nearby commercial laundry company will be required.

Appendix F - Triage and First Aid SOP

Adapted from NSW Department of Primary Industries

Application / Scope

The aim of a wildlife response following an oil or chemical spill is to rescue and rehabilitate as many animals as possible and return them to their natural environment in a healthy condition.

In the event of a major spill, (in which large numbers of wildlife are affected and require care), it is not be possible to treat every individual animal immediately.

A system of triage is required to deal effectively with large numbers, to quickly evaluate and prioritise animals for treatment and identify those which should be euthanized. The decision to euthanize may be based on the poor likelihood of survival of particular individuals; or on the basis of inadequate resources to treat such large numbers and the need to focus resources to best effect.

This procedure assists personnel involved in the initial triage, first-aid and stabilisation of wildlife captured during search and rescue operations of a wildlife response at an oil or chemical spill. It does not relate to any other aspects of the wildlife response.

Resources / Equipment

- A minimum of two marquees or tents (4x4 metres) with sides if facilities are to be established at the rescue site
- Cardboard boxes, or other suitable containers depending on the species, with lids and breathing holes
- Appropriate personal protective equipment for personnel
- Rags, gauze, swabs, cotton buds, absorbent cloth or paper to wipe excess oil/chemical from animals
- Water based eye drops
- Thermometers for taking cloacal temperatures
- Trestle tables (not wooden)
- Cotton ponchos (pillow cases with corners cut out) or cloths to put over animals
- Worming treatments (gastrointestinal worms add an additional drain to the animal and contribute to increased mortality rates)
- Bins and plastic bags to hold contaminated rags for either disposal or laundering
- Gastric tubes suitable for birds and mammals (e.g. 3mm, 5mm and 8mm gauge for birds)
- Buckets
- Scissors
- Syringes (1ml, 2ml, 5ml, 10ml, 20ml and 50ml)
- Sharps containers
- Scales to weigh animals – species dependant (100g to 100kg)
- Oral rehydration fluids
- Lethobarb for euthanizing animals (must be stored in a locked cabinet, use restricted and usage recorded)
- Record sheets and pens
- Facilities for personnel to clean and disinfect clothing and equipment
- Footbaths with antiseptics to set up outside buildings housing wildlife
- Personal hygiene facilities (toilets and showers) for staff.

Warnings

Contaminated waste

The cleaning process for oiled wildlife produces large amounts of contaminated waste requiring specialist disposal. This must be done in accordance with the incident's Waste Management Plan.

See AMSA website for detailed information on Management and Disposal of Oil Spill Debris.

Disposal of carcasses

Carcasses pose a contamination risk to living animals and to humans. Immediate refrigeration is recommended so that samples and specimens may be taken for pathology examination. After necropsies have been conducted and appropriate samples taken, carcasses may be frozen pending disposal. Details of dead or euthanized animals should be recorded on a Wildlife Rescue and Release Form.

Museums and universities may be interested in obtaining specimens for research. If there is no scientific interest, carcass disposal must be in accordance with the incident's Waste Management Plan.

Hygiene and quarantine

When large numbers of birds and/or other animals are confined in close proximity to each other the spread of disease from animal to animal or to/from humans is significantly increased. Any animal that is suspected of carrying an infectious disease should be immediately quarantined.

- Personnel with impaired immune systems and those with colds or flu should not be permitted near affected wildlife.
- All personnel should be informed of quarantine requirements and appropriate signage installed. Facilities for disinfecting clothing and equipment should be established early in the wildlife response.
- Footbaths with antiseptic (such as Halisept ®) should be placed outside buildings housing wildlife. These areas should be restricted to authorised personnel only and should display appropriate signage to that effect. Separate and dedicated clothing, gum boots, gloves and other personal protective equipment should also be available.
- Personal hygiene facilities for staff, such as portable toilets and hand washing areas are required. It is essential that all staff wash thoroughly before eating, drinking or smoking. These areas should be set up away from the wildlife, quarantine, cleaning, treatment, and rehabilitation areas.

Other hazards

- Wildlife can be aggressive and may bite or scratch. Washing and drying should only be undertaken by personnel trained in animal handling. Personnel handling animals must have a current tetanus vaccination
- Precautions should be taken in wash areas, such as the installation of rubber mats, to reduce the risk of personnel slipping on wet floors
- Personnel may experience back strain, overheating, dehydration and exhaustion and should be rostered to take adequate rest breaks and provided with regular drinks
- Assessment of the environmental conditions should be undertaken and include consideration of the air temperature, air flow, ventilation, toxic fumes etc.
- Personnel should be monitored for exposure to toxic fumes.

Procedure

Initial triage assessment

Rescued wildlife need to be assessed to determine whether rehabilitation is feasible or whether euthanasia is required. Initial assessment may be conducted at facilities set up at the rescue scene or at an established first aid facility depending on the distances involved. A Triage Team must assess the physical condition and conservation significance of each animal and recommend appropriate treatment then assign one of the following priorities for treatment.

PRIORITY 1
• Species listed on the schedules of the National Parks and Wildlife Act 1972 • Culturally significant species • Animals with a good chance of rehabilitation as assessed by a Veterinarian or species specialist
PRIORITY 2
• Animals showing severe signs of toxicity such as convulsions • Animals with additional injuries such as fractures • Common Species
PRIORITY 3
• Animals with a little or no chance of survival requiring euthanasia by a veterinarian or a qualified person

The Triage Team

- comprises a veterinarian (preferably with avian expertise), vet nurses or appropriately trained individuals and a scribe. Team members should be trained in animal handling and at least one member should have good wildlife identification skills
- completes details of species, condition, recommended first-aid treatment and any drugs administered on a Wildlife Rescue and Release Form
- ensures that animals are temporarily marked with a number or have identification tags or bands attached, to facilitate tracking while they are in care, and that number, tag or band details correspond to details on the Wildlife Rescue and Release Form
- undertakes euthanasia of wildlife if required and records details, then bag and store the carcass in a refrigerator or freezer prior to necropsy or disposal.

Basic treatment

First Aid Teams will treat animals in the order of priority determined by the Triage Team and should provide the following basic treatment for each animal:

- Clear eyes, nostrils and mouth of oil or any other foreign material using gauze swabs or cotton buds
- Flush eyes with ophthalmic irrigation fluid and apply water based antibiotic/anti-inflammatory drops if eyes are inflamed
- Wipe oil/chemical and water from the animal using absorbent cloth or paper
- Weigh the animal
- Take the animal's temperature
- Provide oral fluids
- Cover animal with a cloth or poncho ensuring it is warm and stabilised before it is transported to the Wildlife Treatment Centre for cleaning and rehabilitation.

Stabilisation prior to transporting / cleaning
If there are large numbers of wildlife casualties and it is decided that they should be stabilised prior to transportation to washing and treatment facilities, an on-site treatment (stabilisation) centre should be established.

Stabilisation of birds
It is important to stabilise and assess birds as being fit to withstand the stress of being washed. Often, 48 hours of stabilisation treatment may be required before birds are in a fit State to withstand this additional stressor.
Criteria for washing:

- Birds should be bright, alert and responsive, and need to meet established criteria for core body temperature, weight, hydration level and blood values, and be apparently healthy
- A blood sample should be taken within 24 hours of the proposed wash and reveal a packed cell volume of at least 30% and total proteins of at least 25 g/L
- A veterinarian experienced with oiled birds should individually examine and assess birds with packed cell volume below 30% and/or total proteins of less than 25 g/L
- The bird should have a normal core body temperature, indicating that it is in a stable condition i.e. 39-40.5°C
- The bird should have normal hydration status; and
- Be of a weight within the normal range for the species, age and sex.

In certain circumstances a quick wash may be given to individuals that have not been stabilised: Birds arriving oiled with highly toxic oil such as diesel or jet fuel may be given a "quick-wash" soon after arrival to remove the bulk of the oil and thus the fumes from the oil, but without trying to restore waterproofing.
Note: a quick wash and rinse in these circumstances should only take about one to three minutes.

Stabilisation of turtles
Seek specialist advice through Liaison Officers before attempting to stabilise turtles.

Stabilisation of mammals
The process of being cleaned is stressful to a mammal so it is beneficial to allow the animal time to regain strength before it is washed.

A veterinarian should examine the animal prior to cleaning, to determine its general physical condition and strength, alertness, blood parameters and any abnormalities noticed. Only animals assessed as being fit should be subjected to cleaning.

Pinnipeds should be given supportive care, including treatment to restore normal body temperature, to correct dehydration and to provide nutrition, for at least 24 hours before being washed. However, with heavily oiled animals, or those covered with fresh oil, washing as soon as possible will reduce exposure to petroleum hydrocarbons by absorption or by ingestion associated with grooming.

Preparing animals for transportation to cleaning facility
First Aid Teams must ensure that animals have identification tags and are placed in well ventilated, secured containers ready for transporting to the Wildlife Rehabilitation Centre. When selecting suitable containers, consideration must be given to the safety of the animals and the handlers.

Cardboard boxes with ventilation holes are suitable for most birds but must be big enough to allow the bird to turn around. For larger birds plastic pet carriers may be suitable but the floor should be lined with non-slip material. Cages may also be used but wire cages should be avoided, or covered with cloth, because of the risk of birds damaging their feathers.

Good ventilation is required for pinnipeds. Juveniles can be transported in boxes or plastic airline pet packs but large pinnipeds require lightweight (e.g. aluminium) cages with doors at either end. Lift points for winch attachments would be useful for lifting cages into vehicles.

To minimise stress, animals should be kept in a warm, quiet place while they are awaiting transport.
Personnel must ensure that the Wildlife Rescue and Release Form accompany the animals to the wildlife treatment facility.

Blood Assessment
Blood samples should be taken four times during the rescue and rehabilitation process:

1. At intake
2. Before Washing
3. After Washing
4. Before Release.

Packed Cell Volume (PCV)
Packed cell volume is a measure of the percentage of red blood cells in the blood which is a measurement for anaemia. Normal levels are:

- Avian species generally 33-55%
- Seabirds 48-52%
- Ducks, Grebes, Loons normally mid 40s%.

Packed cell volume >60% - Very dehydrated bird, apply hydration therapy, monitor Daily
Packed cell volume <30% - Give iron dextran at 10mg.kg every 4 days, apply using intramuscular injection, administer until PCV reaches 30%.
Packed cell volume <12% - Reaching critical levels. At this level the bird may benefit from a whole blood transfusion. Be aware that too much fluid can lower packed cell volume.

Total protein
Total protein should be between 3-6g/dl

- Total protein <2.0g/dl Indicates that there may be food digestion problems or liver failure, therefore do not feed complex foods (which will sit in the stomach and rot)
- Total protein > 6.0g/dl the bird is either dehydrated or having an acute protein response. Hydrate the animal and modify the food type.

Blood Glucose
The level of glucose in the blood

- Normally >8.8mmol/l or 160mg/dl
- Blood Glucose: Between 5.5-8.8 mmol/l (100-160mg/dl), administer 5-10% dextrose orally to raise blood glucose levels
- Blood Glucose: <5.5mmol/l (<100mg/dl), administer an intravenous infusion of a 50% dextrose solution at 2ml/kg
- Note: Always monitor for dehydration after giving dextrose.

Reference
See Department of Primary Industries NSW procedure – Oil/Chemical Spill Wildlife Response – Triage and First Aid: http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/432094/Oil-Chemical-Spill-Wildlife-Response-Triage-and-First-Aid-V1.pdf
Short, M (2011) Michael Short Oiled Wildlife Response training Module.

Appendix G - Cleaning and Drying Wildlife SOP

Adapted from NSW Department of Primary Industries

Application / Scope

The aim of a wildlife response following a major oil or chemical spill is to rescue and rehabilitate as many affected animals as possible with a view to releasing them back into their natural environment once their health has been restored and their habitat is free of oil or chemicals. The cleaning process is crucial to successful rehabilitation and needs to be undertaken as soon as the animal is stable in order to minimise the amount of time the animals are exposed to oil or chemicals.

The cleaning of large numbers of wildlife is resource and labour intensive and the success of the operation will be depend on access to facilities with adequate space, large quantities of hot water and sufficient numbers of people capable of assisting.

This procedure assists personnel involved in the cleaning and drying of rescued wildlife once they have received initial triage and first aid and have been stabilised. It does not address the rescue or triage/first aid processes, or the subsequent rehabilitation and release processes which are covered in separate sections. Refer to other procedures listed at the end of this document.

Resources / Equipment

- Suitable personal protective equipment
- Feeding tubes
- Food supplies for animals
- Canola oil, light olive oil, mayonnaise, vegetable oil or similar
- Access to large quantities of hot water
- Buckets, hoses
- Tubs for washing birds; sizes will depend on species
- Mild detergent – recommended brands are Dawn ®, BioSolve ® and Suma Star D1 from Diversey
- Water softener – if required (water softeners use sodium to help replace or reduce the concentration of calcium and magnesium ions which make water 'hard' so dissolve detergents poorly)
- Cotton wash cloths, ladles
- Shower nozzles or similar
- Cotton buds
- Water picks
- toothbrushes
- Gauze swabs
- Artificial tears (saline eye drops)
- Sheets, towels, cloths, paper towels
- Heat lamp or blow heaters
- Cool air blowers
- Thermometers to monitor air temperature and washing water
- Drying Pens – species dependent
- Pools appropriate to species
- First aid kit
- Personnel - for washing, drying and monitoring wildlife – this will vary depending on species and degree of oiling but, as a guide, it will take two people about an hour to clean one bird, i.e. 20 people to clean 100 birds in a 10 hour shift.

Warnings

Personnel health and safety

A range of personnel health and safety hazards need to be considered when washing and drying wildlife.

- Wildlife can be aggressive and may bite or scratch. Washing and drying should only be undertaken by personnel trained in animal handling
- Personnel risk exposure to zoonotic diseases and disease vectors and must be provided with adequate personal protective equipment including safety goggles, gloves, waterproof outer clothing and suitable footwear
- Precautions should be taken in wash areas, such as the installation of rubber mats, to reduce the risk of personnel slipping on wet floors and reduce back strain
- Personnel may experience back strain, overheating, dehydration and exhaustion and should be rostered to ensure appropriate shift lengths and adequate rest breaks and provided with regular drinks/food
- Personnel may experience mental and emotional stress and fatigue during major incidents that result in the death or injury of large numbers of wildlife. Processes are required to provide support to personnel who experience stress or trauma
- Personnel need to be aware of the risk of exposure to toxic vapours or substances. Appropriate personal protective equipment must be worn and shifts managed to minimise exposure.

Waste disposal

The cleaning process for oiled wildlife can produce large amounts of contaminated waste, including contaminated water, requiring specialist disposal procedures. This must be done in compliance with the incident's Waste Management Plan.

The Australian Maritime Safety Association website provides detailed information on Management and Disposal of Oil Spill Debris and is available at https://www.amsa.gov.au/environment/maritime-environmental-emergencies/national-plan/Supporting-Documents/management-disposal-oil-spill-debris/index.asp

Disposal of dead wildlife

Carcasses pose a contamination risk to living animals and to humans. Immediate refrigeration is recommended so that samples and specimens may be taken for pathology examination. After necropsies have been conducted and appropriate samples taken, carcasses may be frozen pending disposal. Details of dead or euthanized animals should be recorded on a Wildlife Rescue and Release Form.

Museums and universities may be interested in obtaining specimens for research. If there is no scientific interest, carcass disposal must be in accordance with the incident's Waste Management Plan. Museums and universities may be interested in obtaining specimens for research. If there is no scientific interest, dead carcasses must be disposed of in consultation with the incident's Waste Management Unit.

Hygiene and quarantine

When large numbers of birds and/or other animals are confined in close proximity to each other the spread of disease from animal to animal or to/from humans is significantly increased. Any animal that is suspected of carrying an infectious disease should be immediately quarantined.

All personnel should be informed of quarantine requirements and appropriate signage installed. Facilities for disinfecting clothing and equipment should be established early in the wildlife response. Footbaths with antiseptic (such as Halisept ®) should be placed outside buildings housing wildlife. These areas should be restricted to authorised personnel only and should display appropriate signage to that effect. Separate and dedicated clothing, gum boots, gloves and other personal protective equipment should also be available.

Personal hygiene facilities for staff, such as portable toilets and hand washing areas are required. It is essential that all staff wash thoroughly before eating, drinking or smoking. These areas should be set up away from the wildlife, quarantine, cleaning, treatment, and rehabilitation areas. Personnel with impaired immune systems and those with colds or flu should not be permitted near affected wildlife. Health status will be recorded as part of the induction process to ensure personnel are assigned to appropriate roles.

Procedure

Cleaning and drying birds

Generally it takes two people up to an hour to clean a single bird. Therefore, to clean one hundred birds in a ten hour shift will require a minimum of twenty people.

It is essential that oiled birds are washed and rinsed thoroughly as residual oil or detergent will affect waterproofing and insulation. The washing and drying of birds will be undertaken by Cleaning and Drying Teams once the birds have been stabilised (see procedure Wildlife Response – Triage and First Aid). Teams will receive written instructions from the Triage and First Aid Teams and should seek advice from a veterinarian with avian expertise.

Pre-wash Preparation

- Birds should be administered at least one gavage (feeding tube) with rehydration solution before washing. Experts or veterinary staff should undertake this or be consulted about appropriate doses
- Heavy tarry deposits of oil should be pre-treated with a light oil such as canola, light olive oil, vegetable oil or baby oil. The light oil is warmed to 35-38°C then manually worked into the tarry areas (very carefully so as not to damage the feather structure) and left for about 30 minutes before the bird is washed
- Ideally, do a blood assessment before and after washing to monitor packed cell volume, total protein and blood glucose (see triage and first aid procedure for guidelines).
- All birds should be wormed prior to washing

Washing Birds

- Washing is stressful to birds. To minimise the time taken for the cleaning procedure, prepare supplies, including tubs of hot water, in advance. Use of personnel with appropriate expertise can greatly increase the overall chance of survival of oiled birds
- Excess noise should be avoided and the washing of each bird completed quickly and efficiently
- Signs of stress include excessive struggling and open-mouth breathing. Birds showing these signs, or lethargy and shivering, should be rinsed quickly and allowed to rest in a warm quiet area
- Several tubs of water and detergent may be required to wash one bird. Use warm water (39-40 degrees C) with mild detergent. Recommended detergents are Dawn ®, BioSolve ® and Suma Star D1 from Diversey. The concentration of detergent required will vary depending on the type of oil, degree of weathering and water hardness. For a severely oiled bird a concentration of 5% may be used in the first tub of water, reducing to 3% for the second tub and 1% for the third and subsequent tubs
- Immerse the bird, except for its head which should be kept with the bill pointing downwards slightly, to prevent water from running into the nares
- In teams of two people (or more for large or aggressive birds) one person should hold the bird, while the other person gently agitates the feathers through the water, squeezing the water out in the same direction as the lie of the feathers
- Water is ladled over the bird and agitated under the bird
- A wash cloth may be used to help force detergent into contact with the feathers, always stroking in the direction of feather growth
- Gentle massage of the feathers, in the same direction as the feather shafts, will work the oil free of the feathers
- Use water picks to clean ears and eyes. Toothbrushes may be required to remove oil from surrounding areas

- A standard routine should be followed to ensure that all areas are washed:
    - use cotton buds / water picks / toothbrushes to remove oil in the nostrils, ears, eyes and inside the bill
    - use a jet of water to clean the head, neck and body directing it up under the feathers, on low pressure
    - Roll the bird to one side and then the other to clean the wing and flank on each side
    - Lift the bird up to wash the areas from its breast down to the underside of its tail feathers
- When the water becomes oily, excess water is gently squeezed out of the feathers, over the tail, before the bird is moved to a new tub of water
- Once all oil has been removed (the wash water is no longer becoming discoloured, no oily residue is left on the water and the bird appears to be clean) the bird is ready for rinsing
- The feel of the feathers between the fingers as well as visual inspection is used to assess cleaning
- If detergent gets into the bird's eyes during cleaning, they should be washed and artificial tears applied
- Any oil contaminated water, towels or ponchos must be collected for disposal in accordance with the instructions of the Waste Disposal Unit.

Rinsing Birds

Thorough rinsing is essential in order to remove detergent from the bird. It is important not to underestimate the amount of hot water needed and the requirement for appropriate high-pressure shower nozzles.

- Working surfaces and the hands and clothes of the holder and washer must be free of detergent
- Separate buckets and hoses should be used for providing clean water, which do not come into contact with water contaminated with oil or detergent
- Rinsing generally takes 15-30 minutes but may take longer
- Rinsing may be started by placing the bird in a tub of clean water at 39-40°C, and ladling clean water over it, moving it between tubs until no detergent residue is seen in the water before rinsing with a pressurised shower head (39-40°C) until the water beads up and rolls off the feathers leaving them looking dry - the down feathers should fluff up and appear dry
- Rinsing should start at the head and work down the neck, back, wings, breast, abdomen and tail to keep pushing detergent off the bird in one direction
- The holder must ensure that the bird is positioned so that the detergent contaminated water flows away from areas of the bird that have already been rinsed
- Any contaminated water or materials are to be collected for disposal in accordance with the requirements of the Waste Disposal Unit.

Drying Birds

Following washing and thorough rinsing the bird must be dried. A separate area should be set aside to allow birds to dry with minimum disturbance following the stressful washing and rinsing experience.

Note: Plumage does not return to its normal water repellent state after washing and rinsing until it has fully dried.

- The bird may be patted dry and gently squeezed with clean dry towels before being placed in a drying pen. The feathers should not be rubbed.
- The eyes should be flushed again before the bird is placed in the drying pen
- Ensure birds are well hydrated before placing them in pens and make sure they have access to fresh drinking water
- Drying pens should be solid-bottomed and covered with clean absorbent material such as rubber or towels. In combination with warm air blowers, these provide a suitable environment for most water birds
- Drying pens should be heated with heat lamps or hot air blowers to an ambient temperature of about 35-40°C. The temperature should be monitored carefully using thermometers
- In very still warm weather, birds could be placed outside in the sun to dry (with shade available)
- Sheets or towels may be used to cover pens to minimise visual disturbance
- Overcrowding should be avoided to allow birds can move away from the heat source if they get too hot

- Note that it can take up to ten days for washed birds such as pelicans and penguins to regain their waterproofing.

Monitoring of birds

- Most birds will start to preen once they are placed in the drying pens and will dry quite quickly
- Drying may take only 30 minutes for a small bird but as long as three hours for larger birds
- Check birds frequently (e.g. every ten minutes) for signs of overheating, such as an increased respiratory rate, open-mouthed breathing/panting or wings held away from the body, and for shivering, indicating that the birds are too cold
- Birds can be checked for dryness by carefully parting the contour feathers and checking the down feathers are dry over areas such as the breast
- Once birds are dry and stable and the temperature is appropriate to the species, move them to outdoor holding enclosures
- Dry birds should be provided with fluids before being moved to a holding pen overnight.

Assessment of waterproofing after washing

Once birds have been dried they are moved to pre-release accommodation. It is important that, at this stage, their waterproof status is assessed. To do this, the birds are placed in a clean swimming pool of water containing 30-50 mg of calcium carbonate per litre (water softeners may need to be installed on taps) and observed closely to determine whether water is reaching the skin.

Birds may not be fully waterproof if:

- they sit lower in the water than other individuals of their species
- they droop their tail into the water
- they show reluctance to remain in the water and repeatedly attempt to land
- they appear wet
- they shiver
- they show excessive preening
- water does not 'bead' off the feathers
- down feathers are wet.

Birds that are waterproof may be moved to outside housing. Birds that are not waterproof need re-evaluation or must be housed on warm water pools.

Magnetic Cleaning of Birds

In 2015, DEW was approached by a senior researcher from the University of Melbourne who has developed a magnetic cleaning system for oiled birds. As there has not been a significant oil spill since this was developed, it has not been trialled in the field – although laboratory investigations are extremely encouraging. This technique greatly reduces the amount of water and time required to clean birds and should be field tested if the opportunity arises.

Cleaning and Drying Mammals

Cleaning and Drying Cetaceans and Pinnipeds

Cetaceans

Capturing cetaceans to clean them is not generally feasible and attempts to do so may cause more harm than the impacts of the spill. If cetaceans become stranded during a spill, in-situ treatment is likely to be the only realistic option.

Pinnipeds

Note: Handlers must be experienced as pinnipeds can be very dangerous.

Pinnipeds contaminated with fresh oil should be cleaned immediately to reduce exposure to inhaled vapours. If the oil is aged, the animal should be maintained for 24 hours before it is cleaned so that its overall condition can be assessed.

- A veterinarian should conduct a general physical examination to assess the animal's overall condition before it is cleaned
- Physical restraint may be sufficient for cleaning of smaller animals but sedation or full anaesthesia may be required for larger individuals
- Heart rate, respiratory rate and temperature should be monitored during the wash, particularly if the animal is anaesthetised
- Pre-treatment with mayonnaise may assist in softening tar-like residues contaminating the animal. The mayonnaise is worked into the fur and left for 30 minutes before washing
- Tepid water (about 37°C) should be used for washing. A detergent to water ration of 1:16 is usual although higher ratios may be necessary for heavy oiling. Dawn 'regular'® or BioSolve® or Suma Star D1 from Diversey appear to be the most effective detergents. For harbour seal pups (Phoca vitulina - Common seal) oiled during the Exxon Valdez oil spill, dilute detergent (Dawn®) was ineffective, but lathering with full-strength detergent, following by rinsing with fresh water, repeated until no more oil was visible on the seal or in the rinse water, was effective
- Rinsing can commence at the pre-wash station with the animal under restraint, but finished with the animal unrestrained in a pen, using a pressure nozzle. This reduces the time of restraint
- Rinsing should continue until no oil or detergent is visible in the rinse water coming off the animal
- Water may be tepid or, if there are signs of hyperthermia, cold water may be used
- Absorbent paper towels or clean cotton towels are most effective for removal of the bulk of the water, replacing towels as they become moist. Drying may not be required for healthy adults who can be placed directly into outdoor pens and allowed to dry naturally
- Drying using cool air blowers is recommended for juvenile or debilitated pinnipeds
- When the animal has a stable core body temperature, is eating, and is showing normal grooming behaviour, it can be transferred to a pen with an appropriate pool for monitoring.

Cleaning other small mammals

Small mammals such as water rats can be washed in water (35 °C) with 1% detergent (Dawn 'regular'®,BioSolve® or Suma Star D1 from Diversey) (or more if required) followed by rinsing with a high pressure nozzle and drying using pet driers, with or without initial towel drying.

Cleaning and drying other animals

Cleaning and drying turtles

- The turtle's shell may be cleaned using a 1-2% Dawn ®, BioSolve ® or Suma Star D1 from Diversey detergent solution wiped over the shell with a clean cloth or sponge, repeating until the oil is removed
- Cleaning of the head and oral cavities can be done with dampened cloths or cotton buds. Water picks and toothbrushes may also be useful.
- Cleaning of the skin and inside the shell may be carried out by bathing in 1-2% detergent solution then scrubbing using a sponge, pushed into the spaces between the shell and the head, legs and tail, and twisted and moved around as required, followed by irrigation with detergent solution using a water jet. Scrubbing with the sponge and irrigation with solution are repeated as necessary
- Once the oil is removed the areas between the shell and the head, legs and tail are irrigated with clean water using a water jet, before the animal is rinsed in a clean water bath
- Following cleaning and rinsing, the turtle may be dried with absorbent paper towels or soft cotton cloths
- Cotton buds can be used to clean oil residues from the mouth

- If all of the oil has not been removed at the first cleaning, the process may be repeated at intervals of 24 to 48 hours.

Cleaning other wildlife

If other wildlife is affected, seek specialist advice through Liaison Officers.

Reference

See Department of Primary Industries NSW procedure – Oil/Chemical Spill Wildlife Response – Triage and First Aid:
http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/432097/Oil-Chemical-Spill-Wildlife-Response-Cleaning-and-Drying-Wildlife-V1.pdf

Appendix H - Oiled Wildlife Response Strategy by Functional Group

Species	Life cycle	Risk period	Strategy Considerations	Strategy options
Migratory and resident shorebirds	Foraging	Peak for migratory shorebirds is Sept to Mar. Resident shorebirds and a small proportion of migrants (juveniles) remain year-round.	Habitat and survey maps and pre oiling surveys important to determine species and densities present in an area. Preferred foraging areas are extensive intertidal flats. Foraging times are tide dependant feeding on molluscs and worms exposed in intertidal zones during mid to low tides. Birds tend to spread out over suitable feeding habitat. Feeding response to different types of oil is unknown. Birds oiled during feeding may not be able to fly back to roosts when tide rises so in water patrols of feeding areas and shorelines for capture should considered.	Oiled birds can be captured using hand nets, cleaned and rehabilitated. For small areas of oiling, hazing can be attempted with ongoing monitoring of success. Pre-emptive capture of unoiled birds is largely impractical due to individuals dispersing to feed.
Migratory and resident shorebirds	Roosting	Peak for migratory shorebirds is Sept to Mar. Resident shorebirds and a small proportion of migrants (juveniles) remain year-round.	At high tide periods birds roost at favoured sites until the falling tide allows for foraging at intertidal habitats. Favoured roost site locations are critical information for the oiled wildlife response. Capture of unoiled birds is likely to be difficult and capture of all birds quickly is unlikely.	Oiled birds can be captured using hand nets cleaned and rehabilitated. For small shoreline areas affected by oil, hazing can be attempted with ongoing monitoring of success. Pre-emptive capture and transport of birds in areas under threat. Pre-emptive capture and holding of birds in areas under threat. Capture techniques for unoiled birds include noose mats (preferred) and cannon nets.
Resident shorebirds	Nesting	Peak nesting August to February Note: migratory shorebirds do not nest in Australia.	Resident shorebirds nest on coastal beaches, wetland fringes and islands. Nest above the high water mark. Nestlings and eggs can be oiled by contact from adults. Hatchlings are precocial and can forage by themselves after hatching but stay in family groups for some time. Surveys need to be undertaken to determine nest locations adjacent to and along impacted shorelines.	Oiled birds can be captured using hand nets, cleaned and rehabilitated. Nest building birds can be hazed or disturbed from projected oil impact zones.

Species	Life cycle	Risk period	Strategy Considerations	Strategy options
			Priority should be on capture and rehabilitation of adult birds.	
Seabirds - Sea foragers that utilise islands and coasts such as terns, gulls, gannets, shearwaters	Foraging	Year-round	Seabirds will dive through oil on the surface if fish or other prey can be seen. This should be considered as possible for light crude, diesel and condensate spills. Seabird numbers can be highly variable seasonally and from year to year as they follow food resource abundance (affected by El Nino, etc.) and can forage long distances from nesting and roosting sites. Pre oiling surveys are critical to ascertain current status. Birds oiled during feeding may not be able to fly back to shore so in water patrols of feeding areas and shorelines for capture should be considered.	Searches for and collection of birds required in areas where oil is located, and at roosts. Oiled birds can be captured in water using hand nets, cleaned and rehabilitated. Free-flying birds cannot be readily captured in marine environments.
Seabirds- Sea foragers that utilise islands and coasts such as terns, gulls and shearwaters	Roosting	Year-round	Seabirds often show a preference for sandy points, spits and low rocky bars near the ocean. Birds lightly oiled or coated with light oils oiled may be able to fly back to roosts where monitoring should occur and shore-based capture should be considered.	Searches for and collection of wildlife required in areas where birds roost up to 50km from oiling. Oiled birds can be captured on land using hand nets, cleaned and rehabilitated. Free flying birds cannot be readily captured in marine environments.
Seabirds- Sea foragers that utilise islands and coasts such as terns, gulls and shearwaters	Nesting	September to March	Seabirds nest on islands or the mainlands coast either on the surface (e.g. terns), rock crevices, in vegetation (e.g. cormorants) and in burrows (e.g. shearwaters). Nestlings and eggs are at risk of oiling from body contact with adults.	Adults and nestlings should be monitored for oiling impacts. Oiled adults and nestlings should be captured by hand nets or other available means. Pre-emptive capture of chicks and hand raising should be considered for high conservation species.
Seabirds Cormorants and darters all species	Foraging	Year-round	Are predisposed to oiling as they will readily swim through heavy oils. May travel large distances from roosting sites but feed close to shore. Cormorants saturate their feathers to hunt and will look wet (indicator of light oils) after foraging when drying wings for flight	Oiled birds can be captures on land or in water. Strong birds will dive to escape capture.

Species	Life cycle	Risk period	Strategy Considerations	Strategy options
Seabirds Cormorants and darters all species	Roosting	Year-round	Roosting sites may vary according to wind conditions and food availability. Cormorants prefer roost on elevated coastal headlands or trees to assist take off.	Oiled birds can be captured on land or in water. Strong birds will dive to escape capture.
Seabirds Cormorants and darters all species	Nesting	Year-round	Nest on elevated coastal headlands and vegetation or in vegetation in freshwater swamps.	Oiled birds can be captures on land or in water. Strong birds will dive to escape capture. Nestlings should be monitored and only captured for cleaning rehabilitation if abandoned or parent birds are oiled.
Waterbirds	Foraging	Year-round	Herons and Egrets tend to forage amongst mangroves and on intertidal flats or shallow pools near roosting sites. Pelicans prefer shallow protected waters for feeding. Pelicans can travel very large distances from roost or breeding sites to foraging areas.	Oiled birds can be captured on land or in water.
Waterbirds	Roosting	Year-round	Can be found in freshwater brackish and coastal habitats. Herons and egrets common in suitable coastal and offshore island and mangrove habitats.	Oiled birds can be captures on land or in water.
Waterbirds	Nesting	Year-round	Herons and egrets nest sparsely in coastal vegetation. Pelicans nest in colonies on inland lake and coastal islands.	Oiled birds can be captured on land or in water. Nestlings should be monitored and only captured for cleaning and rehabilitation if abandoned or parent birds are oiled.
Marine birds of prey	Foraging	Year-round	Ospreys often plunge into water to hunt fish, while Sea Eagles pluck fish from water on the wing. Some Kite species take crabs.	Monitoring of local raptors should be undertaken, focusing on known nest sites and perches. Only specialist or experienced personnel should capture or handle these species for safety.
Marine birds of prey	Roosting	Year-round	Elevated perch with view of ocean are preferred. Some perches offering protection may be used in some conditions.	Monitoring of local raptors should be undertaken, focusing on known nest sites and perches. Only specialist or experienced personnel should capture or handle these species for safety.

Species	Life cycle	Risk period	Strategy Considerations	Strategy options
Marine birds of prey	Nesting	Year-round	Make large nests comprised of sticks on tall structures (trees, mangrove, manmade) or rocky headlands.	Monitoring of local raptors should be undertaken, focusing on known nest sites and perches. Only specialist or experienced personnel should capture or handle these species for safety.
Green Turtles	Foraging	Year round Feed on seagrass and algae habitats. Recorded for extended periods in 2012 in Investigator Strait and Gulf St Vincent.	In-water oiling via ingestion, inhalation and contact risks. Note that even light hydrocarbons such as diesel and condensate cause burns to turtles even though oiling may not be apparent. Sea turtles do not appear to display any avoidance behaviour on encountering a slick. Males and females at risk. All animals relatively widely dispersed through foraging habitats in near shore coastal bays.	Adults are a large powerful turtle, and so in-water capture generally unviable except in expanses of shallow water. Captures of compromised adults on the surface would be possible with walley nets or large hoop nets. Capture of adult females on shore can be done by hand and using turtle stretchers for transport. Juveniles 40cm+ appear in coastal waters and could possibly be rodeo-ed or captured with long handled nets. Any captures need to be removed from the area and duration of oiling (see below).
Loggerhead Turtle	Foraging		Found on shallow continental shelf and coastal bays. Feeds on molluscs and crustaceans. A high protection priority.	As per Green Turtles
Leatherback Turtle	Foraging		Pelagic ocean species. Sightings have occurred from SA coastal and offshore waters. Their massive size makes in water capture extremely difficult.	
Cetaceans	Migrating		A wide range of species has been recorded along the SA coast line.	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SA Museum).
Cetaceans Humpbacks	Calving and resting	May to September	Head of the Bight (Great Australian Bight Marine Park areas) incorporates waters within the South Australian Great Australian Bight Whale Sanctuary and Great Australian Bight Marine National Park, and Commonwealth Great Australian Bight Marine Park. This is an important calving and mating area for southern right	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SA Museum).

Species	Life cycle	Risk period	Strategy Considerations	Strategy options
			whales, especially close to shore in the South Australian marine park. Encounter Coast (Victor Harbour) is an important area for viewing of southern right whales and their calves between May and September.	
Cetaceans other Baleen whales			Brydes Whales have been observed to aggregate to feed off anchovy schools. Pygmy Blue whales have been observed in surveys in deep water offshore areas. Minke whales have also been sighted.	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SA Museum). There are no viable rescue strategies for oiled large cetaceans. Any indications of oiling should be documented and any dead or ill animals should be sampled for hydrocarbons.
Cetaceans Dolphins			Aerial surveys indicate dolphin species can be found widely from inshore coastal to offshore areas. Bottlenose and Indo Pacific Humpback and common dolphins are often seen inshore.	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SA Museum). Difficult to capture in water and are fast swimming.
Cetaceans Orcas			Orcas are usually observed year round and are known to predate on Humpback whale calves.	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SA Museum). In water capture unviable.
Cetaceans toothed whales			Sperm whales are occasionally seen and have been involved in mass strandings. False Killer Whales and other unidentified species have been observed in aerial surveys.	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SA Museum). There are no viable rescue strategies for large oiled large cetaceans whilst in water. Any indications of oiling should be documented and any dead or ill animals should be sampled for hydrocarbons.
Manta Rays	Migrating and Feeding		Manta rays feed on crustaceans and larvae on the sea floor, mid water, or by skimming the water surface. Manta rays are believed to avoid water laden with small coelenterates and may similarly avoid oiled areas. They are	Unknown

Species	Life cycle	Risk period	Strategy Considerations	Strategy options
			at risk of ingesting floating oil while surface feeding and coating when on the surface. At risk of ingestion of oil emulsions, and dispersant treated oil in the water profile.	
Kanagroos			Kangaroos, and their tracks, are sometimes sighted on beaches. If beach oiling occurs during spring tides they would be at risk of being affected. During the Sanko Harvest oil spill in WA, kangaroos from Cape Le-Grande National Park were oiled resulting in capture and cleaning of the animals.	Small kangaroos can be captured by hand by experienced persons and larger animals can be darted with anaesthetic drugs. All large macropods should be anaesthetised during cleaning to prevent stress.
Brush-tailed Possum			Brush-tailed possums have been known to frequent beaches particularly in summer. If beach oiling occurs during spring tides they would be at considerable risk of being affected.	If beaches are oiled normal trapping techniques should be employed there and adjacent habitats to capture animals for assessment and or cleaning.
Water Rat			This animal has a range along metropolitan beaches but is uncommon within its range. Likely to be affected all year around from a spill.	If beaches are oiled normal trapping techniques should be employed there and adjacent habitats to capture animals for assessment and or cleaning.
Other native rats mice and dasyurids			Rare visitors to beaches should be at low risk of oiling	Capture and cleaning of oiled animals is possible. They should be cleaned in a similar process to birds.
Land snakes			Land snakes are known to visit sea bird nests.	Capture and cleaning of oiled animals is possible. They should be cleaned in a similar process to birds.
Emus			Emus have been recorded as swimming in the gulfs and bays. This places emus at risk of oiling if present in the area.	Emus are difficult to catch.

Appendix I - Coastal Bird Species by Location and Functional Group

The following lists have been compiled from a South Australian State-wide coastal species search generated from the BirdLife Australia Atlas of Australian Birds database (accessed 17 March 2016). Species listings are current at 29 March 2016. Some species included in the list are vagrants.
As the BirdLife Australia Atlas of Australian Birds does not list subspecies, the status of the most threatened sub-species has been applied to the entire species.

Conservation Acts and Agreements		Key to conservation status level		Key to regions	
EPBC	Listed threatened fauna under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).	**CR**	Critically endangered	**AW**	Alinytjara Wiluara Region
NPW	Status under the Threatened Species Schedules of the *National Parks and Wildlife Act 1972*	**EN**	Endangered	**EP**	Eyre Peninsula Region
JAMBA	Listed under the *Japan and Australia Migratory Bird Bilateral Agreement 1974.*	**RA**	Rare	**NY**	Northern and Yorke Peninsula Region
CAMBA	Listed under the *China and Australia Migratory Bird Bilateral Agreement 1986*	**VU**	Vulnerable	**AMLR**	Adelaide and Mt Lofty Ranges Region
RoKAMBA	Listed under the *Republic of Korea and Australia Migratory Bird Bilateral Agreement 2007*	**NT**	Not threatened	**MDB**	South Australian Murray Darling Region
IUCN	Listed threatened species under the IUCN (International Union for Conservation of Nature) Red List.	**LC**	Least concern	**SE**	South East Region
		UP	Unprotected	**KI**	Kangaroo Island Region
		MA	Marine		
		MI	Migratory		

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Emus STRUTHIONIFORMES														
Emu	*Dromaius novaehollandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Ostrich	*Struthio camelus*	-	-	-	-	-	LC		✓	✓				
Grebes PODICIPEDIFORMES														
Great Crested Grebe	*Podiceps cristatus*	-	RA	-	-	-	LC		✓	✓	✓	✓	✓	
Hoary-headed Grebe	*Poliocephalus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Australasian Grebe	*Tachybaptus novaehollandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Penguins SPHENISCIFORMES														
Rockhopper Penguin	*Eudyptes chrysocome*	-	-	-	-	-	VU					✓	✓	
Little Penguin	*Eudyptula minor*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Tube-Nosed Seabirds PROCELLARIIFORMES														
Flesh-footed Shearwater	*Ardenna carneipes (Puffinus carneipes)*	-	RA	Listed	-	Listed	LC			✓	✓	✓	✓	
Short-tailed Shearwater	*Ardenna tenuirostris*	-	-	Listed	-	Listed	LC		✓	✓	✓	✓	✓	✓
Cape Petrel	*Daption capense*	-	-	-	-	-	LC						✓	
Wandering Albatross	*Diomedea exulans*	VU	VU	-	-	-	VU			✓			✓	✓
Southern Fulmar	*Fulmarus glacialoides*	-	-	-	-	-	LC				✓	✓		
Grey-backed Storm-Petrel	*Garrodia nereis*	-	-	-	-	-	LC						✓	
Blue Petrel	*Halobaena caerulea*	VU	-	-	-	-	LC						✓	
Kerguelen Petrel	*Lugensa brevirostris (Aphrodroma brevirostris) (Pterodroma brevirostris)*	-	-	-	-	-	LC				✓	✓	✓	
Southern Giant-Petrel	*Macronectes giganteus*	EN	VU	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Northern Giant-Petrel	*Macronectes halli*	VU MA MI	-	-	-	-	LC		✓		✓	✓	✓	
Wilson's Storm-Petrel	*Oceanites oceanicus*	-	-	Listed	-	-	LC				✓	✓	✓	
Slender-billed Prion	*Pachyptila belcheri*	-	-	-	-	-	LC			✓	✓	✓		✓
Fairy Prion	*Pachyptila turtur*	VU	-	-	-	-	LC				✓	✓	✓	
White-faced Storm-Petrel	*Pelagodroma marina*	-	-	-	-	-	LC		✓	✓			✓	
Common Diving-Petrel	*Pelecanoides urinatrix*	-	-	-	-	-	LC			✓				✓
Mottled Petrel	*Pterodroma inexpectata*	-	-	-	-	-	NT				✓	✓		

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
White-headed Petrel	*Pterodroma lessonii*	-	-	-	-	-	LC			✓	✓	✓		
Great-winged Petrel	*Pterodroma macroptera*	-	-	-	-	-	LC				✓	✓	✓	
Little Shearwater	*Puffinus assimilis*	-	-	-	-	-	LC						✓	
Fluttering Shearwater	*Puffinus gavia*	-	-	-	-	-	LC			✓	✓	✓	✓	✓
Hutton's Shearwater	*Puffinus huttoni*	-	-	-	-	-	EN				✓	✓		
Shy Albatross	*Thalassarche cauta (Diomedea cauta cauta)*	VU MA MI	VU	-	-	-	NT			✓	✓	✓	✓	
Yellow-nosed Albatross	*Thalassarche chlororhynchos (Diomedea chlororhynchos)*	-	EN	-	-	-	EN		✓		✓	✓	✓	
Black-browed Albatross	*Thalassarche melanophris (Thalassarche melanophrys) (Diomedea melanophrys impavida)*	VU MA MI	VU	-	-	-	NT	✓	✓	✓	✓	✓	✓	
Cormorants, Gannets and Pelicans PELECANIFORMES														
Australasian Darter	*Anhinga novaehollandiae (Anahinga melanogaster)*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Little Pied Cormorant	*Microcarbo melanoleucos*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Australasian Gannet	*Morus serrator*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Australian Pelican	*Pelecanus conspicillatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Great Cormorant	*Phalacrocorax carbo*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Black-faced Cormorant	*Phalacrocorax fuscescens*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Little Black Cormorant	*Phalacrocorax sulcirostris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Pied Cormorant	*Phalacrocorax varius*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Herons, Ibises and Storks ARDEIFORMES														
Cattle Egret	*Ardea ibis (Bubulcus ibis) (Ardeola ibis)*	-	RA	Listed	Listed	-	LC		✓	✓	✓	✓	✓	
Intermediate Egret	*Ardea intermedia (Egretta intermedia)*	-	RA	-	-	-	LC		✓	✓	✓	✓	✓	
Eastern Great Egret	*Ardea modesta*	-	-	-	-	-	NE	✓	✓	✓	✓	✓	✓	✓
White-necked Heron	*Ardea pacifica*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Australasian Bittern	*Botaurus poiciloptilus*	EN	VU	-	-	-	EN		✓		✓	✓	✓	
Little Egret	*Egretta garzetta*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
White-faced Heron	*Egretta novaehollandiae (Ardea novaehollandiae)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Eastern Reef Egret	*Egretta sacra*	-	RA	-	Listed	-	LC	✓	✓	✓	✓	✓	✓	✓
Nankeen Night-Heron	*Nycticorax caledonicus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Yellow-billed Spoonbill	*Platalea flavipes*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Royal Spoonbill	*Platalea regia*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Glossy Ibis	*Plegadis falcinellus*	-	RA	-	Listed	-	LC		✓	✓	✓	✓	✓	✓
Australian White Ibis	*Threskiornis molucca*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Straw-necked Ibis	*Threskiornis spinicollis*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Swans, Geese and Ducks ANSERIFORMES														
Muscovy Duck										✓	✓	✓	✓	
Domestic/Feral Duck									✓	✓	✓	✓	✓	✓
Black Duck-Mallard hybrid										✓	✓	✓	✓	✓
Domestic Goose										✓	✓	✓	✓	
Chestnut Teal	*Anas castanea*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Grey Teal	*Anas gracilis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Northern Mallard	*Anas platyrhynchos*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Australasian Shoveler	*Anas rhynchotis (Spatula rhynchotis)*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Pacific Black Duck	*Anas superciliosa*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Greylag Goose	Anser *ansers*						LC			✓	✓	✓	✓	
Magpie Goose	*Anseranas semipalmata*	-	EN	-	-	-	LC			✓	✓		✓	
Musk Duck	*Biziura lobata*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Cape Barren Goose	*Cereopsis novaehollandiae*	VU	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Australian Wood Duck	*Chenonetta jubata*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Black Swan	*Cygnus atratus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Mute Swan	*Cygnus olor*	-	-	-	-	-	LC						✓	
Plumed Whistling-Duck	*Dendrocygna eytoni*	-	-	-	-	-	LC					✓	✓	
Pink-eared Duck	*Malacorhynchus membranaceus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Blue-billed Duck	*Oxyura australis*	-	RA	-	-	-	NT	✓	✓	✓	✓	✓	✓	✓
Freckled Duck	*Stictonetta naevosa*	-	VU	-	-	-	LC		✓	✓	✓	✓	✓	✓
Radjah Shelduck	*Tadorna radjah (Radjah radjah)*	-	-	-	-	-	LC						✓	

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Australian Shelduck	*Tadorna tadornoides*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Hardhead	*Aythya australis*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Birds of Prey ACCIPITRIFORMES														
Collared Sparrowhawk	*Accipiter cirrocephalus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Brown Goshawk	*Accipiter fasciatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Grey Goshawk	*Accipiter novaehollandiae*	-	EN	-	-	-	LC			✓			✓	
Wedge-tailed Eagle	*Aquila audax*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Swamp Harrier	*Circus approximans*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Spotted Harrier	*Circus assimilis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Black-shouldered Kite	*Elanus axillaris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Brown Falcon	*Falco berigora*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Nankeen Kestrel	*Falco cenchroides*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Grey Falcon	*Falco hypoleucos*	-	RA	-	-	-	VU		✓	✓	✓	✓	✓	
Australian Hobby	*Falco longipennis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Peregrine Falcon	*Falco peregrinus*	-	RA	-	-	-	LC		✓	✓	✓	✓	✓	✓
Black Falcon	*Falco subniger*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	-	EN	-	Listed	-	LC	✓	✓	✓	✓	✓	✓	✓
Whistling Kite	*Haliastur sphenurus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Black-breasted Buzzard	*Hamirostra melanosternon*	-	RA	-	-	-	LC		✓	✓		✓		
Little Eagle	*Hieraaetus morphnoides*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Square-tailed Kite	*Lophoictinia isura*	-	EN	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Black Kite	*Milvus migrans*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Eastern Osprey	*Pandion cristatus*	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
Megapodes and Allies GALLIFORMES														
Australian Brush-turkey	*Alectura lathami*	-	-	-	-	-	LC	✓	✓	✓	✓		✓	✓
Stubble Quail	*Coturnix pectoralis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Brown Quail	*Coturnix ypsilophora (Synoicus ypsilophorus)*	-	VU	-	-	-	LC		✓	✓	✓	✓	✓	✓
Red Junglefowl	*Gallus*	-	-	-	-	-	LC		✓					
Malleefowl	*Leipoa ocellata*	VU	VU	-	-	-	VU		✓	✓	✓	✓	✓	✓
Wild Turkey	*Meleagris gallopavo*	-	-	-	-	-	LC			✓				✓

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Helmeted Guineafowl	*Numida meleagris*	-	-	-	-	-	LC		✓	✓	✓	✓		
Indian Peafowl	*Pavo cristatus*	-	-	-	-	-	LC			✓	✓	✓	✓	✓
Common Pheasant	*Phasianus colchicus*	-	-	-	-	-	LC						✓	
Black-tailed Native-hen	*Tribonyx ventralis (Gallinula ventralis)*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Button Quails and Allies GRUIFORMES														
Australian Bustard	*Ardeotis australis*	-	VU	-	-	-	LC	✓	✓			✓	✓	
Buff-banded Rail	*Gallirallus philippensis (Hypotaenidia philippensis)*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Brolga	*Grus rubicunda (Antigone rubicunda)*	-	VU	-	-	-	LC			✓	✓	✓	✓	
Lewin's Rail	*Lewinia pectoralis (Rallus pectoralis pectoralis)*	-	VU	-	-	-	LC				✓	✓	✓	
Waders, Plovers, Terns and Gulls CHARADRIFORMES														
Snipe species											✓			
Common Sandpiper	*Actitis hypoleucos (Tringa hypoleucos hypoleucos)*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Ruddy Turnstone	*Arenaria interpres*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Bush Stone-curlew	*Burhinus grallarius*	-	RA	-	-	-	LC		✓	✓	✓	✓		✓
Sharp-tailed Sandpiper	*Calidris acuminata*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Sanderling	*Calidris alba (Crocethia alba)*	MA MI	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Baird's Sandpiper	*Calidris bairdii*	-	-	Listed	-	-	LC			✓	✓		✓	
Red Knot	*Calidris canutus*	-	-	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓
Curlew Sandpiper	*Calidris ferruginea*	CR MA	-	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓
Pectoral Sandpiper	*Calidris melanotos*	-	RA	Listed	-	Listed	LC		✓	✓	✓	✓	✓	
Little Stint	*Calidris minuta*	-	RA	-	-	Listed	LC	✓	✓			✓	✓	
Red-necked Stint	*Calidris ruficollis*	-	-	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓
Long-toed Stint	*Calidris subminuta*	-	RA	Listed	Listed	Listed	LC		✓	✓	✓	✓	✓	
Great Knot	*Calidris tenuirostris*	-	RA	Listed	Listed	Listed	EN	✓	✓	✓	✓	✓	✓	✓
Inland Dotterel	*Charadrius australis (Peltohyas australis)*	-	-	-	-	-	LC	✓	✓	✓		✓		
Double-banded Plover	*Charadrius bicinctus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓

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Greater Sand Plover	*Charadrius leschenaultii*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	
Lesser Sand Plover	*Charadrius mongolus*		RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	
Red-capped Plover	*Charadrius ruficapillus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Oriental Plover	*Charadrius veredus*	-	-	-	-	Listed	LC	✓	✓					
Whiskered Tern	*Chlidonias hybrida*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
White-winged Black Tern	*Chlidonias leucopterus*	-	-	Listed	Listed	Listed	LC		✓	✓	✓	✓	✓	
Silver Gull	*Chroicocephalus novaehollandiae (Larus novaehollandiae)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Banded Stilt	*Cladorhynchus leucocephalus*	-	VU	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Black-fronted Dotterel	*Elseyornis melanops*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Red-kneed Dotterel	*Erythrogonys cinctus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Eurasian Coot	*Fulica atra*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Latham's Snipe	*Gallinago hardwickii*	-	RA	Listed	Listed	Listed	LC		✓	✓	✓	✓	✓	
Pin-tailed Snipe	*Gallinago stenura*	-	-	-	Listed	Listed	LC		✓	✓		✓	✓	
Dusky Moorhen	*Gallinula tenebrosa*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Gull-billed Tern	*Gelochelidon nilotica*	-	-	-	-	-	LC			✓	✓	✓	✓	
Oriental Pratincole	*Glareola maldivarum*	-	-	-	Listed	Listed	LC				✓	✓	✓	
Sooty Oystercatcher	*Haematopus fuliginosus*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Australian Pied Oystercatcher	*Haematopus longirostris*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Black-winged Stilt	*Himantopus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Caspian Tern	*Hydroprogne caspia*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Comb-crested Jacana	*Irediparra gallinacea*	-	-	-	-	-	LC		✓	✓	✓		✓	
Kelp Gull	*Larus dominicanus*	-	RA	-	-	-	LC				✓	✓	✓	
Pacific Gull	*Larus pacificus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Franklin's Gull	*Leucophaeus pipixcan*	-	-	-	-	-	LC			✓	✓		✓	
Broad-billed Sandpiper	*Limicola falcinellus (Calidris falcinellus)*	-	-	Listed	Listed	Listed	LC			✓	✓	✓	✓	
Short-billed Dowitcher	*Limnodromus griseus*	-	-	-	-	-	LC			✓	✓		✓	
Hudsonian Godwit	*Limosa haemastica*	-	-	-	-	-	LC			✓	✓		✓	
Bar-tailed Godwit	*Limosa lapponica*	-	RA	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓
Black-tailed Godwit	*Limosa limosa*	-	RA	Listed	Listed	Listed	NT		✓	✓	✓	✓	✓	

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Eastern Curlew	*Numenius madagascariensis*	CR	VU	Listed	Listed	Listed	EN	✓	✓	✓	✓	✓	✓	✓
Whimbrel	*Numenius phaeopus*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Bridled Tern	*Onychoprion anaethetus (Sterna anaethetus)*	-	-	Listed	Listed	-	LC						✓	
Grey Phalarope	*Phalaropus fulicarius*	-	-	-	-	-	LC		✓					
Red-necked Phalarope	*Phalaropus lobatus*	-	-	-	-	-	LC			✓	✓		✓	
Ruff	*Philomachus pugnax (Calidris pugnax)*		RA	Listed	Listed	Listed	LC			✓	✓	✓	✓	
Pacific Golden Plover	*Pluvialis fulva*	-	RA	-	-	Listed	LC	✓	✓	✓	✓	✓	✓	
Grey Plover	*Pluvialis squatarola*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Purple Swamphen	*Porphyrio*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Australian Spotted Crake	*Porzana fluminea*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Baillon's Crake	*Porzana pusilla (Zapornia pusilla)*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Spotless Crake	*Porzana tabuensis (Zapornia tabuensis)*	-	RA	-	-	-	LC		✓	✓	✓	✓	✓	
Red-necked Avocet	*Recurvirostra novaehollandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Australian Painted Snipe	*Rostratula australis (Rostratula benghalensis)*	EN MA	VU	-	Listed	-	EN			✓	✓	✓	✓	
Brown Skua	*Stercorarius antarcticus (Catharacta antarctica)*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Arctic Jaeger	*Stercorarius parasiticus*	-	-	Listed	-	Listed	LC			✓	✓	✓		✓
Pomarine Jaeger	*Stercorarius pomarinus*	-	-	Listed	Listed	-	LC				✓	✓		
Common Tern	*Sterna hirundo*	-	RA	Listed	Listed	Listed	LC		✓	✓	✓		✓	
Arctic Tern	*Sterna paradisaea*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
White-fronted Tern	*Sterna striata*	-	-	-	-	-	LC				✓	✓	✓	
Antarctic Tern	*Sterna vittata (sub species are endangered, Sterna vitata vitata and Sterna vittata bethunei)*	MA EN	-	-	-	-	LC		✓					
Little Tern	*Sternula albifrons (Sterna albifrons)*	-	EN	Listed	Listed	Listed	LC			✓	✓	✓	✓	
Fairy Tern	*Sternula nereis (Sterna nereis)*	VU	EN	-	-	-	VU	✓	✓	✓	✓	✓	✓	✓
Australian Pratincole	*Stiltia isabella*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Crested Tern	*Thalasseus bergii (Sterna bergii)*	-	-	Listed	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Hooded Plover	*Thinornis rubricollis (Charadrius rubricollis)*	VU MA	VU	-	-	-	VU	✓	✓	✓	✓	✓	✓	✓
Grey-tailed Tattler	*Tringa brevipes (Heteroscelus brevipes)*	-	RA	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓
Wood Sandpiper	*Tringa glareola*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	
Common Greenshank	*Tringa nebularia*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Marsh Sandpiper	*Tringa stagnatilis*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Common Redshank	*Tringa totanus*	-	-	-	Listed	Listed	LC		✓	✓	✓	✓	✓	
Red-chested Button-quail	*Turnix pyrrhothorax*	-	RA	-	-	-	LC			✓				
Painted Button-quail	*Turnix varius (Turnix varia)*	-	RA	-	-	-	LC		✓	✓	✓	✓	✓	✓
Little Button-quail	*Turnix velox*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Masked Lapwing	*Vanellus miles*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Banded Lapwing	*Vanellus tricolor*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Terek Sandpiper	*Xenus cinereus*	-	RA	Listed	Listed	Listed	LC		✓	✓	✓	✓	✓	
Pigeons and Doves COLUMBIFORMES														
White-headed Pigeon	*Columba leucomela*	-	-	-	-	-	LC	✓	✓					
Rock Dove	*Columba livia*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Diamond Dove	*Geopelia cuneata*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Peaceful Dove	*Geopelia striata*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Wonga Pigeon	*Leucosarcia picata (Leucosarcia melanoleuca)*	-	-	-	-	-	LC	✓	✓					
Brown Cuckoo-Dove	*Macropygia amboinensis*	-	-	-	-	-	LC	✓	✓					
Crested Pigeon	*Ocyphaps lophotes*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Common Bronzewing	*Phaps chalcoptera*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Brush Bronzewing	*Phaps elegans*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Wompoo Fruit-Dove	*Ptilinopus magnificus (Megaloprepia magnifica)*	-	-	-	-	-	LC	✓	✓					
Spotted Dove	*Streptopelia chinensis*	-	-	-	-	-	-		✓	✓	✓	✓	✓	✓
Barbary Dove	*Streptopelia roseogrisea*	-	-	-	-	-	LC			✓	✓	✓	✓	
Laughing Dove	*Streptopelia senegalensis*	-	-	-	-	-	LC			✓	✓		✓	

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Cockatoos and Parrots PSITTACIFORMES														
Corella species										✓	✓	✓	✓	
Crow and Raven species								✓	✓	✓	✓	✓	✓	✓
Ring-necked Parakeet										✓	✓		✓	
Australian King-Parrot	*Alisterus scapularis*	-	-	-	-	-	LC	✓	✓					
Australian Ringneck	*Barnardius zonarius*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Sulphur-crested Cockatoo	*Cacatua galerita*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Little Corella	*Cacatua sanguinea*	-	UP	-	-	-	LC		✓	✓	✓	✓	✓	✓
Long-billed Corella	*Cacatua tenuirostris*	-	-	-	-	-	LC			✓	✓	✓	✓	
Gang-gang Cockatoo	*Callocephalon fimbriatum*	-	-	-	-	-	LC				✓			
Red-tailed Black-Cockatoo	*Calyptorhynchus banksii*	VU	EN	-	-	-	LC				✓	✓		
Yellow-tailed Black-Cockatoo	*Calyptorhynchus funereus (Zanda funerea)*	-	VU	-	-	-	LC		✓	✓	✓	✓	✓	✓
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	EN	EN	-	-	-	LC	✓	✓	✓				✓
Galah	*Eolophus roseicapillus (Cacatua roseicapilla)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Musk Lorikeet	*Glossopsitta concinna*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Little Lorikeet	*Glossopsitta pusilla*	-	EN	-	-	-	LC			✓	✓	✓	✓	
Major Mitchell's Cockatoo	*Lophochroa leadbeateri (Cacatua leadbeateri)*	-	RA	-	-	-	LC	✓	✓	✓	✓			
Budgerigar	*Melopsittacus undulatus*	-	UP	-	-	-	LC		✓	✓	✓	✓	✓	
Orange-bellied Parrot	*Neophema chrysogaster*	CR MA	EN	-	-	-	CR				✓	✓	✓	
Blue-winged Parrot	*Neophema chrysostoma*	-	VU	-	-	-	LC		✓	✓	✓	✓		
Elegant Parrot	*Neophema elegans*	-	RA	-	-	-	LC		✓	✓	✓	✓	✓	
Rock Parrot	*Neophema petrophila*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Blue Bonnet	*Northiella haematogaster*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Cockatiel	*Nymphicus hollandicus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Crimson Rosella	*Platycercus elegans*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Eastern Rosella	*Platycercus eximius*	-	-	-	-	-	LC			✓	✓	✓	✓	

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Regent Parrot	*Polytelis anthopeplus*	VU	VU	-	-	-	LC			✓	✓		✓	
Superb Parrot	*Polytelis swainsonii*	VU	-	-	-	-	LC			✓	✓		✓	
Red-rumped Parrot	*Psephotus haematonotus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Mulga Parrot	*Psephotus varius (Psephotellus varius)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Rainbow Lorikeet	*Trichoglossus haematodus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Cuckoos CUCULIFORMES														
Fan-tailed Cuckoo	*Cacomantis flabelliformis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Pallid Cuckoo	*Cacomantis pallidus (Heteroscenes pallidus)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Horsfield's Bronze-Cuckoo	*Chalcites basalis (Chrysococcyx basalis)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Shining Bronze-Cuckoo	*Chalcites lucidus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Black-eared Cuckoo	*Chalcites osculans (Chrysococcyx osculans)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Eastern Koel	*Eudynamys orientalis*	-	-	-	-	-	LC			✓	✓		✓	
Channel-billed Cuckoo	*Scythrops novaehollandiae*	-	-	-	-	-	LC				✓	✓		
Owls STRIGIFORMES														
Southern Boobook	*Ninox novaeseelandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Powerful Owl	*Ninox strenua*	-	EN	-	-	-	LC						✓	
Eastern Barn Owl	*Tyto javanica (Tyto alba javanica)*	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
Frogmouths and Nightjars CAPRIMULGIFORMES														
Australian Owlet-nightjar	*Aegotheles cristatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Spotted Nightjar	*Eurostopodus argus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
White-throated Nightjar	*Eurostopodus mystacalis*	-	-	-	-	-	LC						✓	
White-throated Needletail	*Hirundapus caudacutus (Chaetura caudacuta)*	MA	-	Listed	Listed	Listed	LC		✓	✓	✓	✓	✓	✓
Tawny Frogmouth	*Podargus strigoides*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Swifts APODIFORMES														
Fork-tailed Swift	*Apus pacificus*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓
Kingfishers and allies CORACIFORMES														
Azure Kingfisher	*Ceyx azureus (Alcedo azurea)*	-	EN	-	-	-	LC						✓	

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Laughing Kookaburra	*Dacelo novaeguineae*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Dollarbird	*Eurystomus orientalis*	-	-	-	-	-	LC				✓	✓		
Rainbow Bee-eater	*Merops ornatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Red-backed Kingfisher	*Todiramphus pyrrhopygius (Todiramphus pyrrhopygia) (Todirhamphus pyrrhopygia)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Sacred Kingfisher	*Todiramphus sanctus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Perching Birds PASSERIFORMES														
Spiny-cheeked Honeyeater	*Acanthagenys rufogularis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Inland Thornbill	*Acanthiza apicalis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Slender-billed Thornbill	*Acanthiza iredalei*	VU	VU	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Striated Thornbill	*Acanthiza lineata*	-	-	-	-	-	LC			✓	✓	✓	✓	✓
Yellow Thornbill	*Acanthiza nana*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Brown Thornbill	*Acanthiza pusilla*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Buff-rumped Thornbill	*Acanthiza reguloides*	-	-	-	-	-	LC			✓	✓	✓	✓	
Chestnut-rumped Thornbill	*Acanthiza uropygialis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Eastern Spinebill	*Acanthorhynchus tenuirostris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Scrubtit	*Acanthornis magna (Acanthornis magnus)*	-	-	-	-	-	LC				✓	✓		
Australian Reed-Warbler	*Acrocephalus australis*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Green Catbird	*Ailuroedus crassirostris*	-	-	-	-	-	LC	✓	✓					
Eurasian Skylark	*Alauda arvensis*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Eyrean Grasswren	*Amytornis goyderi*	-	-	-	-	-	LC					✓		
Short-tailed Grasswren	*Amytornis merrotsyi*	EN	-	-	-	-	NT		✓	✓				
Striated Grasswren	*Amytornis striatus*	-	RA	-	-	-	LC		✓	✓				
Thick-billed Grasswren	*Amytornis textilis*	VU	-	-	-	-	LC		✓	✓		✓		
Red Wattlebird	*Anthochaera carunculata*	-	UP	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Little Wattlebird	*Anthochaera chrysoptera*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Australasian Pipit	*Anthus novaeseelandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Southern Whiteface	*Aphelocephala leucopsis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Banded Whiteface	*Aphelocephala nigricincta*	-	-	-	-	-	LC					✓		
Black-faced Woodswallow	*Artamus cinereus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Dusky Woodswallow	*Artamus cyanopterus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
White-breasted Woodswallow	*Artamus leucorynchus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Little Woodswallow	*Artamus minor*	-	-	-	-	-	LC		✓					
Masked Woodswallow	*Artamus personatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
White-browed Woodswallow	*Artamus superciliosus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Gibberbird	*Ashbyia lovensis*	-	-	-	-	-	LC					✓		
Rufous Fieldwren	*Calamanthus campestris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Shy Heathwren	*Calamanthus cautus (Hylacola cauta)*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Striated Fieldwren	Calamanthus fuliginosus	-	-	-	-	-	LC					✓	✓	
Chestnut-rumped Heathwren	*Calamanthus pyrrhopygia (Hylacola pyrrhopygia) Hylacola pyrrhopygius*	EN	EN, VU	-	-	-	LC		✓	✓	✓	✓	✓	
European Goldfinch, Common Greenfinch	*Carduelis chloris (Chloris chloris)*	-	-	-	-	-	LC			✓	✓	✓	✓	✓
Pied Honeyeater	*Certhionyx variegatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
White-backed Swallow	*Cheramoeca leucosterna*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Brown Songlark	*Cincloramphus cruralis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Rufous Songlark	*Cincloramphus mathewsi*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Chestnut Quail-thrush	*Cinclosoma castanotum (Cinclosoma castanotus castanotus)*	-	Rare	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Cinnamon Quail-thrush	*Cinclosoma cinnamomeum*	-	-	-	-	-	LC	✓	✓	✓		✓		
Golden-headed Cisticola	*Cisticola exilis*	-	-	-	-	-	LC			✓	✓	✓	✓	
White-browed Treecreeper	*Climacteris affinis*	-	RA	-	-	-	LC			✓	✓	✓	✓	
Brown Treecreeper	*Climacteris picumnus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Rufous Treecreeper	*Climacteris rufa (Climacteris rufa)*	-	-	-	-	-	LC	✓	✓	✓				
Grey Shrike-thrush	*Colluricincla harmonica*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Ground Cuckoo-shrike	*Coracina maxima*	-	-	-	-	-	LC	✓	✓	✓	✓	✓		
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
White-bellied Cuckoo-shrike	*Coracina papuensis*	-	RA	-	-	-	LC						✓	

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
White-winged Chough	*Corcorax melanorhamphos*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
White-throated Treecreeper	*Cormobates leucophaea (Cormobates leucophaeus leucophaeus)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Little Crow	*Corvus bennetti*	-	UP	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Australian Raven	*Corvus coronoides*	-	UP	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Little Raven	*Corvus mellori*	-	UP	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Torresian Crow	*Corvus orru*	-	UP	-	-	-	LC				✓	✓		
Forest Raven	*Corvus tasmanicus*	-	-	-	-	-	LC					✓	✓	
Pied Butcherbird	*Cracticus nigrogularis*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Australian Magpie	*Cracticus tibicen (Gymnorhina tibicen)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Grey Butcherbird	*Cracticus torquatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Varied Sittella	*Daphoenositta chrysoptera*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Rufous Bristlebird	*Dasyornis broadbenti*	-	RA	-	-	-	LC				✓	✓	✓	
Mistletoe bird	*Dicaeum hirundinaceum*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Southern Scrub-robin	*Drymodes brunneopygia*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Blue-faced Honeyeater	*Entomyzon cyanotis*	-	RA	-	-	-	LC				✓		✓	
Eastern Yellow Robin	*Eopsaltria australis*	-	-	-	-	-	LC	✓	✓			✓	✓	
Western Yellow Robin	*Eopsaltria griseogularis*	-	-	-	-	-	LC	✓	✓	✓				
White-fronted Chat	*Epthianura albifrons*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Orange Chat	*Epthianura aurifrons*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Crimson Chat	*Epthianura tricolor*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Crested Shrike-tit	*Falcunculus frontatus*	VU	RA	-	-	-	LC			✓	✓	✓	✓	
White-throated Gerygone	*Gerygone albogularis (Gerygone olivacea)*	-	RA	-	-	-	LC			✓	✓	✓	✓	
Western Gerygone	*Gerygone fusca*	-	RA	-	-	-	LC		✓	✓	✓			
Tawny-crowned Honeyeater	*Glyciphila melanops (Phylidonyris melanops)*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Magpie-lark	*Grallina cyanoleuca*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Pictorella Mannikin	*Heteromunia pectoralis*	-	-	-	-	-	LC					✓		
Welcome Swallow	*Hirundo neoxena*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Australian Little Bittern	*Ixobrychus dubius*	-	-	-	-	-	LC			✓	✓	✓	✓	

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
White-winged Triller	*Lalage sueurii*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Yellow-faced Honeyeater	*Lichenostomus chrysops*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Purple-gaped Honeyeater	*Lichenostomus cratitius*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Fuscous Honeyeater	*Lichenostomus fuscus*	-	-	-	-	-	LC					✓	✓	
White-eared Honeyeater	*Lichenostomus leucotis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Yellow-tufted Honeyeater	*Lichenostomus melanops*	-	-	-	-	-	LC						✓	
Yellow-plumed Honeyeater	*Lichenostomus ornatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
White-plumed Honeyeater	*Lichenostomus penicillatus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Grey-fronted Honeyeater	*Lichenostomus plumulus*	-	-	-	-	-	LC		✓	✓	✓			
Varied Honeyeater	*Lichenostomus versicolor*	-	-	-	-	-	LC					✓	✓	
Singing Honeyeater	*Lichenostomus virescens*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Superb Fairy-wren	*Malurus cyaneus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Variegated Fairy-wren	*Malurus lamberti*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
White-winged Fairy-wren	*Malurus leucopterus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Blue-breasted Fairy-wren	*Malurus pulcherrimus*	-	-	-	-	-	LC	✓	✓	✓				
Splendid Fairy-wren	*Malurus splendens*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Yellow-throated Miner	*Manorina flavigula*	-	EN	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Noisy Miner	*Manorina melanocephala*	-	-	-	-	-	LC			✓	✓	✓	✓	
Black-eared Miner	*Manorina melanotis*	EN	EN	-	-	-	EN				✓			
Little Grassbird	*Megalurus gramineus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Tawny Grassbird	*Megalurus timoriensis*	-	-	-	-	-	LC				✓			
Hooded Robin	*Melanodryas cucullata*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Brown-headed Honeyeater	*Melithreptus brevirostris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Black-chinned Honeyeater	*Melithreptus gularis*	-	VU	-	-	-	LC			✓	✓	✓	✓	
White-naped Honeyeater	*Melithreptus lunatus*	-	-	-	-	-	LC			✓	✓	✓	✓	✓
Jacky Winter	*Microeca fascinans*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Horsfields Bushlark	*Mirafra javanica*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Black-faced Monarch	*Monarcha melanopsis*	-	-	-	-	-	LC	✓	✓					
Satin Flycatcher	*Myiagra cyanoleuca*	-	EN	-	-	-	LC				✓		✓	
Restless Flycatcher	*Myiagra inquieta*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Leaden Flycatcher	*Myiagra rubecula*	-	-	-	-	-	LC				✓	✓		

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Plum-headed Finch	*Neochmia modesta*	-	-	-	-	-	LC				✓	✓		
Red-browed Finch	*Neochmia temporalis*	-	-	-	-	-	LC			✓	✓	✓	✓	✓
Crested Bellbird	*Oreoica gutturalis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Olive-backed Oriole	*Oriolus sagittatus*	-	RA	-	-	-	LC			✓	✓	✓	✓	✓
Gilbert's Whistler	*Pachycephala inornata*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Olive Whistler	*Pachycephala olivacea*	-	EN	-	-	-	LC						✓	
Golden Whistler	*Pachycephala pectoralis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Rufous Whistler	*Pachycephala rufiventris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Red-lored Whistler	*Pachycephala rufogularis*	VU	RA	-	-	-	VU		✓	✓	✓			
Spotted Pardalote	*Pardalotus punctatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Red-browed Pardalote	*Pardalotus rubricatus*	-	-	-	-	-	LC							
Striated Pardalote	*Pardalotus striatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
House Sparrow	*Passer domesticus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Fairy Martin	*Petrochelidon ariel (Hirundo ariel)*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Tree Martin	*Petrochelidon nigricans (Hirundo nigricans)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Scarlet Robin	*Petroica boodang*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Red-capped Robin	*Petroica goodenovii*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Flame Robin	*Petroica phoenicea*	-	VU	-	-	-	NT			✓	✓	✓	✓	
Pink Robin	*Petroica rodinogaster*	-	-	-	-	-	LC				✓	✓	✓	
Rose Robin	*Petroica rosea*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Little Friarbird	*Philemon citreogularis*	-	RA	-	-	-	LC			✓	✓		✓	
Noisy Friarbird	*Philemon corniculatus*	-	-	-	-	-	LC				✓	✓		
White-cheeked Honeyeater	*Phylidonyris niger (Phylidonyris nigra)*	-	-	-	-	-	LC				✓			
New Holland Honeyeater	*Phylidonyris novaehollandiae*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
Crescent Honeyeater	*Phylidonyris pyrrhopterus*	-	-	-	-	-	LC			✓	✓	✓	✓	✓
Noisy Pitta	*Pitta versicolor*	-	-	-	-	-	LC	✓	✓					
Striped Honeyeater	*Plectorhyncha lanceolata*	-	RA	-	-	-	LC		✓	✓	✓	✓	✓	
Chestnut-crowned Babbler	*Pomatostomus ruficeps*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓
White-browed Babbler	*Pomatostomus superciliosus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Grey-crowned Babbler	*Pomatostomus temporalis*	-	EN	-	-	-	LC							

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	AW	EP	NY	AMLR	MDB	SE	KI
Chirruping Wedgebill	*Psophodes cristatus*	-	-	-	-	-	LC		✓	✓		✓		
Western Whipbird	*Psophodes nigrogularis*	EN	EN	-	-	-	LC		✓	✓	✓	✓	✓	✓
Eastern Whipbird	*Psophodes olivaceus*	-	-	-	-	-	LC	✓	✓					
Satin Bowerbird	*Ptilonorhynchus violaceus*	-	-	-	-	-	LC	✓	✓					
White-fronted Honeyeater	*Purnella albifrons (Phylidonyris albifrons)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Redthroat	*Pyrrholaemus brunneus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Grey Fantail	*Rhipidura albiscapa (Rhipidura fuliginosa)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Willie Wagtail	*Rhipidura leucophrys*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Rufous Fantail	*Rhipidura rufifrons*	-	-	-	-	-	LC			✓	✓		✓	
Yellow-throated Scrubwren	*Sericornis citreogularis*	-	-	-	-	-	LC				✓	✓		
White-browed Scrubwren	*Sericornis frontalis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Regent Bowerbird	*Sericulus chrysocephalus*	-	-	-	-	-	LC	✓	✓					
Weebill	*Smicrornis brevirostris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Beautiful Firetail	*Stagonopleura bella*	-	RA	-	-	-	LC			✓	✓	✓	✓	✓
Diamond Firetail	*Stagonopleura guttata*	-	VU	-	-	-	LC		✓	✓	✓	✓	✓	✓
Southern Emu-wren	*Stipiturus malachurus*	EN	EN	-	-	-	LC		✓	✓	✓	✓	✓	✓
Pied Currawong	*Strepera graculina*	-	EN	-	-	-	LC	✓	✓		✓	✓	✓	
Grey Currawong	*Strepera versicolor*	-	EN	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Apostlebird	*Struthidea cinerea*	-	-	-	-	-	LC		✓	✓	✓		✓	
Common Starling	*Sturnus vulgaris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Black Honeyeater	*Sugomel niger (Certhionyx niger)*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	
Zebra Finch	*Taeniopygia guttata*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	
Common Blackbird	*Turdus merula*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Bassian Thrush	*Zoothera lunulata*	VU	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓
Silvereye	*Zosterops lateralis*	-	UP	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓

Appendix J - Oiled Wildlife Response Forms

J.1 Wildlife SITREP (from DPTI Oil Spill Contingency Plan)
J.2 Wildlife Status (from DPTI Oil Spill Contingency Plan)
J.3 Wildlife Rescue and Release Form
J.4 Fauna Admission Form – Adelaide Zoo Vet Department

WILDLIFE SITREP

WILDLIFE				Status as at Date/Time:			
Found				**Held for Cleaning**			
Species	**Location**	**No. Alive**	**No. Dead**	**Species**	**Location**	**No. Held**	**No. Released**

STATUS UPDATE: WILDLIFE STATUS

WILDLIFE				Status as at Date/Time:			
Found				**Held for Cleaning**			
Species	**Location**	**No. Alive**	**No. Dead**	**Species**	**Location**	**No. Held**	**No. Released**

WILDLIFE RESCUE AND RELEASE FORM

Instructions: **Animal ID/Tag No._____**

1. This form is to accompany the animal from the time it is rescued until it is released or euthanised
2. Rehabilitation Observation forms are to be attached to this form during the rehabilitation phase. At the completion of the incident all forms must be filed in Registry within the Logistics Section
3. Where an animal is cleaned, transported etc. multiple times, complete additional forms and attach

Incident Name:

Rescue Details

Rescue date: Time:	Species:
Location found (map GR (AMG/GDA) and name of area if known or Latitude/Longitude):	Habitat type: □ Boat Ramp □ Beach □ Rock Platform □ In water □ Shoreline vegetation □ Other ……
Photo taken: Y / N Photo No: Name of Photographer:	Oil/Chemical sample taken: Y / N Sample No:
Comments:	
Name of Rescue Team Leader/Rescuer:	

Triage Priority

Priority: 1 / 2 / 3	Reason for priority:
Name of Examiner:	

Medical Examination and First Aid Treatment

Date of Examination:	Time of examination:
Respiration:	Musculo-skeletal:
Neurological signs:	Skin Condition:
Degree of oiling/chemical affect: None / light / moderate / heavy	Cloacal temperature: Weight: Oral fluids:
Other treatment given:	Examiner Name:

Transport Details

Date:	Pick up time:
Destination:	Distance:
Container details:	No of animals in container:
Comments:	
Time of arrival at destination:	Driver Name:

Cleaning/Drying Details

Cleaning date:	Time:
Detergent used:	Concentration:
Comments:	
No. washes:	Water Temperature
Drying Method:	Washer/Drier Name:

Release (refer to detailed data on Rehabilitation Observation form)

Release Site:	Release date: Time:
ABBBS Band / Tag No:	Release authorised by:
Release weight:	Released by:
Comments (weather conditions, released with other animals etc.):	

Necropsy and carcass disposal details

Date of death:	Date of Necropsy:
Performed by:	
Provisional diagnosis (necropsy report be attached)	
Date of disposal:	Authorised by:
Method of disposal:	Location:

Sampling Details

Samples taken:

□ Pathology □ Blood chemistry □ Tissue

□ Histology □ Other – indicate .....

FAUNA ADMISSION FORM
ADELAIDE ZOO VET DEPARTMENT

DEW / NON-DEW (please circle)

Enclosure _____

Species_____ ID No _____

Age_____ Sex_____ Date _____

Rescuer/Wildlife officers name: _____

Contact number (am/pm) _____Mobile_____

HISTORY

What is wrong with the animal (any obvious injuries)? _____

_____

Date that the rescuer found the animal? _____

What was the animal doing when found - i.e. - lying curled up, flapping frantically but not flying, lying on its back, not standing, etc.)? _____
_____

Exact location animal was found (include details of what park, beach or street, in a backyard, building site, footpath, etc.) _____

_____

Has any medical treatment been given, if so what?
_____

Has the animal been seen by a vet, if so, which one? _____

Has the animal been fed? If yes - what was it fed, how was it fed, when was the last time it was fed - did it eat or was food just left in with the animal? _____

_____

How has the animal been housed? (e.g. quietly, heating supplied)? _____
_____

Are you willing to pick the animal up for release if needed? _____

NOTE: *Wherever possible we will treat any sick or injured wildlife and aim for its eventual release. However, the Adelaide Zoo reserves the right to euthanize the fauna if, after a medical examination, it is thought to be best for the animals welfare.*

Signature of donor _____