Referral of proposed action

Project title: Cultana Expansion Area (CEA) Project

1 Summary of proposed action

1.1 **Short description**

The Cultana Training Area is the Australian Defence Force's (ADF's) premier training area to support pre-overseas deployment in the Middle East. Its terrain and conditions are similar to that experienced in current overseas operations including Iraq and Afghanistan. It is therefore essential for ensuring that ADF personnel receive the highest standard of training prior to deployment in areas of active conflict.

The existing Cultana Training Area is constrained by its topography and insufficient in size and shape to allow modern ADF equipment to be employed to its full potential.

Defence proposes to expand the existing Cultana Training Area westward, increasing its total size from 50,250 Ha to approximately 209,294 Ha. This will be achieved through the acquisition of surrounding pastoral leases. Following acquisition of the pastoral leases, Defence will seek the State of South Australia to grant, and for the Commonwealth to acquire, a Miscellaneous Lease for Defence Purposes to permit the acquisition and use of the new land. Livestock will be removed and the new areas managed in a coherent fashion with Defences existing landholdings to support a range of ADF training activities on a sustainable basis.

1.2 **Latitude and longitude**

	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds
SW Corner	33	1	23	137	1	30
NW Corner	32	34	12	137	0	53
NE Corner	32	33	26	137	41	49
SE Corner	33	0	36	137	42	38

1.3 **Locality**

The proposed Cultana Expansion Area (CEA) is adjacent to the existing Cultana Training Area in South Australia. It is located south of the Eyre Highway and extends past the Whyalla – Iron Knob Road. The nearest towns are Port Augusta, Whyalla and Iron Knob. The Lincoln Highway, which links Port Augusta and Whyalla, runs through the CEA, as does the Whyalla – Iron Knob Road.

1.4 **Size of the development footprint or work area (hectares)** Approximately 159,000 Ha

1.5 **Street address of the site** N/A

1.6 **Lot description**

Comprises part or all of the following pastoral leases (subject to acquisition processes and approvals):

- Lincoln Park
- Tregalana
- Roopena
- Katunga
- Corunna
- Pandurra

1.7 **Local Government Area and Council contact (if known)**

Not subject to planning approval.

1.8 **Timeframe**

Training on the expanded Cultana Training Area is expected to commence mid 2011

1.9	**Alternatives**	**X**	No
			Yes, you must also complete section 2.2
1.10	**State assessment**	**X**	No
			Yes, you must also complete Section 2.4
1.11	**Component of larger action**	**X**	No
			Yes, you must also complete Section 2.6
1.12	**Related actions/proposals**	**X**	No
			Yes, provide details:
1.13	**Australian Government funding**		No
		X	Yes, Funding to purchase the lease will be through the Australian Government Department of Defence.

2 Detailed description of proposed action

2.1 Description of proposed action

The proposed action is to acquire a number of pastoral leases adjacent to Cultana Training Area for use in military training.

The proponent for this action is a Commonwealth agency, the Department of Defence. Defence intend to enter into a lease agreement with the SA Government for use of the land. Once the lease agreement between the Department of Defence and the SA Government is finalised, the area would become a gazetted Defence Practice Area.

Training Activities and Equipment

Once the proposed CEA is gazetted a Defence Practice Area, the CEA is expected to contribute to Defence's training needs for the next 75 to 100 years. Vehicles, equipment and weapon systems likely to be considered for use at the proposed CEA will evolve over time and include the full range of Defence's current inventory. Some compatible weapon systems used by Australia's allies may also be permitted to be used as circumstances require.

The frequency and scale of all training activities will depend on the ability of the proposed CEA to sustain them. Sustainability shall be assessed and managed through Defence's environmental impact management processes and through environmental monitoring. Regular monitoring will be undertaken at the landscape scale and local (biodiversity) scale, and the results analysed and reported to range managers to inform the most sustainable location, timing, frequency and intensity of short and medium term training.

Following gazettal as a Defence Training Area, and acknowledging final requirements of the lease agreement with the SA government, Defence will undertake a detailed assessment of the suitability of sectors of the CEA to sustainably support the following examples of training activities:

- armoured and mechanised combined arms manoeuvre training (manoeuvring of tracked vehicles such as the M1A1 Abrams Main Battle Tank)
- driver training (wheeled and tracked)
- live firing of all natures of ammunition, including small arms, pyrotechnics, mortars, anti-armour, field and medium artillery weapons and air-delivered weapons. All weapons are used within a 'safety template' to ensure that ordnance cannot cross the boundaries of a Defence Practice Area under any circumstances.
- engineering support operations including earthworks (e.g. tank ditches) and construction of obstacles
- explosive obstacles clearing including single charges, line charges, rocket projected lines charges, mine detonation and disposal.
- defensive training against nuclear, biological and chemical (NBC) warfare – note that this does not involve the use of actual NBC weapons.
- air defence training using low level anti aircraft weapons
- air mobile and airborne operations (helicopter) including air to ground firing
- air combat and air support operations
- close training activities including infantry minor tactics
- electronic operations and logistical support for training activities e.g. waste collection, provisioning, accommodation and live firing support.

Development of Infrastructure to support CEA

Some range instrumentation, communications, target and support systems will eventually need to be established in the CEA. The environmental impacts of any specific infrastructure needs would be

considered as part of a separate assessment process for those proposals if and when specific proposals are developed.

2.2 Alternative locations, time frames or activities that form part of the referred action

There are no alternative locations, timeframes or activities for this referred action. Other training ranges are either unsuitable or already being used to their capacity in order to meet the current and future capability objectives of Defence. Existing Defence Training Areas are unable to deliver the training outcomes Defence requires for one or more of the following reasons:

- they are unsuitable/unavailable for use for part of the year due to climate – eg: northern training areas in tropical ecosystems cannot be sustainably used during the wet season, (approximately November to May each year)
- they are subject to surrounding development pressures or located in more heavily populated areas – the majority of the proposed CEA is located at a considerable distance from built up areas
- they are of insufficient size to achieve sustainable training outcomes.

The proposed CEA site is also preferred as it is located adjacent to the existing training area, thereby minimising the requirement for additional supporting infrastructure and reducing pressure on the existing training area. It is also a very similar environment to current areas of overseas deployment in the Middle East and therefore provides the best possible training environment to allow military personnel to achieve mission objectives as safely as possible.

2.3 Context, planning framework and state/local government requirements

The proponent for this action is a Commonwealth agency, the Department of Defence who intend to enter into a 75-year lease agreement with the SA Government for use of the land, with the option of an additional 25 year lease. Once the lease agreement between the Department of Defence and the SA Government is finalised, the area would become a gazetted Defence Practice Area. As such, the primary legislative process for environmental clearance for this action is the Environmental Protection and Biodiversity Conservation Act, 1999 (EPBC Act). To finalise the expansion of land area for Defence land, there are no additional environmental impact assessments required for the proposed CEA, beyond this EPBC Act referral and relevant conditions of the lease agreement with the South Australian Government.

The south eastern corners of the Tregalana pastoral lease and the Roopena pastoral lease are within the City of Whyalla planning scheme, but are unzoned. The Lincoln Park pastoral lease falls within the Port Augusta planning scheme and is zoned 'pastoral'. Defence has consulted extensively with the SA Planning Agency and both local councils. The development of the Training Area does not impact upon local council development plans.

2.4 Environmental impact assessments under Commonwealth, state or territory legislation

This action is not subject to a State or local assessment process. Defence has conducted an environmental impact assessment of the proposal, as required under its internal Defence Environmental Policy. Once acquired, the proposed CEA would be managed under the Defence Environmental Policy, with the Defence Environmental Management System (EMS) as its operational framework. As a minimum, the Environmental Management Plan for the existing Cultana Training Area would be extensively updated to incorporate the proposed CEA and relevant Defence activities.

2.5 Consultation with Indigenous stakeholders

Consultation with indigenous groups that assert cultural heritage interests over the proposed CEA has been ongoing since 2005 and has involved several meetings with the various groups and four ethnographic (cultural heritage) surveys with representatives from each of the groups. Defence is currently negotiating an Indigenous Land Use Agreement (ILUA) with the indigenous group that has a registered native title claim over the CEA and a separate agreement with another indigenous group that asserts cultural heritage interests in parts of the CEA for the purposes of obtaining registration of the ILUA, which are expected to be finalised in early 2010. The ILUA and the separate agreement will set out the procedures for the development of an Indigenous Heritage Management Plan for the management of cultural heritage on the CEA following the grant of the Miscellaneous Lease for Defence Purposes to the Commonwealth by the State of South Australia and will otherwise provide for effective management and monitoring by Defence of indigenous sites on the CEA, how indigenous groups will be able to access indigenous sites, outline the circumstances where additional ethnographic (cultural heritage) surveys will be required, outline procedures regarding circumstances where the Commonwealth causes accidental damage to indigenous sites and outline procedures regarding the discovery of indigenous objects by the Commonwealth.

2.6 A staged development or component of a larger project

The CEA project is not a component of a larger project. The proposed CEA is adjacent to the existing Cultana Training Area, and would be managed as a single training area.

Training tempo on the CEA is expected to increase gradually depending on ADF capability objectives and circumstances (e.g. unanticipated overseas deployment).

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

There are no World Heritage Properties that are likely to be affected by the proposal.

Nature and extent of likely impact

Not applicable.

3.1 (b) National Heritage Places

Description

There are no National Heritage Places that would be affected by the proposal.

Nature and extent of likely impact

Not applicable.

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

There are no Wetlands of International Significance that would be affected by the proposal.

Nature and extent of likely impact

Not applicable.

3.1 (d) Listed threatened species and ecological communities

Description

No threatened communities listed under the EPBC Act are recorded for the proposed CEA; however, seven listed flora species and three listed fauna species were identified through an EPBC Act protected matters search undertaken in November 2009.

Protected Flora Species

An EPBC Act Protected Matters report was generated in November 2009 for the proposed CEA and its nearby environment including the existing Cultana Training Area. The report listed seven nationally threatened plant species that, according to the database, may potentially occur in the proposed CEA. These plants are:

- Corunna Daisy (*Brachyscome muelleri* [18836]) – Endangered
- Greencomb Spider-orchid (*Caladenia tensa*) – Endangered
- Beaded Glasswort (*Tecticornia flabelliformis*) – Vulnerable
- *Pterostylis* sp. 'Eyre Peninsula' [R. Bates 19474] – Vulnerable
- Desert Greenhood *(Pterostylis xerophila)* – Vulnerable

- Club Spear-grass (*Austrostipa nullanulla*) – Vulnerable
- Yellow Swainson Pea (*Swainsona pyrophila*) - Vulnerable

Corunna Daisy (*Brachyscome muelleri* [18836]) is known from only one population located on steep, south-facing cliff footslopes of the Baxter Hills. This area is located 5.5 km from the northern boundary of the proposed CEA and 33 km from Mt Whyalla, the closest hills within the proposed CEA. This species is vulnerable to catastrophic events due to its very restricted distribution and is threatened by grazing from domestic stock, kangaroos and feral animals.

Greencomb Spider-orchid (*Caladenia tensa*) is variously described as occurring in:

- inland, grassy, heathy or herb-rich native woodlands
- dry woodland, mallee heath, low scrub and about rock outcrops in a variety of soil types
- Intact areas of mallee and native pine communities
- sandy dunes supporting woodland of *Callitris* with a very open understorey

An indicative map of the present distribution of this species in 2007, by the then Department of Environment and Water, encompasses the proposed CEA. It is therefore possible that this species occurs there.

Beaded Glasswort (*Tecticornia flabelliformis*) is known to occur along coastal intertidal locations and in inland saline areas. It is possible that it occurs in the proposed CEA in the saline areas in the north and adjacent to the salt lake in the south west corner.

Pterostylis sp. 'Eyre Peninsula' [R. Bates 19474] is widespread in eastern Eyre Peninsula in rocky soil of mallee-heathland. An indicative map of the present distribution of this species in 2007, by the then Department of Environment and Water, encompasses the proposed CEA. It is therefore possible that this species occurs there. However it should be noted that the extent of mallee at the existing CEA is restricted to a single area on the eastern margin (see Figure 2), and any training conducted in this area is expected to be of low intensity.

Desert Greenhood *(Pterostylis xerophila*) occurs in generally remote locations in semi-desert environments, growing mostly on rock outcrops under low shrubs, although little is known of its biology, ecology, distribution and abundance. The closest recorded population is at Cowell, approximately 100 km south of the proposed CEA.

Club Spear-grass (*Austrostipa nullanulla*) is thought to be restricted to gypseous rises. Within the Gawler Bioregion it has been collected from Lake Gilles Conservation Park, Lake Acraman and one unconfirmed record from Bulgannia Pastoral Lease. Each of these locations is a considerable distance from the Study Area suggesting a low probability of occurrence on site.

Yellow Swainson Pea (*Swainsona pyrophila*) grows in mallee scrub on sandy or loamy soil is usually found only after fire. Sites include cleared and burnt mallee scrub on red loam to sand, previously burnt mallee, disturbed woodland in sheltered aspects, bulldozed firebreaks adjacent to wheat paddocks, roadsides, claypans and at the edge of fire ash. DEWHA distribution maps for this species include the proposed CEA and therefore its occurrence is possible. However it should be noted that the extent of mallee at the existing CEA is restricted to a single area on the eastern margin (see Figure 2), and any training conducted in this area is expected to be of low intensity.

Protected Fauna Species

An EPBC Act Protected Matters report generated in November 2009 found that there were three nationally threatened bird species, and/or their habitat, that may be present in the proposed CEA. The EPBC Act Protected Matters report also listed a number of protected marine birds (*e.g.* albatross) and marine mammals (*e.g.* whales). However it is unlikely that these animals are present within the

Study Area as the ecological attributes of the proposed CEA are not part of their known habitat. Their presence in the report is therefore likely due to the coarse scale of the database.

The three nationally threatened bird species, and/or their habitat, that may be present in the proposed CEA include:

- Slender-billed Thornbill (western subspecies) (*Acanthiza iredalei iredalei*) – Vulnerable
- Thick-billed Grasswren (Gawler Ranges subspecies) (*Amytornis textilis myall*) – Vulnerable
- Malleefowl (*Leipoa ocellata*) – Vulnerable

Slender-billed Thornbill [western subspecies] (*Acanthiza iredalei iredalei*) occurs in Pearl Bluebush (*Maireana sedifolia*) shrublands, with no Western Myall (*Acacia papyrocarpa*) overstorey. Based on current distribution maps and a recent observation of the subspecies, it is likely that it occurs on the site.

Thick-billed Grasswren [Gawler Ranges subspecies] (*Amytornis textilis myall*) occurs in open chenopod shrublands, often where dense stands of *Acacia tetragonophylla* or Blackbush (*Maireana pyramidata*) surround drainage lines. Based on current distribution maps and a recent observation of the subspecies, it is likely that it occurs on the site.

Malleefowl (*Leipoa ocellata*) occurs in semi-arid and arid zones of temperate Australia, where it occupies shrublands and low woodlands that are dominated by mallee vegetation. It also occurs in other habitat types including eucalypt or native pine (*Callitris* sp.) woodlands, acacia shrublands, Broombush (*Melaleuca uncinata)* vegetation or coastal heathlands. It is considered unlikely to occur as the nearest recorded sighting is approximately 100 km from the proposed CEA. There is a small area of Mallee to the south east of the proposed CEA which may be suitable habitat, although no signs of occupation by Mallee Fowl, such as the large, conspicuous nests, have ever been recorded.

Nature and extent of likely impact

Likely Impacts on Protected Flora

Defence training activities, including Armoured Fighting Vehicle (AFV) manoeuvring and impacts from live-firing may have the potential to impact upon any protected flora species that may occur within the proposed CEA.

Grazing by feral animals and stock is a listed threatening process for many of the species that may occur on the site. The removal of stock and watering points, and the management of feral animals is likely to benefit any extant populations of these species at the site. This, in combination with comprehensive environmental management delivered through the Defence EMS, would ensure that there are not likely to be significant impacts on protected flora.

Likely Impacts on Protected Fauna

Defence training activities, including AFV manoeuvring and impacts from live-firing has the potential to impact on protected fauna species within the area through habitat disturbance as well as noise and movement associated with training activities. It should be noted that Slender-billed Thornbill [western subspecies] (*Acanthiza iredalei iredalei*) has also been recently recorded at a number of locations in the existing Cultana Training Area and is likely to have existed there since training at the Cultana Training Area began in 1953. Activities would be managed through the Defence EMS and therefore it is not likely that there would be significant impacts on protected fauna. When improvements in habitat quality as a result of destocking and managing threatening processes are also considered, significant impacts would be even less likely.

3.1 (e) Listed migratory species

Description

An EPBC Act Protected Matters report was generated in November 2009 for the proposed CEA and its nearby environment including the existing Cultana Training Area. The report lists four migratory terrestrial bird species, 15 migratory wetland bird species, nine migratory coastal bird species and 32 migratory marine birds that were likely to overfly, or were likely to be present, or that their habitat was likely to occur in the selected area. Most of these are also protected under international agreements such as JAMBA (Japan Australia Migratory Bird Agreement) and CAMBA (China Australia Migratory Bird Agreement).

Nature and extent of likely impact

Defence training activities have the potential to impact on migratory species through noise or habitat disturbance. The proposed CEA is unlikely to form important habitat for these species as they prefer marine or coastal habitats and there are no natural, permanent wetlands within the proposed CEA (apart from farm dams). Therefore it is not likely that there would be significant impacts on migratory species

3.1 (f) Commonwealth marine area

Description

The proposal is unlikely to directly or indirectly affect any Commonwealth Marine Areas. The proposed CEA is not adjacent to any marine areas.

Nature and extent of likely impact

The proposal is not likely to impact a Commonwealth Marine Area.

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land, that may have impacts on that land.)

Description

The proposed action is not considered to occur on Commonwealth land, rather the proposed CEA would become a Defence Practice Area on leasehold land. Relevant aspects have been considered in Section 3.2(d) – Actions taken by the Commonwealth.

Nature and extent of likely impact

Not applicable.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, or actions taken on Commonwealth land

3.2 (a)	**Is the proposed action a nuclear action?**	X	No
			Yes (provide details below)

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**		No
		✓	Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

The proposed CEA may have a risk of impacts that have not already been discussed in the previous sections that relate to the proposed action being taken by a Commonwealth Agency. Identified potential impacts are as follows:

Flora and Vegetation Impacts

Defence manoeuvre training, particularly using armoured, tracked vehicles can result in loss of vegetation through crushing and root disturbance. Additionally, Defence manoeuvre training can disturb lichen crusts on the soil surface. Training using explosive ordnance also has the potential to increase the likelihood of fire, resulting in a longer recovery time and a greater fire frequency which may increase the likelihood of erosion and alter the vegetation structure and composition. It should be noted that wildfire as a result of Defence training has not previously occurred at the existing Cultana Training Area, despite many years of training and regularly using explosive ordnance in designated high explosive impact areas (HEIA). Activities would be managed under the Defence EMS and therefore it is not likely that there would be any significant impacts on flora and vegetation.

The removal of stock, closure of watering points and management of feral animals is considered likely to result in increased natural vegetation cover in many parts of the proposed CEA, increasing the resilience and recoverability of vegetation.

Soil disturbance and erosion:

Defence manoeuvre training, particularly using armoured, tracked vehicles can result in disturbance to the soil. If the soil disturbance is extensive and is not managed, there is a risk that wind and water erosion could occur leading to significant land degradation and lengthy recovery times. Activities would be managed under the Defence EMS and therefore it is not likely that there would be any significant impacts on soil. The removal of stock and feral animals is likely to increase vegetation cover and hence soil stability.

Fauna and fauna habitats impacts

Direct vegetation removal during manoeuvre training and changes in vegetation composition and structure as a result of changes in fire frequency may impact on the quality and extent of fauna habitat. Direct disturbance to fauna may also occur due to manoeuvring and noise associated with live firing. Fauna may also be inadvertently killed by live firing and explosions. Activities would be managed under the Defence EMS and therefore it is not likely that there would be any significant impacts on fauna and fauna habitats.

The removal of stock and management of threatening processes is likely to increase fauna habitat value of many currently degraded areas in the proposed CEA. Movement of native animals within the proposed CEA would also be facilitated by the planned removal of internal fences.

Introduction and spread of weeds and plant disease

Vegetation and soil disturbance and movement of vehicles across the landscape has the potential to introduce and spread weeds and plant disease. Wastewater from wash points, kitchens and ablution facilities may also increase the risk of weed establishment in the proposed CEA.

Activities would be managed under the Defence EMS and therefore it is not likely that there would be any significant impacts.

Surface water and soil Contamination

Minor soil and surface water contamination risks may arise as a result of the following:

- refuelling and minor repair and maintenance of vehicles and machinery
- POL and other chemicals (e.g. paints and solvents) from infrastructure construction
- wastewater from wash points which may have small amounts of hydrocarbons and solvents (e.g. degreasers)
- repeated small arms firing at static targets resulting in a localised build up of lead contamination
- residues of explosive ordnance around static targets
- inadequate treatment of sewage and effluent
- severe localised contamination may occur in the event of a severe accident involving a vehicle or aircraft.

There may also be areas of historic soil contamination associated with pastoral activities (e.g. sheep or cattle dips, fuel storage tanks) and past mining activities (e.g. heavy metal contamination etc). Activities would be managed under the Defence EMS and therefore it is not likely that there would be any significant impacts on soil and water quality.

Waste

The use of the proposed CEA is likely to generate waste. Waste is likely to occur from:

- the demolition of existing infrastructure associated with pastoral and past mining activities (inert solid waste)
- construction of infrastructure and buildings (inert solid waste and hazardous waste)
- vehicle maintenance activities (POL and hazardous waste)
- office and administration (office waste)
- mess areas (food waste)
- ablutions facilities (sewage and effluent)

Activities would be managed under the Defence EMS and therefore it is not likely that there would be any significant impacts from waste.

Heritage Values

Register of the National Estate

There are four places listed on the Register of National Estate (RNE) that are located within or near the proposed CEA (see Figure2):

- Lincoln Park Historic Reserve SA (Place ID: 696)
- Whyalla – Iron Knob – Iron Baron Area SA (Place ID: 6964)

- Corunna Range Geological Area SA (Place ID: 14713)
- Whyalla Conservation Park SA (Place ID: 6962)

Lincoln Park Historic Reserve SA (Place ID: 696)
An Indigenous place located on Lincoln Park station within the proposed CEA is listed on the Register of the National Estate as *Gilmores Well via Port Augusta, SA,* and is protected under State law. No further information about this site is provided in this report due to cultural sensitivity.

This area is located near the boundary of the proposed CEA and the existing Cultana Training Area. Impacts to the indigenous values of this reserve, located in the 'Gilmore Wells' portion of the reserve, could occur if vehicle manoeuvring and live firing were permitted within the reserve.

Lincoln Park Historical Reserve will be managed by Defence in a manner consistent with other indigenous sites on the CEA which will be through the Defence Environmental Management System and the Indigenous Heritage Management Plan (IHMP) for the proposed CEA similar to the IHMP for the existing Cultana Training Area. IHMPs include provision for 'no-go' areas, restricted areas (with access conditions), cultural awareness training and monitoring. The Gilmore wells site will be managed through total exclusion as a 'no go' area. The environmental values including indigenous heritage of the remaining area of Lincoln Park Historical Reserve will be managed through the Site EMS. The same process is applied to other Training Areas in Australia. This would be implemented for the Lincoln Park Historical Reserve resulting in no significant impact.

The restriction of general public access to this area would be expected to reduce the likelihood of impact compared to the current situation. The area will be included in further indigenous cultural heritage surveys, following which there will be consultation on appropriate management arrangements for the site.

Whyalla – Iron Knob – Iron Baron Area SA (Place ID: 6964)
The part of the proposed CEA comprising the Roopena and Katunga leases that lie immediately to the south of the Iron Knob Whyalla Road are located within the Whyalla – Iron Knob – Iron Baron Area. This was registered on the basis that the area contains the best example in Australia of representative Western Myall-saltbush-bluebush vegetation and is an important reference area for conservation pastoral management of this vegetation type. It is also an area where regeneration of Western Myall and the associated shrub species is most likely to occur and is also an Australian centre of richness for soil lichens and a centre of distribution of ant species.

This area is located within the proposed CEA, encompassing most of the area south of the Whyalla – Iron Knob Road. There is a potential for the listed values of this area to become degraded through Defence training; however, this is considered not likely to have a significant impact as:
- projected training intensity in this area is expected to be low
- removal of stock, closure of watering points and management of threatening processes would be expected to improve the ecological integrity of this area.

Corunna Range Geological Area SA (Place ID: 14713)
The Corunna Range Geological Area is located near the north-west boundary, outside the proposed CEA. It rises abruptly approximately 150m above the general ground level, with two arms of low hills extending further out to the north and north-west (the Baxter Hills). The Corunna Range is one of the two known large exposures, of the Corunna Conglomerate, consisting of fluviatile and shallow marine conglomerates and sandstones deposited in during the late Proterozoic. The Corunna Range is registered on the basis that the Corunna Conglomerate provides an extremely useful record of events during middle Proterozoic time in South Australia.

This area is located outside the proposed CEA, near its northern boundary. The nature of the values of this area and its location offsite, mean that there not likely to be a significant impact from Defence training activities.

Whyalla Conservation Park SA (Place ID: 6962)

The Whyalla Conservation Park is adjacent to the proposed CEA and consists of a relatively flat, low-lying plain in the east, rising to low hills (to 100m) in the west, with isolated sandstone cliffs. Principal vegetation associations are low open woodland formations of *Acacia sowdenii* and *Casuarina cristata* over an understorey dominated by *Atriples vesicaria* with or without *Kochia sedifolia*. Shrublands of *Sida virgata*, *Dodonaea lobulata*, *Plasgianthus microphyllus* with *Sida intricate* and *Cassinia laevis* also occur. This area was listed as a dedicated area to preserve a representative area of the region's natural vegetation and wildlife. Wild Dog Hill within the Park is well known for its rugged cliff formations.

This area is located adjacent to the proposed CEA. It is not likely that Defence activities would have a significant impact as:

- no Defence training would occur on this site as it is located outside the proposed CEA
- offsite emissions from training (e.g. noise and dust) are expected to be rare, and would not be of sufficient magnitude to degrade the listed values
- management of feral animals by Defence within the proposed CEA would be expected to positively affect the ecological integrity of the area.

European Heritage

There are no historic (European heritage) sites within the proposed CEA that are included in the National Heritage List, Commonwealth Heritage List, and Register of National Estate of South Australian Heritage Register

Indigenous heritage

Several areas of indigenous heritage have been identified through major surveys undertaken at the proposed CEA. Defence training has the potential to disturb these areas, and therefore Defence has engaged with representatives from the relevant groups in relation to indigenous cultural heritage, negotiated cultural heritage protocols in an indigenous land use agreement, and committed to an Indigenous Heritage Management Plan that specifies how these areas are to be protected. Due to the confidentiality requirements of the relevant groups, Defence has not released details of these areas.

Natural Resource Availability

The use of the proposed CEA as a training area will preclude certain alternative land uses of the area, primarily the existing pastoral activities and certain recreational uses of the land. This loss may be offset, particularly in the local community, by increased demand of local goods and services by Defence (e.g. security, catering, maintenance services, construction services, vehicle and equipment hire, waste management services, etc.). Defence is working with the SA Government to ensure the continuation of existing mining operations and to facilitate opportunities for ongoing mineral exploration.

Community Amenity

There are a number of community users of the area including the Whyalla Gliding Club, and the Saltbush Orienteering Club. Defence will explore with the Whyalla Gliding Club and the Saltbush Orienteering Club whether their activities and events can continue, provided they do not unreasonably limit Defence use of the land, expose Defence to public liability risks or pose a health and safety risk.

Airspace Management

Defence is currently engaging the Civil Aviation Safety Authority (CASA) to formulate a plan for the safe use of the airspace over the proposed CEA. This involves participation in the South Australian Regional Airspace Planning Advisory Committee (RAPAC) meetings by training area managers from within the Defence Support Group and the Defence representatives in the Office of Airspace Regulation (OAR) within CASA. The plan will consider the requirements of local, commercial and Defence airspace users and is necessitated by the requirement for Defence to conduct flying activities as well as surface to surface, surface to air and air to surface live firing practices to achieve training outcomes. The plan will be developed in full consultation with RAPAC and CASA and will require the extension of the existing Restricted Airspace over Cultana to include the CEA. It will require all or portions of the airspace to be restricted for Defence use from time to time but the engagement process will ensure management guidelines are formulated to ensure minimum disruptions for all airspace users.

Dust, Noise and Vibration

Dust emissions may occur during training activities and during construction of infrastructure at the proposed CEA. If unmanaged, dust emissions could cause a nuisance to nearby residents and may reduce visibility on nearby roads. Most Defence manoeuvre activity would be undertaken at a considerable distance from built-up areas, minimising nuisance risks to residents.

Noise from Defence training activities, particularly associated with detonation of high explosives (HE) and overflights by aircraft, may also impact residents in surrounding areas. It is intended to locate High Explosive Target Areas at a considerable distance from built up areas to minimise noise impacts from HE detonation. Overflights over built up areas would also be avoided and are expected to be rare due to the large number of alternative flight paths over non-built up areas.

Vibration from HE detonation and aircraft is considered unlikely due to the remoteness of High Explosive Target Areas and the number of alternative flight paths that do not overfly built up areas.

Constraints on Future Land Use

Unexploded Ordnance (UXO) and Malfunctioning Explosive Ordnance (MEO) can remain dangerous indefinitely and becomes unstable with age. While any known UXO or MEO is removed from HEIAs during training, there remains a potential for UXO contamination of the HEIA as some undetected UXO may remain buried beneath the soil surface. Defence will conduct periodic hazard reduction operations to keep the accumulation of UXO at levels appropriate for ongoing defence land use, which where appropriate will also assist periodic access for mineral exploration. Defence is committed to rehabilitation of the lease area to enable resumption of pastoral land use upon expiration of the lease. Given the remote setting of the proposed CEA and proximity of associated HEIAs away from existing developed areas, the likelihood of a more intensive land use being required in the future is considered remote.

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	**X**	No
			Yes (provide details below)

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	**X**	No
			Yes (provide details below)

3.3 Other important features of the environment

3.3 (a) Soil and vegetation characteristics

The geology of the proposed CEA comprises the eroded remnants of a relatively thin, flat-lying blanket of Adelaidian sandstone, siltstone and shale, covered with unconsolidated sediments. Reddish gravel, sand, silt and clay which form aprons around most of the outcrops of older rock and are the result of deposition on alluvial slopes and plains and from creeks. Salt lakes contain gypsum-rich and silty sand, silt and clay deposited from present and past lakes and rivers occupying these corridors. Both residual and transported soils are present, with the former being associated with Simmens Quartzite and Douglas Volcanics and the latter occupying the remainder the proposed CEA. Transported soils are deeper and contain the larger, more diverse and better quality vegetation communities.

Vegetation in this area is characterised as very slow growing, particularly the Myall and bluebush communities. The majority of the proposed CEA consists of bluebush – saltbush shrubland with a Myall overstorey of varying density. Dense stands of Black Oak are also scattered throughout the proposed CEA, as well as open saline areas with samphire vegetation, particularly in the northern areas of the proposed CEA.

Nine vegetation associations have been identified in the proposed CEA including:

- Low woodland or tall scrubland:
    - *Eucalyptus socialis*/*E. oleosa* (mallee)
    - *Casuarina pauper* (Black Oak)
    - *Callitris* (Native pine)
- Tall shrubland:
    - *Myoporum acuminatum/Olearia axillaris*
    - *Myoporum platycarpum* (Sugarwood)
- Low shrubland and other low stature communities
    - *Atriplex vesicaria - Maireana sedifolia*
    - *Halosarcia/Maireana/Sarcocornia*
    - anthropogenic areas
    - saline mudflats.

Additional flora information is summarised in Section 3.3(g).

3.3 (b) Water flows, including rivers, creeks and impoundments

Numerous ephemeral creeks traverse the proposed CEA but there is no natural permanent surface water, apart from a small (unnamed) salt lake situated near the northern boundary. There are numerous small farm dams located within small catchments throughout the proposed CEA. All farm dams over the proposed CEA are frequently dry. The proposed CEA has limited underground water of suitable quality for animal production.

3.3 (c) Outstanding natural features, including caves

The proposed CEA is predominantly flat and the relief is characterised by the Simmens Plateau on the eastern margin of the proposed CEA, which extends into the existing training area. The Plateau is an area of flat-bedded sandstone that dominates the landscape with steep escarpments, long foot

slopes, and a height of 300 m AHD. The other main feature is a group of low hills near the centre of the proposed CEA, the highest of which is Mount Whyalla. Both these features are visible from a considerable distance due to the flatness of the surrounding landscape. It is considered unlikely that Defence use of the land would significantly change these natural features or detract from the visual amenity of the area.

3.3 (d) Gradient (or depth range if action to be taken in a marine area)

The majority of the proposed CEA is essentially flat with the exception of the plateau to the east of the proposed CEA and the hills to the south-east and central parts of the proposed CEA. A number of low lying hills and rocky outcrops are located in the centre of the Study Area and rising land at the western boundary forms the footslopes of the nearby Middleback Range. The steepest areas of the proposed CEA are associated with the escarpment of the plateau; however, this area has long since eroded to bare rock.

3.3 (e) Buildings or other infrastructure

With the exception of various operating quarries, mines and easements for linear infrastructure, all land within the proposed CEA is currently used for pastoral purposes and includes minor infrastructure associated with pastoral activity such as tracks, fencing and open channels cut in some areas for the diversion and collection of surface water. There is also some major infrastructure, including pipelines and railways, associated with the principal roads and highways that are associated with the proposed CEA.

There are also homesteads and associated buildings for some of the pastoral leases (Middleback, Roopena, and Tregalana). Defence infrastructure would be preferentially situated at these sites in order to minimise requirements for land clearing and site preparation.

3.3 (f) Marine areas

Not applicable

3.3 (g) Kinds of fauna & flora

Flora

A vegetation survey undertaken in 2006 described eight broad mapping units (see Figure 2). The floral composition of these units is described as follows:

1. **Mallee** dominated by a mix of three mallee eucalypts; *Eucalyptus gracilis* (Yorrell), *E. oleosa* (Glossy-leaved Red Mallee) and *E. socialis* (Red Mallee). Within this unit are two interwoven understorey themes; Chenopod understorey and mixed understorey.
2. **Arcoona Plateau – Plateau** dominated by chenopod shrublands mosaiced with areas of taller shrublands. The main chenopod species are *Atriplex vesicaria* (Bladder Saltbush), *Maireana pyramidata* (Black Bluebush) and *Maireana sedifolia* (Pearl Bluebush). Spinifex hummock grasslands are sometimes found on the margins of Mapping Unit 2 where it abuts Mapping Unit 3. Areas of taller shrubland are mostly composed of *Acacia papyrocarpa* (Western Myall); *Alectryon oleifolius* (Bullock Bush); *Casuarina pauper* (Black Oak) as small sparse stands; *Eucalyptus gracilis* (Yorrell) and *Eucalyptus socialis* (Red Mallee); and *Myoporum platycarpum* (False Sandalwood).
3. **Arcoona Plateau – Slopes** existing as a mosaic of shrublands. The main species contributing to the mosaic are Western Myall (*Acacia papyrocarpa*) on deeper soils; Bullock Bush (*Alectryon oleifolius*) in small or sparse stands; Black Oak (*Casuarina pauper*) in small or sparse stands; Chenopod shrubs; Bladder Saltbush (*Atriplex vesicaria*), Black Bluebush (*Maireana pyramidata*) and Pearl Bluebush (*Maireana sedifolia*); False Sandalwood

(*Myoporum platycarpum*); and Spinifex (*Triodia irritans*) forming Spinifex hummock grasslands, predominantly on rockier slopes.

4. **Mount Whyalla Hills** dominated by a mosaic of Spinifex hummock grassland and shrublands. The Spinifex hummock grassland consists mainly of *Triodia irritans* occurring on hill slopes. A variety of shrublands occur within the mosaic, mostly on the upper slopes and crests and rocky areas. Some areas included Western Myall (*Acacia papyrocarpa*), often with False Sandalwood (*Myoporum platycarpum*) as a co-dominant. The understorey to these taller shrubs include range of shrubs (*e.g.* Lobe-leaf Hop-bush (*Dodonaea lobulata*) and Thorny Lawrencia (*Lawrencia squamata*)). Other areas are dominated by chenopod shrubs, mostly Bladder Saltbush (*Atriplex vesicaria*) and Pearl Saltbush (*Maireana sedifolia*). Stands of White Cypress-pine (*Callitris glaucophylla*) often occur on rocky outcrops.
5. **Land subject to inundation** dominated by chenopod shrublands consisting of Bladder Saltbush *(Atriplex vesicaria)* and Black Bluebush *(Maireana pyramidata)*. Pearl Bluebush *(M. sedifolia)* also occur as a minor species. Round-leaf Pigface *(Disphyma crassifolium)* also occur in places. Within this dominant theme several notable elements include Lignum *(Muehlenbeckia florulenta)* stands in depressions, often associated with constructed dams. Samphire *(Halosarcia pergranulata)* shrublands in depressions interspersed with chenopod shrubs. Degraded dams and water troughs often feature Dryland Tea-tree *(Melaleuca lanceolata)* stands with introduced annual herbs as understorey. Drainage channels generally feature introduced grasses and herbs with the main native grass being Lemon-grass *(Cymbopogon ambiguus)*.
6. **Black Oak Stands** dominated by Black Oak (*Casuarina pauper*). Other tall shrubs included Western Myall (*Acacia papyrocarpa*), Emu bush (*Eremophila* spp.) and False Sandalwood (*Myoporum platycarpum*).
7. **Myall Shrublands** dominated by Western Myall (*Acacia papyrocarpa*)with an understorey of chenopod shrubs, primarily Bladder Saltbush (*Atriplex vesicaria*) and Pearl Bluebush (*Maireana sedifolia*) with non-chenopod shrubs emerging on sandy rises. Other taller shrubs may occur as co-dominants or sub-dominants, including Bullock Bush (*Alectryon oleifolius*), Black Oak (*Casuarina pauper*), Emu bush (*Eremophila* spp.) and False Sandalwood (*Myoporum platycarpum*). Western Myall (*Acacia papyrocarpa*), Bullock Bush (*Alectryon oleifolius*), Black Oak (*Casuarina pauper*), as scattered trees, False Sandalwood (*Myoporum platycarpum*) and Native Apricot (*Pittosporum angustifolium*) occur as emergents.
8. **Chenopod Shrublands** dominated by three chenopod species Bladder Saltbush (*Atriplex vesicaria*), Black Bluebush (*Maireana pyramidata*) and Pearl Bluebush (*Maireana sedifolia*) occurring as either monospecific shrublands or in mixed shrublands. The ground cover layer is often dominated by the introduced annual forb, Ward's Weed (*Carrichtera annua*), with native grasses and forbs emerging following rainfall.

Fauna

The following types of fauna species have been recorded in the Study Area:

- 188 bird species including all native woodland and aquatic and shorebird species and three introduced bird species
- 11 terrestrial mammals species (native) including echidna, Red kangaroo, Western grey kangaroo, Euro and a Little Long-tailed Dunnart
- 12 bat species
- Six species of feral animals including feral goat, red fox, cat and rabbit
- 53 species of reptiles including dragons, geckoes, legless lizards, goannas, skinks, blind snakes and python
- two species of amphibian: a Spotted grass frog and a burrowing frog.

Potential fauna habitat, with respect to the vegetation mapping units described in the previous Section, is as follows:

1. **Mallee**: Mallee trees have many stems with an umbrella-like canopy suitable for roosting and the older mallees provide tree hollows for nesting mammals and birds. The mapping unit consists of bare ground between the stands of Mallee with a relatively large amount of leaf litter beneath the tree canopy which provides shelter for the smaller mammals and reptiles and provides nesting materials for birds. It is therefore likely to have comparatively high fauna diversity.
2. **Arcoona Plateau – Plateau**: Stands of Mallee and Spinifex hammock grassland may provide important habitat for a number of fauna species. Rocky outcrops may also be important reptile habitat by providing good sunning spots and cracks for protection. A number of ephemeral creeklines provide a source of water, and the relatively thick vegetation found in places along the creeklines and at the base of rocky outcrops may also shelter fauna from predators.
3. **Arcoona Plateau – Slopes**: The rocky outcrops and steep cliff faces that may be important for lizard species. The relatively thick vegetation often found around rocky outcrops may provide cover for fauna species and the surface of the outcrops may form part of reptile habitat. Spinifex hummock grassland that occurs in places may also provide important habitat for bird species.
4. **Mount Whyalla Hills**: Large areas of Spinifex hummock grassland in this mapping unit provides important habitat for bird species. Mount Whyalla Hills are highly eroded with numerous exposed boulders and rocky outcrops which may be important for lizards.
5. **Land subject to inundation**: Five sub-elements were identified for this mapping unit as follows:
    a. Lignum Stands. Lignum *(Muehlenbeckia florulenta)* fruits and flowers provide an important source of food for many bird species. A number of bird species have been observed including swallows, ducks, finches and fairy wrens. Rabbits and rabbit burrows have also been observed as well as damage caused by sheep accessing the dams for water.
    b. Samphire Shrubland. The saline and sparse nature of the vegetation indicates a comparatively low habitat value for many species.
    c. Degraded Water Points. These are likely to be used by larger native fauna species, but will be unsuitable to many smaller species due to lack of cover.
    d. Dryland Tea-tree. These areas give reasonable cover due to the dense foliage of *Melaleuca lanceolata* and are therefore comparatively important for native fauna species.
    e. Major Drainage Lines. These areas are likely to be important sources of water for native and feral animals being inundated more frequently and more often. Flowering and fruiting plants also provide important food sources for many bird species including emus.
6. **Black Oak Stands**: These stands have a high litter cover providing shelter for smaller mammals and reptiles as well as providing nesting materials for birds. They are also relatively dense and therefore likely to provide cover for a wide range of fauna species.
7. **Myall Shrublands**. The combination of tall shrubs surrounded by open low shrubland, while a common habitat for the area, is likely to be important for a number of larger bird species. A Wedgetail Eagle (Aquilia audax) nest and Western Grey Kangaroo (Macropus fuliginosus) were observed during the field survey.
8. **Chenopod Shrublands**: The open nature of the Mapping Unit interspersed with tall shrubs is likely to be important for a number of larger bird species.

3.3 (h) Current state of the environment in the area

The proposed CEA consists of pastoral leases running sheep at up to 23 animals per square kilometre, with some cattle. Pastoral activity has been the dominant land use for more than 100 years and during the early days the land was severely overstocked. As a consequence, the landscape has suffered varying degrees of land degradation through overgrazing and trampling, particularly

around water points. In addition, hard waste that is commonly associated with agricultural activities has accumulated at various locations and there is a potential for contamination near previous and current infrastructure points including above ground diesel tanks, chemical storage areas and sheep dips near homesteads or larger stock yards. No Weeds of National Significance (WONS) have been recorded in the proposed CEA, however, Athel Tree (Tamarisk aphylla) has been found within the City of Whyalla. Other WONS that may potentially be present in the area include Prickly Acacia (*Acacia nilotica indica*) and Parkinsonia (*Parkinsonia aculeata*).

There may also be high populations of Red Kangaroo (*Macropus rufus*), Western Grey Kangaroo (*M. fuliginosus*) and Euro (*M. robustus*) in the proposed expansion area as has been observed in other SA arid lands. Kangaroos are generally overabundant as a result of artificial water sources, altered vegetation communities, lack of or reduced dingo predation and absence of traditional hunting.

In addition to sheep and cattle grazing native vegetation, there are several introduced herbivores, particularly Goats (*Capra hircus*) and European Rabbits (*Oryctolagus cuniculus*) that contribute to excessive total grazing pressure in the Gawler Bioregion. This, combined with the impact of predation by the European Red Fox (*Vulpes vulpes*) and Feral Cats (*Felis catus*), has resulted in significant local extinctions of small to medium sized mammals.

The closure of water points and the management of weeds, feral animals and overabundant native species would be expected to improve the condition of the proposed CEA.

3.3 (i) Other important or unique values of the environment

There are no known other important or unique values of the environment apart from those already mentioned in this referral.

3.3 (j) Tenure of the action area (eg freehold, leasehold)

The proposed CEA is pastoral leasehold land. Defence intends to acquire a Miscellaneous Lease for Defence Purposes over the CEA for a 75 year term, with an option of a further 25 years.

3.3 (k) Existing land / marine uses of area

The current land use of the proposed CEA is predominantly sheep grazing with some cattle grazing. Additionally, there are some active mining tenements in the area (see Figure 2) and parts of the area are also used for recreation such as gliding and orienteering. There are also public roads and pipelines intersecting the proposed CEA. Scientific research is undertaken at the University of Adelaide's Middleback Field Centre within the proposed CEA.

3.3 (l) Any proposed land / marine uses of area

Proposed land or marine uses of the area consist of mining tenement applications. There is also the possibility that BHP Billiton may construct a desalination water pipeline on the eastern boundary of the proposed CEA.

4 Measures to avoid or reduce impacts

The primary mechanism for the early identification and avoidance / mitigation of impacts is the Defence Environmental Management System (EMS). Defence has a commitment to the ongoing development of an innovative EMS which supports ADF capability, promotes environmental sustainability and achieves the Government's broader environmental objectives. Defence is the single largest landowner in Australia, with the greatest proportion of its estate existing as Training Areas. Many of these Training Areas are nationally and internationally recognised for their environmental values (e.g. Shoalwater Bay Training Area's listing in the Directory of Important Wetlands). The maintenance of these values can often be directly attributed to Defence's long-term environmental management of the area.

The EMS aims to improve Defence's management of environmental risk by ensuring that environmental values and management practices are integrated into Defence business processes and day-to-day management. It provides an overarching framework for Defence's environmental management and integrates all of Defence's regulatory mechanisms to ensure environmental protection. These mechanisms include:

- Standing Orders, that regulate the conduct of day-to-day activities at Defence Sites
- Environmental Compliance Certificates that specify additional environmental conditions for proposed training activities / events
- Environmental Performance and Reporting Framework with procedures and document for the early reporting and mitigation of environmental incidents
- Standard Operating Procedures that specify procedures for carrying out certain activities and includes environmental considerations where relevant
- Environmental Impact Assessments that assesses the likely environmental impacts and specifies mitigation actions of new equipment or activities
- Environmental Management Plans that specify environmental management and maintenance of environmental values including:
    - Environmental Plans
    - Heritage Management Plans / Indigenous Heritage Management Plans
    - Fire Management Plans
    - Biosecurity and Overabundant Native Species Management Plans (including weeds and feral animals)
    - Land Rehabilitation and Restoration Plans
    - Waste Management and Recycling Plans
    - Water Management Plan
- Environmental Monitoring and Reporting Plans – piloted at the existing Cultana Training Area

The application of the Defence EMS at Training Areas ensures that Defence is able to manage Training Areas for both operational and environmental sustainability. Defence recognise that maintaining Defence capability through high quality training is dependant upon maintaining functioning ecosystems and minimising the footprint of Training Activities.

Environmental Management Plans are a key tool to assist in the sustainable management of Defence properties and implementation of the Defence EMS. All Defence sites and training areas, including offshore exercise areas have some form of official environmental management plan, addressing key aspects of environmental management (e.g. heritage, biosecurity, fire, etc). These plans provide very specific environmental guidance and direction and are consulted when planning activities that may have an impact on the environment.

Ongoing sustainability of the proposed CEA will be achieved through extending and updating a sustainable management framework that has recently been developed for the existing Cultana Training Area. This will be based on various sustainable land management strategies and

implemented within the principles of adaptive management. A potential sustainability strategy could be a 'rest and rotate' system or altering the intensity of training within different training sectors based on the respective condition of the land in those training sectors. These strategies will be part of the Defence Environmental Management System that involves a system of regular monitoring at the landscape scale (remote sensing) and local scale (permanent monitoring points). The results of this monitoring will be used to inform the planned location and intensity of subsequent training activities based upon avoidance of areas that have deteriorated to certain thresholds. Relevant thresholds have already been developed for equivalent vegetation types at the existing Cultana Training Area, based upon the best available scientific knowledge and results of historical monitoring. Defence training would be restricted in areas of high ecological sensitivity or vulnerable heritage values.

Monitoring of this type has been successfully undertaken at the existing Cultana Training Area and other Training Areas, and Defence has expended considerable resources in recent years to determine the best approach to sustainability monitoring of the Cultana Training Area. As well as an innovative approach to landscape condition monitoring using mobile GIS from a helicopter platform, a study has been completed to determine the most effective satellite imagery types and analysis methods to monitor landscape changes. Another study has also been completed that identifies the most effective suite of point-based monitoring indicators, methods and thresholds to trigger specific management actions.

The monitoring procedures described above have been rigorously tested and developed at the existing Cultana Training Area. A total of six helicopter condition monitoring and mapping surveys have been undertaken since 2006, and the remote sensing study included the analysis of three imagery types captured at three points in time over the past six years. Considerable work has also been undertaken to determine the most effective way to analyse and present the data so that it can be easily understood, and thresholds for monitoring indicators have been identified that are linked with specific management actions.

Changes to the landscape and its components may occur as a result of variations in local climate and from previous Defence activities. Both these aspects are important to for training activity planning as they are related to the recoverability of the landscape. As more data is accumulated over time, some of the underlying causes of landscape change can be identified, which will further enhance sustainable training activity planning, particularly over the long term.

Through adaptive management procedures, Defence is confident of achieving sustainability of both military capability and environmental values. Overall, the change of land use to a training area that is operated under the Defence EMS and Training Area sustainability framework is considered likely to result in a number of improvements in the condition of the landscape and vegetation. The country is marginal and has been grazed and trampled for many years by introduced stock which has resulted in considerable deterioration of the soil and vegetation. This has been compounded by the provision of stock watering points that have resulted in suitable conditions for Feral Goats. The removal of stock and pastoral infrastructure from the proposed CEA is likely to result in an improvement to the vegetation, particularly if ongoing Feral Goat and European Rabbit control is undertaken. This is likely to allow palatable plant species to survive and allow groundcover species to recover, which will reduce loss of topsoil through wind erosion.

Additional measures to reduce or avoid impacts as a result of Defence training will include the following:

- establishment of full time position for a Regional Environmental Officer (REO) and a contract for Ranger services
- establishment of an Environmental Committee comprising internal Defence stakeholders
- establishment of Environmental Advisory Committee(s) involving external stakeholders such as local community members, Indigenous Groups, Local Government, State Government

natural resources management representatives, and University of Adelaide (Middleback Field Centre).

- review and expansion of the existing Cultana Training Area Environmental Plan, relevant sections of the Range Standing Orders and other relevant environmental controls under the Defence Environmental Management System to accommodate additional and extended requirements of the proposed CEA
- completion of flora and fauna habitat surveys in areas of infrastructure development or where concentrated activity is anticipated (*e.g.* High Explosives Target Areas, firing ranges)
- contamination assessments of pastoral infrastructure proposed to be upgraded for Defence use and remediation where required
- rehabilitation of degraded areas based on prioritised areas identified through monitoring
- possible 'hardening' (e.g. infill planting or construction of designated watercourse crossings) to minimise impact on areas where training activities can only occur in a constrained area.
- research into the sustainability of the expanded area and assessing impacts in a rangeland context, potentially through an alliance with Middleback Field Centre
- construction of a wash-down point and ensuring all Defence and contractor vehicles are clean and free from foreign soil and plant material before entering training area
- review and expansion of the Weed Management Plan, and Feral Animal Management Plan for the existing Cultana Training Area to accommodate additional and extended requirements of the proposed CEA
- A new Indigenous Heritage Management Plan for the CEA, based on provisions of a Cultana Expansion Area Indigenous Land Use Agreement, which will complement the Indigenous Heritage Management Plan for the existing Cultana Training Area
- development of a Fire Management Plan for the proposed CEA, with objectives to protect life and property and maintain ecological integrity
- development of a Land Rehabilitation and Restoration Plan for the proposed CEA
- development of a Waste Management and Recycling Plan
- development of a Water Management Plan to ensure efficient use of water and appropriate disposal of waste-water

5 Conclusion on the likelihood of significant impacts

5.1 Do you THINK your proposed action is a controlled action?

✓	No, complete section 5.2
	Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

The proposed action is not considered to be a controlled action. The change in land use from pastoral to military use is unlikely to result in significant impacts on the environment. Implementation of the Defence environmental management framework described in the previous section will mitigated any residual environmental risks. Defence also has a range of environmental controls and safeguards that it applies to all training areas, which would minimise the likelihood and severity of adverse environmental impacts, including:

- management under the Defence Environmental Management System (EMS), which provides a comprehensive framework for delivery of environmental controls, safeguards and management
- strict military controls and standing orders to regulate Defence activities on the training area
- restricting military access to environmentally or culturally sensitive areas
- ongoing management of threatening processes including weeds and feral animals

The Defence EMS framework has ensured that there have been no significant environmental impacts where it has been applied. Defence is also striving to continually improve its EMS, and hence its management of the environment, which will ensure that Defence's environmental track record of best practice environmental management of its Training Areas, remains intact.

Further, it is considered likely that the proposed change in land use to Defence training would have a net positive impact on the social and natural environment, specifically:

- removal of stock, allowing recovery of vegetation due to absence of grazing pressure
- closure of the majority of existing water points, which would discourage feral animals, particularly feral goats, from accessing the area
- removal of internal fences, which would increase the habitat value for native fauna by removing impediments to dispersal and improving access to feeding / breeding grounds
- facilitating access by three Aboriginal groups (including traditional owners) to heritage sites under the agreed conditions of an Indigenous Land Use Agreement and a separate agreement with another Aboriginal group.
- significant economic benefits, particularly to the communities of Whyalla and Port Augusta, as a result of associated demand for locally provided goods and services
- significant financial resources invested in environmental monitoring and management to ensure sustainable, long-term use as a Defence Training Area.

5.3 Proposed action IS a controlled action

Matters likely to be impacted

	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)

	Listed threatened species and communities (sections 18 and 18A)
	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)
	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

6 Environmental history of the responsible party

		Yes	No
6.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** Defence has a strong commitment to environmental management across its operations to minimise the impacts of its activities. Defence has a national Environmental Management System (EMS) which is the overarching structure for all policy, legislation and impact mitigation for significant heritage and environmental values. It is the responsibility of all Defence personnel to abide by Environmental Management Plans (EMPs) and procedures detailed in the EMS, and environmental personnel implement the actions and policies resulting from EMPs including interpretation, maintenance requirements and monitoring.	✓	
6.2	**Has the party taking the action ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		**X**
6.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework**		NA
6.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** The Department of Defence has made several referrals to DEWHA and has undertaken detailed environmental impact assessments in the past.	✓	

7 Information sources and attachments

7.1 References

ENSR Australia (2008) Environmental Impact Assessment and Baseline Study - Cultana Training Area Expansion, South Australia

7.2 Reliability and date of information

The report noted above was commissioned by the Department of Defence with specific view of assessing the potential impacts resulting from the proposed CEA. The assessment was undertaken by a reputable firm who is a member of the Defence Environment and Heritage Panel.

7.3 Attachments

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	**Figure 1 Expansion Area location and surrounding features** **Figure 2 Significant Features**
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)		
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.3)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.4)		
	copies of any flora and fauna investigations and surveys (section 3)		
	technical reports relevant to the assessment of impacts on protected matters and that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations		

undertaken, including with Indigenous stakeholders (section 3)		

8 Contacts, signatures and declarations

Project title: Cultana Expansion Area (CEA) Project

8.1 Person proposing to take action

Name	**Leigh Edwards**
Title	**Project Director Strategic Acquisitions**
Organisation	**Defence Support Group, Department of Defence**
ACN / ABN (if applicable)	
Postal address	**BP3-G-A04** **Department of Defence** **CANBERRA ACT 2600**
Telephone	**Tel: (02) 626 68404** **Mobile: 0416 266 456** **Fax: (02) 626 68429**
Email	Leigh.edwards@defence.gov.au
Declaration	I declare that the information contained in this form is, to my knowledge, true and not misleading. I agree to be the proponent for this action.
Signature	Edwards Date 23 Dec 09

8.2 Person preparing the referral information (if different from 8.1)

Name	Mr Colin Trinder
Title	Director – Environmental Impact Management
Organisation	Defence Support Group Department of Defence
Postal address	BP3-2-B029 Department of Defence CANBERRA ACT 2600
Telephone	02 6266 8067
Email	Colin.trinder@defence.gov.au
Declaration	I declare that the information contained in this form is, to my knowledge, true and not misleading.
Signature	 Date 23 Dec 2009

If the referring party is a small business (fewer than 20 employees), estimate the time taken, in hours and minutes, to complete this form (include your time reading the instructions, working on the questions and obtaining the information and time spent by all employees in collecting and providing this information).

Hours	Minutes