Project Order
Proforma 2012

1. Short Project Title (less than 15 words)

Project 1 – Threat identification

Long Project Title	Priority threat identification, management and appraisal
GISERA Project Number	B1 1215
Proposed Start Date	October 2012
Proposed End Date	September 2015
Project Leader	Tara Martin

2. GISERA Research Program

- ☒ Biodiversity Research
- ☐ Marine Research
- ☐ Land Research
- ☐ Water Research
- ☐ Social & Economic Research

3. Research Leader, Title and Organisation

Tara Martin Senior Research Scientist CSIRO Ecosystems Sciences

4. Summary (less than 300 words)

This project provides underpinning science to understand the key threats to biodiversity across Queensland's CSG development region and the conservation management actions to abate these threats to achieve the greatest biodiversity benefit. The identification of threats and actions will draw on past research and expertise, and will undertake new empirical research where current knowledge is lacking. Then the relative cost-effectiveness of taking different management actions for improving the probability of persistence of species and threatened ecosystems across the study region will be estimated. The likely biodiversity outcomes under specific management scenarios including a 'do nothing' scenario and the suite of actions and funds required to achieve persistence, or conversely, the best use of a limited budget to maximise expected ecological benefit will also be estimated.

5. Budget Summary (From Excel Budget Pack worksheet "Project Plan Summary")

Expenditure	2011/12 Year 1	2012/13 Year 2	2013/14 Year 3	2014/15 Year 4	2015/16 Year 5	Total
Labour	-	183,828	266,916	282,191	72,192	805,128
Operating	-	36,810	36,531	48,181	18,750	140,272
Total Costs	**-**	**220,638**	**303,447**	**330,372**	**90,942**	**945,400**
CSIRO		220,638	303,447	330,372	90,942	945,400
Total Expenditure		**220,638**	**303,447**	**330,372**	**90,942**	**945,400**

Expenditure per Task	2011/12 Year 1	2012/13 Year 2	2013/14 Year 3	2014/15 Year 4	2015/16 Year 5	Total
Task 1		220,638	303,447	330,372	90,942	945,400
Total Expenditure		**220,638**	**303,447**	**330,372**	**90,942**	**945,400**

Cash Funds to Project Partners	2011/12 Year 1	2012/13 Year 2	2013/14 Year 3	2014/15 Year 4	2015/16 Year 5	Total
CSIRO		175,680	175,680	117,120	117,120	585,600
Total Cash to Partners		**175,680**	**175,680**	**117,120**	**117,120**	**585,600**

Source of Cash Contributions	2011/12 Year 1	2012/13 Year 2	2013/14 Year 3	2014/15 Year 4	2015/16 Year 5	Total
APLNG		175,680	175,680	117,120	117,120	585,600
Total Cash Contributions		**175,680**	**175,680**	**117,120**	**117,120**	**585,600**

In-kind Contribution from Partners	2011/12 Year 1	2012/13 Year 2	2013/14 Year 3	2014/15 Year 4	2015/16 Year 5	Total
CSIRO		44,958	127,767	213,252	-26,178	359,800
Total Cash Contributions		**44,958**	**127,767**	**213,252**	**-26,178**	**359,800**

	Total Funding over all years	Percentage of total Budget
Australia Pacific LNG	585,600	62%
CSIRO	359,800	38%
Other		
Total Project budget	**945,400**	**100%**

Task	Milestone Number	Milestone Description	Funded by	Participant Recipient	Start Date (mm-yy)	Delivery Date (mm-yy)	Fiscal Year	Fiscal Quarter	Payment $
Task 1	1	on signing of contract	GISERA	CSIRO	Oct-12	Dec-12	2012/13	Quarter 2	189,080
Task 1	2	on completion of literature review	GISERA	CSIRO	Jan-13	Jun-13	2012/13	Quarter 4	94,540
Task 1	3	on completion of stakeholder engagement	GISERA	CSIRO	Jul-13	Dec-13	2013/14	Quarter 2	189,080
Task 1	4	on completion of spatial data mapping	GISERA	CSIRO	Jan-14	Jun-14	2013/14	Quarter 4	94,540
Task 1	5	on submission of two manuscripts	GISERA	CSIRO	Jul-14	Dec-14	2014/15	Quarter 2	189,080
Task 1	6	on acceptance of prospectus and final report	GISERA	CSIRO	Jan-15	Sep-15	2015/16	Quarter 1	189,080

6. Other Researchers (include organisations)

Researcher	Time Commitment (project as a whole)	Principal area of expertise	Years of experience	Organisation
Richard Fuller	0.1	Conservation planning	15	CSIRO/UQ
Martine Maron	0.1	Landscape ecology	15	UQ
Tara Martin	1.0	Ecological modelling	14	CSIRO

7. GISERA Objectives Addressed

Research that improves and extends knowledge of environmental impacts and opportunities of CSG-LNG projects, enabling the CSG-LNG industry to better meet the expectations of relevant communities and the broader public.

Informing government, regulators and policy-makers on key issues regarding policy and legislative framework for the CSG-LNG industry.

8. Program Outcomes Achieved

Details are provided in *Section 13. Project Objectives and Outputs.*

9. Program Outputs Achieved

Details are provided in *Section 13. Project Objectives and Outputs*

10. What is the knowledge gap that these research outputs will address?

A key piece of knowledge that is currently missing in terms of actions for landscape restoration is knowing the amount of a particular vegetation type that must be conserved to ensure its long-term persistence. Outcomes of this project will identify where to manage threats across the study region to maximise biodiversity benefits for minimum cost and determine a priority set of actions to take in each sub-bioregion to maintain wildlife and vegetation communities in the long-term.

11. How will these research outputs and outcomes be used by State Government and other managers?

The priority actions arising from this initial project will be used to guide future terrestrial biodiversity research. The results will be published in peer-reviewed journals as well as presented in a report targeted at decision makers within governments, non-government organisations and corporations with the potential to invest in threat management in the region. Akin to a prospectus, the report will provide investors in threat management with a list of investment options and projected returns on these investments with respect to conserving wildlife and vegetation communities across the study region. This is a tried and tested approach (Carwardine et al 2011, 2012).

12. Project Development (1 page max.)

The project was developed in consultation between Australia Pacific LNG and CSIRO staff, and with expert input from GISERA's Research Advisory Committee. Discussion among these stakeholders identified that threat risk assessment and decision making is key to informing biodiversity management as development unfolds. However, our knowledge about these threats was identified as a key limiting factor. Hence, there was broad agreement that a core component of the early projects in the terrestrial biodiversity theme should be a full threat appraisal and mapping exercise to determine where the risks to biodiversity lay and expand our knowledge of landscape ecology in the region.

13. Project Objectives and Outputs

The objectives of the study are to (i) determine how much of each vegetation type needs to be protected in the region to ensure long term biodiversity persistence, (ii) identify and assess the cost-effectiveness of threat management actions for improving the persistence of wildlife and vegetation communities in the study region over 50 years, (iii) estimate the likely outcomes for wildlife and vegetation communities of a 'no management' scenario and the minimum level of funding required to support management actions to avoid likely wildlife and vegetation community losses and secure species over 50 years, assuming thresholds of <50% persistence probability indicates a species is likely to be lost and ≥90% indicates a species is likely to be secure, and (iv) estimate the maximum number of wildlife species that can be improved to above each of these thresholds if only part of the budget required to avoid wildlife losses were available.

Outputs include:

- Information on how much protection is needed for various threatened ecosystems across the CSG development region
- Prioritised set of management actions to abate threats in southern Queensland
- Foundational threat management planning tools in place.

14. Project Plan

14.1 Project Schedule

ID	Task Title	Task Leader	Scheduled Start	Scheduled Finish	Predecessor
1	Sign contract	Tara Martin	Oct 12	Dec 12	
2	Complete literature review	Tara Martin	Jan 13	Jun 13	1
3	Engage stakeholders	Tara Martin	Jul 13	Dec 13	2
4	Map all data spatially	Tara Martin	Jan 14	Jun 14	3
5	Submit two manuscripts to scientific journals	Tara Martin Tara Martin	Jul 14	Dec 14	4
6	Produce action prospectus and final report	Tara Martin	Jan 15	Sep 15	5

Task 1.

TASK NAME: Sign contract

TASK LEADER: Dr Tara Martin

OVERALL TIMEFRAME: Oct 2012 – Dec 2012

BACKGROUND: Contract needs to be signed to allow project to proceed.

TASK OBJECTIVE: To sign the contract.

TASK OUTPUTS & SPECIFIC DELIVERABLES: Signed contract.

Task 2.
TASK NAME: Complete literature review

TASK LEADER: Dr Tara Martin

OVERALL TIMEFRAME: Jan 2013 – Jun 2013

BACKGROUND: Declines in both threatened and common species are accelerating within and outside protected areas (Leverington et al. 2010; Woinarski et al. 2011), due to an array of pervasive threats including invasive species, changed fire regimes, livestock grazing, urbanisation and mining (Rands et al. 2010). To restore and maintain functioning ecosystems with ecologically effective populations of native species, threats need to be managed irrespective of whether the land is freehold tenure, crown or other (Woinarski et al. 2007). In developing and implementing threat management plans for a region, governments and other investors must be able to discern between alternative

threat management actions using transparent information on the likely costs, risks and benefits of taking action compared to inaction (Possingham et al. 2001; Carwardine et al. 2011, 2012).

A full literature review on this topic will be completed to underpin the scientific basis of the project.

TASK OBJECTIVE: To produce a literature review.

TASK OUTPUTS & SPECIFIC DELIVERABLES: A literature review covering the latest developments in the field. If sufficient depth is found in the literature, there may be a case for submitting the review to a scientific journal.

Task 3.
TASK NAME: Engage stakeholders

TASK LEADER: Dr Tara Martin

OVERALL TIMEFRAME: Jul 2013 – Dec 2013

BACKGROUND: Engage stakeholders to assess the threats to biodiversity emerging in the region, estimate level of certainty about how these threats operate, and determine which conservation management activities will best mitigate the risks to biodiversity.

TASK OBJECTIVE: To gain expert stakeholder input, an expert elicitation workshop, similar to those previously held to support work in Western Australia, will be conducted.

TASK OUTPUTS & SPECIFIC DELIVERABLES: Expert-derived assessments of risks to biodiversity, together with a series of costed potential actions to abate those risks. A further benefit of this approach is that the engagement of multiple stakeholders will be achieved.

Task 4.
TASK NAME: Map all data spatially

TASK LEADER: Dr Tara Martin

OVERALL TIMEFRAME: Jan 2014 – Jun 2014

BACKGROUND: The landscape ecology and threat assessment components of this project all rest on a foundation of spatial data, and so a comprehensive spatial database needs to be constructed to align all of these data. As well as building a database of existing field data and threat layers, all data collected will be mapped spatially to inform and underpin the resource prioritisation component of the project.

TASK OBJECTIVE: To produce a comprehensive spatial database of threats, actions, costs and biodiversity responses.

TASK OUTPUTS & SPECIFIC DELIVERABLES: A spatial database in ArcGIS format.

Task 5.
TASK NAME: Submit two manuscripts to scientific journals

TASK LEADER: Dr Tara Martin

OVERALL TIMEFRAME: Jul 2014 – Dec 2014

BACKGROUND: Results from experimental work will be written up for publication in scientific journals.

TASK OBJECTIVE: To produce at least two scientific manuscripts detailing the literature review, and core results from the project. This yields international scientific credibility and is important to underscore the robustness of the project and its results.

TASK OUTPUTS & SPECIFIC DELIVERABLES: Two scientific manuscripts.

Task 6.
TASK NAME: Produce action prospectus and final report

TASK LEADER: Dr Tara Martin

OVERALL TIMEFRAME: Jan 2015 – Sep 2015

BACKGROUND: Project reporting is a key deliverable, and this is especially important in this project where the production of a prospectus will be a key communication tool aimed at helping to inform policy.

TASK OBJECTIVE: To produce a final report together with a glossy prospectus akin to that produced for the Kimberley by the same project team.

TASK OUTPUTS & SPECIFIC DELIVERABLES: Final report and prospectus.

15. Budget Justification

The budget for this project has been approved by GISERA's Research Advisory Committee and Management Committee.

16. Project Governance

Project management tasks and dissemination activities are specified in *Section 14 Project Plan*.

17. Communications Plan

General communication will be managed by GISERA.

18. Risks

At this stage no unmanageable risks particular to this project are foreseen.

Capacity to deliver: All project staff have sufficient experience to lead and supervise the various activities and ascertain the research outcomes. Therefore the impact of unplanned key staff departure is low and can be mitigated.

19. Intellectual Property and Confidentiality

Background IP (clause 10.1, 10.2)	**Party**	**Description of Background IP**	**Restrictions on use (if any)**	**Value**
Ownership of Non-Derivative IP (clause 11.3)	CSIRO			
Confidentiality of Project Results (clause 15.6)	Project results are not confidential.			
Additional Commercialisation requirements (clause 12.1)	Not Applicable			
Distribution of Commercialisation Income (clause 1.1)	Not applicable			
Commercialisation Interest (clause 1.1)	**Party**		**Commercialisation Interest**	
	Australia Pacific LNG			
	CSIRO			