

Central Queensland Coal Project

Appendix 9g - Results of Landscape Fragmentation and Connectivity

**Supplementary
Environmental Impact
Statement**

Department of Environment and Heritage Protection (DEHP)

Landscape Fragmentation and Connectivity (LFC) Tool version 1.4 LOGFILE

Process started at 12-06-2017 11:17:43 AM

Python version: 2.7.8 (default, Jun 30 2014, 16:03:49) [MSC v.1500 32 bit (Intel)]

Arcpy version: 10.3.1

Username: SINCLAIRA

INPUT PARAMETERS

Output Workspace: D:\Connectivity_RE\Styx_Output1

Threshold lookup table: D:\Connectivity_RE\LFC_data.gdb\tbl_Regional_frag_local_threshold

Remnant cover layer: D:\Connectivity_RE\LFC_data.gdb\QLD_VEG_RVM_100K_v1_26

Remnant cover layer edited: False

Regional buffer extent: 20 kilometres

Local buffer extent: 5 kilometres

Impact layer: D:\Connectivity_RE\Styx_Site_Buffer.lyr

layer projection: GDA_1994_MGA_Zone_55

Raster cell resolution for analysis: 10 metres

Edge Width: 50 metres

(The distance from non-remnant landscapes through to the core ecosystem - the edge of remnant ecosystems)

Default projection: D:\Connectivity_RE\scripts\QLD Albers Equal Area Conic.prj

11:17:43 Checking out the spatial analyst tool - required for LFC

11:17:43 _____BEGINNING LANDSCAPE FRAGMENTATION AND CONNECTIVITY
ANALYSIS_____

11:17:43 This tool will categorise the landscape into:

{0: 'non-rem', 1: 'patch', 2: 'edge', 3: 'perforated', 4: 'core (< 100 hectares)', 5: 'core (100-500 hectares)',
6: 'core (> 500 hectares)'}

11:17:45 D:\Connectivity_RE\Styx_Output1\lyr_file does not exist, creating it now.

11:17:45 Copying across impact site feature(s) and calculating area in hectares (AreaHA)

11:17:46 Making a local copy of the impact site

11:17:46 Preparing remnant cover layer for analysis

11:17:48 Created regional scale buffer of 20 kilometres
11:17:49 Created local scale buffer of 5 kilometres
11:17:51 Clipped the remnant cover to the regional buffer extent
11:17:52 Unioned the pre impact remnant layer with the impact site
11:17:53 Attributed the impact area as non-remnant
11:17:53 Categorised the cover attributes in clip_remcover_pre.shp ready for raster conversion
11:17:57 Converted clip_remcover_pre.shp to raster
11:17:58 Categorised the cover attributes in clip_remcover_post.shp ready for raster conversion
11:18:02 Converted clip_remcover_post.shp to raster
11:18:02 Run Landscape fragmentation analysis on the pre impact regional landscape

NATURALLY VEGETATED AND CLEARED LAND BEING EXTRACTED FROM LAND COVER

IDENTIFICATION OF CORE, PATCH, EDGE AND PERFORATIONS

COMBINING FRAGMENTATION CLASSES

CLASSIFYING CORE FOREST PATCHES BY AREA

COMPOSING FINAL FRAGMENTATION MAP

COMPOSING FINAL FRAGMENTATION MAP

(FRAGMENTATION CALCULATION TIME WAS 1.3 MINUTES)

11:19:22 Run Landscape fragmentation analysis on the post impact regional landscape

NATURALLY VEGETATED AND CLEARED LAND BEING EXTRACTED FROM LAND COVER

IDENTIFICATION OF CORE, PATCH, EDGE AND PERFORATIONS

COMBINING FRAGMENTATION CLASSES

CLASSIFYING CORE FOREST PATCHES BY AREA

COMPOSING FINAL FRAGMENTATION MAP

COMPOSING FINAL FRAGMENTATION MAP

(FRAGMENTATION CALCULATION TIME WAS 1.3 MINUTES)

Extracting a local subset of lfc_regional_pre_impact

Extracting a local subset of lfc_regional_post_impact

Collating pre and post impact statistics and trigger assessment

11:20:48 Summarising area statistics for: lfc_localmsk_pre_impact

11:20:48 Summarising area statistics for: lfc_localmsk_post_impact

11:20:48 Summarising area statistics for: lfc_regional_pre_impact

11:20:48 Summarising patch count for lfc_localmsk_pre_impact

11:20:50 Summarising patch count for lfc_localmsk_post_impact

Analysing impact on Connectivity Areas

SIGNIFICANCE TEST ONE

The regional total area is 172582.98

The regional extent of core remnant is 59436.38

The regional extent of core remnant is 34.44 percent

This level of regional fragmentation sets a local impact threshold of: 10.0 percent

The table below lists the local impact thresholds for categories of regional core remnant extent:

REGIONAL CORE CATEGORY	LOCAL IMPACT THRESHOLD
< 10	2.0
10 - 30	5.0
30 - 50	10.0
50 - 70	20.0
70 - 90	30.0
>90	50.0

Area of core at the local scale (pre impact): 5420.35

Area of core at the local scale (post impact): 5312.28

Percent change of core at the local scale (post impact): 1.99

SIGNIFICANCE TEST TWO

The number of core remnant areas occurring on the site: 5

The number of core remnant areas remaining on the site post impact: 5

(Only core polygons greater than or equal to 1 hectare are included)

RESULT

11:20:53 This analysis has determined any impact on connectivity areas is NOT significant

(A significant reduction in core remnant at the local scale is False OR a change from core to non-core remnant at the site scale is False)

The significance table has been written to: ..\main_output\lfc_significance_assessment.csv

The local scale summary table has been written to: ..\main_output\lfc_local_scale_summary.csv

The site scale summary table has been written to: ..\main_output\lfc_site_scale_summary.csv

GIS layer files copied into folder \lyr_file within the project folder.

View layers in ArcMAP using..\D:\Connectivity_RE\Styx_Output1\lyr_file\lyr_file\Connectivity Area Impact Assessment.lyr

Please scrutinise the output tables and spatial layers to confirm the desktop modelling of connectivity area impact

This analysis used an unedited copy of the Regulated Vegetation layer.

11:21:10 _____ COMPLETED LANDSCAPE FRAGMENTATION AND CONNECTIVITY ANALYSIS_____