

EA Amendment Application

Attachment 2. – LFC Tool Logfiles

Department of Environment and Heritage Protection (DEHP)
Landscape Fragmentation and Connectivity (LFC) Tool version 1.4 LOGFILE
Process started at 09-08-2023 01:29:18 PM
Python version: 2.7.18 (v2.7.18:8d21aa21f2, Apr 20 2020, 13:19:08) [MSC v.1500 32 bit (Intel)]
Arcpy version: 10.8.1
Username: tstringer

INPUT PARAMETERS

Output Workspace: R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Govdata\OutputGov
Threshold lookup table:
R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Govdata\LFC_data.gdb\tbl_Regional_frag_lo
cal_threshold
Remnant cover layer:
R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Govdata\LFC_data.gdb\Surat_Regulated_Veg
_Man_230809
Remnant cover layer edited: False
Regional buffer extent: 20 kilometres
Local buffer extent: 5 kilometres
Impact layer: R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Disturbance\New File
Geodatabase.gdb\Disturbance3
layer projection: GCS_GDA_1994
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: R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\scripts\QLD Albers Equal
Area Conic.prj

13:29:19 Checking out the spatial analyst tool - required for LFC

13:29:19 _____BEGINNING LANDSCAPE FRAGMENTATION AND CONNECTIVITY
ANALYSIS_____

13:29:19 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)', 7: 'water'}

13:29:27 R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Govdata\OutputGov\lyr_file
does not exist, creating it now.

13:29:27 Copying across impact site feature(s) and calculating area in hectares (AreaHA)

13:29:33 Making a local copy of the impact site

13:29:38 Preparing remnant cover layer for analysis

13:29:40 Created regional scale buffer of 20 kilometres

13:29:43 Created local scale buffer of 5 kilometres

13:29:52 Clipped the remnant cover to the regional buffer extent

13:29:54 Unioned the pre impact remnant layer with the impact site

13:29:57 Attributed the impact area as not RVM Cat B

13:29:57 Area of RVM Cat B clearing is 98.98 hectares

13:29:57 SQL selection used is "RVM_CAT" = 'B' and "Cover" = 'Not RVM Cat B' on shapefile

R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Govdata\OutputGov\main_output\clip_remcover
_post.shp

13:29:59 Categorised the cover attributes in clip_remcover_pre.shp ready for raster conversion

13:30:33 Converted clip_remcover_pre.shp to raster

13:30:35 Categorised the cover attributes in clip_remcover_post.shp ready for raster conversion

13:31:08 Converted clip_remcover_post.shp to raster

13:31:08 Run Landscape fragmentation analysis on the pre impact regional landscape

REGULATED VEGETATION TYPES 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 10.1 MINUTES)

13:41:13 Run Landscape fragmentation analysis on the post impact regional landscape

REGULATED VEGETATION TYPES 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 9.4 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

13:51:20 Summarising area statistics for: lfc_localmsk_pre_impact

13:51:20 Summarising area statistics for: lfc_localmsk_post_impact

13:51:21 Summarising area statistics for: lfc_regional_pre_impact

13:51:22 Summarising patch count for lfc_localmsk_pre_impact

13:51:39 Summarising patch count for lfc_localmsk_post_impact

Analysing impact on Connectivity Areas

SIGNIFICANCE TEST ONE

The regional total area is 195030.77
 The regional extent of core remnant is 48428.28
 The regional extent of core remnant is 24.83 percent
 This level of regional fragmentation sets a local impact threshold of: 5.0 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): 11265.8
Area of core at the local scale (post impact): 10875.07
Percent change of core at the local scale (post impact): 3.47 percent

SIGNIFICANCE TEST TWO

The number of core remnant areas occurring on the site: 2
The number of core remnant areas remaining on the site post impact: 2
(Only core polygons greater than or equal to 1 hectare are included)

RESULT

13:52:13 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..R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Govdata\OutputGov\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.

13:59:01 _____ COMPLETED LANDSCAPE FRAGMENTATION AND CONNECTIVITY
ANALYSIS _____

Department of Environment and Heritage Protection (DEHP)
Landscape Fragmentation and Connectivity (LFC) Tool version 1.4 LOGFILE
Process started at 09-08-2023 09:07:21 PM
Python version: 2.7.18 (v2.7.18:8d21aa21f2, Apr 20 2020, 13:19:08) [MSC v.1500 32 bit (Intel)]
Arcpy version: 10.8.1
Username: tstringer

INPUT PARAMETERS

Output Workspace: R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Arrow\OutputArrow2
Threshold lookup table:
R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Arrow\LFC_data.gdb\tbl_Regional_frag_local_threshold
Remnant cover layer:
R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Arrow\LFC_data.gdb\ArrowGovVeg_230809
Remnant cover layer edited: True
Regional buffer extent: 20 kilometres
Local buffer extent: 5 kilometres
Impact layer: R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Disturbance\New File Geodatabase.gdb\Disturbance3
layer projection: GCS_GDA_1994
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: R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\scripts\QLD Albers Equal Area Conic.prj

21:07:22 Checking out the spatial analyst tool - required for LFC

21:07:22 _____BEGINNING LANDSCAPE FRAGMENTATION AND CONNECTIVITY ANALYSIS_____

21:07:22 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)', 7: 'water'}

21:07:31 R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Arrow\OutputArrow2\lyr_file does not exist, creating it now.

21:07:31 Copying across impact site feature(s) and calculating area in hectares (AreaHA)

21:07:37 Making a local copy of the impact site

21:07:44 Preparing remnant cover layer for analysis

21:07:46 Created regional scale buffer of 20 kilometres

21:07:49 Created local scale buffer of 5 kilometres

21:08:08 Clipped the remnant cover to the regional buffer extent

21:08:12 Unioned the pre impact remnant layer with the impact site

21:08:19 Attributed the impact area as not RVM Cat B

21:08:19 Area of RVM Cat B clearing is 72.16 hectares

21:08:19 SQL selection used is "RVM_CAT" = 'B' and "Cover" = 'Not RVM Cat B' on shapefile

R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Arrow\OutputArrow2\main_output\clip_remcover_post.shp

21:08:23 Categorised the cover attributes in clip_remcover_pre.shp ready for raster conversion

21:09:01 Converted clip_remcover_pre.shp to raster

21:09:06 Categorized the cover attributes in clip_remcover_post.shp ready for raster conversion
21:09:48 Converted clip_remcover_post.shp to raster

21:09:48 Run Landscape fragmentation analysis on the pre impact regional landscape

REGULATED VEGETATION TYPES 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 10.4 MINUTES)

21:20:16 Run Landscape fragmentation analysis on the post impact regional landscape

REGULATED VEGETATION TYPES 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 9.6 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

21:30:35 Summarising area statistics for: lfc_localmsk_pre_impact
21:30:35 Summarising area statistics for: lfc_localmsk_post_impact
21:30:36 Summarising area statistics for: lfc_regional_pre_impact
21:30:38 Summarising patch count for lfc_localmsk_pre_impact
21:30:55 Summarising patch count for lfc_localmsk_post_impact

Analysing impact on Connectivity Areas

SIGNIFICANCE TEST ONE

The regional total area is 195030.76
The regional extent of core remnant is 44157.38
The regional extent of core remnant is 22.64 percent
This level of regional fragmentation sets a local impact threshold of: 5.0 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): 8665.6

Area of core at the local scale (post impact): 8439.3
Percent change of core at the local scale (post impact): 2.61 percent

SIGNIFICANCE TEST TWO

The number of core remnant areas occurring on the site: 8
The number of core remnant areas remaining on the site post impact: 8
(Only core polygons greater than or equal to 1 hectare are included)

RESULT

21:31:29 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..R:\GIS\Geomatics_Team\SCRIPTS_TOOLS\MSES\LFC_Surat_Bowen\Arrow\OutputArrow2\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 edited version of the Regulated Vegetation layer.

21:37:44 _____COMPLETED LANDSCAPE FRAGMENTATION AND CONNECTIVITY
ANALYSIS _____