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Sustainable Development of Wind Power in West Lithuania (DAVEP-VLIT)

The Wind Power Conflict Zoning Tool

Frank Hanssen, Roel May, Mindaugas Dagys and Liutauras Stoškus

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Sustainable Development of Wind Power in West Lithuania (DAVEP-VLIT)

The Wind Power Conflict Zoning Toolbox

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1 Introduction

2 Methodology

The aim of the Wind Power Conflict Zoning Toolbox is to measure, normalize, weight and aggregate relevant wind farm siting criteria into an overall conflict zone map with respect to birds, bats and wind power production. The aim of this conflict zone map is to identify potential conflict areas based on the applied criteria, criteria values and weights defined by Lithuanian stakeholders (ref to table). The toolbox is therefore an important decision-support asset in the further wind energy developments in Western Lithuania.

2.1 Stakeholder-defined criteria definitions, values and weights

The Lithuanian Centre for Sustainable Development, the Lithuanian Nature Research Centre and the Norwegian Institute for Nature Research (NINA) have during the project period (2014-2016) performed literature surveys and facilitated national stakeholder meetings in order to give an overview of best practices, criteria definition, criteria values and weights (related to birds, bats and wind energy production) relevant for siting of wind farms in Western Lithuania. Table 1 below illustrate the normative criteria values and weights identified in the project.

Targets	Theme	Theme weights	Sub-theme	Sub-theme weight	Criteria	Criteria weight	Least appropriate value	Optimal value
Protection of biologic diversity	Birds		Migrating birds	30	A1a. Distance from the seashore line	30	5 km	15 km
					Migration corridors within econet and distance from it *(it will be evaluated whenever this criteria overlaps with other bird criteria and only then a decision will be taken whenever it is purposful to use it)*	10	250 m	500 m
					High quality open habitations (for roosting)	60	100 m	300 m
			Wintering birds	5	Distance from ice-free water body	50	250 m	500 m
					Distance from open dumps	50	250 m	500 m
			Nesting water birds and waders	10	Distance from suitable for nesting places (waters and wetlands)	100	250 m	500 m
			Nesting birds of prey and other soaring birds	20	Distance from suitable for nesting places (for birds of prey)	50	1000 m	1500 m
					Density of nesting white stork	20	n.d.	n.d.
					High quality open habitations (for nutrition)	30	100 m	300 m
			All sensitive nesting species	35	Distance from sensitive species nesting places	70	1500 m	2000 m
					Distance from SPAs	30	1500 m	2000 m
	Bats				Distance from lakes and other ponds, with area > 1 ha	15	200 m	400 m
					Distance from forests, with area > 50 ha	15	200 m	400 m
					Distance from known reproduction places	15	200 m	400 m
					Distance from manors' complexes	10	200 m	400 m
					Distance from all types of swamps and wetlands, with area > 1 ha	10	200 m	400 m
					Distance from settlements	10	200 m	400 m
					Distance from rivers, with area >10 m	10	200 m	400 m
					Distance from seacoast line	10	500 m	1 km
					Distance from local (including gravel) roads and highways	5	200 m	400 m

Targets	Theme	Theme weights	Sub-theme	Sub-theme weight	Criteria	Criteria weight	Least appropriate value	Optimal value
Development pf wind power plants	Wind power plants		***Tower height up to 75 m.***	30	Average anual wind speed	35	2,5 m/s	10 m/s
					Relief (terrain roughness; koef./1 km^2)[1]	50	0,46	0,077
					Number of parcels (no/1 km^2)	1	>36	<36
					Bridge bearing capacity (t)	1	>16 t	<16 t
					Distance to nearest state road (km)	13	0.5 km	5 D[2]
			Tower height 75-150 m.	25	Wind speed	30	4 m/s	13 m/s
					Relief (terrain roughness)	35	0,46	0,077
					Number of plots (vnt/1 km^2)	5	>9	<9
					Bridge bearing capacity	15	>16 t	<16 t
					Road infrastructure	15	0.6 km	5 D
			Tower height above 150 m.	45	Wind speed	45	2 m/s	13 m/s
					Relief (terrain roughness)	15	0,46	0,077
					Number of plots (vnt/1 km^2)	25	>4	<4
					Bridge bearing capacity	14	>16t	<16 t
					Road infrastructure	1	0.7 km	5 D

Table 1: Criteria list with the weights (working document of 14 01 2016)

2.2 Fuzzy-logic criteria normalization

Decision making about wind farm siting rely on comparable criteria, and in order to make the above listed criteria comparable along a common scale they have to be normalized. The Wind

Power Conflict Zoning Toolbox helps to normalize all criteria relative to the stakeholder's degree-of-acceptance for the individual criteria. The normalization procedure is based on Fuzzy logic theory[1 2] which helps to transform the criteria values into a continuous scale from 0 (low acceptance) to 1 (high acceptance). This is illustrated in figure 1 and 2 below for the DAVEP-VLIT Bat-criteria: "Distance from roads". Roads often have lines of trees or shrub growing along them that attracts insects, and consequently bats. Therefore bats would prefer siting of wind farms away from roads. Normative criteria values in this example are defined as 200 meters away from roads (Least appropriate value) and 400 meters away from roads (Optimal value). The criteria normalization is done on a Euclidian distance raster with the following formula:

$$\frac{1}{1+\exp\left(\frac{\ln\left(\frac{2-\alpha}{\alpha}\right)}{(Xmin-Xmean)}*(pixel-Xmean)\right)}$$

A threshold value of α = 0.1 is set to express the uncertainty interval related to how we define Low (0.05) and High (0.95) acceptance. *Xmean* is the inflection point at Y = 0.5 where the curvature of the graph changes.

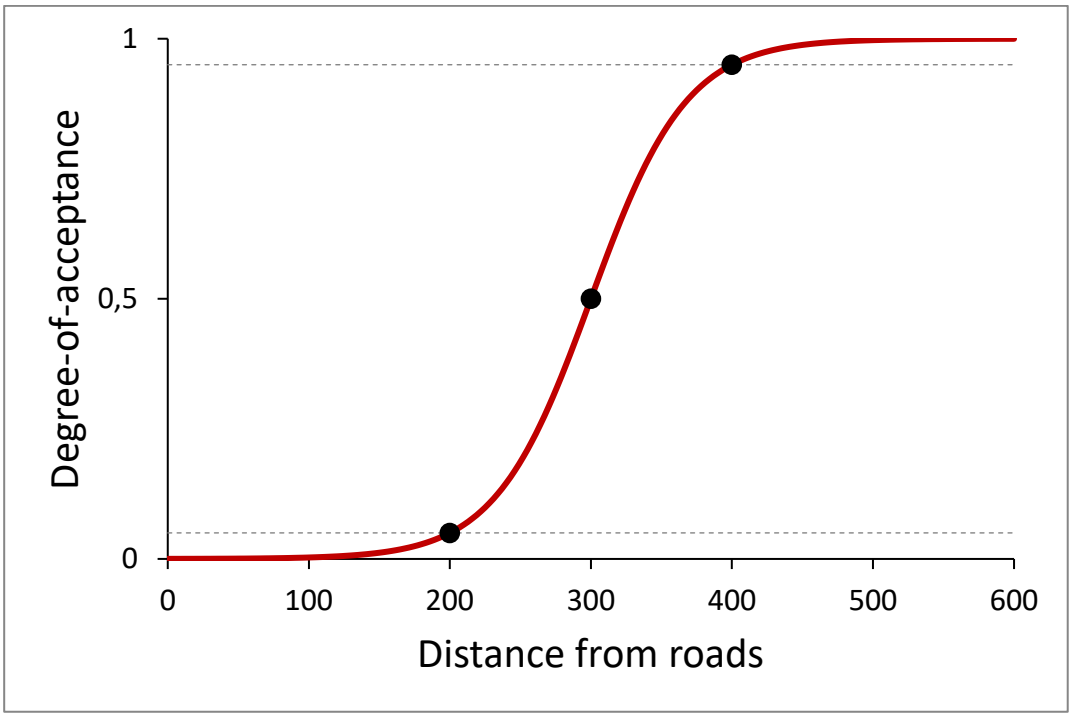


Figure 1: Degree-of-acceptance, example for the bat criteria "Distance from roads".

The **Conflict degree map** for the bat criteria is given by **1 – degree-of acceptance:**

$$1-\left(\frac{1}{1+\exp\left(\frac{\ln\left(\frac{2-\alpha}{\alpha}\right)}{(Xmin-Xmean)}*(Cell-Xmean)\right)}\right)$$

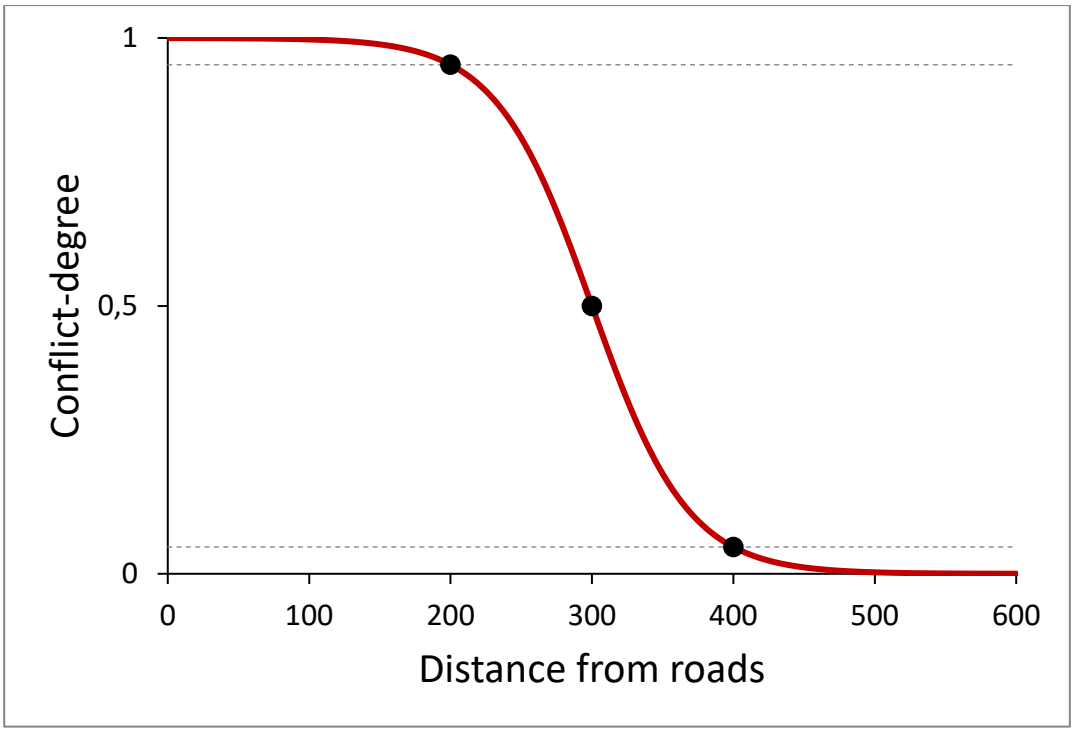


Figure 2: Conflict-degree, example for the bat criteria "Distance from roads".

For this separate Bat- criteria the conflict level declines in distance from roads as displayed in figure 3 below.

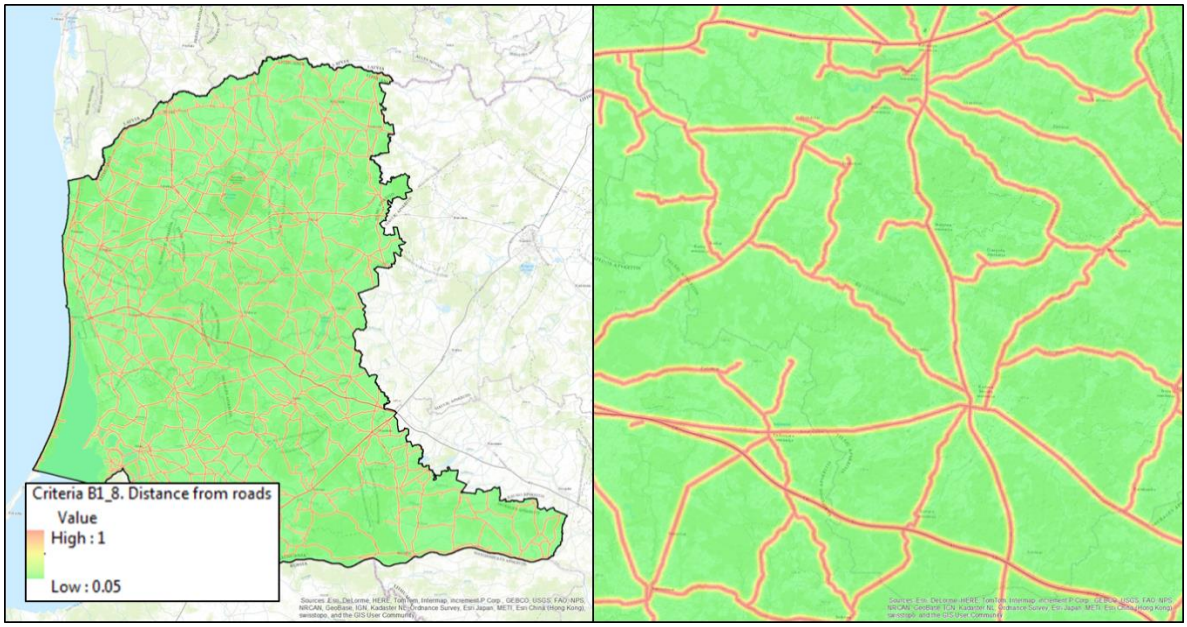


Figure 3: Conflict-degree map, example for the bat criteria "Distance from roads".

2.3 Criteria aggregation

All criteria conflict maps are weighted sub-sequently into sub-thematic, thematic and overall conflict maps using the stakeholder-defined weights (REF) and Weighted Linear Combination (WLC)[3]. WLC is a compensatory Multi-Criteria Evaluation aggregation method that seeks to overcome the lack of sensitivity in traditional Boolean overlay techniques. Aggregating conflict areas using Boolean operators AND (both of the factors have to be true) and OR (one of the factors have to be true) implies minimum risk (ANDness) and maximum risk (ORness) decision

making alternatives. Weighted Linear Combination (WLC), also called Weighted Mean, is a refinement of Boolean combination and ensures accommodation of the uncertainties of combining different criteria maps.

WLC is given by[3]:

$$\mathbf{C}_i = \sum_{j=1}^{n} \boldsymbol{W}_j * \boldsymbol{X}_{i,j} \; \boldsymbol{where} \sum_{j=1}^{n} \boldsymbol{W}_j = \mathbf{1}$$

$\mathbf{C}_i$ is the conflict score for site *i,* $\mathbf{W}_j$ is the weight of criteria *j,* $\mathbf{X}_{ij}$ is the conflict values of Site *i* under Criteria $_j$, and **n** is the total number of criteria.

WLC allow tradeoffs between criteria by weighting the normalized criteria accordingly to their relative importance. A low criteria value with a high weight may be equivalent to a higher criteria value with a lower weight. This capability of compensating a low score for one criteria with a high score for another criteria is known as *trade-off* or *substitutability* [3].

There are a number of problems associated with Multi-Criteria Evaluation using Boolean overlay and WLC[4]. First, Boolean overlay produce binary decision alternatives (by using AND & OR) whereas WLC provides trade-offs relative to the criteria weights and values. Secondly, the criteria normalization procedure may be problematic especially if it is a simple linear transformation. Therefore both methods lack proper capabilities to evaluate decision risk. Therefore potential decision risk by using Boolean overlay and WLC approaches can only be estimated by modelling the error associated with the input data and their weights[4]. The main objection to WLC is how it relates to decision making. A high WLC score indicates a high conflict level but does not in itself support a decision about which areas to exclude. The Boolean AND- operator is a risk averse aggregation operator while OR is a risk taking aggregation operator. WLC is exactly in between these two extremes and provides solutions that have full tradeoff (when the weights are employed fully) and an average risk. Therefore WLC is more often used in decision making processes than the Boolean approaches[4].

Other aggregation methods like the Global Ordered Weighted Averaging (Global OWA) was suggested by Yager in 1988[5] as a way to overcome the systematic problems related to risk and tradeoff in Multi Criteria Evaluation. OWA has been used in many different GIS-applications[3], and represent a considerable refinement of the Boolean overlay and WLC approaches. OWA treats the normalized layers as fuzzy measures allowing for more flexible MCE operations and control of the degree of ANDness, ORness and Tradeoff in decision making[3]. OWA use two sets of weights; the criteria weights (as in WLC) and the order weights. The order weights are given by ranking the criteria values of *n* layers after the application of the criteria weights. Global OWA manage decision risks and control trade-offs, but are not sensitive to spatial range such as Local OWA that implement neighborhood, local range and local criteria weights in order to tackle spatial heterogeneity and local context[6].

WLC is often used for aggregation in decision making processes because it allows trade-offs between criteria by weighting the normalized criteria accordingly to their relative importance. As the main purpose of the Wind Power Conflict Zoning Toolbox is conflict aggregation and zoning we consider WLC to be a sufficient aggregation method.

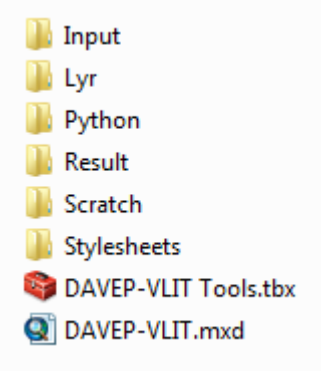
2.4 Statistical conflict zoning

Finally the conflict zoning map is generated as an ordinary classification of the overall conflict map aggregated by WLC (using standard classification methods provided by ArcGIS).

3 Installation

The **Wind Power Conflict Zoning Toolbox** is developed for ESRI ArcGIS Desktop 10.3 (or later) and requires a valid license for ArcGIS Advanced and Spatial Analyst. The toolbox is developed with some Python-scripts and ESRI ModelBuilder. ModelBuilder is a visual programming language for building geoprocessing workflows for automated spatial analysis and data management processes.

1. Download the **DAVEP-VLIT.rar** from …
2. Extract the **DAVEP-VLIT.rar** to an optional location at your local hard drive. The **DAVEP_VLIT- folder** contains the following subfolders and files:



- The **Input-folder** contains the input vector and raster data provided by the Lithuanian Nature Research Centre and the Lithuanian Centre for Sustainable Development.
- The **Lyr-folder** contains symbolization files (*.LYR) for displaying all raster data sets that are to be processed by the Toolbox.
- The **Python-folder** contains python-scripts referenced by the Toolbox.
- The **Result-folder** contains four file-based geodatabases for storage of the output vector and raster data processed by the Toolbox.
- The **Scratch-folder** contains temporary output data processed by ModelBuilder.
- The **Stylesheets-folder** contains stylesheets and logos for the graphical user interface of the Toolbox.

3. Start **ArcGIS Advanced** and ensure that you have enabled the **Spatial Analyst extension**
4. Add the **DAVEP-VLIT Tools.tbx** to your **ArcToolBox**
5. Double-click the **DAVEP-VLIT.MXD** to open the DAVEP-VLIT Map document

The **DAVEP-VLIT.MXD** has a traditional ArcGIS-desktop interface with a map-window, a Table of content window and an ArcToolbox window.

The **Data Frame Coordinate System** and all output data is set to **LKS_1994_Lithuania_TM (EPSG 3346)**. All input data are transformed into this coordinate system.

The background map is the **free online World Topographic Map** compiled by ESRI from a variety of best available sources from several data providers (Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community). Other background maps can easily be added to the Background maps group layer by the user.

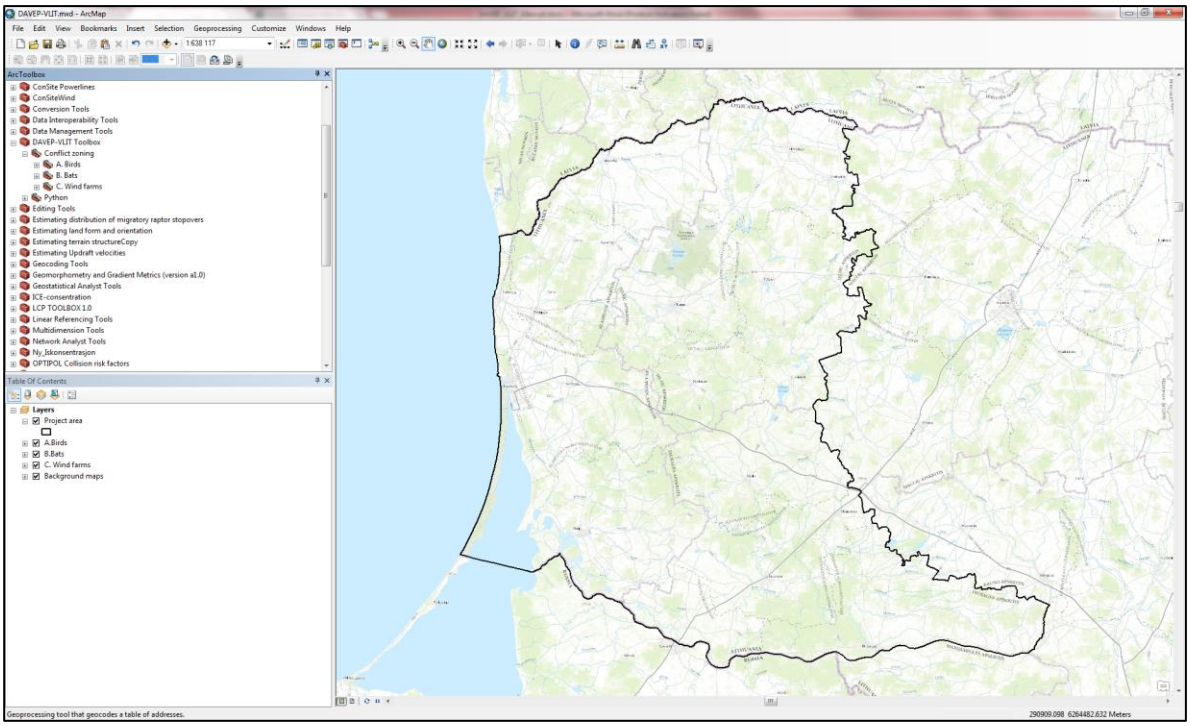


Figure 4: The DAVEP-VLIT.MXD user interface

Please check the **Environmental settings (Geoprocessing\Environment settings**):

- Current workspace (<Local Drive>:\DAVEP_VLIT)
- Scratch workspace (<Local Drive>:\DAVEP_VLIT\Scratch)
- Output coordinate system (LKS_1994_Lithuania_TM)
- Processing extent (Same as layer Project Area)
- Snap raster (%workspace%\Result\Maps.gdb\EUDEMClip)
- Raster Analyze Cell size (30)
- Raster Analyze mask(%workspace%\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area)

4 Getting started

The Wind Power Conflict Zoning Toolbox is organized into a **Conflict Zoning** toolbox and a **Python toolbox** (Python scripts organizing the map layer table of content) as displayed in figure 2 below. The Wind Power Conflict Zoning Toolbox contains a separate **Overall conflict zone map tool** for aggregation of an overall conflict map and conflict zones and one toolbox for each of the three main themes **Birds**, **Bats** and **Wind farms**. Each of these toolboxes has **sub-thematic toolboxes**. In the following sections each tool in the Conflict Zoning Toolbox will be described.

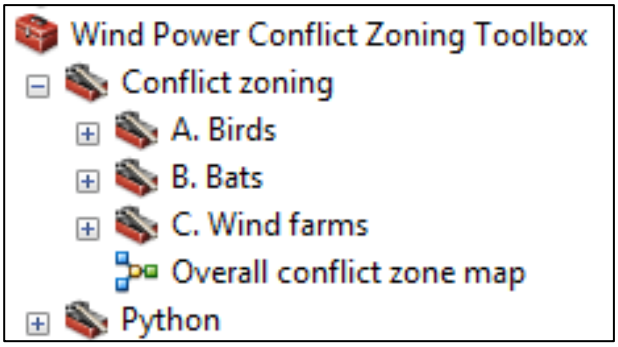


Figure 5: The Wind Power Conflict Zoning Toolbox

4.1 The Birds toolbox

The “Birds toolbox (A. Birds)” have 5 sub-thematic toolboxes that contains criteria tools and overall conflict map tools for “Migrating birds” (section 4.1.1), “Wintering birds” (section 4.1.2), “Nesting water birds and waders” (section 4.1.3), “Nesting birds of prey and other soaring birds” (section 4.1.4) and “All sensitive nesting places” (section 4.1.5). The “Birds toolbox (A. Birds)” also has a “Overall A Conflict map” (section 4.1.6). Processing logs are available in chapter 6. Annex 1.

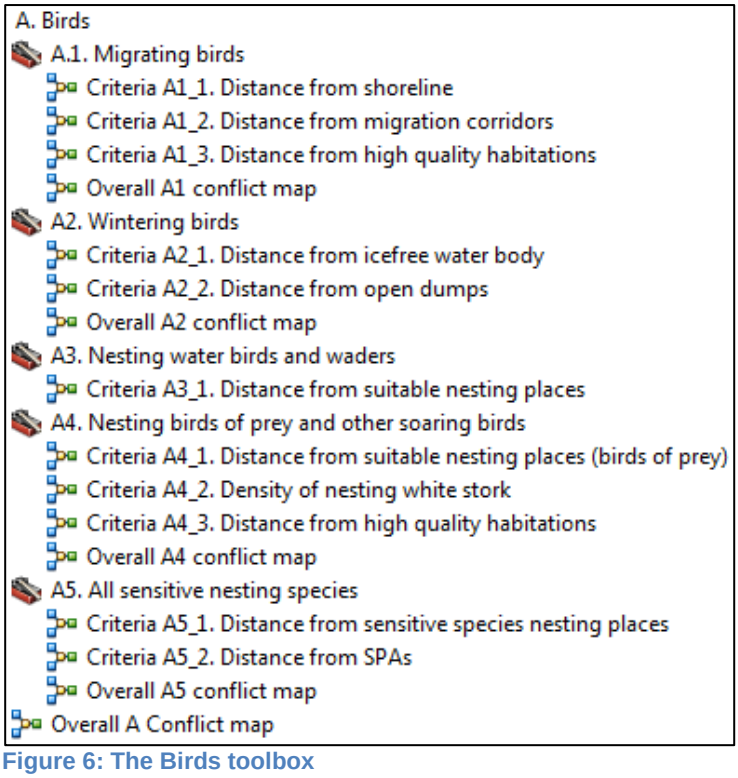


Figure 6: The Birds toolbox

4.1.1 The Migrating birds criteria tools

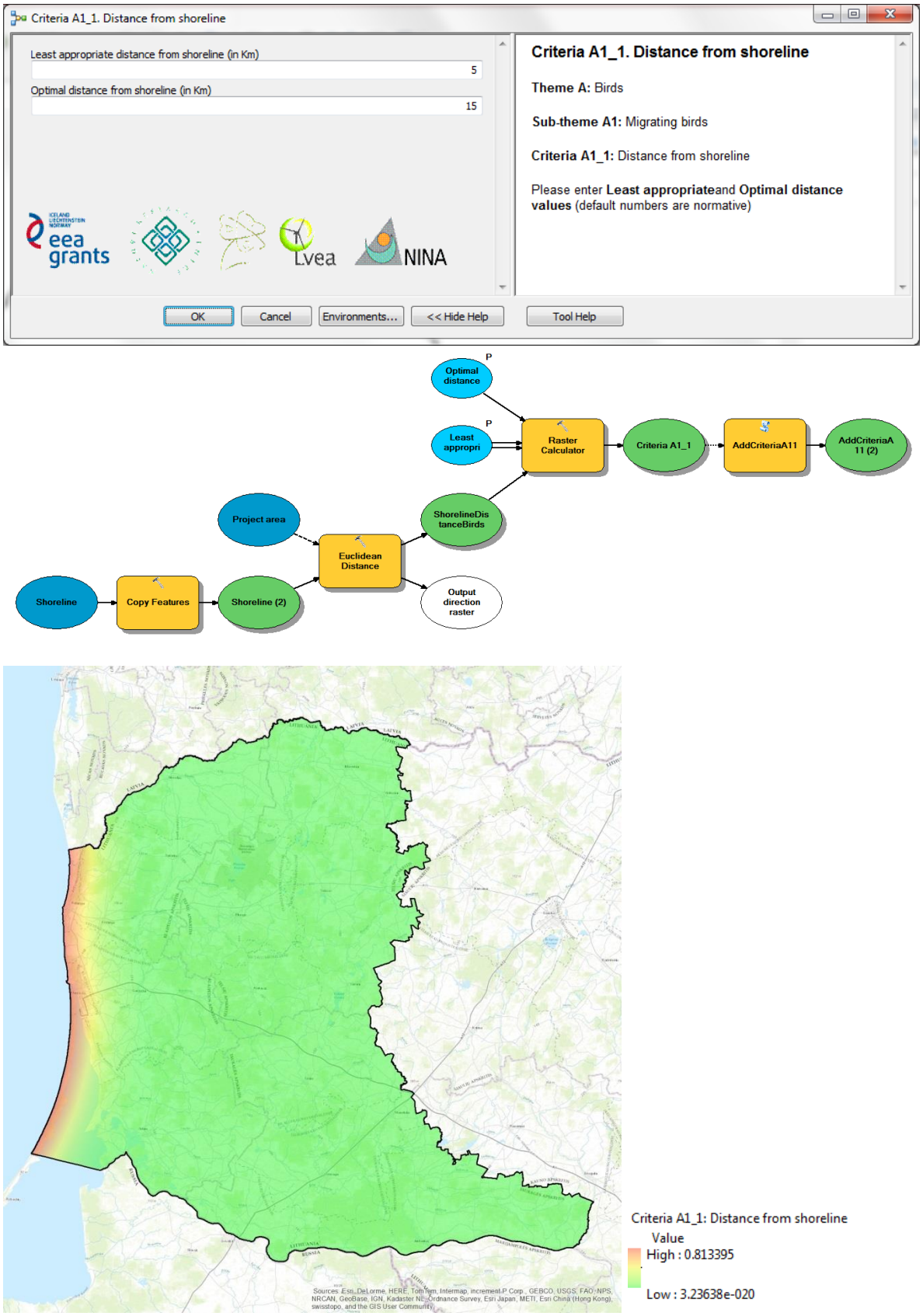


Figure 7: Graphical user interface, workflow and the resulting conflict map for A1_1

4.1.2 The Wintering birds criteria tools
4.1.3 The Nesting water birds and waders criteria tools
4.1.4 The Nesting birds of prey and other soaring birds criteria tools
4.1.5 The Overall birds conflict map tool

4.2 The Bats toolbox

The Bats toolbox (B. Bats) has only one sub-thematic toolbox that contains the “Bats criteria tools” (**section 4.2.1)** and an “Overall B1 conflict map tool” (**section 4.2.2**.). Processing logs are available in chapter 6. Annex 1.

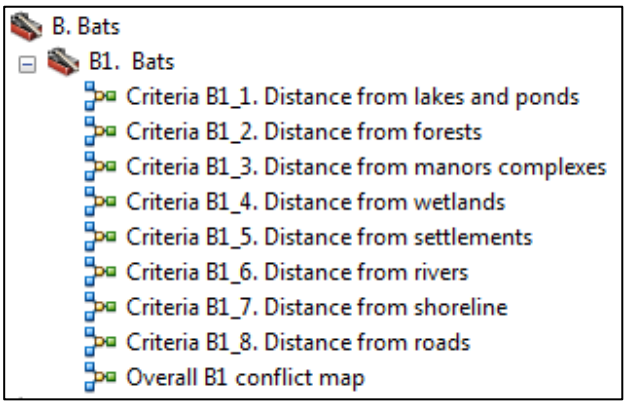


Figure 8: The Bats toolbox

4.2.1 The Bats criteria tools

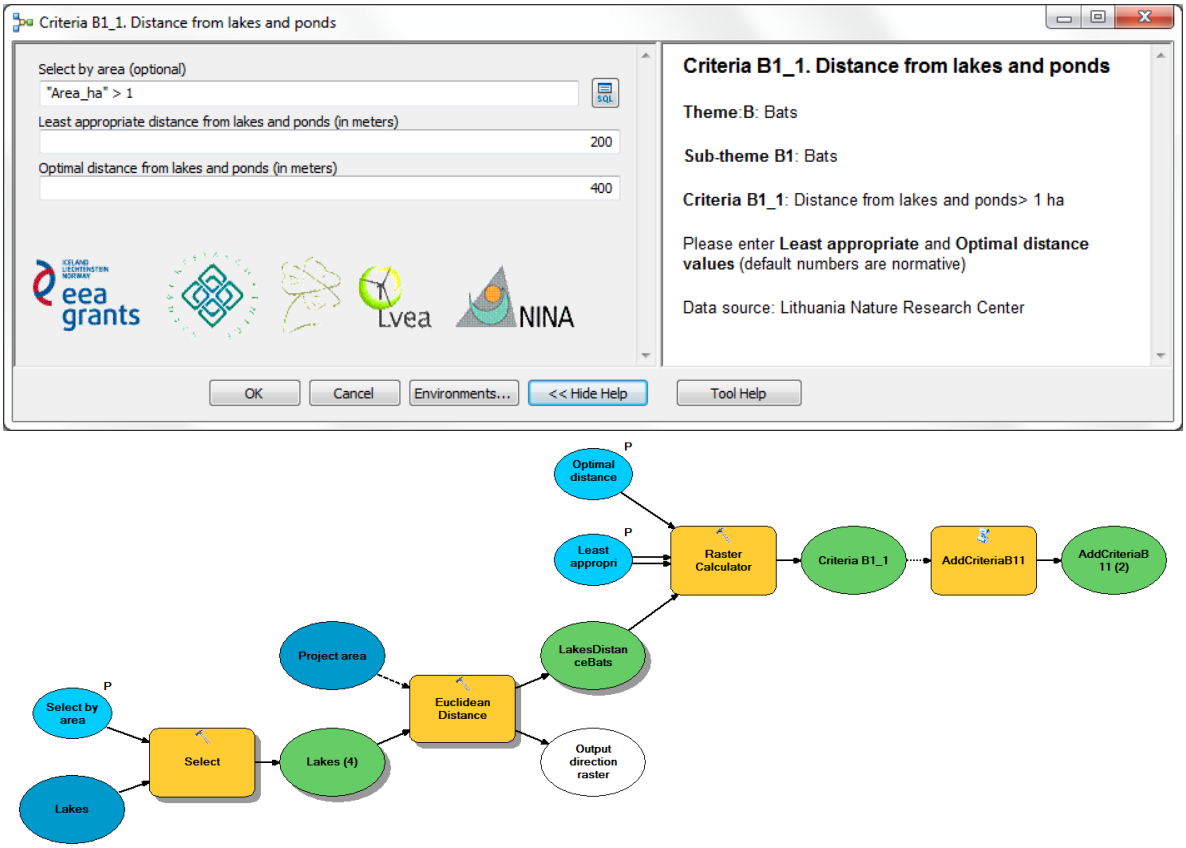


Figure 9: Graphical user interface, workflow and the resulting conflict map for B1_1

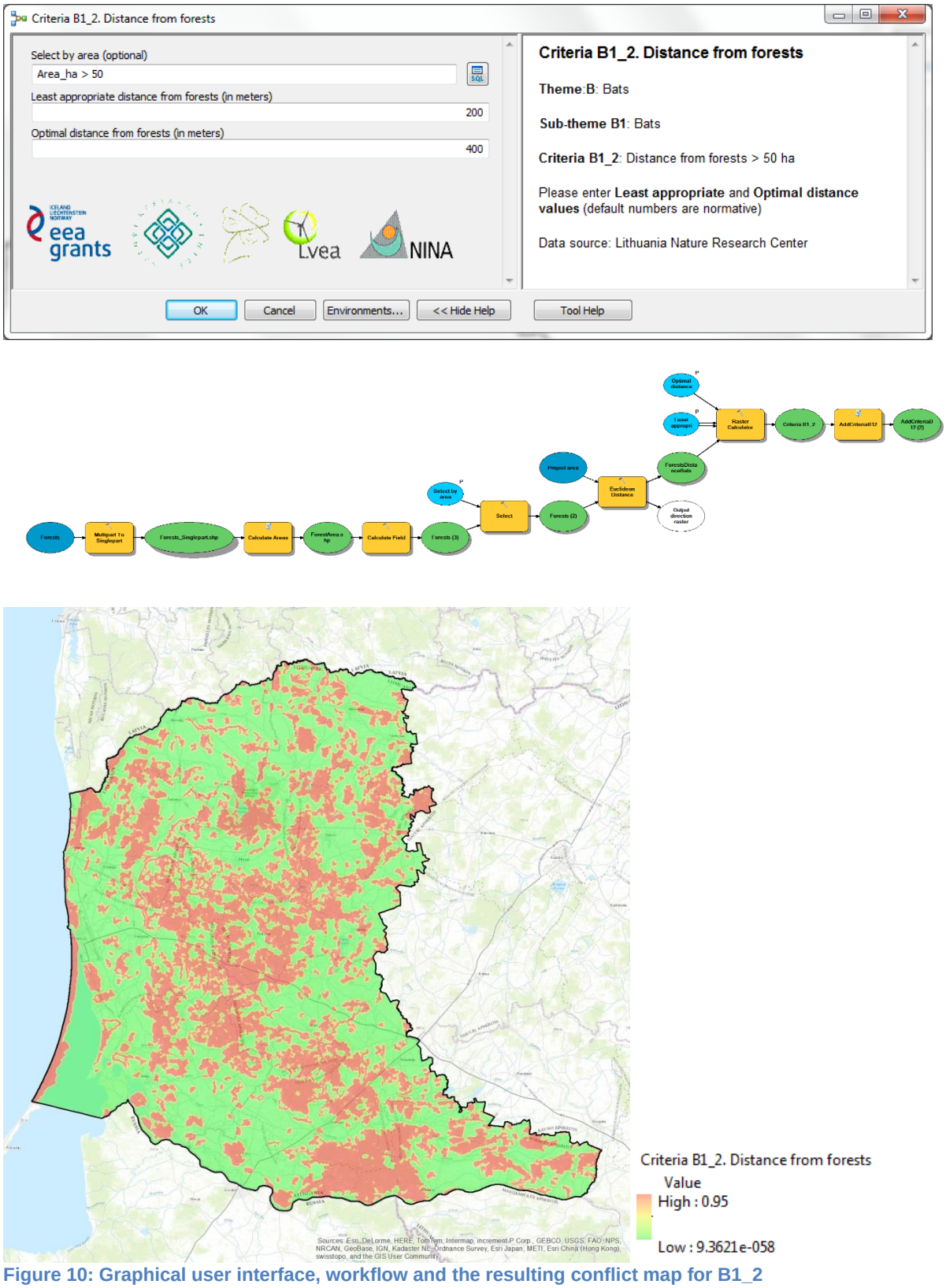
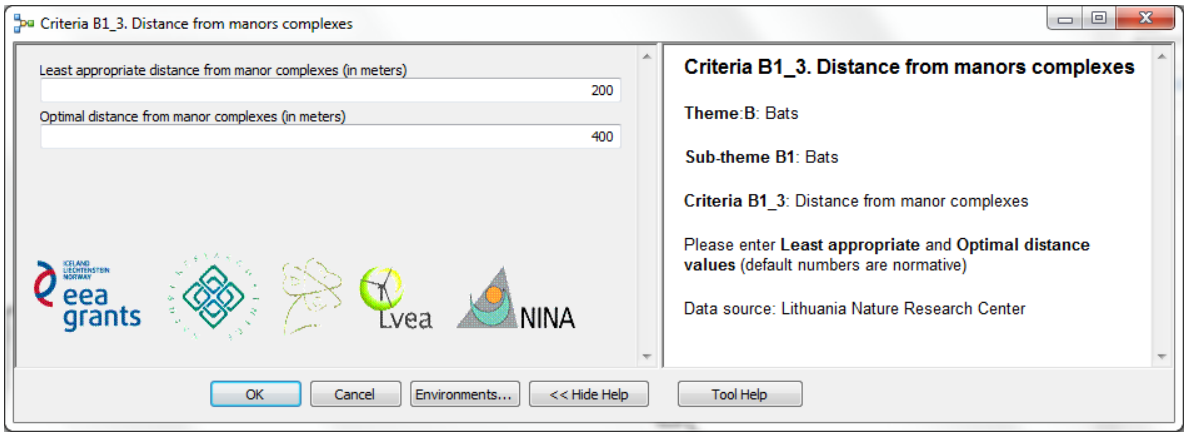
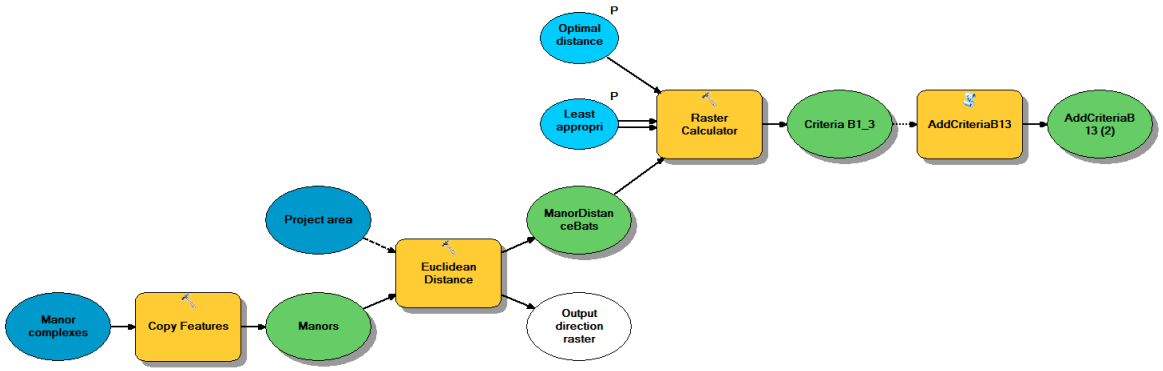


Figure 10: Graphical user interface, workflow and the resulting conflict map for B1_2





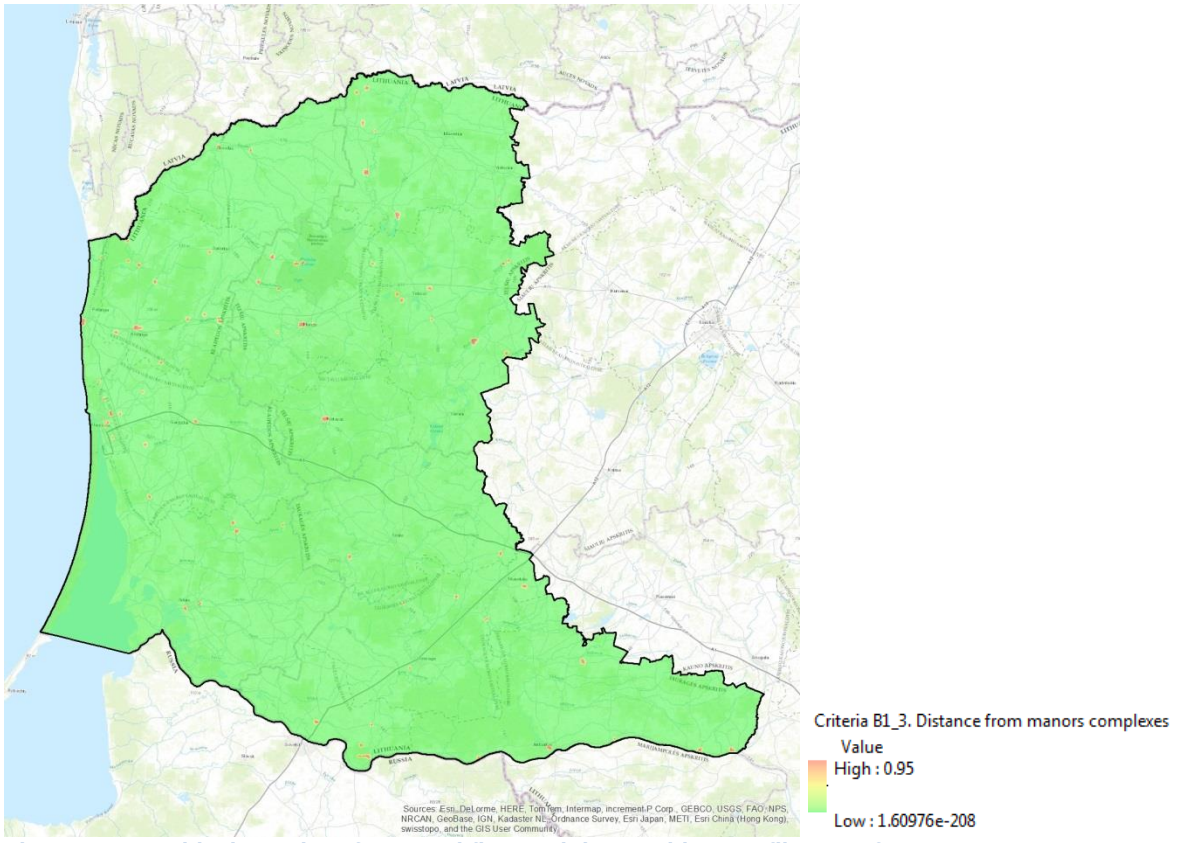


Figure 11: Graphical user interface, workflow and the resulting conflict map for B1_3

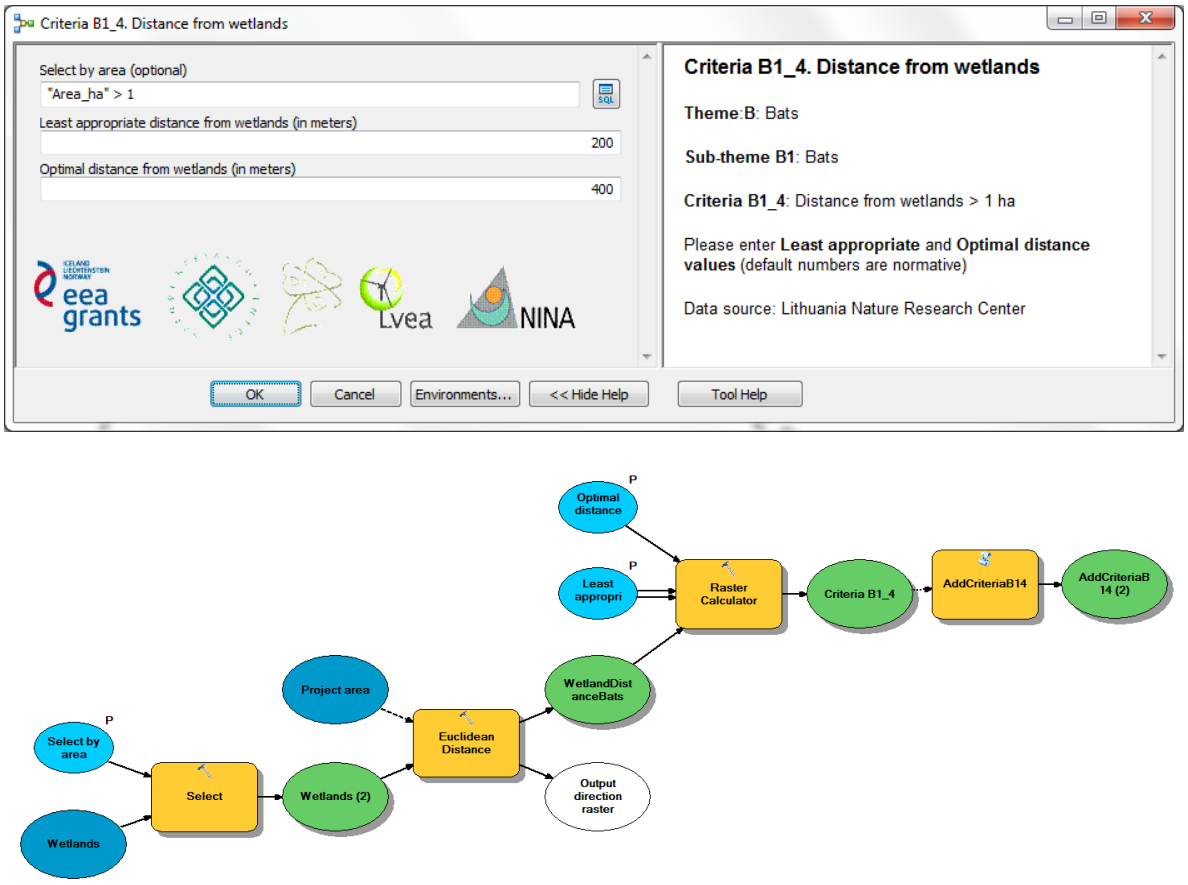
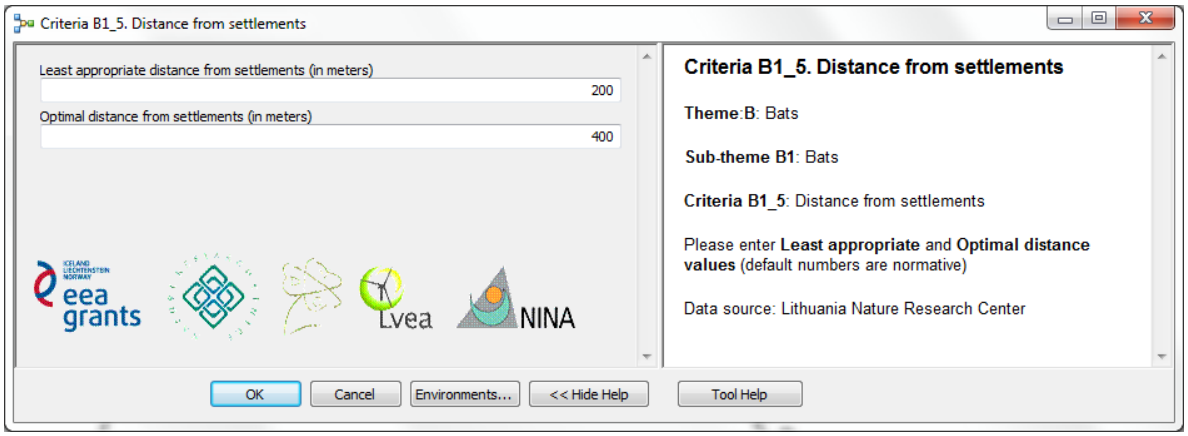
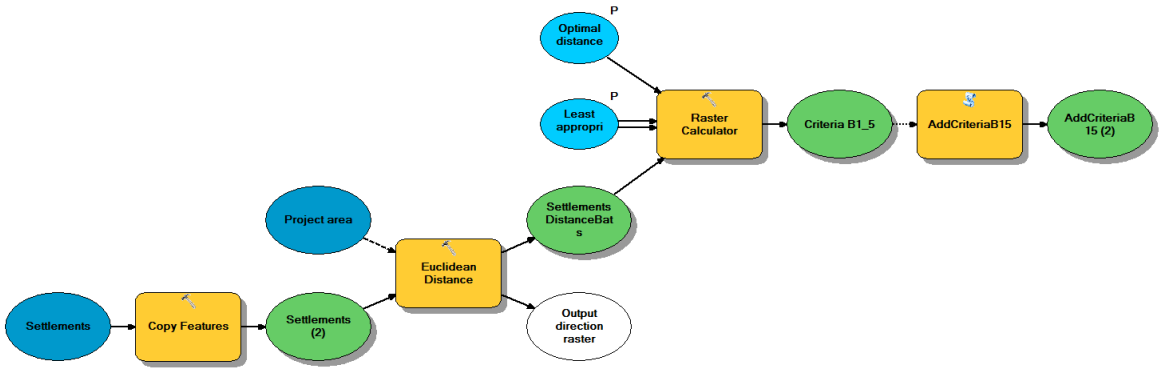


Figure 12: Graphical user interface, workflow and the resulting conflict map for B1_4





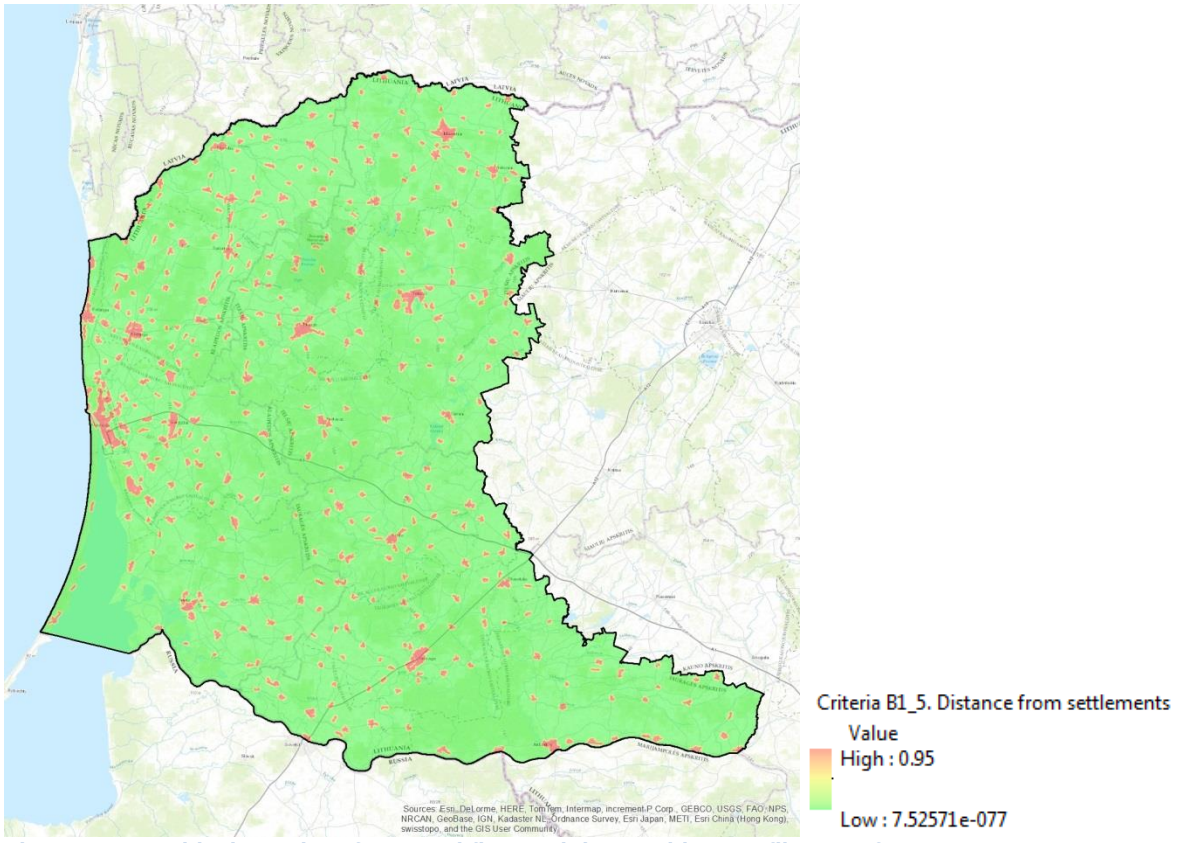
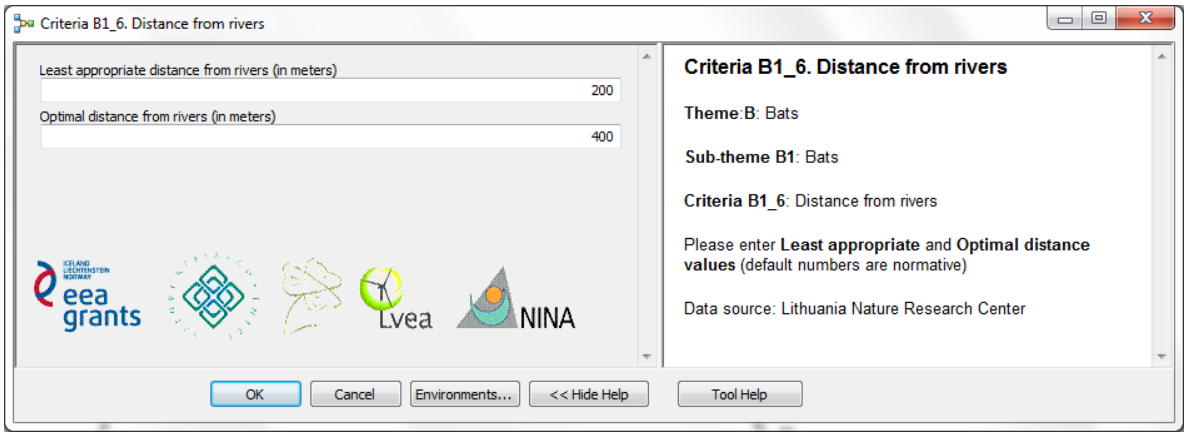
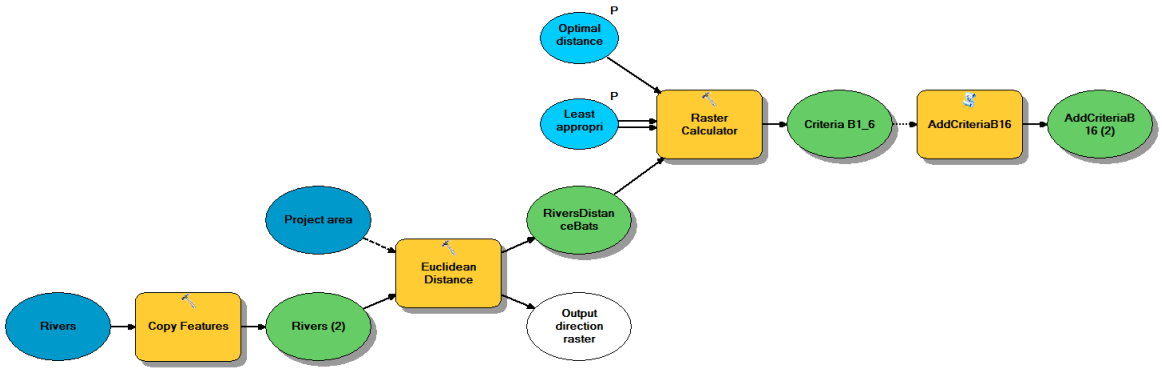


Figure 13: Graphical user interface, workflow and the resulting conflict map for B1_5





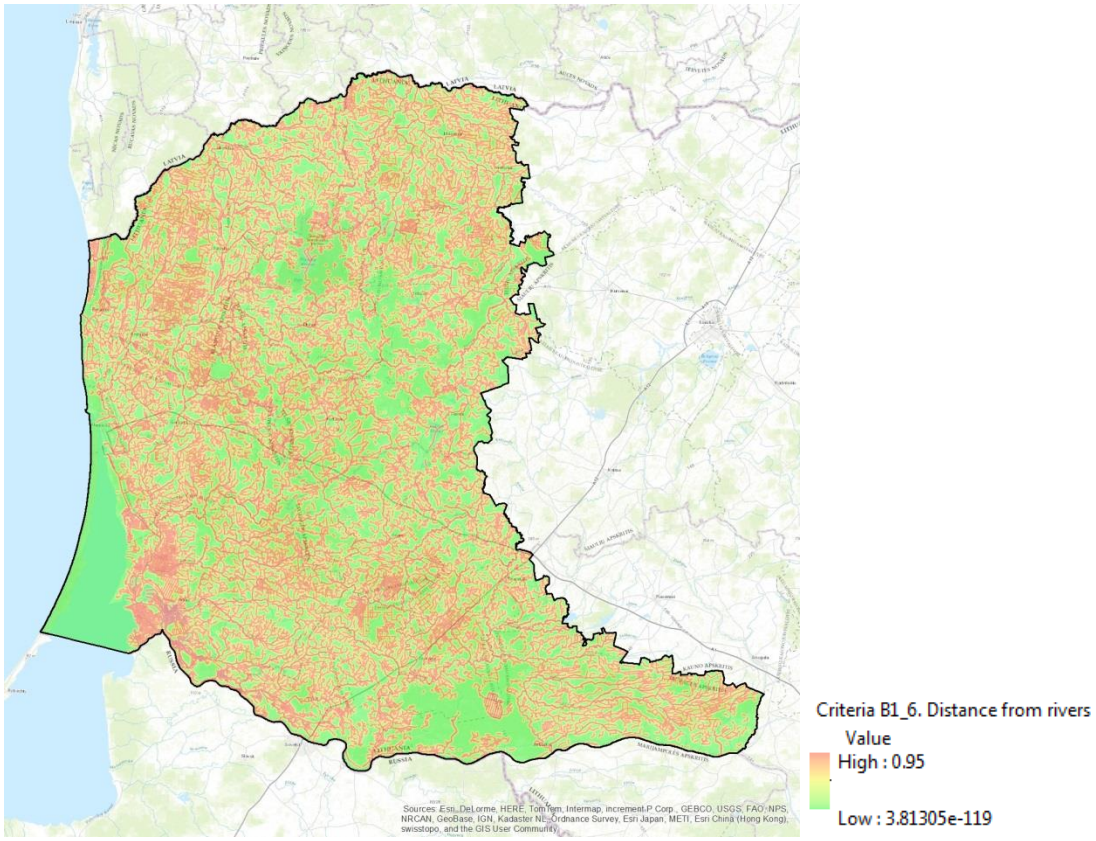


Figure 14: Graphical user interface, workflow and the resulting conflict map for B1_6

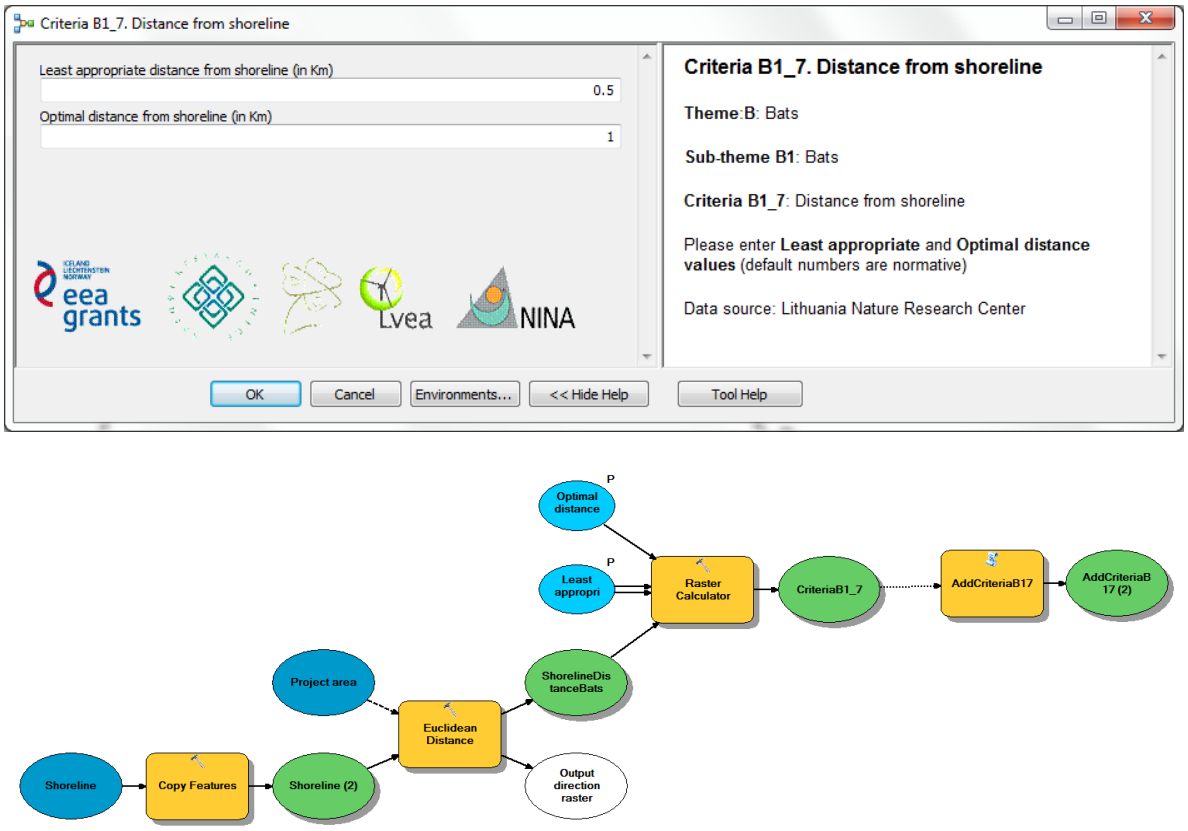


Figure 15: Graphical user interface, workflow and the resulting conflict map for B1_7

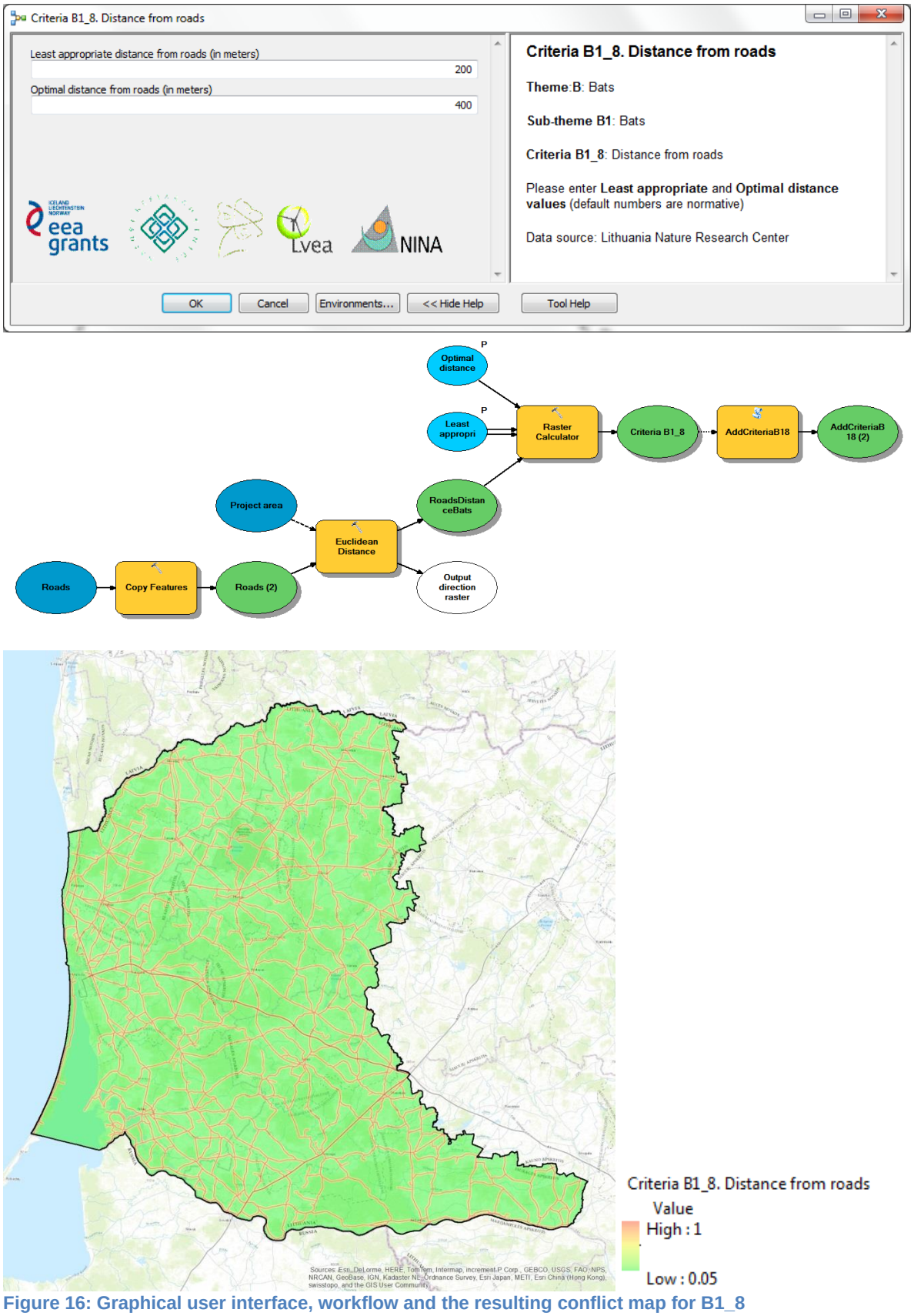


Figure 16: Graphical user interface, workflow and the resulting conflict map for B1_8

4.2.2 The Overall B1 conflict map tool

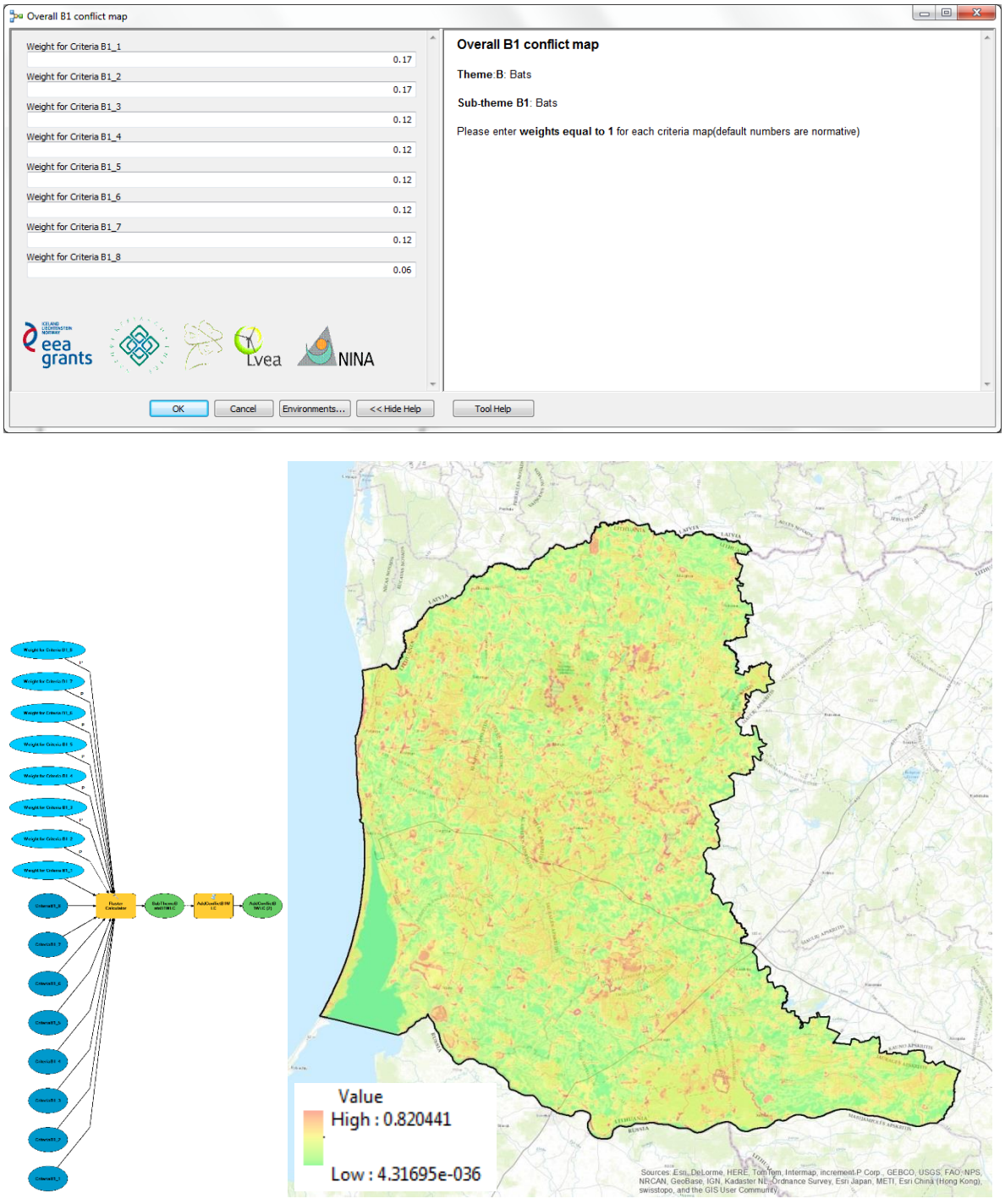


Figure 17: Graphical user interface, workflow and the resulting conflict map for B1

4.3 The Wind farms toolbox

The “Wind Farms toolbox (A. Wind farms)” have 3 sub-thematic toolboxes that contains criteria tools and overall conflict map tools for “Tower height < 75 meters” (section 4.3.1), “Tower height 75 – 150 meters” (section 4.3.2) & “Tower height > 150 meters” (section 4.3.3). The “Wind farms toolbox (C. Wind farms)” also has an “Overall C Conflict map” (section 4.3.4). Processing logs are available in chapter 6. Annex.

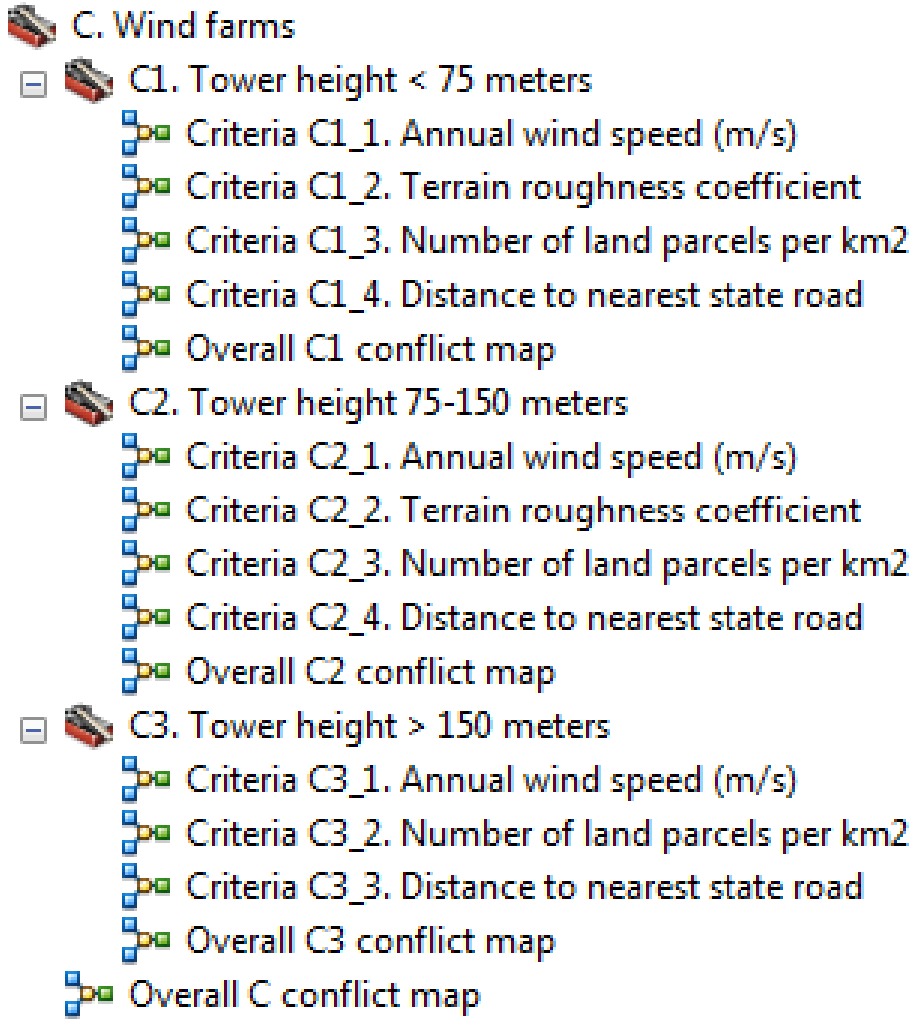


Figure 18: The Wind farms toolbox

4.3.1 Tower height < 75 meters criteria tools

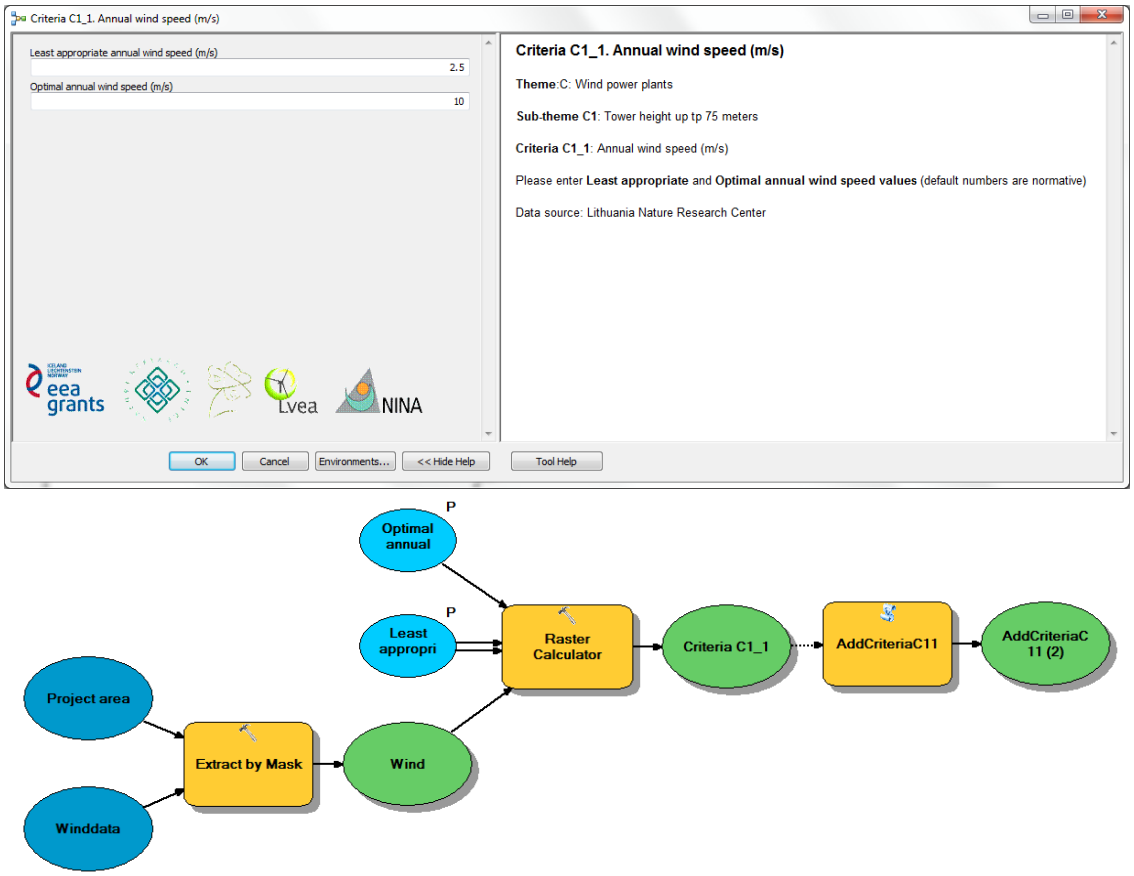


Figure 18: Graphical user interface, workflow and the resulting conflict map for C1_1

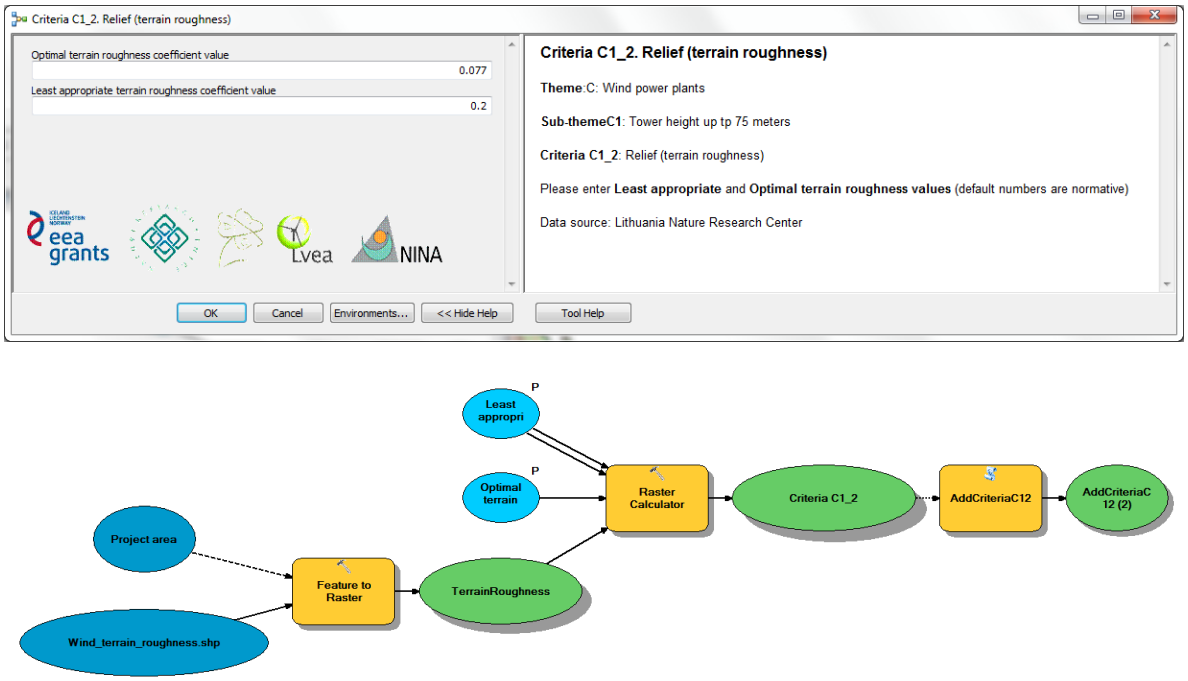


Figure 19: Graphical user interface, workflow and the resulting conflict map for C1_2

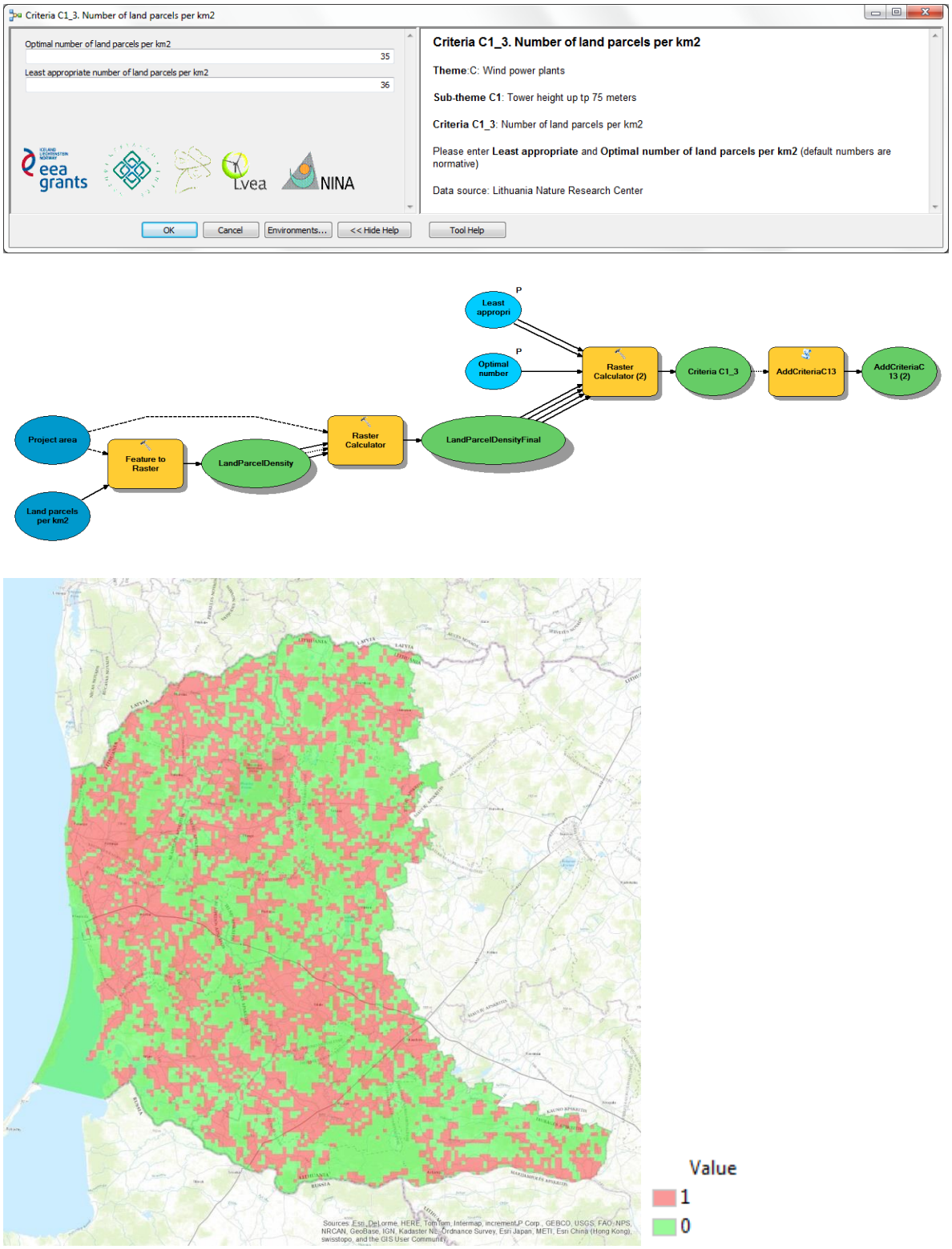


Figure 20: Graphical user interface, workflow and the resulting conflict map for C1_3

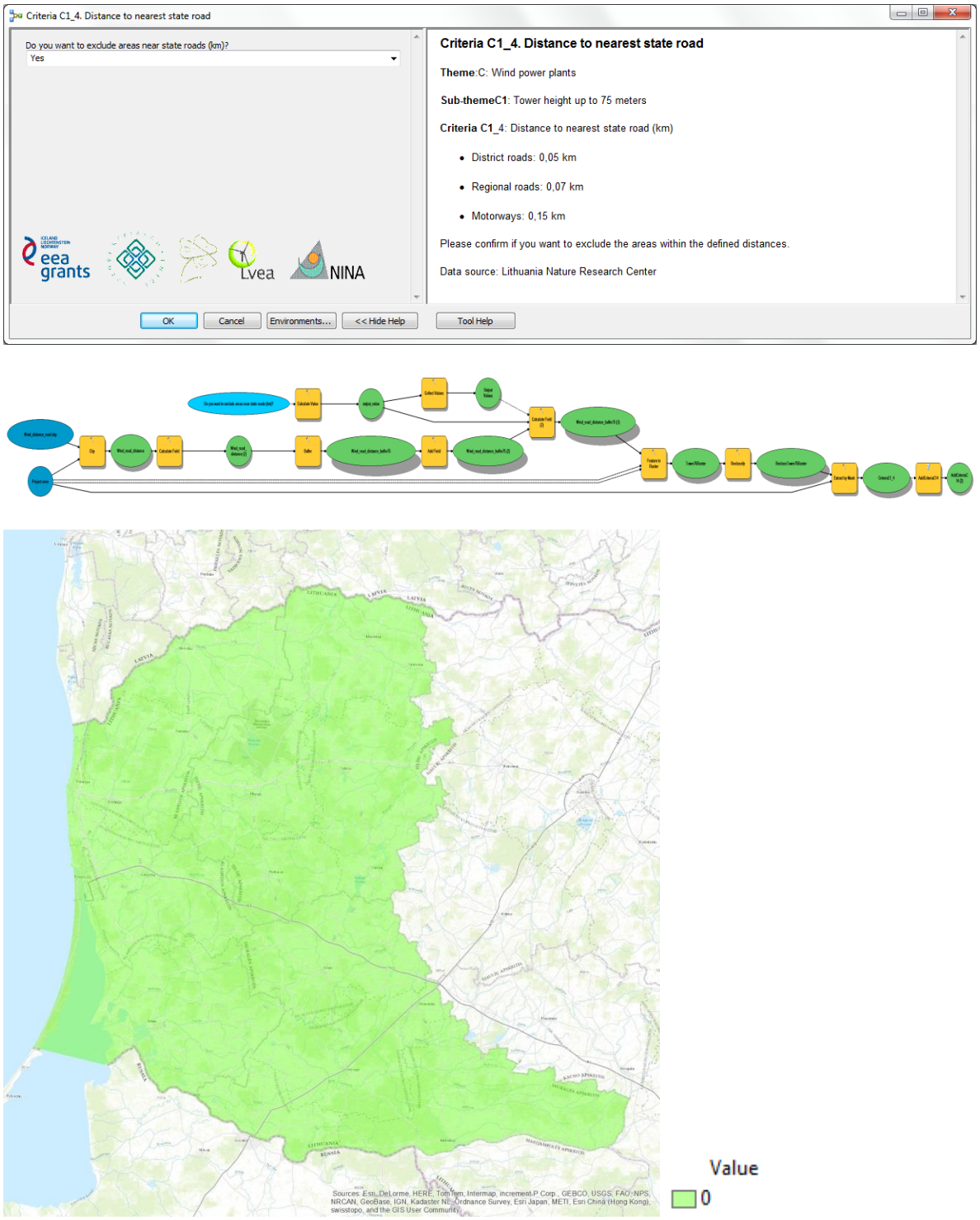


Figure 21: Graphical user interface, workflow and the resulting conflict map for C1_4 (No-go areas within the defined distances are set no NoData).

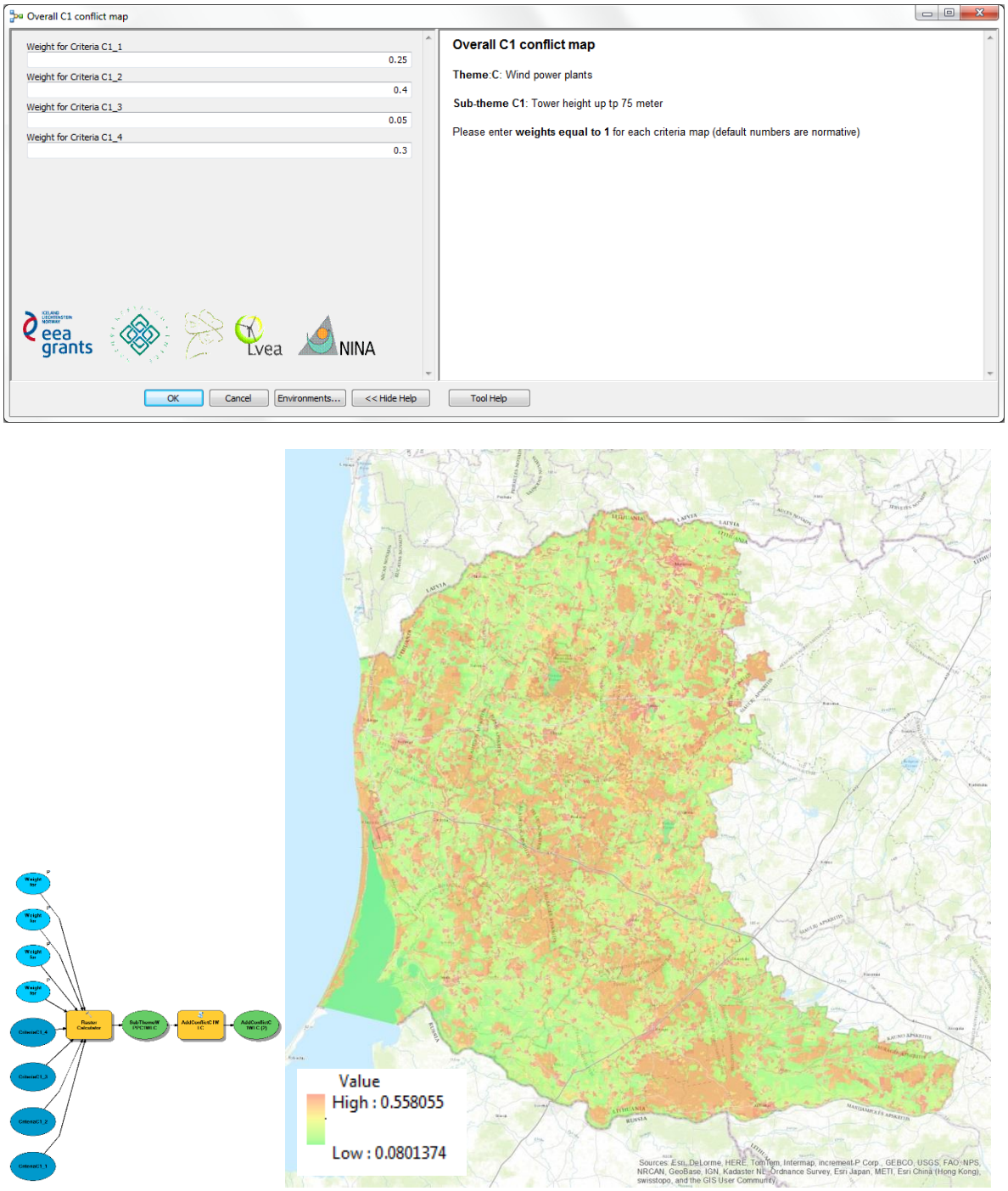


Figure 22: Graphical user interface, workflow and the resulting conflict map for C1

4.3.2 Tower height 75 – 150 meters criteria tools

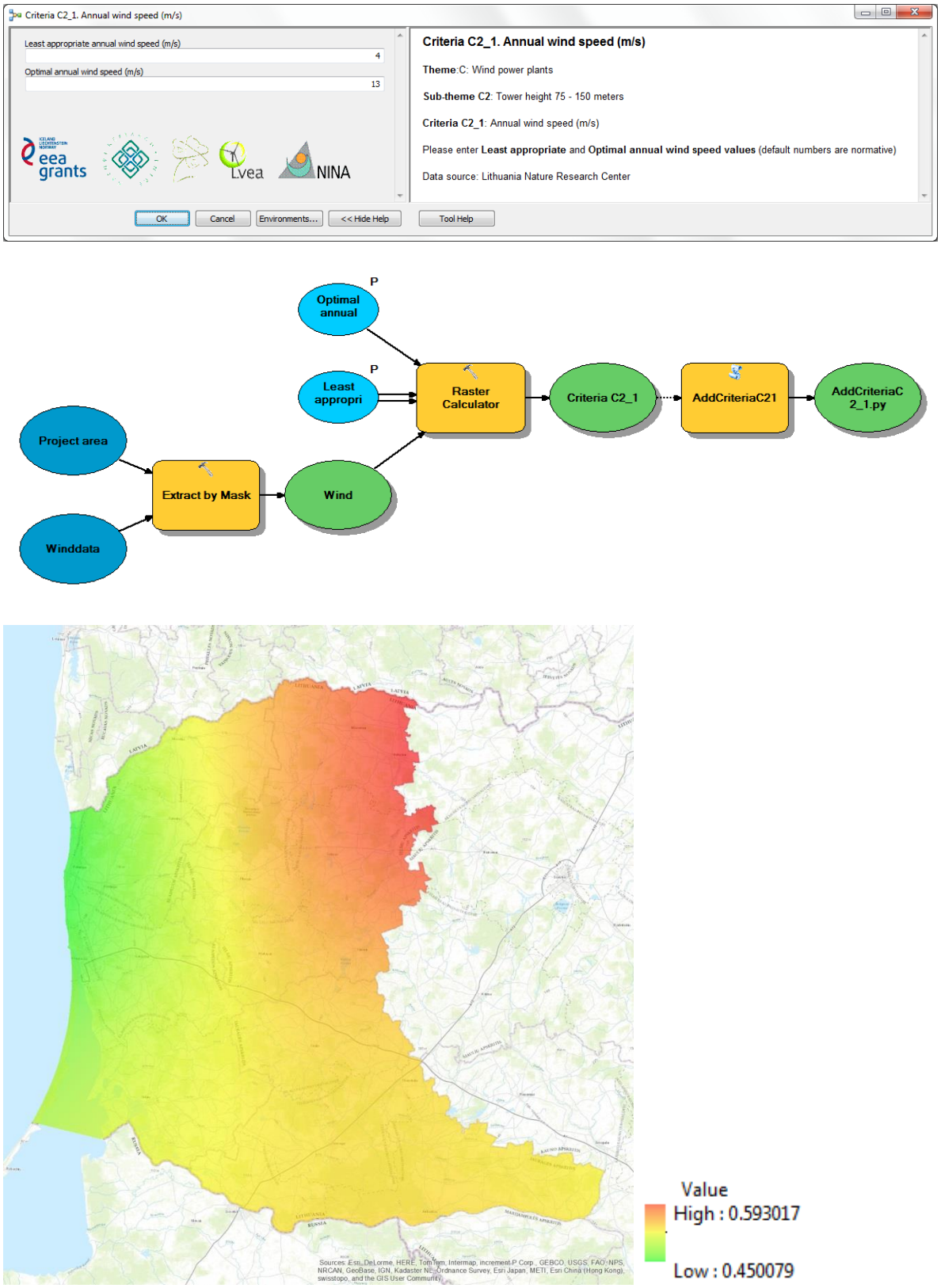
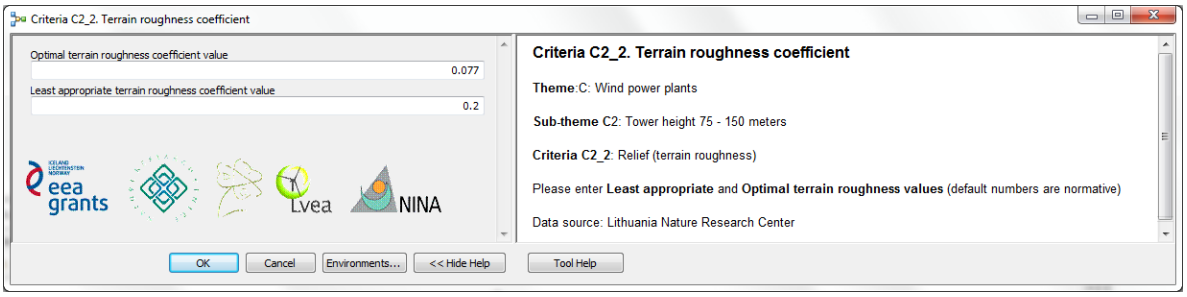
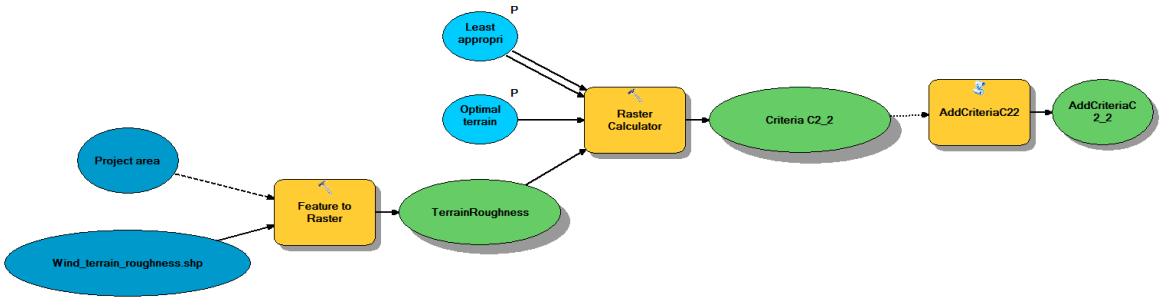


Figure 23: Graphical user interface, workflow and the resulting conflict map for C2_1





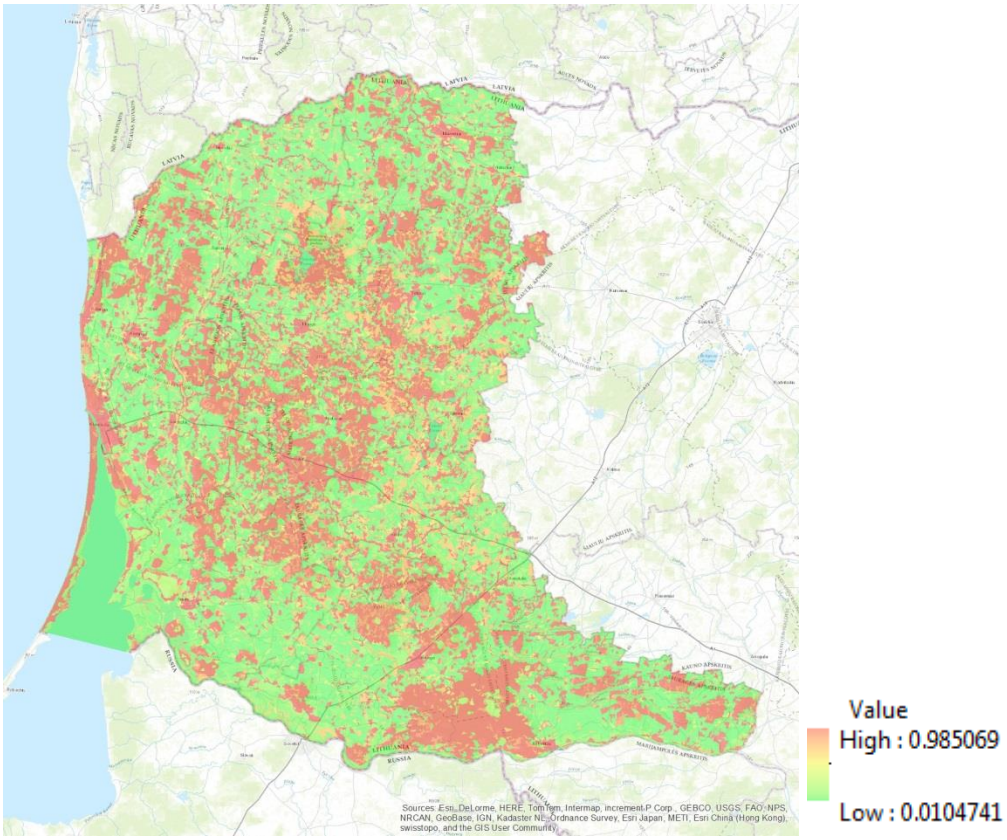
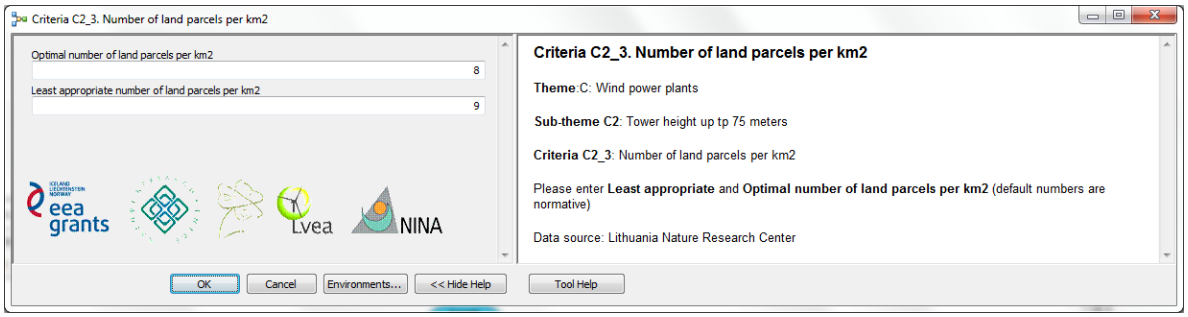
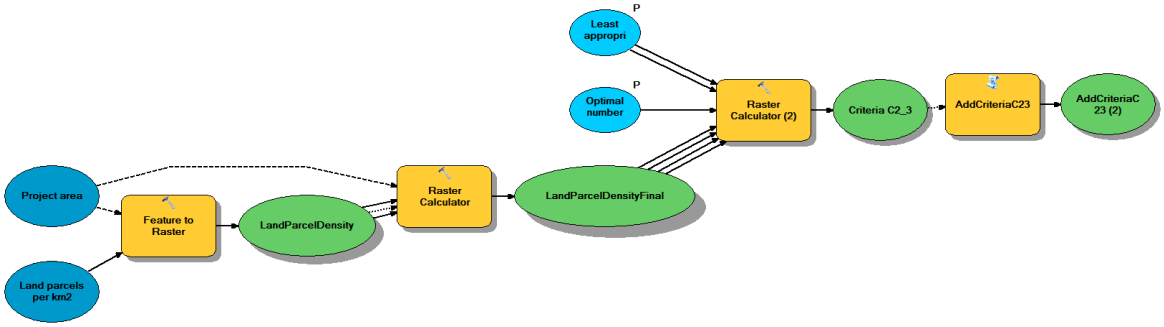


Figure 24: Graphical user interface, workflow and the resulting conflict map for C2_2





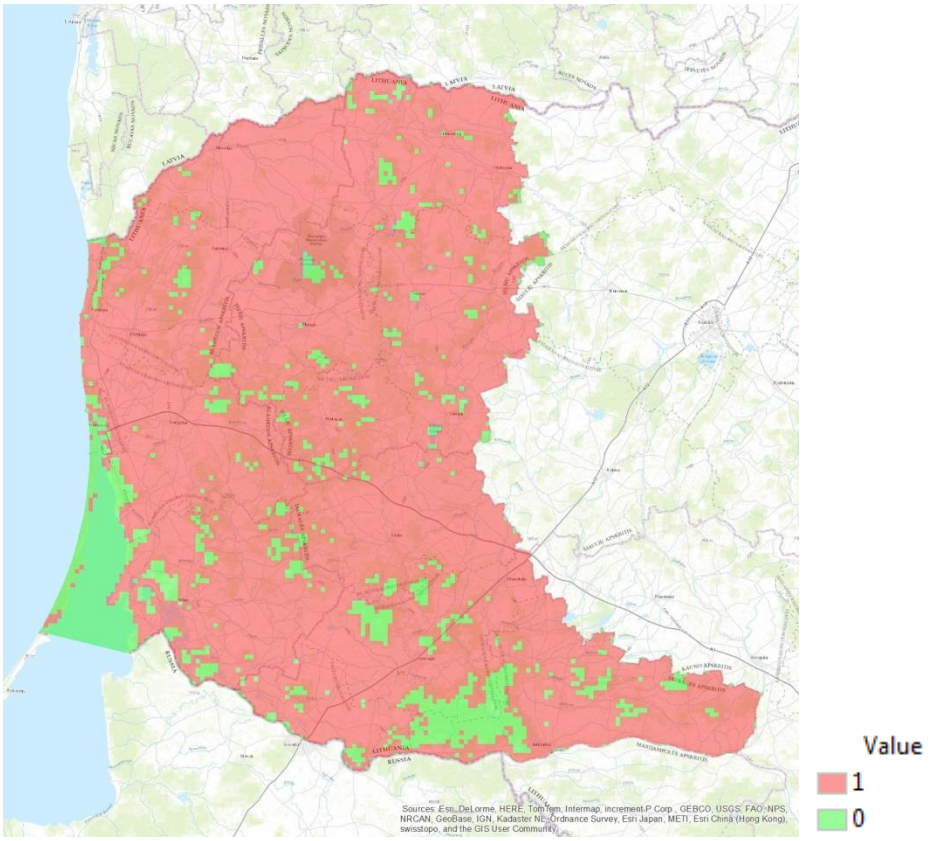


Figure 25: Graphical user interface, workflow and the resulting conflict map for C2_3

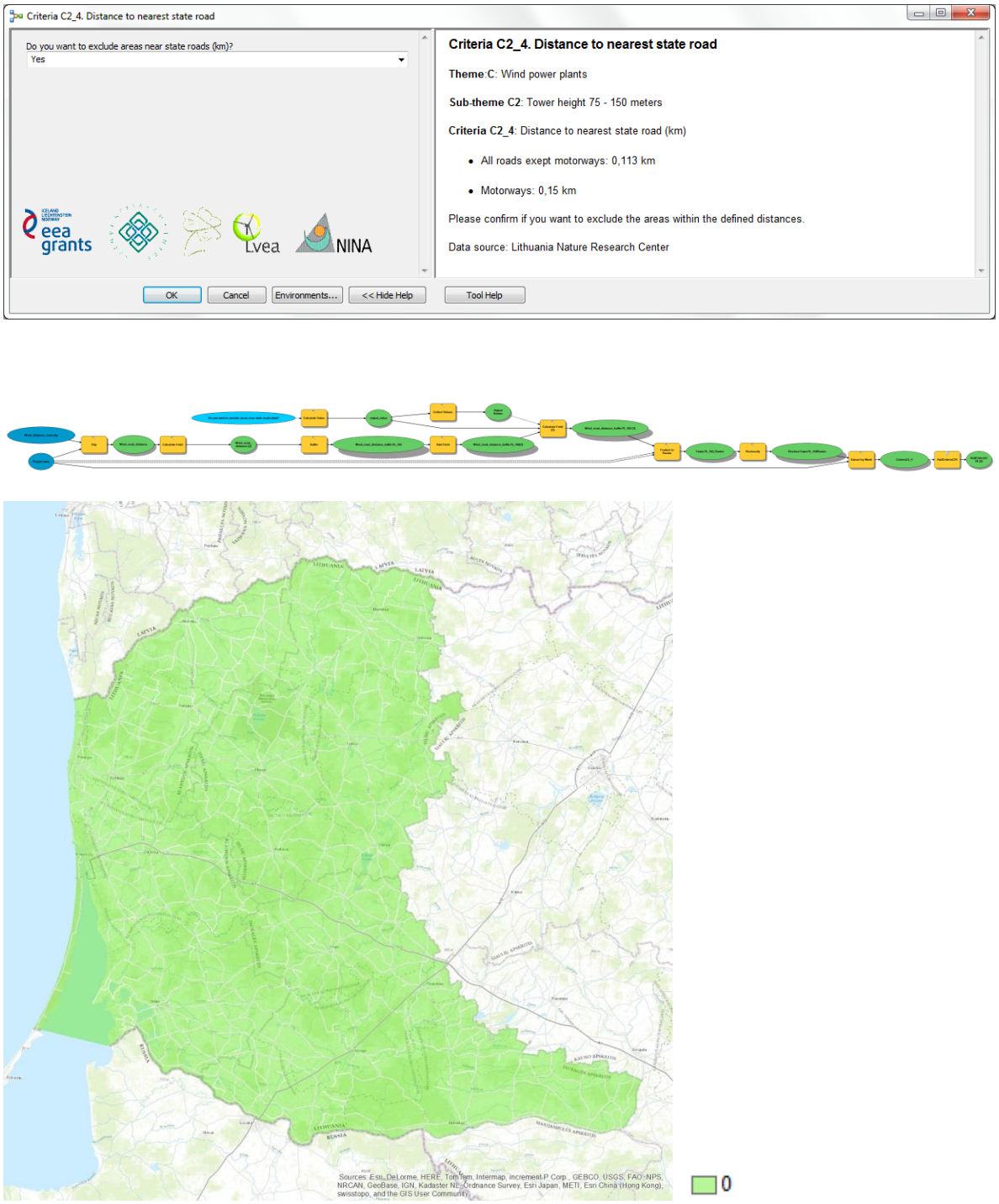
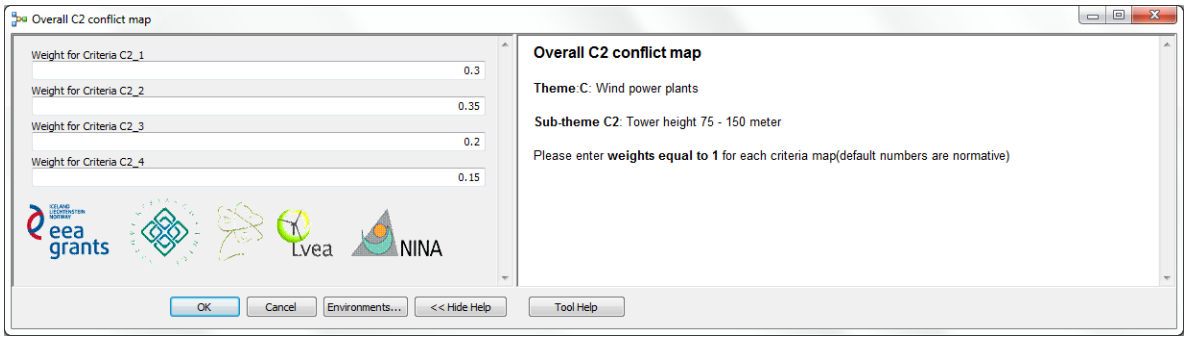


Figure 26: Graphical user interface, workflow and the resulting conflict map for C2_4 (No-go areas within the defined distances are set no NoData).



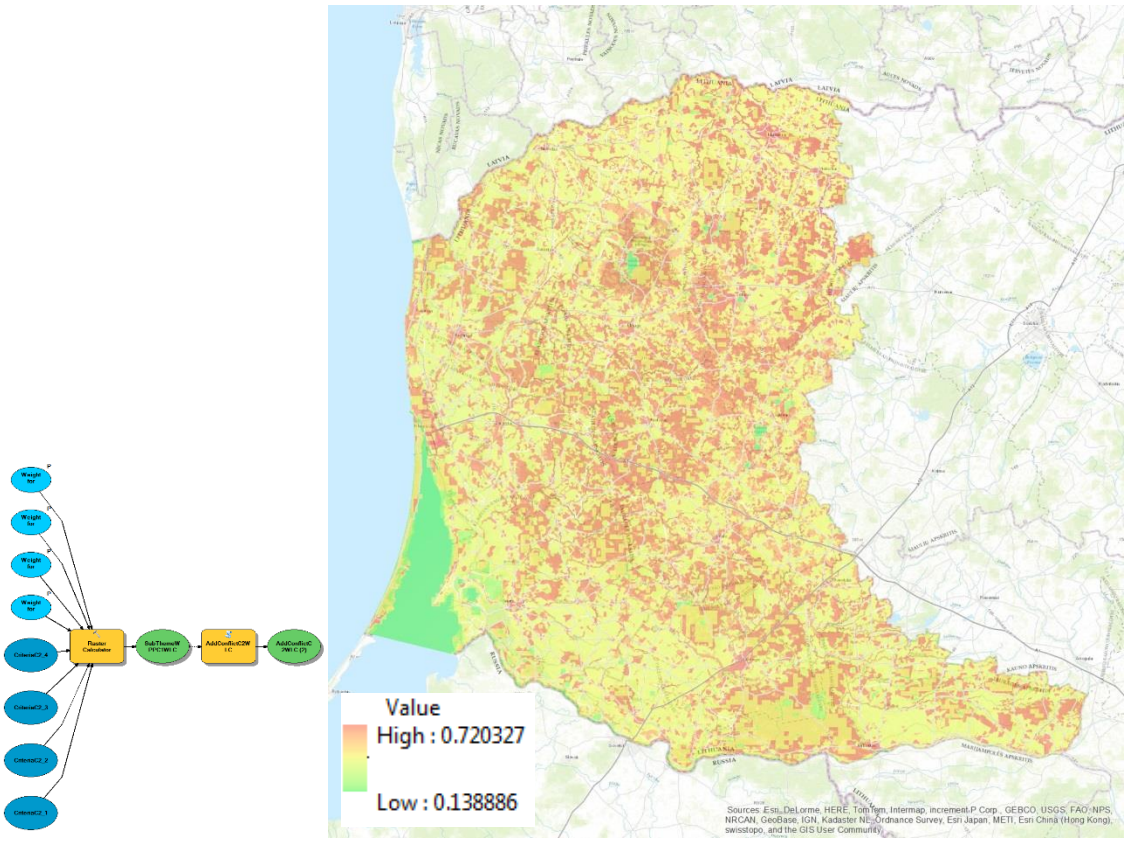


Figure 27: Graphical user interface, workflow and the resulting conflict map for C2

4.3.3 Tower height > 150 meters criteria tools

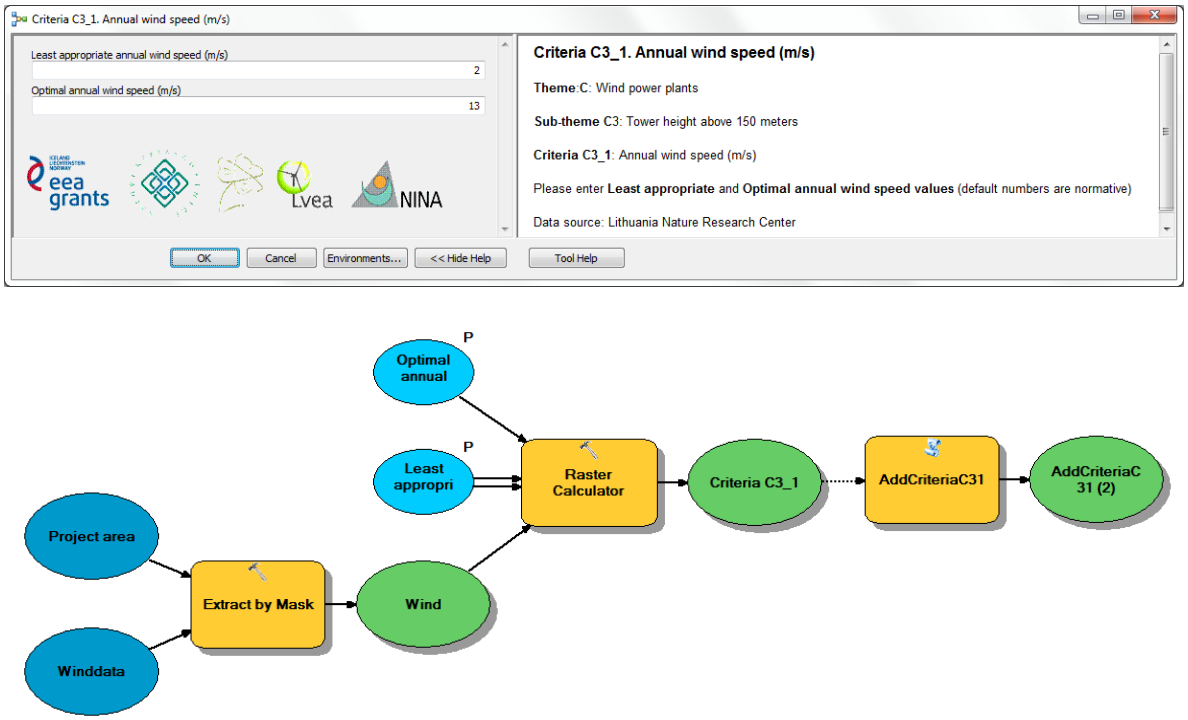


Figure 28: Graphical user interface, workflow and the resulting conflict map for C3_1

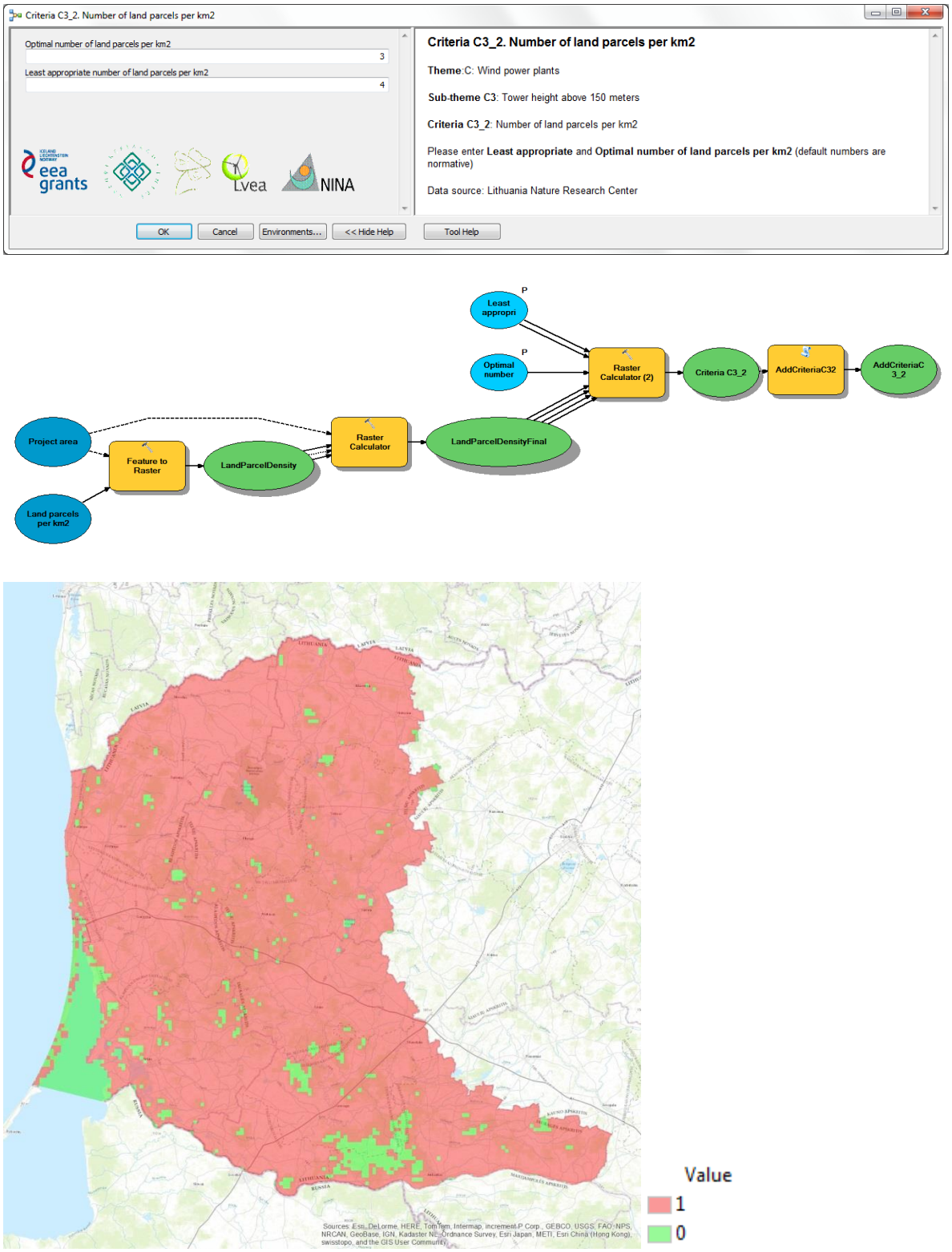


Figure 29: Graphical user interface, workflow and the resulting conflict map for C3_2

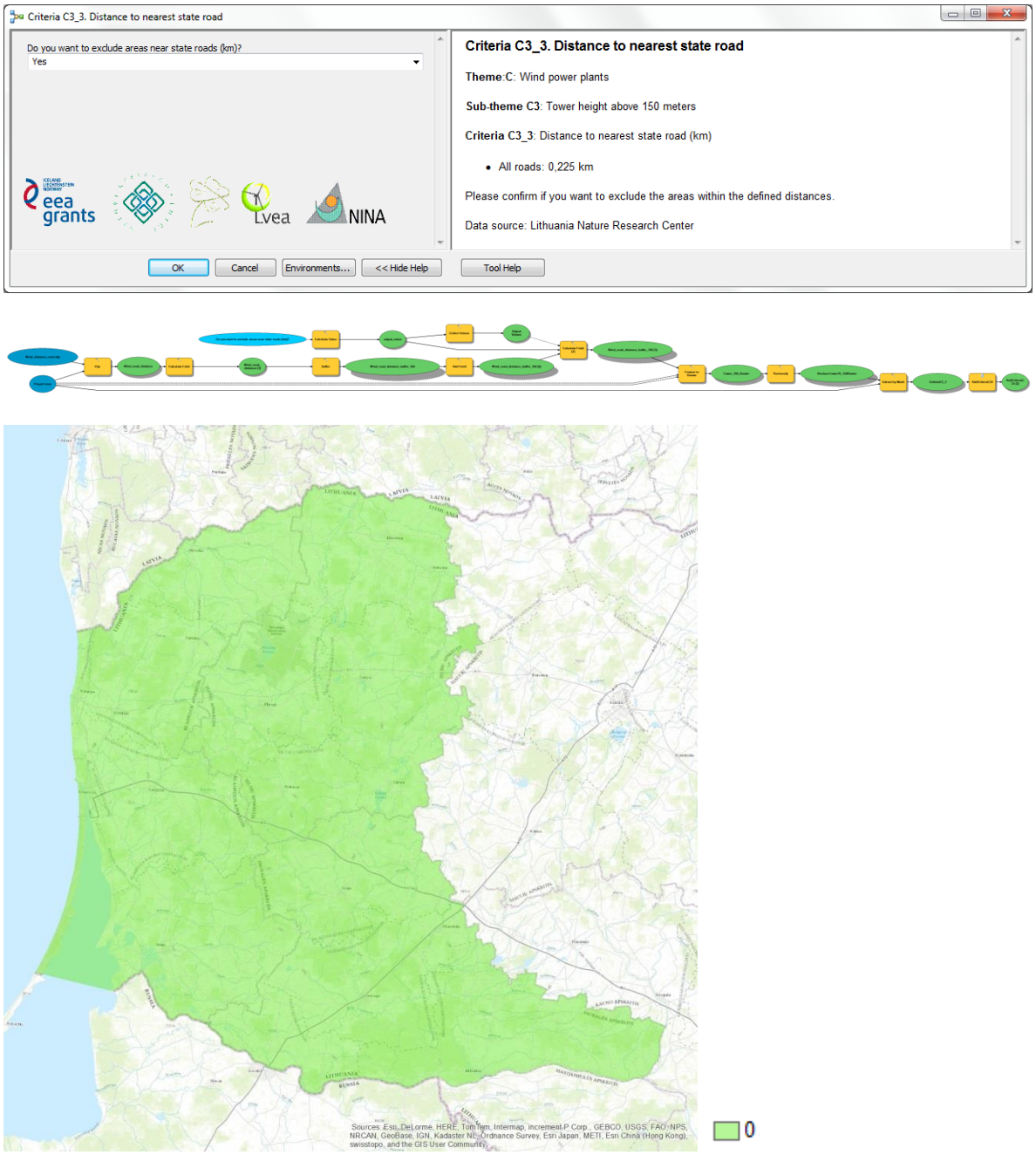


Figure 30: Graphical user interface, workflow and the resulting conflict map for C3_3

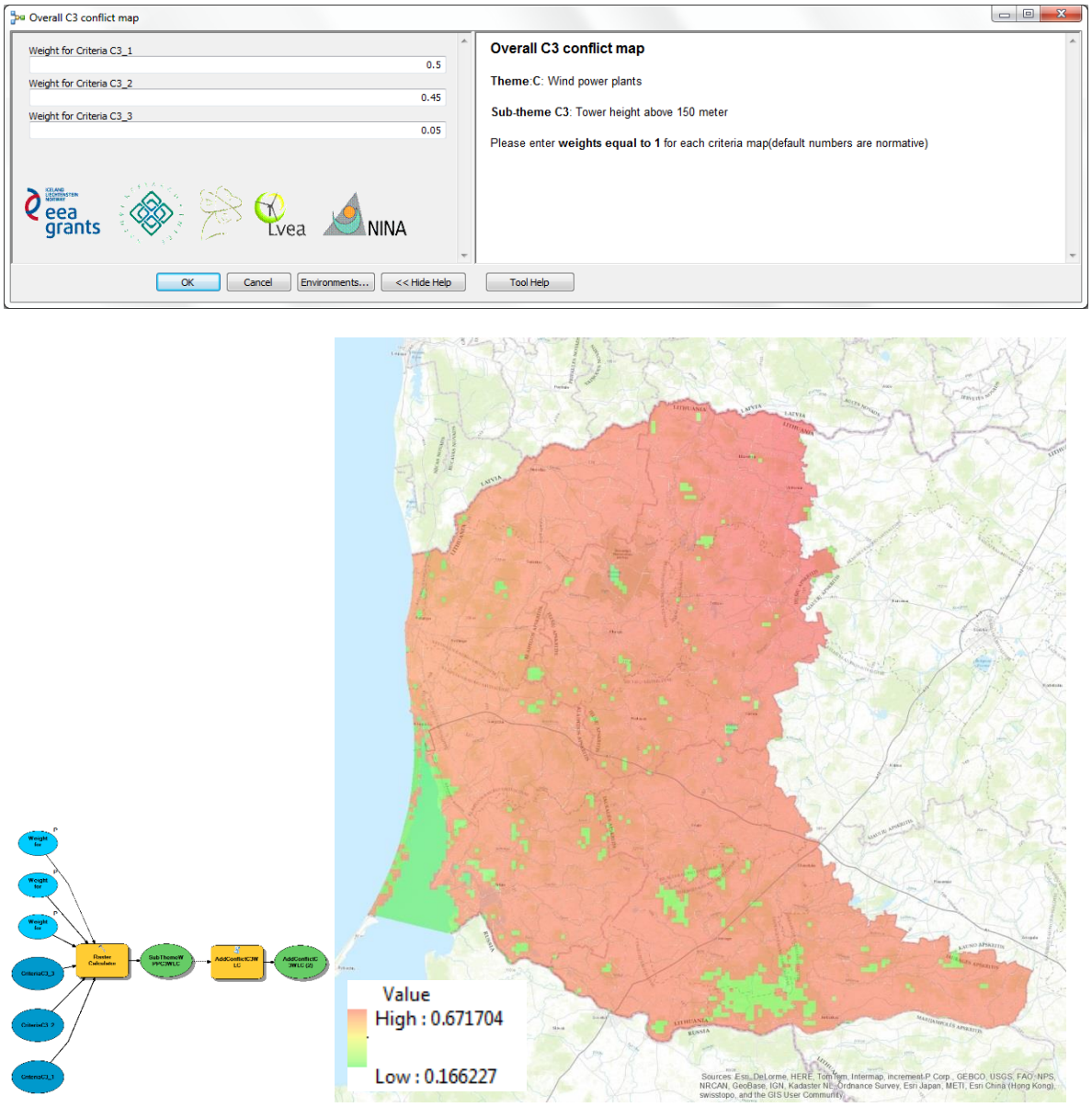


Figure 31: Graphical user interface, workflow and the resulting conflict map for C3

4.3.4 The Overall Wind farms conflict map tool

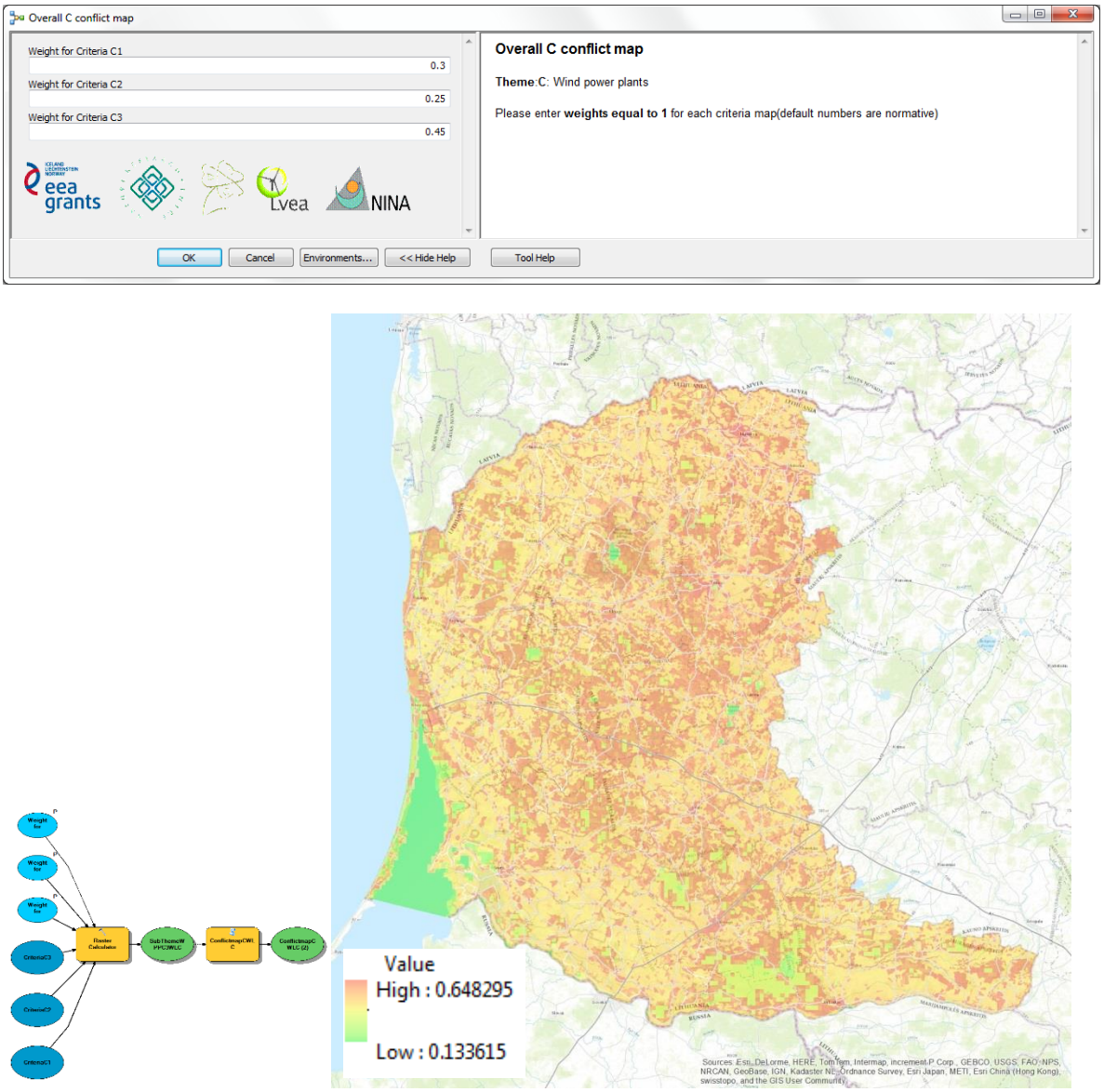


Figure 32: Graphical user interface, workflow and the resulting conflict map for C

4.4 The Overall conflict zone map for birds, bats and wind farms

5 References

[1] Zadeh, L.A. 1965. Fuzzy sets. - Information and Control 8: 338-353.

[2] Zadeh, L.A., Klir, G.J., & Yuan,B. (eds) 1996. Fuzzy Sets, Fuzzy Logic, Fuzzy Systems. Selected papers by Lofti A. Zadeh. - World Scientific Press

[3] Comber, A. 2009. Review of tools for risk assessment and tradeoff analysis. Appendix 8, Defra ref: WC0794

[4] Jiang, H. and Eastman, R.J., 2000. Application of fuzzy measures in multi-criteria evaluation in GIS. International Journal of Geographical Information Science 14: 173-84

[5] Yager, R.R., 1988. On ordered weighted averaging aggregation operators in multi-criteria decision making. IEEE Transactions on Systems, Man and Cybernetics, 18, 183-190

[6] Liu, Xinyang, 2013. GIS-Based Local-Ordered Weighted Averaging: A Case Study in London, Ontario. University of Western Ontario- Electronic Thesis and Dissertation Repository. Paper 1227

6 Annex 1 (processing logs)

Processing log for Criteria A1_1. Distance from shoreline

```
Executing (Copy Features): CopyFeatures
D:\DAVEP_VLIT\Input\bat_vector_layers\Coastline_LT_LV_RU.shp
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Shoreline # 0 0 0
Start Time: Fri Jun 17 12:54:17 2016
Succeeded at Fri Jun 17 12:54:18 2016 (Elapsed Time: 1.34 sec-
onds)
Executing (Euclidean Distance): EucDistance
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Shoreline
D:\DAVEP_VLIT\Result\Maps.gdb\ShorelineDistanceBirds # 30 #
Start Time: Fri Jun 17 12:54:19 2016
Succeeded at Fri Jun 17 12:54:34 2016 (Elapsed Time: 15.11
seconds)
Executing (Raster Calculator): RasterCalculator "1  / (1 +
Exp(Ln((2 - 0.1)/0.1)/((15 - 5))
*(("D:\DAVEP_VLIT\Result\Maps.gdb\ShorelineDistanceBirds"/1000
) - 5)))" D:\DAVEP_VLIT\Result\Birds.gdb\CriteriaA1_1
Start Time: Fri Jun 17 12:54:34 2016
1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((15 - 5)) *((Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\ShorelineDistanceBirds")/1
000) - 5)))
Succeeded at Fri Jun 17 12:54:43 2016 (Elapsed Time: 9.28 sec-
onds)
Executing (AddCriteriaA11): AddCriteriaA11
Start Time: Fri Jun 17 12:54:43 2016
Running script AddCriteriaA11...
Completed script AddCriteriaA11...
Succeeded at Fri Jun 17 12:54:44 2016 (Elapsed Time: 0.64 sec-
onds)
```

Processing log for Criteria B1_1. Distance from lakes and ponds

```
Executing: Model11 ""Area_ha" > 1" 200 400
Start Time: Thu Jun 16 13:31:47 2016
 Executing (Select): Select
 D:\DAVEP_VLIT\Input\bat_vector_layers\Lakes.shp
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Lakes ""Area_ha" > 1"
 Start Time: Thu Jun 16 13:31:47 2016
 Succeeded at Thu Jun 16 13:31:49 2016 (Elapsed Time: 1.83 seconds)
 Executing (Euclidean Distance): EucDistance
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Lakes
 D:\DAVEP_VLIT\Result\Maps.gdb\LakesDistanceBats # 30 #
 Start Time: Thu Jun 16 13:31:49 2016
 Succeeded at Thu Jun 16 13:32:06 2016 (Elapsed Time: 16.16 seconds)
 Executing (Raster Calculator): RasterCalculator "1  / (1 + Exp(Ln((2 -
 0.1)/0.1)/((400 - 200))
 *("D:\DAVEP_VLIT\Result\Maps.gdb\LakesDistanceBats" - 200)))"
 D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_1
 Start Time: Thu Jun 16 13:32:06 2016
 1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((400 - 200)) *(Ras-
 ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LakesDistanceBats") - 200)))
 Succeeded at Thu Jun 16 13:32:15 2016 (Elapsed Time: 9.45 seconds)
 Executing (AddCriteriaB11): AddCriteriaB11
 Start Time: Thu Jun 16 13:32:15 2016
```

```
  Running script AddCriteriaB11...
  Completed script AddCriteriaB11...
  Succeeded at Thu Jun 16 13:32:15 2016 (Elapsed Time: 0.21 seconds)
 Succeeded at Thu Jun 16 13:32:16 2016 (Elapsed Time: 28.97 seconds)
```

Processing log for Criteria B1_1. Distance from lakes and ponds

```
 Executing: Model112 "Area_ha > 50" 200 400
 Start Time: Thu Jun 16 13:48:06 2016
  Executing (Multipart To Singlepart): MultipartToSinglepart
  D:\DAVEP_VLIT\Input\bat_vector_layers\Forests.shp
  D:\DAVEP_VLIT\Scratch\Forests_MultipartToSinglepar.shp
  Start Time: Thu Jun 16 13:48:07 2016
  Succeeded at Thu Jun 16 13:48:11 2016 (Elapsed Time: 3.78 seconds)
  Executing (Calculate Areas): CalculateAreas
  D:\DAVEP_VLIT\Scratch\Forests_MultipartToSinglepar.shp
  D:\DAVEP_VLIT\Scratch\ForestArea.shp
  Start Time: Thu Jun 16 13:48:11 2016
  Running script CalculateAreas...
  Completed script CalculateAreas...
  Succeeded at Thu Jun 16 13:48:17 2016 (Elapsed Time: 6.26 seconds)
  Executing (Calculate Field): CalculateField
  D:\DAVEP_VLIT\Scratch\ForestArea.shp Area_ha "[F_AREA] / 10000" VB #
  Start Time: Thu Jun 16 13:48:17 2016
  Succeeded at Thu Jun 16 13:48:19 2016 (Elapsed Time: 2.36 seconds)
  Executing (Select): Select D:\DAVEP_VLIT\Scratch\ForestArea.shp
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Forests "Area_ha > 50"
  Start Time: Thu Jun 16 13:48:19 2016
  Succeeded at Thu Jun 16 13:48:21 2016 (Elapsed Time: 1.87 seconds)
  Executing (Euclidean Distance): EucDistance
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Forests
  D:\DAVEP_VLIT\Result\Maps.gdb\ForestsDistanceBats # 30 #
  Start Time: Thu Jun 16 13:48:21 2016
  Succeeded at Thu Jun 16 13:48:40 2016 (Elapsed Time: 18.92 seconds)
  Executing (Raster Calculator): RasterCalculator "1  / (1 + Exp(Ln((2 -
  0.1)/0.1)/((400 - 200))
  *("D:\DAVEP_VLIT\Result\Maps.gdb\ForestsDistanceBats" - 200)))"
  D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_2
  Start Time: Thu Jun 16 13:48:40 2016
  1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((400 - 200)) *(Ras-
  ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\ForestsDistanceBats") - 200)))
  Succeeded at Thu Jun 16 13:48:50 2016 (Elapsed Time: 9.71 seconds)
  Executing (AddCriteriaB12): Script
  Start Time: Thu Jun 16 13:48:50 2016
  Running script Script...
  Completed script Script...
  Succeeded at Thu Jun 16 13:48:50 2016 (Elapsed Time: 0.23 seconds)
 Succeeded at Thu Jun 16 13:48:51 2016 (Elapsed Time: 44.20 seconds)
```

Processing log for Criteria B1_3. Distance from manor complexes

```
 Executing: Model14 200 400
 Start Time: Thu Jun 16 14:35:10 2016
  Executing (Copy Features): CopyFeatures
  D:\DAVEP_VLIT\Input\bat_vector_layers\Heritage_manor.shp
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Manors # 0 0 0
  Start Time: Thu Jun 16 14:35:10 2016
  Succeeded at Thu Jun 16 14:35:11 2016 (Elapsed Time: 1.03 seconds)
  Executing (Euclidean Distance): EucDistance
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Manors
  D:\DAVEP_VLIT\Result\Maps.gdb\ManorDistanceBats # 30 #
  Start Time: Thu Jun 16 14:35:11 2016
```

```
  Succeeded at Thu Jun 16 14:35:27 2016 (Elapsed Time: 15.57 seconds)
  Executing (Raster Calculator): RasterCalculator "1  / (1 + Exp(Ln((2 -
  0.1)/0.1)/((400 - 200))
  *("D:\DAVEP_VLIT\Result\Maps.gdb\ManorDistanceBats" - 200)))"
  D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_3
  Start Time: Thu Jun 16 14:35:27 2016
  1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((400 - 200)) *(Ras-
  ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\ManorDistanceBats") - 200)))
  Succeeded at Thu Jun 16 14:35:36 2016 (Elapsed Time: 8.85 seconds)
  Executing (AddCriteriaB13): AddCriteriaB13
  Start Time: Thu Jun 16 14:35:36 2016
  Running script AddCriteriaB13...
  Completed script AddCriteriaB13...
  Succeeded at Thu Jun 16 14:35:36 2016 (Elapsed Time: 0.14 seconds)
Succeeded at Thu Jun 16 14:35:36 2016 (Elapsed Time: 26.87 seconds)
```

Processing log for Criteria B1_4. Distance from wetlands

```
Executing (Select): Select
D:\DAVEP_VLIT\Input\bat_vector_layers\Wetlands.shp
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wetlands ""Area_ha" > 1"
Start Time: Thu Jun 16 14:38:53 2016
Succeeded at Thu Jun 16 14:38:56 2016 (Elapsed Time: 2.82 sec-
onds)
Executing (Euclidean Distance): EucDistance
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wetlands
D:\DAVEP_VLIT\Result\Maps.gdb\WetlandDistanceBats # 30 #
Start Time: Thu Jun 16 14:38:56 2016
Succeeded at Thu Jun 16 14:39:14 2016 (Elapsed Time: 17.66
seconds)
Executing (Raster Calculator): RasterCalculator "1  / (1 +
Exp(Ln((2 - 0.1)/0.1)/((400 - 200))
*("D:\DAVEP_VLIT\Result\Maps.gdb\WetlandDistanceBats" -
200)))" D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_4
Start Time: Thu Jun 16 14:39:14 2016
1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((400 - 200)) *(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\WetlandDistanceBats") -
200)))
Succeeded at Thu Jun 16 14:39:24 2016 (Elapsed Time: 9.80 sec-
onds)
Executing (AddCriteriaB14): AddCriteriaB14
Start Time: Thu Jun 16 14:39:24 2016
Running script AddCriteriaB14...
Completed script AddCriteriaB14...
Succeeded at Thu Jun 16 14:39:25 2016 (Elapsed Time: 0.17 sec-
onds)
```

Processing log for Criteria B1_5. Distance from settlements

```
Executing (Copy Features): CopyFeatures
D:\DAVEP_VLIT\Input\bat_vector_layers\Urban_area.shp
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Settlements # 0 0 0
Start Time: Thu Jun 16 14:45:56 2016
Succeeded at Thu Jun 16 14:45:59 2016 (Elapsed Time: 2.76 sec-
onds)
```

```
Executing (Euclidean Distance): EucDistance
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Settlements
D:\DAVEP_VLIT\Result\Maps.gdb\SettlementsDistanceBats # 30 #
Start Time: Thu Jun 16 14:45:59 2016
Succeeded at Thu Jun 16 14:46:16 2016 (Elapsed Time: 16.76
seconds)
Executing (Raster Calculator): RasterCalculator "1  / (1 +
Exp(Ln((2 - 0.1)/0.1)/((400 - 200))
*("D:\DAVEP_VLIT\Result\Maps.gdb\SettlementsDistanceBats" -
200)))" D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_5
Start Time: Thu Jun 16 14:46:16 2016
1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((400 - 200)) *(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\SettlementsDistanceBats")
- 200)))
Succeeded at Thu Jun 16 14:46:26 2016 (Elapsed Time: 9.68 sec-
onds)
Executing (AddCriteriaB15): AddCriteriaB15
Start Time: Thu Jun 16 14:46:26 2016
Running script AddCriteriaB15...
Completed script AddCriteriaB15...
Succeeded at Thu Jun 16 14:46:27 2016 (Elapsed Time: 0.19 sec-
onds)
```

Processing log for Criteria B1_6. Distance from rivers

```
Executing (Copy Features): CopyFeatures
D:\DAVEP_VLIT\Input\bat_vector_layers\Rivers.shp
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Rivers # 0 0 0
Start Time: Thu Jun 16 14:53:29 2016
Succeeded at Thu Jun 16 14:54:04 2016 (Elapsed Time: 35.40
seconds)
Executing (Euclidean Distance): EucDistance
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Rivers
D:\DAVEP_VLIT\Result\Maps.gdb\RiversDistanceBats # 30 #
Start Time: Thu Jun 16 14:54:04 2016
Succeeded at Thu Jun 16 14:54:30 2016 (Elapsed Time: 25.96
seconds)
Executing (Raster Calculator): RasterCalculator "1  / (1 +
Exp(Ln((2 - 0.1)/0.1)/((400 - 200))
*("D:\DAVEP_VLIT\Result\Maps.gdb\RiversDistanceBats" - 200)))"
D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_6
Start Time: Thu Jun 16 14:54:30 2016
1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((400 - 200)) *(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\RiversDistanceBats") -
200)))
Succeeded at Thu Jun 16 14:54:40 2016 (Elapsed Time: 9.86 sec-
onds)
Executing (AddCriteriaB16): AddCriteriaB16
Start Time: Thu Jun 16 14:54:41 2016
Running script AddCriteriaB16...
Completed script AddCriteriaB16...
Succeeded at Thu Jun 16 14:54:41 2016 (Elapsed Time: 0.18 sec-
onds)
```

Processing log for Criteria B1_7. Distance from shoreline

```
Executing (Copy Features): CopyFeatures
D:\DAVEP_VLIT\Input\bat_vector_layers\Coastline_LT_LV_RU.shp
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Shoreline # 0 0 0
Start Time: Fri Jun 17 10:27:58 2016
Succeeded at Fri Jun 17 10:28:00 2016 (Elapsed Time: 1.57 sec-
onds)
Executing (Euclidean Distance): EucDistance
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Shoreline
D:\DAVEP_VLIT\Result\Maps.gdb\ShorelineDistanceBats # 30 #
Start Time: Fri Jun 17 10:28:00 2016
Succeeded at Fri Jun 17 10:28:21 2016 (Elapsed Time: 20.54
seconds)
Executing (Raster Calculator): RasterCalculator "1  / (1 +
Exp(Ln((2 - 0.1)/0.1)/((1 - 0.5))
*(("D:\DAVEP_VLIT\Result\Maps.gdb\ShorelineDistanceBats"/1000)
- 0.5)))" D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_7
Start Time: Fri Jun 17 10:28:21 2016
1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((1 - 0.5)) *((Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\ShorelineDistanceBats")/10
00) - 0.5)))
Succeeded at Fri Jun 17 10:28:32 2016 (Elapsed Time: 10.99
seconds)
Executing (AddCriteriaB17): AddCriteriaB17
Start Time: Fri Jun 17 10:28:32 2016
Running script AddCriteriaB17...
Completed script AddCriteriaB17...
Succeeded at Fri Jun 17 10:28:35 2016 (Elapsed Time: 2.26 sec-
onds)
```

Processing log for Criteria B1_8. Distance from roads

```
Executing (Copy Features): CopyFeatures
D:\DAVEP_VLIT\Input\bat_vector_layers\Roads_main.shp
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Roads # 0 0 0
Start Time: Fri Jun 17 10:32:56 2016
Succeeded at Fri Jun 17 10:33:07 2016 (Elapsed Time: 11.02
seconds)
Executing (Euclidean Distance): EucDistance
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Roads
D:\DAVEP_VLIT\Result\Maps.gdb\RoadsDistanceBats # 30 #
Start Time: Fri Jun 17 10:33:07 2016
Succeeded at Fri Jun 17 10:33:26 2016 (Elapsed Time: 19.22
seconds)
Executing (Raster Calculator): RasterCalculator "1  / (1 +
Exp(Ln((2 - 0.1)/0.1)/((400 - 200))
*("D:\DAVEP_VLIT\Result\Maps.gdb\RoadsDistanceBats" - 200)))"
D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_8
Start Time: Fri Jun 17 10:33:26 2016
1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((400 - 200)) *(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\RoadsDistanceBats") -
200)))
```

```
Succeeded at Fri Jun 17 10:33:36 2016 (Elapsed Time: 9.86 sec-
onds)
Executing (AddCriteriaB18): AddCriteriaB18
Start Time: Fri Jun 17 10:33:36 2016
Running script AddCriteriaB18...
Completed script AddCriteriaB18...
Succeeded at Fri Jun 17 10:33:39 2016 (Elapsed Time: 2.93 sec-
onds)
```

Processing log for the Overall B1 conflict map

```
Executing: Model132 0.17 0.17 0.12 0.12 0.12 0.12 0.12 0.06
Start Time: Mon Jun 27 10:42:15 2016
 Executing (Raster Calculator): RasterCalculator
 "("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_1" * float(0.17)) +
 ("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_2" * float(0.17)) +
 ("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_3"  * float(0.12)) +
 ("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_4" * float(0.12)) +
 ("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_5" * float(0.12)) +
 ("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_6" * float(0.12)) +
 ("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_7" * float(0.12)) +
 ("D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_8" * float(0.06))"
 D:\DAVEP_VLIT\Result\Bats.gdb\ConflictMapB1WLC
 Start Time: Mon Jun 27 10:42:16 2016
 (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_1") * float(0.17)) +
 (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_2") * float(0.17)) +
 (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_3")  * float(0.12))
 + (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_4") * float(0.12))
 + (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_5") * float(0.12))
 + (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_6") * float(0.12))
 + (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_7") * float(0.12))
 + (Raster(r"D:\DAVEP_VLIT\Result\Bats.gdb\CriteriaB1_8") * float(0.06))
 Succeeded at Mon Jun 27 10:42:34 2016 (Elapsed Time: 18.01 seconds)
 Executing (AddConflictB1WLC): AddConflictB1WLC
 Start Time: Mon Jun 27 10:42:34 2016
 Running script AddConflictB1WLC...
 Completed script AddConflictB1WLC...
 Succeeded at Mon Jun 27 10:42:35 2016 (Elapsed Time: 0.34 seconds)
Succeeded at Mon Jun 27 10:42:35 2016 (Elapsed Time: 19.34 seconds)
```

Processing log for Criteria C1_1. Annual wind speed (m/s)

```
Executing (Extract by Mask): ExtractByMask
D:\DAVEP_VLIT\Input\wind_vector_layers\wind_sp_area
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP
Start Time: Mon Jun 27 10:38:46 2016
Succeeded at Mon Jun 27 10:38:56 2016 (Elapsed Time: 10.07
seconds)
Executing (Raster Calculator): RasterCalculator "1  / (1 +
Exp(Ln((2 - 0.1)/0.1)/((10 - 2.5))
*("D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP" - 2.5)))"
D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_1
Start Time: Mon Jun 27 10:38:56 2016
1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((10 - 2.5)) *(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP") - 2.5)))
Succeeded at Mon Jun 27 10:39:07 2016 (Elapsed Time: 10.65
seconds)
```

```
 Executing (AddCriteriaC11): AddCriteriaC11
 Start Time: Mon Jun 27 10:39:07 2016
 Running script AddCriteriaC11...
 Completed script AddCriteriaC11...
 Succeeded at Mon Jun 27 10:39:07 2016 (Elapsed Time: 0.19 sec-
 onds)
```

Processing log for Criteria C1_2. Relief (terrain roughness)

```
 Executing: Model20 0.077 0.2
 Start Time: Mon Jun 27 11:06:21 2016
  Executing (Feature to Raster): FeatureToRaster
  D:\DAVEP_VLIT\Input\wind_vector_layers\Wind_terrain_roughness
  .shp Surface D:\DAVEP_VLIT\Result\Maps.gdb\TerrainRoughness
  30
  Start Time: Mon Jun 27 11:06:22 2016
  Succeeded at Mon Jun 27 11:06:35 2016 (Elapsed Time: 13.42
  seconds)
  Executing (Raster Calculator): RasterCalculator "1  / (1 +
  Exp(Ln((2 - 0.1)/0.1)/((0.077 - 0.2))
  *("D:\DAVEP_VLIT\Result\Maps.gdb\TerrainRoughness" - 0.2)))"
  D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_2
  Start Time: Mon Jun 27 11:06:35 2016
  1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((0.077 - 0.2)) *(Ras-
  ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\TerrainRoughness") -
  0.2)))
  Succeeded at Mon Jun 27 11:06:44 2016 (Elapsed Time: 9.14
  seconds)
  Executing (AddCriteriaC12): AddCriteriaC12
  Start Time: Mon Jun 27 11:06:45 2016
  Running script AddCriteriaC12...
  Completed script AddCriteriaC12...
  Succeeded at Mon Jun 27 11:06:45 2016 (Elapsed Time: 0.18
  seconds)
Succeeded at Mon Jun 27 11:06:45 2016 (Elapsed Time: 23.99 sec-
onds)
```

Processing log for Criteria C1_3. Number of land parcels per km2

```
Executing: Model21 35 36
Start Time: Tue Jun 28 14:43:28 2016
  Executing (Feature to Raster): FeatureToRaster
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\LandParcelCount Count_
  D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity 30
  Start Time: Tue Jun 28 14:43:29 2016
  Succeeded at Tue Jun 28 14:43:39 2016 (Elapsed Time: 10.38
  seconds)
  Executing (Raster Calculator): RasterCalculator
  Con(IsNull("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity")
  , 0, "D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity")
  D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal
  Start Time: Tue Jun 28 14:43:39 2016
  Con(IsNull(Ras-
  ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity")), 0,
  Raster(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity"))
```

```
  Succeeded at Tue Jun 28 14:44:00 2016 (Elapsed Time: 21.03
  seconds)
  Executing (Raster Calculator (2)): RasterCalculator
  "Con("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal"
  <= float(35), 0, 1) |
  Con("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal"
  >=  float(36), 1, 0)"
  D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_3
  Start Time: Tue Jun 28 14:44:01 2016
  Con(Ras-
  ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal")
  <= float(35), 0, 1) | Con(Ras-
  ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal")
  >=  float(36), 1, 0)
  Succeeded at Tue Jun 28 14:44:09 2016 (Elapsed Time: 8.01
  seconds)
  Executing (AddCriteriaC13): AddCriteriaC13
  Start Time: Tue Jun 28 14:44:09 2016
  Running script AddCriteriaC13...
  Completed script AddCriteriaC13...
  Succeeded at Tue Jun 28 14:44:09 2016 (Elapsed Time: 0.19
  seconds)
Succeeded at Tue Jun 28 14:44:09 2016 (Elapsed Time: 40.93 sec-
onds)
```

Processing log for Criteria C1_4. Distance to nearest state road (km)

```
Executing: Model25 0.25 0.4 0.05 0.3
Start Time: Tue Jun 28 17:01:53 2016
 Executing (Raster Calculator): RasterCalculator
 "("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_1" * float(0.25)) +
 ("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_2" * float(0.4)) +
 ("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_3"  * float(0.05)) +
 ("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_4" * float(0.3))"
 D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC1WLC
 Start Time: Tue Jun 28 17:01:53 2016
 (Raster(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_1") *
 float(0.25)) + (Ras-
 ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_2") *
 float(0.4)) + (Ras-
 ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_3")  *
 float(0.05)) + (Ras-
 ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_4") *
 float(0.3))
 Succeeded at Tue Jun 28 17:02:06 2016 (Elapsed Time: 12.49
 seconds)
 Executing (AddConflictC1WLC): AddConflictC1WLC
 Start Time: Tue Jun 28 17:02:06 2016
 Running script AddConflictC1WLC...
 Completed script AddConflictC1WLC...
 Succeeded at Tue Jun 28 17:02:06 2016 (Elapsed Time: 0.63 sec-
 onds)
```

```
Succeeded at Tue Jun 28 17:02:06 2016 (Elapsed Time: 13.66 sec-
onds)
```

Processing log for the Overall C1 conflict map

```
 Executing: Model22 Yes
 Start Time: Tue Jun 28 16:23:51 2016
  Executing (Clip): Clip
  D:\DAVEP_VLIT\Input\wind_vector_layers\Wind_distance_road.shp
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance #
  Start Time: Tue Jun 28 16:23:51 2016
  Analyzing input features...
  Dissolving clip features...
  Clipping input features...
  Succeeded at Tue Jun 28 16:24:01 2016 (Elapsed Time: 9.50
  seconds)
  Executing (Calculate Field): CalculateField
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance Tow75
  "[Tow75] * 1000" VB #
  Start Time: Tue Jun 28 16:24:01 2016
  Succeeded at Tue Jun 28 16:24:05 2016 (Elapsed Time: 4.23
  seconds)
  Executing (Buffer): Buffer
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffe
  r75 Tow75 FULL ROUND ALL # PLANAR
  Start Time: Tue Jun 28 16:24:05 2016
  Succeeded at Tue Jun 28 16:24:36 2016 (Elapsed Time: 30.99
  seconds)
  Executing (Add Field): AddField
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffe
  r75 VALUE DOUBLE # # # # NULLABLE NON_REQUIRED #
  Start Time: Tue Jun 28 16:24:36 2016
  Adding VALUE to
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffe
  r75...
  Succeeded at Tue Jun 28 16:24:36 2016 (Elapsed Time: 0.17
  seconds)
  Executing (Calculate Value): CalculateValue List("Yes") "def
  List(var):\n  if str(var) == str("Yes"):\n    return 1\n
  elif str(var) == str("No"):\n    return 0\n  endif" "Any
  value"
  Start Time: Tue Jun 28 16:24:36 2016
  Value = 1
  Succeeded at Tue Jun 28 16:24:36 2016 (Elapsed Time: 0.05
  seconds)
  Executing (Collect Values): CollectValues 1
  Start Time: Tue Jun 28 16:24:36 2016
  Succeeded at Tue Jun 28 16:24:36 2016 (Elapsed Time: 0.00
  seconds)
  Executing (Calculate Field (2)): CalculateField
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffe
  r75 VALUE 1 VB #
```

```
  Start Time: Tue Jun 28 16:24:36 2016
  Succeeded at Tue Jun 28 16:24:37 2016 (Elapsed Time: 0.15
  seconds)
  Executing (Feature to Raster): FeatureToRaster
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffe
  r75 VALUE D:\DAVEP_VLIT\Result\Maps.gdb\Tower75Raster 30
  Start Time: Tue Jun 28 16:24:37 2016
  Succeeded at Tue Jun 28 16:25:12 2016 (Elapsed Time: 35.13
  seconds)
  Executing (Reclassify): Reclassify
  D:\DAVEP_VLIT\Result\Maps.gdb\Tower75Raster VALUE "1
  NODATA;NODATA 0"
  D:\DAVEP_VLIT\Result\Maps.gdb\ReclassTower75Raster DATA
  Start Time: Tue Jun 28 16:25:12 2016
  Succeeded at Tue Jun 28 16:25:19 2016 (Elapsed Time: 7.15
  seconds)
  Executing (Extract by Mask): ExtractByMask
  D:\DAVEP_VLIT\Result\Maps.gdb\ReclassTower75Raster
  D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
  D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC1_4
  Start Time: Tue Jun 28 16:25:19 2016
  Succeeded at Tue Jun 28 16:25:36 2016 (Elapsed Time: 17.31
  seconds)
  Executing (AddCriteriaC14): AddCriteriaC14
  Start Time: Tue Jun 28 16:25:36 2016
  Running script AddCriteriaC14...
  Completed script AddCriteriaC14...
  Succeeded at Tue Jun 28 16:25:37 2016 (Elapsed Time: 0.66
  seconds)
Succeeded at Tue Jun 28 16:25:37 2016 (Elapsed Time: 1 minutes
46 seconds)
```

Processing log for Criteria C2_1. Annual wind speed (m/s)

```
Executing: Model122 4 13
Start Time: Tue Jun 28 17:40:02 2016
 Executing (Extract by Mask): ExtractByMask
 D:\DAVEP_VLIT\Input\wind_vector_layers\wind_sp_area
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
 D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP
 Start Time: Tue Jun 28 17:40:02 2016
 Succeeded at Tue Jun 28 17:40:13 2016 (Elapsed Time: 10.88
 seconds)
 Executing (Raster Calculator): RasterCalculator "1  / (1 +
 Exp(Ln((2 - 0.1)/0.1)/((13 - 4))
 *("D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP" - 4)))"
 D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_1
 Start Time: Tue Jun 28 17:40:13 2016
 1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((13 - 4)) *(Ras-
 ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP") - 4)))
 Succeeded at Tue Jun 28 17:40:23 2016 (Elapsed Time: 10.34
 seconds)
 Executing (AddCriteriaC21): AddCriteriaC21
```

```
 Start Time: Tue Jun 28 17:40:23 2016
 Running script AddCriteriaC21...
 Completed script AddCriteriaC21...
 Succeeded at Tue Jun 28 17:40:24 2016 (Elapsed Time: 0.69 sec-
 onds)
Succeeded at Tue Jun 28 17:40:24 2016 (Elapsed Time: 22.83 sec-
onds)
```

Processing log for Criteria C2_2. Relief (terrain roughness)

```
Executing: Model202 0.077 0.2
Start Time: Tue Jun 28 17:42:38 2016
 Executing (Feature to Raster): FeatureToRaster
 D:\DAVEP_VLIT\Input\wind_vector_layers\Wind_terrain_roughness.
 shp Surface D:\DAVEP_VLIT\Result\Maps.gdb\TerrainRoughness 30
 Start Time: Tue Jun 28 17:42:39 2016
 Succeeded at Tue Jun 28 17:42:52 2016 (Elapsed Time: 13.07
 seconds)
 Executing (Raster Calculator): RasterCalculator "1  / (1 +
 Exp(Ln((2 - 0.1)/0.1)/((0.077 - 0.2))
 *("D:\DAVEP_VLIT\Result\Maps.gdb\TerrainRoughness" - 0.2)))"
 D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_2
 Start Time: Tue Jun 28 17:42:52 2016
 1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((0.077 - 0.2)) *(Ras-
 ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\TerrainRoughness") -
 0.2)))
 Succeeded at Tue Jun 28 17:43:02 2016 (Elapsed Time: 10.07
 seconds)
 Executing (AddCriteriaC22): AddCriteriaC22
 Start Time: Tue Jun 28 17:43:02 2016
 Running script AddCriteriaC22...
 Completed script AddCriteriaC22...
 Succeeded at Tue Jun 28 17:43:03 2016 (Elapsed Time: 0.65 sec-
 onds)
Succeeded at Tue Jun 28 17:43:03 2016 (Elapsed Time: 24.74 sec-
onds)
```

Processing log for Criteria C2_3. Number of land parcels per km2

```
Executing (Feature to Raster): FeatureToRaster
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\LandParcelCount Count_
D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity 30
Start Time: Tue Jun 28 18:00:03 2016
Succeeded at Tue Jun 28 18:00:14 2016 (Elapsed Time: 10.87 sec-
onds)
Executing (Raster Calculator): RasterCalculator
Con(IsNull("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity"),
0, "D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity")
D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal
Start Time: Tue Jun 28 18:00:14 2016
Con(IsNull(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity")), 0,
Raster(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity"))
```

```
Succeeded at Tue Jun 28 18:00:38 2016 (Elapsed Time: 23.42 sec-
onds)
Executing (Raster Calculator (2)): RasterCalculator
"Con("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal" <=
float(8), 0, 1) |
Con("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal"  >=
float(9), 1, 0)" D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_3
Start Time: Tue Jun 28 18:00:41 2016
Con(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal") <=
float(8), 0, 1) | Con(Ras-
ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal")  >=
float(9), 1, 0)
Succeeded at Tue Jun 28 18:00:50 2016 (Elapsed Time: 9.69 sec-
onds)
Executing (AddCriteriaC23): AddCriteriaC23
Start Time: Tue Jun 28 18:00:54 2016
Running script AddCriteriaC23...
Completed script AddCriteriaC23...
Succeeded at Tue Jun 28 18:00:54 2016 (Elapsed Time: 0.67 sec-
onds)
```

Processing log for Criteria C2_4. Distance to nearest state road (km)

```
Executing (Clip): Clip
 D:\DAVEP_VLIT\Input\wind_vector_layers\Wind_distance_road.shp
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance #
 Start Time: Tue Jun 28 18:27:33 2016
 Analyzing input features...
 Dissolving clip features...
 Clipping input features...
 Succeeded at Tue Jun 28 18:27:44 2016 (Elapsed Time: 10.42
 seconds)
 Executing (Calculate Field): CalculateField
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance
 Tow75_150 "[Tow75_150] *1000" VB #
 Start Time: Tue Jun 28 18:27:44 2016
 Succeeded at Tue Jun 28 18:27:49 2016 (Elapsed Time: 4.65 sec-
 onds)
 Executing (Buffer): Buffer
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
 75_150 Tow75_150 FULL ROUND ALL # PLANAR
 Start Time: Tue Jun 28 18:27:49 2016
 Succeeded at Tue Jun 28 18:28:22 2016 (Elapsed Time: 33.81
 seconds)
 Executing (Add Field): AddField
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
 75_150 VALUE DOUBLE # # # # NULLABLE NON_REQUIRED #
 Start Time: Tue Jun 28 18:28:23 2016
```

```
 Adding VALUE to
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
 75_150...
 Succeeded at Tue Jun 28 18:28:23 2016 (Elapsed Time: 0.23 sec-
 onds)
 Executing (Calculate Value): CalculateValue List("Yes") "def
 List(var):\n  if str(var) == str("Yes"):\n    return 1\n  elif
 str(var) == str("No"):\n    return 0\n  endif" "Any value"
 Start Time: Tue Jun 28 18:28:23 2016
 Value = 1
 Succeeded at Tue Jun 28 18:28:23 2016 (Elapsed Time: 0.05 sec-
 onds)
 Executing (Collect Values): CollectValues 1
 Start Time: Tue Jun 28 18:28:23 2016
 Succeeded at Tue Jun 28 18:28:23 2016 (Elapsed Time: 0.00 sec-
 onds)
 Executing (Calculate Field (2)): CalculateField
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
 75_150 VALUE 1 VB #
 Start Time: Tue Jun 28 18:28:23 2016
 Succeeded at Tue Jun 28 18:28:23 2016 (Elapsed Time: 0.36 sec-
 onds)
 Executing (Feature to Raster): FeatureToRaster
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
 75_150 VALUE D:\DAVEP_VLIT\Result\Maps.gdb\Tower75_150_Raster
 30
 Start Time: Tue Jun 28 18:28:23 2016
 Succeeded at Tue Jun 28 18:28:41 2016 (Elapsed Time: 17.90
 seconds)
 Executing (Reclassify): Reclassify
 D:\DAVEP_VLIT\Result\Maps.gdb\Tower75_150_Raster VALUE "1
 NODATA;NODATA 0"
 D:\DAVEP_VLIT\Result\Maps.gdb\ReclassTower75_150Raster DATA
 Start Time: Tue Jun 28 18:28:42 2016
 Succeeded at Tue Jun 28 18:28:49 2016 (Elapsed Time: 7.33 sec-
 onds)
 Executing (Extract by Mask): ExtractByMask
 D:\DAVEP_VLIT\Result\Maps.gdb\ReclassTower75_150Raster
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
 D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_4
 Start Time: Tue Jun 28 18:28:49 2016
 Succeeded at Tue Jun 28 18:29:06 2016 (Elapsed Time: 17.28
 seconds)
 Executing (AddCriteriaC24): AddCriteriaC24
 Start Time: Tue Jun 28 18:29:07 2016
 Running script AddCriteriaC24...
 Completed script AddCriteriaC24...
Succeeded at Tue Jun 28 18:29:08 2016 (Elapsed Time: 0.87 sec-
onds)
```

Processing log for the Overall C2 conflict map

```
Executing (Raster Calculator): RasterCalculator
"("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_1" * float(0.3)) +
("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_2" * float(0.35)) +
("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_3"  * float(0.2)) +
("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_4" * float(0.15))"
D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC2WLC
Start Time: Tue Jun 28 18:48:43 2016
(Raster(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_1") *
float(0.3)) + (Ras-
ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_2") * float(0.35))
+ (Raster(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_3")  *
float(0.2)) + (Ras-
ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC2_4") * float(0.15))
Succeeded at Tue Jun 28 18:48:56 2016 (Elapsed Time: 13.35 sec-
onds)
Executing (AddConflictC2WLC): AddConflictC2WLC
Start Time: Tue Jun 28 18:48:57 2016
Running script AddConflictC2WLC...
Completed script AddConflictC2WLC...
Succeeded at Tue Jun 28 18:48:58 2016 (Elapsed Time: 0.90 sec-
onds)
```

Processing log for Criteria C3_1. Annual wind speed (m/s)

```
 Executing (Extract by Mask): ExtractByMask
 D:\DAVEP_VLIT\Input\wind_vector_layers\wind_sp_area
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
 D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP
 Start Time: Wed Jun 29 08:34:52 2016
 Succeeded at Wed Jun 29 08:35:04 2016 (Elapsed Time: 11.53
 seconds)
 Executing (Raster Calculator): RasterCalculator "1  / (1 +
 Exp(Ln((2 - 0.1)/0.1)/((13 - 2))
 *("D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP" - 2)))"
 D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_1
 Start Time: Wed Jun 29 08:35:04 2016
 1  / (1 + Exp(Ln((2 - 0.1)/0.1)/((13 - 2)) *(Ras-
 ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\WINDCLIP") - 2)))
 Succeeded at Wed Jun 29 08:35:16 2016 (Elapsed Time: 12.49
 seconds)
 Executing (AddCriteriaC31): AddCriteriaC31
 Start Time: Wed Jun 29 08:35:17 2016
 Running script AddCriteriaC31...
 Completed script AddCriteriaC31...
Succeeded at Wed Jun 29 08:35:17 2016 (Elapsed Time: 0.55 sec-
onds)
```

Processing log for Criteria C3_2. Number of land parcels per km2

```
 Executing (Feature to Raster): FeatureToRaster
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\LandParcelCount Count_
 D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity 30
 Start Time: Wed Jun 29 09:01:38 2016
```

```
 Succeeded at Wed Jun 29 09:01:49 2016 (Elapsed Time: 10.56
 seconds)
 Executing (Raster Calculator): RasterCalculator
 Con(IsNull("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity"),
 0, "D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity")
 D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal
 Start Time: Wed Jun 29 09:01:49 2016
 Con(IsNull(Raster(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDe
 nsity")), 0,
 Raster(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensity"))
 Succeeded at Wed Jun 29 09:02:13 2016 (Elapsed Time: 23.85
 seconds)
 Executing (Raster Calculator (2)): RasterCalculator
 "Con("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal" <=
 float(3), 0, 1) |
 Con("D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal"  >=
 float(4), 1, 0)" D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_2
 Start Time: Wed Jun 29 09:02:13 2016
 Con(Ras-
 ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal")
 <= float(3), 0, 1) | Con(Ras-
 ter(r"D:\DAVEP_VLIT\Result\Maps.gdb\LandParcelDensityFinal")
 >=  float(4), 1, 0)
 Succeeded at Wed Jun 29 09:02:23 2016 (Elapsed Time: 10.12
 seconds)
 Executing (AddCriteriaC32): AddCriteriaC32
 Start Time: Wed Jun 29 09:02:24 2016
 Running script AddCriteriaC32...
 Completed script AddCriteriaC32...
Succeeded at Wed Jun 29 09:02:24 2016 (Elapsed Time: 0.29 sec-
onds)
```

Processing log for Criteria C3_3. Distance to nearest state road (km)

```
 Executing (Clip): Clip
 D:\DAVEP_VLIT\Input\wind_vector_layers\Wind_distance_road.shp
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance #
 Start Time: Wed Jun 29 09:22:27 2016
 Analyzing input features...
 Dissolving clip features...
 Clipping input features...
 Succeeded at Wed Jun 29 09:22:35 2016 (Elapsed Time: 8.30 sec-
 onds)
 Executing (Calculate Field): CalculateField
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance Tow150
 "[Tow150] * 100" VB #
 Start Time: Wed Jun 29 09:22:35 2016
 Succeeded at Wed Jun 29 09:22:40 2016 (Elapsed Time: 4.71 sec-
 onds)
 Executing (Buffer): Buffer
 D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance
```

```
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
_150 Tow150 FULL ROUND ALL # PLANAR
Start Time: Wed Jun 29 09:22:40 2016
Succeeded at Wed Jun 29 09:23:11 2016 (Elapsed Time: 30.99
seconds)
Executing (Add Field): AddField
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
_150 VALUE DOUBLE # # # # NULLABLE NON_REQUIRED #
Start Time: Wed Jun 29 09:23:11 2016
Adding VALUE to
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
_150...
Succeeded at Wed Jun 29 09:23:11 2016 (Elapsed Time: 0.22 sec-
onds)
Executing (Calculate Value): CalculateValue List("Yes") "def
List(var):\n  if str(var) == str("Yes"):\n    return 1\n  elif
str(var) == str("No"):\n    return 0\n  endif" "Any value"
Start Time: Wed Jun 29 09:23:11 2016
Value = 1
Succeeded at Wed Jun 29 09:23:11 2016 (Elapsed Time: 0.06 sec-
onds)
Executing (Collect Values): CollectValues 1
Start Time: Wed Jun 29 09:23:11 2016
Succeeded at Wed Jun 29 09:23:11 2016 (Elapsed Time: 0.00 sec-
onds)
Executing (Calculate Field (2)): CalculateField
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
_150 VALUE 1 VB #
Start Time: Wed Jun 29 09:23:12 2016
Succeeded at Wed Jun 29 09:23:12 2016 (Elapsed Time: 0.35 sec-
onds)
Executing (Feature to Raster): FeatureToRaster
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\Wind_road_distance_buffer
_150 VALUE D:\DAVEP_VLIT\Result\Maps.gdb\Tower_150_Raster 30
Start Time: Wed Jun 29 09:23:12 2016
Succeeded at Wed Jun 29 09:23:45 2016 (Elapsed Time: 32.97
seconds)
Executing (Reclassify): Reclassify
D:\DAVEP_VLIT\Result\Maps.gdb\Tower_150_Raster VALUE "1
NODATA;NODATA 0"
D:\DAVEP_VLIT\Result\Maps.gdb\ReclassTower75_150Raster DATA
Start Time: Wed Jun 29 09:23:45 2016
Succeeded at Wed Jun 29 09:23:53 2016 (Elapsed Time: 7.46 sec-
onds)
Executing (Extract by Mask): ExtractByMask
D:\DAVEP_VLIT\Result\Maps.gdb\ReclassTower75_150Raster
D:\DAVEP_VLIT\Result\Maps.gdb\Vector\DAVEP_VLIT_Project_Area
D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_3
Start Time: Wed Jun 29 09:23:53 2016
Succeeded at Wed Jun 29 09:24:11 2016 (Elapsed Time: 18.21
seconds)
Executing (AddCriteriaC33): AddCriteriaC33
```

```
 Start Time: Wed Jun 29 09:24:11 2016
 Running script AddCriteriaC33...
 Completed script AddCriteriaC33...
Succeeded at Wed Jun 29 09:24:12 2016 (Elapsed Time: 0.44 sec-
onds)
```

Processing log for the Overall C3 conflict map

```
 Executing (Raster Calculator): RasterCalculator
 "("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_1" * float(0.5)) +
 ("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_2" * float(0.45)) +
 ("D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_3" * float(0.05))"
 D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC3WLC
 Start Time: Wed Jun 29 09:51:15 2016
 (Raster(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_1") *
 float(0.5)) + (Ras-
 ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_2") *
 float(0.45)) + (Ras-
 ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\CriteriaC3_3") *
 float(0.05))
 Succeeded at Wed Jun 29 09:51:26 2016 (Elapsed Time: 11.32
 seconds)
 Executing (AddConflictC3WLC): AddConflictC3WLC
 Start Time: Wed Jun 29 09:51:27 2016
 Running script AddConflictC3WLC...
 Completed script AddConflictC3WLC...
Succeeded at Wed Jun 29 09:51:27 2016 (Elapsed Time: 0.52 sec-
onds)
```

Processing log for the Overall C conflict map

```
Executing (Raster Calculator): RasterCalculator
"("D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC1WLC" * float(0.3))
+ ("D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC2WLC" *
float(0.25)) + ("D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC3WLC"
* float(0.45))" D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapCWLC
Start Time: Wed Jun 29 10:19:14 2016
(Raster(r"D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC1WLC") *
float(0.3)) + (Ras-
ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC2WLC") *
float(0.25)) + (Ras-
ter(r"D:\DAVEP_VLIT\Result\WPP.gdb\ConflictMapC3WLC") *
float(0.45))
Succeeded at Wed Jun 29 10:19:26 2016 (Elapsed Time: 11.51 sec-
onds)
Executing (ConflictmapCWLC): ConflictmapCWLC
Start Time: Wed Jun 29 10:19:26 2016
Running script ConflictmapCWLC...
Completed script ConflictmapCWLC...
Succeeded at Wed Jun 29 10:19:27 2016 (Elapsed Time: 0.31 sec-
onds)
```

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NINA Report

The Norwegian Institute for Nature Research (NINA) is Norway's leading institution for applied ecological research.

NINA is responsible for long-term strategic research and commissioned applied research to facilitate the implementation of international conventions, decision-support systems and management tools, as well as to enhance public awareness and promote conflict resolution.

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