

Fragmentation FRA

Layer Description

Definition: To define the degree of fragmentation of natural or semi natural spaces by human infrastructure.

Realization: For measuring the fragmentation the key figure effective Mesh Size was applied. The effective Mesh size is defined over the degree of coherence which shows the probability that two random points in an area remain in the same subarea after dividing the primary area. The points can be taken as an individual so that degree of coherence becomes the meaning of the meeting probability of animals in each part of the natural living space. The effective mesh size is the cell size of a regular grid with the calculated degree of coherence for each cell.

For the indicator an interpolated surface will be calculated.

Type of Landscape Patches:

$$m_{ef} = \frac{1}{A_g} \sum_{i=1}^n A_i$$

A_g : total area

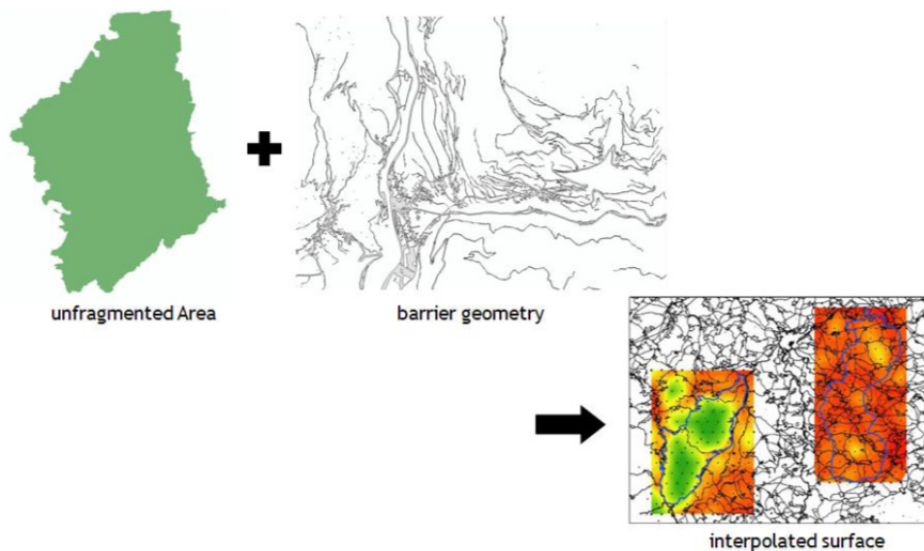
A_i : subarea i

n: number of subareas

Classification: The classification of the effective Mesh Size Values is based on the results of a reference study.

Current classification:

Mesh Size	Indicator Value (0-100)
0	0
100	10
250	20
500	30
750	40
1000	50
1250	60
1500	70
2750	80
4000	90
6000	100



References:

Bertiller, R., Schwick, C., Jaeger, J.: Landschaftszerschneidung Schweiz. Zerschneidungsanalyse 1885 – 2002 und Folgerungen für die Verkehrs- und Raumplanung. Bern: ASTRA, 2007.

Jaeger, J.A.: „Landscape division, splitting index, and effective mesh size: new measures of landscape fragmentation“. In: Landscape Ecology, 15(2) (2000), S. 115-130.

Lang, C., Schwarz, H.-G., Esswein, H.: „ArcGIS-Tool zur Analyse des Landschaftszerschneidungsgrades mit der Messgrösse ‘Effektive Maschenweite‘“. Handbuch. Universität Stuttgart, 2008.

Layer Legend

