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Prioritization of urban green infrastructures for sustainable urban planning in Ploiesti, Romania

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Lavinia Denisa Badiu

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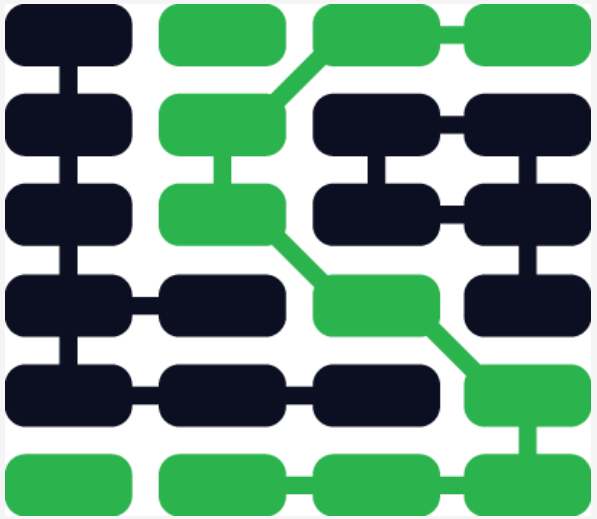


Context

Challenges

Reaching sustainability

Sprawl

Climate change

Migration

Segregation

Pollution

Context

Maintaining and increasing the same surface of green areas

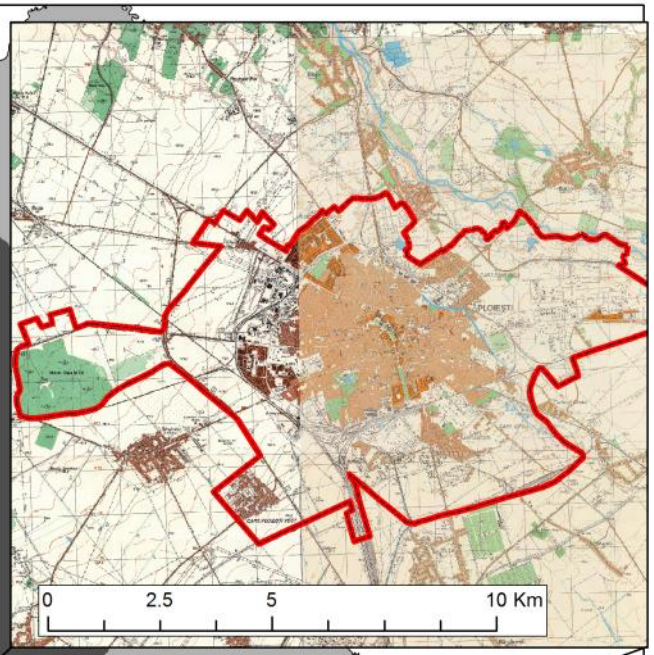
Sprawl

What type of green infrastructure to use in different urban patterns

particles, filters
noise, absorbing CO2

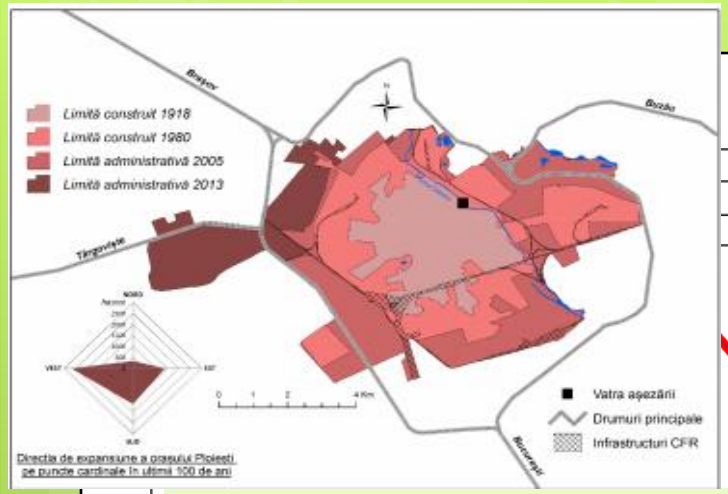
Pollution

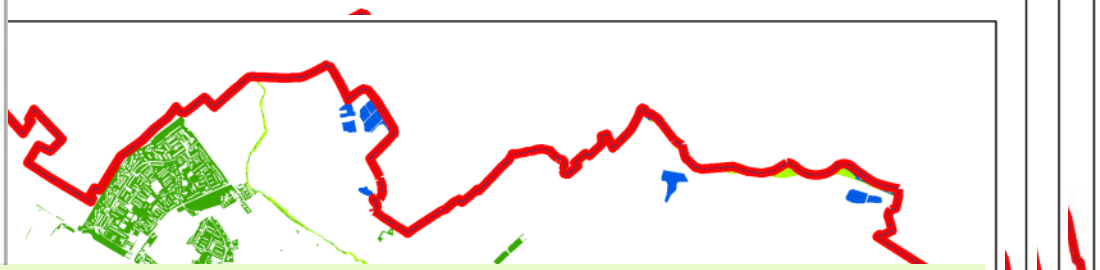
Study area

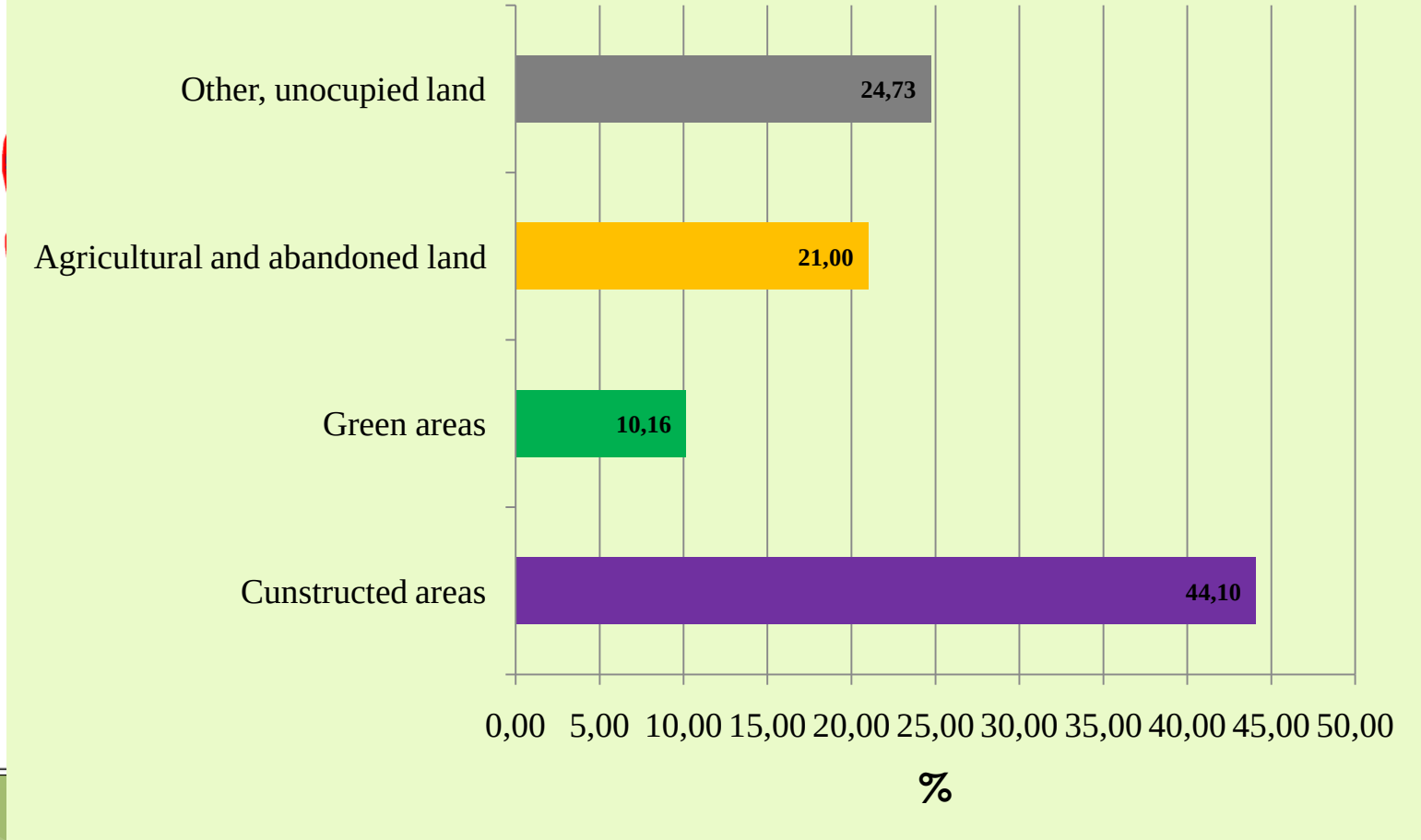

0
2.5
5
10 Km

Oriental Carpathians
eridional Carpathians
Transylvanian Alps)
Ploiesti

Study area


Limită construit 1918
Limită construit 1980
Limită administrativă 2005
Limită administrativă 2013
Târgoviște
Buzău
Brașov
Bucureşti
Vatra aşezări
Drumuri principale
Infrastructuri CFR
Direcția de expansiune a orașului Ploiești pe puncte cardinale în ultimii 100 de ani




Other, unocupied land
24,73
Agricultural and abandoned land
21,00
Green areas
10,16
Cunstructed areas
44,10
0,00 5,00 10,00 15,00 20,00 25,00 30,00 35,00 40,00 45,00 50,00
%

Methods & Results

Multicriterial analysis

+

Expert opinion

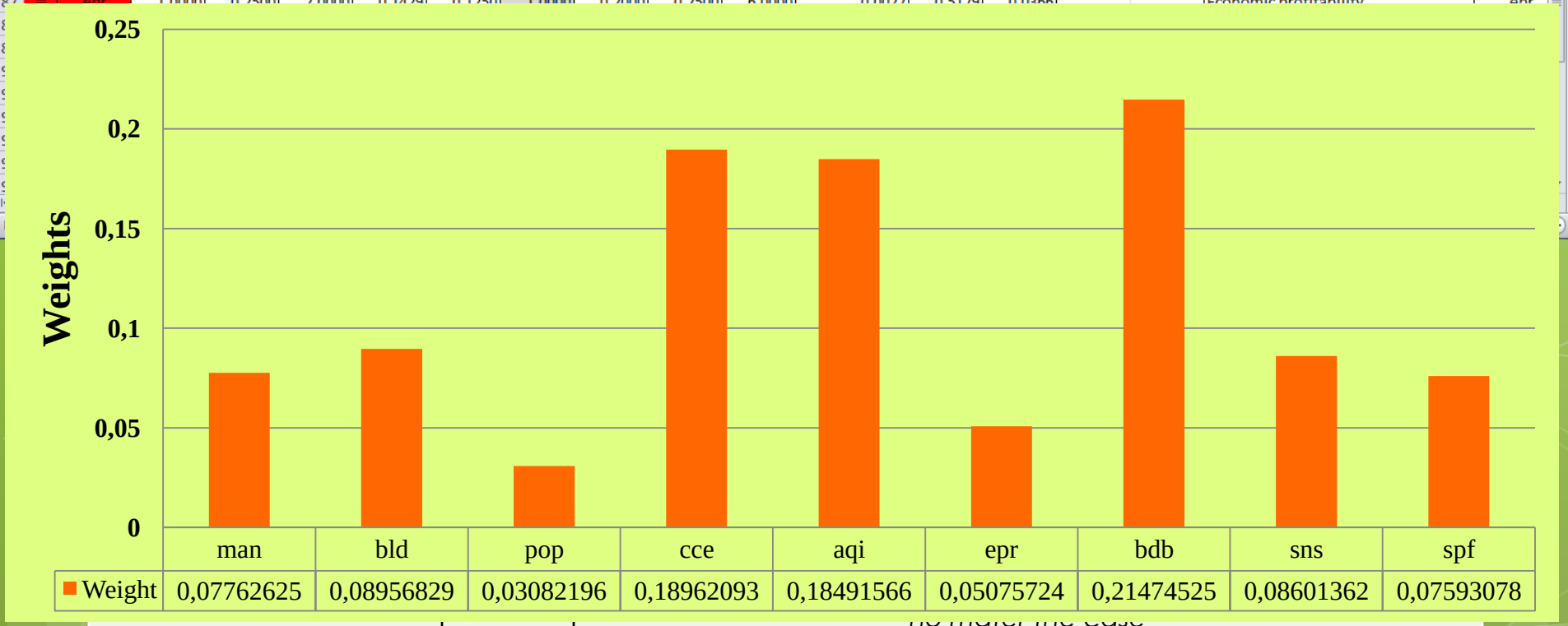
- *Geographers*
- *Urban planners*
- *Environment experts*
- *Biologists*
- *Landscapers*
- *Psyhologists*
- *Remote sensing experts*

Methods & Results

Criteria	Acronym
Management costs	man
Building easiness	bld
Popularity of the infrastructure in Romania	pop
Climate change combat efficiency	cce
Air quality improvement efficiency	aqi
Economic profitability	epr
Biodiversity benefits and conservation	bdb
Social network stimulation	sns
Specificity	spf

	M	N	O	P	Q	R
70	0.0667	0.7402	0.0720		Building easiness	bld
71	0.0000	0.3147	0.0306		Popularity of the infrastructure in Ror	pop
72	28.0000	1.4481	0.1408		Climate change combat eficency	cce
73	28.1250	1.4488	0.1409		Air quality improvement efficency	aqi
74	0.0536	0.7224	0.0702		Economic profitability	epr
75	36.0000	4.1866	0.4071		Biodiversity benefits and conservatio	bdb
76	0.3214	0.8815	0.0857		Social network stimulation	sns
77	0.0000	0.2859	0.0278		Specificity	spf

	od	GA	Weight		Criteria	Acronim
81						
82	0.0247	0.6628	0.0469		Management costs	man
83	0.2143	0.8427	0.0596		Building easiness	bld
84	0.0023	0.5095	0.0361		Popularity of the infrastructure in Ror	pop
85	20.0000	3.0600	0.2165		Climate change combat eficency	cce
86	00.0000	3.7628	0.2662		Air quality improvement efficency	aqi
87	0.0027	0.5179	0.0366		Economic profitability	epr



Methods & Results

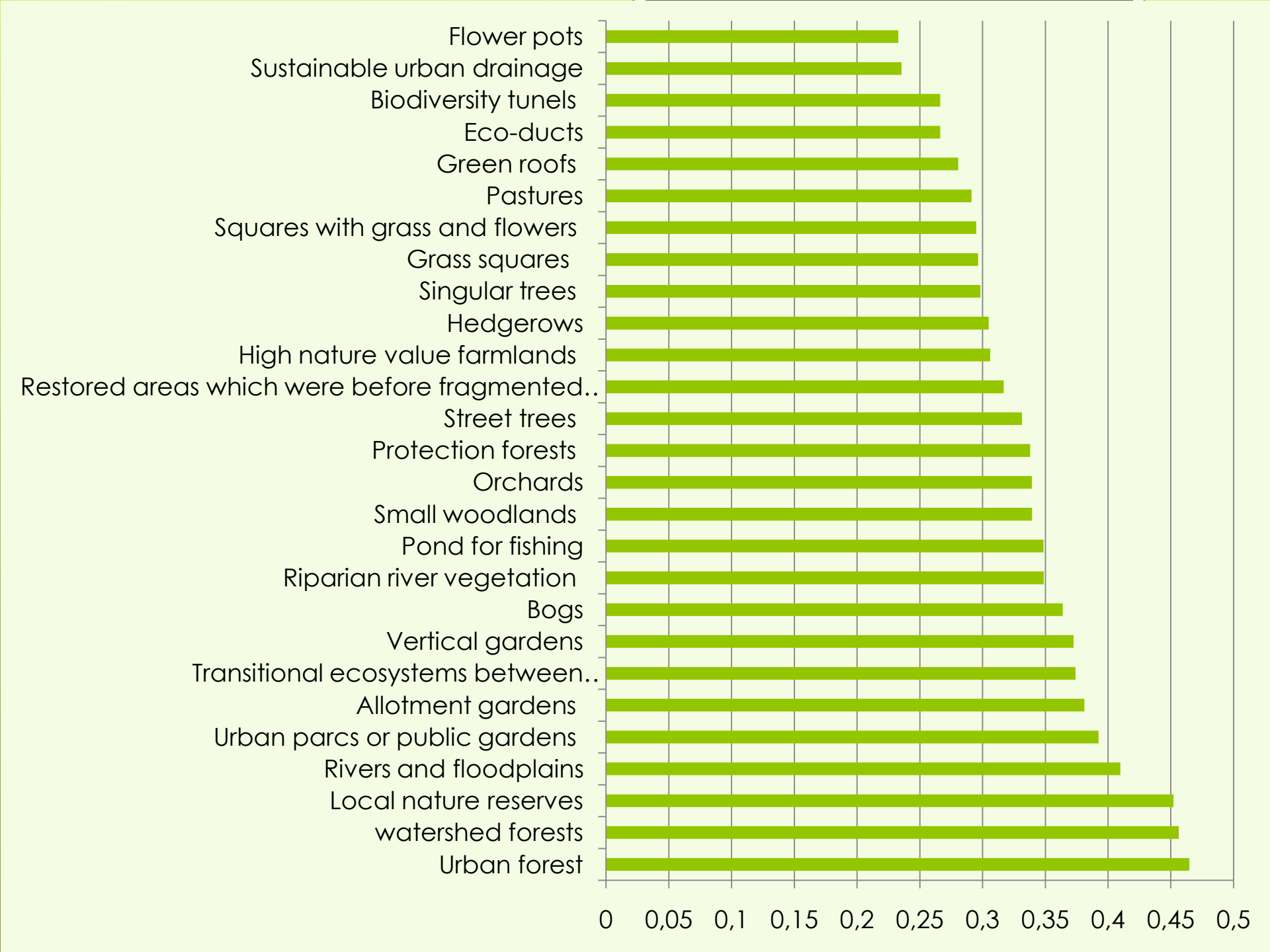
Urban Green Infrastructure (UGI) selection







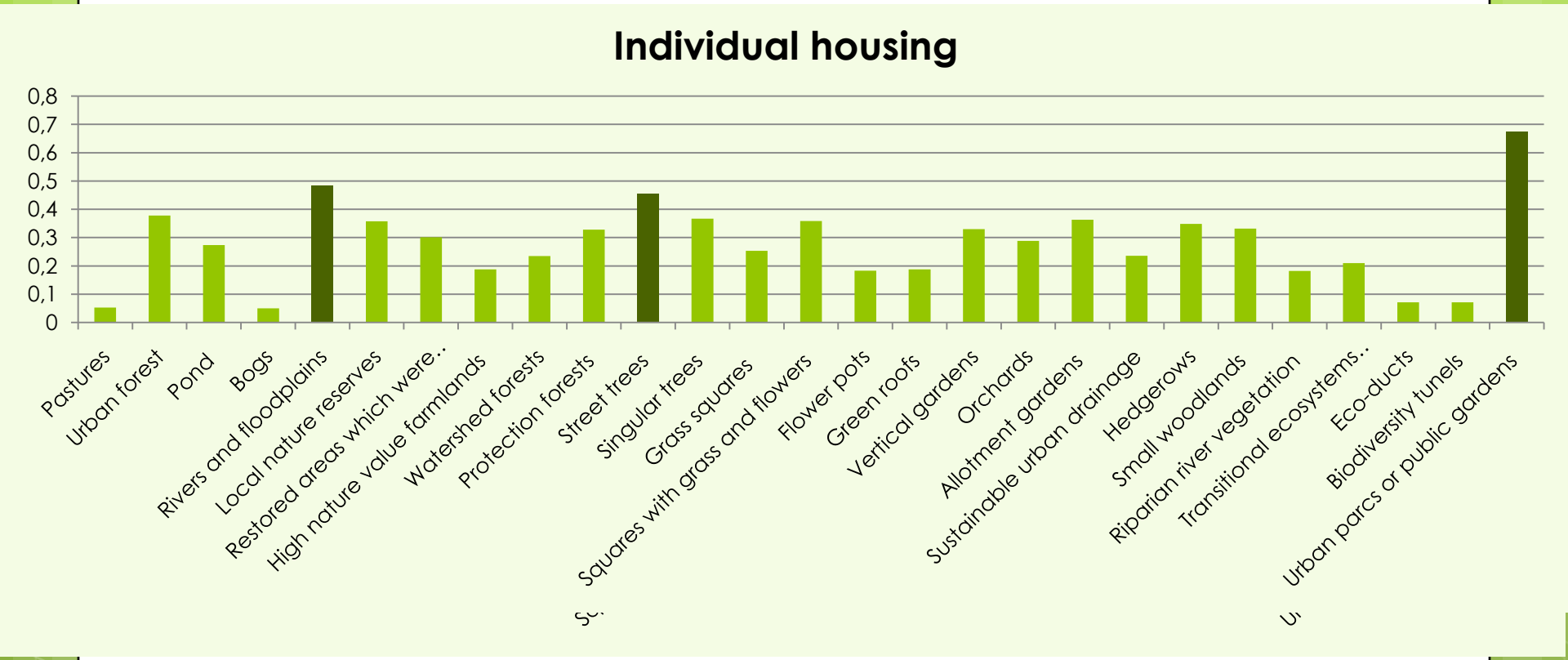

1	Pastures
2	Urban forest
3	Pond for fishing
4	Bogs
5	Rivers and floodplains
6	Local nature reserves
7	Restored areas which were before fragmented or degraded natural areas
8	High nature value farmlands
9	watershed forests
10	Protection forests
11	Street trees
12	Singular trees
13	Grass squares
14	Squares with grass and flowers
15	Flower pots
16	Green roofs
17	Vertical gardens
18	Orchards
19	Allotment gardens
20	Sustainable urban drainage
21	Hedgerows
22	Small woodlands
23	Riparian river vegetation
24	Transitional ecosystems between cropland, grassland and forests
25	Eco-ducts
26	Biodiversity tunnels
27	Urban parks or public gardens


Flower pots
Sustainable urban drainage
Biodiversity tunels
Eco-ducts
Green roofs
Pastures
Squares with grass and flowers
Grass squares
Singular trees
Hedgerows
High nature value farmlands
Restored areas which were before fragmented..
Street trees
Protection forests
Orchards
Small woodlands
Pond for fishing
Riparian river vegetation
Bogs
Vertical gardens
Transitional ecosystems between..
Allotment gardens
Urban parcs or public gardens
Rivers and floodplains
Local nature reserves
watershed forests
Urban forest
0
0,05
0,1
0,15
0,2
0,25
0,3
0,35
0,4
0,45
0,5

Methods & Results

What types of UGI are suitable for different urban areas ?

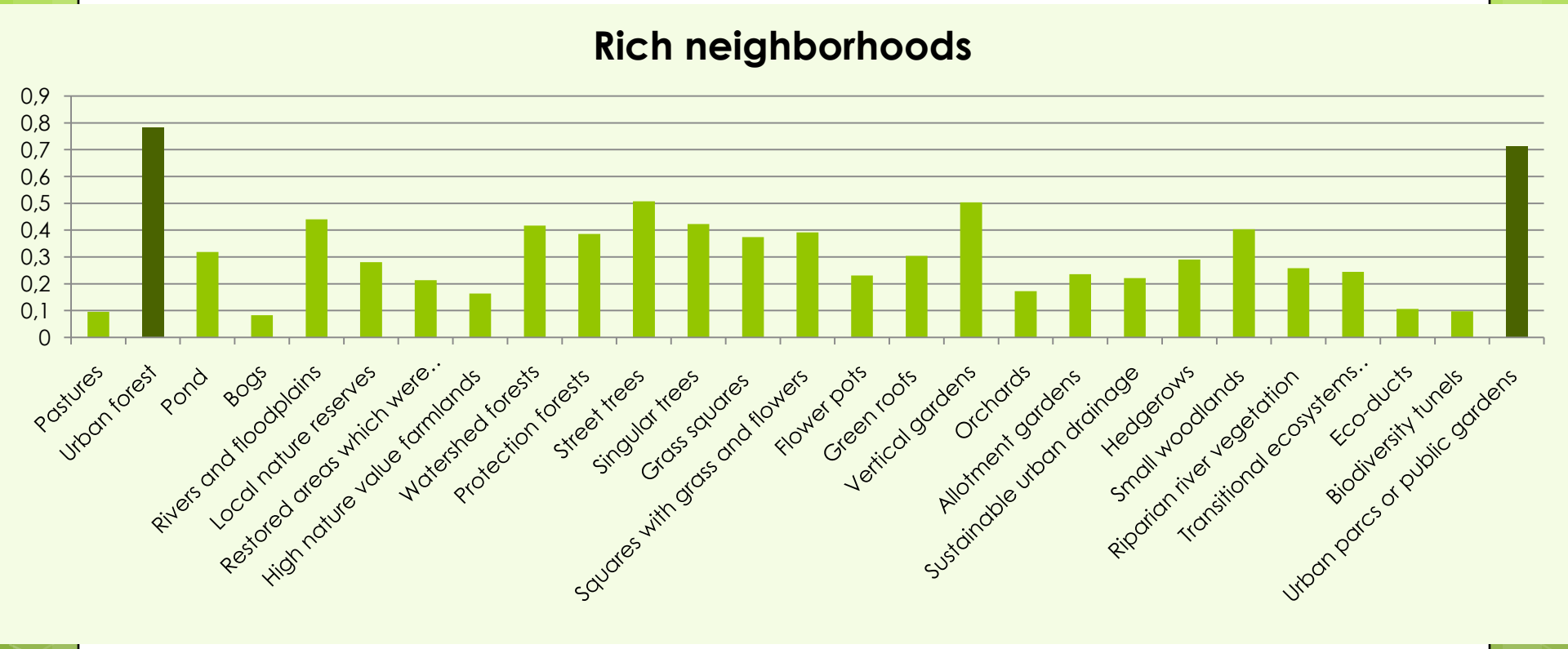
1st selection:
Functional zones



Methods

What types of UGI are suitable for different urban areas ?

2nd selection:
Social realities

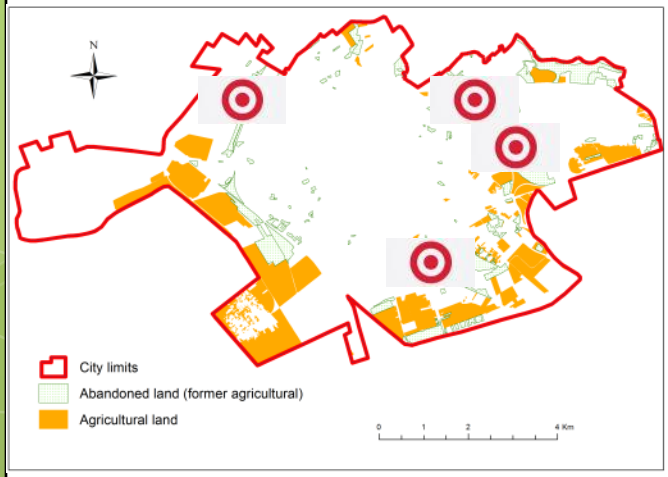


Next steps

Correlate opinions

VS

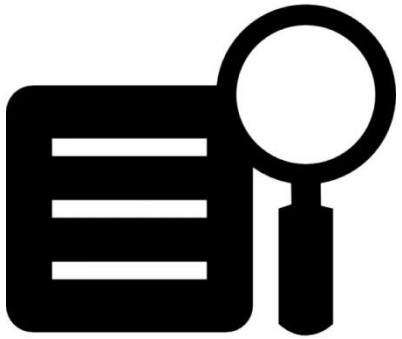
Identify suitable areas for new UGI



Publish results and findings

Conclusions

- The main finding of the study was the ability to make a hierarchy of the UGI that can be implemented in a Romanian city and a Romanian context (legal aspects, traditional planning, funds availability etc.)
- In order to confirm the results of the current study future researched are going to be focused on public perception towards UGI mixed together with the assessment of local authorities perception and companies representatives' perception



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