USERS

Cities

- Barcelona (Spain)
- Tallinn (Estonia)
- Edmonton (Canada)
- Buenos Aires (Argentina)
- Hamilton (New Zealand)
- Addis Ababa (Ethiopia)
- Lisbon (Portugal)
- Luxembourg – ProSud (Luxembourg)
- Portland, OR (USA)
- Stockholm (Sweden)

International institutions and organisations

- ICLEI European Secretariat, Freiburg (Germany)
- National Parks Board of Singapore (Singapore)
- European Environment Agency, Copenhagen (Denmark)
- Secretariat of the Convention on Biological Diversity (CBD), Montreal (Canada)
- ICLEI Cities Biodiversity Center, Cape Town (South Africa)

USER APPRECIATION

„These products are very useful tools for urban ecosystem services assessment and give essential input for the development of urban climate change adaptation strategies and action plans."

Meelis Uustal, Stockholm Environment Institute Tallinn Centre (SEI Tallinn)

„The City of Edmonton was very excited to be included in this project. With these results we now have the ability to test our 2015 ecosite mapping data (captured by softcopy photogrammetry techniques) against the results produced from satellite imagery analysis. We will soon understand the degree of accuracy that can be produced for different natural vegetation types across our landscape using remote sensing techniques."

Grant Pearsell, Catherine Shier (City of Edmonton, Parks + Biodiversity)

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"EO for City Biodiversity Index (CBI)" ESA ESRIN
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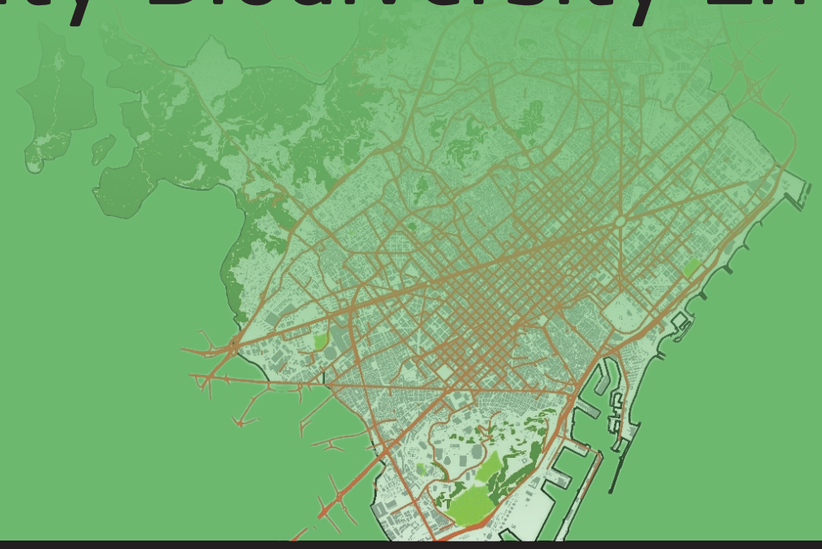
EARTH OBSERVATION IN SUPPORT OF THE

City Biodiversity Index



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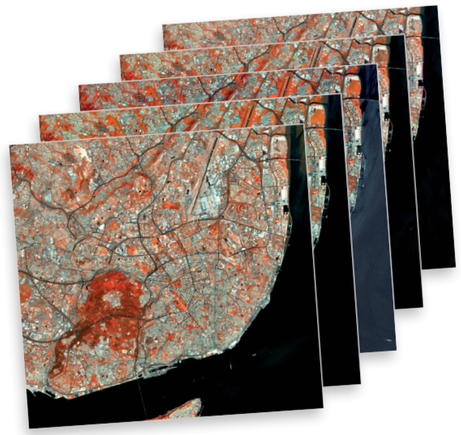
Société du Parc Jean-Drapeau


PROJECT BACKGROUND

Today, we are living in an urban world. For the first time in history, there are now more people living in cities than in rural areas. In Europe their share has reached almost three quarters. Urban areas supposedly will absorb almost all the population growth expected over the next decades. This will pose a range of challenges for cities and their surroundings, not only on resource availability and the quality of urban environments, but also on biodiversity in cities.

The World Summit on Sustainable Development in 2002 assigned to the Convention on Biological Diversity (CBD) a target for 2010 in order to significantly reduce the rate of biodiversity loss. Since this target has been collectively missed, the new Aichi biodiversity targets aim to improve the status of biodiversity and to reduce the pressures on biodiversity by 2020.

Capturing the status and trends of biodiversity and ecosystem services in urban landscapes represents an important part of understanding whether a metropolitan area is developing along a sustainable trajectory or not.

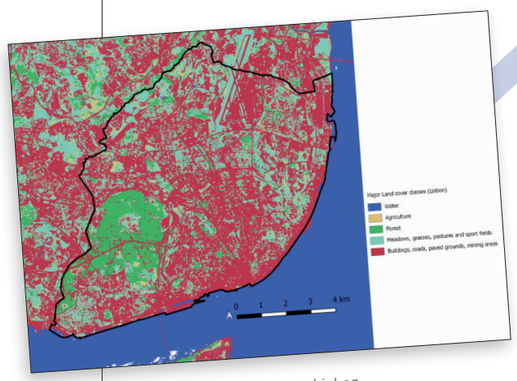


EO data time series
(Sentinel 2 images Lisbon)

THE CITY BIODIVERSITY (OR SINGAPORE) INDEX

Actions to conserve biodiversity should start with stock-taking and identifying baselines, followed by regular monitoring of conservation initiatives. The City Biodiversity Index (CBI), also known as the Singapore Index on Cities' Biodiversity (or Singapore Index) because of Singapore's leadership in its development, has been adopted during COP-9 of the CBD in 2008. It is conceived as a self-assessment tool to evaluate the state of biodiversity in cities and to provide insights for improving conservation efforts. This includes an initial baseline measurement, the identification of policy priorities based on their measurements and then a monitoring at periodic intervals.

Today, the CBI includes 23 indicators from three categories such as the proportion of natural areas in the city or the budget allocated to conservation projects. The CBI is designed to be applied by many cities in the world to monitor their progress in conservation efforts and their success in halting the rate of biodiversity loss.



Basic land cover map Lisbon

RESULTS

The project provides support to 4 of the 23 indicators. The results illustrated below are based on satellite earth observation data combined with local in-situ information. The output of the data analysis (i.e. percentage or an area value) can be directly used to determine the relevant CBI score.

Indicator 1 "Proportion of natural areas in the city"

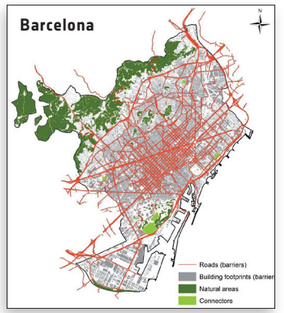
Results / CBI score

Lisbon:
10.91% / 2 points

Buenos Aires:
3.72% / 1 point

Hamilton:
4.02% / 1 point

Indicator 2 "Connectivity measures or ecological networks to counter fragmentation"



(area of connected natural areas)

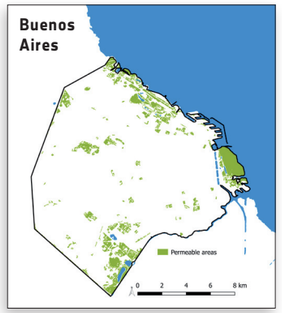
Results / CBI score

Barcelona municipality:
292.5 ha / 1 point

Buenos Aires:
249.42 ha / 1 point

Lisbon:
242.57 ha / 1 point

Indicator 11 "Regulation of quantity of water"



(percentage of permeable surfaces)

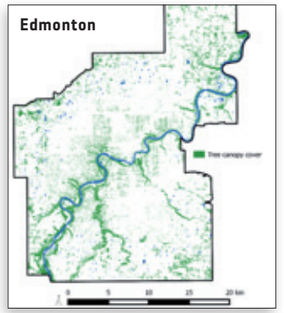
Results / CBI score

Buenos Aires:
9% / 0 point

Lisbon:
38.70% / 1 point

Hamilton:
43.62% / 2 points

Indicator 12 "Climate regulation: carbon storage and cooling effect of vegetation"



(percentage of tree canopy cover)

Results / CBI score

Tallinn:
22.46% / 2 points

Barcelona municipality:
20.73% / 2 points

Edmonton:
8.27% / 0 points

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