Enhancing maps with...

OpenStreetMap

Kimberly Rivera and Tiziana Gelmi Candusso

uwin
urban wildlife information network
LINCOLN PARK ZOO.

LINCOLN PARK ZOO.
FOR WILDLIFE. FOR ALL.

UNIVERSITY OF TORONTO

Tiziana Gelmi Candusso
Research Fellow Lincoln Park Zoo

Kimberly Rivera
Research Coordinator

Ecology and Evolution

Forward Series

RESEARCH ARTICLE | Open Access

Leveraging Open-Source Geographic Databases to Enhance the Representation of Landscape Heterogeneity in Ecological Models

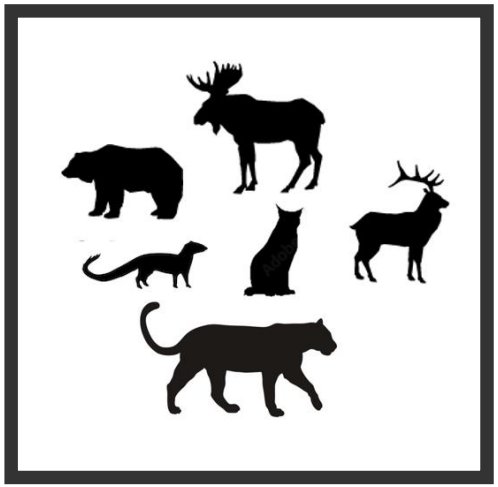
Tiziana A. Gelmi-Candusso, Peter Rodriguez, Mason Fidino, Kim Rivera, Elizabeth W. Lehrer, Seth Magle, Marie-Josée Fortin

First published: 10 October 2024 | https://doi.org/10.1002/ece3.70402 | Citations: 1

Funding: This work was supported by NSERC Canada Research Chairs in Spatial Ecology—Marie-Josée Fortin; Deutsche Forschungsgemeinschaft (GE 3103/1-1).

Why do we need high resolution spatial data?

Wildlife presence and movement data



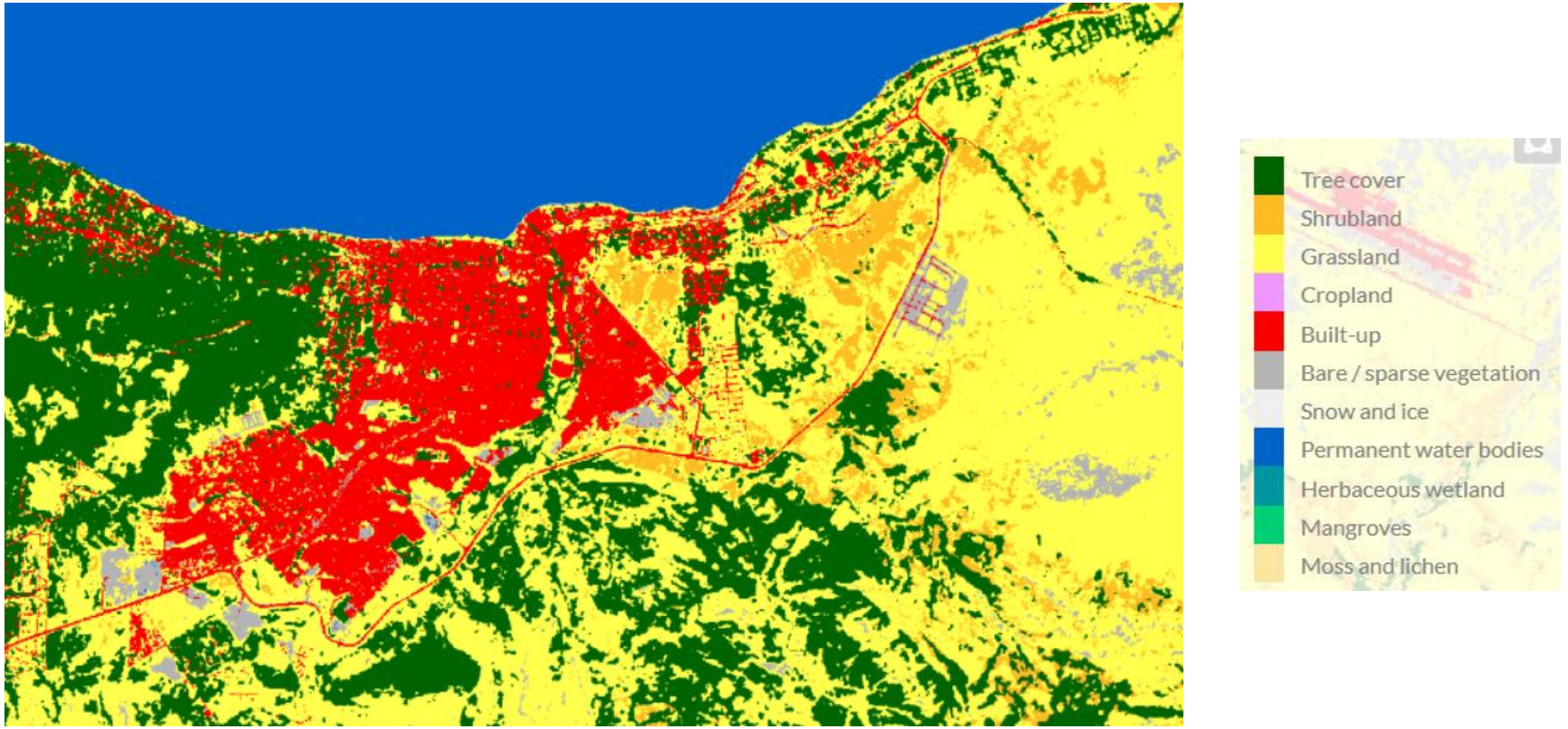
Fine-scale urban Landcover need

Multispecies habitat use and functional connectivity

LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

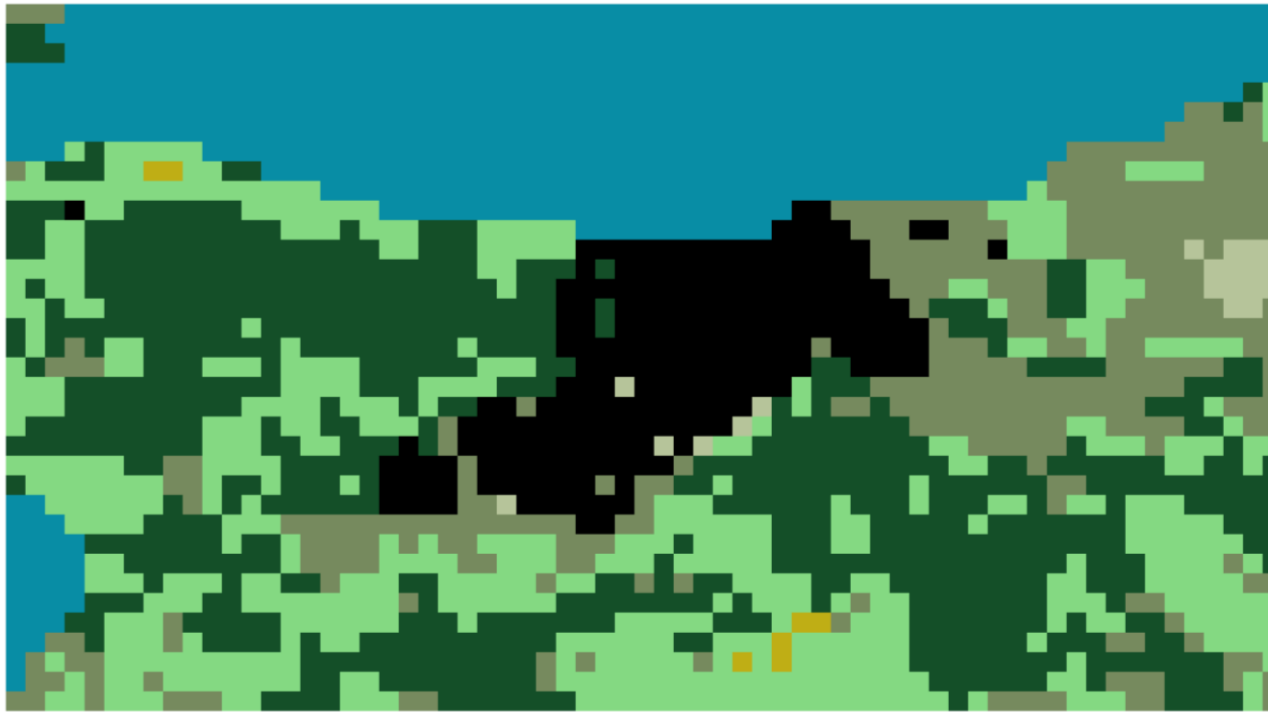
The Problem

2021 European Space Agency WorldCover, Bariloche (10m)



The Problem

2022 Climate Data Store, Bariloche (300m)

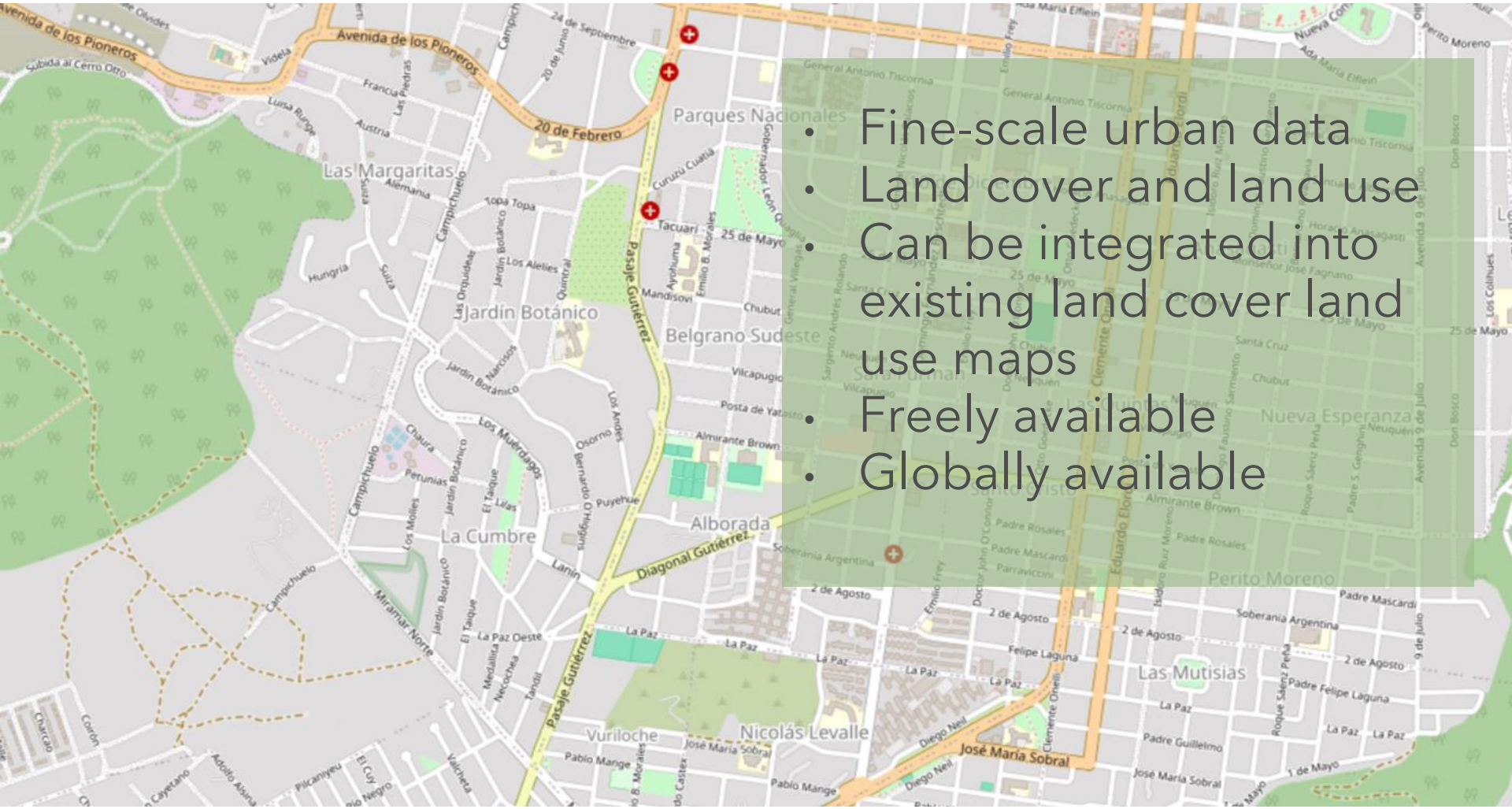


What is OpenStreetMap?

OpenStreetMap

- Open-source mapping platform
- generated by community contributions
- Supported with data from global governmental and non-governmental agencies

Why use OpenStreetMap?

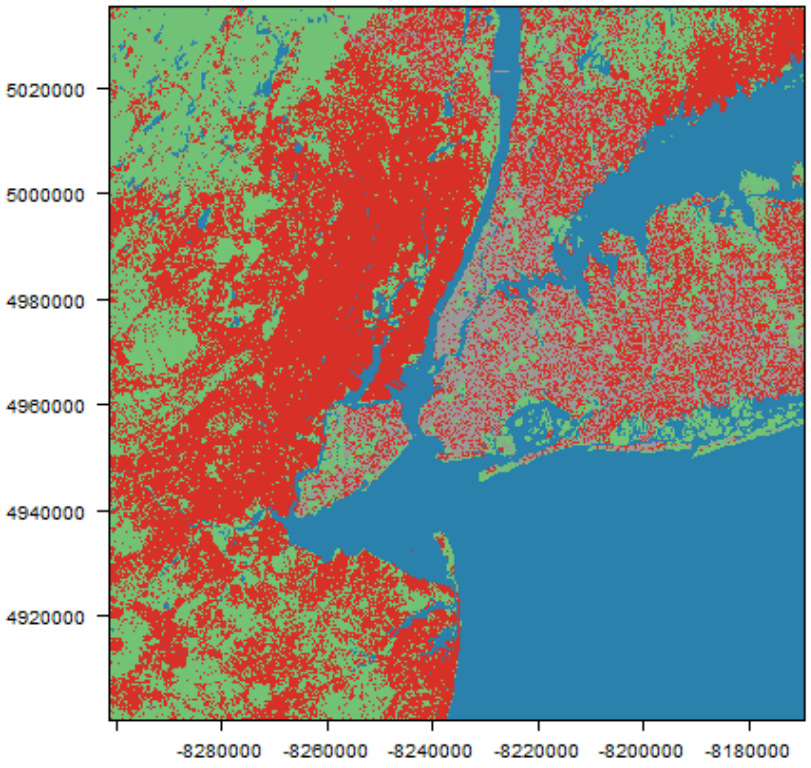


- Fine-scale urban data
- Land cover and land use
- Can be integrated into existing land cover land use maps
- Freely available
- Globally available

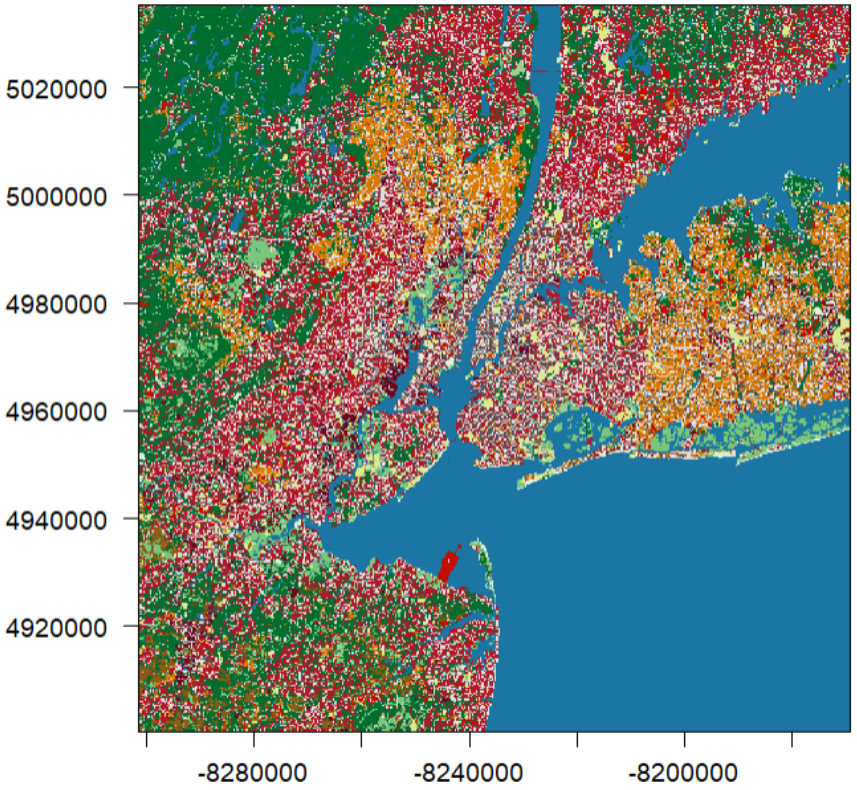
LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

Why use OpenStreetMap?

New York, NY



Commission for Environmental Cooperation
Land cover and land use map

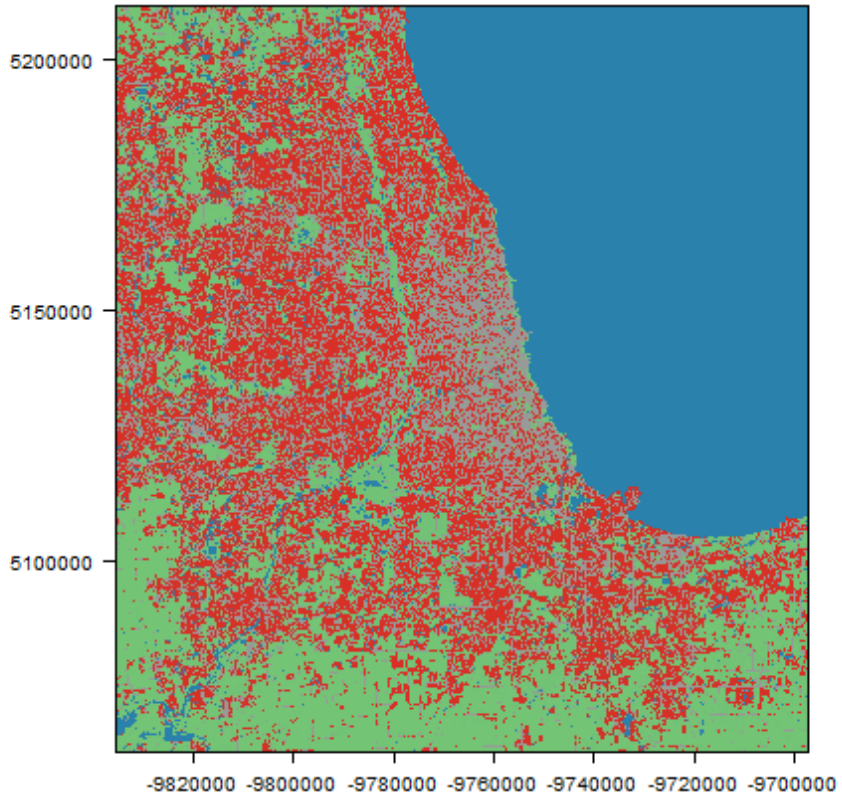


OSM integrated map

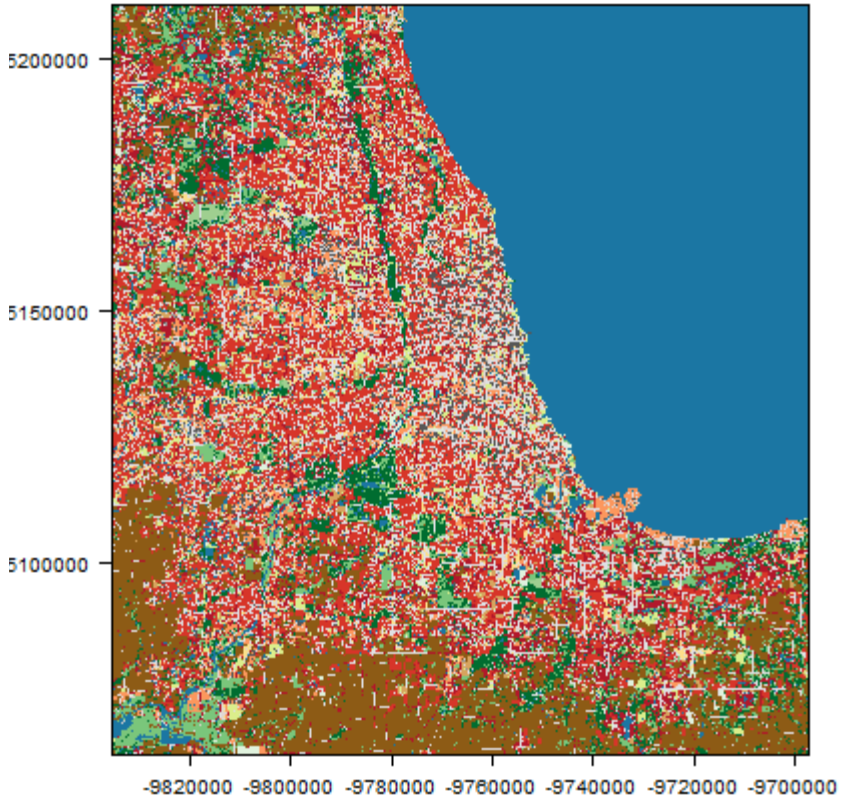
LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

Why use OpenStreetMap?

Chicago, IL



Commission for Environmental Cooperation
Land cover and land use map

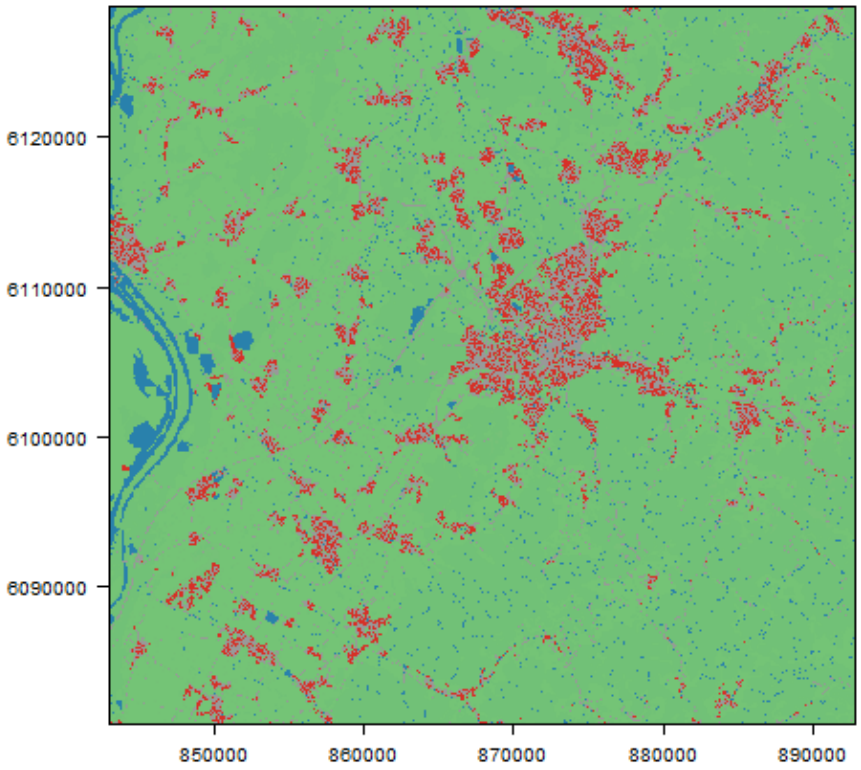


OSM integrated map

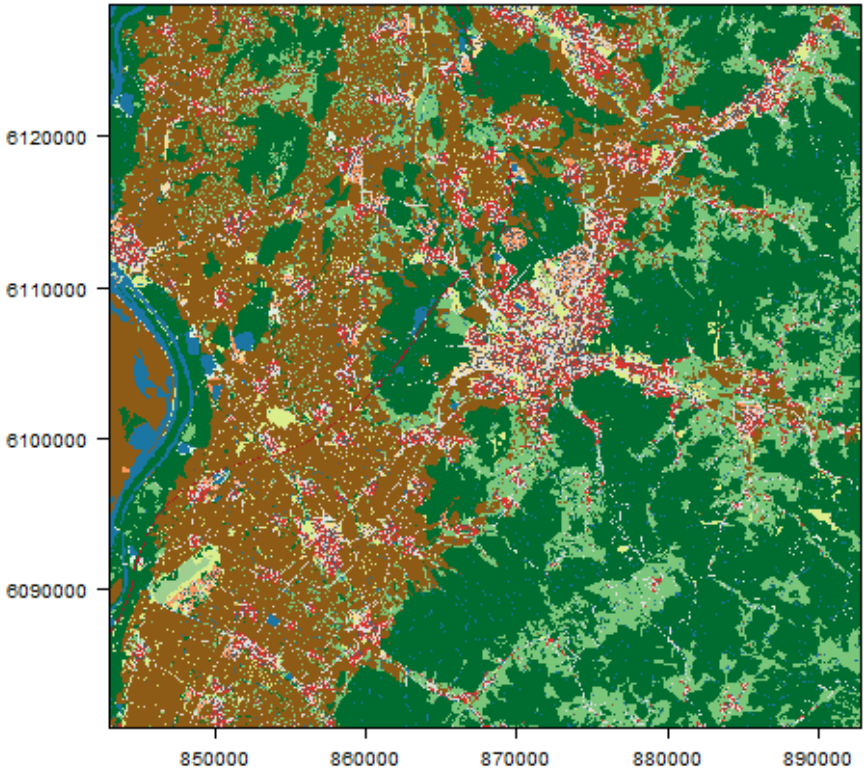
LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

Why use OpenStreetMap?

Freiburg, Germany



Commission for Environmental Cooperation
Land cover and land use map



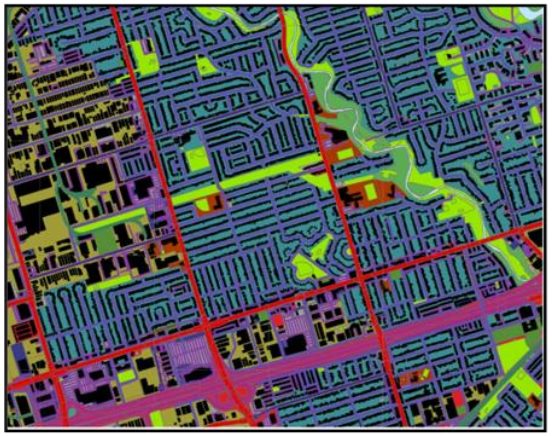
OSM integrated map

LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

How do we use OpenStreetMap?

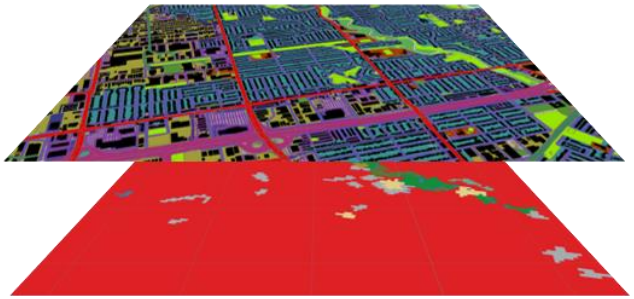
Open street maps

Tag extraction



Urban fine-scale landcover (28 classes)

Overlay
OSM-derived layers

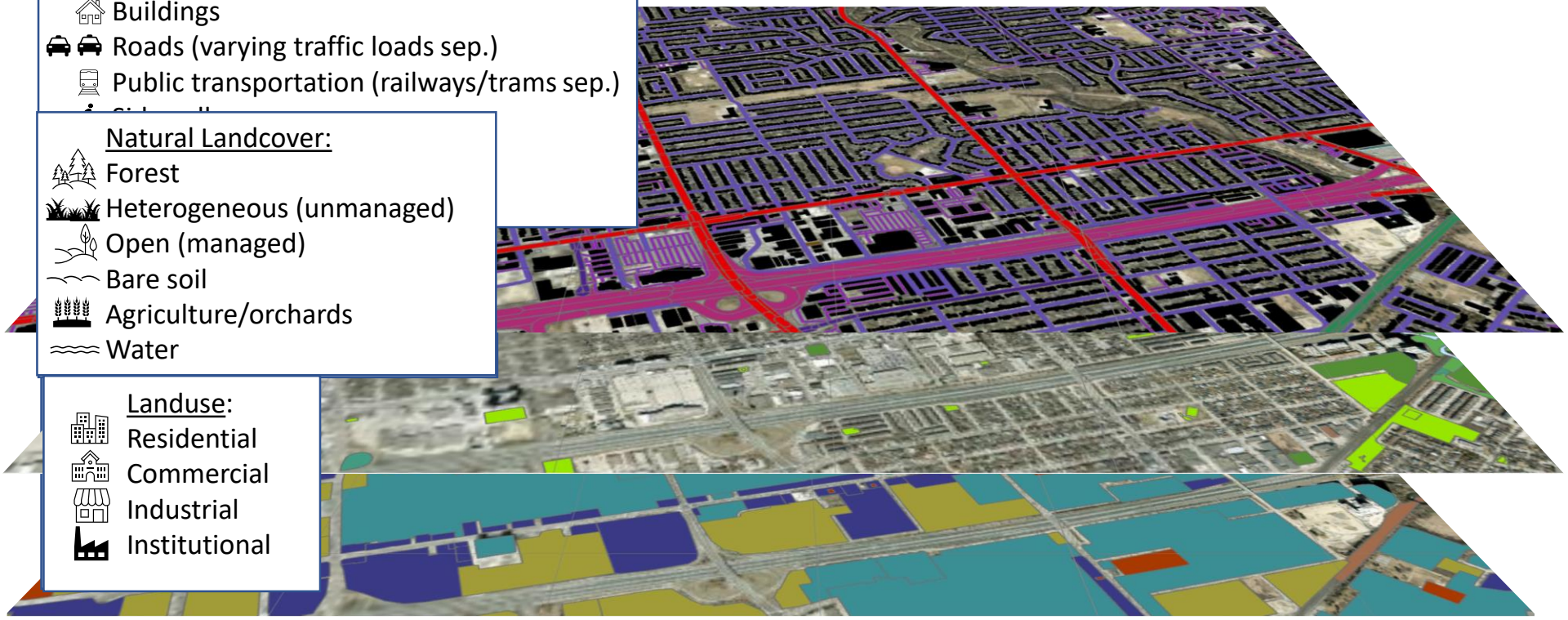


Global landcover

Overlay
global landcover layer
as background

LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

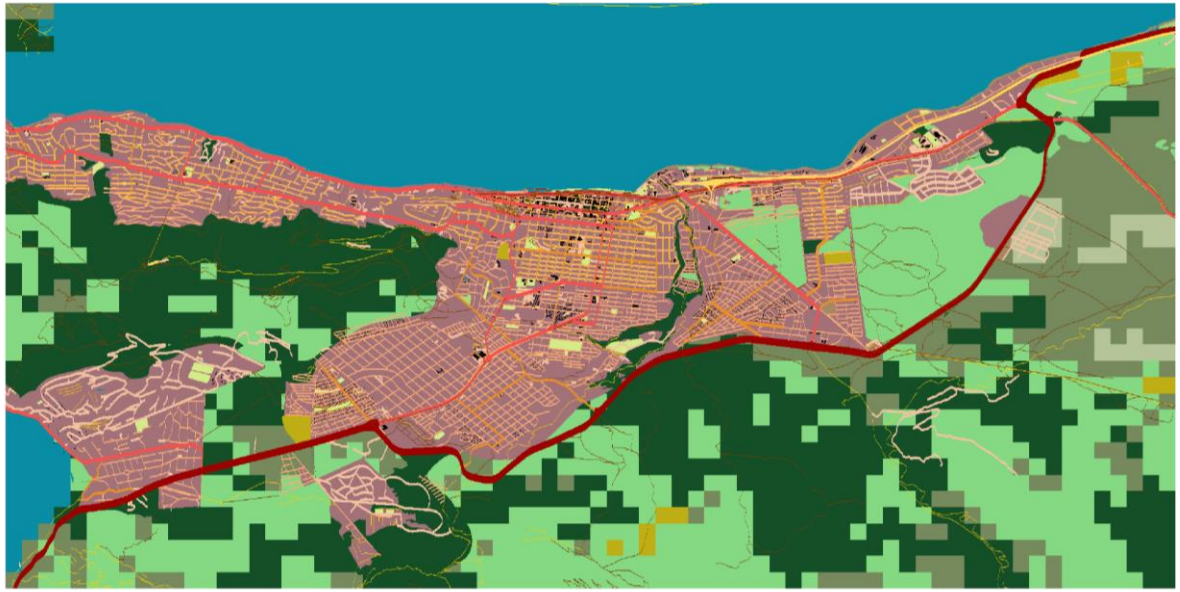
Landcover classes included (27 classes)



LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

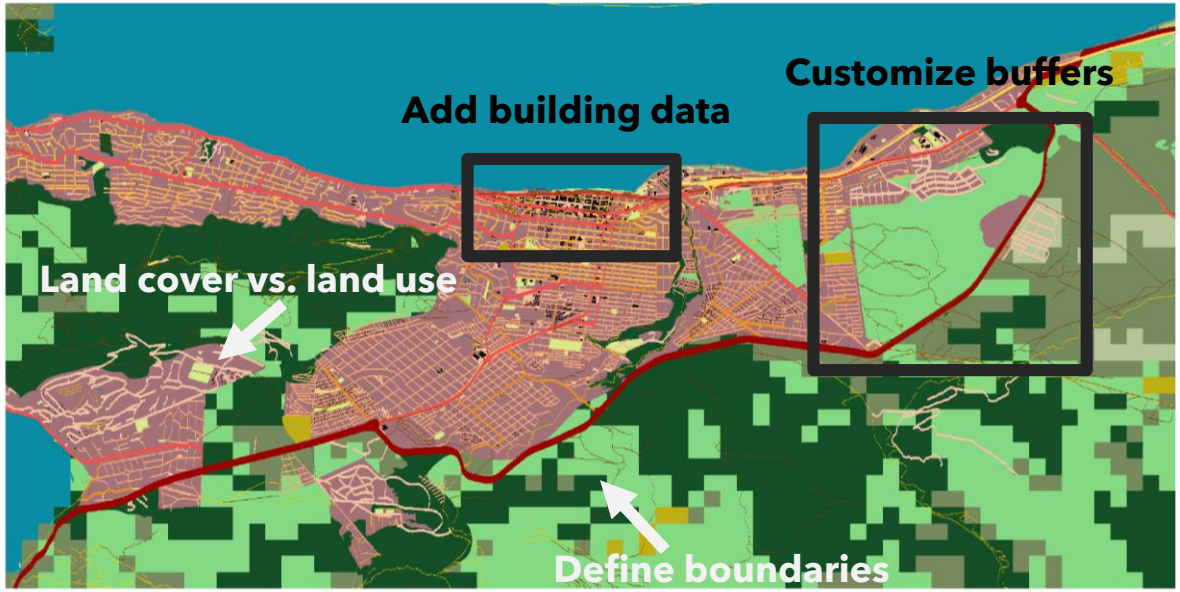
Why use OpenStreetMap?

Climate Data Store + OSM, Bariloche



Why use OpenStreetMap?

Climate Data Store + OSM, Bariloche



LINCOLN PARK ZOO
FOR WILDLIFE. FOR ALL.

Lets get started!

Enhancing Maps with OSM Tutorial

1. Login to GitHub online and open UWIN_tutorials> IUWC25_OSM >enhancing_maps.md
2. We are going to fork the 'UWIN_tutorials' repository on your local GitHub
3. Start a new R project and script in this folder to work through code

Questions?

Email us:

karivera@lpzoo.org

tiziana.gelmi@gmail.com

Thank you!

LINCOLN PARK ZOO®

FOR WILDLIFE. FOR ALL.