RESEARCH BRIEF

Urbanization & Biodiversity Loss in the Post COVID-19 Era

Complex Challenges and Possible Solutions

Authors: Amin Rastandeh* and Meghann Jarchow

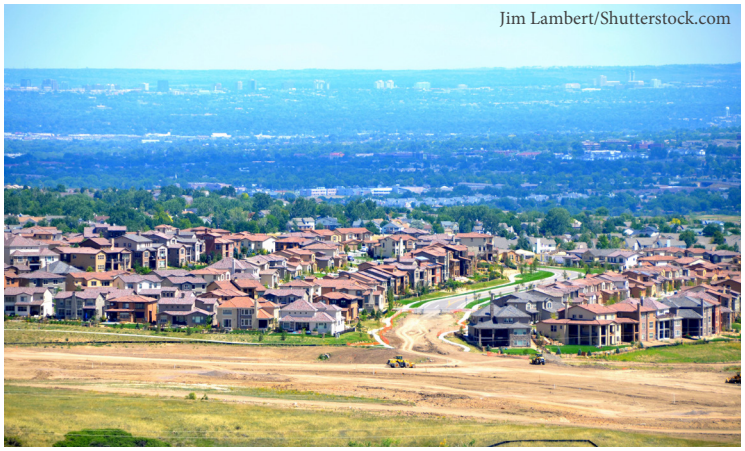
Department of Sustainability & Environment, University of South Dakota, USA
**Contact: amin.rastandeh@usd.edu*
Read the full study in Cities and Health: https://doi.org/10.1080/23748834.2020.1788322

RESEARCH OBJECTIVE: Our research considers the challenges and opportunities that biodiversity may face as urbanization increases worldwide in the post-COVID-19 era. ***We explore feasible actions to minimize the negative impacts of urbanization on biodiversity while also providing opportunities for humans and wildlife to coexist safely in urban environments.***

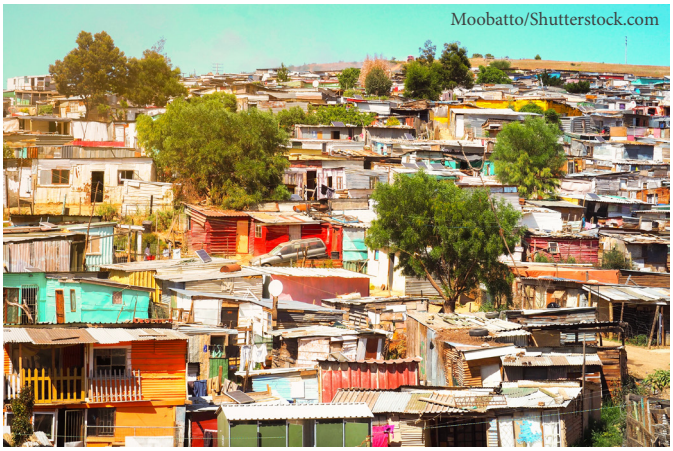
INCREASING URBANIZATION after COVID-19

We hypothesize that one challenge that will arise after the COVID-19 pandemic is the accelerated expansion of urban areas through two distinct mechanisms:

1. **More informal settlements:** The new wave of poverty predicted to occur post-COVID-19 will likely force more humans in less developed or developing countries to move into informal settlements (unplanned and unregulated housing units).
2. **More suburban development:** Fear of rapid disease spread in dense urban areas and increasing opportunities for remote work will likely cause people from wealthier social classes to move out of the city and into the suburbs.


Jim Lambert/Shutterstock.com

Urban areas expanding into what used to be rural areas in Lakewood, CO.


Moobatto/Shutterstock.com

Informal settlement outside of Cape Town, South Africa.

THE IMPACT OF URBANIZATION on BIODIVERSITY

Urbanization is a ***driving force of biodiversity loss worldwide***. As more people have moved to cities for greater employment opportunities urban areas have expanded globally and biodiversity has declined. ***Urbanization leads to decreases in biodiversity because*** it contributes to: ***1) habitat loss*** due to ***land being converted*** for urban development, resource extraction, and food production, and 2) ***climate change, largely driven by CO2 emissions,*** which urban areas are responsible for over 75% of globally. We argue that the increase in urbanization that could occur after COVID-19, would cause a significant decrease in biodiversity.

Urbanization IS

an increase in the proportion of people who live in urban areas, including towns, cities, and suburbs. As urbanization occurs, urban areas expand and more land is developed.

Biodiversity IS

the variety of different kinds of life found in a specific area, including animals, plants, insects, fungi, and microorganisms.

WILDLIFE-SUPPORTIVE GREEN SPACE DESIGN to REDUCE BIODIVERSITY LOSS

We recommend wildlife-supportive green space design as way to respond to this challenge of rapid urbanization and biodiversity loss. Wildlife-supportive green space design is ***a way of planning and managing urban green spaces*** (e.g. backyards, parks, community gardens, cemeteries, etc.) so that they can ***simultaneously be used by humans and provide habitat for wildlife.*** By making urban areas places where biodiversity can thrive alongside humans, the threat of biodiversity loss from urbanization decreases.

Wildlife-supportive green space design can ***happen at multiple scales,*** including neighborhoods, cities, and landscapes. At each scale, the types of designs that can be implemented are different (see figure below for examples). Additionally, when designing wildlife-supportive green spaces, it is important to take into account many different biodiversity and sustainability issues.

More ***innovation and development are needed*** in the design of these green spaces to make sure ***humans and wildlife can coexist in urban areas without conflict.*** For example, these green spaces should be designed to encourage proper distancing between humans and wildlife to ensure public health and safety.

WILDLIFE-SUPPORTIVE GREEN SPACE DESIGN

MULTIPLE SCALES

NEIGHBORHOODS
(backyards, playgrounds, community gardens, neighborhood parks, etc.)

PLANT a variety of long-lasting native woody species

LEAVE lawn tall to provide shelter for insects and lizards

USE green roofs to provide predator-free micro-habitat for birds

CITIES
(public gardens, zoos, cemeteries, golf courses, botanical gardens, etc.)

CONVERT some manicured green space to native vegetation

REPLACE lawn with alternative native groundcovers

REDUCE the amount of paved areas as much as possible

LANDSCAPES
(coastal areas, regional parks, nature reserves, etc.)

ESTABLISH urban wildlife sanctuaries to protect vulnerable species

REWILD damaged areas through natural regeneration methods

DEFINE better zones to protect fragile ecosystems

BIODIVERSITY & SUSTAINABILITY ISSUES

Climate Change · Education and Research · Environmental Justice · Food Supply · Indigenous Knowledge
Pest Control · Poverty · Public Health Sociocultural Values · Spatial Scale · Zoonotic Diseases

Why BIODIVERSITY is IMPORTANT in URBAN AREAS

Biodiversity is important in urban areas because it ***significantly contributes to the health and wellbeing of people and the environment by supporting a broad spectrum of ecosystem services.*** Examples of the ecosystem services supported by biodiversity include pollination, seed dispersal, pest control, population control, soil and water quality protection, and cultural, recreational, and aesthetics values.

REFERENCES:

Rastandeh, A., & Jarchow, M. (2020). Urbanization and biodiversity loss in the post-COVID-19 era: complex challenges and possible solutions. Cities & Health. Available from: https://doi.org/10.1080/23748834.2020.1788322

WWF (2020) Living Planet Report 2020 - Bending the curve of biodiversity loss. Almond, R.E.A., Grooten M. and Petersen, T. (Eds). WWF, Gland, Switzerland.

UN Habitat (2016) Slum Almanac 2015-2016. Tracking Improvement in the Lives of Slum Dwellers. Participatory Slum Upgrading Programme. UNON, Publishing Services Section, Nairobi, Kenya.

ACKNOWLEDGMENTS: This work was supported by the National Science Foundation (NSF) under the EPSCoR Track II cooperative agreement number OIA-1632810. Acknowledgements for vector graphics: green space design--D-Krab/Shutterstock.com; neighborhood icon--johavel/Shutterstock.com; city icon--anthonycz/Shutterstock.com; landscape icon--Pensiri/Shutterstock.com