

// EXECUTIVE SUMMARY //

# Nature in the Urban Century

A global assessment of where and how to conserve nature  
for biodiversity and human wellbeing



# Executive Summary: Nature in the Urban Century

## A global assessment of where and how to conserve nature for biodiversity and human wellbeing

This century will be remembered as the urban century. Our generation will witness the most significant urban growth in human history. By 2050, there will be 2.4 billion more people in cities, a rate of urban growth that is equivalent to building a city the population of London every seven weeks. Humanity will urbanize an additional area of 1.2 million km<sup>2</sup>, larger than the country of Colombia (Figure 1). Cities have been called humanity's greatest invention, a way of living that can bring many benefits, including increased economic productivity and innovation, greater opportunities for education and individual enhancement, and more efficient use of natural resources and energy. The urban century thus holds enormous opportunity for humanity. However, the urban century also presents a challenge to the global environment, both directly through the expansion of urban area and indirectly through urban energy and resource use.

Urban growth is one of the main global issues that the United Nations Convention on Biological Diversity (CBD) must address to meet its ambitious goals. Governments must envision a positive natural future for our urban century, a future in which sustainable urban growth occurs in appropriate places while nearby nature is protected, restored, and enhanced. Nature in and near cities is crucial not just for maintaining biodiversity but also for ensuring human wellbeing, which depends on the benefits that nature provides.

This report presents a business-as-usual scenario, which assumes that current urban growth trends will continue, and quantifies the impact that urban growth could have on biodiversity and human wellbeing. This report also quantifies the significance of natural habitat for climate mitigation and adaptation. We end by highlighting solutions that can help avoid the negative impacts forecasted under our business-as-usual scenario, ways that governments at all levels can plan and implement a positive natural future for our urban century.

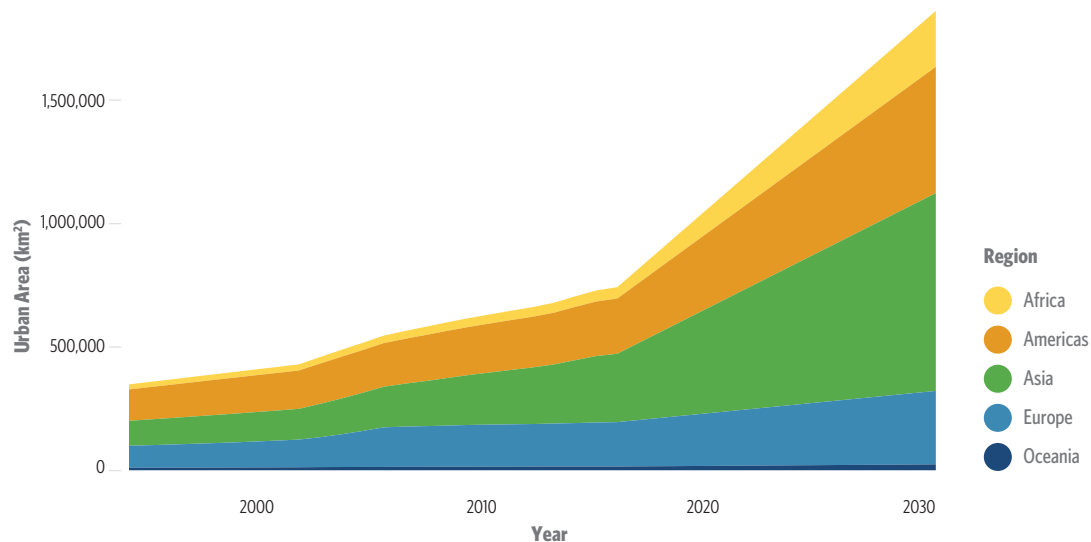


Figure 1: Overall urban growth by region.



// Nature in and near cities is crucial not just for maintaining biodiversity but for ensuring human wellbeing, which depends on the benefits that nature provides.

## The challenge of managing urban growth

This report depicts how the projected rapid rates of urban growth could, if poorly planned, destroy natural habitat and greatly impact biodiversity and human wellbeing. Urban growth, per se, has been considered relatively little under the CBD process to date. However, preventing habitat conversion and increasing land protection are both key goals of Aichi Target 5 and Target 11, and both issues are, and will continue to be, affected by urban growth. Urban growth also affects numerous other issues that are related to Aichi Targets, such as ecosystem service provision (Aichi Target 14) and ecosystem resilience (Aichi Target 15).

## Report Findings Dashboard

### Urban Growth:



By 2050, there will be **2.4 billion** more people in cities



This rate of urban growth is the equivalent of building a city with the population of London **every 7 weeks**



Humanity will urbanize an area of **1.2 million km<sup>2</sup>**, larger than the country of Colombia

### Coastal Resilience:

Coastal habitats reduce the risk of coastal hazards, such as coastal flooding and erosion during storms.



By 2030, urban area is forecast to more than double, **to 23,000 km<sup>2</sup>** in low-lying coastal zones where natural habitat plays a critical role in reducing coastal hazards

This increases the number of urban dwellers dependent on natural ecosystems in coastal areas.



### Natural Habitat:

1992 - 2000

Urban growth was responsible for **190,000 km<sup>2</sup>** of natural habitat lost

**29%** of strictly protected areas<sup>1</sup> were less than 50 km from urban areas



2000 - 2030

Urban growth could threaten **290,000 km<sup>2</sup>** of natural habitat

**40%** of strictly protected areas<sup>1</sup> are projected to be within 50 km of an urban area

<sup>1</sup>as defined by IUCN's Protected Area Categories

### Carbon Storage:

(as forecast in business-as-usual scenario)



Urban growth would destroy natural habitat that stores an estimated **4.35 billion** metric tons of CO<sub>2</sub>



This is the equivalent of carbon dioxide emissions from **931 million** cars on the road for one year

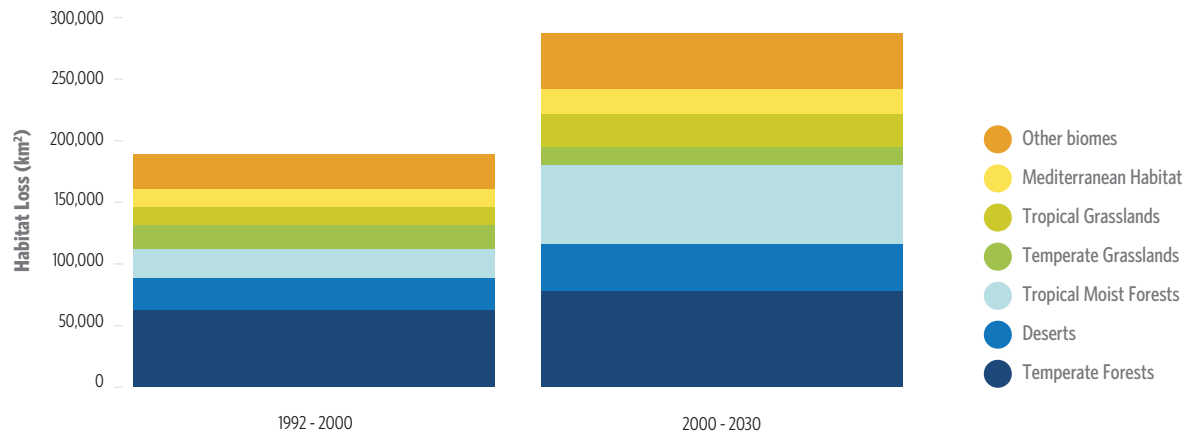


Globally avoiding the release of carbon from habitat loss due to urban growth has a social value of **182.8 billion USD**

assuming the U.S. Environmental Protection Agency's social cost of carbon (USD 42/t CO<sub>2</sub> eq)

## Where and how much natural habitat could be lost?

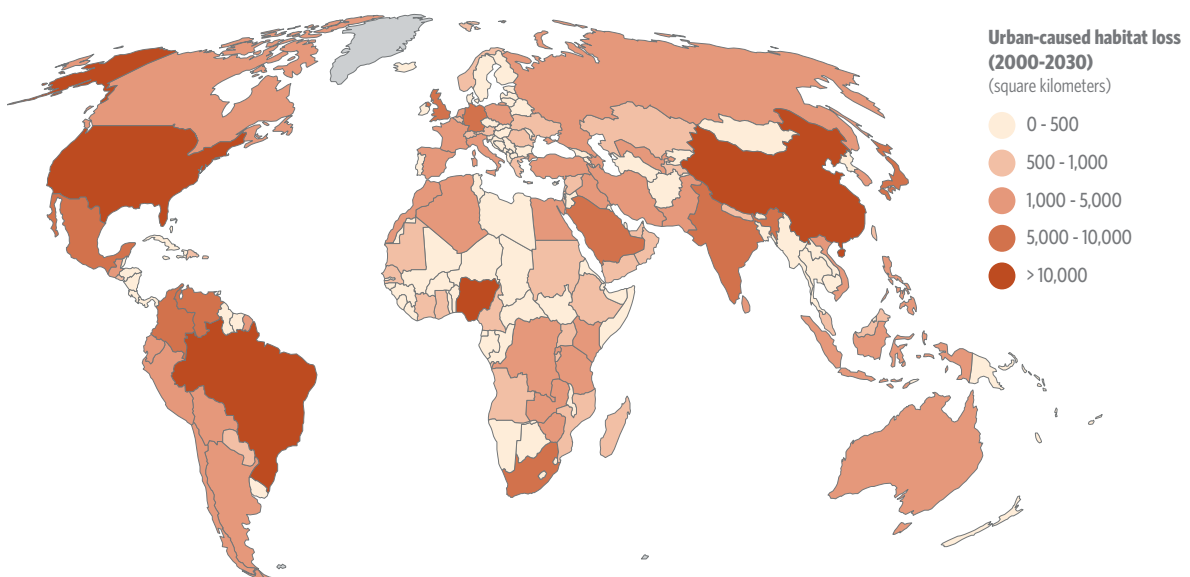
Historically, urban growth has been a major cause of natural habitat loss, directly impeding progress toward Aichi Target 5, which aims to at least halve the rate of loss of all natural habitats. This report shows that urban growth was responsible for the loss of 190,000 km<sup>2</sup> of natural habitat between 1992-2000 (*Figure 2*), which equates to 16% of all the natural habitat lost over this period. Biomes with large amounts of natural habitat lost due to urban growth include temperate forests, deserts & xeric shrublands, and tropical moist forests. In the future, this trend will continue, especially in tropical moist forests. Our report details that urban growth could threaten 290,000 km<sup>2</sup> of natural habitat by 2030.



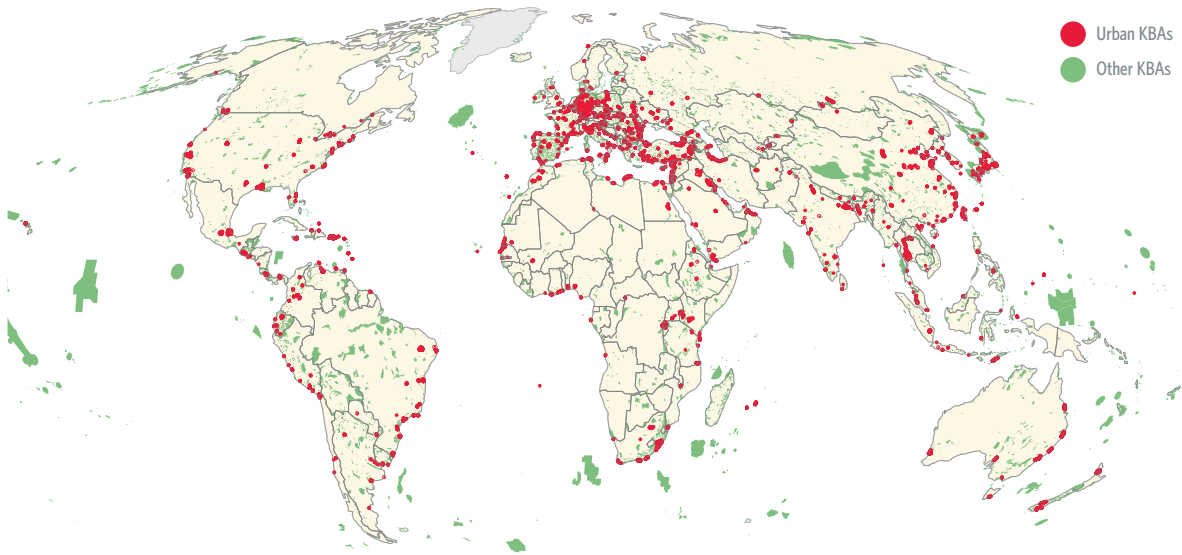
**Figure 2:** Relative risk of habitat loss from urbanization, by ecosystem type.

Countries projected to lose the most natural habitat due to urban growth (> 10,000 km<sup>2</sup>) include the United States, Brazil, Nigeria, and China (*Figure 3*). Though these are the countries with the largest projected natural habitat loss, there are many other countries with significant projected loss. Mitigating these losses will be key if countries are to achieve their CBD commitments.

Potential urbanization impacts on areas of high biodiversity and endemism are spatially concentrated (*Figure 4*). This spatial concentration of urban impacts on biodiversity points to definite areas to focus urban conservation actions. For instance, conservation action on just 49,000 km<sup>2</sup> could help protect Key Biodiversity Areas (KBAs) at risk from urban growth.



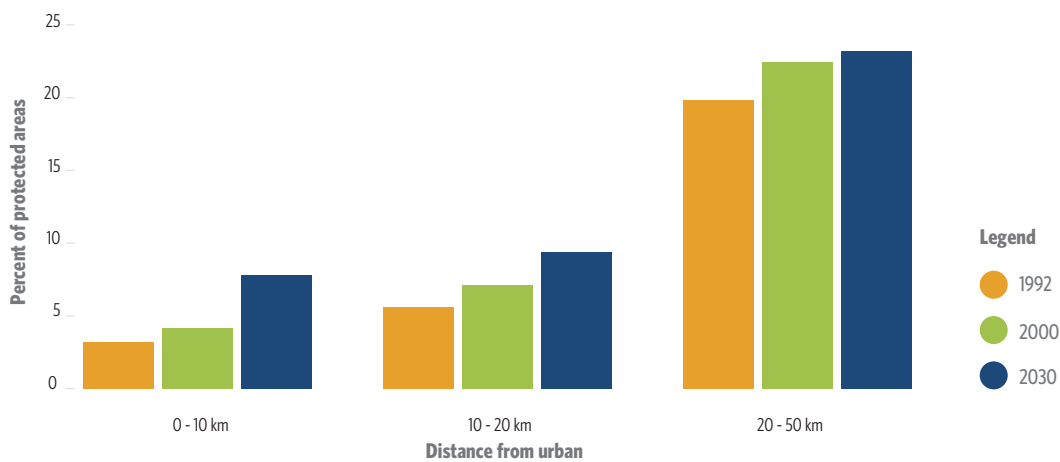
**Figure 3:** Global habitat loss if urban growth trends continue through 2030.



**Figure 4:** Key biodiversity areas globally where urban areas are in close proximity.

## How will protected areas be impacted?

If current trends continue, urban growth could degrade the global network of protected areas and the benefits they provide. Literature reviews have established that negative impacts from cities on protected areas become more frequent when there is less than 50 km between a protected area and a city. Negative impacts experienced in protected areas near cities include increased poaching, illegal logging and harvesting, trampling or other damage to vegetation, alterations in disturbance regimes like fire frequency, and alterations in abiotic conditions such as increased temperature and higher concentrations of air pollutants. Our analysis shows that in 1992, 29% of strictly protected areas [IUCN categories I-IV] were less than 50km from urban areas. By 2030, we project the percentage to increase dramatically (*Figure 5*), with 40% of strictly protected areas and one in two loosely protected areas within 50km of an urban area. This increased proximity will raise the likelihood of negative impacts on these urban-adjacent protected areas, as well as the management costs of trying to prevent negative impacts.

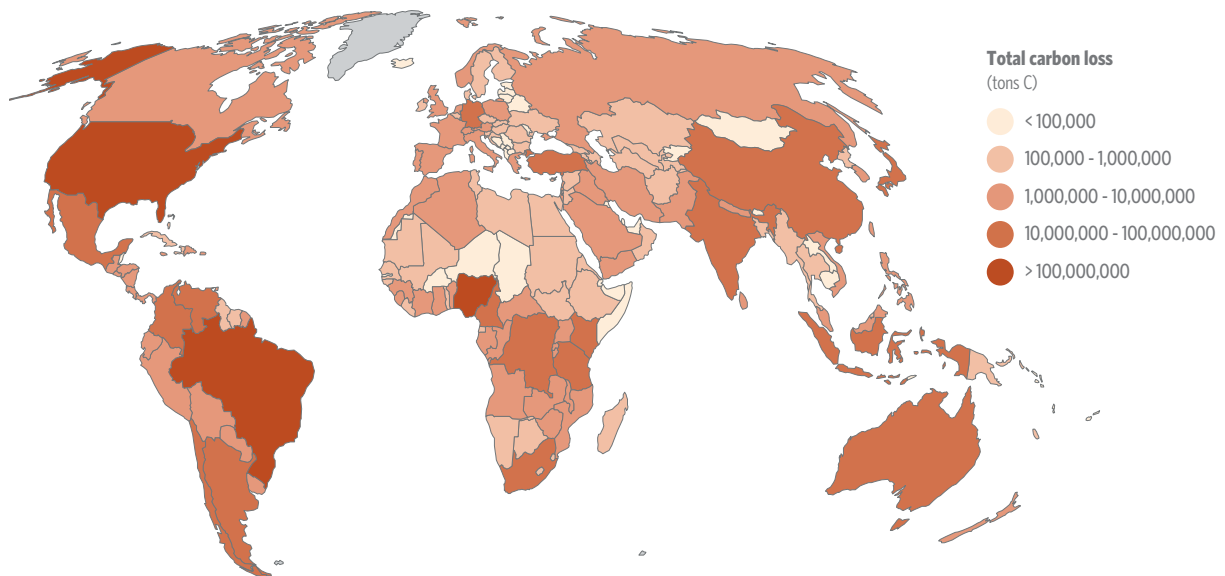


**Figure 5:** Percent of protected natural areas globally that are in close proximity to an urban area.

Protected area management techniques exist that can mitigate many of the negative urban impacts on protected areas while fostering closer connections between people and nature. For instance, the International Union for Conservation of Nature (IUCN) Urban Conservation Strategies Specialist Group offers [guidelines](#) for managing protected areas near cities. Over a longer time frame, urban areas can also plan their growth to prevent ecological degradation and maintain connectivity between patches of natural habitat. By planning proactively for how to manage protected areas in an urban world, countries can safeguard their investments in protected areas and continue to make progress toward their CBD commitments.

## Implications for climate action

Natural habitats play an important role in climate mitigation by sequestering and storing of carbon in their biomass. We quantify how much carbon dioxide would be released as a result of natural habitat lost due to urban growth between now and 2030. We find that urban growth, if occurring as forecast in our business-as-usual scenario, would destroy natural habitat that stores an estimated 1.19 billion metric tons of carbon, or 4.35 billion metric tons of carbon dioxide (*Figure 6*). This is the equivalent to the annual carbon dioxide emissions from 931 million cars on the road. The greatest potential overall release of carbon from habitat loss due to urban growth will occur in Brazil, the U.S., and Nigeria. We estimate that globally avoiding the release of carbon from habitat loss due to urban growth has a social value of USD 182.8 billion, assuming the U.S. Environmental Protection Agency's social cost of carbon (USD 42/t CO<sup>2</sup> eq).



**Figure 6:** Potential loss of carbon as a result of projected urbanization.

Natural habitats, whether inside or surrounding urban areas also provide several ecosystem services that are important for climate adaptation, such as reducing flood risks and reducing temperatures in urban areas during heat waves.

This report focused on one important service, the role that coastal habitats play in reducing the risk of coastal hazards, such as coastal flooding and erosion during storms. By 2030, urban area is forecast to more than double in low-lying coastal zones where natural ecosystems provide high levels of coastal risk-reduction services, to a total of 23,000 km<sup>2</sup> of urban area. More urban dwellers will be living in these zones, increasing the number of people dependent on these risk-reduction services. At the same time this urban growth, if poorly planned, could destroy coastal habitat and reduce the provision of these same risk-reduction services.

## A call to action in the urban century

Governments around the world need to plan for a positive natural future, one where urban growth and development occurs while biodiversity and human wellbeing are protected. Some actions are crucial if we are to take advantage of this unique moment:

- **Integrate local governments in national planning from the start:** Countries use National Biodiversity Strategies and Action Plans (NBSAPs) to delineate how they will achieve progress towards the CBD goals. There is an urgent need to better consider urban growth in the next iteration of NBSAPs, as well as in subnational and local Biodiversity Strategies and Action Plans. National governments should integrate local governments into the planning process and set aside appropriate resources, supporting local governments as they implement these plans. The financial and resource commitments that countries make to urban conservation should match the scale of the challenge that poorly planned urban growth poses to the CBD goals.
- **Empower cities to plan for a positive natural future:** Urban growth plans need to incorporate information on biodiversity and the value of ecosystem services. The Exploring Solutions section of the full *Nature in the Urban Century* report presents tools and guidelines that cities can use to effectively create “greenprints” of urban growth. These greenprints plan for how to protect and restore existing habitat that is important for biodiversity and ecosystem services, as well as create new natural features (e.g., parks, street trees) that achieve the same goals. Participatory methods can be used to identify positive futures based on the local preferences of different city stakeholders. Governments at all levels should empower cities and metropolitan areas to plan effectively for protecting biodiversity.
- **Leverage international institutions:** International institutions will play a key role in influencing the design and funding of future cities. We call for more extensive consideration of urban growth impacts on biodiversity and ecosystem services in the funding decisions of major institutions, both multilateral and bilateral. Major international funding sources, such as the Global Environmental Facility and the Green Climate Fund, should seek to direct appropriate funding to mitigate the impact of urban growth on biodiversity and ecosystem services, focusing especially on key priority areas where the impact is likely to be largest. Similarly, bilateral donors should aim to fund projects that minimize urban growth impacts on key priority areas.
- **Create a CBD for the urban century:** We call upon Parties to the CBD to view the time between now and 2020 as a period to plan what urban conservation investments are needed to meet the challenge that urban growth poses to the goals of the CBD. This would require working to ensure full integration of urban issues into the post-Aichi Targets. This could be done through the creation of an urban target, or through the creation of explicit urban-related metrics that measure progress against the current Aichi Target 5 (halving habitat loss) and Aichi Target 11, which aims to protect at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas. It is our hope that the next meeting of the CBD in 2020 will be a moment for Parties to the CBD to make significant commitments to protect biodiversity and human wellbeing in the urban century.

// We call upon Parties to the Convention on Biological Diversity to view the time between now and 2020 as a period to plan what urban conservation investments are needed to meet the challenge urban growth poses to the goals of the CBD.

# Acknowledgements

## Coordinating Lead Authors

Robert I. McDonald, M'Lisa Colbert, Maïke Hamann, Rohan Simkin, Brenna Walsh.

## Lead Authors

Fernando Ascensão, Melissa Barton, Katie Crossman, Misty Edgecomb, Thomas Elmqvist, Andrew Gonzalez, Burak Guneralp, Dagmar Haase, Oliver Hillel, Kangning Huang, David Maddox, Andressa Mansur, Joel Paque, Henrique Miguel Pereira, Jennifer Rae Pierce, Richard Weller, Karen Seto, Mika Mei Jia Tan, Carly Ziter.

## Contributing Authors

Becky Chaplin-Kramer, Kytt MacManus, Richard Sharp.

## Reviewers

Pippin Anderson, Kobie Brand, Andrew Deutz, Amy Fraenkel, Perrine Hamel, Linda Krueger, Pascal Mittermaier, Harini Nagendra, José Antônio Puppim de Oliveira, Hugh Possingham, Anne-Hélène Prieur-Richard, Lynn Scarlett, LaTresse Snead, Ellika Török, Ernita van Wyk, Weiqi Zhou, Mark Zimsky.

## Designers

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