URBAN FOREST MANAGEMENT IN A CHANGING CLIMATE

EDMONTON METROPOLITAN REGION CLIMATE RESILIENCE EXCHANGE

This is a summary of research conducted by Diamond Head Consulting. For more information visit: allonesky.ca/edmontonclimateexchange

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PROJECT GOAL

Characterize the vulnerability of urban forests in the Edmonton Metropolitan Region to climate change, and develop a detailed guide to help municipalities address these vulnerabilities.

BENEFITS TO URBAN FORESTS

Improvement to the Cityscape

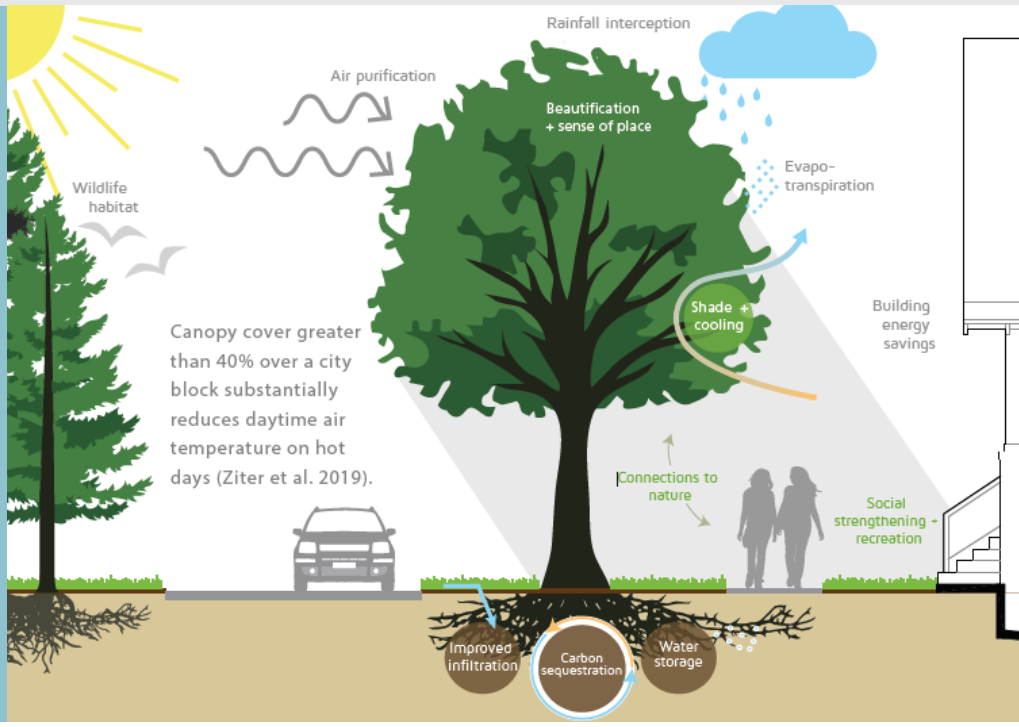
- Air purification
- Rainfall interception (reduces flood risk)
- Improved infiltration of water into the soil
- Energy savings in buildings

Human Experience Improvement

- Beautification and sense of place
- Connection to nature
- Shade and cooling for people, buildings and public spaces

Benefits to the Natural Environment

- Wildlife habitat
- Carbon sequestration



POTENTIAL EFFECTS OF CLIMATE CHANGE ON THE URBAN FOREST IN THE EDMONTON METROPOLITAN REGION

Ecosystem Shifts

Grassland ecosystem types may expand at the expense of aspen parkland and boreal forest.

Drought Mortality

Less moisture availability may increase drought mortality and urban trees may need more water to establish.

More Extreme Weather Events

Heat, extreme precipitation, flooding, ice storms or other events may be more frequent, leading to more tree damage.

Less Growth and Carbon Capture

Trees may grow more slowly and not reach as large a size. Disturbance may result in carbon being released from forests.

More Pests and Invasive Species

Pests may reproduce more rapidly and more often. Trees and ecosystems may be more vulnerable to attack and invasion.

Longer Fire Seasons and Larger Fires

Fires may occur more often and burn larger areas, and fire risk is expected to increase everywhere.

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WHY TAKE ACTION?

The EMR's urban forests are anticipated to change significantly as changes in temperatures and moisture availability drive shifts from forest to grassland ecosystems and increase drought stress in urban trees. Disturbance due to pests, disease, wildfire and extreme weather are expected to increase. These changes increase the risk of losing existing trees and their significant aesthetic and ecosystem value to communities.

Given the important role urban forests play in the livability of our communities, it is critical to increase the resilience of urban forests to climate change.

1 Policy and Planning

Integrate climate adaptation strategies and options into long-range planning, goal setting and policy development related to the planting and management of trees and forests.

2 Tree Planting

Sustain and expand resilient urban forests by planting trees in natural areas, parks and streets that are suitable for the current site and climate conditions, and its anticipated climate. The full report contains a list of species that are commonly, or could be, planted in the EMR today and indicates those that are likely to do more or less well under future climate.

3 Management and Plant Health Care

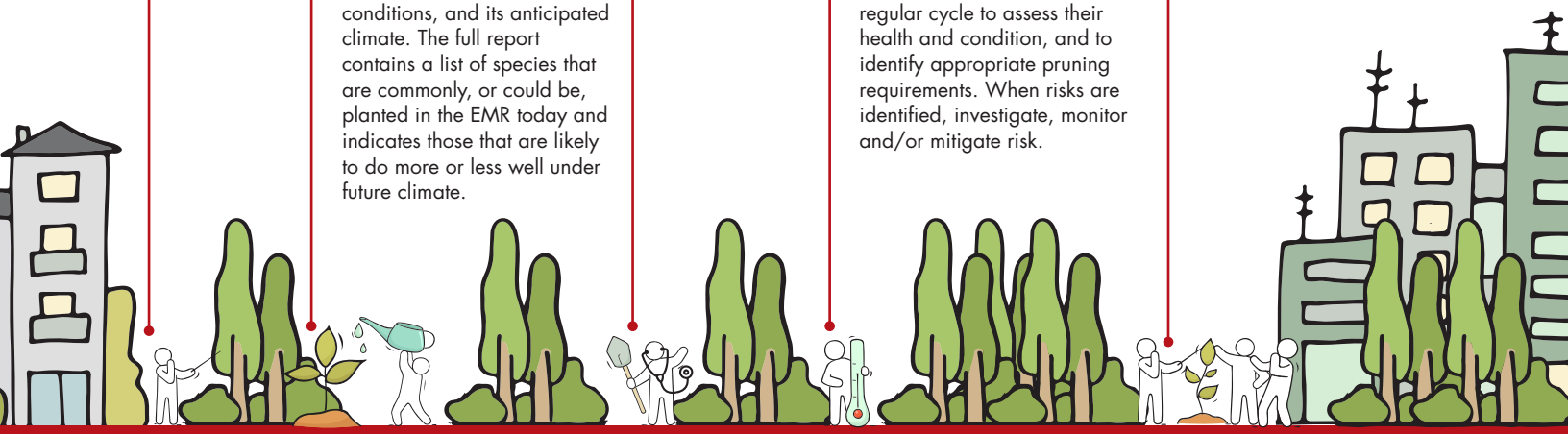
Use best practices for tree management and health care to maintain ecosystems and keeping trees in a healthy and safe condition in urban landscapes. Guidance is provided for tree inventories, health and risk assessments, watering, pruning, mulching, ecosystem restoration and treatments for pests and diseases.

4 Risk Management

Manage both the risks to trees from climate hazards, as well as the risks from trees to life and property from tree failure. Inspect trees on a regular cycle to assess their health and condition, and to identify appropriate pruning requirements. When risks are identified, investigate, monitor and/or mitigate risk.

5 Engagement

Work collaboratively with local organizations and institutions, and other government agencies. Improve public understanding through education, outreach and stewardship events. Partner with the nursery and arboriculture industry to provide a climate-adapted stock of tree species.



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