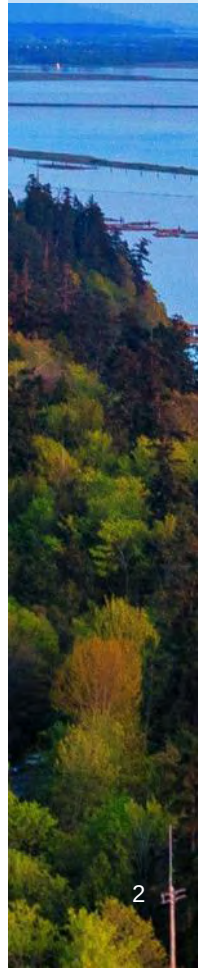
YOUR WISHLIST

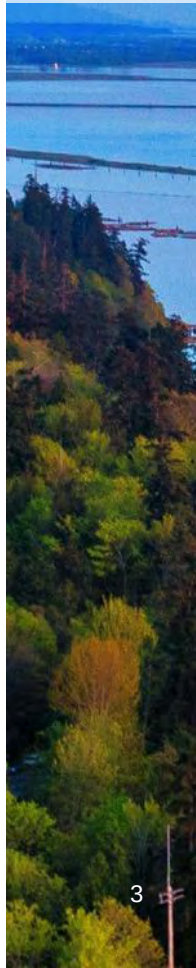
28th of March, 2017, UFOR200

- Green roofs
- Green walls
- Edible nature
- Blue spaces
- Examples of green city projects



GREEN ROOF - FUNCTIONS

- Aesthetics
- Mitigate and adapt, e.g. cooling and storm-water reduction
- Native habitat
- Improve health and wellbeing (psychological restoration)



2 MAIN TYPES OF GREEN ROOFS

Sedum-based

Aesthetic goals

Controlled

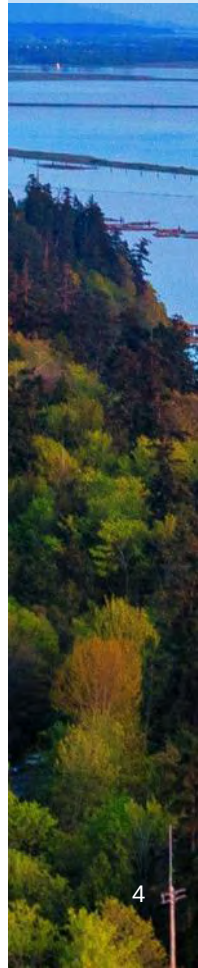
Tested and established technique

Native habitat, e.g. prairie style

Ecological goals

Messy, wild aesthetics

Not always liked by people



Green roof experiences:

‘There's a meadow outside my workplace’: A phenomenological exploration of aesthetics and green roofs in Chicago and Toronto

Loder, 2014

Chicago city hall, prairie-style, Photo: Loder, 2014

“*…this one gives the appearance of you’re driving down a country road and there's that prairie and it's completely overgrown and it's very wild and very – it's just very wild-looking*.”

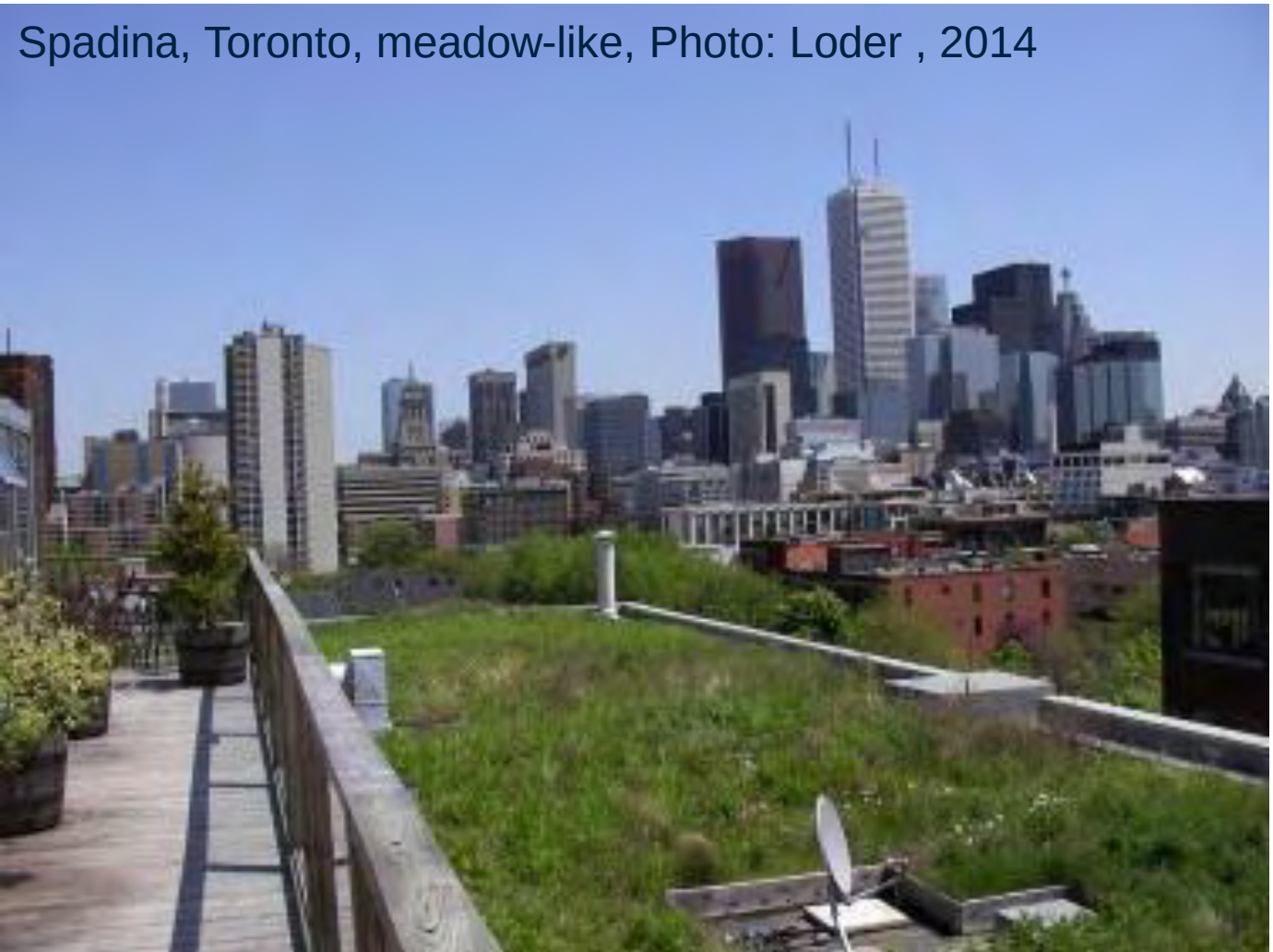
Chicago parking garage, sedum, Photo: Loder 2014

"…it doesn't entice you to dig further and deeper into it to understand the system… it doesn't invoke anything…it just looks like someone spit up carpet or grass on a roof and that's about it, whereas at least the one on City hall, yeah it's not accessible, but from those that can view it, at least evokes something."

Thus though the prairie aesthetic was not always understood or liked, participants found it more interesting and engaging

MEC, Toronto, prairie-style, Photo Loder, 2014

“every time that I see it subconsciously, it reminds me of a natural prairie setting.”



Spadina, Toronto, meadow-like, Photo: Loder , 2014

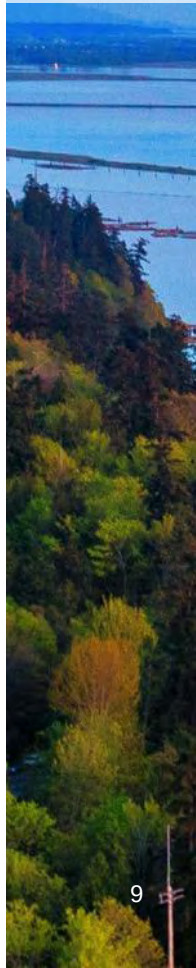
“Even when it's windy and raining, it's – there's something going on across the roof…just staring at it, it's just beautiful, you know, and the colours”

HEALTH AND WELLBEING THOUGHTS

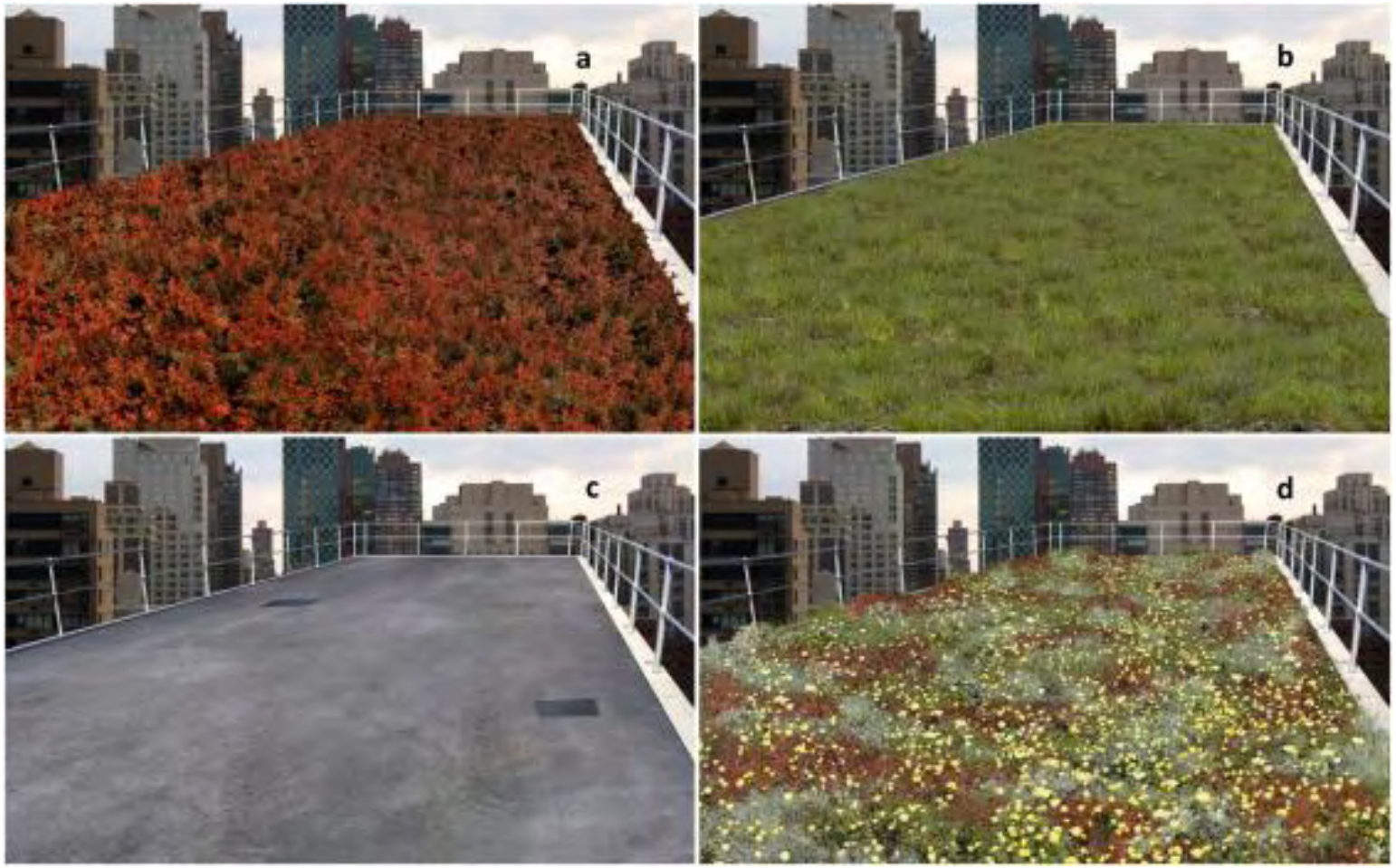
*“It's a **balancing** and kind of **emotional release** to look out and see a garden versus concrete everywhere”*

*“I do believe that having green roofs, or having trees on top of buildings brings a bit of a **calmness** to people, and that **reality check** of not just buildings, and coldness, and corporate world”*

*“It just kind of gives me just a sense, like a few minutes of **quiet**. I can, you know,–I find it easier to **reflect** looking at something, some tree or a plant or flowers, a field and that's kind of what it reminds me of. It reminds me of a meadow or something”*



Green roof preferences:
Living roof preference is influenced by plant characteristics and diversity, Lee et al. 2014



A representative selection of the 41 different living roof images used in the survey, showing (a) taller, red, succulent vegetation, (b) lower-growing, green, grassy vegetation, (c) a bare concrete roof, and (d) mixed height, colour and form, flowering...

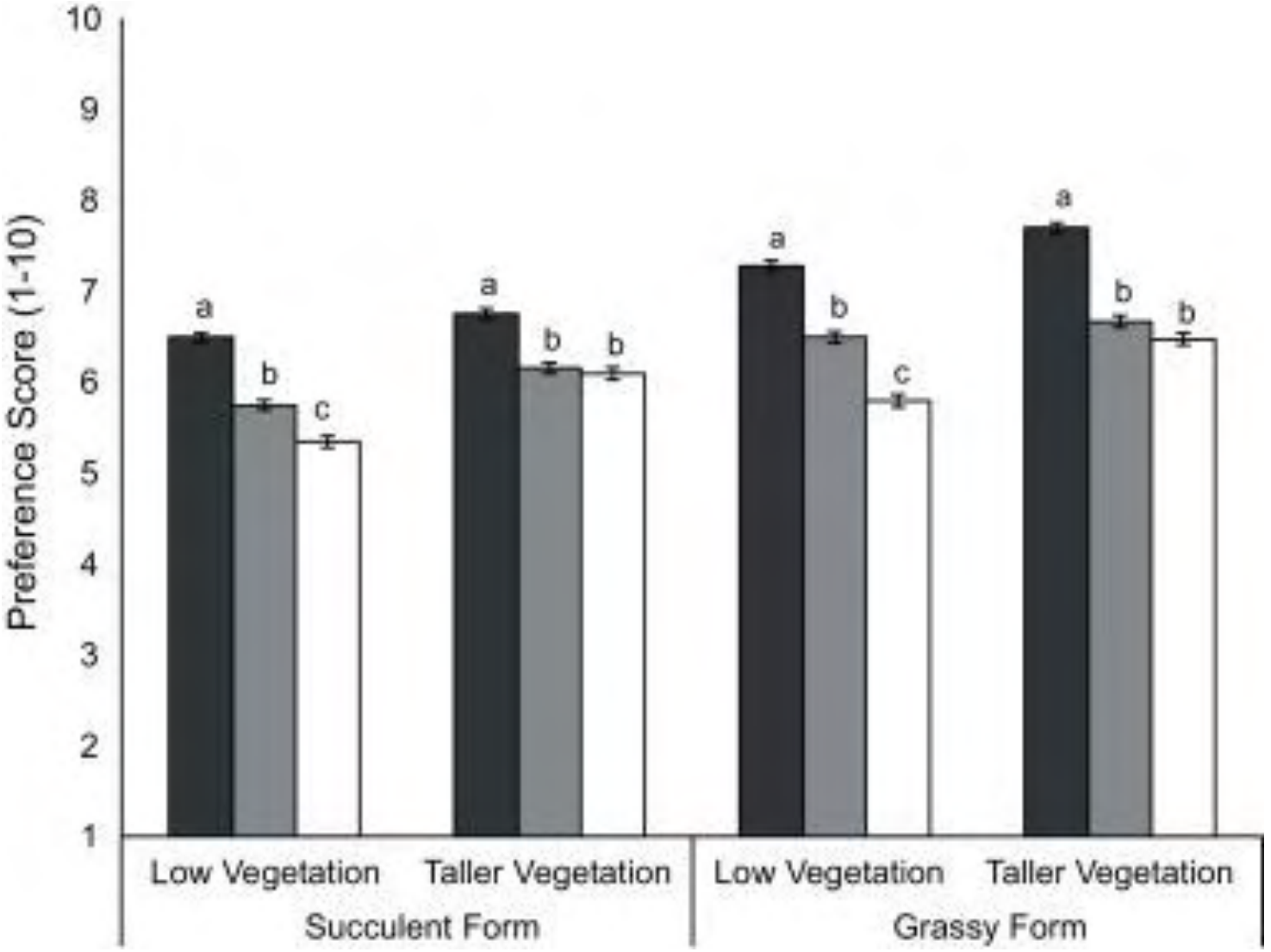


Fig. 4. Preference scores (mean ± S.E.) for living roofs which differed according to their vegetative forms (succulent or grassy), height (lower-growing or taller) and foliage colour (green, grey or red). Preferences were recorded on a Likert scale (1 = not at...

RESULTS

Factors influencing preference:

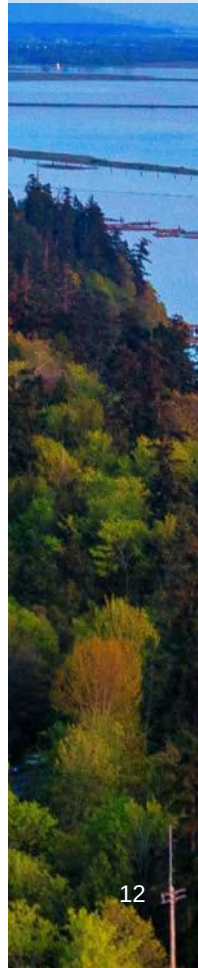
Plant life-form,

foliage colour

vegetation height

Most preferred:

tall, grassy life-form and green foliage



ASPECTS OF PLANT CHOICE

Preferences/aesthetics

Health outcome – heat reduction, air quality, stress reduction

Ecological/Habitat needs

Local conditions (climate, light, height, irrigation, etc)

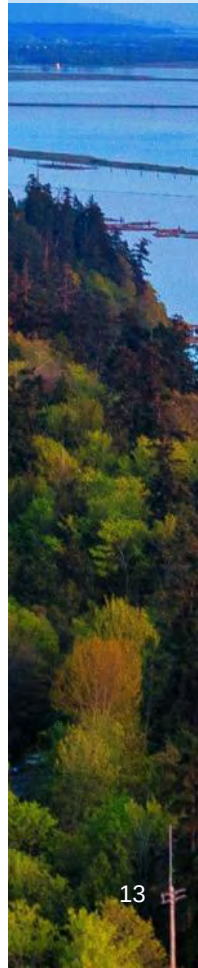
Maintenance needs

Native vs non-native

Growth behaviour (aggressive, weedy, etc)

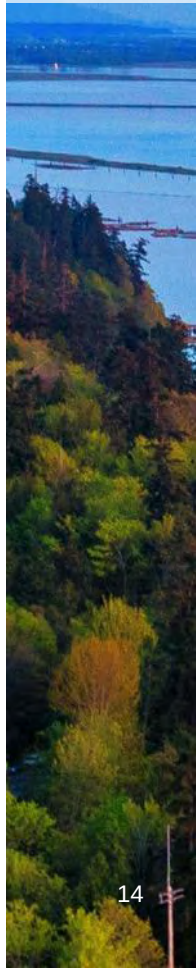
Roof construction material

Costs



PLANTS FOR GREEN ROOF IN TORONTO (based on growth performance)

- Allium schoenoprasum (**Wild Chives**)
- **Aster** species
- Campanula carpatica (**Carpathian Bellflower**)
- Echinacea purpurea (**Purple Coneflower**)
- Festuca spp. (**Fescue** species)
- Fragaria sp. (**Strawberry** species)
- Hypericum perforatum (**St. John's wort**)
- Lupinus perennis (**Lupine**)
- Monarda sp. (**Bergamot** species)
- Rosa sp. (**Rose** species)
- Rudbeckia hirta (**Black Eyed Susan**)
- Solidago sp. (**Goldenrod** species)

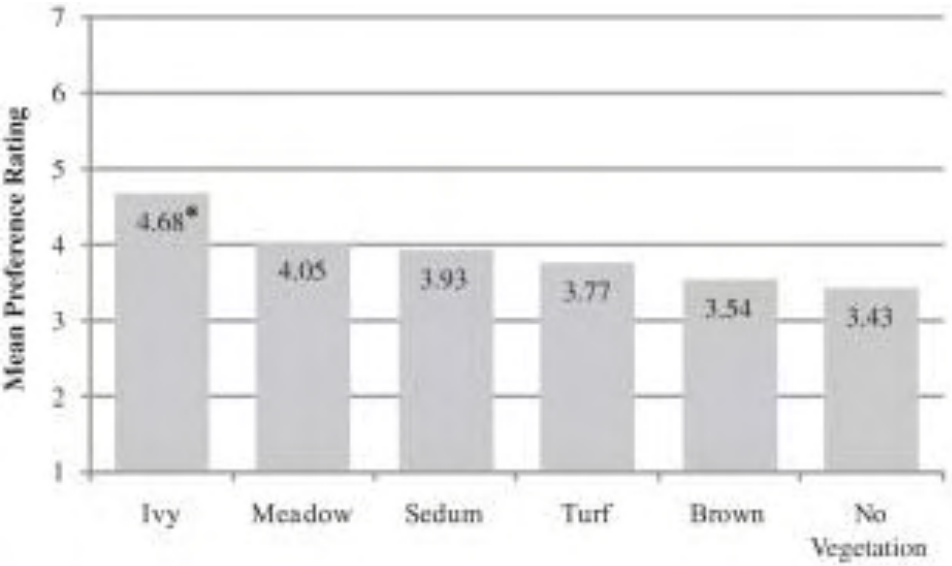


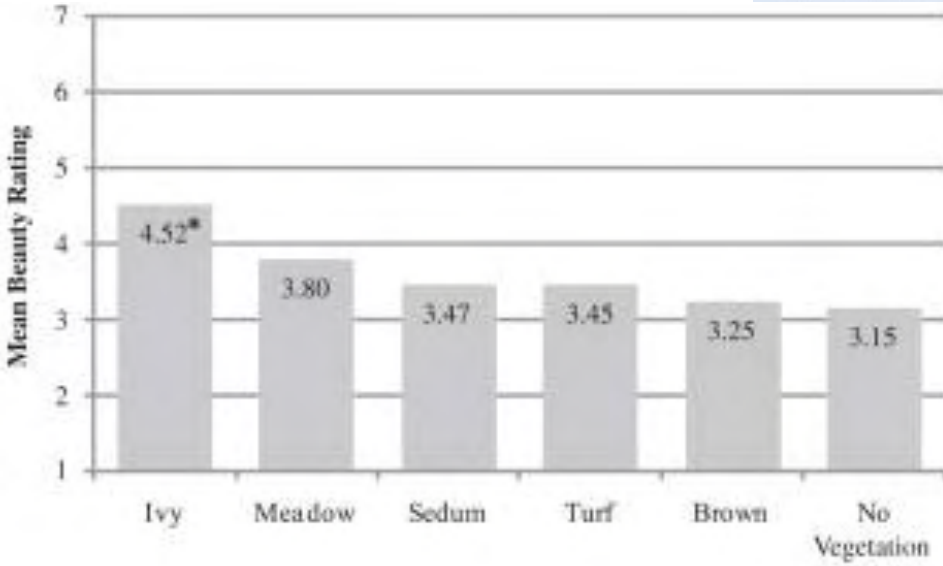
Beauty of green roofs:
Greenery on residential buildings: Does it affect preferences and perceptions of beauty?

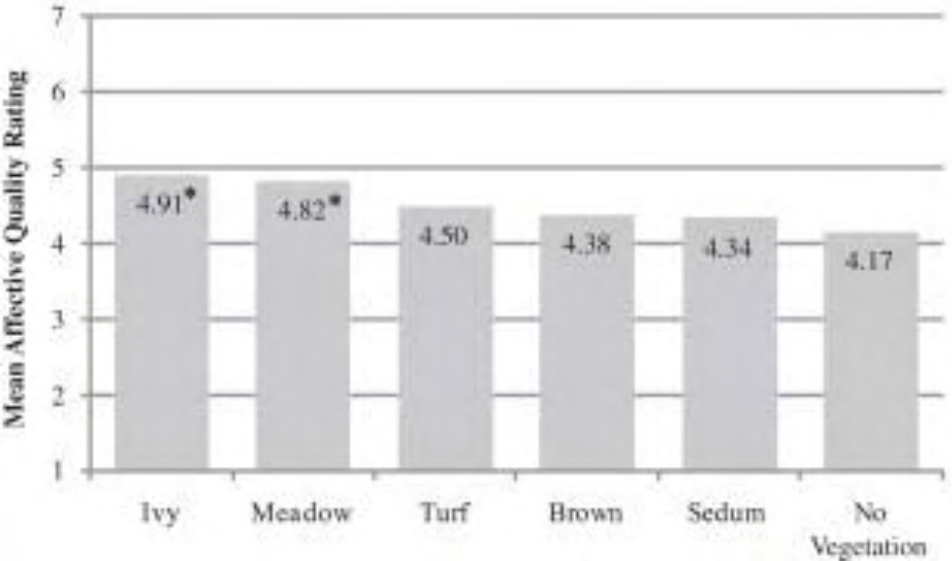
White & Gatersleben, 2011

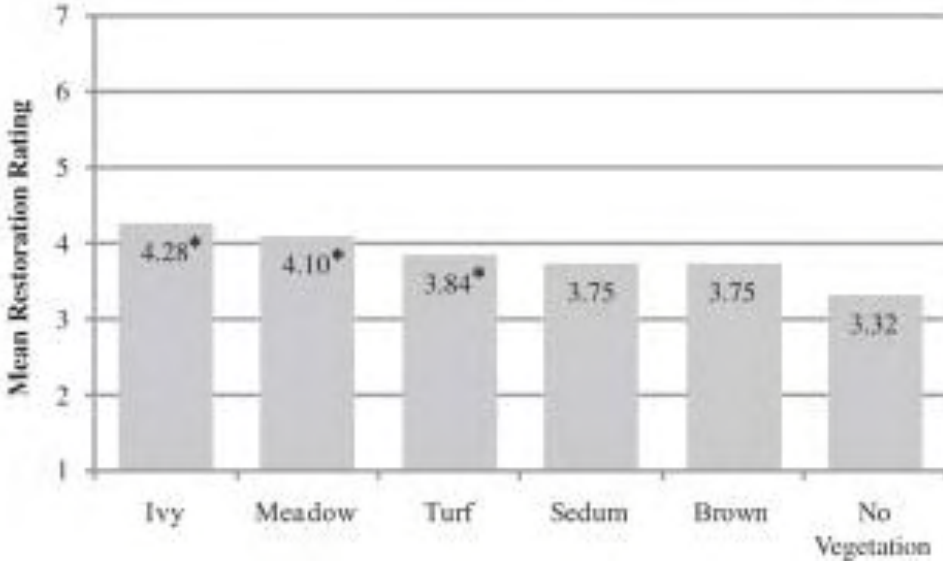
- Preference
- Beauty
- Affective quality
- Restoration

White & Gatersleben, 2011



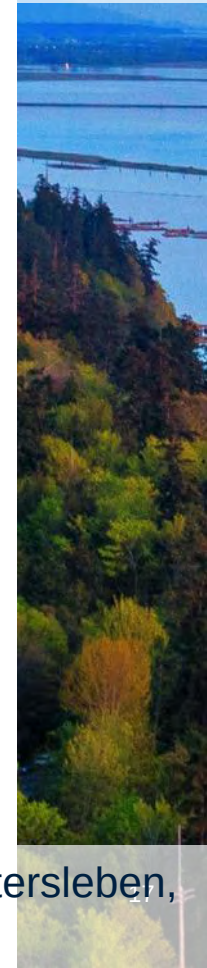






MAIN RESULTS

- Houses with **building-integrated vegetation** are more **preferred** than those without.
- Vegetated houses are more **beautiful & restorative** compared to non-vegetated houses.
- Vegetated houses have a more **positive affective quality** than non-vegetated houses.
- **Ivy façades and meadow roofs** are most restorative, beautiful and preferred



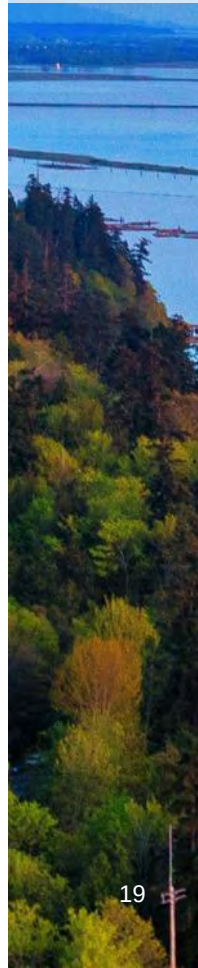
White & Gatersleben, 2011

WWW.GREENROOFS.ORG

GREEN WALLS: TYPES AND CONDITIONS

Type	Plants	Growing media	Construction type
Wall-climbing	Climbing plants	Soil on the ground or in planted box	Minimal supporting structure is needed
Hanging-down	Plants with long hanging-down stem	Soil in planted box on every storey	Planted boxes and supporting structure should be built at according storey
Module	Short plants	Lightweight panel of growing media (such as compressed peat moss)	Supporting structure for hanging or placing modules should be built on facades

Sheweka_Magdy_2011. The Living walls as an Approach for a Healthy Urban Environment



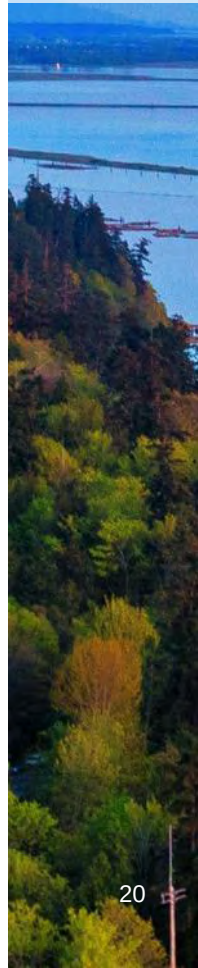
PROS AND CONS WITH GREEN ROOFS AND WALLS

Is it nature?

For whom?

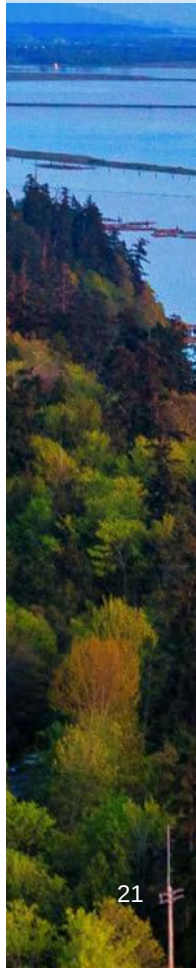
Sustainable?

Compare with other types of green spaces, e.g. parks



EDIBLE NATURE IN CITIES

- Global population growth
- Increased demand for food (70% up to 2050)
- Urbanisation –less land for agriculture and food production
- Food issues should be incorporated in urban planning



EDIBLE CITIES – URBAN AGRICULTURE

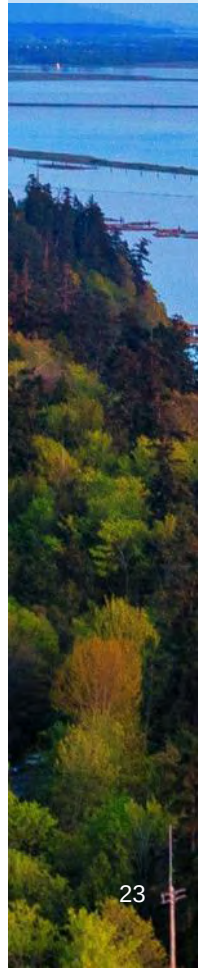
- Urban gardening
  - allotment gardens
  - community gardens

- Urban farming
  - semi-entrepreneurial/ semi-professional self harvest farms
  - commercialized agriculture

Strathcona community garden entrance by Marian Dork_CC BY-NC 2.0

BENEFITS

- Local food – environment, climate…
- Organic, healthy food – fight hunger and obesity
- Exercise
- Urban biodiversity
- Improved aesthetics
- Sense of community
- Cultural exchange
- Recovery in nature
- Gardening opportunities
- Nature consciousness
- Environmental education
- Social interactions in neighbourhood
- Improved environment in disadvantaged areas
- Etc.



WHY DO URBAN GARDENING/FARMING? PERSONAL MOTIVATION FACTORS

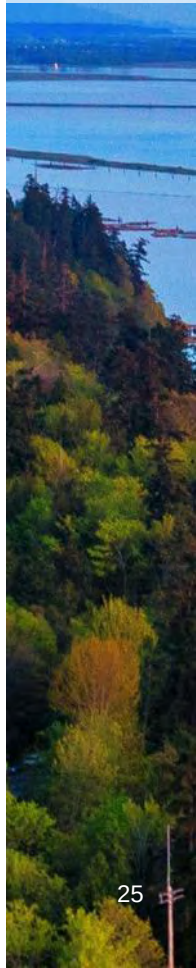
Figure 4. Personal motivation to get involved in an Urban AgriCulture project located in the Bonn/Rhein-Sieg region

Questionnaire block on motivation, Q5, n=29, multiple *answer option*.

Hirsch et al. 2016. Urban AgriCulture and Food Systems Dynamics

HOW CAN WE INCREASE URBAN FOOD GROWING?

- Street trees (e.g. fruits and nuts)
- Utilise parts of parks
- Under-utilised spaces (e.g. private gardens, social housing)
- Rooftops, walls, window boxes
- Education and training



FOR MORE INFORMATION, SEE FOR EXAMPLE:

- Edible cities
- FAO
- Milan Food Policy Act
- Garden City Movement

Urban agriculture by SuSanA Secretariat_

BLUE SPACES

coast WELLBEING

THE OCEAN EFFECT

Living by the sea really is good for you – now there's evidence to back that up. Environmental psychologist Dr Lewis Elliott explores the therapeutic benefits of being in, on and by the water

WORDS: *Anna Turns*

Despite the widespread intuitive feeling that being by the sea makes us happier and healthier, there hasn't been much scientific evidence to quantify this connection.

the Royal family, to go sea-bathing in Brighton, and in the 1930s, Dr Fortescue Fox flagged up the need for more research to be done on the health implications of being by the coast.

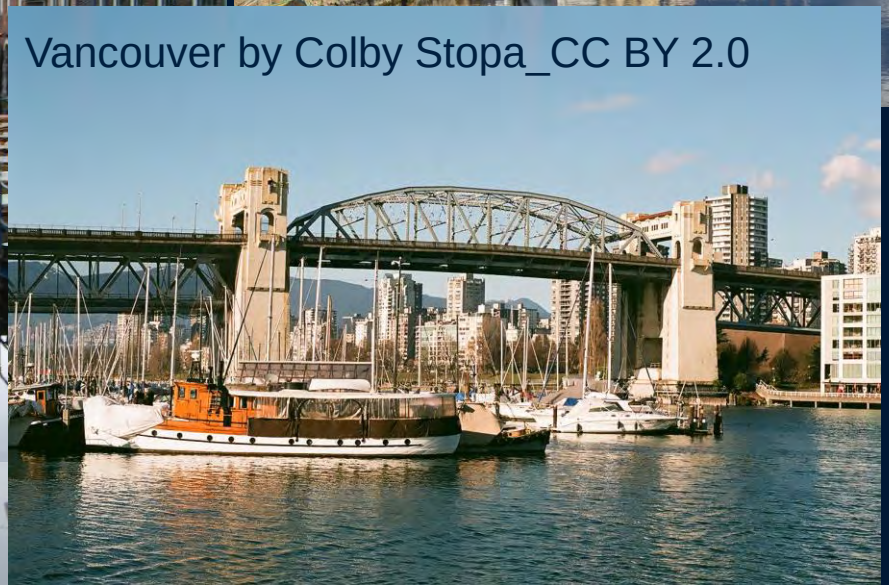
BLUE SPACES IN CITIES

Canal by Daniel Lobo_CC BY 2.0

Ganges - Varanasi, India by Casper Kongstein_CC BY-NC-ND 2.0

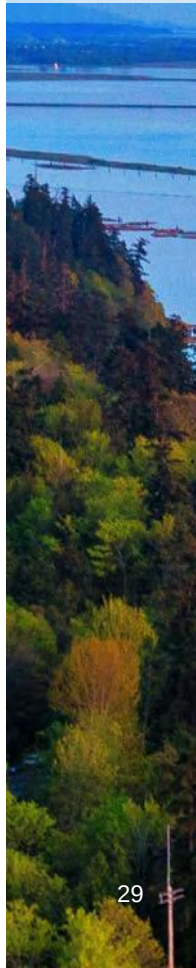
le port de Marseillan by michel coiffard_CC BY-SA 2.0

Canal by Salim Virji_CC BY-SA 2.0



Vancouver by Colby Stopa_CC BY 2.0

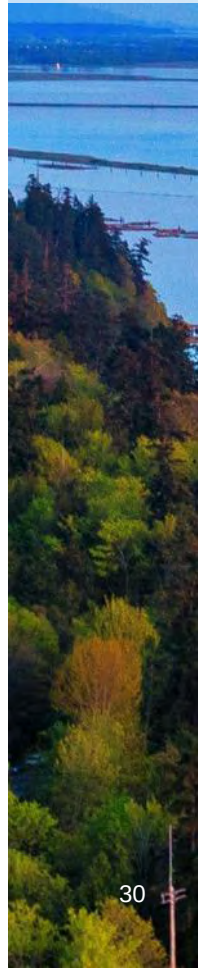
https://bluehealth2020.eu/blog/why-bluespace/



GREEN CITY PLANNING – THE CASE OF CURITIBA

1966 The Curitiba Master Plan

- Housing – small, integrated homes in existing infrastructure
- Small complexes with schools, health centres, day care
- Public transport system – 70% of all daily travels
- Waste management policies – 2/3 of all rubbish is recycled
- Green Exchange employment programme

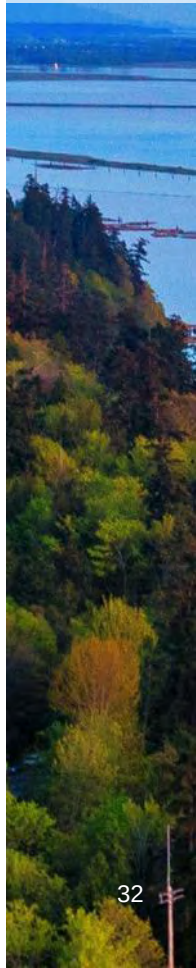


BRAZIL'S GREEN CAPITAL

- 24 parks, 14 forests, 8 woods, botanical garden, >1000 green public spaces (in total **25,000,000 m²**).
- **64.5 m²** nature/inhabitant (1970: 1 m²/person)
- Building on former industrial sites or converted business areas
- Financing through **activities** in parks (e.g. restaurants and entertainments)
- Strong **environmental legislation**, protecting native species
- **Citizen involvement**: tree planting, conversion of streets to green pedestrian areas
- **Compact housing**
- Public **education** about environment protection

Jamie Lerner, architect and mayor

http://www.dac.dk/en/dac-cities/sustainable-cities/all-cases/green-city/curitiba-the-green-capital/



THANKS A MILLION!