

URBAN ECOLOGY: NATURE FOR PEOPLE

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How Ordinary People are Changing the Face of Discovery

CAREN COOPER

Advisor to the public television mini-series The Crowd & The Cloud

(DECEMBETH STERLOJK)



Emphasis on Social and Cultural issues





The Science of Cities: Urban Ecology

• Three systems- natural environment, built environment, people and their <u>activities</u>







Part I and II- Ecology and the City Environment

- Interconnected biosphere of the city
- Modified by human activities
- Global strategies to improve nature in cities





Novel Ecosystems

- Human built landscapes
- New combinations and abundance of species
- Lack biodiversity, invasive species, non-natives
- New strategies- rewilding, micro-forests





Nature playground with native plants- Chevron Parkland

Urban Soils and Water

- Protection and management strategies
- Defra- Department for Environment, Food, and rural Affairs





New strategies for creating (fake) wetlands



Urban Vegetation

- SUPs- spontaneous urban plants- valuing weeds
- Social benefits- liveability and well-being





Urban Biodiversity

- Natural biodiversity vs. Urban biodiversity
- Functional trait biodiversity
- Native vs non-native plants





Urban Green Spaces

- Public-Private partnerships (PPPs) to create green spaces and specialty gardens
- National Park Cities





Urban Wildlife

- Conflicts with humans- insects and mammals, zoonotic diseases
- Urban wildlife managers- hard to deal with people





Urban Climate

- Urban heat island
- Health impacts- heat and air pollution deaths
- Strategies cities are using to lower temperatures- cool construction, trees, green walls







Muse $e \,$ du Quai Branly by Patrick Blanc

Cultural and Social Issues

- Biophilia
- Attachment and Placemaking
- Beliefs, values, norms, ethics





History of Nature in Cities

- Nature influenced the form and function of cities
- Irrigation made cities possible and gave birth to concepts of writing, time, math, surveying (Jordan River Valley, 6,000BC Mesopotamia)



Marmaris Castle- constructed 3,000BC, rebuilt 1522 Ottoman Sultan Suleyman

Built in 1514 by Cardinal Wolsey, Hampton Court Palace, Henry VIII + 6 wives

Biophilia

- Human's attraction to and need for nature
- Physical and mental health benefits
- Architecture- Frank Lloyd Wright Prairie School style
- Biophilic design strategies for urban structures





Frank Lloyd Wright, Darwin D. Martin House 1904

Attachment and Placemaking

- Place attachment: person-to-place emotional bonds
- Love of place- physical attributes and social attributes
- Place-making environmental justice, public health policy





Herr Hundertwasserhaus House, Vienna Austria

Landscape Aesthetics

- Visual quality of landscapes image and desirability
- Key to saving nature in cities and promoting natural areas
- Connection between aesthetics, plant selection, maintenance and ecology





Cultural Beliefs and Ethics

- Rights and moral status of natureintrinsic/instrumental value of nature
- Ethics inspires or compels us to care about nature
- Urban environmental debates- turfgrass and native vs. non-native plants





Residential Landscapes

- Green spaces protected by private property rights
- Influence of HOAs, social norms, civic ordinances
- Physical characteristics- old and new homes, landscape legacies
- Impact on ecology- maintenance, invasive plants, lost habitat



Landscape Behaviors

- Activities and actions that impact the environment
- Social institutions that govern peoples' actions
- Norms and customs, and policies and regulations







Urban Ecology of Future Cities

- Strategies for rethinking political, economic, cultural and social dynamics
- Concepts- Ecological Urbanism, Political Ecology, Biosphere reserves, Foodtopias, Zoopolis (cities for people and animals)
- Waste as a resource





Songhua River, Harbin China. Abandoned fishing boats- pollution and environmental justice

Climate Change and Risk Assessment

- Climate-proofing strategies biodiversity
- Weather, water, and heat-proofing
- Flooding, saltwater intrusion, sea level rise, higher temperatures
- Sponge cities, water plazas, managed retreat







Urban Ecosystem Services

- Green space benefits and value to humans
- Provisions- food, fiber, drugs
- Cultural- recreation, health, aesthetics





Environmental Justice

- Social equity, health, and safety in neighborhoods and cities
- Distribution of amenities and hazards across a city- spatial distribution of urban parks
- Agency and community roles- EPA and HUD



Curitiba, Brazil: lack of sanitation and environmental hazards



Curitiba, Brazil: former quarry converted to park

Landscape Performance Data

- Performance data used to measure ROI and feasibility of green space projects
- Reduce investor risk and inform public policy
- Landscape Architecture Foundation set of metrics to measure
- POE- Post Occupancy Evaluation for social metrics





Thank you!

Questions?

