

A photograph of a person walking on a metal walkway that winds through a dense, lush green forest. The walkway is elevated and has a metal railing. The person is wearing a light-colored top and shorts. The forest is thick with various types of trees and foliage, creating a vibrant green background.

# Biophilic Cities: Cities + Nature Together

**Tim Beatley, UVA Urban and Environ Planning**



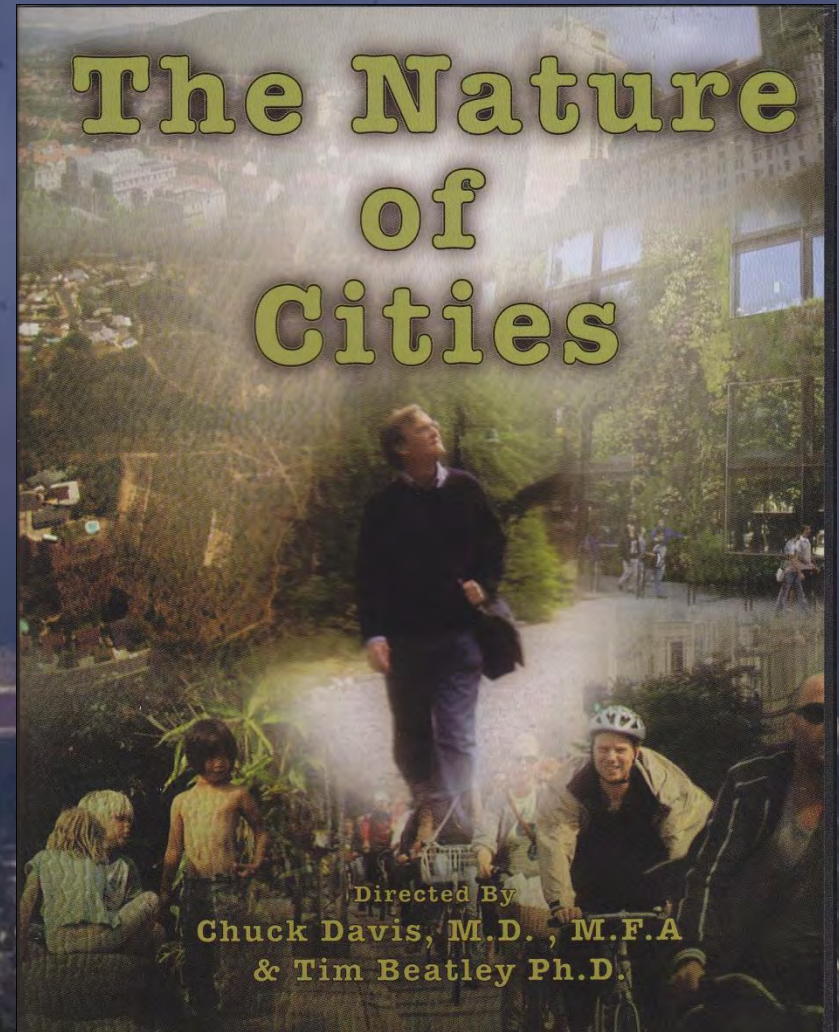
FOREWORD BY E. O. WILSON

# BIOPHILIC CITIES

INTEGRATING NATURE  
INTO URBAN DESIGN AND PLANNING



**TIMOTHY BEATLEY**



Directed By  
Chuck Davis, M.D., M.F.A.  
& Tim Beatley Ph.D.





Cities + Nature?



# BiophilicCities

[HOME](#)[THE PROJECT](#)[BIOPHILIC CITIES](#)[RESOURCES + RESEARCH](#)[BLOG](#)

## Welcome!

We need nature in our lives more than ever today, and as more of us are living in cities it must be urban nature. Biophilic Cities are cities that contain abundant nature; they are cities that care about, seek to protect, restore and grow this nature, and that strive to foster deep connections and daily contact with the natural world. Nature is not something optional, but absolutely essential to living a happy, healthy and meaningful life. This site is devoted to understanding how cities can become more biophilic, more full of nature, and to telling the stories of the places and people working to creatively build these urban-nature connections.



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### RECENTLY TWEETED

How do you make a soundtrack for an urban landscape? Philadelphia artist Rosie Langabeer explains: [bit.ly/SVeH00](http://bit.ly/SVeH00)

About 4 days ago from Biophilic Cities's Twitter via web

### IDEAS & TOOLS



#### Toronto's Green Ro

October 10th, 2012

According to [livingroofs.org](http://livingroofs.org), [...]



#### Seattle's Green Fact

August 10th, 2012

By Carla Jones Green Intras[...]



#### Growing Water: Desig

July 17th, 2012

In April of 2007 the UN made t[...]





# BIOPHILIC CITIES PROJECT

**Biophilia: “...the innately emotional affiliation of human beings to other living organisms. Innate means hereditary and hence part of ultimate human nature.” --E.O. Wilson**





# BIOPHILIC CITIES

10.06.13-10.26.13

ELMAHLEH GALLERY  
RECEPTION 10.25.13, 6:00PM

10.17.13-10.19.13

LAUNCH EVENTS

UNIVERSITY OF VIRGINIA  
SCHOOL OF ARCHITECTURE





Film Screening

# Biophilic Design: The Architecture of Life





# Launch Events

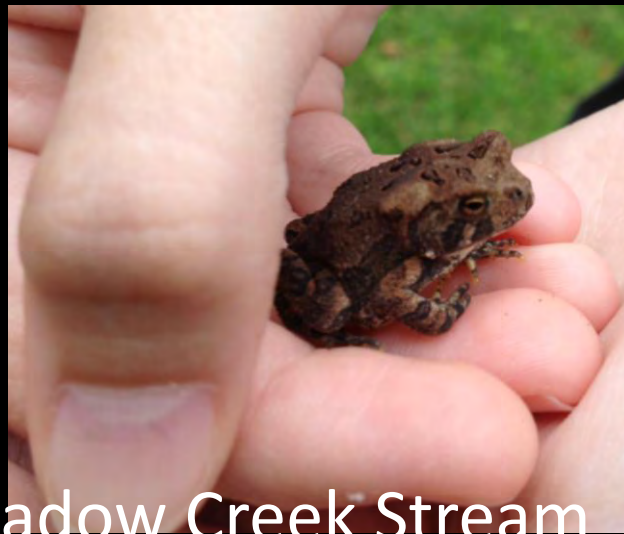
Biophilic Cities  
Exhibition



Ant Safari



Coyotes and  
Cities



Meadow Creek Stream  
Restoration Tour









Ants Found (so far...)

Quartet

Tetramorium caespitum  
(Pavement ants)

Prenolepis imparis  
(Winter Ant)

Hypoponera sp.  
(native predatory species)

Formica subsericea  
(Wood Ant)

Camponotus sp.  
(Carpenter Ant)

\*just outside this building

check them out in Vic!

Staff Volunteer  
Species  
collected

Biophilic Cities Launch  
Film Night  
7:30-9:30pm



Film Shorts

Meadow Creek Restoration  
Charlottesville, Virginia

Singapore: Biophilic City

Biophilic Wellington

McDowell Sonoran

Feature

Biophilic Design:  
The Architecture of Life

Biophilic Cities Proj  
by Julia Trimman and

Biophilic Cities Proj  
By Peter Newman

Biophilic Cities Proj  
By Linda Blagb

Biophilic Cities  
By Chuck Dav

Film by Ste

Q&A with Filmmaker Ste





# Launching a new Global Network of Biophilic Cities





# Launching a new Global Network of Biophilic Cities





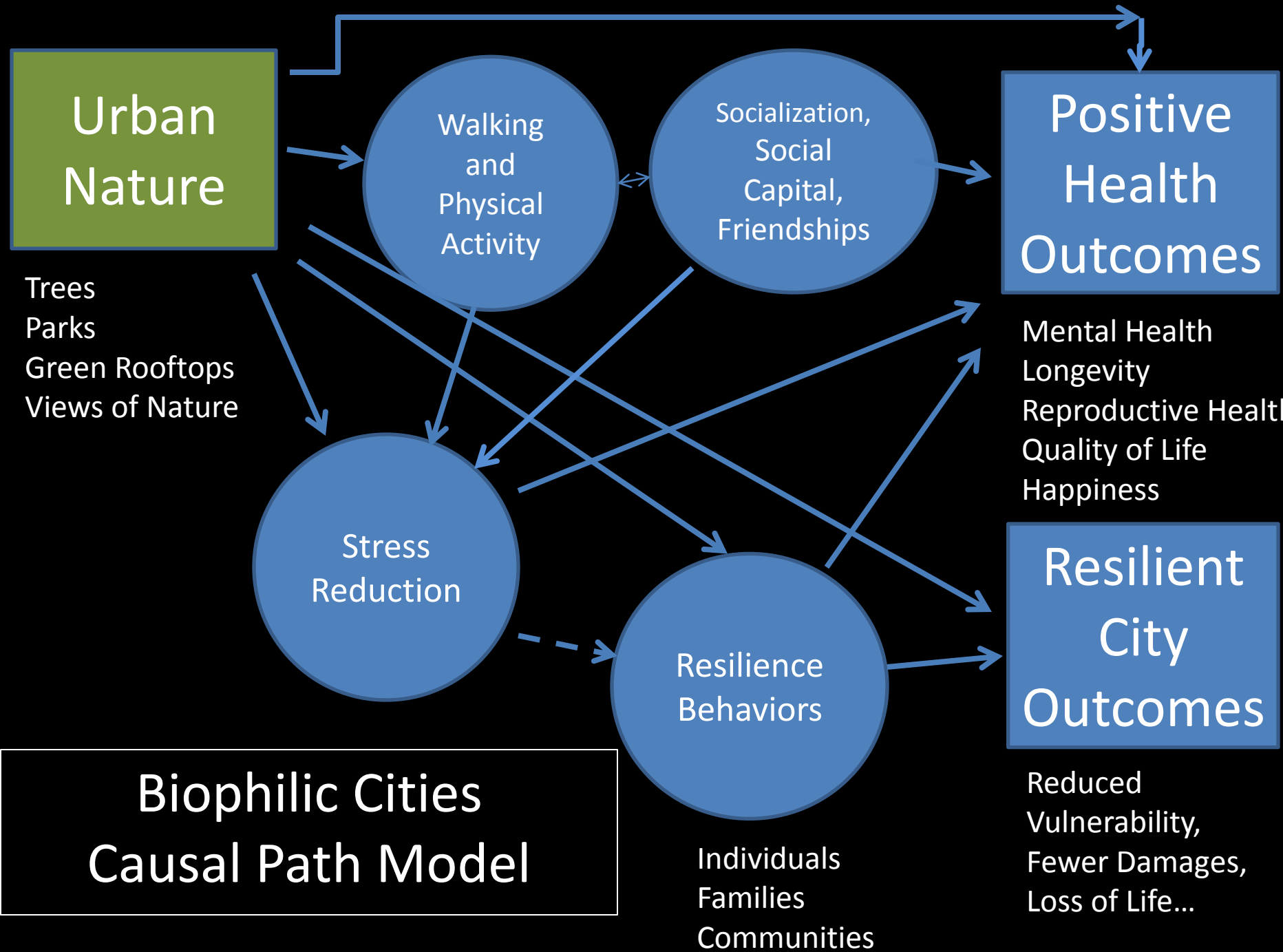


What the Japanese call Shinrin-yoku  
(shinrin = forest, yoku = bathing, basking)



**Japanese Research on “Forest Bathing”:**  
reductions in stress hormones (cortisol) and  
boosts to immune systems...







# The Urban Healing Power of Nature

**UPenn Philly Study of Greening Vacant Lots:**

**Summary of Findings:** “Regression-adjusted estimates showed that vacant lot greening was associated with a 10% increase in mental health across all ages and ethnicities. This finding was consistent across all city (Philly) neighborhoods and showed that residents who selected to participate in the Philly Orchard Project had better access to green space.”



**Philly Orchard Project**



# Developing Nature's Social Capital



Rose Canyon,  
San Diego



# THE ECONOMICS OF BIOPHILIA



WHY DESIGNING WITH  
NATURE IN MIND MAKES  
FINANCIAL SENSE

## BIOPHILIC NEW YORK: AN ECONOMIC VISION OF A NATURE-FILLED FUTURE FOR

The impacts of biophilia are diverse, and studies showing their benefits focus on disparate sectors of the economy. Fully incorporating biophilia into a city's design, however, would concentrate these benefits and create powerful cumulative impacts. In New York City, green spaces are often shared amongst multiple users. Their impacts cross sectors and the density of users multiplies their effects. Imagine, for example, a green space sandwiched between a school and a hospital: a single space may allow daylight to penetrate into students' classrooms, provide the community with a space for relaxing or exercising, and offer views of nature from hospital room windows. Incorporating green spaces into New York City's design through green walls, pocket parks, daylighting strategies, and bringing nature into indoor spaces may have benefits far beyond what can be predicted by studies of individual impacts.

Extrapolating the proven impacts of biophilia to New York City's economy provides a taste of the economic benefits we might expect to see in a future biophilic city. Please see the Appendix for complete explanations of how these numbers were derived.

- **Daylighting reduces student absenteeism.** Providing adequate daylighting to all students in New York City public schools could re-engage \$297 million in wasted taxpayer dollars and save **\$247.5 million** in lost parental wages resulting from missed school.
- **Biophilic work environments increase office workers' productivity.** Creating biophilic work environments for many of New York City's office workers would result in over **\$470 million** in recouped productivity value.
- **Biophilic landscapes reduce crime.** Biophilic landscapes throughout the city could save New York **\$1.7 billion** in incarceration costs.

This sampling of economic impacts of biophilia in New York City adds up to **over \$2.7 billion per year** in 2010 dollars. Though the cost of creating vegetated spaces can seem high, the enormous value of a biophilic city has the potential to outweigh the costs by far.

**Bill Browning and Terrapin  
Green**



# Houston Bayou Greenways Initiative

## 100-YEAR OLD VISION

In 1912, Arthur Comey, the author of Houston's first city master plan, observed "Houston is far behind other progressive cities in certain respects, notably in its park system, and should act at once to remedy these conditions." He went on to state, "the backbone of a park system for Houston will naturally be its bayous or creek valleys... [which] furnish opportunities for parks of unusual value within a comparative short distance of most of the residential areas." Almost one hundred years later, comparative metrics suggest that Comey's observations apply to contemporary Houston.

Today, the total area of parkland within the City of Houston boundaries is 39,357 acres. While this amount is significant, 55% of that acreage is accounted for by just 3 major parks on the edge of the city's boundaries. Recognizing the need to enhance equity and balance in Houston's park system and echoing Comey's conclusions, the 2007 Parks Master Plan recommends the addition of 1,500 new acres of greenways along Houston's bayous, and the addition of trails meandering through those greenways to



...the resulting totals are impressive. They demonstrate that there is unlikely to be any other investment in the greater Houston area that will have a significant impact on the quality of place, transform its park system, contribute to the health of Houstonians and the natural environment, and reposition the City for the 21<sup>st</sup> century—while also returning annual benefits conservatively valued at \$117 million a year.” --John Compton, Benefits Analysis, 2011

Figure 1  
The Bayou Greenways Plan



## The Key Benefits:

The key benefits are increases in:

- |  |                 |
|--|-----------------|
| 1. Houstonians' physical and mental health<br>Bayou Greenways will create more equitably distributed parks and recreational amenities improving our physical and mental health.  | \$ 77.1 million |
| 2. Houston's environmental health<br>Bayou Greenways will transform the area's image from a sprawling, automobile congested urban center to one that values its ecological capital, its clean air and clean water.   | \$ 22.5 million |
| 3. Houston's economic health<br>Bayou Greenways will contribute greatly to the quality of place, attracting and retaining knowledge workers, corporate offices, and retirees, and increasing property values to benefit the area's tax base and individual homeowners. | \$ 17.5 million |
| Estimated total measurable annual benefits   | \$117.1 million |

These figures are impressive, but the primary outcome of completing the Bayou Greenways could be to catapult Houston to one of the top cities in the nation in quality of place.