



# The Profound Social Costs of a Disappearing Urban Forest

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# **The Profound Social Costs of a Disappearing Urban Forest:**

**Are Trees a Necessary Component of a  
Healthy Human Habitat?**



# Urban Forestry Today: The Challenge



# An Alarming Trend





# An Alarming Trend





# An Alarming Trend

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**Cheryl Kollin, Director  
Urban Forest Center  
American Forests**



# An Alarming Trend

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**Cheryl Kollin...**

**We estimate that cities in the NE and Pacific NW have lost 30% of their heavy tree canopy over the last 30 years.**



# An Alarming Trend

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Atlanta

Washington DC

Portland, OR

Chattanooga





# An Alarming Trend

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Atlanta

↓36%

Washington DC

Portland, OR

Chattanooga





# An Alarming Trend

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Atlanta	↓36%
Washington DC	↓43%
Portland, OR	↓48%
Chattanooga	



# An Alarming Trend

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Atlanta	↓36%
Washington DC	↓43%
Portland, OR	↓48%
Chattanooga	↓50%



# Urban Forestry Today

- ◆ Disappearing urban forest



## Urban Forestry Today

- ◆ Disappearing urban forest
- ◆ Municipal budgets shrinking fast



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- ◆ Disappearing urban forest
- ◆ Municipal budgets shrinking fast
- ◆ Urban forest low in municipal priorities



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**The Challenge:**





## Urban Forestry Today

- ◆ Disappearing urban forest
- ◆ Municipal budgets shrinking fast
- ◆ Urban forest low in municipal priorities

**The Challenge:** Show that urban forestry addresses important societal needs



# **The Profound Social Costs of a Disappearing Urban Forest**



- ◆ **Why Expect Profound Social Costs?**
- ◆ **Documenting Social Costs Convincingly**
- ◆ **What We're Finding**



# Why Expect Profound Social Costs?

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# Why Expect Profound Social Costs?

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Three facts...



# Why Expect Profound Social Costs?

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## Three facts...

- ◆ Unfit habitats lead to social, psychological, and physical breakdown



# Why Expect Profound Social Costs?

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## Three facts...

- ◆ Unfit habitats lead to social, psychological, and physical breakdown
- ◆ Animals are drawn to habitats in which they thrive, find unfit habitats aversive



# Why Expect Profound Social Costs?

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## Three facts...

- ◆ Unfit habitats lead to social, psychological, and physical breakdown
- ◆ Animals are drawn to habitats in which they thrive, find unfit habitats aversive
- ◆ Humans like trees





# Why Expect Profound Social Costs?

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...and One Implication



# Why Expect Profound Social Costs?

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## ...and One Implication

- ◆ A disappearing urban forest may lead to social, psychological, and physical breakdown in humans



# Documenting Social Costs Convincingly

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# Documenting Social Costs Convincingly

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- ◆ High vs. low UF conditions
- ◆ Conditions otherwise identical



# Documenting Social Costs Convincingly

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**Robert Taylor Homes  
without greenspace**



**Robert Taylor Homes  
with greenspace**



# Documenting Social Costs Convincingly

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**Ida B. Wells Homes  
without greenspace**



**Ida B. Wells Homes  
with greenspace**



# Documenting Social Costs Convincingly

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- ◆ High vs. low UF conditions
- ◆ Conditions otherwise identical
- ◆ Random assignment
- ◆ Within Subjects designs
- ◆ Checks for a priori differences
- ◆ Double-blind testing
- ◆ Objective measures
- ◆ Many Subjects
- ◆ Many Settings
- ◆ Many Measures
- ◆ Statistical testing
- ◆ Testing for mediation
- ◆ Testing for alternative mechanisms



# Acknowledgements

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- ◆ Andrea Faber Taylor
- ◆ William C. Sullivan
- ◆ the Human-Environment Research Lab
  
- ◆ US Forest Service and NUCFAC
- ◆ USDA CREES
- ◆ HUD





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**What are the social costs of a disappearing urban forest?**









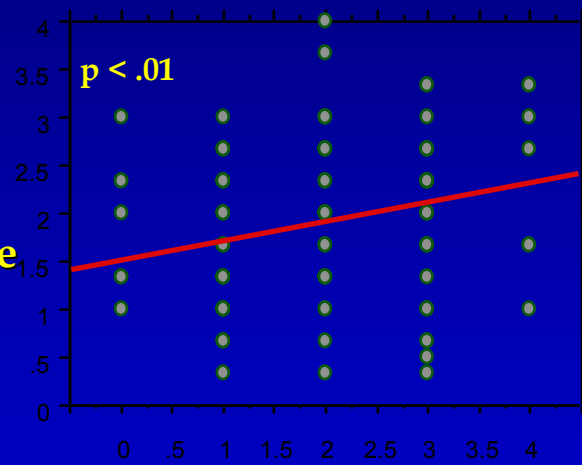


# What we're finding

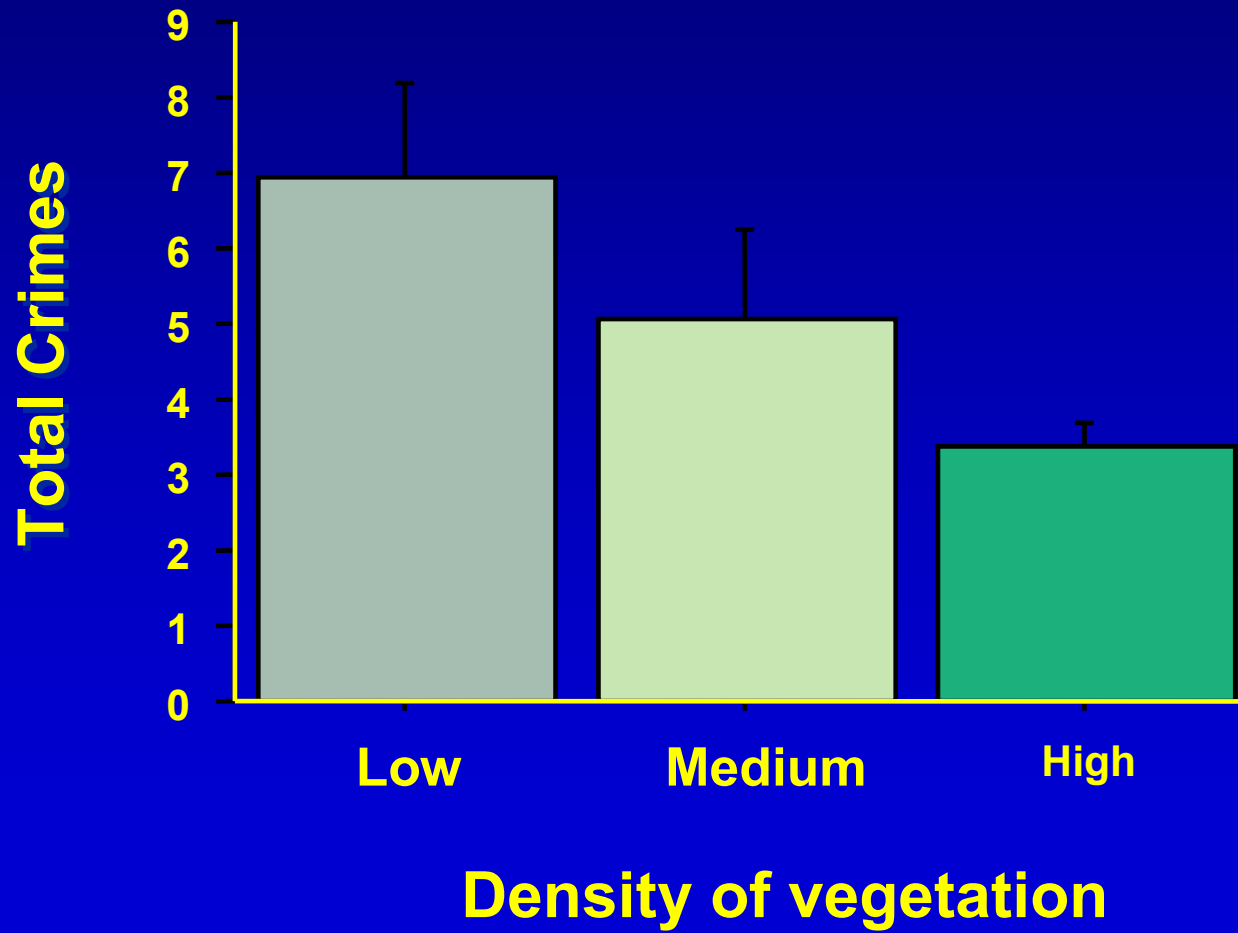
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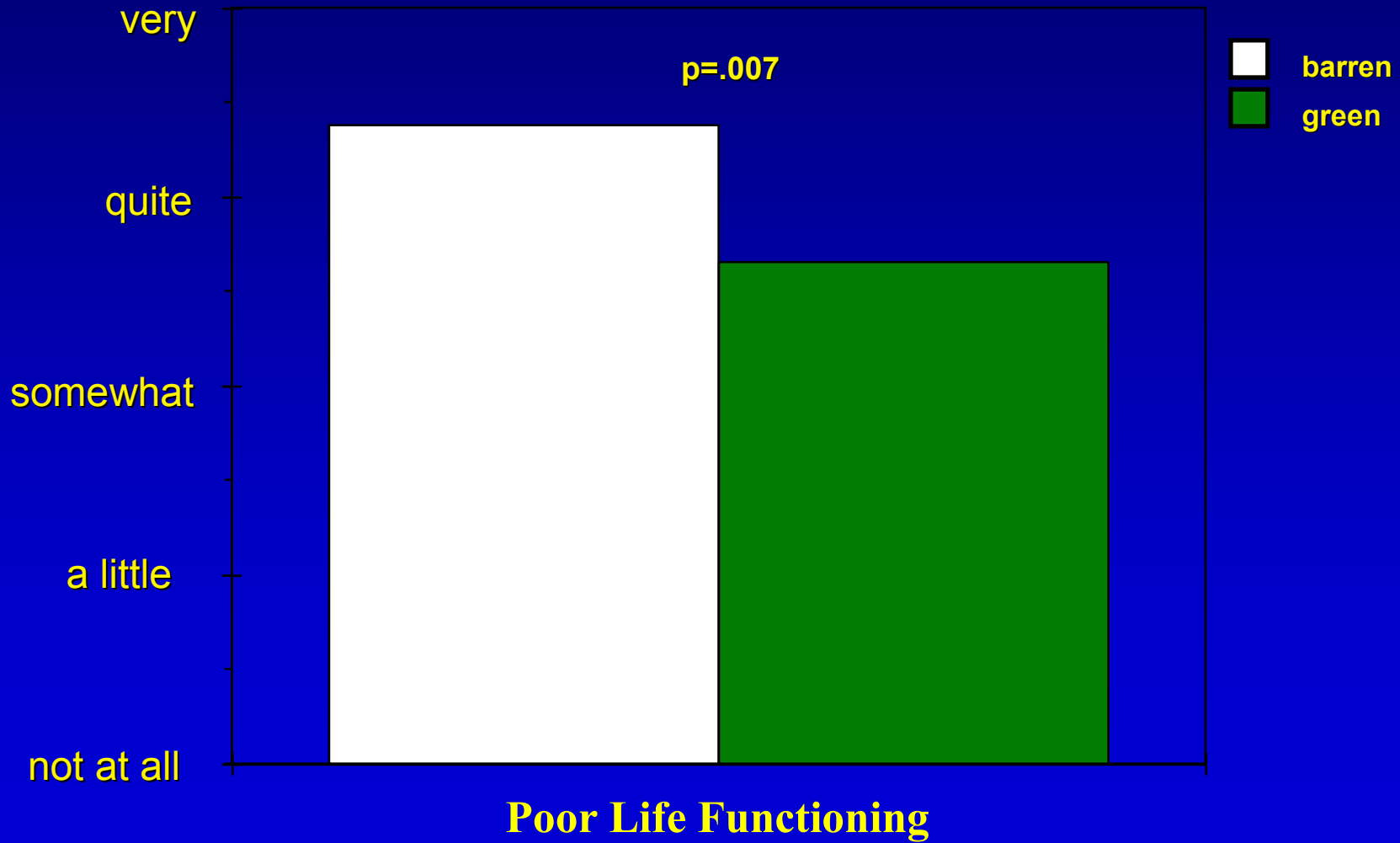
**Local Sense  
of Comm.**



**Use of outdoor common spaces**

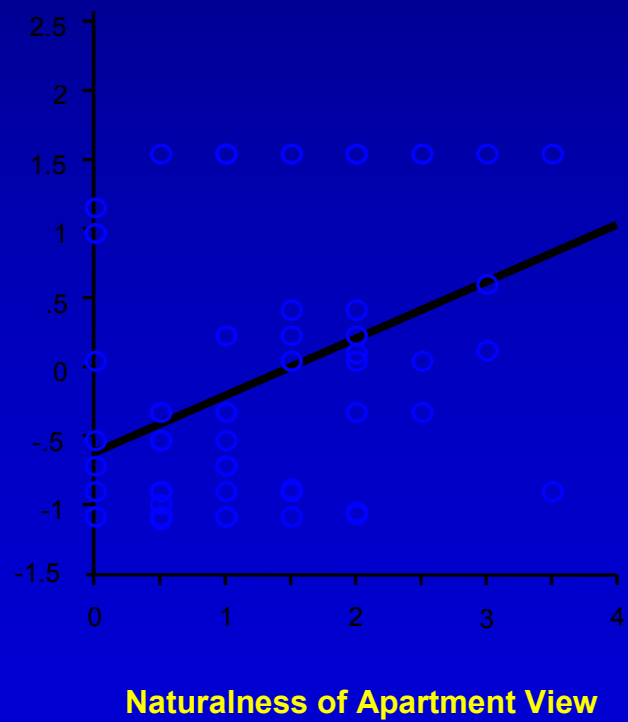






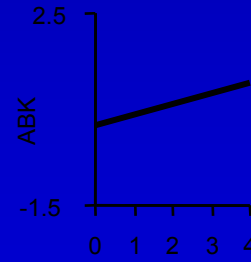
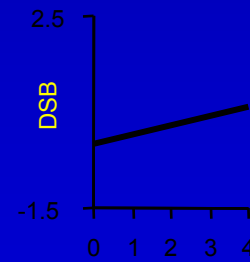
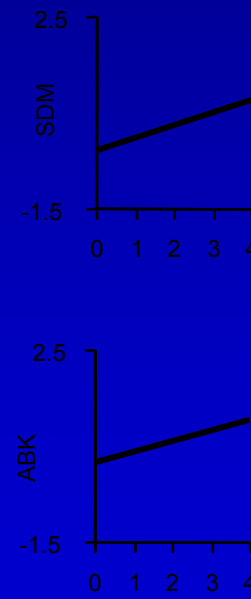
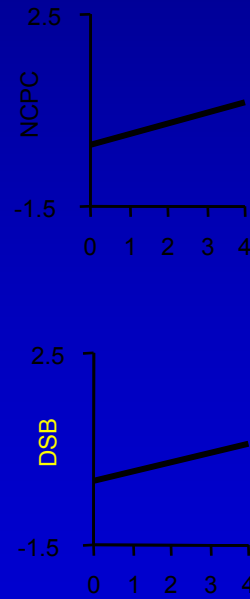
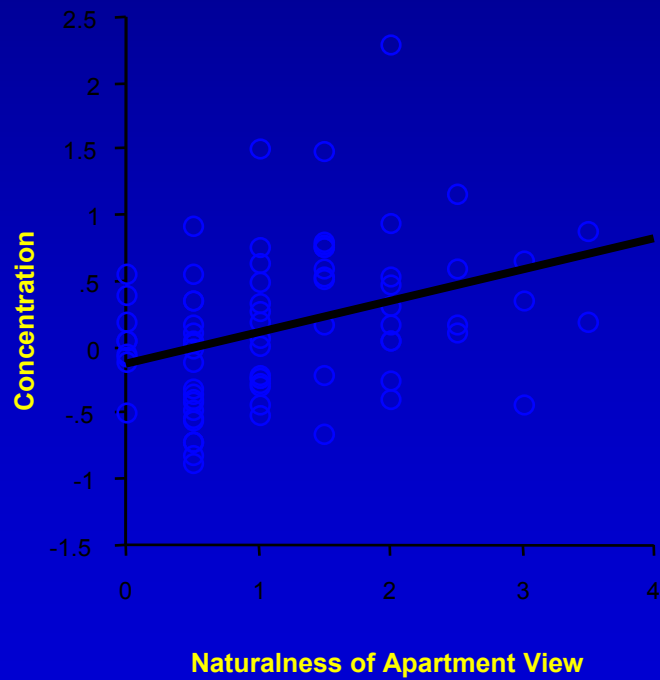


## Delay of gratification $R^2=.143, p<.001$



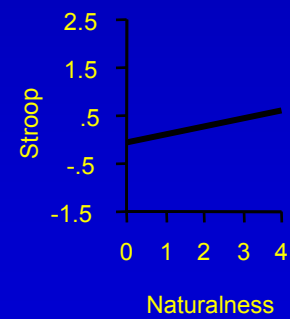
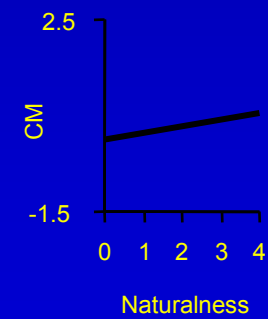
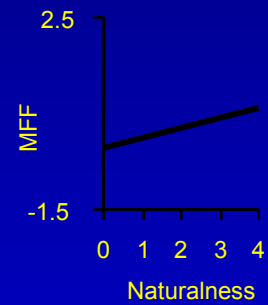
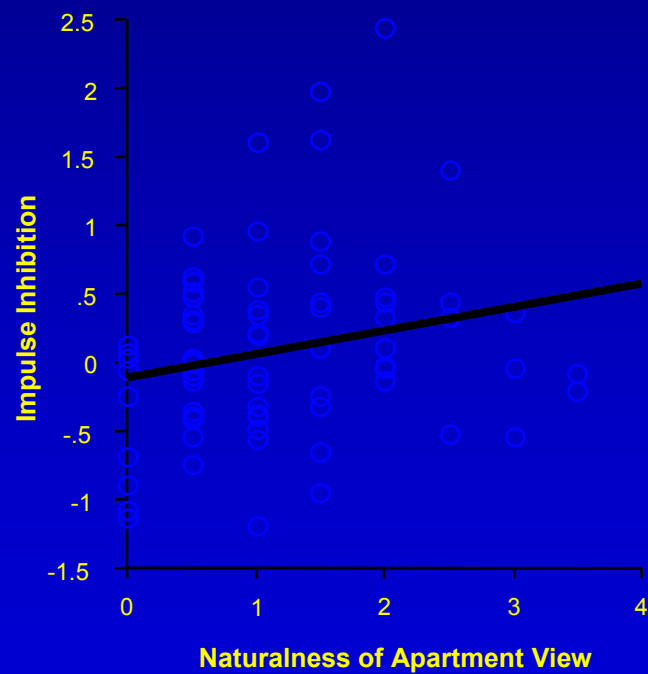


## Concentration $R^2=.126, p<.01$

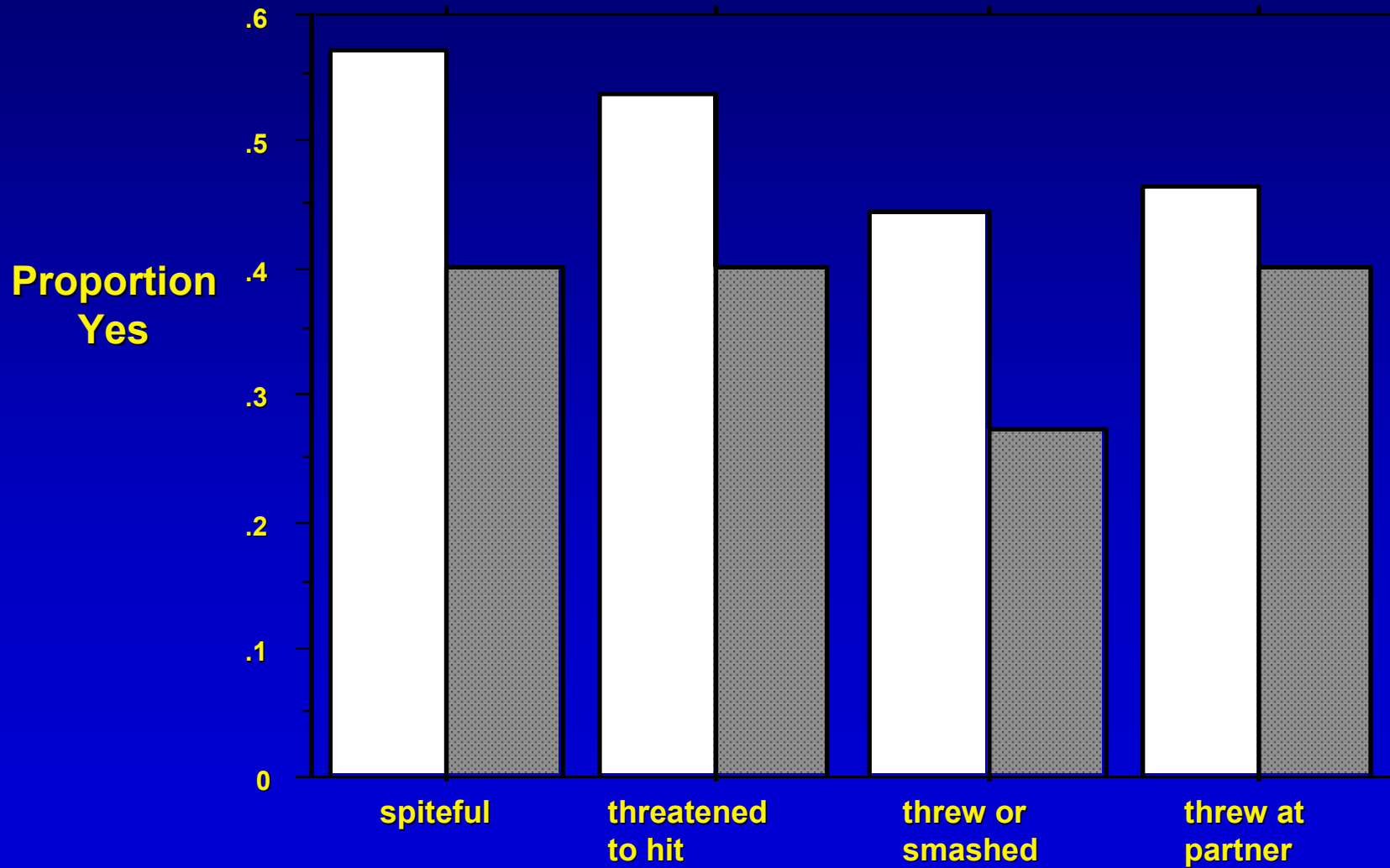




## Impulse Control $R^2=.048, p=.05$









# What we're finding

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# What we're finding

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## Social Breakdown





# What we're finding

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## Social Breakdown

↓ Strength of community



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support
- ↓ **Supervision of children outdoors**



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support
- ↓ Supervision of children outdoors
  
- ↑ Graffiti, noise, litter



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support
- ↓ Supervision of children outdoors
  
- ↑ Graffiti, noise, litter
- ↑ Loitering, illegal activity**



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support
- ↓ Supervision of children outdoors
  
- ↑ Graffiti, noise, litter
- ↑ Loitering, illegal activity
- ↑ Property Crime**



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support
- ↓ Supervision of children outdoors
  
- ↑ Graffiti, noise, litter
- ↑ Loitering, illegal activity
- ↑ Property Crime
- ↑ Violent Crime**



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support
- ↓ Supervision of children outdoors
  
- ↑ Graffiti, noise, litter
- ↑ Loitering, illegal activity
- ↑ Property Crime
- ↑ Violent Crime





# What we're finding

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## Psychological Breakdown



# What we're finding

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## Psychological Breakdown

↓ Cognitive functioning



# What we're finding

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## Psychological Breakdown

↓ *Cognitive functioning*

↓ **Management of major life issues**



# What we're finding

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## Psychological Breakdown

- ↓ Cognitive functioning
- ↓ Management of major life issues
- ↓ **Impulse control**



# What we're finding

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## Psychological Breakdown

- ↓ Cognitive functioning
- ↓ Management of major life issues
- ↓ Impulse control
- ↓ **Delay of gratification**



# What we're finding

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## Psychological Breakdown

- ↓ Cognitive functioning
- ↓ Management of major life issues
- ↓ Impulse control
- ↓ Delay of gratification

↑ **Aggression**



# What we're finding

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## Psychological Breakdown

- ↓ Cognitive functioning
- ↓ Management of major life issues
- ↓ Impulse control
- ↓ Delay of gratification
  
- ↑ Aggression
- ↑ Violence**



# What we're finding

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## Psychological Breakdown

- ↓ Cognitive functioning
- ↓ Management of major life issues
- ↓ Impulse control
- ↓ Delay of gratification
  
- ↑ Aggression
- ↑ Violence
- ↑ **Severity of AD/HD symptoms**





# What we're finding

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## Psychological Breakdown

- ↓ Cognitive functioning
- ↓ Management of major life issues
- ↓ Impulse control
- ↓ Delay of gratification
  
- ↑ Aggression
- ↑ Violence
- ↑ Severity of AD/HD symptoms



# What we're finding

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## Physical Breakdown



# What we're finding

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## Physical Breakdown

↓ Mortality rates in older adults

*Takano, Nakamura, & Watanabe, 2002*



**What are the social costs of a disappearing urban forest?**



# What we're finding

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## Social Breakdown

- ↓ Strength of community
- ↓ Courtesy, mutual support
- ↓ Supervision of children outdoors
  
- ↑ Graffiti, noise, litter
- ↑ Loitering, illegal activity
- ↑ Property Crime
- ↑ Violent Crime



# What we're finding

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## Psychological Breakdown

- ↓ Cognitive functioning
- ↓ Management of major life issues
- ↓ Impulse control
- ↓ Delay of gratification
  
- ↑ Aggression
- ↑ Violence
- ↑ Severity of AD/HD symptoms



# What we're finding

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## Physical Breakdown

↓ Mortality rates in older adults



# **The Profound Social Costs of a Disappearing Urban Forest:**

**How Social Benefits Research Can Help  
Save Urban Forestry**

NUFC, San Antonio





# How Social Benefits Research Can Help Save Urban Forestry

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- ◆ Will policymakers listen?



# How Social Benefits Research Can Help Save Urban Forestry

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**Will policymakers listen?**

- ◆ Chicago and elsewhere



# How Social Benefits Research Can Help Save Urban Forestry

**'Planting a tree is the ultimate act of love.'**  
Forrest Claypool, Chicago Park District general superintendent



Tribune photos by Chris Walker

Under a Chicago program, landscapers add foliage along Garfield Boulevard, east of the Dan Ryan Expressway. Some 20,000 trees are to be planted in the city this spring at a cost of almost \$10 million.

## Tree-dimensional

### Chicago digs in for a record planting season

**By William Recktenwald**  
TRIBUNE STAFF WRITER

Together, they would be a small forest and, with 47 species, they could likely be an arboretum.

This spring, 20,000 trees—enough to cover some 400 acres—are being planted in Chicago at a total cost of nearly \$10 million.

Throughout the city—on parkways and in parks, along historic boulevards and the sidewalks of business districts—more trees are being planted than ever in Chicago's history. It is part of a growing conviction among urban planners that the aesthetics of trees can help temper social ills, in city and suburbs alike.

Beyond that, said Forrest Claypool, general superintendent of the Chicago Park District. "Planting a tree is the ultimate act of love. The person who plants it never really gets the full benefit of that tree. Some future generation gets it."

This spring, the Park District will put 7,000 trees

See THURSDAY, PAGE 3



Chicago Park District officials confer over plans for the planting by Lake Shore Drive and 31st Street. The Park District expects to put 7,000 trees in the ground before spring is over.

## Chicago Tribune

- ◆ \$10 M tree-planting
- ◆ 20,000 trees -- more than ever in Chicago's history
- ◆ "growing evidence... trees can help temper social ills"



# How Social Benefits Research Can Help Save Urban Forestry

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## Will policymakers listen?

- ◆ Chicago and elsewhere
- ◆ 2002 U.S. Conference of Mayors





# How Social Benefits Research Can Help Save Urban Forestry

## URBAN AND COMMUNITY FORESTRY

**WHEREAS**, the vitality of communities is strongly dependent on the quality of the city's infrastructure. Parks, tree cover, streetscapes and other green open space are an integral part of urban green infrastructure planning; and

**WHEREAS**, tree cover and associated green infrastructure provide significant ecological, social and economic benefits, including: reducing air and water pollution, slowing storm water runoff, and helping conserving energy; and

**WHEREAS**, access to green open space and tree sheltered streets alleviates the mental fatigue of urban life, increases socialization in those areas and promotes a greater sense of community; and

**WHEREAS**, people are more prone to spend time outdoors in a pleasing tree shaded environment and increased pedestrian traffic results in more eyes on the street that tends to reduce violent behavior and crime; and

**WHEREAS**, properly planned and managed green infrastructure saves municipal governments millions of dollars in air and storm water management costs, helps cities meet federal regulatory requirements for air and water quality, and increases property values; and

**WHEREAS**, federal funding of the USDA Forest Service Urban & Community Forestry program provides critical financial support for forestry programs in many municipal forestry programs,

**NOW, THEREFORE, BE IT RESOLVED** that the United States Congress should provide for full funding of \$50 million for the Forest Service's Urban and Community Forestry Program in Fiscal Year 2003.

## US Conf of Mayors

- ◆ **Adopted resolution in support of urban and community forestry**



# How Social Benefits Research Can Help Save Urban Forestry

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- ◆ Are there resources for communicating these findings to policymakers and the public?



# How Social Benefits Research Can Help Save Urban Forestry

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## Some Resources

- ◆ [www.herl.uiuc.edu](http://www.herl.uiuc.edu)
- ◆ Technical bulletins
- ◆ Powerpoint presentations
- ◆ “Olympic flyers”



# How Social Benefits Research Can Help Save Urban Forestry

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- ◆ Is there more we can do to save and strengthen urban forestry in the future?





◆ **Use these tools and others**

- Public service campaign
- Airline magazines
- USA Today

◆ **Invest in high-quality research**

◆ **Address important societal needs**