Beyond Benefits for Humans: How Cities can Support Ecosystem Services for Wildlife

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The Birds and the Bees

Provisioning Services

- **7,000 – 9,000 insects per clutch**
- **$56 billion per year**

The Birds and the Bees

Cultural Services

- **70 million watch wildlife**

Wildlife and Urbanization

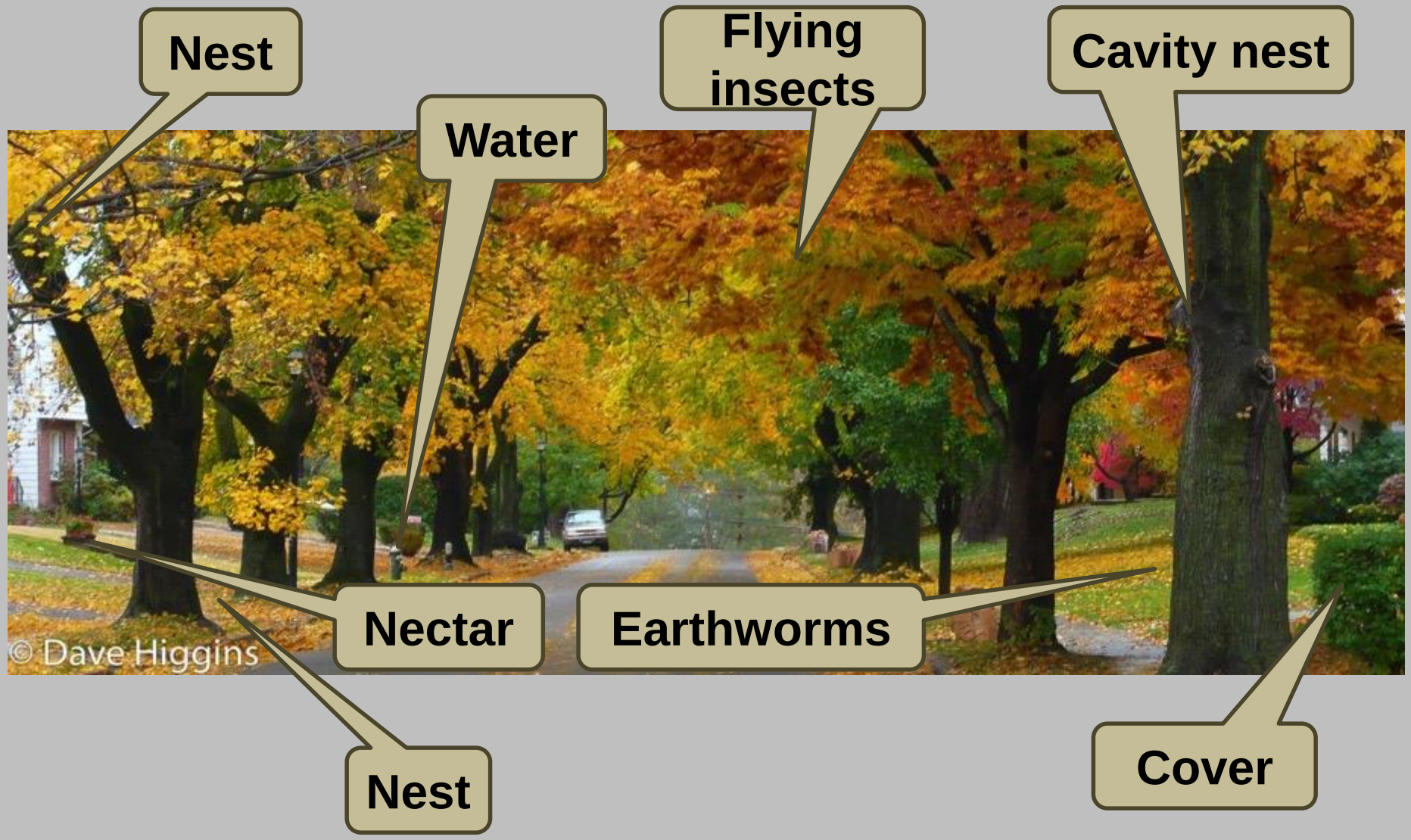
Habitat Loss and Alteration

80% of Americans Live Here

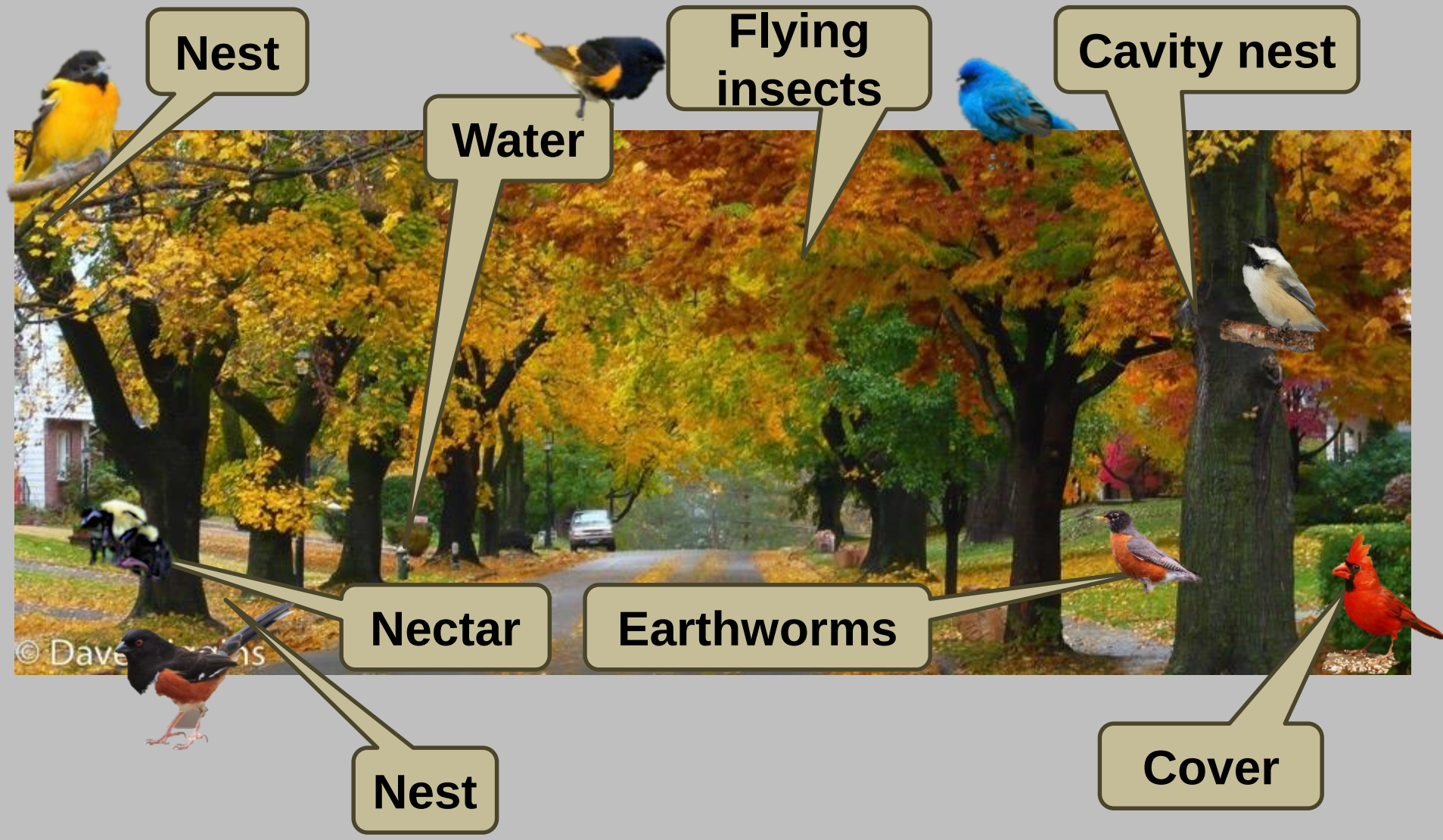
The Urban Forest

The Urban Forest

The Urban Forest



The Urban Forest



Strategies for Enhancing the Urban Forest

Assessing Habitat

Conservation Partners

Creating Habitat

i-Tree Wildlife

Build Habitat Models

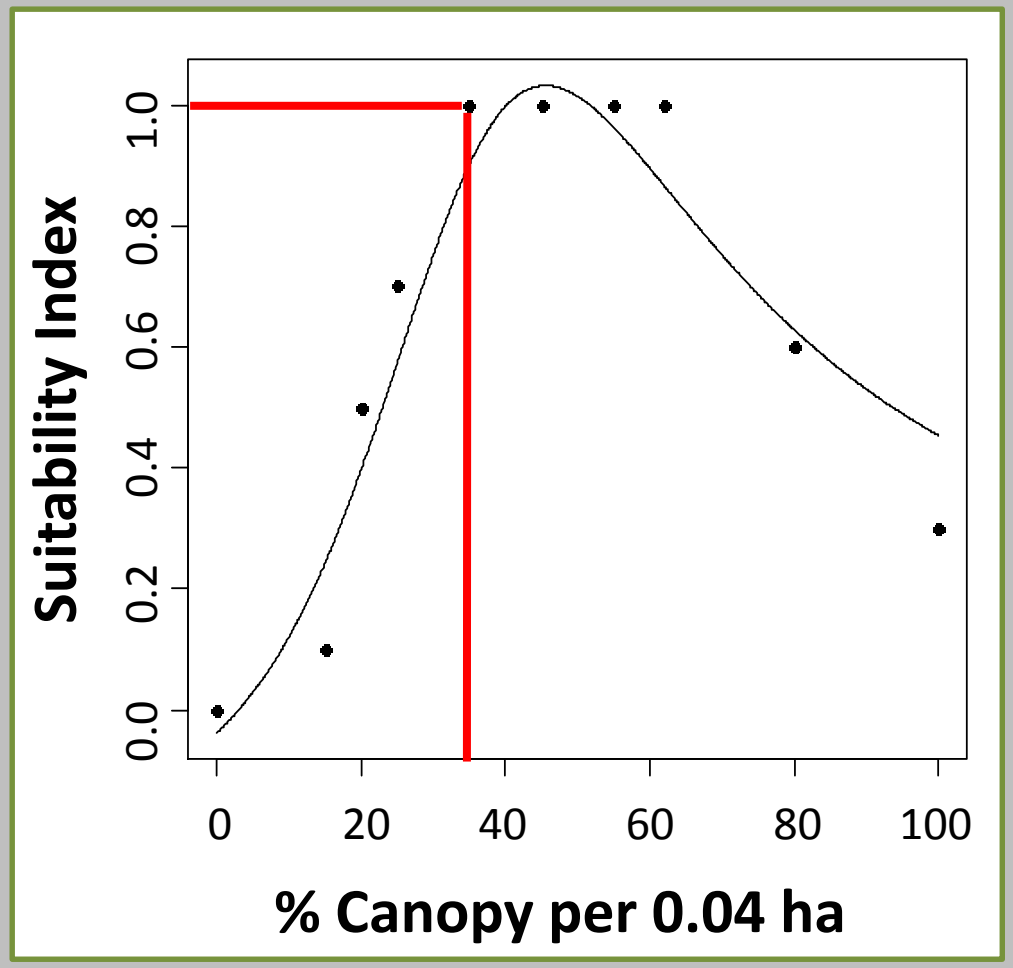
Apply to urban forest data

Assess habitat potential

Improve Urban Forest Management

Increase Urban Bird Diversity

i-Tree Wildlife



Lerman et al. 2014 *Landscape and Urban Planning*

i-Tree Wildlife

CITY	Canopy % (0.04 ha)	Lg Tree Density (0.04 ha)	Basal Area (m^2 / ha)	Deadwood Density (0.04 ha)
PHL				
NYC				
PHL				
NYC				

Lerman et al. 2014 *Landscape and Urban Planning*

i-Tree Wildlife

CITY	Canopy % (0.04 ha)	Lg Tree Density (0.04 ha)	Basal Area (m^2 / ha)	Deadwood Density (0.04 ha)
PHL				
NYC				
OPTIMAL	35-62%	>6	8-14	1-3
PHL				
NYC				

Lerman et al. 2014 *Landscape and Urban Planning*

i-Tree Wildlife

CITY	Canopy % (0.04 ha)	Lg Tree Density (0.04 ha)	Basal Area (m^2 / ha)	Deadwood Density (0.04 ha)
PHL	12.5%	0.68	1.91	1.26
NYC	19.5%	0.63	1.47	0.3
OPTIMAL	35-62%	>6	8-14	1-3
PHL	75.5%	5.11	10.91	9.06
NYC	36.0%	2.12	4.57	0.85

Lerman et al. 2014 *Landscape and Urban Planning*

i-Tree Wildlife

CITY	Canopy % (0.04 ha)	Lg Tree Density (0.04 ha)	Basal Area (m^2 / ha)	Deadwood Density (0.04 ha)
PHL (**0.2**)	12.5%	0.68	1.91	1.26
NYC (**0.15**)	19.5%	0.63	1.47	0.3
OPTIMAL	35-62%	>6	8-14	1-3
PHL (**0.7**)	75.5%	5.11	10.91	9.06
NYC (**0.3**)	36.0%	2.12	4.57	0.85

Lerman et al. 2014 *Landscape and Urban Planning*

i-Tree Wildlife

Highlights

- Assesses bird habitat potential
- Evaluates habitat improvement plans
- Provides detailed information of habitat requirements

Lerman et al. 2014 *Landscape and Urban Planning*

Neighborhood Nestwatch and Citizen Science

Neighborhood Nestwatch

Neighborhood Nestwatch and Citizen Science

The Science

- Monitor backyard bird populations
- Identify management regimes
- Improve wildlife habitat

Neighborhood Nestwatch and Citizen Science

The Engagement

- Increase environmental literacy
- Reconnect people with nearby nature

Neighborhood Nestwatch

Neighborhood Nestwatch and Citizen Science

The “Feel Good” Factor

Neighborhood Nestwatch

Sustainability Begins at Home

163, 800 km2

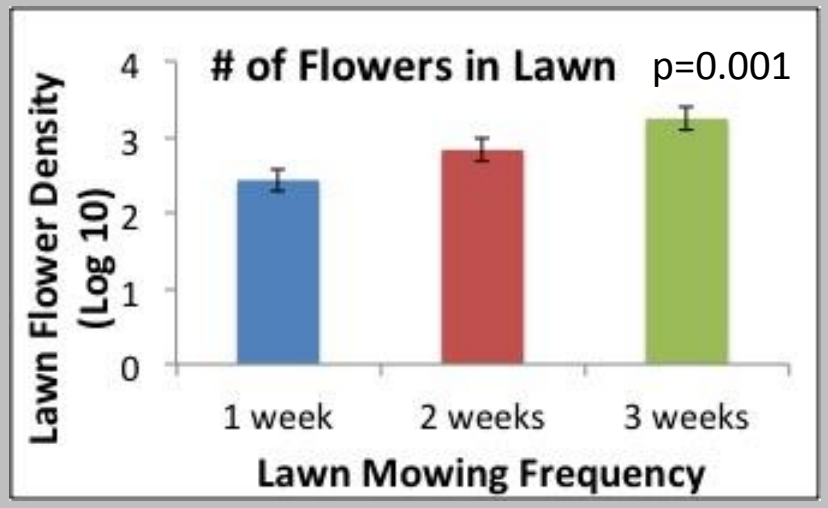
- 1.9% of USA lands
- 40-55% of urban forest

Milesi et al. 2005 *Env Mgt*

Sustainability Begins at Home

The lawn as habitat

- Mow less:
- 2 weeks = 70% more flowers
- 3 weeks = 300% more flowers



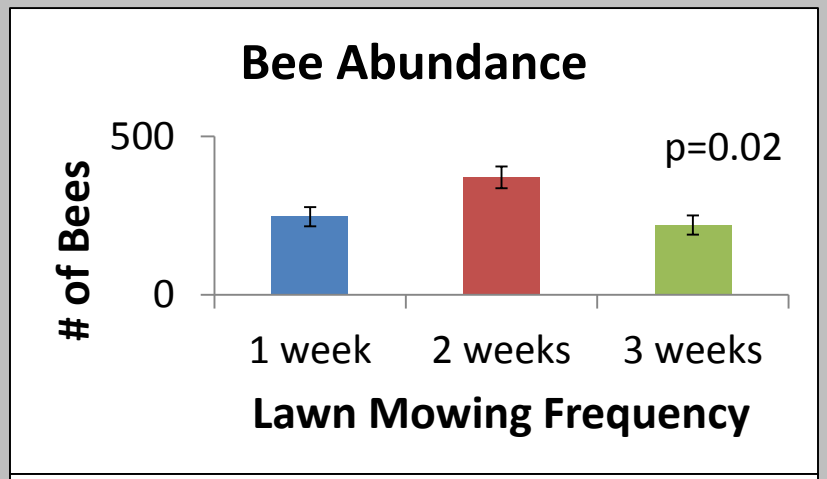
Sustainability Begins at Home

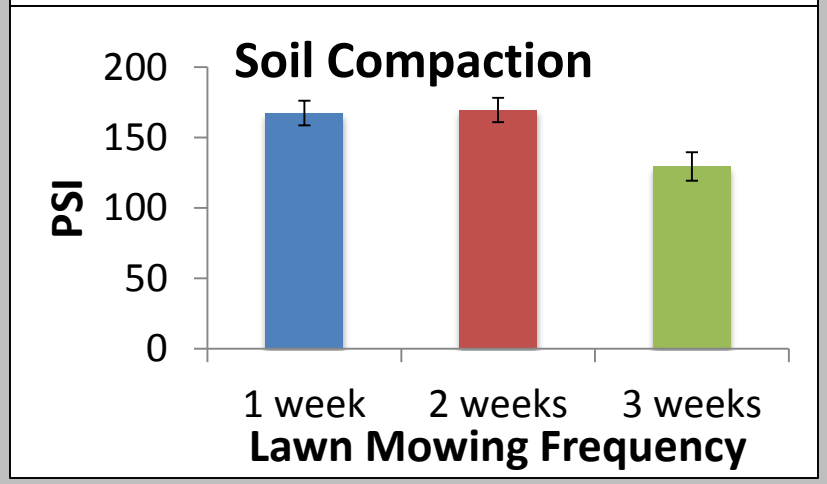
Human Behaviors

Ecological Processes
Biological Outcomes

How does mowing frequency influence ecosystem services?

Sustainability Begins at Home





Mow less

- Supports beneficial insects
- Implications for stormwater mgt

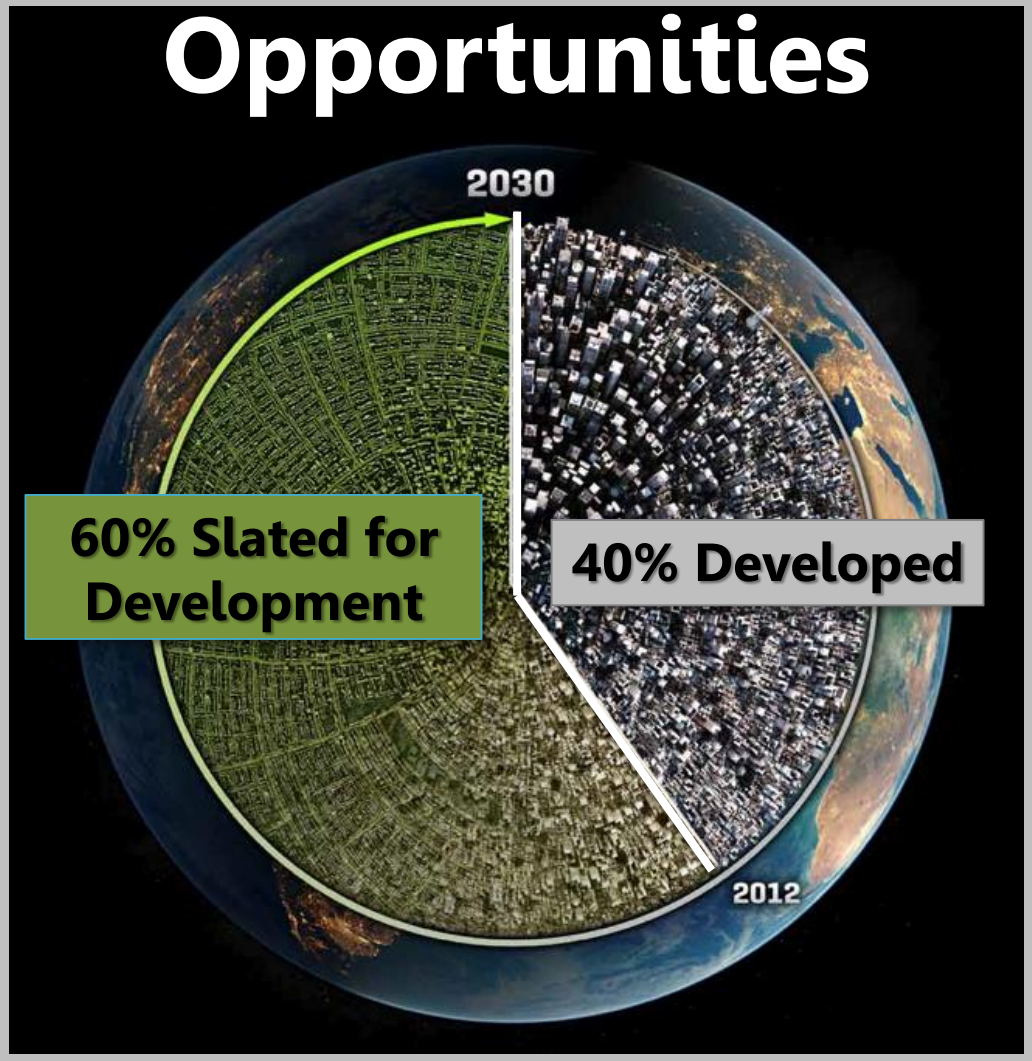
Lerman et al. *in prep*

Final Thoughts

Building public support

- Improves urban sustainability
- For the birds and the bees

Opportunities



Convention on Biological Diversity

SEES Fellows Program
DEB #1215859

Keith Nislow
David Nowak
Peter Marra
Joan Milam
David Bloniarz
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Steve DeStefano
David King
Erika Svendsen