

# Pläne und Programme für biologische Vielfalt in Städten

## - Ein globaler Vergleich -

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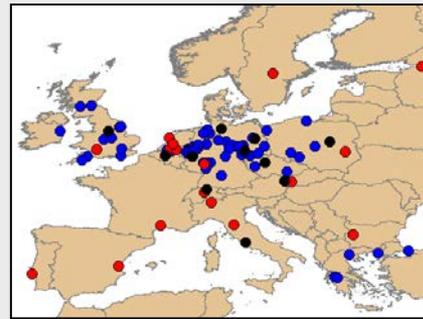
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\*Basierend auf einem Beitrag von: Myla Aronson<sup>1</sup>, Charles Nilon<sup>2</sup>, Sarel Cilliers<sup>3</sup>, Cynnamon Dobbs<sup>4</sup>, Lauren Frazee<sup>1</sup>, Mark Goddard<sup>5</sup>, Karen O'Neill<sup>1</sup>, Debra Roberts<sup>6</sup>, Emilie Stander<sup>7</sup>, Peter Werner<sup>8</sup>, Marten Winter<sup>9</sup>, Ken Yocom<sup>10</sup>.

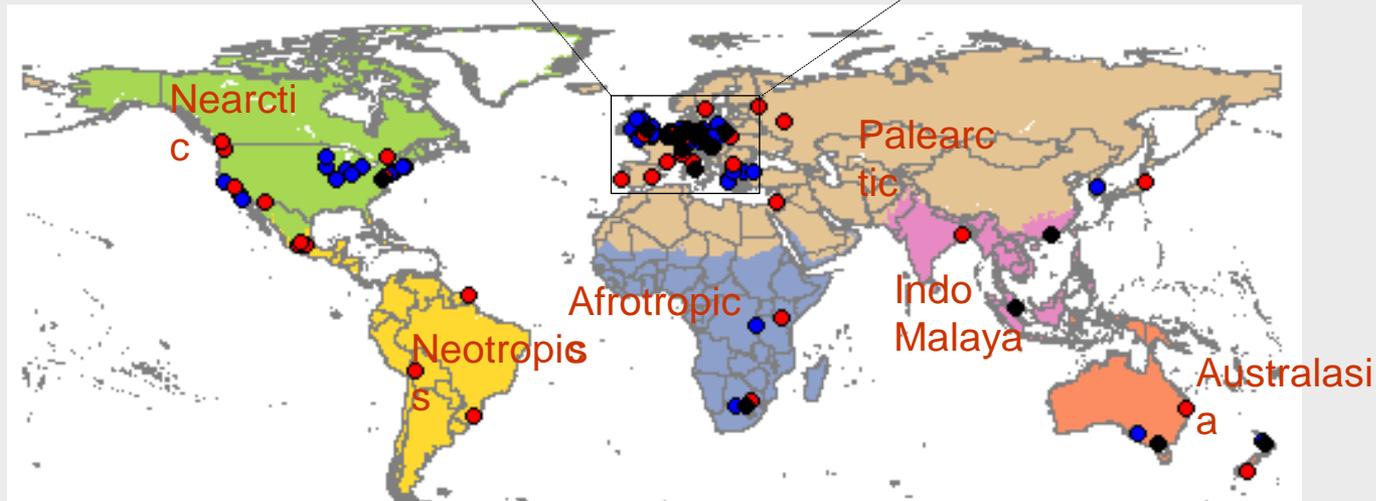
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## Biodiversity in Cities

Bird data from 54 cities  
Plant data from 110  
cities



- Birds
- Plants
- Both



Birds: standardized surveys during the breeding season since 1990.  
Plants: surveys of natural and spontaneous vegetation since 1975.

**Meanwhile data from more than 220  
cities**

# Drivers of Species Density in Cities

- **Birds Species Density**
  - ▶ Best predicted by landcover features of the city
- **All Plants and Native Plants**
  - ▶ Best predicted by the full suite of anthropogenic factors of the city

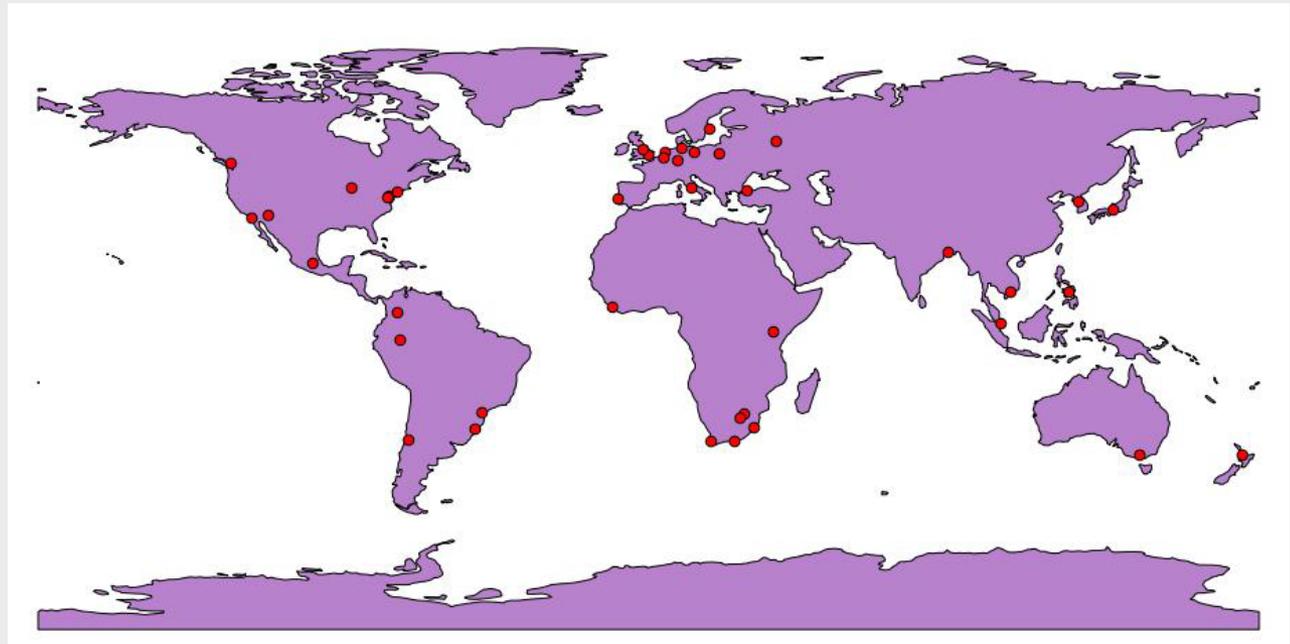
Model	Predictors	Bird density		Plant density		Native plant density	
		Coef.	F	Coef.	F	Coef.	F
<b><u>Anthropogenic</u></b>							
Land cover	Urban extent	-2.139	10.64**	-0.526	2.30	-0.395	1.28
	% Intact veg.	0.814	1.78	1.292	13.08***	1.346	13.91***
City age	Estab. date	-1.537	1.33	2.751	15.39***	2.837	16.85***
<b><u>Non-Anthropogenic</u></b>							
Geography	Latitude	-0.033	0.02	0.174	0.84	0.14	0.53
Climate	Temp.	0.003	0.01	-0.063	5.13*	-0.051	3.31'
	Temp. seasonality	-0.008	1.08	0.008	2.24	0.008	2.25
	Precip.	0.000	1.59	0.000	0.16	0.000	0.51
	Precip. seasonality	-0.005	0.72	-0.014	9.32**	-0.014	9.25**
Topography	Elev.	-0.162	3.63'	0.034	0.16	0.013	0.02
	Elev. variation	-0.169	1.38	-0.086	0.81	-0.099	1.05

## Wie ist der Stand an Plänen und Programmen in Städten in Bezug auf biologische Vielfalt und Ökosystemleistungen?

- A. Was sind die Inhalte, die in Plänen zum Erhalt der biologischen Vielfalt in Städten enthalten sein sollten?*
- B. Mit welchen Plänen und Programmen reagieren die Städte auf diese Herausforderungen?*
- C. Wie spiegeln sich diese Inhalte in vorhandenen Plänen und Programmen wider?*

- 132 plans from 40 cities
- Ranged from biodiversity action plans, open space plans, comprehensive master plans, systematic conservation plans, climate action/adaptation plans, sustainability actions and strategies,
- Identified 35 attributes related to biodiversity or ecosystem services\* and coded each plan for the presence of these.

\*Regulating, Provisioning, and Cultural services that influence biodiversity conservation



# Untersuchte Attribute

<b>Attribute</b>	<b>Attribute</b>	<b>answer</b>	<b>Definition</b>
Regulatory Elements	Regulatory elements	yes/no	are there elements of the plan that are mandated?
Biodiversity action plan		yes/no	specific plan for biodiversity, yes or no.
Baseline data	city or regional data?	yes/no	any data at all taken from city, yes. No data taken from city, no.
	habitats	yes/no	baseline data on habitats
	species	yes/no	baseline data on species
Implementation	Implementation	yes/no	some mention of ongoing implementation

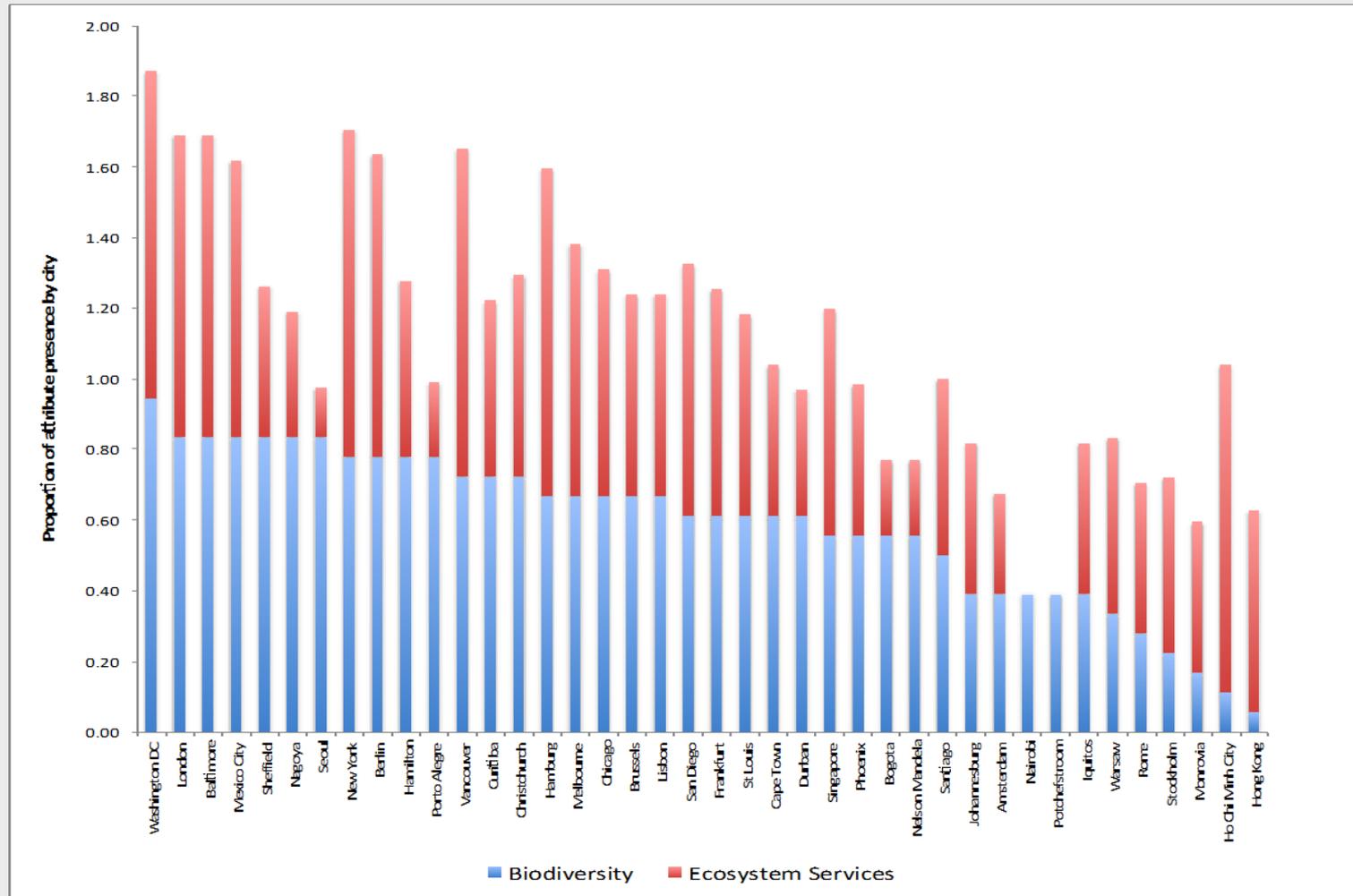
# Untersuchte Attribute

	<b>Attribute</b>	<b>answer</b>	<b>Definition</b>
Biodiversity Goals	Biodiversity Goals	yes/no	do they have specific biodiversity goal(s)? General - protect biodiversity, ecology, species, habitats, natural resources, plants, animals, genetic resources.
Biodiversity Aims	Connectivity	yes/no	Connectivity/corridors
	Species of concern	yes/no	specific species or mention of native/indigenous species
	Habitats	yes/no	conserve or restore/maintain/management habitats of forest, grasslands, wetlands, woodlands, open space
	Education	yes/no	formal and informal education, outreach, interpretation
	Stewardship	yes/no	encourage volunteer groups/ngo's/community engagement, citizen science
	Monitoring	yes/no	species and habitat monitoring, ecological research, adaptive management
	Invasive alien species	yes/no	management of invasive alien species, reduction in invasive species.
	Constructed habitats	yes/no	constructed habitats: bioswales, greenroofs, greenstreets, rain gardens, gardens/yards. (US often called green infrastructure)
Biodiversity Targets	# Species	#	Number of species mentioned by name or number
	# habitats	#	Number of habitats
	#taxa	#	11 groups: plants, mammals, birds, reptiles, amphibians, fish, mollusks, butterflies, other arthropods, fungi, bats
	# invasive species	#	number of invasive/alien/non-native species with specific targets in the plan.
	systematic conservation areas	#	critical biodiversity areas in systematic conservation plans only
	# constructed habitats	#	constructed habitats with quantitative targets: bioswales, greenroofs, greenstreets, rain gardens, gardens/yards. (US often called green infrastructure)
	Other measurable targets	yes/no	Other targets

# Untersuchte Attribute

	<b>Attribute</b>	<b>answer</b>	<b>Definition</b>
Ecosystem Services Goal	ESS Goals	yes/no	do they have ecosystem service goals?
Ecosystem Service Aims	water quality	yes/no	stormwater also. Freshwater wetlands, lakes, salt marshes, floodplains, riparian
	air quality	yes/no	trees,
	carbon sequestration	yes/no	tree planting, conservation of forests, etc
	urban heat island	yes/no	tree planting, conservation of forests, etc
	urban agriculture	yes/no	food production
	cultural	yes/no	conserve biodiversity, habitats, communities for sense of place, education, stewardship
Ecosystem Service Targets	water quality	yes/no	reduction in water pollutants, increase in wetland habitat
	air quality	yes/no	reduction in air pollutants, number of trees
	carbon sequestration	yes/no	number of trees, etc
	urban heat island	yes/no	tree planting, conservation of forests, etc
	urban agriculture	yes/no	food production, urban gardens
	cultural/social	yes/no	conserve biodiversity, habitats, education, stewardship

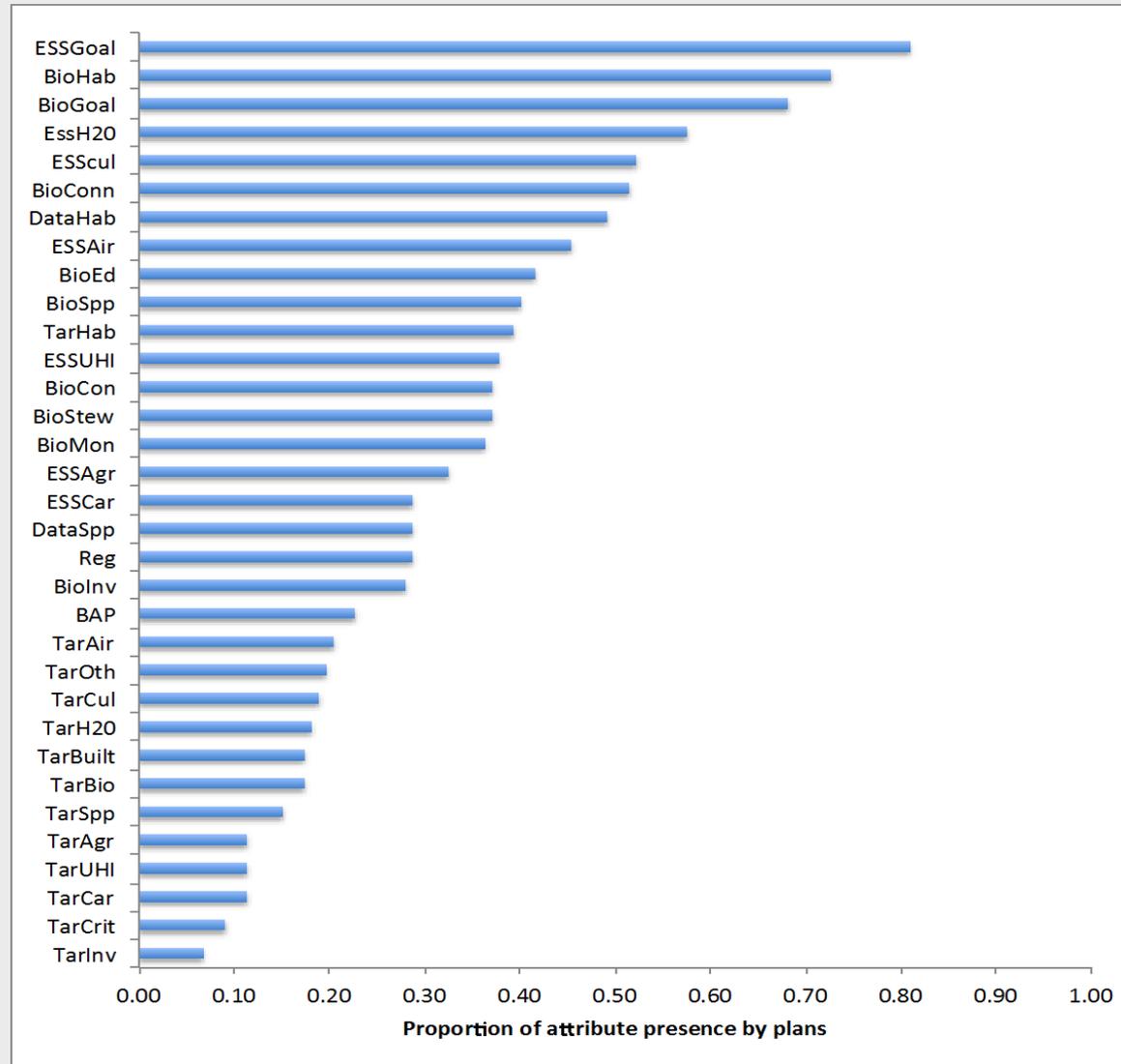
# Erste Ergebnisse



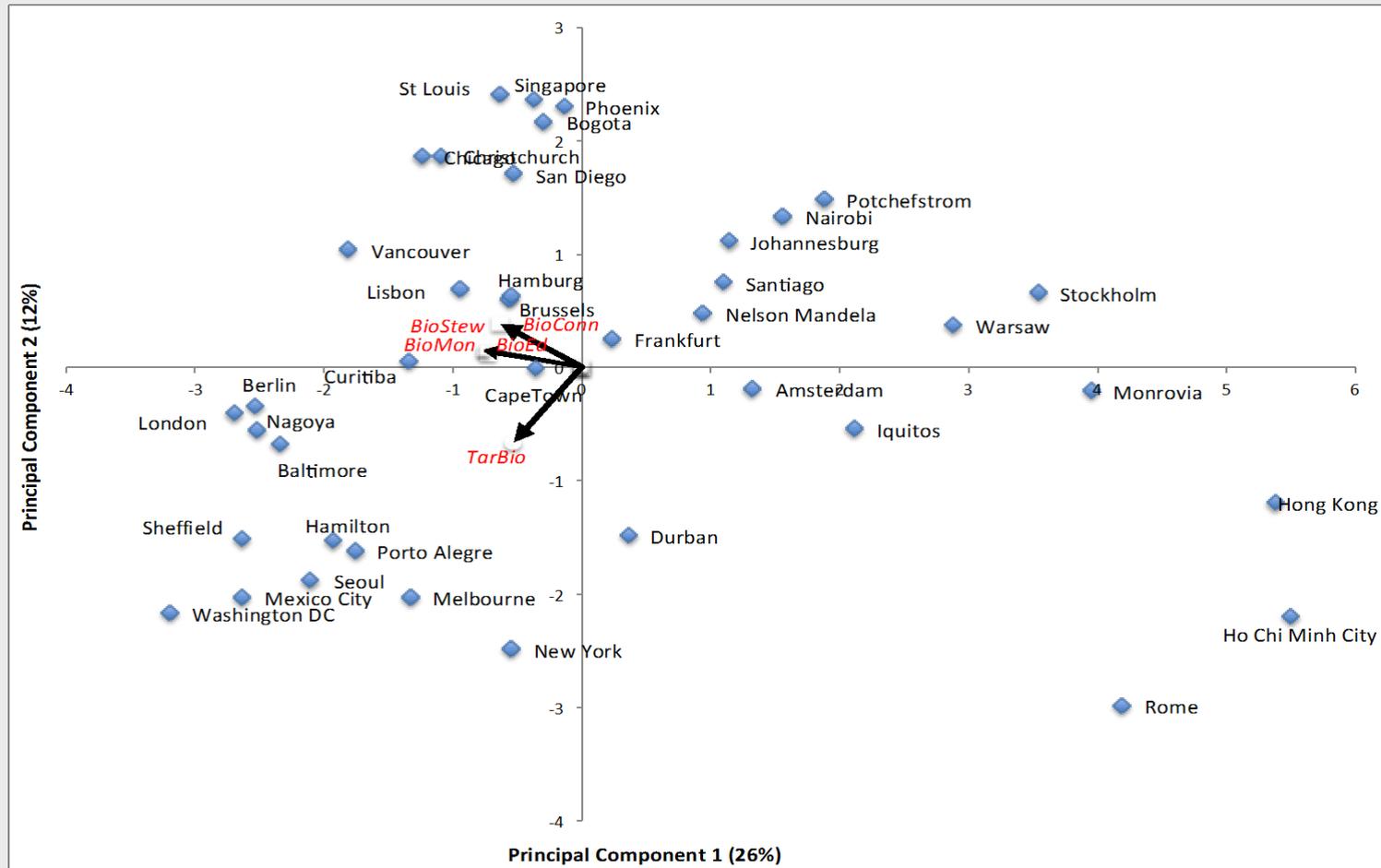
- Nur wenige Städte berücksichtigen biologische Vielfalt und Ökosystemleistungen gleichgewichtig.

# Erste Ergebnisse

- ESS Ziele sind verbreitet.
- Quantitative Ziele werden nur wenig genannt.
- Bildung, Partizipation und Monitoring vornehmlich biodiversitätsbezogen.
- Gute Datengrundlagen zu Lebensräumen korrelieren mit quantitativen Zielen zu Arten und Biotopverbänden.
- Biodiversitätsziele sind nicht mit ESS Zielen korreliert.



# Erste Ergebnisse



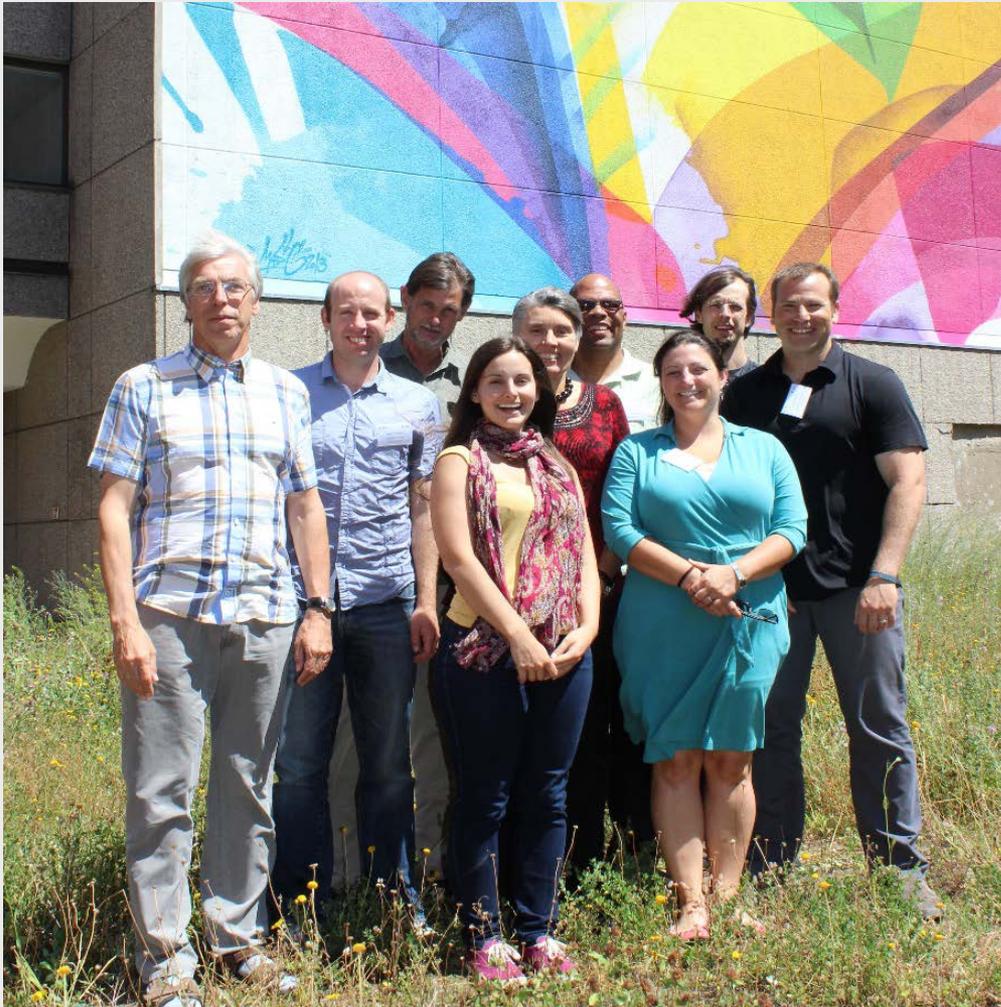
- Ziele mit Bezug zu Biotopverbund, Biodiversitätsmonitoring, Bürgerbeteiligung und Bildung differenzieren die Städte.

- Auffällig sind die Städte, bei denen staatliche bzw. regionale und kommunale Ebene miteinander verknüpft sind (z. B. Washington, DC; Berlin; London).
- Einige Städte verfügen über besonders gute Datengrundlagen (z. B. Cape Town, Singapore, Chicago).
- Städte mit guten Datengrundlagen formulieren eher konkrete quantitativ hinterlegte Ziele als andere Städte.
- Das Thema Biodiversität zieht sich durch die unterschiedlichsten Pläne und Programme.

## Wie geht es weiter?

- Überprüfung der Frage: Wie wirken sich Pläne und Programme auf die “reale” Biodiversität aus?
- Vertiefung über Fallstudien (auch Rolle von lokalen Champions wird beachtet).
- Befragung zur Umsetzung (z. B. von quantitativen Zielen, Monitoring, Management).

# Danksagung



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