Supporting Information

Article title: A roadmap for urban evolutionary ecology.

Table S1. List of documented agents of selection associated with urbanization[1].

Causal 'agent' of selection	Change in urban environment	Evolutionary or selective outcome	Test species	Experiment (E) or Observation (O)[2]	Reference
Altered biotic interactions	Reduced herbivory	Urban populations tend to have reduced extra-floral nectaries	Partridge pea (*Chamaecrista fasciculata*)	O	Rios et al. (2008)
	Different predator community	Selection for more off-ground nests; no evolution documented.	Dark-eyed junco (*Junco hyemalis*)	O	Yeh et al. (2007)
	Increased florivory Greater pollen limitation	Floral characters evolve to reduce florivory. Selection for more flowers	Carolina jasmine (*Gelsemium sempervirens*)	O	Irwin et al. (2014) Irwin et al. (2018)
	Loss of high trophic-level species	Directional selection for smaller galls	Goldenrod gall fly (*Eurosta solidaginus*)	O	Start et al. (2018)
Artificial light	More artificial light	Urban populations are less attracted to light	Small ermine moth (*Yponomeuta cagnagella*)	E & O	Altermatt & Ebert (2016)
Direct interactions with humans	More frequent interactions with humans	Populations evolve reduced wariness of humans	Black swan (*Cygnus atratus*)	E & O	van Dongen et al. (2015)
Habitat fragmentation	Suitable habitat patches separated by impervious surface	Populations evolve lower dispersal	Holy hawksbeard (*Crepis sancta*)	E & O	Cheptou et al. (2008)
	Suitable habitat patches separated by impervious surface	Natural and sexual selection for flight endurance	Azure damselfly (*Coenagrion puella*)	O	Tüzün et al., (2017a)
Increased stress	Elevated perturbations (i.e. noise, human interactions)	Urban birds have reduced stress responses	European blackbird (*Turdus merula*)	O	Partecke et al. (2006)
Novel habitat	Access to 'underground' habitat	Multivariate life histories and behavioural divergence	Common house mosquito (*Culex pipiens* complex)	O	Byrne & Nichols (1999)
	Fewer trees and more smooth, artificial, surfaces	Urban populations evolve longer limbs and more toe lamellae	Crested anole (*Anolis cristatellus*)	O	Winchell et al. (2016, 2018)
Pollution	Urban surfaces covered in dark soot	Dark colour morph rises in frequency	Peppered moth (*Biston betularia*)	E & O	Kettlewell (1955)
	Increased pentachlorobiphenyl (PCB) pollution	Populations adapt to tolerate PCBs	Atlantic tomcod (*Microgadus tomcod*)	O	Wirgin et al. (2011)
	Increased pentachlorobiphenyl (PCB) pollution	Populations adapt to tolerate PCBs	Atlantic killifish (*Fundulus heteroclitus*)	O	Reid et al. (2016)
	Increased lead and zinc pollution	Selection for darker pigmentation in urban areas	Feral pigeon (*Columbia livia*)	E & O	Chatelain et al. (2016)
	Increased toxic pollution	Adaptive evolution of detoxification enzymes	African malaria mosquito (*Anopheles gambiae* complex)	O	Kamdem et al. (2017)
Supplementary human food	Food supplied during winter	Populations adapt to be less migratory (may also be caused by warmer microclimate)	European blackbird (*Turdus merula*)	O	Partecke & Gwinner 2007)
	Novel food items	Relaxed selection on male colouration	Northern cardinal (*Cardinalis cardinalis*)	O	Jones et al., (2010)

	Novel food items	Bimodality in beak shape lost, possibly due to relaxed selection	Medium ground finch (*Geospiza fortis*)	O	de León et al. (2011)
	Novel food items	Evolution of genes involved in metabolic processes	White-footed mouse (*Peromyscus leucopus*)	O	Harris & Munshi-South (2017)
	More bird feeders	Larger beaks evolve in urban areas	House finch (*Carpodacus mexicanus*)	E & O	Badyaev et al. (2008)
	More bird feeders	Larger beaks evolve in urban areas	Great tit (*Parus major*)	O	Bosse et al. (2017)
Temperature	Increased temperature	Urban populations of two of four species have faster growth at higher temperatures	Four species of chytinolytic fungi	E	McLean et al. (2005)
	Increased temperature	Urban populations evolve high heat tolerance	Water flea (*Daphnia magna*)	E & O	Brans et al. (2017, 2018)
	Increased temperature	Urban populations evolve higher critical thermal maximum and minimum	Acorn ant (*Temnothorax curvispinosus*)	E & O	Diamond et al. (2017, 2018)
	Increased temperature	Urban populations grow more quickly under warm temperatures	Azure damselfly (*Coenagrion puella*)	E & O	Tüzün et al. (2017b)
	Colder ground temperatures during winter	Urban populations evolve reduced cyanogenesis	White clover (*Trifolium repens*)	O	Thompson et al. (2016)
Water velocity	Faster flowing water in urban streams	Urban fish populations evolved more streamlines bodies	Blacknose dace (*Rhinichthys obtusus*)	E & O	Kern et al. (2018)
		Urban fish populations evolved deeper bodies	Creek chub (*Semotilus atromaculatus*)		

[1]We omit cases where organisms adapt in response to targeted human removal (e.g. pesticide resistance).

[2]Observational studies document the proposed environmental change between urban and non-urban areas, and experimental studies investigate how the putative agent of selection impacts fitness.

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