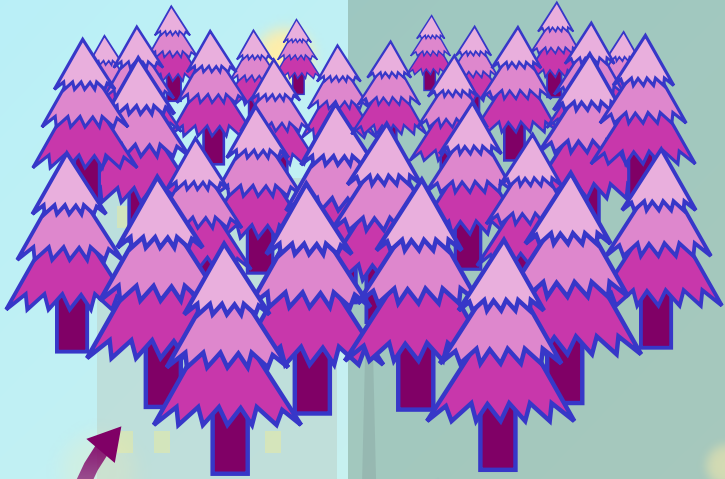


Cities' *shrinking* gene pools

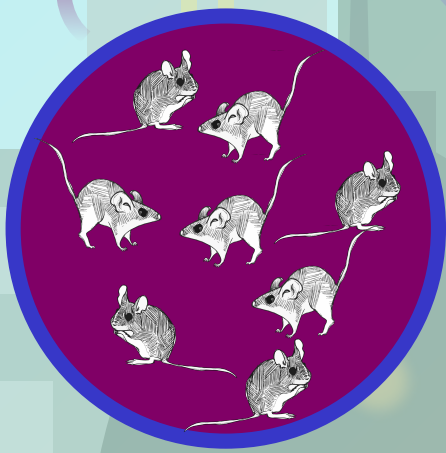
Cities are sprawling into wilderness: more than half of the world's human population lives in them, and at least **75% of the Earth's surface** has been modified by humans in some way. Cities are slowly but surely creeping onto wild lands and breaking them up, but what about the animals who live there?



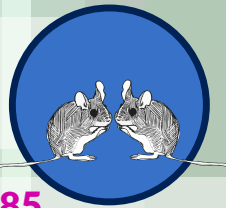
We don't know exactly how living in and around cities will affect **evolution** in animals. Will they adapt to new urban disruptions, for example lights at night, traffic pollution, or garbage-based diets? Adapting to environmental change requires **genetic diversity**. Having more genetic diversity gives a population more options to respond to environmental obstacles in a variety of ways.



Humans transforming natural habitat in and around cities may be inadvertently **changing animals' evolutionary paths**. Natural habitats near humans are restricted, so biologists predict that populations will become smaller, more disconnected, and have **less diversity**.



Lower genetic diversity in small urban populations would make them less able to cope with change through **adaptation**.



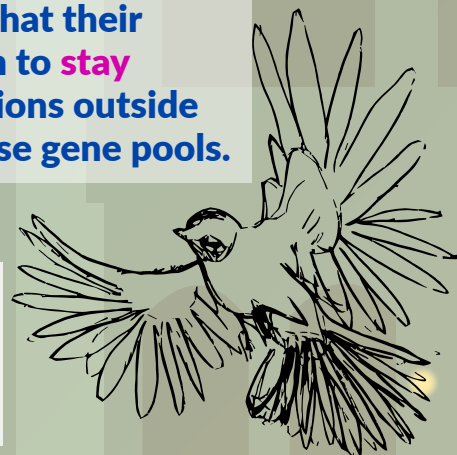
Chloé Schmidt and colleagues tested this idea by combining genetic data from **85 previously published studies**, which together sampled more than 41,000 individuals from 66 species of bird and mammal at over 1,000 sites spread across Canada and the United States.



They calculated genetic diversity, the extent of genetic divergence between sites, and measured how much they were affected by human presence. To quantify human presence at each site, they measured **population density, human footprint, and used census-based urban/rural classifications**.

The team found that mammals living in areas with a **stronger human presence** had **lower** genetic diversity, and were **more isolated** from each other compared to areas less disturbed by humans.

Birds, though, were **unaffected**. One possible explanation is that their ability to fly allows them to **stay connected** with populations outside cities, maintaining diverse gene pools.



Keeping populations connected is key for mammals to thrive in & near cities.