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CONCLUSION



The ecology of Center City is dynamic and resilient.

Figure 29.1 A digger bee (*Melissodes bimaculata*) visiting purple loosestrife (*Lythrum salicaria*), the same plant shown in figure 28.6. The bee is native to North America; the plant is native to Europe and Asia.

At first glance, downtown Philadelphia seems to embody what Bill McKibben projected in his book *The End of Nature*: complete subordination of Earth to people.¹ Here every parcel of land is zoned, and each zone is identified with a code specifying permissible development and use.² Michael L. McKinney, at the University of Tennessee, pointed out that plants and animals in central core districts of big cities tend to be similar—mostly cosmopolitan species, products of ecological homogenization. He blamed this uniformity on the dedication of downtowns everywhere to serving just one species: human beings.³

People do dominate the landscape of Center City, and exotic organisms are common here, especially in soil; but the ecology of Center City is largely hidden. While buildings and pavement cover the landscape, wild plants and animals, including native species, thrive—albeit in small fragments such as in pavement cracks and courtyards, or underwater or in darkness; or as tiny, taxonomically obscure organisms. While Center City’s mass of concrete and asphalt epitomizes habitat destruction, it also exemplifies habitat creation, represented by dry vertical walls—ideal nesting sites for black and yellow mud daubers, for example.



Figure 29.2 Lawn pennywort (*Hydrocotyle sibthorpioides*) in sidewalk cracks in front of our row house in Center City. The plant leafs out, blooms, makes seed, and spreads entirely within these cracks, which protect it from trampling. A creeping perennial introduced as an ornamental from Asia, it was first reported naturalized in Philadelphia in 1909.⁴

Ecological disturbance in Center City has benefited some urban populations at the expense of others. Water pollution benefited brown bullheads at the expense of its enemies, who were intolerant of it. Municipal streetlamps nurtured bridge spiders at the expense of insects attracted to artificial light. Some populations reaped benefits at no cost to others. Disruption of migratory behavior in Canada geese opened urban and suburban territory, including Center City, as breeding grounds. *Creative destruction*, a process Joseph A. Schumpeter described in *Capitalism, Socialism and Democracy*,⁵ shaped Center City’s ecology much as described for ecosystems generally.⁶

Center City is ecologically dynamic. Populations of the ailanthus silkmoth exploded in the nineteenth century, only to go locally extinct in the twentieth. Yellowjackets

that just over a decade ago swarmed around outdoor food and drink have mysteriously vanished as table pests. Red-tailed hawks once absent here have proliferated, while cries of nighthawks, once heralding summer nights, have gone silent. Numbers of house sparrows and starlings in Pennsylvania are declining after a century of superabundance. In the tidal Schuylkill River, populations of channel catfish and flathead catfish have surged, while brown bullhead catfish have disappeared; American shad have returned, while northern snakeheads have just moved in. Mugwort, absent in early nineteenth-century Philadelphia, is now one of its most common wild herbaceous plants. Japanese mazus, a denizen of sidewalk cracks in old residential sections of Center City, is also relatively new. Ailanthus, imported here at the end of the eighteenth century and naturalized in the nineteenth, faces an uncertain future in the twenty-first: a fungal epidemic is destroying stands of ailanthus in a Pennsylvania state forest 210 kilometers to the west.

While communities of plants and animals in Center City have been transformed, so has its human population, increasing in number and wealth. New construction is increasing the height and density of buildings. These physical and demographic changes present Center City's wild inhabitants with new demands and opportunities, maintaining pressures for ecological change.

Political and cultural shifts have driven ecological change in Center City. Action to protect the environment has brought back to Center City plants and animals once locally extirpated. Timothy Beatley's *Biophilic Cities* details programs that cities, including Philadelphia, have implemented to promote environmental health.⁷



Figure 29.3 Green roof on top of PECO (Philadelphia Electric Company) building in Center City.

Commerce and transportation will continue to introduce exotic strains and species into Center City, enabling genetic mixing among strains once geographically isolated. Center City will continue to apply selective pressure and catalyze evolution. Center City does not epitomize the end of nature; on the contrary, it exemplifies nature's resilience.