



Preserving bird diversity in urban parks

Conversion of natural land into urban areas has resulted in the depletion of the natural habitat and biodiversity of species. Large parks, however, play an important role in the urban landscape. Research shows that park management regimes and the variety of park habitat can affect the abundance, diversity and composition of native bird species found in large city parks.

Researchers from The Hebrew University of Jerusalem examined the effect of different strategies for park management on the natural habitat and how bird communities have responded to these changes. The study shows that the diversity of habitats is shaped by the various management regimes and that this significantly affects the avian populations found in the park.

Bird species were categorised into four groups: alien species, urban exploiters, urban adaptors and migrants. Urban exploiters are species that exploit the urban environment, often reaching their highest densities in developed areas. Alien species have been deliberately or accidentally set free in a location to which they are not native. Urban adaptors are native species that can exploit some of the urban resources such as ornamental vegetation. Migrants are species that pass through the park during long-distance migration. Large populations of urban exploiters and alien species can displace other native species and consequently exert a strong influence on the structure of native bird communities.

Four strategies for park management were defined: intense, moderate, light and unmanaged regimes. Intense management significantly altered the natural vegetation through high human activity, replacing native woody plants with lawn cover and exotic groundcover. By comparing the bird communities in these four management areas they found that:

- Of the different bird species recorded, 60 per cent were native urban adaptors, 22 per cent were native migrants, 14 per cent were aliens and 4 per cent were urban exploiters. However, in terms of bird numbers, urban exploiters and alien species were by far the most abundant.
- Moderately and unmanaged park areas supported the greatest richness of bird species, while intensely managed habitats supported the lowest species richness.
- Urban exploiters were found in all park landscapes, but reached their greatest numbers in intensively managed areas.
- Major differences in species composition were found between bird populations in intensively managed and unmanaged areas.
- In general, bird species richness was negatively affected by expansive lawns and long distances from water sources, and positively influenced by the number of woody plant species.
- The richness and abundance of alien species showed little variation across the different levels of management as they are typically generalists.
- Urban adaptors were negatively affected by lawn cover and the impact of human activities.

The researchers suggest that urban parks should be designed with the most intensively managed areas, such as lawns and flowerbeds, around the edges so as to create a buffer zone for substantial areas of natural or semi-natural habitats. Water sources and a diversity of native vegetation are also needed to conserve the richness of native bird species in urban areas. Parks should be lightly managed or left unmanaged in order to reduce the numbers of urban exploiters and alien species which can negatively impact on other species.

Source: Shwartz, A., Shirley, S., Kark, S. (2008). How do habitat variability and management regime shape the spatial heterogeneity of birds within a large Mediterranean urban park? *Landscape and Urban Planning*. 84: 219–229.

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