

Habitat fragmentation

Human Health Risk	
Ecological Risk	H
Socioeconomic Risk	

Habitat fragmentation is the subdivision of habitat as land is converted from farms and forests to urbanized areas. While fragmentation is a frequent consequence of habitat loss, the ecological effects resulting in serious damage to ecosystems are distinct. Fragmentation results in the creation of “edge habitat” along the fragment border, which differs in microclimate and species composition from the original habitat. The continued expansion of urbanized areas and associated infrastructure interrupts water-courses, alters natural landscape patterns, and increases the proportion of edge habitat resulting in a number of ecosystem changes. Remaining habitat fragments support fewer species of plants and animals, and smaller populations of species that remain. Habitat fragmentation is often a contributing factor in the undesirable overpopulation of invasive plants and animals, as these species typically tolerate and even flourish in disturbed ecosystems.

What’s at risk?

Virtually the entire state is at risk from the effects of habitat fragmentation. The New Jersey Pinelands and New Jersey Highlands are of particular importance because they still contain large tracts of critical wildlife habitat that are vulnerable to fragmentation and loss. The number and diversity of species present diminishes with forest size. Forest-breeding birds and other species that require moderate to large ranges of forested land are particularly at risk. Amphibian communities are severely impacted by fragmentation, especially by the presence of roads and other disturbances which can reduce or change their mobility patterns. Socioeconomic impacts of habitat fragmentation are included among the impacts discussed under Land Use Change.

What are the ecological impacts in New Jersey?

Studies have documented the effects of fragmentation in New Jersey. The habitat requirements of forest-breeding birds are relatively well studied, and a survey of New Jersey hawks and owls found that forest patches under 2,471 acres had no more than 4 different species, whereas forests up to 19,768 acres had up to 8 species. Data describing land use trends in New Jersey are also available. For example, between 1972

and 1988, the total amount of edge habitat increased 15% inside the Pinelands Reserve and 25% in neighboring areas outside. In the same time period, average mixed deciduous forest patch size decreased 21% inside the reserve, while outside the reserve forest patch size decreased 72%. Only 1% of the land area of the New Jersey Highlands consists of forest patches larger than 5,000 acres, and 75% of the land area is in forest patches smaller than 50 acres. Research suggests that 7,400 acres is the minimum forest patch size expected to retain all species of forest-breeding birds.

What’s being done?

Major New Jersey land use and conservation plans identify habitat fragmentation as a management issue and New Jersey had 920,000 acres of permanently protected open space as of 1998. The Garden State Preservation Trust Act of 1999 establishes a stable funding source to preserve 1,000,000 acres of additional open space and farmland over the next ten years. Development is regulated in the 1.1 million acre New Jersey Pinelands National Reserve by the Pinelands Commission. Numerous other federal and state lands afford protection for areas already under public jurisdiction.