

Habitat Fragmentation

A serious problem for bobwhites and many other wildlife species

Seventh in a series on management techniques to improve habitat for quail

A common complaint voiced by land managers who are trying to restore or increase quail populations is that the same intensity of habitat management, which once resulted in high numbers of bobwhites, now yields little or no quail population response. Often this occurs on small tracts of land (less than 2,000 acres) located in landscapes that are in poor condition for quail. In short, the landscape has gradually changed from a “sea” of quail habitat (i.e. grassland-forb habitat consisting of native grasses, weeds, briars and shrubs) to a fragmented landscape comprised of small and often widely separated “islands” or fragments of quail habitat. This process where a continuous habitat is divided into smaller and smaller pieces is referred to as habitat fragmentation, and it appears to be one of the most critical problems currently facing quail and many other wildlife species.

Habitat fragmentation is most prevalent and problematic for quail management and restoration in landscapes where closed canopy hardwoods and pines, exotic grass pastures, large agricultural fields and suburban sprawl have replaced the low intensity, but extensive, farming and forestry of the past. This results in: 1) reduction in size of the remaining habitat fragments; and 2) increased isolation of remaining habitats from other areas that support quail populations.

The impact of habitat fragmentation on wildlife populations is very complex and wildlife biologists are becoming increasingly convinced that it is a primary factor in the decline of quail, certain songbirds and a number of other wildlife species. As compared to populations on large (e.g. > 5,000 acres) blocks or regions of grassland-forb habitat, possible negative consequences of habitat fragmentation on bobwhites include: 1) increased predation; 2) reduced immigration of quail from surrounding lands; 3) reduced gene flow and genetic variability; 4) reduced covey numbers; 5) increased chances of local population extinction on specific fragments; 6) increased susceptibility to hunter harvest; and 7) diminished quail population response to habitat management.

Across fragmented landscapes, habitat quality for bobwhites becomes a function of the size, abundance, and distribution of the remaining habitat fragments.

Data collected in Georgia’s Bobwhite Quail Initiative (BQI) support the concept that a landscape comprised of large habitat fragments that are relatively close together should support higher quail densities than a landscape with small habitat fragments that are widely separated. In general, bobwhite occurrence is higher on large BQI-managed fields and where the fields are close together than on small BQI-managed fields that are widely separated.



The problems associated with habitat fragmentation can best be addressed through: 1) favoring the establishment and maintenance of large blocks of habitat or clusters of habitat fragments; 2) increasing the acreage of quail habitat by forming cooperatives with adjacent landowners who have similar land management objectives; 3) using grassland-forb corridors (e.g. power line rights of way, field borders, hedgerows etc.) to link established habitat areas; and 4) obtaining technical assistance from a professional wildlife biologist for the development of a management plan that when implemented will provide the best habitat quality possible on existing habitat fragments.

In summary, habitat fragmentation is a critical factor that should be considered when attempting to restore or increase quail populations. Unless the issue of habitat fragmentation is first addressed, quail populations on small properties located in highly fragmented landscapes may respond poorly or not at all to management efforts.

-BQI Biologists, updated 2019