

# Beneficial plant 'spillover' effect seen from landscape corridors

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(PhysOrg.com) -- Research by a North Carolina State University biologist and colleagues shows that using landscape corridors, the "superhighways" that connect isolated patches of habitat, to protect certain plants has a large "spillover" effect that increases the number of plant species outside the conservation area.

The study found that corridors caused such a wide range of "spillover" beyond the patches - to more than the area of the patches themselves - that the results were a surprise, says Dr. Nick Haddad, associate professor of biology at NC State and a co-author of a paper published online this week in [Proceedings of the National Academy of Sciences](#). He adds that the finding has broad implications for conservation efforts - most importantly that the benefits of landscape corridors, the strips of habitat that connect isolated patches of habitat, extend well beyond those borders.

"Most conserved areas are small - two-thirds are less than one square kilometer - so the spillover effect with corridors gives a larger conservation bang for the buck," Haddad says. He adds that exotic or [invasive species](#) of plants showed no signs of spillover effect.

Haddad says that he and his colleagues used an idea from marine protection strategies in their study. In oceans, certain areas are off limits to fisherman in order to protect fish. In time, excess fish within the protected areas spill over into waters where fishing is permitted. Dwindling fish stocks rise while fishermen catch the excess fish - a

mutually beneficial scenario.

To perform the research, the scientists collaborated with the U.S. Forest Service at the Savannah River Site National Environmental Research Park, a federally protected area on the South Carolina-Georgia border, to create the world's largest experimental site devoted to the study of landscape corridors. Much of the Savannah River Site is covered with pine plantations. The U.S. Forest Service created eight identical sites, each with five openings, or patches, by clearing the pine forest. A central patch was connected to one other patch by a 150-meter-long, 25-meter-wide corridor, while three other patches were isolated from the central patch - and each other - by the surrounding forest. The patches are home to many species of plants and animals that prefer open habitats, many which are native to the historical longleaf pine savannas of this region.

The study shows that areas surrounding the connected patches had 10 to 18 percent more spillover than patches not connected by corridors.

Haddad adds that [plant species](#) dispersed by birds and mammals - wild hollies, blueberries and cherries, for example - were most affected by the spillover effect. That makes sense, he says, because previous research suggested that foraging birds frequently use landscape corridors. These birds would then spread seeds some distance outside the patches.

Source: North Carolina State University ([news](#) : [web](#))

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