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Left: Dan Stimson checks the tunnel tracking bed; above: wildlife underpass; at right: woodchuck, fisher, weasel

## Safe Passage

Crossing a four-lane highway that sees 50,000 vehicles a day can be a daunting task for an animal. So a group of organizations and individuals in Concord, Massachusetts, teamed up with MassHighway to install wildlife-friendly box culverts under a suburban stretch of Route 2. Since the project's completion in 2005, the Wildlife Passages Task Force, an eight-person volunteer group of citizen scientists, have monitored the tunnels with motion- and heat-sensitive cameras and a tracking bed.

They've found that, like the baseball diamond in *Field of Dreams*, if you build it, they will come.

"We've been able to answer with a resounding 'yes' the question of whether these box culverts will allow the passage of local wildlife across a busy highway," says task force member Dan Stimson, assistant director of stewardship at Sudbury Valley Trustees. In the past three years, the group has recorded 29 different species of wildlife using the tunnels. "If we'd given up after a month," said Stimson, "we would have said that no animals had gone through."

It all began with a permit request from MassHighway to make road improvements where Route 2 crosses wetlands in Concord. This highway forms a barrier that many creatures die trying to cross. Planned safety improvements for human traffic included Jersey barriers between travel lanes – which, for animals, would turn a hazardous crossing into an impossible one.

So Concord's Natural Resource

Commission asked for wildlife underpasses to be included. After much discussion, design, and engineering, MassHighway built four box culverts under the roadway, at approximately one-tenth the total project cost. Working with the commission, they added natural plantings nearby and a natural substrate underfoot. Sites were determined by construction viability and established game trails.

"We put in the largest tunnels the landscape could hold," says Lydia Rogers, an expert tracker and prime mover in the task force. Tunnels range from 3 to 6 feet high, 5 to 9 feet wide, and 82 to 96 feet long. Three are susceptible to springtime flooding, though that doesn't deter white-tailed deer from swimming through.

"The urge to cross is obviously strong," says Stimson, but it's not universal: at one tunnel, deer tracks show regular approach but no passage through. "We don't know why, or what variables are at play," says Rogers. "Size? Smell? Noise? Shadows? What's on the other side?"

Different animals prefer different tunnels, although some species, such as red fox and coyote, aren't picky. The task force observed greatest use by most animals in the smallest tunnel, and least traffic in a larger tunnel closest to the river. Four choices allow animals to suit themselves. Fishers now include tunnels in their hunting territory. Gray squirrels and beavers carry building materials through. Mice live in seep holes. Deer traverse the larger tunnels, and one doe has been observed repeatedly with her fawn, perhaps teaching the next generation the safest crossing.



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Rogers says, "Their opportunistic behavior is incredible. Wherever there is road construction, [tunnels] can go in; and if you put them in, animals will use them."

Other tunnel users are raccoon, opossum, skunk, gray fox, otter, weasel, mink, cotton-tail rabbit, woodchuck, muskrat, chipmunk, mole, vole, snapping turtle, snake, frog, salamander, mallard, robin, mourning dove, and bat. In addition, photos show use by domestic dogs and cats – and humans.

The task force would prefer that humans leave the tunnels to the wildlife, and they have posted signs describing the project and asking people to stay away. "We're careful not to tell people where the tunnels are," says Rogers.

CAROLYN HALEY