

# Spanning the Gap

## Cover me!

"Nights of Migrating Dangerously" end as the park closes River Road to protect amphibians



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*Spanning the Gap*  
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Even on a good day, it is a risky proposition for a two-inch frog to cross a 16-foot stretch of asphalt. To add to the suspense, the frog is an amphibian-his body temperature adjusts to the weather around him-and the cool spring night is not making the frog move quickly. It's something like a soldier taking 200 yards of battlefield at a stop-and-go stroll. Yet, for the whole of the frog's journey, no cars hurtle down River Road. Flashlights jab the darkness and settle on him a few moments, camera flashes go off, but otherwise, it's as easy as his ancestors had it before asphalt, before cars, before sub-divisions, before humans.

Amphibians live on both land and in water; for millions of years their life cycle has been dependent on wetlands, and they spend most of their lives within a half-mile of a pond or swamp. In the recreation area, five spring-breeding species are known to cross River Road in Pennsylvania, from the hilly uplands west of the road to breeding ponds east of the road, with the majority of the migration composed of spring peepers, wood frogs, and spotted salamanders. Red spotted newts and Jefferson salamanders are also among the jaywalkers.

Decades of development in the Pocono area have eliminated many breeding ponds, however, and increasing traffic has made the journey to remaining ponds more perilous, with drastic impact on the amphibian population. In March of 2002, local naturalist John Serrao recorded the toll: over 700 amphibians had perished in a few hours under the



An interview with local press, just as dusk sets in.



River Road just after dusk. A red spotted newt is crossing in the foreground.



Closer view of the red spotted newt crossing River Road.

tires of routine evening traffic along just 200 yards of River Road.

Alerted by Serrao's concern, in March of 2003 park managers decided to close about 5 miles of River Road (from Park Headquarters to Hialeah) overnight during nights of peak migration - predictably with temperatures in the 50s and spring rains. So, on March 21, as evening moved in and warm thunderstorms rolled overhead, the road barriers went up, and the amphibians jaywalked at their various paces around the feet of carefully-stepping biologists.

On the first day snow still lay along the roadway where it had been piled by plows. By late afternoon, newts were already crossing the road and at dusk the first peepers made their appearance. They were soon followed by wood frogs and spotted salamanders. A small number of Jefferson salamanders crossed later in the evening. The amphibians often stopped once they were on the road, possibly soaking up heat after crossing the snow. At the height of the migration, a biologist walking slowly along a 100-yard stretch of River Road could identify approximately 100 spring peepers, 20-30 wood frogs, 20 spotted salamanders, and 4 or 5 Jefferson salamanders. Similar numbers were observed on the second night of the closure. On the third night, numbers were much reduced and the majority of wood frogs were already leaving the pond to return to the uplands. In all, River Road was closed overnight on three nights between March 21 and 31, 2003.

By April 1, temperatures had cooled again and a few more fitful snowstorms had tagged onto this snowy winter in the Poconos. Amphibians, however, were for the most part already across River Road and about the business of mating and breeding in their ponds, or had completed their mission and crossed back to the uplands. The unusual result was the ring of the male peeper frogs echoing from the pond out over a snow-covered forest floor -- the sounds of arriving spring with the sights of departing winter.



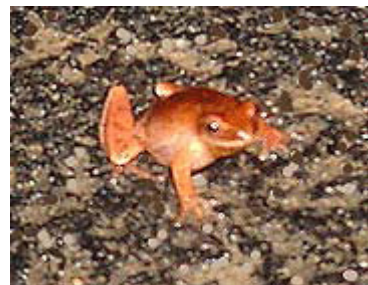
"Aerial" view of a red spotted newt. (Actual size ranges from 2 5/8 to 5 1/2 inches)



A wood frog. (Actual size ranges from 1 3/8 to 3 1/4 inches)



A female peeper frog. (Actual size ranges from 3/4 to 1 3/8 inches)



A male peeper frog. (Actual

**Written with reports from Allan Ambler, Jacki Katzmire & Jeff Shreiner, Division of Research and Resource Planning.**

**Editor's Note: Road Closures for Amphibian Migration were also put into effect in the spring of 2004, 2005, and 2006 and will likely continue in future years. These closures are generally announced in advance by press releases.**

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(Above and below) NPS photographs by Jacki Katzmire

### **Salamanders: The Night but not the Iguana**

Clawless and scaleless, salamanders are not reptiles like lizards, skinks, iguanas, and geckos. Salamanders are amphibians, related in evolution to frogs and toads, and are believed to have developed about 350 million years ago from ancient types of fish.

Salamanders, like other amphibians, adapted to life on land by walking and breathing air, but never completely lost their dependence on watery places for life phases such as breeding. Even today some species of salamanders have gills and are entirely aquatic.

Salamanders lack the tough, scaled skin that enables similarly-shaped reptiles to live in arid and even desert lands. On land, salamanders live underground and under forest debris. They are nocturnal, voiceless, and shy of the sun. Adults of some species are rarely seen outside of breeding season.



A spotted salamander. (Actual size ranges from 6 to 9 3/4 inches)



A Jefferson salamander. (Actual size ranges from 4 3/4 to 8 1/4 inches)