With better understanding of the species came discoveries of new populations of a northern glacial relict.

The Four-toed Salamander

Adult

Photos By Michael Redmer

The four-toed salamander (*Hemidactylium scutatum*) is an inhabitant of cool, moist habitats, such as deep ravines and forested seeps scattered throughout the northern two-thirds of Illinois. This diminutive salamander is thought to have been present throughout Illinois since retreat of the last ice sheet that covered the northern half of the state. During this period, from about 18,000 years before present to about 8,000 years before present, most of the state was considerably cooler and wetter, and covered with mixed coniferous-hardwood forest, more typical of present-day northern Wisconsin and Minnesota. Starting about 8,000 years ago, the climate in Illinois became progressively warmer and drier, oak-hickory forest and grasslands became the dominant vegetation types and four-toed salamander colonies were restricted to moist, cool microhabitats.

In 1961, when Phil Smith, a noted herpetologist at the Illinois Natural History Survey, wrote his book, "Amphibians and Reptiles of Illinois," it was believed that the four-toed salamander occurred in Illinois only in Lake and Cook counties. Since then, biologists have discovered the four-toed salamander in 11 additional counties, from the northwest corner of the state as far south as Lawrence County.

These additional populations do not represent recent colonization, but rather a better understanding of seasonal activity and microhabitat requirements of the salamander which has led to more efficient searching by biologists.

In April or May, females lay clutches of eggs in moist places above cool water. After an incubation period of several weeks, gilled larvae drop into the water to develop before transforming into the adult form.

It was formerly believed that this rather specialized salamander required the presence of sphagnum moss for nesting sites. Recent researchers have discovered the species in a wider variety of habitats than Smith and his predecessors probably searched. For example, the Lawrence County location consists of deep ravines with intermittent streams. And while sphagnum moss is present at the Vermilion County location, most nests have been found in grass tussocks.

Hopefully, future research will result in several more locations for this northern relict.

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Adult at Nest

Embryos