

Chapter 46

Evolutionary Aside 46.2--Limbless Locomotion in Vertebrates

Many vertebrates have evolved an alternative means of getting around on land, one that does not require legs at all. Snakes are well known for their locomotion, which involves pushing off the ground with multiple points of its body, much as eels swim through water (see figure 46.20; this is actually only one of four different types of movement that snakes employ). Although snakes are not known for their speed, some can move quite quickly; the fastest snake is reportedly the black mamba (*Dendroaspis polylepis*), which can move as fast as 20 km/hr (12.5 miles/hour).

Snakes, however, are only one of many vertebrate examples of the evolutionary loss of limbs. In fact, in phylogenetic terms, snakes are just one type of lizard—they clearly evolved from lizard ancestors (see chapter 35). And it turns out that limb loss has evolved at least a dozen times in lizards—snakes are just the most extreme example. In addition, caecilians, the least well known type of amphibians, have also lost their legs, and several types of salamanders are nearly limbless (see chapter 35). The fossil record reveals a number of other types of amphibians that lost their legs. Interestingly, no birds or mammals have ever become completely limbless.

For the most part, all of these species move in the same way, although species that move through underground burrows have evolved a different means of locomotion in which they wedge part of the body against the tunnel wall, move the rest of the body forward, wedge a different part against the wall, and so on, moving first the front end, then the back end forward.