The sand lizard, *Lacerta agilis* Linnaeus, 1758, is a small lacertid lizard distributed across Europe and western Asia. The sand lizard also inhabits most of Croatia where two subspecies appear: *Lacerta agilis argus* Laurenti, 1768 (disputable by some authors) in the northern lowlands and *L. a. bosnica* Schreiber, 1912 in the Dinaric mountain system. In August 2012, we conducted a population study of *L. a. bosnica* on Dinara Mountain in Croatia. Dinara is the highest Croatian mountain stretching from Dalmatia (region in Croatia) into Southern Bosnia and Herzegovina. Sexual dimorphism was established in this population but focus of this study was to analyze ecological and microhabitat parameters on locations where individuals were sampled. Collected data were further analyzed to check whether males and females prefer different environmental conditions. During this research we visited high mountain grasslands between 1000 and 1400 m a.s.l. with mean habitat temperature of 25.6 °C and measured 100 individuals of sand lizard. These individuals were divided into three groups: 56 females, 40 males and 4 juveniles. For each individual a set of ecological and microhabitat preferences parameters was taken within minutes from capture: altitude, wind intensity, cloudiness, substrate temperature, air temperature measured at 5 centimeter above ground, air temperature measured at 60 centimeters above ground and cloaca temperature. Five microhabitats were recognized and all individuals were also analyzed according to differences among them. Mean body temperature of adult individuals was 27.7 °C with no significant difference between sexes. Almost 60% of captured individuals had regenerated tails, indicating high predation pressure.