Crayfishes are essential constituents in maintaining freshwater ecosystems, yet little is known about them. The goal of this study was to better understand the ecology of a common Appalachian secondary burrowing crayfish, Cambarus bartonii carinirostris (Rock Crawfish), by achieving the first complete life history study of this species. Understanding C. b. carinirostris ecology will help aid in conservation and protection of closely related imperiled taxa by discovering unknown biological behaviors of secondary burrowing crayfish. Collections of C. b. carinirostris were conducted in Nettle Run, a first to second–order stream, of West Liberty University’s Campus Woods, Ohio County, West Virginia. Each site represented in the study for a given day and time consisted a 20 meter reach of the stream, where potential habitat within each reach was disrupted and individuals were captured by dip net or by hand. So far, this study has consisted of catching, measuring, sexing, and determining the relative age of each crayfish as well as noting their preferred habitat. Important life history variables such as growth rates, maturity, and other important reproductive patterns can be determined in conjunction with the morphometric measurements of all individuals captured.