The Indian Knoll site was occupied from approximately 4500-3400 BP and acts as an exemplar of resilient site occupation. The archaeological signal for the site is lost during the Late Archaic. Archaeologists point towards climatic cooling and diminished interregional trade networks as a cause for the collapse of Indian Knoll. Direct evidence for climatic cooling during this time period is not found at the site. Instead, it remains possible that changes in social networks contributed to an amelioration of resilient site occupation at Indian Knoll. This project uses biological distance analysis of tooth measurements to explore questions regarding bonded versus bridging social networks over the occupation of the Indian Knoll site. The goal of this work is to understand if population structure provides a signal for differing social links across site occupation. The results suggest that resilient site occupation was initially facilitated by elevated levels of extralocal gene flow, bridging social networks, and symbolic spatial affiliation with the ancestral dead. In contrast, terminal occupation of the site is associated with a bonded social network in terms of communal population structure and consolidation of mortuary rituals among narrowly related ancestors. These findings suggest that the lost archaeological signal at Indian Knoll may reflect a shift towards a bonded social network related to the collapse of interregional trade during the Late Archaic.