



**WEARY FEET AND FLAKED STONE: LIFE ALONG THE DELORES RIVER
VALLEY**

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During my first semester of undergraduate research I addressed the spatial relationships between the places that prehistoric people lived, and the places they gathered resources through a research project investigating the role of toolstone in a prehistoric economy. Prior research in the Lower Dolores River Valley identified a site used in prehistory as a quarry to obtain raw materials required to craft stone tools. I used an Ideal Free Distribution spatial model derived from behavioral ecology theory to demonstrate that the lithic quarry was a central focus of the local prehistoric economy of the Lower Dolores River Valley. Ideal Free Distribution models assume that humans will attempt to settle in high quality areas first but will begin settling lower quality areas once overpopulation decreases the value of the previously high-quality areas. To achieve this, I used GIS spatial statistics software to calculate the least cost paths between the quarry and a sample of archaeological sites spanning the area surrounding the quarry. My model indicates a decelerating negative relationship between increasing travel path cost and the occurrence of archaeological sites, supporting my hypothesis.

During my second semester of research I expanded on this project by exploring the application of labor economic models to understand the forager tradeoffs in a stone tool economy. With this new theoretical perspective, I calculated the distance between the quarry resources and water resources in relationship to other sustenance resource types. When presented without friction, the Labor-Leisure model quantifies leisure or time spent participating in undemanding activities as a commodity that may be purchased by time spent laboring while the desired benefit is wage. While prehistoric people likely would not consider foraging a leisure activity, the standard economic Labor-Leisure model views leisure as the variable being maximized and is “purchased” with the labor of manufacturing tools. When applied to prehistoric foraging economies, we can view time spent making tools used in food collection (labor) as the prerequisite cost of that food collection (leisure). The models I ran helped explain the point when time spent in better foraging environments was equal to time spent in environments with better quality toolstone. In labor economics this point is referred to as the “market clearing point” or the point in a competitive labor market where the firm neither gains nor loses money by changing their strategy. In my research model, this point was a representation of the optimal environment to access both lithic material and food resources.

For my third semester of research I looked at the region and how people used its resources across time, better understanding the theories mentioned above from a historical perspective. The Dolores River Valley has a rich ranching history since its first settlement in the late 1860's. I conducted an in-depth archaeological survey of the original homestead, outlying building foundations, and corrals. This survey was recorded at a level of detail equal to or greater than the standard laid out by the Utah State Historic Preservation Office, using the Utah Archaeological Site form. Evaluation methodology included site significance, ability to retain integrity (location,

design, materials, workmanship, association), environmental context, notes regarding access, and other additional comments as needed.

As we consider our human relationship with the earth, specifically the geography, geology, and ecology of the earth, we must consider how we exploit earth's resources. My research was specifically designed to help us better understand how humans used the earth over time and the social and physical impact of this use. My research focused on a microenvironment and very specific land use within the Delores Valley region however, the sustenance patterns observed can be applied globally within a contemporary framework.