Abstract: The Columbian Exchange was the vast and pervasive transfer of animals, plants, diseases, and people between the Americas and Africa and Eurasia. Archaeologists studying the Exchange have examined emergent identities, cultural persistence, and the long-term political ramifications of archaeological interpretations of cultural change for indigenous peoples of the Americas; in comparison, little work has thoroughly investigated the mechanisms of how native peoples negotiated the introduction of European livestock within their local environments. Livestock possess the ability to transform local ecology, and have the disruptive potential to be agents of colonialism. Without adequate analysis of the mechanisms and variability of indigenous peoples’ responses to this type of ecological colonialism, there is a risk of under-valuing local knowledge and ecological constraints, potentially leading to a one-sided conceptualization focusing only on the social ramifications of colonialism. My research seeks a middle path between these approaches that integrates society, economy, and ecology into understandings of indigenous resilience during the colonial period in North America. This project employs a multidisciplinary approach to explore how indigenous peoples regionally negotiated the intrusion of livestock into their own preexisting subsistence practices between A.D. 1691 and A.D. 1850 in the Pimería Alta, today southern Arizona and northern Sonora. My dissertation explores the long-term changes in O’odham subsistence and landscape management through zooarchaeological data, stable light isotopes from archaeological livestock bone, and social network analysis.