Aridland ecosystems provide unique opportunities to examine how environmental stochasticity impacts consumer fitness and by extension the challenges experienced by consumer populations over time. For example, long-term mark-recapture studies of small mammal communities in arid environments around the world demonstrate strong bottom-up linkages between climate, resource availability, consumer population size, and community composition. While resource quantity and quality are fundamental factors influencing diet selection among consumers, relatively little is known about how small mammal diets change seasonally or inter-annually in arid stochastic environments, and how such diets are expected to impact the dynamics of populations. Here we use a well-established theoretical framework to explore how the dietary niche components of small mammals across a range of body sizes are predicted to change in response to temporal variation in resource quantity and/or quality over monthly to annual timescales. We then highlight two emerging empirical? tools - scat metabarcoding and stable isotope analysis - that allow for the quantification of dietary variation at both the individual and population scales. These data will be directly used to both inform and validate theoretical approaches to mechanistically link diet choice to population and community-level outcomes. When coupled with small mammal trapping programs that produce large datasets with high individual recapture rates, the combination of theoretical models with multiple empirical dietary proxies, can furnish novel insights about resource identity and assimilation as well as expected longer-term effects on populations and communities. We advocate that animal ecologists consider adopting similar multi-pronged approaches to better understand how resource selection influences trends in population and community dynamics.