1 Interrogating the Alterity of Hunter-Gatherers in Bioarchaeological Context: Adaptability, Transformability, and Resilience of Hunter-Gatherers in the Past

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1.1 Initium

This chapter presents a social history for the conceptualization of hunter-gatherers in anthropological and bioarchaeological research. Hunter-gatherers are of great interest to anthropologists and bioarchaeologists because these populations represent a lifestyle that dramatically contrasts with Western industrialized capitalism. It is on the basis of alterity that hunter-gatherers were targeted by Western scholars (Barnard, 2014; Pluciennik, 2002). Despite the fact that hunter-gatherer lifestyles are often constructed based on the practice of othering, there exists compelling evidence for an integrated pattern of transformation and endurance found among hunter-gatherers. These populations experience cultural transformation and endurance in ways that approximate cultures that adopt agricultural lifestyles, while maintaining resource procurement as a primary mode of subsistence. This suggests that cultural evolution is relevant to hunter-gatherer populations, but may be acting in ways that substantially differ from the unilineal or progressive notion espoused by cultural evolutionists over the past 150 years. Here, cultural evolution is defined as the myriad ways in which culture changes and acknowledges human agency and intentionality in this process – that is, culture change is not dependent upon environmental pressures alone, and the broader endurance or transformation of social behavior is contingent upon human intentionality *and* environmental context. Bioarchaeological research infrequently integrates the concepts of adaptation *and* resilience (see below for exceptions) when interacting with hunter-gatherer assemblages and frequently relegates these groups to comparative samples, usually stepping stones to agriculture. The goal of this book is to discard the notion of alterity that is attached to the hunter-gatherer lifestyle and orient these populations within the broader auspices of resilience and adaptation. This volume uses bioarchaeological data to understand the integration and persistence of hunter-gatherer cultural and socioecological identities as well as the circumstances acting to promote whole-scale change within these systems. Thus, this volume synthesizes hunter-gatherer adaptation, resilience, and transformation within the context of cultural and environmental challenges, while militating against what Fitzhugh (2003: 8) referenced as the facile notion that evolution requires hunter-gatherers to transform

into agricultural economies. This approach embraces the idea that culture change in hunter-gatherers is an intentional and purposeful act that occurs in response to a variety of cultural and environmental catalysts, while the enduring legacy of hunter-gatherer identities remains a unifying theme.

Hunter-gatherers are frequently defined by the absence of domesticated foods and the presence of small-scale, mobile settlements (Lee and Daly, 1993). Others report that hunter-gatherers exist on a continuum of behavioral variability from high levels of mobility and loosely organized social structure to sedentary populations with elevated complexity in social organization (Binford, 1981). Hunter-gatherers are labeled "foragers" and "collectors" based on relative degrees of mobility and complexity on this continuum. Dialectical arguments juxtapose the term "forager" against "hunter-gatherer" with the goal of more precisely defining the lifestyle in question and differentiating the uniqueness of human perception and intentionality compared with the extractive goals of non-human animals (Ingold, 1988a). Hunter-gatherers, in this sense, are differentiated from foragers based on the idea that hunter-gatherers produce subsistence economies via the objectification of work.[1]

Hunter-gatherers occupy myriad ecological zones, and the productivity of these ecosystems is often reflected by mode of food procurement (Harris, 1969; Kelly, 1995). Diversity in the mode of food procurement among hunter-gatherers is associated with the continuum of delayed- versus immediate-return economies (Hayden, 1995; Woodburn, 1982). Immediate-return hunter-gatherers have smaller population densities, egalitarian social systems, and procure resources that are immediately available. Conversely, delayed-return hunter-gatherers have complex levels of social structure, live in larger, more sedentary communities, intensively harvest and store wild resources, and sometimes domesticate plants. The placement of hunter-gatherers within the continuum of delayed- and immediate-return economies adds diversity to communities that represent a *broad spectrum* of lifestyles.

Critical analyses of the hunter-gatherer concept as applied to populations who domesticate plants compellingly argues that anthropological studies are often trapped by the hegemony of dualistic epistemology (Crawford, 2008). Specifically, many populations exist in a transitional zone between hunting and gathering and agricultural economies via the existence of complex social structures and domestication. Importantly, this work suggests that these populations represent transitional phases between hunter-gatherer and intensive agricultural economies, and anthropologists are missing events in the evolution of cultural complexity by rendering these populations as socially constructed categories (hunter-gatherer/agriculturalist). This critique is of great interest to hunter-gatherer studies because it addresses the oversimplification of human cultural complexity into binary oppositions by suggesting that there are numerous subsistence groups who transcend categorization. The problem here is the underlying assumption that these transitional societies are

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[1] The objectification of work references the reciprocal relationship (see below) between hunter-gatherers and the natural environment. This term emphasizes the socially and ecologically embedded networks in which hunting and gathering are produced and reproduced.

moving toward a progressive goal rather than existing in a cultural state that was produced through local knowledge and intentionality (i.e., Ingold, 1998). In addition, this work also assumes that the hunter-gatherer construct exists as a singular category rather than a working definition that applies to populations who vary along a lifestyle continuum (e.g., Binford, 1981; Hayden, 1995; Woodburn, 1982). This volume and others (e.g., Bettinger, 1991; Fitzhugh, 2003; Kent, 2002a) argue that agricultural economies are not the end-product of all hunter-gatherer economies, even among communities who seemingly exist in a transitional state. There are, in fact, many examples of delayed- and immediate-return hunter-gatherers who maintain contact with intensive agriculturalists and herders, yet consciously choose not to adopt these lifestyles (e.g., Kent, 2002b; Marlowe, 2002; Walker and Hewlett, 1990). Archaeological examples of populations who intensively consumed and likely domesticated plant foods or coexisted with animal herders are also numerous (e.g., Crawford, 2006; Da-Gloria and Larsen, 2014; Humphrey *et al.*, 2014; Rowley-Conwy and Layton, 2011; Stojanowski and Knudson, 2014; Temple, 2007; Turner and Machado, 1983; Walker and Erlandson, 1986). Furthermore, there exists a marked contrast in the production of hunter-gatherer subsistence economies through practice and ideology. Specifically, hunter-gatherers conceptualize relationships with nature in a far different way than that observed among agriculturalists. This conceptualization reflects worldviews surrounding dominance and care versus incorporation. The relationship between agriculturalists and domesticates is conceived as a singular transaction – humans care for plants and animals, and rituals associated with these organisms are associated with this dominion (Ingold, 1988b; but see Rindos, 1984). By contrast, hunter-gatherer relationships with nature are tethered to what might be called an eternal ontology of interactions – one in which humans and nature are tethered to a cyclical, ever unfolding set of material and spiritual relationships (Atuy, 1997; Ingold, 1988a, b, 1998). These findings militate against the "transitional" nature of delayed-return hunter-gatherers who domesticate plants or herd animals, and instead suggest that these populations fit best within the broader continuum of the hunter-gatherer construct. This construct resists singular definition, but encompasses diverse communities in which the primary mode of production revolves around food procurement, while this mode of production is objectified through the construction of ideologies (*sensu* Shanks and Tilley, 1982).

1.2   Hunters-Gatherers: An Anthropological History

The conceptualization of hunter-gatherers within the academic world has an extended history with pre-Enlightenment roots (Pluciennik, 2002). Specifically, ideations of hunter-gatherers were constructed by Western scholars attempting to contrast economic systems with early forms of capitalism (Barnard, 2014). It is within these writings that a lifestyle of capriciousness was established as the binary opposition to capitalistic society: complex/simple, active/lazy, progressive/regressive, and wealthy/destitute were ways in which the social institutions that are often attributed to hunter-gatherers were compared to industrial states. These contrasts

were personified by the infamous epithet of "nasty, brutish, and short" in an attempt to define lifestyles that contrast with industrialized capitalism (Hobbes, 1651). The political philosophy of Jean-Jacques Rousseau depicted hunter-gatherers as an ideal state of human nature. In particular, philosophers such as Rousseau (1754) argued that human morality experienced a zenith in the "primitive" past because these groups were free from the corrupting influences of materiality. While Rousseau clearly held a view of hunter-gatherer cultures that was similar to cultural evolutionists, for example juxtaposing these cultures as intermediate stages between ape-men [sic] and civilization, the idea that these groups held key insights to human morality was novel. This conceptualization of human nature reflects an ideology that is often given the derisive appellation Noble Savage, and in some cultures tied to collective fetishizations of authenticity, where the ability to identify with an indigenous past empowers nationalist revisions of history (Hudson, 2004). Thus, the Romantic depiction of hunter-gatherers serves as the binary opposition to the "nasty, brutish, and short" narrative, yet remains mired in unilineal paradigms that are used to privilege nationalist identities.

Anthropological conceptualizations of hunter-gatherers date to the founding of the discipline. Hunter-gatherer economies were included as the "savagery" stage in the unilineal evolutionary schematic of "savagery, barbarism, and civilization" (Morgan, 1877). These phases described human cultural progress based on subsistence economies, marriage residence, and political organization. The existence of contemporary hunter-gatherers was, however, a confounding variable – how could a progressive world produce populations that represented the lower stages of culture? In *Ancient Society*, Morgan (1877) cites the work of Samuel Morton, suggesting that the apparent stasis of contemporary hunter-gatherers, and specifically American Indian cultures, was explained by inferior brain sizes. Hunter-gatherers were also included in the primitive echelon of Frazer's (1890) unilineal classification of religious belief in human societies. The work argues that the savage mind cannot distinguish between the material and spiritual worlds, and that this worldview is defined based on a belief that human actions control nature.

These anthropological works were not to be outdone by Darwin (1890), who described hunter-gatherers as an initial template for civilization, but erroneously suggested that contemporary hunter-gatherers existed in an arrested state of social development. For example, Darwin (1890) argued that environmental constraints limit cultural progress and cites the impact of cold on Esquimaux [sic] hunter-gatherers as an example. These conceptualizations of hunter-gatherers are contextualized within the paradigm of transmutationism. In particular, numerous examples of how energy and perseverance produce successful, progressive societies are provided, including references to the success of American colonists, and the apparent inheritance of this energetic perseverance by future citizens of the United States.

The response of cultural evolutionists to the existence of contemporary hunter-gatherers is comparable to the approach of early Darwinian naturalists when confronted by creationists about the dearth of fossil evidence for transitional phases (Marks, 2012). Darwinian evolutionists argued that human ethnic groups represented

transitional phases leading from African apes to modern civilizations to parry against the argument that fossil evidence was lacking. In so doing, these early evolutionists permitted and even advocated for white European supremacy, when the ethical choice was to acknowledge the veracity of the creationist critique. The same paradox confronted cultural evolutionists when attempting to explain coexistence of industrial nation states and egalitarian hunter-gatherers. Cultural evolutionists argued that contemporary hunter-gatherers existed in a state of arrested development – a context in which cultural and ecological forces acted to produce human communities that relied on food procurement as a primary subsistence economy, but still maintained flexibility in response to the broader cultural and ecological landscape.

The paradigms of cultural evolutionists were questioned by historical particularists who viewed culture, including hunter-gatherers, as a unique process that was governed by historical experience and local knowledge – cultural similarities were seen as a result of diffusion, and environmental factors producing similarity in behavior were discounted or minimized (Boas, 1911). The work of Boas (1911), in particular, sought to combat what might be termed inequalities of complexity by demonstrating porousness in the expression of complexity between "primitive" and "civilized" communities. Historical particularists argued that hunter-gatherers were products of a unique past that helped populations adjust cultural traditions to local circumstances through shared knowledge and/or collective experience. This approach valued the knowledge-base of hunter-gatherer communities as equally important to the knowledge-base of industrialized nations and sought to diminish the idea that human culture existed on a ranked scale.

Cultural ecologists were critical of historical particularism inasmuch as this theoretical paradigm argued that parallels in culture might be useful to disentangling broader patterns of human adaptation to the environment (Steward, 1955). Specifically, facets of shared culture among geographically disparate hunter-gatherers were conceptualized as having a unique origin within communities (one that was part of shared collective knowledge), but could represent a general pattern of adaptation among hunter-gatherers in a broader geographical spectrum. The opportunity to test the hypotheses of cultural ecology on the rich ethnographic record prompted the *Man the Hunter* symposium in 1968. The seminar produced a large edited volume that integrated social, archaeological, and biological approaches to the study of hunter-gatherers (Lee and DeVore, 1968). One of the most important contributions in that volume addressed the integrated and varied lifestyles of hunter-gatherers, arguing that hunter-gatherer biological and cultural variability was part of an integrated pattern of knowledge accumulated into the mind and body during the developmental process (Laughlin, 1968). This essay provided key insights into the concept of human culture as a social tradition (see below) by tracing the developmental and socioecological context for hunting and gathering behavior from a life history perspective.

The contemporary analog to this approach is human behavioral ecology, which evaluates the role of "socioenvironmental" variables in producing behavioral

diversity and similarity across a range of human populations (Winterhalder and Smith, 2000). The underlying assumption of this research is that human behavioral choices are optimized by natural selection based on the benefits and costs of behavioral choices within each environment. Winterhalder and Smith (2000) note that human behavioral ecology is distinct from most approaches in cultural anthropology because the approach relies on Neo-Darwinian and hypothetico-deductive reasoning. The work emphasizes the considerable plasticity in human behavioral choices, while simultaneously recognizing that these choices are constrained by environmental context and represent long-term adaptations shaped by natural selection – the currency of choices varies depending on environment (Laland and Brown, 2003). By and large, this approach values environment as a primary driver of socioecological and cultural transformation in hunter-gatherer lifestyles and does not interact with persistence, outside the auspices of evolutionary stable strategies. In addition, behavioral ecology does not differentiate between the deeper processes of change such as internally directed changes that promote sustainability or whole-scale transformations that render previous systems unrecognizable. Finally, behavioral ecology does not interact with the agencies and historical contingencies that structure human interactions with the natural world (Smith, 2013).

While these evolutionary paradigms are important mechanisms for interpreting culture change, the present volume also focuses on the enduring legacy of hunter-gatherer economies and how persistence may facilitate change within socioecological or cultural systems. In addition, the ways in which agency, learning, perception, and worldviews help structure these responses are emphasized (Cannon, 2011). This volume endeavors to demonstrate how hunter-gatherers produced enduring legacies in terms of subsistence (as materialistic and symbolic modes of production) and broader expressions of social identities such as mortuary rituals, embodied components of the self, relationships with nature, and ethnicity. Hunting and gathering requires intentionality and planning, specifically reflecting the individual perception of the environment in which organisms are defined according to essential attributes, and the individual controls interactions with the environment – Ingold (1988a: 274) labels this process "purposive social action," referencing the production of subsistence economy *and* social interactions through hunting and gathering. This approach does not assume any particular social organization is tethered to hunter-gatherer lifestyles, but that the subsistence mode is tied to human relational boundaries. Here, hunter-gatherers are granted a broader agency through intentionality and identities that are symbolically bound to hunting and gathering as a way of life.

Cultural transmission among hunter-gatherers begins at a young age where visual observation, teaching, and copying form the basis for social learning (Jordan, 2014; Kamei, 2005; Muraki, 1999). Cultural transmission is seen as a conserved process and coherence of social traditions may follow predictable pathways. Items of a strictly functional purpose are more frequently subjected to modification in construction, while items with high levels of ritual or symbolic value as well as those with design

constraints have greater levels of coherence (Jordan, 2014). Within this framework, culture is seen as having a high level of ontological fidelity, and this fidelity likely helps maintain cultural transmission across generations. Of course, as pointed out by evolutionary ecologists, all populations are challenged by cultural and ecological imperatives that threaten survival. Under these circumstances, anthropologists must understand how these challenges are met. However, the dynamics of change are complex, and the deeply ontological nature of behavioral learning suggests that the framework for collective social action has both internal and external mediators. Cultures may transform or persist, and within persistence and transformation, the processes must be differentiated as having internal or external mediation.

Resilience theory provides an additional and useful theoretical lens through which hunter-gatherers must be evaluated and one that places hunter-gatherers within the framework of collective social action. The development of the resilience paradigm is associated with ecological systems theory, where this paradigm was first derived as an alternative to the study of extinction (Holling, 1973). The term resilience references the capacity of relationships within a system to absorb external stressors and persist (Holling, 1973). Examples of ecological resilience include circumstances in which organisms encounter changing landscapes, yet demonstrate persistence in terms of population size or foraging strategies. Socioecological resilience is the target of a vast majority of studies, and the socioecological system references the mutually dependent relationship formed by humans and the biosphere (Berkes and Folke, 1998). That is, the nature of the biosphere is determined by the behavior of surrounding animals, including humans, while human behavior is, in turn, influenced by the nature of the biosphere. The concept of resilience is often organized into adaptive cycles (Gunderson and Holling, 2002). These cycles are illustrated as a figure-eight, infinity symbol – adaptive cycles are associated with four specific phases: growth (use of the land for natural resources), conservation (accretion of natural resources from the land), release (sudden change within the panarchy[2]), and reorganization (returning to or building new basins of attraction[3]) (Figure 1.1).

Walker *et al.* (2004) differentiated between resilience, adaptability, and transformability as terms that respectively differentiate between *what* is maintained, *how* it is maintained, and the *capacity* to fundamentally alter the system in the face of failure. Thus, resilience focuses on persistence, while adaptation references the broader trade-offs or flexibilities that permit the preservation of cultural or ecological continuity. By contrast, transformability focuses on drastic alterations that render previous socioecological or cultural systems unrecognizable. Models of the adaptive cycle emphasize "revolt" and "remember" phases of reorganization that reproduce or produce newly resilient populations (Folke, 2006). Here, "remember" represents a

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[2] Panarchy is a term that references the role and source of change within systems, and by turn, influences the capacity for resilience, adaptability, and transformation (Holling and Gunderson, 2002).

[3] Basin of attraction is the region in state space in which a system *tends* to remain (Walker *et al.*, 2004). The term may be used to describe persistent behaviors, socioecological conditions, or landscapes. Basins of attraction are featured during the reorganization phase of the adaptive cycle and may be reproduced or newly produced through transformation.
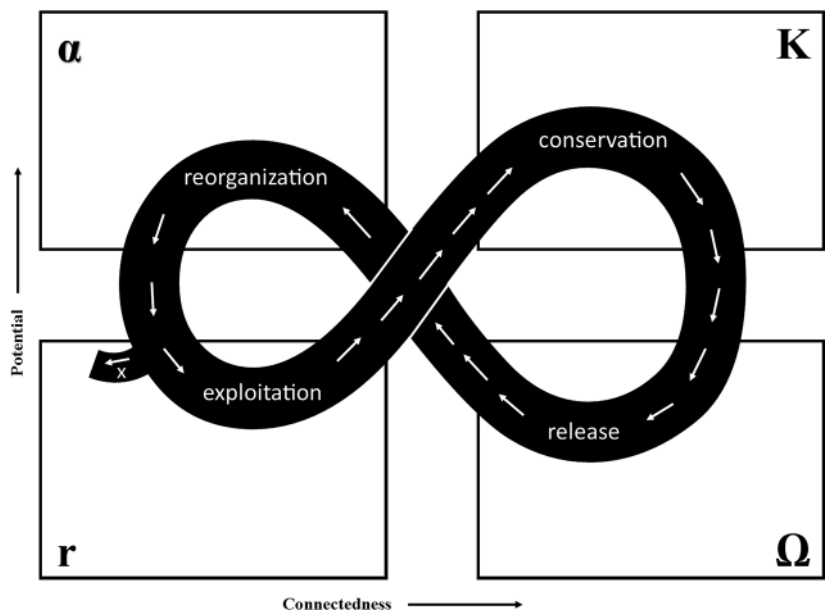
Figure 1.1. Model of the adaptive cycle after Holling and Gunderson (2002). Image produced by Brandie S. Temple.

pattern of adaptability and resilience within the system, while "revolt" represents transformation of the system. Conceptual models of resilience/adaptability and transformation provide a useful way to differentiate these processes (Pearson and Pearson, 2012): Resilience/adaptability is associated with adaptive shifts that are derived from the internal components of system identity. By contrast, transformative change is associated with movement away from the preexisting system, often highlighted by external solutions to problems that make a system untenable.

Archaeological research focuses on sustained time periods, and therefore provides unique contexts for incorporating resilience theory (Redman, 2005). Examples of this incorporation are demonstrated by studies evaluating the persistence of salmonid fishing over a 7000-year period in the Pacific Northwest, as well as those challenging the myth of collapse in some of the most famous anthropological examples of social disintegration (Campbell and Butler, 2010; McAnany and Yoffee, 2012). Overall, the use of resilience theory has great importance in explaining how humans use local knowledge and behavioral plasticity to mitigate the stressors of environmental perturbations, while maintaining unifying themes in cultural identity. The concept is flexible enough that populations are not viewed within the linear vacuum of replacement versus stasis, but instead are seen through a lens of complexity that is willing to grant that cultures experience environmental transitions in myriad ways and behavioral changes permit the persistence of important hallmarks of cultural identity. Thus, the reorganization of populations following environmental change does not necessitate collapse or whole-scale changes to the cultural identity of local populations, but instead revolves around persistence and plasticity: persistence of

behaviors that are important to the maintenance of cultural identity and plasticity in behaviors that permit survival in a changing world.

As noted above, a comprehensive study of hunter-gatherers relies heavily on knowledge, historical contingencies, perceptions, and worldviews structuring behavior (Cannon, 2011). In this sense, resilience theory should also be applied to hunter-gatherer cultural systems. The concept of cultural resilience is defined as "the capacity to maintain livelihoods that satisfy material and moral (normative) needs in the face of major environmental or sociopolitical shocks" (Crane, 2010: 2). Cultural resilience frequently interacts with ethnicity as ethnicity references a group of individuals who are defined based on common cultural beliefs, practices, and values (Kent, 2002a). The persistence of ethnic identity, in particular, receives special attention in terms of cultural resilience because these affiliations buffer against stress through the maintenance of broad networks of social support (Clauss-Ehlers *et al.*, 2006). In addition, resilient cultural systems also grant agency to flexibility within socioecological systems or interact with these systems to produce socioecological resilience (Adger, 2000; Daskon, 2010). One way that ethnic identity interacts with resilience theory is through cultural memory (Redman and Kinzig, 2003). Archaeological research has the capacity to uncover evidence for the use of memory in a variety of contexts reflecting the material and symbolic components of social structure in the past, and the deep time perspective afforded to this research is particularly informative regarding persistence and transformation (Redman, 2005).

This volume also explores collapse as an end-point for some adaptive cycles and tries to understand how resilience may be associated with this process. Collapse is defined as a significant and rapid loss of sociopolitical complexity (Tainter, 1988: 4). Collapse is traditionally studied in complex socioeconomic systems, particularly in communities with evidence for massive redistribution networks and state-level governmental structures. However, the increasing number of studies in resilience, transformability, and collapse demonstrate that this process occurs across the spectrum of cultural complexity and also incorporates socioecological and cultural systems (Butzer, 2012; Butzer and Endfield, 2012). Thus, collapse is possible within hunter-gatherer frameworks. Collapse entails deconstruction of the system, usually reductions in complexity or diversity (Tainter, 1988). Populations experience demographic collapse through declining numbers or extinction, sociopolitical collapse in the form of eroded institutional complexity, socioecological collapse through contractions in subsistence diversity, and cultural collapse in the form of lost coherency (Butzer, 2012). Some attempts at exploring collapse emphasize transformation as an important component of this process: "Societal collapse represents transformation at a large social or spatial scale, with long term impact on combinations of interdependent variables" (Butzer and Enfield, 2012: 3628). However, many transformations lead to improved systems, or at the very least, systems that allow populations the ability to continue living within a specific environment, even under severe duress (Hegmon *et al.*, 2008; Pearson and Pearson, 2012). Collapse is, in this sense, differentiated from transformation. In including collapse in this volume it is also important to note that populations experience stress from multiple external agents including disease or

aggressive neighboring populations (Solich and Bradtmöller, 2017). Thus, even in circumstances in which populations appear resilient to challenges that arise through ecological perturbation, additional agents may challenge populations in ways that diminish population size and structure.

One important criticism levied upon resilience theory is that the paradigm strongly resembles systems theory, and in fact, initial explorations of resilience theory are derivative of this paradigm (Holling, 1973). Systems theory assumes that a series of interrelated hypotheses may be subsumed under a broad generalization, and that broad generalizations act as a primary starting point for understanding differentiation within organizations (Blau, 1972). This approach relies on a top-down process of deductive reasoning in which the confirmation of hypotheses at higher levels of generalization acts to prove those at lower scales (Hempel and Oppenheim, 1948). Faulseit (2016) points out that resilience theory is differentiated from systems theory by a "bottom-up" approach, addressing interactions of increasing scale. In addition, it is noted that the adaptive cycle includes differentiated systems within the panarchy, specifically how small/rapid and large/slow changes produce varied, often unpredictable outcomes (Faulseit, 2016).

In addition, systems theory views broad generalizations (i.e., systems) as mutually exclusive epi-phenomena linked through independent, increasingly small-scale observations (Blau, 1972; Hempel and Oppenheim, 1948). The strength of this approach is interconnectedness within each system. However, this remains problematic for the practice of anthropology as it presumes that "humanness" is compartmentalized into non-interacting, bounded systems, reinforcing a so-called science–theory divide in the evaluation of human culture in one instance and socioecological systems in the other. By contrast, approaches associated with practice theory focus on human agency as producing and reproducing variation and interaction within and between institutions, ecosystems, and even bodies (Bourdieu, 1972). Resilience theory has addressed this problem, specifically through the introduction of cultural resilience (see above) as an independent *or* interactive agency. Cultural resilience may be found under circumstances of transformation in socioecological systems, demonstrating the persistence of behavior as a social tradition. Cultural resilience may interact with socioecological conditions acting to legitimize transformations in behavior, thus demonstrating flexibility in system function through collective action and agency (Daskon, 2010). Cultural resilience also exists independent of socioecological resilience by responding to social, political, or environmental change through behaviors outside the domain of the socioecological system (Adger, 2000). Socioecological resilience is dependent upon entire cultural systems established around and supported by the biosphere (Berkes and Folke, 1998; Folke, 2006; Walker *et al.*, 2004). In terms of studying hunter-gatherers, the interactive component of the cultural and socioecological system is emphasized as this behavior helps demonstrate the broader production of hunting and gathering through collective social action (*sensu* Ingold, 1988a), or what might be termed the reciprocal relationship between socioecological and cultural practices in hunter-gatherer worlds. In this sense, resilience theory,